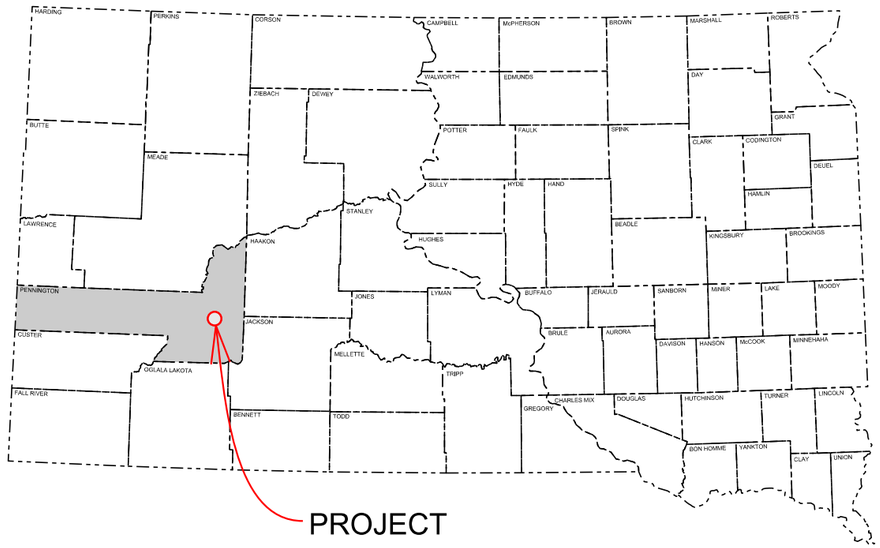


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT 410D388
PENNINGTON COUNTY

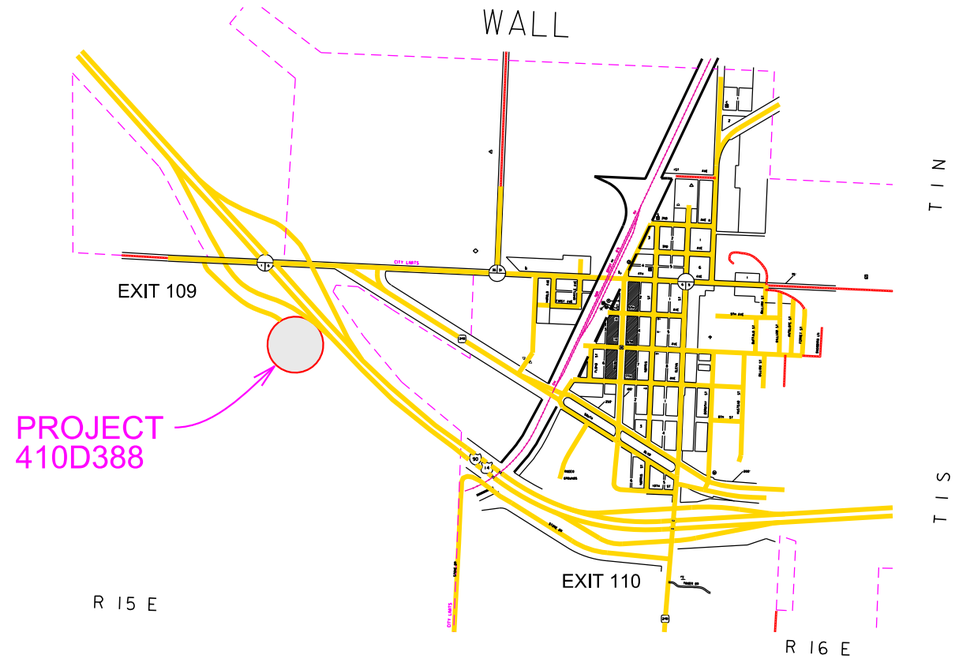
WALL MAINTENANCE YARD LIGHTING
PCN i4eg

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D388	1	12

Plotting Date: 07/26/2016

INDEX OF SECTIONS

1	General Layout with Index
2-4	Estimate With General Notes & Tables
5	Legend
6	Plan Sheet
7	Wiring Detail
8	Footing Detail
9-12	Standard Plates



