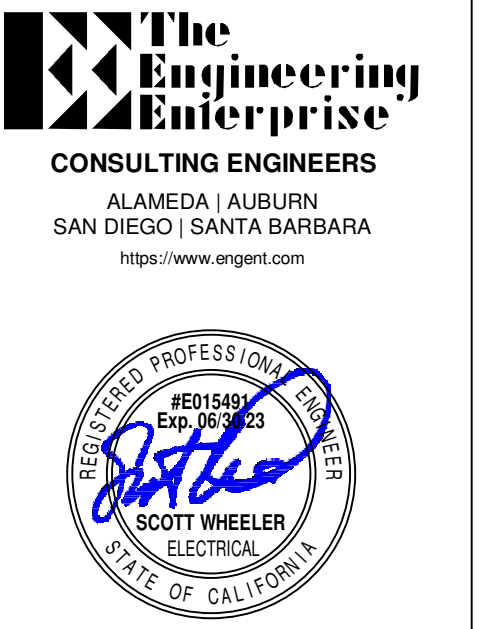


ELECTRIC BUS CHARGING PROJECT NCOC ELECTRICAL PLANS NEVADA COUNTY OPERATIONS CENTER (NCOC) 12350 LA BARR MEADOWS ROAD GRASS VALLEY, CA 95949

NOTE: ONLY PHASE-1 WORK IS INCLUDED IN THIS CONTRACT FOR
"ELECTRIC BUS CHARGING PROJECT NCOC PHASE-1"



PROJECT DESCRIPTION	PROJECT TEAM	CODE INFORMATION	SHEET INDEX												
<p>PROJECT CONSISTS OF THE INSTALLATION OF SIX NEW ELECTRIC VEHICLE CHARGING STATIONS. PROJECT WILL BE SPLIT INTO TWO PHASES. PHASE 1 WILL BE UTILIZING THE EXISTING MAIN SWITCHBOARD TO FEED ONE ELECTRIC VEHICLE CHARGER. PHASE 2 WILL BE THE INSTALLATION OF NEW UTILITY TRANSFORMER, A NEW 2000A, 277/480V, 3Ø MAIN SWITCHBOARD 'MSB-2', AND INFRASTRUCTURE FOR THE FUTURE INSTALLATION OF FIVE MORE ELECTRIC VEHICLE CHARGING STATIONS. AS PART OF PHASE 2, THE PHASE 1 EV CHARGER WILL BE CONNECTED TO THE NEW SERVICE SWITCHBOARD.</p> <p>PHASE 1</p> <ul style="list-style-type: none"> PROVIDE NEW 400A/3P BREAKER IN EXISTING MAIN SWITCHBOARD 'MSB' PROVIDE NEW METER AT NEW BREAKER IN EXISTING 'MSB'. CONNECT TO (E) NCOC NETWORK SERVER. PROVIDE NEW 4003 FEEDER FROM EXISTING 'MSB' TO NEW ELECTRIC VEHICLE CHARGING STATION (EVCS) POWER BLOCK ROUTED PARTIALLY IN EXISTING UNDERGROUND (UG) CONDUIT AND EXISTING PULLBOX. NEW TRENCHING AND 3.0" CONDUIT WILL BE NEEDED FROM EXISTING PULL BOX TO NEW PULL BOX. THEN FROM NEW PULL BOX TO EVCS POWER BLOCK. FROM NEW EVCS POWER BLOCK, PROVIDE NEW TRENCHING AND FEEDER TO EVCS POWER LINK. FROM NEW EVCS POWER BLOCK, PROVIDE NEW TRENCHING, 1.0" CONDUIT, AND ONE CAT6 ETHERNET CABLE TO EVCS POWER LINK. PROVIDE TRENCHING AND PROVISIONS FOR FUTURE EVCS INSTALLATIONS. <p>PHASE 2</p> <ul style="list-style-type: none"> PHASE 1 400A/3P BREAKER AND METER TO BE REMOVED FROM EXISTING MSB. PHASE 1 4003 FEEDER TO BE REMOVED BACK TO EXISTING MSB. COORDINATE THE INSTALLATION OF NEW UTILITY TRANSFORMER AND EQUIPMENT PAD. PROVIDE NEW 2000A, 277/480V, 3Ø MAIN SWITCHBOARD 'MSB-2' WITH EQUIPMENT PAD. NEW TRENCHING AND FEEDER TO BE ROUTED FROM NEW MSB-2 TO EVCS POWER BLOCK INSTALLED AS PART OF PHASE 1. NEW TRENCHING, ONE 1.0" CONDUIT AND ONE CAT6 CABLE FROM MSB-2 TO EXISTING SERVER ROOM. PROVIDE TRENCHING AND PROVISIONS FOR FUTURE EVCS INSTALLATIONS. 	<p>OWNER: NEVADA COUNTY CONNECTS + NEVADA COUNTY NOW CONTACT: ROBIN VAN VALKENBURGH PHONE: 530-470-2833 EMAIL: robin.vanvalkenburgh@nevadacountyca.gov</p> <p>ELECTRICAL: THE ENGINEERING ENTERPRISE CONTACT: OWEN QUAIL PHONE: 530-886-8556 EMAIL: owen.quail@engent.com</p>	<p>ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:</p> <p>STATE OF CALIFORNIA CODE OF REGULATIONS (CCR) 2019 TITLE 24 BUILDING CODE</p> <p>PART 2, CALIFORNIA BUILDING CODE (CBC) PART 3, CALIFORNIA ELECTRICAL CODE (CEC) PART 4, CALIFORNIA MECHANICAL CODE (CMC) PART 9 CALIFORNIA FIRE CODE (CFC)</p>	<p style="text-align: center;">ELECTRICAL SHEET INDEX</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">SHEET NO.</th> <th style="width: 90%;">SHEET NAME</th> </tr> </thead> <tbody> <tr> <td>G0.01</td> <td>COVER SHEET</td> </tr> <tr> <td>E0.01</td> <td>SYMBOLS, ONE-LINE, SCHEDULES & NOTES</td> </tr> <tr> <td>E1.01</td> <td>OVERALL SITE PLAN</td> </tr> <tr> <td>E1.02</td> <td>ENLARGED PLAN</td> </tr> <tr> <td>E2.01</td> <td>DETAILS</td> </tr> </tbody> </table>	SHEET NO.	SHEET NAME	G0.01	COVER SHEET	E0.01	SYMBOLS, ONE-LINE, SCHEDULES & NOTES	E1.01	OVERALL SITE PLAN	E1.02	ENLARGED PLAN	E2.01	DETAILS
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E2.01	DETAILS														
<p style="text-align: center;">VICINITY MAP</p>	<p style="text-align: center;">SITE MAP</p>														

ELECTRIC BUS CHARGING PROJECT NCOC
ELECTRICAL PLANS

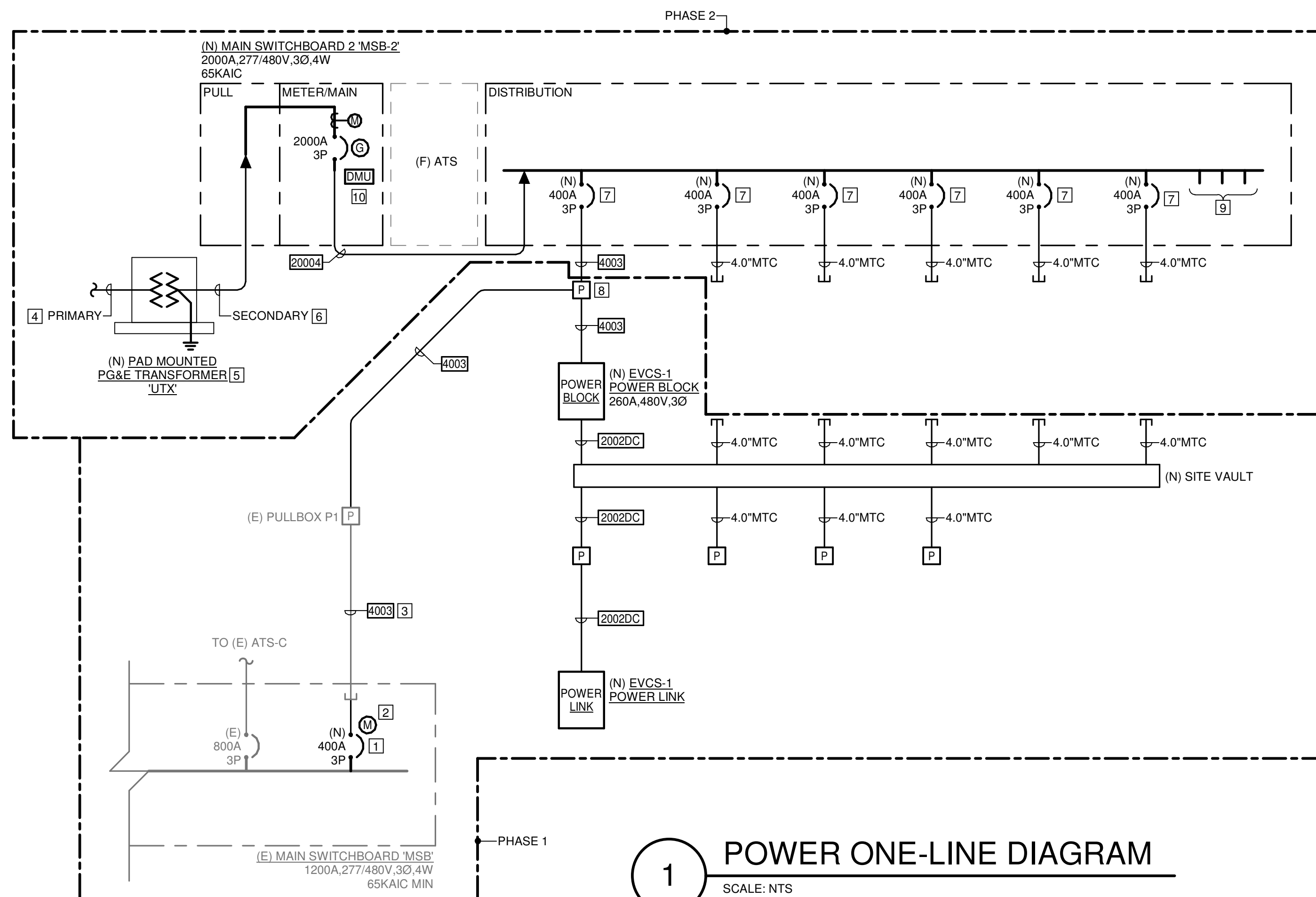
NEVADA COUNTY OPERATIONS CENTER (NCOC)
12350 LA BARR MEADOWS ROAD
GRASS VALLEY, CA 95949

