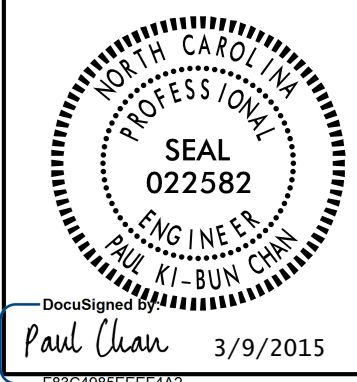


**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION



NOTES

- 1 AT THESE LOCATIONS, PROVIDE ELECTRICAL DUCT IN ACCORDANCE WITH NEC REQUIREMENTS FOR AN APPROVED RACEWAY FOR ELECTRICAL CIRCUITS. SEE TABLE "C"
- 2 INSTALL ALL BORE PITS OUTSIDE THE CLEAR ZONE, AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE OR AS DIRECTED BY THE ENGINEER.
- 3 LOCATE ALL JUNCTION BOXES OUTSIDE CLEAR ZONE AND IN AN AREA UNLIKELY TO BE USED BY TRAFFIC.
- 4 LOCATE PROPOSED CONTROL SYSTEM IN AN AREA ACCESSIBLE FOR MAINTENANCE VEHICLES AND OUTSIDE OF CLEAR ZONE AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE.
- 5 INSTALL RIGID GALVANIZED CONDUIT (RGC) ABOVE GROUND, AND POLYVINYL CHLORIDE (PVC) SCHEDULE 40 CONDUIT UNDERGROUND, EXCEPT AS MODIFIED ON THESE PLANSHEETS OR IN APPLICABLE SECTIONS OF THE ROADWAY STANDARD DRAWINGS FOR THIS PROJECT.
- 6 TYPE PC18 JUNCTION BOXES ARE 18" L X 12" W X 18" H.
- 7 TYPE PC36 JUNCTION BOXES ARE 36" L X 24" W X 18" H.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING 80' & 120' HIGH MOUNT STANDARDS WITH LIGHT EMITTING DIODE LUMINAIRES, UNDERGROUND CIRCUITRY, CONTROL SYSTEM AND JUNCTION BOXES.

DESIGN CRITERIA

- 2005 AASHTO ROADWAY LIGHTING DESIGN GUIDE
- 2009 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION AND LATEST INTERIM SPECIFICATIONS VALID AT THE TIME OF LETTING
- FATIGUE CATEGORY II SHALL BE USED IN DESIGN
- DESIGN HIGH MOUNT SUPPORT FOR BASIC WIND SPEED OF 90 MPH
- DESIGN HIGH MOUNT STANDARD FOUNDATION FOR BASIC WIND SPEED OF 110 MPH. ANY CONTRACTOR-DESIGNED SITE SPECIFIC FOUNDATION DESIGN SHALL BE DESIGNED FOR THE SAME WIND SPEED
- 2014 NATIONAL ELECTRICAL CODE
- 2011 AASHTO ROADSIDE DESIGN GUIDE

ROADWAY STANDARDS

THE FOLLOWING ROADWAY ENGLISH STANDARDS AS APPEAR IN "NCDOT ROADWAY STANDARD DRAWINGS", ROADWAY DESIGN UNIT-N.C. DEPARTMENT OF TRANSPORTATION RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD NO.	TITLE
1401.01	HIGH MOUNT STANDARD
1407.01	ELECTRIC SERVICE POLE AND LATERAL
1408.01	LIGHT CONTROL SYSTEM
1409.01	ELECTRICAL DUCT
1410.01	FEEDER CIRCUITS
1411.01	ELECTRICAL JUNCTION BOXES

ALL WORK SHALL BE IN CONFORMANCE WITH DIVISION 14 OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, DATED JANUARY 2012.