STORM WATER PERMIT
None required

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
635E0150	Breakaway Base Luminaire Pole with Twin Arms, 50' Mounting Height	1	Each
635E3700	Roadway Luminaire, LED with Photoelectric Cell	2	Each
635E5020	2' Diameter Footing	14.0	Ft
635E5301	Type 1 Electrical Junction Box	2	Each
635E5400	Electrical Service Cabinet	1	Each
635E8120	2" Rigid Conduit, Schedule 40	30	Ft
635E8220	2" Rigid Conduit, Schedule 80	430	Ft
635E9016	1/C #6 AWG Copper Wire	1,421	Ft
635E9710	2/C #10 AWG Copper Pole and Bracket Cable	73	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

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived 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. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

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 pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and 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 shall 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) shall 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 Environment and Natural Resources.

The waste disposal site(s) shall 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 Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the Public ROW through the use of 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 of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

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-6-1.31.

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) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. 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 shall arrange and pay for a cultural resource survey and/or records search. 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; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on 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 shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). 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.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility 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 shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25;the Contractor shall contact the Project Engineer to determine if project changes are necessary to avoid utility impacts.

SUPPLYING AS BUILT PLANS

If the lighting system IS constructed differently than what is stated in the plans, the Contractor shall supply as built plans to the Engineer. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

INCIDENTAL WORK

Incidental work includes, but is not limited to, the restoration of all disturbed areas to the satisfaction of the Engineer.

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:

John.Less@state.sd.us

SUBSURFACE CONDITIONS

The subsurface conditions within the limits of the project consist of silt-clay.

Due to the subsurface conditions, concrete placement operations should closely follow excavation procedures during construction. The longer the excavations are left open the more likely caving may occur. If caving soils are encountered during excavation, casing may be required to construct the cylindrical footings.

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. If caving occurs during dewatering the concrete shall be placed through a tremie or by means of a casing.

TABLE OF FOOTING DATA

Site Designation	Footing Diameter	* Footing Depth	* Footing Height	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
L1	2’ - 0”	9’ - 0”	5’	1’ - 8”	86’ - 3”	8-#7 x 14’ - 6”

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

LUMINAIRES

The accepted design for the lighting system shall provide 1.2 and greater average maintained foot-candles and a uniformity ratio (average maintained to minimum maintained foot-candles) of 3:1 and less using the following parameters:

Setback:	0 Ft.
Lamp Loss Factor (LLF):	0.8
Width of Lighted Area:	96 Ft.
Configuration:	One-Sided/Staggered
Mounting Height:	50 Ft.

The following luminaires meet the requirements for this design:

a.) Cooper Lighting: NVA-AE-06-E-U-T2R, Short, Semi-Cutoff, Type II

b.) Holophane: ATB2-80LED10-R2, Medium, Semi-Cutoff, Type II

The Contractor must get approval from the Engineer prior to installation of the luminaires.

WIRE SPLICING FOR LIGHTING

All lighting splices shall be made using TE Connectivity™ GTAP™ connectors, nsi Industries© Polaris Blue™ connectors, or approved equivalent.

LIGHTNING PROTECTION

All luminaire poles and service cabinets shall be equipped with industrial lightning arrestors compliant with current NEMA and UL Standards for lightning arrestors. Cost for ground rods and lightning arrestors shall be incidental to the contract unit price for the corresponding luminaire pole, tower lighting pole, and service cabinet bid item.

