

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 2002 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 2002 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 PC30 JUNCTION BOXES ARE 30" L X 17" W X 18" H.
8. TYPE PC36 JUNCTION BOXES ARE 36" L X 24" W X 18" H.
9. RELOCATE EXISTING CONTROL SYSTEM "A" TO LOCATION SHOWN ON PLAN SHEET E2, PLACE A TYPE PC36 JUNCTION BOX WITHIN 2' OF THE CONTROL SYSTEM FOUNDATION.
10. ALL EXISTING SINGLE ARM STANDARDS SHALL BE REMOVED, REMOVE OR ABANDON FOUNDATIONS. NEW SINGLE ARM STANDARDS SHALL BE SPACED 280' APART WITH A 15' MINIMUM DISTANCE FROM EOT. LOCATE THE FIRST NEW SINGLE ARM STANDARD FOR EACH RAMP WITHIN 10' LONGITUDINALLY ALONG THE RAMP FROM THE REMOVED STANDARD THAT WAS CLOSEST TO THE HIGH MAST. THEN SPACE ALL NEW STANDARDS 280' APART AS SHOWN ON PLAN SHEETS E2 & E3.
11. VERIFY SINGLE ARM STANDARD AND FOUNDATION HAVE BEEN REMOVED. IF EXISTING, REMOVE SINGLE ARM STANDARD AND REMOVE OR ABANDON FOUNDATION.
12. EXISTING LIGHTING SYSTEM WAS ORIGINALLY CONSTRUCTED UNDER STATE PROJECT : 8.1654305 AND LET IN JULY 1975. THIS LIGHTING SYSTEM WAS RENOVATED UNDER TIP # I-2302, STATE PROJECT : 8.1672301 AND LET ON SEPTEMBER 19, 1989.

SCOPE OF WORK

RENOVATE EXISTING ROADWAY LIGHTING SYSTEM BY REMOVING 2 EXISTING HIGH MOUNT STANDARDS AND 11 EXISTING SINGLE ARM LIGHT STANDARDS. PROVIDING AND INSTALLING 100' & 80' HIGH MOUNT AND SINGLE ARM STANDARDS WITH HIGH PRESSURE SODIUM LUMINAIRES, UNDERGROUND CIRCUITRY, 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
- 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

- PROPOSED 80' HIGH MAST STANDARD W/ HM FOUNDATION & (8) HM LUMINAIRES 400W HPS, MEDIUM, CUTOFF, TYPE V
- PROPOSED 100' HIGH MAST STANDARD W/ HM FOUNDATION & (6) HM LUMINAIRES 750W HPS, MEDIUM, CUTOFF, TYPE V
- EXISTING 100' HIGH MAST STANDARD TO BE REMOVED. REMOVE OR ABANDON FOUNDATION.
- PROPOSED LIGHT STANDARD TYPE MTLT 45' WITH 15' SINGLE ARM. INCLUDES STANDARD FOUNDATION TYPE R1 OR R2 & 400W HPS SAG GLASS ROADWAY LUMINAIRE. IES DISTRIBUTION: MEDIUM, CUTOFF, TYPE III
- EXISTING SINGLE ARM LIGHT STANDARD TO BE REMOVED. REMOVE OR ABANDON FOUNDATION.
- EXISTING CONTROL SYSTEM LOCATION. REMOVE OR ABANDON EXISTING FOUNDATION.
- PROPOSED NEW LOCATION OF EXISTING CONTROL SYSTEM WITH ADDED PC36 JUNCTION BOX. REUSE ALL EXISTING COMPONENTS INCLUDING BREAKERS AND CONTACTORS.
- 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 - 8 W/G FEEDER CIRCUIT IN 1.5" CONDUIT 1 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR 1.5" PVC CONDUIT
*8	2 #8 Ø 1 #10G	2 - 8 W/G FEEDER CIRCUIT 2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR
6	2 #6 Ø 1 #8G 1.5" P	2 - 6 W/G FEEDER CIRCUIT IN 1.5" CONDUIT 2 AWG SIZE 6 CONDUCTOR (BK & RD) 1 AWG SIZE 8 GROUNDING CONDUCTOR 1.5" PVC CONDUIT
*6	2 #6 Ø 1 #10G	2 - 6 W/G FEEDER CIRCUIT 2 AWG SIZE 6 CONDUCTOR (BK & RD) 1 AWG SIZE 8 GROUNDING CONDUCTOR
4	2 #4 Ø 1 #6G 1.5" P	2 - 4 W/G FEEDER CIRCUIT IN 1.5" CONDUIT 2 AWG SIZE 4 CONDUCTOR (BK & RD) 1 AWG SIZE 6 GROUNDING CONDUCTOR 1.5" PVC CONDUIT
*4	2 #4 Ø 1 #6G	2 - 4 W/G FEEDER CIRCUIT 2 AWG SIZE 4 CONDUCTOR (BK & RD) 1 AWG SIZE 6 GROUNDING CONDUCTOR
2	2 #2 Ø 1 #4G 1.5" P	2 - 2 W/G FEEDER CIRCUIT IN 1.5" CONDUIT 2 AWG SIZE 2 CONDUCTOR (BK & RD) 1 AWG SIZE 4 GROUNDING CONDUCTOR 1.5" PVC CONDUIT
*2	2 #2 Ø 1 #4G	2 - 2 W/G FEEDER CIRCUIT 2 AWG SIZE 2 CONDUCTOR (BK & RD) 1 AWG SIZE 4 GROUNDING CONDUCTOR

