SECTION L: SIGNAL PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L1	L27

Plotting Date: 02/18/2021 Rev. 02-19-21 TJP

INDEX OF SHEETS

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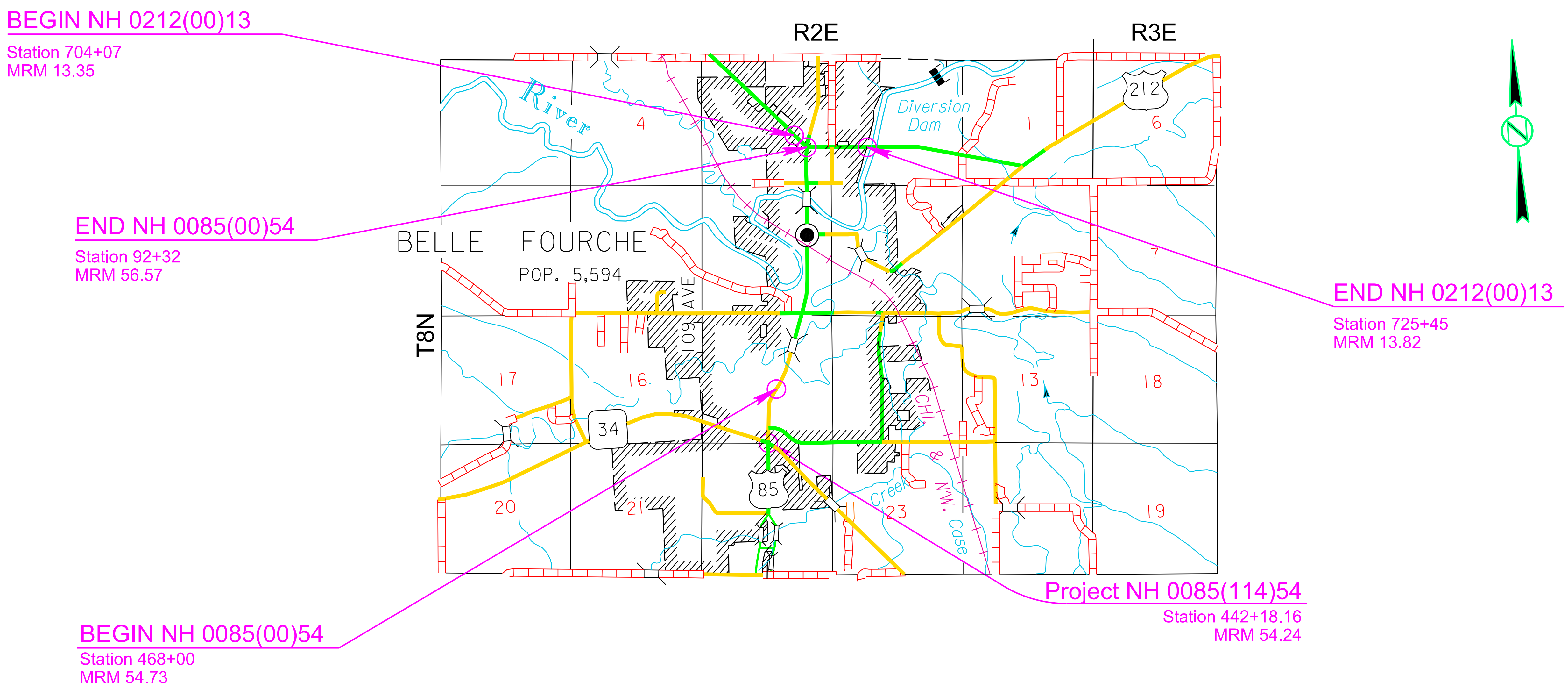
L21-L22	Signal Timings
L23-L28	Standard Plates



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SECTION L ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1510	Remove Luminaire Pole	3	Each
110E1520	Remove Signal Equipment	Lump Sum	LS
110E1540	Remove Luminaire Pole Footing	3	Each
110E1570	Remove Pedestrian Push Button Pole	8	Each
635E2000	Pedestal Signal Pole	2	Each
635E2160	Signal Pole with 60' Mast Arm and Luminaire Arm	3	Each
635E2165	Signal Pole with 65' Mast Arm and Luminaire Arm	1	Each
635E3700	Roadway Luminaire, LED with Photoelectric Cell	4	Each
635E4030	3 Section Vehicle Signal Head	11	Each
635E4040	4 Section Vehicle Signal Head	2	Each
635E4080	3 Section Directional Vehicle Signal Head	8	Each
635E5020	2' Diameter Footing	12.0	Ft
635E5030	3' Diameter Footing	52.0	Ft
635E5301	Type 1 Electrical Junction Box	8	Each
635E5302	Type 2 Electrical Junction Box	7	Each
635E5303	Type 3 Electrical Junction Box	1	Each
635E5400	Electrical Service Cabinet	1	Each
635E5430	Traffic Signal Controller	2	Each
635E5520	Video Detection System	1	Each
635E5535	Sawed-In, Preformed Detector Loop	20	Each
635E5560	Emergency Vehicle Preemption Unit	1	Each
635E5570	Optical Detector	4	Each
635E5880	Accessible Pedestrian Signal	8	Each
635E5910	Pedestrian Push Button Pole	8	Each
635E5922	Pedestrian Signal Head with Countdown Timer	8	Each
635E5930	Pedestrian Crossing Sign	8	Each
635E6200	Miscellaneous, Electrical	Lump Sum	LS
635E6603	Backplate for 3 Section Signal Head	19	Each
635E6604	Backplate for 4 Section Signal Head	2	Each
635E8120	2" Rigid Conduit, Schedule 40	2,545	Ft
635E8140	4" Rigid Conduit, Schedule 40	55	Ft
635E8220	2" Rigid Conduit, Schedule 80	320	Ft
635E8230	3" Rigid Conduit, Schedule 80	255	Ft
635E9016	1/C #6 AWG Copper Wire	3,325	Ft
635E9502	2/C #14 AWG Copper Tray Cable, K2	1,435	Ft
635E9504	4/C #14 AWG Copper Tray Cable, K2	890	Ft
635E9507	7/C #14 AWG Copper Tray Cable, K2	310	Ft
635E9520	20/C #14 AWG Copper Tray Cable, K2	885	Ft
635E9600	#16 AWG Copper Twisted Shielded Pair	4,655	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	260	Ft

SUPPLYING AS BUILT PLANS

If the traffic signal systems are 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.

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

Timothy.Pyle@state.sd.us
Kelly.VanDeWiele@state.sd.us

ON-SITE INSPECTION

An on-site inspection of the traffic signals will be conducted before acceptance of the project, once the traffic signals are completed and operational. The on-site inspection will be conducted by the Project Engineer or Region Traffic Engineer with the Contractor, City Traffic Engineer, and the Traffic Design Engineer present.

REMOVE LUMINAIRE POLE FOOTING

The footings of existing luminaire poles EL1 - EL3 will be removed by the Contractor to a minimum of 4' below the ground surface. Restoration of the disturbed area will be to the satisfaction of the Engineer.

All costs for removing the footings of the existing luminaire poles will be incidental to the contract unit price per each for "Remove Luminaire Pole Footing".

SIGNAL POLES

Cantilever traffic signal supports, including anchor bolts, will be designed for fatigue in accordance with Fatigue Importance Category III without galloping and truck induced gusts. Signal poles will have rotatable mast arms.

Luminaire extension(s) will have a 50-foot mounting height with 8-foot arm.

PEDESTAL SIGNAL POLES

Pedestal signal poles may be aluminum. Aluminum poles will conform to the following requirements:

Aluminum will conform to ASTM B221, Alloy 6061, and Temper T6.

Poles will be round with a minimum outside pole diameter of 4 inches, and the pole assembly will have a square, cast aluminum base with aluminum access door. The base will conform to the breakaway requirements of NCHRP 350 or MASH. A grounding lug will be provided in the base.

The pole to base connection will be a threaded connection; threads will be 8 TPI, NPT. A collar (integral or non-integral) to prevent wind-induced loosening of pole will be provided. All bolt and connection threads will be coated with a commercially available anti-seize compound intended for use in aluminum-to-aluminum and steel-to-aluminum connections.

The pole finish will either be brushed satin or spun. The top of the pole will be sealed by the traffic signal head mounting hardware or by an aluminum cap.

Measurement and payment for aluminum poles will be as specified in Specifications Section 635.

LUMINAIRES

The lighting design used the following parameters and provides 1.2 and greater average maintained foot-candles and uniformity ratios of 3:1 (average maintained to minimum maintained foot-candles) and 5:1 (maximum to minimum maintained foot candles:

Pole Setback:	0 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	Intersection
Configuration	Intersection
Mounting Height:	50 Ft.
Arm Length	8 Ft.
Light Source:	LED

The following LED luminaires meet the requirements for this design:

a.) American Electric Lighting: ATB2_60LEDE10_xxxxx_R2_R3_1

b.) GE Lighting Solutions: ERL2_25C_330

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 may be aluminum. 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 "3 Section Vehicle Signal Head","3 Section Directional Vehicle Signal Head", "4 Section Directional Vehicle Signal Head".

TABLE OF FOOTING DATA

Site Designation	Footing Diameter	* Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
A3, A6	2’ - 0”	6’ - 0”	1’ - 8”	44’ - 3”	8-#7 x 5’ - 6”
***S1	3’ - 0”	11’ - 0”	2’ - 8”	112’ - 6”	14-#8 x 10’ -6”
A2	3’ - 0”	12’ - 0”	2’ - 8”	120’ - 9”	14-#8 x 11’ -6”
A1, A5	3’ - 0”	13’ - 0”	2’ - 8”	129’ - 3”	14-#8 x 12’ -6”
A4	3’ - 0”	14’ - 0”	2’ - 8”	137’ - 6”	14-#8 x 13’ -6”

* Footing depth will be below ground level.
** The size of all spirals will be #3.
*** S1 – Is an existing footing, bearing capacity evaluated due to adding Additional 3 sectional head to mast arm

A subsurface investigation was conducted in May 2019 at the intersection of US85 and SD34. Subsurface conditions consist of approximately 6.0 feet of gravelly clay sand over clay to 35.0 feet. During the investigation, groundwater was encountered at 6.4 feet below the surface in the boring near the northwest corner of the intersections. The boring placed near the southwest corner was initially dry after drilling but, groundwater was measured at 25.0 feet below the surface the following day. Both borings remained open overnight to depts grater that 20.0 feet.

During construction of the footings, concrete placement operations should closely follow excavation procedures. The longer the excavations are left open the more likely caving may occur. If caving soils are encountered it may be necessary to use casing or drilling fluids to maintain an open excavation. Casing will be of sufficient strength to withstand handling and installation procedures. Casing materials may consist of Sonotube, corrugated metal pipe, pvc, smooth metal pipe or any other material as approved by the Engineer. Drilling fluids can be water or other slurries as approved by the Engineer. Concrete placed through drilling fluids will be tremied. If caving is not an issue but, water is present during the excavation, it will be removed prior to concrete placement or the concrete will be tremied.

ELECTRICAL SERVICE CABINET WITH SECONDARY DISCONNECT

The electrical service cabinet will be a standard electrical service cabinet located adjacent to the power source.

The Contractor will install a NEMA 3R rainproof, 60 amp rated, non-fused safety switch (with lock) adjacent to the traffic signal cabinet. The secondary disconnect will be mounted on a galvanized steel post in accordance with standard plate 635.41.

TRAFFIC SIGNAL CONTROLLER

The Contractor is responsible for programming the controller at the intersection of SD Hwy 85/ SD Hwy 34 with the signal timings provided in these plans.

All costs for the detector units necessary to operate the signal as shown in these plans, constructing the concrete pad and footing, materials, labor, and furnishing and installing the controller cabinet will be incidental to the contract unit price per each for “Traffic Signal Controller”.

CONTROLLER PROGRAMMING

The controller at SD Hwy 85 and Summit St. will be replaced with new controller in the existing cabinet. The control will be programmed with existing patterns and timings of the existing controller with the revisions from sheet L18 of the plans by a qualified technician. Costs for reprogramming the controller will be incidental to the contract lump sum price for “Miscellaneous, Electrical”.

BATTERY BACKUP CABINET

The Contractor will supply a cabinet with concrete pad and footing for housing the battery backup system for the traffic signal system at Hwy 85 and Hwy 34 intersection. The cabinet will be an aluminum NEMA 3R type. The cabinet will have a thermostatically controller exhaust fan. The cabinet will be securely attached to the concrete pad with steel anchors and to the back wall of the controller cabinet using chase nipples as approved by the Engineer.

All costs for constructing the concrete pad and footing, materials, labor, and furnishing and installing the battery backup cabinet will be incidental to the contract unit price per each for “Battery Backup System for Traffic Signal.”

VIDEO DETECTION SYSTEM

The video detection system will consist of a one camera system, “fisheye” style system. System will be one of the following, or an approved equal:

Product	Manufacturer
GRIDSMART System	GRIDSMART Technologies, Inc. Knoxville TN 37932 Phone: 1-865-482-2112 gridsmart.com
Autoscope AIS-IV and RVP2	Econolite Anaheim, CA 92807 Phone: 1-714-630-3700 www.econolite.com
Vantage Next	Iteris, Inc. Santa Ana, CA 92705-5551 Phone: 1-949-270-9400 www.iteris.com
TrafficLink Detection	Miovision Technologies, Inc. 137 Glasgow St., Suite 110 Kitchener, Ontario Canada N2G 4X8 Phone: 1-519-513-2407 https://miovision.com

ACCESSIBLE PEDESTRIAN SIGNAL

The work will consist of furnishing and installing accessible pedestrian signals (APS). Each APS will consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a latching light emitting diode (LED) indicator light, a solid-state electronic control board, a power supply, wiring, and all necessary mounting hardware. The operation and performance of the APS units will meet the requirements of MUTCD Sections 4E.08 to 4E.13. and the applicable sections of NEMA Standards Publication TS-2. The APS units will be capable of supporting a minimum of 16 push button stations.

All mounting fasteners will be stainless steel; all threads will be coated with anti-seize compound meeting the requirements of USA Dept. of Defense specification MIL-PRF-907F.
The push button component of APS will meet the requirements of Section 985.1 S of the Specifications except that all housings and external hardware will be aluminum, powder coated yellow.

The APS control unit will include capability to monitor the push buttons and pedestrian signal head displays. Conflicts will cause the channel to be powered off.

The APS control unit will include capability to monitor communications with the push buttons. Communication faults will automatically reset the control unit.

Two licensed copies of any APS programming software will be furnished. All software programming, firmware updates, and audio message programming of the APS will be through USB port or Ethernet connection.