TABLE OF CONDUIT AND CABLE QUANTITIES

		Rigid Conduit					Copper Wire			Pole and Bracket Cable																											
		Schedule 40		Schedule 80																																	
			2"		2"		1/C			2/C																											
							#6			#10																											
							AWG			AWG																											
Location to Location			Ft		Ft		Ft			Ft																											
Wall Maintenance Yard																																					
Service Cabinet	JB1		30				93																														
JB1	JB2				305		942																														
JB2	L1				125		386			73																											
	Total:	0	30	0	430	0	1,421	0	0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D388	5	12

Plotting Date: 07/26/2016

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Commercial Sign Double Face
- Commercial Sign One Post
- Commercial Sign Overhead
- Commercial Sign Two Post
- Concrete Symbol
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Elec. Trans./Power Jct. Box
- Environmental Sensitive Site (—ESS—)
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Misc.
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Guide Sign One Post
- Guide Sign Two Post
- Gutter
- Guy Pole
- Haystack
- Hedge
- Highway R.O.W. Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Misc
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Misc. Line
- Misc. Property Corner
- Misc. Post
- Overhang Or Encroachment
- Overhead Utility Line (— OH —)
- Parking Meter
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad R.O.W. Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Regulatory Sign One Post
- Regulatory Sign Two Post
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics (— T/F —)
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line (— P —)
- Underground Gas Line (— G —)
- Underground High Pressure Gas Line (— HG —)
- Underground Sanitary Sewer (— S —)
- Underground Storm Sewer (═ S ═)
- Underground Tank
- Underground Telephone Line (— T —)
- Underground Television Cable (— TV —)
- Underground Water Line (— W —)
- Warning Sign One Post
- Warning Sign Two Post
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- R. O. W. Line
- New R. O. W. Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

- Drainage Arrow

- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Approach Pavement
- Remove Concrete Median Pavement
- Remove Concrete Curb
- Remove Concrete Curb and Gutter
- Remove Concrete Gutter