LEGEND

- PROPOSED 80' HIGH MAST STANDARD W/ HM FOUNDATION & (8) HM LED LUMINAIRES. 320W MAX, 30,000 MIN. INITIAL LUMENS, CUTOFF, TYPE V
- PROPOSED 120' HIGH MAST STANDARD W/ HM FOUNDATION & (8) HM LUMINAIRES 550W MAX, 53,000 MIN. INITIAL LUMENS, CUTOFF, TYPE V
- PROPOSED CONTROL SYSTEM WITH PC36 JUNCTION BOX. BREAKER SIZE SHOWN IN LOAD SCHEDULE, SHEET E2
- PROPOSED ELECTRICAL JUNCTION BOX SEE DETAILS & TABLE B, THIS SHEET
- REFERENCE TO CORRESPONDING NOTE AS NUMBERED
- PROPOSED FEEDER CIRCUIT CONTROL SYSTEM(A), CIRCUIT(1) PLAN SYMBOL (6) SEE TABLE A, THIS SHEET
- PROPOSED SERVICE POLE AND LATERAL 30' CLASS 4 3#1/0 USE CONDUCTORS 2" CONDUIT
- PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (JA) OR (BD) LOCATION: SEE TABLE C, THIS SHEET

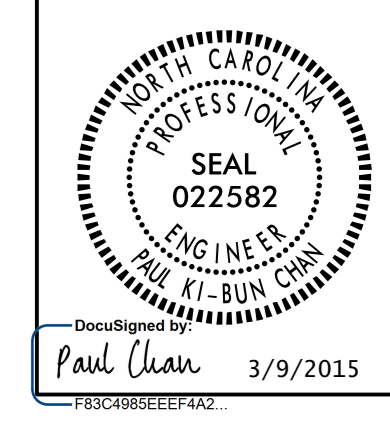
PLAN SYMBOL	DESCRIPTION	CONTRACT ITEM	
8	2 #8 Ø 1 #10G 1.5" P	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR 1.5" PVC CONDUIT	2 - 8 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*8	2 #8 Ø 1 #10G	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR	2 - 8 W/G FEEDER CIRCUIT
6	2 #6 Ø 1 #8G 1.5" P	2 AWG SIZE 6 CONDUCTOR (BK & RD) 1 AWG SIZE 8 GROUNDING CONDUCTOR 1.5" PVC CONDUIT	2 - 6 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*6	2 #6 Ø 1 #10G	2 AWG SIZE 6 CONDUCTOR (BK & RD) 1 AWG SIZE 8 GROUNDING CONDUCTOR	2 - 6 W/G FEEDER CIRCUIT
4	2 #4 Ø 1 #6G 1.5" P	2 AWG SIZE 4 CONDUCTOR (BK & RD) 1 AWG SIZE 6 GROUNDING CONDUCTOR 1.5" PVC CONDUIT	2 - 4 W/G FEEDER CIRCUIT IN 1.5" CONDUIT
*4	2 #4 Ø 1 #6G	2 AWG SIZE 4 CONDUCTOR (BK & RD) 1 AWG SIZE 6 GROUNDING CONDUCTOR	2 - 4 W/G FEEDER CIRCUIT

NUMBER	LOCATION	TYPE	SHEET
JB1	-RPD- STA. 24+62, 32' LT	PC36	E2
JB2	-RPD- STA. 24+62, 26' RT	PC36	E2
JB3	-Y3- STA. 24+33, 52' LT	PC36	E2
JB4	-Y3- STA. 24+33, 69' RT	PC36	E2
JB5	-L- STA. 948+45, 90' RT	PC18	E2
JB6	-L- STA. 948+45, 92' LT	PC18	E2
JB7	-L- STA. 944+86, 111' LT	PC18	E2
JB8	-RPB- STA. 24+85, 73' RT	PC18	E2
JB9	-RPD- STA. 21+12, 32' RT	PC18	E2
JB10	-L- STA. 956+47, 132' RT	PC18	E2
JB11	-RPD- STA. 17+75, 28' RT	PC18	E2
TOTALS		7	4

