EAST BAY MUNICIPAL UTILITY DISTRICT
SPECIAL DISTRICT NO. 1
OAKLAND, CALIFORNIA

WATER POLLUTION CONTROL PLANT

SPECIFICATION SD-135

POWER GENERATION STATION

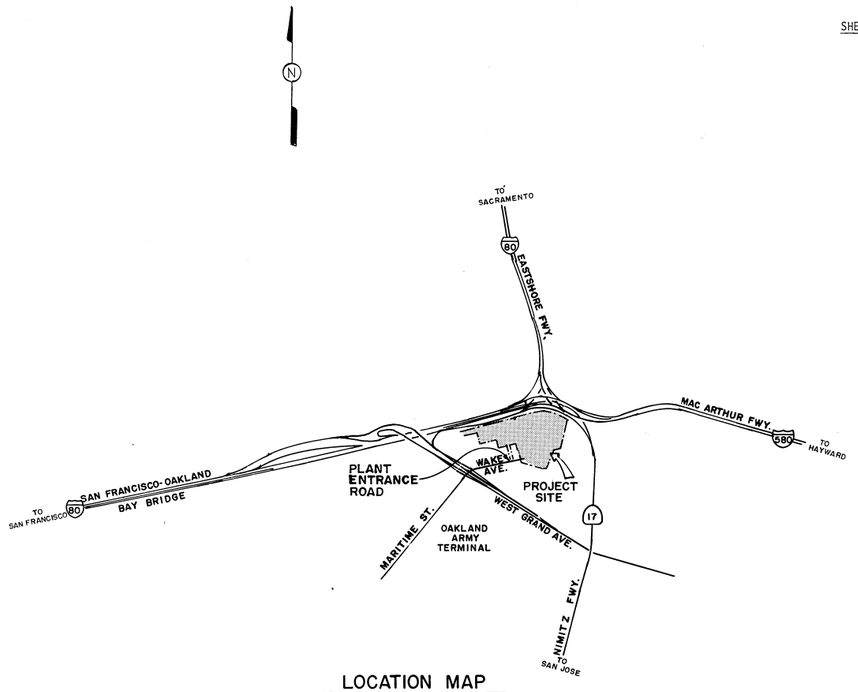
VOLUME TWO OF CONTRACT DOCUMENTS
DRAWINGS

JOHN CAROLLO ENGINEERS
PHOENIX, AZ • WALNUT CREEK, CA
FOUNTAIN VALLEY, CA • VISALIA, CA
TUCSON, AZ

JOB NO.
W 02401A12
DRAWING NO.
JC-G-1
SHEET NO.
1 OF 106

As-Built 2/86

AREA MAP
STATE OF CALIFORNIA



LOCATION MAP

DRAWING LIST

SHEET NO.	DRAWING NO.	TITLE
		GENERAL
1	JC-G-1	COVER SHEET
2	JC-G-2	LOCATION MAP, AREA MAP, AND DRAWING LIST
3	JC-G-3	LEGEND AND ABBREVIATIONS
4	JC-G-4	PLOT PLAN
5	JC-G-5	PAVING, GRADING AND DRAINAGE PLAN
6	JC-G-6	PAVING, GRADING AND DRAINAGE DETAILS
7	JC-G-7	YARD PIPING PLAN
8	JC-G-8	MISCELLANEOUS YARD DETAILS
9	JC-G-9	MISCELLANEOUS YARD DETAILS
10	JC-G-10	MISCELLANEOUS YARD DETAILS
		TYPICAL
11	JC-T-1	REINFORCING AND CONCRETE DETAILS
12	JC-T-2	CONCRETE JOINT AND REINFORCING DETAILS
13	JC-T-3	MISCELLANEOUS METAL DETAILS
14	JC-T-4	PIPING DETAILS
15	JC-T-5	PIPING DETAILS
16	JC-T-6	PRESSURE GAUGE AND TEMPERATURE GAUGE SCHEDULES
17	JC-T-7	PIPE SUPPORT DETAILS
18	JC-T-8	PIPE SUPPORT DETAILS
19	JC-T-9	MISCELLANEOUS DETAILS
		ARCHITECTURAL
20	JC-A-1	EXTERIOR ELEVATIONS
21	JC-A-2	EXTERIOR ELEVATIONS
22	JC-A-3	FLOOR PLAN
23	JC-A-4	UPPER FLOOR PLAN AND FINISH SCHEDULE
24	JC-A-5	INTERIOR ELEVATIONS
25	JC-A-6	DOOR AND WINDOW SCHEDULE
26	JC-A-7	INTERIOR DETAILS
27	JC-A-8	MISCELLANEOUS DETAILS
		STRUCTURAL
28	JC-S-1	TUNNEL - PLAN AND SECTIONS
29	JC-S-2	TUNNEL - PLAN AND SECTIONS
30	JC-S-3	POWER GENERATION BUILDING - LOWER FLOOR PLAN
31	JC-S-4	POWER GENERATION BUILDING - MAIN FLOOR PLAN AND SECTIONS
32	JC-S-5	POWER GENERATION BUILDING - PARTIAL FLOOR PLANS AND DETAILS
33	JC-S-6	POWER GENERATION BUILDING - ROOF PLAN
34	JC-S-7	POWER GENERATION BUILDING - ROOF FRAMING PLAN AND DETAILS
35	JC-S-8	POWER GENERATION BUILDING - SECTION
36	JC-S-9	POWER GENERATION BUILDING - SECTION
37	JC-S-10	POWER GENERATION BUILDING - SECTION
38	JC-S-11	POWER GENERATION BUILDING - SECTIONS
39	JC-S-12	POWER GENERATION BUILDING - SECTIONS
40	JC-S-13	POWER GENERATION BUILDING - WALL SECTIONS AND DETAILS
41	JC-S-14	POWER GENERATION BUILDING - BEAM SCHEDULE AND DETAILS
42	JC-S-15	POWER GENERATION BUILDING - PILE SCHEDULE AND BEAM SCHEDULE
43	JC-S-16	POWER GENERATION BUILDING - COLUMN DETAILS
44	JC-S-17	SURGE TANK AND GAS HOLDER - PLANS, SECTIONS AND DETAILS

SHEET NO.	DRAWING NO.	TITLE
		MECHANICAL
45	JC-M-1	TUNNEL PIPING PLAN AND SECTIONS
46	JC-M-2	TUNNEL PIPING SECTIONS
47	JC-M-3	POWER GENERATION BUILDING - LOWER FLOOR PLAN
48	JC-M-4	POWER GENERATION BUILDING - MAIN FLOOR PLAN
49	JC-M-5	POWER GENERATION BUILDING - PARTIAL FLOOR PLAN
50	JC-M-6	POWER GENERATION BUILDING - ROOF PLAN
51	JC-M-7	POWER GENERATION BUILDING - SECTIONS
52	JC-M-8	POWER GENERATION BUILDING - SECTIONS
53	JC-M-9	POWER GENERATION BUILDING - SECTIONS
54	JC-M-10	POWER GENERATION BUILDING - DETAILS
55	JC-M-11	POWER GENERATION BUILDING - DETAILS
56	JC-M-12	POWER GENERATION BUILDING - DETAILS
57	JC-M-13	POWER GENERATION BUILDING - BRIDGE CRANE DETAILS
58	JC-M-14	EXHAUST SILENCER SECTIONS AND DETAILS
59	JC-M-15	MISCELLANEOUS SECTIONS AND DETAILS
60	JC-M-16	LOW PRESSURE GAS HOLDER PLAN AND DETAILS
61	JC-M-17	PLANT HOT WATER PIPING SCHEMATIC
62	JC-M-18	DIGESTER GAS PIPING SCHEMATIC
63	JC-M-19	NO. 1, NO. 2, AND NO. 3 WATER SCHEMATIC
64	JC-M-20	GAS COMPRESSOR SCHEMATICS
65	JC-M-21	ENGINE FUEL SYSTEM SCHEMATIC
66	JC-M-22	ENGINE LUBE OIL AND SLOP OIL SCHEMATICS
67	JC-M-23	PLANT WATER SCHEMATICS
68	JC-M-24	ENGINE STARTING AIR AND INSTRUMENT AIR SCHEMATICS
69	JC-M-25	HVAC SECTIONS AND DETAILS
70	JC-M-26	MISCELLANEOUS PIPE SUPPORTS
71	JC-M-27	PLUMBING PLAN AND DETAILS - LOWER FLOOR
72	JC-M-28	PLUMBING PLAN AND DETAILS - MAIN FLOOR AND LOCKER ROOM
73	JC-M-29	VAPORIZER - MODIFICATIONS
74	JC-M-30	CENTRATE ODOR CONTROL MODIFICATIONS
75	JC-M-31	PIPING IN EXISTING DIGESTER GALLERY - PLAN
76	JC-M-32	PIPING IN EXISTING DIGESTER GALLERY - SECTIONS AND DETAILS
77	JC-M-33	PIPING IN SOUTH AND CENTRAL GALLERIES - PLAN AND SECTIONS
78	JC-M-34	TANK PIPING DETAILS
79	JC-M-35	MAINTENANCE CENTER HVAC AND PLUMBING MODIFICATIONS
80	JC-M-36	MAINTENANCE CENTER HVAC AND PLUMBING MODIFICATIONS
81	JC-M-37	MAINTENANCE CENTER HVAC AND PLUMBING MODIFICATIONS
		ELECTRICAL
82	JC-E-1	LEGEND, ABBREVIATIONS AND GENERAL NOTES
83	JC-E-2	SITE PLAN AND DETAILS
84	JC-E-3	SINGLE LINE DIAGRAM 416OV
85	JC-E-4	SINGLE LINE DIAGRAM 480V
86	JC-E-5	GROUNDING PLAN AND DETAILS
87	JC-E-6	POWER PLAN AND DETAILS - LOWER FLOOR
88	JC-E-7	POWER PLAN AND DETAIL - MAIN FLOOR
89	JC-E-8	POWER AND LIGHTING PLANS - PARTIAL FLOORS AND TUNNEL
90	JC-E-9	LIGHTING PLAN - LOWER FLOOR
91	JC-E-10	LIGHTING PLAN - MAIN FLOOR
92	JC-E-11	EXISTING MAINTENANCE CENTER - POWER PLAN
93	JC-E-12	SCHEMATIC AND CONTROL DIAGRAMS
94	JC-E-13	SCHEMATIC AND CONTROL DIAGRAMS
95	JC-E-14	SCHEMATIC AND CONTROL DIAGRAMS
96	JC-E-15	LOAD SHEDDING AND CONTROLS
97	JC-E-16	COMPRESSOR AND GAS HOLDER CONTROLS
98	JC-E-17	FIRE DETECTION SYSTEM DIAGRAM
99	JC-E-18	GAS DETECTION SYSTEM DIAGRAM
100	JC-E-19	ELECTRICAL DETAILS
101	JC-E-20	ELECTRICAL DETAILS
102	JC-E-21	EXISTING SUBSTATION M1 AND DETAILS
103	JC-E-22	SINGLE LINE DIAGRAMS - LIGHTING PANELS "H" & "L"
		INSTRUMENTATION
104	JC-I-1	LEGEND, NOTES AND MISCELLANEOUS PANELS
105	JC-I-2	DIGESTER GAS SYSTEM P & I D
106	JC-I-3	MASTER INSTRUMENTATION PANEL AND NAMEPLATE SCHEDULE

