

LOCATION MAP

LATITUDE: 41°29'08" LONGITUDE: 81°37'22"



PORTION TO BE IMPROVED.....	_____
INTERSTATE HIGHWAY.....	_____
FEDERAL ROUTES.....	_____
STATE ROUTES.....	_____
COUNTY & TOWNSHIP ROADS.....	_____
OTHER ROADS.....	_____

DESIGN DESIGNATION

CURRENT ADT (2017)	35,820
DESIGN YEAR ADT (2020)	48,230
DESIGN HOURLY VOLUME (2020)	3,580
DIRECTIONAL DISTRIBUTION	58%
TRUCKS (24 HOUR B&C)	6%
DESIGN SPEED	40 MPH
LEGAL SPEED	35 MPH
DESIGN FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL
NHS PROJECT	NO

DESIGN EXCEPTIONS

NONE

<h1>UNDERGROUND UTILITIES</h1> <p>CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.</p>	
 <p>OHIO Utilities Protection SERVICE</p>	<p><i>Call Before You Dig</i></p> <p>1-800-362-2764</p>
<p>(Non-members must be called directly)</p>	
<p>OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE</p> <p>1-800-925-0988</p>	



ENGINEERS SEAL:



SIGNED: Mark D Hunter
DATE: 8/28/19

ENGINEERS SEAL:

SIGNED: _____
DATE: _____

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

**CUY-IR490 / SR010-
2.09 / 19.28**

CITY OF CLEVELAND
CUYAHOGA COUNTY

INDEX OF SHEETS:

SEE SHEET 2

BU-28

HIGHWAY LIGHTING

PLAN PREPARED BY:

[illegible]

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE CONSTRUCTION OF 2.09 MILES OF A NEW TWO- TO THREE-LANE BOULEVARD FROM E. 55TH ST. TO E. 93RD ST. WORK INCLUDES PAVEMENT, RAILROAD, STRUCTURES, DRAINAGE, WATERWORK, LIGHTING, POWER DISTRIBUTION, TRAFFIC CONTROL, LANDSCAPING, AND ADJUSTMENT OF EXISTING UTILITIES.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: 87.2 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 87.2 ACRES
(AREA SERVICED BY COMBINED SEWER)

2016 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

0	2019-08-28	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

FEDERAL PROJECT NO.
E140 (249)

PID NO.
96833

CONSTRUCTION PROJECT NO.
17-3000

RAILROAD INVOLVEMENT
NORFOLK SOUTHERN
GCRTA

**-IR490/ SR010-
2.09 / 19.28**

$$\frac{1}{10}$$

RECORD PLANS

RECORD PLANS

[illegible]

1	2024-09-10	RECORD DRAWINGS
0	2019-08-28	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

EXISTING LIGHTING ITEMS. SIGNS. CONDUIT. CABLE AND POWER CENTERS

THE LOCATIONS OF EXISTING LIGHTING ITEMS, SIGNS, CONDUIT, CABLE AND POWER CENTERS SHOWN ON THE PLANS AND DESCRIBED BY NOTATION HAVE BEEN OBTAINED BY FIELD CHECKS AND INFORMATION FROM EXISTING LIGHTING PLANS PROVIDED BY ODOT AND THE CITY OF CLEVELAND. IT IS BELIEVED THAT THE INFORMATION IS ESSENTIALLY CORRECT, HOWEVER, THE OHIO DEPARTMENT OF TRANSPORTATION AND THE CITY OF CLEVELAND CANNOT GUARANTEE THE ACCURACY OR COMPLETENESS. NOT ALL EXISTING LIGHTING EQUIPMENT WITHIN THE PROJECT LIMITS IS SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS.

CONFLICTS WITH EXISTING UTILITIES

PRIOR TO INSTALLING ANY OF THE PROPOSED STREET LIGHTING EQUIPMENT, PULL BOXES, CONDUIT, CONDUIT DUCTBANKS AND POWER SUPPLIES, THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF ALL UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID ANY DAMAGE. ALL REPAIRS TO ANY DAMAGE TO EXISTING UTILITIES CAUSED BY THE FAILURE TO COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES AND DRILL APPROPRIATE UTILITY TEST HOLES, WILL BE PAID FOR BY THE CONTRACTOR.

THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UNDERGROUND PIPE LINES, DRAINAGE, ELECTRICAL CONDUIT, AND DUCT BANKS, WATERLINES, COMMUNICATION DUCTS, AND OTHER STRUCTURES BY CONTACTING OWNERS OF UNDERGROUND UTILITIES AND BY EXCAVATING APPROPRIATE UTILITY TEST HOLES.

THE CONTRACTOR SHALL COORDINATE THE LIGHTING PLANS WITH THE ROADWAY CONSTRUCTION PLANS AND CROSS-SECTIONS. ALL LIGHTING EQUIPMENT SYMBOLS SHOWN ON THE LIGHTING PLANS ARE NOT DRAWN TO SCALE, ARE SHOWN DIAGRAMMATICALLY AND MAY NOT BE IN THE EXACT LOCATION REQUIRED. THE CONTRACTOR SHALL COORDINATE EQUIPMENT LOCATIONS WITH THE KEYNOTE SHEETS AND VARIOUS NOTES ON EACH LIGHTING PLAN AND DETAIL SHEET.

THE CONTRACTOR SHALL MAINTAIN PROPER CLEARANCE FROM ALL OVERHEAD AND UNDERGROUND UTILITIES AND SHALL CONTACT EACH UTILITY FOR SPECIFIC REQUIREMENTS.

LIGHTING ITEMS

ALL MATERIAL AND CONSTRUCTION METHODS FURNISHED FOR THIS BUILDABLE UNIT SHALL COMPLY WITH ODOT CMS SPECIFICATION 625.

ITEM 625 - PULL BOX REMOVED. AS PER PLAN

THIS ITEM OF WORK SHALL INCLUDE THE REMOVAL OF AN EXISTING PULL BOX AND PROPER DISPOSAL OFF OF THE PROJECT SITE. THE RESULTANT OPENING SHALL BE BACKFILLED TO GRADE WITH SUITABLE COMPACTED SOIL AND RESTORED TO MATCH THE SURROUNDING AREA.

WHERE A PROPOSED PULL BOX WILL BE PLACED IN THE SAME AREA AS AN EXISTING PULL BOX, THE REMOVAL COST OF THE EXISTING PULL BOX WILL BE INCIDENTAL TO THE 625-PULLBOX ITEM.

PADLOCKS AND KEYS

PADLOCKS FURNISHED FOR ODOT CONTROL CENTERS SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH CMS 631.06. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEMS BEING LOCKED.

PLASTIC CAUTION TAPE

THE CONTRACTOR SHALL PROVIDE PLASTIC CAUTION TAPE, CONFORMING WITH ODOT SPECIFICATION 625. THE TAPE SHALL BE INSTALLED OVER BURIED LIGHTING CONDUIT, SIX TO EIGHT INCHES BELOW FINISHED GRADE.

ITEM SPECIAL. MAINTAIN EXISTING LIGHTING

EXISTING ROADWAYS WHICH ARE TO REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION OF THIS PROJECT AND ARE LIGHTED SHALL HAVE THE LIGHTING MAINTAINED AS DESCRIBED HEREIN.

BEFORE ANY WORK IS STARTED IN THE IMMEDIATE VICINITY OF ANY EXISTING LIGHTING CIRCUITS, REPRESENTATIVES OF THE STATE, THE MAINTAINING AGENCY, AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING ROADWAY LIGHTING CIRCUITS TO BE MAINTAINED. DURING THIS INSPECTION A WRITTEN RECORD OF THE CONDITION OF THE EXISTING LIGHTING SHALL BE MADE BY THE STATE’S REPRESENTATIVE.

THIS WRITTEN REPORT SHALL NOTE INDIVIDUAL LUMINAIRES WHICH ARE NOT OPERATIONAL, AND INDIVIDUAL CIRCUITS WHICH ARE NOT IN WORKING ORDER. THE COMPLETED REPORT SHALL BE SIGNED BY THE REPRESENTATIVES OF THE STATE, THE MAINTAINING AGENCY, AND THE CONTRACTOR. IF, AS A RESULT OF THIS INSPECTION, IT IS DETERMINED THAT THE CONDITION OF THE EXISTING SYSTEM IS BELOW THAT REQUIRED FOR THE SAFETY OF THE TRAVELING PUBLIC, THEN THE MAINTAINING AGENCY SHALL MAKE REPAIRS NECESSARY TO RETURN THE SYSTEM TO AN ACCEPTABLE CONDITION. FOLLOWING THESE REPAIRS, THE SYSTEM SHALL AGAIN BE INSPECTED AND A REPORT MADE AND SIGNED AS OUTLINED HEREIN.

WHEN THE EXISTING SYSTEM IS IN AN ACCEPTABLE CONDITION, IT SHALL BE TURNED OVER TO THE CONTRACTOR WHO SHALL THEN BE REQUIRED TO MAINTAIN THE EXISTING LIGHTING TO THE CONDITION OUTLINED IN THIS REPORT WITH THE EXCEPTION OF KNOCKDOWNS DUE TO TRAFFIC ACCIDENTS. REPLACEMENTS OF KNOCKED DOWN UNITS SHALL BE DONE ONLY WHEN THE ENGINEER HAS DETERMINED THAT THE REPLACEMENT OF THE KNOCKED DOWN UNIT IS NECESSARY AND SHALL BE PAID SEPARATELY ON A PER UNIT BASIS. BETTERMENTS SHALL BE COVERED IN ITEMS OF WORK PERTAINING TO THE CONSTRUCTION OF PERMANENT IMPROVEMENTS.

THE MAINTAINING AGENCY SHALL GIVE THE CONTRACTOR ONE COPY OF THE EXISTING LIGHTING CIRCUITRY LAYOUT. WHEN THE CONTRACTOR HAS TAKEN OVER THE MAINTENANCE OF THE EXISTING SYSTEM, HE SHALL PROVIDE ALL REQUIRED LAYOUT AND LOCATING OF EXISTING LIGHTING CIRCUITS WITHIN THE PROJECT.

SHOULD THE CONTRACTOR DESIRE THE REMOVAL OF THE EXISTING LIGHTING BEFORE THE NEW LIGHTING IS OPERATIONAL, THE CONTRACTOR SHALL THEN BE RESPONSIBLE FOR ADEQUATE TEMPORARY LIGHTING OF THAT PORTION OF THE EXISTING ROADWAY AFFECTED BY THE REMOVAL OF THE EXISTING LIGHTING. TWO [2] WEEKS PRIOR TO INSTALLING SUCH LIGHTING, THE CONTRACTOR SHALL PREPARE AND SUBMIT FOUR (4) SETS OF THE TEMPORARY LIGHTING PLANS TO THE ENGINEER FOR REVIEW AND APPROVAL. THIS PLAN SHALL SHOW LOCATION OF POLES, LENGTH OF BRACKET ARMS, STYLE OF LUMINAIRES, MOUNTING HEIGHT, WIRING METHODS, AND OTHER PERTINENT INFORMATION. THE TEMPORARY LIGHTING SHALL PROVIDE AN AVERAGE INITIAL INTENSITY OF 1.2 FOOTCANDLES WITH AN AVERAGE TO MINIMUM UNIFORMITY RATIO NOT TO EXCEED 4:1.

MOUNTING HEIGHT FOR TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN 27 FEET AND MINIMUM OVERHEAD CONDUCTOR CLEARANCE SHALL BE 20 FEET. TEMPORARY OVERHEAD CONSTRUCTION SHALL NOT BE LESS THAN GRADE “A” FOR STRENGTH REQUIREMENTS AS DEFINED BY THE NATIONAL ELECTRIC SAFETY CODE. WOOD POLES WITH OVERHEAD WIRING MAY BE USED. HOWEVER, TEMPORARY LIGHTING SHALL MEET FEDERAL AND STATE SAFETY CRITERIA. IF BREAKAWAY POLES ARE USED TO MEET THIS CRITERIA, THEN UNDERGROUND WIRING WILL BE USED. RECONDITIONED OR USED MATERIALS MAY BE FURNISHED FOR TEMPORARY LIGHTING. ALL MATERIALS NECESSARY TO COMPLETE THE TEMPORARY LIGHTING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. A SEPARATE POWER SERVICE WILL BE PROVIDED BY THE CONTRACTOR FOR THE TEMPORARY LIGHTING SYSTEM. THE TEMPORARY LIGHTING SHALL NOT BE SPLICED INTO EXISTING LIGHTING CIRCUITS.

THE CONTRACTOR SHALL PAY ALL HOOK-UP FEES AND ELECTRICAL COSTS FOR THE TEMPORARY SYSTEM. THESE COSTS SHALL BE PAID FOR UNDER THE LUMP SUM ITEM SPECIAL MAINTAIN EXISTING LIGHTING. WHEN NO LONGER NEEDED THE TEMPORARY LIGHTING INSTALLATION SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

REMOVAL OF LIGHTING ITEMS

EXISTING LIGHTING FOUNDATIONS, PULL BOXES AND MISCELLANEOUS ITEMS NO LONGER IN SERVICE SHALL BE REMOVED AND DISPOSED OF BY THE DBT. EXISTING DUCTS AND CONDUITS WHICH ARE NOT DESIGNATED FOR REUSE AND ARE NOT IMPACTED BY EXCAVATION MAY BE ABANDONED IN PLACE OR REMOVED BY THE CONTRACTOR. EXISTING LIGHT POLES, LUMINAIRES, AND CONDUCTORS REMOVED ON THE PROJECT SHALL BE DISPOSED OF PER CMS 625.

FIELD CONDITION REQUIREMENTS:

UNLESS OTHERWISE INDICATED, ALL EXISTING CONDUIT, CABLE, AND DUCT CABLE WILL BE ABANDONED IN PLACE. TRENCHING FOR NEW CONDUIT/CABLE RUNS IN AREAS WHERE EXISTING CIRCUITS HAVE BEEN ABANDONED, MAY RESULT IN UPROOTING THE EXISTING CONDUIT. CONDUIT MAY REMAIN IN PLACE UNLESS IT BECOMES AN OBSTACLE TO THE INSTALLATION OF THE NEW CONDUITS/DUCT CABLE.

POWER SERVICE

IN ADDITION TO THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOLLOWING IS ADDED.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

POWER COMPANY:CLEVELAND PUBLIC POWER
ADDRESS:1300 LAKESIDE AVE
CLEVELAND, OH 44114

CONTACT:MR. BRYAN SHEPHERD
PHONE: 216-857-6908
EMAIL: BSHEPHERD@CPP.ORG

CONTACT:MR. CHARLES JAMES MALY
PHONE: 216-664-3922 X 76173
EMAIL: CMALY@CPP.ORG

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CHARGES MADE BY THE POWER COMPANY FOR WORK BY THE COMPANY IN CONJUNCTION WITH THE ESTABLISHMENT OF THE REQUIRED SERVICE.