- Detectable Warning
- Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

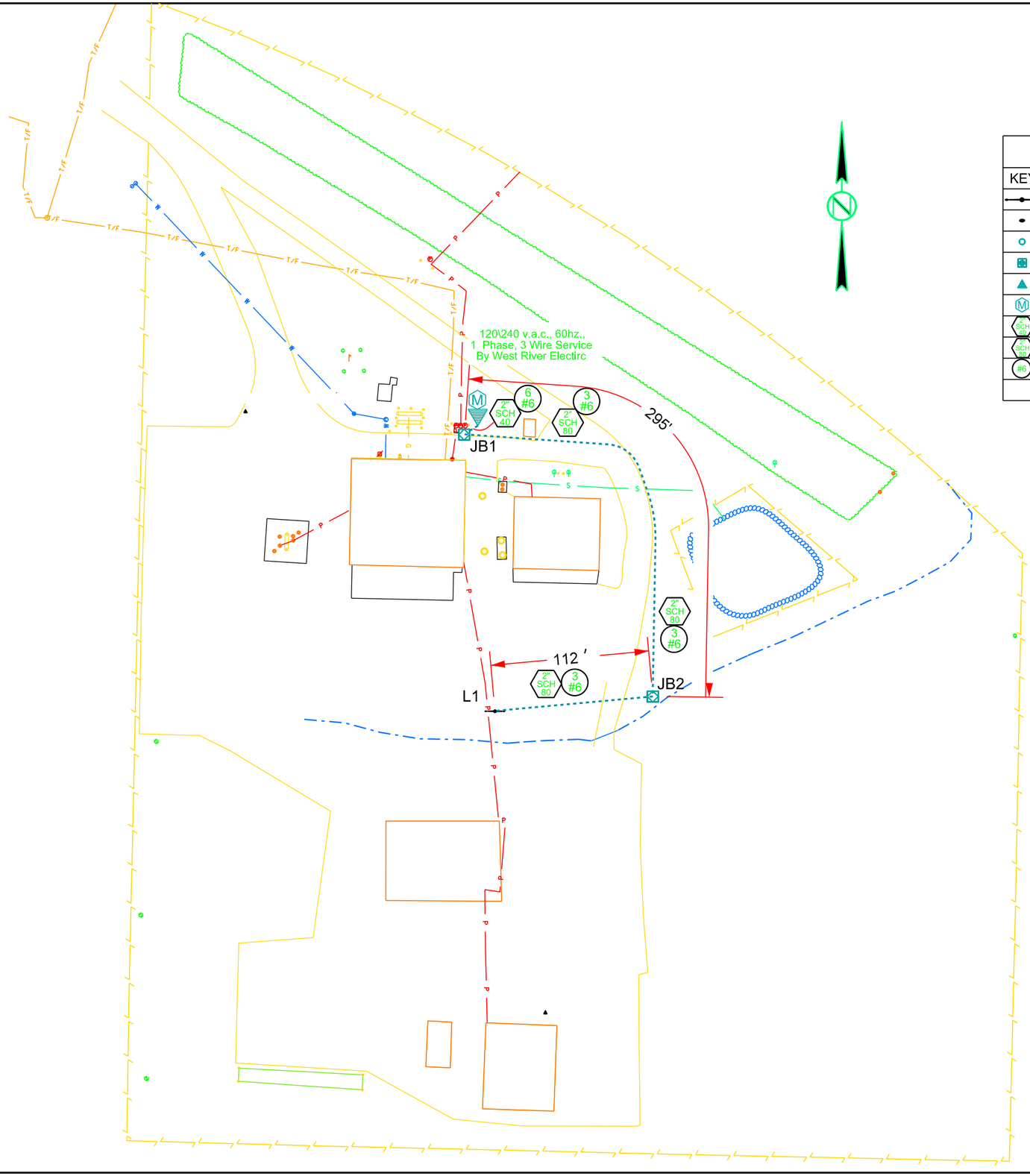
Plot Scale - 1:200

Plotted From - trnc11610

File - ...\Wall Shop Lighting\legend.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D388	6	12

Plotting Date: 07/26/2016



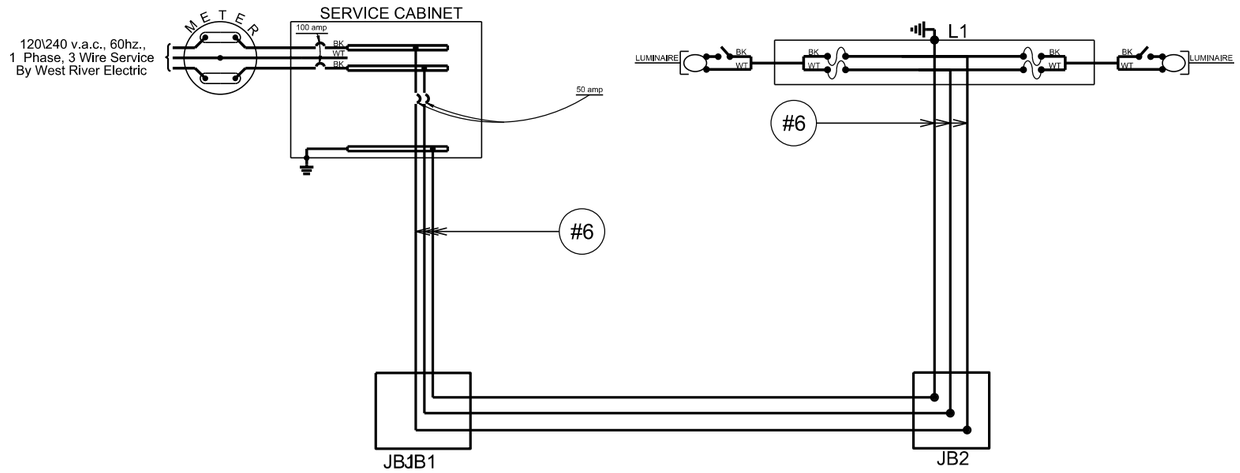
ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	Breakaway Base Luminaire Pole w/6' Twin Arm 50' Mounting Height (L3)	1	EACH
	Roadway Luminaire, LED with P.E. (L1)	2	EACH
	2' Diameter Footing (L1)	13	FT
	Type 1 Electrical Junction Box (JB1-JB2)	2	EACH
	Electrical Service Cabinet	1	EACH
M	Meter Socket Not a Bid Item	1	EACH
2" SCH 40	2" Rigid Conduit, Schedule 40	30	FT
2" SCH 80	2" Rigid Conduit, Schedule 80	430	FT
#6	1/C #6 AWG Copper Wire	1,421	FT
	2/C #10 AWG Copper Pole & Bracket Cable	73	FT