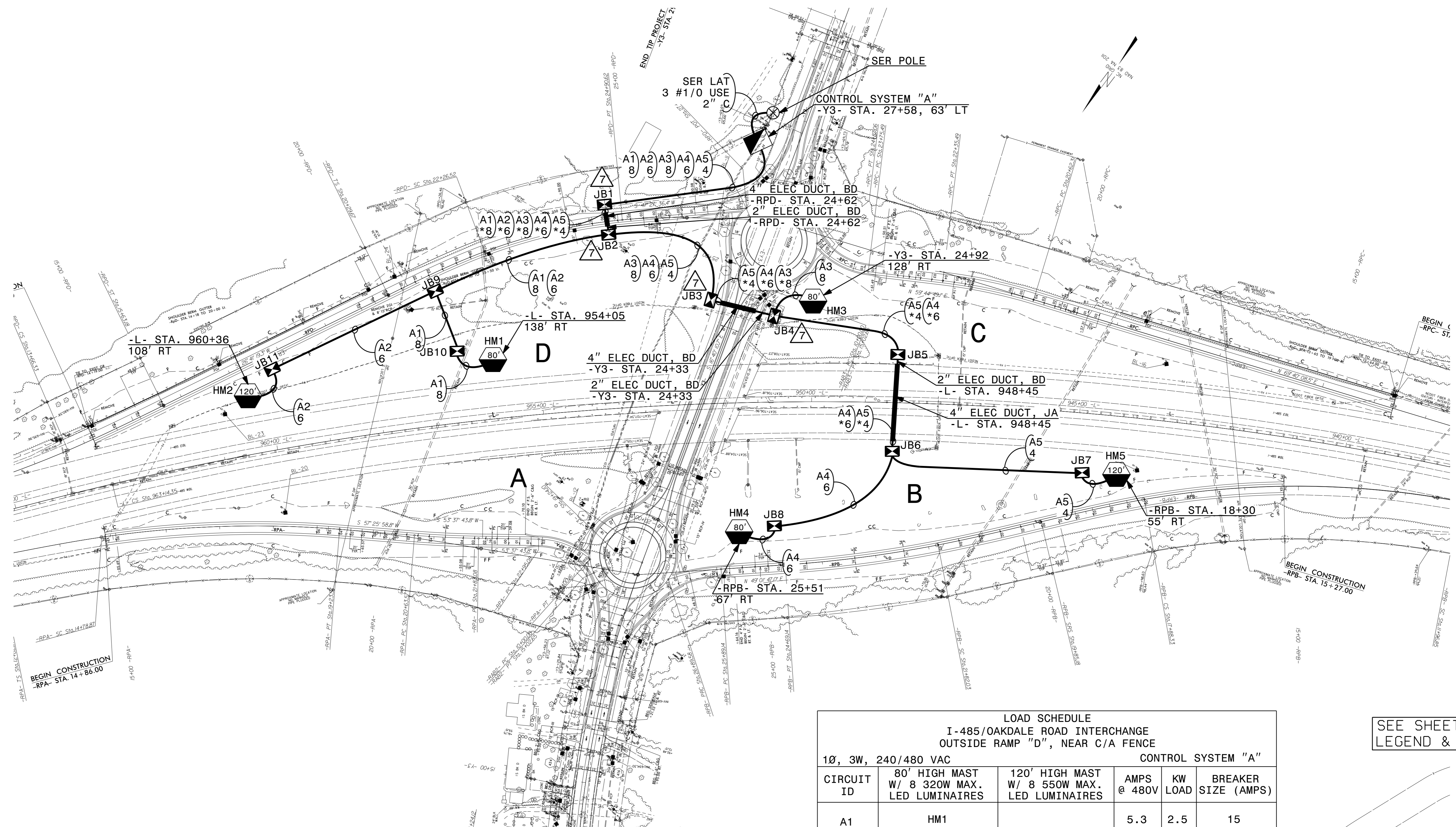
LOCATION	RACEWAY	SHEET	TYPE					
			JACKED (JA) FEET			BURIED (BD) FEET		
			SIZE 2"	SIZE 3"	SIZE 4"	SIZE 2"	SIZE 3"	SIZE 4"
-RPD- STA. 24+62		E2						35
-RPD- STA. 24+62	JB1 - JB2	E2				60		
-Y3- STA. 24+33		E2						75
-Y3- STA. 24+33	JB3 - JB4	E2				125		
-L- STA. 948+45		E2			155			
-L- STA. 948+45	JB5 - JB6	E2				185		
TOTALS					155	370		110