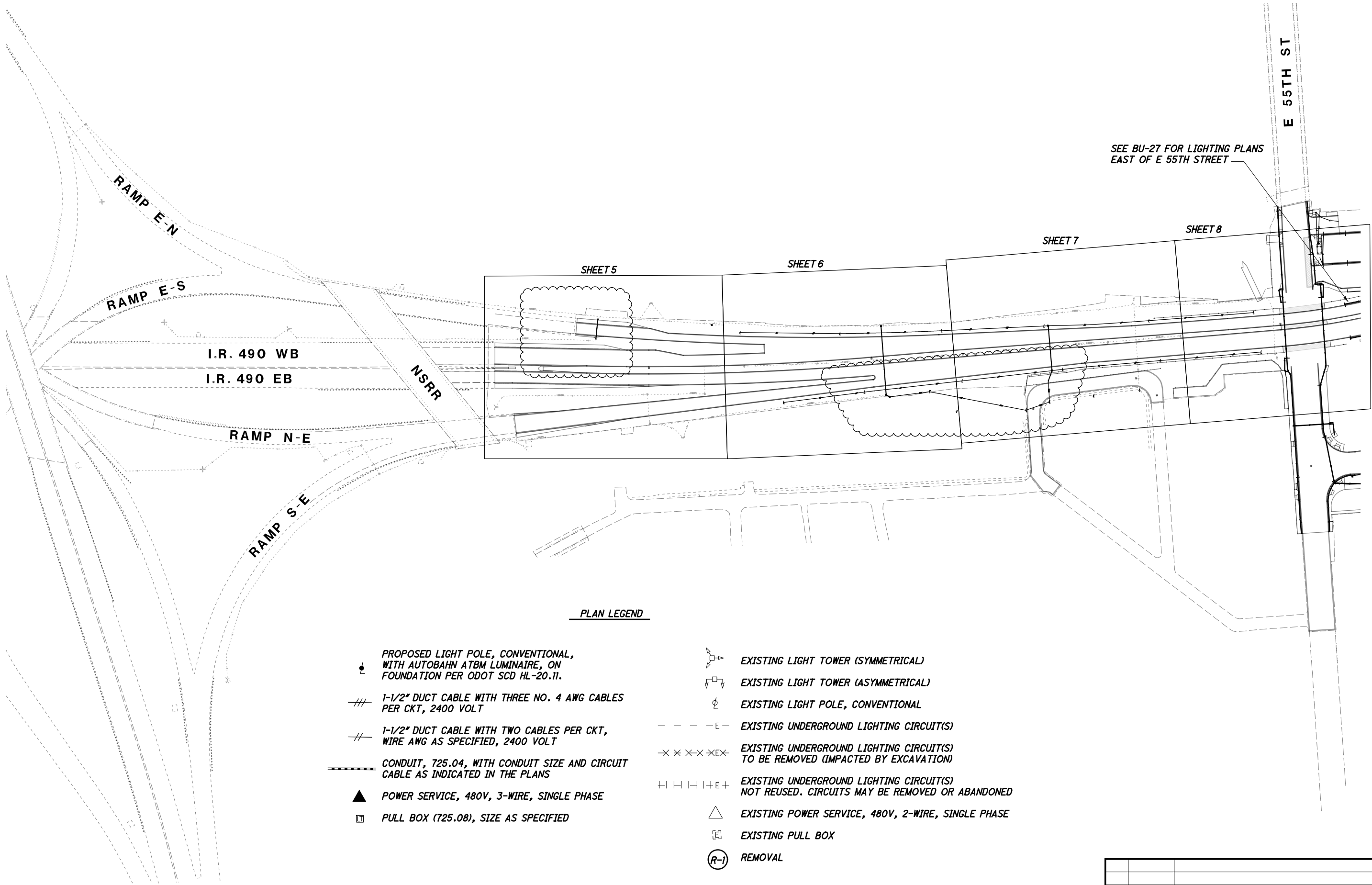
ELECTRICAL ENERGY FROM EXISTING POWER SERVICES SHALL CONTINUE TO BE CHARGED TO THE MAINTAINING AGENCY. THE CONTRACTOR SHALL PAY ELECTRICAL ENERGY CHARGES FOR NEW POWER SERVICES ESTABLISHED BY THIS PROJECT. AFTER ACCEPTANCE OF THE LIGHTING, THE POWER SERVICE ELECTRICAL ENERGY ACCOUNT SHALL BE TRANSFERRED TO THE MAINTAINING AGENCY NOTED IN THE PLANS.

THIS ITEM SHALL INCLUDE NEW POWER SERVICES ESTABLISHED BY THIS PROJECT AS WELL AS REASSIGNMENT OF EXISTING SERVICE DUE TO WORK PERFORMED BY THIS PROJECT. SUBMIT SHOP DRAWINGS (CATALOG CUTS) TO THE ENGINEER FOR HIS APPROVAL.

ITEM 625 - LUMINAIRE. CONVENTIONAL. SOLID STATE (LED). AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT’S CONSTRUCTION AND MATERIALS SPECIFICATION, LUMINAIRES SHALL BE AEL AUTOBAHN SERIES ATBM, CODE ATBM-P40-480-R2-4B-3K-NL, OR EQUAL AS APPROVED BY THE ENGINEER. THE FIXTURE SHALL COMPLY WITH ODOT SUPPLEMENTAL SPECIFICATION 813.

0	2019-08-28	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		



SEE BU-27 FOR LIGHTING PLANS
EAST OF E 55TH STREET

PLAN LEGEND

- PROPOSED LIGHT POLE, CONVENTIONAL,
WITH AUTOBAHN ATBM LUMINAIRE, ON
FOUNDATION PER ODOT SCD HL-20.11.

1-1/2" DUCT CABLE WITH THREE NO. 4 AWG CABLES
PER CKT, 2400 VOLT

1-1/2" DUCT CABLE WITH TWO CABLES PER CKT,
WIRE AWG AS SPECIFIED, 2400 VOLT

CONDUIT, 725.04, WITH CONDUIT SIZE AND CIRCUIT
CABLE AS INDICATED IN THE PLANS

POWER SERVICE, 480V, 3-WIRE, SINGLE PHASE

PULL BOX (725.08), SIZE AS SPECIFIED
- EXISTING LIGHT TOWER (SYMMETRICAL)

EXISTING LIGHT TOWER (ASYMMETRICAL)

EXISTING LIGHT POLE, CONVENTIONAL

EXISTING UNDERGROUND LIGHTING CIRCUIT(S)

EXISTING UNDERGROUND LIGHTING CIRCUIT(S)
TO BE REMOVED (IMPACTED BY EXCAVATION)

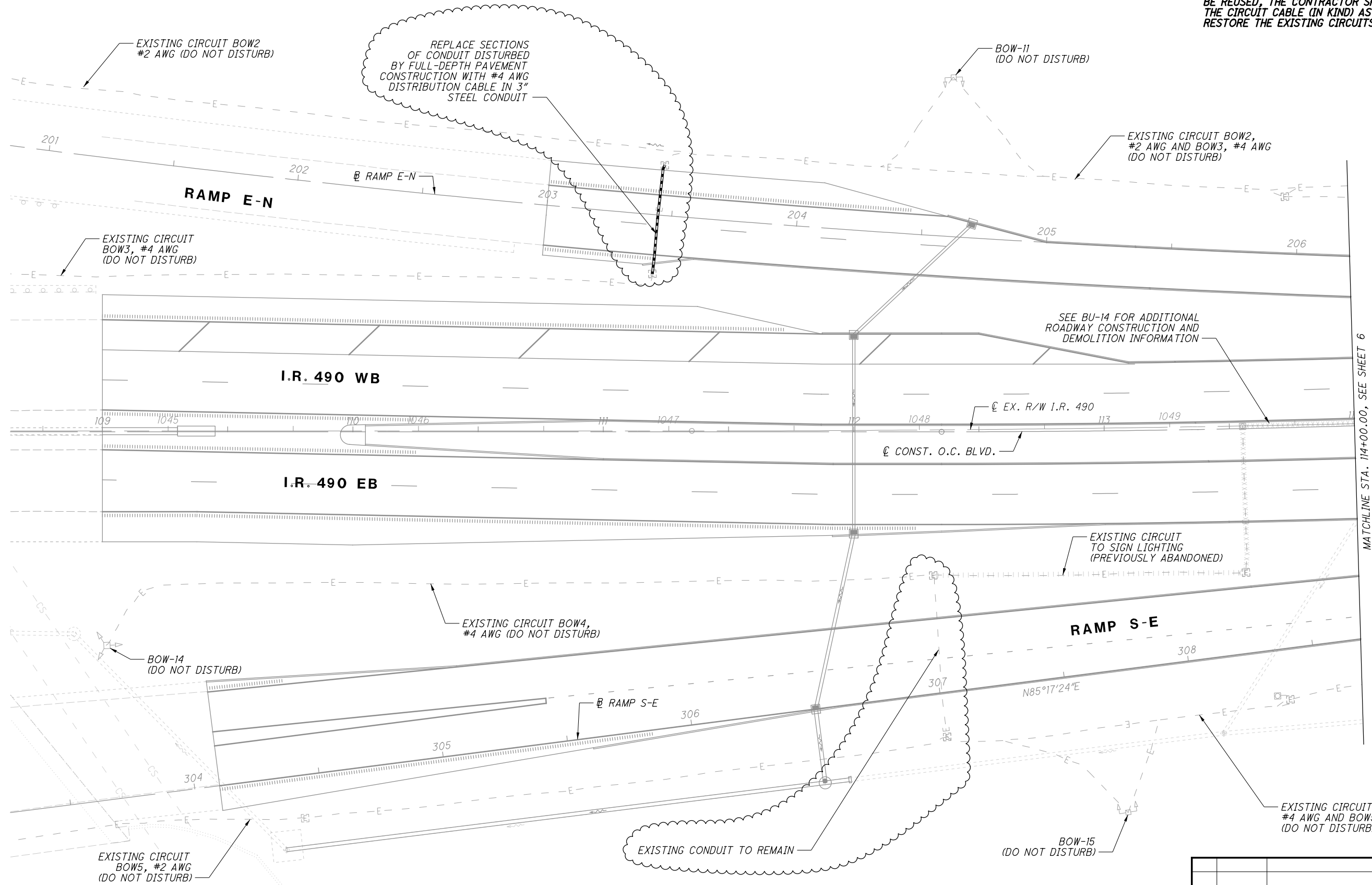
EXISTING UNDERGROUND LIGHTING CIRCUIT(S)
NOT REUSED. CIRCUITS MAY BE REMOVED OR ABANDONED

EXISTING POWER SERVICE, 480V, 2-WIRE, SINGLE PHASE

EXISTING PULL BOX

REMOVAL

NO.	DATE	DESCRIPTION
1	2024-09-10	RECORD DRAWINGS
0	2019-08-28	RFC
ISSUE RECORD		



NOTES:
1) SEE SHEET 4 FOR PLAN LEGEND.
2) THE CONTRACTOR MAY REUSE EXISTING CIRCUIT CABLE. IF CIRCUIT CABLE CAN NOT BE REUSED, THE CONTRACTOR SHALL REPLACE THE CIRCUIT CABLE (IN KIND) AS NECESSARY TO RESTORE THE EXISTING CIRCUITS.

NO.	DATE	DESCRIPTION
1	2024-09-10	RECORD DRAWINGS
0	2019-08-28	RFC
ISSUE RECORD		

CALCULATED
M/JH

CHECKED
KAE

02040

HORIZONTAL
SCALE IN FEET

CUY-IR490/ SR010-
2.09/ 19.28

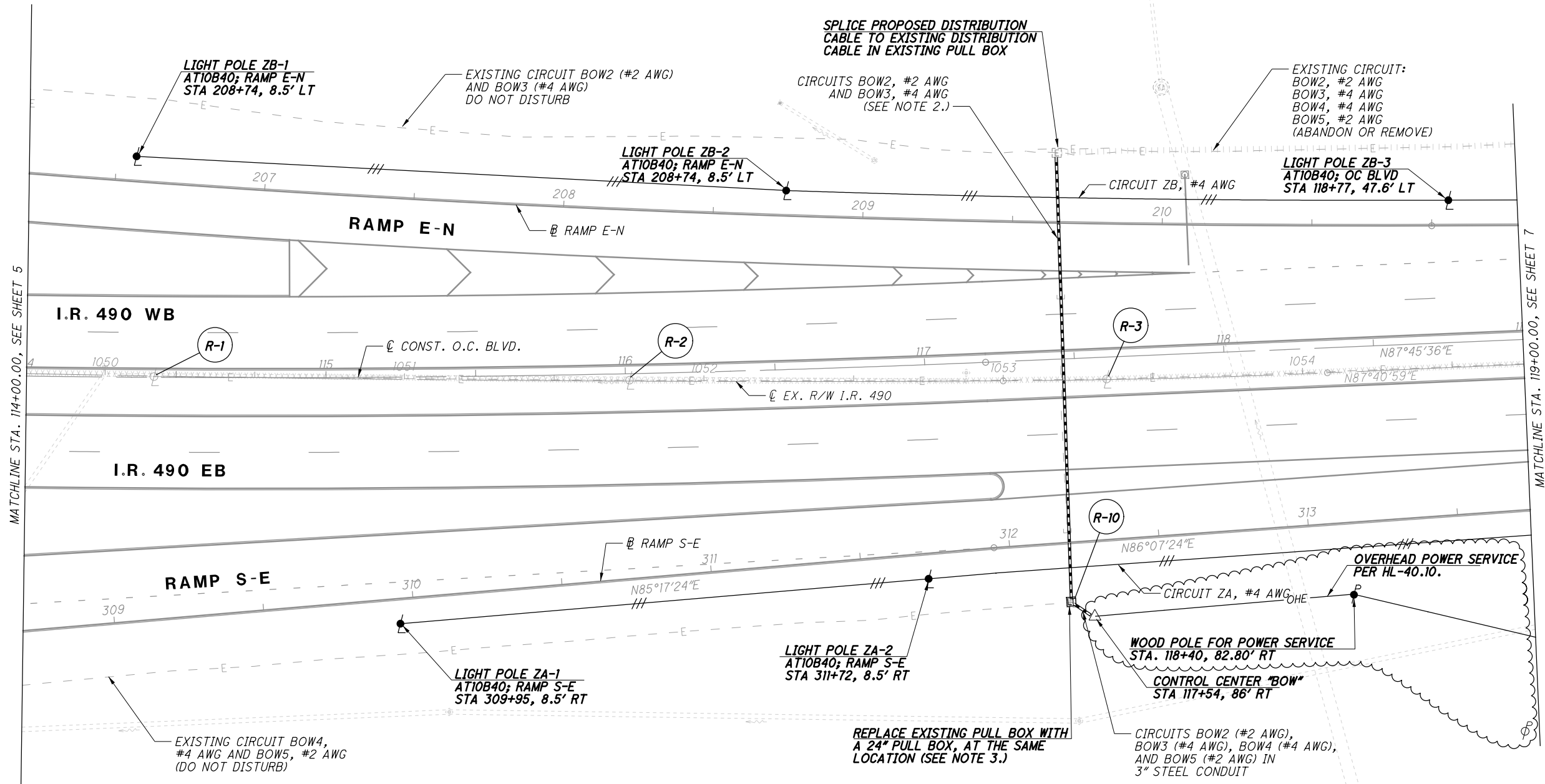
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LIGHTING PLAN - I.R. 490
STA. 109+00.00 TO STA. 114+00.00

RECORD PLANS

RECORD PLANS

RECORD PLANS



- NOTES:
- 1) SEE SHEET 4 FOR PLAN LEGEND.
 - 2) THE EXISTING CONDUIT WILL BE DISTURBED BY FULL-DEPTH PAVEMENT CONSTRUCTION. REMOVE EXISTING CONDUIT, INSTALL A 3" STEEL CONDUIT, AND RECONNECT TO THE EXISTING PULL BOXES. PULL DISTRIBUTION CABLE FOR CIRCUITS BOW2 (#2 AWG) AND BOW3 (#4 AWG) THROUGH THE PROPOSED CONDUIT.
 - 3) SPLICE PROPOSED DISTRIBUTION CABLE TO EXISTING DISTRIBUTION CABLE IN PROPOSED PULL BOX

CALCULATED MJH
CHECKED KAE

0 10 20 40
HORIZONTAL SCALE IN FEET

RECORD PLANS

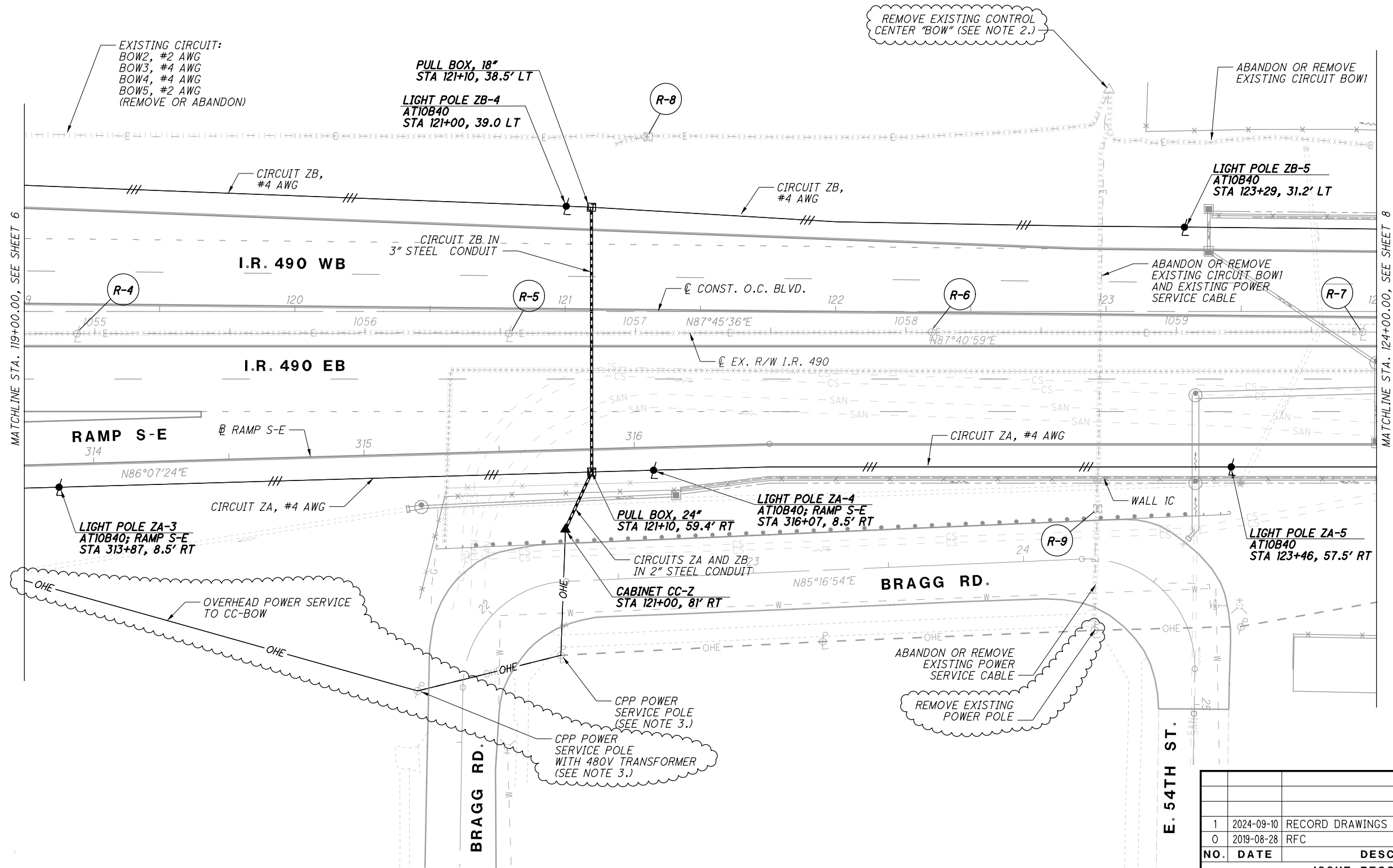
LIGHTING PLAN - I.R. 490
STA. 114+00.00 TO STA. 119+00.00

CUY-IR490/ SR010-
2.09 / 19.28

RECORD PLANS

6
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NO.	DATE	DESCRIPTION
1	2024-09-10	RECORD DRAWINGS
0	2019-08-28	RFC
ISSUE RECORD		



- NOTES:
- 1) SEE SHEET 4 FOR PLAN LEGEND.
 - 2) THE DBT SHALL REMOVE THE EXISTING CONTROL CENTER. THE DBT SHALL INSTALL A REPLACEMENT CONTROL CENTER AT STA. 117+54, 86' RT. SEE SHOP DRAWINGS FOR REPLACEMENT CONTROL CABINET-BOW.
 - 3) OBTAIN OVERHEAD POWER SERVICE PER SCD HL-40.10 FROM CPP.
 - 4) STATIONING IS TO CENTERLINE OF O.C BLVD., UNLESS OTHERWISE NOTED.

CALCULATED
MJH

CHECKED
KAE

0 20 40

HORIZONTAL
SCALE IN FEET

RECORD PLANS

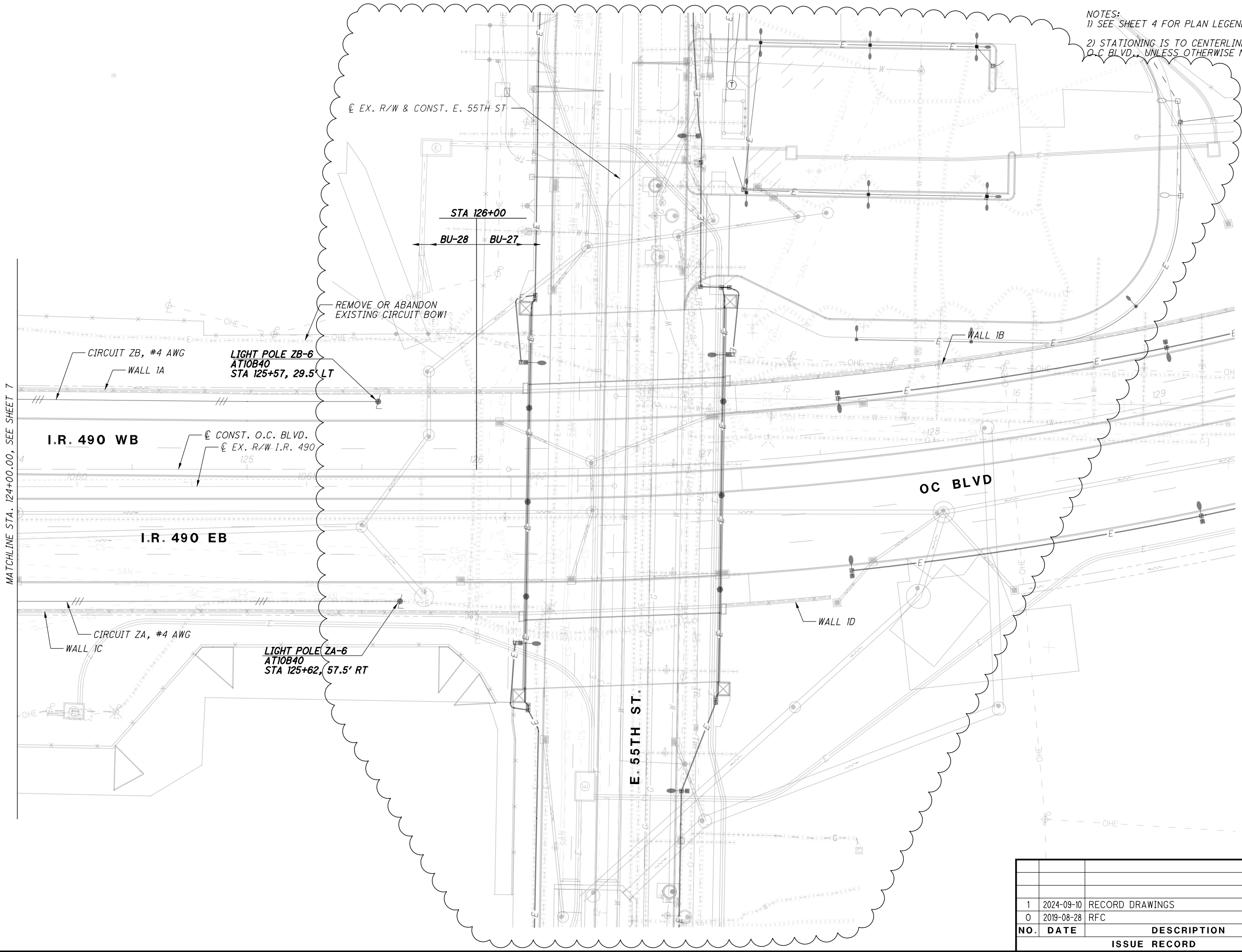
LIGHTING PLAN - I.R. 490
STA. 119+00.00 TO STA. 124+00.00

CUY-IR490/ SR010-
2.09 / 19.28

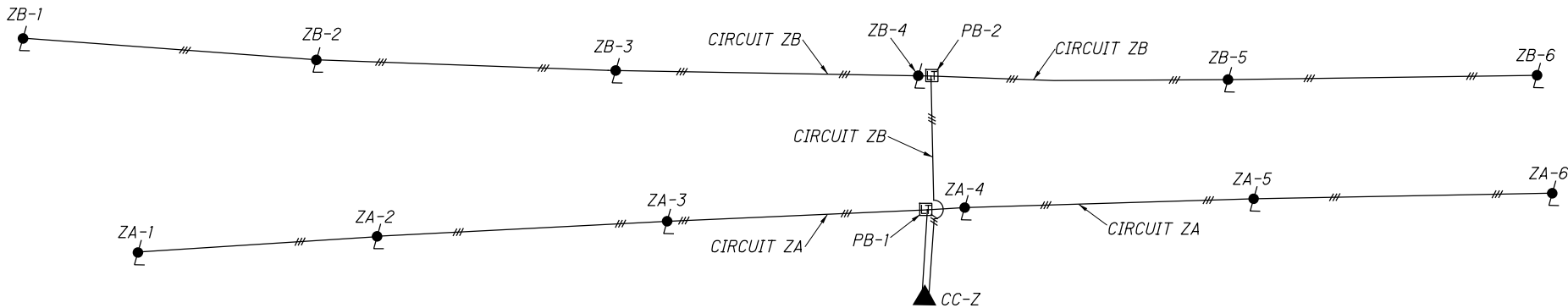
RECORD PLANS

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NO.	DATE	DESCRIPTION
1	2024-09-10	RECORD DRAWINGS
0	2019-08-28	RFC
ISSUE RECORD		



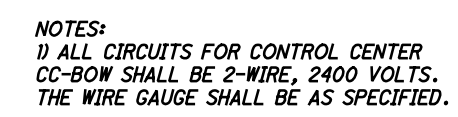
NO.	DATE	DESCRIPTION
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0	2019-08-28	RFC
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POWER SERVICE DATA									
POWER SERVICE	LINE VOLTAGE (VOLTS)	CONNECTED LOAD (KVA)	SERVICE ENTRANCE CABLE (AWG)	ENCLOSURE RATING (AMPS)	CIRCUIT NO.	CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE (AMPS)	CIRCUIT CABLE SIZE (AWG)	MAINTAINING AGENCY
CC-Z	240/480	1.7	4	60	A	1.8	10	4	ODOT
					B	1.8	10	4	

- WIRING DIAGRAM LEGEND**
- PROPOSED LIGHT POLE, CONVENTIONAL, WITH AUTOBAHN LED LUMINAIRE
 - CIRCUIT CABLE - THREE NO. 4 AWG CABLES PER CKT, 2400 VOLT
 - POWER SERVICE, 480V, 3-WIRE, SINGLE PHASE
 - PULL BOX (725.08), SIZE AS SPECIFIED

1	2024-09-10	RECORD DRAWINGS
0	2019-08-28	RFC
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* DENOTES MATCH EXISTING

- ### WIRING DIAGRAM LEGEND



Central Systems & Controls

26933 Westwood Rd. #400

Westlake, Ohio 44145

(440) 835-0015 Ph (440) 835-3588 Fax

E-Mail: TRuffing@CentralSystems.com

APPROVED

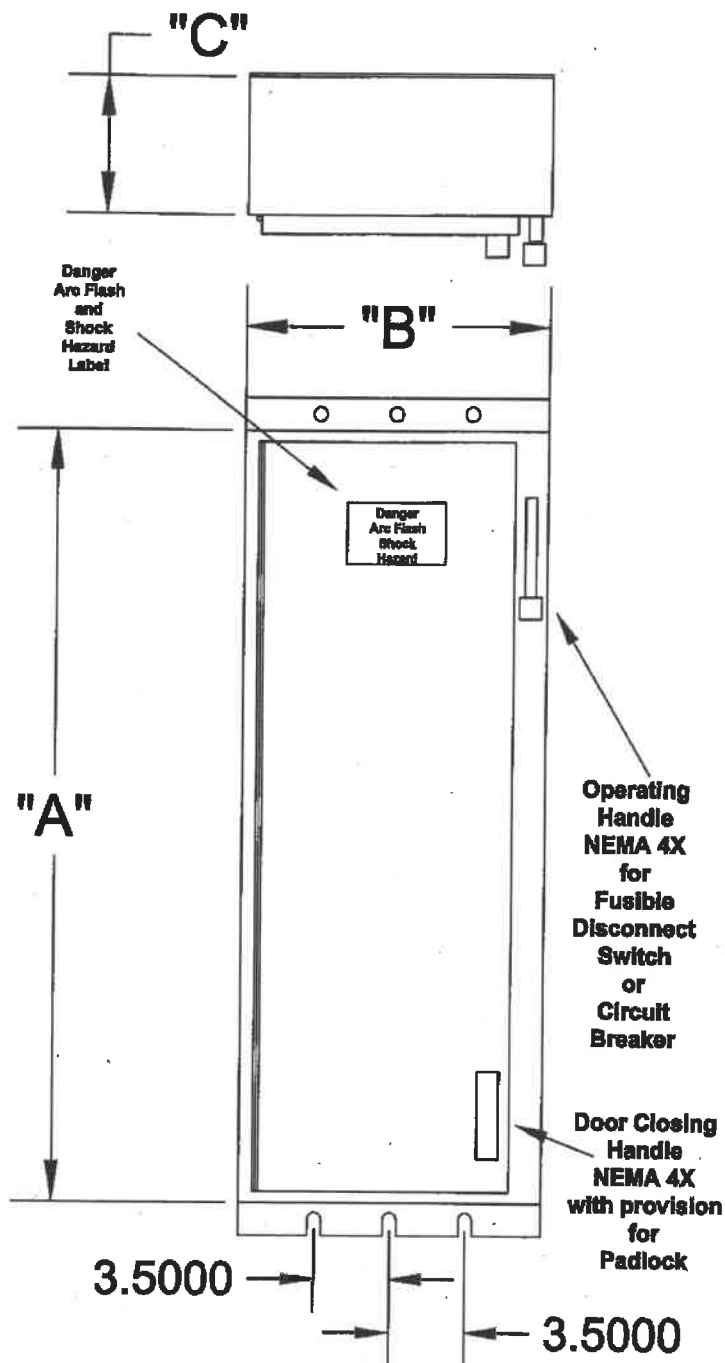
By Tony Holland at 8:49 am, Jun 23, 2020

Customer:	Miller cable Company
Purchase Order:	PO #19682
Project Reference:	ODOT #173000
Description:	SC100ZZW(480V) Lighting Control Center Ref: CC-BOW

BILL OF MATERIALS

Item	Qty	Manufacturer	Part #	Description
1	1	Central Systems	43H18W8DN4XSS	43"H x 18"W x 8-3/4"D NEMA 4X Stainless Steel Wall Mount Enclosure with provision for Flange Mounted Operating Handle, 2 Pt Door Latching/Locking Handle, and Enameled Steel Back Panel
2	1	Square D	9422-M24	NEMA 4X Stainless Steel 2 Pt. Door Latch Kit
3	1	Cutler Hammer	C361SE2263	100 Amp, 600 Volt, Fusible Disconnect Switch with Class "R" Fuse Clips and NEMA 4X Flange Mount Operating Handle
4	1	Advanced Protection Technologies	S50A480V1P	50 kA Surge Protective Device for 480 Volt, 1 Phase, 2 Wire Service
5	1	ABB	AF 116-30-11B-14	116 Amp, 3 Pole Electrically Held Contactor with 480 Volt Coil.
6	1	C3Controls	SSO3-SLRD-NO/NO	30 MM, 3 Position Maintained Selector Switch
7	1	C3Controls	LP-84	"Man-Off-Auto" Legend Plate
8	1	Marathon	6CC30A1SPQ	30 A, 1 Pole, 600 Volt Class "CC" Fuse Block
9	1	Comec	SCB-1/0-13	Neutral/Ground Bus #14 - #1/0 AWG
10	3	Marathon	6G38 TS F	50 Amp Terminal Block, #18 - #8 AWG
11	1	Square D	BDL26020	20 Amp, 2 Pole, 480 Volt Panel Mount Circuit Breaker
12	3	Square D	BDL26015	15 Amp, 2 Pole, 480 Volt Panel Mount Circuit Breaker

Note: Unit will be labeled "Suitable for Service Entrance" per Article #230 of the NEC.



Disc Switch Amps	Circuit Breaker Amps	TYPE	A	B	C
30	100	XS	14-5/8	9-0	7-1/2
30	100	X	17-1/2	9-0	7-1/2
60	100	X	17-1/2	9-0	7-1/2
30	200	Y	28-0	14-0	8-3/4
30	200	Z	35-0	14-0	8-3/4
30	200	ZZ	43-0	14-0	8-3/4
30	200	ZZW	43-0	18-0	8-3/4
60	200	Y	28-0	14-0	8-3/4
60	200	Z	35-0	14-0	8-3/4
60	200	ZZ	43-0	14-0	8-3/4
60	200	ZZW	43-0	18-0	8-3/4
100	200	Y	28-0	14-0	8-3/4
100	200	Z	35-0	14-0	8-3/4
100	200	ZZ	43-0	14-0	8-3/4
100	200	ZZW	43-0	18-0	8-3/4
100	200	MELP	28-0	18-0	8-3/4
200	200	Z-1	35-0	14-0	8-3/4
200	400	SPL	60-0	20-0	8-3/4
200	400	SPL1	60-0	24-0	8-3/4

CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
CC-BOW

ENCLOSURE SHALL BE 14 GA. OR HEAVIER AISI TYPE 304 STAINLESS STEEL WITH BRUSH FINISH. ENCLOSURE TO BE NEMA TYPE 4 WATERTIGHT SUITABLE FOR OUTDOOR LOCATIONS. ALL FASTENERS SHALL CONFORM TO ASTM 320/A 320 M (AISI-300 SERIES). A DISCONNECT HANDLE SHALL FLANGE MOUNTED AND CAPABLE OF BEING LOCKED IN EITHER POSITION.

THE ENCLOSURE SHALL BE DESIGNED SO THAT IT MAY NOT BE OPENED WHEN THE OPERATING HANDLE IS IN THE "ON" POSITION EXCEPT BY MEANS OF A LOCKABLE, DOUBLE DEFEATER MECHANISM. A LOCKABLE TWO OR THREE POINT LATCH SHALL BE PROVIDED.

Central Systems & Controls

26933 Westwood Rd.

Westlake, Ohio 44145

(440) 835-0015 Ph. (440) 835-3588 Fax

Title: NEMA 4X Stainless Steel Enclosures

Job:

Sheet of:

Date: June 2010

Customer:

Class 9423 door closing mechanisms cover a range of enclosures with up to 91 inch high maximum door openings. The door closing mechanisms are designed to be used on control enclosures and interlocked with a Class 9422 disconnect device, although they all can be used independently. Three different systems are available and their use is as recommended below. A complete system is available for interlocking all the doors of a multi-door enclosure with the master door when using the 6 in. or 8 in. vault handle mechanism.

Note that the "Master Door" is defined to be the door of a single or multi-door enclosure which is interlocked directly with the disconnect device. The master door can be hinged on either the right or left hand side. It can be located in any position on a multi-door enclosure. On the other hand, an "Auxiliary Door" is defined to be any remaining doors of a multi-door enclosure which are interlocked with the master door by means of the overhead interlocking system as illustrated on pages 8-26 and 8-27.

Selection Procedure

Step 1. Determine enclosure construction.

Step 2. Determine Class 9422 disconnect device.

Step 3. Determine the location of door hinge.

Step 4. Select the door closing mechanism.

Step 5. Select the auxiliary door closing mechanism for interlocking all auxiliary doors (A complete system for medium and large enclosures.)

CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
CC-BOW

breaker mechanism.

or center channel).

(A complete system for medium and large enclosures.)






9422 TCN30



Circuit Breaker Mechanism

Table 8.84: Door Closing Mechanism

60 in. Maximum Door Opening (Recommended)	46-60 in. Door Opening (Recommended)	61-91 in. Door Opening (Recommended)
 <ul style="list-style-type: none"> 2 Point Locking is Standard A Third Roller Latch Kit is Available for 3 Point Locking For 3/4 in. Door Depths 	 <ul style="list-style-type: none"> For use on Single or Multi-Door Enclosures For use with Doors Hinged on Right or Left Side Referred to as the 6 in. Vault Handle Mechanism For 3/4 in. Door Depths 	 <ul style="list-style-type: none"> For use on Single or Multi-Door Enclosures For use with Doors Hinged on Right or Left Side Referred to as the 8 in. Vault Handle Mechanism For 1-1/8 in. Door Depths

The door closing mechanisms listed below are for use on small to medium size single door control enclosures. They are designed to be used in conjunction with Class 9422 flange mounted disconnect switches and circuit breaker operating mechanisms; however, they can be used independently as well. When used on properly designed and gasketed NEMA Type 12 enclosures, they meet NFPA 79 standards.

Table 8.85: Single Door Enclosures—NEMA Type 4 or 12 with 60 in. High Maximum Opening

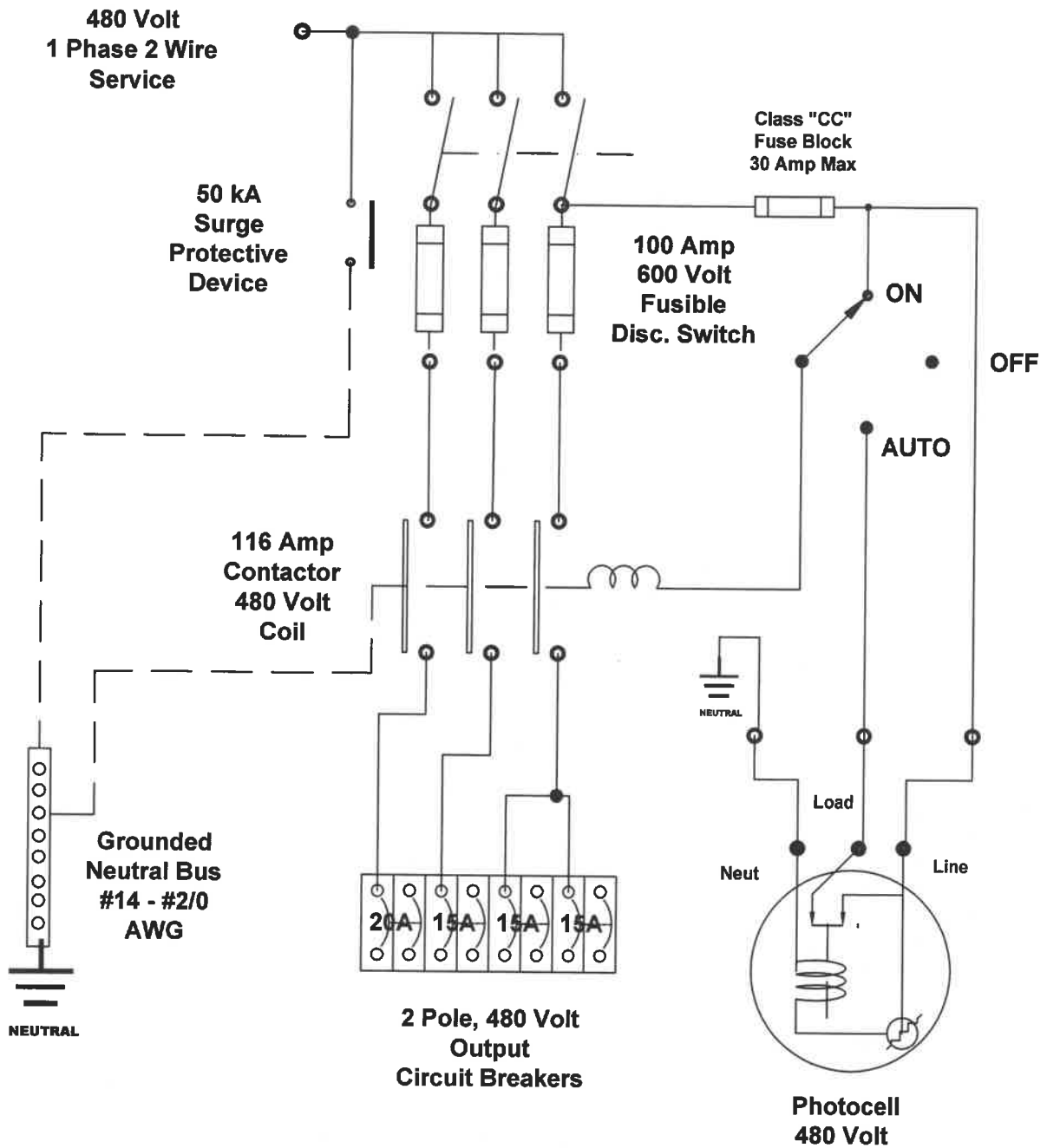
Description	For Use On (Enclosure Type)	Use In Conjunction With	Door Latch Handle Length	Suggested Maximum Door Opening	Door Depth	Type	\$ Price
Two point, roller latch, door closing mechanism for use on enclosures with doors hinged on the left hand side.	NEMA Type 4 and 12 Sheet Steel	Class 9422 Types A1, A3, A9	4 in.	Less than 39 in.	3/4	M4	228.00
			4 in.	Less than 39 in.	1	M10	314.00
			6 in.	60 in.	3/4	M6	340.00
Two point, roller latch, door closing mechanism for use on enclosures with doors hinged on the right hand side.	NEMA Type 4 and 12 Stainless Steel	Class 9422 Types A2, A4, A10	4 in.	Less than 39 in.	3/4	M24	300.00
			4 in.	Less than 39 in.	1	M10L	314.00
			4 in.	Less than 39 in.	1	M10L	314.00
			6 in.	60 in.	3/4	M9L	243.00
Third roller latch kit for 3 point locking; for use where 3 point locking is desired or where the door opening is 39 in. or more.	NEMA Type 4 and 12 Sheet Steel	Class 9423 Types M4, M9, M4L, M9L	4 in.	Less than 39 in.	3/4	M24L	300.00
			—	—	3/4	M3	50.00
			—	—	3/4	M23	57.00

▲ Suitable for door depths of 1-1/8 in., 1-1/4 in., 1-3/8 in. and 1-1/2 in..



Type M4

Latch bar not included, but most prepunched enclosures that accept Square D® operating mechanisms supply a predrilled latch bar.



Central Systems & Controls

26933 Westwood Rd.

Westlake, Ohio 44145

(440) 835-0015 Ph. (440) 835-3588 Fax

Title: **Schematic - Control Center CC-BOW**

Job: **ODOT #173000 Cuyahoga**

Sheet of:

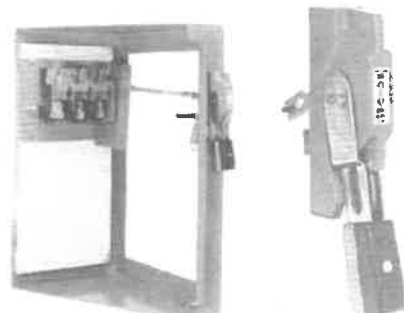
Date: **Jun 2020**

Customer:

Miller Cable Company

Contents

Description	Page
Flange Mounted — Variable Depth	
Product Description	38-63
Standards and Certifications	38-63
Options and Accessories	38-63
Technical Data and Specifications	38-64
Product Selection	38-64



Complete Operating Mechanism — C361NE1

Handle Only — C361H1

Product Description

Type C361 Disconnect Switches are suitable for installation in control enclosures having a right-hand flange. Fusible disconnect switches will accept R fuses as standard. Field installable rejection kits are supplied as standard on 100A and 200A clips. For 30A and 60A rejection clips, see footnote 1. The switch is UL component recognized for use on systems with up to 200,000 rms symmetrical amperes available fault current when Class R clips are supplied.

Standards and Certifications

- UL — Component File E55492
- CSA — LR353-439

Options and Accessories

Table 38-64. Electrical Interlocks

Circuit	Catalog Number	Price U.S. \$ ¹
1NO-1NC	DS200EK1	222.00
2NO-2NC	DS200EK2	264.00

¹ Discount Symbol 22-CD.

Table 38-65. Connecting Rods — Increase Maximum Allowable Depth by 5 Inches

Application	Catalog Number	Price U.S. \$
Disconnect Switches 30, 60, 100 and 200A Circuit Breakers 150, 250 and 400A	C371CS1	24.70
Circuit Breakers 600, 800 and 1200A	C371CS2	26.50

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SC100ZZ(480V)
Ref: Lighting Control Center
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Table 38-66. Operating Mechanism Variable Depth with Disconnect Switch — Right-Hand Mounting

Disconnect Switch Size (Amperes)	Variable Depth Mtg. Range Min./Max. (Inches) ²	Maximum Horsepower Ratings ³					Fuse Clip Rating (Amperes) Non-interchangeable Type for Class H, J, K or R Type Fuses Only		Switch and Operating Mechanism Only DOES NOT Include Handle		Switch and Operating Mechanism with 4-Inch Handle ⁴			
		AC System Volts (Motor Volts)				DC Using 2 Poles 250V Max.	250V	600V	Catalog Number	Price U.S. \$	For NEMA 1 or 12 Enclosure		For NEMA 4 Enclosure	
		208 (200)	240 (230)	480 (460)	600 (575)						Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
30	7 to 16	7-1/2	7-1/2	15	20	5	Non-fusible	—	C361NC	163.00	C361NC1	234.00	C361NC2	289.00
							30	—	C361SC21	183.00	C361SC121	255.00	C361SC221	321.00
							60	30	C361SC61	199.00	C361SC161	268.00	C361SC261	324.00
60	7 to 16	15	15	30	50	10	Non-fusible	—	C361ND	183.00	C361ND1	255.00	C361ND2	310.00
							60	30	C361SD22	215.00	C361SD122	286.00	C361SD222	342.00
							—	60	C361SD62	234.00	C361SD162	304.00	C361SD262	360.00
100	7 to 16	25	30	60	75	20	Non-fusible	—	C361NE	265.00	C361NE1	334.00	C361NE2	391.00
							100	100	C361SE263	372.00	C361SE1263	444.00	C361SE2263	500.00
200	7 to 16	40	60	125	150	40	Non-fusible	—	C361NF1	695.00	C361NF1	695.00	C361NF2	750.00
							200	200	C361SF264	760.00	C361SF1264	830.00	C361SF2264	885.00

² Dimension shown is from panel to flange surface.³ Refers to rating of switch only.⁴ Components individually boxed and shipped in overpack carton.⁵ For rejection clips, add Suffix Letter R to listed Catalog Number, and add \$9. to price. Example: C361SC121R.

Table 38-67. Handle Only

Application	Operating Handle Length in Inches (mm)	NEMA Type Enclosure	Catalog Number	Price U.S. \$
For use with 30, 60, 100 and 200 Ampere Disconnect Switches	4.00 (101.6)	1-12	C361H1	71.00
	4.00 (101.6)	4	C361H2	129.00
	6.00 (152.4)	1-12	C361H3	71.00
	6.00 (152.4)	4	C361H4	129.00

Discount Symbol — 1CD-1

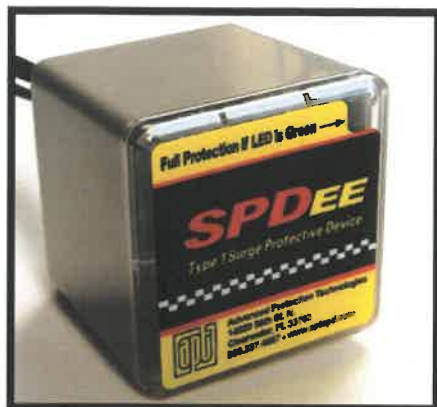


**ADVANCED PROTECTION
TECHNOLOGIES INC.**



SURGE PROTECTIVE DEVICE

The Next Generation SPD designed for UL 1449 Third Edition



Features:

- **UL 1449 Third Edition (Sept 2009) Listed**
- **50kA 8x20μs**
- **Type 1 SPD - 20kA I_n & 10kA (cUL Type 2 optional)**
 - 20kA I_n — Meets UL 96A Lightning Protection Master Label
 - Can be installed upstream or downstream of main disconnect
- **200kA SCCR (most models)**
- **All UL-required OCP & Safety Coordination Included Inside**
- **Voltage Specific Design: Performs better than 'one-size fits all'**
- **Tri-Mount Installation for more mounting flexibility:**
 - Same unit mounts on Pipe Nipple, Bracket or Din-Rail
- **Green = Go Visual Diagnostics: Easy to See; Easy to Understand**

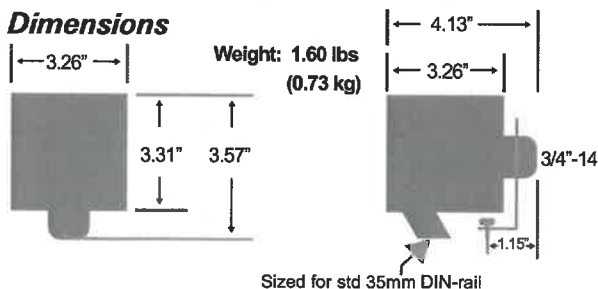
Performance Specifications

- 50kA 8x20μs Per Mode
- UL 1449 tested Innominal: 20kA (highest available) + 10kA
- UL 1449 tested SCCR: 200kA (most models)
- Large-Block, 34mm square, 50kA MOVs
- Individually Fused & Thermally Protected MOVs
- UL 1449 Voltage Protection Ratings (VPRs):
 - 600V for 120V, 120/240, 208Y/120
 - 1000V for 277V, 480Y/277V
- Repetitive Impulse: 5000 - 3kA-8x20μs; 1000 - 10kA-8x20μs
- Data table located on backpage

Physical Specifications

- Relative Humidity Range: 0-95% non-condensing
- Operating Frequency: 47-63Hz
- Peak Operating Temperature: +85°C (185°F)
- Typical Operating Temperature: -40°C (-40°F) to +60°C (140°F)
- Response Time: < 1nanosecond
- Solid State Bi-directional Operation
- NEMA 4X Polycarbonate Enclosure—UL746C(f1), UL 94-5VA
- Pre-wired with 3' (1m) of #10 AWG conductor
- Typical Type 2 Connection: #10 AWG to 30A breaker

Dimensions



Green = Go Visual Diagnostic Monitoring

- Green LED = A-OK, Out = replace
- LED Visible from Multiple Sides & Angles - Better Viewing
- Every MOV is Monitored as opposed to 'power is present'

Tri-Mount Installation - L-bracket mounting kit is no cost accessory



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Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
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L-bracket mounting kit for DIN-rail is no cost accessory

Quality, Standards & Validation

- 2 year warranty (longer optional)
- UL 1449 Third Edition file: VZCA.E321351 at www.UL.com, cUL
- ANSI/IEEE C62.41.1-2002, C62.41.2-2002, and C62.45-2002
- NEMA LS-1
- IEC 61643, CE
- Burn-In tested Prior to Shipment
- ISO 9001:2008 Certified Quality Management System
- ISO 17025:2005 Certified Test Lab
- RoHS-compliant

Special Thank You to NASA/SATOP for design assistance & validation



Advanced Protection Technologies

14550 58th Street North · Clearwater, Florida 33760
(800) 237-4567 · (727) 535-6339 · Fax (727) 539-8955
www.aptsurge.com · info@aptsurge.com



SPDEE Model Numbers

S	50	A	Voltage	System	Options
SPDEE	kA/Phase 50kA	Default	120V 127V 220V 240V 277V 347V 480V 600V	1P 2P 3Y 3D 3H	N D 2
<div> <div> 1P = One Pole, Single Phase 2P = Two Pole, Split Phase 3Y = Three Pole Wye 3D = Three Pole Delta 3H = Three Pole Hi-Leg Delta </div> <div> N = N-G Protection D = Dry Contact & Audible Alarm 2 = Type 2 SPD Bearing cUL Mark </div> </div>					
No cost accessories: 9876 L-bracket mounting kit 8483 Supplementary label					
Examples: S50A120V3Y = 50kA, 120V, 3 pole (208Y/120V) S50A277V3YN = 50kA, 277V, 3 pole (480Y/277V), with N-G					

SPDEE Performance Data

UL 1449 THIRD Edition (Sept 2009)									
MODEL	System Voltage & Config	Voltage Protection Rating VPR 3000A				I _n	SCCR	MCOV	
		L-N	L-L	N-G*	L-G*				
S50A120V1P	120V	600		600*	1000*	20kA	200kA	150	
S50A120V2P	120V/240V	600	1000	600*	1000*	20kA	200kA	150	
S50A120V3Y	208Y/120V	600	1000	600*	1000*	20kA	200kA	150	
S50A127V1P	127V	700		600*	1200*	20kA	100kA	180	
S50A127V2P	127/254V	700	1200	600*	1200*	20kA	100kA	180	
S50A127V3Y	220Y/127V	700	1200	600*	1200*	20kA	100kA	180	
S50A220V1P	220V-1 pole	1200		1000*	1800*	20kA	200kA	320	
S50A220V3Y	380Y/220V	1200	2000	1000*	1800*	20kA	200kA	320	
S50A240V3H	120/240V - Hi-Leg Delta	600	1000	600*	1000*	20kA	200kA	150	
S50A240V1P	240V-1 pole	1200		1000	1800	20kA	200kA	320	
S50A240V3D	240V Delta - 3 pole		1500		1200	20kA	200kA	320	
S50A277V1P	277V	1200		1000*	1800*	20kA	200kA	320	
S50A277V2P	240/480V	1200	2000	1000*	1800*	20kA	200kA	320	
S50A277V3Y	480Y/277V	1200	2000	1000*	1800*	20kA	200kA	320	
S50A347V3Y	600Y/347V	1500	2500	1200*	2500*	20kA	200kA	420	
S50A480V1P	480V-1 pole				1800	10kA	200kA	550	
S50A480V3D	480V Delta - 3 pole		3000		1800	10kA	200kA	550	
S50A480V3H	240/480V - Hi-Leg Delta	1200/1800	2500			10kA	200kA	320/550	
S50A600V3D	600V Delta - 3 pole		2500		2500	20kA	200kA	690	
S100A120V2P	120/240V	600	1000		600	20kA	100kA	150	
S100A277V2P	240/480V	1000	1800		1000	20kA	100kA	320	

* with optional N-G protection

Optional Form C Dry Contact & Audible Alarm

Form C Dry Contact:
Three (3) #18 wires exit the pipe nipple
Gray is Common, Blue is Normally Open, Red is Normally Closed

- Normally Open: Use Gray & Blue
- Normally Closed: Use Gray & Red

Audible Alarm:
Alarm sounds when any protection is lost (If diagnostic LED extinguishes (i.e. problem), alarm will sound)



SPDEE Application Guide

SYSTEM CONFIGURATION

INSTALLED AT OR NEAR SERVICE ENTRANCE OR TRANSFORMER

INSTALLED > 10'(3M) FROM SERVICE ENTRANCE OR TRANSFORMER

N-G Bonded - Does not require N-G protection

Downstream of N-G Bond - N-G protection suggested

1 Pole - Single



Voltage
V = 120V
V = 127V
V = 240V
V = 277V
V = 480V

Model Number
S50A120V1P
S50A127V1P
S50A240V1P
S50A277V1P
S50A480V1P
(L-G, not L-N)

Model Number
S50A120V1PN
S50A127V1PN
S50A240V1PN
S50A277V1PN
N/A

2 Pole - Split Phase

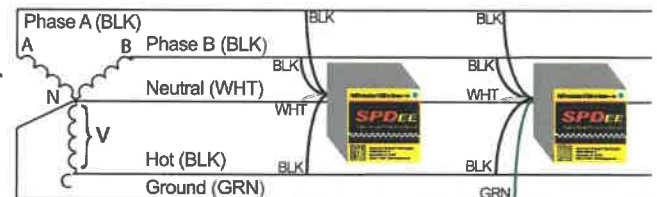


Voltage
V = 120V (120/240V)
V = 127V (127/254V)
V = 240V (277/480 or 240/480V)

Model Number
S50A120V2P
S50A127V2P
S50A277V2P

Model Number
S50A120V2PN
S50A127V2PN
S50A277V2PN

Wye

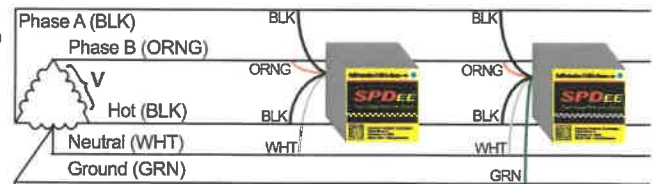


Voltage
V = 120V (208Y/120V)
V = 127V (220Y/127V)
V = 220V (380Y/220V)
V = 277V (480Y/277V)
V = 347V (600Y/347V)

Model Number
S50A120V3Y
S50A127V3Y
S50A220V3Y
S50A277V3Y
S50A347V3Y

Model Number
S50A120V3YN
S50A127V3YN
S50A220V3YN
S50A277V3YN
S50A347V3YN

Hi-Leg

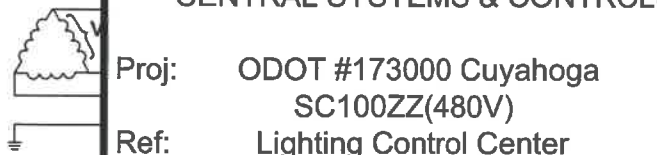


Voltage
V = 120/240V Hi-Leg Delta
V = 240/480V Hi-Leg Delta

Model Number
S50A240V3H
S50A480V3H

Model Number
S50A240V3HN
N/A

Delta



V = 600V

S50A600V3D

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Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
CC-BOW



Advanced Protection Technologies
14550 58th Street North · Clearwater, Florida 33760
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www.aptsurge.com · info@aptsurge.com



AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated

CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
CC-BOW



AF146-30-00

1SFC101005/0001

5



AF146-30-00B

1SFC101005/0001

Description

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

IEC	UL / CSA	Rated control circuit voltage	Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3 kW	3-phase motor rating 480 V hp	General use rating 600 V AC A	Uc min. ... Uc max. V 50/60 Hz: V DC			Pkg (1 pce) kg
A						

For connection with built-in cable clamps

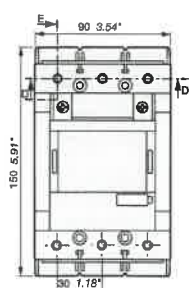
55	160	75	160	24...60	20...60	0 0	AF116-30-00-11	1SFL427001R1100	1,750
				48...130	48...130	0 0	AF116-30-00-12	1SFL427001R1200	1,750
				100...250	100...250	0 0	AF116-30-00-13	1SFL427001R1300	1,750
				250...500	250...500	0 0	AF116-30-00-14	1SFL427001R1400	1,750
75	200	100	200	24...60	20...60	0 0	AF140-30-00-11	1SFL447001R1100	1,750
				48...130	48...130	0 0	AF140-30-00-12	1SFL447001R1200	1,750
				100...250	100...250	0 0	AF140-30-00-13	1SFL447001R1300	1,750
				250...500	250...500	0 0	AF140-30-00-14	1SFL447001R1400	1,750
75	225	100	200	24...60	20...60	0 0	AF146-30-00-11	1SFL467001R1100	1,750
				48...130	48...130	0 0	AF146-30-00-12	1SFL467001R1200	1,750
				100...250	100...250	0 0	AF146-30-00-13	1SFL467001R1300	1,750
				250...500	250...500	0 0	AF146-30-00-14	1SFL467001R1400	1,750

With bar connections

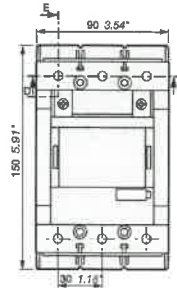
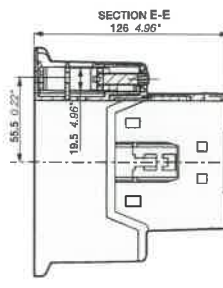
55	160	75	160	24...60	20...60	0 0	AF116-30-00B-11	1SFL427002R1100	1,500
				48...130	48...130	0 0	AF116-30-00B-12	1SFL427002R1200	1,500
				100...250	100...250	0 0	AF116-30-00B-13	1SFL427002R1300	1,500
				250...500	250...500	0 0	AF116-30-00B-14	1SFL427002R1400	1,500
75	200	100	200	24...60	20...60	0 0	AF140-30-00B-11	1SFL447002R1100	1,500
				48...130	48...130	0 0	AF140-30-00B-12	1SFL447002R1200	1,500
				100...250	100...250	0 0	AF140-30-00B-13	1SFL447002R1300	1,500
				250...500	250...500	0 0	AF140-30-00B-14	1SFL447002R1400	1,500
75	225	100	200	24...60	20...60	0 0	AF146-30-00B-11	1SFL467002R1100	1,500
				48...130	48...130	0 0	AF146-30-00B-12	1SFL467002R1200	1,500
				100...250	100...250	0 0	AF146-30-00B-13	1SFL467002R1300	1,500
				250...500	250...500	0 0	AF146-30-00B-14	1SFL467002R1400	1,500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

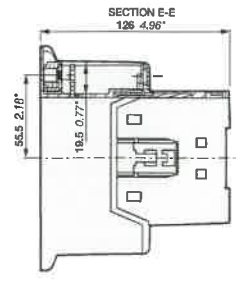
Main dimensions mm, inches



AF116, AF140, AF146-30-00



AF116, AF140, AF146-30-00B



AF116 ... AF370 3-pole contactors

Technical data

Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
CC-BOW

Main pole - Utilization characteristics according to UL / NEMA / CSA

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
Standards		UL 60947-1 / 60947-4-1A and CSA 60947-1 / 60947-4-1A							
Maximum operational voltage		600V							
NEMA size		—	4	—	—	—	5	—	—
NEMA continuous amp rating	Thermal current	—	135 A	—	—	—	270 A	—	—
NEMA maximum horse power ratings									
1-phase, 60 Hz	115 V AC	—	—	—	—	—	—	—	—
	230 V AC	—	—	—	—	—	—	—	—
NEMA maximum horse power ratings									
3-phase, 60 Hz	200 V AC	—	40 hp	—	—	—	75 hp	—	—
	230 V AC	—	50 hp	—	—	—	100 hp	—	—
	480 V AC	—	100 hp	—	—	—	200 hp	—	—
	575 V AC	—	100 hp	—	—	—	200 hp	—	—
UL / CSA general use rating									
600 V AC		160 A	200 A	200 A	250 A	300 A	350 A	400 A	520 A
With conductor cross-sectional area		AWG 2/0	AWG 3/0	AWG 3/0	MCM 250	MCM 350 (2)	MCM 500	2//AWG 3/0	2//MCM 300
UL / CSA maximum 1-phase motor rating									
Full load current	120 V AC	—	—	—	—	—	—	—	—
	240 V AC	—	—	—	—	—	—	—	—
Horse power rating	120 V AC	—	—	—	—	—	—	—	—
	240 V AC	—	—	—	—	—	—	—	—
UL / CSA maximum 3-phase motor rating									
Full load current (1)	200-208 V AC	92 A	120 A	120 A	150 A	177 A	221 A	285 A	359 A
	220-240 V AC	104 A	130 A	130 A	154 A	192 A	248 A	312 A	360 A
	440-480 V AC	96 A	124 A	124 A	156 A	180 A	240 A	302 A	361 A
	550-600 V AC	99 A	125 A	125 A	144 A	192 A	242 A	289 A	336 A
Horse power rating (1)	200-208 V AC	30 hp	40 hp	40 hp	50 hp	60 hp	75 hp	100 hp	125 hp
	220-240 V AC	40 hp	50 hp	50 hp	60 hp	75 hp	100 hp	125 hp	150 hp
	440-480 V AC	75 hp	100 hp	100 hp	125 hp	150 hp	200 hp	250 hp	300 hp
	550-600 V AC	100 hp	125 hp	125 hp	150 hp	200 hp	250 hp	300 hp	350 hp
Short-circuit protection device for contactors									
without thermal overload relay - Motor protection excluded									
High fault current		100 kA							
Fuse rating		225 A	250 A	250 A	450 A	400 A	500 A	600 A	800 A
Fuse type, 600 V		J							
Maximum electrical switching frequency									
For general use		300 cycles/h							
For motor use		300 cycles/h							

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m., 60 Hz or 1800 r.p.m., 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".

(2) For conductor cross-sectional area above MCM 300 use terminal enlargements TW205.

General technical data

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
Rated insulation voltage Ui		1000 V							
acc. to IEC 60947-4-1		600 V							
acc. to UL / CSA		8 kV							
Rated impulse withstand voltage Uimp.		8 kV							
Electromagnetic compatibility		AF contactors comply with IEC 60947-1 / EN 60947-1 - Environment A							
Ambient air temperature close to contactor									
Operation	Fitted with thermal overload relay	-25 to +55 °C							
	Without thermal overload relay	-40 to +70 °C							
Storage		-40 to +70 °C							
Maximum operating altitude (without derating)		3000 m							
Mechanical durability									
Number of operating cycles		5 million operating cycles							
Maximum switching frequency		300 cycles/h							

30MM INDUSTRIAL PILOT DEVICES Series 30

c3controls' 30mm Industrial Pilot Devices offer superior quality at an affordable price. These modular devices feature a rugged, all-polyester construction, are UL listed and are rated Type 4/4X as standard for watertight and corrosion resistance. c3's pilot devices are also listed for Type 1, 2, 3, 3R, 12 and 13 requirements. Our multi-voltage LED light unit can be operated at any voltage from 20V to 240V AC or DC.



CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
CC-BOW

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Conformity to Standards:

UL 508, 1604

CSA C22.2 No. 14, 213
IEC 60947-1, 60947-5-1

Certifications:









UL File #: E68568 (Guide NKCR, NKCR7);
E157436 (Guide NOIV)

CSA File #: LR47446
CE Marked (per EU Low Voltage Directive
73/23/EEC and 93/68/EEC)



SELECT YOUR CONTACT BLOCK

MODULAR CONTACT BLOCK CONFIGURATION

CODE	DESCRIPTION	CONTACT SYMBOL	COLOR	LIST
SILVER CONTACTS				
CBNO	Normally Open Contact Block		Green/Clear	\$ 6.00
CBNC	Normally Closed Contact Block		Red/Clear	\$ 6.00
CBEM	"Early Make" Contact Block		White/Clear	\$ 8.00
CBDB	"Delayed Break" Contact Block		Black/Clear	\$ 8.00
GOLD PLATED CONTACTS				
CBNOG	Normally Open Contact Block		Green/Amber	\$10.00
CBNCG	Normally Closed Contact Block		Red/Amber	\$10.00
CBEMG	"Early Make" Contact Block		White/Amber	\$12.00
CBDG	"Delayed Break" Contact Block		Black/Amber	\$12.00

STANDARD RATING DESIGNATIONS

A600 RATING DESIGNATION

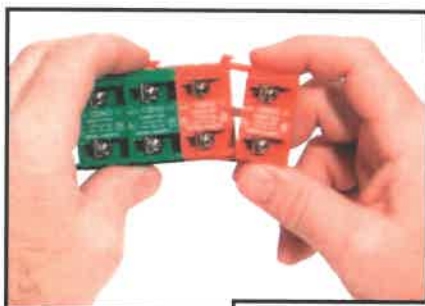
A600 (7,200 VA Make and 720 VA Break),
600V AC Maximum
Maximum Continuous Thermal Current, Ith: 10A

P300 RATING DESIGNATION

P300 (138 VA Make and 138 VA Break),
250V DC Maximum
Maximum Continuous Thermal Current, Ith: 5A

CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
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Our Contact Blocks save you time and money by offering the flexibility to operate multiple control circuits from a single pilot device. Most operators can be stacked up to 4 deep, providing a total of 8 circuits per operator in any combination. Compared to others, our quick install snap-on feature makes installing multiple blocks a "snap" — they install in less time than it takes to pick up a screwdriver! And our heavy-duty construction ensures that these contact blocks stay connected.



Tired of wiring contact blocks in cramped spaces?

Our unique 35 degree angled terminals provide ease of wiring for quick installation. In fact, you can wire the contact blocks outside the tight space of the control panel, then simply "snap-on" to the operator. All terminal screws have self-lifting captive wire clamps to speed wiring.

AVAILABLE CONTACT BLOCKS FOR ORDINARY LOCATIONS



IT'S EASY TO BUILD YOUR OWN SELECTOR SWITCH

Simply pick the code number from each of the sections below and combine them to build your part number. See page 1 for more detailed directions.

Selector Switches

I - **II** **III** **IV** - **V*** / **VI***

*NOTE: Contact block configurations are based on circuit designations (see charts below).

Example: To build one of our most popular Selector Switches, the part number would be **I + II + III + IV + V + VI** or **SS03-SHWE-NO/NO**



I. BASIC SELECTOR SWITCH OPERATOR FUNCTION

CODE	POS./FUNCTION	LIST
SS02	2/Maintained	\$12.00
SR0LR	2/Spring Return, L to R	\$21.00
SR0RL	2/Spring Return, R to L	\$21.00
SS03	3/Maintained	\$12.00
SR0LC	3/Spring Return, L to C	\$21.00
SR0RC	3/Spring Return, R to C	\$21.00
SR0LRC	3/Spring Return, L & R to C	\$21.00
SS04	4/Maintained	\$12.00
SR043	4/Spring Return, Pos. 4 to 3	\$21.00
SR01243	4/Spring Return, Pos. 1 to 2 and Pos. 4 to 3	\$21.00

Each operating handle is black with a factory assembled color insert.

DISCOUNT
SCHEDULE **A**

II. CLAMP RING

CODE	DESCRIPTION	LIST
(Blank)	Polyester (Type 4X)	—
A	Aluminum (Type 4)	\$2.00

III. HANDLE TYPE

CODE	DESCRIPTION	LIST
SH	Standard	\$5.00
SL	Lever	\$3.00

IV. HANDLE INSERT COLOR

CODE	COLOR
BE	Blue
GN	Green
GY	Grey
RD	Red
WE	White
YW	Yellow

V. CONTACT BLOCK CONFIGURATION (LEFT SIDE)

CODE	DESCRIPTION	LIST
(Blank)	Operator without Contact Blocks	—
NO	1 Normally Open Contact Block	\$ 6.00
NC	1 Normally Closed Contact Block	\$ 8.00
EM	1 "Early Make" Contact Block	\$ 8.00
DB	1 "Delayed Break" Contact Block	\$ 8.00
NO-NO	2 Normally Open Contact Blocks	\$12.00
NC-NC	2 Normally Closed Contact Blocks	\$12.00
NO-NC	1 Normally Open and 1 Normally Closed Contact Blocks	\$12.00

VI. CONTACT BLOCK CONFIGURATION (RIGHT SIDE)

CODE	DESCRIPTION	LIST
(Blank)	Operator without Contact Blocks	—
NO	1 Normally Open Contact Block	\$ 6.00
NC	1 Normally Closed Contact Block	\$ 8.00
EM	1 "Early Make" Contact Block	\$ 8.00
DB	1 "Delayed Break" Contact Block	\$ 8.00
NO-NO	2 Normally Open Contact Blocks	\$12.00
NC-NC	2 Normally Closed Contact Blocks	\$12.00
NO-NC	1 Normally Open and 1 Normally Closed Contact Blocks	\$12.00

CONTACT BLOCK SELECTION FOR 2-POSITION SELECTOR SWITCHES

CIRCUIT DESIG.	HANDLE POSITION		BLOCK CATALOG NUMBER	MOUNTING POSITION
	LEFT	RIGHT		
A	O	X	CBNO	EITHER
B	X	O	CBNC	EITHER

CONTACT BLOCK SELECTION FOR 3-POSITION SELECTOR SWITCHES

CIRCUIT DESIG.	HANDLE POSITION			BLOCK CATALOG NUMBER	MOUNTING POSITION
	LEFT	CENTER	RIGHT		
C	X	O	O	CBNO	LEFT
D	O	X	O	CBNC	EITHER
E	O	O	X	CBNO	RIGHT
F	O	X	X	CBDB	LEFT
G	X	O	X	CBEM	EITHER
H	X	X	O	CBDB	RIGHT

O = OPEN X = CLOSED

CONTACT BLOCK SELECTION FOR 4-POSITION SELECTOR SWITCHES

CIRCUIT DESIG.	HANDLE POSITION				BLOCK CAT #	MOUNTING POSITION
	LEFT	1ST CNT	2ND CNT	RIGHT		

CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
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MIX AND MATCH ANY INSERT COLOR AND SELECTOR SWITCH HANDLE



Standard Handle



Standard Handle



Standard Handle



Lever Handle



Lever Handle



Lever Handle

CC Fuse Holders - 600 Volt

Specifications:

30 Amp

- Tested and Approved for 200,000 Amp Withstand Rating and Short Circuit Current Ratings (SCCR)
- Clip, Copper Alloy, Tin Plated with Patented Reject Member
- Quick Connect Standard with Screw (S) or Sems Pressure (SP)
- UL Listed File No. IZLT.E35113
- CSA Certified File No. LR21455
- **CE**
- RoHS Compliant

60 Amp

- Tested and Approved for 200,000 Amp Withstand Rating and Short Circuit Current Ratings (SCCR)
- Patented Cool-Clip® Design
- Clip, Copper Alloy, Tin Plated
- Integral DIN Rail Mount
- Expander Block Available
- UL Listed File No. IZLT2.E35113, Class CD
- CSA Certified File No. LR21455-91
- **CE**
- RoHS Compliant



6CC30A3SQ



6CC30A3B



R6CC60A3B

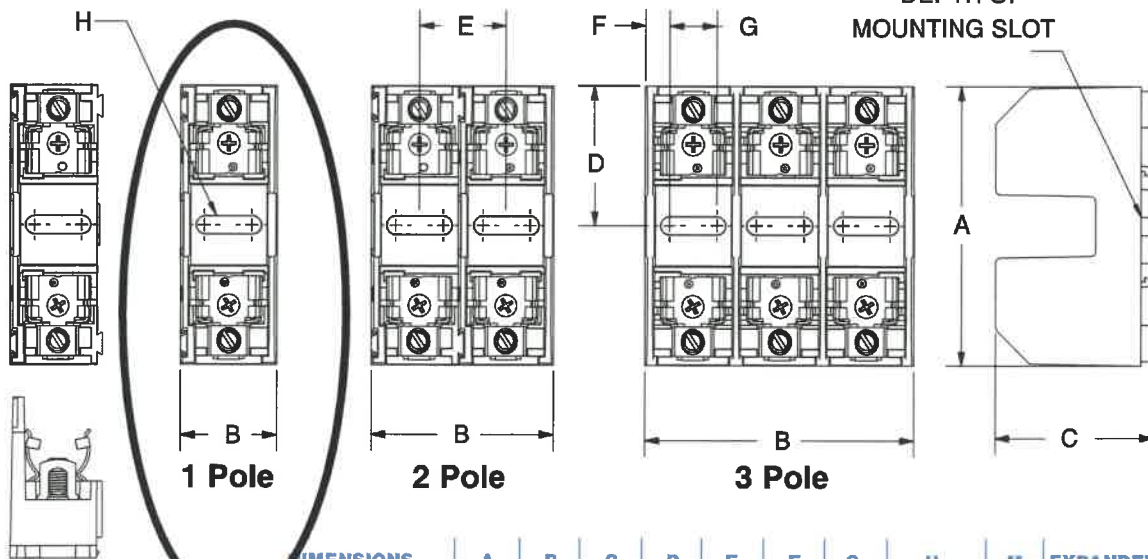
Catalog #:

Replace "X" with # of poles (E = Expander)

Standard	Reinforced	Poles (X)	Amps	Base Materials	Wire Range	Fuse Size	Fuses
6CC30AXSQ	N/A	1/2/3	30	Thermoplastic	#10-#22 AWG CU	13/32" DIA BY 1 1/2"	ATDR
6CC30AXSPQ					#10-#14 AWG CU		ATMR
6CC30AXB					#6-#14 AWG CU		ATQR
6CC30AXBCU							CCMR FRQ-R
R6CC60AXB	SAME	1/2/3/E	60		#2-#14 AWG CU #2-#12 AWG AL	0.70" DIA BY 1.85"	KLDR, KLR, KTK-R, LP-CC

See pages 32-33 for available covers

See page 34 for DIN Rail Adapter



Expander

DIMENSIONS	A	B	C	D	E	F	G	H	M	EXPANDER
6CC30A	1 POLE	3.13	0.1	1.1	2.1	2.1	2.1	2.1	2.1	2.1
R6CC60A	1 POLE	3.35	1.1	2.1	3.1	3.1	3.1	3.1	3.1	3.1

mm = dim X 25.4

CENTRAL SYSTEMS & CONTROLS

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CC-BOW

COMEC Neutral bars are manufactured from high strength 6061-T6 aluminum alloy to insure both maximum strength and conductivity. They are dual rated for both copper and aluminum conductors and are electro tin plated to provide low contact resistance and protection against corrosion. Assembly can be made with only a screwdriver or allen wrench.

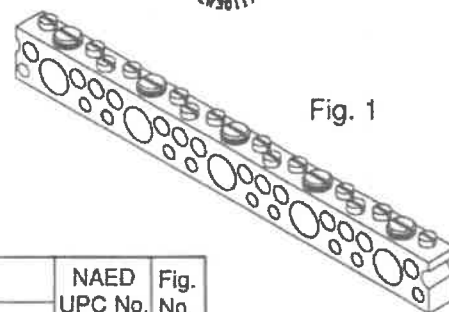


Fig. 1

DUAL RATED SCB - NEUTRAL BARS

Catalog Number	Cond. Range		Net Price Each		No. of Taps		Pcs. per Ctn.	Wt. per 100	Dimensions			NAED UPC No.	Fig. No.
	Main	Tap	1-9 Pcs.	10-UP Pcs.	Lg.	Sm.			A	B	C		
SCB1/0-120*	1/0-14	6-14	22.00	16.50	30	90	1	44	36.0	0.38	0.63	10746	1
SCB1/0-21	1/0-14	6-14	4.40	3.30	6	15	1	14.2	8.63	0.38	0.63	10747	1
SCB1/0-13	1/0-14	6-14	3.13	2.35	4	9	1	11.8	4.38	0.38	0.63	10748	1
SCB1/0-9-2	1/0-14	6-14	2.47	1.85	2	7	1	7.4	3.44	0.38	0.63	10759	1
SCB1/0-7-0	1/0-14	6-14	2.20	1.65	2	5	10	6.5	2.25	0.38	0.63	10750	1

* - No Mounting Holes. Furnished with Screws - To be Field cut to proper size - 1/0 Conductor holes on 1.172" centers.

Insulating Mounting Brackets

SCB-MB-1	N/A	N/A	2.60	1.95	N/A	N/A	10	5	1.25	0.58	1.59	10937	2
----------	-----	-----	------	------	-----	-----	----	---	------	------	------	-------	---

Non-Insulating (Steel) Mounting Brackets

SCB1/0-11B	1/0-14	N/A	3.81	2.86	3	8	1	18.3	3.44	1.53	.844	60089	3
SCB1/0-15B	1/0-14	N/A	4.05	3.04	4	11	1	21.8	4.61	1.53	.844	60090	3
SCB1/0-19B	1/0-14	N/A	5.01	3.77	5	14	1	25.2	5.77	1.53	.844	60091	3
SCB1/0-23B	1/0-14	N/A	7.56	5.67	6	17	1	28.6	6.97	1.53	.844	60092	3
SCB1/0-27B	1/0-14	N/A	7.78	5.83	7	20	1	31.9	8.11	1.53	.844	60093	3

Adapter for 2/0 Aluminum Cable

CA-206-1	2/0-4	6-14	2.07	1.55	N/A	N/A	10	1.5	0.66	0.63	0.83	10751	4
----------	-------	------	------	------	-----	-----	----	-----	------	------	------	-------	---

SCB-2/0	2/0-14	6-14	Consult factory for price and availability.				Variable	.375	.687	N/A	1
---------	--------	------	---	--	--	--	----------	------	------	-----	---

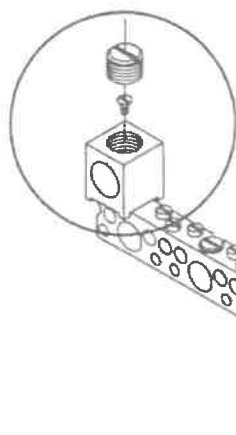


Fig. 4



CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
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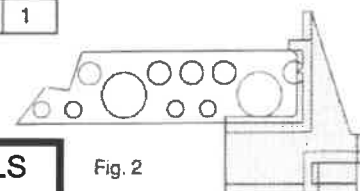
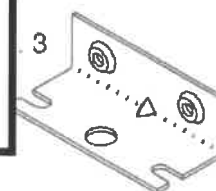


Fig. 2



Sectional Terminal Blocks

3/8" Sectional - 600 Volts 32 Circuits Per Foot

Channel (C), Flat (F) & (DIN) Mount

Specifications:

- UL Recognized File No. XCFR2.E62806
- CSA Certified File No. LR 19766
- Wire termination torque 16 lb-in
- C€



Tubular Screw Connector (6G38 TS)

Materials:

Base - Gray Thermoplastic, 125°C (RTI)
Tubular Screw Connector- Copper, Tin Plated
Screw - #10-32 Steel, Nickel Plated
50 Amps (40 Amps CSA)

Wire Ranges:

Single and Multiple Wire Combinations:

Stranded CU

(1) #8 - 18 AWG
(1-3) #12 AWG
(1-4) #14

Solid CU

(1) #10 - #16 AWG
(1-3) #12 AWG
(1-4) #14 or #16 AWG

Ordering Code:

6G38 TS F
6G38 TS C
6G38 TS DIN

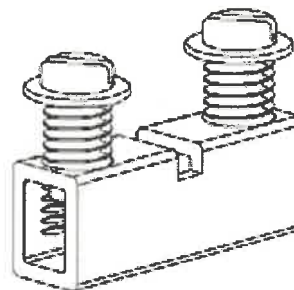
For flat mount block
For channel mount block
For DIN mount block

Std pk 100
Std pk 100
Std pk 25

See Figure 2 On Page 114
See Figure 1 On Page 114
See Figure 3 On Page 114

CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
SC100ZZ(480V)
Ref: Lighting Control Center
CC-BOW



Sectional Terminal Blocks

Catalog Numbers

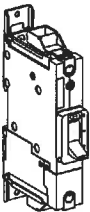
PowerPact B-Frame Circuit Breaker Catalog Numbers

UL 489 Circuit Breaker Ratings

Circuit breaker type		BD		BG		BJ		BK	
Number of poles		1	2-4	1	2-4	1	2-4	1	2
Amperage range (A)		15-125	15-125	15-125	15-125	15-125	15-125	15-30	15-30
UL/CSA/NOM (kA rms)	208Y/120 Vac	25	25	65	65	100	100	100	100
	240 Vac	25	25	65	65	100	100	100	100
	480Y/277 Vac	18	18	35	35	65	65	65	65
	480 Vac	—	18	—	35	—	65	—	65
	600Y/347 Vac	14	14	18	18	25	25	65	65

PowerPact B-Frame 1P Unit-Mount Single Phase Circuit Breakers

B-Frame, 1P, 347 Vac, Single Phase Rated, with EverLink™ Connectors, Factory-Sealed Trip Unit

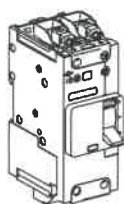


Current Rating at 40°C (A)	Fixed AC Magnetic Trip (A)		Interrupting Rating—Standard (80%) Rated		
	Hold	Trip	D	G	J
15	400	600	BDL16015	BGL16015	BJL16015
20	400	600	BDL16020	BGL16020	BJL16020
25	400	600	BDL16025	BGL16025	BJL16025
30	400	600	BDL16030	BGL16030	BJL16030
35	400	600	BDL16035	BGL16035	BJL16035
40	400	600	BDL16040	BGL16040	BJL16040
45	400	600	BDL16045	BGL16045	BJL16045
50	400	600	BDL16050	BGL16050	BJL16050
60	400	600	BDL16060	BGL16060	BJL16060
75	400	600	BDL16070	BGL16070	BJL16070
80	800	1200	BDL16080	BGL16080	BJL16080
90	1000	1500	BDL16090	BGL16090	BJL16090
100	1000	1500	BDL16100	BGL16100	BJL16100
110	1000	1500	BDL16110	BGL16110	BJL16110
125	1000	1500	BDL16125	BGL16125	BJL16125

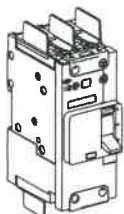
CENTRAL SYSTEMS & CONTROLS

Proj: ODOT #173000 Cuyahoga
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PowerPact B-Frame 2P Unit-Mount Circuit Breakers

**B-Frame, 2P, 600Y/347 Vac, with EverLink™ Connectors, Factory-Sealed Trip Unit**

Current Rating at 40°C (A)	Fixed AC Magnetic Trip (A)		Interrupting Rating—Standard (80%) Rated		
	Hold	Trip	D	G	J
15	400	600	BDL26015	BGL26015	BJL26015
20	400	600	BDL26020	BGL26020	BJL26020
25	400	600	BDL26025	BGL26025	BJL26025
30	400	600	BDL26030	BGL26030	BJL26030
35	400	600	BDL26035	BGL26035	BJL26035
40	400	600	BDL26040	BGL26040	BJL26040
45	400	600	BDL26045	BGL26045	BJL26045
50	480	720	BDL26050	BGL26050	BJL26050
60	640	960	BDL26060	BGL26060	BJL26060
70	640	960	BDL26070	BGL26070	BJL26070
80	800	1200	BDL26080	BGL26080	BJL26080
90	1000	1500	BDL26090	BGL26090	BJL26090
100	1000	1500	BDL26100	BGL26100	BJL26100
110	1000	1500	BDL26110	BGL26110	BJL26110
125	1000	1500	BDL26125	BGL26125	BJL26125

**B-Frame, 2P, 600Y/347 Vac, with Terminal Nut Connectors, Factory-Sealed Trip Unit**

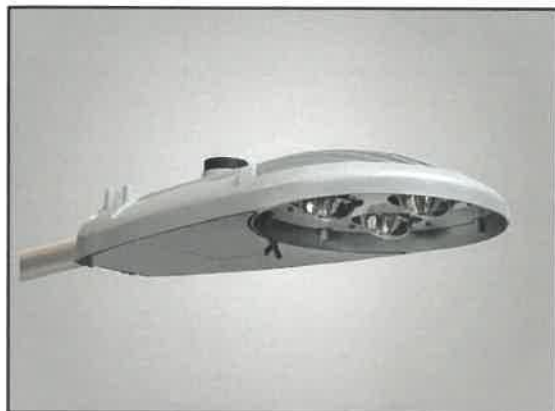
Current Rating at 40°C (A)	Fixed AC Magnetic Trip (A)		Interrupting Rating—Standard (80%) Rated		
	Hold	Trip	D	G	J
15	400	600	BDF26015	BGF26015	BJF26015
20	400	600	BDF26020	BGF26020	BJF26020
25	400	600	BDF26025	BGF26025	BJF26025
30	<div style="border: 1px solid black; padding: 5px;"> CENTRAL SYSTEMS & CONTROLS Proj: ODOT #173000 Cuyahoga SC100ZZ(480V) Ref: Lighting Control Center CC-BOW </div>				BJF26030
35					BJF26035
40					BJF26040
45					BJF26045
50					BJF26050
60					BJF26060
70	640	960	BDF26070	BGF26070	BJF26070
80	800	1200	BDF26080	BGF26080	BJF26080
90	1000	1500	BDF26090	BGF26090	BJF26090
100	1000	1500	BDF26100	BGF26100	BJF26100
110	1000	1500	BDF26110	BGF26110	BJF26110
125	1000	1500	BDF26125	BGF26125	BJF26125



Consistent with LEED® goals
& Green Globes™ criteria
for light pollution reduction

Autobahn Series ATBM Roadway

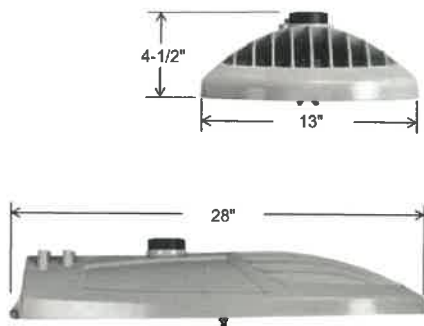
PRODUCT OVERVIEW



Applications:

Residential streets
Parking lots
High speed roadways

DIMENSIONS



Effective Projected Area (EPA)
The EPA for the ATBM is 0.3 sq. ft.
Approx. Wt. = 21 lbs. (9.5 kg)

STANDARDS

Color temperatures of $\leq 3000\text{K}$ must be specified for International Dark-Sky Association certification.

Rated for -40°C to 40°C ambient

CSA Certified to U.S. and Canadian standards

Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

Features:

APPROVED

By Tony Holland at 1:09 pm, May 19, 2020

OPTICAL

Same Light: Performance is comparable to 150W – 250W HPS

White Light: Correlated color temperature – 4000K, 70 CRI minimum, 3000K, 70 CRI minimum or optional 5000K, 70 CRI minimum.

IP66 rated borosilicate glass optics ensure longevity and minimize dirt depreciation. Unique IP66 rated LED light engines provide 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing.

Available distributions are Type II, III, IV, & V roadway distributions.

ELECTRICAL

Expected Life: LED light engines are rated $> 100,000$ hours at 25°C , L70.

Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an expected 40-60% over comparable HID luminaires.

Robust Surge Protection: Standard surge protection is 20kV/10kA "Extreme Level" per ANSI C136.2. An optional MOV pack provides 10kV/5kA "Enhanced Level."

MECHANICAL

Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing and door are polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Mast arm mount is adjustable for arms from $1\frac{1}{4}"$ to $2"$ ($1\frac{5}{8}"$ to $2\frac{3}{8}"$ O.D.) diameter.

The 2 – bolt and optional 4 bolt clamping mechanism provide 3G vibration rating per ANSI C136.31.

The Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 pin photocontrol receptacle is standard, with the Acuity designed ANSI standard 7 pin receptacle optionally available.

Premium solid state locking-style photocontrol – PCSS (10 year rated life) Extreme long life solid state locking-style photocontrol – PCL1 (20 year rated life).

Extreme long life solid state locking-style photocontrol with on demand remote on/off control – PCCC (15 year rated life).

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and also can allow a single fixture to be flexibly applied in many different applications.

Autobahn Series ATBM

Roadway

ORDERING INFORMATION

ATBM	P40	480	R2	4B
Series	Performance Packages	Voltage	Optics	Mounting
ATBM Autobahn LED Roadway	P05 9,700 lumens P10 11,000 lumens P20 12,800 lumens P30 15,500 lumens P40 17,400 lumens P50 18,700 lumens P60 20,000 lumens P70 21,500 lumens	MVOLT Multi-volt, 120-277V 347 347V 480 480V	R2 Roadway Type II R3 Roadway Type III R4 Roadway Type IV R5 Roadway Type V	(Blank) 2 Bolt Mounting 4B 4 Bolt Mounting

3K,MP,NL,NR

Options

Color Temperature (CCT)

(Blank) 4000K CCT, 70 CRI Min.
3K 3000K CCT, 70 CRI Min.
5K 5000K CCT, 70 CRI Min.

Paint

(Blank) Gray
BK Black
BZ Bronze
DDB Dark Bronze
GI Graphite
WH White

Surge Protection

(Blank) Standard 20kV/10kA SPD
MP MOV Pack

Miscellaneous Options

HSS House Side Shield
NL NEMA Label Indicating Wattage
XL Not CSA Certified – No Terminal Block Cover
UMR-XX 8" Horizontal Arm for Round Pole, Painted to match Fixture
UMS-XX 8" Horizontal Arm for Square Pole, Painted to match Fixture
UMR-GALV 8" Horizontal Arm for Round Pole, Painted to match Fixture
UMS-GALV 8" Horizontal Arm for Square Pole, Painted to match Fixture

Control Options

(Blank) 3 Pin NEMA Photocontrol Receptacle
P7 7 Pin Photocontrol Receptacle (dimmable driver included) ¹
NR No Photocontrol Receptacle
A0 Field Adjustable Output ³
DM 0-10V Dimmable Driver ²
PCSS Solid-State Lighting Photocontrol ⁴
PCLL Solid-State Long Life Photocontrol
PCCC Solid-State Long Life Photocontrol with remote control on/off ⁴
SH Shorting Cap

Packages

(Blank) Standard Pack
JP Job Pack (36/pallet)

Accessories

ATBMHSS House Side Shield
ATBMLTS Light Trespass Shield
RKATBMMVOLTSPD ATBM Acuity SPD, MVOLT
RKATBMHVSPD ATBM Acuity SPD, 347/480V
RKATBMMVOLTMP ATBM MOV Pack, MVOLT
RKATBMHVMP ATBM MOV Pack, 347/480V

Notes:

- 1 Dimmable Driver included. Not available with DM or NR.
- 2 Controls by others. Not available with P7 or A0.
- 3 Not available with DM.
- 4 MVOLT only.



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ATBM

Autobahn Series ATBM

Roadway

PERFORMANCE PACKAGE

Performance Package	Distribution	Input Watts	3K (3000K CCT, 70 CRI)					4K/5K (4000K/5000K CCT, 70 CRI)					LLD @ 25°C		
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	25k Hours	75k Hours	100k Hours
P05	R2	68	9,396	138	1	0	2	9,718	143	1	0	2	0.93	0.86	0.83
	R3		9,366	138	1	0	3	9,688	142	1	0	3			
	R4		9,030	133	1	0	3	9,340	137	1	0	3			
	R5		10,334	152	3	0	2	10,689	157	3	0	2			
P10	R2	81	10,635	131	2	0	3	11,299	139	2	0	3	0.93	0.86	0.83
	R3		10,675	132	2	0	3	11,302	140	2	0	3			
	R4		10,391	128	2	0	4	10,994	136	2	0	4			
	R5		11,504	142	3	0	2	12,086	149	3	0	2			
P20	R2	94	12,073	128	2	0	3	12,874	137	2	0	3	0.93	0.86	0.83
	R3		12,065	128	2	0	3	12,818	136	2	0	3			
	R4		11,946	127	2	0	4	12,525	133	2	0	4			
	R5		13,085	139	4	0	2	13,776	147	4	0	2			
P30	R2	118	14,637	124	2	0	3	15,514	131	2	0	3	0.93	0.86	0.83
	R3		14,631	124	2	0	3	15,452	131	2	0	3			
	R4		14,317	121	2	0	4	15,151	128	2	0	5			
	R5		15,775	134	4	0	2	16,685	141	4	0	2			
P40	R2	135	16,233	120	2	0	3	17,493	130	2	0	3	0.93	0.86	0.83
	R3		16,402	121	2	0	3	17,367	129	2	0	3			
	R4		15,911	118	2	0	5	17,008	126	2	0	5			
	R5		17,507	130	4	0	2	18,595	138	4	0	2			
P50	R2	152	17,541	115	2	0	3	18,748	123	2	0	3	0.93	0.86	0.83
	R3		17,677	116	2	0	4	18,712	123	2	0	4			
	R4		17,154	113	2	0	5	18,246	120	2	0	5			
	R5		19,008	125	4	0	2	20,088	132	4	0	2			
P60	R2	168	18,770	112	2	0	3	20,095	120	3	0	3	0.93	0.86	0.83
	R3		18,830	112	2	0	4	20,094	120	3	0	4			
	R4		18,369	109	2	0	5	19,648	117	2	0	5			
	R5		20,350	121	4	0	2	21,505	128	4	0	2			
P70	R2	190	20,190	106	3	0	3	21,565	114	3	0	3	0.93	0.86	0.83
	R3		20,142	106	3	0	4	21,504	113	3	0	4			
	R4		19,660	103	2	0	5	21,024	111	3	0	5			
	R5		21,988	116	4	0	2	23,076	121	4	0	2			

Note: Individual fixture performance may vary. Specifications subject to change without notice.



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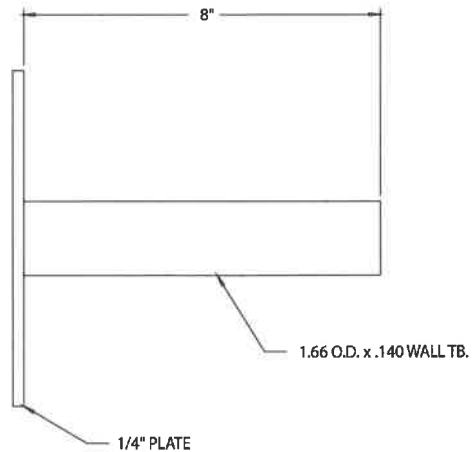
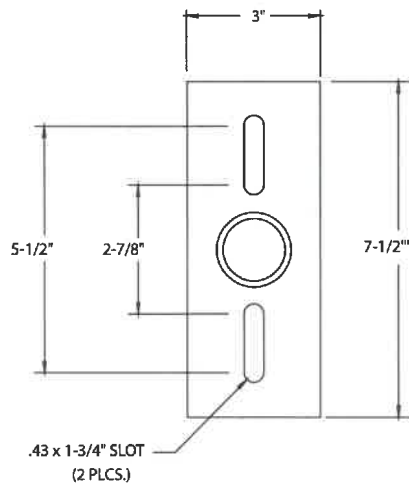
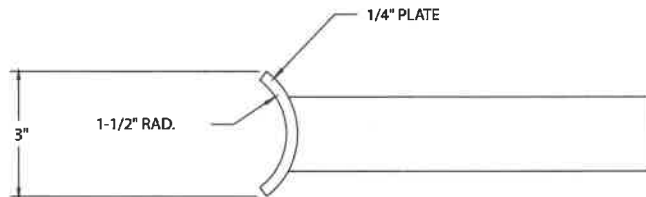
ATBM

Autobahn Series ATBM

Roadway

UMR POLE ADAPTOR

RECOMMENDED FOR USE WITH POLES OF 4" DIAMETER OR SMALLER



UMS POLE ADAPTOR



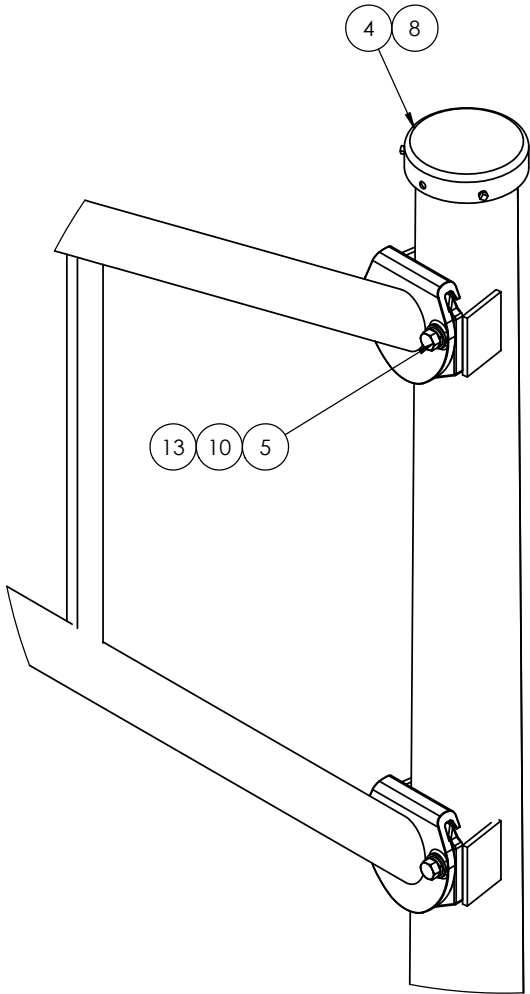
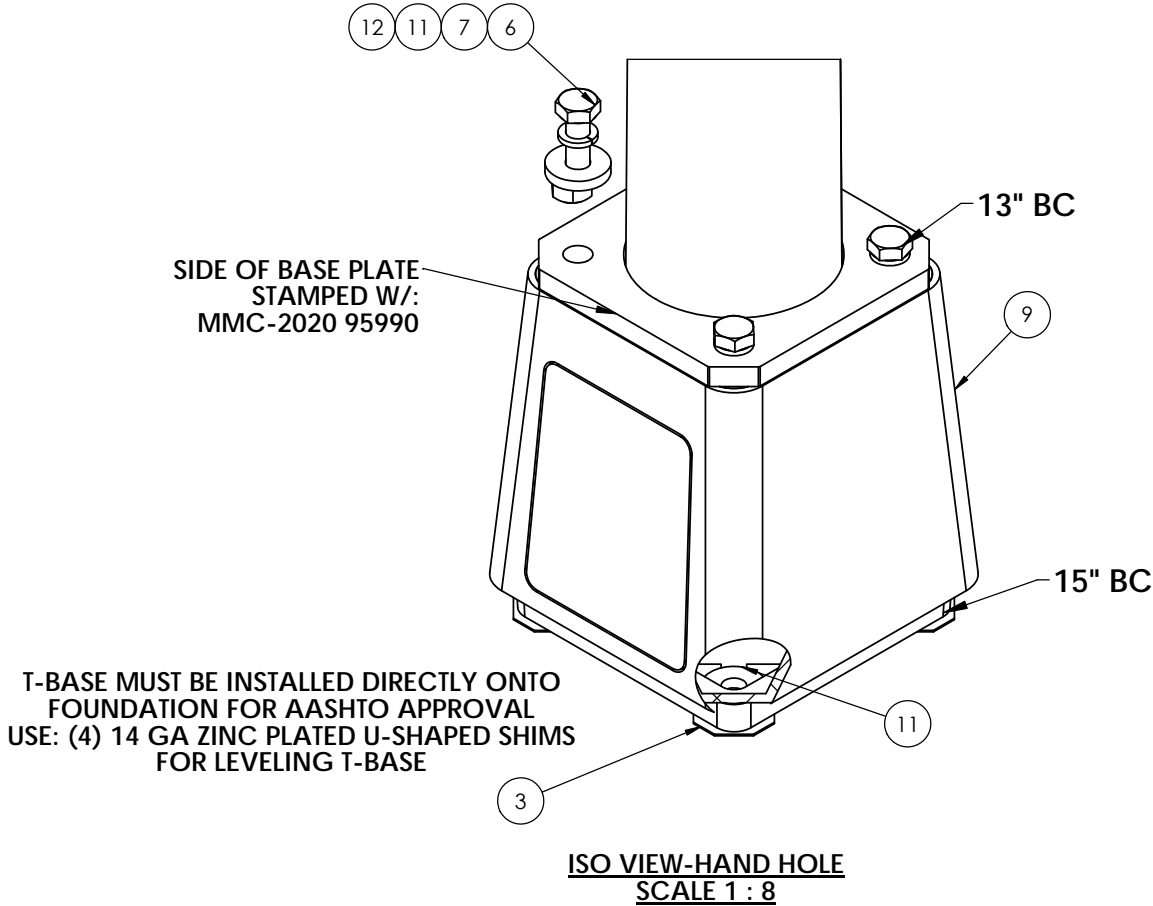
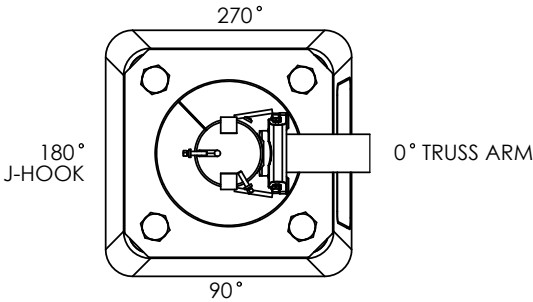
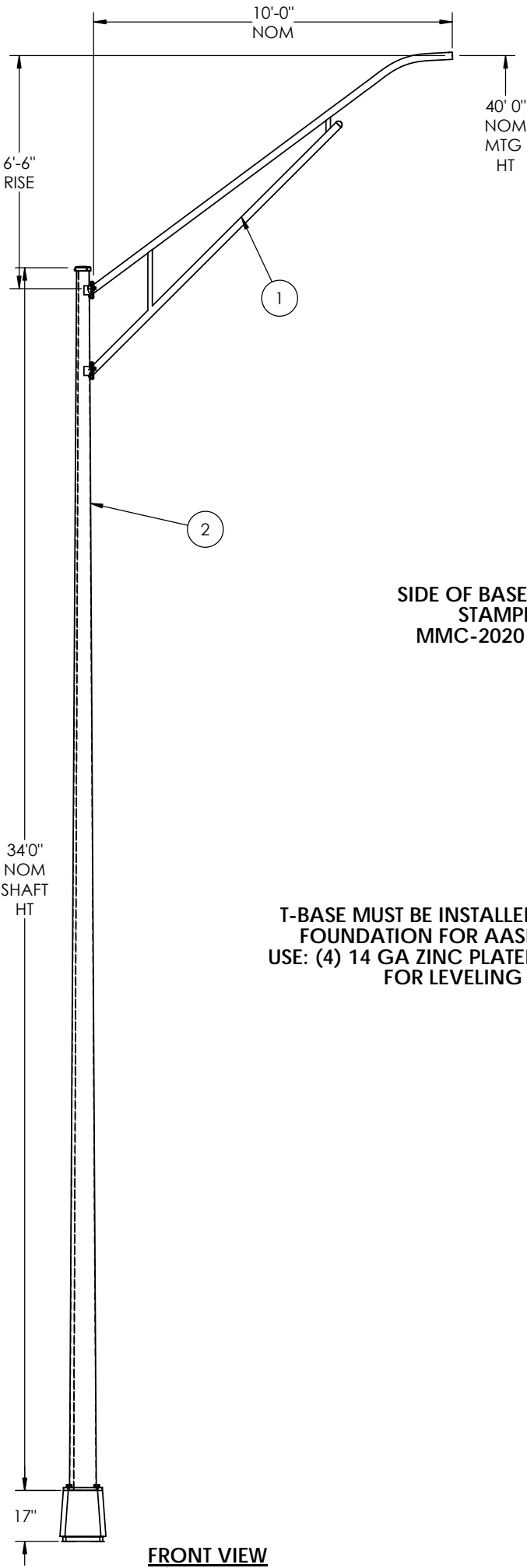
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ATBM

REVISIONS			
REV.	DESCRIPTION	DATE	DRFT



MATERIAL SPECIFICATIONS
POST: ASTM A1011 GR 50 BASE PLATE: ASTM A709 GR 36 MAST ARM: N/A MOUNTING PLATE: N/A HARDWARE FINISH: ASTM A153 ANCHOR BOLTS: 1"x40" A.B. SUPPLIED BY OTHERS

DESIGN CRITERIA
2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS ON HIGHWAY SIGNS, LUMINAIRES & TRAFFIC SIGNALS.
WINDS: 90 MPH 1.3 VORTEX SHED: N/A FATIGUE CAT: III GALLOPING: N/A NATURAL WIND GUST: N/A TRUCK GUST: N/A

WELD SPECIFICATION
THE POST AND MAST ARM TO BE A TAPERED TUBE FABRICATION WITH ONE SUBMERGED ARC LONGITUDINAL SEAM WELD WITH 100% PENETRATION 6" FROM BASE PLATE AND 60% FOR REMAINDER. GAS METAL ARC WELDING PROCESS WITH 60% PENETRATION MAY BE USED FOR REMAINDER OF WELDED FABRICATION.
WELD TESTING: 100% OF ALL WELDS VISUAL TESTED (VT), 100% OF ALL COMPLETE JOINT PENETRATION (CJP) WELDS ULTRASONIC TESTED (UT) BASED ON THE THINNEST MATING MATERIAL: (PER AASHTO 2013 5.15.5-WELD INSP) THICKNESS. < 6MM (0.25 IN) MT ≥ 6MM (0.25 IN) UT A RANDOM 30% OF ALL FILLET WELDS AND PARTIAL JOINT PENETRATION (PJP) LONGITUDINAL SEAM WELDS MAGNETIC PARTICLE TESTED (MT).

FINISH SPECIFICATION
GALV. OR PRIME COAT: HOT DIP GALV PER ASTM A123 FINISH COAT: N/A COLOR: N/A FEDERAL OR RAL SPEC.: WEIGHT W/GALV.: 476.347 WEIGHT W/GALV.&PAINT: 480.272 WEIGHT W/PAINT: SURFACE AREA: 23818.5 GAL. OF PAINT: 0.916096

 MILLERBERND	622 6TH ST. SO. WINSTED, MN 55395
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SALES ORDER NO.:	QTY:	STATE:	SHEET
95990	12	OH	1 OF 1

DESCRIPTION:	
SHIP POLE LIGHT TRUSS RD 11GAx34'0-AT10B40 TB1-17 W/10'0 TRUSS ARM 78" RISE-40' MTG HT	

EST. WEIGHT:	DRAWING NO:
461.8	95990-01

PROJECT NAME:	
OH CLEVELAND/PROJ#3000-17/19657	
PROJECT LOCATION:	

OH	
DWN BY: PAM F.	DATE: 6/1/2020
CHK BY:	DATE:

ITEM NO.	PART NUMBER	DESCRIPTION	QTY PER	ASSY	FINISH
1	1002659	WLDMT ARM TRUSS PIPE 10'0 27" SPCG 6'6" RISE 2-BS	1		X
2	1045797	WLDMT POLE LIGHT TRUSS RD 11GAx34'0 (11GAx9.01x4.25x34'0)	1		X
3	500A103	SHIM LEVELING 1-1/4" (DWG.1233)	4		
4	9900202	STAMPED POLE CAP WELDMENT (3.75-4.75)	1		X
5	BOLTA1/2-13X1-1/4A	BOLT HX HD 1/2-13NC X 1-1/4 F593C SS	4		
6	BOLTB1-8X4B	BOLT HVYHXHD 1-8 X 4 A325GV	4		
7	NUTHVYHX1"-8A563GV	NUT HVY HX 1"-8 A563 GV (DH)-RCP	4		
8	SCRWM1-4-20X1-1-4SS	SCRW ST SQ HD 1-4-20NC X 1 1-4 SS	3		
9	AKRON TB1-17	AKRON BREAK-AWAY T-BASE TB1-17	1		
10	WASHFLAT1/2SS-002	WASHER FLAT 1/2 SS .875"ODx.0595THK	4		
11	WASHFLATAKRON2-3/4X1-1/16	2-3/4DIAx1-1/16IDx1/2TK FLT WSHR W1	8		
12	WASHLOCK1"GV	WASHER LOCK 1"GV	4		
13	WASHLOCK1/2SS	WASHER LOCK 1/2 SS	4		