

May 24, 2022

Ms. Susan Harautuneian
Madera Unified School District
1205 S. Madera Ave.
Madera, CA 93637

21052

Subject: Madera USD – District Office Server Room Upgrade
Re: Addendum #3

Dear Ms. Harautuneian:

Please include the following enclosed replacement sheets in your next published addendum:

1. Sheet E1.01 – Symbols Legend, Notes, Abbreviations
2. Sheet E1.02 – Electrical Notes, Requirements, Lighting & Mechanical Schedules
3. Sheet E1.03 – Partial Single Line Diagram, Equipment Attributes & Panel Schedules
4. Sheet E2.01 – Electrical and Fire Alarm Site Plan
5. Sheet E4.02 – Typical Electrical Details

Sincerely,



Anthony Bischel, P.E.
Mechanical Engineer

Encl. (5)

ABBREVIATIONS

Table of abbreviations including A, AMP, A.C., A.C.F., AL, AMO, AMONG OPERATIONAL CATALYST, AN, BOARD, C, CABINET, CAB, CATV, CB, CIRCUIT BREAKER, CC, CENTER TO CENTER, CKT, CO, CONDUIT ONLY (EMPTY CONDUIT) WITH PULL WIRE, COPES, CPB, CU, DB, DCOA, DIESEL EXHAUST FLUID, DDEF, DIESEL OXIDATION CATALYST, DDF, DIESEL PARTICULATE FILTER, EM, EMERGENCY, EMT, ELECTRIC METALLIC TUBING, E.O.L., END-OF-LINE, EPO, EMERGENCY POWER-OFF, EWC, ELECTRIC WATER COOLER, F, FIRE ALARM, F.A./FA, FIRE ALARM CONTROL PANEL, F.B.O., FURNISHED BY OTHER/FURNISHED BY OWNER, FLA, FULL LOAD AMPS, FMC, FLEXIBLE METALLIC CONDUIT, FS, FLOW SWITCH, G, GREEN GROUND WIRE, GFCI, GROUND FAULT CIRCUIT INTERRUPT, GND, GALVANIZED RIGID STEEL, GR5, HORIZONTAL CROSSCONNECT, HC, HIGH INTENSITY DISCHARGE, HP, HORSEPOWER, HPS, HIGH PRESSURE SODIUM, I.B.O., INSTALLED BY OTHER, I.B.E., INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR, IDF, INTERMEDIATE DISTRIBUTION FRAME (DATA), IG, ISOLATED GROUND, INT, INTRUSION ALARM, J/JB, JUNCTION BOX, KV, KILOVOLTS, KVA, KILOVOLTS-AMPERES, KW, KILOWATT, LFMFC, LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT, LCP, LIGHTING CONTROL PANEL, LTG, LIGHTING, LV, LOW VOLTAGE, MCC, MOTOR CONTROL CENTER, MTD, MOUNTED, MTG, MOUNTING, MLO, MAIN LUG ONLY, N, NEUTRAL, (N), NEW, NL, NIGHT LIGHT, N.L.C., NOT IN CONTRACT, N.T.S., NOT TO SCALE, ON CENTER, O.C./OC, OWNER FURNISHED OWNER INSTALLED, Ø, PHASE, P, POLE, P.A./PA, PUBLIC ADDRESS SYSTEM, PB, PULL BOX, PIV, POST INDICATOR VALVE, PNL, PANEL, PPB, POWER PULL BOX, REC/RECEPT, RECEPTACLE, REF, REFRIGERATOR, RELO, RELOCATABLE BUILDING/ PORTABLE BUILDING, RM, ROOM, RS, RAPID START, RU, RACK UNIT, SCE, SIGNAL CURRENT EXPANDER PANEL, SCF, SECURITY LIGHT, S.L., SECURITY LIGHT, S.CTB, SIGNAL AND COMMUNICATION TERMINAL BACKBOARD, SPB, SIGNAL PULL BOX, SPD, SURGE SUPPRESSION DEVICE, STB, SIGNAL TERMINAL BOARD, STC, SIGNAL TERMINAL CABINET, SW, SWITCH, TPB, TELEPHONE PULL BOX, TS, TAMPER SWITCH, TEL, TELEPHONE, TERM, TERMINAL, TYP, TYPICAL, TTB, TELEPHONE TERMINAL BOARD, TTC, TELEPHONE TERMINAL CABINET, U.C., UNDER COUNTER, U.G., UNDERGROUND, U.O.N., UNLESS OTHERWISE NOTED, V, VOLTS/VOLTAGE, V.P., VANDAL PROOF, W, WATTS, WP, WEATHERPROOF, WM, WIREMOLD

GENERAL NOTES

- 1. ALL WORK AND MATERIAL SHALL CONFORM TO LATEST CODES AND ORDINANCES. IT IS THE INTENTION OF THESE PLANS AND SPECIFICATIONS TO COVER ALL THINGS REQUIRED TO PROVIDE COMPLETE AND OPERATIVE SYSTEMS. THE CONTRACTOR SHALL FURNISH LABOR, MATERIAL, TRANSPORTATION, EQUIPMENT, MISCELLANEOUS SERVICES, ETC. REQUIRED TO ACCOMPLISH THIS RESULT. ANYTHING WHICH MAY BE REASONABLY CONSTRUED AS A NECESSARY PART OF THE INSTALLATION SHALL BE INCLUDED. NOTHING IN THESE PLANS OR SPECIFICATIONS MAY BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO ANY CONSTRUCTION CODES.
2. ALL EQUIPMENT SHALL HAVE AN APPROVED, NATIONALLY RECOGNIZED TESTING LABORATORY LABEL ATTACHED (REFER TO THE FOLLOWING WEBSITE FOR APPROVED TESTING COMPANIES: https://www.osha.gov/dts/otpa/nrt/its.html) AS PER N.E.C. 110. PROOF OF TESTING LABELS REQUIRED WITH ALL SUBMITTALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL THESE REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO PURCHASING, IF ANY OF THE SPECIFIED MATERIAL FAILED THESE REQUIREMENTS. WHERE A FIELD CERTIFIED PRODUCT MAY BE REQUIRED FOR FIELD ASSEMBLED COMPONENT, PROVIDE CERTIFIED REPORT BY AN APPROVED TESTING AGENCY ACCEPTABLE TO THE AUTHORITIES HAVING JURISDICTION. INCLUDE ALL TESTING FEES IN BID.
3. THE ENGINEERING SERVICE ARE LIMITED TO PREPARATION OF PLANS AND SPECIFICATIONS. THE PLANS AND SPECIFICATIONS ARE INTENDED TO BE USED AS CONSTRUCTION GUIDELINES ONLY AND NOT THE TOTAL INSTRUMENT OF CONTRACT DOCUMENTS. IT IS NOT THE INTENTION OF ANY CONSTRUCTION PLANS TO DIVIDE WORK AMONG DIFFERENT TRADES. VERIFY SCOPE OF WORK WITH GENERAL CONTRACTOR/OWNER SINCE THE ENGINEER IS NOT SUPERVISING THE JOB. THE ENGINEER WILL PROVIDE INTERPRETATION OF THE CONSTRUCTION DOCUMENTS, BUT SUPERVISION IS UNDER THE RESPONSIBILITY OF THE OWNER OR HIS APPOINTEE.
4. WORKING CLEARANCE SHALL BE MAINTAINED AS PER C.E.C./N.E.C. FOR ALL PANEL(S), SERVICE EQUIPMENT, DISCONNECT SWITCH, ETC. LOCAL UTILITY COMPANY WORKING CLEARANCE REQUIREMENT SHALL ALWAYS BE OBSERVED. POWER EQUIPMENT MANUFACTURERS PRODUCT MAY VARY IN DIMENSION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF WORKING CLEARANCE REQUIREMENT WHEN LAYING OUT THE ELECTRICAL EQUIPMENT.
5. CONTRACTOR SHALL HAVE THE EQUIPMENT SUPPLIER PROVIDE THE ARC FAULT STUDIES OR RETAIN A THIRD PARTY TO PERFORM THE STUDIES. THE ARC FLASH WARNING LABELS SHALL BE PLACED ON ALL NEW ELECTRICAL DISTRIBUTION BOARDS, MAIN SWITCHBOARDS, TRANSFORMERS, PANELS, PANELBOARDS, DISCONNECTS, MCCS ETC. PER CEC/NEC 110.16. LABELS SHALL BE PER ANSI Z35.4 GUIDELINES. THE LABEL SHALL LIST A MAXIMUM ARC FLASH INCIDENT ENERGY AT DISTANCES FROM THE EQUIPMENT FOR THE SYSTEM VOLTAGE AND THE APPROPRIATE PERSONAL PROTECTION EQUIPMENT REQUIRED.
6. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST SHOP DRAWINGS BEFORE STUBBING UP CONDUITS OR PENETRATING EXTERIOR WALL(S) OF BUILDING(S).
7. IN CASE OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING BEFORE PROCEEDING.
8. ALL OUTDOOR DEVICES SHALL BE WEATHERPROOF.
9. ONLY MAJOR PULL BOXES ARE SHOWN. CONTRACTOR SHALL PROVIDE ADDITIONAL PULL BOXES WHERE THEY ARE REQUIRED TO MAKE A WORKABLE INSTALLATION. ALL PULL BOXES ABOVE GROUND SHALL BE PAD LOCKABLE. ALL PULL BOXES UNDERGROUND SHALL HAVE HOLD DOWN BOLTS AND BE TRAFFIC RATED.
10. MARK ALL PANELS WITH WHITE ACRYLIC NAMEPLATES WITH BLACK FACE FOR NORMAL SYSTEM AND RED FACE FOR EMERGENCY SYSTEM. ENGRAVE THE NAME AND SOURCE OF POWER INTO THE NAMEPLATE WITH 3/16" MINIMUM ARIAL FONT. PROVIDE TYPE WRITTEN PANEL SCHEDULE AT ALL PANELS.
11. CONTRACTOR SHALL FURNISH ALL MATERIALS, TOOLS, LABOR, EQUIPMENT AND SUPERVISION NECESSARY TO COMPLETE INSTALLATION, CHECKOUT AND INITIAL OPERATION.
12. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GENERAL ARRANGEMENT OF EQUIPMENT SHOWN AND SHALL SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT PRIOR TO PURCHASE.
13. CAUTION SHOULD BE USED WHEN EXCAVATING OR TRENCHING TO LOCATE EXISTING UNDERGROUND CONDUITS. COORDINATE WITH AGENCIES SUCH AS UNDERGROUND SERVICE ALERT PRIOR TO EXCAVATION.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING VISITED THE SITE AND SATISFIED HIMSELF AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL CHECK ALL OF THE CONDITIONS WHICH MAY AFFECT HIS WORK. THE SITE VISIT SHALL BE MADE PRIOR TO SUBMITTING THE BID. BIDDERS SHALL PREARRANGE A SITE VISIT WITH THE OWNER/ARCHITECT.
15. THE CONTRACTOR SHALL OBTAIN A FULL SET OF PLANS WHEN BIDDING THE JOB.
16. ALL PHASE CONDUCTORS SHALL HAVE THEIR OWN NEUTRALS. NO SHARING OF NEUTRALS ALLOWED.
17. ISOLATED GROUNDING CONDUCTORS WHERE INDICATED FOR RECEPTACLES SHALL BE SIZED TO MATCH THE EQUIPMENT GROUNDING CONDUCTOR SIZE AND INSTALLED AND CONNECTED ONLY TO THE RECEPTACLES REQUIRED TO BE CONNECTED TO THE ISOLATED GROUNDING SYSTEM AND GROUNDED AT THE MAIN GROUNDING BUS WITHIN THE PANEL OF CIRCUIT ORIGIN. THE ISOLATED GROUNDING CONDUCTOR SHALL NOT BE CONNECTED TO ANY OTHER GROUNDING SYSTEM ALONG ITS PATH.
18. ALL EXTERIOR RECEPTACLES SHALL BE GFCI TYPE WITH A LOCKING, WEATHERPROOF IN-USE COVER.
19. PROVIDE AND INSTALL A PLAQUE AT EACH MAIN SWITCHBOARD DISCONNECTING MEANS AND BUILDING SERVICE DISCONNECTING MEANS PER NEC 225.37.
20. ALL PROVIDE A LABEL ON THE MAIN ELECTRICAL SERVICE EQUIPMENT INDICATING THE AVAILABLE FAULT CURRENT AT THE SERVICE.
21. ALL DISCONNECTS SHALL BE READILY ACCESSIBLE AND IN SIGHT OF THE EQUIPMENT, PER CALIFORNIA ELECTRICAL CODE. IF THE DISCONNECTING MEANS CANNOT BE LOCATED WITHIN SIGHT OF THE EQUIPMENT SERVED, IT SHALL HAVE THE CAPABILITY OF BEING LOCKED IN THE OPEN POSITION.
22. A LICENSED ELECTRICIAN SHALL BE PRESENT ON THE PROJECT WHENEVER ELECTRICAL WORK IS IN PROGRESS. AN ELECTRICAL CONTRACTOR IS NOT EXEMPT FROM THIS REQUIREMENT AND SHALL ALSO BE CERTIFIED IF HE IS WORKING AS THE RESPONSIBLE PROJECT ELECTRICIAN. VIOLATION OF THIS REQUIREMENT BY EITHER ELECTRICIANS OR WORKING CONTRACTORS SHALL BE REPORTED TO THE STATE LICENSED CONTRACTOR BOARD AS REQUIRED UNDER THE EXISTING LABOR CODE SECTION 108.2. NO VOLUNTEERS ARE ALLOWED TO PERFORM WORK ON THIS PROJECT AND ALL CITY INSURANCE REQUIREMENTS MUST BE MET PRIOR TO PERFORMING ANY WORK.
23. ALL CONDUCTORS IN STALLED IN UNDERGROUND OR WET LOCATIONS SHALL BE LISTED FOR WET LOCATIONS AND MARKED WITH 'W' PER CEC.
24. ALL OUTDOOR ENCLOSURES SHALL HAVE LOCKING HASP, INCLUDING, BUT NOT LIMITED TO SWITCHBOARDS, DISCONNECTS, ENCLOSURES, ETC. THE CITY WILL PROVIDE THEIR OWN KEYED LOCKS. OUTDOOR PANELS SHALL HAVE KEYED LOCKING MECHANISM KEYED PER CITY STANDARD.
25. THE CONTRACTOR SHALL COORDINATE THE WORK TO MINIMIZE THE TEMPORARY GENERATOR RENTAL TIME.
26. PROVIDE A WARNING SIGN PLACARD AT ALL TEMPORARY GENERATOR POINTS OF CONNECTIONS INDICATING THE FOLLOWING INFORMATION WHETHER:
WARNING
FOR CONNECTION OF SEPARATELY DERIVED (BONDED NEUTRAL) SYSTEMS ONLY
OR
WARNING
FOR CONNECTION OF NON-SEPARATELY DERIVED (FLOATING NEUTRAL) SYSTEM ONLY
27. A GRAPHICAL SIGN OR GRAPHICAL PLACARD SHALL BE LOCATED AT THE SERVICE ENTRANCE MSB INDICATING THE TYPE AND LOCATION OF EACH ON-SITE GENERATOR

