

SECTION L: LIGHTING PLANS

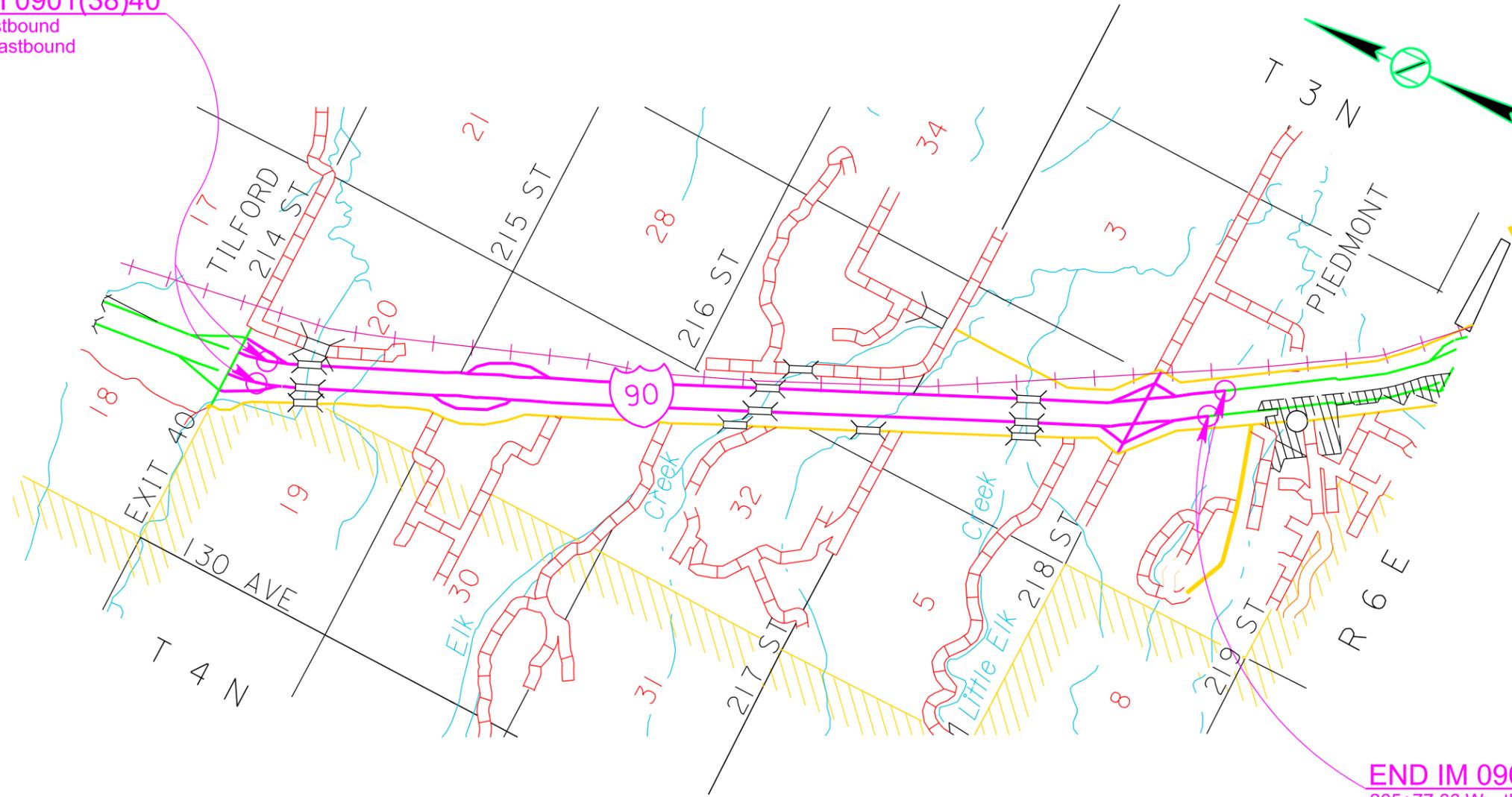
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(38)40	L1	L12

Plotting Date: 02/26/2016

INDEX OF SHEETS

- L1 General Layout W/Index
- L2-L3 Estimate with General Notes & Tables
- L4-L7 Conduit Layouts
- L8 Wiring Diagrams
- L9-L12 Standard Plates

BEGIN IM 0901(38)40
 10+00.00 Westbound
 1010+00.00 Eastbound



END IM 0901(38)40
 265+77.66 Westbound
 1262+12.95 Eastbound

Plot Scale - 1:200

Plotted From - trpr14286

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SECTION L ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1540	Remove Luminaire Pole Footing	6	Each
635E5020	2' Diameter Footing	44.0	Ft
635E5302	Type 2 Electrical Junction Box	2	Each
635E7500	Remove and Reset Luminaire Pole	6	Each
635E8120	2" Rigid Conduit, Schedule 40	915	Ft
635E8220	2" Rigid Conduit, Schedule 80	100	Ft
635E9014	1/C #4 AWG Copper Wire	3,150	Ft

SHOP DRAWING AND CATALOG CUTS SUBMITTALS

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

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

Norris.Leone@state.sd.us
Pete.Longman@state.sd.us

REMOVE LUMINAIRE POLE FOOTING

The footings of existing luminaire poles EL1-EL6 shall be removed by the Contractor to a minimum of 2' below the ground surface. Restoration of the disturbed area shall be to the satisfaction of the Engineer.

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

REMOVE AND RESET LUMINAIRE POLE

Existing luminaire poles EL1-EL6 shall be removed and reset as REL1-REL6 as shown on the plan sheets. If the existing anchor bolts were a j-hook style which is no longer acceptable, a recommendation from the manufacturer will be required to be supplied to the Engineer for the design of the anchor bolts.

It shall be the Contractor's responsibility to obtain the bolt circle pattern and anchor bolts for the relocated poles from the pole manufacturer listed below. The poles were originally installed under Project No. IM 90-1(00)41.

Valmont Industries, Inc.
 P.O. Box 358
 Valley, NE 68064
 Phone (402) 359-2201

Luminaire poles and luminaires damaged during relocation shall be repaired or replaced by the Contractor at no cost to the State.

All costs involved with removing and resetting the existing luminaire poles including new anchor bolts with associated hardware, shall be incidental to the contract unit price per each for "Remove and Reset Luminaire Pole".

SUBSURFACE

The subsurface conditions within the limits of the project consist of 4 to 5 ft of brown silt-clay with gravel (Fill) covering material varying from red clay-silt (Spearfish Formation) to brown silt-clay with gravel (Alluvium/Terrace Deposits) to 14.5 ft. below the surface. Groundwater was measured 7.0 ft. to 11.8 ft. below the surface at the time of the subsurface investigation in June 2014.

