THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY:

David Alan Tomley

Digitally signed by David Alan Tomley
DN: C=US, E=dtomley@thompsonengineering.com, O="Thompson Engineering, Inc.", CN=David Alan Tomley
Reason: I attest to the accuracy and integrity of this document
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THOMPSON ENGINEERING
150 N. MARTINWOOD ROAD, SUITE 406,
KNOXVILLE, TN. 37923
DAVID A. TOMLEY, P.E. NO. 120855

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE OF TENN. CODE ANN. §62-2-306.

SHEET NAME	SHEET NO.
SIGNATURE SHEET	FOUNDATION-SIGN1
FOUNDATION DETAILS	F-1

YEAR	PROJECT NO.	SHEET NO.
2023	R-STP/NH-115(29)	FOUNDATION-SIGN1

REV. 02-17-23: ADDED SHEET TO PLANS

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

SIGNATURE SHEET

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2023	R-STP/NH-115(29)	F-1

REV. 02-17-23: ADDED SHEET TO PLANS

HIGH MAST FOUNDATION NOTES:

(1) REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.

(2) CONCRETE SHALL BE CLASS "A" WITH A MIN. 28-DAY COMPRESSIVE STRENGTH OF 3.0 KSI.

(3) DO NOT GROUT BETWEEN BOTTOM OF BASE PLATE AND TOP OF CONCRETE FOUNDATION.

(4) ALL WELDING SHALL CONFORM TO AMERCAN WELDING SOCIETY STRUCTURAL WELDING CODE (STEEL) ANSI / AWS D1.1 (CURRENT EDITION).

(5) THE DRILLED SHAFT FOUNDATION DESIGN WAS BASED ON THE UNFACTORED SERVICE LOADS SHOWN IN THE FOUNDATION DIMENSIONS TABLE FOR A DESIGN WIND SPEED = 90 MPH.

(6) FOR GROUNDING DETAILS, SEE TDOT STANDARD DWG. T-L-1.

(7) ALL STEEL ITEMS SHALL BE GALVANIZED AS FOLLOWS:
ALL NUTS, BOLTS, AND WASHERS .....ASTM A153 CLASS C OR D DEPENDING ON SIZE

ALL OTHER STEEL ITEMS .....ASTM A123

(8) CONTRACTOR SHALL COORDINATE ANCHOR BOLT REQUIREMENTS WITH FABRICATOR

(9) THE ANCHOR BOLTS, BOLT PATTERN, WELDS AND PLATE SIZE VALUES ARE FOR INFORMATION ONLY, IT IS THE RESPONSIBILITY OF THE POLE MANUFACTURER TO PROVIDE POLE SIZE, BOLT PATTERN AND SIZES.

(10) THE TOP NUT SHALL BE TORQUED SO AS TO PRODUCE 60% YIELD STRESS OF ANCHOR BOLT.

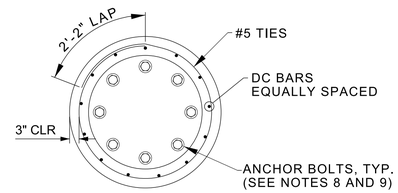
(11) THE FOUNDATION DESIGN IS BASED ON BORINGS TAKEN BY TDOT'S GEOTECHNICAL ENGINEERING UNIT (GEU).

(12) THE HIGH MAST FOUNDATION DESIGN IS BASED ON 120-FT. HIGH MAST POLE HM-5, 125-FT. HIGH MAST POLES HM-1 AND HM-3, 130-FT. HIGH MAST POLE HM-2, AND 135-FT. HIGH MAST POLE HM-4. HM-5 HAS 6-LUMINAIRES, HM-1 AND HM-3 HAVE 8-LUMINAIRES, AND HM-2 AND HM-4 HAVE 10-LUMINAIRES.

(13) HOLE DIAMETERS FOR ANCHOR BOLTS SHALL NOT BE GREATER THAN THE BOLT DIAMETER PLUS 1/16.