All costs for furnishing and installing the accessible pedestrian signal including labor, materials, and equipment, will be incidental to the contract unit price per each for “Accessible Pedestrian Signal”.

PEDESTRIAN PUSH BUTTON POLE

Pedestrian push button poles will be one of the following types, or an approved equal:

Product	Manufacturer
Crosswalk Pedestal CP6ACT4840TCSS	Frey Manufacturing Corp. Norwood, MN 55368-9675 Phone: 1-952-467-4402 www.freymfgcorp.com
Ped Poles SP-3022-NY-SP0001	Pelco Products, Inc Edmond, OK 73013 Phone: 1-405-340-3434 www.pelcoinc.com
GP3 APS Pole B-GP3-7-7-10-AA-4T	TIP Indications 22480 County Rd 75 St. Cloud, MN 56301 www.tipindications.com

WIRE SPLICING FOR LIGHTING

All wire splices for lighting will be made using TE Connectivity GTAP connectors, NSI Industries Polaris Blue connectors, or an approved equal.

MULTICONDUCTOR CONTROL CABLE FOR SIGNAL CIRCUITS

The Conductor Jackets for the multiconductor control cables will be color coded in accordance with ICEA S-73-532 Table E2.

SAWED-IN PERFOMED DETECTION LOOP

At US-85 & SD-34, loops S10 – S13, N10 – N13, W7, W8, E7, and E8 will be sawed-in at the locations shown on the plans and connected to the controller as per Standard Plate 635.71.

At US-85 & Summit St., loops D13 – D14 will be sawed-in at the locations shown on the plans and connected to the controller as per Standard Plate 635.71.

At US-85 & Summit St. loops W1, W2, E1, E2, E3, and E4 will be sawed-in at the locations shown on the plans. The new loops will be spliced to the TSP in the appropriate existing junction box.

All costs for furnishing and installing the Preformed Sawed in Detector Loops, including labor, materials, and equipment, will be incidental to the contract unit price per each for “Sawed-in, Preformed Detector Loops”.

DETECTOR LOOP WIRE SPLICING

Detector loop wire splices will be made using wire nuts over soldered connections and sealed in 3M Scotchcast 3570G-N connector sealing packs or an approved equal.

The drain wire of the TSP cable will be left unattached to the ground lug in the traffic signal controller.

METER SOCKETS FOR TRAFFIC SIGNALS

The meter sockets provided for traffic signals by the Contractor will be a 200 amp, positive by-pass.

CONDUIT AND CABLE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L5	L27

Plotting Date: 02/18/2021 Revised 2/08/2021 TJP

		Rigid Conduit					Copper Wire		Copper Tray Cable, K2 #14 AWG					Twisted Shielded Pair		Pole and Bracket Cable			Preemption Cable (Not a Bid Item)			Video Cable (Not a Bid Item)		
		Schedule 40		Schedule 80																				
Location to Location		2" Ft	4" Ft	2" Ft	3" Ft		1/C #6 AWG Ft		2/C Ft	4/C Ft	7/C Ft	20/C Ft		#16 AWG Ft		2/C #10 AWG Ft			Ft			Ft		
SD HWY 85 & SD HWY 34																								
SERVICE CABINET	DISCONNECT	170		100			1,670																	
DISCONNECT	CONTROLLER	25					80																	
DISCONNECT	JA1	45					140																	
CONTROLLER	JA1		55								115	230		230					230			60		
JA1	A1	25					80					30							30			30		
JA1	JA3	215												445										
JA3	JA4	200												205										
JA1	JA5			130			405					135		270					135					
JA5	A2	25					80					30							30					
JA5	A3	45									50													
JA5	JA7	365												755										
JA7	JA8	175												180										
JA1	JA9				110		340				115	230		455					115					
JA9	A5	50										55							55					
JA9	A6	30									30													
JA9	JA11	355												735										
JA11	JA12	190												195										
JA9	JA13				145		450					150		300					150					
JA13	A4	20					80					25							25					
JA13	JA15	290												600										
JA15	JA16	145		90										245										
SIGNAL POLES																								
SIGNAL POLE	A1									185							65		80					
SIGNAL POLE	A2									220							65		80					
SIGNAL POLE	A3									15														
SIGNAL POLE	A4									195							65		85					
SIGNAL POLE	A5									215							65		80					
SIGNAL POLE	A6									15														
Subtotal:		2,370	55	320	255		3,325		0	845	310	885		4,615			260		1,095			90		

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CONDUIT AND CABLE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L6	L27

Plotting Date: 02/18/2021 Revised 2/08/2021 TJP

		Rigid Conduit					Copper Wire			Copper Tray Cable, K2					Twisted Shielded Pair			Pole and Bracket Cable			Preemption Cable (Not a Bid Item)			Video Cable (Not a Bid Item)		
		Schedule 40		Schedule 80						#14 AWG																
Location to Location		2" Ft	4" Ft	2" Ft	3" Ft		1/C #6 AWG Ft			2/C Ft	4/C Ft	7/C Ft	20/C Ft		#16 AWG Ft			2/C #10 AWG Ft			Ft			Ft		
SD HWY 85 & SUMMIT ST																										
CONTROLLER	EJB1									290					40											
EJB1	PB3	20								25																
EJB1	PB4	25								30																
EJB1	EJB2									155																
EJB2	PB1	25								30																
EJB2	PB2	25								30																
EJB1	EJB3									540																
EJB3	PB5	20								25																
EJB3	PB6	20								25																
EJB3	EJB4									155																
EJB4	PB7	15								20																
EJB4	PB8	25								30																
SIGNAL POLE																										
SIGNAL POLE	EB1										45															
PED PB POLES																										
PED POLE	PB1									10																
PED POLE	PB2									10																
PED POLE	PB3									10																
PED POLE	PB4									10																
PED POLE	PB5									10																
PED POLE	PB6									10																
PED POLE	PB7									10																
PED POLE	PB8									10																
Subtotal:		175	0	0	0		0			1,435	45	0	0		40			0			0			0		
Total:		2,545	55	320	255		3,325			1,435	890	310	885		4,655			260			1,095			90		

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EXISTING SIGNAL LAYOUT
SD HWY 85 & SD HWY 34

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L7	L27

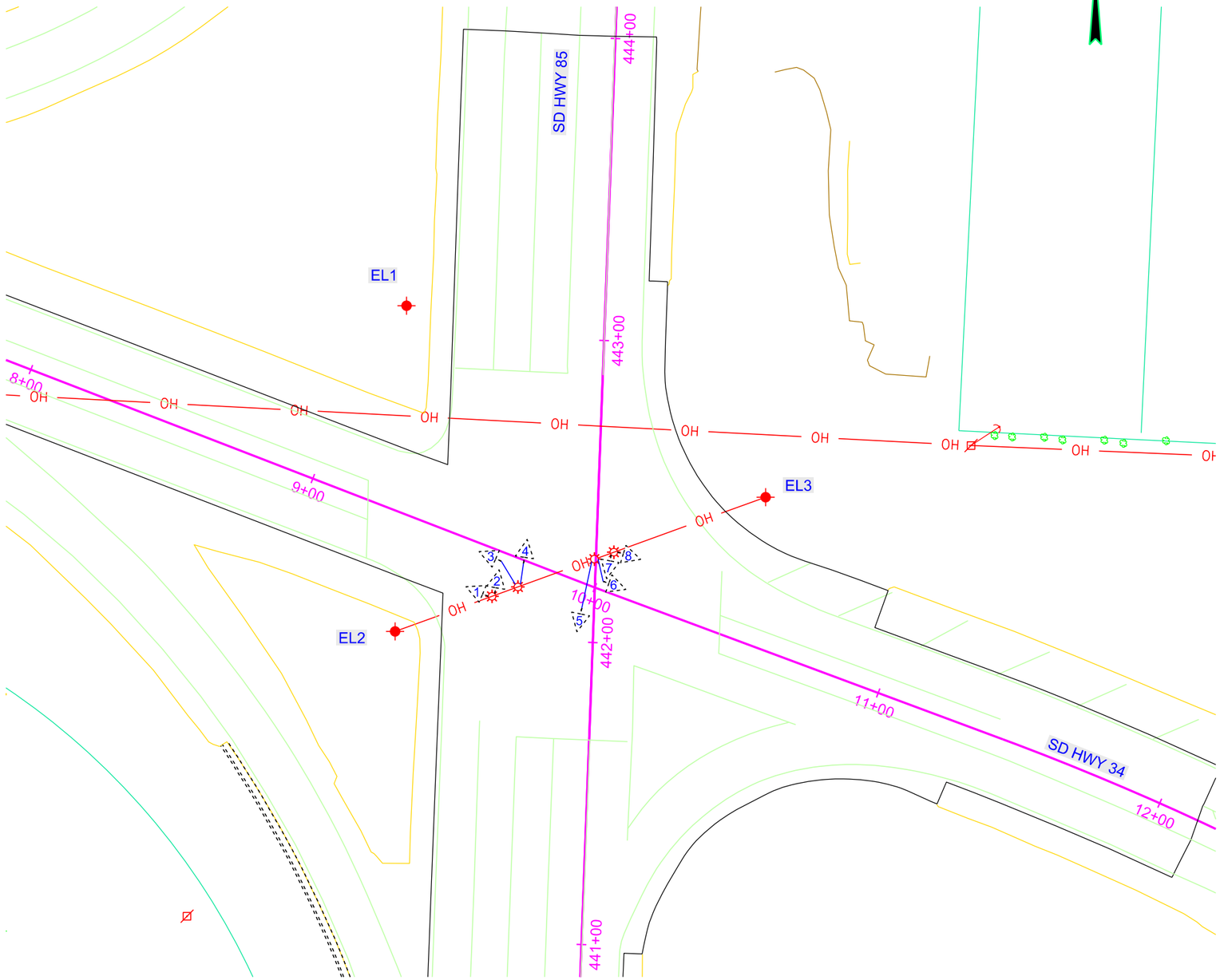
Plotting Date: 02/18/2021

EXISTING ITEMS

KEY	ITEM	EST QUANT	UNIT
✦	Luminaire Poles (EL1-EL3)	3	EACH
⊣	1 Section Vehicle Signal Head (1-8)	8	EACH

REMOVE

KEY	ITEM	EST QUANT	UNIT
✦	Luminaire Poles (EL1-EL3)	3	EACH
	Remove Signal Equipment	LUMP SUM	LS



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SIGNAL LAYOUT
SD HWY 85 & SD HWY 34

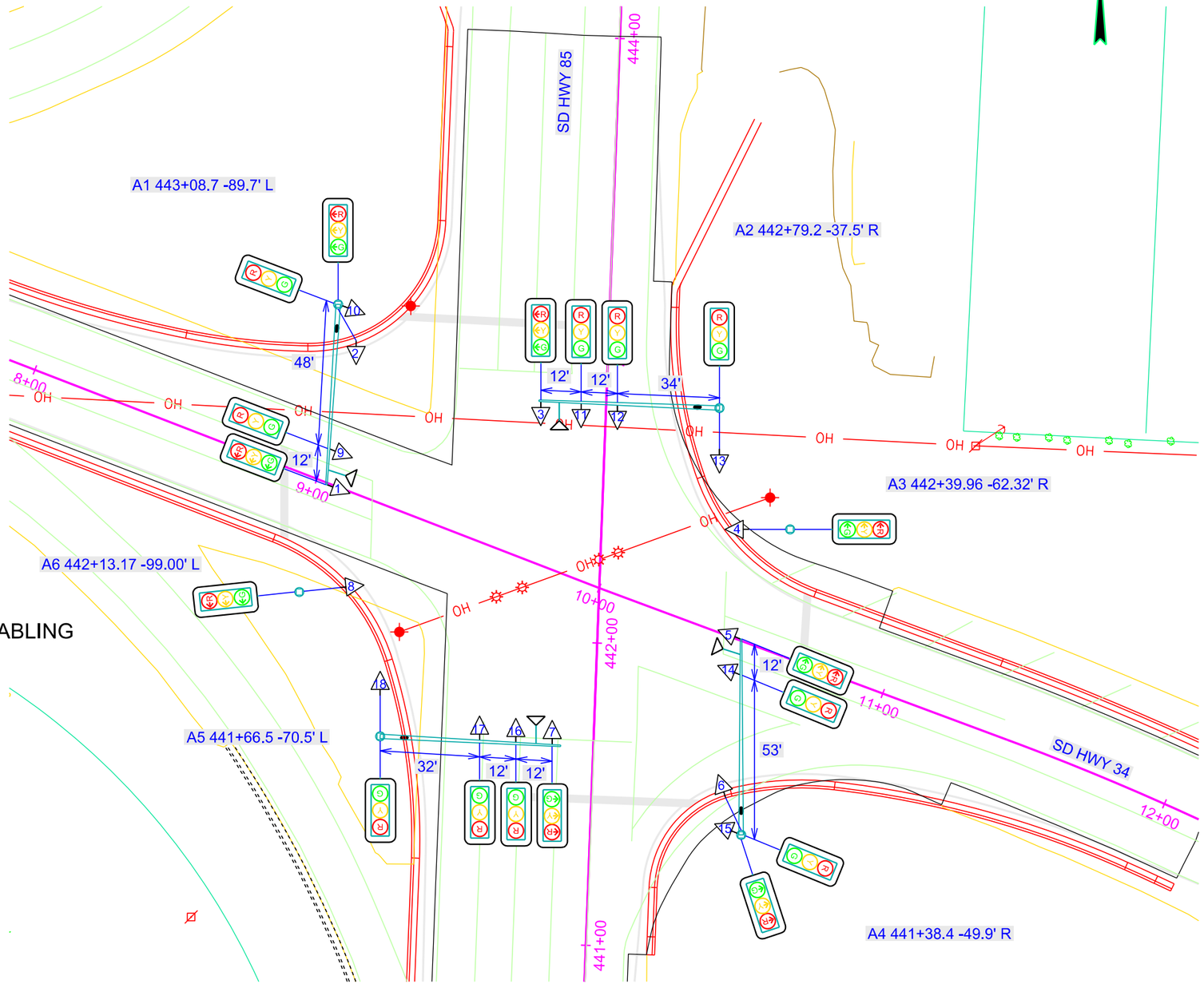
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L8	L27

Plotting Date: 02/18/2021

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Pedestal Signal Pole (A3, A6)	2	EACH
	Signal Pole w/60' Mast Arm & 8' Lumin Arm (A1,A2,A5)	3	EACH
	Signal Pole w/65' Mast Arm & 8' Lumin Arm (A4)	1	EACH
	Roadway Luminaire, LED with P.E. (A1,A2,A4,A5)	4	EACH
	3 Section Vehicle Signal Head (9-18)	10	EACH
	3 Section Directional Vehicle Signal Head (1-8)	8	EACH
	Optical Detector	4	EACH
	Video Detection Unit (A1)	1	EACH

NOTE: LOCATION OF VIDEO DETECTION UNIT AND VIDEO CABLING FROM CAMERA TO SIGNAL POLE BASE NOT SHOWN. INSTALL AS PER MANUFACTURER'S DIRECTION.