During construction of the cylindrical footings, concrete placement operations should closely follow excavation procedures. The longer the excavations are left open the more likely caving may occur.

Concrete shall not be dropped through standing water. If water is present in the excavation it shall be removed prior to concrete placement or the concrete shall be tremied.

The boring logs and laboratory tests are available for review at the Central Office in Pierre. If questions arise or additional information is needed concerning the cylindrical footings contact the Geotechnical Engineering Activity in Pierre at (605) 773-3401.

TABLE OF FOOTING DATA

Site Designation	Footing Diameter	* Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
REL 1-2 & REL 5-6	2' - 0"	7' - 0"	1' - 8"	49' - 6"	8-#7 x 6' - 6"
REL 3-4	2' - 0"	8' - 0"	1' - 8"	54' - 9"	8-#7 x 7' - 6"

* Footing depth shall be below ground level.
 ** The size of all spirals shall be #3.

STATE OF SOUTH DAKOTA	PROJECT IM 0901(38)40	SHEET L2	TOTAL SHEETS L12
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Plotting Date: 06/22/2016

Plot Scale - 1:200

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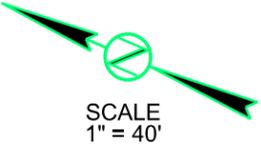
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CONDUIT LAYOUT

I90 EASTBOUND

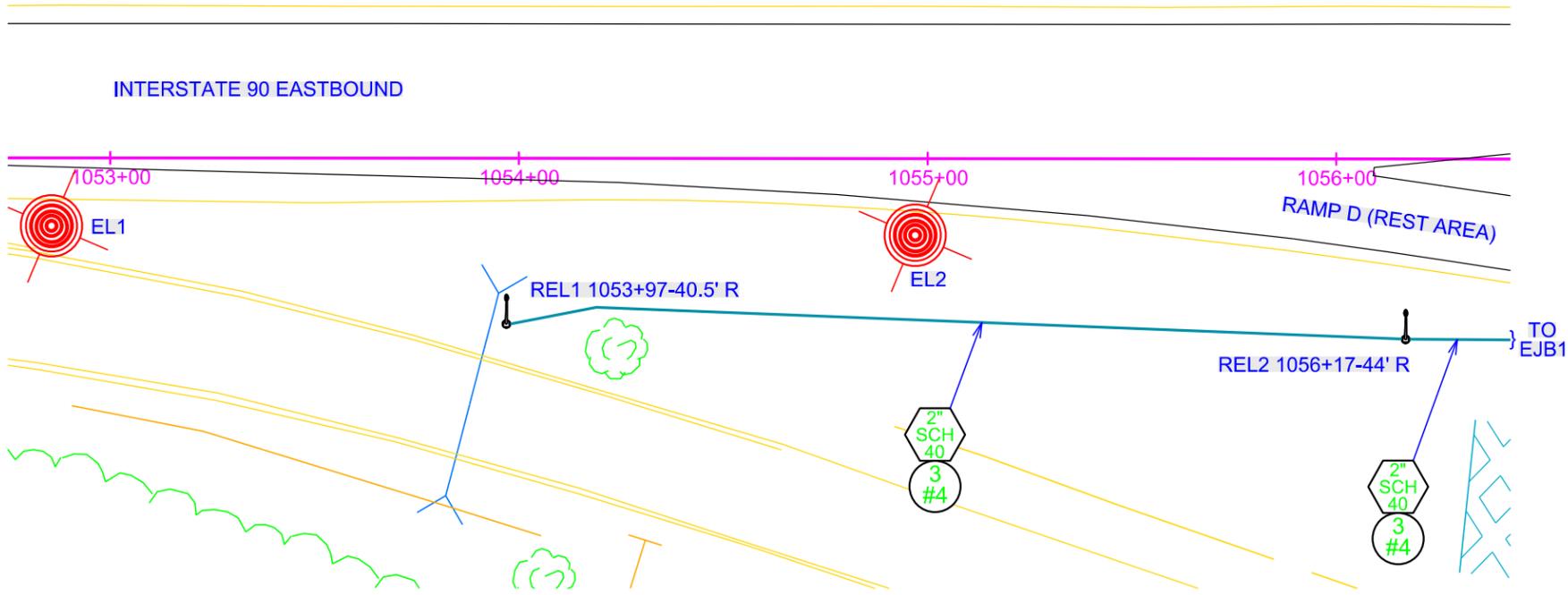
STATE OF SOUTH DAKOTA	PROJECT IM 0901(38)40	SHEET L4	TOTAL SHEETS L12
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Plotting Date: 06/22/2016



ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
○	2' DIAMETER FOOTING (REL1-REL6)	44	FT
□	TYPE 2 ELECTRICAL JUNCTION BOX (JL1 - JL2)	2	EACH
◆	REMOVE AND RESET LUMINAIRE POLE (EL1 - EL6)	6	EACH
◆	REMOVE LUMINAIRE POLE FOOTING (EL1 - EL6)	6	EACH
◇	2" RIGID CONDUIT, SCHEDULE 40	915	FT
◇	2" RIGID CONDUIT, SCHEDULE 80	100	FT
○	1/C #4 AWG COPPER WIRE	3,150	FT



