

RECORD DRAWING
RECORD DRAWING IS BASED ON INFORMATION PROVIDED BY THE CONTRACTOR AND HAS NOT BEEN WORKED IN THE FIELD BY THE ENGINEER.
DATE: 09/18/2012

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IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPLICATION NUMBER 01-111618
AC _____ FL _____ BS _____
DATE _____

CALIFORNIA STATE FIRE MARSHAL
APPROVED
APPROVAL OF THIS PLAN DOES NOT AUTHORIZE OR APPROVE ANY CONSTRUCTION OR DEVIATION FROM APPLICABLE REGULATIONS. FINAL APPROVAL IS SUBJECT TO FIELD INSPECTION. ONE SET OF APPROVED PLANS SHALL BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES.
REVIEWED BY _____ DATE _____

CAÑADA COLLEGE
Electrical Infrastructure Replacement Project
4200 Farm Hill Blvd
Redwood City, CA 94061

CONFORMED SET

SHEET TITLE
ELECTRICAL GENERAL

REVISIONS		
NO.	DATE	DESCRIPTION

DATE June 20, 2011
DRAWN JS
CHECKED MM
SCALE AS NOTED
JOB NO. 2921.01

SHEET NUMBER
E1.1

GENERAL DESCRIPTION OF WORK:

- (N) 15KV CLASS (12470V) CIRCUIT BREAKER SWITCH GEAR SERVICE AND ASSOCIATED DUCTS AND SUBSTRUCTURES, INCLUDE LIGHTING AND POWER AT THE BUILDING 30 SWITCHGEAR ENCLOSURE.
- (N) 12470V CAMPUS DISTRIBUTION LOOP WITH TWO PADMOUNT VACUUM SWITCHES, VAULTS, DUCTS, AND SUBSTRUCTURES. REPLACE (E) BUILDING FEEDER TAPS AND CONNECT EACH BUILDING TO A VACUUM SWITCH AS SHOWN. SWITCH 2 IS INSTALLED OVER A CUSTOM CABLE VAULT AT THE BUILDING 16 LOADING DOCK. INCLUDE LIGHTING AND RECEPTACLES AS SHOWN. SEE DETAIL 11/E2.1
- REPLACE TWO EXISTING UNIT SUBSTATIONS (LOADCENTERS 1 & 2) WITH (N) IN SAME LOCATION. SEE SHEET E3.1
- REPLACE (E) 480/208V TRANSFORMER IN BUILDING 13 WITH (N) IN ADJACENT LOCATION. PROVIDE TWO (N) SECONDARY CIRCUIT BREAKERS AND RECONNECT (E) BUILDING FEEDERS.
- EXTEND (E) DUCT AND PROVIDE (N) CABLE FROM (N) SERVICE SWITCHGEAR TO (E) PG&E SWITCH AT FARM HILL ROAD. COORDINATE TERMINATION OF CABLE BY PG&E AT THEIR SWITCH
- DEMOLITION IS INCLUDED. PROVIDE PROPER DISPOSAL OF EQUIPMENT THAT IS REMOVED. ADVISE THE DISTRICT IF HAZARDOUS MATERIALS ARE DISCOVERED DURING DEMOLITION AND ARRANGE DISPOSAL. BE ADVISED THAT SOME EXISTING EQUIPMENT MAY HAVE ASBESTOS ARC CHUTES. REMOVE ALL UNUSED CONDUCTORS AND ALL ACCESSIBLE UNUSED CONDUITS. WHERE CONDUITS ARE ABANDONED, SEAL ENDS SO THAT WATER DOES NOT ENTER ANY BUILDING.

GENERAL NOTES:

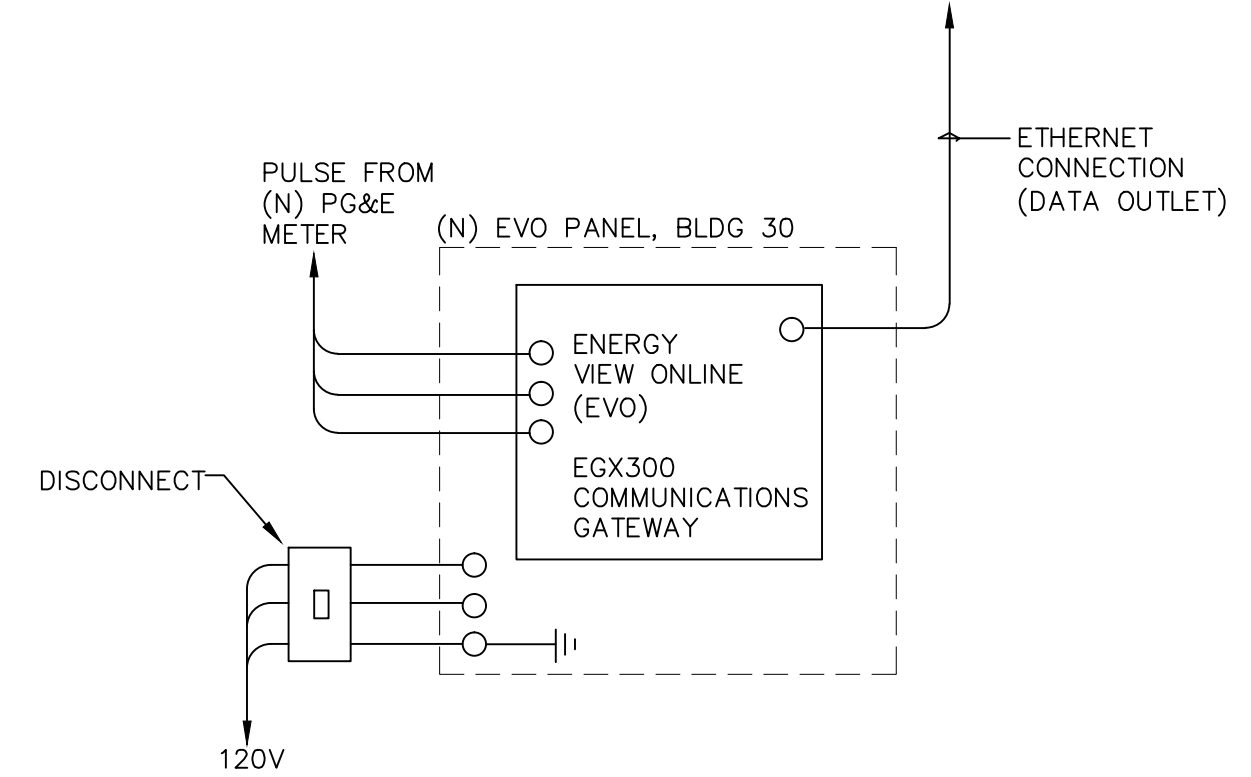
- PERFORM ALL WORK ACCORDING TO CALIFORNIA ELECTRIC CODE (CEC). COORDINATE INSPECTIONS WITH OSA INSPECTOR. DRAWINGS ARE DIAGRAMMATIC AND WORK IS SUBJECT TO APPROVAL BY INSPECTOR IN THE FIELD.
- DIMENSIONS SHOWN ARE APPROXIMATE; CONFIRM ALL DIMENSIONS IN FIELD. REFER TO CIVIL AND ARCHITECTURAL DRAWINGS FOR CONSTRUCTION, EXCAVATION, AND LOCATIONS. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC
- 600V AND BELOW: USE COPPER WIRE, THIN. USE EMT CONDUIT WITH WEATHER TIGHT FITTINGS INDOORS, RSW EXPOSED OUTDOORS, AND SCHEDULE 40 PVC CONDUIT BELOW GRADE. MAKE CONDUIT CONNECTIONS TO MOTORS, CHILLER, AND FAN WITH STEEL LIQUIDTIGHT FLEX CONDUIT, AT LEAST 18" LONG.
- MEDIUM VOLTAGE (12.5KV): USE COPPER, EPR INSULATED CABLE AND FITTINGS AS SHOWN.
- SUBMIT MAIN SWITCHGEAR SHOP DRAWINGS TO ARCHITECT AND OWNER FOR PG&E APPROVAL PRIOR TO FABRICATION.
- USE CAUTION AND DO NOT DAMAGE (E) LANDSCAPING AND PAVEMENT. LEAVE THE AREA CLEAN AND RESTORED TO ORIGINAL CONDITION AT COMPLETION OF WORK.
- SEE SITE UTILITIES DRAWINGS FOR EXACT LOCATIONS AND FOR COORDINATION WITH (E) AND (N) UTILITIES. VERIFY ALL LOCATIONS IN FIELD WITH CIVIL ENGINEER.
- TERMINATE CONDUITS WITH BUSHINGS OR ENOBELLS AND PROVIDE CALIBRATED PULL LINE IN ALL EMPTY CONDUITS.
- EXCAVATE CAREFULLY IN AREAS OF EXISTING CONDUITS. MARKINGS ARE APPROXIMATE, BASED ON BEST AVAILABLE INFORMATION, AND DEPTH IS NOT KNOWN.
- RACK CABLES NEATLY IN VAULTS WITH NON-METALLIC RACKS AS SHOWN ON DETAIL 7/E2.1
- USE "DONUT" STYLE CONDUIT SPACERS IN TRENCH AND SECURE CONDUITS TO SIDES OF TRENCH TO PREVENT FLOATING. SEE DETAIL 5/E2.1
- USE VAULT AND HEAVY FULL TRAFFIC LID ACCORDING TO DETAILS 3 & 4/E2.1 FOR ALL POWER VAULTS.
- DEVICE MOUNTING HEIGHT (ABOVE FINISHED FLOOR)
WALL RECEPTACLES: 15" TO BOTTOM OF RECEPTACLE
LIGHTING SWITCHES AND FIRE ALARM STATIONS: 48" TO CENTER
- ANCHOR EQUIPMENT TO PAD. SEE SCHEDULE ON SHEET E2.1
- ELECTRICAL CONDUIT RACKS AND SIMILAR SYSTEMS SHALL BE BRACED TO RESIST THE FORCES PRESCRIBED IN ASCE 7-05 13.3 AS DEFINED IN ASCE 7-05 SECTIONS 13.6.8, 13.6.7 AND 13.6.5.5 ITEM 6, RESPECTIVELY. THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL COMPLY WITH ONE OF THE OSHDP PRE-APPROVALS WITH AN OPA # SUCH AS MASON INDUSTRIES (OPA 349), OR ISAT (OPA 485) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.