GENERATOR PERMIT NOTICE

- 1. THE CONTRACTOR SHALL PURCHASE AND INSTALL THE GENERATOR AS INDICATED WITHIN THESE PLANS INCLUDING ASSISTING THE SCHOOL DISTRICT WITH THE PURCHASING AND OBTAINING THE OPERATIONAL PERMIT FROM THE SAN JOAQUIN COUNTY VALLEY AIR POLLUTION CONTROL DISTRICT. THE SCHOOL DISTRICT TO REIMBURSE THE CONTRACTOR FOR THE PERMIT FEES.

STANDARD SYMBOL LEGEND

- \$ SPST TOGGLE WALL SWITCH - 20A, 120/277V. 'a' INDICATES CONTROL.
\$ DPST TOGGLE WALL SWITCH - 20A, 120/277V
\$ 3-WAY TOGGLE WALL SWITCH - 20A, 120/277V
\$ 4-WAY TOGGLE WALL SWITCH - 20A, 120/277V
\$ SPDT MOMENTARY CONTACT TOGGLE SWITCH - 20A, 120/277V
\$ SPST KEYSWITCH - 20A, 120/277V
\$ THERMAL RATED SNAP SWITCH FOR CONTROLLING FRACTIONAL HORSEPOWER MOTORS.
CEILING OR WALL MOUNTED JUNCTION BOX
PULLBOX(S) - SIZE AND NUMBER AS INDICATED
SINGLE RECEPTACLE - 20A, 120V & GROUND
RECEPTACLE, DUPLEX - 20A, 120V & GROUND
RECEPTACLE, DUPLEX - WITH ONE-HALF SWITCHED/CONTROLLED
RECEPTACLE, DUPLEX - WITH GFCI PROTECTION IN WEATHERPROOF HOUSING
RECEPTACLE, DUPLEX - WITH GFCI PROTECTION
RECEPTACLE, 50A, 3-WIRE, 250V
RECEPTACLE, DOUBLE DUPLEX - (2) 20A, 120V & GROUND
RECEPTACLE, DOUBLE DUPLEX CEILING MOUNTED
RECEPTACLE, DOUBLE DUPLEX WITH GFCI PROTECTION
RECEPTACLE, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
TELEPHONE OUTLET, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
DATA OUTLET, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
FLUSH FLOOR MOUNTED DUPLEX RECEPTACLE, DATA JACK, AND TELEPHONE JACK.
TELEPHONE OUTLET: PROVIDE & INSTALL 2-GANG BOX WITH 1" CONDUIT. STUB-UP INTO T-BAR CEILING. FOR HARD CEILINGS, RUN THE CONDUIT TO THE CABLE TERMINATION LOCATION INDICATED PER THE RISER DIAGRAM.
DATA OUTLET: PROVIDE & INSTALL 2-GANG BOX WITH 1" CONDUIT. STUB-UP INTO T-BAR CEILING. FOR HARD CEILINGS, RUN THE CONDUIT TO THE CABLE TERMINATION LOCATION INDICATED PER THE RISER DIAGRAM.
NUMBER IN PARENTHESIS INDICATES QUANTITY OF DEVICES. TYPICAL FOR ALL TYPES OF DEVICES.
TRANSFORMER
FUSED DISCONNECT - MOTOR RATED. FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. SWITCHES TO BE FURNISHED WITH DUAL ELEMENT FUSES SIZED ACCORDING TO NAME PLATE DATA ON EQUIPMENT INSTALLED.
UNFUSED DISCONNECT - MOTOR RATED, FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
VARIABLE FREQUENCY DRIVE: FURNISHED, INSTALLED, AND CONNECTED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
5% LINE OR LOAD REACTOR
DV/DT FILTER
MAGNETIC MOTOR STARTER FURNISHED, INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
MOTOR - FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR.
GROUND ROD - 3/4" DIAMETER x 10-FEET LONG COPPER CLAD
TERMINAL CABINET - SURFACE OR FLUSH MOUNTED WITH FLAME RETARDANT PLYWOOD BACKBOARD
PANELBOARD - SURFACE OR FLUSH MOUNTED
DISTRIBUTION OR SWITCHBOARD
NEUTRAL LINK
TRANSFORMER
GROUND WIRE WITH GREEN INSULATION SIZE PER N.E.C., U.O.N.
CONDUIT CONCEALED IN WALL OR CEILINGS. PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC. HASH MARKS INDICATE THE NUMBER OF CONDUCTORS AND THE ADJACENT NUMBER INDICATES CONDUCTOR SIZE.
CONDUIT CONCEALED UNDERGROUND OR BELOW FLOOR. MINIMUM SIZE IS 3/4". PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC. HASH MARKS INDICATE THE NUMBER OF CONDUCTORS AND THE ADJACENT NUMBER INDICATES CONDUCTOR SIZE.
CONDUIT UNDERGROUND OR BELOW FLOOR. MINIMUM SIZE IS 3/4". PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC. HASH MARKS INDICATE THE NUMBER OF CONDUCTORS AND THE ADJACENT NUMBER INDICATES CONDUCTOR SIZE.
CONDUIT-UP
CONDUIT-DOWN
METER
PORTABLE GENERATOR INTERCONNECTION
MOMENTARY CONTACT MUSHROOM HEAD PUSHBUTTON WITH ONE NORMALLY OPEN AND ONE NORMALLY CLOSED CONTACT
THERMOSTAT PROBE

- SURGE SUPPRESSION DEVICE
PROVIDE AND INSTALL JUNCTION BOX AND SURVEILLANCE CAMERA. REFER TO SPECIFICATIONS AND ELECTRICAL DETAILS. RUN 1" CONDUIT AND CAT-6a CABLE TO NEAREST IDF OR MDF. MAKE ALL CONNECTIONS FOR A FULLY FUNCTIONAL SYSTEM.
INTRUSION ALARM DOOR CONTACT PROVISION, SEE TYPICAL DETAILS.
INTRUSION ALARM KEYPAD
INTRUSION ALARM MOTION DETECTOR, AIM AS INDICATED ON PLANS.
CIRCUIT INTERCONNECTION
GROUND
CIRCUIT BREAKER - EXAMPLE SHOWS A 100A/3P, TRIP CURVE C CIRCUIT BREAKER
SHUNT TRIP
EXISTING ABOVE GROUND CONDUIT
EXISTING UNDERGROUND CONDUIT
EXISTING METAL WIRE-WAY. MOUNTED ON WALL, 48-INCHES ABOVE FINISHED FLOOR.
WIREMOLD RACEWAY VERTICAL RUNS. PROVIDE ALL ELBOWS, FITTINGS, AND CONNECTORS AS NECESSARY FOR A COMPLETE RACEWAY SYSTEM.
NEW ELECTRICAL EQUIPMENT
EXISTING ELECTRICAL EQUIPMENT TO REMAIN
EXISTING ELECTRICAL EQUIPMENT TO BE DEMOLISHED
SHEET NOTE NUMBER - #, SEE NOTE DESCRIPTION ON SAME SHEET.
GENERAL NOTE NUMBER - #, SEE NOTE DESCRIPTION ON SAME SHEET.
REFERENCE TO PLAN/DETAIL/DIAGRAM
DESIGNATES SIZE (X) AND QUANTITY (Y) OF FEEDERS. SEE FEEDER SCHEDULE
ADDENDUM OR REVISION NUMBER, SEE DESCRIPTION ON SAME SHEET.
RELAY COIL
TIME DELAY RELAY COIL
LATCHING RELAY COIL LATCH INPUT
LATCHING RELAY COIL UNLATCH INPUT
NORMALLY CLOSED CONTACT, OPEN ON SIGNAL ENERGIZATION, DELAY CLOSE ON SIGNAL DE-ENERGIZATION
NORMALLY OPEN CONTACT, CLOSE ON SIGNAL ENERGIZATION, DELAY OPEN ON SIGNAL DE-ENERGIZATION
NORMALLY CLOSED CONTACT, DELAY OPEN ON SIGNAL ENERGIZATION, CLOSE ON SIGNAL DE-ENERGIZATION
NORMALLY OPEN CONTACT, DELAY CLOSE ON SIGNAL ENERGIZATION, OPEN ON SIGNAL DE-ENERGIZATION
NORMALLY CLOSED CONTACT
NORMALLY OPEN CONTACT
NORMALLY CLOSED LEVEL SWITCH, OPEN ABOVE SET POINT
NORMALLY OPEN LEVEL SWITCH, OPEN BELOW SET POINT
NORMALLY CLOSED LIMIT SWITCH
NORMALLY OPEN LIMIT SWITCH
NORMALLY CLOSED PRESSURE SWITCH, OPEN ABOVE SET POINT
NORMALLY OPEN PRESSURE SWITCH, CLOSE ABOVE SET POINT
NORMALLY CLOSED TEMPERATURE SWITCH, OPEN ABOVE SET POINT
NORMALLY OPEN TEMPERATURE SWITCH, CLOSE ABOVE SET POINT
NORMALLY CLOSED MOISTURE SWITCH, OPEN ABOVE SET POINT
NORMALLY OPEN MOISTURE SWITCH, CLOSE ABOVE SET POINT
NORMALLY CLOSED, MOMENTARY PUSHBUTTON
MOMENTARY CONTACT MUSHROOM HEAD PUSHBUTTON WITH ONE NORMALLY OPEN AND ONE NORMALLY CLOSED CONTACT
SELECTOR SWITCH (SHOWN WITH 3 POSITIONS AND 1 CONTACT FOR EACH POSITION), M - MAINTAINED, S - SPRING RETURN
PILOT LIGHT: A - AMBER, B - BLUE, G - GREEN, R - RED, W - WHITE, Y - YELLOW
PUMP
ARC FLASH RELAY

