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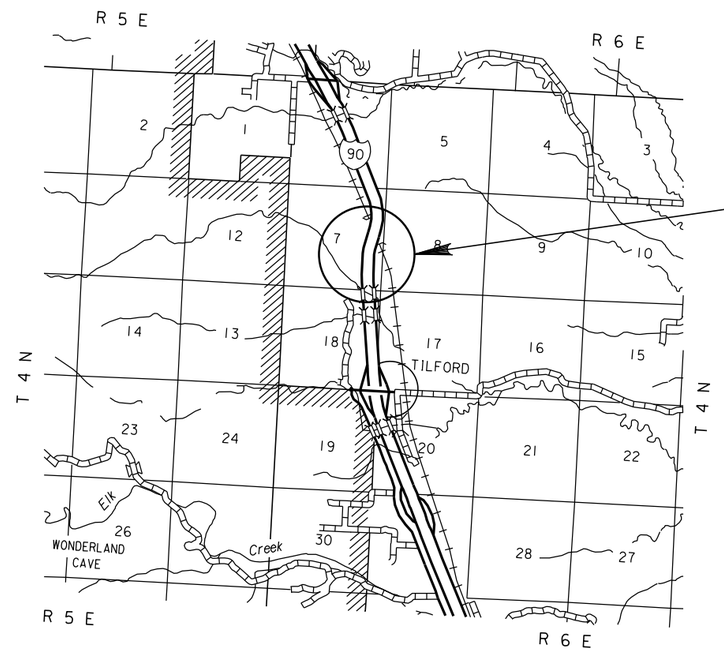
SECTION F: SURFACING PLANS

INDEX OF SHEETS



SECTION F – ESTIMATE OF QUANTITIES

	BID ITEM NUMBER	ITEM	QUANTITY	UNIT
	009E0010	Mobilization	Lump Sum	LS
	110E0700	Remove 3 Cable Guardrail	260	Ft
	110E0740	Remove 3 Cable Guardrail Anchor Assembly	2	Each
	629E0110	NCHRP 350 Test Level 3 High Tension Cable Guardrail	408	Ft
	629E0290	NCHRP 350 Test Level 3 High Tension Cable Guardrail Anchor Assembly	2	Each
*	629E1109	Furnish High Tension Cable Guardrail Post and Sleeve	50	Each
	635E2000	Pedestal Signal Pole	1	Each
	635E5020	2' Diameter Footing	8.0	Ft

*** - Denotes Non-Participating**

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 modifications that will be necessary to avoid utility impacts.

WATER FOR EMBANKMENT

The cost of water for compaction of the earth embankments shall be incidental to the various other contract items. Water shall be applied at the rate of 10 gallons per cubic yard for Contractor Furnished Borrow Excavation.

TABLE OF PEDESTAL SIGNAL POLE FOOTING DATA

Pole	Footing Diameter	# Footing Depth	** Spiral Diameter	** Spiral Length	Vertical Reinforcement
License Plate Reader and Illuminator	2' – 0"	8' – 0"	1' – 8"	54' – 9"	8 - #7 x 7' - 6"

Footing depth shall be below ground level.
** The size of the spiral tie shall be #3.
See Standard Plate 635.55 for pole footing details.

During construction of the cylindrical footing, concrete placement operations should closely follow excavation procedures. The longer the excavation is left open the more likely caving may occur. If caving soil is encountered during excavation, casing may be required to construct the cylindrical footing.

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.

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ILLUMINATOR AND LICENSE PLATE READER CAMERA POLE

Contractor shall supply and install footing, base and support structure (pole) with mast arms for the Illuminator and License Plate Reader systems. Contractor shall install IRD supplied Illuminator and License Plate Reader systems utilizing support structure. Contractor shall determine height of pole to achieve the minimum height clearance required as shown in the plans (See Section G).

All costs to furnish and install pole shall be incidental to the contract unit price per each for PEDESTAL SIGNAL POLE.