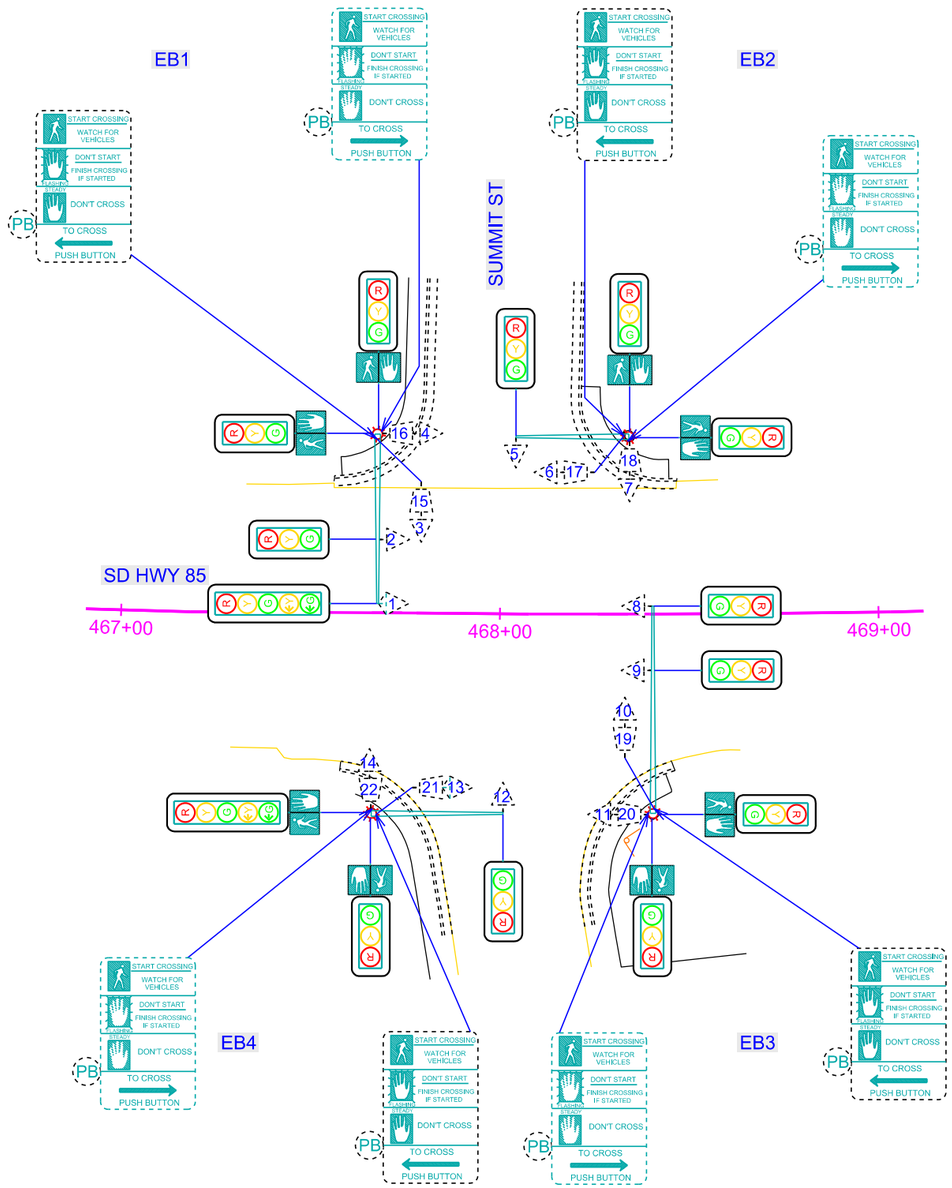
EXISTING SIGNAL LAYOUT
SD HWY 85 & SUMMIT ST

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L9	L27

Plotting Date: 02/18/2021

EXISTING ITEMS	
KEY	ITEM
	Signal Pole w/30' Mast Arm & 8' Lumin Arm (EB2)
	Signal Pole w/35' Mast Arm & 8' Lumin Arm (EB4)
	Signal Pole w/45' Mast Arm & 8' Lumin Arm (EB1)
	Signal Pole w/55' Mast Arm (EB3)
	Roadway Luminaire, 400w with P.E. (EB1,EB3,EB4)
	3 Section Vehicle Signal Head (2-12,14)
	5 Section Vehicle Signal Head (1,13)
PB	Pedestrian Push Button
	Pedestrian Signal Head (15-22)
	Pedestrian Crossing Sign R10-3e (Left - 4/Right - 4)

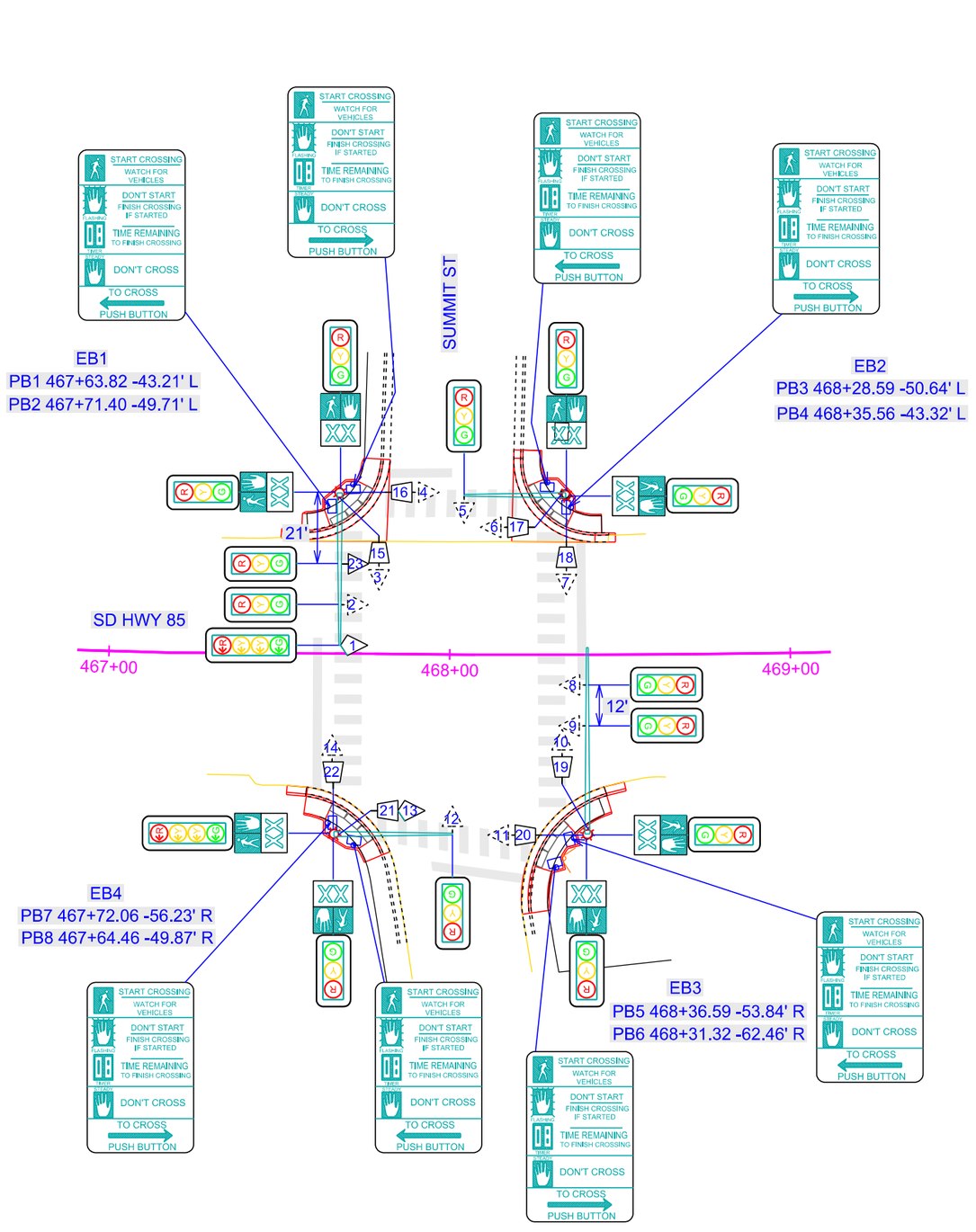
REMOVE	
KEY	ITEM
PB	Pedestrian Push Button
	Pedestrian Signal Head (15-22)
	Pedestrian Crossing Sign R10-3e (Left - 4/Right - 4)



SIGNAL LAYOUT
SD HWY 85 & SUMMIT ST

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L10	L27

Plotting Date: 02/18/2021



ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
PB	Accessible Pedestrian Signal	8	EACH
○	Pedestrian Push Button Pole (PB1-PB8)	8	EACH
	Pedestrian Signal Head w/Countdown Timer (15-22)	8	EACH
	3 Section Vehicle Signal Head (23)	1	EACH
	4 Section Vehicle Signal Head (1,13)	2	EACH
	Pedestrian Crossing Sign R10-3e (Left - 4/Right - 4)	8	EACH