ELECTRICAL SHEET INDEX

- E1.01 SYMBOLS LEGEND, NOTES, ABBREVIATIONS AND REQUIREMENTS
E1.02 ELECTRICAL NOTES, REQUIREMENTS, LIGHTING & MECHANICAL SCHEDULES
E1.03 SINGLE LINE DIAGRAM, EQUIPMENT ATTRIBUTES & PANEL SCHEDULES
E2.01 ELECTRICAL AND FIRE ALARM SITE PLAN
E3.01 SERVER ROOM ELECTRICAL FLOOR PLANS
E3.02 ELECTRICAL ROOF PLANS
E3.03 FIRE ALARM FLOOR PLAN AND SYSTEM INFORMATION
E3.04 FIRE ALARM CALCULATIONS, VOLTAGE DROPS, AND DETAILS
E4.01 TYPICAL ELECTRICAL DETAILS
E4.02 TYPICAL ELECTRICAL DETAILS
E4.03 TYPICAL ELECTRICAL DETAILS
E5.01 OUTDOOR LIGHTING TITLE 24
E5.02 OUTDOOR LIGHTING TITLE 24
THESE PLANS ARE ACCOMPANIED WITH BOOK SPECIFICATIONS THAT FORM PART OF THE CONTRACT DOCUMENTS.



DATE: 05-14-21

MADERA UNIFIED SCHOOL DISTRICT
SERVER ROOM
1902 HOWARD ROAD
MADERA, CA. 93637
CDS #: 20-65243

Table with 2 columns: REVISIONS, ADDENDUM. Row 1: 5/25/22, ADDENDUM-3.

LAWRENCE ENGINEERING GROUP
7084 N. Maple Ave., Suite 101
Fresno, CA 93720
(559) 431-1342
(559) 431-0101

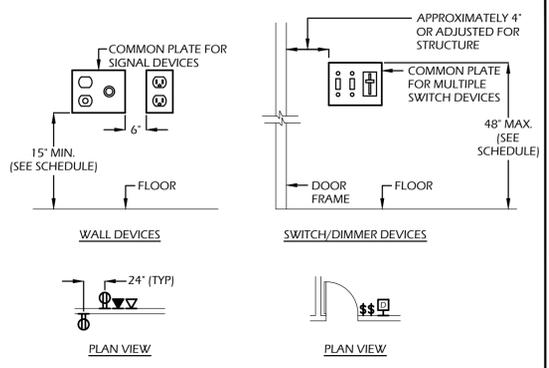
TITLE: SYMBOLS LEGEND, NOTES, ABBREVIATIONS.

SHEET: E1.01
PROJECT: 21052

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
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TYPICAL WALL DEVICE MOUNTING HEIGHTS



DEVICE TYPE	MOUNTING HEIGHT
SWITCHES	NO MORE THAN 48" A.F.F. TO TOP OF DEVICE
DIMMERS	NO MORE THAN 48" A.F.F. TO TOP OF DEVICE
RECEPTACLES	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
TELEPHONE OUTLETS (OFFICE)	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
TELEPHONE OUTLETS (CLASSROOMS)	NO MORE THAN 48" A.F.F. TO TOP OF DEVICE
DATA OUTLETS	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
INTERCOM OUTLETS	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
TELEVISION OUTLETS	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
MICROPHONE OUTLETS	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
RECEPTACLES, OUTLETS, SWITCHES, ETC. MOUNTED ABOVE COUNTERS	WITHIN THE REACH RANGES SPECIFIED IN SECTION 1138A.3 OF THE CALIFORNIA BUILDING CODE.
CLOCKS	AS SHOWN ON DRAWINGS
SPEAKERS	AS SHOWN ON DRAWINGS
HAND DRYERS	REFER TO ARCHITECTURAL PLANS
HAIR DRYERS	REFER TO ARCHITECTURAL PLANS
WALL SCNCES	ABOVE 80" FOR PROJECTIONS INTO CORRIDORS OF MORE THAN 4" OR AS SHOWN ON DRAWING
EXIT LIGHTS	SEE DETAILS
EXIT MARKERS	SEE DETAILS
EMERGENCY LIGHTING WALL PACK	AS SHOWN ON DRAWINGS
KEYPADS	NO MORE THAN 48" A.F.F. TO TOP OF DEVICE
WIREMOLD	MOUNTING HEIGHT SHALL BE SUCH THAT THE LOWEST DEVICE MOUNTED ON WIREMOLD IS AT 15" A.F.F. TO BOTTOM OF DEVICE, U.O.N.

NOTES:

- ALL VERTICAL MEASUREMENTS ARE ABOVE FINISHED FLOOR - (A.F.F.).
- SEE DRAWINGS FOR NON-TYPICAL MOUNTING HEIGHTS.
- WHERE MOUNTING HEIGHTS ARE NOT SHOWN, REFER TO ARCHITECTURAL PLANS.
- RECEPTACLES, LIGHT SWITCHES, TELEPHONE DATA OUTLETS AND OTHER RECESSED ELECTRICAL DEVICES THAT ARE SHOWN BACK-TO-BACK ON WALLS SEPARATING CORRIDORS, ROOMS AND OPEN AREAS SHALL BE SEPARATED HORIZONTALLY BY AT LEAST 24 INCHES. THIS REQUIREMENT IS TO SATISFY BOTH THE CONDITIONS AT FIRE RATED CORRIDORS AND SOUND TRANSMISSION FACTOR BETWEEN ALL CORRIDORS, ROOMS AND OPEN AREAS INCLUDING EXTERIOR WALLS.

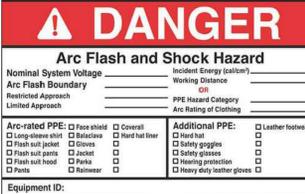
ARC FLASH WARNING LABEL REQUIREMENTS

CONDITION 1: EXISTING EQUIPMENT WITHIN SCOPE OF THE PROJECT AND ALL NEW EQUIPMENT



- ARC FLASH HAZARD WARNING LABELS SHALL BE FIELD MARKED/PLACED ON ALL NEW AND EXISTING ELECTRICAL DISTRIBUTION BOARDS, SWITCHBOARDS, TRANSFORMERS, PANELS, PANELBOARDS, DISCONNECTS, & MOTOR CONTROL CENTERS THAT ARE WITHIN THE SCOPE OF THIS PROJECT PER CEC 110.16. LABELS SHALL BE APPLIED TO EXISTING EQUIPMENT WHERE NEW CONNECTIONS ARE MADE. THE LABELS SHALL MEET THE REQUIREMENTS OF 110.21(B) AND ANSI Z535.4-2011 GUIDELINES BY USING EFFECTIVE COLORS, SYMBOLS OR ANY COMBINATION THEREOF.

CONDITION 2: COMPLETELY NEW DISTRIBUTION SYSTEMS ONLY



- ARC FLASH HAZARD WARNING LABELS FOR AN ENTIRELY NEW ELECTRICAL SERVICE AND DISTRIBUTION SYSTEMS SHALL BE UTILIZED AND ALL ELECTRICAL COMPONENTS OF THE DISTRIBUTION EQUIPMENT SHALL HAVE AN ARC FLASH WARNING LABEL WITH THE FOLLOWING INFORMATION:
 - NOMINAL SYSTEM VOLTAGE
 - ARC FLASH BOUNDARY
 - MINIMAL ARC RATING OF CLOTHING
 - EXACTLY ONE OF THE FOLLOWING:
 - INCIDENT ENERGY & CORRESPONDING WORKING DISTANCE
 - THE ARC FLASH PPE CATEGORY
- THE LABELS SHALL MEET THE REQUIREMENTS OF CEC 110.21(B) AND ANSI Z535.4-2011 GUIDELINES BY USING EFFECTIVE COLORS, SYMBOLS OR ANY COMBINATION THEREOF.
- THE CONTRACTOR SHALL HAVE THE EQUIPMENT MANUFACTURER PROVIDE THE REQUIRED LABELING OR OBTAIN THE SERVICES OF A THIRD PARTY OR THE ELECTRICAL ENGINEER OF RECORD.

CONDITION 3: NEW SERVICES

- ARC FLASH HAZARD WARNING LABELS SHALL BE FIELD MARKED/PLACED ON ALL NEW SERVICE EQUIPMENT WITH THE FOLLOWING INFORMATION:
 - NOMINAL SYSTEM VOLTAGE
 - AVAILABLE FAULT CURRENT AT THE SERVICE OVERCURRENT PROTECTIVE DEVICES
 - CLEARING TIME OF THE SERVICE OVERCURRENT PROTECTIVE DEVICES BASED ON THE AVAILABLE FAULT CURRENT AT THE SERVICE EQUIPMENT
 - THE DATE THE LABEL WAS APPLIED
- THE LABELS SHALL MEET THE REQUIREMENTS OF CEC 110.21(B) AND ANSI Z535.4-2011 GUIDELINES BY USING EFFECTIVE COLORS, SYMBOLS OR ANY COMBINATION THEREOF.

ELECTRICAL EQUIPMENT BRACING NOTES

ALL ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2016 CBC SECTIONS 1616A AND ASCE 7-10 CHAPTERS 13, 26, AND 30.

- ALL PERMANENT EQUIPMENT AND COMPONENTS.
- TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS, OR WATER.
- MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE ATTACHMENT OF THE FOLLOWING ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

- COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS THE COMPONENT.
- COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

ELECTRICAL EQUIPMENT NOTES

- THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF ELECTRICAL EQUIPMENT, DEVICES AND WIRING. SEE SECTION 260000 OF THE SPECIFICATIONS.
- FOR THE EXACT LOCATION OF ELECTRICAL EQUIPMENT AND DEVICES SEE THE ARCHITECTURAL ELEVATIONS, DETAILS AND DIMENSIONS SHOWN ON THE DRAWINGS.

