02/03/98

PROJECT REFERENCE NO.	SHEET NO.
U-2551	E1

PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN
1-12-12

△ NOTES

1. AT THESE LOCATIONS, PROVIDE ELECTRICAL DUCT IN ACCORDANCE WITH NEC EQUIRMENTS FOR AN APPROVED RACEWAY FOR ELECTRICAL CIRCUITS. SEE TABLE "C"
2. INSTALL ALL BORE PITS OUTSIDE THE CLEAR ZONE, AS DEFINED BY THE 2002 AASHTO ROADSIDE DESIGN GUIDE OR AS DIRECTED BY THE ENGINEER.
3. LOCATE ALL JUNCTION BOXES OUTSIDE CLEAR ZONE AND AT LEAST 25' FROM THE EDGE OF PAVEMENT 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 2002 AASHTO ROADSIDE DESIGN GUIDE.
5. TYPE PC18 JUNCTION BOXES ARE 18" L X 12" W X 18" H.
6. NOTE REMOVED
7. AT THESE LOCATIONS DIRECTIONAL DRILL 2" CONDUIT FROM JUNCTION BOX TO JUNCTION BOX UNDER PAVED SHOULDER.
8. COORDINATE PROPOSED CONDUCTOR PLACEMENT WITH PROPOSED GUARDRAIL PLACEMENT. CONDUCTORS MAY NEED TO BE TRENCHED IN FRONT OF PROPOSED GUARDRAIL TO AVOID RETAINING WALL.

SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING 120' HIGH MOUNT STANDARDS WITH HIGH PRESSURE SODIUM LUMINAIRES, UNDERGROUND CIRCUITRY, CONTROL SYSTEM AND JUNCTION BOXES.

DESIGN CRITERIA

2005 AASHTO ROADWAY LIGHTING DESIGN GUIDE

2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 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

2011 NATIONAL ELECTRICAL CODE

2002 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
1402.01	HIGH MOUNT FOUNDATION
1403.01	HIGH MOUNT LUMINAIRES
1404.01	LIGHT STANDARDS
1405.01	STANDARD FOUNDATION
1406.01	LIGHT STANDARD LUMINAIRES
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

- 120' — PROPOSED 120' HIGH MAST STANDARD W/ HM FOUNDATION & (8) HM LUMINAIRES 750W HPS, MEDIUM, CUTOFF, TYPE V
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' SINGLE ARM. INCLUDES STANARD FOUNDATION TYPE R1 OR R2 & 250W HPS FLAT GLASS ROADWAY LUMINAIRE. IES DISTRIBUTION: MEDIUM, CUTOFF, TYPE III
- PROPOSED CONTROL SYSTEM WITH PC36 JUNCTION BOX. BREAKER SIZE SHOWN IN LOAD SCHEDULE, SHEET E2
- JB1 — PROPOSED ELECTRICAL JUNCTION BOX SEE DETAILS & TABLE B, THIS SHEET
- 1 — REFERENCE TO CORRESPONDING NOTE AS NUMBERED
- A1 / 6 — PROPOSED FEEDER CIRCUIT CONTROL SYSTEM(A), CIRCUIT(1) PLAN SYMBOL (6) SEE TABLE A, THIS SHEET
- 3#1/0 USE 2" — PROPOSED SERVICE POLE AND LATERAL 30' CLASS 4 3#1/0 USE CONDUCTORS 2" CONDUIT
- 2", 3" OR 4" ELEC. DUCT JA & BD — PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (JA) OR (BD) LOCATION: SEE TABLE C, THIS SHEET

TABLE "A"
CIRCUITRY CONDUCTOR CONDUIT TYPE & SIZE

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
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