REVISIONS

#	DESCRIPTION	DATE

DESIGNER: Designer
SCALE: 1" = 100'-0"
DATE: 5/10/2023
TITLE:
COVER SHEET

DRAWING NO.
G0.01



1 POWER ONE-LINE DIAGRAM
SCALE: NTS

NUMBERED SHEET NOTES

- PHASE 1: PROVIDE NEW BREAKER IN EXISTING SPACE. BREAKER SHALL BE LISTED FOR USE IN THE EXISTING EQUIPMENT. BREAKER SHALL BE LOCKABLE IN THE OPEN POSITION.
- PHASE 1: PROVIDE METER AT NEW BREAKER. METER SHALL BE IP BASED WITH KW, KVA, AMPS AND KWH. INSTALL NEW CAT 6 IN NEW EMT THRU EXISTING WALL PENETRATION DUCT IN ELECTRICAL ROOM EAST WALL. INSTALL 120 NEW CAT6 IN DROP CEILING. RUN THRU EXISTING DUCTS AND CONNECT TO SERVER IN EXISTING SERVER ROOM 114. IF APPROVED BY ENGINEER AND OWNER, CONTRACTOR MAY INSTEAD ESTABLISH A WIRELESS CONNECTION FROM THE NEW METER TO THE NETWORK SERVER.
- PHASE 1: PROVIDE NEW WIRE IN EXISTING CONDUIT. REFER TO OVERALL SITE PLAN ON SHEET E1.01 FOR ADDITIONAL INFORMATION.
- PHASE 2: PRIMARY CONDUIT AND WIRE BY PG&E.
- PHASE 2: TRANSFORMER PAD AND TRANSFORMER BY PG&E.
- PHASE 2: SECONDARY CONDUIT AND WIRE BY PG&E.
- PHASE 2: BREAKER SHALL BE LOCKABLE IN THE OFF POSITION.
- PHASE 2: DISCONNECT PHASE 1 FEEDER FROM POWER BLOCK AND PULL BACK TO EXISTING MSB. PROVIDE NEW FEEDER FROM MSB-2 AS SHOWN. UTILIZE EXISTING PHASE 1 CONDUIT FROM PULLBOX TO POWER BLOCK. REFER TO SHEET E1.01 FOR ADDITIONAL INFORMATION.
- PHASE 2: PROVIDE PROVISIONS FOR THREE 400A/3P SPACES.
- PHASE 2: PROVIDE DIGITAL METERING UNIT PER SPECIFICATIONS. PROVIDE NETWORK CONNECTION VIA NETWORK CABLE OR WIRELESSLY. CONNECT TO (E) NCOG NETWORK SERVER IN ROOM 114. REFER TO I/E1.01 FOR ROOM LOCATION.

Switchboard: (E) MSB PHASE-1			
Location: ELEC. RM 121		Volts: 277/480	A.I.C. Rating: 65KAIC
Supply From: UTX		Phases: 3	Mains Type: MCB
Mounting: SURFACE		Wires: 4	Mains Rating: 1200 A
Enclosure:			MCB Rating: 1200 A
##	Circuit Description	Load	Remarks
1	(E) SWITCHBOARD	0 kVA	
2	(1) (N) EVCS-1	185 kVA	
3	(E) PANEL HA	31.82 kVA	
4	(E) PANEL DPH	505.31 kVA	
Total Load:		722.93 kVA	
Total Amps:		869.55 A	
Load Classification	Conn. Load	Demand Factor	Est. Demand
Other	537.93 kVA	100.00%	537.93 kVA
Electric Vehicle Charging Station	185 kVA	125.00%	231.25 kVA
Connected Load:			722.93 kVA
Connected Amps:			869.55 A
Est. Demand Load:			769.18 kVA
Est. Demand Amps:			925.18 A
Notes:			
(1) PROVIDE NEW BREAKER IN EXISTING SPACE.			

Switchboard: MSB-2 PHASE-2			
Location: PAD		Volts: 277/480	A.I.C. Rating: 65KAIC
Supply From: UTX		Phases: 3	Mains Type: MCB
Mounting: PAD/SURFACE		Wires: 4	Mains Rating: 2000 A
Enclosure: NEMA 3R			MCB Rating: 2000 A
##	Circuit Description	Load	Remarks
1	(N) EVCS-1	185 kVA	
2	(F) EVCS-2	185 kVA	
3	(F) EVCS-3	185 kVA	
4	(F) EVCS-4	185 kVA	
5	(F) EVCS-5	185 kVA	
6	(F) EVCS-6	185 kVA	
7	SPARE	0 kVA	
8	SPARE	0 kVA	
9	SPARE	0 kVA	
Total Load:		1110 kVA	
Total Amps:		1335.12 A	
Load Classification	Conn. Load	Demand Factor	Est. Demand
Electric Vehicle Charging Station	1110 kVA	125.00%	1387.5 kVA
Connected Load:			1110 kVA
Connected Amps:			1335.12 A
Est. Demand Load:			1387.5 kVA
Est. Demand Amps:			1668.9 A
Notes:			

FEEDER SCHEDULE

FEEDER SCHEDULE GENERAL NOTES

- COPPER FEEDER SIZES SHOWN IN THIS SCHEDULE ARE BASED ON CONDUCTORS WITH THHN/THWN-2 INSULATION IN EMT/PVC CONDUIT, UON.
- FEEDER SIZES SHOWN IN THIS SCHEDULE ARE BASED ON AN AMBIENT TEMPERATURE OF 30 DEGREES F (86 DEGREES C).
- FEEDERS CONSISTING OF MULTIPLE SETS OF CONDUCTORS AND CONDUITS ARE TO BE PROVIDED WITH THE INDICATED SIZE GROUND CONDUCTOR IN EACH CONDUIT.
- PER NEC ARTICLE 110.14, ALL FEEDERS SIZED AT #2 AWG OR LESS ARE CALCULATED PER 60 DEGREE TABLE. FEEDERS GREATER THAN #2 AWG ARE RATED 75 DEGREE.

FEEDER SCHEDULE REMARKS

A. DC CONDUCTORS SHALL BE RATED FOR 600V WITH XHHW INSULATION.
 B. PER NEC SECTION 240.4(B), FOR OVERCURRENT DEVICES RATED 800A OR LESS, THE NEXT HIGHER STANDARD OVERCURRENT DEVICE RATING (ABOVE THE AMPACITY OF THE CONDUCTORS) CAN BE USED. RULE CAN NOT BE APPLIED IF 100% RATED BREAKERS ARE USED.

FEEDER TAG	FEEDER DESCRIPTION	CONDUIT	CONDUCTORS		SEPARATELY DERIVED SYSTEM		REMARKS
			PHASE/NEUTRAL	GROUND	GROUNDING ELECTRODE	BONDING JUMPER	
2002DC	200 AMP, 2 WIRE	1-4.00"	2 #500 KCMIL CU	1 #4 CU	-	-	A
4003	380 AMP, 3 WIRE	1-4.00"	3 #500 KCMIL CU	1 #2 CU	-	-	B
20004	2100 AMP, 4 WIRE	5-4.00"	5 SETS OF 4 #600 KCMIL CU	1 #250 KCMIL CU/SET	-	-	