ELECTRICAL DUCTWORK ANCHORING NOTES

DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTIONS 13.6.5.6, 13.6.7, AND 13.6.8, AND 2016 CBC SECTIONS 1616A.1.23 THROUGH 1616A.1.26.

THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL BE DETAILED ON THE APPROVED DRAWINGS OR THEY SHALL COMPLY WITH ONE OF THE OSHPD PRE-APPROVALS (OPM #) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.

COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.

THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

HILTI KWIK BOLT TZ NOTES

- EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ AS MANUFACTURED BY HILTI, INC., 5400 SOUTH 122ND EAST AVENUE, TULSA, OKLAHOMA 74146. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND I.C.C. REPORT NO. ESR-1917.
 - ULTIMATE TENSION VALUES SHALL BE AS FOLLOWS:
 - FOR 3/8" DIAMETER BOLTS:
 - MINIMUM EMBEDMENT: 2"
 - MINIMUM DISTANCE FROM EDGE: 4-1/2"
 - SPACING: 5"
 - MINIMUM CONCRETE THICKNESS: 4"
 - TENSION LOAD: 1600 POUNDS
 - TORQUE TEST: 25 POUND-FEET
 - FOR 1/2" DIAMETER BOLTS:
 - MINIMUM EMBEDMENT: 3-1/4"
 - MINIMUM DISTANCE FROM EDGE: 6"
 - SPACING: 6"
 - MINIMUM CONCRETE THICKNESS: 6-1/2"
 - TENSION LOAD: 1600 POUNDS
 - TORQUE TEST: 40 POUND-FEET
- PLACEMENT GUIDELINES FOR ABOVE VALUES IN ITEM 2 REQUIRE THE FOLLOWING CONDITIONS:
 - TABLE VALUES ARE BASED ON $f_c = 3000$ PSI
 - HOLES DRILLED WITH A HAMMER DRILL AND CARBIDE BIT COMPLYING WITH ANSI B212.15-1994
 - BIT DIAMETER EQUALS THE SIZE OF THE ANCHOR BEING INSTALLED
 - HOLE DEPTH MUST EXCEED MINIMUM EMBEDMENT BY ONE BOLT DIAMETER
 - ANY SEISMIC DESIGN CATEGORY PER 2013 C.B.C.
 - TENSION LOAD VALUES SHALL BE MULTIPLIED BY 0.6 FOR LIGHTWEIGHT CONCRETE
 - A.C.I. "CRACKED" CONCRETE CONDITION IS SUFFICIENT FOR CARBON OR STAINLESS STEEL BOLTS
- WHEN INSTALLING EXPANSION ANCHORS IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE-INCH BETWEEN THE EXISTING REINFORCEMENT AND THE EXPANSION ANCHOR.

GENERAL ANCHOR NOTES

- POST-INSTALLED ANCHORS SHALL BE TESTED IN ACCORDANCE WITH 2013 CBC SECTION 1913A.7.
- IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME TYPE, NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE ANCHORS PASS, THEN RESUME THE INITIAL TEST FREQUENCY. IF THE ANCHORS ARE USED FOR THE SUPPORT AND BRACING OF NON-STRUCTURAL COMPONENTS (PIPE, DUCT OR CONDUIT), THE TWENTY (20) SHALL BE ONLY THOSE ANCHORS INSTALLED BY THE SAME TRADE. REFER TO NOTE B ON THE TEST VALUES TABLE (ATTACHED) FOR ACCEPTANCE/FAILURE CRITERIA.
- REGARDLESS OF WHICH TEST METHOD IS CHOSEN BY THE CONSULTANT, TEST VALUES AND ALL APPROPRIATE CRITERIA SHALL BE SHOWN ON THE CONTRACT DOCUMENTS.
- REFER TO CIVIL AND STRUCTURAL PLANS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS.

CONCRETE SAMPLING NOTE

ALL CONCRETE POURS SHALL HAVE A MINIMUM OF FIVE CYLINDRICAL SAMPLES TAKEN AND REPORT OF THE Poured IN PLACE CONCRETE SHALL BE PROVIDED TO THE ENGINEER AND TO THE CITY FOR RECORDS. THE CONCRETE STRENGTH SHALL MEET OR EXCEED THE STRENGTH REQUIREMENTS AS INDICATED ON THE APPROVED PLANS.

DEMOLITION NOTES

- THE DEMOLITION PLANS GENERALLY SHOW ALL EXISTING EQUIPMENT TO BE REMOVED.
- EXISTING CONDUITS IN WALLS TO BE REMOVED SHALL BE CUT AND CAPPED FLUSH WITH FLOOR AND/OR CEILING. REMOVE CONDUCTORS BACK TO LAST DEVICE ON CIRCUIT REMAINING. INSTALL PULL ROPE.
- THE CONTRACTOR SHALL IDENTIFY LOCATIONS OF ALL CAPPED CONDUITS, WHETHER CUT AND CAPPED AS PART OF THIS PROJECT OR A PREVIOUS PROJECT, ON ALL THE RECORD DRAWINGS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ELECTRICAL SERVICE TO ALL DEVICES DOWNSTREAM OF A DEVICE ABANDONED.
- ALL ELECTRICAL DEVICES REMOVED THAT WILL NOT BE RELOCATED OR REPLACED SHALL HAVE ALL CONDUIT, CONDUCTORS, ETC. REMOVED BACK TO LAST DEVICE.
- RELABEL ALL CIRCUITS THAT HAVE ALL LOADS REMOVED AS SPARE.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO REMOVAL OF ANY ELECTRICAL EQUIPMENT. THE CONTRACTOR SHALL RETURN TO THE OWNER, IN THE AS-FOUND CONDITION, ANY EQUIPMENT THE OWNER REQUESTS BE RETURNED TO THE OWNER.
- EXISTING CONDUIT MAY BE REUSED ONLY IF IT IS OF ADEQUATE SIZE AND IN GOOD CONDITION.
- IF EXISTING EQUIPMENT REQUIRES RELOCATION, THE CONTRACTOR SHALL ENSURE THAT ALL EQUIPMENT IS OPERABLE, CONNECTED, AND DOES NOT POSE A HAZARD WHEN RELOCATED.
- PATCH TO MATCH SURROUNDING SURFACE ANY HOLES CREATED BY REMOVING ANY EQUIPMENT, CONDUITS, ETC.
- PANELS OR TERMINAL CABINETS IN WALLS TO BE REMOVED SHALL REMAIN OPERATIVE UNTIL ALL DEVICES FED FROM THE PANEL OR TC ARE REMOVED (IF APPLICABLE) OR NEW LOCATION FOR PANEL OR TC IS READY TO RECEIVE PANEL OR TC. IF NECESSARY, THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING TO SUPPORT PANEL OR TC. CHECK WITH ENGINEER FOR APPROVAL OF SUPPORTS. THE CONTRACTOR SHALL RELOCATE ALL DEVICES SERVED BY THE PANEL OR TC TO ANOTHER PANEL OR TC.
- MAINTAIN CIRCUITS FEEDING DEVICES OUTSIDE OF BOUNDARIES OF CURRENT DEMOLITION PHASE DURING DEMOLITION FOR EACH PHASE OF DEMOLITION.

TRENCHING AND EXCAVATION NOTES

- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CALL UNDERGROUND SERVICE ALERT "USA" BEFORE THE COMMENCEMENT OF ANY EXCAVATION. EACH CONTRACTOR SHALL HAVE THEIR OWN USA TICKET NUMBER FOR EACH PROJECT LOCATION AND SHALL NOT RIDE ON ANY OTHER CONTRACTORS TICKET. CONTRACTOR SHALL NOTIFY THE OWNER 72 HOURS PRIOR TO EXCAVATION.
- THIS CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING NECESSARY FOR THE INSTALLED EQUIPMENT AND MATERIALS. ALL PATCHING SHALL ACCURATELY MATCH THE ADJOINING WORK.
- THIS CONTRACTOR SHALL DO EXCAVATING REQUIRED FOR THE INSTALLATION OF THE WORK. UNDERGROUND LINES OUTSIDE THE BUILDINGS SHALL BE INSTALLED WITH A MINIMUM OF 24" OF COVER, EXCEPT DEPTH OF UTILITY SERVICES SHALL COMPLY WITH RESPECTIVE UTILITY COMPANY REQUIREMENTS.
- BEFORE COMPACTION, MOISTEN OR AERATE EACH LAYER AS NECESSARY TO PROVIDE OPTIMUM MOISTURE CONTENT. COMPACT EACH LAYER TO REQUIRED PERCENTAGE OF MAXIMUM DRY DENSITY OR RELATIVE DRY DENSITY FOR EACH AREA CLASSIFICATION. DO NOT PLACE BACKFILL OR FILL MATERIAL ON SURFACES THAT ARE MUDDY, FROZEN, OR CONTAIN FROST OR ICE.
- STRUCTURES, BUILDING SLABS, WALKWAYS, AND STEPS: COMPACT TOP 6" OF SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL AT 95% MAXIMUM RELATIVE COMPACTION.
- COMPACT TOP 6" OF SUBGRADE MATERIAL AT 85% RELATIVE COMPACTION.
- COMPACT TOP 6" OF SUBGRADE IMMEDIATELY BENEATH THE BASE COURSE AT 95% MINIMUM RELATIVE COMPACTION.
- ANY SURPLUS EXCAVATION RESULTING FROM THESE EXCAVATIONS SHALL BE HAULED OFF.
- AFTER ALL TRENCHES HAVE BEEN TAMPED IN, RAKE OUT ALL HIGH AND LOW AREAS ALONG THE TRENCH LINE. ALL CLODS AND SOLID ROCKS EXPOSED ON THE SURFACE AS A RESULT OF THE EXCAVATION SHALL BE BROKEN DOWN AND OR CLEANED UP. ALL TRENCH LINES SHALL BE RAKED LEVEL WITH EXISTING GRADE.
- ELECTRICAL, NETWORK, OR DATA CONDUIT SHALL NOT BE RUN IN EXCAVATIONS PROVIDED FOR PLUMBING OR HEATING PIPES, UNLESS SEPARATED BY A MINIMUM OF 12 INCHES.
- PATCH ALL TRENCHED AREAS TO MATCH EXISTING.
- HAND EXCAVATE IN AREAS WHERE TRENCHING IS DIFFICULT DUE TO STRUCTURAL OBSTRUCTIONS OR EXISTING UNDERGROUND CONDUIT.
- THE CONTRACTOR SHALL WALK THE SITE WITH THE DISTRICT TO IDENTIFY ALL EXISTING CONDUITS AND PIPES.
- CONTRACTOR SHALL RETAIN AND PAY FOR THE SERVICES OF A SOILS LAB TO TEST FOR THE COMPACTION OF THE BACKFILL. A SOILS PROFILE SHALL BE DONE OF THE EXCAVATED NATIVE TRENCHED DIRT SO THE COMPACTION TEST CAN BE COMPARED WITH THE NATIVE DIRT PROFILE. THE CONTRACTOR SHALL PROVIDE ALL COMPACTION OF THE TRENCH REQUIRED TO MEET A 95% COMPACTION REQUIREMENT. AN INSPECTED AND SIGNED OFF COMPACTION TESTING REPORT SHALL BE PROVIDED BY THE SOILS TESTING LAB AND COPY OF THE COMPACTION TEST SHALL BE PROVIDED TO THE ENGINEER OF RECORD/PROJECT COORDINATOR PRIOR INSTALLING THE HARDSCAPE. THE CONTRACTOR SHALL WILL BE REQUIRED TO PAY FOR ALL TESTS UNTIL THE COMPACTION RESULTS MEET OR EXCEED THE COMPACTION TEST.
- ALL EXISTING PAINTED TRAFFIC LINES, PARKING STALL LINES, ETC. SHALL BE REPAINTED AFTER THE PATCH UP AND REPAIR OF THE HARDSCAPE AREAS TO MATCH THE EXISTING PRIOR TO EXCAVATIONS.
- ALL TRENCHED AREAS SHALL BE PROTECTED WITH HEAVY STEEL TRAFFIC PLATES TO ACCOMMODATE VEHICULAR TRAFFIC WHILE WORK IS UNDERWAY. ALL OPEN TRENCHES SHALL BE SAFEGUARDED AND BARRICADED.