TABLE "B"
JUNCTION BOX SUMMARY

NUMBER	LOCATION	TYPE		SHEET
JB1	21+40 -RPD- 50' RT	PC18		E3
JB2	18+00 -RPD- 50' RT	PC18		E3
JB3	80+00 -L- 100' LT	PC18		E3
JB4	20+25 -RPA- 35' LT	PC18		E3
JB5	17+85 -RPA- 35' LT	PC18		E3
JB6	17+85 -RPA- 30' RT	PC18		E3
JB7	14+87 -RPA- 40' LT	PC18		E2
JB8	22+50 -Y8- 75' LT	PC18		E2
JB9	22+50 -Y8- 75' RT	PC18		E2
JB10	24+50 -RPD- 25' LT	PC18		E3
JB11	38+40 -Y8- 75' LT	PC18		E3
JB12	39+00 -Y8- 70' LT	PC18		E3
JB13	36+50 -Y8- 80' RT	PC18		E3
JB14	18+55 -RPC- 30' RT	PC18		E3
JB15	18+55 -RPC- 45' LT	PC18		E3
JB16	14+90 -RPC- 45' LT	PC18		E3
TOTALS		16		

TABLE "C"
ELECTRICAL DUCT SUMMARY
(ESTIMATED LENGTH IN FEET)

LOCATION	RACEWAY 1	SHEET	TYPE					
			JACKED (JA) FEET			BURIED (BD) FEET		
			SIZE 2"	SIZE 3"	SIZE 4"	SIZE 2"	SIZE 3"	SIZE 4"
24+50 -RPD-		E3			45			
24+50 -RPD-	CSA - JB10	E3				100		
75+40 -L- BEHIND SLOPE PROTECTION		E3	200					
38+40 -Y8-		E3			110			
38+40 -Y8-	JB4 - JB9	E3				150		
18+55 -RPC-		E3					30	
80+00 -L-		E3						120
80+00 -L-	CSA - JB3	E3				210		
17+85 -RPA-		E3					25	
22+50 -Y8-		E2		115				
TOTALS			200	115	155	460	55	120

ABBREVIATIONS

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: 06/08/11
CHECKED BY: PKC DATE: 1-12-12

12-JAN-2012 14:08
R:\Lighting\Electrical\Design\u2551_le_psh_el.dgn
rghall AT RD258197

02/03/98

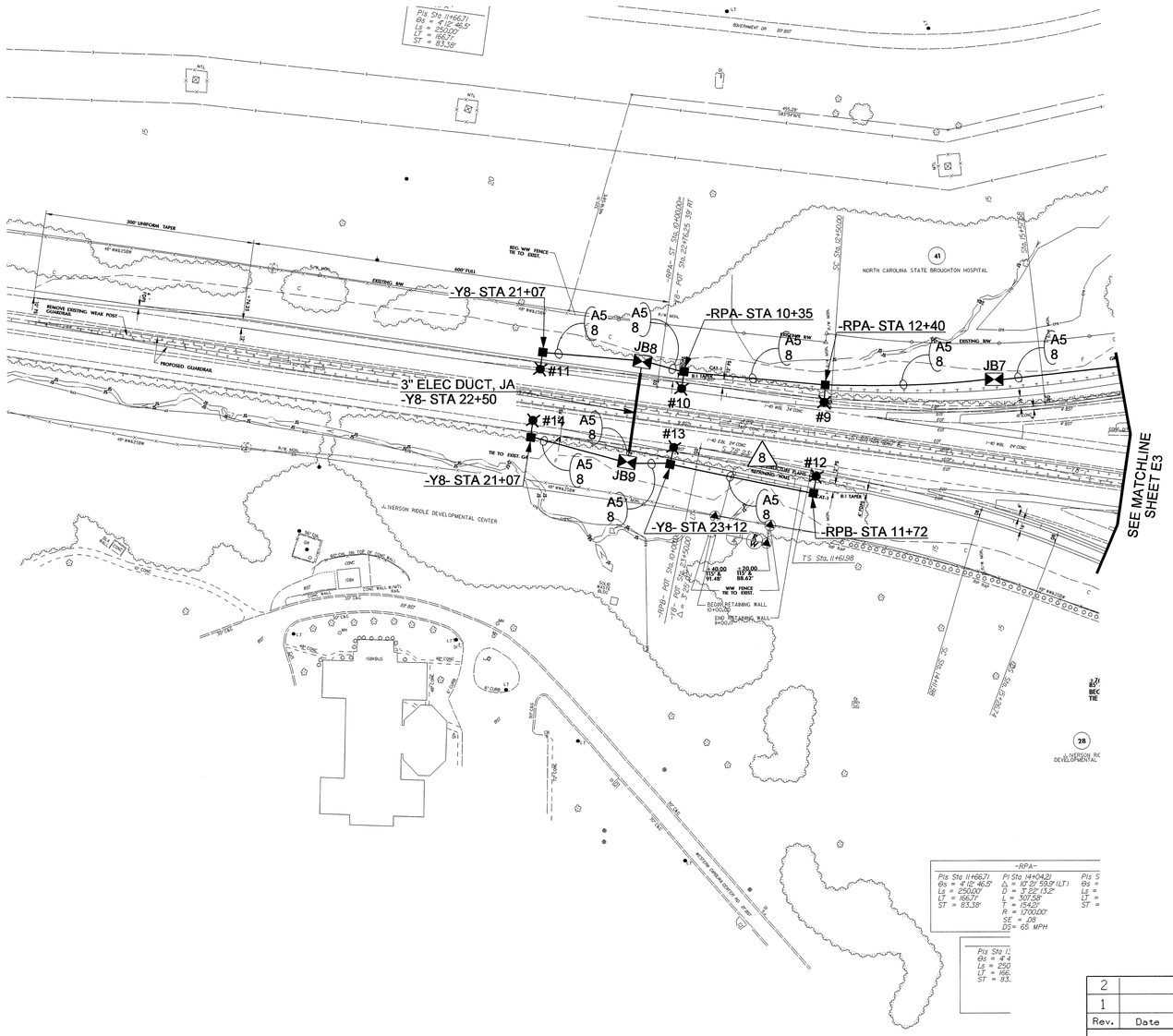
PROJECT REFERENCE NO.	SHEET NO.
U-2551	E2