PROJECT GENERAL NOTES

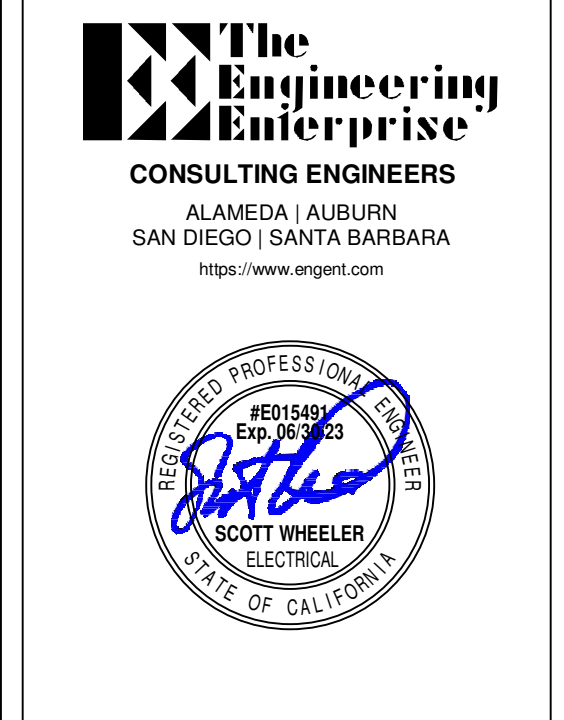
- THE EXISTING CONDITIONS INDICATED IN THIS DRAWING SET WERE DEVELOPED FROM VARIOUS SOURCES WHICH WERE NOT ALL FIELD VERIFIED AND NOT ALL CONDITIONS ARE SHOWN. LOCATIONS, ROUTING, ELEVATIONS, SIZES, ETC. ARE SHOWN SCHEMATICALLY. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY, DOCUMENT AND REPORT ALL EXISTING CONDITIONS TO OWNER BEFORE CONSTRUCTION AND SHALL INCLUDE IN THE BID THE NECESSARY COSTS TO CONSTRUCT THIS PROJECT IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS, SPECIFICATIONS AND ALL APPLICABLE CODES.
- CONTRACTOR SHALL REMOVE ALL LEFT OVER CONDUIT, WIRE, SCRAPS, ETC. AND LEAVE PREMISES CLEAN AND FREE OF TRASH OR DEBRIS RESULTING FROM THEIR WORK.
- CONTRACTOR SHALL PROTECT SURROUNDING FACILITIES AND SHALL RESTORE ANY DAMAGED FACILITIES TO EXISTING CONDITIONS.
- THERE SHALL BE A MINIMUM OF 36" OF COVER OVER UNDERGROUND CONDUITS, UON. INCLUDE A MINIMUM 12" SEPARATION BETWEEN ALL LOW VOLTAGE AND LINE VOLTAGE RACEWAYS. INSTALL A WARNING MARKER TAPE 12 INCHES ABOVE THE CONDUIT.
- MINIMUM SIZE CONDUIT USED ON THE SITE SHALL BE 1.0", WITH MINIMUM #10 CONDUCTORS, UON.
- CONTRACTOR SHALL SIZE ALL JUNCTION/PULLBOXES PER THE MINIMUM CODE REQUIREMENTS OF NEC ARTICLE 314, WHEN NOT INDICATED ON THE PLANS.
- ALL CONDUCTORS ON THIS PROJECT SHALL BE COPPER.
- FEEDER AND BRANCH CIRCUIT HOMERUNS SHALL BE INSTALLED IN CONDUIT.
- INSTALL AND CONNECT A CODE SIZED INSULATED OR BARE COPPER GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS.
- PROVIDE INSULATING BUSHINGS OR INSULATED THROAT ON THE ENDS OF ALL EMPTY CONDUIT SLEEVES AND INSTALL A POLYETHYLENE PULLING ROPE.
- WHERE CIRCUITS ARE SHOWN ON THE DRAWINGS WITH HOMERUNS THAT SHARE NEUTRAL CONDUCTORS THE CONTRACTOR SHALL PROVIDE HANDLE TIES BETWEEN ALL BRANCH CIRCUIT BREAKER LOADS WHICH SHARE A NEUTRAL.
- ALL OUTDOOR ELECTRICAL EQUIPMENT SHALL BE WEATHER-PROTECTED AND LISTED FOR EXTERIOR USE.
- PROVIDE TYPE WRITTEN PANEL SCHEDULES.
- PROVIDE ENGRAVED NAMEPLATES FOR ELECTRICAL BOARDS, DISCONNECTS, AND SWITCHGEAR.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (CEC).
- CONTRACTOR IS RESPONSIBLE TO SUBMIT REVISED LAYOUT OF EQUIPMENT IN ELECTRICAL SPACES FOR WRITTEN APPROVAL BY ENGINEER IF PROPOSED INSTALLATION LAYOUT DIFFERS FROM CONSTRUCTION DOCUMENTS. SUBMISSION MUST BE APPROVED PRIOR TO RELEASE OF ORDER FOR EQUIPMENT AND PRIOR TO INSTALLATION.
- REQUIRED ELECTRICAL EQUIPMENT WORKING SPACE DEPTH SHALL NOT BE LESS THAN THAT INDICATED IN CEC TABLE 110.26. THE WIDTH OF THE WORKING SPACE IN FRONT OF THE ELECTRICAL EQUIPMENT SHALL BE THE WIDTH OF THE EQUIPMENT OR 30", WHICHEVER IS GREATER. THIS REQUIREMENT ALSO APPLIES TO DISCONNECT SWITCHES.
- ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORIES AND BEAR THEIR LABEL, OR ETL.
- PROVIDE ALL NEW BOARDS, BREAKERS, SWITCHES, ETC. IN ACCORDANCE WITH THE CONTRACTOR PREPARED POWER SYSTEM STUDY. NO EQUIPMENT SHALL BE PURCHASED, INSTALLED, AND/OR RELEASED PRIOR TO ENGINEER REVIEW AND APPROVAL OF THE POWER SYSTEM STUDY.
- CONTRACTOR SHALL PROVIDE ARC FLASH LABELS FOR ALL ELECTRICAL EQUIPMENT WITHIN THE SCOPE OF THIS PROJECT. THESE LABELS SHALL BE GENERATED BY THE CONTRACTOR FROM THE POWER SYSTEM STUDY AND SUBMITTED WITH THE POWER SYSTEM STUDY SUBMITTAL FOR ENGINEER REVIEW AND APPROVAL. THIS INCLUDES ALL FIELD MARKING OF KAIC VALUES ON EXISTING OR NEW BOARDS PER THE CEC.
- WIRING SPACE IN PANELBOARDS, DISTRIBUTION PANELS AND SWITCHBOARDS SHALL BE DEDICATED TO CONDUCTORS TERMINATED IN THAT ENCLOSURE. PANELBOARDS, DISTRIBUTION PANELS AND SWITCHBOARDS SHALL NOT BE USED AS PULL AND/OR SPICE BOXES FOR CONDUCTORS THAT TERMINATE IN OTHER ENCLOSURES. DO NOT SPLICE CONDUCTORS IN EQUIPMENT.
- WORK PERFORMED FROM THESE DRAWINGS SHALL ALSO COMPLY WITH THE PROJECT SPECIFICATIONS. IN THE EVENT THAT THERE IS A CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL TAKE PRECEDENT.
- CONTRACTOR SHALL PREPARE RED LINED AS-BUILT DOCUMENTS REPRESENTING THE ACTUAL FIELD ROUTINGS AND INSTALLATION LOCATIONS FOR ALL ITEMS ON THIS PROJECT.
- CONDUIT ROUTING (WHERE SHOWN) IS ESSENTIALLY DIAGRAMMATIC. CONTRACTOR SHALL LAYOUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.

CONVENTIONS

- NUMBERED NOTE, APPLIES TO ALL DRAWINGS.
- NUMBERED SHEET NOTE, APPLIES TO DRAWING CONTAINING NOTES ONLY.
- OVERCURRENT PROTECTIVE DEVICE SPACE IDENTIFICATION TAG. REFERS TO LOCATION OF PROTECTIVE OR CONTROL DEVICE WITHIN SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, ETC.
- EQUIPMENT IDENTIFICATION TAG. ITEM FURNISHED AND INSTALLED UNDER ANOTHER SECTION AND WIRED UNDER THIS SECTION.
- FEEDER SIZE. REFER TO FEEDER SCHEDULE.
- DETAIL REFERENCE:
 - DETAIL DESIGNATION SHEET NUMBER
 - LUMINAIRE IDENTIFICATION TAG:
 - LUMINAIRE TYPE
 - QUANTITY
- UNDERGROUND CONDUIT DESIGNATION:
 - CONDUIT SIZE IN INCHES
 - CONDUIT SYSTEM DESIGNATION
 - P: PRIMARY POWER
 - S: SECONDARY POWER
 - T: TELECOMMUNICATIONS
 - QUANTITY OF CONDUITS

SYMBOLS LIST

- POWER DISTRIBUTION**
- SWITCHGEAR, SWITCHBOARD, DISTRIBUTION BOARD, SUBSTATION OR MOTOR CONTROL CENTER, FLOOR MOUNTED. DOUBLE LINE INDICATES FRONT FACE OF GEAR.
 - PANELBOARD, 277/480V, SURFACE MOUNTED ON WALL.
 - PANELBOARD, 277/480V, FLUSH MOUNTED IN WALL.
 - PANELBOARD, 120/208V, SURFACE MOUNTED ON WALL.
 - PANELBOARD, 120/208V, FLUSH MOUNTED IN WALL.
 - DRY-TYPE STEP-DOWN TRANSFORMER, FLOOR MOUNTED 480-120/208V 3Ø, UON. DOUBLE LINE INDICATES FRONT FACE OF TRANSFORMER.
 - PULLBOX OR HANDHOLE. SIZE AND TYPE AS NOTED ON PLANS.
 - SAFETY DISCONNECT SWITCH, 3 POLE, UON. ADJACENT NUMBER INDICATES FUSE SIZE WHEN APPLICABLE. LABELING CONVENTION AS FOLLOWS:
 - A: 30A, NON-FUSED
 - B: 60A, NON-FUSED
 - C: 100A, NON-FUSED
 - D: 200A, NON-FUSED
 - E: 400A, NON-FUSED
 - F: 800A, NON-FUSED
 - G: 800A, NON-FUSED
 - AF: 30A, FUSED
 - BF: 60A, FUSED
 - CF: 100A, FUSED
 - DF: 200A, FUSED
 - EF: 400A, FUSED
 - FF: 800A, FUSED
 - GF: 800A, FUSED
 - DRIVEN GROUND ROD.
 - DRIVEN GROUND ROD IN GROUND WELL WITH COVER.
 - ELECTRICAL VEHICLE CHARGING STATION, WALL MOUNTED.
 - ELECTRICAL VEHICLE CHARGING STATION, PEDESTAL MOUNTED.
 - CABLE TO BUS TERMINATION LUGS.
 - GROUND MOUNTED MOLDED CASE CIRCUIT BREAKER.
 - GROUP FAULT RELAY INTEGRAL WITH CIRCUIT BREAKER.
 - ELECTRICALLY OPERATED INTEGRAL.
 - SHUNT-TRIP INTEGRAL WITH OVERCURRENT PROTECTION DEVICES.
 - KIRK-KEY INTERLOCK INTEGRAL WITH OVERCURRENT PROTECTION DEVICES. ADJACENT NUMBER CORRESPONDS WITH DEVICE INTERLOCK.
 - PRIVATE METER, MOUNTED INTEGRAL WITH OVERCURRENT PROTECTION OR SEPARATE WITHIN SWITCHGEAR.
 - UTILITY METER, MOUNTED IN UTILITY METER SECTION OF SWITCHGEAR.
 - PRIVATE METER, MOUNTED IN SEPARATE ENCLOSURE FROM SWITCHGEAR.
 - GROUND FAULT RELAY WITH SHUNT TRIP.
 - GROUND FAULT ALARM, NO SHUNT TRIP.
 - TRANSFORMER.
 - CONNECTION TO GROUND.
 - CURRENT TRANSFORMERS.
 - POTENTIAL TRANSFORMERS.
 - AUTOMATIC OR MANUAL TRANSFER SWITCH.
 - EMERGENCY GENERATOR.
 - BATTERIES.
 - NEUTRAL SERVICE DISCONNECT LINK.
 - SURGE PROTECTION DEVICE, SPD.
 - CONTROL CONTACTOR.
 - NORMALLY OPEN CONTACT.
 - NORMALLY CLOSED CONTACT.
 - DIGITAL METERING UNIT.
 - GROUND BUS.
 - NEUTRAL BUS.
 - CONCRETE VAULT, IN-GRADE, FOR EXTERIOR APPLICATIONS. SIZE AND TYPE AS NOTED ON THE PLANS.
- RACEWAYS**
- CONDUIT RUN EXPOSED ON WALL OR CEILING.
 - CONDUIT RUN CONCEALED IN SLAB, UNDER SLAB OR UNDERGROUND.
 - CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING.
 - CONDUIT HOMERUN, CONTINUOUS RUN TO PANEL OR EQUIPMENT CABINET. HOMERUN CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
 - CONDUIT TURNED UP, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
 - CONDUIT TURNED DOWN, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
 - CONDUIT CAPPED OR STUBBED WITH INSULATED BUSHINGS, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
 - CONDUIT SLEEVE, WITH INSULATING BUSHINGS.
 - FLEXIBLE METALLIC CONDUIT, EQUIPMENT CONNECTION.
 - CROSSMARKS ON BRANCH CIRCUIT CONDUIT RUNS INDICATE THE QUANTITY OF CONDUCTORS AS FOLLOWS (GROUND CONDUCTORS ARE NOT NOTED, BUT SHOULD BE INCLUDED IN EVERY CONDUIT WITH POWER CONDUCTORS):
 - NO CROSSMARKS INDICATES TWO #12 AWG CONDUCTORS, UON.
 - THREE TO SIX CROSSMARKS INDICATES THE QUANTITY OF #12 AWG CONDUCTORS, UON.
 - SEVEN OR MORE CROSSMARKS INDICATES THE QUANTITY OF #10 AWG CONDUCTORS, UON.