COPIES OF THE PRE-APPROVAL MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

LUMINAIRE SCHEDULE		
TYPE	DESCRIPTION	LAMPS
A	5'x 50" FLUORESCENT, WET LOCATION, ENCLOSED 3-LAMP, CASKETE LUMINAIRE WITH ELECTRONIC BALLAST, 120V	3-32W T8
B	VAPORTIGHT GLOBE STYLE LUMINAIRE, CF LAMP, 120V COOPER 10CV OR EQUAL	CF
C	EXTERIOR WALL LUMINAIRE COMPACT FLUORESCENT 120V, BLACK FINISH, FULL CUTOFF, CONTROLLED BY BMS SYSTEM LUMINAIRE: SHAPER 682-WP "WEDGE" 682-WP 11" CFL/2 120V BK	DUAL 26W CF
D	EMERGENCY LIGHTING UNIT WET LOCATION, SELF DIAGNOSTIC 120V, 90 MINUTES MINIMUM DUAL LITE LM 34 D WITH 2-12W LAMP HEADS	

LEGEND:

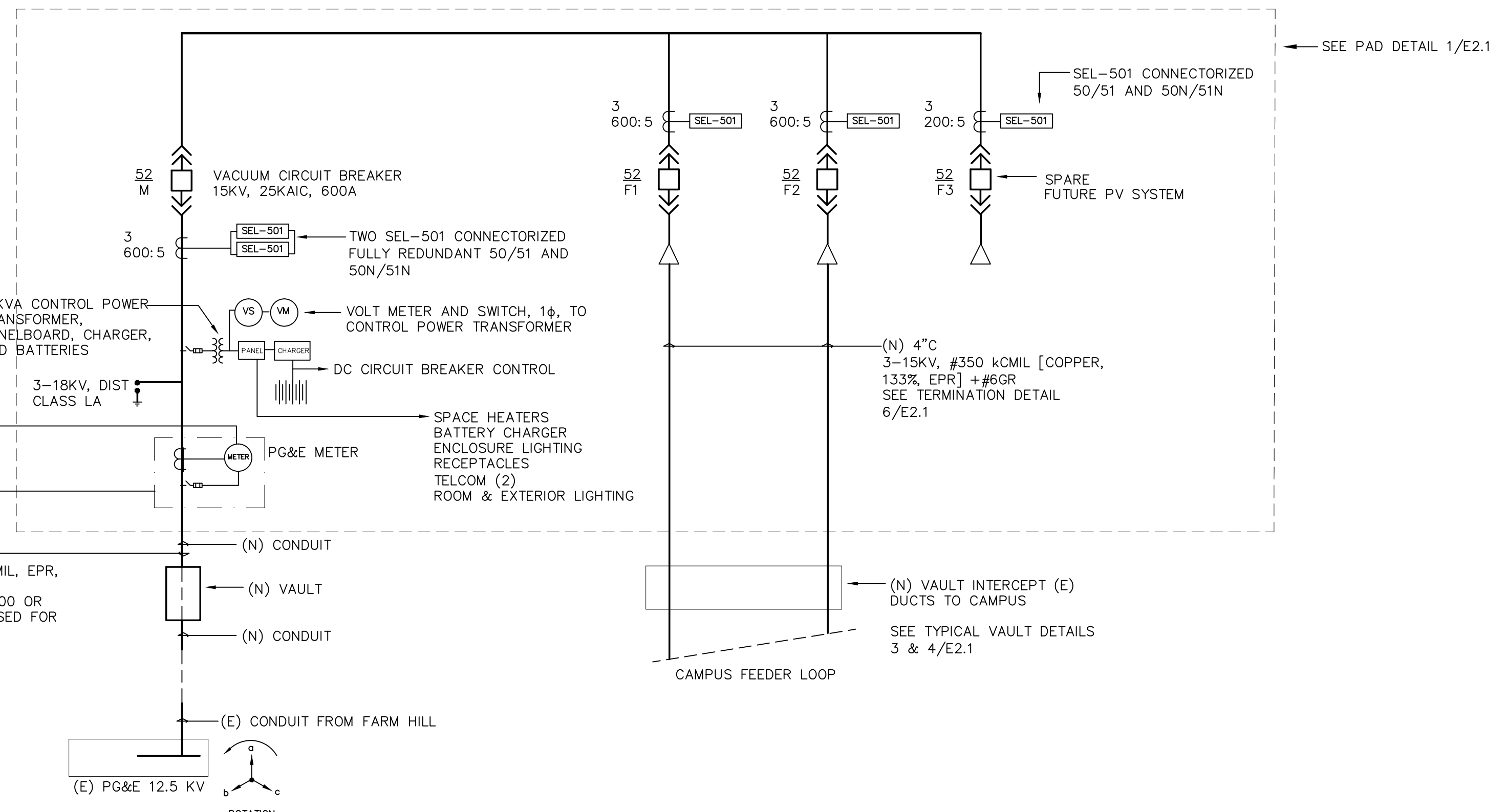
- (N) NEW
- (E) EXISTING
- (TYP) TYPICAL
- BMS BUILDING MANAGEMENT SYSTEM
- EVO ENERGY VIEW ONLINE SYSTEM
- FACP FIRE ALARM CONTROL PANEL
- /// // (E) EXISTING TO BE REMOVED
- (E) EXISTING REMAINS
- (N) NEW CONSTRUCTION
- TRANSFORMER
- SWITCH AND FUSE
- CIRCUIT BREAKER, LOW VOLTAGE
- CIRCUIT BREAKER, 15KV
- TRANSFORMER
- 600 A ELBOW, DETAIL 10/E2.1
- 200 A ELBOW, SEE DETAIL 9/E2.1
- 15KV STRESS CONE TERMINATIONS, SEE DETAIL 6/E2.1
- PADMOUNT DISTRIBUTION SWITCH
- WALL SWITCH, 3-WAY, IVORY SPECIFICATION GRADE, 277V
- BMS SWITCH LEG TO BMS
- DUPLEX RECEPTACLE GFI, 120V, 20A SPECIFICATION GRADE
- DOUBLE DUPLEX RECEPTACLE GFI, 120V, 20A SPECIFICATION GRADE
- 2-PORT DATA OUTLET
- FIRE ALARM MANUAL PULL STATION
- HORN STROBE
- THERMOSTAT ON WALL @ +48"



4 METER PULSE & ENERGY VIEW ONLINE (EVO)
N.T.S.

SHEET NOTES:

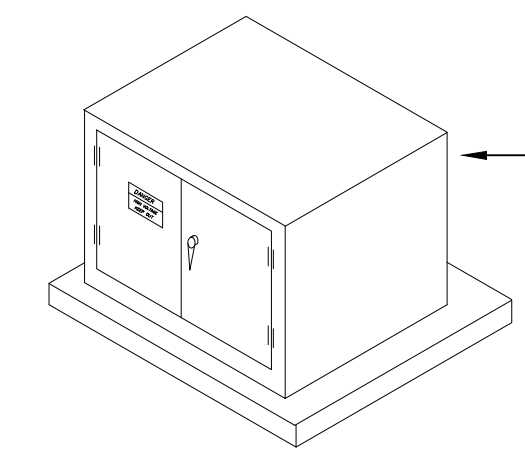
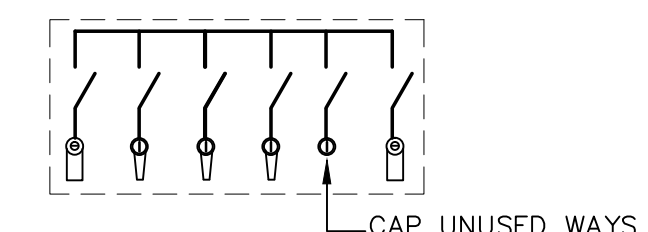
- 1 PROVIDE 120V POWER FROM IT RECEPTACLE TO FIRE ALARM CONTROL PANEL (FACP) AND SECURITY PANELS.