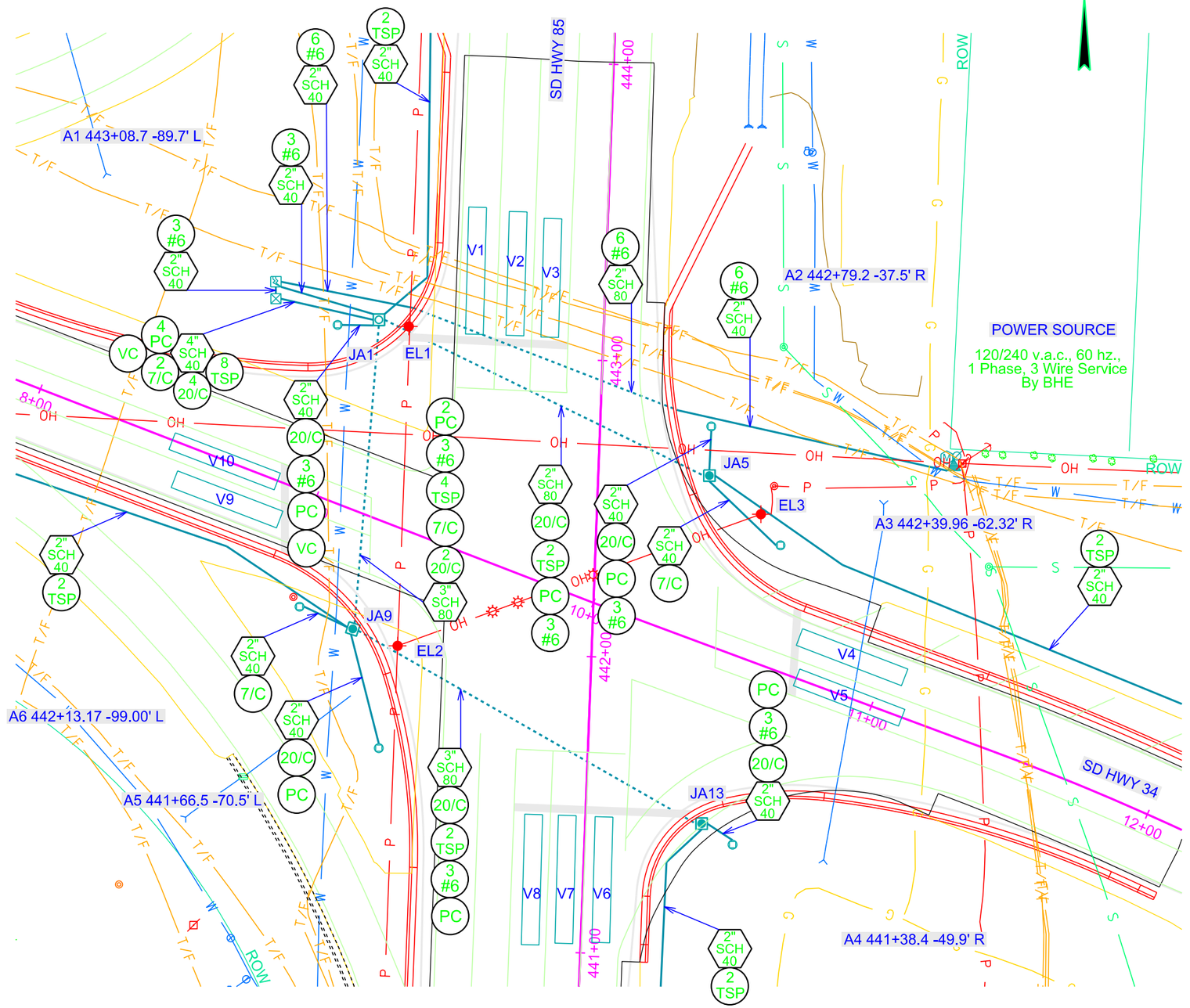
CONDUIT LAYOUT
SD HWY 85 & SD HWY 34

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L11	L27

Plotting Date: 02/18/2021

ESTIMATE OF QUANTITIES

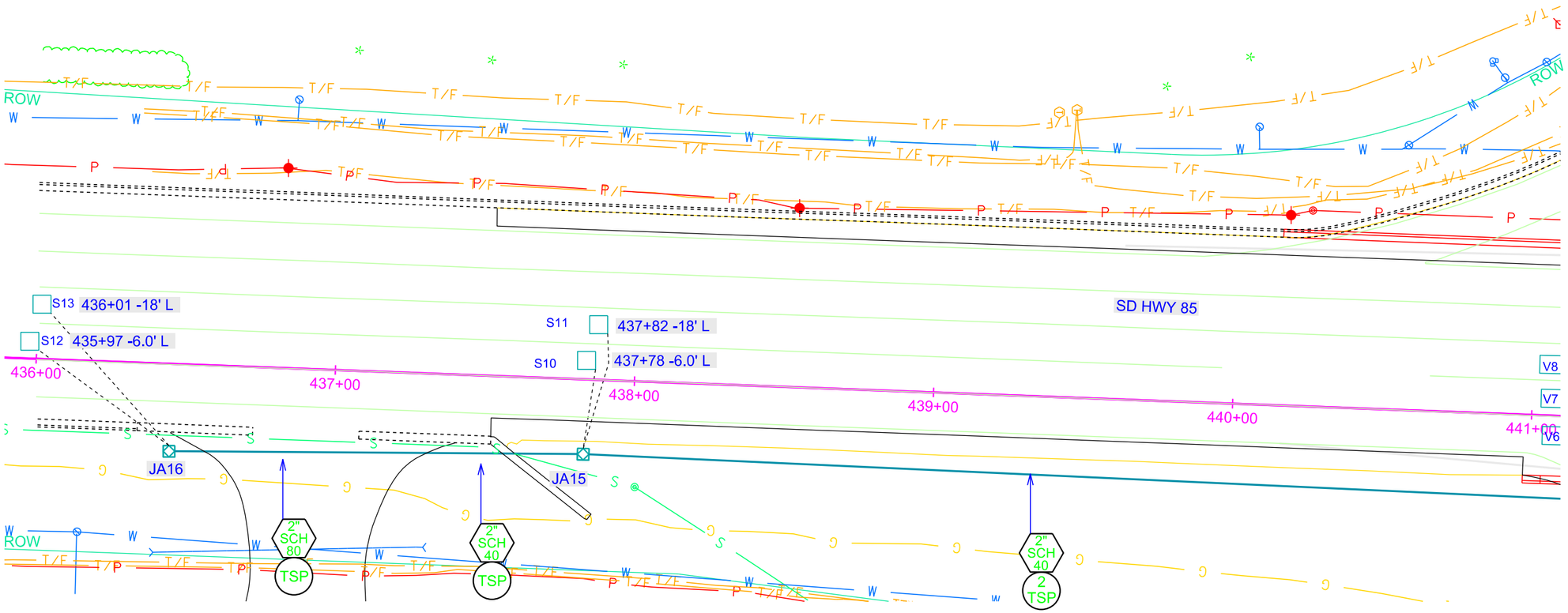
KEY	ITEM	EST QUANT	UNIT
	Remove Luminaire Pole (EL1-EL3)	3	EACH
	Remove Luminaire Pole Footing (EL1-EL3)	3	EACH
	2' Diameter Footing (A3,A6)	12	FT
	3' Diameter Footing (A1,A2,A4,A5)	52	FT
	Type 1 Electrical Junction Box (JA3-JA4,JA7-JA8,JA11-JA12,JA15-JA16)	8	EACH
	Type 2 Electrical Junction Box (JA5,JA9,JA13)	3	EACH
	Type 3 Electrical Junction Box (JA1)	1	EACH
	Electrical Service Cabinet	1	EACH
	Galvanized Steel Utility Pole Not a Bid Item	1	EACH
M	Meter Socket Not a Bid Item	1	EACH
	Traffic Signal Controller	1	EACH
	Secondary Disconnect (Cost Included in Service Cabinet with Disconnect)	1	EACH
	Sawed-In, Preformed Detector Loop (E7-E8,N10-N13,S10-S13,W7-W8)	12	EACH
	Detector Unit Not a Bid Item	18	EACH
	Video Detection Zone (6' x 42') (V1-V3,V6-V8) Not a Bid Item	6	EACH
	Video Detection Zone (6' x 38') (V4,V5,V9,V10) Not a Bid Item	4	EACH
2" SCH 40	2" Rigid Conduit, Schedule 40	2,370	FT
4" SCH 40	4" Rigid Conduit, Schedule 40	55	FT
2" SCH 80	2" Rigid Conduit, Schedule 80	230	FT
3" SCH 80	3" Rigid Conduit, Schedule 80	255	FT
#6	1/C #6 AWG Copper Wire	3,325	FT
	4/C #14 AWG Copper Tray Cable, K2	845	FT
7/C	7/C #14 AWG Copper Tray Cable, K2	310	FT
20/C	20/C #14 AWG Copper Tray Cable, K2	885	FT
TSP	#16 AWG Copper Twisted Shielded Pair	4,520	FT
	2/C #10 AWG Copper Pole & Bracket Cable	260	FT
PC	Preemption Cable Not a Bid Item	1095	FT
VC	Video Detection Cable Not a Bid Item	90	FT



CONDUIT LAYOUT
SD HWY 85

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L12	L27

Plotting Date: 02/18/2021 Revised 2/08/2021 TJP



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Plotted From - TRRC12245

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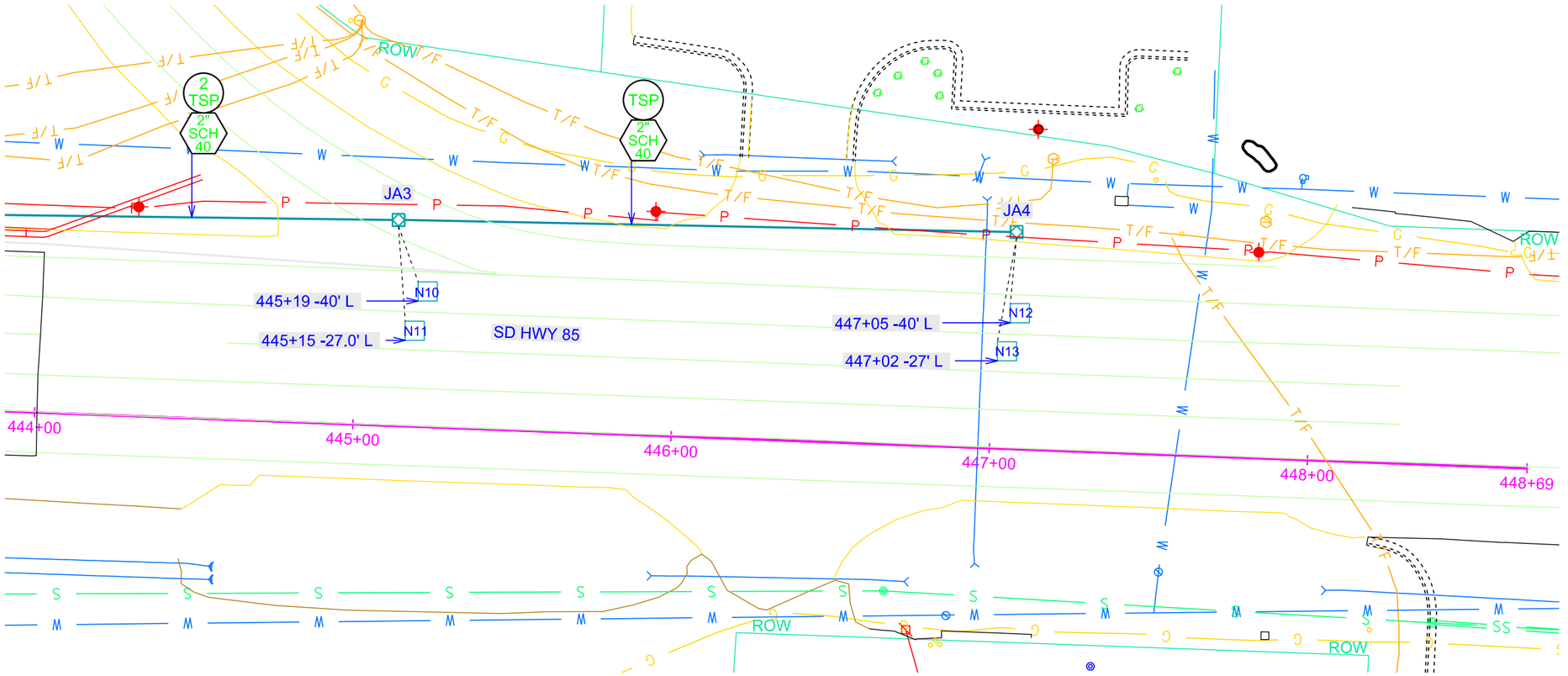
CONDUIT LAYOUT
SD HWY 85

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L13	L27

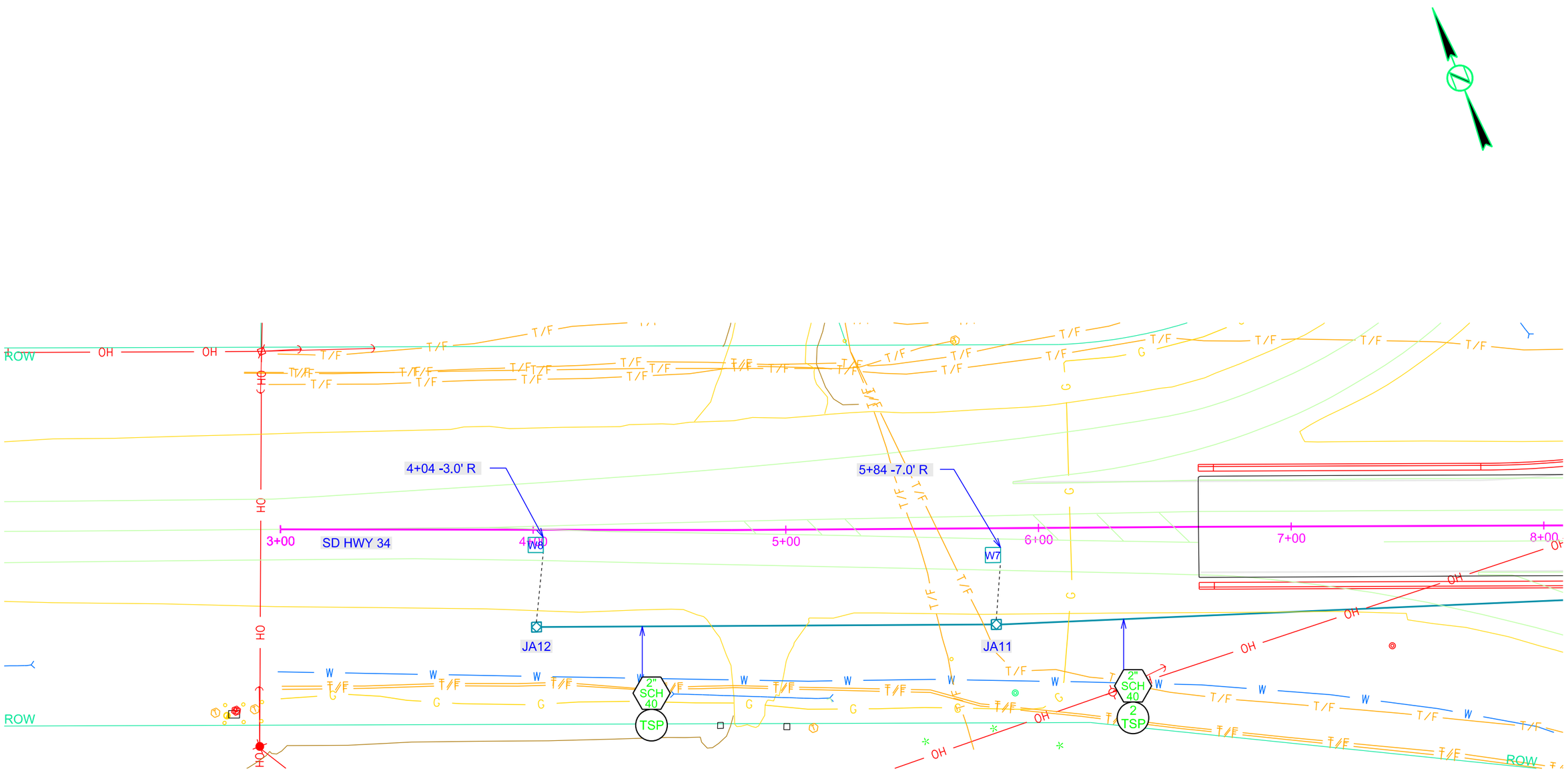
Plotting Date: 02/18/2021



CONDUIT LAYOUT
SD HWY 34

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L14	L27

Plotting Date: 02/18/2021



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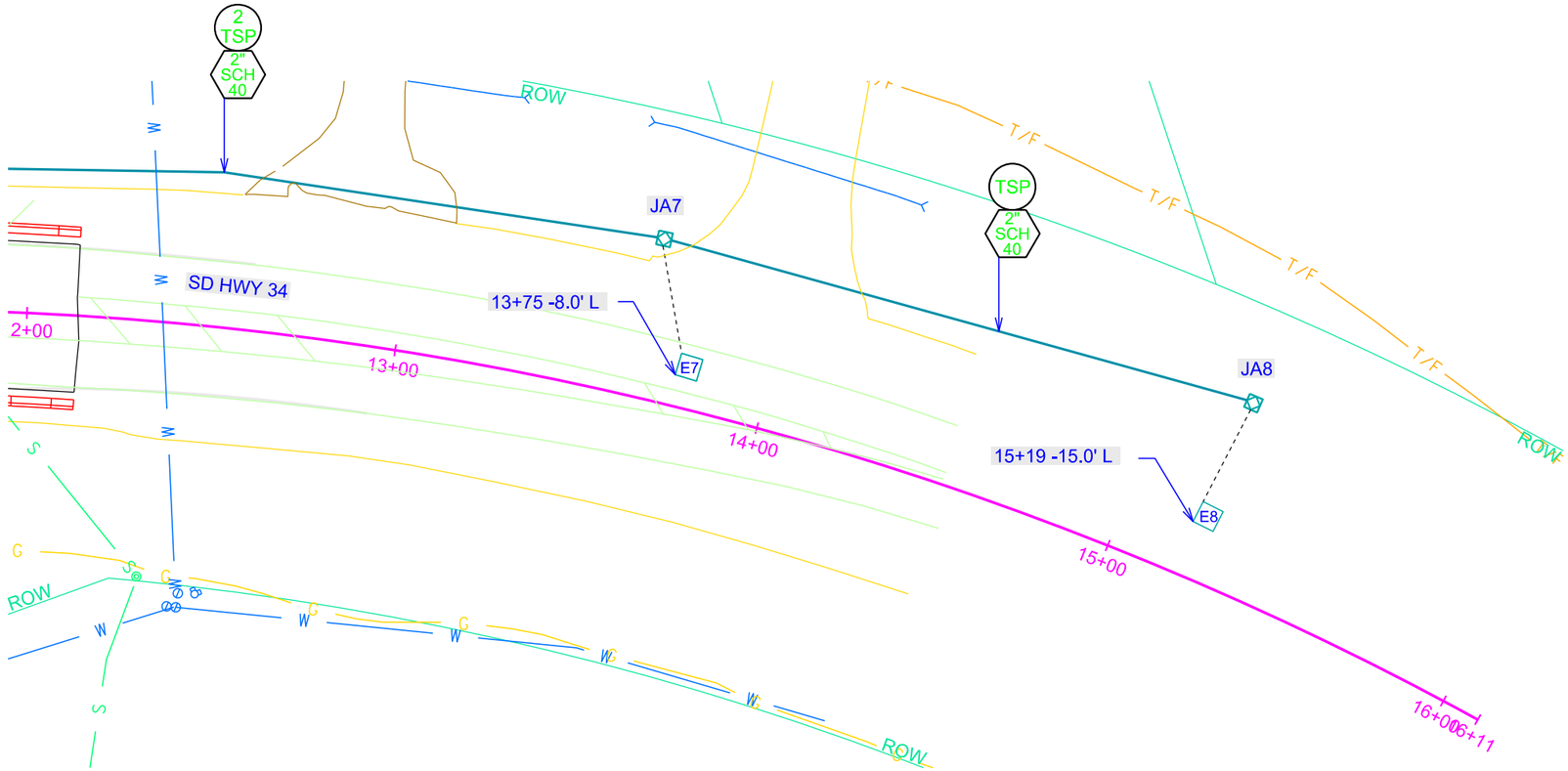
CONDUIT LAYOUT
SD HWY 34