ELECTRIC BUS CHARGING PROJECT NCOG ELECTRICAL PLANS

NEVADA COUNTY OPERATIONS CENTER (NCOG)
12350 LA BARR MEADOWS ROAD
GRASS VALLEY, CA 95949

REVISIONS

#	DESCRIPTION	DATE

DESIGNER: TEE
 SCALE: 12" = 1'-0"
 DATE: 5/10/2023
 TITLE: **SYMBOLS, ONE-LINE, SCHEDULES & NOTES**
 DRAWING NO. **E0.01**

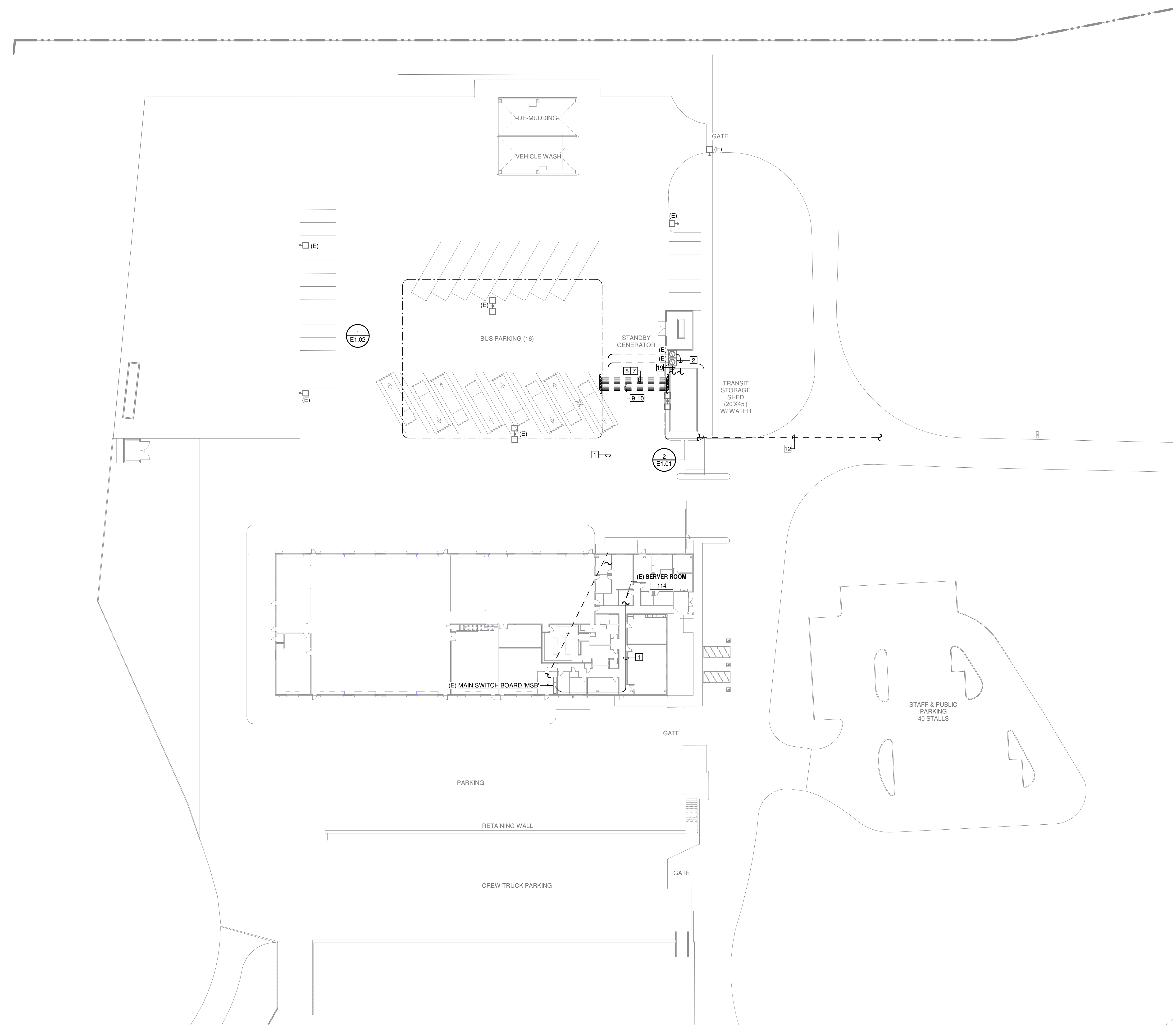
GENERAL SHEET NOTES

- A. REFER TO PROJECT GENERAL SHEET NOTES ON SHEET E0.01 FOR ADDITIONAL REQUIREMENTS.
- B. ALL PULLBOXES SHALL BE N36 WITH TRAFFIC RATED LID, UON.
- C. REFER TO THE ATTACHED CHARGEPOINT EQUIPMENT INSTALLATION INSTRUCTIONS FOR CONDUIT STUB UP, CABINET SIZE, ETC.
- D. CUT AND PATCH FOR ALL TRENCHING. PATCH SHALL MATCH EXISTING CONDITIONS.
- E. WALK ENTIRE ROUTE OF PROPOSED TRENCH WITH OWNER PRIOR TO COMMENCING WORK. ROUTE SHALL BE APPROVED PRIOR TO ANY WORK.

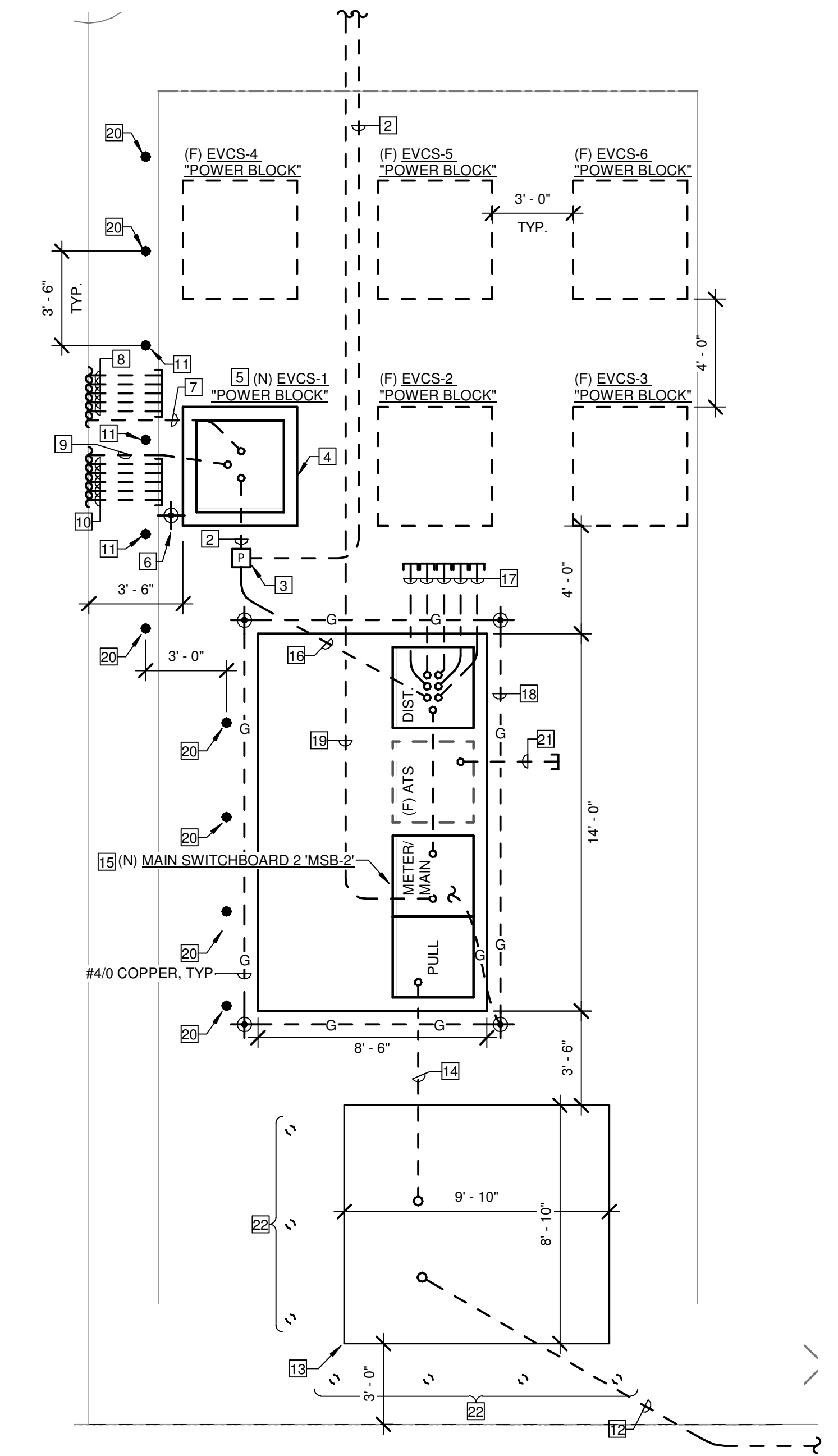
NOTE: ONLY PHASE 1 WORK IS INCLUDED IN THIS CONTRACT FOR ELECTRICAL BUS CHARGING PROJECT NCOC PHASE 1. PHASE 2 WORK IS NOT IN THE CONTRACT.

