

# sixteen5hundred

bringing ideas to light

## Sixteen5Hundred Drawing Package

### PRELIMINARY BID DRAWINGS

IF A CONTROLS SUBMITTAL IS NEEDED, PLEASE SUBMIT HFR PO, FIXTURE SUBMITTAL FOR CONSTRUCTION, AND E-SHEETS FOR CONSTRUCTION.

LC0.1	SYSTEM NOTES
LC0.2	DETAILS & WIRING DIAGRAMS
LC1.X SERIES	SYSTEM LAYOUTS
LC1.B	SYSTEM BACKBONE

PREPARED BY:	Ryan Guimond rguimond@16500.COM 510.645.2567
16500 SALES:	XXXXXXXXXX XXXX@16500.COM 510.645.XXXX

Drawing Type:	
Prepared For:	ELECTRICAL CONTRACTOR NAME
Date:	6/18/2023
Scale:	NOT TO SCALE
Drawn By:	RG
Project #:	21-14600
DWG Ref:	NONE
Sheet:	



PROJECT SPECIFIC NOTES

- 1) THIS DESIGN IS BASED ON E-SHEETS DATED 05/28/2019.
- 2) THE LIGHTING CONTROL DESIGN IS SUBJECT TO CHANGE BASED ON ADDITIONAL PROJECT SPECIFIC INFORMATION.
- 3) THIS QUOTE IS PROVIDING A STANDALONE NLIGHT SYSTEM WITH TIMECLOCK MOUNTED INSIDE ARP PANEL. IF A NETWORKED SYSTEM IS REQUIRED, PLEASE REQUEST A REVISED QUOTE.
- 4) SEE LAYOUT AND/OR ENDNOTES FOR ASSUMED DIMMING TYPES. PLEASE CONFIRM BALLAST/DRIVER TYPES MATCH CONTROLS SELECTED PRIOR TO AN ORDER BEING PLACED.
- 5) ALL EMERGENCY FIXTURES ARE ASSUMED TO BE ON AN EM CIRCUIT, EM INVERTER OR EM GENERATOR.
- 6) BOM ASSUMES TIMECLOCK TO BE UTILIZED IN ALL AREAS. EC TO VERIFY.
- 7) BOM EXCLUDES EXTERNAL POWER PACKS FOR PLUG LOAD CONTROL (CONTROLLED RECEPTACLES).
- 8) PLEASE REFERENCE FIXTURE DIMMING TYPE NOTES SHOWN IN DRAWING SET. IF CHANGES ARE REQUIRED, PLEASE REQUEST A RE-QUOTE.

GENERAL DESIGN ASSUMPTION NOTES

- 1) OVERALL DESIGN AND CONTROL GROUPS HAVE BEEN ASSUMED. PLEASE CONFIRM PRIOR TO RELEASE.
- 2) PLEASE VERIFY THAT THE SEQUENCE OF OPERATIONS HAS BEEN MET IN ALL SPACES PRIOR TO AN ORDER BEING PLACED.
- 3) QUANTITY AND TYPE OF POWERPACKS ARE SUBJECT TO CHANGE DEPENDING ON CIRCUITRY OR DIMMING TYPE.
- 4) EXTERNAL AND INTEGRATED OCCUPANCY SENSORS ARE DIAGRAMMATICALLY SHOWN ON 16500'S DRAWINGS. E.C. TO LOCATE SENSORS 4' FROM HVAC REGISTERS AND WITHIN MANUFACTURER'S COVERAGE PATTERN.
- 5) SEPARATE CONTROLS FOR DAYLIGHT ZONES ARE NOT INCLUDED UNLESS SPECIFIED ON DRAWINGS.
- 6) BOM ASSUMES AREAS WITHOUT NLIGHT OCCUPANCY SENSOR COVERAGE TO MEET AUTO-SHUT OFF TITLE 24 COMPLIANCE REQUIREMENTS VIA PROGRAMMABLE TIMECLOCK CONTROLS (NECY), E.C. TO VERIFY.
- 7) BOM ASSUMES ALL AREAS CONTAINING WINDOWED SITDELIT AND/OR SKYLITE BOUNDARIES WITHOUT NLIGHT PHOTOCCELL SENSOR CONTROL CONTAIN LESS THAN 120 WATTS OF GENERAL LIGHTING WITHIN THE RESPECTIVE/SPECIFIED "PRIMARY DAYLIGHT ZONE", E.C. TO VERIFY.
- 8) QUOTE BASED ON LIMITED INFORMATION PROVIDED - QUOTE/PROPOSAL SUBJECT TO REVIEW AND APPROVAL AND REQUOTE AS REQUIRED.
- 9) SUBJECT TO MANUFACTURER TERMS AND CONDITIONS - SEE WEBSITE(S) FOR DETAILS WWW.ACUIITYBRANDS.COM.
- 10) DOES NOT INCLUDE CABLES.
- 11) DOES NOT INCLUDE CODE-RELATED "COMMISSIONING" SERVICES OR RELATED SERVICES.
- 12) DOES NOT INCLUDE BACNET CAPABILITY UNLESS "BAC" OPTION IS SHOWN IN NOMENCLATURE ON THE NECY.
- 13) DOES NOT INCLUDE INTEGRATION SERVICES.
- 14) REFER TO ATTACHED DRAWINGS, DETAILS, SPECIFICATION SHEETS AND/OR OTHER DOCUMENTATION FOR FURTHER INFORMATION.
- 15) UNDER THIS QUOTE, SOME MULTI-GANG SWITCHES SPECIFIED ARE CONSOLIDATED INTO AN NLIGHT MULTI-CHANNEL SINGLE-GANG DEVICE (WALLPOD). THIS MAY AFFECT PLANNED ROUGH-IN. THE QUOTED DEVICE MEETS OR EXCEEDS THE APPARENT SPECIFIED FUNCTIONALITY. CUSTOMER TO VERIFY THIS MEETS REQUIREMENTS.
- 16) TYPICAL TOPOLGY: ROOM=ZONE, EACH ZONE UP TO 128 DEVICES. UP TO SIX (6) ROOMS/ZONES CONNECT TO AN 8-PORT BRIDGE. BRIDGES TO BE LOCATED BY CONTRACTOR. BRIDGES CONNECT TO EACH OTHER IN LINEAR CHAIN AND/OR "SPIDER" STYLE NETWORK (LINEAR CHAINS LIMITED TO 9 BRIDGES). BRIDGES REQUIRES POWER SUPPLY. POWER SUPPLY IS PART OF THE KIT.
- 17) 16500 OFFERS CALCTP ACCEPTANCE TESTING AS AN ADDITIONAL SERVICE FOR OUR CUSTOMERS. CALCTP ACCEPTANCE TESTING IS NOT INCLUDED IN THIS QUOTE AT THIS TIME. IF CALCTP ACCEPTANCE TESTING IS DESIRED, PLEASE CONTACT 16500 FOR A FORMAL PROPOSAL.
- 18) GENERAL STARTUP LEAD TIME IS 10 BUSINESS DAYS UPON REVIEW OF THIS FORM. SCHEDULING IS BASED ON CURRENT DEMAND. PLEASE PROVIDE SPECIFIC DATES RATHER THAN "ASAP". SEND COMPLETED FORMS TO CONTROLS.STARTUPS@16500.COM
- 19) BOM ASSUMES ALL EXTERIOR LUMINAIRES WITHOUT SPECIFIED EXTERNAL OR INTERNAL MOUNTED MOTION SENSORS ARE MOUNTED GREATER THAN 24 FEET ABOVE THE GROUND OR MEET THE FOLLOWING EXCEPTIONS WHEN MOUNTED AT OR BELOW 24 FEET PER TITLE 24 (2019) EXTERIOR MOTION SENSOR CONTROL REQUIREMENTS: EXTERIOR LUMINAIRES IS RATED LESS THAN 40 WATTS. E.C. TO VERIFY ALL EXTERIOR FIXTURE WATTAGES. IF PROJECT IS PERMITTED UNDER TITLE 24 (2016), THEN ALTERNATE REQUIREMENTS APPLY.

General System Notes

ON DIGITAL SYSTEMS, ALL DEVICES TO BE CONNECTED IN A DAISY CHAIN PATTERN; LAST DEVICE SHALL NOT BE LOOPED BACK TO FIRST DEVICE.

ON DIGITAL SYSTEMS, CONTRACTOR SHALL NOTE AND LABEL ADDRESS AND LOCATION OF EACH DEVICE ON THE SYSTEM ONE-LINE DIAGRAMS OR SYSTEM LAYOUT DRAWINGS AT TIME OF INSTALLATION.

ONE-LINE DIAGRAMS INDICATE THE REQUIRED GROUPING OF WIRES, NOT THE NUMBER OR SIZE OF CONDUITS.

WIRING SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC) AND APPLICABLE LOCAL CODES, INCLUDING PROVISION OF EQUIPMENT GROUNDING AS REQUIRED BY THE NEC.

POWER CONDUCTORS SHALL BE SIZED PER THE NEC AMPACITY TABLES (ARTICLE 310), INCLUDING ADJUSTMENT FACTOR AND NEUTRAL CONDUCTOR REQUIREMENTS (FEED AND BRANCH NEUTRAL CONDUCTORS MUST BE COUNTED AS CURRENT CARRYING CONDUCTORS). RUN SEPARATE NEUTRAL CONDUCTORS FOR EACH LINE VOLTAGE/PHASE DIMMED LOAD.

FOR 0-10VDC DIMMING SYSTEMS, VIOLET AND GRAY CONDUCTORS ARE FOR 0-10VDC LOW VOLTAGE TERMINATIONS ONLY. NEVER TERMINATE LINE VOLTAGE (120/230/277VAC) TO VIOLET AND GRAY.

CONTRACTOR IS RESPONSIBLE FOR ALL CONTROL TERMINATIONS. NO SPLICES ARE PERMITTED IN CONTROL WIRING.

POWER AND CONTROL CONDUCTORS MUST NOT SHARE THE SAME RACEWAY OR CONDUIT EXCEPT WHERE SPECIALIZED CABLE TYPES ARE USED THAT SUPPORT SUCH INSTALLATIONS, AS SUPPORTED BY CABLE MANUFACTURER.

LIGHTING CONTROL EQUIPMENT MUST BE INSTALLED, MAINTAINED, AND OPERATED IN AN "OFFICE CLEAN" DRY ENVIRONMENT, INDOOR DRY LOCATIONS ONLY, 10% - 90% RELATIVE HUMIDITY; AMBIENT TEMPERATURE 0°- 40°C (32°- 104°F) - 0°- 35°C (32°- 95°F) RECOMMENDED.