REV.	DATE	BY	DESCRIPTION
~	NOV.'85	JC	As-Built

DESIGNED DT
DRAWN ELP
CHECKED BD
DATE FEB. 1983

APPROVED BY:
Walter R. Howard RCE 14809
PARTNER P.E. NO.
Sabrina L. Wagen M 18392
PROJECT ENGINEER P.E. NO.
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JOHN CAROLLO ENGINEERS
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EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
GENERAL
LOCATION MAP, AREA MAP, AND DRAWING LIST

JOB NO. W 02401A12
DRAWING NO. JC-G-2
SHEET NO. 2 OF 106

BUILDING MATERIAL LEGEND

VIEW IN SECTION

MATERIAL	EXISTING	REMOVE	NEW
CONCRETE, CLASS "A", "B" & "D".			
CONCRETE, CLASS "C"			
STEEL			
CAST IRON OR FIBERGLASS			
ALUMINUM			
BRICK OR BLOCK			
CROSS GRAIN WOOD (FINISHED)			
WOOD (STRUCTURAL)			
BRONZE, BRASS OR COPPER			
GRAVEL			
RUBBER			
EARTH			

VIEW IN PLAN

WITH GRAIN WOOD (FINISHED)		TREAD PLATE	
GRATING			

LINE WORK LEGEND

NEW STRUCTURES	
EXISTING STRUCTURES	
NEW PIPING	
EXISTING PIPING	or
HIDDEN LINE	
CENTER, MONUMENT OR SURVEY LINE	
HAND RAIL	
EXISTING CONTOURS	308
NEW CONTOURS	308
NEW FENCE	
EXISTING FENCE	
REMOVE FENCE	
POWER POLE & LINE	PP, E, E
PROPERTY LINE OR RIGHT OF WAY	
SLOPE	TOP
RAILROAD	TOE
CITY LIMITS	
FUTURE ROAD	
EXISTING ROAD	
CURB & GUTTER	OR

DRAWING CROSS REFERENCING

- N / D-12 — DETAIL OR SECTION IDENTIFICATION.
- N / TYP — DETAIL OR SECTION IS TAKEN ON THE SAME SHEET.
- N / — — DETAIL OR SECTION MAY BE TAKEN ON SEVERAL DIFFERENT SHEETS.
- N / D-12 — DETAIL OR SECTION IS TAKEN ON THE DRAWING INDICATED.
- N / — — DETAIL OR SECTION IDENTIFICATION
- DETAIL OR SECTION IS TO BE FOUND ON THE SAME SHEET.
- DETAIL OR SECTION IS TO BE FOUND ON THE DRAWING INDICATED.

PIPING SYMBOLS

ITEM	SIZE AND ABBREVIATION	SYMBOL
AIR FILTER	0" AF	
AIR OR GAS DIFFUSER		
AIR RELIEF VALVE	0" A.R.V.	
ANGLE VALVE	0" A.V.	
AUTOMATIC AIR VENT	0" A.A.V.	
BACK PRESSURE CONTROL VALVE	0" BPCV	
BALL VALVE	0" BV	
BUTTERFLY VALVE	0" BT.V.	
CHECK VALVE	0" C.V.	
DIAPHRAGM VALVE	0" D.V.	
EQUIPMENT DRAIN	0" E.D.	
EXP. JT. OR FLEXIBLE VIBRATION JT.	0"	
FLAME ARRESTER	0" F.A.	
FLAME ARRESTER & THERMALLY OPER. VALVE	0" F.A. & T.V.	
FLEXIBLE COUPLING	0" F.C.	
FLEXIBLE RUBBER CONNECTION OR RUBBER HOSE	0"xO"	
GATE VALVE	0" G.V.	
GLOBE VALVE	0" GL.V.	
HOSE VALVE	0" H.V.	
THREE WAY MIXING VALVE	0" 3 M.V.	
NEEDLE VALVE	0" N.V.	
PIPE CAP	0"	
PLUG COCK	0" P.C.	
PLUG VALVE (ECCENTRIC)	0" P.V.	
PRESSURE GAUGE	MK (0) P.G.	
PRESSURE REGULATING VALVE	0" P. REG. V.	
PRESSURE RELIEF VALVE	0" PRV	
PRESSURE RELIEF VALVE & VACUUM BREAKER	0" PRV & VB	
SEDIMENT TRAP	0" S.T.	
SOLENOID VALVE	0" S.V.	
FOUR WAY SOLENOID VALVE	0" 4 S.V.	
THREE WAY SOLENOID VALVE	0" 3 S.V.	
SQUEEZE VALVE	0" SQ. V.	
STEAM TRAP	0" S.T.	
THERMOMETER	MK [0] TEMP. G.	
UNION	0"	
WYE TYPE STRAINER	0'	
FIRE HYDRANT	FH	
FIRE EXTINGUISHER	FX	(FX)

GENERAL ABBREVIATIONS

ABC	Aggregate Base Course
AB	Anchor Bolt
AC.T.	Acoustical Tile
AL	Aluminum
BF	Blind Flange
CA	Concrete Anchor
CI	Cast Iron
CL	Center Line
CMU	Concrete Masonry
CO	Cleanout
CONC	Concrete
CONT	Continuous
CKS	Countersink
CT	Ceramic Tile
DIA	Diameter
E	East
EA	Each
EF	Each Face
ELEV	Elevation
ELL	Elbow
ES	Each Side
EW	Each Way
F	Factory Finish
FLEX	Flexible
FLG	Flange
FT	Feet
GL	Glass
GMU	Glazed Masonry Unit
GWB	Gypsum Wall Board
HORIZ	Horizontal
ID	Inside Diameter
IN.	Inch
INV	Invert
MAX	Maximum
MH	Manhole
MIN	Minimum
MK	Mark
N	North
NO.	Number
OC	On Center
OD	Outside Diameter
PLAS	Plaster
RED	Reducer
S	South
SCH	Schedule
STA	Station
STL	Steel
ST. STL.	Stainless Steel
TYP	Typical
VERT	Vertical
W	West
W/	With
W/O	Without