NUMBERED SHEET NOTES

- 1 PHASE 1: EXISTING 3.0"Ø FOR POWER ROUTED TO MSB AND EXISTING SIX 2"Ø FOR SIGNAL ROUTED TO SERVER ROOM. UTILIZE FOR NEW WIRE AND CABLE. PROVIDE NEW DMU WITH CONNECTION TO (E) SERVER ROOM VIA NEW CAT6 CABLE. REFER TO POWER ONE-LINE DIAGRAM ON E0.01 AND C102 FOR ADDITIONAL INFORMATION.
- 2 PHASE 1: PROVIDE ONE NEW 4.0"Ø SAW CUT AND PATCH TO MATCH EXISTING CONDITIONS. REFER TO POWER ONE-LINE AND FEEDER SCHEDULE ON SHEET E0.01 FOR FEEDER SIZE. REFER TO DETAIL 2/C102 FOR JOINT TRENCHING REQUIREMENTS.
- 3 PHASE 1: PROVIDE NEW N36 PULL BOX WITH TRAFFIC RATED LID. COORDINATE EXACT LOCATION IN FIELD.
- 4 PHASE 1: PROVIDE NEW EQUIPMENT PAD. REFER TO DETAIL 2/E2.01 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- 5 PHASE 1: NEW OFCI ELECTRIC VEHICLE CHARGING SYSTEM "POWER BLOCK" (CHARGEPOINT EXPRESS PLUS; 260A, 480V, 3Ø). REFER TO ATTACHED CHARGEPOINT DOCUMENTATION FOR ANCHORAGE REQUIREMENTS. REFER TO POWER ONE-LINE, FEEDER SCHEDULE AND PANEL SCHEDULE ON SHEET E0.01 FOR ADDITIONAL INFORMATION.
- 6 PHASE 1: PROVIDE DEDICATED EARTH GROUND ROD IN GROUND WELL FOR EVCS-1. USE #3AWG WIRE TO CONNECT EVCS TO THE GROUND ROD. REFER TO DETAIL 3/E2.01 FOR ADDITIONAL REQUIREMENTS.
- 7 PHASE 1: PROVIDE NEW FEEDER. SAW CUT AND PATCH TO MATCH EXISTING CONDITIONS. REFER TO POWER ONE-LINE AND FEEDER SCHEDULE ON SHEET E0.01 FOR FEEDER SIZE. REFER TO DETAIL 2/C502 FOR JOINT TRENCHING REQUIREMENTS.
- 8 PHASE 1: PROVIDE FIVE NEW 4.0"Ø MTC FOR FUTURE WORK. REFER TO POWER ONE-LINE FOR ADDITIONAL INFORMATION. REFER TO 2/C502 FOR JOINT TRENCHING REQUIREMENTS. CAP CONDUITS AND PROVIDE MARKER AT THE END OF THE STUB.
- 9 PHASE 1: PROVIDE NEW 1.0" CONDUIT WITH ONE CAT6 CABLE AND 2-#6 CU XHHW (48VDC) FROM EVCS-1 POWER BLOCK TO POWER LINK. REFER TO DETAIL 2/C502 FOR JOINT TRENCHING REQUIREMENTS.
- 10 PHASE 1: PROVIDE FIVE NEW 1.0"Ø MTC FOR FUTURE LOW VOLTAGE WORK. REFER TO 2/C502 FOR JOINT TRENCHING REQUIREMENTS. CAP CONDUITS AND PROVIDE MARKER AT THE END OF THE STUB.
- 11 PHASE 1: NEW BOLLARDS. REFER TO DETAIL 4/E2.01 FOR INSTALLATION REQUIREMENTS.
- 12 PHASE 2: PRIMARY CONDUIT & WIRE BY PG&E.
- 13 PHASE 2: SPACE FOR NEW UTILITY TRANSFORMER PAD BY PG&E. ACTUAL PAD SIZE IS 106" X 90".
- 14 PHASE 2: SECONDARY CONDUIT & WIRE PER PG&E. PROVIDE LONG BEND RADIUS PER PG&E STANDARDS.
- 15 PHASE 2: NEW MAIN SWITCHBOARD INSTALLED ON HOUSEKEEPING PAD, PER 1&2/E2.01. REFER TO POWER ONE-LINE DIAGRAM ON E0.01 FOR ADDITIONAL INFORMATION.
- 16 PHASE 2: PROVIDE NEW FEEDER. TIE INTO EXISTING PHASE 1 PULL BOX AND RUN NEW WIRE TO EVCS-1. REFER TO POWER ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION. REFER TO 2/C502 FOR JOINT TRENCHING REQUIREMENTS.
- 17 PHASE 2: PROVIDE FIVE NEW 4.0"Ø MTC FOR FUTURE WORK. REFER TO POWER ONE-LINE FOR ADDITIONAL INFORMATION. REFER TO 2/C502 FOR JOINT TRENCHING REQUIREMENTS. CAP CONDUITS AND PROVIDE MARKER AT THE END OF THE STUB.
- 18 PHASE 2: PROVIDE NEW GROUNDING RING. REFER TO DETAIL 5/E2.01 FOR ADDITIONAL INFORMATION.
- 19 PHASE 2: PROVIDE NEW 1.0" CONDUIT FROM "METER MAIN" SECTION OF MSB-2 TO EXISTING VAULT. ROUTE NEW CAT6 CABLE FROM METER TO SERVER ROOM 114 VIA NEW AND EXISTING CONDUIT AND TERMINATE CABLE ON NEXT AVAILABLE PATCH PANEL. REFER TO 2/C502 FOR TRENCHING REQUIREMENTS.
- 20 PHASE 2: NEW BOLLARDS. REFER TO DETAIL 4/E2.01 FOR INSTALLATION REQUIREMENTS.
- 21 PHASE 2: PROVIDE FIVE 4.0"Ø MTC AND TWO 1.0"Ø MTC FOR FUTURE GENERATOR. CAP CONDUITS AND PROVIDE MARKER.
- 22 PHASE 2: NEW BOLLARDS PROVIDED BY PG&E.



1 OVERALL SITE PLAN
 SCALE: 1/32" = 1'-0"



2 ENLARGED UTILITY YARD
 SCALE: 1/4" = 1'-0"

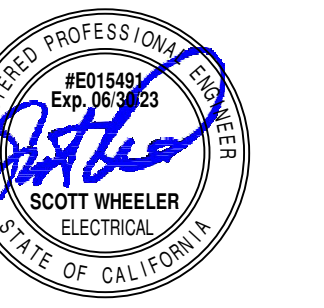
**ELECTRIC BUS CHARGING PROJECT NCOC
 ELECTRICAL PLANS**