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L15	L27

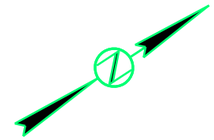
Plotting Date: 02/18/2021

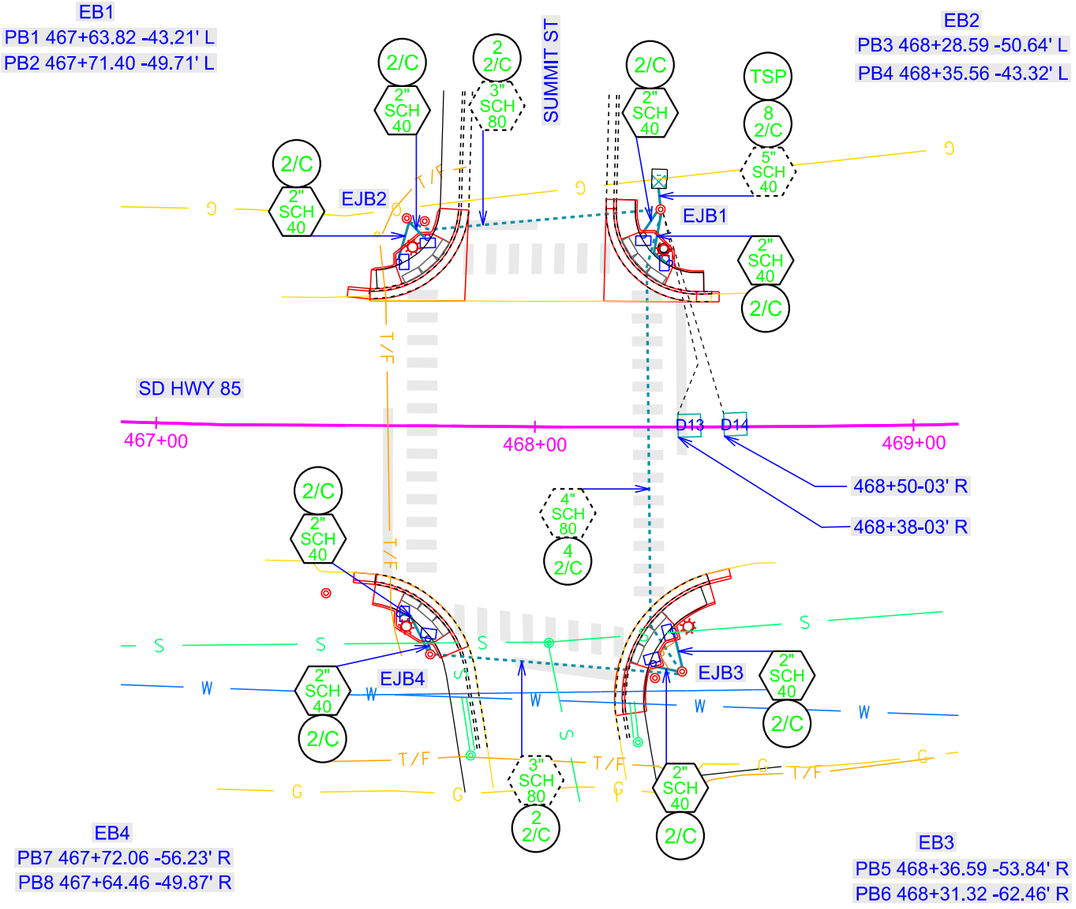


CONDUIT LAYOUT
SD HWY 85 & SUMMIT ST

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L16	L27

Plotting Date: 02/18/2021 Revised 2/08/2021 TJP





EXISTING ITEMS

KEY	ITEM
	Electrical Junction Box (EJB1-EJB4)
	Traffic Signal Controller Cabinet
5" SCH 40	5" Rigid Conduit, Schedule 40
3" SCH 80	3" Rigid Conduit, Schedule 80
4" SCH 80	4" Rigid Conduit, Schedule 80

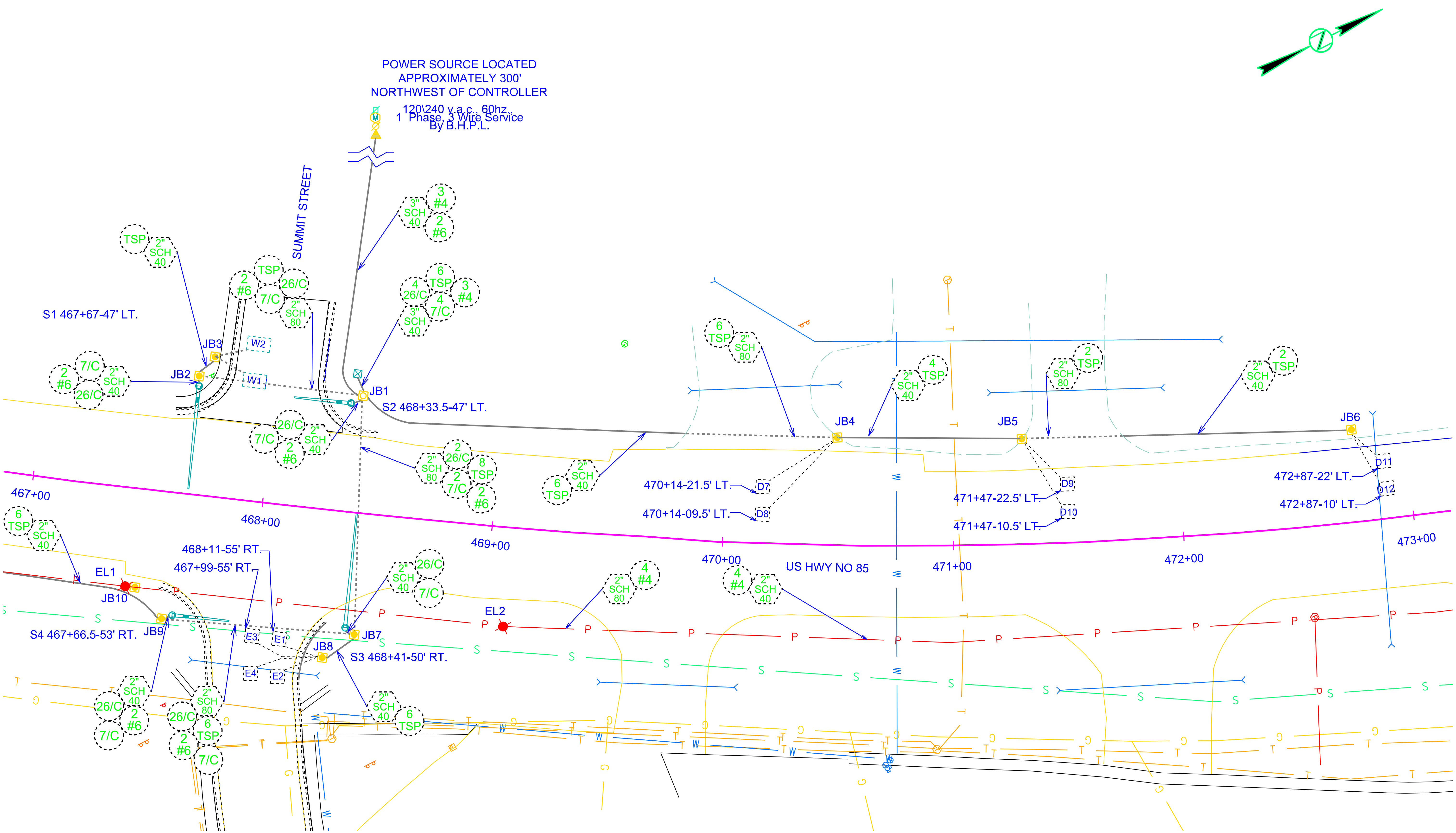
ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Type 2 Electrical Junction Box (EJB1-EJB4)	4	EACH
	Sawed-In Preformed Detector Loop (D1-D14,W1,W2,E1-E4)	20	EACH
2" SCH 40	2" Rigid Conduit, Schedule 40	175	FT
2/C	2/C #14 AWG Copper Tray Cable, K2	1,435	FT
	4/C #14 AWG Copper Tray Cable, K2	45	FT
TSP	#16 AWG Copper Twisted Shielded Pair	40	FT
	Traffic Signal Controler	1	EACH

EXISTING CONDUIT LAYOUT
US HWY NO 85 / SUMMIT STREET
FOR INFORMATIONAL PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L17	L27

Plotting Date: 02/18/2021



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TRRC12245

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L18	L27

Plotting Date: 02/18/2021

SIGNAL TIMING

US Hwy 85 / SD 34

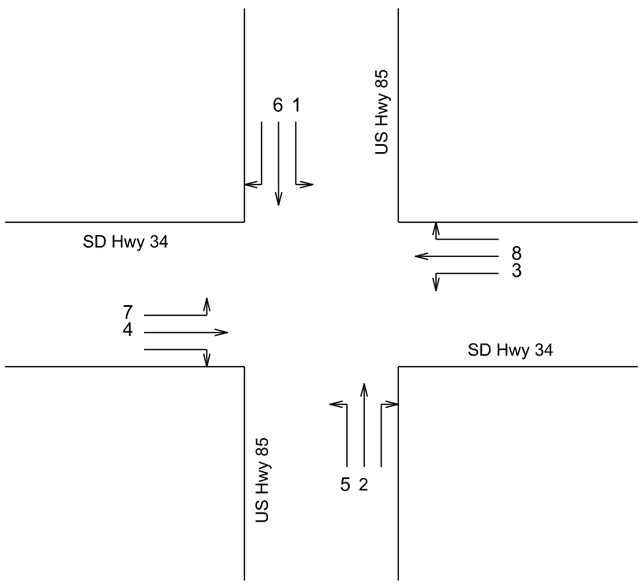
BASIC INTERVALS								
Phase	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lag								
Min Green	4	10	4	10	4	10	4	10
Extension	4	4	4	4	4	4	4	4
Max 1	24	24	10	11.5	24	24	10	11.5
Max 2								
Time Before								
Time to Reduce								
Minimum Gap								
Yellow	5	5	4.5	5.5	5	5	4.5	5.5
All Red	1	1	2.5	1	1	1	2.5	1
Walk								
Ped Clearance								
Recall		MIN				MIN		
Prog Flash Display	R	Y	R	R	R	Y	R	R
Start Up Ø		X				X		

PREEMPTION				
Plan	3	4	5	6
Calls Ø	3 & 8	4 & 7	5 & 2	1 & 6
Output	CH13R	CH14R	CH15R	CH16R

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

TIMING PLAN 1	
Time of Day (TOD)	Pattern (C/S/O)
0600	Free
2200	Flash

RING AND BARRIER DESIGN			
Φ1	Φ2	Φ3	Φ4
Φ5	Φ6	Φ7	Φ8



DETECTOR TABLE															
		Phase Called (Call/Call Locking/Extend)												Controller Settings	
Local Detector	Controller Detector #	1	2	3	4	5	6	7	8	9	10	11	12	Extend	Delay
S1 - S3	1		C												
S4 - S6	2		C												
S7 - S9	3					C/E									
S10 - S11	4		E												
S12 - S13	5		E												
N1 - N3	6						C								
N4 - N6	7						C								
N7 - N9	8	C/E													
N10 - N11	9						E								
N12 - N13	10						E								
W1 - W3	11				C										
W4 - W6	12							C/E							
W7	13				E										
W8	14				E										
E1 - E3	15								C						
E4 - E6	16			C/E											
E7	17								E						
E8	18								E						

Plot Scale - 1:40

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L19	L27

Plotting Date: 02/18/2021

SIGNAL TIMING REVISIONS

US Hwy 85 / Summit St.