PIPE ABBREVIATIONS

ACP	Asbestos-cement Pipe
BSCIP	Cast Iron Pipe, Bell & Spigot
BSP	Black Steel Pipe
CIP	Cast Iron Pipe
CISP	Cast Iron Soil Pipe
GLCIP	Cast Iron Pipe, Glass Lined
CML&CSP	Cement Mortar Lined and Coated Steel Pipe
CMP	Corrugated Metal Pipe
DIP	Ductile Iron Pipe
FPP	Flexible Plastic Pipe
GSP	Galvanized Steel Pipe
MJCIP	Cast Iron Pipe, Mechanical Joint
MJDIP	Ductile Iron Pipe, Mechanical Joint
PVCP	Plastic, Rigid (Polyvinyl-chloride) Pipe
RCP	Reinforced Concrete Pipe
RPMP	Reinforced Plastic Mortar Pipe
VCP	Vitrified Clay Pipe

PIPING ABBREVIATIONS

HWHS = HEATING HOT WATER SUPPLY
HWHR = HEATING HOT WATER RETURN
LPDG = DIGESTER GAS (LOW PRESSURE)
HPDG = DIGESTER GAS (HIGH PRESSURE)
LO = LUBE OIL
SO = SLOP OIL
SOD = SLOP OIL DRAIN
FO = FUEL OIL
SD = SANITARY DRAIN
1W = NO. 1 WATER
HW = HOT WATER
CW = COLD WATER
2W = NO. 2 WATER
3W = NO. 3 WATER
JWS = JACKET WATER SUPPLY
JWR = JACKET WATER RETURN
IA = INSTRUMENT AIR
HPA = HIGH PRESSURE AIR
CS = CHLORINE SOLUTION
FM = FORCE MAIN
FD = FLOOR DRAIN

PIPE ABBREVIATIONS

NO.	DATE	BY	DESCRIPTION
	Nov. 83	JK	As-built

DESIGNED JCE
DRAWN ELP
CHECKED BD
DATE FEB. 1983

APPROVED BY:
Walter R. Howard RCE 14808
DIRECTOR P.E. NO.
Selwyn L. Wason M 12392
PROJECT ENGINEER P.E. NO.
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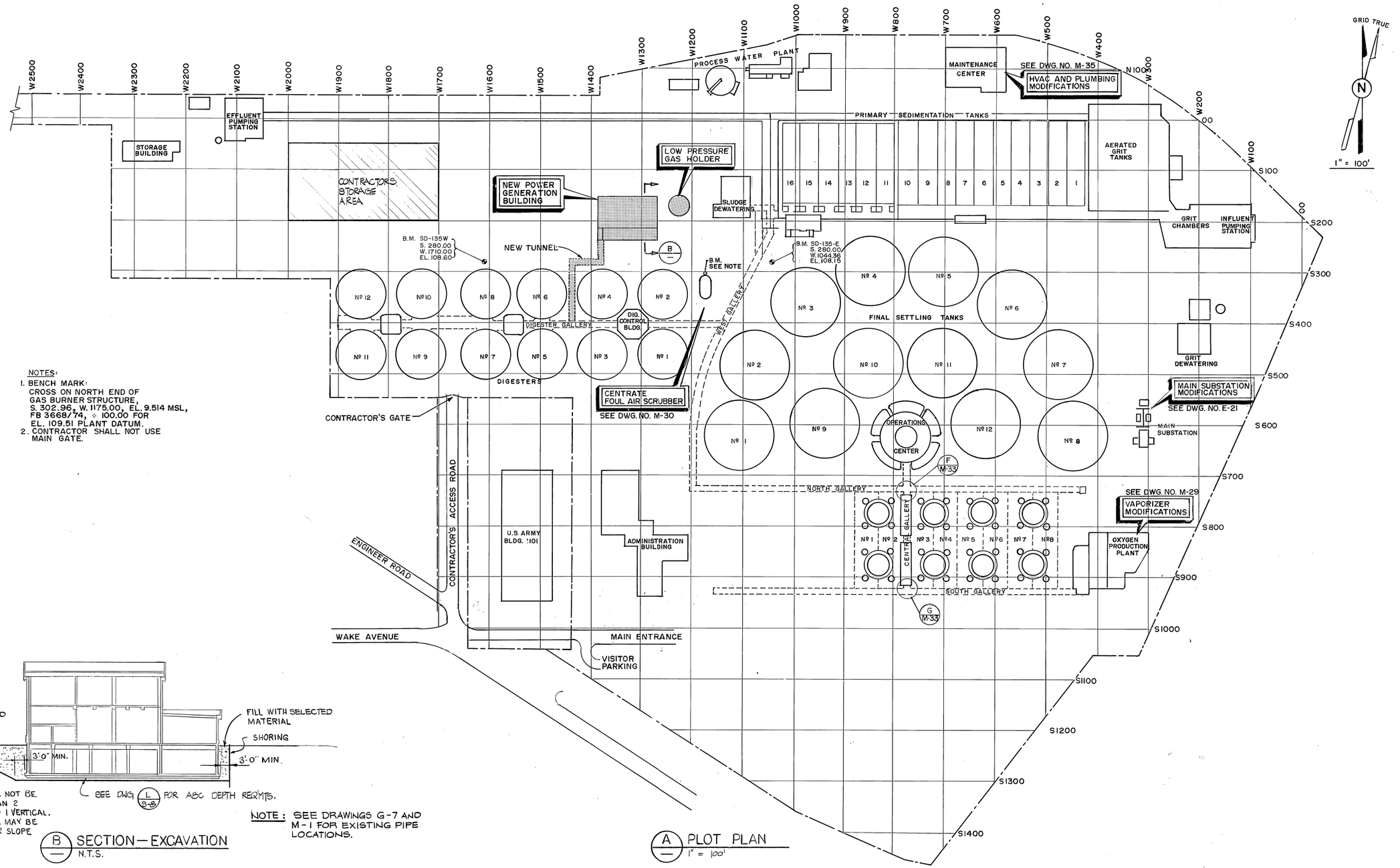
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

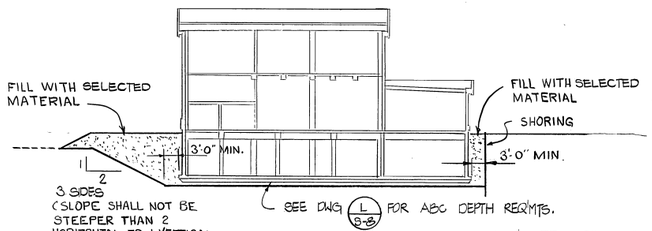
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
GENERAL
LEGEND AND ABBREVIATIONS

JOB NO. W 02401A12
DRAWING NO. JC-G-3
SHEET NO. 3 OF 106

A B C D E F G H J K L M N P Q R S U V W X Y Z



NOTES:
1. BENCH MARK:
CROSS ON NORTH END OF GAS BURNER STRUCTURE, S. 302.96, W. 1175.00, EL. 9.514 MSL, FB 3668/74, + 100.00 FOR EL. 109.51 PLANT DATUM.
2. CONTRACTOR SHALL NOT USE MAIN GATE.



(B) SECTION—EXCAVATION
N.T.S.

NOTE: SEE DRAWINGS G-7 AND M-1 FOR EXISTING PIPE LOCATIONS.

(A) PLOT PLAN
1" = 100'

REV.	DATE	BY	DESCRIPTION
	NOV. 83	XV	As-Built

DESIGNED DT
DRAWN ELP
CHECKED BD
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard RCE 19808 P.E. NO.
PROJECT ENGINEER Sarwark Wilson M18392 P.E. NO.
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EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
GENERAL
PLOT PLAN

JOB NO. W 02401A12
DRAWING NO. JC-G-4
SHEET NO. 4 OF 106

1" = 20'

LEGEND

- NEW ROADWAY (P G-6)
- PAVED AREAS (Q G-6)
- REPLACE EXISTING PAVING WHERE REMOVED OR DAMAGED. (APPROXIMATE) (P G-6)
- NEW ICEPLANT GROUND COVER SEE SPECIFICATIONS
- EQUIPMENT TO BE REMOVED BY CONTRACTOR

REMOVE EXISTING VEGETATION FROM POND AREAS.

EXISTING POND DIKES TO BE REMOVED

GRADE POND BOTTOMS TO A UNIFORM SLOPE OF 0.0044 FROM WEST END TO THE STORMWATER SUMP INTAKE PIPE

℄ CURVE DATA
A = 30°
R = 67.5
L = 35.34'
T = 18.09'

PI S. 207.17
W. 1509.09

INV. 105.13
SLAB 104.82
LIP 104.83

PI S. 207.17
W. 1437.00

INV. 105.29
SLAB 104.96
LIP 104.94

SPRINKLER HEAD (TYP.)

TRAFFIC BARRIER

BC S. 207.17
W. 491.00

EC S. 216.21
W. 1524.25

PVC IRRIGATION SLEEVE

SLUDGE VALVE BOX

EXISTING ELECTRICAL JUNCTION BOXES

S. 266±
W. 1611±

MATCH EXISTING GRADE (TYP.)