NUMBER	LOCATION	TYPE	SHEET
JB1	15+80 -RPC- 35' LT	PC18	E2
JB2	15+80 -RPC- 30' RT	PC18	E2
JB3	13+20 -RPC- 35' LT	PC18	E2
JB4	18+52 -RPC- 25' RT	PC36	E2
JB5	18+35 -RPC- 140' RT	PC36	E2
JB6	18+90 -RPD- 170' LT	PC36	E2
JB7	16+30 -RPD- 30' LT	PC18	E2
JB8	16+30 -RPD- 30' RT	PC18	E2
JB9	13+30 -RPD- 30' RT	PC18	E2
JB10	24_30 -L- 60' RT	PC18	E2
JB11	24+30 -L- 60' LT	PC18	E2
JB12	20+00 -RPA- 20' RT	PC18	E2
JB13	17+42 -RPA- 20' RT	PC18	E2
JB14	17+42 -RPA- 40' LT	PC18	E2
JB15	14+50 -RPA- 30' LT	PC18	E3
JB16	11+90 -RPB- 35' RT	PC18	E2
JB17	14+40 -RPB- 45' RT	PC18	E2
JB18	14+40 -RPB- 20' LT	PC18	E2
JB19	21+65 -L- 80' LT	PC18	E2
JB20	21+65 -L- 60' RT	PC18	E2
CS"A" JB	18+52 -RPC- 25' RT	PC36	E2
TOTALS		17	4

LOCATION	RACEWAY	SHEET	TYPE					
			JACKED (JA) FEET		BURIED (BD) FEET			
			SIZE 2"	SIZE 3"	SIZE 4"	SIZE 2"	SIZE 3"	SIZE 4"
15+80 -RPC-		E2		65				
18+52 -RPC-	CS"A"JB - JB4	E2				160		
18+52 -RPC-		E2			140			
22+70 -L- 160' RT	JB5 - JB6	E2				160		
22+70 -L- 160' RT		E2			140			
16+30 -RPD-	JB7 - JB8	E2		60				
24+30 -L-		E2		120				
17+42 -RPA-		E2		60				
14_40 -RPB-		E2		60				
21+65 -L-		E2		140				
TOTALS				505	280	320		