TABLE OF PEDESTAL SIGNAL POLE

Station/Offset	Location	Pole	Quantity Each
Eastbound Lanes			
Sta. 258+56.26/31' R.	Advance WIM	License Plate Reader And Illuminator	1

Station/Offset shown above are approximate. Offset is from the centerline of the eastbound lanes to center of pole. See Section G for additional details for the location of the pole. See Standard Plate 635.30 for pole details.

HIGH TENSION CABLE GUARDRAIL

The Contractor shall furnish and install a 3 or 4 cable high tension guardrail system that meets the Test Level 3 crash testing requirements of National Cooperative Highway Research Program (NCHRP) 350 or current Manual for Assessing Safety Hardware (MASH). The maximum dynamic deflection of the system shall be less than 8 feet and the maximum post spacing shall be 16 feet unless specified otherwise in the plans.

The high tension cable guardrail system shall be in compliance with Specifications Section 6.9 Buy America.

The Contractor shall install the system according to the manufacturer's installation recommendations except where stated otherwise in the plans. A copy of the detail drawings and installation instructions for the high tension cable guardrail and anchor assemblies shall be given to the Engineer a minimum of 4 weeks prior to installation of the high tension cable guardrail system.

All posts shall be galvanized and inserted into driven galvanized steel sleeves with soil plates.

Reflective sheeting shall be placed back-to-back on every other post cap or cable spacer and on the cable release post. The sheeting shall be in conformance with Section 982.2 K.2. of the Specifications. The color of the reflective sheeting shall be the same as the nearest pavement marking.

The cables provided shall be pre-stretched in the factory.

The Contractor shall check and adjust the tension of the cables a minimum of 3 weeks after installation and not longer than 6 weeks after installation. Cost for this work shall be incidental to the contract unit price per foot for "NCHRP 350 Test Level 3 High Tension Cable Guardrail".

The lengths of high tension cable guardrail stated in the plans were based on a non-effective length of 26' at each end of the "run" of guardrail. The length and location of the high tension cable guardrail at each site will need to be adjusted during construction as necessary if a system with a different non-effective length is used and it shall be approved by the Design Engineer before installation.

The Contractor shall provide a signed letter of compliance to the Engineer upon completion of the high tension cable guardrail installation(s) stating that the high tension cable barrier system has been installed in conformance to the installation instructions, specifications, and at a minimum meets the TL-3 crash test requirements of NCHRP 350 or MASH 2009.

The high tension cable guardrail shall be measured along the centerline of the cable guardrail from center of anchor assembly to center of anchor assembly to the nearest foot. Example: If the system utilizes 4 anchor footings in the anchor assembly, then the center of the anchor assembly would be centered between the 2nd and 3rd footing.

All costs for furnishing and installing the 3 or 4 cable high tension guardrail system including all labor, materials, and equipment shall be incidental to the contract unit price per foot for "NCHRP 350 Test Level 3 High Tension Cable Guardrail".

HIGH TENSION CABLE GUARDRAIL ANCHOR ASSEMBLY

The beginning and end of each "run" of high tension cable guardrail shall terminate with an anchor assembly that meets the Test Level 3 crash testing requirements of NCHRP 350 or MASH 2009.

The footing for the anchor assembly shall be designed to allow for 1 inch maximum of lateral deflection. The allowable design soil pressure shall be 1000 psf. The top 2 feet of soil pressure shall be neglected in the design of the footing. The footing shall be a minimum of 5' deep. The footing design shall be submitted through proper channels to the Office of Bridge Design for approval a minimum of 4 weeks prior to construction of the anchor footings.

All costs for furnishing and installing the High Tension Cable Guardrail Anchor Assembly including all labor, equipment, and materials which include the anchor footing, hardware, and all attachments to the anchor footing, shall be incidental to the contract unit price per each for "NCHRP 350 Test Level 3 High Tension Cable Guardrail Anchor Assembly".