NEVADA COUNTY OPERATIONS CENTER (NCOC)
 12350 LA BARR MEADOWS ROAD
 GRASS VALLEY, CA 95949

REVISIONS

#	DESCRIPTION	DATE

DESIGNER: TEE
 SCALE: As indicated
 DATE: 5/10/2023
 TITLE:
OVERALL SITE PLAN
 DRAWING NO.
E1.01

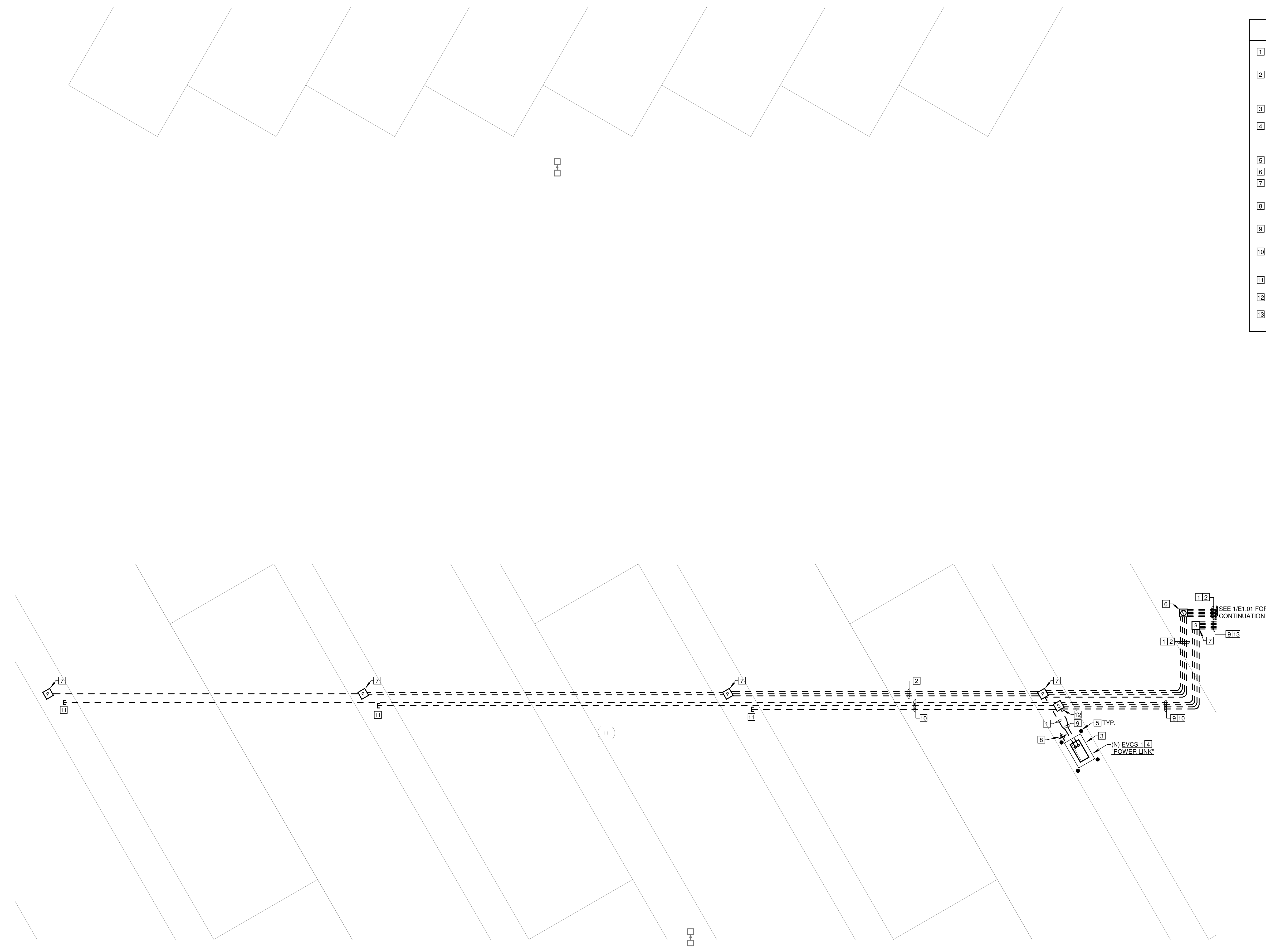


GENERAL SHEET NOTES

- A. REFER TO PROJECT GENERAL SHEET NOTES ON SHEET E0.01 FOR ADDITIONAL REQUIREMENTS.
- B. ALL PULLBOXES SHALL BE N36 WITH TRAFFIC RATED LID, UON.
- C. REFER TO THE ATTACHED CHARGEPOINT EQUIPMENT INSTALLATION INSTRUCTIONS FOR CONDUIT STUB UP, CABINET SIZE, ETC.
- D. CUT AND PATCH FOR ALL TRENCHING. PATCH SHALL MATCH EXISTING CONDITIONS.
- E. WALK ENTIRE ROUTE OF PROPOSED TRENCH WITH OWNER PRIOR TO COMMENCING WORK. ROUTE SHALL BE APPROVED PRIOR TO ANY WORK.

NUMBERED SHEET NOTES

- 1. PROVIDE NEW FEEDER, SAW CUT AND PATCH TO MATCH EXISTING CONDITIONS. REFER TO POWER ONE LINE AND FEEDER SCHEDULE ON SHEET E0.01 FOR FEEDER SIZE. REFER TO DETAIL 2/C502 FOR JOINT TRENCHING REQUIREMENTS.
- 2. PROVIDE NEW 4.0" MTC FOR FUTURE WORK. REFER TO POWER ONE LINE FOR ADDITIONAL INFORMATION. REFER TO 2/C502 FOR JOINT TRENCHING REQUIREMENTS. CONDUITS CONNECT DIRECTLY FROM THE VAULT TO THE PULL BOX FOR EACH INDIVIDUAL POWER LINK. CONDUITS BYPASS ALL OTHER INTERMEDIATE PULL BOXES ON THE WAY TO THEIR TERMINATION POINT.
- 3. PROVIDE NEW EQUIPMENT PAD. REFER TO DETAIL 2/E2.01 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- 4. NEW OFCI ELECTRIC VEHICLE CHARGING SYSTEM "POWER LINK" (CHARGEPOINT EXPRESS PLUS, 260A, 480V, 3Ø). REFER TO THE ATTACHED CHARGEPOINT DOCUMENT FOR ANCHORAGE REQUIREMENTS. REFER TO POWER ONE LINE, FEEDER SCHEDULE AND PANEL SCHEDULE ON SHEET E0.01 FOR ADDITIONAL INFORMATION.
- 5. NEW REMOVABLE BOLLARDS. REFER TO DETAIL 1/C501 FOR INSTALLATION REQUIREMENTS.
- 6. PROVIDE 4' X 6' TRAFFIC RATED VAULT WITH HS-20 RATED LID.
- 7. PROVIDE NEW CHRISTY B1324 (OR APPROVED EQUAL) PULL BOX WITH TRAFFIC RATED LID. COORDINATE EXACT LOCATION IN FIELD. 'P' REPRESENTS POWER PULL BOX AND 'S' REPRESENTS SIGNAL.
- 8. PROVIDE DEDICATED EARTH GROUND ROD IN GROUND WELL FOR EVCS-1. USE #3AWG WIRE TO CONNECT EVCS TO THE GROUND ROD. REFER TO DETAIL 3/E2.01 FOR ADDITIONAL REQUIREMENTS.
- 9. PROVIDE NEW 1.0" CONDUIT WITH ONE CAT6 CABLE AND 2-#6 CU XHHW (48V DC) FROM EVCS-1 POWER BLOCK TO POWER LINK. REFER TO DETAIL 2/C502 FOR JOINT TRENCHING REQUIREMENTS.
- 10. PROVIDE NEW 1.0" MTC FOR FUTURE LOW VOLTAGE WORK. REFER TO 2/C502 FOR JOINT TRENCHING REQUIREMENTS. CONDUITS ROUTED DIRECTLY FROM THE PULL BOX TO THE LOCATION FOR EACH INDIVIDUAL POWER LINK. CONDUITS BYPASS ALL OTHER INTERMEDIATE POWER LINK PULL BOX LOCATIONS ON THE WAY TO THEIR TERMINATION POINT.
- 11. STUB SIGNAL CONDUIT TO THIS POINT FOR FUTURE USE. CAP END AND PROVIDE PULL STRING AND MARKER TAPE.
- 12. PROVIDE NEW CHRISTY G03 (OR APPROVED EQUAL) SIGNAL PULL BOX WITH TRAFFIC RATED LID. COORDINATE EXACT LOCATION IN FIELD.
- 13. PROVIDE FIVE NEW 1.0" MTC FOR FUTURE LOW VOLTAGE WORK. REFER TO 2/C502 FOR JOINT TRENCHING REQUIREMENTS.



