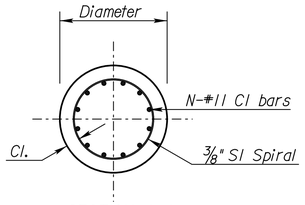
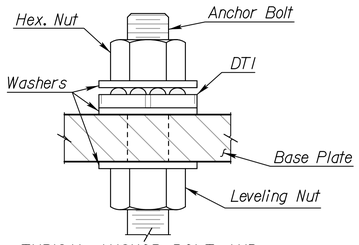
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	472-84780	2015	79	227



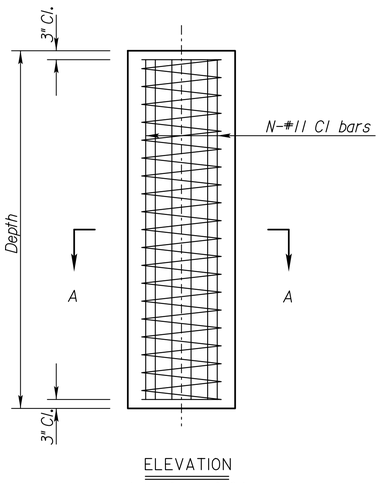
SECTION A-A



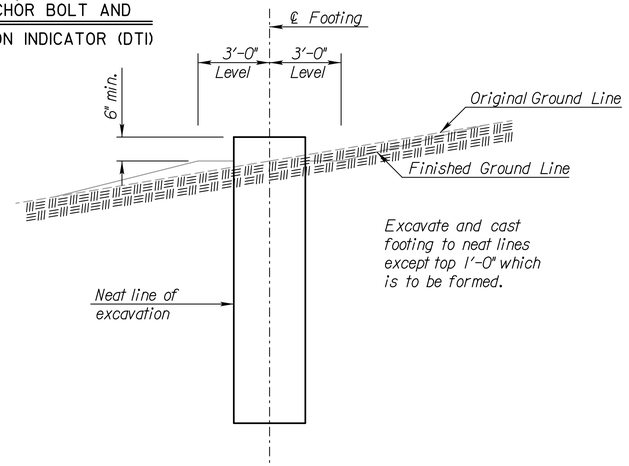
TYPICAL ANCHOR BOLT AND
DIRECT TENSION INDICATOR (DTI)

Dimension Pole Length	B. C.	S	P	Bolts	Dia.	N	CI.	Spiral Dia.
80′	1′-10"	1′-11"	3 3/4"	4-1 3/4" Ø x 7′-6"	3′-0"	6	5 1/2"	2′-1"
90′	1′-11 1/2"	2′-0 1/2"	3 3/4"	4-1 3/4" Ø x 7′-6"	3′-0"	6	5"	2′-2"
100′	2′-11 1/2"	2′-2 1/2"	4"	4-2" Ø x 7′-6"	3′-0"	12	3 1/2"	2′-5"
110′	2′-0 1/4"	2′-5 1/4"	3 1/4"	6-1 3/4" Ø x 7′-6"	3′-0"	12	4 1/2"	2′-3"
120′	2′-3 1/4"	2′-9"	3 1/2"	6-2" Ø x 7′-6"	3′-6"	12	6"	2′-6"
130′	2′-6 3/4"	2′-11 1/2"	3 3/4"	6-2" Ø x 7′-6"	3′-6"	18	4"	2′-10"
140′	2′-6 3/4"	3′-0 1/2"	4 1/4"	6-2 1/4" Ø x 8′-0"	3′-6"	18	4"	2′-10"
150′	2′-6 3/4"	3′-0 1/2"	4 1/4"	6-2 1/4" Ø x 8′-0"	3′-6"	18	4"	2′-10"

DTI Proof Load (Kips)	Anchor Bolt Size
60	1 3/4"
84	2
103	2 1/4"



ELEVATION
(showing reinf.)



Excavate and cast footing to neat lines except top 1′-0" which is to be formed.

SECTION IN PLACE

◔ *Note: The depth of shaft includes the 6" min. exposed footing above the ground.*

Location	Pole Length	Depth ◔	L	Serial Number†
Sta. 824+90, 145′ Lt. ℄K-96	110 ft	12′-6"	12′-0"	087L218

† *KDOT shall be responsible for applying serial numbers.*

GENERAL NOTES

LOADING: A uniform load is determined which will produce yield stress at the base of the pole, this load is increased by 25% and the resulting load is considered the ultimate load. The ultimate load is used to size the footing, 42% of the ultimate load is used to determine reinforcing.

UNIT STRESSES: Fy(pole) = 55,000 p.s.i.; Fy(anchor bolts) = 55,000 p.s.i.; Fy(reinf.) = 60,000 p.s.i.; fc′ = 4,000 p.s.i. Footing is reinforced for pure bending at top by ACI318-63. Footing size is determined by Research Report 105-3, Design of Footings for Minor Service Structures, Texas Transportation Institute.

CONCRETE: Use Grade 4.0 Concrete throughout. Form top twelve inches of footing. Concrete shall be rodded or vibrated.

REINFORCING: All dimensions relative to reinforcing steel are to center line of bar unless otherwise noted.

ANCHOR BOLTS: Anchor bolts will adhere to KDOT Standard Specification Section 1600 (Grade 55) with the following exception: cut threads are not permitted. Welding shall conform to the "Standard Specifications for State Road and Bridge Construction and the latest edition of the American Welding Society.

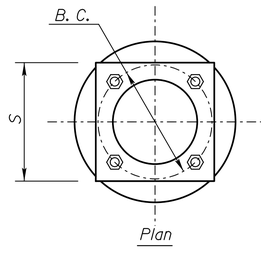
EXCAVATION: Footing holes shall be carefully drilled to the required size at the proper location. All excavation shall be disposed of within the right-of-way in such a manner as to blend uniformly with the existing surface and as approved by the Engineer. Immediately before placing any concrete the Contractor shall remove all loose and uncompacted material from the bottom of the hole.

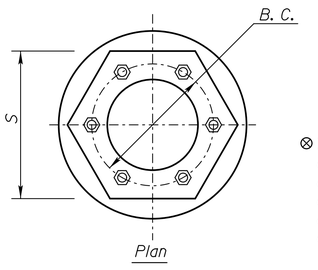
BACKFILL: All soil used for the backfilling of footing excavation shall be thoroughly compacted as it is placed. The backfill shall be brought up to the finished ground line adjacent to footings.

STRENGTH: The curing time shall be a minimum of 15 days or until a test cylinder achieves a compressive strength of 4.0 ksi or greater.

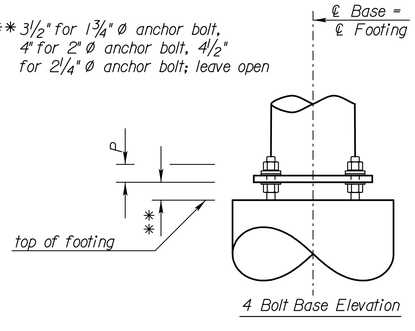
CONTRACTOR NOTE: The design of these footings is based on the use of Valmont Industries and 3 Holophane No. 1100 Lamps. If different towers are furnished, the footings shown shall have to be redesigned. The Contractor shall receive no additional compensation for any increase in the quantities necessitated by the redesign.

DIRECT TENSION INDICATORS: DTIs are to comply with the requirements of the latest edition of ASTM F2437 and provide proof load shown in the table. Installation will adhere to the KDOT Standard Specifications.

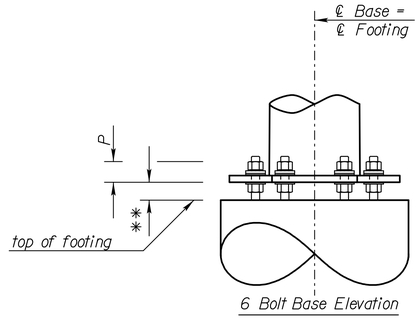




** *3 1/2" for 1 3/4" Ø anchor bolt, 4" for 2" Ø anchor bolt, 4 1/2" for 2 1/4" Ø anchor bolt; leave open*



4 Bolt Base Elevation



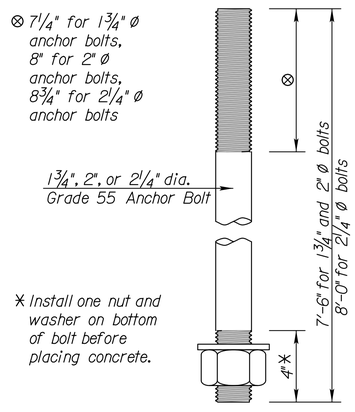
6 Bolt Base Elevation

TOWER ATTACHMENT DETAILS

⊗ *7 1/4" for 1 3/4" Ø anchor bolts, 8" for 2" Ø anchor bolts, 8 3/4" for 2 1/4" Ø anchor bolts*

1 3/4", 2", or 2 1/4" dia. Grade 55 Anchor Bolt

⁜ *Install one nut and washer on bottom of bolt before placing concrete.*

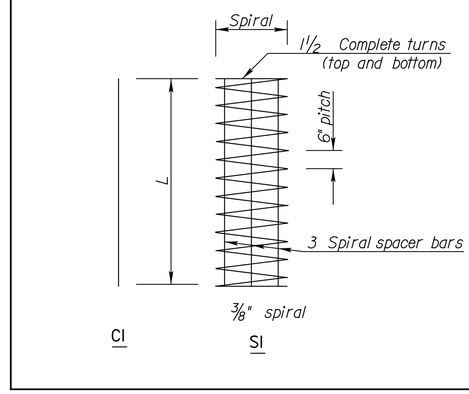


ANCHOR BOLT DETAILS

Note: The fabricator shall furnish an anchor bolt template for the placement of anchor bolts.

BENDING DIAGRAMS

All dimensions are out to out of bars



NO.	DATE	REVISIONS	BY	APP'D
2	5/11/11	Updated notes and added DTI info	KMP	TLF
1	8-21-92	Change 'N' to ellm. conflict w/ bolts	LES	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

LIGHTING TOWERS

FOOTING DETAILS

~~SL159~~ SEDGWICK Co.

FHWA APPROVAL	6-9-2011	APP'D	Terry L Fleck
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN.CK.	CADD CK.

Std. Base File: SL159.dgn | Plot Location:
Plotted By: dfp
File: I:\2008\08807\00\Lighting\08807-001 Lighting KA4058011LTOI.dgn
Plot Date: 15-JAN-2015 16:02