WIRING DIAGRAM

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D388	7	12

Plotting Date: 07/26/2016 REVISED DATE: 10/19/15 NL



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

LEGEND:

FUSE: 4 amp. Non-Time Delay
or
1 8/10 amp. Dual Element

LUMINAIRE: LED

Plot Scale - 1:40

Plotted From - trrc11610

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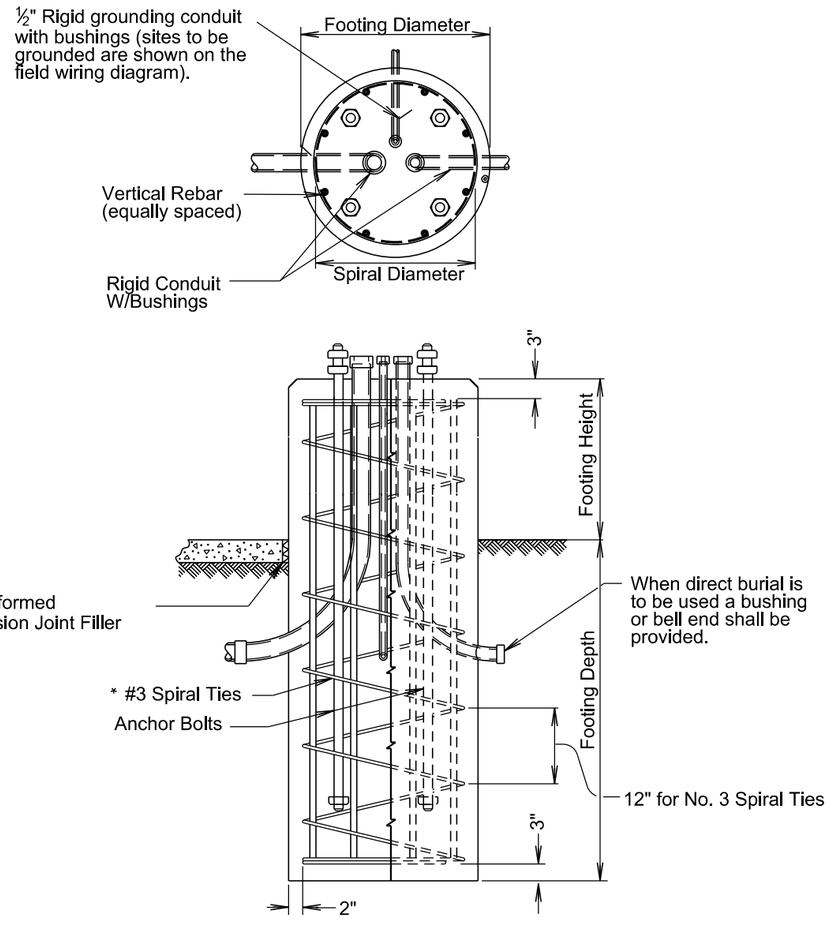
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D388	8	12

Plotting Date: 07/26/2016

POLE FOOTING



* #3 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 poses but shall not project above the slip plane or fracture plane for breakaway poles.