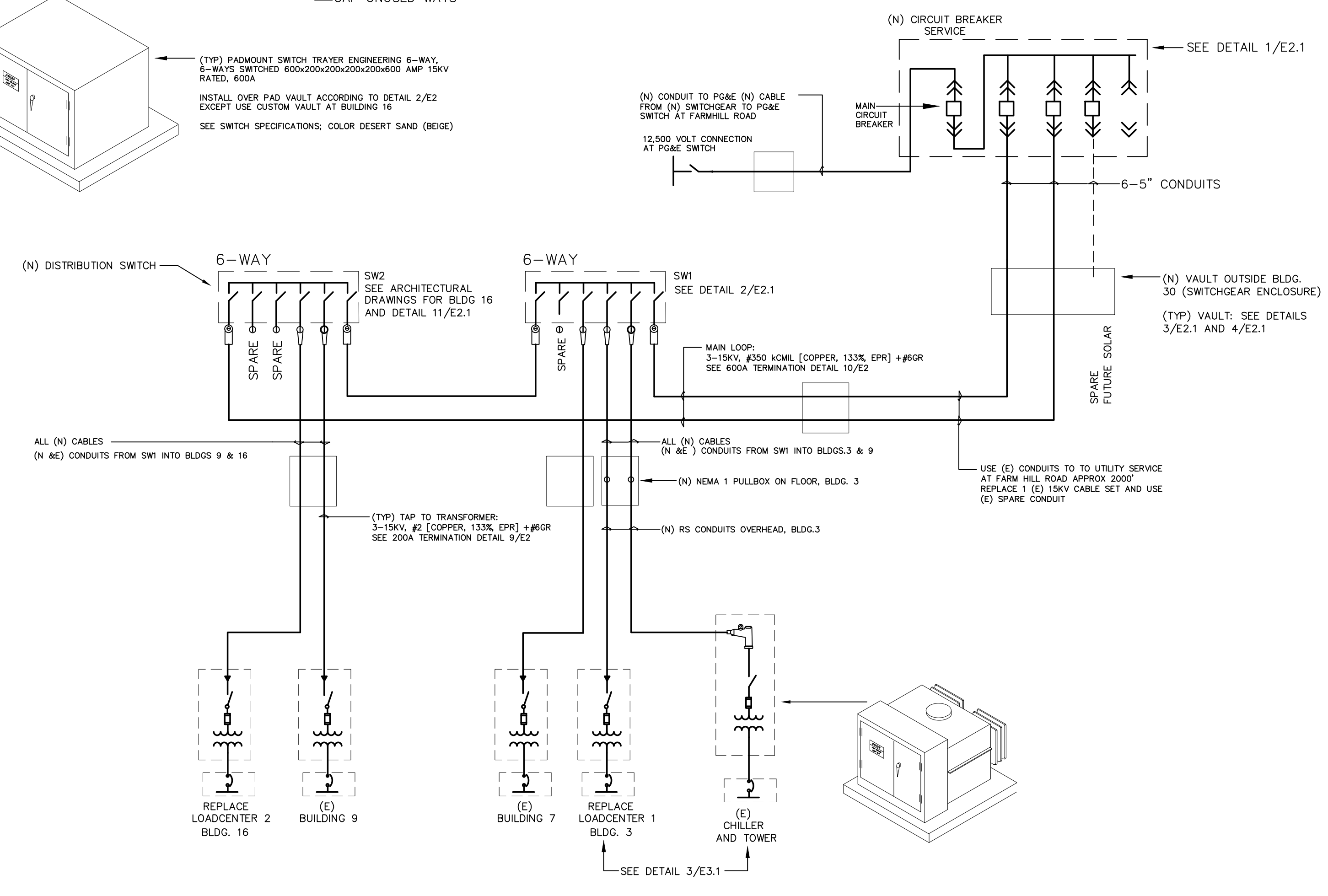
1 12KV SERVICE, SINGLE LINE DIAGRAM
N.T.S.

PG&E SERVICE NOTES:

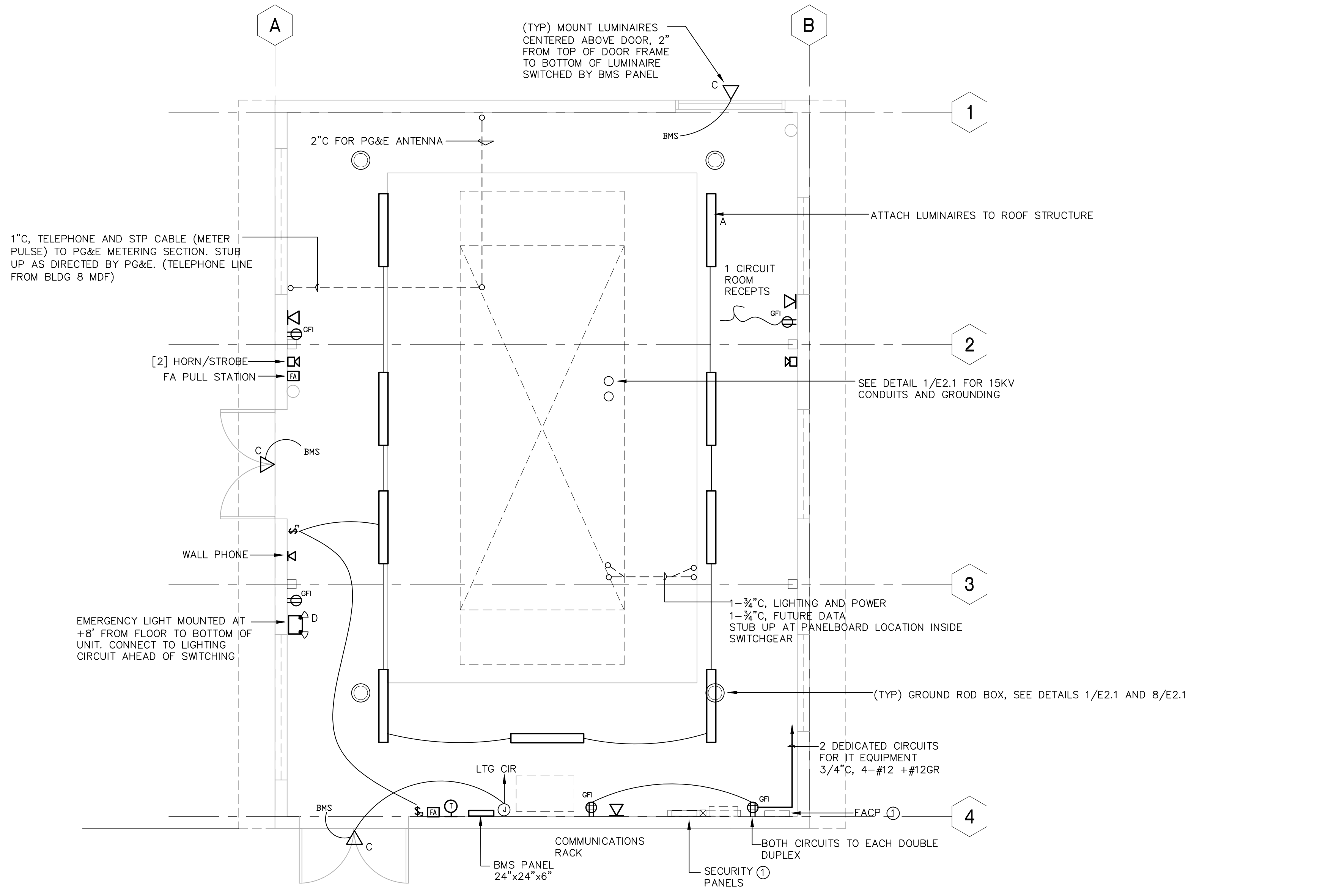
- THE SUBSTRUCTURES AND RACEWAYS FOR THE PG&E SERVICE ARE "CUSTOMER OWNED." CONTRACTOR COORDINATE DISCONNECTING OF EXISTING IN CONNECTION OF NEW WITH PG&E, OWNER & ARCHITECT.
- AFTER DISCONNECTION BY PG&E REMOVE (E) CONDUCTOR FROM TENNIS COURT MANHOLE TO PG&E CONNECTION POINT AT FARMHILL ROAD
 - PROVIDE (N) CONDUIT FROM TENNIS COURT MANHOLE TO (N) 12KV SWITCHGEAR.
 - PROVIDE (N) SERVICE CONDUCTOR, SIZE AS SHOWN ON 1-LINE DIAGRAM, FROM (N) 12KV SWITCHGEAR TO PG&E POINT OF CONNECTION AT FARMHILL RD.
 - TERMINATE (N) SERVICE CONDUCTORS AT (N) SWITCHGEAR ACCORDING TO DETAIL 6/E2.1. PG&E WILL TERMINATE THE CABLE AT THEIR EQUIPMENT. COORDINATE TIMING AND SAFETY PROCEDURES WITH PG&E. PG&E MAY WANT A SAMPLE OF THE CABLE PROVIDED.