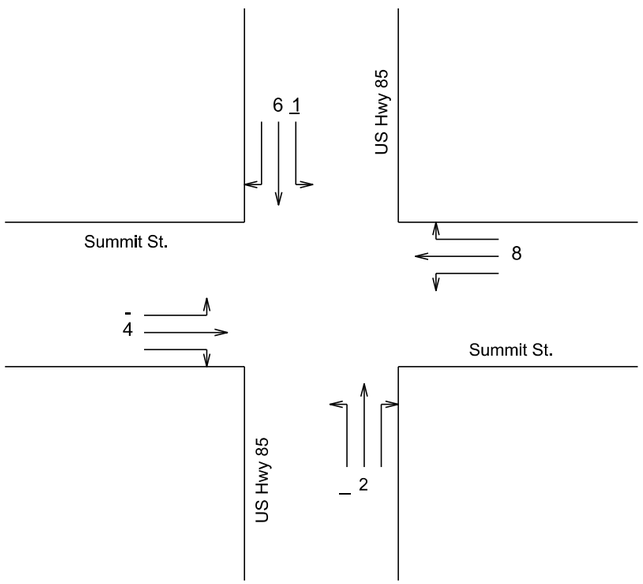
BASIC INTERVALS								
Phase	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lag								
Min Green	-	-	_	-	_	-	_	-
Extension	-	-	_	-	_	-	_	-
Max 1	-	-	_	-	_	-	_	-
Max 2								
Time Before								
Time to Reduce								
Minimum Gap								
Yellow	4.5	4.5	_	3.5	_	4.5	_	3.5
All Red	2.5	1	_	1.5	_	1	_	1.5
Walk		-		-		-		-
Ped Clearance		-		-		-		-
Recall		-				-		
Prog Flash Display	-	-	_	-	_	-	_	-
Start Up Ø		-				-		

PREEMPTION				
Plan	3	4	5	6
Calls Ø	8	4	2	1 & 6
Output	CH13R	CH14R	CH15R	CH16R

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

TIMING PLAN 1	
Time of Day (TOD)	Pattern (C/S/O)
0600	Free
2200	Flash

RING AND BARRIER DESIGN			
Φ1	Φ2	Φ3	Φ4
Φ5	Φ6	Φ7	Φ8



DETECTOR TABLE															
		Phase Called (Call/Call Locking/Extend)												Controller Settings	
Local Detector	Controller Detector #	1	2	3	4	5	6	7	8	9	10	11	12	Extend	Delay
D1 - D2	1		C		_										
D3 - D4	2		C		_										
D5 - D6	3		C/E		_	_									
D7 - D8	4		_				C/E		_						
D9 - D10	5		_				C		_						
D11 - D12	6						C		_						
D13 - D14	7	C/E					_								
E1 - E2	4		_	C/E		_									
E3 - E4	5		_						C/E						
W1 - W2	6				C/E		_								

Plot Scale - 1:40

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TRAFFIC SIGNAL WIRING TABLES

SD HWY 85/SD HWY 34

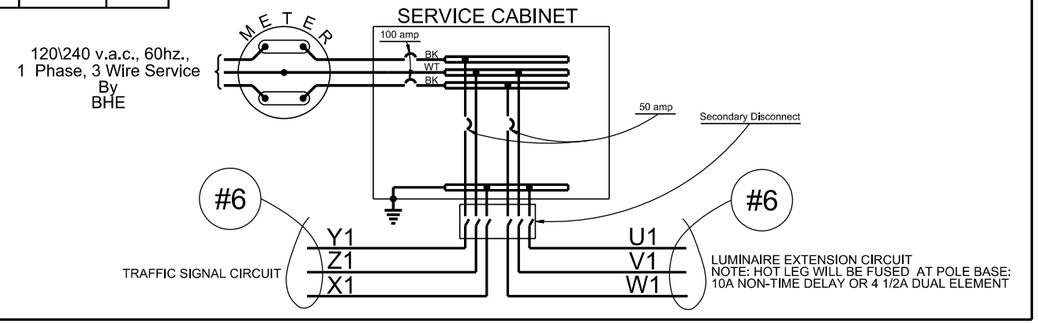
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L20	L27

Plotting Date: 02/18/2021

POLE:	A1	CABLE SIZE:		20/C	
CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
3R	Red	R	RA	1	3
3Y	Orange	O	YA	1	3
3G	Blue	BL	GA	1	3
N	Black	BK	N	1	3
5R	Red/Black	R	RA	2	5
5Y	Orange/Black	O	YA	2	5
5G	Blue/Black	BL	GA	2	5
N	Yellow/Black	BK	N	2	5
8R	Yellow/Red	R	R	9	8
8Y	Orange/Red	O	Y	9	8
8G	Blue/Red	BL	G	9	8
N	Black/Red	BK	N	9	8
8R	Red/Blue	R	R	10	8
8Y	Orange/Blue	O	Y	10	8
8G	Yellow/Blue	BL	G	10	8
N	Black/Blue	BK	N	10	8
	Brown/Red				
	Brown/Blue				
	Brown/Black				
	Red/Orange				
	Blue/Orange				
	Black/Orange				
	Yellow				
	Brown				
	Yellow/Orange				
	Brown/Orange				

POLE:	A2	CABLE SIZE:		20/C	
CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
5R	Red	R	RA	3	5
5Y	Orange	O	YA	3	5
5G	Blue	BL	GA	3	5
N	Black	BK	N	3	5
2R	Red/Black	R	R	11	2
2Y	Orange/Black	O	Y	11	2
2G	Blue/Black	BL	G	11	2
N	Yellow/Black	BK	N	11	2
2R	Yellow/Red	R	R	12	2
2Y	Orange/Red	O	Y	12	2
2G	Blue/Red	BL	G	12	2
N	Black/Red	BK	N	12	2
2R	Red/Blue	R	R	13	2
2Y	Orange/Blue	O	Y	13	2
2G	Yellow/Blue	BL	G	13	2
N	Black/Blue	BK	N	13	2
	Red/Orange				
	Blue/Orange				
	Black/Orange				
	Yellow				
	Brown				
	Brown/Black				
	Brown/Red				
	Brown/Blue				

POLE:	A3	CABLE SIZE:		7/C	
CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
7R	Red	R	RA	4	7
7G	Blue	BL	GA	4	7
7Y	Orange	O	YA	4	7
N	Black	BK	N	4	7
	Red/Black				
	Blue/Black				
	Orange/Black				
	Yellow				
	Brown				



Plot Scale - 1:200

Plotted From - TRRC12245

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TRAFFIC SIGNAL WIRING TABLES

SD HWY 85/SD HWY 34

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L21	L27

Plotting Date: 02/18/2021

POLE:	A4	CABLE SIZE:		20/C	
CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
7R	Red	R	RA	5	7
7Y	Orange	O	YA	5	7
7G	Blue	BL	GA	5	7
N	Black	BK	N	5	7
4R	Red/Black	R	RA	6	4
4Y	Orange/Black	O	YA	6	4
4G	Blue/Black	BL	GA	6	4
N	Yellow/Black	BK	N	6	4
4R	Yellow/Red	R	R	14	4
4G	Blue/Red	BL	G	14	4
4Y	Orange/Red	O	Y	14	4
N	Black/Red	BK	N	14	4
1R	Red/Blue	R	R	15	1
1Y	Orange/Blue	O	Y	15	1
1G	Yellow/Blue	BL	G	15	1
N	Black/Blue	BK	N	15	1
	Brown/Red				
	Brown/Blue				
	Brown/Black				
	Red/Orange				
	Blue/Orange				
	Black/Orange				
	Yellow				
	Brown				
	Yellow/Orange				
	Brown/Orange				

POLE:	A5	CABLE SIZE:		20/C	
CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
1R	Red	R	RA	7	1
1Y	Orange	O	YA	7	1
1G	Blue	BL	GA	7	1
N	Black	BK	N	7	1
6R	Red/Black	R	R	16	6
6Y	Orange/Black	O	Y	16	6
6G	Blue/Black	BL	G	16	6
N	Yellow/Black	BK	N	16	6
6R	Yellow/Red	R	R	17	6
6Y	Orange/Red	O	Y	17	6
6G	Blue/Red	BL	G	17	6
N	Black/Red	BK	N	17	6
6R	Red/Blue	R	R	18	6
6Y	Orange/Blue	O	Y	18	6
6G	Yellow/Blue	BL	G	18	6
N	Black/Blue	BK	N	18	6
	Red/Orange				
	Blue/Orange				
	Black/Orange				
	Yellow				
	Brown				
	Brown/Black				
	Brown/Red				
	Brown/Blue				

POLE:	A6	CABLE SIZE:		7/C	
CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
3R	Red	R	RA	8	3
3Y	Orange	O	YA	8	3
3G	Blue	BL	GA	8	3
N	Black	BK	N	8	3
	Red/Black				
	Blue/Black				
	Orange/Black				
	Yellow				
	Brown				

Plot Scale - 1:200

Plotted From - TRRC12245

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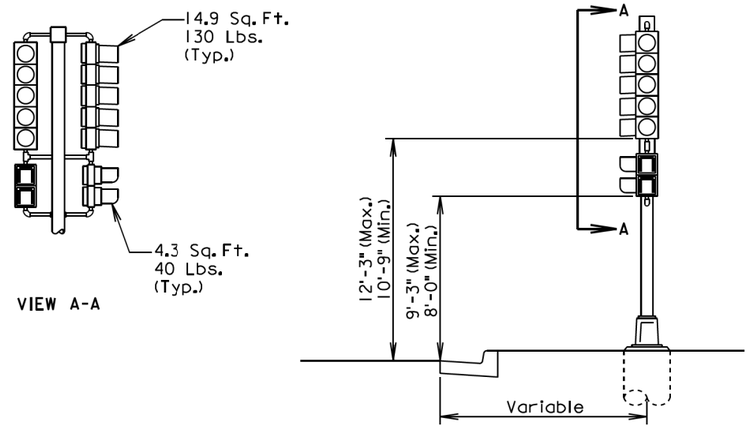
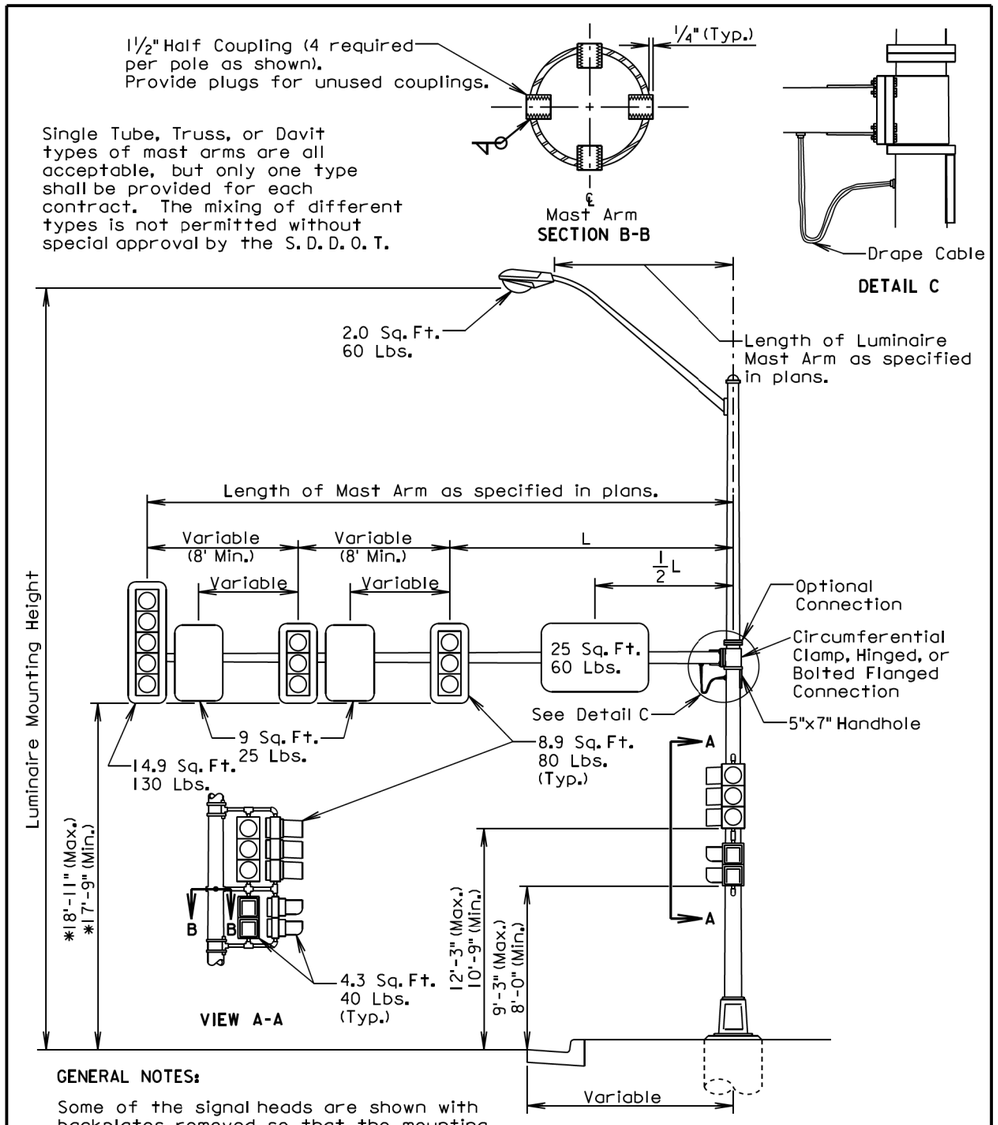


GENERAL NOTE:

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

October 15, 2007

Published Date: 1st Qtr. 2021	SDDOT	**SIGNAL POLE (PEDESTAL)**	PLATE NUMBER 635.30 Sheet 1 of 1



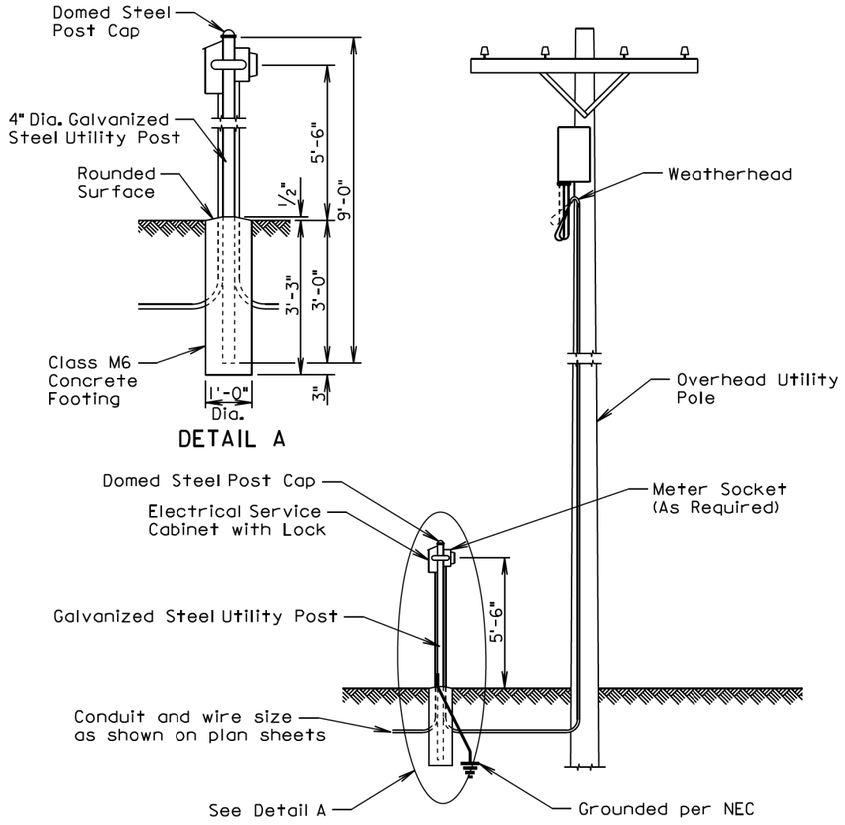
GENERAL NOTES:

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

Published Date: 1st Qtr. 2021	SDDOT	**SIGNAL POLE (WITH MAST ARM AND LUMINAIRE EXTENSION)**	PLATE NUMBER 635.32 Sheet 1 of 1



GENERAL NOTES:

The service cabinet shall include an externally mounted 15A receptacle outlet. The receptacle shall be housed in a lockable NEMA 3R enclosure. The Contractor shall furnish a lock and keys to the Engineer as directed.

The concrete for the post footing shall be class M6 concrete.