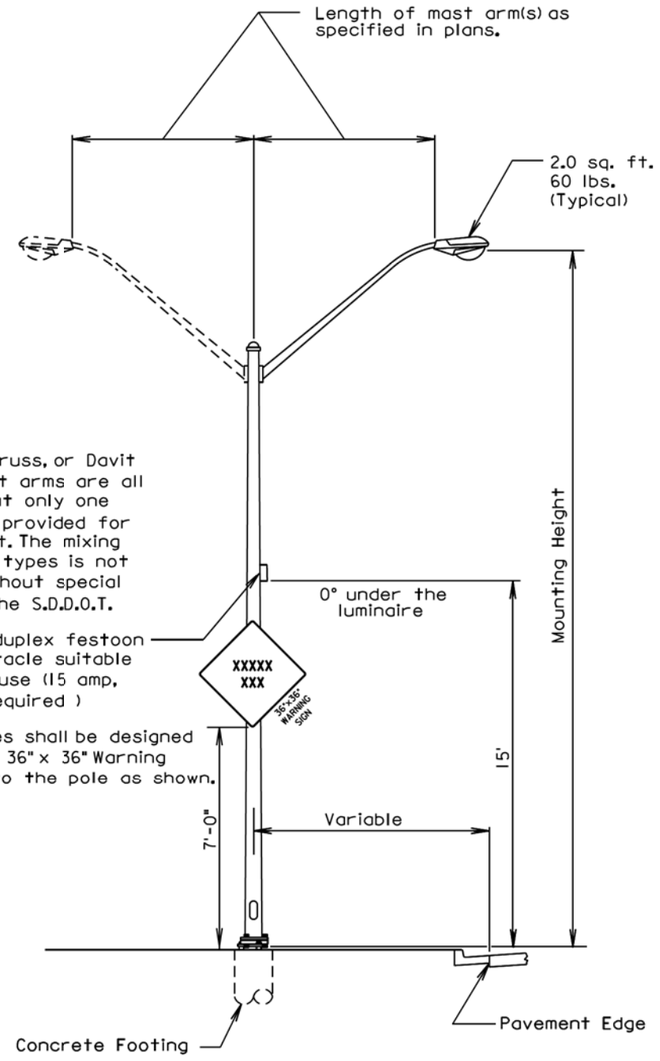
Conduits shall be sealed water-tight during all phases of construction until poles are in place.

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).

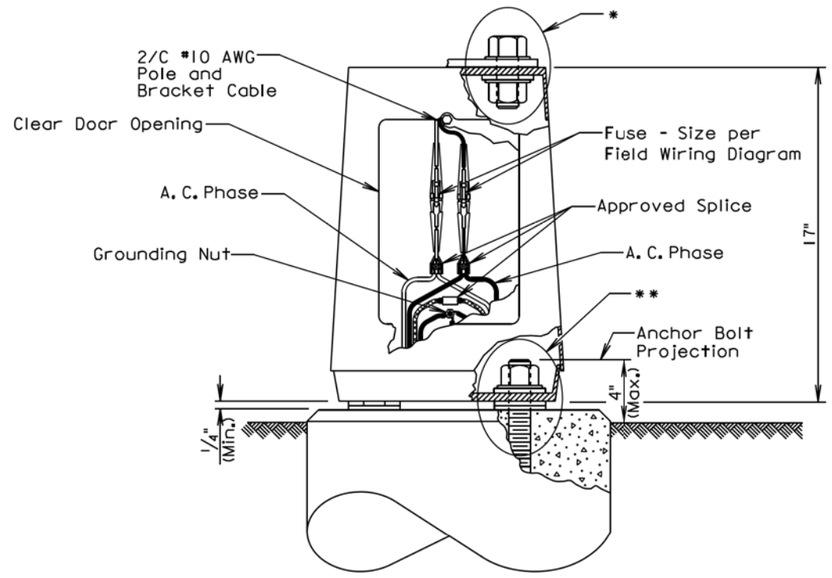
The pole shall not be installed until the concrete has attained design strength (4000 psi).

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



March 31, 2000

Published Date: 3rd Qtr. 2016	SDDOT	STEEL ROADWAY LUMINAIRE POLE WITH MAST ARM(S)	PLATE NUMBER 635.01
			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.