SENSORS IN ELECTRICAL/MECHANICAL LOCATIONS NEED TO BE VERIFIED WITH AUTHORITY HAVING JURISDICTION. REFER TO NEC 110.26.D.

RELAY AND DIMMER PANEL SCHEDULES SHOULD CONTAIN BREAKER PANEL INPUTS AS WELL AS ZONES/AREAS CONTROLLED.

VERIFY MAXIMUM CABLE LENGTHS BASED ON CONTROL SYSTEM. MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLING PARAMETERS.

LOW VOLTAGE CABLE MUST BE INSTALLED AT LEAST 12 INCHES FROM ALL LINE VOLTAGE CONDUCTORS EXCEPT TO CROSS OR MAKE TERMINATIONS. CAT. 5 CABLE MUST BE KEPT AWAY FROM ALL EMF DEVICES SUCH AS BALLASTS OR TRANSFORMERS.

0-10V DIMMING BALLASTS AND DRIVERS ARE REQUIRED TO COMPLY WITH IEC 60929 ANNEX E SPECIFICATIONS.

SSI Notes

ONE POWER PACK IS NEEDED PER CIRCUIT/ZONE TO BE CONTROLLED BY A MAXIMUM OF 14 LOW VOLTAGE SENSORS. POWER PACK PLACEMENT ON DRAWINGS IS FOR COUNTING ONLY. FINAL PLACEMENT OF POWER PACK IS UP TO CONTRACTOR/ENGINEER. PLEASE RECHECK COUNTS TO VERIFY THE NUMBER OF POWER PACKS NEEDED TO MAKE A COMPLETE SYSTEM. THE MAXIMUM NUMBER OF POWER PACKS THAT CAN BE CONTROLLED BY A GROUP OF SENSORS IS 5. IF YOU HAVE MORE THEN 5 CIRCUITS CONTROLLING A SPACE YOU WILL EITHER HAVE TO BREAK UP THE SPACE INTO ZONES OR USE ONE POWER PACK PER LIGHTING CONTACTOR TO PULL IN THE CIRCUITS.

SENSOR PLACEMENT AND TYPES WERE PLACED WITH CURRENT PROJECT INFORMATION. ADDITIONAL SENSORS AND TYPES OF SENSORS MAY BE REQUIRED TO PROVIDE COMPLETE COVERAGE DEPENDING ON DRAWING CHANGES, EMS/BMS, FINAL PARTITION HEIGHT/PLACEMENT, FURNITURE PLACEMENT, EQUIPMENT HEIGHT/PLACEMENT AND SHELVING HEIGHT/PLACEMENT.

FOR MAXIMUM DISTANCE USING CEILING MOUNTED 360° SENSORS ROTATE THE SENSOR CLOCKWISE SO THAT THE SCREW AXIS IS POSITIONED 7.5" OFF THE ENTRANCE AXIS. WHEN WALKING ACROSS A SENSOR'S BEAM, DETECTION WILL OCCUR AT APPROXIMATELY LONGEST DISTANCE. (REFER TO SPECIFICATION SHEET FOR PICTORIAL OF ALIGNMENT)

SENSOR MASKING KITS MAY BE REQUIRED TO LIMIT COVERAGE DEPENDING ON YOUR REQUIREMENTS.

MAXIMUM CABLE LENGTH FROM START DEVICE TO END DEVICE IS 1800'. MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLING PARAMETERS.

nLight System Notes

EVERY NLIGHT ENABLED DEVICE (INCLUDING NLIGHT ENABLED FIXTURES) IS FURNISHED WITH (1) PERMANENTLY ADHERED ID TAG AND (1) MATCHING, PARTIALLY ADHERED ID TAG TO BE PLACED ON THE RISER DIAGRAM SHEET, OR THE LIGHTING CONTROL LAYOUT SHEET, PROVIDED AS PART OF AN NLIGHT SUBMITTAL. THIS SHALL BE DONE DURING INSTALLATION AND PRIOR TO FACTORY STARTUP. FAILURE TO COMPLY MAY RESULT IN STARTUP DELAYS AND ADDITIONAL COSTS AT THE CONTRACTOR'S EXPENSE. DO NOT PLACE DEVICE ID STICKERS ON FLOOR PLAN UNLESS REQUIRED TO EXECUTE NFLOORPLAN OR ENVYSION SERVICES. REFERENCE NFLOORPLAN SERVICE NOTES OR ENVYSION SERVICE NOTES ON THIS SHEET FOR SPECIFIC REQUIREMENTS.

ONE RELAY PACK OR NLIGHT ENABLED FIXTURE IS NEEDED PER CIRCUIT/ZONE TO BE CONTROLLED AND CAN RESIDE WITHIN SENSORS, WALLPODS, OR RELAY PACKS. POWER PACK PLACEMENT ON DRAWINGS IS FOR COUNTING ONLY; FINAL PLACEMENT IS UP TO DISCRETION OF CONTRACTOR/ENGINEER. PLEASE RECHECK COUNTS TO VERIFY THE NUMBER OF RELAYS NEEDED TO SWITCH ALL DESIRED LOADS. RELAY PACKS AND POWER SUPPLIES REQUIRE A CONSTANT HOT. A SWITCHED HOT BEING SUPPLIED TO RELAY PACKS MAY RESULT IN COMMUNICATION LOSS WHEN POWER IS NOT AVAILABLE.

BRIDGES, RELAYS, POWER PACKS, WALLPODS, AND SENSORS ON DRAWINGS WERE PLACED WITH INFORMATION PROVIDED AT TIME OF DESIGN. ADDITIONAL BRIDGES AND/OR SENSORS MAY BE REQUIRED DEPENDING ON BUILDING CHANGES, FINAL PARTITION HEIGHT/PLACEMENT, FURNITURE PLACEMENT, EQUIPMENT HEIGHT/PLACEMENT AND SHELVING HEIGHT/PLACEMENT.

THE LAYOUT OF THE NETWORK BACKBONE (BRIDGES AND GATEWAYS) HAS BEEN PLACED IN A SEPARATE TREE DIAGRAM AND NOT ON THE ACTUAL LAYOUT. FINAL PLACEMENT OF THE BRIDGE(S) AND GATEWAY(S) DEVICES SHALL BE AT THE CONTRACTOR/ENGINEER DISCRETION.

ALL DEVICES HAVE RJ-45 FEMALE PORTS. MAKING NETWORK CONTROL CABLES IS REQUIRED, T568B TERMINATIONS ARE RECOMMENDED. IT IS IMPERATIVE THAT ALL NETWORK CONTROL CABLES BE TESTED WITH A LAN CABLE TESTER TO VERIFY PROPER TERMINATIONS.

DAISY-CHAINED DEVICES SHOULD BE POWERED UP AND WORKING ON DEFAULT PROGRAMMING PRIOR TO CONNECTION TO BRIDGE OR GATEWAYS.

LOW VOLTAGE NETWORK CONTROL CABLE (CAT5/5E/6) RUNS FOR LOCAL ZONES, HOMERUNS AND BACKBONE SHOULD BE WHITE WITH CABLES LABELED.

CONTRACTOR TO VERIFY BLINK/DIAGNOSTIC CODES (VISIT [HTTP://NLIGHTCONTROLS.COM/WP-CONTENT/UPLOADS/NLIGHT\\_POCKET\\_GUIDE.PDF](http://nlightcontrols.com/wp-content/uploads/nlight_pocket_guide.pdf)) WHEN CONNECTING GATEWAYS/BRIDGES TO ZONES.

MAXIMUM CABLE LENGTH FROM START DEVICE TO END DEVICE IS 1500' INCLUDING HOMERUN TO BRIDGE DEVICE, IF PRESENT. MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLING PARAMETERS.

Load Types

LINE VOLTAGE INCANDESCENT - NON-PHASE DEPENDENT FOR DIMMING.

MAGNETIC LOW VOLTAGE INCANDESCENT - ALLOWABLE IN FORWARD PHASE CONTROL MODE ONLY. TRANSFORMER MUST BE RATED FOR DIMMING BY ITS MANUFACTURER. ADD 25% TO LAMP WATTAGE TO ALLOW FOR TRANSFORMER LOSS AND TO CALCULATE TOTAL LOAD.

FLUORESCENT - ALLOWABLE WITH 2-WIRE BALLAST, 0-10VDC BALLASTS, SOME 3-WIRE AND SWITCHED DEPENDING ON SYSTEM COMPATIBILITY. VERIFY CONTROL TYPES WITH YOUR REGIONAL SUPPORT TEAM.

LED - DIMMING ALLOWED PER LED DRIVER MANUFACTURER SPECIFICATIONS. VERIFY CONTROL TYPES WITH YOUR REGIONAL SUPPORT TEAM.

NEON and COLD CATHODE - ALLOWABLE IN FORWARD PHASE CONTROL MODE ONLY. BALLAST MUST BE RATED FOR DIMMING BY ITS MANUFACTURER AND BE NORMAL (LOW) POWER FACTOR. CONNECTED LOAD MUST NOT EXCEED 50% OF THE DIMMER'S NOMINAL RATING.

MOTORS - NO DIMMING ALLOWED. SWITCHED CONTROL SOURCE ONLY.

ELECTRONIC LOW VOLTAGE INCANDESCENT - ALLOWABLE, NORMALLY IN REVERSE PHASE CONTROL MODE ONLY. ELV TRANSFORMER MUST BE RATED FOR DIMMING BY ITS MANUFACTURER.

HID - DIMMING NOT ALLOWED UNLESS WITH DIMMABLE HID DRIVER. OTHERWISE, MUST BE ON SWITCHED CONTROL SOURCE.

EMERGENCY - PLEASE CONTACT YOUR REGIONAL SUPPORT TEAM TO VERIFY EMERGENCY CONTROLS NECESSARY BASED ON SYSTEM REQUIREMENTS.