BD	BURIED	PVC	PVC SCHEDULE 40 CONDUIT
LT	LIGHT	RGC	RIGID GALVANIZED STEEL CONDUIT
JA	JACKED	C	CONDUIT
MH	MOUNTING HEIGHT	CKT	CIRCUIT
Ø	PHASE	N	NEUTRAL
SER LAT	SERVICE LATERAL	G	GROUND
		HM	HIGH MAST

COMPUTED BY: RGH DATE: 3/9/15
 CHECKED BY: PL DATE: 3/9/2015



USE FOR LIGHTING CONSTRUCTION ONLY



LOAD SCHEDULE
I-485/OAKDALE ROAD INTERCHANGE
OUTSIDE RAMP "D", NEAR C/A FENCE
CONTROL SYSTEM "A"

CIRCUIT ID	80' HIGH MAST W/ 8 320W MAX. LED LUMINAIRES	120' HIGH MAST W/ 8 550W MAX. LED LUMINAIRES	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
A1	HM1		5.3	2.5	15
A2		HM2	8.8	4.2	15
A3	HM3		5.3	2.5	15
A4	HM4		5.3	2.5	15
A5		HM5	8.8	4.2	15
SPARE					15
TOTAL	3	2	33.5	15.9	

SEE SHEET "E1" FOR LEGEND & △ NOTES

2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT I-485/OAKDALE ROAD INTERCHANGE MECKLENBURG COUNTY			
Drawn By:	RGH	Approved By:	PC
Dwg No.:			

09-MAR-2015 16:48 R:\Lighting\I-485\Lighting Design\R2248G.le_PSH.E2.dgn rghal AT-RD578044