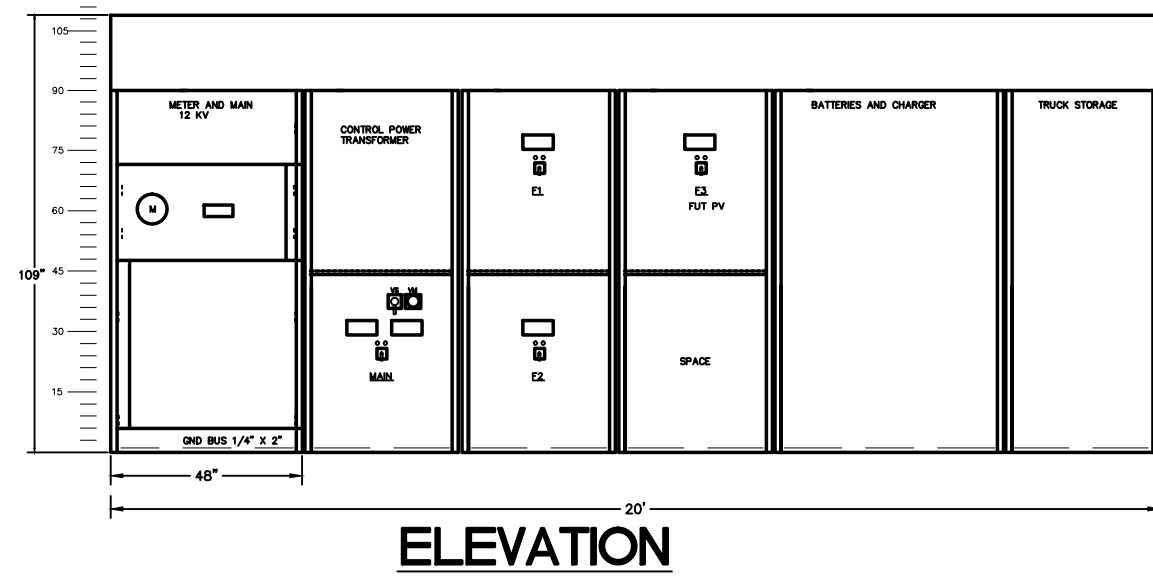
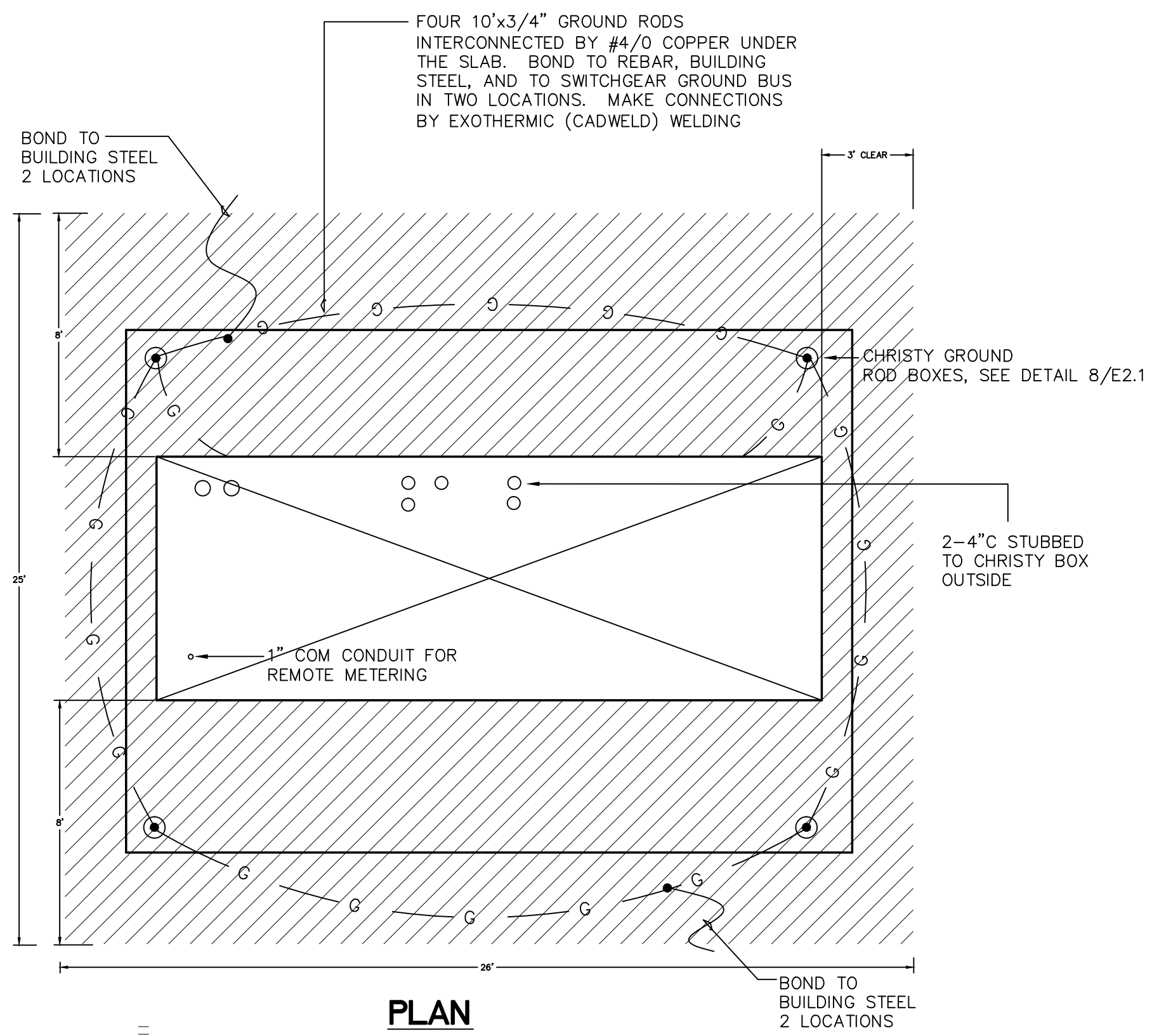
(TYP) PADMOUNT SWITCH TRAY ENGINEERING 6-WAY, 8-WAYS SWITCHED 600/200/200/200/200/600 AMP 15KV RATED, 600A
INSTALL OVER PAD VAULT ACCORDING TO DETAIL 2/E2 EXCEPT USE CUSTOM VAULT AT BUILDING 16
SEE SWITCH SPECIFICATIONS: COLOR DESERT SAND (RDG)