BM SD135W
S 280.00
W 1610.00
EL. 108.60

EXISTING SUMP PUMP

INV. 102.66
SLAB 102.46

INV. 104.9
SLAB 104.47
LIP 104.18

N G-9 STORMWATER SUMP (Relocated To Misc 20"ø W-Sec 4-7 For Relocation)

S. 141.50
W. 1184±

EXISTING ELECTROLIER

GUARD RAIL RADIUS CHANGE (RFI-250)

EXISTING SLUDGE DEWATERING STATION

SLOP OILTANK ℄ 153.00

LUBE OIL TANK

W. 1228.00

W. S. 170.50

NEW LOW PRESSURE GAS HOLDER

NEW POWER GENERATION STATION TYP. (R G-6)

SURGE TANK

TRAFFIC BARRIER

RIM EL 107.60
INV 118.7
S. 182.8

S. 207.17
W. 1183±
MATCH EXISTING GRADE (TYP.)

FUEL OIL TANK

EL 109.61
EL 109.50
(RFI 247)
(RFI 249)

WASTE GAS BURNERS

EXISTING SUBSTATION U-14

INV. 105.8

VENT

EXISTING ELECTROLIER (TYPICAL)

PB9 PBT2

U G-10 EXISTING PULL BOXES

INSTALL NEW ROLL CURB TO MATCH EXISTING WHERE REMOVED OR DAMAGED DURING CONSTRUCTION

EXISTING DIGESTER 8

EXISTING DIGESTER 6

EXISTING DIGESTER 4

EXISTING DIGESTER 2

EXISTING WASTE GAS BURNERS

BM EL. 109.91

BM SD135E (NOT SHOWN)
S 280.00
W 1044.36
EL. 108.15

SEE DWG M-30 FOR WORK IN THIS AREA

S100 S200 S300 S400

W1700 W1600 W1500 W1400 W1300 W1200 W1100

REV.	DATE	BY	DESCRIPTION
	NOV. 85	JV	As-Built

DESIGNED DT/TF
DRAWN ELP
CHECKED BD
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO. M.E. 14808
PROJECT ENGINEER P.E. NO. M 18392
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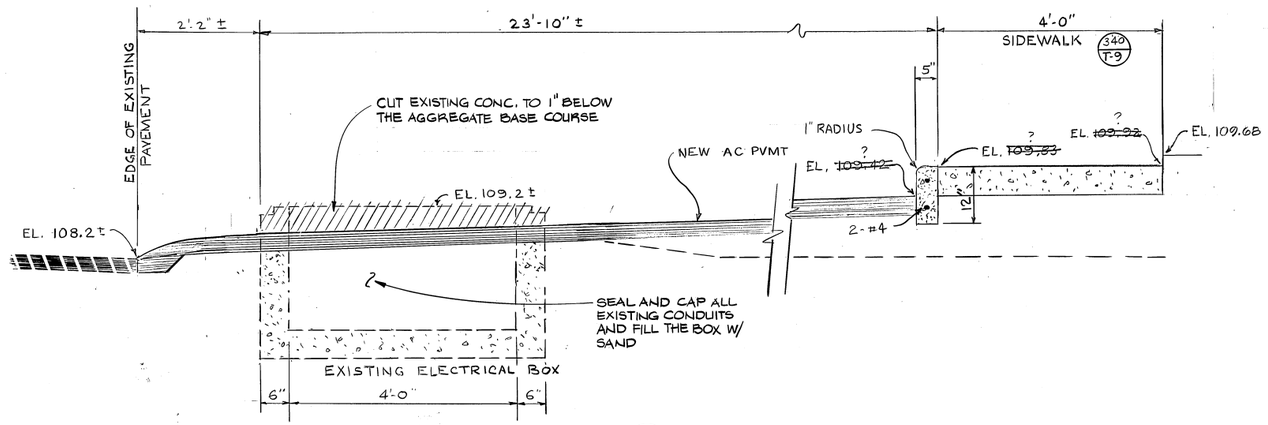
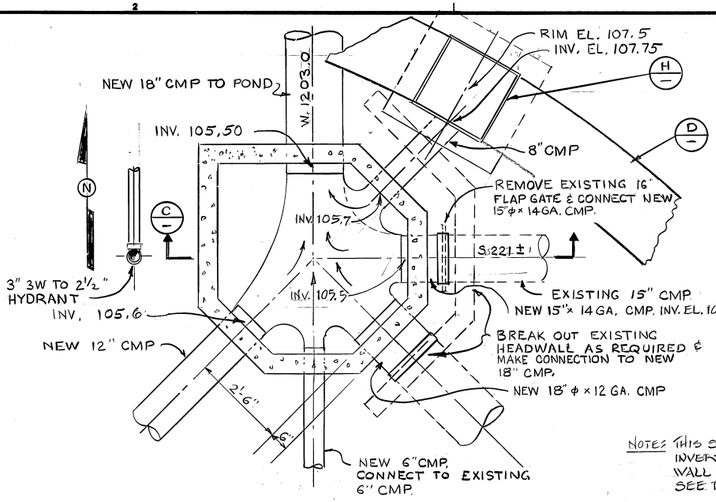
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
GENERAL
PAVING, GRADING AND DRAINAGE PLAN

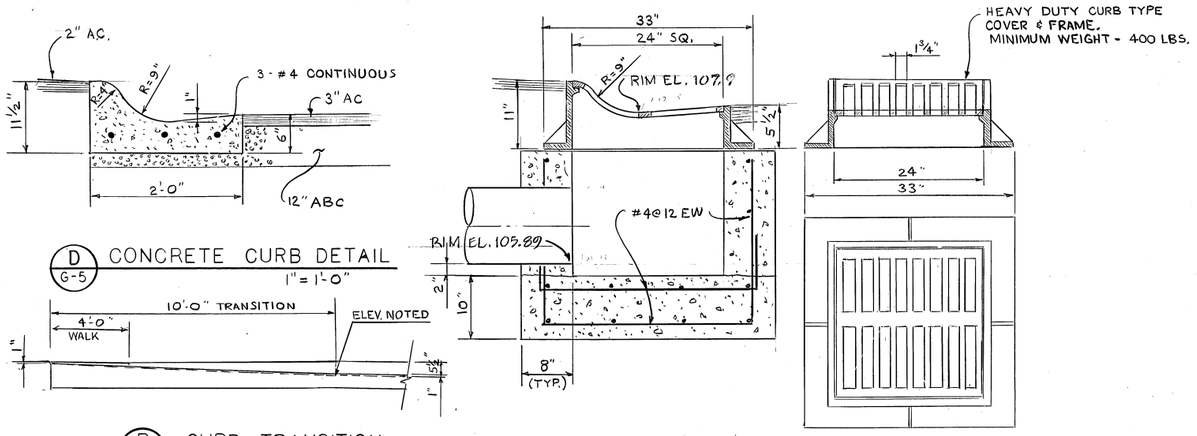
JOB NO. W 02401A12
DRAWING NO. JC-G-5
SHEET NO. 5 OF 106



A G-5 SECTION
3/4" = 1'-0"



NOTES: THIS STRUCTURE IS INCOMPLETE. INVERTS ARE CALCULATED FROM WALL OPENINGS. SEE PFI 210 & 230 CMP ELEVATIONS

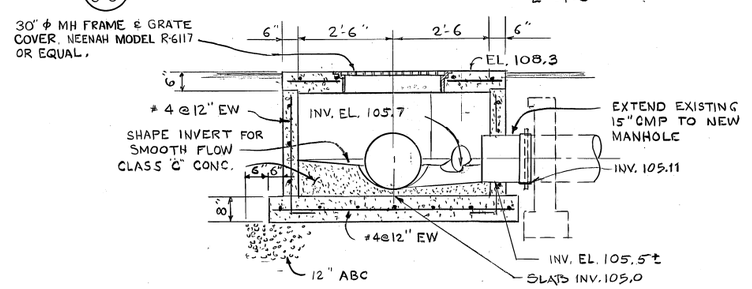


D G-5 CONCRETE CURB DETAIL
1" = 1'-0"

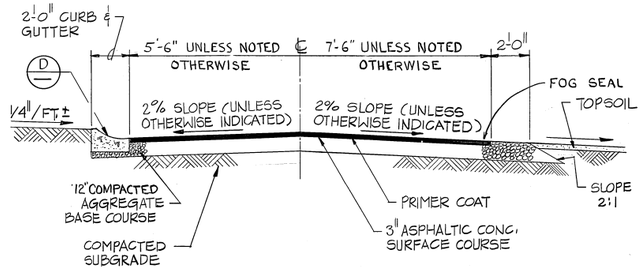
R G-5 CURB TRANSITION
3/8" = 1'-0"

H G-5 CURB TYPE STORM WATER INLET
1" = 1'-0"