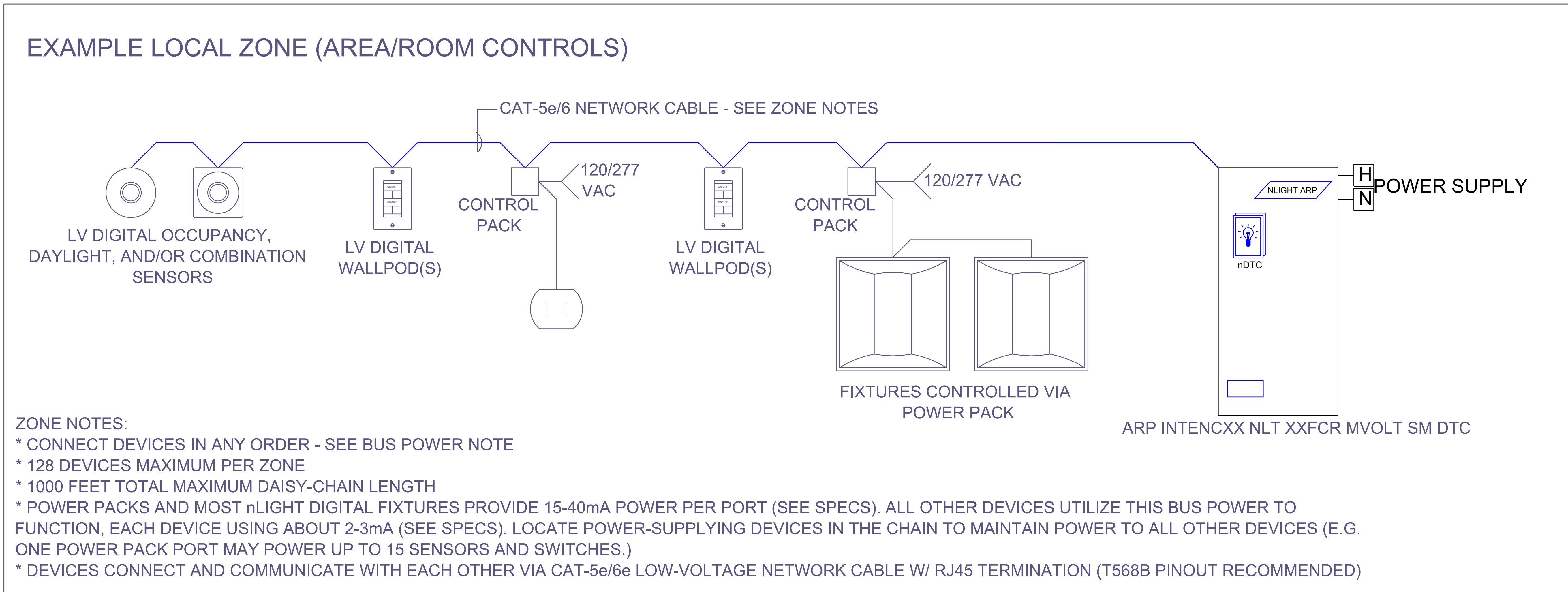
nLIGHT TECH SUPPORT:  
(800) 535-2465

Drawing Title: System Notes	Prepared For: ELECTRICAL CONTRACTOR NAME
Date:	6/18/2021
Scale:	NOT TO SCALE
Drawn By:	RG
Project #:	21-14600
DWG Ref:	
	NONE
Sheet:	



Typical Sequence of Operations Matrix

	OCCUPANCY SENSOR				TIME CLOCK		WALL SWITCH			DAYLIGHT SENSOR		OTHER									
	VACANCY MODE (OFF)	OCCUPANCY MODE (AUTO ON)	SENSOR TIME OUT PERIOD (MINUTES)	DUAL TECHNOLOGY	OCCUPIED LEVEL (%)	UNOCCUPIED LEVEL (%)	SCHEDULE ON TIME	SCHEDULE OFF TIME	SCENARIO OVERRIDE SWITCH	MANUAL (ON/OFF)	MANUAL DIMMING	KEY SWITCH	SCENE CONTROL	GRAPHIC TOUCHSCREEN SWITCHING (ON/OFF)	DIMMING	TARGET LIGHTING LEVELS (FC)	EXTERIOR LOCATION	PLUS LOAD CONTROL	BAS INTERFACE	AV INTERFACE	NOTES
S00																					
Break Room	X		15	X	70						X					X	20		X		
Classroom	X		15	X	70						X					X	50				
Conference Room	X		10	X	70						X					X	45		X		
Copy Room	X		10	X	70						X					X	30		X		
Corridor/Stair	X		15		100	50					X						15				
Electrical Room					100					X							35				X
Exam Room	X		10		100						X					X	50				
Gym	X		15		100				X		X					X	50				
Janitor Closet	X		10		100					X							20				X
Kitchen					100				X		X					X	50				
Lab	X		10	X	100					X						X	70				
Library	X		10	X	100					X						X	40				
Lobby	X		15	X	70	50			X	X						X	20		X		X
Multi-Purpose Room	X		10	X	70				X	X						X	40		X		
Open Office	X		10	X	50				X	X						X	30		X		X
Parking Lot					100					X	X			X			2	X			X
Private Office Or Similar	X		10	X	70					X						X	35		X		X
Private Restroom	X		10	X	100					X							20				
Public Restroom	X		10	X	100					X							20				
Site/Building Facade	X		15		100	50			X				X								X
Storage	X		10		70					X							20				
Warehouse	X		10	X	100	50				X					X		20				



TYPICAL WIRED nLIGHT ZONE DETAIL W/ nDTC & ARP PANEL.  
TIMECLOCK PROVIDED;  
NO AUTOMATIC DEMAND RESPONSE & NO BMS INTERFACE

16500 DESIGN IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS. REVIEW/ DESIGN SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS, OR FOR COORDINATION OR COMPATIBILITY WITH WORK OF OTHER TRADES, NOR FOR OMISSIONS OR NON COMPLIANCE WITH DRAWINGS OR SPECIFICATIONS, WHETHER SPECIFICALLY INDICATED IN THE DESIGN OR NOT.

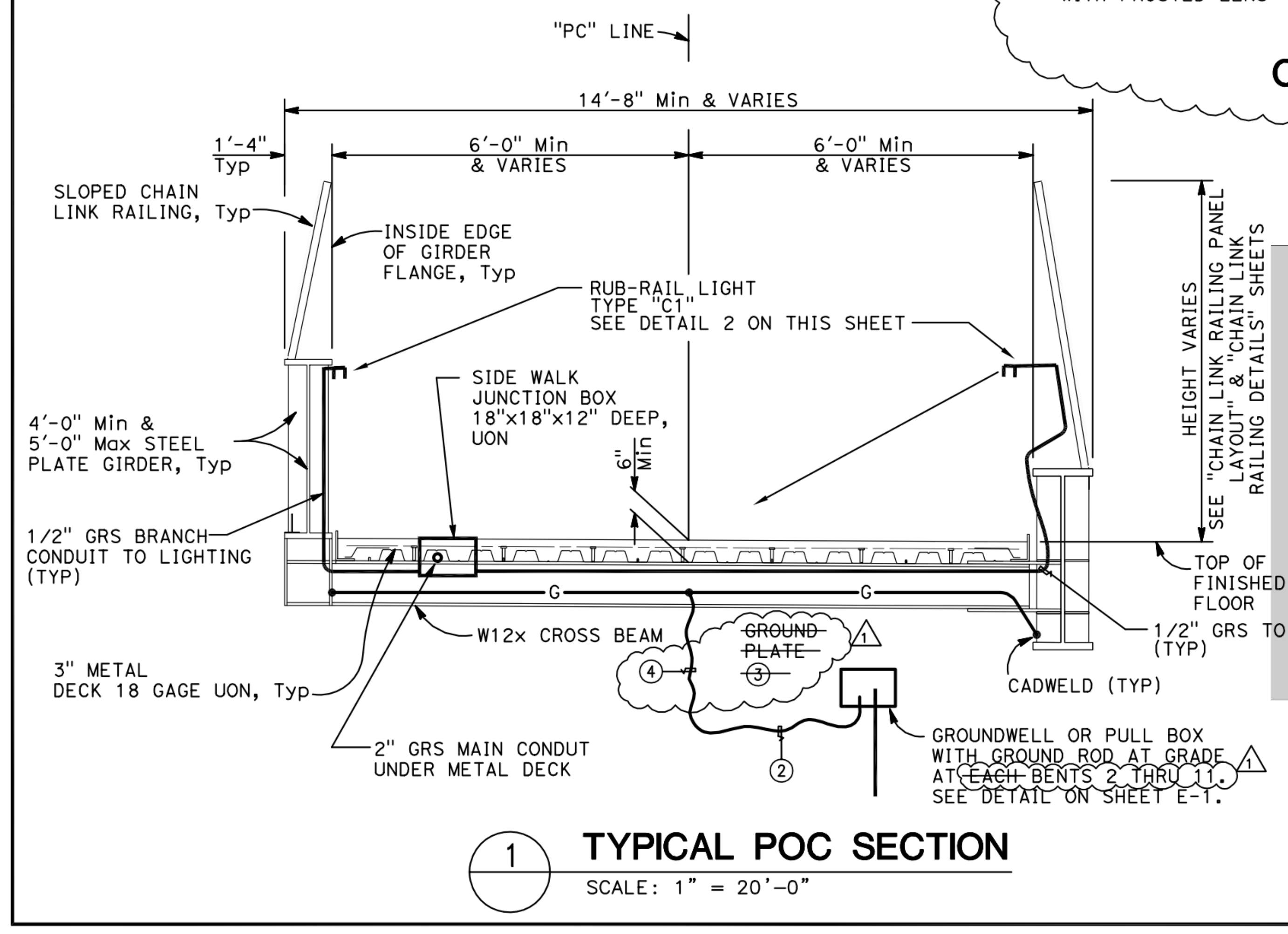
THIS CONTROLS SYSTEM LAYOUT DIAGRAM IS NOT A PROFESSIONAL ENGINEERING DRAWING, AND IS PROVIDED ONLY FOR INFORMATIONAL PURPOSES AND TO HELP THE CUSTOMER OR END-USER (AS APPLICABLE) UNDERSTAND HOW VARIOUS CONTROLS DEVICES ARE ARRANGED AND CONNECT TO EACH OTHER. THIS CONTROLS SYSTEM LAYOUT DIAGRAM IS STRICTLY BASED ON THE INFORMATION PROVIDED TO ACUTY BRANDS, AND IS PROVIDED WITHOUT WARRANTY AS TO ACCURACY, COMPLETENESS, RELIABILITY OR OTHERWISE. IF THE INFORMATION (INCLUDING BUT NOT LIMITED TO FLOOR-PLANS, REFLECTED CEILING PLANS, ELECTRICAL PLANS AND SPECIFICATIONS) PROVIDED TO ACUTY BRANDS IS INCOMPLETE OR NOT CURRENT (I.E., NEWER VERSIONS EXIST), THE ACCURACY OF THE LAYOUT DIAGRAM MAY BE ADVERSELY AFFECTED. ONCE THIS CONTROLS SYSTEM LAYOUT DIAGRAM IS RECEIVED BY THE CUSTOMER OR END-USER (AS APPLICABLE), IT IS THE OBLIGATION OF THE CUSTOMER OR END-USER (AS APPLICABLE) TO CONSULT WITH A PROFESSIONAL ENGINEERING ADVISOR TO DETERMINE WHETHER THE PROPOSED DESIGN MEETS THE APPLICABLE PROJECT REQUIREMENTS FOR THE CONTROLS SYSTEM'S PERFORMANCE, CODE COMPLIANCE, SAFETY, SUITABILITY AND EFFECTIVENESS FOR USE IN A PARTICULAR APPLICATION. IN NO EVENT WILL ACUTY BRANDS BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF THIS CONTROLS SYSTEM LAYOUT DIAGRAM.



DESCRIPTION	LOAD (WATTS)			BKR	CKT	FEEDER			EXISTING	
	A	B	C			POLE	No.	POLE		A
Elect Pnl Rm 1.69.17	44			201	1	2	201	264		
Seating Pend Lts	628			3	4		602		4000	(N) Ped Overcrossing Ltg. SEE NOTE 2.
Seating Pend Lts	639			5	6					
Self Serve Pend Lts	183			7	8					
Self Serve Pend Lts	939			9	10					
Serving Area 1.58.07		1200		11	12					
Pizza Lts	893			13	14					
Unisex Locker	69			15	16	201	210		1,70.11 Lobby	
Kitchen Lts	687			17	18			276	12 V Transf	
Dishroom	120			19	20		3152			
SPARE				21	22		100/3	3388	E2L-E32R-A	
1.69.09				838	23	24			1845	
Site Ltg NW	1770			25	26	201	611		Loading Dock N	
Event	738			27	28		772		Loading Dock S	
Mech Rm 31-32	519			29	30			296	Garage Lts	
Mech Rm 29-31	1056			31	32		420			
SPACE				33	34			806		
Roof Kitchen	2751	201		35	36			1364	Mech Yard	
Main Kitchen	120			37	38		255		12 V Transf	
Restroom 1.69	2363			39	40		306		Stair Ltg	
SPARE				41	42			42	Stair 12 V Transf	
<b>SUBTOTAL</b>	<b>4186</b>	<b>4737</b>	<b>6634</b>					<b>4702</b>	<b>9482</b>	<b>7823</b>

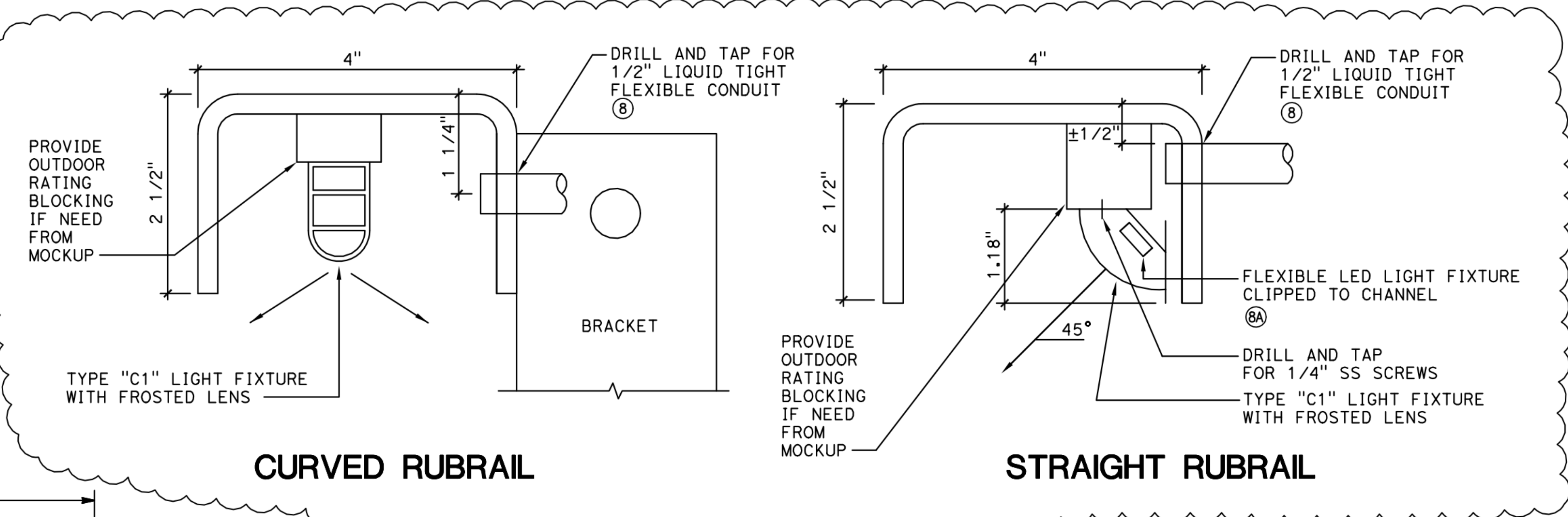
TOTAL CONNECTED LOAD 37.56 KW @ 480 VOLTS = 45.2 AMPS

- NOTES:  
1. CONNECTED LOAD = 45A, IS LESS THAN 175A x 80% = 140A. PANEL CAPACITY.  
2. (N) 60A/2P CIRCUIT BREAKER BY OTHERS.



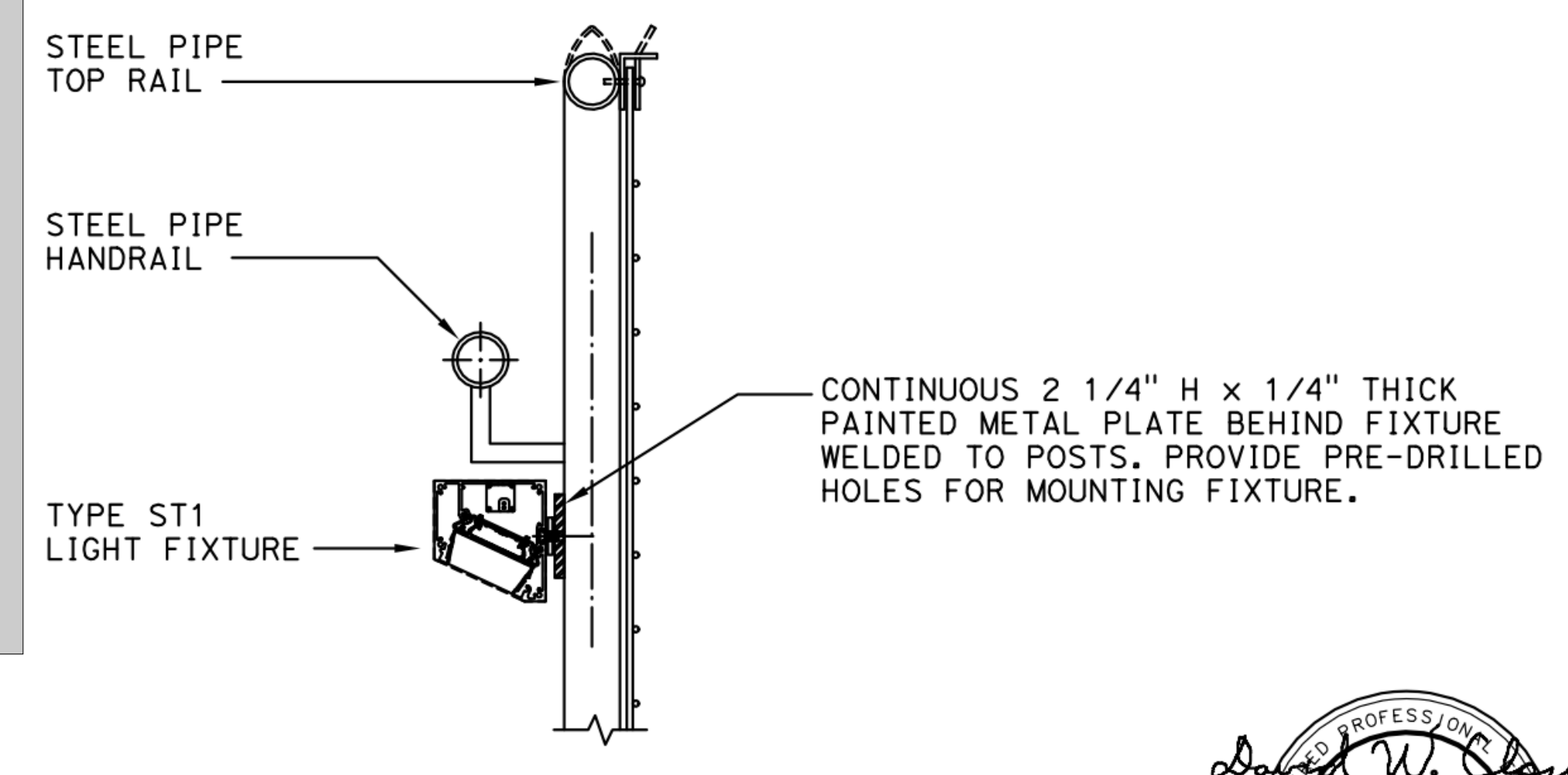
1 TYPICAL POC SECTION  
SCALE: 1" = 20'-0"

MARK	MANUFACTURER	FIXTURE TYPE	TOTAL WATTS	VOLTS	MOUNTING	DESCRIPTION
ST1	BARTCO MODEL - DWG. No. BC7956 Rev B	LED	8W PER FT	120 TO 277	MOUNT UNDER HANDRAIL SEE 3	LINEAR LIGHT FIXTURE GALVANIZED SHEET METAL ACRYLIC LENS WITH LOUVERS 3000K INTEGRAL 0-10 V DIMMING DRIVER LOUVER FINISH SHALL BE MATT BLACK
C1	OPTIC ARTS MODEL FLEXDC/68/30/24/30/XX CONF152 ELECTRONIC DRIVER OPTIC ARTS MODEL GC100E/24/UNIV/010V CORNER MOUNTING CHW/C/3030/2F/SL	LED	3W PER FT	24 VDC	CORNER MOUNTED IN ARCHITECTURAL IN HAND/RUB RAIL POINTED AT PATHWAY SEE 2	LINEAR RUB RAIL LIGHT 3000K REMOTE ELECTRONIC DRIVER WITH 0-10 V DIMMING STRAIGHT RUBRAIL : CHW-C-3030 CURVED RUBRAIL : CHS-S-1922R INSTALL THIS LIGHT IN SEGMENTS



2 TYPE "C1" RUBRAIL LIGHT INSTALLATION  
NO SCALE

ASSUMED FIXTURE DIMMING TYPES: FIXTURES TO BE CONTROLLED VIA ARP PANEL WITH ONBOARD TIMELOCK.  
ST1: 0-10V  
C1: 0-10V



3 TYPE "ST1" LIGHT FIXTURE INSTALLATION  
NO SCALE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
04	SM	84	R26.8/R27.1

SHEET NOTE:  
SHEET NOTES FOR THIS SHEET ARE ON SHEET E-5.

Alliance Engineering Consultants, Inc.  
4700 Parkview Drive, Suite 10  
San Jose, CA 95128  
Phone: (408) 950-5888  
www.alliance-engineers.com

SR 84/BAYFRONT EXPRESSWAY  
BAYFRONT POC (BRIDGE NO. 35-0358)  
ELECTRICAL DETAILS

Revisions	No.	Date	By	Check	Appr.

DATE: 05/29/19  
SCALE: 1/8" = 1'-0"  
DRAWING NUMBER: E-6

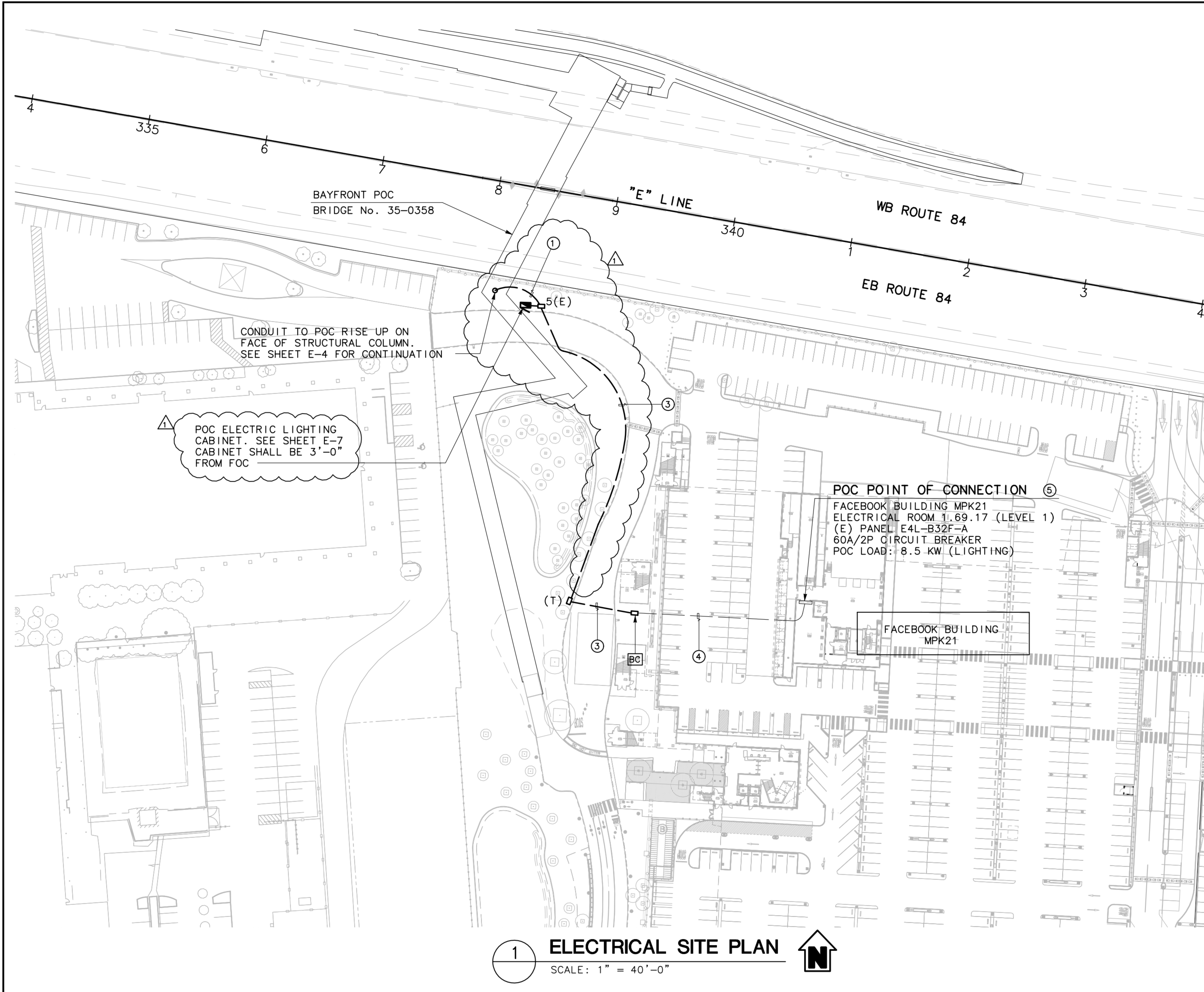
DAVID W. CLOW  
No. 12883  
Exp. 12/31/20  
ELECT.  
STATE OF CALIFORNIA

1 LC1.0  
NOT TO SCALE

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M: \208-17-01 Facebook\_POC\01E2-SITE.dwg 28 May 2019 11:58:56am chris



1 ELECTRICAL SITE PLAN  
SCALE: 1" = 40'-0"

1 LC 2.0  
NOT TO SCALE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
04	SM	84	R26.8/R27.1

- SHEET NOTES:**
- INSTALL 2" C, 3#4 (SERVICE, 277/480 V), 2#8 (LTG CABINET 1 & 2, 277 V), 2#8 (LTG CABINET 3, 277 V), 2#8 (LTG CABINET 5 & 6, 277 V), 2#8 (STAIR LTG, 277 V), 1#8 (G).
  - INSTALL 2" C, 6#8 (LTG CKT #1, #2 & #3, 277 V), 2#8 (STAIR LTG, 277 V), 6#12 (LTG CONTROL 0-10 V), 1#8 (G).
  - INSTALL No. 5(E) PULL BOX WITH COPPER GLAD STEEL GROUND ROD.
  - INSTALL 2" C, 3#4 (SERVICE, 277/480 V), 1#8 (G).
  - (E) 1 1/2" C, PROVIDED BY OTHERS. INSTALL 3#4 (SERVICE 277/480 V), 1#8 (G).
  - CONNECT (N) POC SERVICE CONDUCTORS TO (N) 60A/2P CIRCUIT BREAKER. SEE LOAD CALCULATION ON (E) PANEL ON SHEET E-6.

BOM INCLUDES ARP PANEL WITH ONBOARD TIMECLOCK SHOWN ON SHEET LC2.3. EC TO VERIFY TOTAL NUMBER OF ZONES/RELAYS NEEDED. ALL FUTURE BOM CHANGES WILL REQUIRE A RE-BID.

**Alliance Engineering Consultants, Inc.**  
4701 Patrick Henry Drive, Suite 100  
Santa Clara, CA 95051  
Phone (408) 970-9888  
Fax (408) 970-9898  
www.aec-engineers.com  
PROJECT NO. 208-17-01

**SR 84/BAYFRONT EXPRESSWAY BAYFRONT POC (BRIDGE No. 35-0358) ELECTRICAL SITE PLAN**  
SAN MATEO COUNTY CALIFORNIA  
MENLO PARK

*David W. Clow*  
**DAVID W. CLOW**  
No. 12883  
Exp. 12/31/20  
ELECT.  
REGISTERED PROFESSIONAL ENGINEER  
STATE OF CALIFORNIA

No.	Revisions

Date: 10/25/18  
Scale: AS SHOWN  
Design: DC  
Drawn: CB  
Approved: MN  
Job No.: 208-17-01 - RFI #3R-1 & #3R

Drawing Number: **E-2**

Drawing Type: Layout  
Prepared For: ELECTRICAL CONTRACTOR NAME

Date: 6/18/2023  
Scale: 1/8" = 1'  
Drawn By: RG  
Project #: 21-14600  
DWG Ref:  
Sheet:

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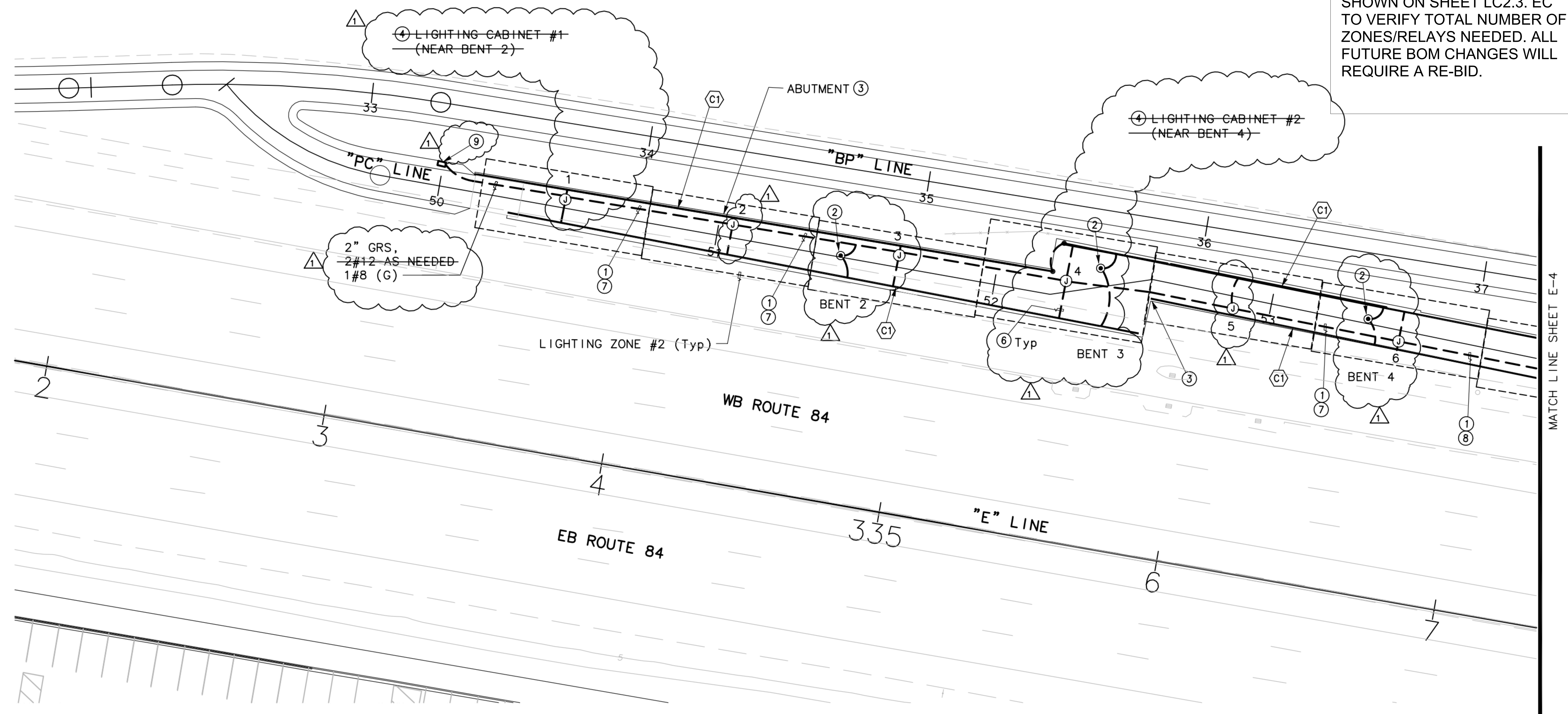
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT
04	SM	84	R26.8/R27.1

**SHEET NOTES:**

- ① INSTALL LIGHTING CONDUIT IN BRIDGE DECK. SEE DETAIL ON SHEET E-6.
- ② INSTALL GROUND WELL WITH CONNECTIONS TO GIRDERS ON EACH SIDE OF POC. SEE DETAIL 1 ON SHEET E-6.
- ③ INSTALL CONDUIT EXPANSION FITTING IN ALL CONDUITS PASSING THROUGH THE ABUTMENT AND EXPANSION JOINTS PER DETAIL X ON CALTRANS STANDARD PLAN ES-9B.
- ④ NOT USED.
- ⑤ NOT USED.

- ⑥ INSTALL 1/2" GR, 4 #12 (LIGHTING, 24 VDC)  
1 #12 (G)
- ⑦ INSTALL 2" GR, 2 #8 (CKT #1, 277 V)  
2 #12 (CONTROL, 0-10 V)  
1 #8 (G)
- ⑧ INSTALL 2" GR, 4 #8 (CKT #1 AND #2, 277 V)  
2 #12 (CONTROL, 0-10 V)  
1 #8 (G)
- ⑨ INSTALL No. 5(E) PULL BOX WITH GROUND ROD.

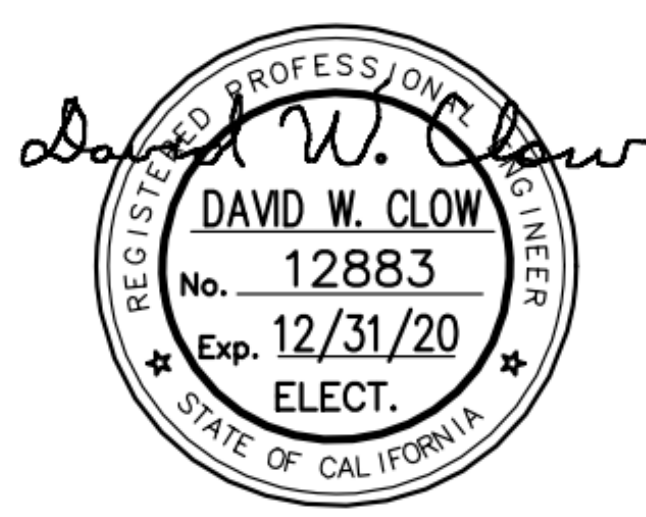
BOM INCLUDES ARP PANEL WITH ONBOARD TIMECLOCK SHOWN ON SHEET LC2.3. EC TO VERIFY TOTAL NUMBER OF ZONES/RELAYS NEEDED. ALL FUTURE BOM CHANGES WILL REQUIRE A RE-BID.



**Alliance Engineering, Inc. Consultants, Inc.**  
4701 Patrick Henry Drive, Bldg. 10  
Santa Clara, CA 95054  
Phone: (408) 970-8888  
Fax: (408) 970-8316  
www.aec-engineers.com  
PROJECT NO. 208-17-01

**SR 84/BAYFRONT EXPRESSWAY  
BAYFRONT POC (BRIDGE No. 35-0358)  
ELECTRICAL PLAN No. 1**  
SAN MATEO COUNTY  
MENLO PARK  
CALIFORNIA

Revisions	No.	Date	By	Check	Job Number
	1	05/28/19	RF	#138-1 & #59	



**1 ELECTRICAL PLAN**  
SCALE: 1" = 20'-0"

1 LC 2.1  
NOT TO SCALE

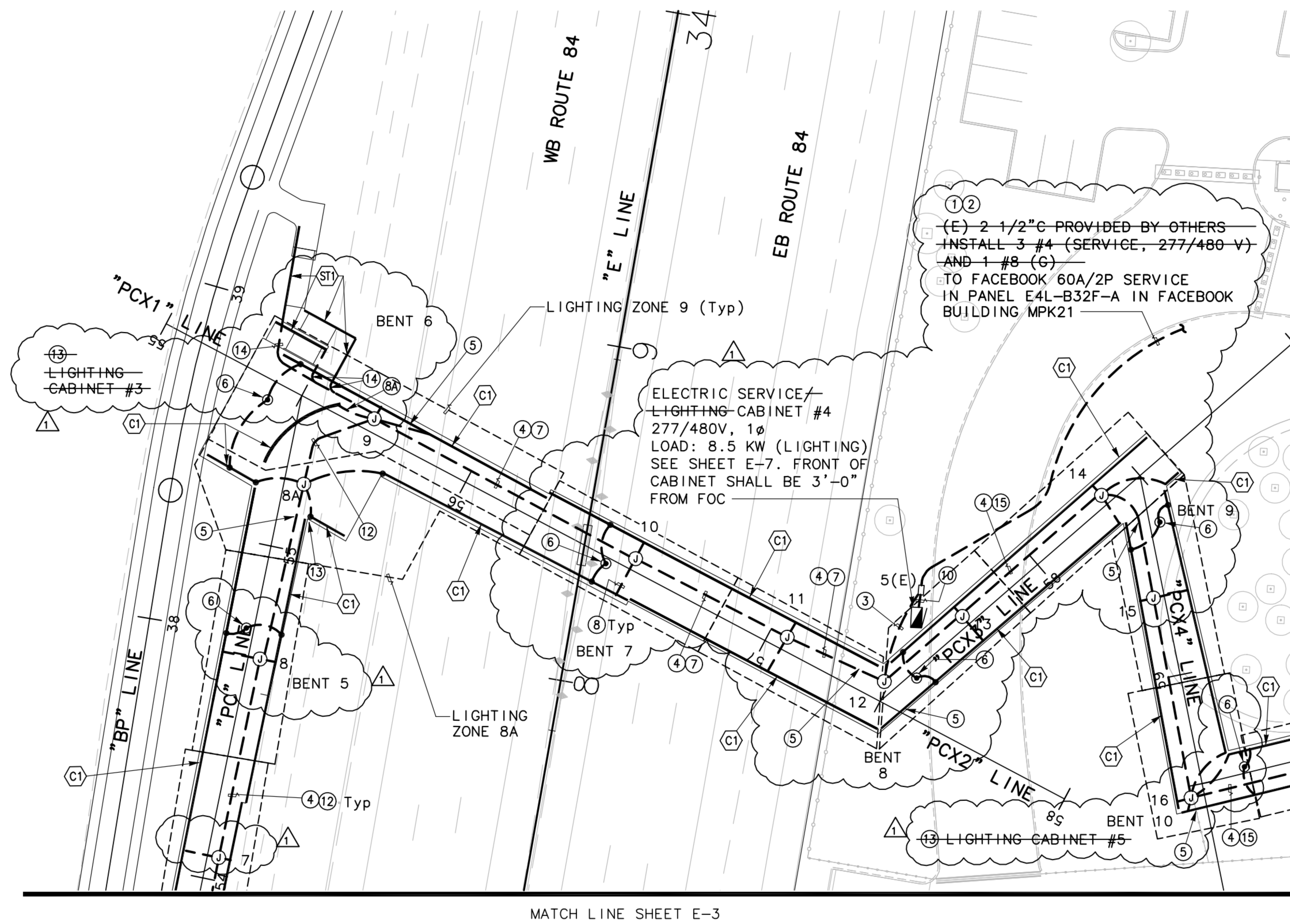
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M:\208-17-01 Facebook POC\01E3.dwg 28 May 2019 12:06:47pm chris



M: \208-17-01 Facebook POC\01E4.dwg 28 May 2019 1:40:52pm chris



**1 ELECTRICAL PLAN**  
SCALE: 1" = 20'-0"

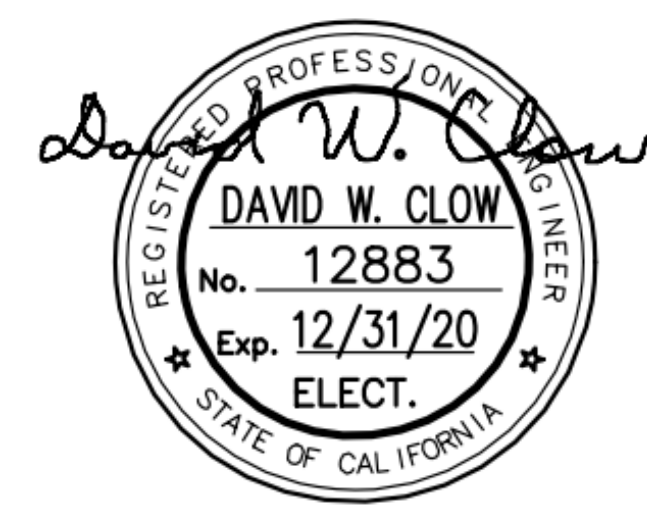
1 LC 2.2  
NOT TO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT
04	SM	84	R26.8/R27.1

**SHEET NOTES:**

- ① SEE ELECTRICAL SITE PLAN ON SHEET E-2.
- ② INSTALL CONDUIT RUN PER NOTE ③ ON SHEET E-2.
- ③ CONDUIT PER NOTE ⑨ RISES UP ON FACE OF STRUCTURAL COLUMN TO JUNCTION BOX ON BRIDGE DECK.
- ④ INSTALL LIGHTING CONDUIT IN BRIDGE DECK. SEE DETAIL ON SHEET E-6.
- ⑤ INSTALL CONDUIT EXPANSION FITTING IN ALL CONDUITS PASSING THROUGH THE ABUTMENT AND EXPANSION JOINTS PER DETAIL X ON CALTRANS STANDARD PLAN ES-9B.
- ⑥ INSTALL GROUND WELL WITH CONNECTIONS TO GIRDERS ON EACH SIDE OF POC. SEE DETAIL 1 ON SHEET E-6.
- ⑦ INSTALL 2" GR, 4 #8 (CKT #1 & #2, 277 V)  
2 #8 (STAIR LTG, 277 V)  
4 #12 (CONTROL, 0-10 V)  
1 #8 (G)
- ⑧ INSTALL 1/2" GR, 4 #12 (LIGHTING, 24 VDC)  
1 #12 (G)
- ⑧A INSTALL 1/2" GR, 2 #12 (LIGHTING, 24 VDC)  
1 #12 (G)
- ⑨ INSTALL 2" GR, 6 #8 (CKT #1, #2 & #3, 277V)  
2 #8 (STAIR LTG, 277 V)  
1 #8 (G)  
INSTALL 1 1/2" GR, 6 #12 (CONTROL, 0-10 V)  
1 #8 (G)
- ⑩ SEE NOTE ① ON SHEET E-2.
- ⑪ THIS SIDEWALK JUNCTION BOX SHALL BE PER LEGEND EXCEPT ±12"Lx10"Wx10"D.
- ⑫ SEE NOTE ⑧ ON SHEET E-3.
- ⑬ INSTALL 4" GALVANIZED CAST IRON BOXES AS NEED TO CONNECT LIGHTING SEGMENTS.
- ⑭ INSTALL 3/4" GR, 2 #12 (STAIR LTG, 277 V)  
2 #12 (CONTROL, 0-10 V)  
1 #12 (G)
- ⑮ INSTALL 2" GR, 2 #8 (CKT #3, 277 V)  
2 #12 (CONTROL, 0-10 V)  
1 #8 (G)
- ⑯ NOT USED.

BOM INCLUDES ARP PANEL WITH ONBOARD TIMECLOCK SHOWN ON SHEET LC2.3. EC TO VERIFY TOTAL NUMBER OF ZONES/RELAYS NEEDED. ALL FUTURE BOM CHANGES WILL REQUIRE A RE-BID.



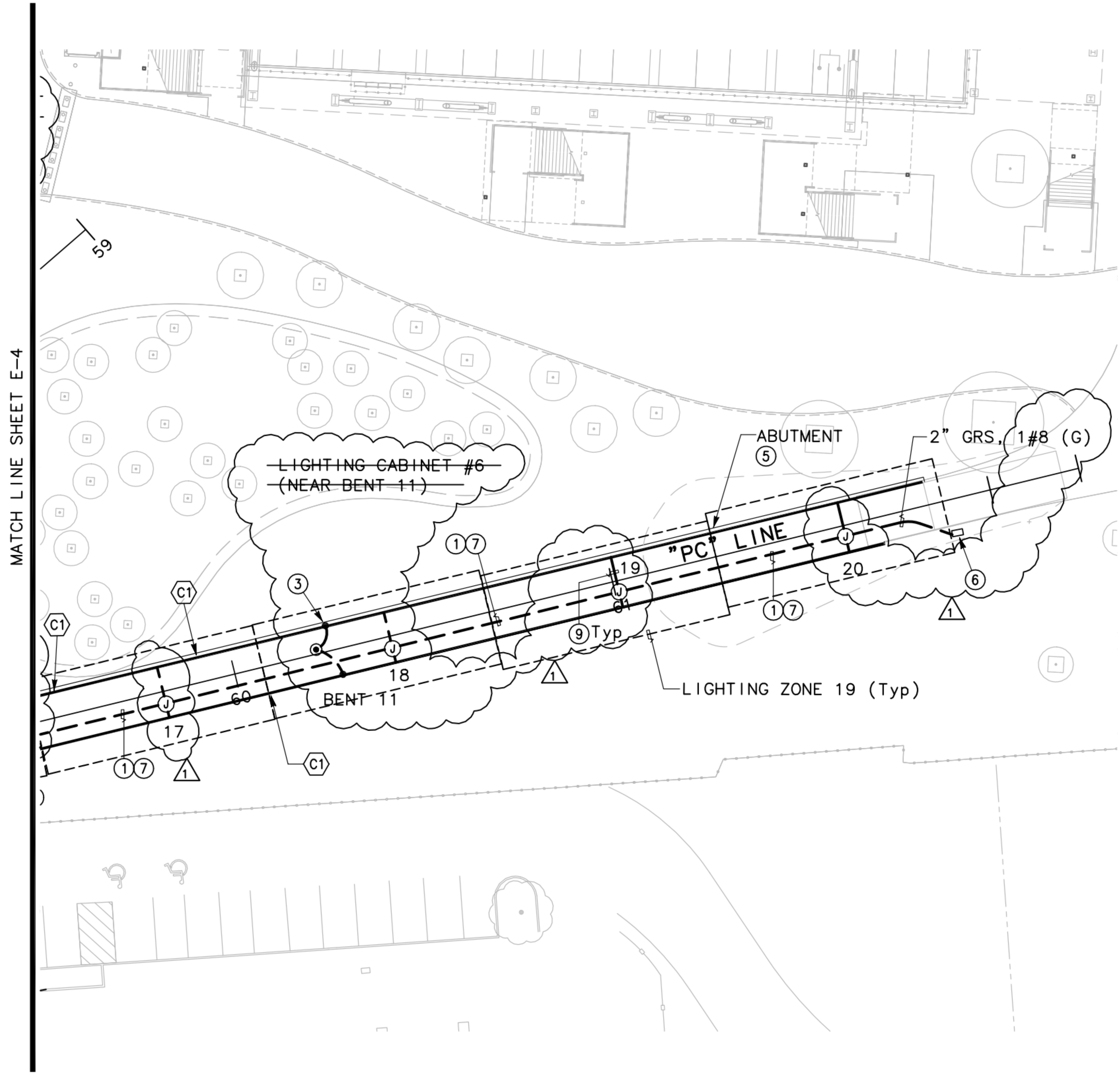
 Alliance Engineering Consultants Inc. 4701 Patrick Henry Blvd., Ste. 10 Santa Clara, CA 95054 phone: (408) 970-3888 fax: (408) 970-3318 www.aec-engineers.com PROJECT NO. 208-17-01		CALIFORNIA SAN MATEO COUNTY MENLO PARK
<b>SR 84/BAYFRONT EXPRESSWAY BAYFRONT POC (BRIDGE NO. 35-0358) ELECTRICAL PLAN No. 2</b>		
Revisions No. _____ Date 10/25/18 Scale AS SHOWN Design DC Drawn CB Approved KN Job 208-17-01 - RFI #135-1 & #49	Drawing Number <b>E-4</b> of _____	

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LC 2.3 Project: SR 84 - Bayfront Expressway	
1	ARP INTENC32 NLT 24FCR MVOLT 1VB SM DTC Acuity Relay Panel, include INC and ENC, 32-size, nLight, 24-relays (40A), 120-277 VAC, 1 Voltage Barrier, Surface Mount, DTC
1	NIO PC KIT nLight Device, Exterior PhotoCell Kit, Includes Exterior PhotoControl, nIO Input Module, Power Supply
1	NPOC MA 2S WH Architectural - 2-Button Scene Selector, Each Button Runs Local or Remote Scene or 1-Channel Wallpod Mode. Low Voltage Digital Wallpod. In-Wall Mount

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT
04	SM	84	R26.8/R27.1



**SHEET 5 AND 6 NOTES:**

- 1 INSTALL LIGHTING CONDUIT IN BRIDGE DECK. SEE DETAIL ON SHEET E-6.
- 2 PROVIDE #2/0 STRANDED BARE COPPER GROUND CABLE CADWELDED TO LONGITUDINAL STEEL GIRDERS ON EACH SIDE OF THE BRIDGE AT BENTS #2 THRU #11.
- 3 INSTALL GROUND WELL WITH CONNECTIONS TO GIRDERS ON EACH SIDE OF POC. SEE DETAIL 1 ON SHEET E-6.
- 4 #2/0 GROUND CABLE RISES UP ON FACE OF STRUCTURAL COLUMN INSIDE THE CLADDING.
- 5 INSTALL CONDUIT EXPANSION FITTING IN ALL CONDUITS PASSING THROUGH THE ABUTMENT AND EXPANSION JOINTS PER DETAIL X ON CALTRANS STANDARD PLAN ES-9B.
- 6 No. 5(E) PULL BOX WITH GROUND ROD.
- 7 INSTALL 2" GRS, 2 #8 (CKT #3, 277 V)  
2 #12 (CONTROL, 0-10 V)  
1 #8 (G)
- 8 INSTALL 1/2" GRS SO THAT IT IS CENTERED IN GAP BETWEEN LIGHT AND UNDERSIDE OF RUBRAIL. ALSO INSTALL SO THAT THE CENTER OF THE CONDUIT CLEARS THE RUBRAIL SUPPORT BY 1 3/4". EXACT DIMENSION TO BE CONFIRMED IN THE MOCKUP. SEE SHEET A-11.
- 8A PROVIDE MAXIMUM 2" GAP IN LIGHTING FOR ACCESS TO CONNECTIONS.
- 9 SEE NOTE 8 ON SHEET E-4.

**BOM INCLUDES ARP PANEL WITH ONBOARD TIMECLOCK TO COVER 20 ZONES REFERENCED WITHIN PROVIDED SHEETS. EC TO VERIFY TOTAL NUMBER OF ZONES/RELAYS NEEDED. ALL FUTURE BOM CHANGES WILL REQUIRE A RE-BID.**

**1 ELECTRICAL PLAN**  
SCALE: 1" = 20'-0"

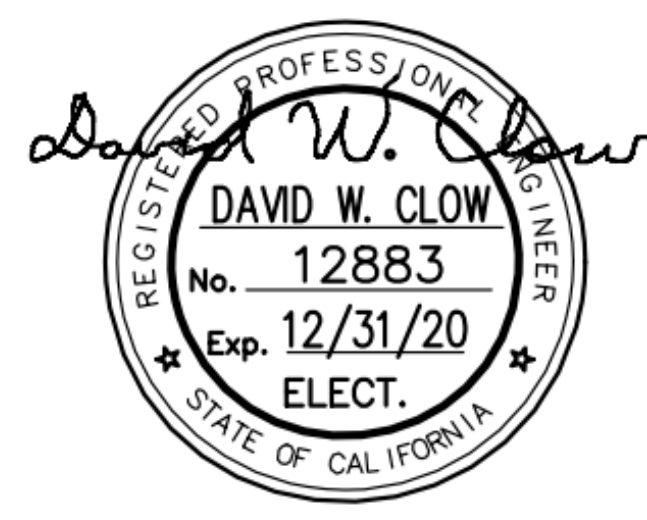
**SR 84/BAYFRONT EXPRESSWAY  
BAYFRONT POC (BRIDGE No. 35-0358)  
ELECTRICAL PLAN No. 3**

SAN MATEO COUNTY CALIFORNIA  
MENLO PARK

Alliance Engineering Consultants, Inc.  
4701 Patrick Henry Drive, Suite 10  
Santa Clara, CA 95054  
Phone: (408) 970-9888  
Fax: (408) 970-5016  
www.aec-engineers.com  
PROJECT NO. 2008-17-01

Date	10/25/19
Scale	AS SHOWN
Design	DC
Drawn	CB
Approved	RN
Job Number	05/28/19 - RF #35-1 & #59

Drawing Number: **F-5**



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**1 LC 2.3**  
NOT TO SCALE

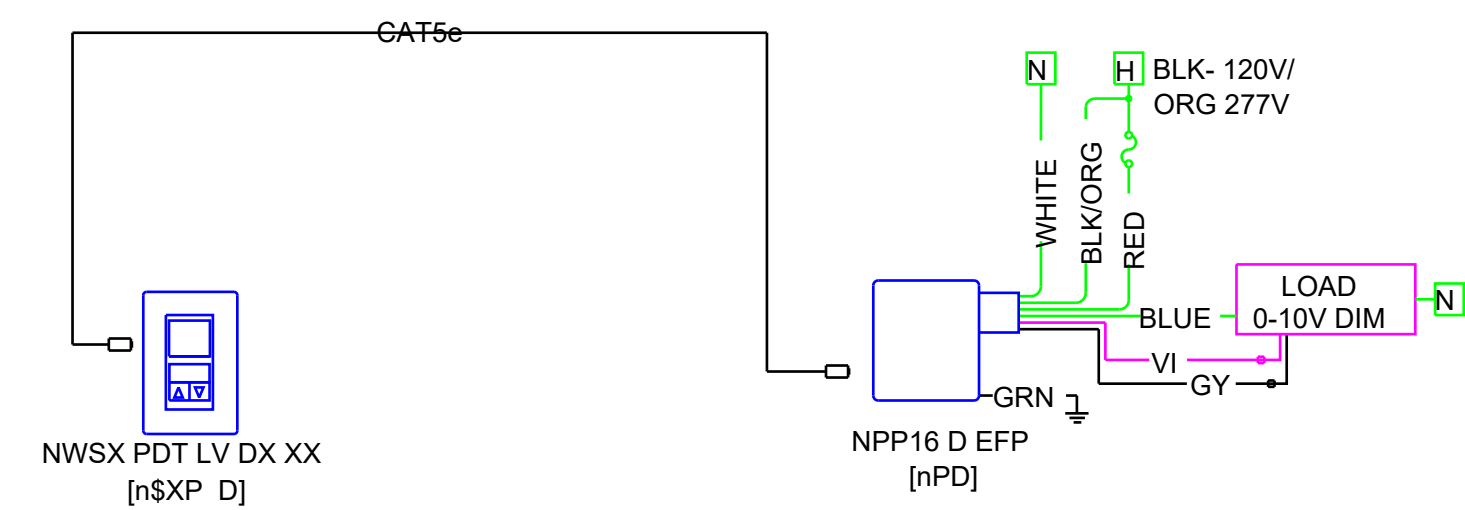
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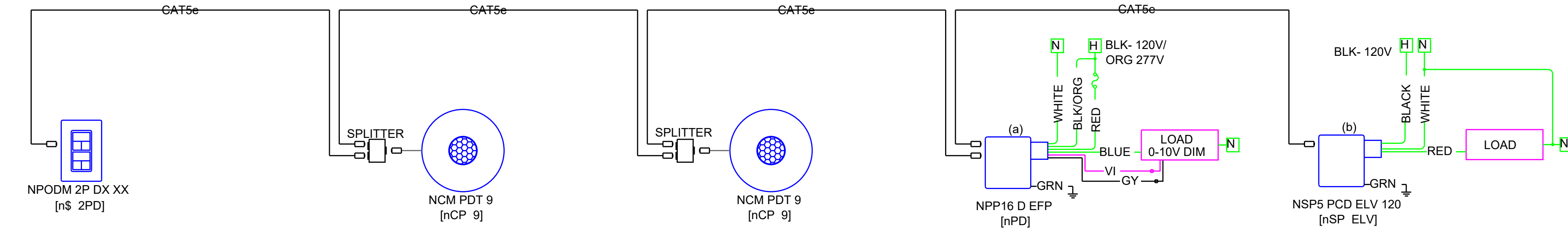


# TYPICAL nLIGHT WIRED WIRING DIAGRAMS (STAND-ALONE)

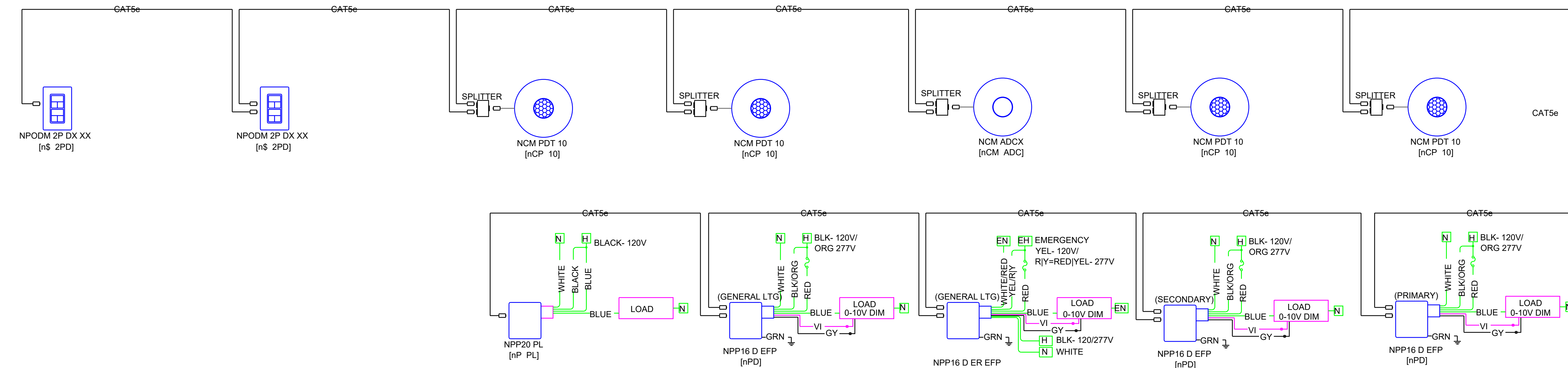
1 LC1.0 - SINGLE STALL RESTROOM (TYPICAL) - STAND-ALONE  
NOT TO SCALE



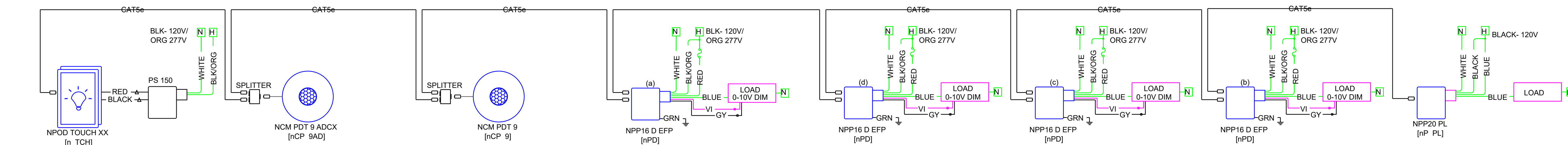
2 LC1.0 - MULTI-STALL RESTROOM w/ PHASE DIMMING FIXTURE (TYPICAL) - STAND-ALONE  
NOT TO SCALE



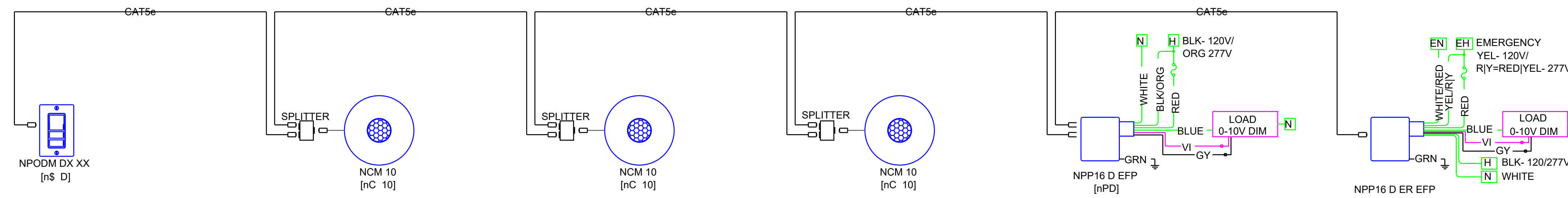
3 LC1.0 - OPEN OFFICE w/ DAYLIGHT ZONES (TYPICAL) - STAND-ALONE  
NOT TO SCALE



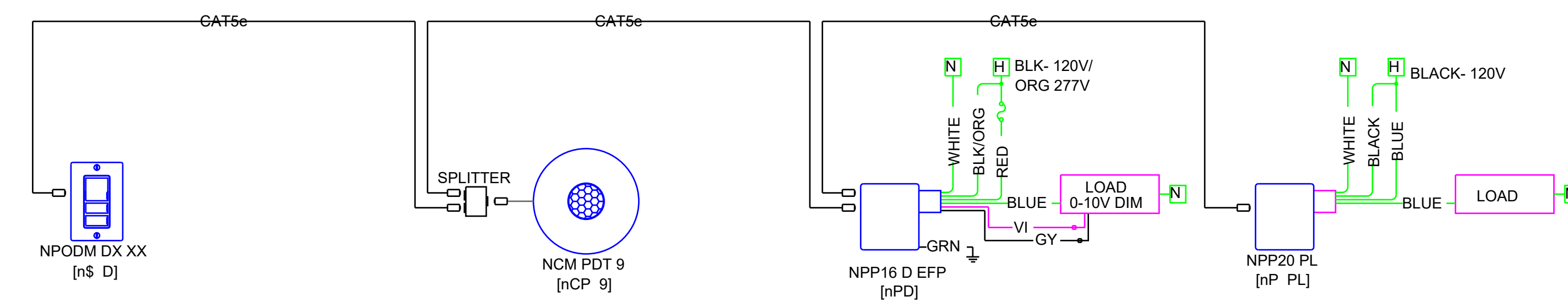
4 LC1.0 - LARGE CONFERENCE ROOM (TYPICAL) - STAND-ALONE  
NOT TO SCALE



5 LC1.0 - HALLWAY (TYPICAL) - STAND-ALONE  
NOT TO SCALE



6 LC1.0 - SMALL OFFICE (TYPICAL) - STAND-ALONE  
NOT TO SCALE



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