Plot Scale - 1:40

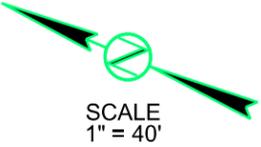
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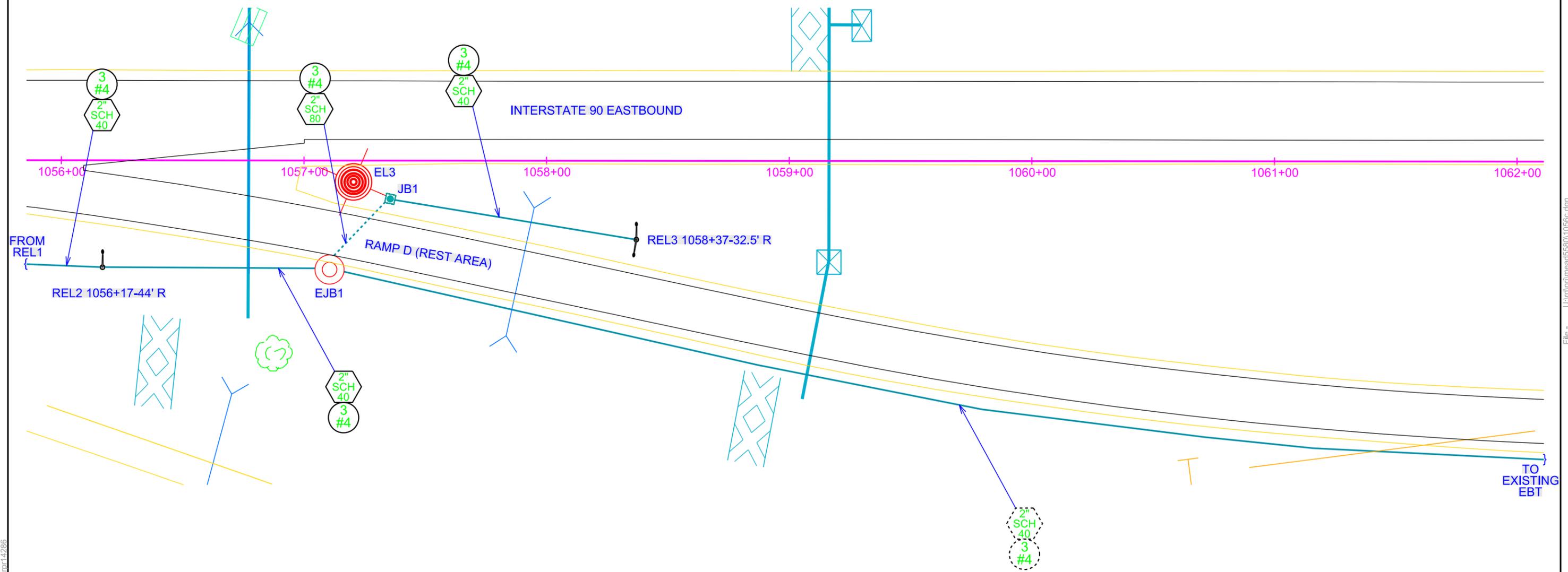
CONDUIT LAYOUT

I90 EASTBOUND

STATE OF SOUTH DAKOTA	PROJECT IM 0901(38)40	SHEET L5	TOTAL SHEETS L12
Plotting Date: 06/22/2016			



Plot Scale - 1"=40'



Plotted From - trp14286

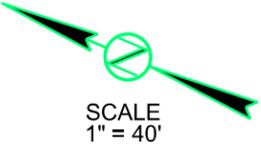
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CONDUIT LAYOUT

I90 WESTBOUND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(38)40	L6	L12

Plotting Date: 02/26/2016



FROM EXISTING WBT

3
#4
2"
SCH
40

3
#4
2"
SCH
40

TO EJB6

TO JB2

REL4 81+70-33.8' L

RAMP B (REST AREA)

76+00 77+00 78+00 79+00 80+00 81+00 82+00

INTERSTATE 90 WESTBOUND

Plot Scale - 1"=40'

Plotted From - trpr14286

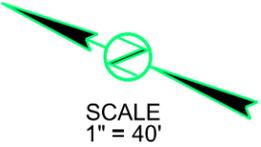
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CONDUIT LAYOUT

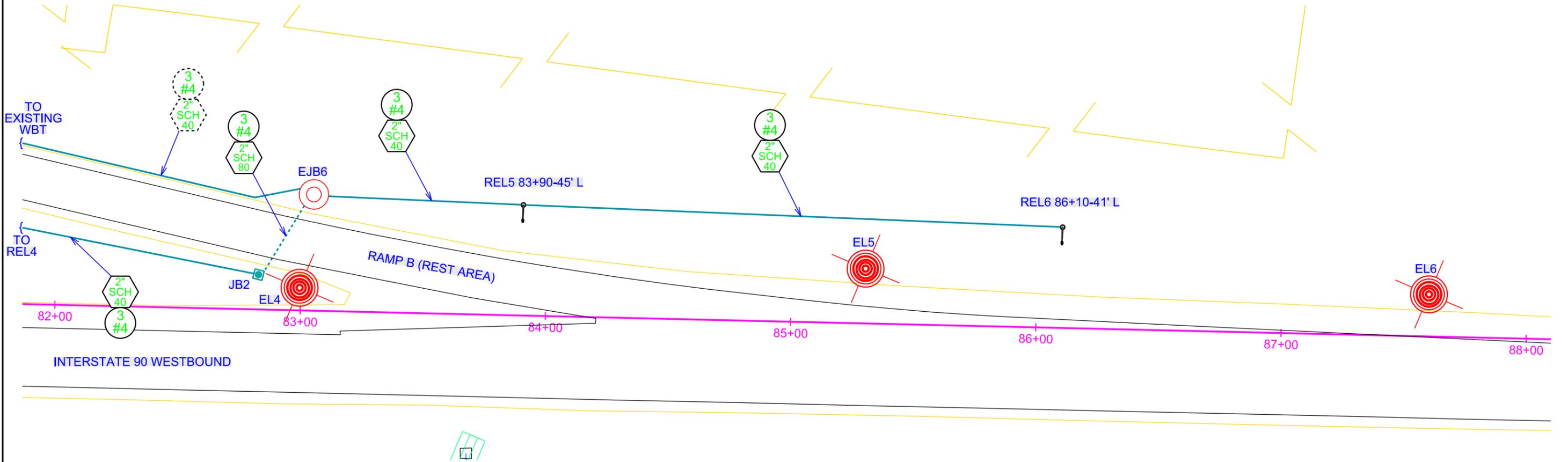
I90 WESTBOUND

STATE OF SOUTH DAKOTA	PROJECT IM 0901(38)40	SHEET L7	TOTAL SHEETS L12
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Plotting Date: 02/26/2016



Plot Scale - 1"=40'