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-12

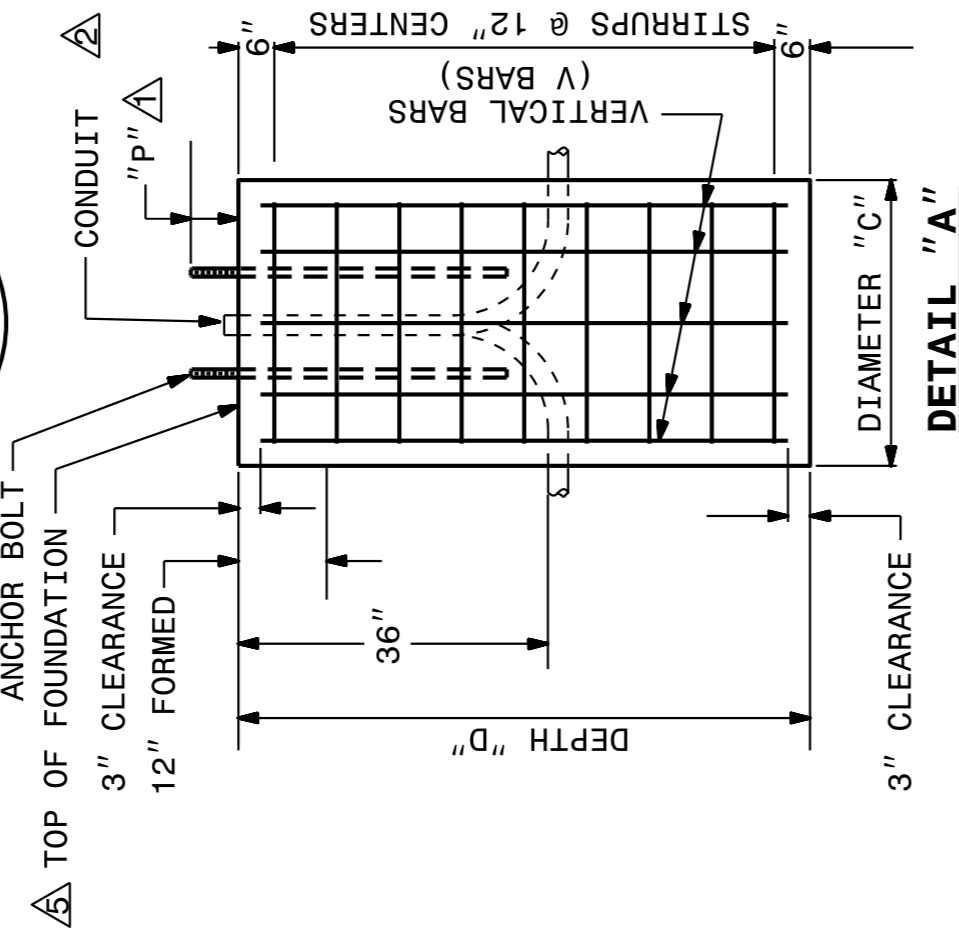
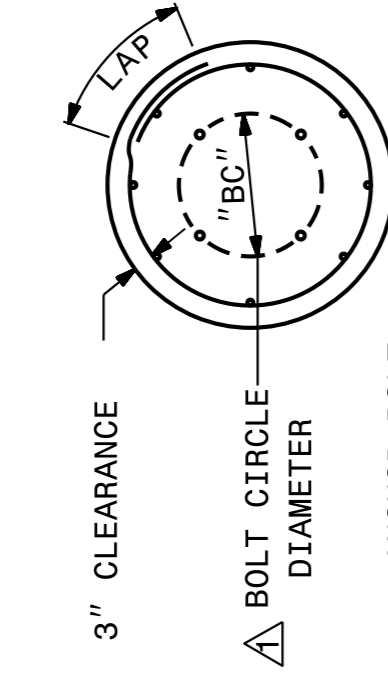
ENGLISH STANDARD DRAWING FOR
HIGH MOUNT FOUNDATION

SHEET 1 OF 1
1402D01

TABLE OF FOUNDATION DIMENSIONS AND QUANTITIES

HEIGHT OF HIGH MOUNT FT	STIRRUPS		WIND VELOCITY MPH										
	DIAMETER "C" FT	SIZE	90		110		130						
			V BARS QTY	REINF. * STEEL LBS	CONCRETE CY	DEPTH "D" FT	V BARS QTY	REINF. * STEEL LBS	CONCRETE CY	DEPTH "D" FT	V BARS QTY	REINF. * STEEL LBS	CONCRETE CY
60	3.5	#3	8	280	3.9	12	8	306	4.3	13	8	331	4.6
80	3.5	#3	8	306	4.3	13	8	331	4.6	15	8	382	5.3
100	4.0	#3	8	413	6.1	15	8	477	7.0	16	8	509	7.4
120	4.5	#3	8	557	8.2	16	8	636	9.4	18	8	716	10.6

