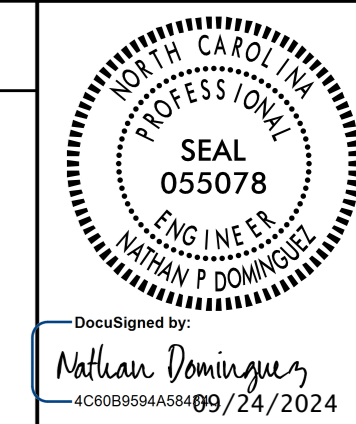


# PLANS AND DETAILS FOR PROPOSED LIGHTING /ELECTRICAL CONSTRUCTION

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## GENERAL NOTES

- CIRCUIT AND JUNCTION BOX LOCATIONS MAY BE FIELD ADJUSTED AS REQUIRED TO STAY WITHIN THE LIMITS OF CONSTRUCTION, WITHIN RIGHT-OF-WAY, OUT OF DITCH LINES, AWAY FROM FENCE POSTS, GUARDRAILS AND CABLE GUIDERAILS, AND TO CLEAR OBSTRUCTIONS. ADJUSTMENTS RESULTING IN AN OVERALL INCREASE OF 3% OR MORE TO ANY CIRCUIT LENGTH REQUIRES APPROVAL FROM THE ENGINEER.
- INSTALL ALL BORE PITS OUTSIDE THE CLEAR ZONE, AS DEFINED BY THE 2011 AASHTO ROADSIDE DESIGN GUIDE OR AS DIRECTED BY THE ENGINEER.
- LOCATE ALL JUNCTION BOXES OUTSIDE CLEAR ZONE AND IN AN AREA UNLIKELY TO BE USED BY TRAFFIC.
- 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.
- ALL IN GROUND JUNCTION BOXES DEPTHS SHALL BE 18" UNLESS OTHERWISE NOTED. SEE DETAIL SHEETS FOR FORMED OPENING DEPTHS.
- CONTRACTOR SHALL RECORD THE GPS COORDINATES OF EACH JUNCTION BOX WITHIN 3' ACCURACY, IN THE JUNCTION BOX SUMMARY, TABLE "C". PROVIDE A COPY OF THE JUNCTION BOX SUMMARY WITH THESE COORDINATES TO THE LIGHTING ENGINEER DURING PROJECT INSPECTION. COORDINATES ARE NOT REQUIRED FOR FORMED OPENINGS.
- POLE NUMBERING CONVENTION: CONTROL SYSTEM-POLE #-CKT # (A-3-2).
- JUNCTION BOXES SHOWN NEAR LIGHT STANDARDS (LSJB & HMJB) ARE SHOWN FOR CLARITY. THESE JUNCTION BOXES ARE TO BE USED AS A TEE POINT FOR CIRCUITRY TO THE STANDARD, AND SHALL BE INSTALLED FOR BEST ALIGNMENT OF CIRCUITRY WHILE MAINTAINING THE OFFSETS SHOWN IN TABLE "C". SEE STANDARD DRAWINGS 1401.01 AND 1406.01 FOR INSTALLATION DETAILS.
- SERVICE POLE SHALL NOT BE INSTALLED PRIOR TO COORDINATION WITH THE LOCAL UTILITY. PROVIDE PROOF OF COORDINATION AND PROOF OF NEED TO THE ENGINEER AFTER CONSULTING WITH THE LOCAL UTILITY. THE SERVICE POLE MAY BE DELETED FROM THE CONTRACT IF NOT REQUIRED. REFER TO ARTICLE 1407-3 OF THE 2024 NCDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
- WHERE A CURRENT TRANSFORMER (CT) CABINET IS REQUIRED, THE CT CABINET AND ASSOCIATED HARDWARE ARE INCIDENTAL TO THE PAY ITEM FOR THE LIGHTING CONTROL PANEL.

## SCOPE OF WORK

PLACE ROADWAY LIGHTING SYSTEM INTO SERVICE BY PROVIDING AND INSTALLING LIGHT STANDARDS WITH LIGHT EMITTING DIODE LUMINAIRES, UNDERGROUND CIRCUITRY, CONTROL SYSTEM AND JUNCTION BOXES.

## DESIGN CRITERIA

- 0.8 AVERAGE FOOTCANDLE ON TRAVEL LANES
- 4:1 AVERAGE TO MINIMUM UNIFORMITY RATIO ON TRAVEL LANES
- 2018 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 LIGHT STANDARD SUPPORT FOR BASIC WIND SPEED OF 70 MPH
- 2020 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 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD NO.	TITLE
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 2024.