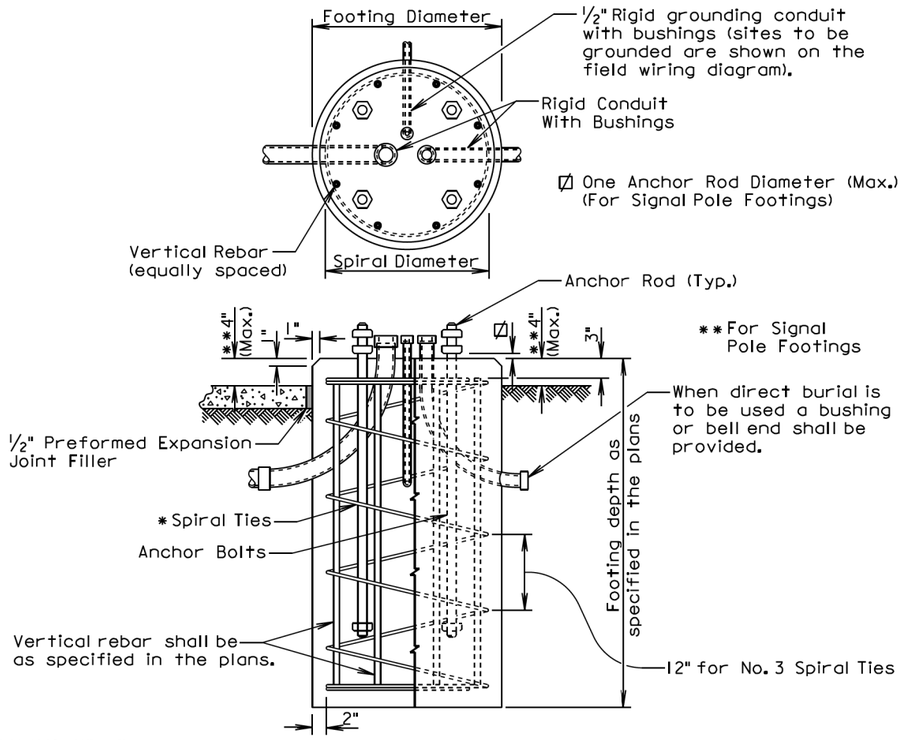
The 4" diameter galvanized steel utility post shall be 9' long and shall be in conformance with AASHTO Standard Specifications M181. The post shall be Type 1 and either Grade 1 or Grade 2. The domed steel post cap shall be in conformance with AASHTO Standard Specifications M181 and shall be Type 1.

The Contractor shall contact and coordinate his/her work with the Utility Companies regarding hookup requirements, fees, materials, and equipment necessary.

All costs for furnishing and installing all materials from the electrical service cabinet to the transformer including labor, equipment, hookup fees, all items within the cabinet, lockable enclosure with receptacle outlet, lock and keys, post, concrete footing, post cap, meter socket if required, conduit, and incidentals shall be incidental to the contract unit price per each for "Electrical Service Cabinet".

June 26, 2016

Published Date: 1st Qtr. 2021	SDDOT	**GALVANIZED STEEL UTILITY POST WITH OVERHEAD UTILITY POLE**	PLATE NUMBER 635.35 Sheet 1 of 1



GENERAL NOTES:

* Circular ties may be used in lieu of the spiral ties. The No. 3 ties shall be spaced 12 inches apart except for the top two which shall be spaced 6 inches apart. The ties shall be lapped 18 inches and the laps shall be staggered around the cage.

Spiral ties shall have 1-1/2 extra turns at each end.

See Section 985 of the Specifications for footing materials.

Conduits and bushings may project 2½ inches to 6 inches above footing for fixed base poles but shall not project above the slip plane or fracture plane for breakaway poles.

Conduits shall be sealed water-tight during all phases of construction until poles are in place.

The anchor rods shall fit inside the reinforcing steel cage. If the anchor rods designed by the Pole Manufacturer do not fit, contact the Office of Bridge Design for footing redesign. No additional payment will be made for the redesigned footing.

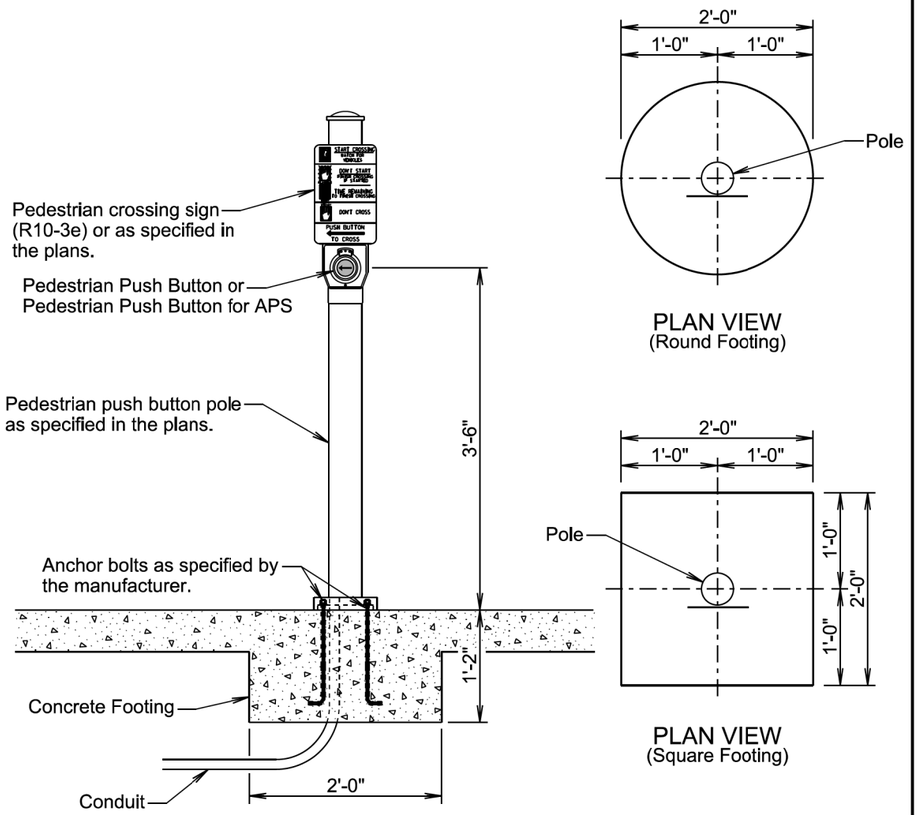
Costs of conduit and conduit bushings shown on footing detail shall be incidental to the footing bid item(s).

The pole shall not be installed until the concrete has attained design strength (4000 psi).

The contour of the area surrounding the breakaway pole shall be flat, though not necessarily level for a distance of 5 feet in all directions. The Contractor may be required to provide finish grading at some breakaway pole locations.

June 26, 2015

Published Date: 1st Qtr. 2021	SDDOT	**POLE FOOTING**	PLATE NUMBER 635.55 Sheet 1 of 1



GENERAL NOTES:

The pedestrian push button pole will be as specified in the plans.

The Contractor will install either the round or the square concrete footing. For informational purpose, the quantity of concrete for one footing is 0.14 cubic yards for the round footing and 0.17 cubic yards for the square footing.

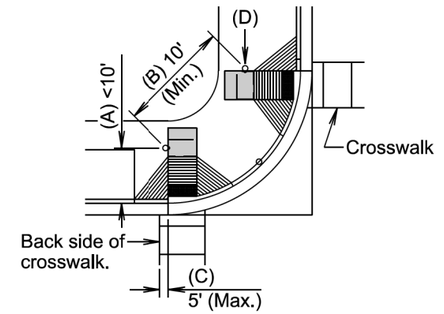
The concrete for the footing will be class M6 concrete.

All costs for furnishing and installing the concrete footing will be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.

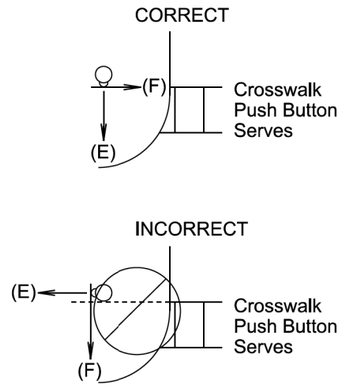
All costs for furnishing and installing the pedestrian push button pole including labor, equipment, and materials including the pole, cap, and the conduit in the footing will be incidental to the contract unit price per each for "Pedestrian Push Button Pole".

May 9, 2020

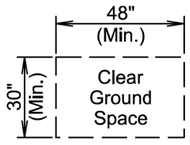
Published Date: 1st Qtr. 2021	SDDOT	***PEDESTRIAN PUSH BUTTON POLE***	***PLATE NUMBER 635.57*** *Sheet 1 of 2*



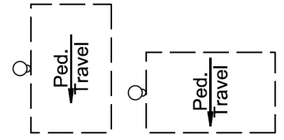
Push Button Relationship To Curb Ramp And Crosswalk



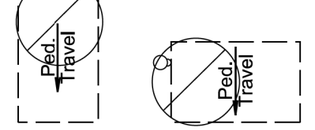
Push Button Orientation To Crosswalk



Clear Ground Space Dimensions



Correct Relationship



Incorrect Relationship

Clear space not adjacent to push button

Push button not Centered on Clear space

General Notes:

Pedestrian Push Buttons Location and Orientation Requirements:

(A) Within 10 feet from the front face of curb.
(B) Where two push buttons are provided, the push buttons should have at least 10 feet of separation from each other.
(C) If two curb ramps are used, the push button should be within 5 feet of the backside of the crosswalk.
(D) The push button should be mounted adjacent to a clear ground space (within 10 inches maximum reach). The clear ground space will be a least 30 inches x 48 inches and will slope no more than 50:1 (2%) in any direction. The push button will be centered on either side of the clear ground space (either the 30 inch or 48 inch side). The 30 inch x 48 inch clear ground space shouldn't touch the detectable warning panel.
(E) The push button should face the edge of roadway.
(F) The push button face should be parallel to the crosswalk being used.

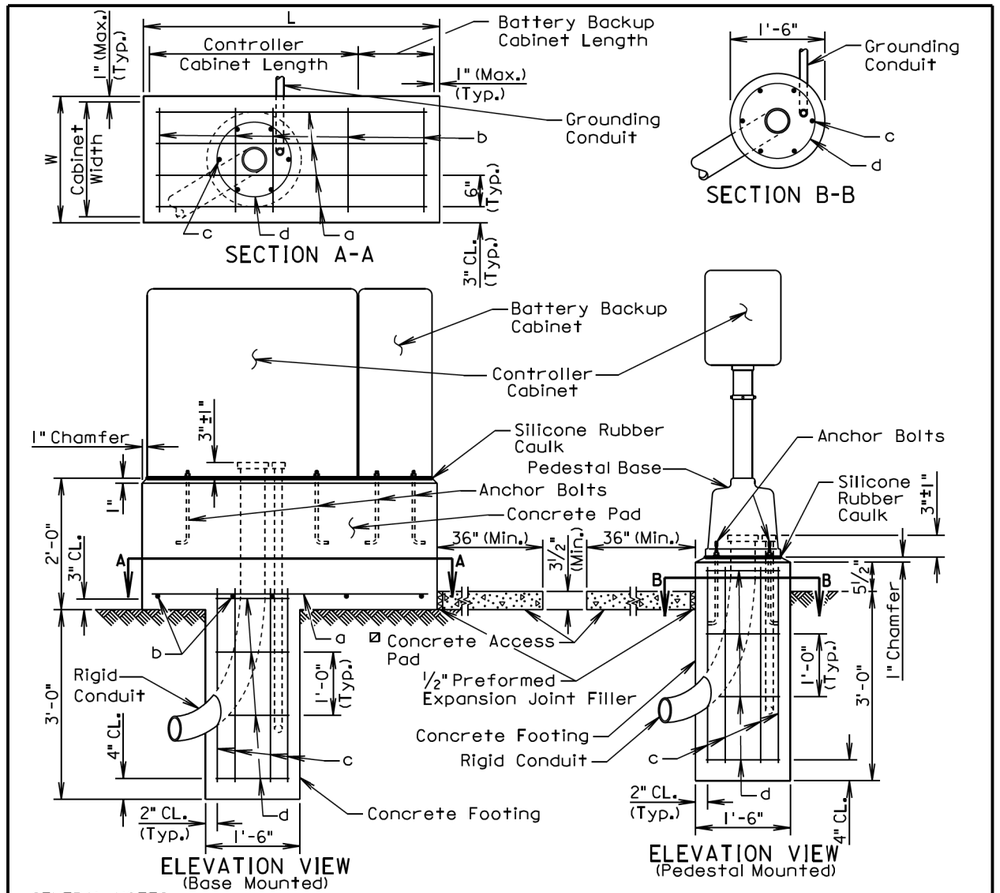
The push button poles will not interfere with the minimum clear width of the Pedestrian Access Route.

May 9, 2020

Published Date: 1st Qtr. 2021	SDDOT	***PEDESTRIAN PUSH BUTTON POLE***	***PLATE NUMBER 635.57*** *Sheet 2 of 2*

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L25	L27

Plotting Date: 02/18/2021



GENERAL NOTES:

The concrete pad shall conform to the base of the controller and battery backup cabinets to the satisfaction of the Engineer.

Conduits shall be sealed water-tight until the conductor cables are installed.

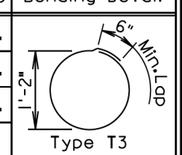
☑ If the controller and battery backup concrete pad and footing is not located within or adjacent to an existing sidewalk, the Contractor shall provide a concrete access pad as directed by the Engineer.

Anchor bolts and related hardware shall conform to the controller and battery backup cabinets manufacturer's specifications.

A continuous bead of silicone rubber caulk shall provide a weather-tight seal between the concrete pad or footing, and the cabinet or base.

REINFORCING SCHEDULE
(for one footing)

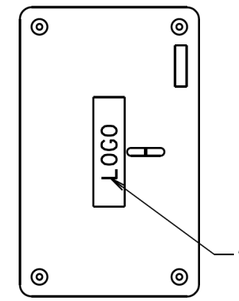
Mk.	No.	Size	Length	Type	Bending Detail
a	*	3	L - 4"	Str.	
b	*	3	W - 4"	Str.	
c	6	6	3'-0"	Str.	
d	4	3	4'-0"	T3	



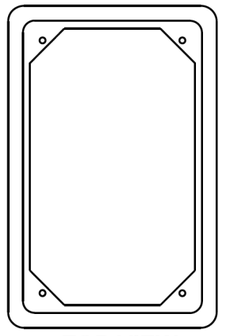
Note: Dimensions are out to out of bar
* Vary number of bars as required by footing size.