FURNISH HIGH TENSION CABLE GUARDRAIL POST AND SLEEVE

The Contractor shall furnish an additional 50 galvanized posts, 50 sleeves with soil plates, and 50 caps or cable spacers with back to back white reflective sheeting and shall deliver and stockpile the materials at the DOT Sturgis Maintenance Yard. The posts and sleeves shall be the same type of posts and sleeves provided in the installation of the high tension cable guardrail on the project.

All costs for furnishing the posts, sleeves with soil plates, caps, and delivering them to the Sturgis Maintenance Yard shall be incidental to the contract unit price per each for "Furnish High Tension Cable Guardrail Post and Sleeve".

TABLE OF GUARDRAIL AND RELATED ITEMS

Location	Remove 3 Cable Guardrail Feet	Remove 3 Cable Guardrail Anchor Assembly Each	NCHRP 350 Test Level 3 High Tension Cable Guardrail Feet	NCHRP 350 Test Level 3 High Tension Cable Guardrail Anchor Assembly Each
Eastbound Lanes				
Sta. 254+58.53 R. to Sta. 258+92.53 R.	260	2	408	2

TYPICAL SURFACING SECTION

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See Guardrail Embankment Layout for additional details showing the limits of topsoil, in place surfacing and embankment.

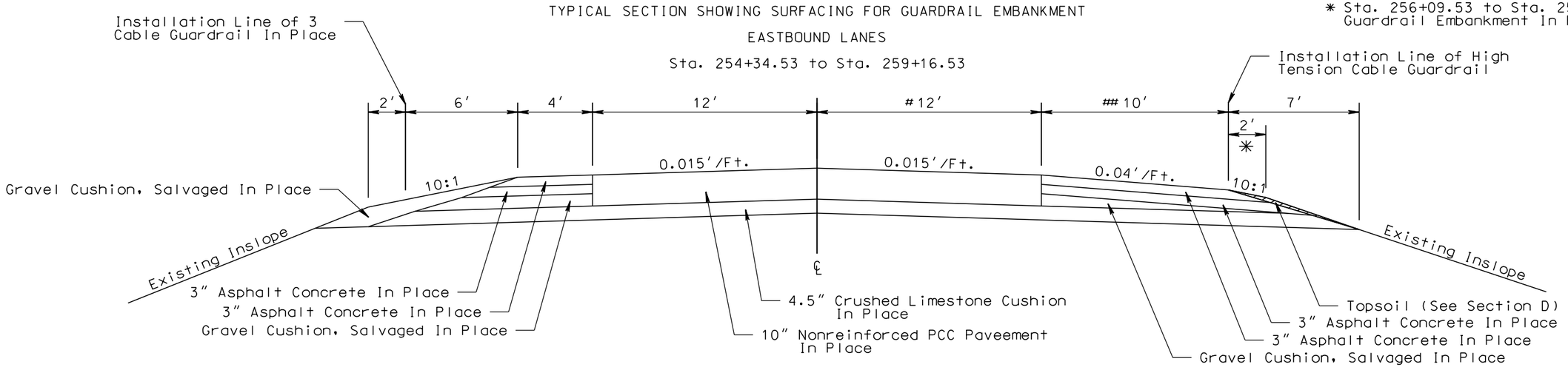
Sta. 256+00 to Sta. 259+00
14'
8'