LIGHTING FIXTURE SCHEDULE

TYPE	LIGHTS	MANUFACTURER AND MODEL	LAMPS	REMARKS	WATTS	LBS
E		GARDCO LIGHTING OR EQUAL #121-16L-400-NW-G4-3-UNV-IMR2-PCB	LED	2,647 LUMEN, EXTERIOR, TYPE 3 DISTRIBUTION, EXTERIOR LED FIXTURE SURFACE MOUNTED ON A WALL. FIXTURE SHALL INCLUDE PHOTOCELL AND MOTION SENSOR THAT REDUCES LIGHTING BY 50% WHEN AREA IS UNOCCUPIED AND EMERGENCY DRIVER AT EMERGENCY FIXTURE LOCATIONS INDICATED ON LIGHTING PLAN.	22	15

SCHEDULES NOTES

- COORDINATE ALL COLORS WITH OWNER/ARCHITECT PRIOR TO ORDERING. CONTRACTOR SHALL PROVIDE COLOR SAMPLES DURING SUBMITTAL STAGE
- ALL CLEAR, ACRYLIC, PRISMATIC LENSES ARE TO BE MINIMUM 0.125" PATTERN K12, U.O.N
- ALL LEDS SHALL HAVE A CRI OF 0.8 AND COLOR TEMPERATURE OF 4000K.
- ALL HALF SHADED FIXTURES SHALL HAVE AN EMERGENCY DRIVER WITH BATTERY BACKUP IN ORDER TO PROVIDE A MINIMUM OF 90 MINUTES OF BACKUP IN THE EVENT OF POWER OUTAGE WITH MINIMUM 1100 LUMEN OUTPUT. THE BATTERY CHARGER SHALL BE CONNECTED TO THE UNSWITCHED SOURCE.
- ALL DRIVERS SHALL HAVE LESS THAN 10% THD.
- FIXTURE TYPE IS SHOWN WITHIN MOST FIXTURES.
- PRIOR TO ORDERING FIXTURES REFER TO THE LIGHTING PLAN FOR THE CORRECT VOLTAGES TO BE UTILIZED FOR THE FIXTURES.

MECHANICAL EQUIPMENT SCHEDULE

DESIG.	DESCRIPTION	FLA/MCA/HP/W	STARTER/FUSES/VFD	VOLT	PHASE	MAX. OCPD SIZE	CONDUIT SIZE	CONDUCTOR #	CONDUCTOR SIZE	GND.
CU-1	CONDENSING UNIT	5.7FLA	FUSE/DISC.	208	3	NOTE 2	3/4"	4	12	NOTE 3
CU-2										
FC-1	FAN COIL	34.2FLA	FUSE/DISC/NEMA SIZE-2 STARTER				1"		6	
FC-2			FUSE/DISC/NEMA SIZE-2 STARTER							

NOTES:

- * = THERMAL RATED SWITCH FOR FRACTIONAL HORSEPOWER MOTORS.
- REFER TO THE PANEL SCHEDULE AND SINGLE LINE DIAGRAM FOR THE CIRCUIT BREAKER AND CONDUIT SIZES, IF NOT INDICATED WITHIN THE SCHEDULE.
- GROUNDING CONDUCTOR SIZE TO MATCH CIRCUIT CONDUCTOR SIZE.

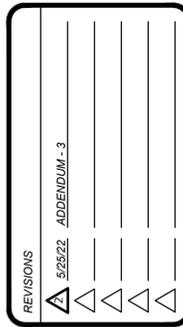
GENERAL NOTES:

- COORDINATE LOCATIONS AND POWER REQUIREMENT FOR MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR.
- PROVIDE DISCONNECT PER NAME PLATE RATING OF MECHANICAL UNITS.



DATE: 05-14-21

MADERA UNIFIED SCHOOL DISTRICT
SERVER ROOM
1902 HOWARD ROAD
MADERA, CA. 93637
CDS #: 20-65243



TITLE:
ELECTRICAL NOTES,
REQUIREMENTS, LIGHTING &
MECHANICAL SCHEDULES

SHEET:
E1.02
PROJECT: 21052





DATE: 05-14-21

MADERA UNIFIED SCHOOL DISTRICT
SERVER ROOM
1902 HOWARD ROAD
MADERA, CA. 93637
CDS #: 20-65243

REVISIONS

1	5/25/22	ADDENDUM-3
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LAWRENCE
ENGINEERING GROUP
Fresno, CA 93720
7084 N. Maple Ave., Suite 101
(559) 431-1342
(559) 431-0101

TITLE:
PARTIAL SINGLE LINE DIAGRAM,
EQUIPMENT ATTRIBUTES,
& PANEL SCHEDULES

SHEET:
E1.03
PROJECT: 21052

VOLTAGE: 208/120V, 3Ø, 4W
BUS: 125A
MAIN BREAKER: 70A/3P
BREAKER AIC: 35,000
MOUNTING: SURFACE
NEMA 3R ENCLOSURE

(N) PANEL 'G'

CIR #	BKR	LOAD (VA)			DESCRIPTION	DESCRIPTION	LOAD (VA)			CIR #	
		PHASE A	PHASE B	PHASE C			PHASE A	PHASE B	PHASE C		
1	20A/1P	240			GEN. BATT. CHARGER	FUEL MAINT. SYSTEM			600	20A/1P	2
3	20A/1P				SPARE	SPARE				20A/1P	4
5	20A/1P				SPARE	SPARE				20A/1P	6
7	20A/1P	44			WALL MOUNTED LIGHTS	WALL MOUNTED LIGHTS				20A/1P	8
9	20A/1P	400			SPARE	SPARE				20A/1P	10
11	20A/1P	180			GEN. GFCI RECEPTACLE	PANEL REC.	180			20A/1P	12
13	20A/1P	400			SPARE	SPARE				20A/1P	14
15	20A/1P	400			SPARE	SPARE				20A/1P	16
17	20A/1P	400			SPARE	SPARE				20A/1P	18
19		0			SPACE	SPACE					20
21		0									22
23		0									24
25		0									26
27		0									28
29		0									30
31		0									32
33		0									34
35		0									36
37		0									38
39		0									40
41		0									42

TOTAL Ø LOADS (VA): PHASE A = 1684, PHASE B = 1600, PHASE C = 1300
TOTAL Ø LOADS (A): PHASE A = 114, PHASE B = 113, PHASE C = 25
TOTAL LOAD: 6344 VA

VOLTAGE: 208/120V, 3Ø, 4W
BUS: 150A
MAIN BREAKER: 150A/3P
BREAKER AIC: 35,000
MOUNTING: SURFACE
NEMA 3R ENCLOSURE

(N) PANEL 'M'

CIR #	BKR	LOAD (VA)			DESCRIPTION	DESCRIPTION	LOAD (VA)			CIR #	
		PHASE A	PHASE B	PHASE C			PHASE A	PHASE B	PHASE C		
1	20A/1P	4107			FC-1	FC-2			4107	20A/1P	2
3	60A/3P	4107							4107	60A/3P	4
5	15A/3P	685			CU-1	CU-2			685	15A/3P	10
7		685							685		12
9	15A/3P	685							685	15A/3P	10
11		685							685		12
13	20A/1P	400			SPARE	NETWORK ROOM LTG			400	20A/1P	14
15	20A/1P	400			SPARE	HVAC ROOF REC.			400	20A/1P	16
17	15A/1P	168			HEATER PAD FOR CU-1	HEATER PAD FOR CU-2	168			15A/1P	18
19		0			SPACE	SPACE					20
21		0									22
23		0									24
25		0									26
27		0									28
29		0									30
31		0									32
33		0									34
35		0									36
37		0									38
39		0									40
41		0									42

TOTAL Ø LOADS (VA): PHASE A = 10384, PHASE B = 10164, PHASE C = 9922
TOTAL Ø LOADS (A): PHASE A = 86, PHASE B = 85, PHASE C = 83
TOTAL LOAD: 30468 VA

VOLTAGE: 208/120V, 3Ø, 4W
BUS: 225A
MAIN BREAKER: 200A/3P
BREAKER AIC: 35,000
MOUNTING: SURFACE
NEMA 1 ENCLOSURE

(N) PANEL 'AC-PNL-1'

CIR #	BKR	LOAD (VA)			DESCRIPTION	DESCRIPTION	LOAD (VA)			CIR #	
		PHASE A	PHASE B	PHASE C			PHASE A	PHASE B	PHASE C		
1	20A/3P	1201			EXISTING LOAD	EXISTING LOAD			1560	30A/2P	2
3	20A/1P	1201			EXISTING LOAD	EXISTING LOAD			1560	30A/2P	4
5	20A/1P	960			EXISTING LOAD	EXISTING LOAD			1560	30A/2P	6
7	20A/1P	1201			EXISTING LOAD	EXISTING LOAD			2080	30A/2P	8
9	20A/3P	1201			EXISTING LOAD	EXISTING LOAD			2080	30A/2P	10
11	20A/1P	0			SPARE	SPARE			0	20A/1P	12
13	20A/1P	0			SPARE	SPARE			0	20A/1P	14
15	20A/1P	0			SPARE	SPARE			0	20A/1P	16
17	20A/1P	0			SPARE	SPARE			0	20A/1P	18
19	20A/1P	300			FIRE SUPPRESSION PNL	FACP			200	20A/1P	20
21	20A/1P	0			SPARE	SPARE			0	20A/1P	22
23	20A/1P	0			SPACE	SPACE			0	20A/1P	24
25		0							0		26
27		0							0		28
29		0							0		30
31		0							0		32
33		0							0		34
35		0							0		36
37		3960							0		38
39	200A/3P	4800			PANEL 'AC-PNL-1B'				0		40
41		4920							0		42

TOTAL Ø LOADS (VA): PHASE A = 10942, PHASE B = 10842, PHASE C = 10962
TOTAL Ø LOADS (A): PHASE A = 91, PHASE B = 90, PHASE C = 91
TOTAL LOAD: 32746 VA

NOTE:
1. PANEL SHALL HAVE SURGE PROTECTIVE DEVICE.