1 ENLARGED EVCS LOCATIONS
SCALE: 3/16" = 1'-0"

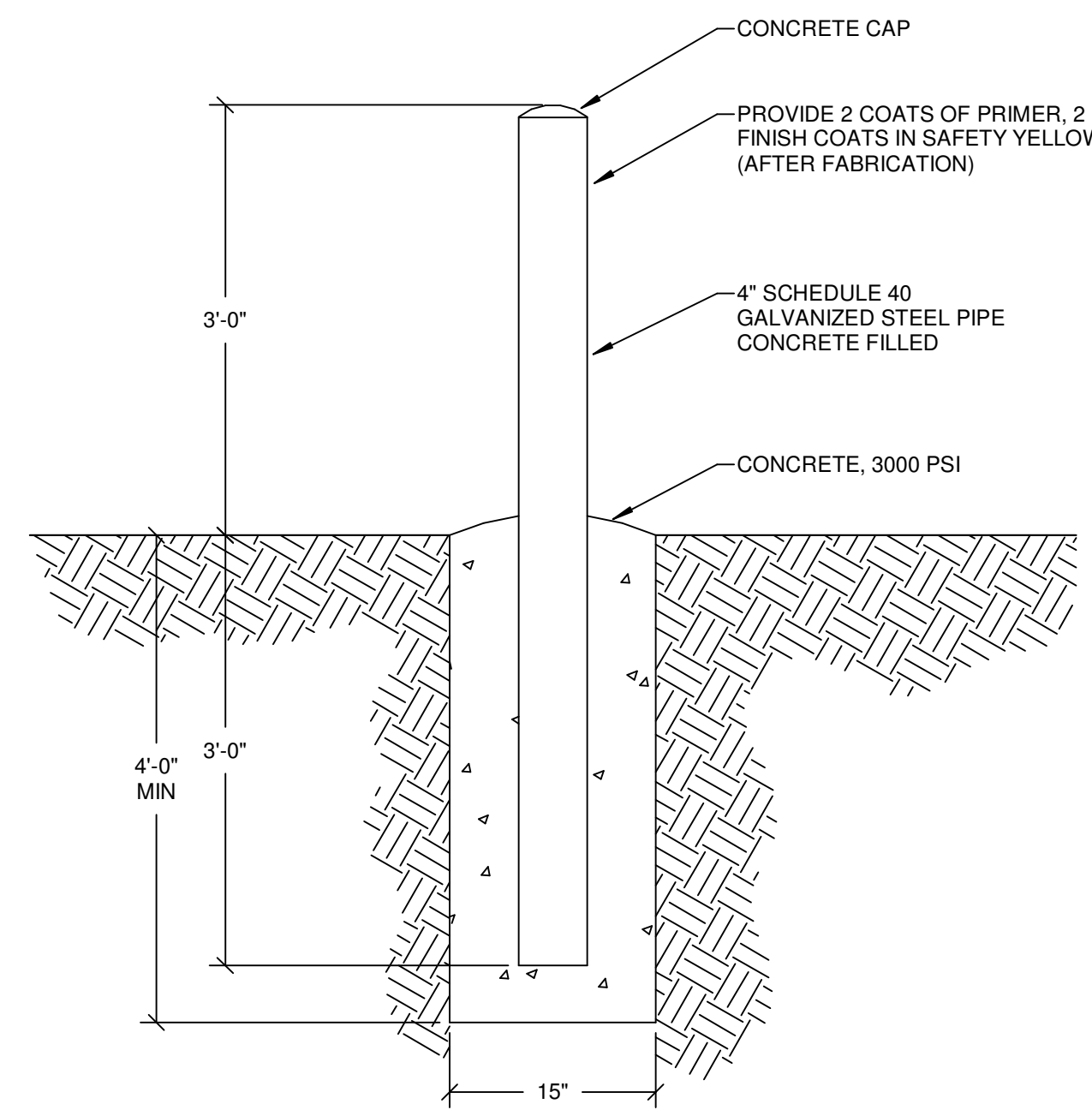
**ELECTRIC BUS CHARGING PROJECT NCOC
ELECTRICAL PLANS**

NEVADA COUNTY OPERATIONS CENTER (NCOC)
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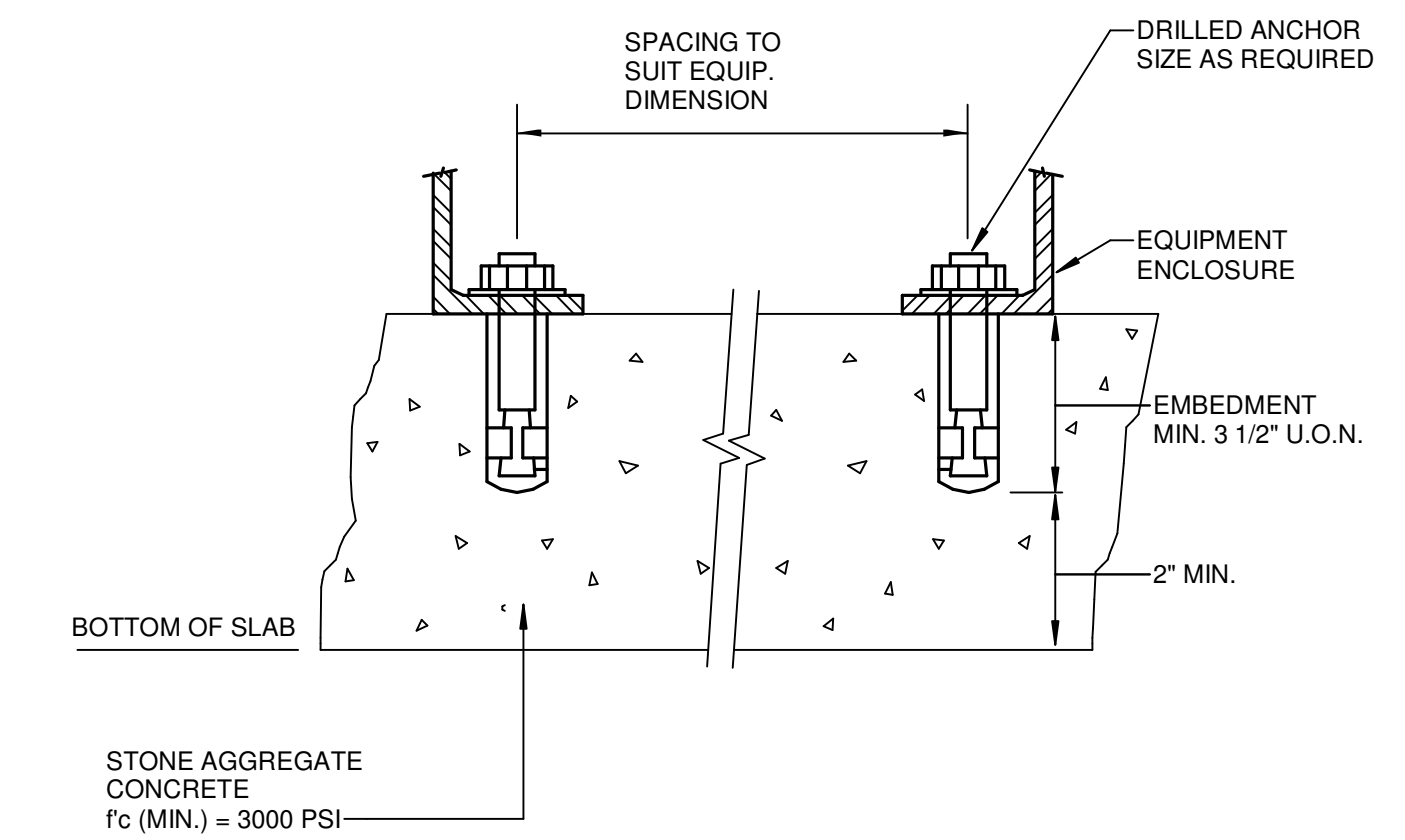
REVISIONS	
#	DATE