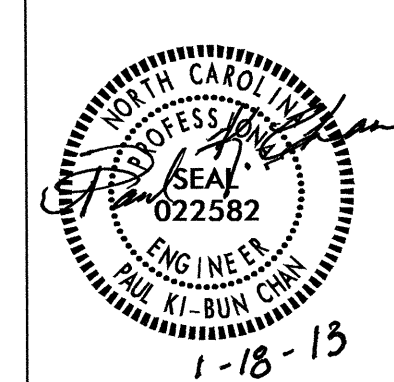
ABBREVIATIONS

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

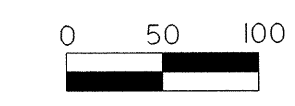
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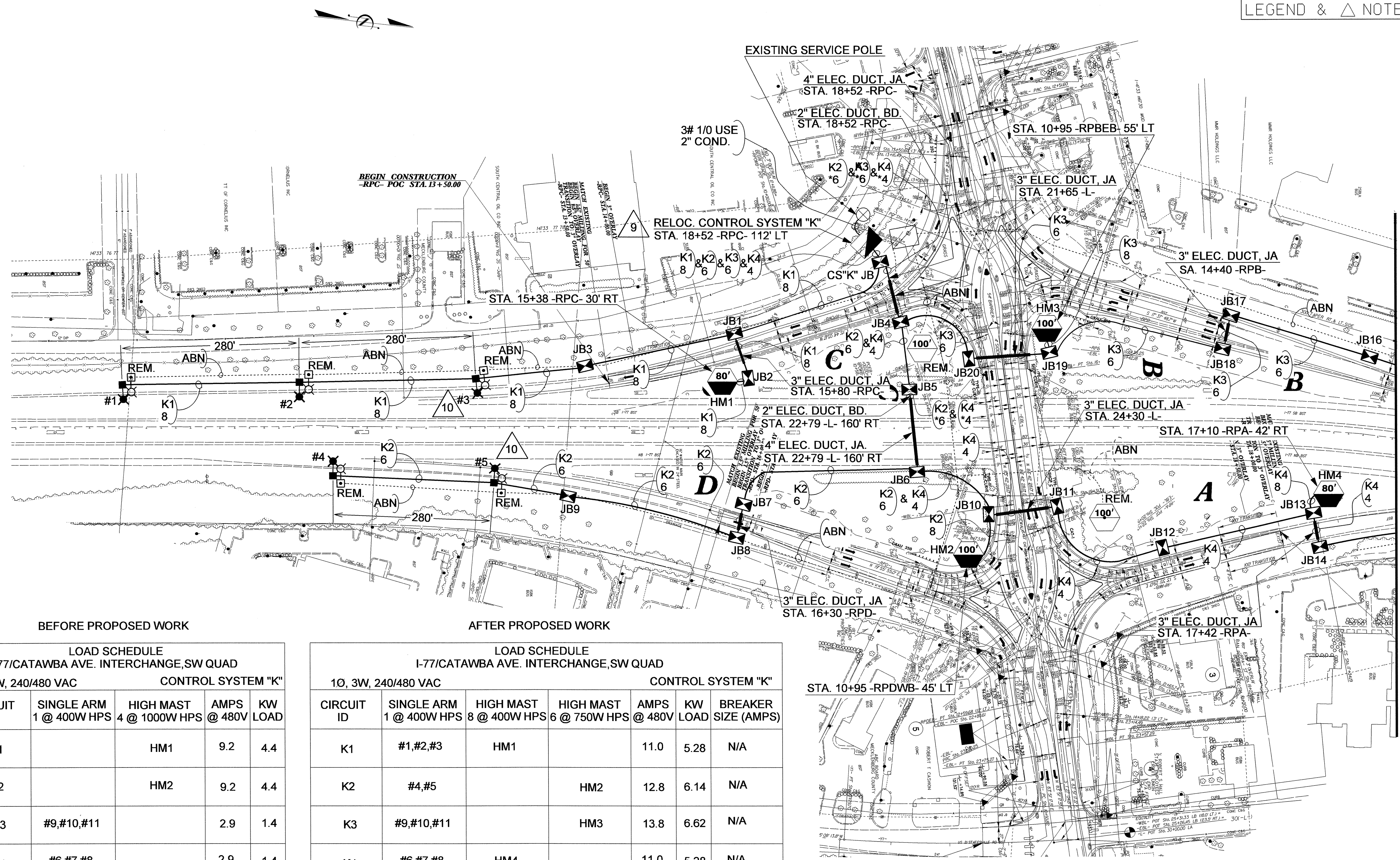
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USE FOR LIGHTING CONSTRUCTION ONLY



