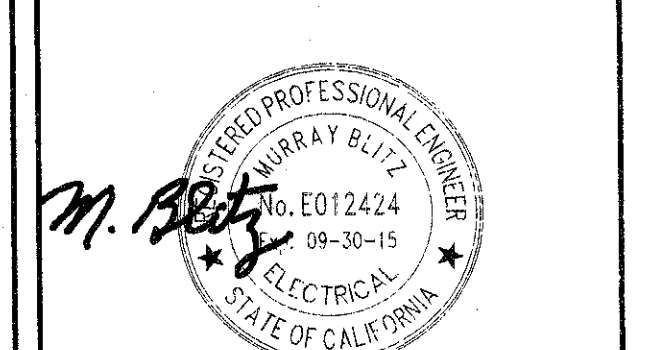


CITY OF TORRANCE

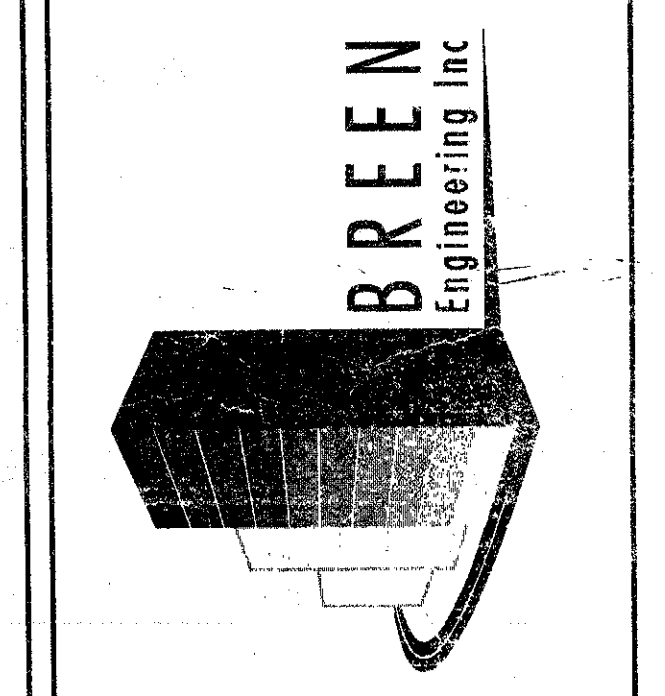
GENERAL AVIATION CENTER TORRANCE MUNICIPAL AIRPORT

TORRANCE AIRPORT EOC GENERATOR

REV.	DATE	DESCRIPTION
07/03/13	07/03/13	DK
07/03/13	07/03/13	DK



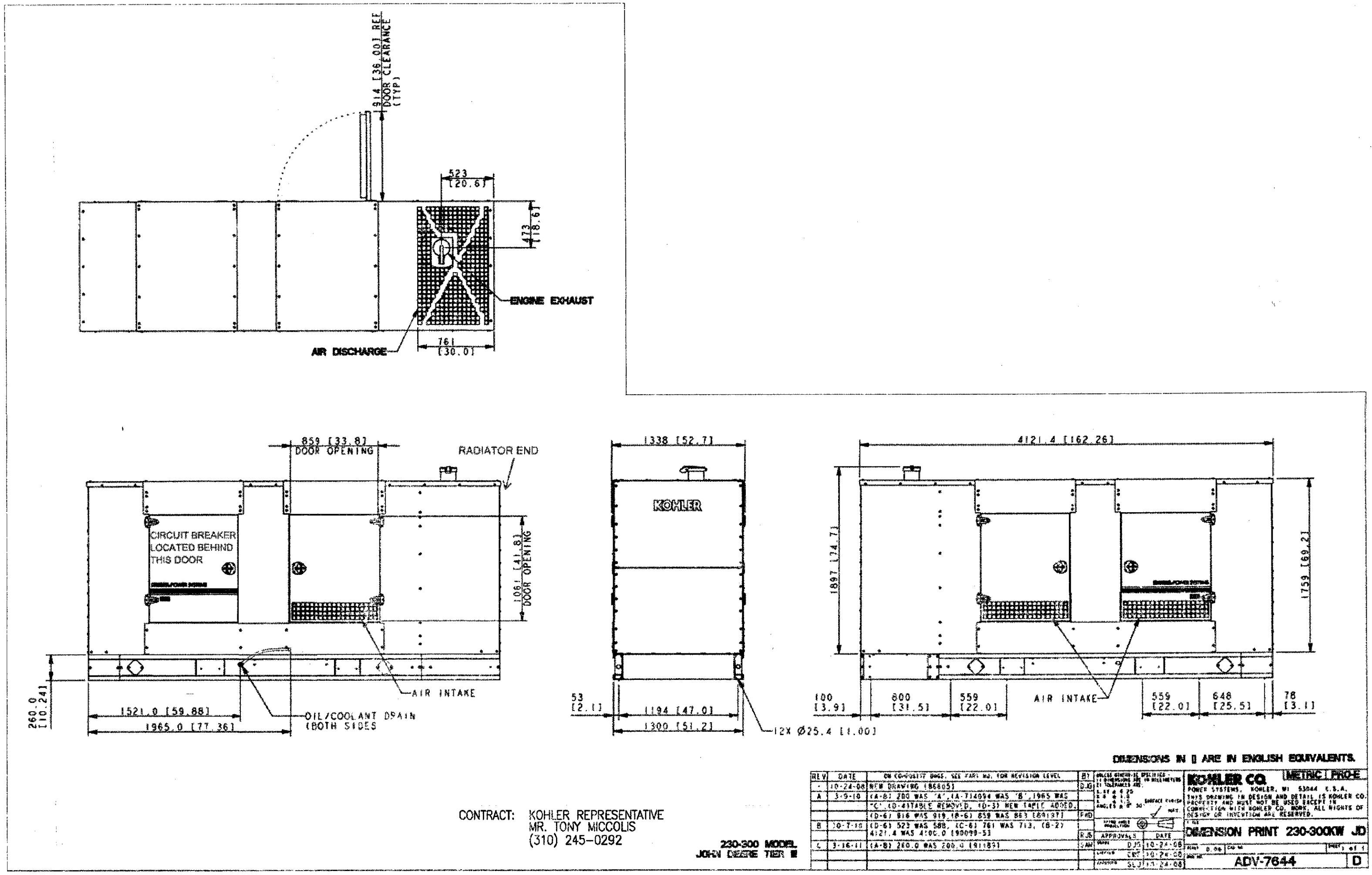
1983 WEST 190TH STREET, SUITE 200
TORRANCE, CA 90504
TEL: (310) 464-8404
FAX: (310) 464-8408
EMAIL: www.breeneng.com



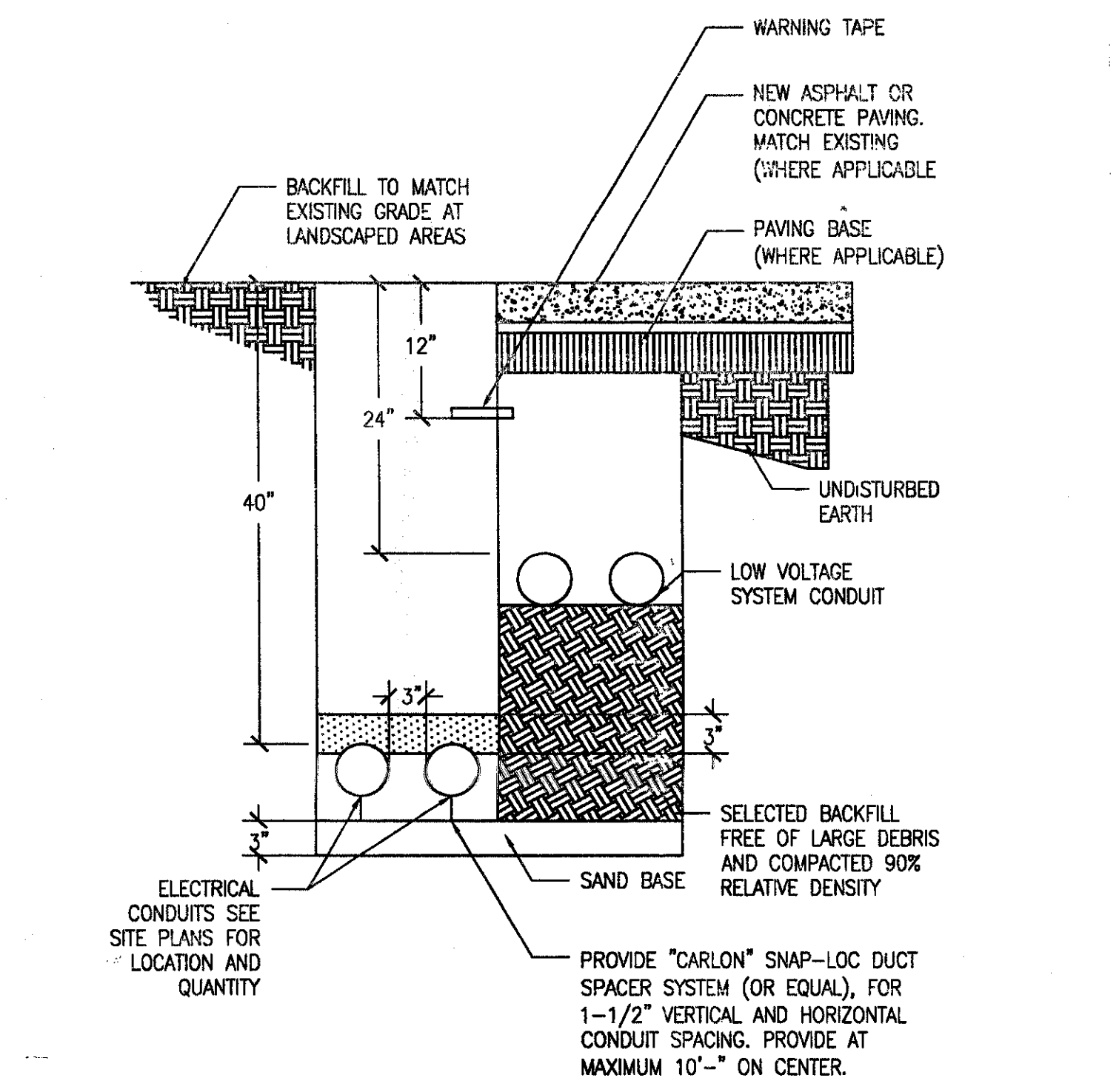
ELECTRICAL NOTES, SYMBOLS,
DETAIL AND SHEET INDEX

GENERAL AVIATION CENTER
TORRANCE MUNICIPAL AIRPORT
3801 AIRPORT DRIVE
TORRANCE, CALIF. 90503

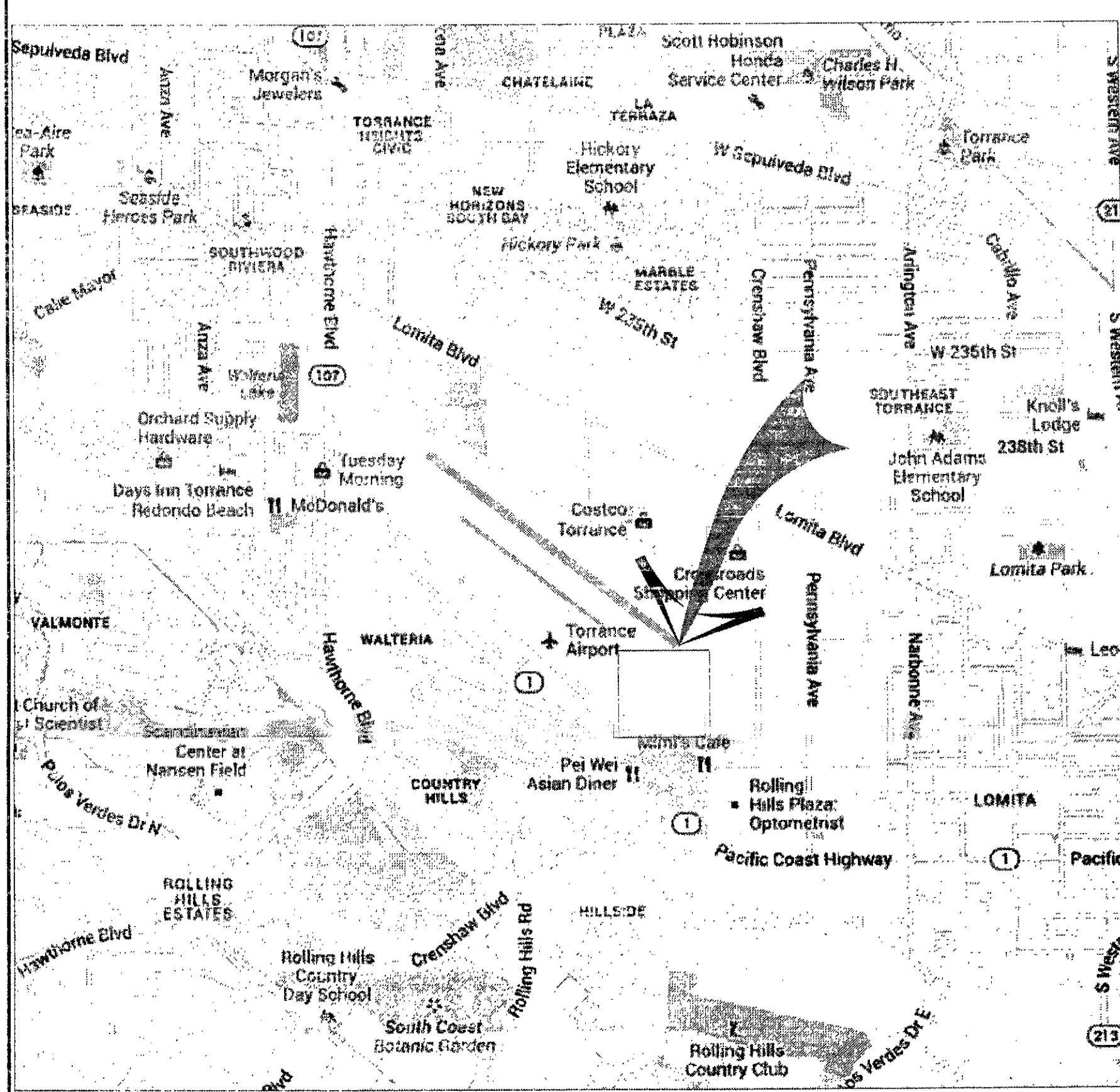
DATE:	07/03/13
SCALE:	AS NOTED
PROJECT NUMBER:	307-13-001
DRAWN BY:	CK/BS
CHECKED BY:	DM
DRAWING NUMBER:	E-1



STANDBY GENERATOR DETAIL SCALE: N.T.S. 2



TYPICAL TRENCH DETAIL SCALE: N.T.S. 3



VICINITY MAP SCALE: N.T.S. 1

GENERAL NOTES

- THE DRAWINGS DESCRIBE THE SYSTEMS, FURNISH ALL MATERIAL AND DO ALL WORK REQUIRED AS INDICATED ON THE DRAWINGS. SPECIFICATIONS UNLESS OTHERWISE NOTED, FURNISH AND INSTALL ALL NEW MATERIAL AND EQUIPMENT AS REQUIRED TO PRODUCE A COMPLETE OPERATING SYSTEM. ALL WORK SHALL COMPLY WITH 2010 EDITION OF THE ELECTRICAL CODE, BASED ON 2010 CALIFORNIA ELECTRICAL (BASED ON 2008 NEC) CODE.
- CODES AND PERMITS: ALL ELECTRICAL EQUIPMENT, INSTALLATION, ETC., SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES, INCLUDING CALIFORNIA TITLE 24, CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING PARTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR):
TITLE 24, PART 2, CCR (2010 CALIFORNIA BUILDING CODE W/AMENDMENTS)
TITLE 24, PART 3, CCR (2010 CALIFORNIA ELECTRICAL CODE W/AMENDMENTS)
TITLE 24, PART 4, CCR (2010 CALIFORNIA MECHANICAL CODE W/AMENDMENTS)
TITLE 24, PART 5, CCR (2010 CALIFORNIA PLUMBING CODE W/AMENDMENTS)
TITLE 24, PART 9, CCR (2010 CALIFORNIA FIRE CODE W/AMENDMENTS)
2010 CALIFORNIA GREEN BUILDING STANDARDS CODES
CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS & INSPECTIONS.
- PROVIDE AND INSTALL ALL MATERIALS IN CONFORMANCE WITH APPLICABLE CODES, LOCAL CITY AMENDMENTS, ORDINANCES, AND LOCAL AUTHORITIES HAVING JURISDICTION. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE INSPECTING AUTHORITY AND THE MANUFACTURER'S RECOMMENDATIONS.
- FOR PURPOSES OF CLARITY AND LEGIBILITY, THE ELECTRICAL DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS.
- THE SYMBOLS DESIGNATING CONDUIT SIZES AND QUANTITIES OF BRANCH CIRCUIT WIRING DO NOT INCLUDE THE EQUIPMENT GROUNDING CONDUCTOR REQUIRED. INSTALL REQUIRED EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS, SIZE PER CEC 250-122. EQUIPMENT GROUNDING CONDUCTOR SHALL BE GREEN.
- BEFORE SUBMITTING BID, BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER. BY THE ACT OF SUBMITTING A BID PROPOSAL FOR WORK, THE CONTRACTOR SHALL BE DEEMED TO HAVE MADE SUCH A STUDY AND EXAMINATION AND TO ACCEPT ALL CONDITIONS PRESENT AT THE SITE. NO REQUEST FOR ADDITIONAL PAYMENT SHALL BE CONSIDERED AS VALID, DUE TO FAILURE TO ALLOW FOR CONDITIONS WHICH MAY EXIST.
- REFER TO ALL DRAWINGS FOR ADDITIONAL INFORMATION. EXACT EQUIPMENT LOCATION, MOUNTING HEIGHTS, MOUNTING REQUIREMENTS AND MAKE ALL FINAL ELECTRICAL CONNECTIONS TO ALL ELECTRICAL EQUIPMENT AS REQUIRED.
- CONTRACTOR TO COORDINATE WITH OTHER TRADES AND/OR MANUFACTURER CUT SHEETS FOR ADDITIONAL INFORMATION, EQUIPMENT INSTALLATION, MOUNTING REQUIREMENTS AND TO MAKE FINAL CONNECTIONS OF ALL ELECTRICAL EQUIPMENT.
- CONTRACTOR'S BID SHALL BE BASED ON ALL WORK SHOWN ON THE PLANS AND SPECIFICATIONS. ALL PREMIUM TIME COSTS REQUIRED SHALL BE INCLUDED IN HIS BID. IF CONTRACTOR PROPOSES TO SUBSTITUTE FOR EQUIPMENT SPECIFIED, HE SHALL SUBMIT HIS REQUEST FOR CONSIDERATION TO THE OWNER AND ENGINEER PRIOR TO THE BID. IN WRITING. ALL SUBSTITUTIONS MUST BE REVIEWED BY THE ENGINEER. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ANY CHANGES RESULTING FROM HIS PROPOSED SUBSTITUTIONS WHICH MAY AFFECT OTHER PARTS OF HIS OWN WORK OR THE WORK OF OTHER CONTRACTORS.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE UNDERWRITERS LABEL (UL) AND BE INSTALLED IN THE MANNER FOR WHICH THEY ARE DESIGNED AND APPROVED.
- ANY SUBSTITUTIONS OF SPECIFIED MATERIALS REQUIRE WRITTEN NOTIFICATION BY THE CONTRACTOR AND FORMAL APPROVAL BY OWNER REPRESENTATIVE AND/OR THE ENGINEER.
- WHENEVER CONDUITS PENETRATE A PERIMETER WALL, IT IS TO BE SEALED IN AN APPROVED MANNER.
- ISOLATED EQUIPMENT GROUNDING CONDUCTOR INSULATION SHALL BE GREEN WITH A YELLOW STRIPE. EQUIPMENT GROUNDING CONDUCTOR SHALL BE GREEN.
- ALL DEVICES INSTALLED OUTSIDE OR SUBJECT TO WATER SPRAY SHALL BE APPROVED FOR WET LOCATION. ALL DEVICES SUBJECT TO VAPORS, STEAM AND MOISTURE SHALL BE APPROVED FOR DAMP LOCATION. FOR WALL MOUNTED OUTLETS EXACT LOCATION AND MOUNTING HEIGHTS.
- PROVIDE NAMEPLATES FOR ALL NEW PANELBOARDS, DISTRIBUTION BOARDS "CIRCUIT BREAKERS", DISCONNECTS, PULL BOXES, CABINETS AND ALL ELECTRICAL EQUIPMENT IDENTIFIED BY NAME ON DRAWINGS.
- IN ADDITION TO JUNCTION BOXES INDICATED ON DRAWINGS, INSTALL JUNCTION BOXES AND PULL BOXES FOR CABLE SPLICES, CABLE PULLING AND CONNECTIONS NECESSARY FOR THE INSTALLATION OF A COMPLETE OPERATING SYSTEM. JUNCTION BOXES AND PULL BOXES SHALL BE ACCESSIBLE. LABEL JUNCTION BOXES AND PULL BOXES WITH APPROPRIATE DESIGNATION, MAXIMUM (3) 90° BENDS.
- MAIN ELECTRICAL FEEDER CONDUITS SHALL BE RIGID METAL CONDUITS UNLESS OTHERWISE NOTED OR AS ALLOW BY APPLICABLE CODES. STEEL FLEXIBLE CONDUITS FOR SHORT EQUIPMENT CONNECTIONS, EQUIPMENT CONNECTIONS SUBJECT TO VIBRATIONS AND EQUIPMENT LOCATED OUTSIDE OR SUBJECT TO WATER SPRAY MAKE CONNECTIONS WITH LIQUID-TIGHT CONDUIT AND WEATHERPROOF COMPONENTS. LENGTH IS LIMITED TO SIX FEET, PROVIDE EQUIPMENT GROUNDING CONDUCTOR SIZE PER 2010 DEC TABLE 250-122.
- PAINT ALL NEW EXPOSED ELECTRICAL RACEWAYS, CABINETS, ENCLOSURES AND FITTINGS TO MATCH ADJACENT FINISHES. EXPOSED CONDUIT RUNS SHALL BE INSTALLED AS CLOSED AS POSSIBLE TO THE CEILING.
- PROVIDE PULL STRING IN EMPTY CONDUITS INSTALLED AS PART OF THIS PROJECT.
- UNLESS OTHERWISE NOTED PROVIDE COPPER CONDUCTORS, MINIMUM SIZE #12 AWG. PROVIDE SOLID CONDUCTORS #10 AWG AND SMALLER UNLESS OTHERWISE NOTED. PROVIDE STRANDED CONDUCTORS #8 AWG AND LARGER UNLESS OTHERWISE NOTED. USE CONDUCTORS WITH THIN/THIN 600 VOLTS INSULATION FOR SIZES #8 AWG AND SMALLER, UNLESS OTHERWISE NOTED. CONDUCTORS #4 AWG AND LARGER SHALL BE THAW INSULATION, UNLESS OTHERWISE NOTED.
- DELIVER ALL CONDUCTORS TO THE JOB SITE IN ORIGINAL UNBROKEN CARTON OR REEL, PROPERLY TAGGED WITH U.L. LABEL, SIZE, MANUFACTURER'S TRADE NAME AND THE DATE MANUFACTURED.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN WORK AREA CLEAR OF DEBRIS ON DAILY BASIS DURING CONSTRUCTION.
- NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN DEDICATED WORKING SPACE OF EQUIPMENT, INCLUDING THE DEDICATED SPACE BETWEEN THE TOP OF EQUIPMENT TO THE STRUCTURAL CEILING ABOVE. ALL FOREIGN INSTALLATION WITHIN THE SPACE (I.E. FIRE SPRINKLER, ETC) SHALL BE INSTALLED IN ACCORDANCE WITH NEC 110.26(F)(1)(c).
- USE PLASTIC COATED SELF-STICKING MARKERS SUCH AS THOMAS & BETTS E-Z CODE FOR IDENTIFICATION OF CONDUCTORS AND METAL EDGE Banded PAPER TAGS ON PULL ROPES.

TERMS AND ABBREVIATIONS

ABBREVIATION	DESCRIPTION
Ø	AT
A	AMPERES
APPARATUS	INDICATES SWITCHGEARS, DISTRIBUTION BOARDS, TRANSFORMERS, ETC.
AS	AMP SWITCH
BKBD	BACKBOARD
C.O.	CONDUIT ONLY
CWL	COLD WATER LINE
Ø	PHASE OR DIAMETER
DN	DOWN
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRIC OR ELECTRICAL
EM	EMERGENCY
EQUIP.	EQUIPMENT
EXIST.	EXISTING
FDR.	FEEDER, INDICATES CONDUIT AND CONDUCTORS
FLA	FULL LOAD AMPERES
GC	GENERAL CONTRACTOR
GND	GROUND
HP	HORSEPOWER
IND.	INDICATED
JB	JUNCTION BOX
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOUR
LCL	LONG CONTINUOUS LOAD
MFR.	MANUFACTURER
MH	MOUNTING HEIGHT
N.T.S.	NOT TO SCALE
PB	PULLBOX
PNL	PANEL
PROVIDE	INDICATED ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL
SWBD	SWITCHBOARD
TRANSF.	TRANSFORMER
TYP.	TYPICAL
U.G.	UNDERGROUND
U.O.N.	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT AMPERES
VD	VOLTAGE DROP
W	WATTS
WR	WEATHERPROOF

ELECTRICAL SHEET INDEX

SHEET NO.	SHEET TITLE	CURRENT ISSUE
E-1	ELECTRICAL NOTES, SYMBOLS, DETAIL AND SHEET INDEX	
E-2	SITE ELECTRICAL PLAN AND SINGLE LINE DIAGRAM	
E-3	PARTIAL DEMO AND NEW PROPOSED ELECTRICAL PLANS	
S-1	SITE PLAN	
S-2	STRUCTURAL DETAILS	

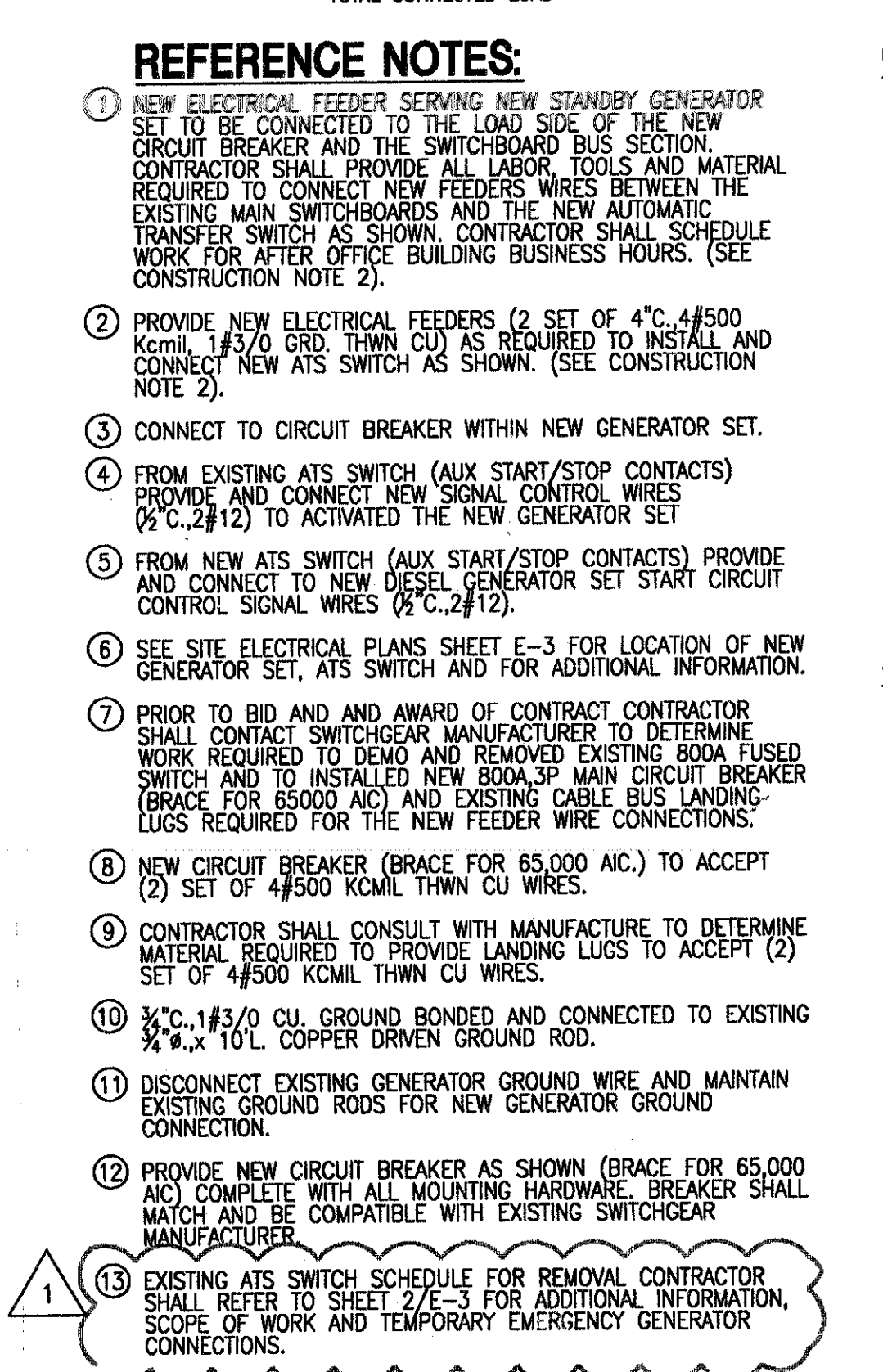
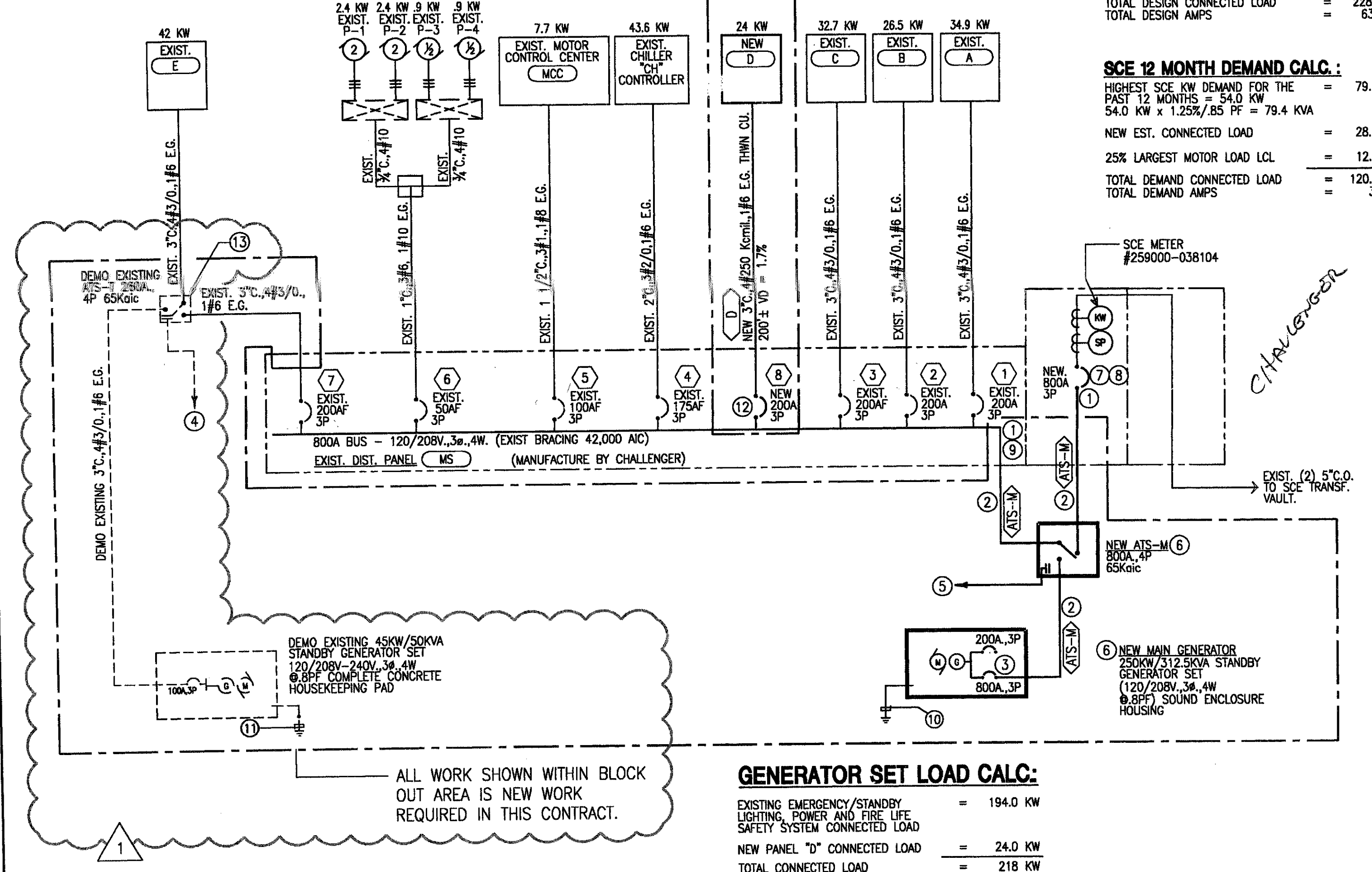
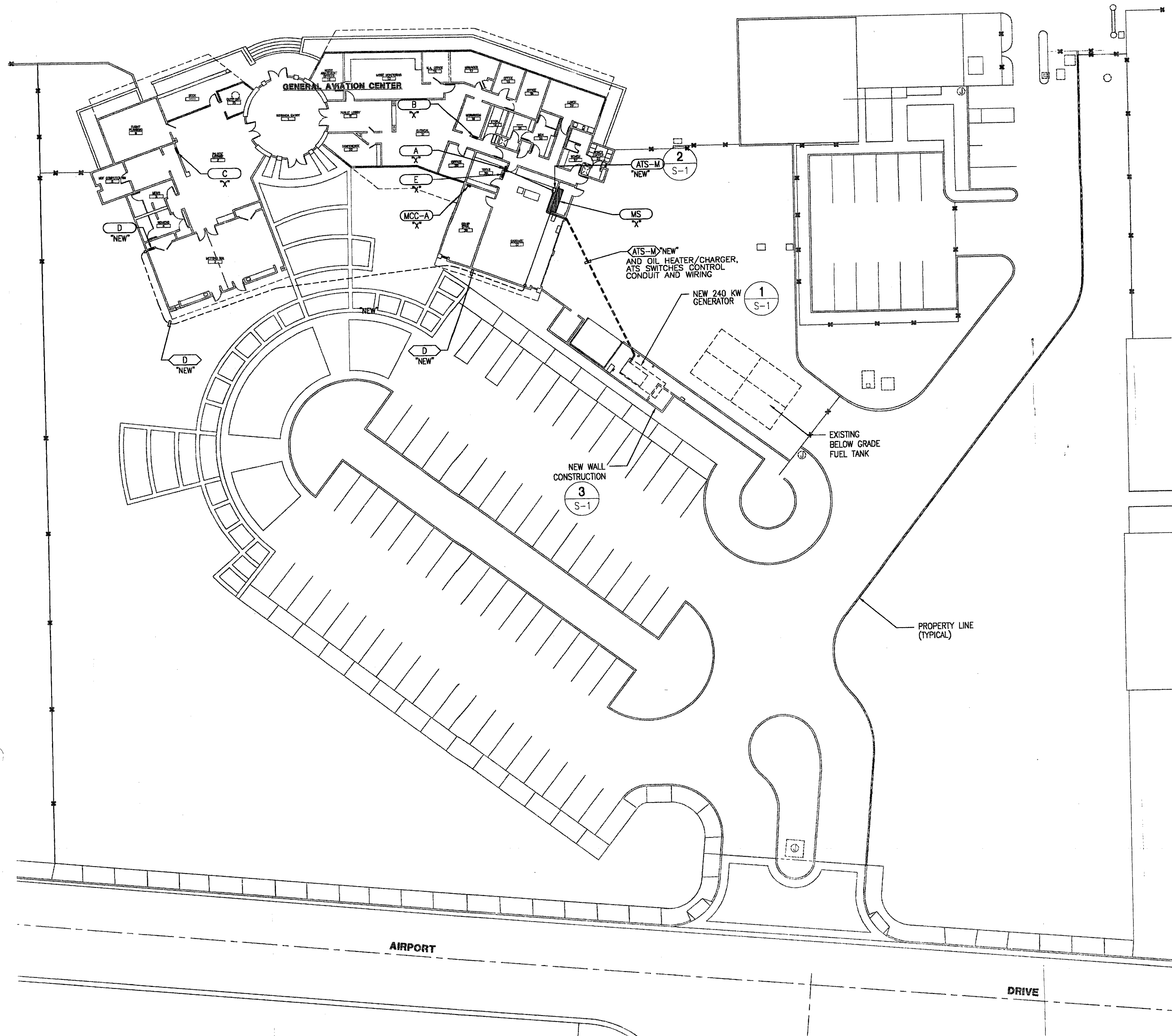
ELECTRICAL SYMBOLS LEGEND

SYMBOL	DESCRIPTION
⊕	GROUND TYPE DUPLEX RECEPTACLE, WALL MOUNTED
⊖	FLEXIBLE CONNECTION TO EQUIPMENT
⊕	SURFACE MOUNTED CABINET OR EQUIPMENT AS NOTED. +6" -0" TO TOP
⊖	FLUSH MOUNTED CABINET OR EQUIPMENT AS NOTED +6" -0" TO TOP
⊕	SURFACE MOUNTED BRANCH CIRCUIT PANELBOARD
⊖	FLUSH MOUNTED BRANCH CIRCUIT PANELBOARD
⊕	SWITCHBOARD, DISTRIBUTION BOARD
⊖	TELEPHONE PLYWOOD BACKBOARD SIZE AS INDICATED ON PLANS
"T1B"	"DRY TYPE" TRANSFORMER DESIGNATION
—	CONDUIT RUN IN OR BELOW FLOOR SLAB OR UNDERGROUND - 3/4" C. MINIMUM
—	CONDUIT RUN CONCEALED IN WALL OR ABOVE FINISHED CEILING - 1/2" C.
—	CONDUIT RUN EXPOSED
—	2#12, 3/4" C.
—	3#12, 3/4" C.
—	4#12, 3/4" C.
—	5#12, 3/4" C.
—	6#12, 3/4" C.
—	7#12, 3/4" C.
—	8#12, 3/4" C.
—	9#12, 3/4" C.
—	10#12, 3/4" C.
—	2#8, 3/4" C.
—	3#8, 3/4" C.
—	4#8, 3/4" C.
—	5#8, 3/4" C.
—	6#8, 3/4" C.
—	7#8, 3/4" C.
—	8#8, 3/4" C.
—	9#8, 3/4" C.
—	10#8, 3/4" C.
—	WIRE SIZE OTHER THAN #12, #10 OR #8 IS NOTED ON EACH CONDUIT RUN WITH SIZE OF CONDUIT (I.E. 3/8" - 1" C.) SEE GENERAL NOTE #41.
—	EXISTING CONDUIT RUN
HA-1,2,5	INDICATE HOMERUN TO DESIGNATED PANEL BOARD, SWITCH GEAR, OR SIGNAL CABINET WHEN SHOWN INDICATE THE FOLLOWING: BRANCH CIRCUIT NUMBERS HOUSE PANEL OR DISTRIBUTION PANEL LOW VOLTAGE 115/24 VAC TRANSFORMER MOUNTED ABOVE CEILING BY EDWARD OR EQUAL PUSH BUTTON OUTLET AT +4" -0" A.F.F. FOR DOOR BELL SYSTEM DOOR BELL WITH LOW VOLTAGE 115/24 VAC TRANSFORMER WALL MOUNTED 6"-6" A.F.F. BY NUTONE OR EQUAL.
P1A	INDICATES REFERENCE TO PANELBOARD "P1A"
2A	ELECTRICAL FEEDER DESIGNATION
⊕	REFERENCE NOTE DESIGNATION
⊖	METERING AND TEST BLOCKS AS REQUIRED BY THE UTILITY SERVING AGENCY
⊕	CIRCUIT BREAKER
⊖	GROUND
⊕	MOTOR (NUMBER INSIDE SYMBOL DESIGNATES HP OF MOTOR)

NOTE: FOR ADDITIONAL SYSTEM SYMBOLS AND WIRING LEGEND REFER TO SITE PLANS AND RISER DIAGRAMS

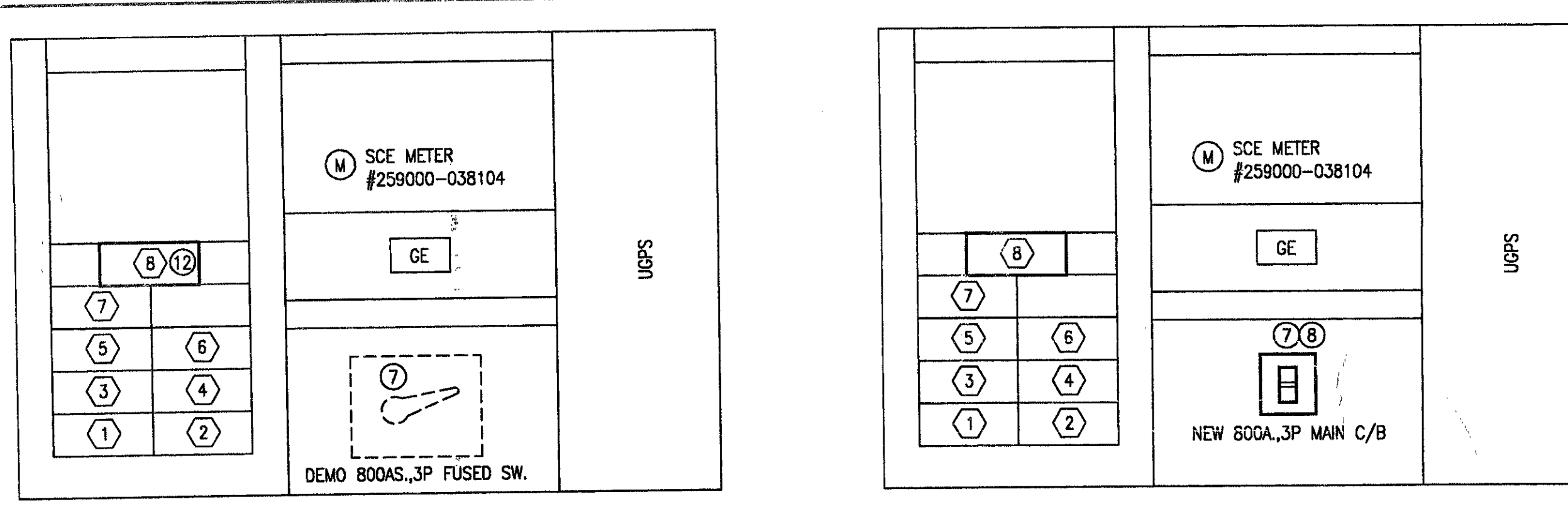
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 CURRENT PHASE: ### CURRENT REVISION: ###



CUST NAME	CUST NUM	SERV ACCT NUM	SIC CODE	CURRENT RATE	METER NUM	SERVICE STREET ADDR	CITY NAME	ZIP	BILLING MO/YR	METER READ DATE	KWH USAGE	MAXIMUM KW	BILLING DAYS
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	JANUARY, 2012	01/24/12	15,930	42.0	33
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	FEBRUARY, 2012	02/23/12	18,194	38.0	36
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	MARCH, 2012	03/23/12	17,106	40.0	36
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	APRIL, 2012	04/23/12	17,984	42.0	31
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	MAY, 2012	05/22/12	15,864	38.0	36
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	JUNE, 2012	06/21/12	17,852	43.0	30
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	JULY, 2012	07/23/12	18,706	48.0	36
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	AUGUST, 2012	08/21/12	20,144	50.0	36
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	SEPTEMBER, 2012	09/20/12	22,792	54.0	36
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	OCTOBER, 2012	10/23/12	33,233	51.0	36
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	NOVEMBER, 2012	11/21/12	18,540	43.0	36
CITY OF TORRANCE	7420	2110195	4581	CS-2	259000-038104	3301 AIRPORT DR	TORRANCE	90505	DECEMBER, 2012	12/21/12	19,140	40.0	36

UTILITY POWER USAGE RECORD FOR 2012



SWITCHBOARD DETAIL

SITE ELECTRICAL PLAN

SCALE: 1" = 20'

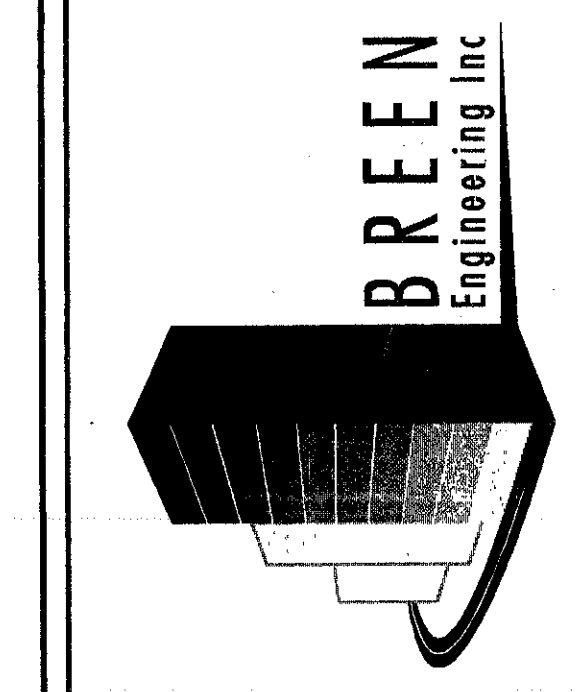
SITE ELECTRICAL PLAN AND PARTIAL SINGLE LINE DIAGRAM

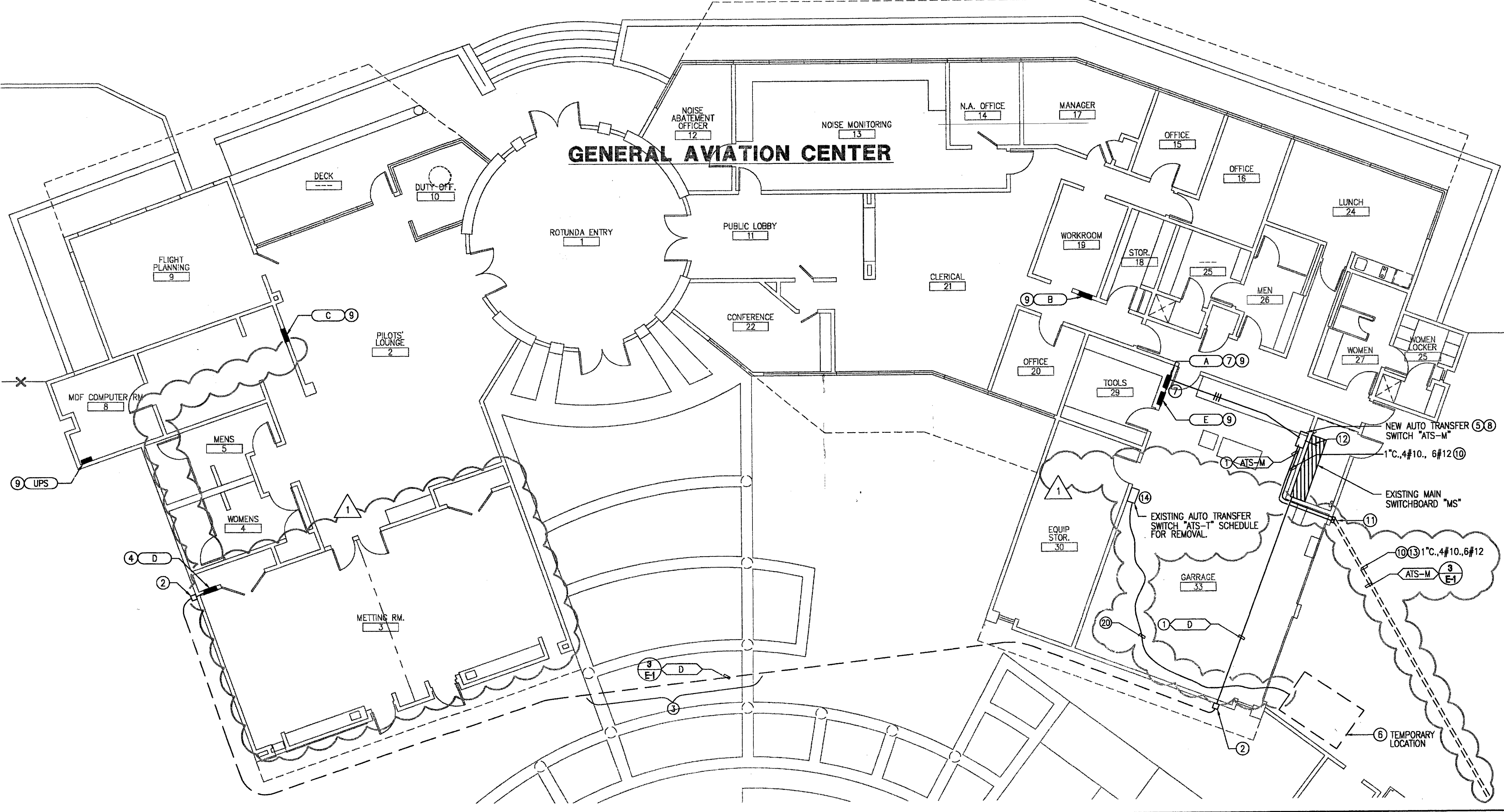
GENERAL AVIATION CENTER TORRANCE MUNICIPAL AIRPORT
 3301 AIRPORT DRIVE
 TORRANCE, CALIF. 90505

DATE: 07/03/13
 SCALE: AS NOTED
 PROJECT NUMBER: 307-13-001
 DRAWN BY: CW/BS
 CHECKED BY: DM
 DRAWING NUMBER: E-2



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 EMAIL: www.breeneng.com





NEW

PANEL "D" MAIN BRK: 125A, 3P

120/208 VOLT 3 PHASE 4 WIRE FEEDER LOCATION: MEETING ROOM (J) ENTER CABT. AT BOTTOM FLUSH MFG.

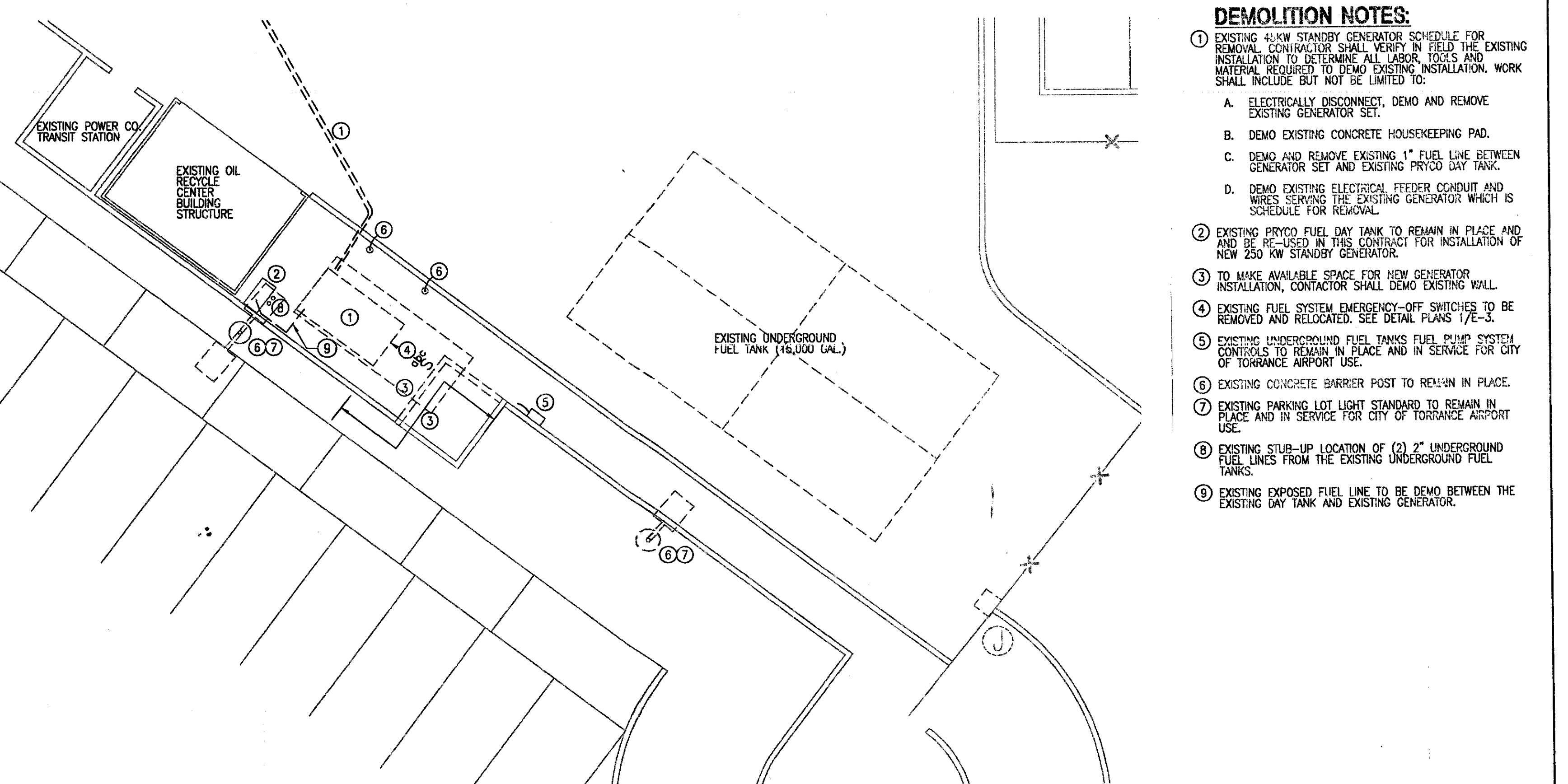
REMARKS	TYPE	LOCATION	VOLT	AMP	WIRE	CONDUIT	TYPE	LOCATION	REMARKS
1	FRUIT	WEST WALL PLUGBOARD	900	1	1	20/1	1	20/1	FRUIT WEST WALL PLUGBOARD
2	FRUIT	WEST WALL PLUGBOARD	900	1	1	20/1	1	20/1	FRUIT WEST WALL PLUGBOARD
3	FRUIT	WEST WALL PLUGBOARD	900	1	1	20/1	1	20/1	FRUIT WEST WALL PLUGBOARD
4	FRUIT	NORTH WALL PLUGBOARD	1500	1	1	20/1	1	20/1	FRUIT NORTH WALL PLUGBOARD
5	FRUIT	NORTH WALL PLUGBOARD	1500	1	1	20/1	1	20/1	FRUIT NORTH WALL PLUGBOARD
6	FRUIT	NORTH WALL PLUGBOARD	1500	1	1	20/1	1	20/1	FRUIT NORTH WALL PLUGBOARD
7	FRUIT	NORTH WALL PLUGBOARD	1500	1	1	20/1	1	20/1	FRUIT NORTH WALL PLUGBOARD
8	FRUIT	CEILING PROJECTOR	1000	1	1	20/1	1	20/1	FRUIT CEILING PROJECTOR
9	FRUIT	CEILING PROJECTOR	1000	1	1	20/1	1	20/1	FRUIT CEILING PROJECTOR
10	SPACE		0	1	1	20/1	1	20/1	SPACE
11	SPACE		0	1	1	20/1	1	20/1	SPACE
12	SPACE		0	1	1	20/1	1	20/1	SPACE
13	SPACE		0	1	1	20/1	1	20/1	SPACE
14	SPACE		0	1	1	20/1	1	20/1	SPACE
15	SPACE		0	1	1	20/1	1	20/1	SPACE
16	SPACE		0	1	1	20/1	1	20/1	SPACE
17	SPACE		0	1	1	20/1	1	20/1	SPACE
18	SPACE		0	1	1	20/1	1	20/1	SPACE
19	SPACE		0	1	1	20/1	1	20/1	SPACE
20	SPACE		0	1	1	20/1	1	20/1	SPACE
21	SPACE		0	1	1	20/1	1	20/1	SPACE
22	SPACE		0	1	1	20/1	1	20/1	SPACE
23	SPACE		0	1	1	20/1	1	20/1	SPACE
24	SPACE		0	1	1	20/1	1	20/1	SPACE
25	SPACE		0	1	1	20/1	1	20/1	SPACE
26	SPACE		0	1	1	20/1	1	20/1	SPACE
27	SPACE		0	1	1	20/1	1	20/1	SPACE
28	SPACE		0	1	1	20/1	1	20/1	SPACE
29	SPACE		0	1	1	20/1	1	20/1	SPACE
30	SPACE		0	1	1	20/1	1	20/1	SPACE

7500 VA
 TOTAL CONNECTED LOAD: 22400 VA OR 62.2 AMPS @ 208 VOLTS - 3 #
 LOCAL 0 IN 125A - 3 #
 PANEL 22400 IN OR 62.2 AMPS
 WACK = WACK TYPE CIRCUIT BREAKER L/O = PROVIDE LOCK-OFF DEVICE ON CIRCUIT BREAKER AFC = AFC FAULT INTERRUPTING TYPE CIRCUIT BREAKER
 GFCI = GROUND FAULT INTERRUPTING TYPE CIRCUIT BREAKER

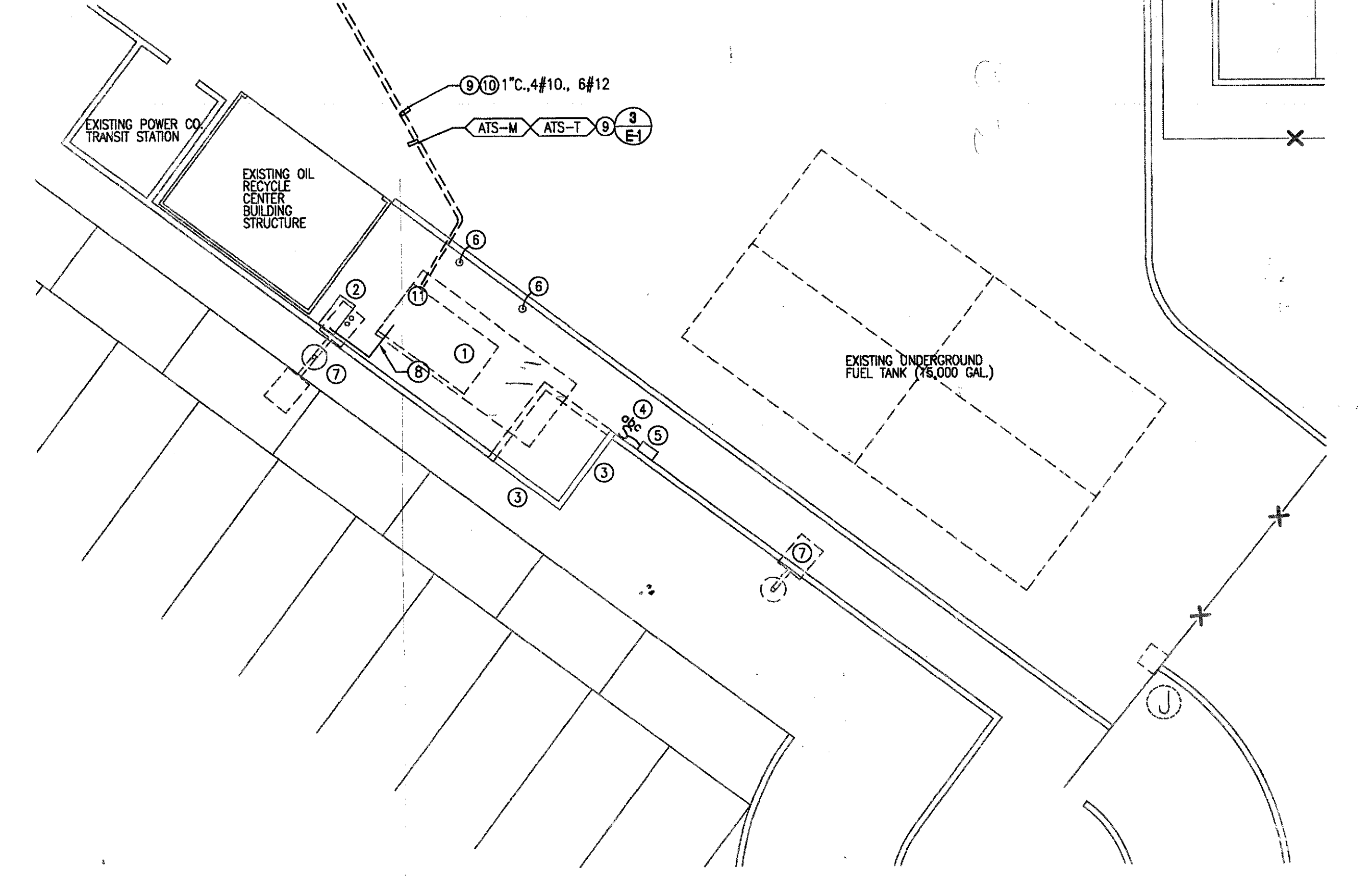
- REFERENCE NOTES:**
1. RUN FEEDER EXPOSED TIGHT TO UNDERSIDE OF CEILING.
 2. PROVIDE 1/8" CONDULET WIRE CONDUIT PENETRATION THROUGH WALL AND RUN CONDUIT SYSTEM BELOW GRADE AS SHOWN.
 3. AT EXISTING CONCRETE PAVEMENT WALK AREA, CONTRACTOR SHALL WATERPROOF UNDERGROUND CONDUIT INSTALLATION BELOW CONCRETE WALKWAY PAVEMENT - NO SAW CUTTING ALLOWED.
 4. NEW PANELBOARD TO BE FURNISHED AND INSTALLED IN THIS CONTRACT.
 5. FOR MOUNTING AND ANCHORING OF ATS SWITCHES REFER TO STRUCTURAL DETAIL 4/S-1.
 6. TEMPORARY TRAILER TYPE 45KW/50KVA STANDBY GENERATOR SET 120/208V, 240V, 480V COMPLETE WITH TEMPORARY FEEDER AND START CIRCUIT WIRING BETWEEN EXISTING ATS-1 AND TEMPORARY GEN SET WITH FUEL TANK (6 HRS RUN PERIOD). THE TEMPORARY USE WHILE NEW GENERATOR INSTALLATION IS COMPLETE AND COMMISSIONS. ALLOW RENTAL OF GENERATOR FOR 2-3 WEEK PERIOD (TO ALLOW FOR CUT OVER DURING CONSTRUCTION).
 7. FOR THE CONNECTION OF GENERATOR OIL HEATER AND BATTERY CHARGER, CONTRACTOR SHALL CONNECT TO (2) AVAILABLE 200A 1P SPARE CIRCUIT BREAKER WITHIN EXISTING PANEL.
 8. NEW KOHLER POWER SYSTEM MODEL KCS AUTOMATIC TRANSFER SWITCH (BDDA, 4P SWITCH NEUTRAL) BRACE FOR 65,000 AC, COMPLETE WITH MPAC PROGRAMMABLE CONTROLLER.
 9. EXISTING ELECTRICAL PANEL TO REMAIN IN PLACE AND IN SERVICE FOR OWNER USE.
 10. UNDERGROUND CONDUIT SYSTEM FOR OIL HEATER/BATTERY CHARGER BRANCH CIRCUITRY (4/10) AND ATS START/STOP CONTROL WIRING (6/12 CONTROL WIRING).
 11. AT THIS LOCATION PROVIDE NEW "ATS-M" INSTALLATION NEW 1/8" CONDULET AND FOR CONTROL WIRING 6/8" PULL BOX (NEW 3/4" LABEL W/GENERATOR CONTROL WIRING AND HTR/CHARGER BRANCH CIRCUITRY).
 12. PENETRATE THROUGH EXISTING WALL AND SWITCHGEAR MAIN SECTION NEW (2) 1" CONDUIT WHIPLES WITH NEW ELECTRICAL FEEDER WIRING. CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS REQUIRED. REFER TO SINGLE LINE DIAGRAM FOR WIRE SIZES, ADDITIONAL INFORMATION AND SCOPE OF WORK.
 13. ELECTRICAL FEEDER RUN BELOW GRADE SHALL BE CONCRETE ENGAGED WITH 3" ENVELOPE.
 14. EXISTING ATS SWITCH SCHEDULE FOR REMOVAL - THE EXISTING ATS SWITCH MUST REMAIN IN PLACE IN SERVICE AND BE CONNECTED TO TEMPORARY GENERATOR DURING CONSTRUCTION. CONTRACTOR SCOPE OF WORK INCLUDES:
 - A. SCHEDULING AND REMOVAL OF EXISTING ATS ONCE ALL THE NEW GENERATOR AND NEW ATS SWITCH INSTALLATION HAVE BEEN COMPLETED, TESTED AND COMMISSIONED.
 - B. COMPLETE ALL DEMO AND REMOVED EXISTING ATS SWITCH, WHICH SHALL INCLUDE THE INSTALLATION OF NEW PULL BOX TO RECONNECT EXISTING AIRPORT TOWER ELECTRICAL PANEL ELECTRICAL FEEDER.

PROPOSED NEW ELECTRICAL DISTRIBUTION POWER FLOOR PLAN

SCALE: 1/8" = 1'-0"



- DEMOLITION NOTES:**
1. EXISTING 45KW STANDBY GENERATOR SCHEDULE FOR REMOVAL. CONTRACTOR SHALL VERIFY IN FIELD THE EXISTING INSTALLATION TO DETERMINE ALL LABOR, TOOLS AND MATERIAL REQUIRED TO DEMO EXISTING INSTALLATION. WORK SHALL INCLUDE BUT NOT BE LIMITED TO:
 - A. ELECTRICALLY DISCONNECT, DEMO AND REMOVE EXISTING GENERATOR SET.
 - B. DEMO EXISTING CONCRETE HOUSEKEEPING PAD.
 - C. DEMO AND REMOVE EXISTING 1" FUEL LINE BETWEEN GENERATOR SET AND EXISTING PRYCO DAY TANK.
 - D. DEMO EXISTING ELECTRICAL FEEDER CONDUIT AND WIRES SERVING THE EXISTING GENERATOR WHICH IS SCHEDULED FOR REMOVAL.
 2. EXISTING PRYCO FUEL DAY TANK TO REMAIN IN PLACE AND BE RE-USED IN THIS CONTRACT FOR INSTALLATION OF NEW 250 KW STANDBY GENERATOR.
 3. TO MAKE AVAILABLE SPACE FOR NEW GENERATOR INSTALLATION, CONTRACTOR SHALL DEMO EXISTING WALL.
 4. EXISTING FUEL SYSTEM EMERGENCY-OFF SWITCHES TO BE REMOVED AND RELOCATED. SEE DETAIL PLANS 1/7-S-3.
 5. EXISTING UNDERGROUND FUEL TANKS FUEL PUMP SYSTEM CONTROLS TO REMAIN IN PLACE AND IN SERVICE FOR CITY OF TORRANCE AIRPORT USE.
 6. EXISTING CONCRETE BARRIER POST TO REMAIN IN PLACE.
 7. EXISTING PARKING LOT LIGHT STANDARD TO REMAIN IN PLACE AND IN SERVICE FOR CITY OF TORRANCE AIRPORT USE.
 8. EXISTING STUB-UP LOCATION OF (2) 2" UNDERGROUND FUEL LINES FROM THE EXISTING UNDERGROUND FUEL TANKS.
 9. EXISTING EXPOSED FUEL LINE TO BE DEMO BETWEEN THE EXISTING DAY TANK AND EXISTING GENERATOR.



- REFERENCE NOTES:**
1. NEW 250KW STANDBY GENERATOR SET - CONTRACTOR SHALL DETERMINE ALL LABOR, TOOLS AND MATERIAL REQUIRED TO INSTALL NEW GENERATOR SET. WORK SHALL INCLUDE BUT NOT BE LIMITED TO:
 - A. NEW WEATHERPROOF 240KW DIESEL STANDBY-BY GENERATOR SET COMPLETE WITH BDDA AUTO-TRANSFER SWITCH. CONTRACTOR SHALL PROVIDE AND MAKE ALL FINAL ELECTRICAL CONNECTIONS REQUIRED SEE DETAIL 1/7-S-1.
 - B. NEW 4" HIGH CONCRETE HOUSEKEEPING PAD (SEE STRUCTURAL DETAIL 3/SK-1)
 - C. PROVIDE AND INSTALL NEW FUEL LINE BETWEEN GENERATOR SET AND EXISTING PRYCO DAY TANK.
 - D. PROVIDE AND INSTALL ELECTRICAL FEEDER CONDUIT AND WIRES SERVING BETWEEN THE NEW GENERATOR SET, NEW AUTOMATIC TRANSFER SWITCH AND EXISTING MAIN SWITCHGEAR MS.
 - E. FOR GENERATOR SET ANCHORING (REFER TO DETAIL 2/SK-1)
 2. EXISTING PRYCO FUEL DAY TANK TO REMAIN IN PLACE AND BE RE-USED IN THIS CONTRACT FOR INSTALLATION OF NEW 250 KW STANDBY GENERATOR.
 3. TO MAKE AVAILABLE SPACE FOR NEW GENERATOR INSTALLATION, CONTRACTOR SHALL PROVIDE AND BUILT NEW 8" HIGH CMU BLOCK WALL BLOCK WALL MATERIAL TO MATCH EXISTING IN COLOR AND FINISH. VERIFY EXISTING BLOCK WALL TO DETERMINE ALL LABOR, TOOLS AND MATERIAL REQUIRED. REFER TO STRUCTURAL DETAIL 1/7-S-1.
 4. NEW LOCATION OF FUEL SYSTEM EMERGENCY-OFF SWITCHES. SWITCH SHALL BE MOUNTED 48" A.F.F. FROM SWITCH PROVIDE 1/2" CA CONTRAIL WIRING AS REQUIRED TO RECONNECT RELOCATED SWITCHES TO EXISTING FUEL CONTROLLER ON WALL.
 5. EXISTING UNDERGROUND FUEL TANKS FUEL PUMP SYSTEM CONTROLLER TO REMAIN IN PLACE AND IN SERVICE FOR CITY OF TORRANCE AIRPORT USE.
 6. EXISTING CONCRETE BARRIER POST TO REMAIN IN PLACE.
 7. EXISTING PARKING LOT LIGHT STANDARD TO REMAIN IN PLACE AND IN SERVICE FOR CITY OF TORRANCE AIRPORT USE.
 8. NEW (2) 1" BLACK-IRON FUEL LINES RUN EXPOSED ALONG WALL ON TOP OF SLAB TO NEW GENERATOR. CONTRACTOR SHALL PROVIDE LABEL IDENTIFYING USE "FUEL LINES".
 9. ELECTRICAL FEEDER RUN BELOW GRADE SHALL BE CONCRETE ENGAGED WITH 3" ENVELOPE.
 10. UNDERGROUND CONDUIT SYSTEM FOR OIL HEATER/BATTERY CHARGER BRANCH CIRCUITRY (4/10) AND ATS START/STOP CONTROL WIRING (6/12 CONTROL WIRING).
 11. AT GENERATOR CONTRACTOR SHALL MAKE ALL FINAL ELECTRICAL FEEDERS, OIL HEATER AND BATTERY CHARGER ELECTRICAL CONNECTIONS PER MANUFACTURER RECOMMENDATION AND REQUIREMENTS.

EXISTING GENERATOR SET PARTIAL DEMO SITE PLANS

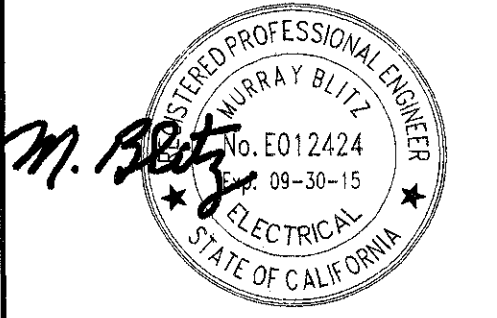
NEW GENERATOR SET INSTALLATION PARTIAL SITE PLAN

SCALE: 1/8" = 1'-0"

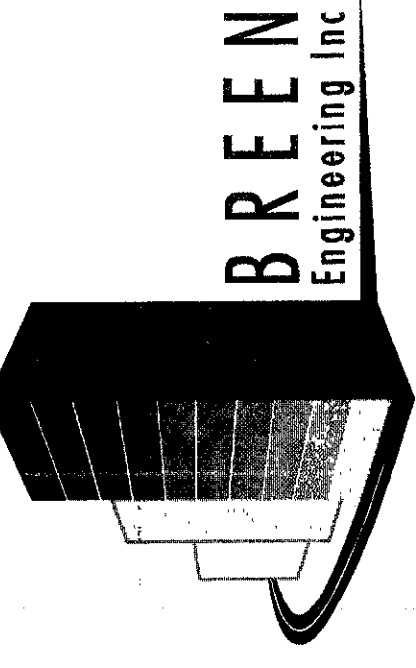
DWGPPPE Created On: Sep 26, 2013 - 3:25pm Plotted By: cdk Filename: H:\Projects\307 City of Torrance\3-001 Airport EOC\CAO\Electrical\3- ELECTRICAL FLOOR PLANS.dwg CURRENT PHASE: ## CURRENT REVISION: ##

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NO.	DATE	BY	DESCRIPTION
1	07/08/2013	DK	LIMITED SCOPE OF WORK REVISIONS TO CONTRACT
2	07/08/2013	DK	CLIENT/AVM CHECK ISSUANCE
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PARTIAL DEMO AND NEW PROPOSED ELECTRICAL PLANS

GENERAL AVIATION CENTER TORRANCE MUNICIPAL AIRPORT
 3301 AIRPORT DRIVE TORRANCE, CALIF., 90505

DATE: 07/03/13
 SCALE: AS NOTED
 PROJECT NUMBER: 307-13-001
 DRAWN BY: CM/BS
 CHECKED BY: DM
 DRAWING NUMBER: E-3

3 OF 3

GENERAL NOTES

FOUNDATIONS

- ALLOWABLE SOIL BEARING PRESSURE TO BE ASSUMED TO BE 1,500 PSF.

REINFORCED CONCRETE

- CEMENT SHALL CONFORM TO ASTM C-150, SEE NOTE "5" BELOW FOR CEMENT TYPE REQUIRED BASED ON CONCRETE USE.
- AGGREGATES SHALL CONFORM TO ASTM C-33 FOR STRUCTURAL NORMAL WEIGHT CONCRETE (1" MAXIMUM SIZE).
- READY-MIX CONCRETE SHALL BE IN ACCORDANCE WITH ASTM C-94.
- CONCRETE DESIGN MIXES SHALL BE IN ACCORDANCE WITH C.B.C. SEC. 1905 AND SHALL BE SIGNED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF CALIFORNIA, AND HIRED BY CONTRACTOR.
- ALL CONCRETE SHALL SATISFY BOTH THE MINIMUM STRENGTH REQUIREMENT AND MAXIMUM WATER-CEMENT RATIO BY WEIGHT AS FOLLOWS:

CONCRETE USE	MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS f'_c	MAXIMUM WATER CEMENT RATIO BY WEIGHT	CEMENT TYPE
FOUNDATIONS AND SLAB ON GRADE	3,000 PSI	0.45	IV

- THE SLUMP SHALL BE 4" FOR ALL CONCRETE WORK.
- ADMIXTURES MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
- ADMIXTURES USED TO INCREASE THE WORKABILITY OF THE CONCRETE SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT.
- ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS AND OTHER INSERTS SHALL BE SECURED IN POSITION AND INSPECTED BY THE BUILDING DEPARTMENT INSPECTOR PRIOR TO PLACING CONCRETE.

CONCRETE MASONRY

- MINIMUM 28 DAY COMPRESSIVE STRENGTH OF MASONRY ASSEMBLY: $f_m = 1,500$ PSI.
- UNITS: NORMAL WEIGHT OPEN END BLOCKS CONFORMING TO ASTM C90, GRADE N.
- MORTAR: ASTM C270, TYPE S, $f_c = 1,800$ PSI FOR $f_m = 1,500$ PSI
- GROUT: COMPRESSIVE STRENGTH OF 2,000 PSI FOR $f_m = 1,500$ PSI CMU. ALL CELLS SHALL BE FULL GROUTED.
- GROUTING OF ANY WALL SECTION SHALL BE COMPLETED IN ONE DAY WITH NO INTERRUPTIONS GREATER THAN ONE HOUR.
- BETWEEN GROUT POURS HORIZONTAL CONSTRUCTION JOINT SHALL BE FORMED BY STOPPING MASONRY AT THE SAME ELEVATION WITH THE GROUT STOPPING 1/2" BELOW A MORTAR JOINT, EXCEPT AT BOND BEAMS. THE GROUT POUR SHALL BE STOPPED A MINIMUM OF 1/2" BELOW THE TOP OF THE MASONRY.
- CLEAN OUTS SHALL BE PROVIDED FOR ALL GROUT POURS OVER 5 FEET IN HEIGHT. CLEAN OUTS SHALL BE PROVIDED IN THE BOTTOM COURSE AT ALL VERTICAL BARS, BUT SHALL NOT BE SPACED MORE THAN 32" ON CENTER. CLEAN OUTS SHALL BE SEALED AFTER INSPECTION AND BEFORE GROUTING.

REINFORCING STEEL

- BAR REINFORCEMENT SHALL CONFORM TO:
ASTM A615, GRADE 60 ALL REBAR U.S.O.
ASTM A706, GRADE 60 ALL WELDED REBAR
- WELDING OF REINFORCING STEEL SHALL CONFORM TO AWS D1.4
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- REINFORCING DETAILING, BENDING AND PLACING SHALL BE IN ACCORDANCE WITH THE CRSI "MANUAL OF STANDARD PRACTICE" LATEST EDITION.
- LAPS AT BAR SPLICES SHALL BE PER EACH INDEPENDENT DETAIL UNLESS NOTED OTHERWISE.
- VERTICAL BARS IN WALLS SHALL BE ACCURATELY POSITIONED AT THE CENTER OF WALL, UNLESS OTHERWISE NOTED ON DETAILS, & SHALL BE TIED IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 192 BAR DIA.
- MINIMUM CONCRETE COVER TO REINFORCING STEEL SHALL BE AS FOLLOWS U.S.O.:
NEW CONCRETE PAD FORMED ON (E) SLAB 2"
- ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE SECURED IN POSITION PRIOR TO PLACING CONCRETE OR GROUT.

DESIGN CRITERIA

APPLICABLE CODE: 2010 CALIFORNIA BUILDING CODE

1. LATERAL LOADS

SEISMIC LOADS	N33,80473	W118,34757
SITE COORDINATES		
SEISMIC IMPORTANCE FACTOR	$I_p = 1.5$	
MAPPED SPECTRAL RESPONSE ACCELERATIONS	$S_s = 1.723$	$S_1 = 0.669$
SITE CLASS	$S_D = 0$	
DESIGN SPECTRAL RESPONSE COEFFICIENTS	$S_{D1} = 1.149$	$S_{D2} = 0.669$
SEISMIC DESIGN CATEGORY	$S = E$	
SYSTEM/COMPONENT RESPONSE AMPLIFICATION FACTOR	$R = 1.0$	
SYSTEM/COMPONENT RESPONSE MODIFICATION FACTOR	$R_p = 2.5$	
HEIGHT IN STRUCTURE OF POINT OF ATTACHMENT, Z		
AVERAGE ROOF HEIGHT OF STRUCTURE, H		
	$Z/H = 0.0$ (@ GRADE)	

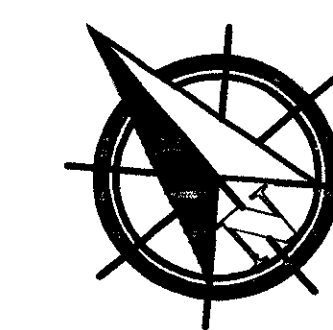
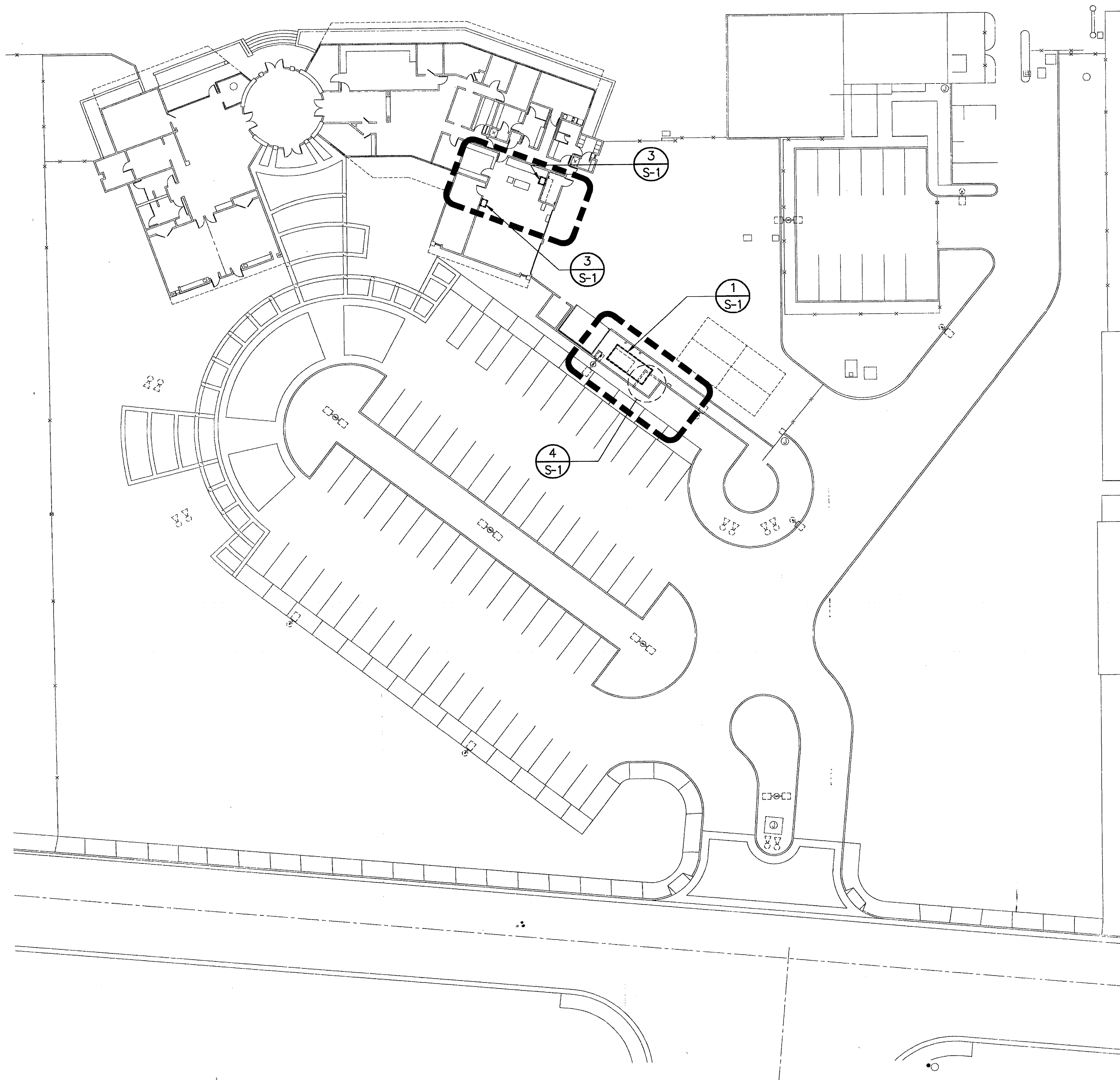
SEISMIC DESIGN FORCE HORIZONTAL
 $F_p = 0.4 \cdot I_p \cdot S_{D1} \cdot W_p / (R_p \cdot h) \cdot (1 + 2 \cdot Z/H)$
 $= 0.276 \cdot W_p$

$F_p, min = 0.3 \cdot S_{D1} \cdot W_p$
 $= 0.517 \cdot W_p$ GOVERNS

VERTICAL
 $F_v = 0.2 \cdot S_{D1} \cdot W_p$
 $= 0.345 \cdot W_p$

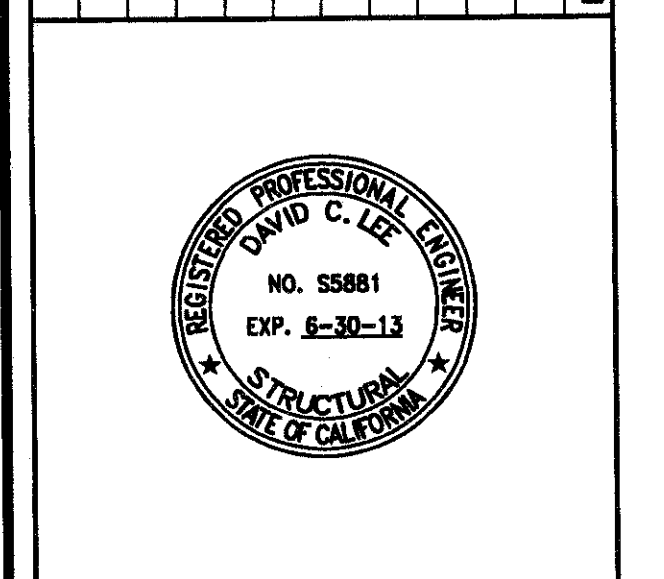
WHERE: S_{D1} = THE DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER IN THE SHORT PERIOD RANGE.
 I_p = COMPONENT IMPORTANCE FACTOR. I_p SHALL BE TAKEN AS 1.5 PER ASCE 7-05 FOR ESSENTIAL FACILITIES.
 W_p = COMPONENT OPERATING WEIGHT (LBS)

WIND DESIGN
 BASIC WIND SPEED 85.0 MPH
 WIND IMPORTANCE FACTOR $I = 1.0$
 OCCUPANCY CATEGORY = I
 WIND EXPOSURE = C

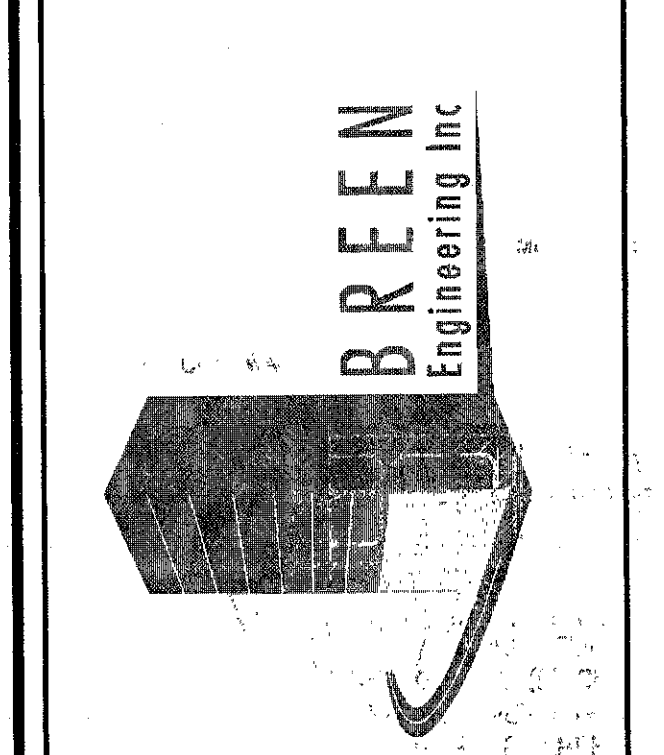


SCALE: 1" = 20'

DATE	07/24/2013
SCALE	1" = 20'
PROJECT NUMBER	13-0-01
DRAWN BY	JE
CHECKED BY	JE
DRAWING NUMBER	S-1



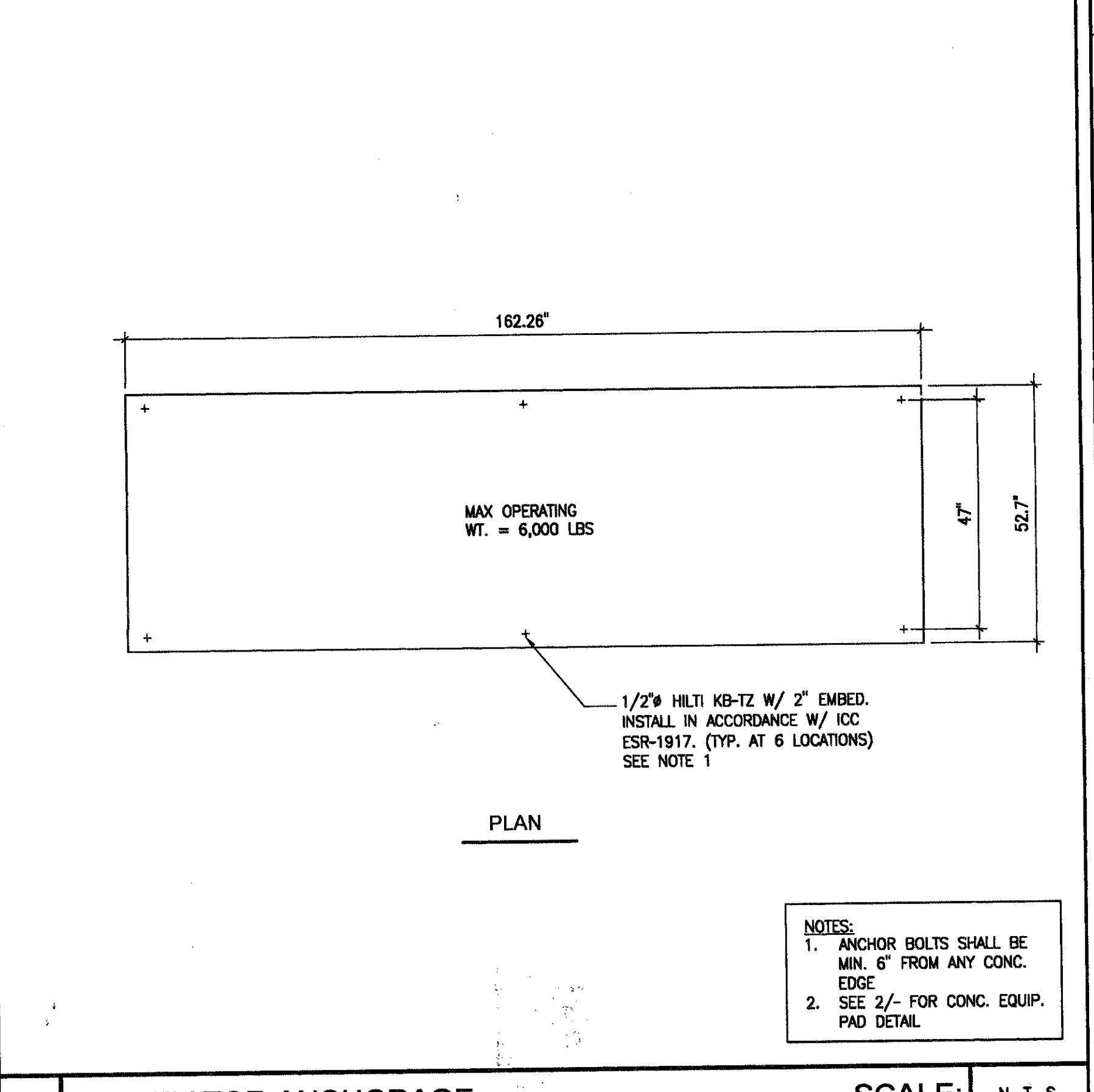
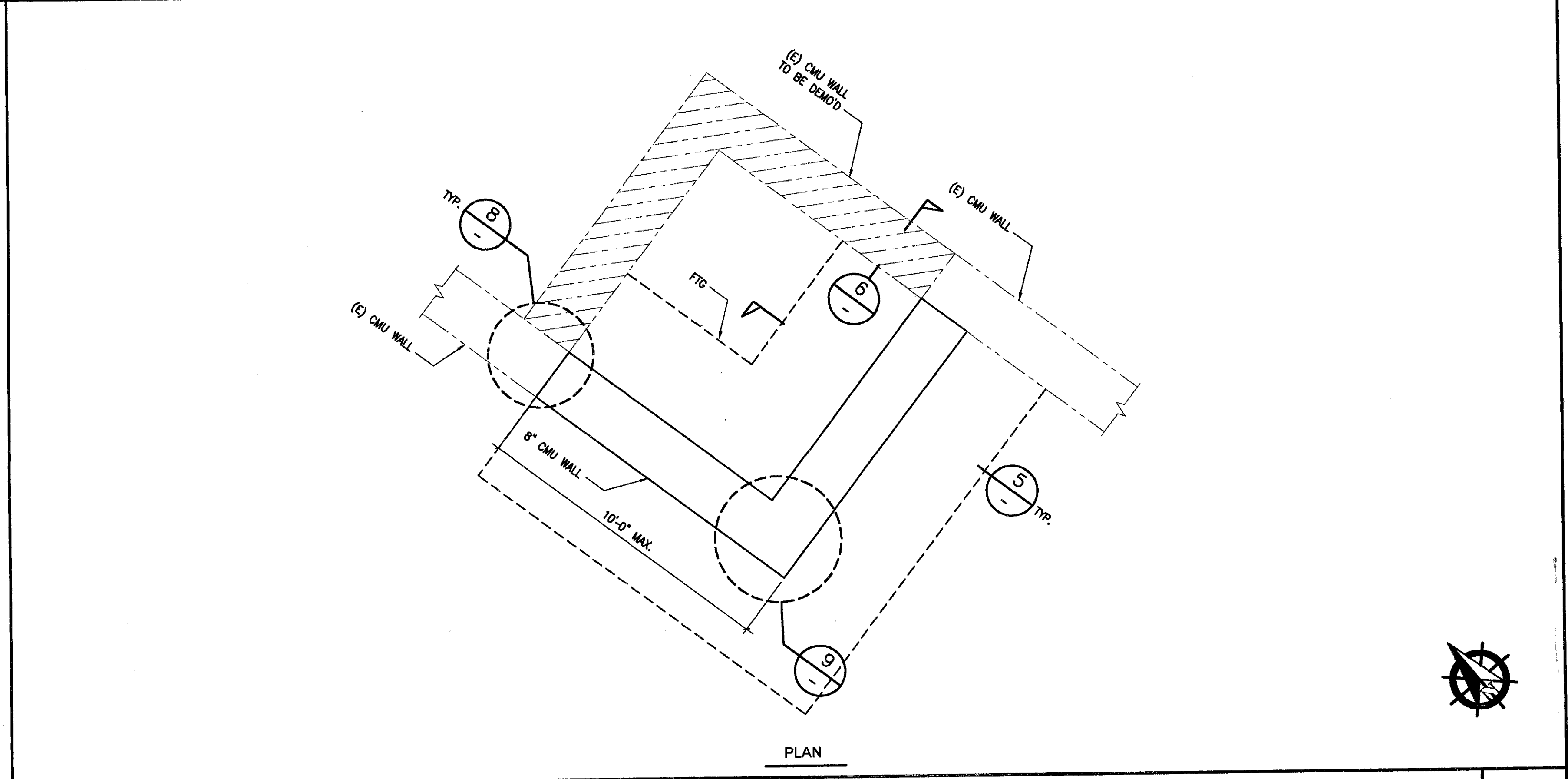
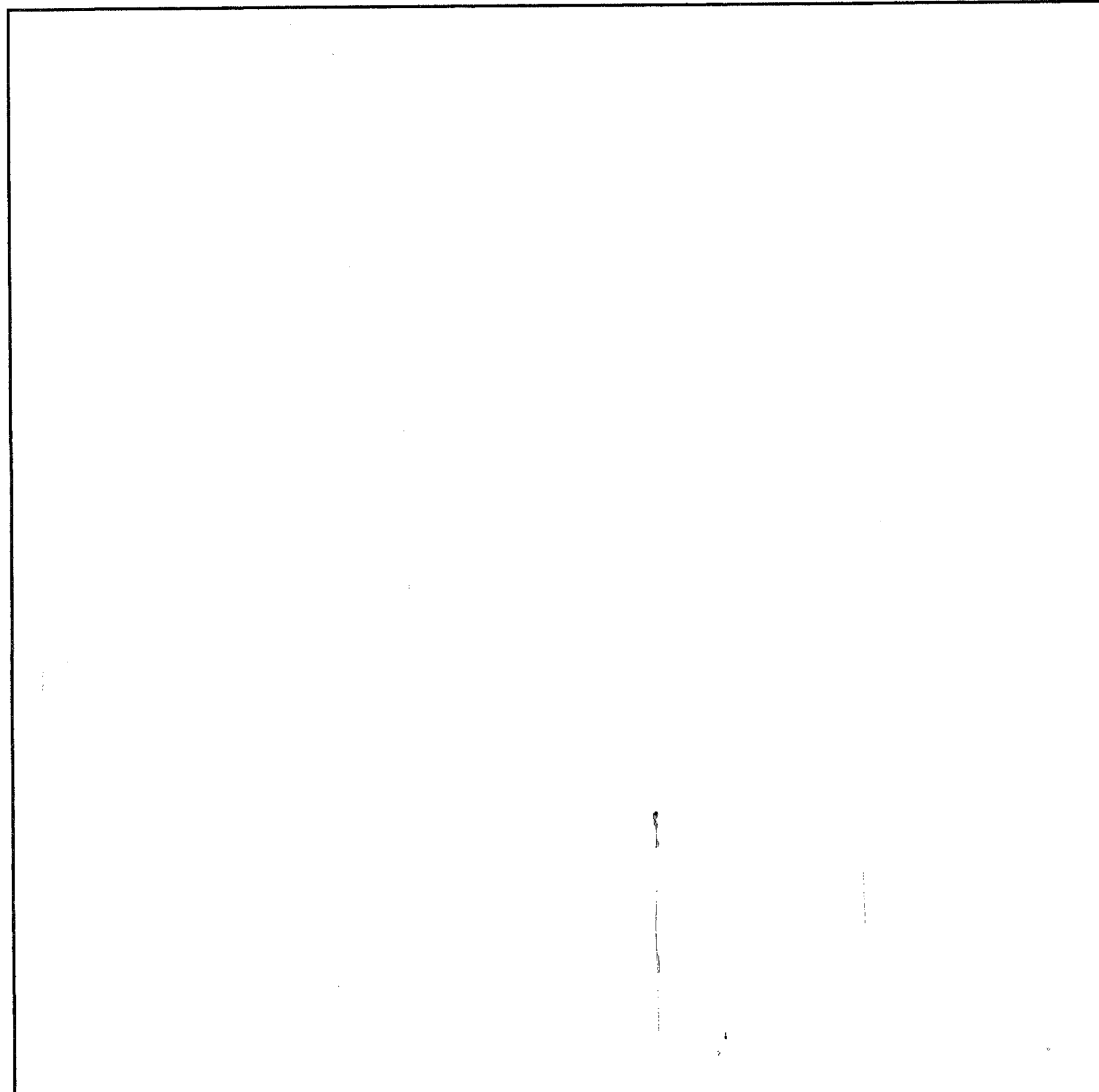
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STRUCTURAL SITE PLAN

**GENERAL AVIATION CENTER
 TORRANCE MUNICIPAL AIRPORT**
SAN AIRPORT DRIVE
 TORRANCE CALIF. 90503

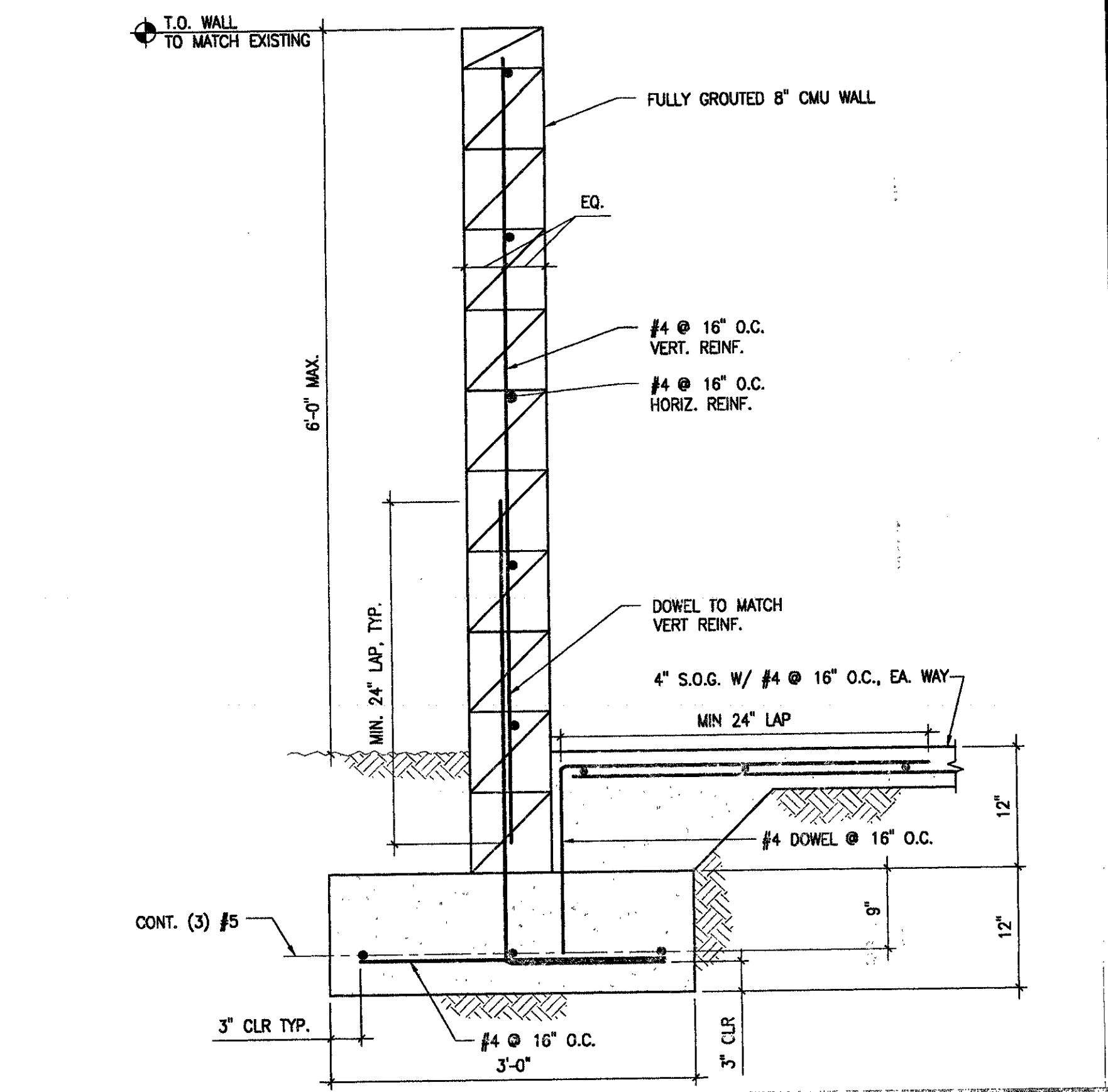
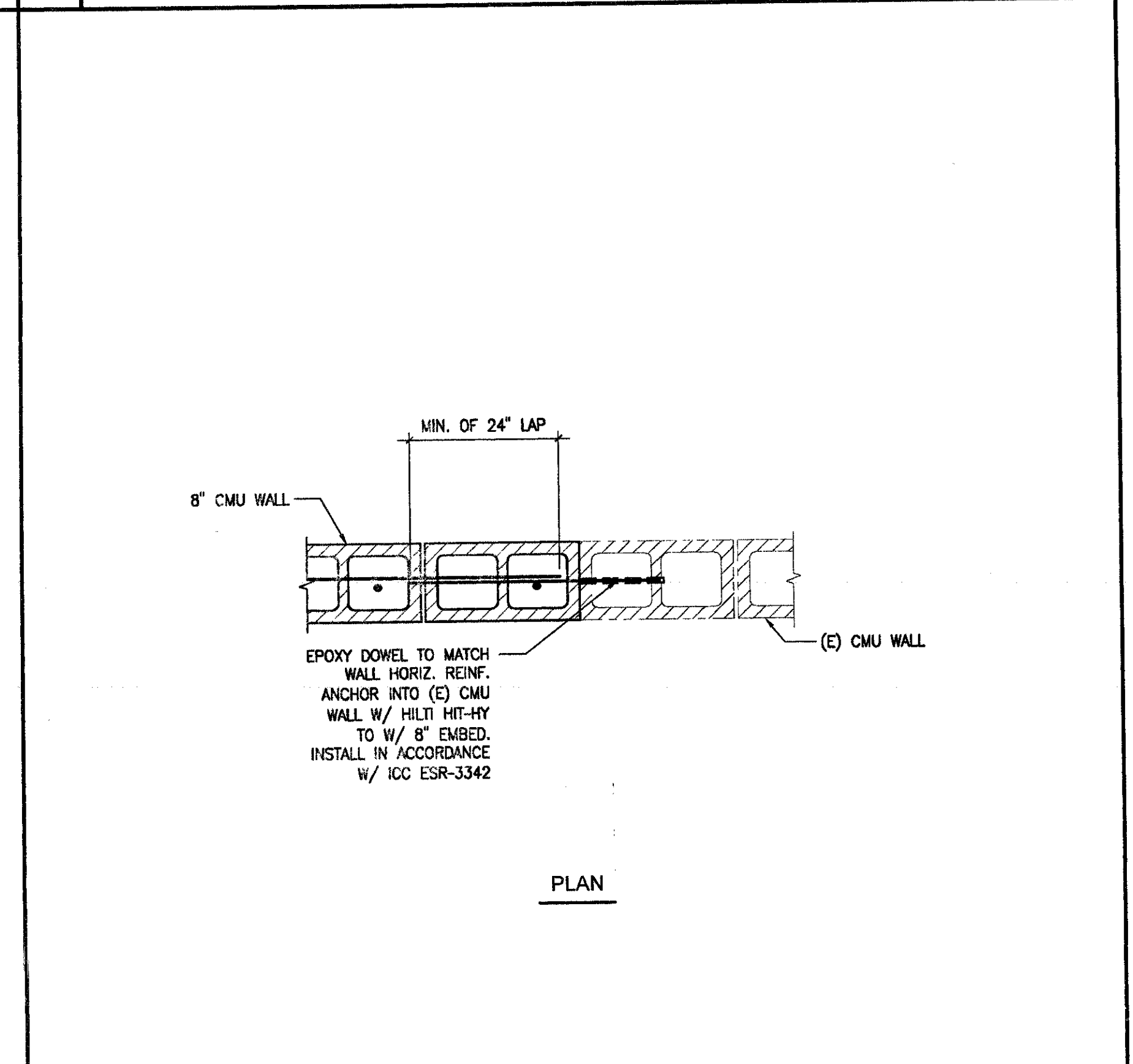
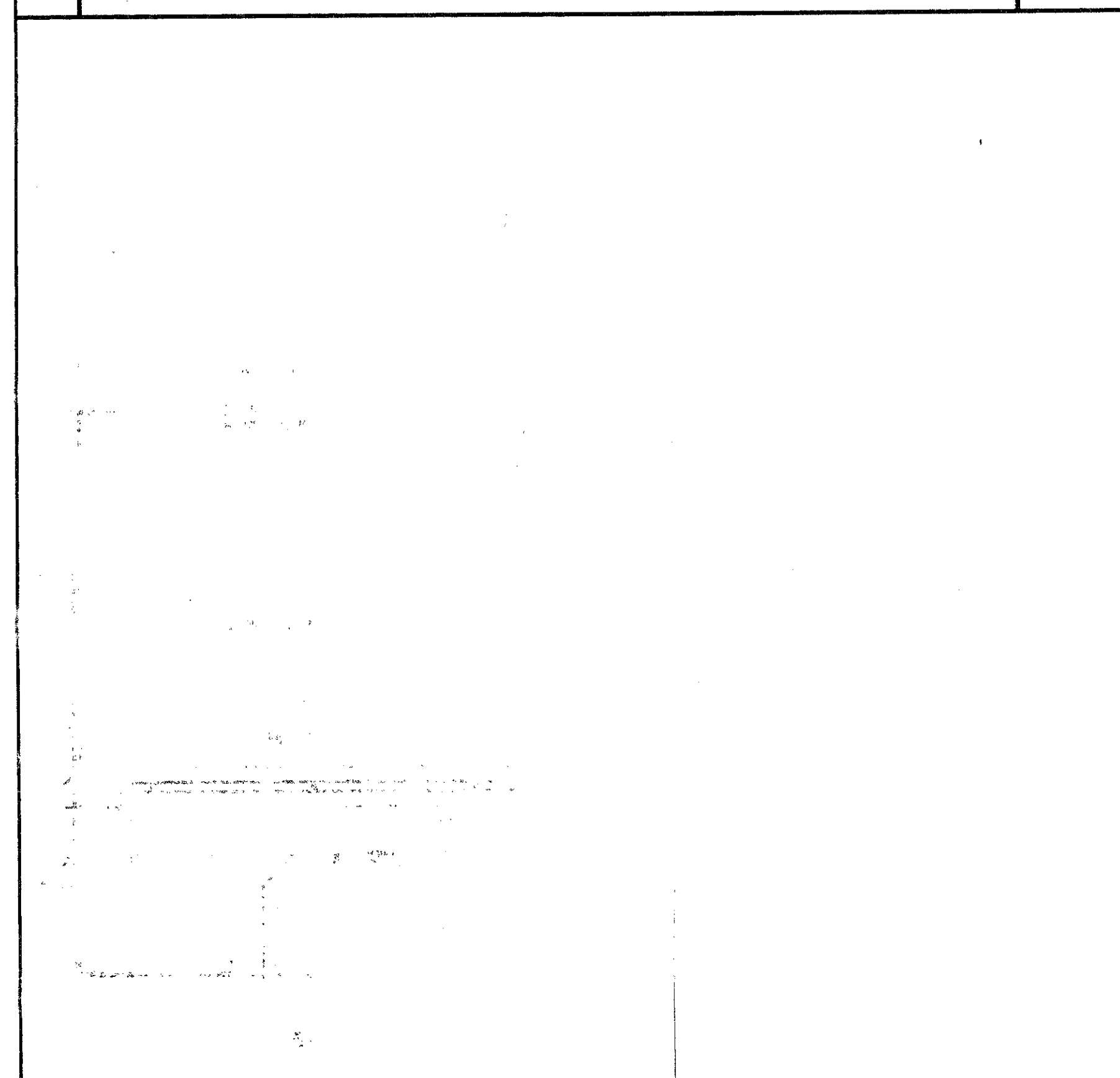
DATE:	07/24/2013
SCALE:	1" = 20'
PROJECT NUMBER:	13-0-01
DRAWN BY:	JE
CHECKED BY:	JE
DRAWING NUMBER:	S-1



10 NOT USED SCALE: N/A

4 PARTIAL PLAN AT EQUIPMENT YARD SCALE: N.T.S.

1 GENERATOR ANCHORAGE SCALE: N. T. S.

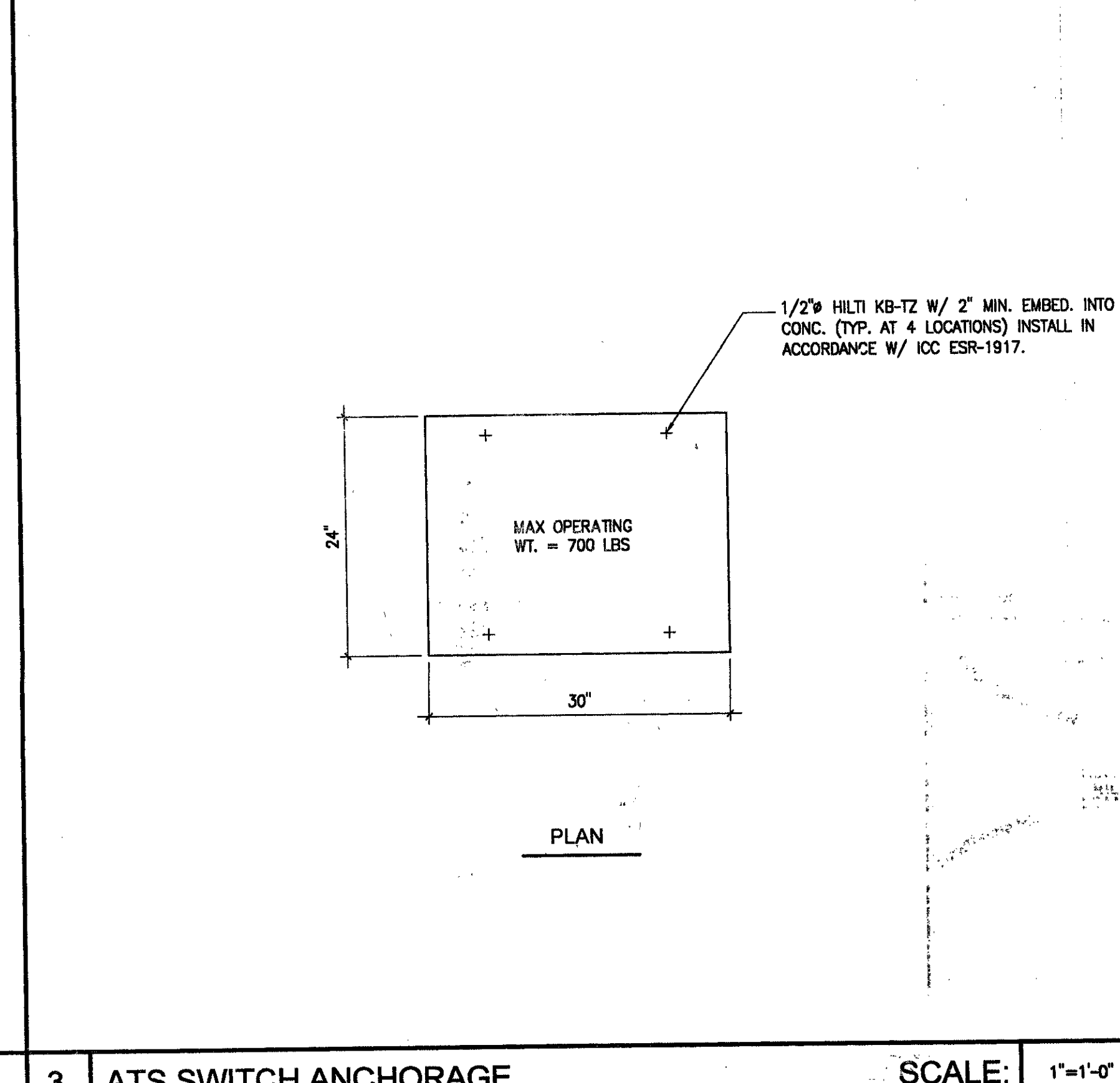
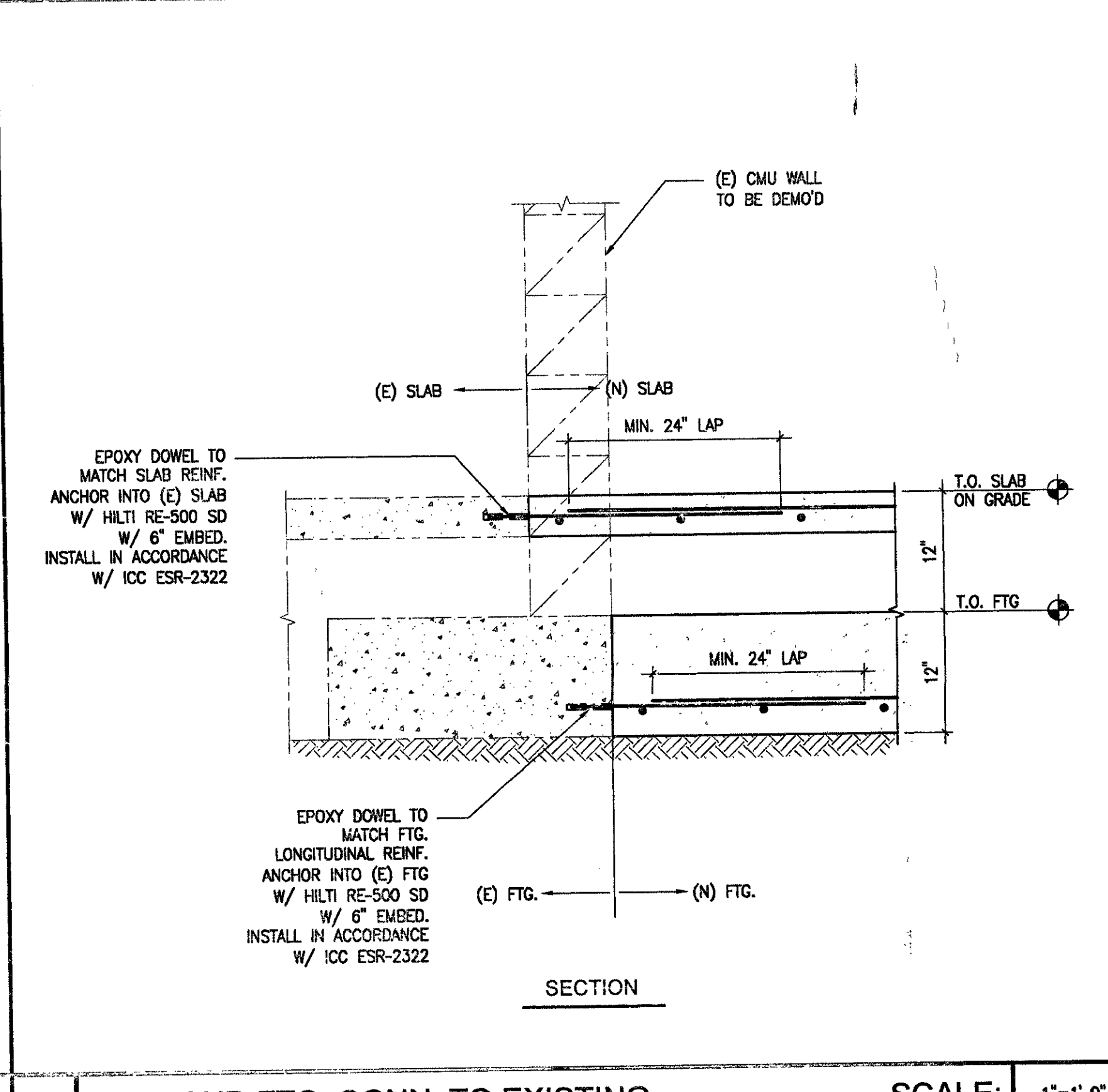
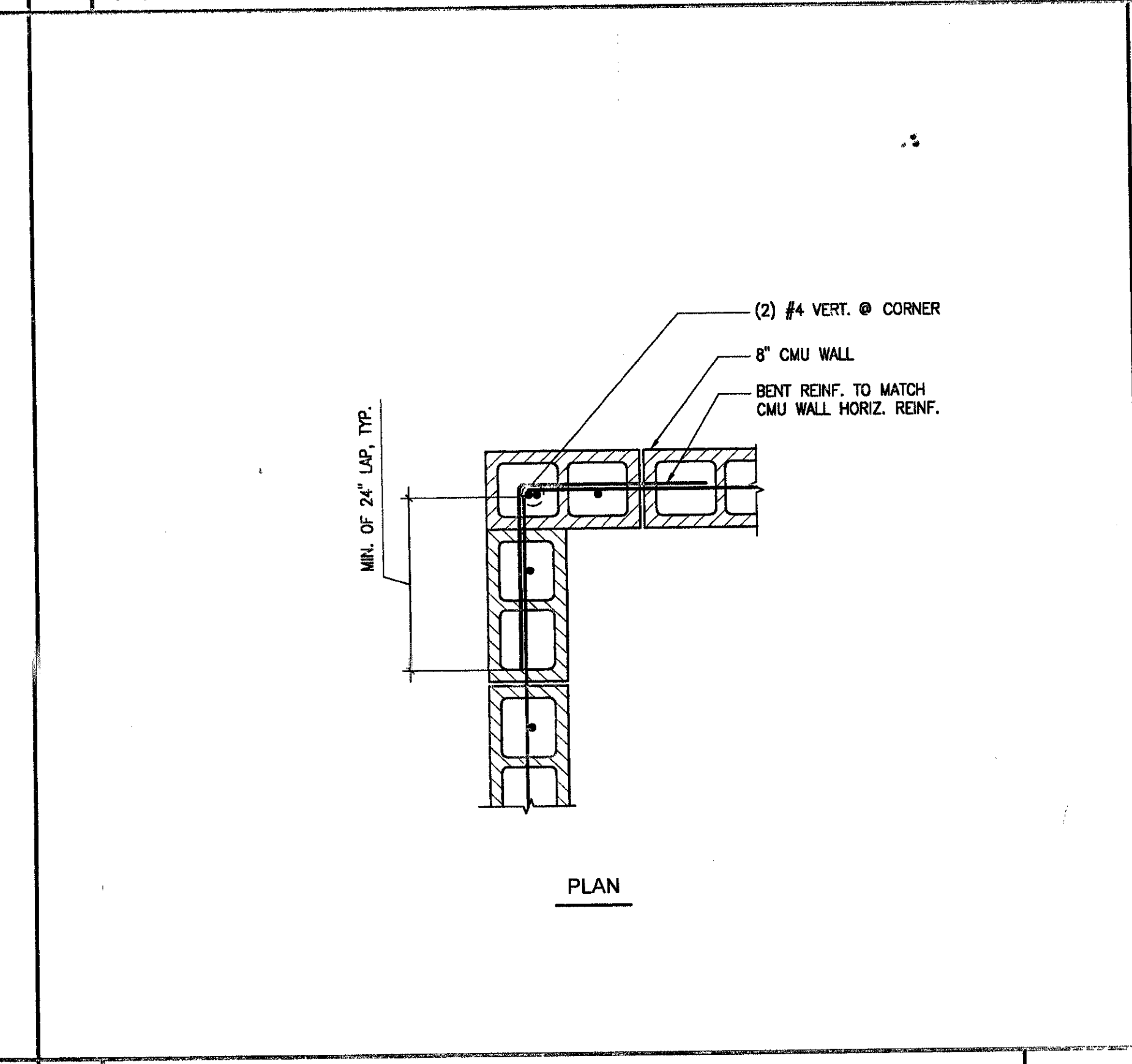
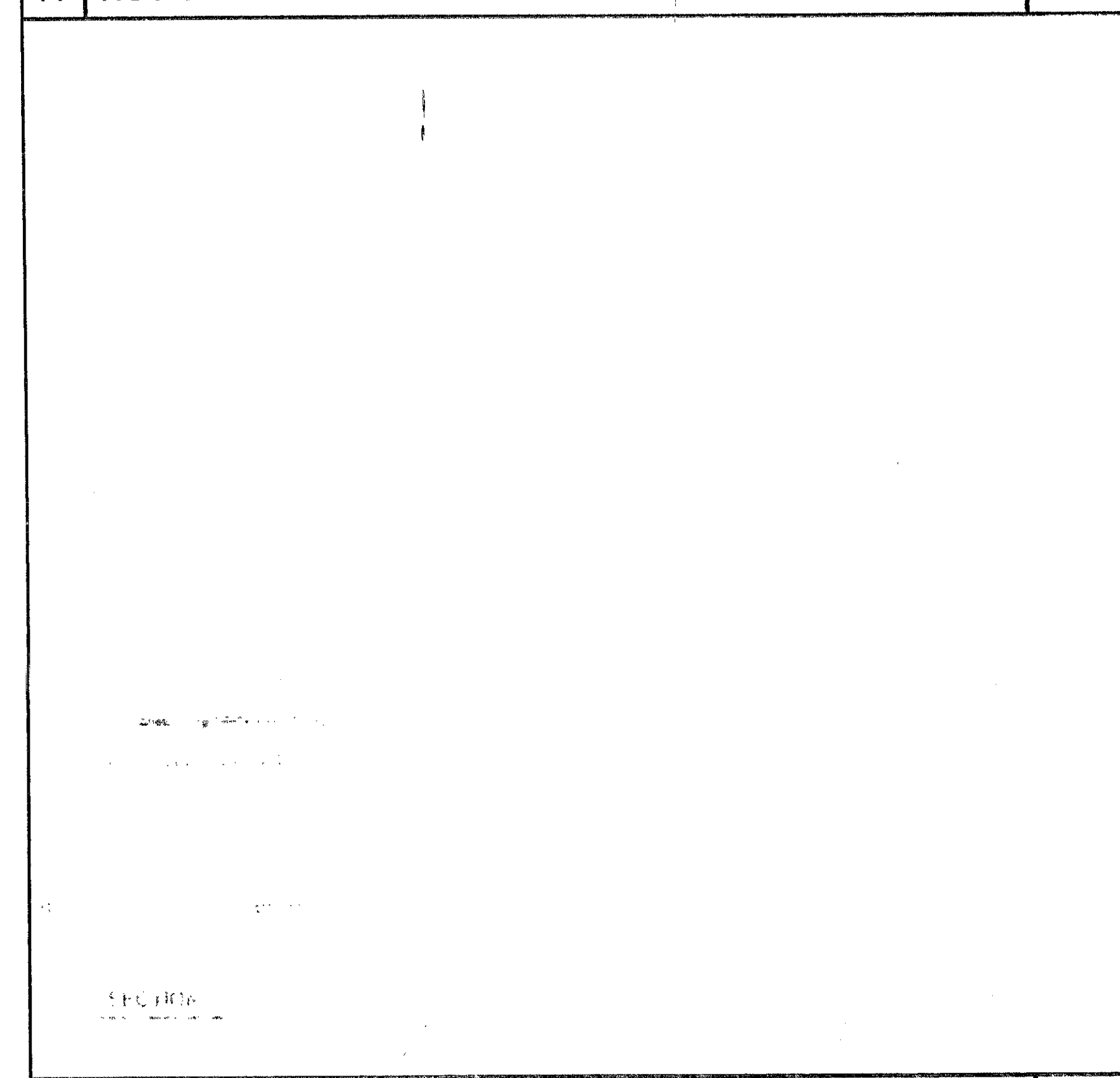


11 NOT USED SCALE: N/A

8 (N) CMU WALL TO (E) WALL CONN. SCALE: 1\"/>

5 TYP. WALL SECTION SCALE: 1\"/>

2 CONC. EQUIPMENT PAD DETAIL SCALE: 1\"/>



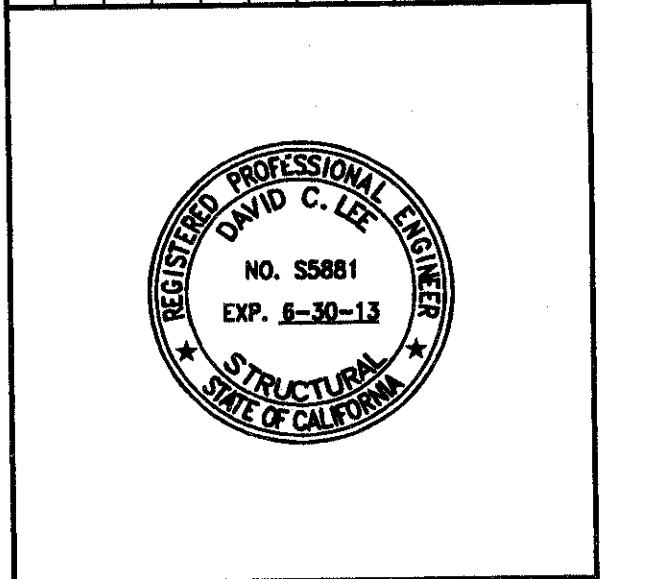
12 NOT USED SCALE: N/A

9 TYP. REINF. AT WALL CORNER SCALE: 1\"/>

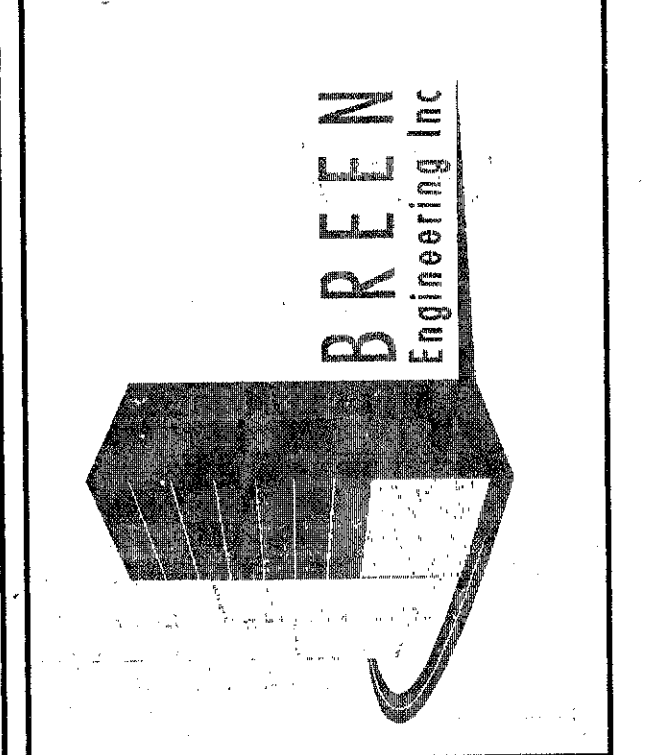
6 SLAB AND FTG. CONN. TO EXISTING SCALE: 1\"/>

3 ATS SWITCH ANCHORAGE SCALE: 1\"/>

DATE	07/20/13
BY	
REV.	
DESCRIPTION	



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STRUCTURAL DETAILS
GENERAL AVIATION CENTER
TORRANCE MUNICIPAL AIRPORT
5001 AIRPORT BLVD., TORRANCE, CA 90503

DATE	06/17/2013
SCALE	AS NOTED
PROJECT NUMBER	20-13-001
DRAWN BY	EL
CHECKED BY	EL
DRAWING NUMBER	S-2