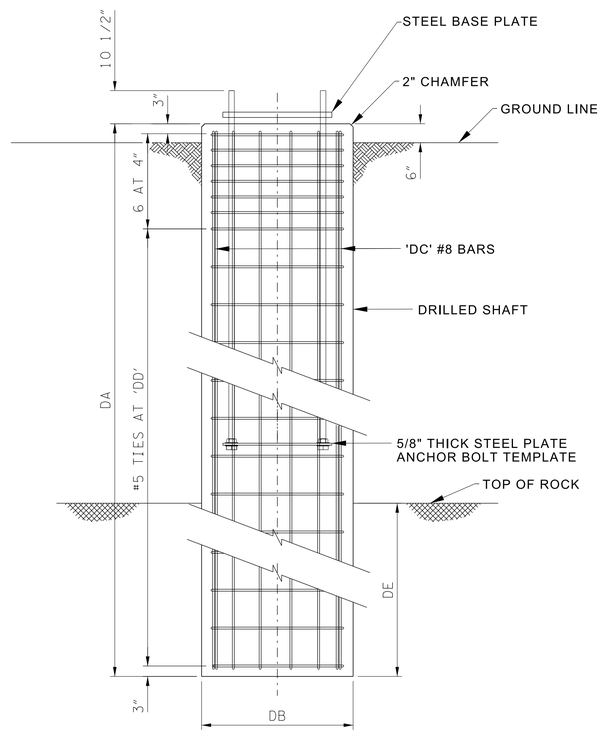
(14) FOUNDATION APPLIES ONLY TO SLOPES OF 1:4 OR FLATTER, PROVIDE A MINIMUM 6" SHAFT PROJECTION ON THE HIGH SIDE.

(15) DESIGN IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 2013 SIXTH EDITION.



PLAN VIEW
DRILLED SHAFT

SCALE: 1/2" = 1'-0"



ELEVATION
DRILLED SHAFT

SCALE: 1/2" = 1'-0"

HM-1 THROUGH HM-5

FOUNDATION DIMENSIONS						POLE BASE REACTIONS			
HIGH MAST LIGHT	SYMBOL					SHEAR (LBS)	COMPRESSION (LBS)	MOMENT (K-FT)	DESIGN WIND SPEED (MPH)
	DA	DB	DC	DD	DE				
HM-1	22'-6"	4'-0"	13 #8	12" (MAX.)	17'-0"	6,500	9,000	458	120
HM-2	22'-6"	4'-0"	13 #8	12" (MAX.)	-	7,000	9,500	534	120
HM-3	26'-6"	4'-0"	13 #8	12" (MAX.)	16'-0"	6,500	9,000	458	120
HM-4	22'-6"	4'-0"	13 #8	12" (MAX.)	-	7,500	10,000	572	120
HM-5	18'-6"	4'-0"	13 #8	12" (MAX.)	-	6,000	8,500	387	120

NOTES:

(1) BORING NOT PERFORMED AT HM-1 DUE TO TERRAIN AND UTILITIES. ANTICIPATED ROCK DEPTH IS 5-FT BASED ON SOIL BORINGS PERFORMED PREVIOUSLY IN THE VICINITY OF HM-1.
(2) BORING AT HM-3 INDICATES SIGNIFICANT VOIDS ENCOUNTERED BETWEEN DEPTHS OF 19.5 TO 32.4 FEET.
(3) DUE TO KARST CONDITIONS WITH VOIDS, SHAFT INSTALLATION REQUIRING EMBEDMENT INTO ROCK, SUCH AS HM-1 AND HM-3, WILL LIKELY REQUIRE THE FOLLOWING.
A: ADVANCE PERMANENT CASING THROUGH THE OVERBURDEN SOILS AND SOCKET INTO THE BEDROCK. THE CASING DIAMETER MUST BE MORE THAN 5-FT TO ALLOW FOR THE CORE DRILLING.
B: CORE 5-FT DIAMETER SHAFT (1-FT LARGER DIAMETER THAN HIGH MAST POLE FOUNDATION) THROUGH THE BEDROCK TO THE REQUIRED DEPTH.
C: POUR LEAN CONCRETE (LOW SLUMP AND LOW STRENGTH) THROUGH THE SHAFT AND UP TO THE BOTTOM OF THE CASING TO SEAL THE SHAFT AND FILL SOME OF THE VOIDS.
D: AFTER THE CONCRETE IS SET, CONTINUE WITH TYPICAL CONSTRUCTION OF HIGH MAST POLE FOUNDATION BY CORING 4-FT DIAMETER SHAFT THROUGH THE CONCRETE TO REQUIRED DEPTH.

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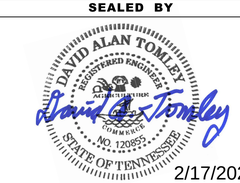

2/17/2023

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

FOUNDATION DETAILS

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CHEROKEE TRAIL INTERCHANGE

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