SEE SHEET "E1" FOR LEGEND & △ NOTES



MATCHLINE WITH SHEET E3

BEFORE PROPOSED WORK

LOAD SCHEDULE I-77/CATAWBA AVE. INTERCHANGE, SW QUAD 10, 3W, 240/480 VAC CONTROL SYSTEM "K"				
CIRCUIT ID	SINGLE ARM 1 @ 400W HPS	HIGH MAST 4 @ 1000W HPS	AMPS @ 480V	KW LOAD
K1		HM1	9.2	4.4
K2		HM2	9.2	4.4
K3	#9,#10,#11		2.9	1.4
K4	#6,#7,#8		2.9	1.4
K5	#4,#5		1.9	.9
K6	#1,#2,#3		2.9	1.4
TOTAL	11	2	29.0	13.9

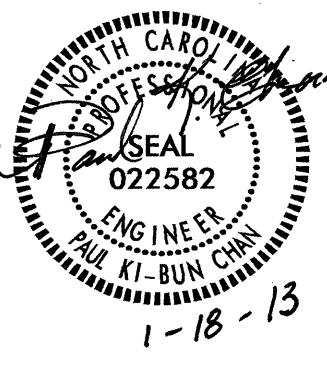
AFTER PROPOSED WORK

LOAD SCHEDULE I-77/CATAWBA AVE. INTERCHANGE, SW QUAD 10, 3W, 240/480 VAC CONTROL SYSTEM "K"						
CIRCUIT ID	SINGLE ARM 1 @ 400W HPS	HIGH MAST 8 @ 400W HPS	HIGH MAST 6 @ 750W HPS	AMPS @ 480V	KW LOAD	BREAKER SIZE (AMPS)
K1	#1,#2,#3	HM1		11.0	5.28	N/A
K2	#4,#5	HM2		12.8	6.14	N/A
K3	#9,#10,#11	HM3		13.8	6.62	N/A
K4	#6,#7,#8	HM4		11.0	5.28	N/A
SPARE						
TOTAL	11	2	2	48.6	23.32	

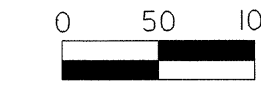
* REUSE EXISTING FEEDER CIRCUIT BREAKERS

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1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION LIGHTING LAYOUT I-77/CATAWBA AVE. INTERCHANGE MECKLENBURG COUNTY Drawn By: AB Approved By: PKC Dwg No.:			



USE FOR LIGHTING CONSTRUCTION ONLY



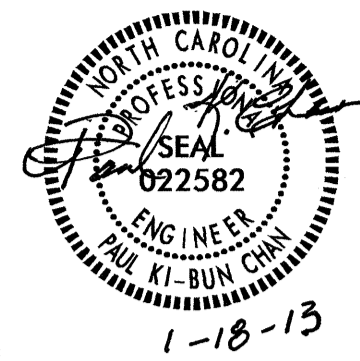
MATCHLINE WITH SHEET E2



2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION			
LIGHTING LAYOUT I-77/CATAWBA AVE. INTERCHANGE			
MECKLENBURG COUNTY			
Drawn By:	Approved By:	Dwg No.:	
AB	PKC		