* Sta. 256+09.53 to Sta. 258+69.53
Guardrail Embankment In Place

TYPICAL SECTION SHOWING SURFACING FOR GUARDRAIL EMBANKMENT

EASTBOUND LANES

Sta. 254+34.53 to Sta. 259+16.53



GUARDRAIL EMBANKMENT LAYOUT

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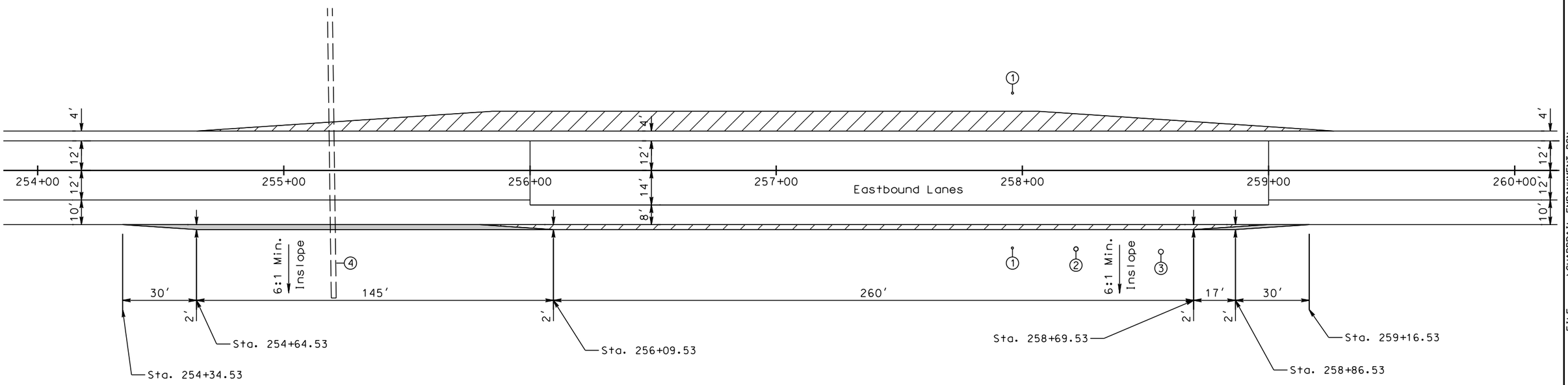
Scale 1 Inch = 40 Feet
Sheet 1 of 1 Sheets



Existing Guardrail Embankment In Place

Topsoil (See Section D) - 10:1 Slope. See Typical Surfacing Section for additional details for the limits of topsoil, in place surfacing and embankment.

① Existing Overheight Sensor Pole (See Section G)

② Existing Overview Camera Pole (See Section G)

③ License Plate Reader Camera and Illuminator Pole with Mast Arms (See Section G)

④ 24" RC Pipe In Place

PLOT SCALE - 1:40

PLOTTED FROM - TRPR18388

PLOT NAME - 3

FILE -...\GUARDRAIL EMBANKMENT.DGN

GUARDRAIL LAYOUT

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Scale 1 Inch = 40 Feet
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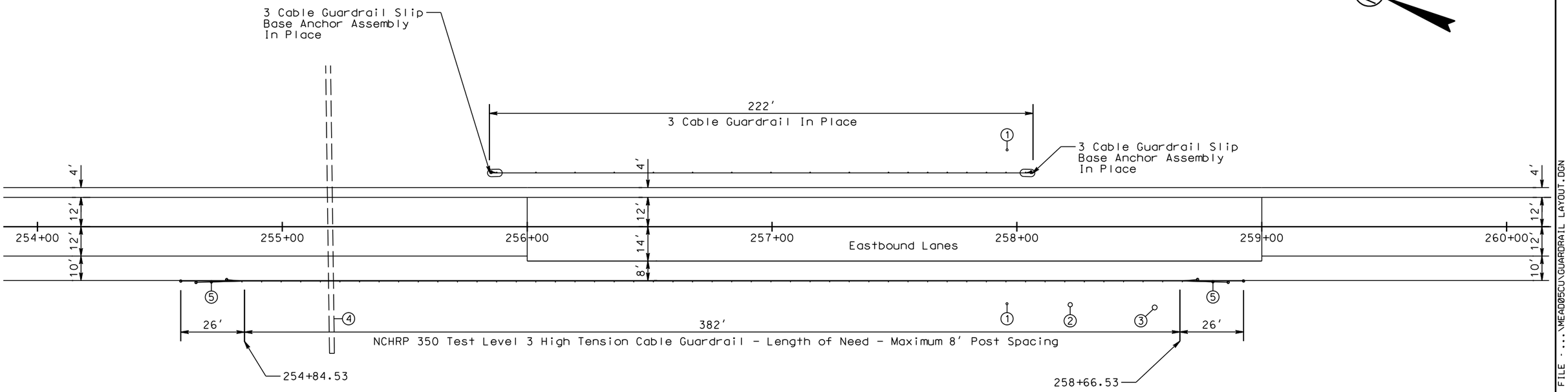