VOLTAGE: 120/208V, 3Ø, 4W
MAIN BREAKER: 100A/3P
MOUNTING: SURFACE

(E) PANEL 'AC-PNL-1'

CIR #	BKR	LOAD (VA)			DESCRIPTION	DESCRIPTION	LOAD (VA)			CIR #	
		PHASE A	PHASE B	PHASE C			PHASE A	PHASE B	PHASE C		
1					SPACE	SPACE					41
2											39
3											37
4											35
5											33
6											31
7											29
8											27
9											25
10											23
11											21
12											19
13											17
14											15
15											13
16											11
17											9
18											7
19											5
20											3
21											1
22											2

TOTAL Ø LOADS (VA): PHASE A = 10442, PHASE B = 11802, PHASE C = 10002
TOTAL Ø LOADS (A): PHASE A = 87, PHASE B = 98, PHASE C = 83
TOTAL LOAD: 32246 VA

VOLTAGE: 208/120V, 3Ø, 4W
BUS: 225A
MAIN BREAKER: 200A/3P
BREAKER AIC: 35,000
MOUNTING: SURFACE
NEMA 1 ENCLOSURE

(N) PANEL 'AC-PNL-1B'

CIR #	BKR	LOAD (VA)			DESCRIPTION	DESCRIPTION	LOAD (VA)			CIR #	
		PHASE A	PHASE B	PHASE C			PHASE A	PHASE B	PHASE C		
1	20A/1P	0			SPARE	EXISTING LOAD			720	20A/1P	2
3	30A/1P	960			EXISTING LOAD	EXISTING LOAD			960	20A/1P	4
5	20A/1P	960			EXISTING LOAD	EXISTING LOAD			1560	30A/2P	6
7	20A/1P	960			EXISTING LOAD	EXISTING LOAD			1560	30A/1P	8
9	20A/1P	0			SPARE	EXISTING LOAD			1920	30A/1P	10
11	20A/1P	960			EXISTING LOAD	EXISTING LOAD			720	20A/1P	12
13	20A/1P	0			SPARE	EXISTING LOAD			720	20A/1P	14
15	20A/1P	0			SPARE	EXISTING LOAD			960	20A/1P	16
17	20A/1P	0			SPARE	EXISTING LOAD			720	20A/1P	18
19	20A/1P	0			SPARE	SPARE			0	20A/1P	20
21	20A/1P	0							0	20A/1P	22
23	20A/1P	0							0	20A/1P	24
25		0			SPACE	SPACE			0		26
27		0							0		28
29		0							0		30
31		0							0		32
33		0							0		34
35		0							0		36
37		0							0		38
39		0							0		40
41		0							0		42

TOTAL Ø LOADS (VA): PHASE A = 3960, PHASE B = 4800, PHASE C = 4920
TOTAL Ø LOADS (A): PHASE A = 33, PHASE B = 40, PHASE C = 41
TOTAL LOAD: 13680 VA

NOTE:
1. PANEL SHALL HAVE SURGE PROTECTIVE DEVICE.

GENERATOR, ATS, AND UPS WEIGHT & DIMENSIONS SCHEDULE

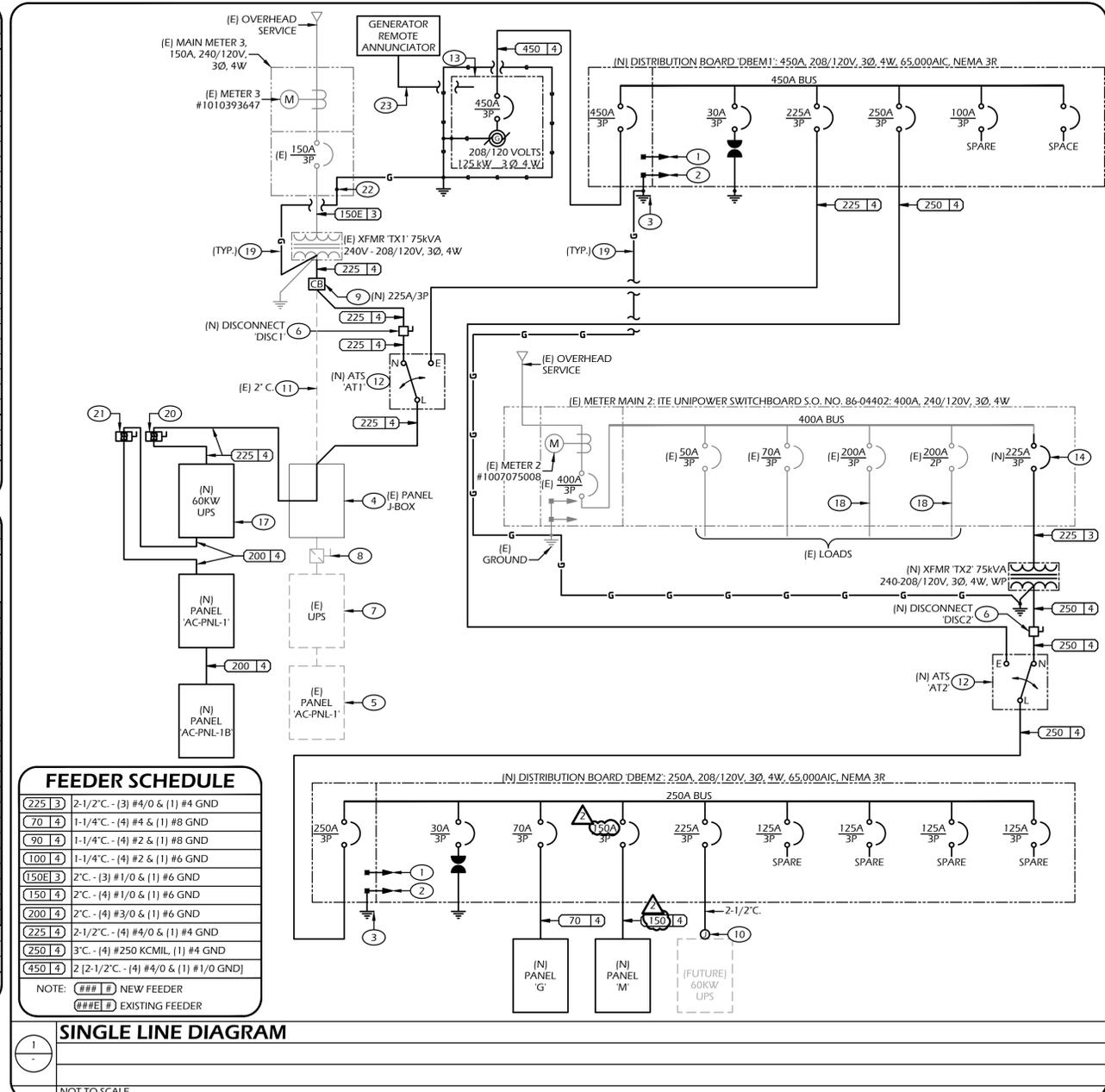
NAME	RATED	WEIGHT(Lb)	W	D	H	MOUNTING
GENERATOR	125kW	8074	160"	40"	72"	FREESTANDING
ATS-AT1	400A	1620	49.12"	36.66"	95.2"	FREESTANDING
ATS-AT2	400A	1620	49.12"	36.66"	95.2"	FREESTANDING
60KW UPS	-	2552	59.86"	33.34"	58.46"	FREESTANDING
FUTURE 60KW UPS	-	2552	59.86"	33.34"	58.46"	FREESTANDING

ELECTRICAL DISTRIBUTION WEIGHT & DIMENSIONS SCHEDULE

NAME	CB	WEIGHT(Lb)	W	D	H	MOUNTING
DBEM1	450A	1200	36"	39.03"	91.50"	FREESTANDING
DBEM2	250A	1200	36"	39.03"	91.50"	FREESTANDING
PANEL 'G'	70A	164	20"	6.5"	50"	SURFACE
PANEL 'M'	150A	296	20"	6.5"	50"	SURFACE
PANEL 'AC-PNL-1'	200A	204	20"	5.75"	68"	SURFACE
PANEL 'AC-PNL-1B'	200A	150	20"	5.75"	50"	SURFACE

TRANSFORMER WEIGHT & DIMENSIONS SCHEDULE

NAME	WEIGHT(LBS)	H	W	D
75kVA XFMR TX2	727	33.5"	30.06"	27.43"



- SHEET NOTES**
- BOARD SHALL HAVE FULL LENGTH NEUTRAL BUS.
 - BOARD SHALL HAVE FULL LENGTH GROUND BUS.
 - PROVIDE GROUNDING PER SPECIFICATIONS.
 - EXISTING PANEL J-BOX LOCATED BEHIND EXISTING PANEL 'AC-PNL-1'. DISCONNECT AND REMOVE ALL INTERIOR ELECTRICAL COMPONENTS OF THE EXISTING PANEL J-BOX AND UTILIZE IT AS A WIRE-WAY.
 - DISCONNECT AND REMOVE EXISTING PANEL 'AC-PNL-1' AND REPLACE WITH THE NEW 'AC-PNL-1'.
 - PROVIDE AND INSTALL EATON 208V, 3Ø, 400A, NEMA 3R HEAVY DUTY ENHANCED VISIBLE BLADE SWITCH DISCONNECT PER PG&E REQUIREMENTS.
 - DISCONNECT/REMOVE THE EXISTING UPS AND ASSOCIATED BATTERY CABINETS AND RETURN TO OWNER. PULL ALL EXISTING CONDUIT AND CONDUCTORS BACK TO SOURCE.
 - DISCONNECT AND REMOVE THE EXISTING UPS SWITCH DISCONNECT AND ASSOCIATED ELECTRICAL DEVICES. PULL ALL EXISTING CONDUIT AND CONDUCTORS BACK TO SOURCE.
 - DISCONNECT AND REMOVE THE EXISTING CIRCUIT BREAKER AND REPLACE WITH NEW AS INDICATED. CONNECT FEEDERS AS INDICATED. PROVIDE NEW CIRCUIT BREAKER IN NEMA 1 ENCLOSURE. PROVIDE AND INSTALL NEW INDICATED CIRCUIT BREAKER AT THE SECONDARY SIDE OF THE EXISTING TRANSFORMER.
 - TERMINATE CONDUIT INTO NEW J-BOX AT LOCATION INDICATED FOR FUTURE 60KW UPS. REFER TO SHEET E3.01.
 - DISCONNECT AND REMOVE THE EXISTING CONDUIT AND FEEDERS. PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTOR INDICATED FROM THE SECONDARY SIDE OF THE EXISTING TRANSFORMER TO THE EXISTING PANEL 'AC-PNL-1' VIA THE NEW 'ATS' ATT AND THE NEW 60KW UPS.
 - PROVIDE AND INSTALL ASCO 7000 SERIES #J-07ATB-B-3-0400-C-5X-M 208V, 3Ø, SWITCHED NEUTRAL, 400A, OPEN TRANSITION, NEMA 3R BYPASS ISOLATION AUTOMATIC TRANSFER SWITCH.
 - PROVIDE AND INSTALL 208V, 3Ø, 4W,