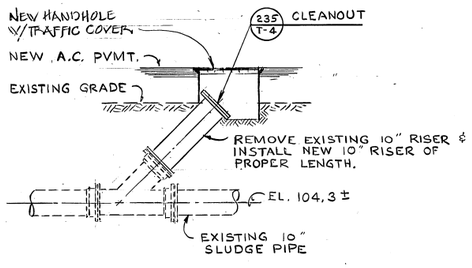
K G-5 SECTIONAL PLAN - NEW DRAINAGE MANHOLE
1/2" = 1'-0"



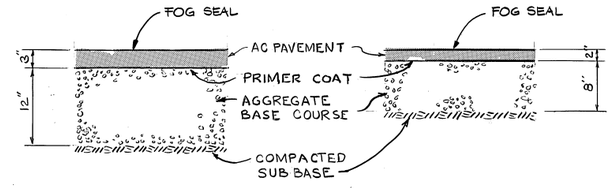
C — SECTION
1/2" = 1'-0"



F G-5 TYPICAL ROADWAY SECTION
NTS



J G-7 MODIFICATION OF EXISTING CLEANOUT
3/8" = 1'-0"



P G-5 ASPHALT PAVING

Q G-5 ASPHALT PAVING

REV.	DATE	BY	DESCRIPTION
	NOV. 83	XC	As-Built

DESIGNED DT/TF
DRAWN ELP
CHECKED BD
DATE FEB. 1983

APPROVED BY:
Walter R. Howard RCE 14808
PARTNER P.E. NO.
Salvatore L. Vassey M 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
GENERAL
PAVING, GRADING AND DRAINAGE DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-G-6
SHEET NO. 6 OF 106

ABCDEFGHJKLMNPQRSUVWXYZ

EFFLUENT CHANNEL

W1600 W1500 W1400 W1300 W1200 W1100

12" CMP

12" CMP

12" CMP

6"

F.H. SEE RFI-35

REMOVE 8" SLUDGE PIPE AND PLUG END OF PIPE W/ CONC. (COMPLETED BY SID 130A)

8" SLUDGE (ABANDONED)

4" ACP

12" CMP

CONTRACTOR SHALL REMOVE EXISTING POND SUMP AND SUMP PUMP, CAP OR PLUG EXISTING PIPES, RETURN SUMP PUMP TO DISTRICT.

INV. 100.8

INV. 104.17

6" ACP & EL. 106.4±

CONNECT NEW 4" STORMWATER SUMP DISCHARGE TO EXISTING 4" LINE ACROSS DISCH. CHANNEL. INV. 105.90

4" STORMWATER DISCH.

12" CMP

1" GS

8" CMP

P G-8

D G-8

S.100

10" FIRE

10" x 6" SPLIT TEE AND 6" TAPPING VALVE

N

1" = 20'

8" FIRE

NOTES:

1. LOCATIONS SHOWN FOR EXISTING STRUCTURES, PIPES, ELECTRICAL DUCTS, ETC. ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, SUPPORTING AND PROTECTING THEM DURING CONSTRUCTION.
2. CONTRACTOR SHALL RELOCATE THE PORTION OF EXISTING 10" DIGESTED SLUDGE PIPE IF REQUIRED TO PREVENT INTERFERENCE WITH SHORING.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORTING EXISTING PIPES IN THE AREA WHERE THE NEW TUNNEL AND NEW PIPES ARE INSTALLED.
4. ALL STORM WATER PIPE SHALL BE TYPE "D" SMOOTH-LINED CMP AS SPECIFIED.
5. ALL IRRIGATION SYSTEM SHUTOFF VALVES TO BE IN VALVE BOXES.

NEW STORMWATER SUMP
S. 112.29
W 1201.98

N G-9

S 130
W 1277

S 130
W 1219

M G-9

PROFILE F G-8

2"-2W

S.105.00
W.1150.00

93.31'

10" NO. 3 WATER RETURN

18" NO. 3 WATER SUPPLY

INV. 106.28

266 T-4

8"x6" SPLIT TEE & TAPPING VALVE

6" NO. 2 WATER
TOP EL. 105.5

SLUDGE DEWATERING STATION

℄ EL. 99.2

NOTE: SLUDGE ENTERS DRAINAGE SYSTEM AT TRUCK LOADING AREA DURING WASHDOWN

CONNECT TO EXISTING 12" CMP. PROVIDE FITTINGS AS REQ'D.

S.148
W. 1384

S.148
W.1334

P G-9

R G-9

S.153.00

2"-2W

×95.63

W 1273.00

E SLOP OIL TANK M-34

3"-3W

1" GS

S.140.71
W.1236.21

S G-10

G LUBE OIL TANK M-34

LOW PRESSURE GAS HOLDER SEE DWG. M-16

C M-34

18" LPDG

S.172.50
W 1268.00

S.178.50
S.182.50

S.190.00

SURGE TANK

1" DRIP TRAP DRAIN

PROFILE B G-8

95.52 X

FOR PIPING BETWEEN TANKS & BUILDING, SEE DWG M-3

K G-6

3"-3W

INV. 105.6

FUEL OIL TANK 224.00

S G-10

A M-34

8"

12" CMP 14 GA.

18" STORM DRAIN-12 GA. CMP.

20" NO. 3 WATER

8" FIRE

TOP 8" EL. 104.9

INV. 105.3

12" CMP

D.I. INV. EL. 106.0

H G-6

D.I. INV EL. INV. 105.11

INV. 100.90

15" CMP

INV. 104.99

EMERGENCY OVERFLOW

INV. 99.58

S.200

M G-9

INV. 105.15

W. 1464

S.184±

S.196
W1512

SIMILAR (NO FLAP GATE) M G-9

2"-2W

2"-2W

2"-2W

EXTEND EXISTING 10" SLUDGE PIPE TO NEW HEADWALL

OFFSET 10" LINE W/ 2-22½° ELBOWS

S.207±

S.223
W.1559

10"

12" STORM DRAIN

14 GA. CMP

212 T-4

CB. RIM EL. 107.62
INV. 105.3

CB RIM EL 107.73
INV. EL. 105.6

14 GA. CMP

12" STORM DRAIN

W. 1404

S.235

S.243

6"

H-18

L-18

EXISTING DUCT BANK (4-4"C.)

12" CMP

10" DIGESTED SLUDGE

8" SLUDGE

CB

CB

* COAT INSIDE OF SURFACES W/ SINAK (BURKE) IN LIEU OF COAL TAR (TYP. OF 2)

NEW POWER GENERATION STATION

x = BASEMENT FLOOR ELEVS.

×95.56

THE CONTRACTOR SHALL REMOVE EXISTING WASTE GAS BURNERS, PIPING & CONCRETE PAD.

ROOF DRAIN J G-6

PLUG END OF ABANDONED 12" GAS PIPE BY DIST MAINT.

×95.56

CO

CO

EXISTING HIGH VOLTAGE DUCT BANK

INV. 103.58

INV. 99.8

10" DIGESTED SLUDGE

½"-2W-T W/PLUG

16'

INV. 104.17

6" NO 3 WATER
6" RAW SLUDGE (ABANDONED)
4" NO 2 WATER
4" NO 1 WATER

D.I. RIM EL 107.9
INV. EL. 105.89

H G-6

L G-9

PB 9

A M-1

PB12

DEMOLISH & REMOVE EXISTING 6'x6' ABANDONED SEWER, SEE DWG. S-1.

SHORING LINE (TYP.)

EXISTING ELECTROLIER TO BE RELOCATED, SEE DWG. NO. E-2

12" GAS (ABAND.)

EXISTING DUCT BANK

6" DIGESTED SLUDGE (ABANDONED)
4" NO 3 WATER
6" RAW SLUDGE (ABANDONED)
6" RAW SLUDGE (ABANDONED)

6" CMP

SUB STA. U-4

18" CMP

INV. 102.08

H-17

L-17

CB

RIM=107.86
INV. 18"=105.86
INV. 6"=105.78
INV. BOX=105.42

S.300

WASTE GAS BURNERS

18" GAS

INV. 99.2

DIGESTER 8

DIGESTER 6

DIGESTER 4

DIGESTER 2

A B C D E F G H J K L M N P Q R S U V W X Y Z

REV.	DATE	BY	DESCRIPTION
	NOV. 83	XV	AS-BUILT

DESIGNED DT/TF
DRAWN ELP
CHECKED BD
DATE FEB. 1983

APPROVED BY:
PARTNER Howard R.E. 14808
PROJECT ENGINEER Schwarz M. 18392
E.B.M.U.D.