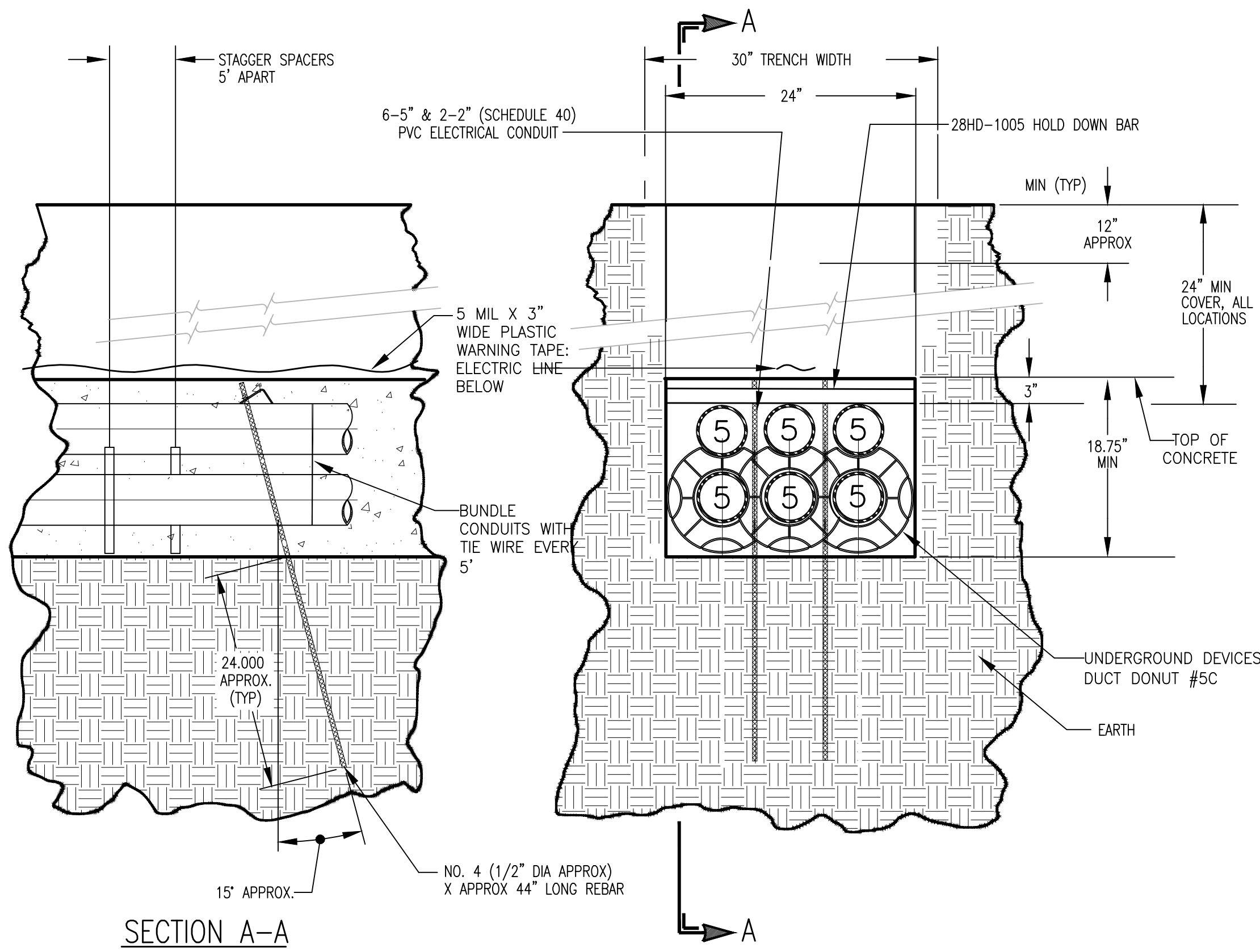
2 CAMPUS 12KV LOOP, 1-LINE DIAGRAM
N.T.S.



3 (N) BUILDING 30 ELECTRICAL PLAN "POWERHOUSE"
SCALE: 1/4"=1'-0"



1 15KV, SERVICE SWITCHGEAR
E2.1



DRAWING IS FOR TYPICAL DUCT BANK, PROVIDE NUMBER AND TYPE OF CONDUITS AS SHOWN ON PLAN

CONCRETE FOR CONDUIT ENCASEMENT: USE RED CONCRETE CONTAINING FOUR (4) POUNDS RED DYE PER CUBIC YARD. EXCEPT WHERE OTHERWISE SPECIFIED IN CIVIL DRAWINGS, USE CALTRANS CLASS C CONCRETE WITH 1" MAXIMUM AGGREGATE.

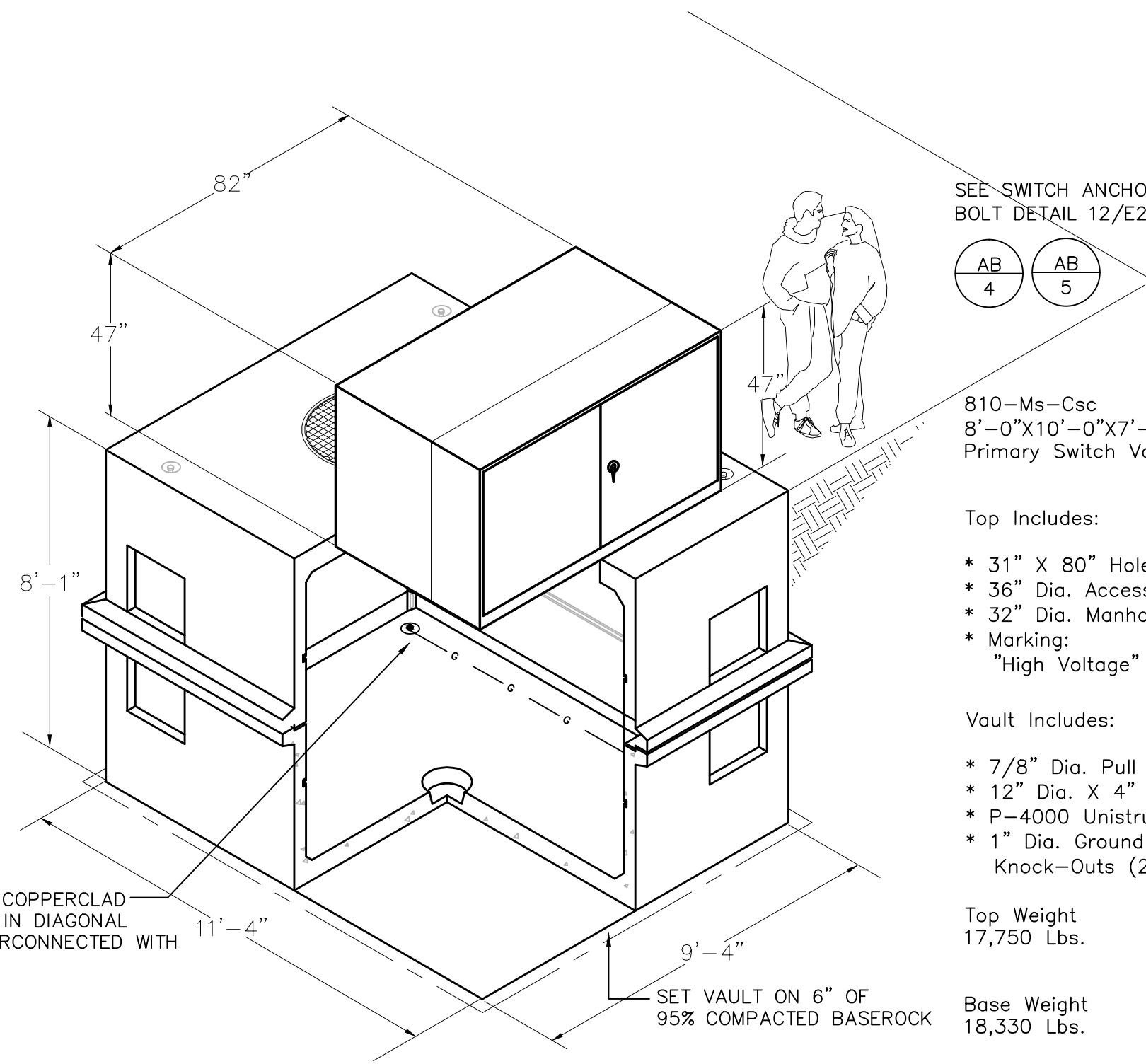
5 TYPICAL DUCT BANK SECTION
E2.1

ANCHOR BOLT SCHEDULE						
DESIGNATION	BLDG	UNIT	ANCHOR DIA	EMBED	MAX SPACING	COMMENTS
AB/1	30	MAIN SG	3/4"	4"	24"	8 PER SIDE (MIN)
AB/2	3	LC1	3/4"	4"	24"	4 PER SIDE (MIN)
AB/3	16	LC2	3/4"	4"	24"	4 PER SIDE (MIN)
AB/4	3	SW1	3/4"	4"	24"	2 PER SIDE (MIN)
AB/5	16	SW2	3/4"	4"	24"	2 PER SIDE (MIN)
AB/6	13	TRANS	3/4"	4"	24"	2 PER SIDE (MIN)