## LEGEND

- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' SINGLE ARM. INCLUDES STANDARD FOUNDATION TYPE R1 OR R2, JUNCTION BOX & xxxW MAX LED ROADWAY LUMINAIRE. IES DISTRIBUTION:TYPE II OR III AS REQUIRED. MAXIMUM BUG RATING 3-0-3.
- PROPOSED CONTROL SYSTEM WITH JUNCTION BOX. SEE PLANS FOR BREAKER SIZES.SEE GENERAL NOTE 10.
- PROPOSED ELECTRICAL JUNCTION BOX. SEE TABLE C, SHEET E1-A, FOR DETAILS AND TYPE.
- REFERENCE TO CORRESPONDING NOTE AS NUMBERED.
- PROPOSED FEEDER CIRCUIT. CONTROL SYSTEM (A), CIRCUIT NUMBER (1) PLAN SYMBOL (6). SEE TABLE A, THIS SHEET.
- PROPOSED 30' CLASS 4 SERVICE POLE AND LATERAL 3 #1/0 USE CONDUCTORS 2" CONDUIT SEE GENERAL NOTE 9.
- PROPOSED ELECTRICAL DUCT SIZE 2", 3" OR 4" TYPE (TL) OR (BD) LOCATION: SEE TABLE B, SHEET E1-A. 2", 3" OR 4" ELEC. DUCT TL & BD.

## NOTES

- 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.
- AT MANY LOCATIONS ON SHEET E-2, THERE IS VERY LITTLE ROOM BETWEEN THE BACK OF PROPOSED GUARDRAIL AND RIGHT-OF-WAY. THE SYMBOLOGY ON THE PLANS APPEARS TO SHOW THE LIGHT STANDARD AND OR JUNCTION BOX OUTSIDE OF THE RIGHT-OF-WAY OR IN THE PROPOSED GUARDRAIL. THE CONTRACTOR SHALL INSTALL ALL THE LIGHT STANDARDS, JUNCTION BOXES AND FEEDER CIRCUITS IN THE GRASSY STRIP BETWEEN THE BACK OF PROPOSED SIDEWALK AND INSIDE THE RIGHT-OF-WAY.
- INSTALL DUCT FOR BEST ALIGNMENT OF CIRCUITRY.

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
*8	2 #8 Ø 1 #10G	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR

BD	BURIED	PVC	PVC SCHEDULE 40 CONDUIT
LT	LIGHT	RGC	RIGID GALVANIZED STEEL CONDUIT
TL	TRENCHLESS	C	CONDUIT
MH	MOUNTING HEIGHT	CKT	CIRCUIT
Ø	PHASE	N	NEUTRAL
SER LAT	SERVICE LATERAL	G	GROUND
IGJB	IN GROUND JUNCTION BOX	HM	HIGH MAST
LED	LIGHT EMITTING DIODE	LSJB	LIGHT STANDARD JUNCTION BOX
HMJB	HIGH MAST JUNCTION BOX	CSJB	CONTROL SYSTEM JUNCTION BOX

COMPUTED BY: SAM DATE: 03/1/24  
CHECKED BY: DATE:

6 TABLE "C" JUNCTION BOX SUMMARY

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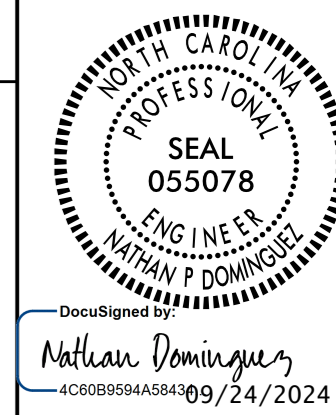
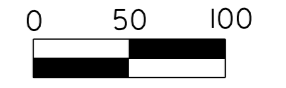


Table C: JUNCTION BOX SUMMARY. Columns include SHEET, LABEL, LOCATION AND OFFSET, TYPE, PAY ITEM & SIZE (IG18, IG30, IG36, LS18, LS30, LS36, HM18, HM30, HM36, CS36, BARRIER RAIL, SIDE WALK), GPS LOCATION (LAT/LONG), and CSA TOTALS (4, 21, 1).

Table B: ELECTRICAL DUCT SUMMARY (ESTIMATED LENGTH IN FEET). Columns include LOCATION, RACEWAY (1), SHEET, TYPE (TRENCHLESS (TL) FEET and BURIED (BD) FEET), and SIZE (2", 3", 4", 6"). Totals: TL 430, BD 250, 305.

