

PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



Designed by Paul Chan 11/1/2016

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. UNLESS OTHERWISE NOTED ON THE PLANS, ALL JUNCTION BOXES ARE TO BE TYPE PC18
- 7 TYPE PC36 JUNCTION BOXES ARE 36" L X 24" W X 18" H.
- 8 JACK 2" ELECTRICAL DUCT BETWEEN SINGLE ARM STANDARDS SA3 TO SA4 AND SA5 TO SA6 UNDER THE PAVED SHOULDER.
- 9 PLACE SINGLE ARM STANDARD ACCORDING TO DETAIL DRAWING 1404D01 (SHEET 1 OF 3) PLANSHEET E5 AND, WHERE REQUIRED, PLACE JUNCTION BOX WITHIN 2' OF SINGLE ARM STANDARD.
- 10 ADDITIONAL JUNCTION BOXES ARE REQUIRED AS PART OF GENERIC LIGHTING PAY ITEMS AS SHOWN IN HIGH MAST STANDARD FOUNDATION, LIGHT CONTROL SYSTEM, AND STANDARD FOUNDATION. THESE JUNCTION BOXES ARE TO BE PAID FOR AS PART OF THE RESPECTIVE LIGHTING PAY ITEMS. SEE LIGHTING DETAIL SHEET E6 INCLUDED IN THESE PLANS.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING 120', 100' AND 80' HIGH MOUNT STANDARDS WITH LIGHT EMITTING DIODE LUMINAIRES, UNDERGROUND CIRCUITRY, UNDERPASS LIGHTING, LIGHTING FOR PEDESTRIAN CULVERTS, CONTROL SYSTEM AND JUNCTION BOXES.

DESIGN CRITERIA

- 0.8 AVERAGE FOOTCANDLE ON TRAVEL LANES
- 4:1 AVERAGE TO MINIMUM UNIFORMITY RATIO ON TRAVEL LANES
- 2005 AASHTO ROADWAY LIGHTING DESIGN GUIDE
- 2013 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 6TH 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 90 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 (USE ATTACHED DETAIL SHEET 1401D01 IN LIEU OF STANDARD DRAWING 1401.01, SHEET 1)
1402.01	HIGH MOUNT FOUNDATION (USE ATTACHED DETAIL SHEET 1402D01 IN LIEU OF STANDARD DRAWING 1402.01, SHEET 1)
1403.01	HIGH MOUNT LUMINAIRES (USE ATTACHED DETAIL SHEET 1403D01 IN LIEU OF STANDARD DRAWING 1403.01, SHEET 1)
1404.01	LIGHT STANDARDS (USE ATTACHED DETAIL SHEET 1404D01 IN LIEU OF STANDARD DRAWING 1404.01, SHEET 1)
1405.01	STANDARD FOUNDATION
1406.01	LIGHT STANDARDS LUMINAIRES (USE ATTACHED DETAIL SHEET 1406D01 IN LIEU OF STANDARD DRAWING 1406.01, SHEET 1)
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
1412.01	UNDERPASS LIGHTING

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, 23,300 MIN. MAINTAINED LUMENS, TYPE V MAXIMUM BUG RATING 5-0-5.
- PROPOSED 100' HIGH MAST STANDARD W/ HM FOUNDATION & (6) HM LED LUMINAIRES. 550W MAX, 44,250 MIN. MAINTAINED LUMENS, TYPE V MAXIMUM BUG RATING 5-0-5.
- PROPOSED 120' HIGH MAST STANDARD W/ HM FOUNDATION & (8) HM LUMINAIRES 550W MAX, 44,250 MIN. MAINTAINED LUMENS, TYPE V MAXIMUM BUG RATING 5-0-5.
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' SINGLE ARM. INCLUDES STANDARD FOUNDATION TYPE R1 OR R2 & 285W MAX LED ROADWAY LUMINAIRE. IES DISTRIBUTION: TYPE II OR III AS REQUIRED. MAXIMUM BUG RATING 3-0-3.
- 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
- PROPOSED UNDERPASS LUMINAIRE, TYPE WM, 75W LED
- PROPOSED UNDERPASS BREAKER PANEL
- 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	STA. 40+28 -Y1- 65' LT	PC36	E2
JB2	STA. 37+20 -Y1- 48' LT	PC36	E2
JB3	STA.37+20 -Y1- 84' RT	PC36	E2
JB4	STA. 37+92 -Y1-160' RT (HM1)	PC18	E2
JB5	STA. 36+30 -L- 85' RT	PC18	E2
JB6	STA. 36+30 -L- 75' LT	PC18	E2
JB7	STA. 11+25 -LPB- 60' RT (HM2)	PC18	E2
JB8	STA. 36+85 -L- 75' LT	PC18	E2
JB9	STA. 32+66 -L- 95' LT (HM3)	PC18	E2
JB10	ACROSS RAMP FROM JB9	PC18	E2
JB11	STA. 29+50 -L- 95' LT	PC18	E2
JB12	STA. 33+95 -Y1- 50' LT	PC18	E2
JB13	STA. 25+24 -RPD- 32' RT (HM5)	PC18	E2
JB14	STA. 35+32 -Y1- 66' LT	PC18	E2
JB15	STA. 36+42 -Y1- 100' LT (HM4)	PC18	E2
JB16	STA. 19+10 -RPD- 42' LT	PC18	E2
JB17	STA. 16+46 -RPD- 36' LT	PC18	E2
JB18	STA. 16+46 -RPD- 68' RT (HM6)	PC18	E2
JB19	STA. 13+72 -RPD- 32' RT	PC18	E2
JB20	STA. 52+72 -L- 72' LT	PC18	E2
TOTALS		11*	3

* DOES NOT INCLUDE JUNCTION BOXES LOCATED AT HIGH MAST. SEE NOTE 10.

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	SERVICE LATERAL	G	GROUND
		HM	HIGH MAST

LOCATION	RACEWAY	SHEET	TYPE					
			JACKED (JA) FEET			BURIED (BD) FEET		
			SIZE 2"	SIZE 3"	SIZE 4"	SIZE 2"	SIZE 3"	SIZE 4"
STA. 37+20 -Y1-	JB2 - JB3	E2				130		
STA. 37+20 -Y1-		E2			100			
STA. 35+20 -L-	JB5 - JB6	E2			150			
STA. 35+20 -L-		E2			130			
UNDER DR. MLK JR WAY		E2	280					
UNDER DR. MLK JR WAY		E2	280					
STA. 11+60 -LPB-		E2		85				
NEAR HM1		E2		30				
STA. 25+24 -RPD-		E2					100	
STA. 16+96 -TRAIL		E2					40	
STA. 16+46 -RPD-		E2					50	
STA. 52+72 -L-		E2		140				
TOTALS			560	255	230	280	190	

COMPUTED BY: AB DATE: _____
CHECKED BY: _____ DATE: _____