SHEET NOTES

- EXISTING METER MAIN - 1
- EXISTING METER MAIN - 2
- EXISTING METER MAIN - 3
- EXISTING MISCELLANEOUS METER SUB-PANELS WITH PG&E METER REMOVED AND ELECTRICAL NO LONGER USED.
- EXISTING FLOOR-MOUNTED TRANSFORMER 'TX1'.
- CONNECT FUEL TANK LEVEL CONTROLLER TO CIRCUIT INDICATED USING THREE #10 AWG CONDUCTORS. PROVIDE AND INSTALL #16 STP AND SIX #14 AWG FROM FUEL TANK CONTROL PANEL TO GENERATOR FOR FUEL TANK LEVEL SIGNALS AND LEAK DETECTION SIGNAL.
- PROVIDE AND INSTALL CONDUITS FOR POWER. RUN CONDUITS UP THE WALL THEN CORE DRILL THROUGH CONCRETE/CMU WALL AS HIGH AS POSSIBLE TO RUN CONDUIT TO THE EXISTING METER MAIN 2, TO THE EXISTING TRANSFORMER 'TX1' VIA THE DISCONNECT 'DISC1', TO THE NEW AND FUTURE 60KW UPS, TO THE NEW MECHANICAL UNITS, TO THE REMOTE PUSH BUTTON EMERGENCY SHUT-OFF, AND TO THE NEW WALL MOUNTED LIGHTS. PROVIDE AND INSTALL (2) 18-INCH WIDE x 36-INCH TALL x 12-INCH DEEP, HINGED J-BOX. REFER TO THE ONE LINE DIAGRAM AND MECHANICAL SCHEDULE ON SHEET E1.03 FOR THE CONDUIT AND CONDUCTORS SIZE.
- PROVIDE AND INSTALL (2) #12 AWG CONDUCTORS BACK TO THE FUEL MAINTENANCE SYSTEM FOR FUEL MAINTENANCE SHUT-OFF WHEN THE GENERATOR IS RUNNING. CONNECT AND PROGRAM AN ANALOG RELAY FROM THE GENERATOR CONTROLLER TO OPEN UPON GENERATOR RUN TO OPEN THE RUN CIRCUIT ON THE FUEL MAINTENANCE PUMP TO STOP THE FUEL MAINTENANCE PUMP OPERATION.
- PROVIDE AND INSTALL THREE #14 AWG FOR THE GENERATOR START CIRCUIT BACK TO THE ATS 'AT1' AND 'AT2'.
- PROVIDE AND INSTALL PREFERRED UTILITIES MANUFACTURING #F501 CA-1 WR-1 OR APPROVED EQUAL DIESEL FUEL MAINTENANCE SYSTEM IN A WEATHERPROOF, RAIN-TIGHT CUSTOM ENCLOSURE PER DETAIL 6/E4.01. CONNECT TO CIRCUIT INDICATED USING THREE #10 AWG CONDUCTORS. PROVIDE SIGNAL CONDUCTORS BETWEEN FUEL MAINTENANCE SYSTEM CONTROLLER AND FUEL TANK LEVEL CONTROLLER. COORDINATE WITH MANUFACTURER(S).
- PROVIDE AND INSTALL 1000 GALLON, UL 2085 DIESEL FUEL TANK, LEVEL CONTROLLER/LEAK DETECTOR, VALVES, LEVEL SENSOR, LEVEL SWITCHES, GAUGES, LEAK SENSOR, FILLING CONNECTION/SPILL BOX, AND ALL OTHER ACCESSORIES FOR A FULLY FUNCTION DIESEL FUEL TANK MEETING ALL APPLICABLE REQUIREMENTS OF CALIFORNIA FIRE CODE AND NFPA 30. THE CONTRACTOR SHALL COORDINATE WITH THE GENERATOR SUPPLIER FOR THE FUEL LINE INTERCONNECTION TO THE GENERATOR. THE FUEL TANK SHALL COME WITH ALL REQUIRED VENT LINES, VALVES, LEAK DETECTION, AND CONTROL PANEL PER A UL APPROVED ASSEMBLY.
- PROVIDE AND INSTALL NEW WALL MOUNTED LIGHT FIXTURE ON EXTERIOR OF BUILDING AT SAME HEIGHT AS EXISTING NORTHERN EXTERIOR FIXTURE.
- PROVIDE AND INSTALL LOCAL MUSHROOM HEAD PUSH BUTTON FOR EMERGENCY POWER SHUT-OFF. PROVIDE AND INSTALL SIGNAL WIRING WITHIN A 1-INCH CONDUIT BACK TO THE GENERATOR PER THE GENERATOR MANUFACTURER.
- PROVIDE AND INSTALL FIXED BARRIER POST CONSISTING OF A 72-INCH BY 4-INCH DIAMETER, CONCRETE FILLED, SCHEDULE 80, STEEL PIPE AND CAP PAINTED WITH CORROSION RESISTANT PAINT EMBEDDED 36-INCH INTO A 42-INCH BY 15-INCH DIAMETER CONCRETE BASE PER CALIFORNIA FIRE CODE SECTION 312. PROVIDE AND INSTALL TWO 3-INCH REFLECTIVE TAPE BANDS ON EACH POST.
- PROVIDE AND INSTALL GENERATOR REMOTE ANNUNCIATOR AT THE DISTRICT OFFICE ENTRANCE. FISH THE FLEXIBLE CONDUIT AND CABLING WITHIN THE INTERIOR WALL TO CONCEAL. PROVIDE A 2-GANG CUT-IN BACK BOX TO LAND THE CONDUIT AND CABLING. CUT THE EXISTING GYPSUM BOARD TO INSTALL THE RECESS MOUNTED BACK BOX TO MOUNT THE GENERATOR REMOTE ANNUNCIATOR. RUN CONDUIT AND CABLING BACK TO THE GENERATOR CONTROLLER.
- PROVIDE AND INSTALL 12-INCH BY 12-INCH BY 8-INCH NEMA-3R HINGED WIRE WAY MOUNTED UP HIGH TO ROUTE THE GENERATOR REMOTE ANNUNCIATOR CABLE. CORE DRILL THROUGH THE EXISTING CONCRETE/CMU WALL AND NIPPLE THROUGH WITH CONDUIT.
- DISCONNECT AND REMOVE THE EXISTING WALL MOUNTED CIRCUIT BREAKER FOR THE SECONDARY OF THE EXISTING TRANSFORMER AND REPLACE WITH THE NEW WALL MOUNTED BREAKER IN A NEMA-1 ENCLOSURE. REFER TO THE SINGLE LINE DIAGRAM.
- NOT USED.
- CONDUIT AND CONDUCTORS FROM THE GENERATOR TO PANEL 'G' FOR THE FOLLOWING SYSTEMS. REFER TO PANEL 'G' SCHEDULE:
1-INCH CONDUIT - (3) # 12 AWG FOR THE BATTERY CHARGER,
1-INCH CONDUIT - (3) # 12 AWG FOR THE RECEPTACLE,
1-INCH CONDUIT - (3) # 12 AWG FOR THE ALTERNATOR HEATER,
1-INCH CONDUIT - (3) # 12 AWG FOR OIL HEATER,
1-INCH CONDUIT - (3) # 12 AWG FOR THE COOLANT HEATER,
1-INCH CONDUIT - SPARE CONDUIT FROM PANEL 'G' TO THE GENERATOR.
- PROVIDE AND INSTALL 2A-40B-C FIRE EXTINGUISHER ON A 4-INCH STEEL BOLLARD POLE WITH 18-INCH BY 12-INCH DIAMETER FOUNDATION.
- PROVIDE AND INSTALL CAT-6 CABLE FROM THE (N) FACP TO THE REMOTE ANNUNCIATOR AND CABLE TYPE A FOR MANUAL PULL STATION IN THE DISTRICT OFFICE ENTRANCE WITHIN A 1-1/4-INCH CONDUIT. REFER TO SHEET E3.3.



DATE: 05-14-21

MADERA UNIFIED SCHOOL DISTRICT
SERVER ROOM
1902 HOWARD ROAD
MADERA, CA. 93637
CDS # 20-65243

REVISIONS

5/25/22	ADDENDUM-3	
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(559) 431-0101

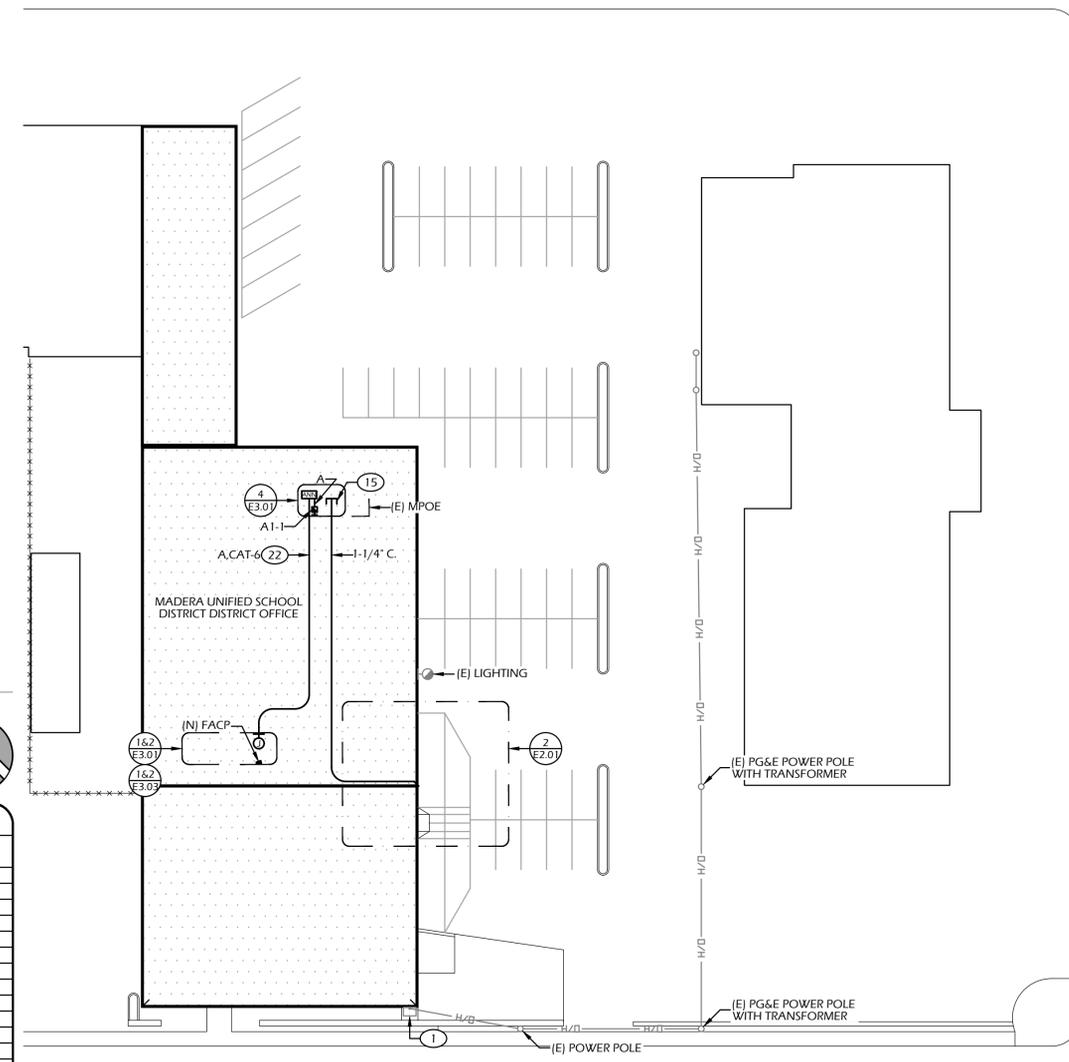
TITLE:
ELECTRICAL AND FIRE
ALARM SITE PLAN