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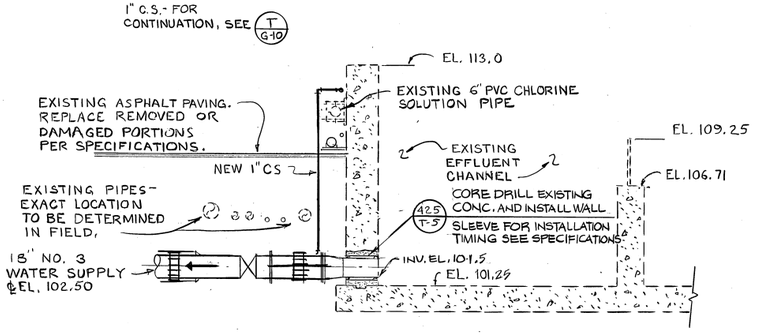
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

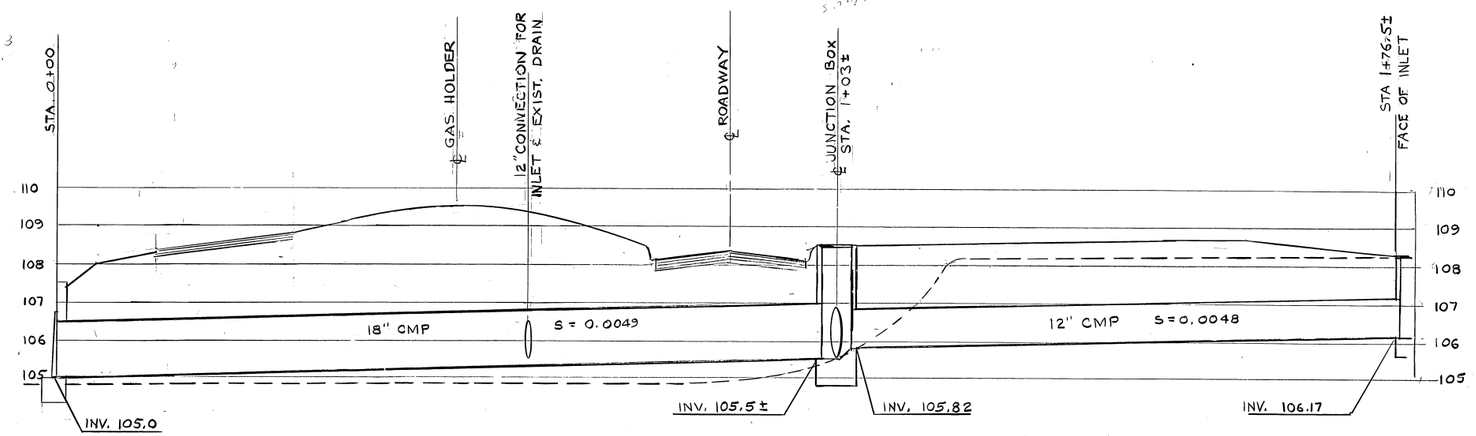
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
GENERAL
YARD PIPING PLAN

JOB NO. W 02401A12
DRAWING NO. JC-G-7
SHEET NO. 7 OF 106



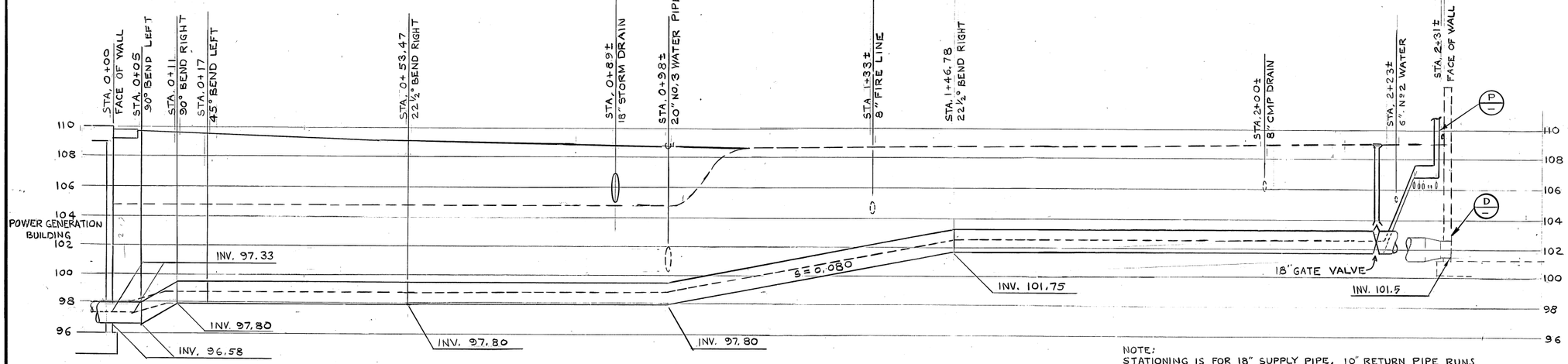
D G-7 DETAIL - NO. 3 WATER CONNECTION

1/4" = 1'-0"



B G-7 PROFILE - CMP STORMWATER DRAIN

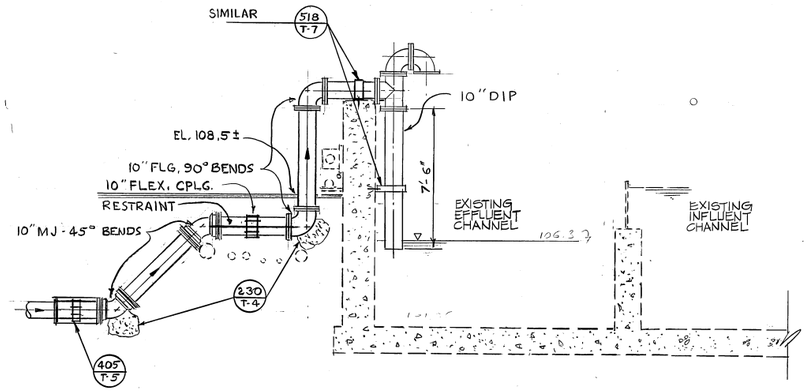
HORIZ: 1" = 10'
VERT: 1" = 2'



NOTE:
STATIONING IS FOR 18" SUPPLY PIPE. 10" RETURN PIPE RUNS PARALLEL, 2'-0" CENTER TO CENTER, EXCEPT AT STRUCTURES.

F G-7 PROFILE - 18" NO. 3 WATER SUPPLY & 10" RETURN

HORIZ: 1"=10'
VERT: 1"=4'



P G-7 DETAIL - NO. 3 WATER DISCHARGE

1/4" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	Nov. 85	XV	As-Built

DESIGNED	DT
DRAWN	ELP
CHECKED	BD
DATE	FEB. 1983

APPROVED BY:
Howard — PARTNER — P.E. NO. RCE14808
Wong — PROJECT ENGINEER — P.E. NO. M18392
E.B.M.U.D.

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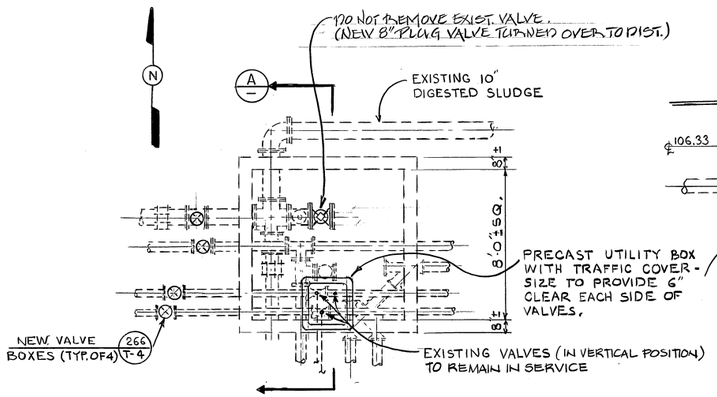
EAST BAY MUNICIPAL UTILITY DISTRICT

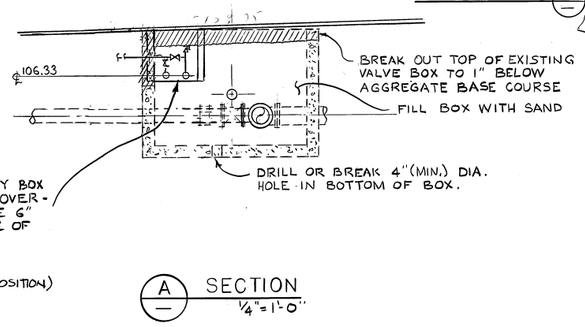
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
GENERAL
MISCELLANEOUS YARD DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-G-8
SHEET NO. 8 OF 106

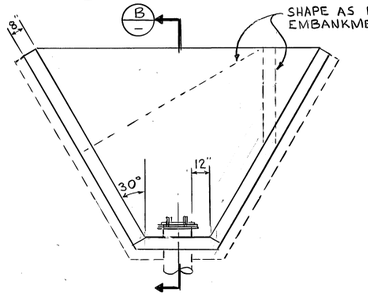
ABCDEFGHJKLMNPQRSUVWXYZ



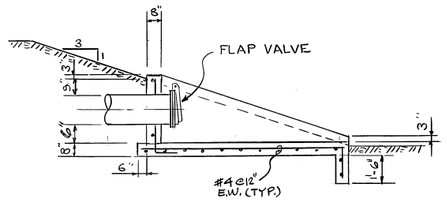
L G-7 PLAN - EXISTING VALVE BOX
1/4" = 1'-0"



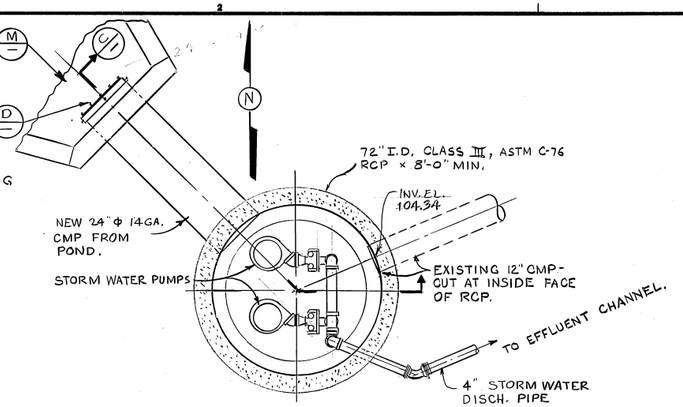
A — SECTION
1/4" = 1'-0"

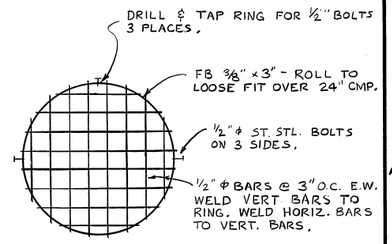


M G-7 PLAN - HEADWALL
1/4" = 1'-0"

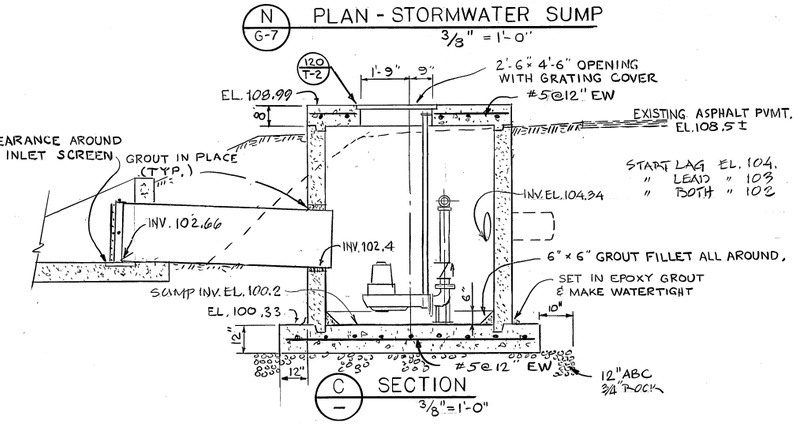


B — SECTION
1/4" = 1'-0"



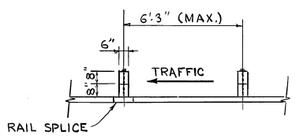


D — INLET SCREEN
1" = 1'-0"

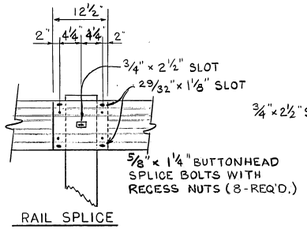


C — SECTION
3/8" = 1'-0"

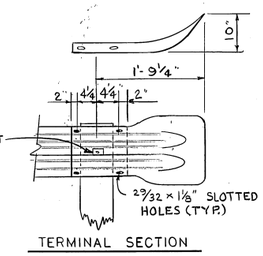
N G-7 PLAN - STORMWATER SUMP
3/8" = 1'-0"



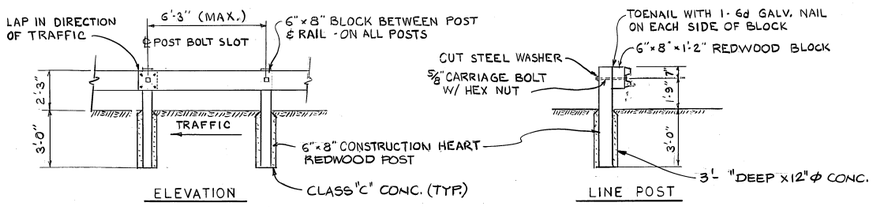
PLAN



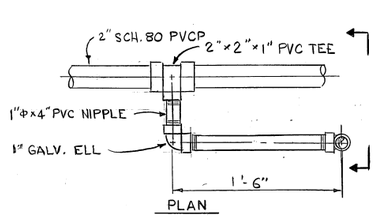
RAIL SPLICE



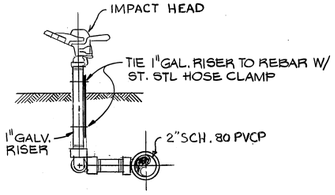
TERMINAL SECTION



S G-5 GUARD RAIL

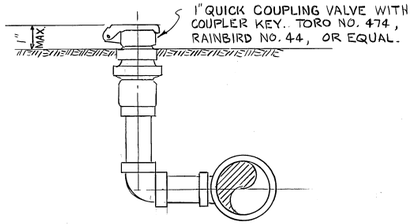


PLAN



SECTION

Q G-7 IRRIGATION CONNECTION
NO SCALE



R G-7 YARD HOSE CONNECTION BOX
NO SCALE

REV.	DATE	BY	DESCRIPTION
	Nov. 83	AR	As-Built

DESIGNED DT TF
DRAWN ELP
CHECKED BD
DATE FEB. 1983

APPROVED BY:
PARTNER Walter L. Howard P.E. NO. RCE 14408
PROJECT ENGINEER Steven L. Wasson P.E. NO. M 12392
E.B.M.U.D.

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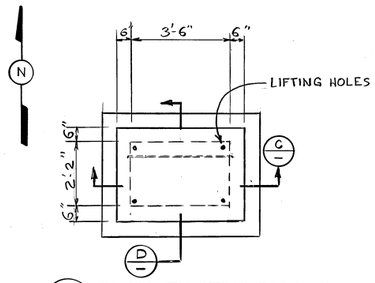
EAST BAY MUNICIPAL UTILITY DISTRICT

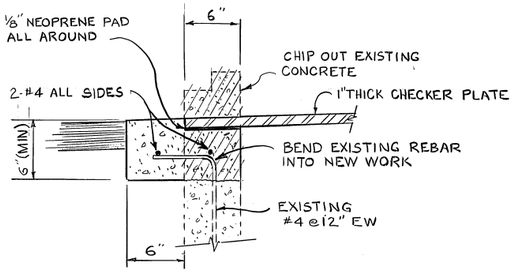
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
GENERAL
MISCELLANEOUS YARD DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-G-9
SHEET NO. 9 OF 106

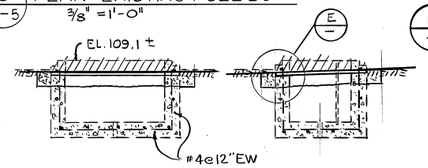
A B C D E F G H J K L M N P Q R S U V W X Y Z



U G-5 PLAN-EXISTING PULL BOX
3/8" = 1'-0"

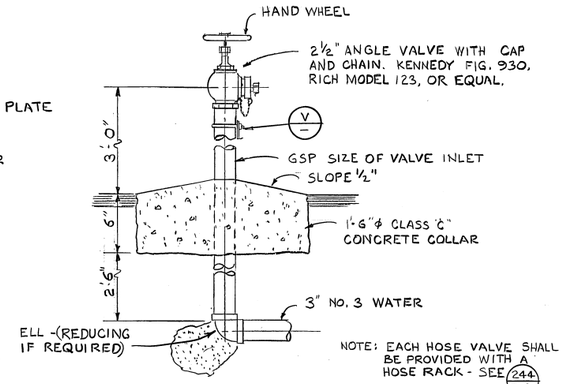


E DETAIL
1½" = 1'-0"



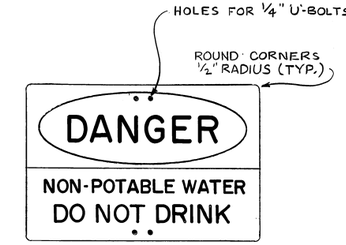
C SECTION
3/8" = 1'-0"

D SECTION
3/8" = 1'-0"



NOTE: EACH HOSE VALVE SHALL BE PROVIDED WITH A HOSE RACK - SEE 244 T-4

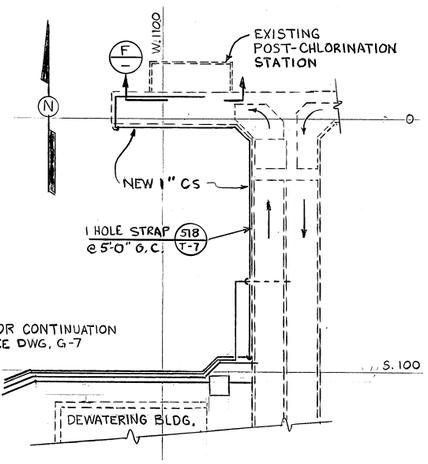
S G-7 2½" HOSE VALVE
NO SCALE



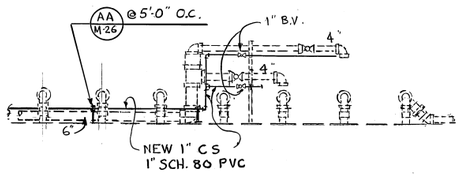
NOTES:
1. SIGN SHALL BE 3/8" THICK LAMINATED PLASTIC. PLASTIC SHALL BE TREATED TO RESIST SUNLIGHT (ULTRAVIOLET) DETERIORATION.
2. SIGN SHALL BE 7" x 10" AND SHALL CONFORM TO OSHA REGULATION 1910.145.
3. FURNISH AND MOUNT ONE SIGN AT EACH HOSE VALVE INSTALLATION.