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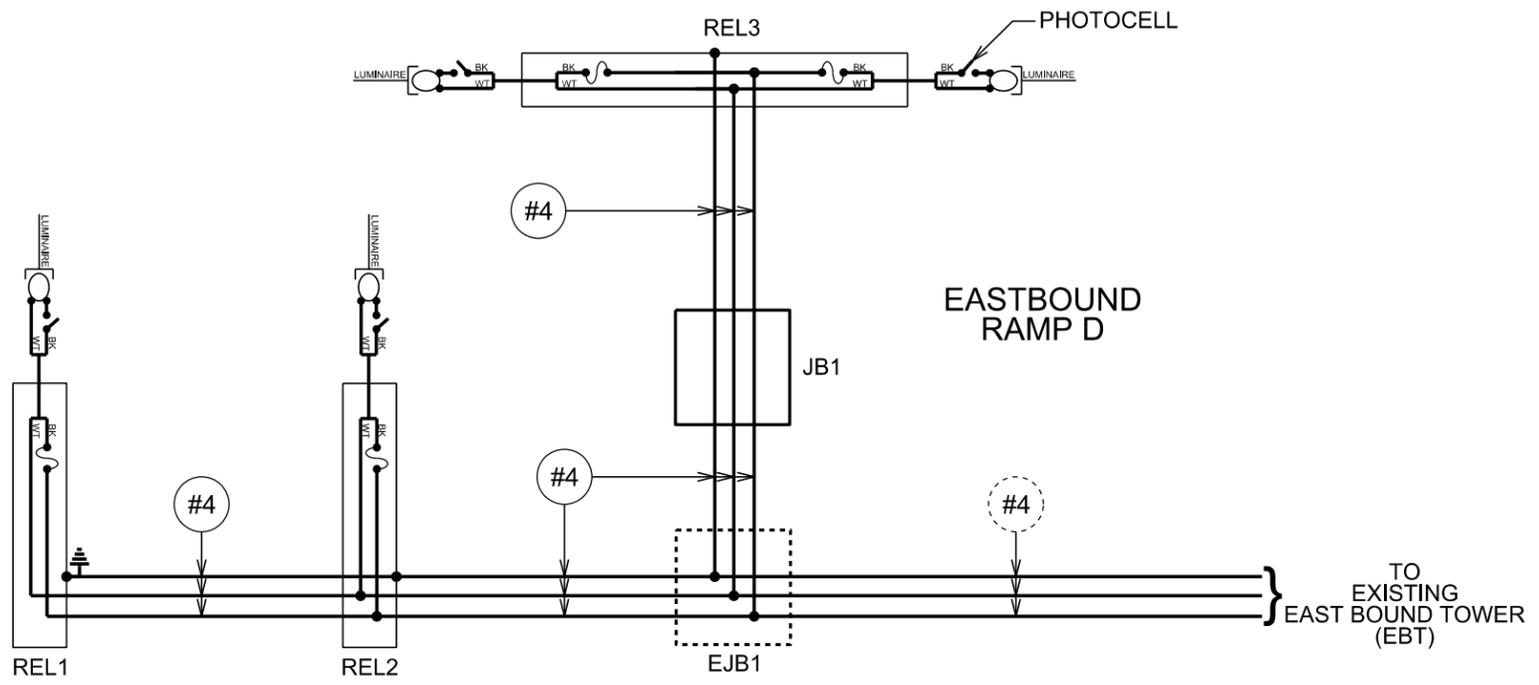
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WIRING DIAGRAM I90/EB & WB REST AREAS

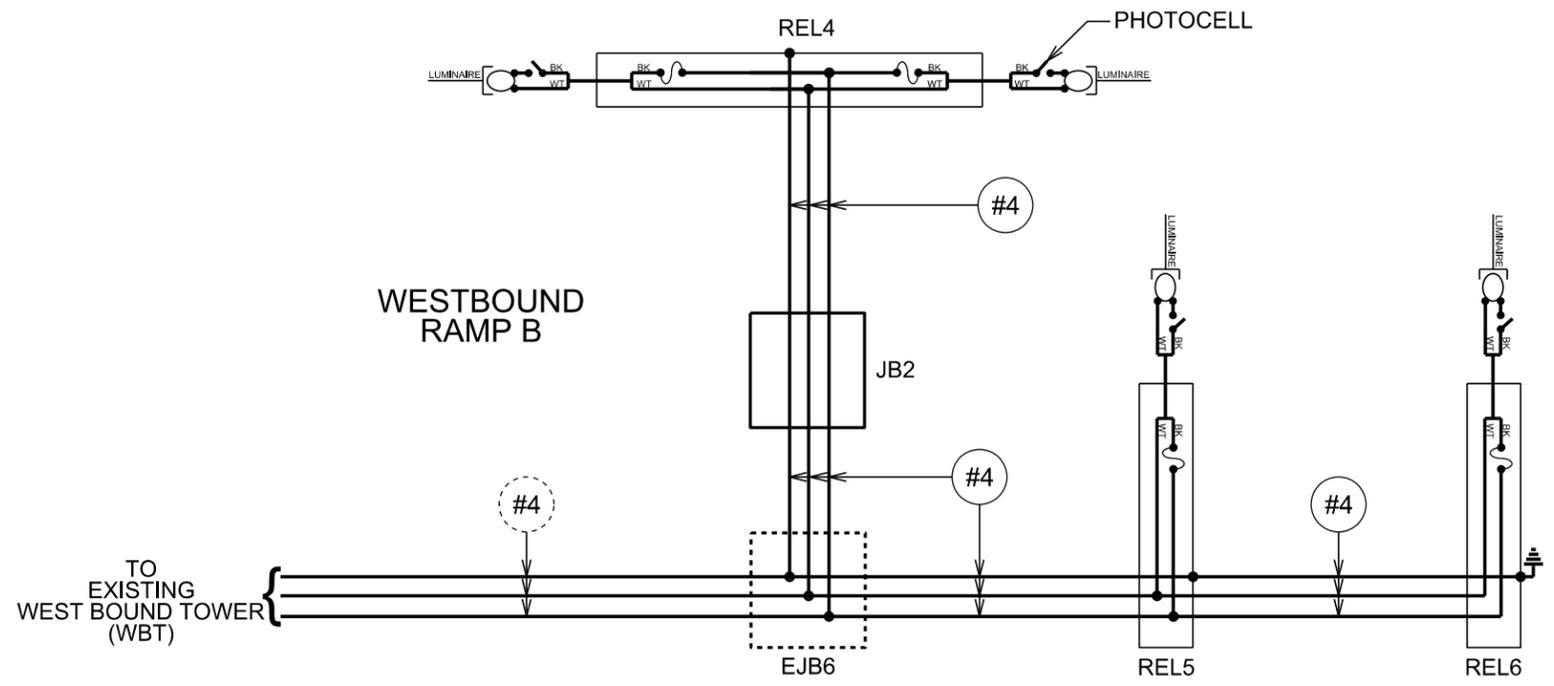
STATE OF SOUTH DAKOTA	PROJECT IM 0901(38)40	SHEET L8	TOTAL SHEETS L12
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Plotting Date: 06/22/2016

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LEGEND:
 FUSE: 6 amp. Non-Time Delay
 or
 2 8/10 amp. Dual Element
 LUMINAIRE: 400 watt High Pressure Sodium Lamp

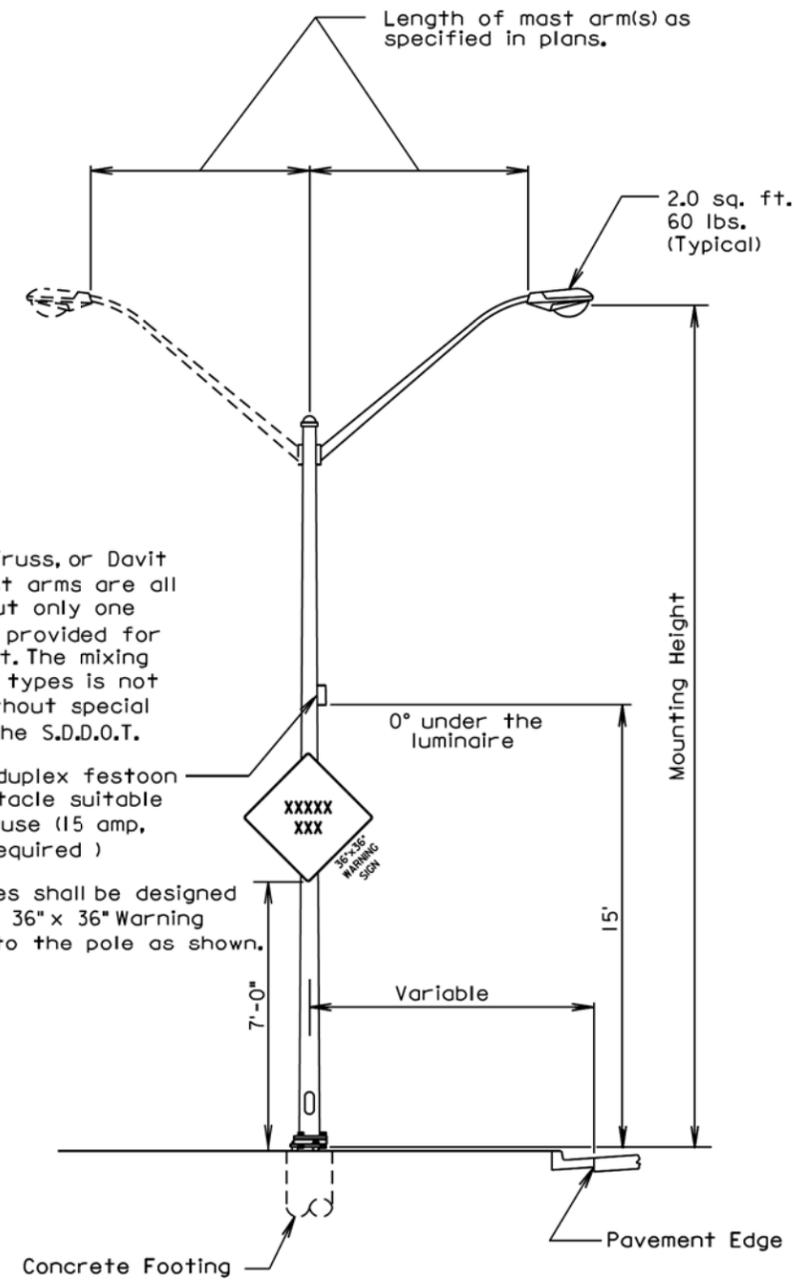


NOTE:
 All circuits shall be bonded in accordance with the NATIONAL ELECTRICAL CODE. Quantities for bonding conductors are not included in these plans.

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Plot Scale - 1:200



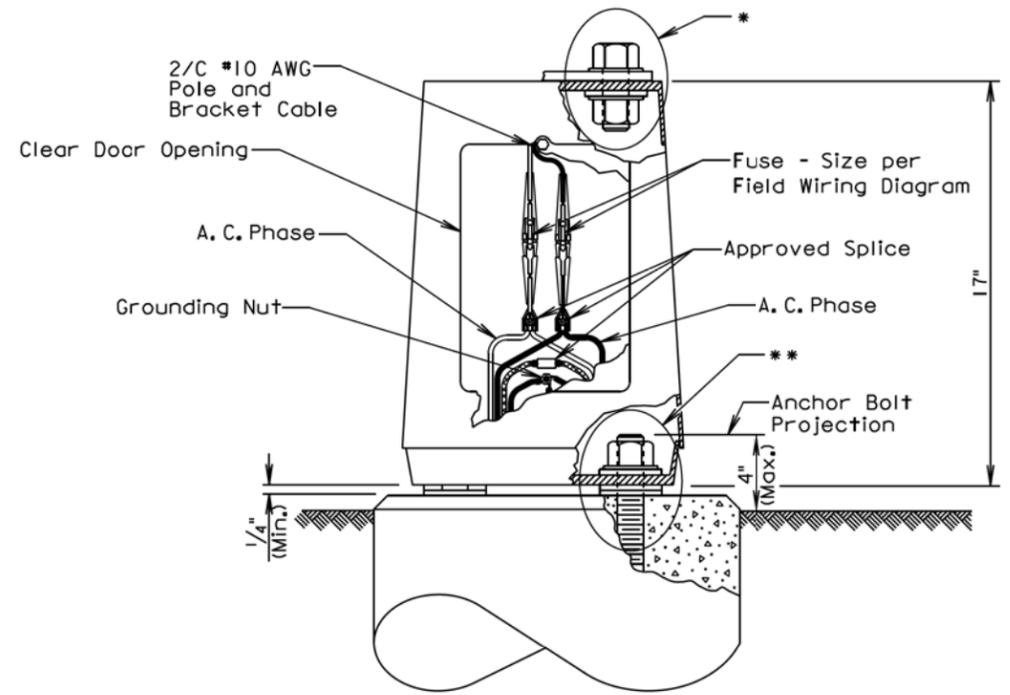
Single Tube, Truss, or Davit types of mast arms are all acceptable, but only one type shall be provided for each contract. The mixing of different types is not permitted without special approval by the S.D.D.O.T.

Convenience duplex festoon outlet receptacle suitable for outdoor use (15 amp, 3-wire) (as required)

Luminaire poles shall be designed to support a 36" x 36" Warning sign banded to the pole as shown.

March 31, 2000

S D D O T	STEEL ROADWAY LUMINAIRE POLE WITH MAST ARM(S)	PLATE NUMBER 635.01
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1



GENERAL NOTES:

- Base details are provided for example only and are not intended to be a complete design.
- Fused connectors shall be breakaway type.
- *Hardware connecting the pole to the base shall be installed in accordance with the manufacturer's recommendation.
- **Hardware connecting the base to the footing shall be installed in accordance with the manufacturer's recommendation. The Contractor shall install leveling devices in accordance with the manufacturer's recommendation if shimming is necessary to install the light poles plumb and level. The washers and shims shall be installed around the anchor bolts.

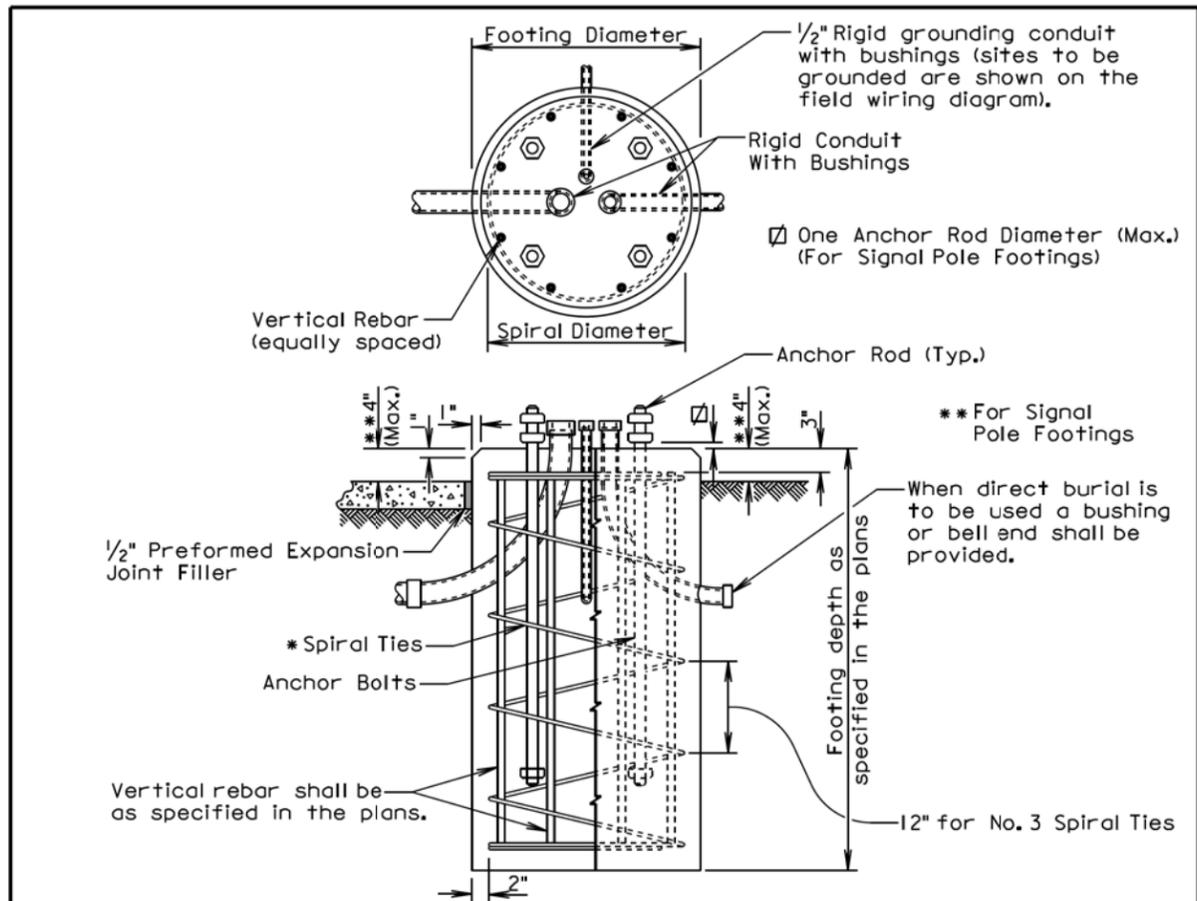
September 6, 2015

S D D O T	ROADWAY LUMINAIRE POLE BREAKAWAY TRANSFORMER BASE	PLATE NUMBER 635.21
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1

- Plotted From - tpr14286

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Plot Scale - 1:200

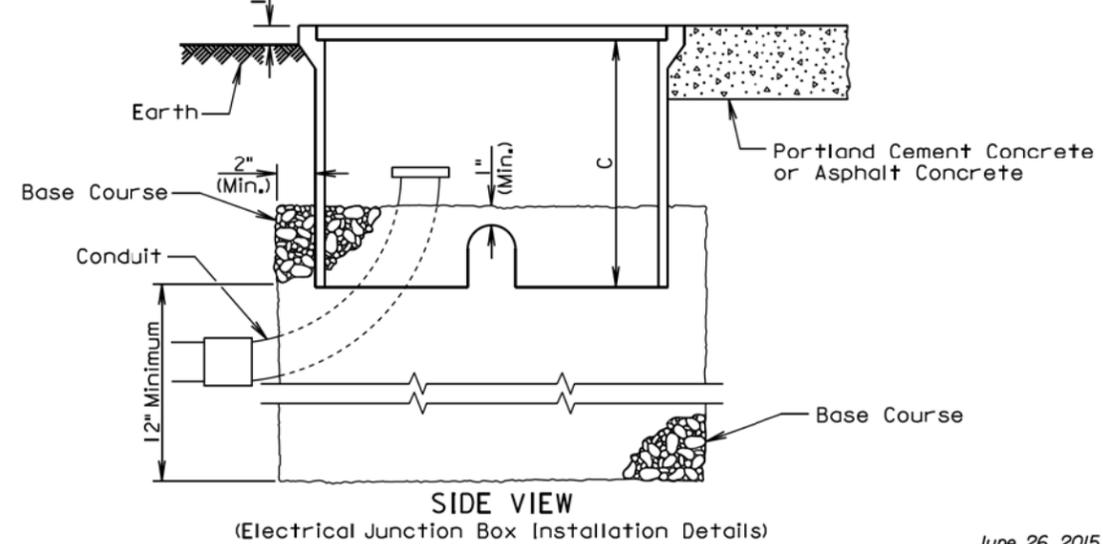
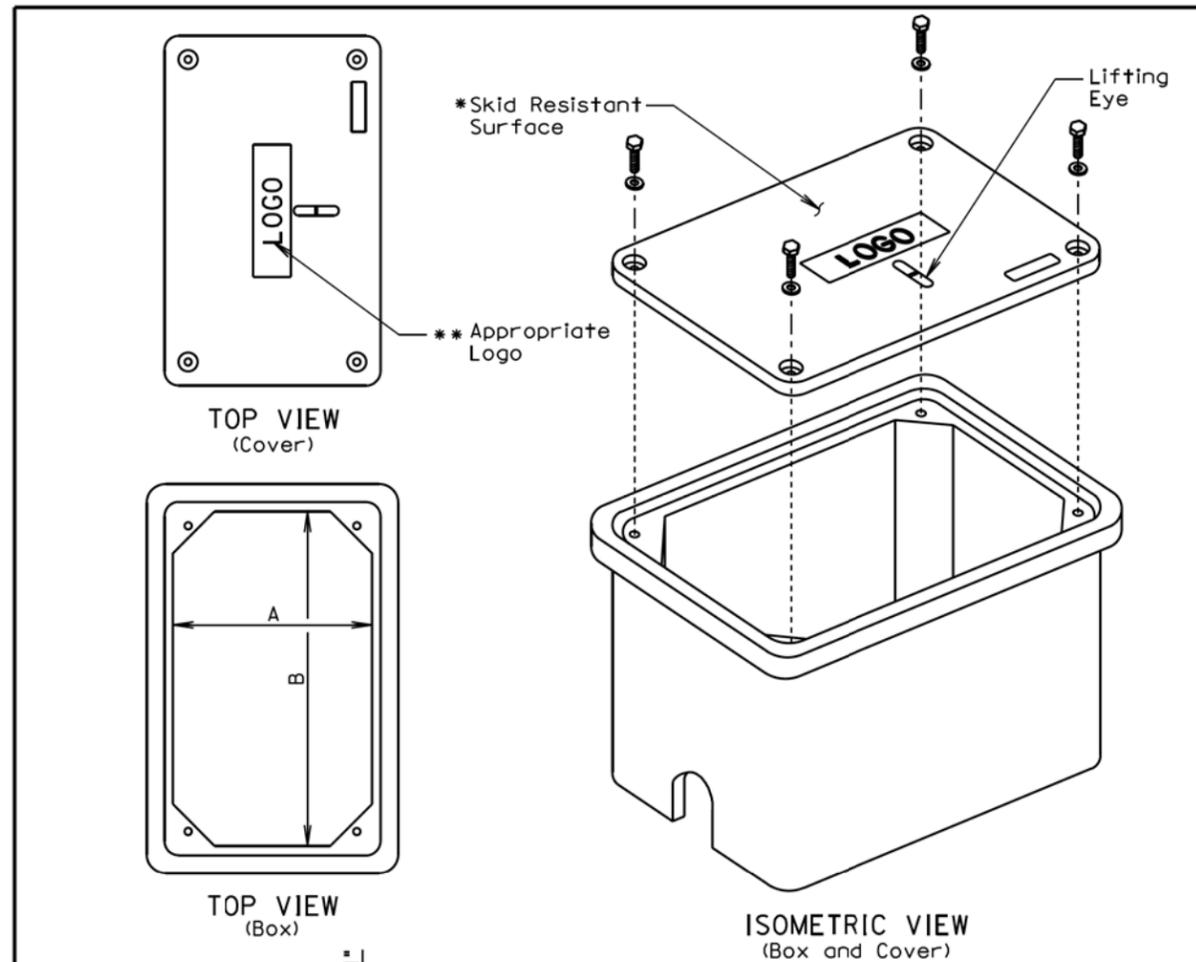


GENERAL NOTES:

- * 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 2 1/2 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

S D D O T	POLE FOOTING	PLATE NUMBER 635.55
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1



June 26, 2015

S D D O T	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65
	Published Date: 2nd Qtr. 2016	Sheet 1 of 2

- Plotted From - tpr14286

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ELECTRICAL JUNCTION BOX

TYPE	DESCRIPTION	DIMENSIONS		
		A	B	C
1	Open Bottom with Gasket	11"-15"	18"-21"	18" (Min.)
2	Open Bottom with Gasket	13"-18"	23"-28"	18" (Min.)
3	Open Bottom with Gasket	17"-22"	24"-30"	18" (Min.)
4	Open Bottom with Gasket	28"-33"	36"-48"	24" (Min.)

GENERAL NOTES:

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

The cover shall have a lifting eye.

*The surface of the cover shall have a minimum wet and dry coefficient of friction value of 0.5 as determined by ASTM F 609.

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

The electrical junction boxes shall 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 the electrical junction boxes shall be Tier 8 of ANSI/SCTE 77 2007.

The electrical junction boxes shall be UL listed.

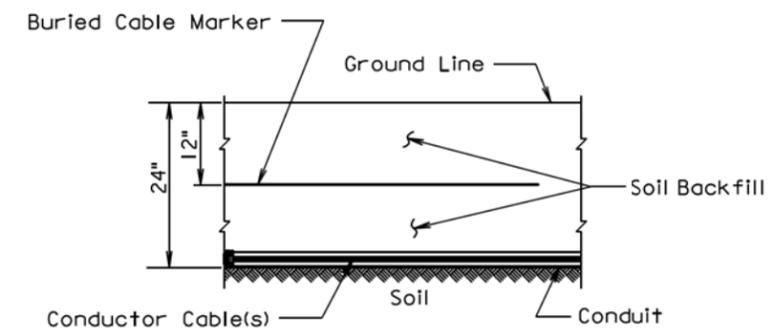
June 26, 2015

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**ELECTRICAL JUNCTION BOXES
TYPE 1 THROUGH TYPE 4**

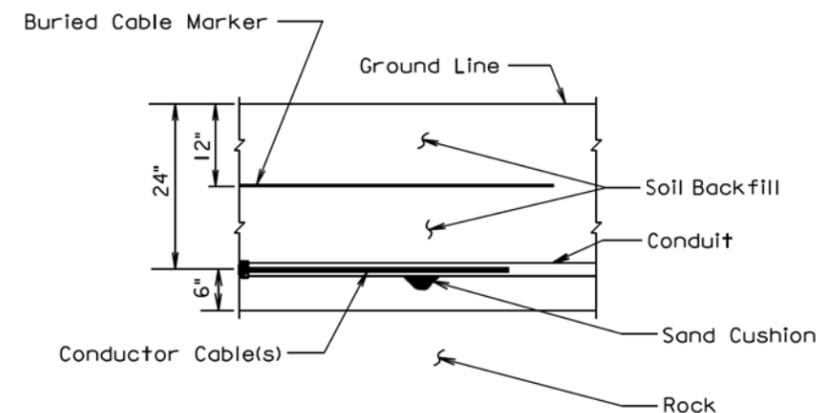
 PLATE NUMBER
635.65

Sheet 2 of 2

Published Date: 2nd Qtr. 2016



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.