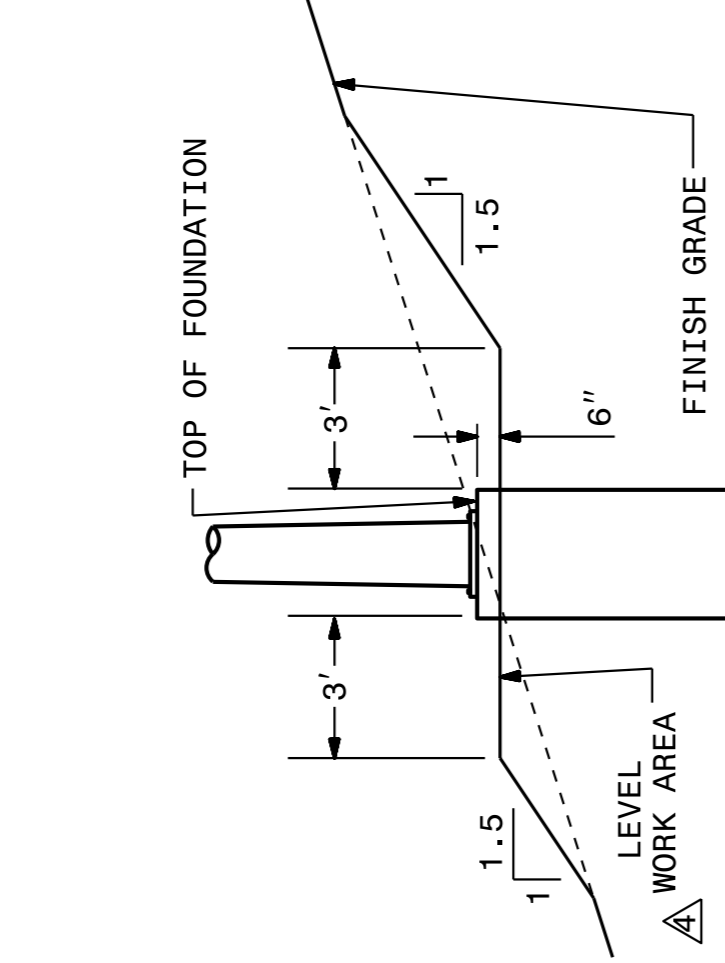
* INCLUDES STIRRUPS AND VERTICAL BARS (V BARS)



DETAIL "A"

NOTES

- ANCHOR BOLTS
 CONFORM NUMBER, SIZE, AND LENGTH OF ANCHOR BOLTS, BOLT CIRCLE DIAMETER "BC", AND ANCHOR BOLT PROJECTION "P" TO APPROVED HIGH MOUNT STANDARD DRAWINGS.
- CONDUITS
 MATCH ORIENTATION, QUANTITY, TYPE, AND SIZE OF CONDUITS TO THE LAYOUT SHEETS. STUB AND CAP ONE SPARE CONDUIT AT EACH FOUNDATION. PROJECT FOUNDATION A MAXIMUM OF 2" ABOVE TOP OF FOUNDATION. PLACE CONDUIT 30" BENEATH FINISH GRADE. INCLUDE 3/4" CONDUIT FOR GROUNDING ELECTRODE CONDUCTOR TO GROUND ROD AT HIGH MAST FOUNDATION.
- DIMENSIONS & QUANTITIES
 DIMENSIONS AND QUANTITIES OF CONCRETE AND REINFORCING STEEL ARE GIVEN FOR THE PURPOSE OF OBTAINING BID PRICES ONLY. SEE PROJECT SPECIAL PROVISIONS FOR OTHER STRUCTURAL REQUIREMENTS.
- WORK AREA
 PROVIDE A LEVEL WORK AREA AROUND EACH FOUNDATION. CUT/FILL SLOPES MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
- ELEVATION
 SET TOP OF FOUNDATION AT .6" ABOVE LEVEL WORK AREA. SEE DETAIL "B".
- GUARDRAIL
 WHERE GUARDRAIL IS REQUIRED TO BE INSTALLED AS PART OF LIGHTING WORK, SET GUARDRAIL NO MORE THAN 8' FROM CENTER OF HIGH MAST FOUNDATION.