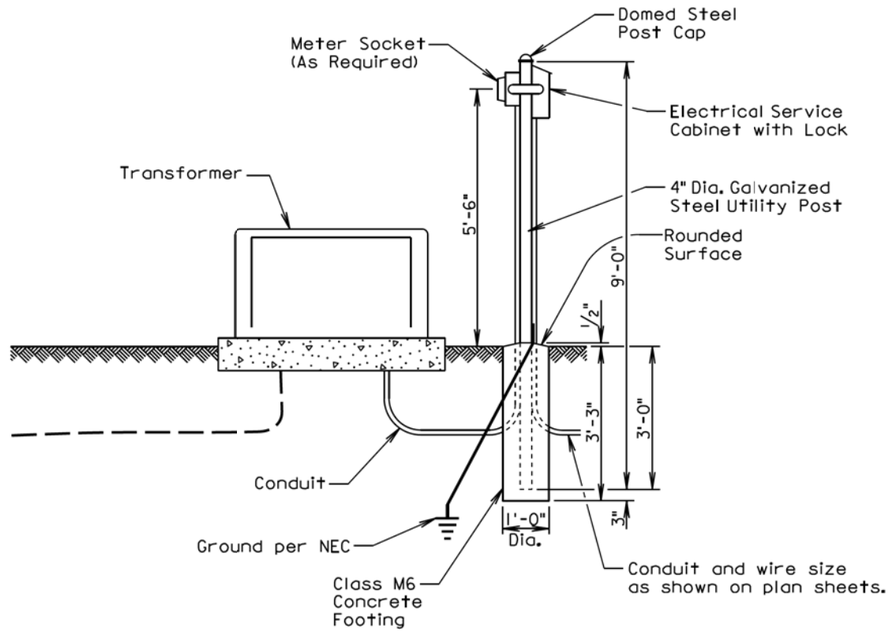
**Hardware connecting the base to the footing shall be installed in accordance with the manufacturer's recommendation. The Contractor shall install leveling devices in accordance with the manufacturer's recommendation if shimming is necessary to install the light poles plumb and level. The washers and shims shall be installed around the anchor bolts.

September 6, 2015

Published Date: 3rd Qtr. 2016	SDDOT	ROADWAY LUMINAIRE POLE BREAKAWAY TRANSFORMER BASE	PLATE NUMBER 635.21
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D388	10	12

Plotting Date: 07/26/2016



ELEVATION VIEW

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.

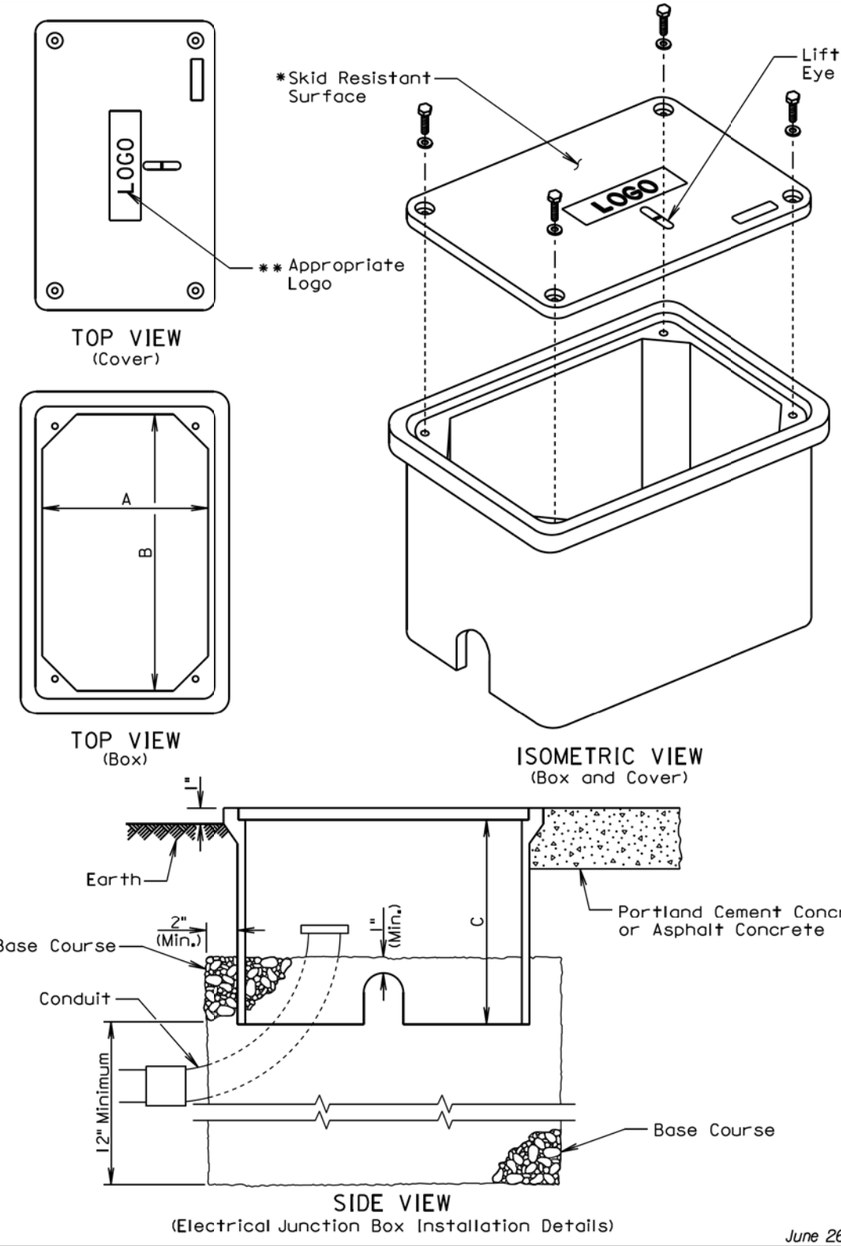
The 4" diameter galvanized steel utility post shall be 9' long and shall be in conformance with AASHTO Standard Specifications M181. The post shall be Type 1 and either Grade 1 or Grade 2. The domed steel post cap shall be in conformance with AASHTO Standard Specifications M181 and shall be Type 1.