DESIGNER: TEE
SCALE: 3/16" = 1'-0"
DATE: 5/10/2023
TITLE:
ENLARGED PLAN

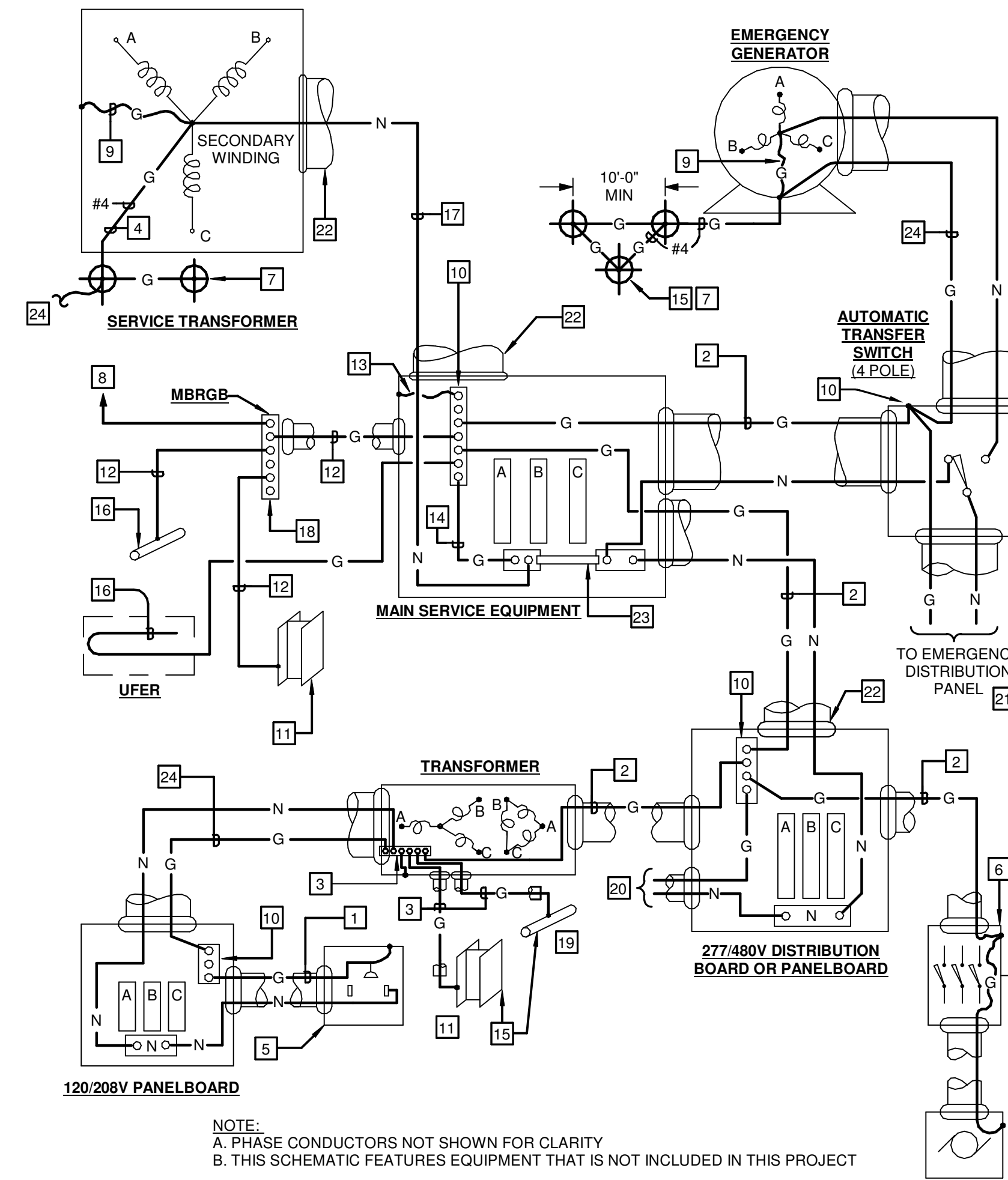
DRAWING NO.
E1.02



4 BOLLARD INSTALLATION
SCALE: NTS

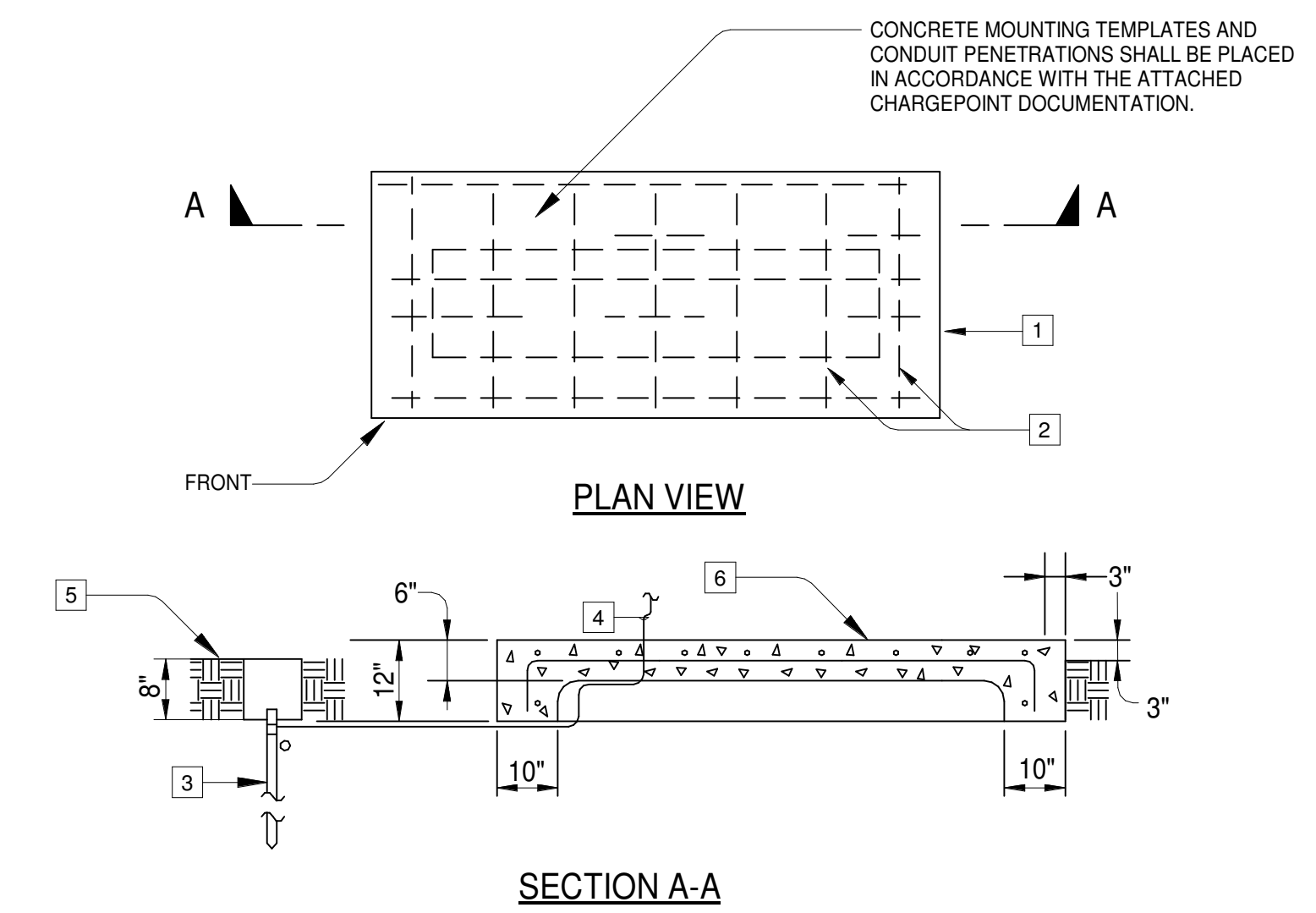


1 EQUIPMENT ANCHORING DETAIL
SCALE: NTS



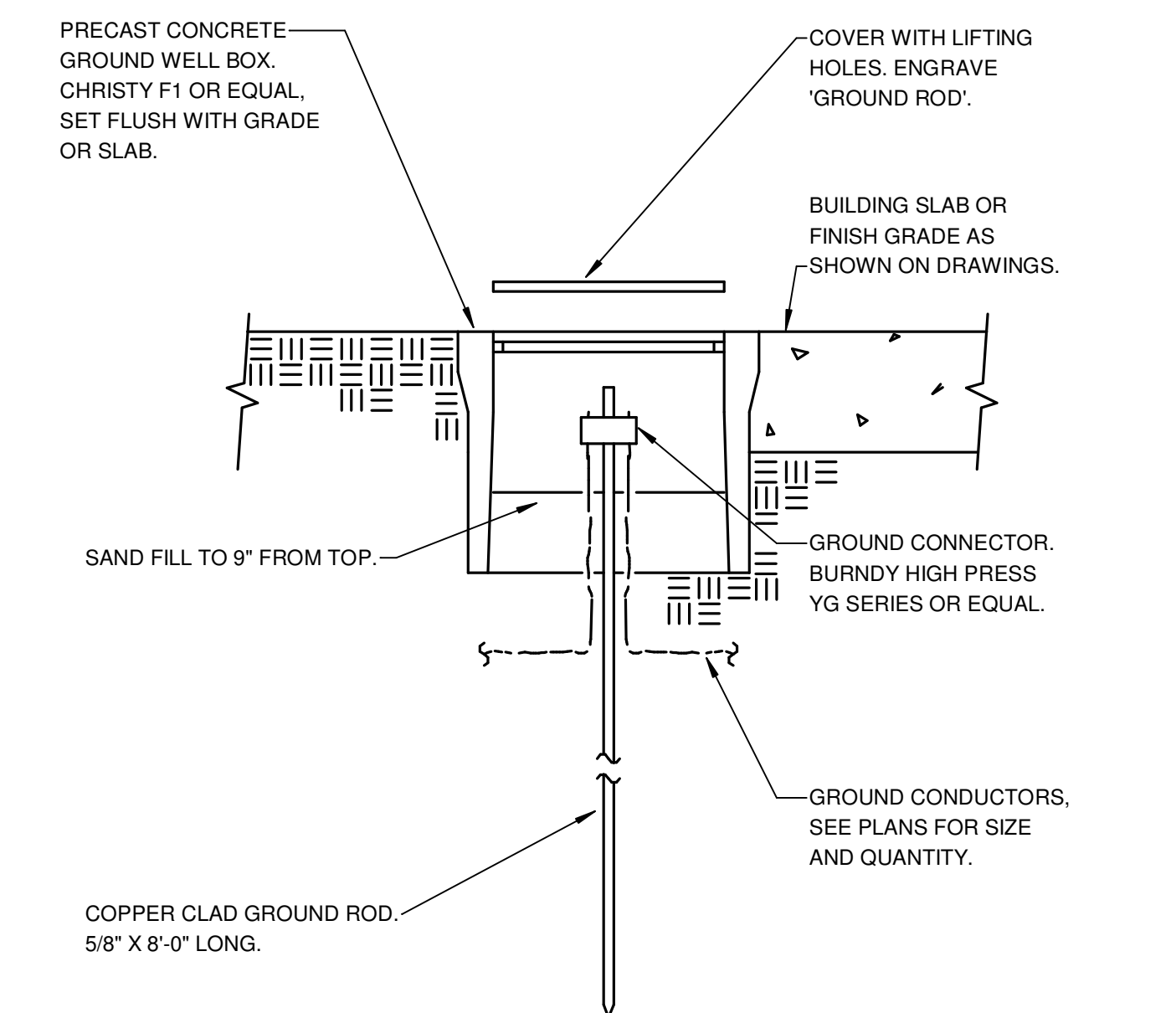
- 1 ALL EQUIPMENT GROUNDING CONDUCTORS FOR RECEPTACLE BRANCH CIRCUITS SHALL BE SIZED PER CEC ARTICLE 250. MULTIPLE BRANCH CIRCUIT HOMERUNS SHALL USE ONLY ONE EQUIPMENT GROUNDING CONDUCTOR, UON.
- 2 SIZE EQUIPMENT GROUNDING CONDUCTORS FOR FEEDER CIRCUITS PER FEEDER SCHEDULE OR IF NOT SHOWN PER CEC ARTICLE 250.
- 3 ROUTE ONE COPPER GROUNDING ELECTRODE CONDUCTOR, SIZED PER CEC ARTICLE 250, IN CONDUIT TO GROUNDING ELECTRODES SHOWN.
- 4 UTILITY SERVICE GROUNDING SHALL BE IN ACCORDANCE WITH CEC ARTICLE 250.
- 5 TYPICAL RECEPTACLE WITH EQUIPMENT GROUNDING CONDUCTOR, GROUND PER CEC ARTICLE 250.
- 6 CONNECT EQUIPMENT GROUNDING CONDUCTORS TO GROUND LUG BONDED TO THE ENCLOSURE.
- 7 GROUND ROD OR OTHER MADE ELECTRODES PER CEC ARTICLE 250 AND AS SHOWN ON DRAWINGS AND SPECIFICATIONS. PROVIDE 10'-0" MINIMUM BETWEEN RODS.
- 8 GROUND CONNECTION TO COMMUNICATION BACKBOARDS, ETC. REFER TO EACH SYSTEM FOR SIZE AND QUANTITY.
- 9 SYSTEM BONDING JUMPER: SIZE PER CEC ARTICLE 250.
- 10 EQUIPMENT COPPER GROUNDING BAR BONDED TO ENCLOSURE.
- 11 NEAREST EFFECTIVELY GROUNDING BUILDING STEEL.
- 12 GROUNDING ELECTRODE COPPER CONDUCTOR: #4/0 AWG MIN.
- 13 EQUIPMENT BONDING JUMPER PER CEC ARTICLE 250.
- 14 SERVICE MAIN BONDING JUMPER PER CEC ARTICLE 250.
- 15 SEPARATELY DERIVED SYSTEM GROUNDING ELECTRODE PER CEC ARTICLE 250. CONNECT TO MAIN BUILDING REFERENCE GROUND BUS IF IN SAME ROOM.
- 16 UFER GROUND. REFER TO SPECIFICATION SECTION 260526.
- 17 GROUNDING CONDUCTOR (NEUTRAL) BROUGHT TO SERVICE EQUIPMENT PER CEC ARTICLE 250.
- 18 MAIN BUILDING REFERENCE GROUND BUS. REFER TO SPECIFICATION SECTION 260526.
- 19 COLD WATER PIPE PER CEC ARTICLE 250.
- 20 TO LIGHTING OR OTHER 277 VOLT BRANCH CIRCUIT.
- 21 ALL GROUNDING FOR THE EMERGENCY POWER DISTRIBUTION SYSTEM SHALL CONFORM TO ALL REQUIREMENTS SHOWN FOR THE NORMAL POWER DISTRIBUTION SYSTEM.
- 22 BOND PARALLEL METALLIC CONDUITS TOGETHER USING GROUNDING BUSHINGS AND ONE GROUNDING CONDUCTOR IDENTICAL IN SIZE TO GROUNDING CONDUCTOR IN EACH OF THE PARALLEL CONDUIT RUNS.
- 23 REMOVABLE NEUTRAL DISCONNECT LINK.
- 24 SUPPLY-SIDE BONDING JUMPER.

5 GROUNDING SYSTEM SCHEMATIC WIRING DIAGRAM
SCALE: NTS



- EQUIPMENT PAD NOTES**
1. CONCRETE PAD SHALL BE DESIGNED TO ATTAIN A STRENGTH OF 3000 PSI IN 28 DAYS. SURFACE SHALL HAVE A LIGHT BROOM OR WOOD FLOAT FINISH. ALL EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER OR RADIUS. PAD DIMENSIONS SHALL BE DETERMINED BY EQUIPMENT DIMENSIONS. PAD SHALL EXTEND 8" ON SIDES, FRONT AND BACK OF EQUIPMENT AND 4" IN FRONT OF THE PG&E METER. PAD SHALL HAVE A MAX SLOPE OF 1/4" PER FOOT.
 2. #4 REINFORCING BARS AT 12" MAXIMUM SPACING IN EACH DIRECTION. BARS SHALL BE AS PER ASTM A615, GRADE 40 MINIMUM.
 3. COPPER CLAD 5/8" DIAMETER X 8'-0" LONG COPPER GROUND ROD WITH GROUND ROD CLAMP. SEE DETAIL 3E201.
 4. #4/0 SOLID BARE COPPER GROUND CONDUCTOR.
 5. IF A UNIFORM COMPACTED SOIL SUBGRADE WITH 95% RELATIVE COMPACTION TO A DEPTH OF AT LEAST 6" CANNOT BE ACHIEVED, PROVIDE A 6" THICK (MIN) BASE OF 3/4" CLASS 2 AB AT 95% RELATIVE COMPACTION.
 6. CONCRETE MOUNTING TEMPLATES AND CONDUIT PENETRATIONS SHALL BE PLACED IN ACCORDANCE WITH THE ATTACHED CHARGEPOINT DOCUMENTATION.

2 EQUIPMENT PAD DETAIL
SCALE: NTS



3 GROUND ROD WELL
SCALE: NTS

ELECTRIC BUS CHARGING PROJECT NCOC ELECTRICAL PLANS

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GRASS VALLEY, CA 95949

#	DESCRIPTION	DATE

DESIGNER: Designer
SCALE: NTS
DATE: 5/10/2023
TITLE: **DETAILS**
DRAWING NO. **E2.01**