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHIN 1-12-12

USE FOR LIGHTING CONSTRUCTION ONLY

SEE SHEET "E1" FOR LEGEND & △ NOTES

0 50 100



Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN — LIGHTING/ELECTRICAL SECTION

LIGHTING LAYOUT

I-40 / SR1922 (ENOLA ROAD) INTERCHANGE

SHEET 1 OF 2

BURKE COUNTY

Drawn By:	Approved By:	Dwg No.:
RGH	PKC	

12-JAN-2012 14:09
R:\Lighting\Electrical\Design\u2551_le_psh_e2.dgn
rghall AT R025697

02/03/98

USE FOR LIGHTING CONSTRUCTION ONLY

PROJECT REFERENCE NO.	SHEET NO.
U-2551	E3

NORTH CAROLINA PROFESSIONAL SEAL 022582 ENGINEER PAUL KI-BUN CHAN
1-12-12

SEE MATCHLINE SHEET E2

SEE SHEET "E1" FOR LEGEND & △ NOTES

LOAD SCHEDULE
I-40/ENOLA ROAD, NE QUAD

1Ø, 3W, 240/480 VAC — CONTROL SYSTEM "A"

CKT	SINGLE ARM 1 @ 250W HPS	120' HIGH MAST 8 @ 750W HPS	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
A1	#1, #2, #3, #4		2.8	1.34	15
A2		HM1	10.8	5.18	15
A3		HM2	14.4	6.91	20
A4	#5, #6, #7, #8	HM3	17.2	8.26	25
A5	#9, #10, #11, #12, #13, #14		4.2	2.02	15
SPARE	--	--	--	--	25
TOTAL	14	3	49.4	23.71	

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN — LIGHTING/ELECTRICAL SECTION

LIGHTING LAYOUT

I-40 / SR1922 (ENOLA ROAD) INTERCHANGE

SHEET 2 OF 2

BURKE COUNTY

Drawn By:	Approved By:	Dwg No.:
RGH	PKC	

12-JAN-2012 14:10
R:\Lighting\Electrical\Design\u2551_le_psh_e3.dgn
rghsii AT RD29817