DETAIL "B"

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
HIGH MOUNT FOUNDATION

SHEET 1 OF 1
1402D01

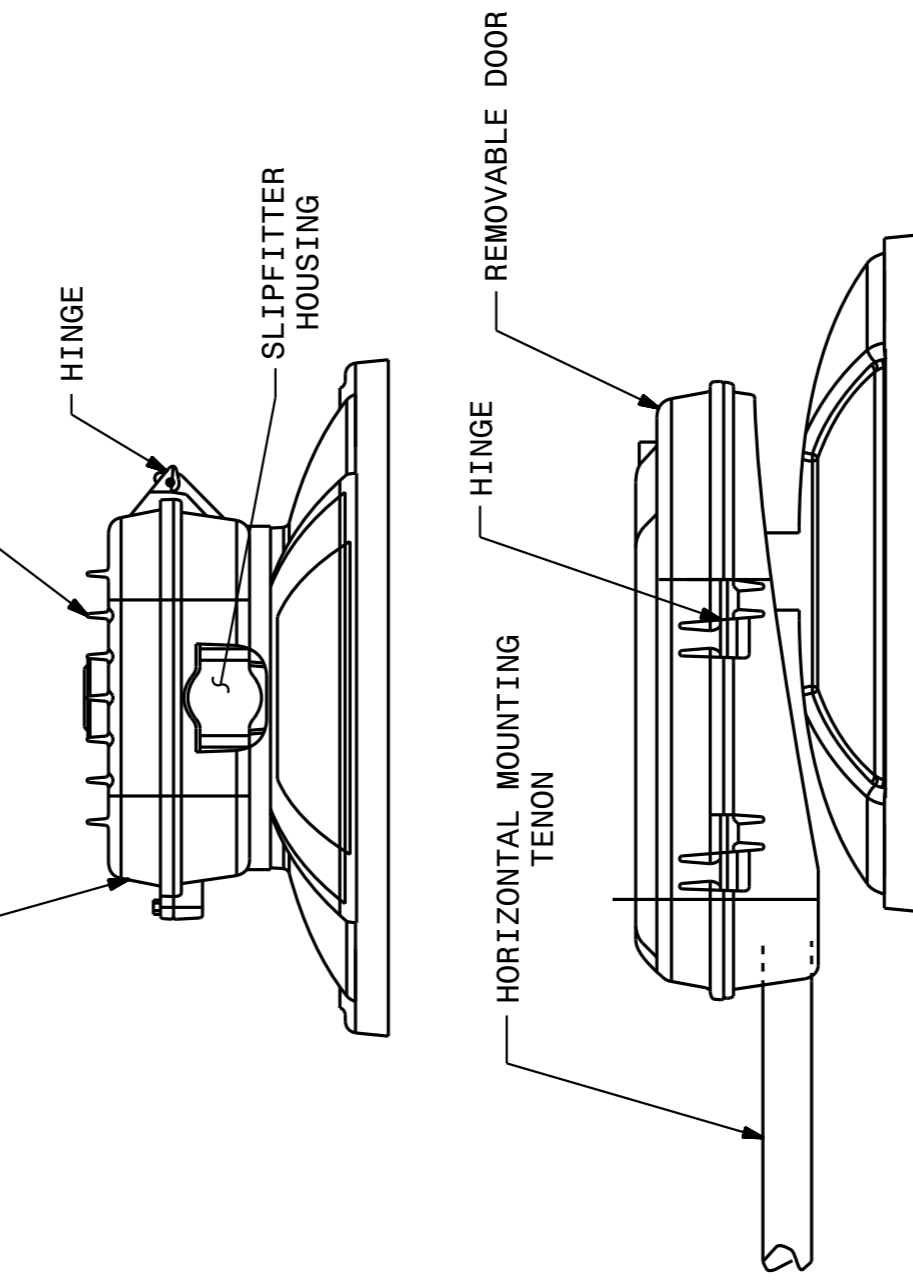
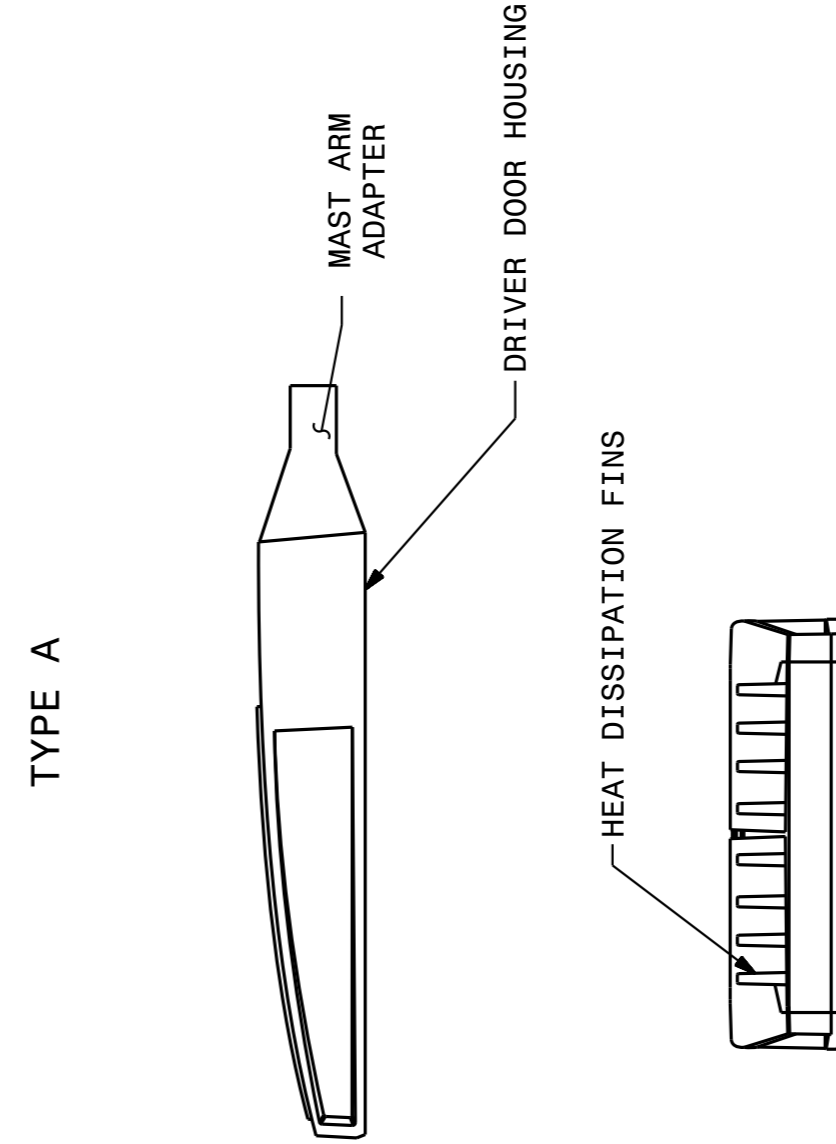
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
HIGH MOUNT LED LUMINAIRES

SHEET 1 OF 1
1403D01

TYPICAL CONFIGURATION TYPES



TYPE B

TYPE A

LED LUMEN PACKAGES

MOUNTING HEIGHT	# OF LUMINAIRES	MAXIMUM LUMINAIRE WATTAGE	MINIMUM LUMINAIRE DELIVERED (LUMENS)	MINIMUM L70 RATING (HOURS)	MINIMUM WARRANTY	COLOR TEMP.
60'	4	320	30,000	100,000	5 YEAR	4,000K
80'	8	320	30,000	100,000	5 YEAR	4,000K
100'	6	550	53,000	100,000	5 YEAR	4,000K
120'	8	550	53,000	100,000	5 YEAR	4,000K

NOTES

- SEE PLANS FOR LIES DISTRIBUTION

2			
1			
Rev.	Date	Description	Approved

NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION
HIGH MOUNT FOUNDATION AND LED LUMINAIRE DETAILS
 I-485/OAKDALE ROAD INTERCHANGE
 MECKLENBURG COUNTY

Drawn By: RGH
 Approved By: [Signature]
 Dwg No.:

