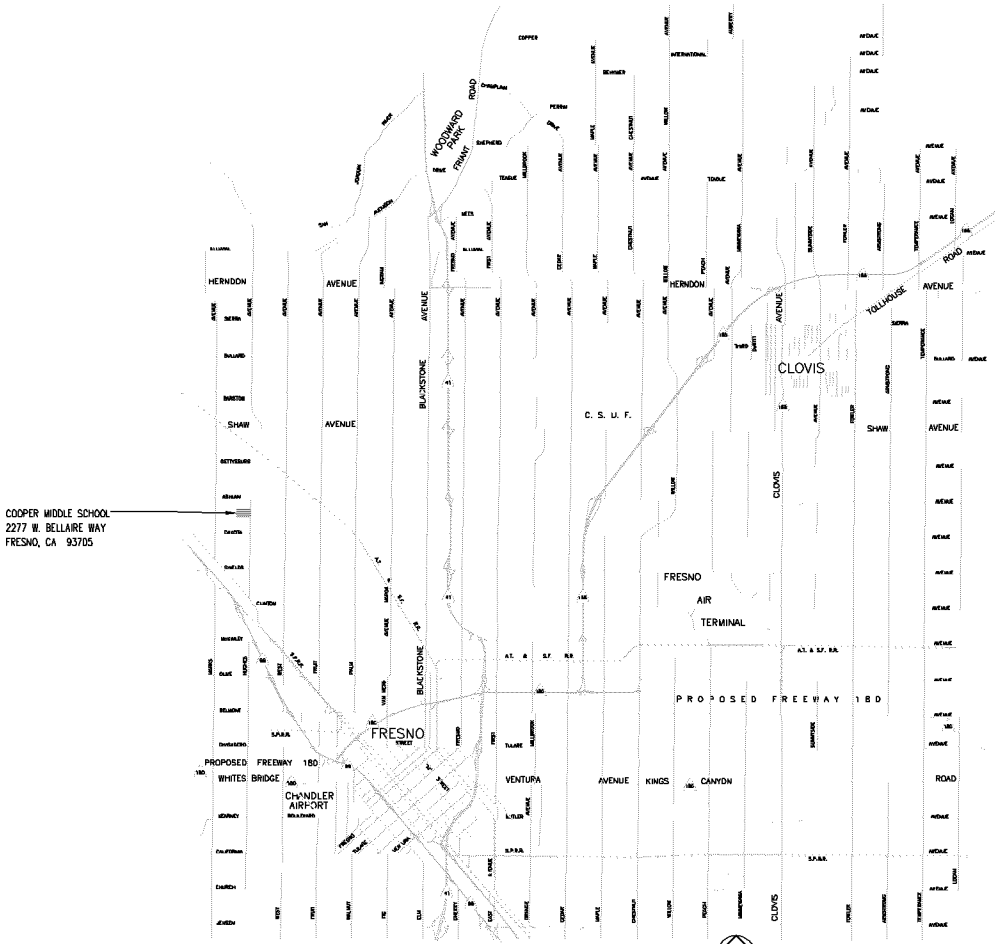
FRESNO UNIFIED SCHOOL DISTRICT

ELECTRICAL SERVICE UPGRADES

WILLIAM JOHN COOPER ACADEMY



VICINITY MAP

PROJECT DATA:

OWNER:

FRESNO UNIFIED SCHOOL DISTRICT
2309 TULARE STREET
FRESNO, CA. 93721
PHONE (559) 457-3000
FAX (559) 457-3788

ELECTRICAL:

HARDIN-DAVIDSON ENGINEERING
RICHARD HARDIN, P.E.
375 WOODWORTH, SUITE 103
CLOVIS, CALIFORNIA 93612
PHONE (559) 323-4995
FAX (559) 323-4928

SCOPE OF WORK

1. REPLACE & UPGRADE EXISTING SERVICE.
2. REPLACE EXISTING MAIN SWITCHBOARD 'MSB' & DISTRIBUTION BOARD 'DM'.

DRAWING INDEX

APPLICABLE CODES

UNLESS NOTED OTHERWISE, ALL COMMENTS ARE BASED ON REQUIREMENTS OF THE CALIFORNIA BUILDING STANDARDS CODE FOUND IN THE CALIFORNIA CODE OF REGULATIONS, TITLE 24:

PART 2, KNOWN AS THE 2019 CALIFORNIA BUILDING CODE (CBC).
PART 3, KNOWN AS THE 2019 CALIFORNIA ELECTRICAL CODE (CEC).
PART 4, KNOWN AS THE 2019 CALIFORNIA MECHANICAL CODE (CMC).
PART 5, KNOWN AS THE 2019 CALIFORNIA PLUMBING CODE (CPC).
PART 6, KNOWN AS THE 2019 CALIFORNIA ENERGY CODE, AND ENERGY COMMISSION STANDARDS (CECS).

REVISIONS

DATE	BY	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — RICHARD HARDIN — NO. 9125 — ELECTRICAL — STATE OF CALIFORNIA

CONSULTANT:
Hardin-Davidson Engineering
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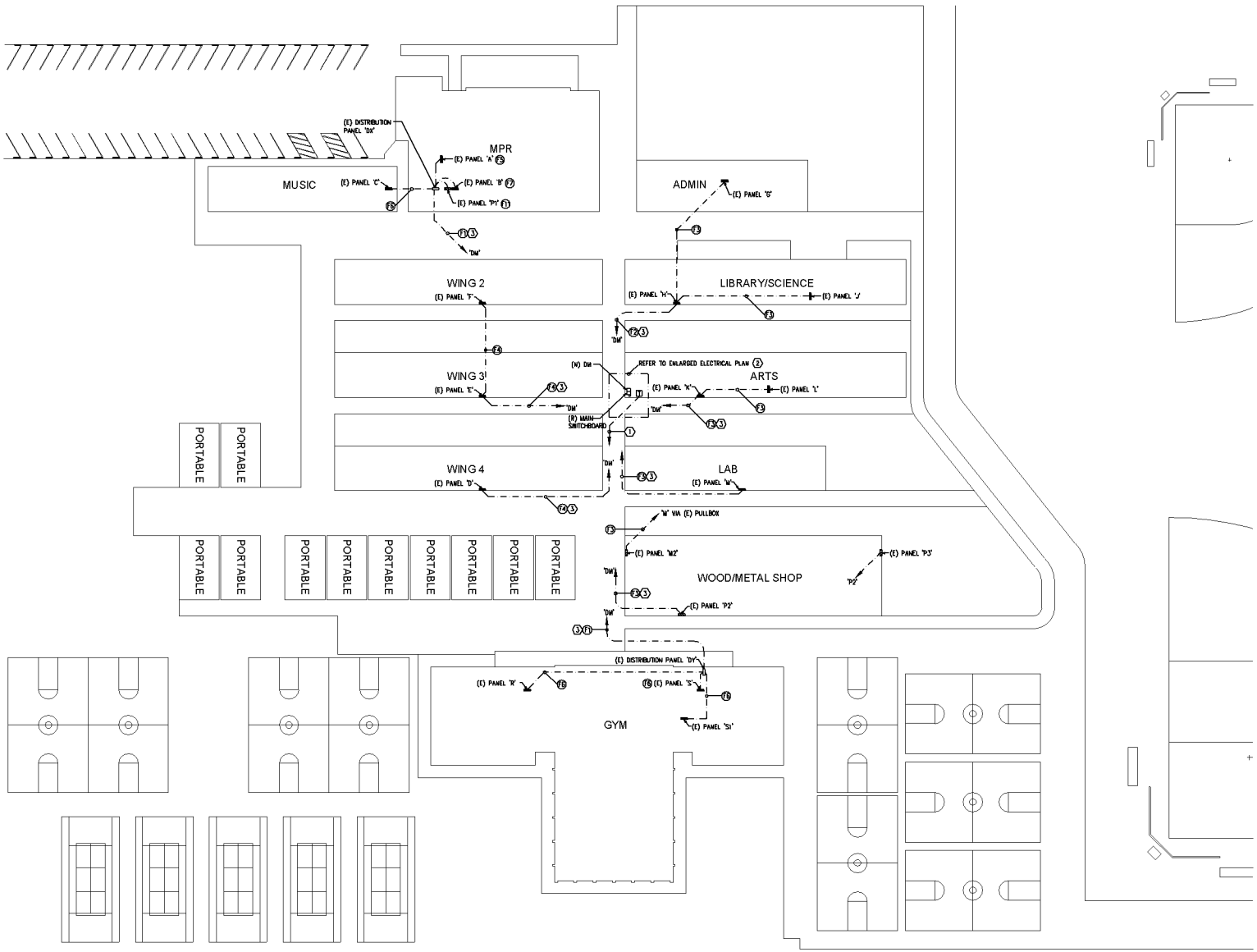
COOPER ACADEMY
ELECTRICAL SERVICE REPLACEMENT

OPERATIONAL SERVICES / FACILITY IMPROVEMENTS FOR:
FRESNO UNIFIED SCHOOL DISTRICT
WILLIAM JOHN COOPER ACADEMY
2277 W BELLAIRE WAY
FRESNO, CA 93705

COVER SHEET

DATE: 11/17/2020
PROJECT NO.: 20115
ENG.: R. HARDIN
SCALE: NONE
SHEET NO.: C-1



ELECTRICAL SITE PLAN

1"=30'-0"

KEY NOTES (4)

1. EXISTING PG&E UNDERGROUND PRIMARY TO REMAIN.
2. REFER TO ENLARGED ELECTRICAL PLAN & LINE DIAGRAM.
3. RECONNECT EXISTING FEEDER CONDUCTORS TO NEW CIRCUIT BREAKERS IN REPLACED DISTRIBUTION BOARD 'DM'. PROVIDE EXTENSIONS IF REQUIRED. (ASSUME CONDUCTORS PER FEEDER SCHEDULE)

FEEDER SCHEDULE (8)

FEEDER	CONDUIT	CONDUCTORS
F1	3-1/2"C	4#500 KCMIL, 1#2 GND
F2	3"C	4#250 KCMIL, 1#2 GND
F3	3"C	4#4/0, 1#2 GND
F4	2-1/2"C	4#2/0, 1#4 GND
F5	2"C	4#1, 1#6 GND
F6	2"C	4#2, 1#8 GND
F7	2"C	4#4, 1#8 GND
F8	4"C	4#350 KCMIL, 1#2 GND
F9	1-1/4"C	3#2, 1#8 GND
F10	THREE (3) 3"C	3#350 KCMIL, 1#3/0 GND EACH
F11	1-1/2"C	3#1, 1#6 GND
F12	2-1/2"C	3#4/0, 1#4 GND
F13	3/4"C	4#12, 1#12 GND

REVISIONS			
DESCRIPTION	BY	DATE	

CONSULTANT:
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559.323.4995 tel • 559.323.4928 fax

COOPER ACADEMY
ELECTRICAL SERVICE
REPLACEMENT

OPERATIONAL SERVICES FACILITY IMPROVEMENTS FOR:
FRESNO UNIFIED SCHOOL DISTRICT
WILLIAM JOHN COOPER ACADEMY
2277 W BELLAIRE WAY
FRESNO, CA 93705

ELECTRICAL SITE PLAN

DATE: 11/17/2020
PROJECT NO.: 20115
ENG.: R. HARDIN
SCALE: 1" = 30'-0"
SHEET NO.: E-1

ELECTRICAL EQUIPMENT ANCHORAGE NOTES

ALL ELECTRICAL EQUIPMENT SHALL BE ANCHORED OR BRACED TO MEET THE HORIZONTAL AND VERTICAL FORCES PRESCRIBED IN THE 2007 CBC, SECTION 1614A.1.13 AND ASCE 7-05 SECTIONS 13.3, 13.4 & 13.6.

THE ATTACHMENT OF THE FOLLOWING ITEMS SHALL BE DESIGNED TO RESIST THE FORCES PRESCRIBED ABOVE, BUT NEED NOT BE DETAILED ON THE PLANS:

A. EQUIPMENT WEIGHING LESS THAN 400 LBS. SUPPORTED DIRECTLY ON THE FLOOR OR ROOF.
B. FURNITURE REQUIRED TO BE ATTACHED IN ACCORDANCE WITH PART 2, TITLE 24, C.C.R.
C. TEMPORARY OR MOVABLE EQUIPMENT.
D. EQUIPMENT WEIGHING LESS THAN 20 LBS. SUPPORTED BY VIBRATION ISOLATORS.
E. EQUIPMENT WEIGHING LESS THAN 20 LBS. 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 MECHANICAL/ELECTRICAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT.

ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTES

THE ELECTRICAL DISTRIBUTION SYSTEM SHALL BE BRACED TO RESIST THE FORCES PRESCRIBED IN ASCE 7-05 SECTION 13.3 AS DEFINED IN ASCE 7-05 SECTION 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 OSHPD 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 MANUAL SHALL BE ON THE JOBSITE PRIOR TO STARTING HANGING AND BRACING OF THE ELECTRICAL DISTRIBUTION SYSTEM.

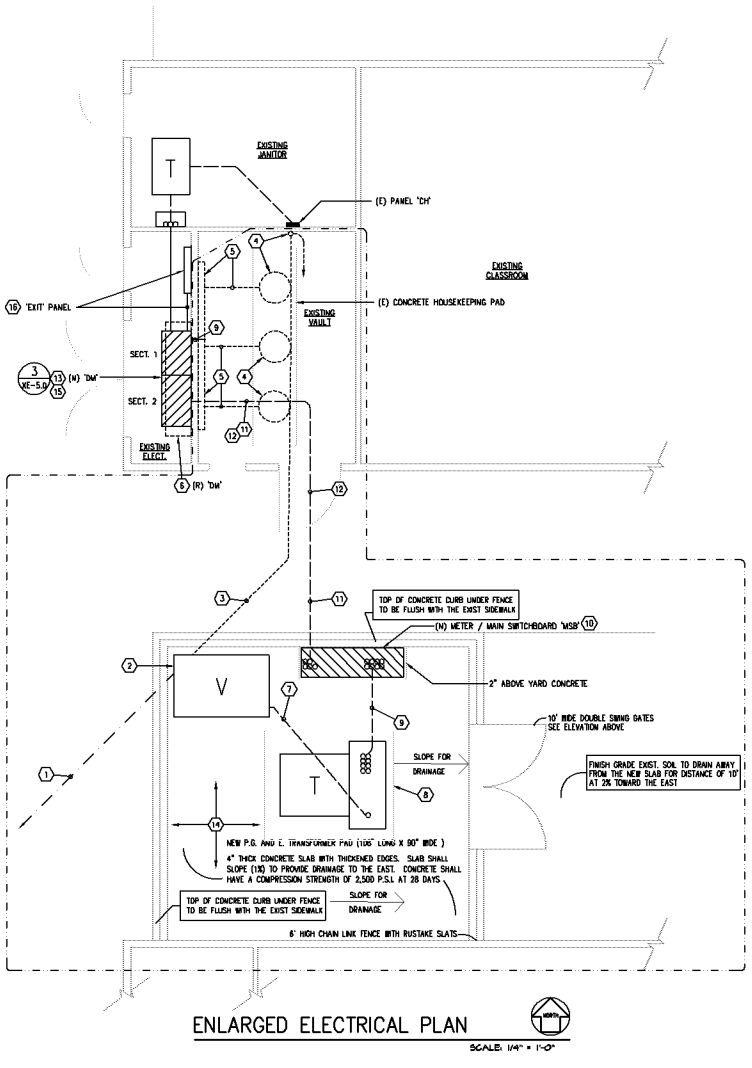
THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT HANGER AND BRACE LOADS.

ELECTRICAL GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2019 CALIFORNIA ELECTRICAL CODE BASED ON THE 2017 NATIONAL ELECTRICAL CODE. NOTHING IN THESE DRAWINGS AND SPECIFICATIONS SHALL BE CONSTRUED TO ALLOW WORK NOT CONFORMING TO CODE REQUIREMENTS.
2. THE CONTRACTOR SHALL VISIT THE SITE TO OBSERVE AND DETERMINE ACTUAL PHYSICAL CONDITIONS AND INCLUDE ALL WORK IN BID.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF ALL DAMAGE TO EXISTING UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL ARRANGE AND PROVIDE A COMPLETE ELECTRONIC SURVEY OF EXISTING UNDERGROUND UTILITIES IN THE AREAS TO BE TRENCHED AND EXCAVATED. THE CONTRACTOR SHALL INCLUDE ALL REQUIRED CUTTING & PATCHING OF WALLS WITH NEW REPLACEMENT RECESSED PANELS.
4. ALL SITE WORK SHALL BE PERFORMED FROM JUNE 11, 2021 TO AUGUST 1, 2021. THE CONTRACTOR SHALL ARRANGE AND COORDINATE ANY SHUT DOWN TIME AT LEAST 7 DAYS PRIOR TO ANY SCHEDULED POWER SHUT DOWN. LONG POWER SHUT DOWN DURATION SHALL BE COORDINATED WITH DISTRICT.
5. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED BARRICADES, COVERS, FENCING, AND TRAFFIC CONTROL FOR EXCAVATED AREAS. NOT MORE THAN 300 FEET AND 2 HEADINGS OF TRENCHING SHALL OPEN ANY TIME WITHOUT PRIOR APPROVAL. TRENCHED AREAS SHALL BE RESTORED & ACCEPTED BEFORE PROCEEDING WITH ADDITIONAL TRENCHING. ALL TRENCHES LEFT OPEN AFTER HOURS SHALL BE COMPLETELY COVERED WITH STEEL PLATING OR COMPLETELY & SECURELY FENCE.
6. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL NEW EQUIPMENT, PADS, MANHOLES, AND TRENCH ROUTING WITH OWNER AND ENGINEER PRIOR TO INSTALLATION.
7. ALL DEMOLISHED ELECTRICAL EQUIPMENT, NOT CLAIMED BY OWNER, SHALL BE REMOVED FORM SITE & DISPOSED OF. THE CONTRACTOR SHALL ASSUME THAT ALL OIL FILLED EQUIPMENT CONTAIN PCB'S.
8. PROVIDE= FURNISH, INSTALL, & CONNECT.
9. ALL TEMPORARY POWER TO MAINTAIN FIRE ALARM & INTRUSION SYSTEMS WILL BE PROVIDED BY FRESNO UNIFIED. CONSTRUCTION TEMPORARY POWER WILL BE PROVIDED BY CONTRACTOR.

ELECTRICAL SYMBOLS

- SWITCHBOARD OR PANEL BOARD AS NOTED
- T — TRANSFORMER
- V — VAULT
- PB — PULL BOX
- CIRCUIT BREAKER
- M — METER
- GROUND
- FUSIBLE SWITCH
- WIRES IN CONDUIT, CONCEALED UNDERGROUND
- WIRES IN CONDUIT, ABOVE GRADE
- EXISTING CONDUIT TO REMAIN
- (E) EXISTING TO REMAIN
- (N) NEW
- (R) EXISTING TO BE REPLACED
- (X) EXISTING TO BE REMOVED
- W.P. WEATHERPROOF



ENLARGED ELECTRICAL PLAN

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

KEY NOTES

1. EXISTING PG&E UNDERGROUND PRIMARY TO REMAIN.
2. INTERCEPT EXISTING PG&E PRIMARY & PROVIDE NEW 3'X5' PRIMARY VAULT PER PG&E REQUIREMENTS. COORDINATE SHUT DOWN TIMES WITH PG&E & DISTRICT.
3. REMOVE EXISTING PG&E PRIMARY TO TRANSFORMER ROOM.
4. PG&E POLE TYPE TRANSFORMERS TO BE REMOVED COORDINATE WITH PG&E.
5. REMOVE EXISTING SECONDARY BUSSED DUCT & CONDUCTORS.
6. REMOVE EXISTING MAIN SWITCHBOARD 'DM', 120/208V 3Ø 4W, 2000 AMP. MAINTAIN THE EXISTING FEEDER CONDUCTORS NOTED TO REMAIN.
7. PROVIDE NEW 4"C UNDERGROUND FOR PRIMARY PER PG&E REQUIREMENTS.
8. PROVIDE NEW TRANSFORMER PAD PER PG&E REQUIREMENTS.
9. PROVIDE NEW (7) 5"C UNDERGROUND FOR SECONDARY PER PG&E REQUIREMENTS.
10. PROVIDE NEW WEATHERPROOF METER/MAIN SWITCHBOARD 'MSB', 120/208V 3Ø 4W, 2000A, 65 KAIC WITH TITLE 24 RESETTABLE METER. PROVIDE NEW CONCRETE PAD & GROUNDING. PROVIDE (3) 10' x ¾" CU GROUND RODS 6 FEET APART WITH ONE IN SWITCHBOARD FOOTPRINT.
11. PROVIDE NEW FIVE: (5) 4"C-4#500 KCMIL, 1#3/0 GND.
12. CUT & PATCH CONCRETE WALK & FLOOR AS REQUIRED.
13. PROVIDE NEW MAIN DISTRIBUTION BOARD 'DM', 120/208V 3Ø 4W, 2000A, 65 KAIC. ANCHOR TO EXISTING CONCRETE PAD & COORDINATE WITH EXISTING UNDERGROUND FEEDER RISERS.
14. PROVIDE CONCRETE YARD, EQUIPMENT PADS, & CHAIN LINK FENCE
15. RECONNECT EXISTING FEEDER CONDUCTORS TO NEW CIRCUIT BREAKERS IN 'DM'. PROVIDE EXTENSIONS IF REQUIRED (ASSUME CONDUCTORS PER FEEDER SCHEDULE)
16. REMOVE EXISTING FEEDER & DISCONNECT & PROVIDE NEW FEEDER TO EXISTING PANEL.

FEEDER SCHEDULE

FEEDER	CONDUIT	CONDUCTORS
F1	3-1/2"C	4#500 KCMIL, 1#2 GND
F2	3"C	4#250 KCMIL, 1#2 GND
F3	3"C	4#4/0, 1#2 GND
F4	2-1/2"C	4#2/0, 1#4 GND
F5	2"C	4#1, 1#6 GND
F6	2"C	4#2, 1#8 GND
F7	2"C	4#4, 1#8 GND
F8	4"C	4#350 KCMIL, 1#2 GND
F9	1-1/4"C	3#2, 1#8 GND
F10	THREE (3) 3"C	3#350 KCMIL, 1#3/0 GND EACH
F11	1-1/2"C	3#1, 1#6 GND
F12	2-1/2"C	3#4/0, 1#4 GND
F13	3/4"C	4#12, 1#12 GND

REVISIONS

BY	DESCRIPTION	DATE

REGISTERED PROFESSIONAL ENGINEER — RICHARD A. HARDIN — NO. 19725 — ELECTRICAL — STATE OF CALIFORNIA

CONSULTANT:
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356 Pollasky Ave., Suite 201
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COOPER ACADEMY
ELECTRICAL SERVICE
REPLACEMENT

OPERATIONAL SERVICES FACILITY IMPROVEMENTS FOR:
FRESNO UNIFIED SCHOOL DISTRICT
WILLIAM JOHN COOPER ACADEMY
2277 W BELLAIRE WAY
FRESNO, CA 93705

ENLARGED ELECTRICAL PLAN

DATE: 11/17/2020
PROJECT NO.: 20115
ENG.: R. HARDIN
SCALE: 1/4" = 1'-0"
SHEET NO.: E-2

KEY NOTES (X)

1. EXISTING PG&E UNDERGROUND PRIMARY TO REMAIN.
2. INTERCEPT EXISTING PG&E PRIMARY & PROVIDE NEW 3'X5' PRIMARY VAULT PER PG&E REQUIREMENTS. COORDINATE SHUT DOWN TIMES WITH PG&E & DISTRICT.
3. REMOVE EXISTING PG&E PRIMARY TO TRANSFORMER ROOM.
4. PG&E POLE TYPE TRANSFORMERS TO BE REMOVED COORDINATE WITH PG&E.
5. REMOVE EXISTING SECONDARY BUSSED DUCT & CONDUCTORS.
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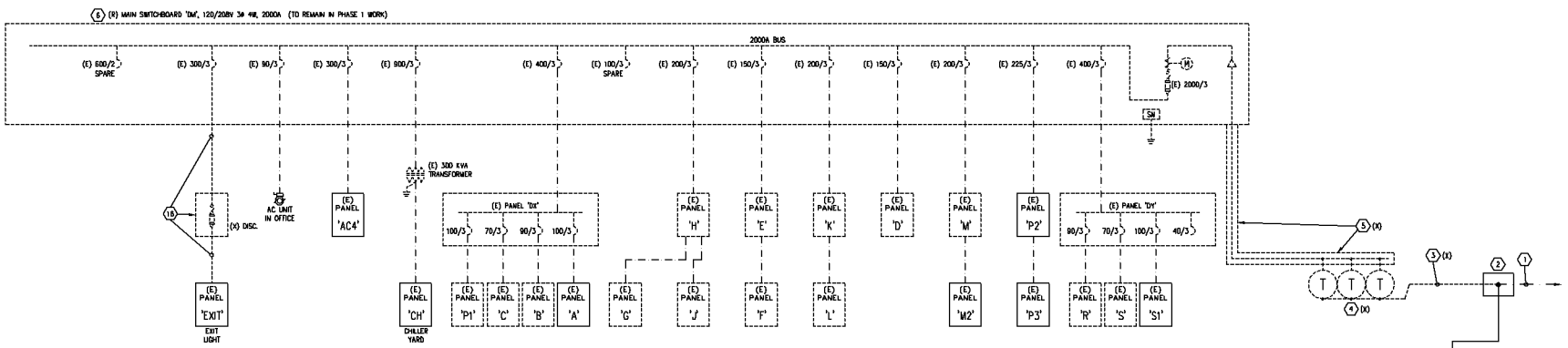
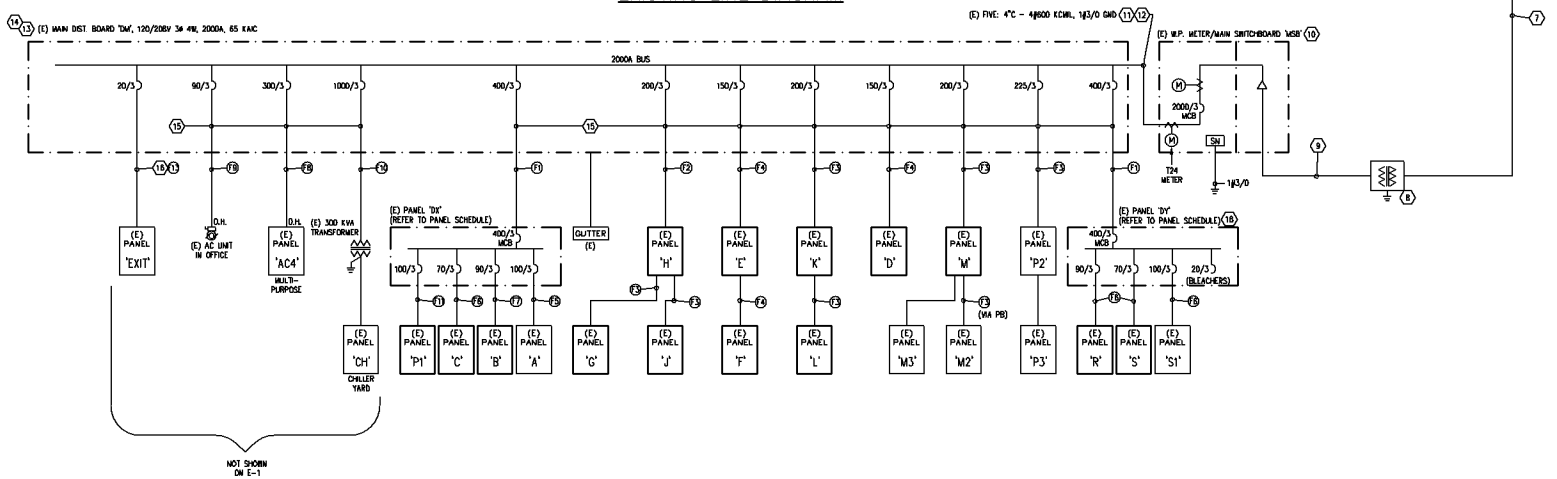
12. CUT & PATCH CONCRETE WALK & FLOOR AS REQUIRED.
13. PROVIDE NEW MAIN DISTRIBUTION BOARD 'DM', 120/208V 3Ø 4W, 2000A, 65 KAIC. ANCHOR TO EXISTING CONCRETE PAD & COORDINATE WITH EXISTING UNDERGROUND FEEDER RISERS.
14. PROVIDE CONCRETE YARD, EQUIPMENT PADS, & CHAIN LINK FENCE.
15. RECONNECT EXISTING FEEDER CONDUCTORS TO NEW CIRCUIT BREAKERS IN 'DM'. PROVIDE EXTENSIONS IF REQUIRED. (ASSUME CONDUCTORS PER FEEDER SCHEDULE)
16. REMOVE EXISTING FEEDER & DISCONNECT & PROVIDE NEW FEEDER TO EXISTING PANEL.

FEEDER SCHEDULE (X)

FEEDER	CONDUIT	CONDUCTORS
F1	3-1/2"C	4#500 KCMIL, 1#2 GND
F2	3"C	4#250 KCMIL, 1#2 GND
F3	3"C	4#4/0, 1#2 GND
F4	2-1/2"C	4#2/0, 1#4 GND
F5	2"C	4#1, 1#6 GND
F6	2"C	4#2, 1#8 GND
F7	2"C	4#4, 1#8 GND
F8	4"C	4#350 KCMIL, 1#2 GND
F9	1-1/4"C	3#2, 1#8 GND
F10	THREE (3) 3"C	3#350 KCMIL, 1#3/0 GND EACH
F11	1-1/2"C	3#1, 1#6 GND
F12	2-1/2"C	3#4/0, 1#4 GND
F13	3/4"C	4#12, 1#12 GND



EXISTING LINE DIAGRAM



NEW LINE DIAGRAM

NOT TO SCALE

REVISIONS			
DESCRIPTION	BY	DATE	

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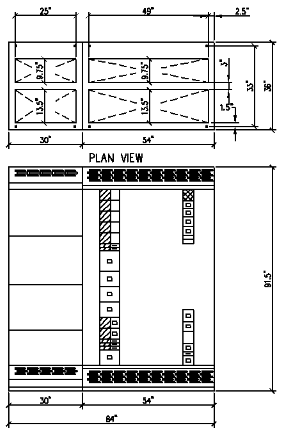
COOPER ACADEMY
ELECTRICAL SERVICE
REPLACEMENT

OPERATIONAL SERVICES / FACILITY IMPROVEMENTS FOR:
FRESNO UNIFIED SCHOOL DISTRICT
WILLIAM JOHN COOPER ACADEMY
2277 W BELLAIRE WAY
FRESNO, CA 93705

LINE DIAGRAMS

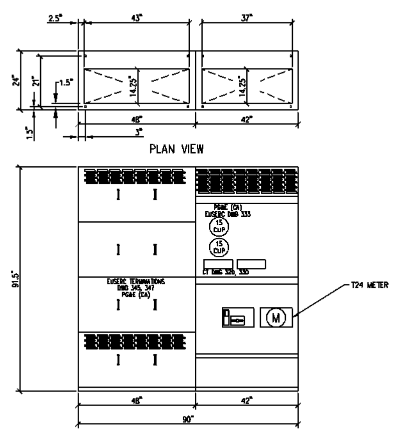
DATE:	11/17/2020
PROJECT NO.:	20115
ENG.:	R. HARDIN
SCALE:	NONE
SHEET NO.:	E-8



FRONT ELEVATION

MAIN DISTRIBUTION BOARD 'DM'

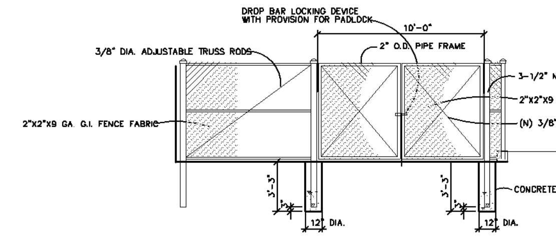
(2670 lbs.)



FRONT ELEVATION

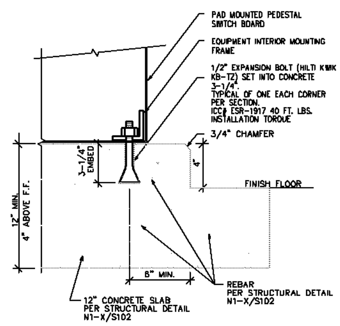
MAIN SWITCHBOARD 'MSB'

(2365 lbs.)



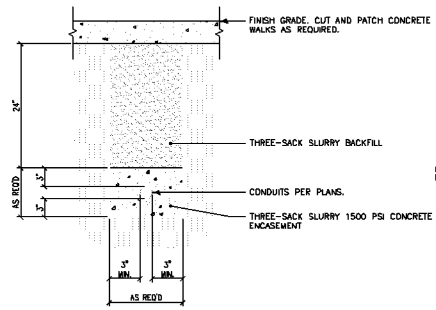
(N) CHAIN LINK DOUBLE GATE ELEVATION

1/4"=1'-0"



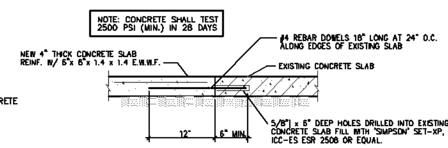
PAD MOUNTED SWITCHBOARD MOUNTING DETAIL

NOT TO SCALE



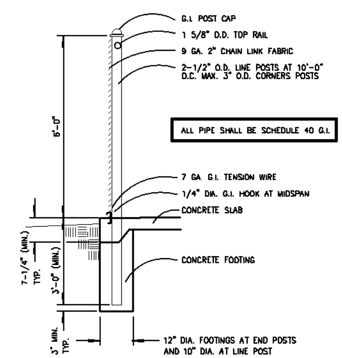
TRENCH DETAIL

SCALE: NO SCALE



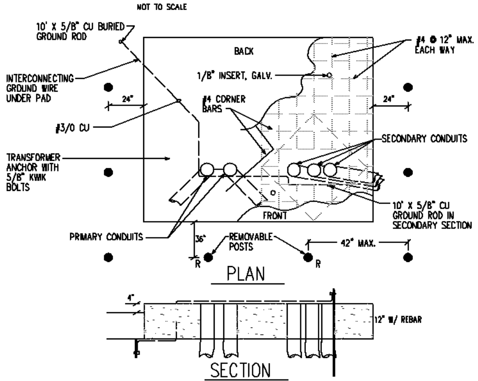
CONCRETE WALK

SCALE: NO SCALE



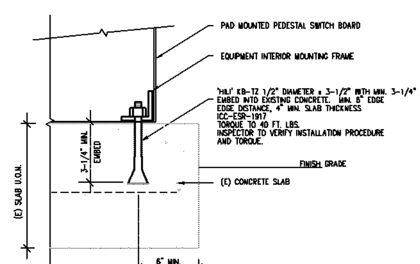
CHAIN LINK FENCE – EAST SIDE

SCALE: 1/2"=1'-0"



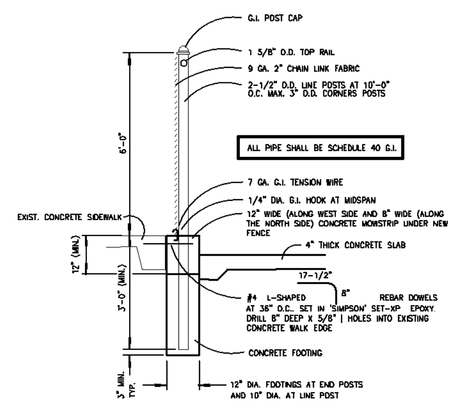
TYPICAL PG&E TRANSFORMER PAD

NOT TO SCALE



PAD MOUNTED SWITCHBOARD MOUNTING DETAIL – EXISTING SLAB

NOT TO SCALE



CHAIN LINK FENCE – WEST AND NORTH SIDES

SCALE: 1/2"=1'-0"

REVISIONS		
DATE	BY	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER R.J. HARDIN NO. 9125 ELECTRICAL STATE OF CALIFORNIA

CONSULTANT:
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FRESNO, CA 93705

PANEL SCHEDULES

DATE: 11/17/2020
PROJECT NO.: 20115
DWG.: R. HARDIN
SCALE: NONE
SHEET NO.: E-4