SHEET:
E2.01
PROJECT: 21052

HOWARD ROAD

DWYER STREET

MODOC STREET



1 ELECTRICAL AND FIRE ALARM SITE PLAN

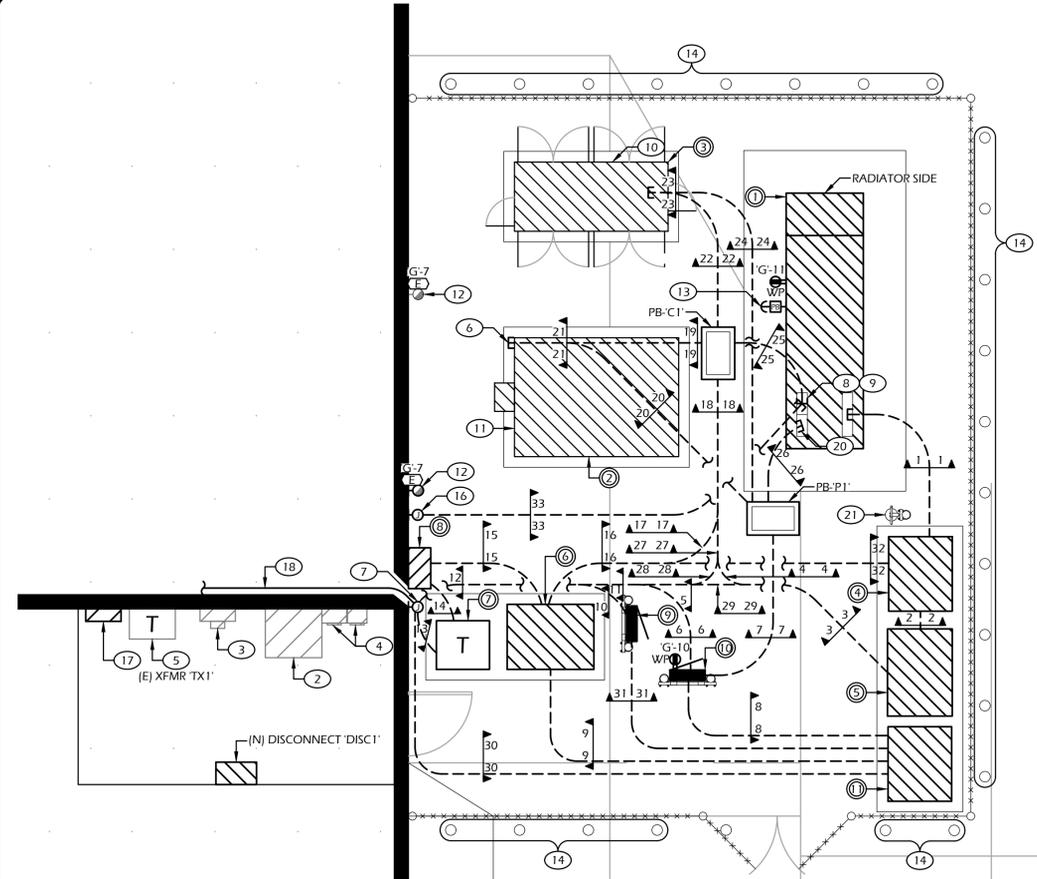
SCALE: 1" = 30'-0"

NEW EQUIPMENT SCHEDULE

- | | |
|-------------------------------|--------------------------------|
| 1. 125kW GENERATOR | 7. TRANSFORMER 'TX2' |
| 2. FUEL TANK | 8. DISCONNECT 'DISC2' |
| 3. FUEL MAINTENANCE SYSTEM | 9. PANEL 'M' |
| 4. DISTRIBUTION BOARD 'DBEM1' | 10. PANEL 'G' |
| 5. ATS 'AT1' | 11. DISTRIBUTION BOARD 'DBEM2' |
| 6. ATS 'AT2' | |

GENERAL NOTES

- MADERA DISTRICT NOW OWNS THE FACILITY.
- COORDINATE UNDERGROUND CONDUIT STUB OUT LOCATIONS WITH EQUIPMENT MANUFACTURERS.
- PROVIDE CONCRETE PAD FOR ALL GROUND MOUNTED EQUIPMENT.



2 PARTIAL ELECTRICAL SITE PLAN

SCALE: 1/4" = 1'-0"

DUCT BANK SCHEDULE

DESIGNATOR ▲ # ▲	POWER	SPARE	COMMUNI- CATIONS
1	(2) 2-1/2"	-	-
2	2-1/2"	-	-
3	2-1/2"	-	1-1/4"
4	-	-	1-1/4"
5	2-1/2"	-	-
6	3/4"	-	-
7	(7) 1"	1"	-
8	1-1/4"	-	-
9	3"	-	-
10	(7) 3/4"	-	-
11	2-1/2" & 3/4"	-	1"
12	2-1/2" & 3/4"	-	1"
13	2-1/2"	-	-
14	3"	-	-
15	3"	-	-
16	2-1/2"	-	1-1/4"
17	-	-	1-1/4"
18	-	-	(2) 1-1/4"
19	-	-	(2) 1-1/4"
20	1"	-	-
21	1-1/4"	-	(2) 1-1/4"
22	-	-	(2) 1-1/4"
23	1-1/4"	-	(2) 1-1/4"
24	1"	-	-
25	-	-	(4) 1-1/4" & 1"
26	(5) 1"	1"	-
27	-	-	1" & 1-1/4"
28	-	-	1"
29	2-1/2"	-	-
30	2-1/2"	-	-
31	2"	-	-
32	2-1/2"	-	-
33	-	-	1-1/4"

PULL BOX SCHEDULE

CATEGORY	DESIGNATION	MINIMUM SIZE	LID TYPE	SYSTEMS
POWER	P1	B1324	H/20	POWER
COMM- UNICATION	C1	B1324	H/20	DATA

- NOTES:
- ALL PULL BOXES SHALL BE EITHER BROOKS, CHRISTY, OR EQUIVALENT.
 - ALL PULL BOXES SHALL BE PROVIDED WITH EXTENSION RINGS AND BOLT DOWN COVERS AS REQUIRED TO SUIT THE APPLICATION. VERIFY PULL BOX LOCATIONS REQUIRING FULL TRAFFIC COVERS WITH THE ARCHITECT AND CIVIL ENGINEER.
 - LABEL PULL BOXES 'ELECTRICAL', 'SIGNAL' OR 'COMMUNICATIONS' AS REQUIRED.

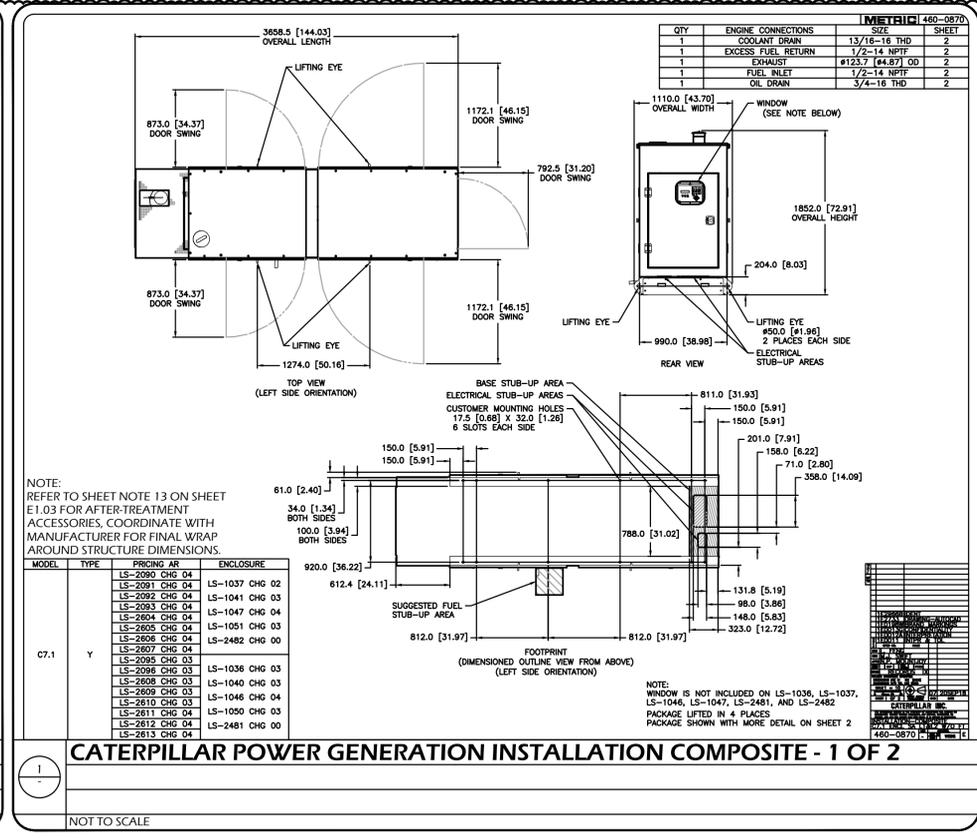
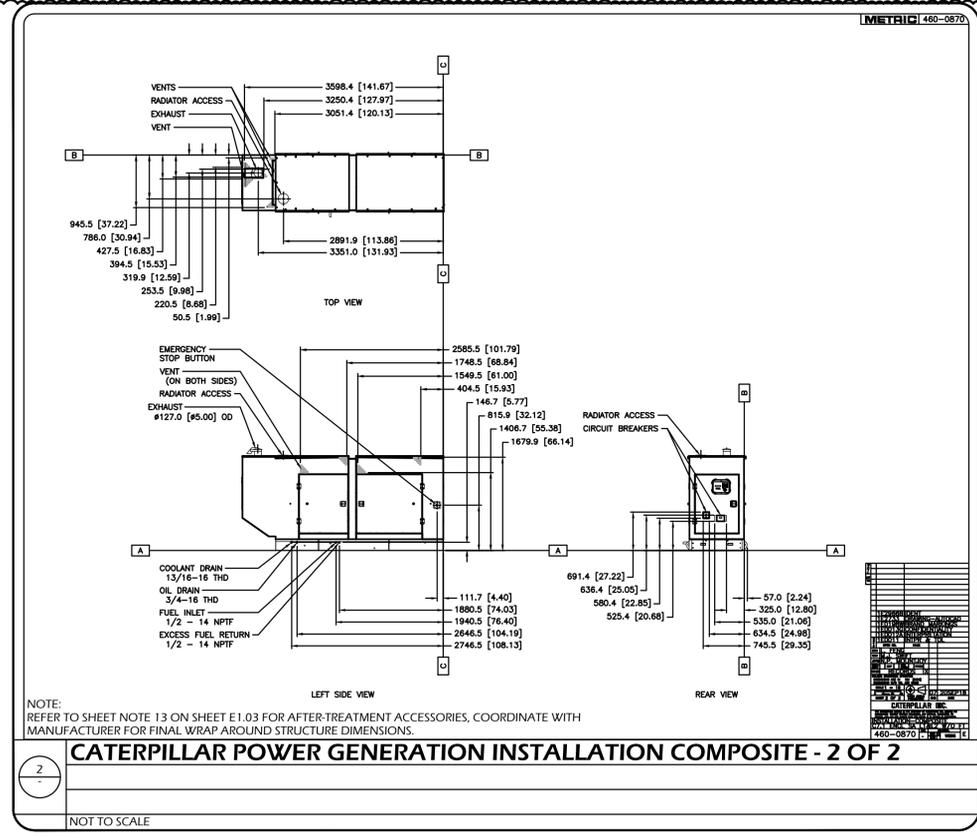


NEW FIRE ALARM AND GENERATOR REMOTE ANNUNCIATOR LOCATION AT OFFICE ENTRANCE

SCALE: NOT TO SCALE

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DATE: 05-14-21

MADERA UNIFIED SCHOOL DISTRICT
SERVER ROOM
1902 HOWARD ROAD
MADERA, CA. 93637
CDS #: 20-65243

REVISIONS

NO.	DATE	DESCRIPTION
1	5/25/22	ADDENDUM-3
2		
3		
4		
5		

LAWRENCE ENGINEERING GROUP
Fresno, CA 93720
7084 N. Maple Ave., Suite 101
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TITLE:
TYPICAL ELECTRICAL
DETAILS

SHEET:
E4.02
PROJECT: 21052

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