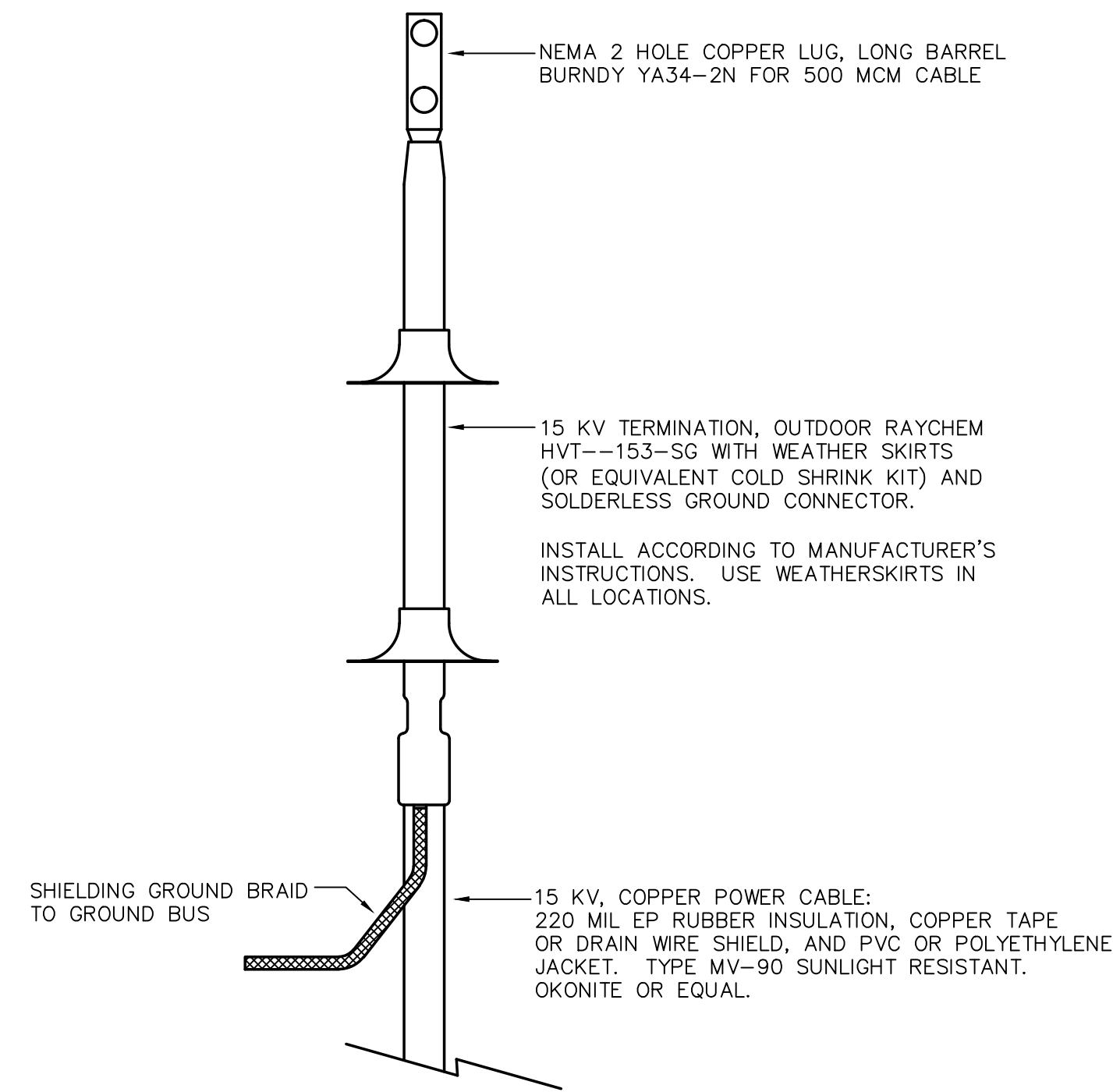
ANCHOR BOLT NOTES

- USE HILTI KB-TZ BOLTS, INSTALL ACCORDING TO HILTI'S INSTRUCTIONS AT LOCATIONS DESIGNATED BY ELECTRICAL EQUIPMENT MANUFACTURER.
- SEE STRUCTURAL DRAWINGS FOR TESTING REQUIREMENTS.

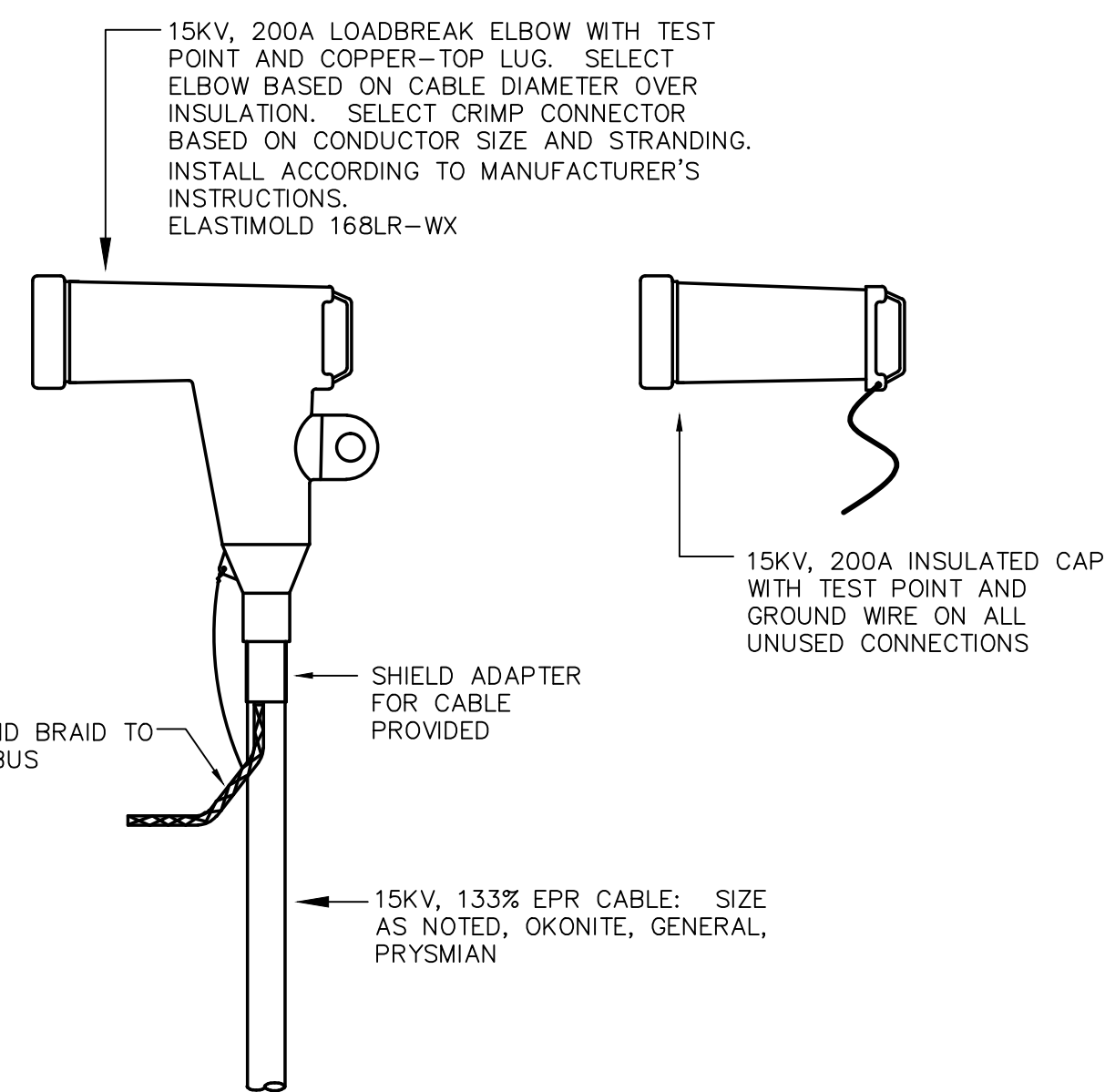
12 ANCHOR BOLT SCHEDULE
E2.1



2 PADMOUNT SWITCH AND VAULT
E2.1



6 15KV, CABLE TERMINATION
E2.1



9 15KV, 200A CONNECTOR
E2.1

4'-6"X8'-6"X6'-0" I.D. Precast Concrete Vault Code No. : 04-3376

Cover Adjusts Up To 3" In The Upward Position

Vault Includes:

- 7/8" Dia. Pull Irons (5ea.)
- 14" Dia. X 4" Sump (1ea.)
- 1" Dia. Ground Rod Knock-Outs (2ea.)
- Term-A-Busets And Knock-Outs Per Current P.G.&E. Specifications

Vault Includes:

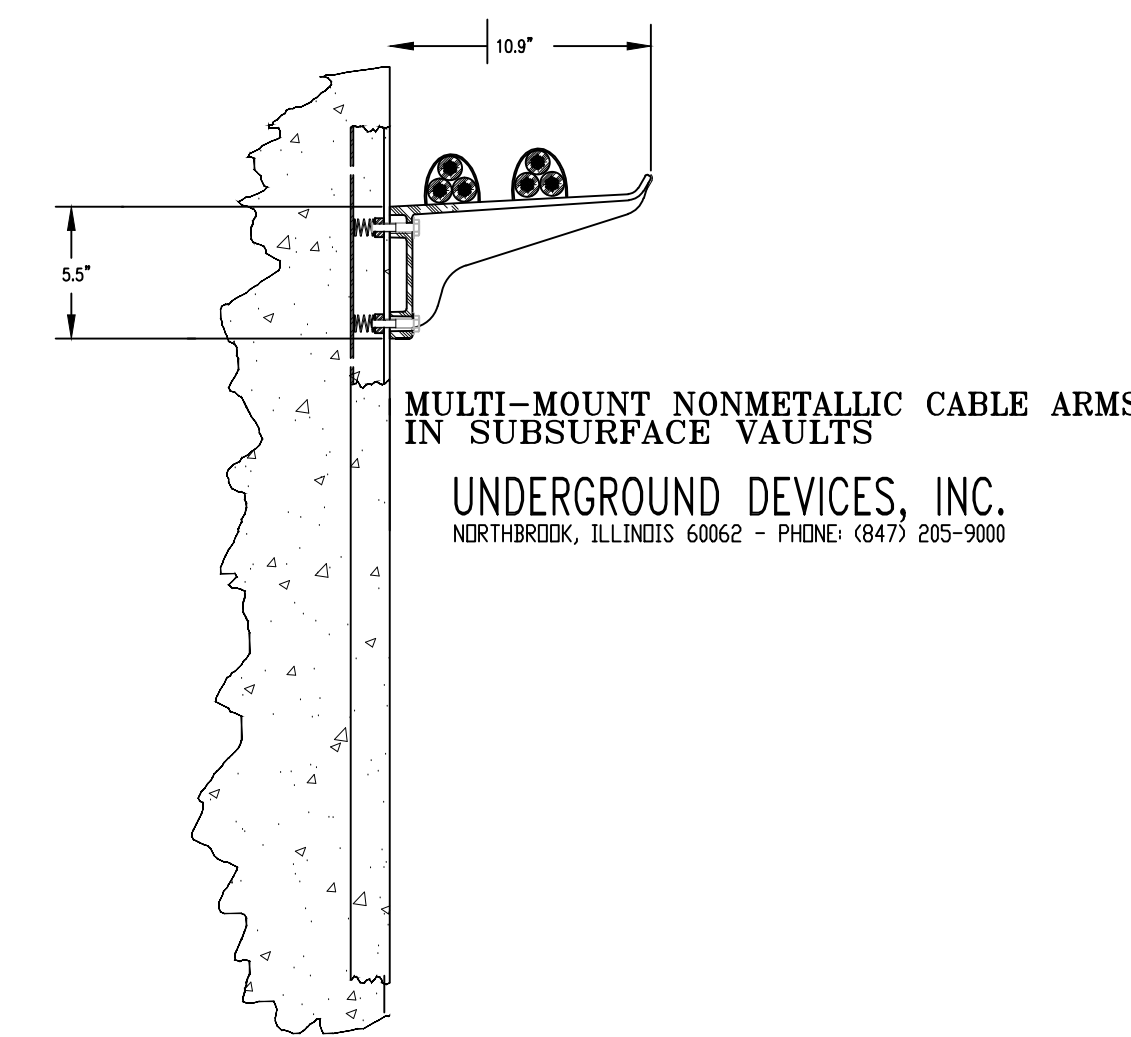
- 7/8" Dia. Pull Irons (4ea.)
- 12" Dia. X 4" Sump (1ea.)
- P-4000 Unistrut (4ea.)
- 1" Dia. Ground Rod Knock-Outs (2ea.)

Top Weight 16,850 Lbs.

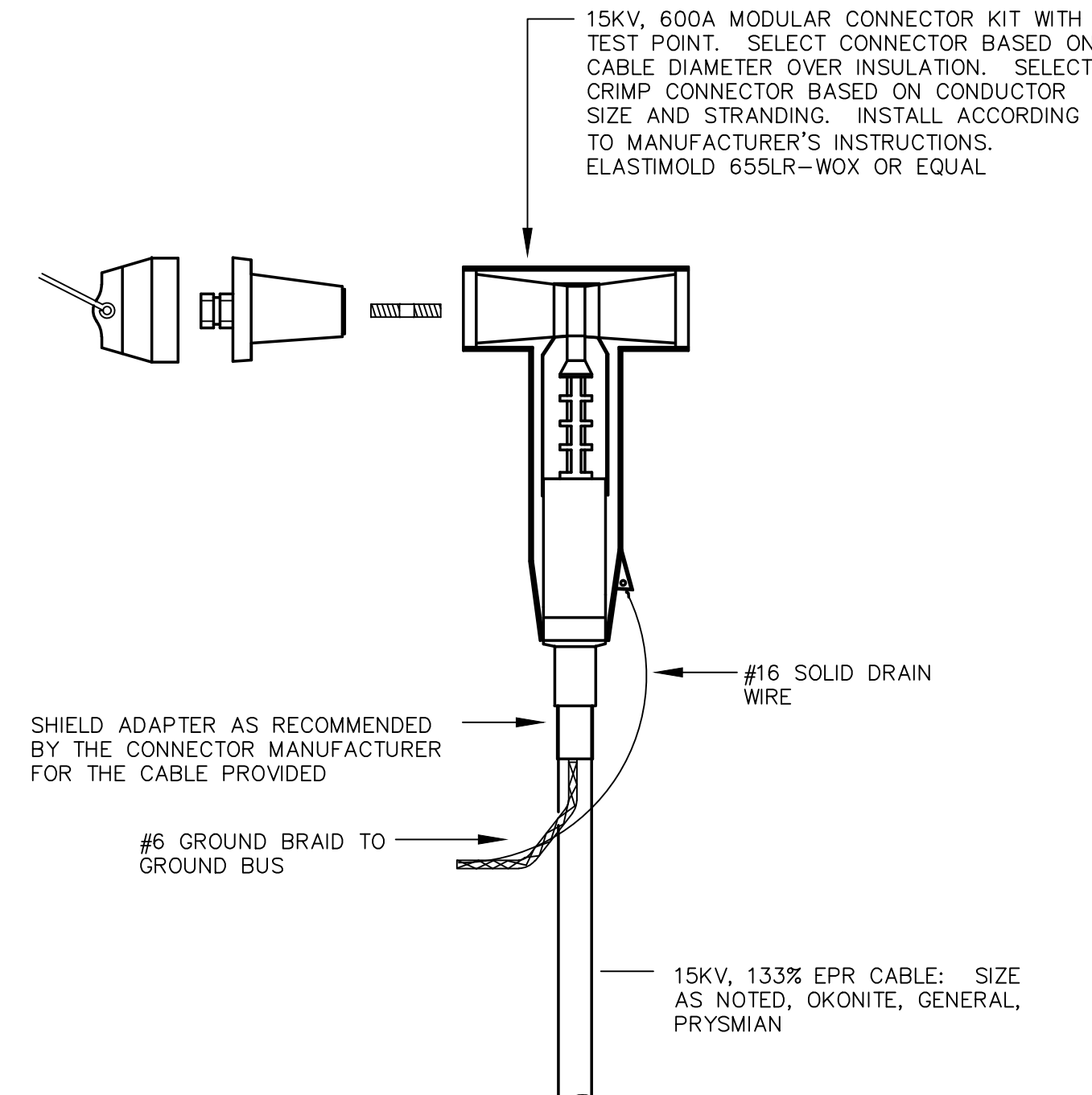
Base Weight 18,330 Lbs.