March 21, 2016

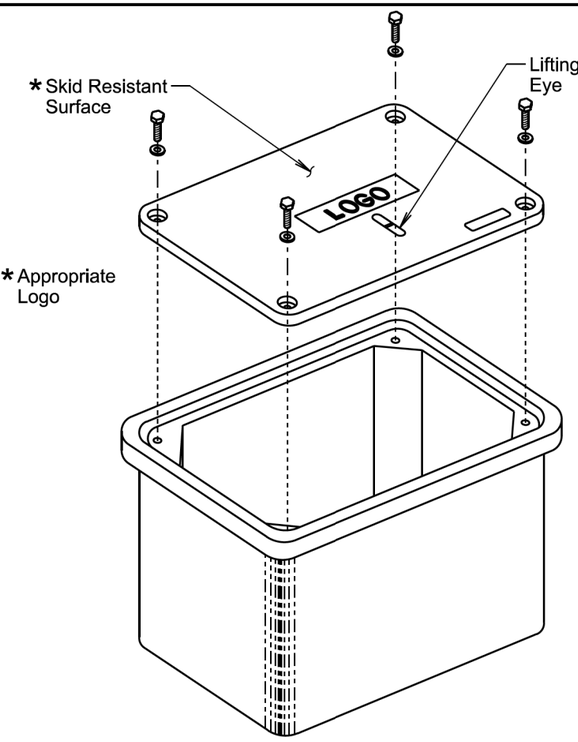
Published Date: 1st Qtr. 2021	SDDOT	CONTROLLER CABINET AND FOOTING	PLATE NUMBER 635.60
			Sheet 1 of 1



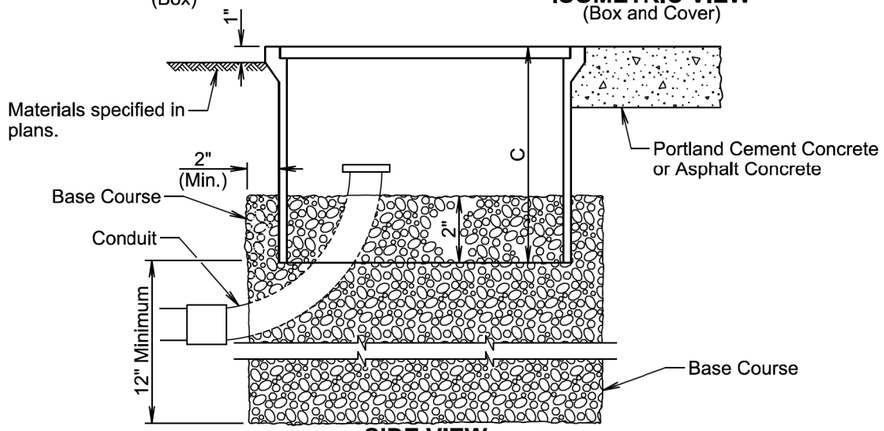
TOP VIEW
(Cover)



TOP VIEW
(Box)



ISOMETRIC VIEW
(Box and Cover)



SIDE VIEW
(Electrical Junction Box Installation Details)
(Buried No. 4 steel reinforcing bar not shown.)

November 19, 2020

Published Date: 1st Qtr. 2021	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
			Sheet 1 of 2

Plot Scale - 1:200

Plotted From - TRRC12245

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ELECTRICAL JUNCTION BOX			
TYPE	DESCRIPTION	APPROXIMATE COVER SIZE	MINIMUM DEPTH (C)
1	Open Bottom with Gasket	11"x18"	18"
2	Open Bottom with Gasket	13"x24"	18"
3	Open Bottom with Gasket	17"x30"	18"
3A	Open Bottom with Gasket	24"x36"***	24"
4	Open Bottom with Gasket	30"x48"***	24"

GENERAL NOTES:

The cover will be gasketed with a minimum of two stainless steel bolts and washers.

The cover will have a lifting eye.

* The surface of the cover will have a minimum wet and dry coefficient of friction value of 0.5 as determined by ASTM F609.

** The cover of the junction box will have the appropriate logo in one inch size letters and will be recessed. When the junction box contains cables or wires for a traffic signal then the logo will be "Signal". When the junction box contains lighting conductors then the logo will be "Lighting".

*** Two piece covers will be used for Type 3A and Type 4 junction boxes.

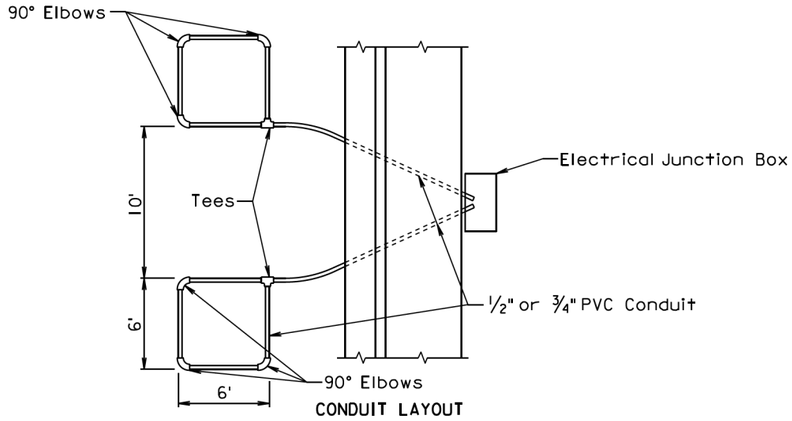
The electrical junction boxes will comply with the American National Standards Institute (ANSI)/Society of Cable Telecommunications Engineers (SCTE) 77 2007 Specification for Underground Enclosure Integrity. The loading requirement for all electrical junction boxes and covers will be Tier 22 of ANSI/SCTE 77 2007.

The electrical junction boxes will be UL listed.

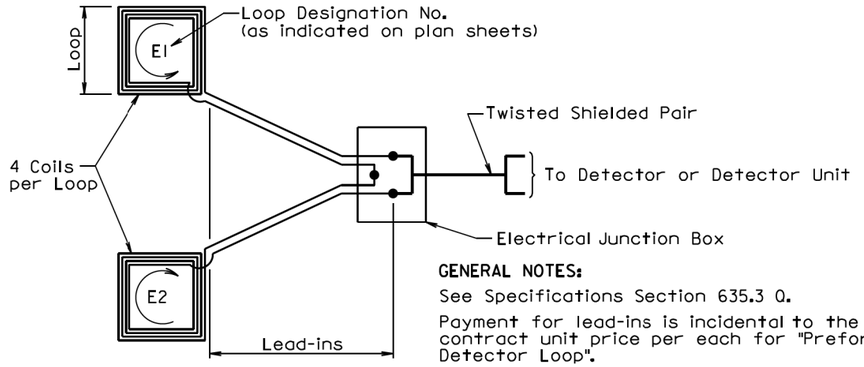
For junction boxes located outside of pavement, a No. 4 steel reinforcing bar with a minimum length of 18" will be buried adjacent to the long side of the junction box. All costs associated with furnishing and placing the steel reinforcing bar will be incidental to the contract unit price per each for "Type _ Electrical Junction Box".

November 19, 2020

Published Date: 1st Qtr. 2021	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
			Sheet 2 of 2



CONDUIT LAYOUT

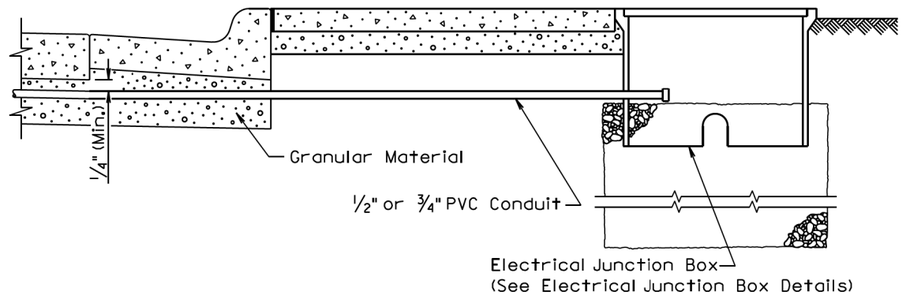


GENERAL NOTES:

See Specifications Section 635.3 Q.

Payment for lead-ins is incidental to the contract unit price per each for "Preformed Detector Loop".

WIRING DIAGRAM



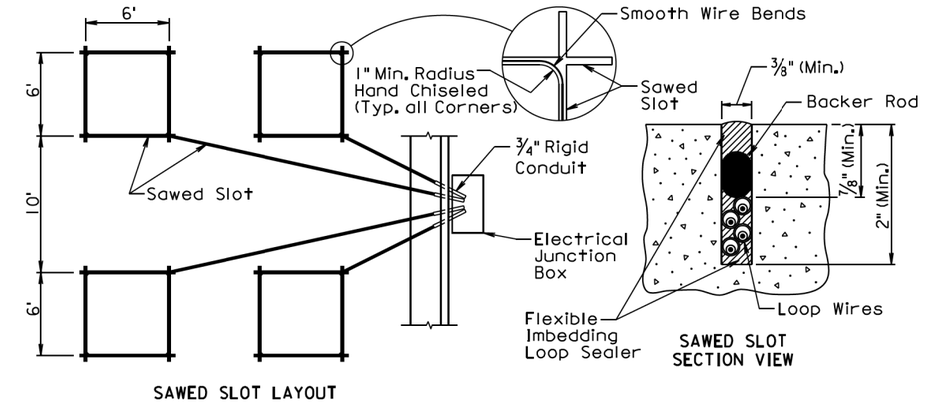
LEAD-IN DETAIL

June 26, 2015

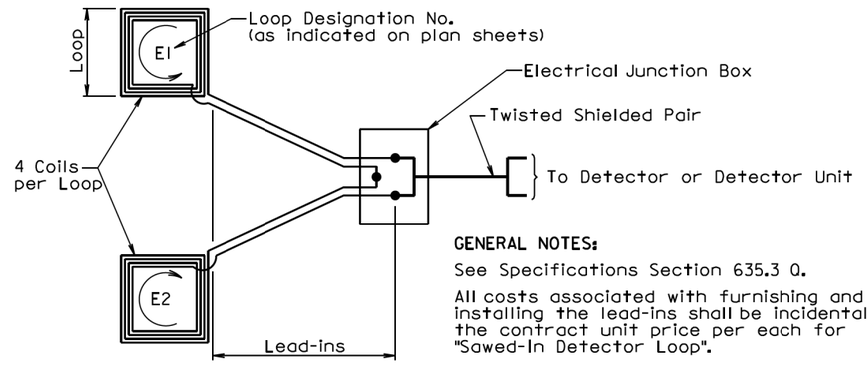
Published Date: 1st Qtr. 2021	SDDOT	PREFORMED DETECTOR LOOP	PLATE NUMBER 635.70
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(00)54 NH 0085(114)54 NH 0212(00)13	L27	L27

Plotting Date: 02/18/2021



SAWED SLOT LAYOUT

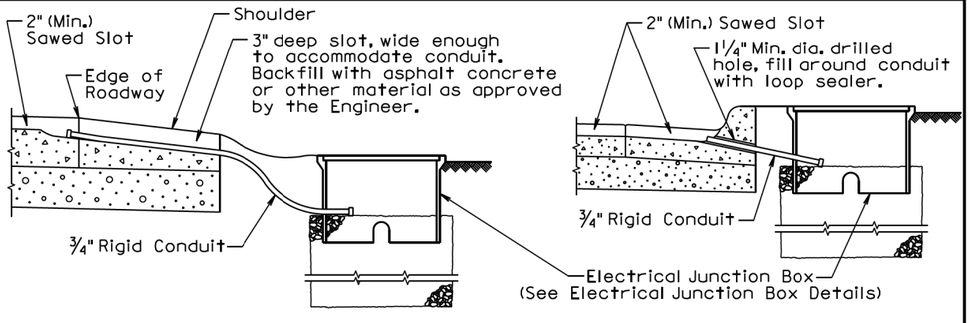


WIRING DIAGRAM

GENERAL NOTES:

See Specifications Section 635.3 Q.

All costs associated with furnishing and installing the lead-ins shall be incidental to the contract unit price per each for "Sawed-In Detector Loop".

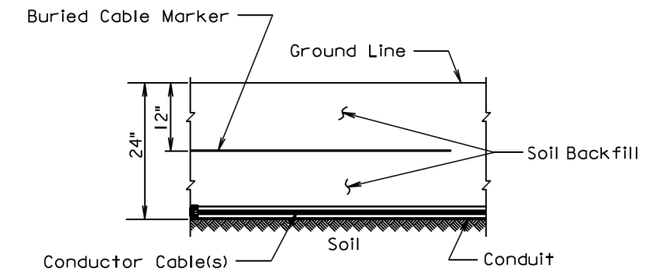


LEAD-IN THROUGH SHOULDER DETAIL

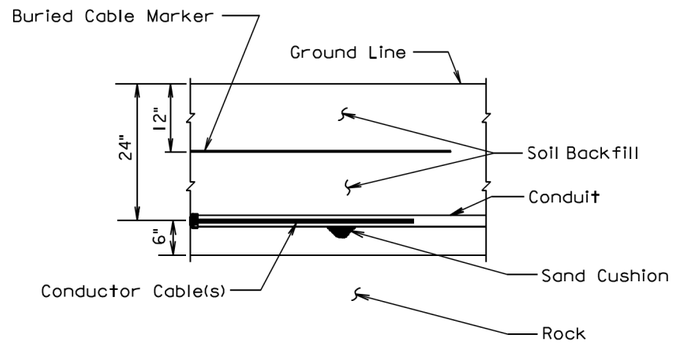
LEAD-IN THROUGH CURB AND GUTTER DETAIL

June 26, 2015

Published Date: 1st Qtr. 2021	SDDOT	SAWED-IN DETECTOR LOOP	PLATE NUMBER 635.71 Sheet 1 of 1



SECTION VIEW



SECTION VIEW

GENERAL NOTE:

The Buried Cable Marker shall be plastic, approximately 6" wide, and shall be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker shall have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence of a buried electric circuit below shall be printed in a contrasting color on the cable marker. The Buried Cable Marker shall be subject to approval by the Engineer. All costs associated with furnishing and installing the Buried Cable Marker shall be incidental to the contract unit price per Foot for the bid item used for the electrical conductor.

March 31, 2000

Published Date: 1st Qtr. 2021	SDDOT	CONDUIT INSTALLATION	PLATE NUMBER 635.76 Sheet 1 of 1

Plot Scale - 1:200

Plotted From - TRRC12245

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