The Contractor shall contcct 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: 3rd Qtr. 2016	SDDOT	***SERVICE FROM PAD MOUNTED TRANSFORMER WITH METER ON A GALVANIZED STEEL UTILITY POST***	*PLATE NUMBER* 635.41 *Sheet 1 of 1*



June 26, 2015

Published Date: 3rd Qtr. 2016	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65 Sheet 1 of 2

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.

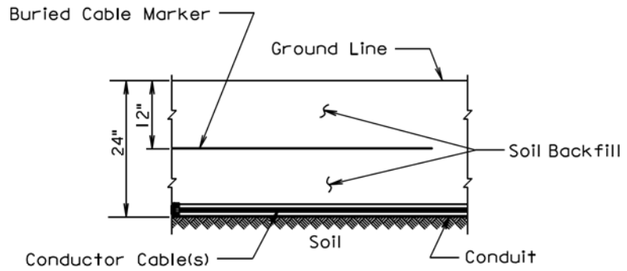
** The cover of the junction box shall have the appropriate logo in one inch size letters and shall be recessed. When the junction box contains cables or wires for a traffic signal then the logo shall be "Signal". When the junction box contains lighting conductors then the logo shall be "Lighting".

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.

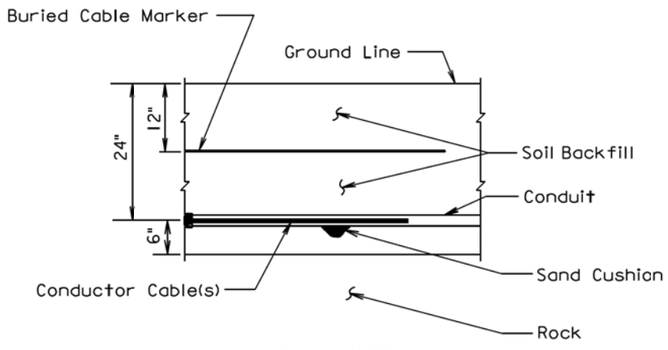
The electrical junction boxes shall be UL listed.

June 26, 2015

Published Date: 3rd Qtr. 2016	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65 Sheet 2 of 2



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: 3rd Qtr. 2016	SDDOT	**CONDUIT INSTALLATION**	*PLATE NUMBER* 635.76 *Sheet 1 of 1*