Drawing May Not Conform To The Most Current Specification

3 SUBSURFACE POWER VAULT
E2.1



7 NON-METALLIC CABLE RACK
E2.1

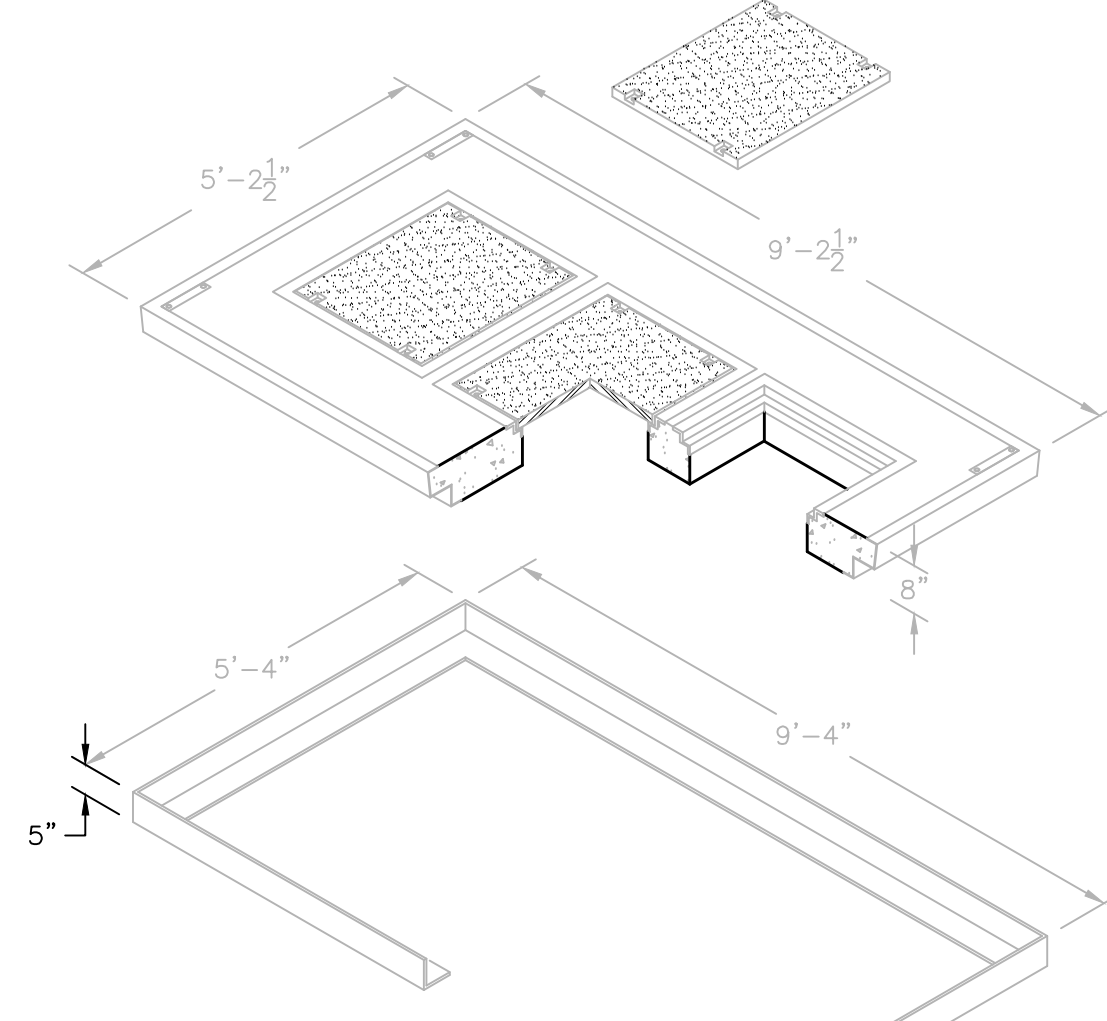


10 15KV, 600A CONNECTOR
E2.1

Heavy Full Traffic Code No. : 04-1443

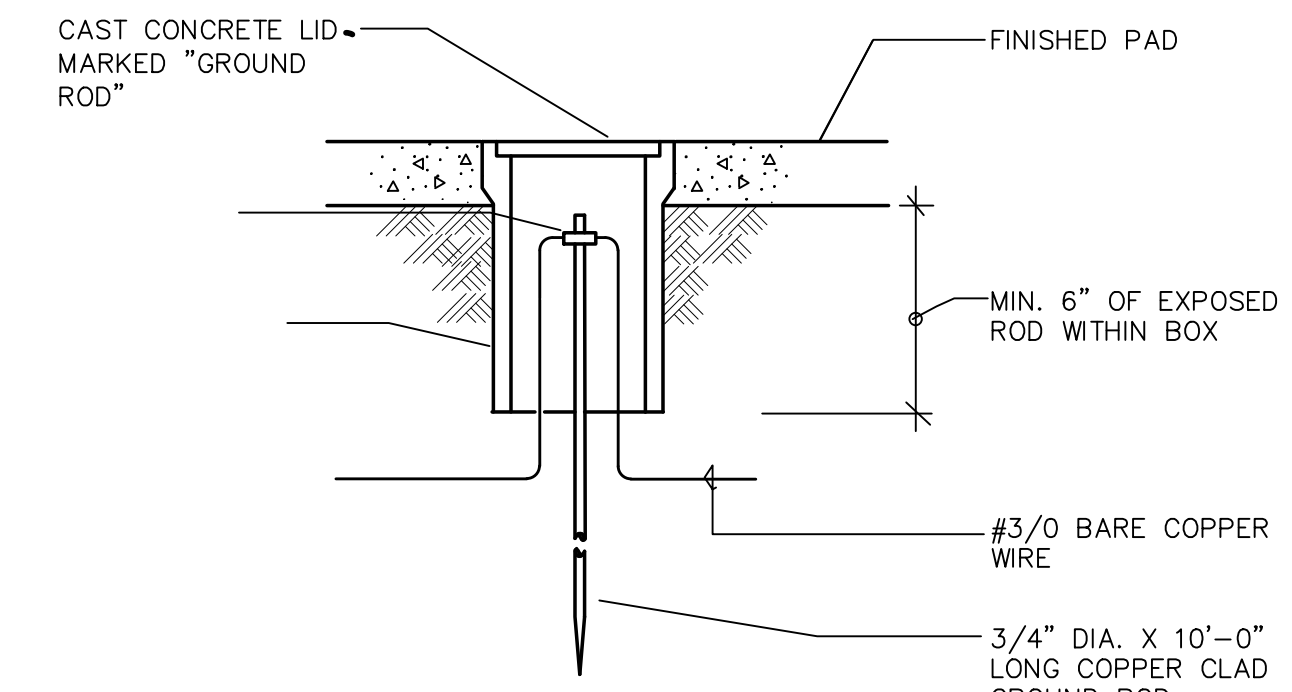
Cover Includes:

- 24"X29" (Nominal) Frame & Solid Cover Cast-in Flush (3ea.)
- "P.G.&E." Name Plate (1ea.)
- Lexan Number Plates (3ea.)
- 5"X5"X1/2" Galvanized Angle Frame

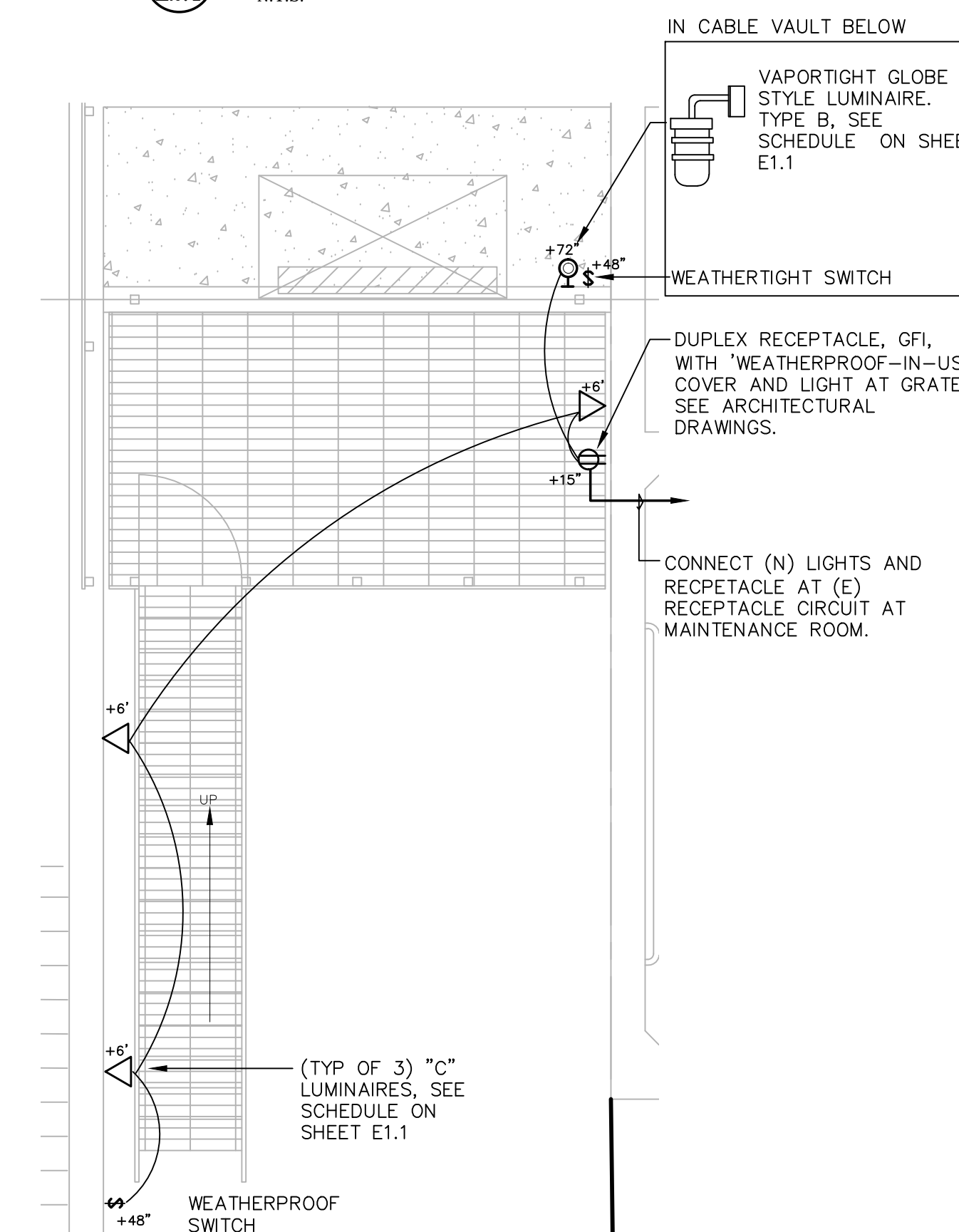


Drawing May Not Conform To The Most Current Specification

4 FULL TRAFFIC VAULT LID
E2.1



8 GROUND ROD DETAIL
E2.1



11 LIGHTING AND POWER AT BLDG. 16
E2.1

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Berkeley, CA 94710
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fax 510.649.3008

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