NOTE:

The Contractor shall avoid the existing 24" RC Pipe during the installation of the new guardrail posts. Any damage to the pipe, shall be repaired as directed and to the satisfaction of the Engineer, at the Contractor's expense.

① Existing Overheight Sensor Pole (See Section G)

② Existing Overview Camera Pole (See Section G)

③ License Plate Reader Camera and Illuminator Pole with Mast Arms (See Section G)

④ 24" RC Pipe In Place

⑤ NCHRP 350 Test Level 3 High Tension Cable Guardrail Anchor Assembly

PLOT SCALE - 1:40

PLOT NAME - 4

FILE - ...\MEAD05CU\GUARDRAIL LAYOUT.DGN

PLOTTED FROM - TRPR18388

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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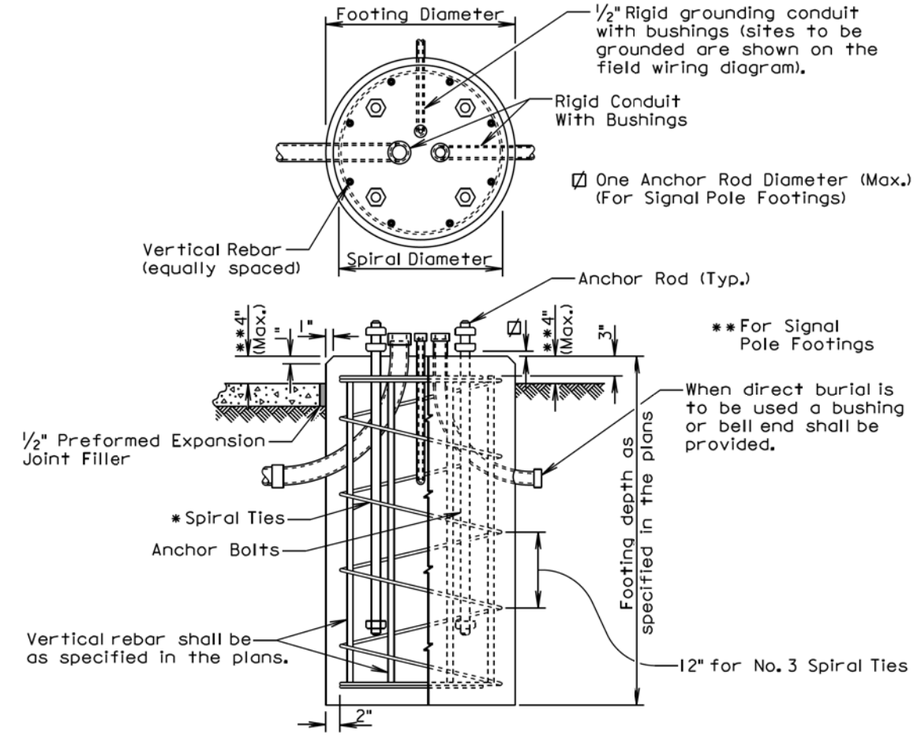

GENERAL NOTES:

* 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: 3rd Qtr. 2015	**SDDOT**	**POLE FOOTING**	*PLATE NUMBER* 635.55
			Sheet 1 of 1