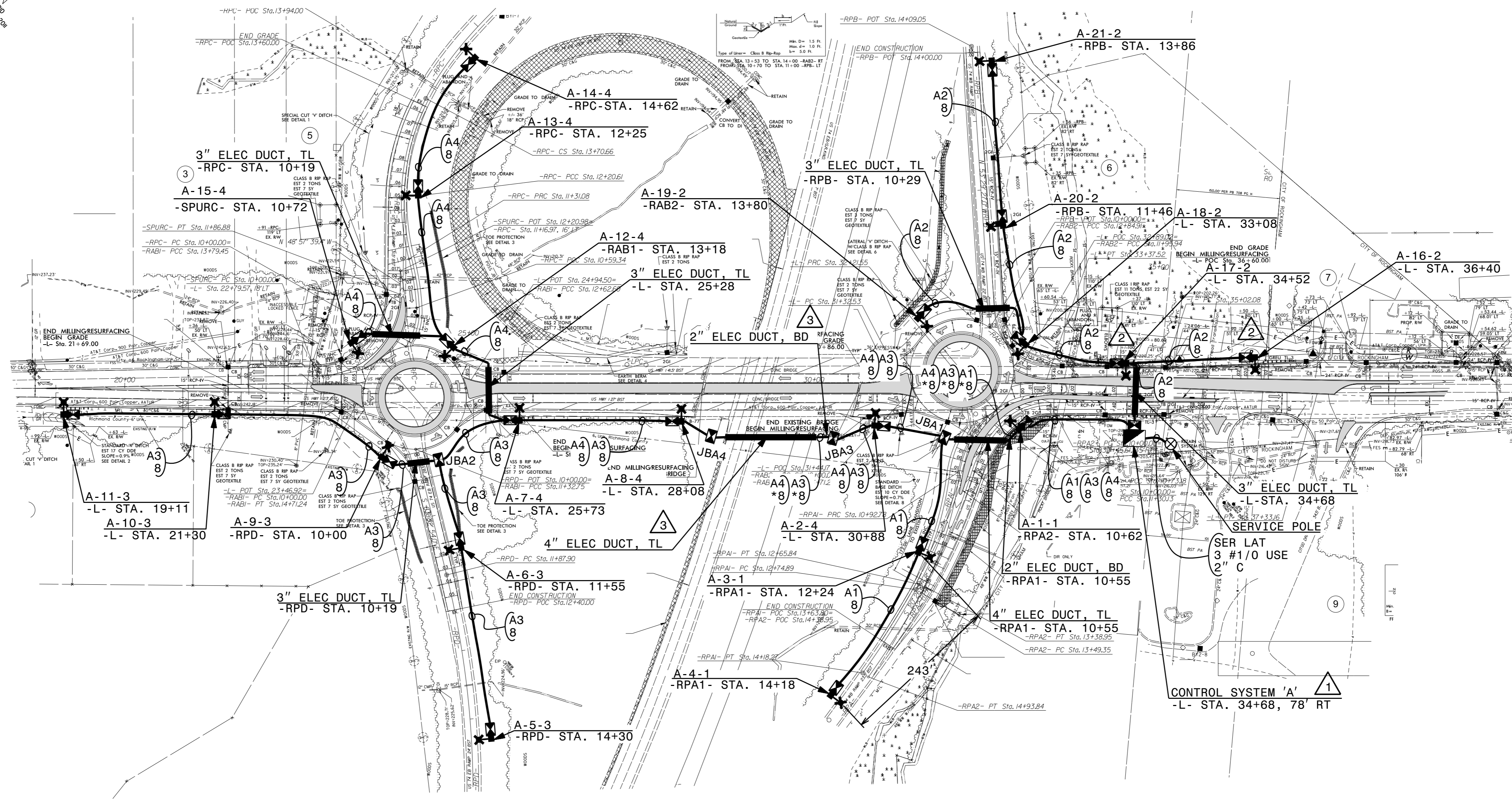
SEE SHEET "E-1" FOR LEGEND & Δ NOTES

USE FOR LIGHTING CONSTRUCTION ONLY



DocuSigned by:  
Nathan Dominguez  
EC608994A58434  
03/24/2024

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LOAD SCHEDULE QUADRANT 'A' IN FRONT OF PARKING LOT 10', 3W, 240/480 VAC CONTROL SYSTEM "A"				
CIRCUIT ID	SINGLE ARM 1 @ 285W MAX. LED	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
A1	A-1, A-3, A-4	1.9	0.9	50
A2	A-16, A-17, A-18 A-19, A-20, A-21	3.6	1.7	50
A3	A-5, A-6, A-9 A-10, A-11	3.0	1.4	50
A4	A-2, A-7, A-8 A12, A-13, A-14, A-15	4.2	2.0	50
SPARE	--	--	--	50
TOTAL	21 ON 21 SA POLES	12.7	6.0	

SEE SHEET 'E-1' FOR  
LEGEND & △ NOTES

Rev.	Date	Description	Approved
2			
1			

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

**LIGHTING LAYOUT**  
I-74/US-1 INTERCHANGE  
ROUNDAABOUTS

RICHMOND COUNTY

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

20-MAR-2024 09:33  
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