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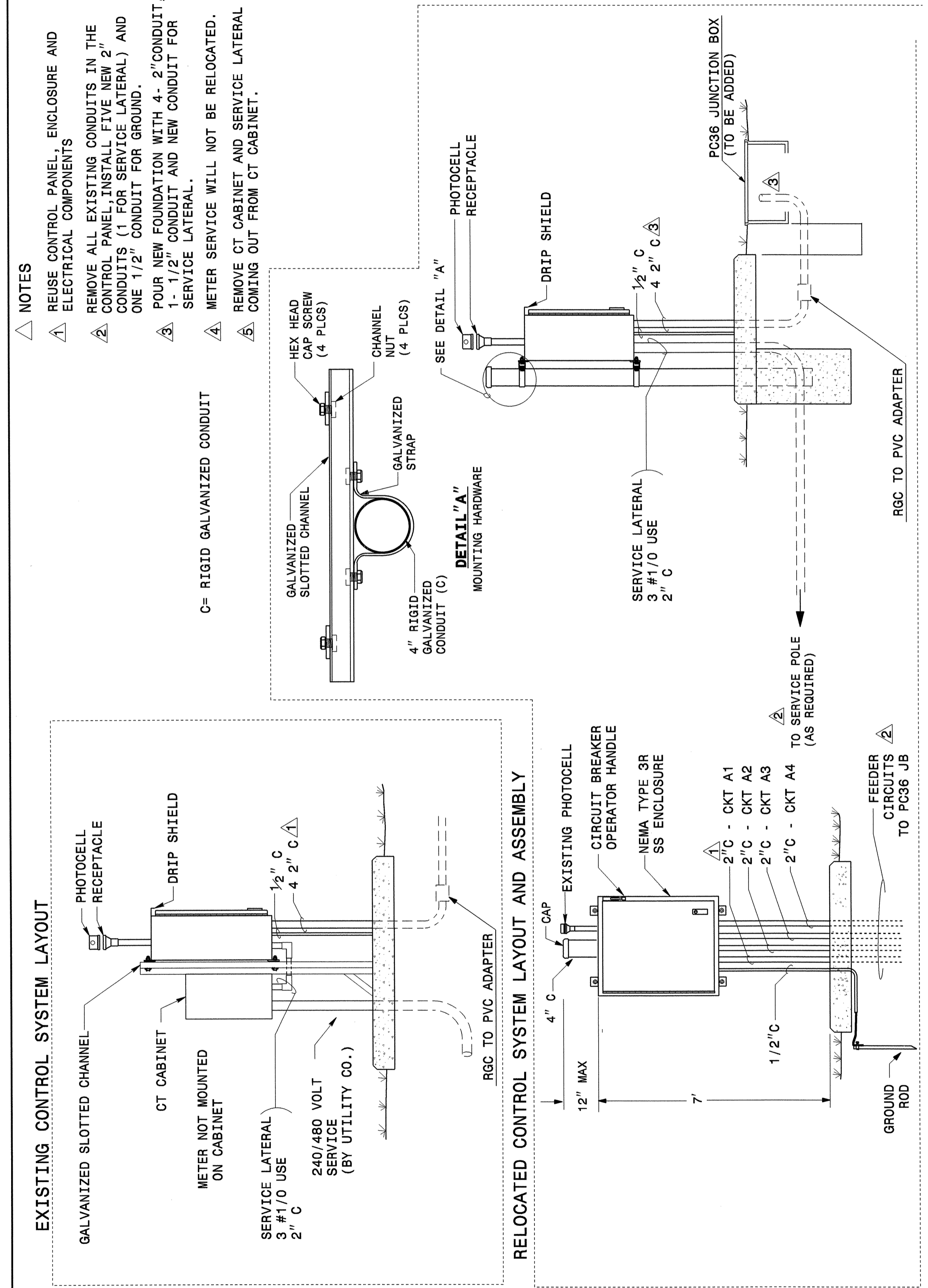


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

ENGLISH STANDARD DRAWING FOR
LIGHT CONTROL SYSTEM "A"
ASSEMBLY

SHEET 2 OF 3
1408D02



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

7-06

ENGLISH STANDARD DRAWING FOR
LIGHT CONTROL SYSTEM "A"
ASSEMBLY

SHEET 2 OF 3
1408D02

- NOTES**
- △ REUSE CONTROL PANEL, ENCLOSURE AND ELECTRICAL COMPONENTS
 - △ REMOVE ALL EXISTING CONDUITS IN THE CONTROL PANEL, INSTALL FIVE NEW 2" CONDUITS (1 FOR SERVICE LATERAL) AND ONE 1/2" CONDUIT FOR GROUND.
 - △ POUR NEW FOUNDATION WITH 4- 2" CONDUIT, SERVICE LATERAL.
 - △ METER SERVICE WILL NOT BE RELOCATED.
 - △ REMOVE CT CABINET AND SERVICE LATERAL COMING OUT FROM CT CABINET.

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2			
1			
Rev.	Date	Description	Approved
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION			
LIGHT CONTROL ASSEMBLY SPECIAL DETAILS			
Drawn By:	AB	Approved By:	PKC
Dwg No.:			