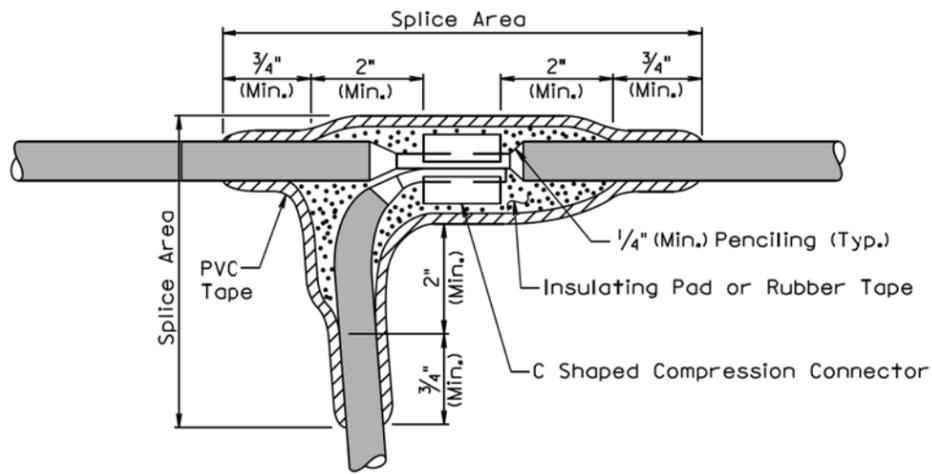
March 31, 2000

**S
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CONDUIT INSTALLATION

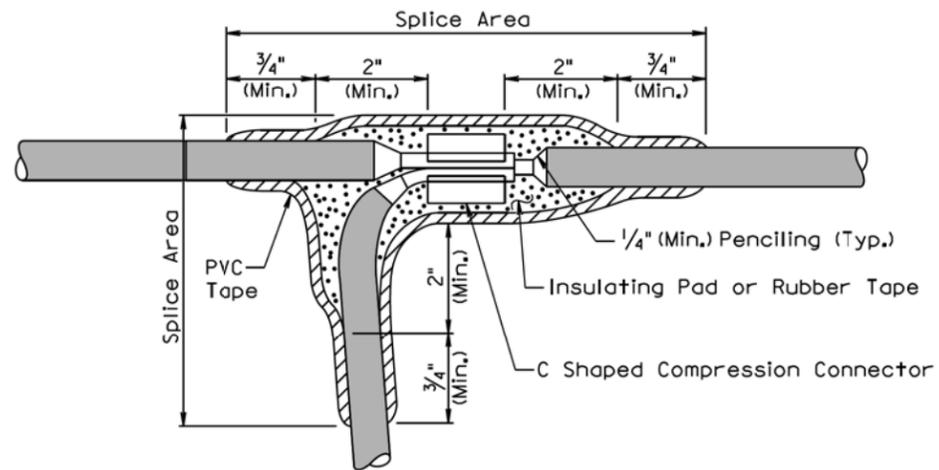
 PLATE NUMBER
635.76

Sheet 1 of 1

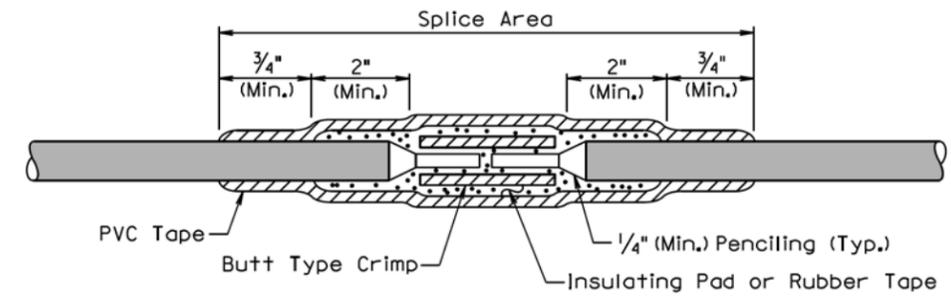
Published Date: 2nd Qtr. 2016



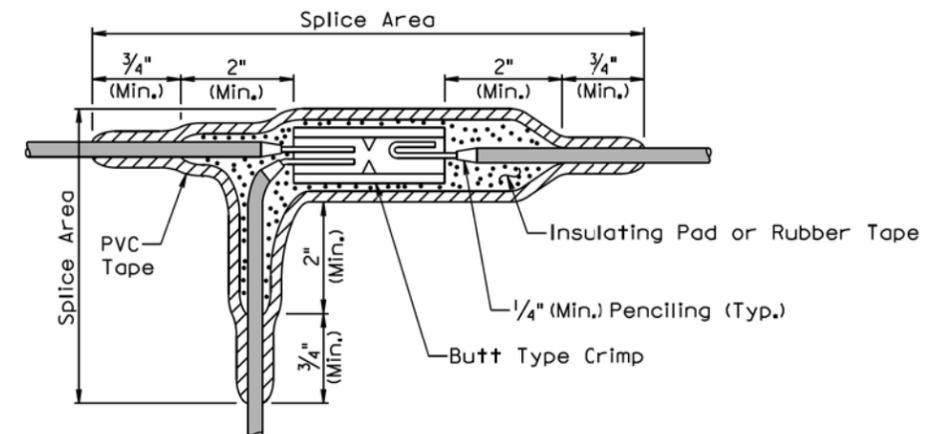
TYPE C SPLICE
(Between 1 free end and 1 through conductor)



TYPE T SPLICE
(For 3 free ends)



TYPE S SPLICE
(Between 2 free ends)



TYPE ST SPLICE
(For 3 free ends)

GENERAL NOTES:

The splice shall be environmentally sealed for protection from weather, moisture, and abrasion in accordance with the method stated below.

The rubber tapes shall be rolled after application.

Method for insulating splice area:

1. The splice area shall be completely covered with electrical insulating coating and dried.
2. Apply two layers of 1/8" minimum thickness electrical insulating pad or two layers of half lapped synthetic oil resistant self fusing rubber tape.
3. Three layers of half lapped polyvinyl chloride tape shall be applied.
4. The entire splice area shall be covered with electrical insulating coating and dried.

February 14, 2010

February 14, 2010

S D D O T	WIRE SPlicing FOR LIGHTING (LOW VOLTAGE CIRCUITS (0 to 600 V))	PLATE NUMBER 635.80
		Sheet 1 of 2

Published Date: 2nd Qtr. 2016

S D D O T	WIRE SPlicing FOR LIGHTING (LOW VOLTAGE CIRCUITS (0 to 600 V))	PLATE NUMBER 635.80
		Sheet 2 of 2

Published Date: 2nd Qtr. 2016