V HOSE VALVE SIGN

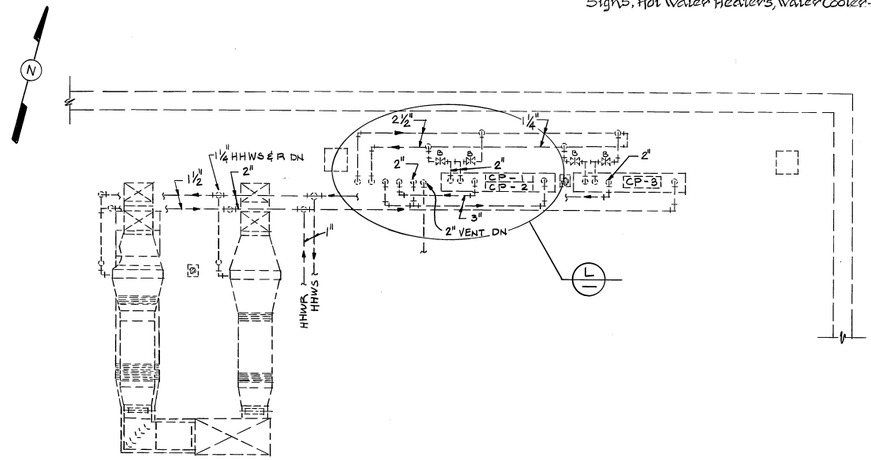
NOTE:
See Section 10-D in Specs. For Misc. Specialities For S.D. Devices Such As Sign Schedules, Metal & Plastic Signs, Hot Water Heaters, Water Cooler---etc.



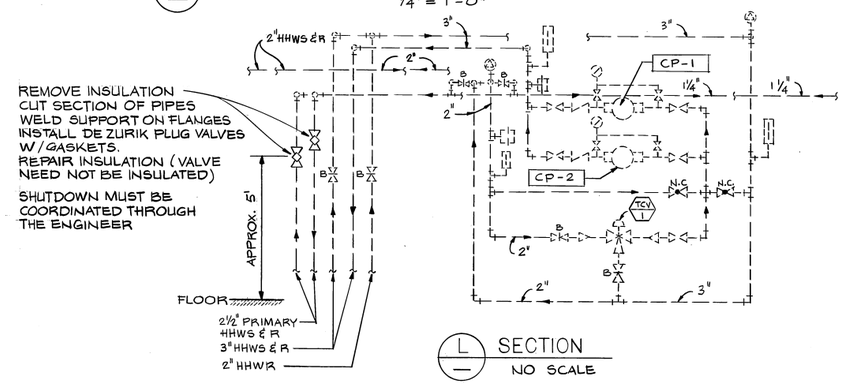
T G-7 PLAN-CHLORINE SOLUTION PIPE
1" = 30'



F SECTION
1/4" = 1'-0"



K MODIFICATION OF EXISTING HOT WATER PIPING AT PENTHOUSE-PLAN
1/4" = 1'-0"



L SECTION
NO SCALE

REV.	DATE	BY	DESCRIPTION
	Nov. 83	XV	As-Built

DESIGNED DT
DRAWN ELP
CHECKED BD
DATE FEB. 1983

APPROVED BY:
Walter P. Howard 14408
PARTNER P.E. NO.
Sabwan L. Wehby M18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD R. PREIBLER, P.E.
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
GENERAL
MISCELLANEOUS YARD DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-G-10
SHEET NO. 10 of 106

GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. UNLESS DETAILED, SPECIFIED OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS.
3. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

REINFORCED CONCRETE

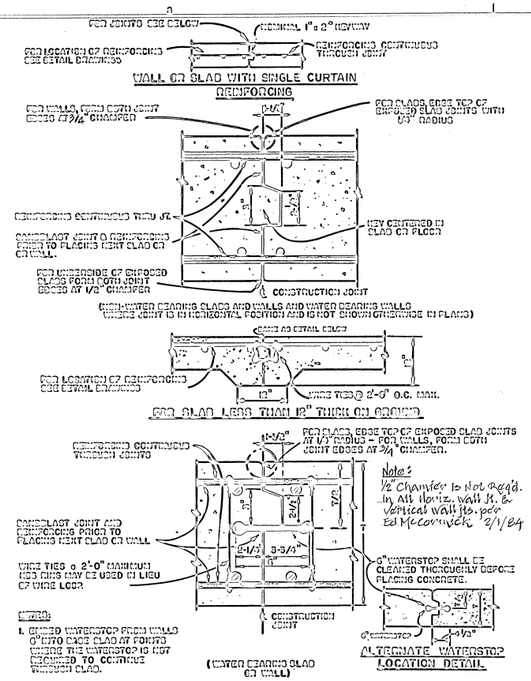
1. ALL CONCRETE CONSTRUCTION, INCLUDING BENDING OF BARS, SHALL COMPLY WITH ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
2. MINIMUM REINFORCEMENT OF CONCRETE WALLS OR SLABS SHALL BE:
   8" THICK OR LESS - USE #5 @ 12" EW
   9" OR THICKER - USE #5 @ 12" EWEF
3. ALL WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAPPED, OR TERMINATED IN A STANDARD 90 DEGREE HOOK. LAP SPLICES SHALL CONFORM WITH NOTE 5.
4. UNLESS SHOWN OTHERWISE ALL BARS SHALL BE DOWELED. DOWELS SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCEMENT WHICH IS TO BE SPLICED TO THE DOWELS. SEE NOTE 5 FOR LENGTH OF SPLICE.
5. UNLESS SHOWN OTHERWISE, THE LENGTH OF LAP FOR SPLICES SHALL BE LENGTH "D" WHERE NO MORE THAN 1/2 THE BARS ARE LAP SPLICED WITHIN THE TABULATED VALUE BELOW AND LENGTH "C" WHERE MORE THAN 1/2 THE BARS ARE LAP SPLICED WITHIN THE TABULATED VALUE BELOW (LENGTH SHOWN IN INCHES).

		#4	#5	#6	#7	#8	#9	#10	#11
TOP BARS°	(LENGTH "D")	22	27	33	44	58	74	94	115
	(LENGTH "C")	29	36	43	58	76	97	123	151
OTHER BARS	(LENGTH "D")	16	20	23	32	42	53	67	82
	(LENGTH "C")	20	26	31	41	54	69	88	108

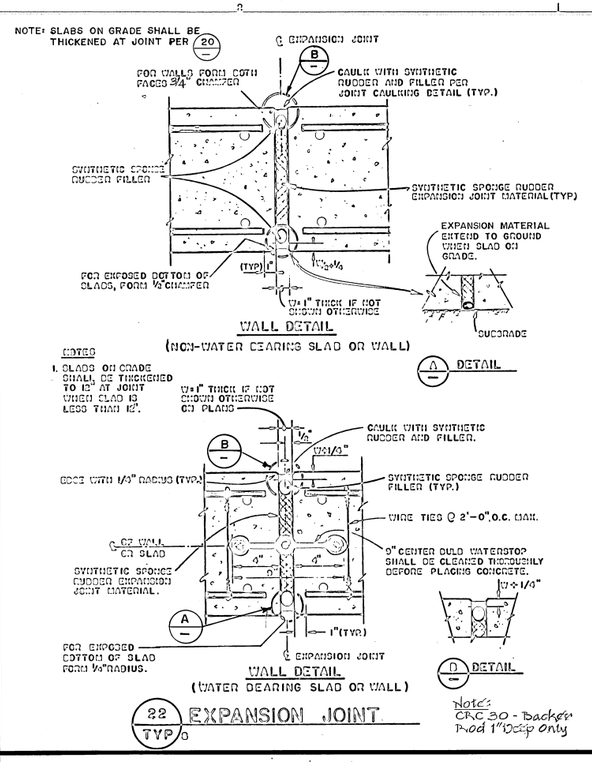
°TOP BARS ARE ALL HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

6. ALL SLABS, BEAMS AND COLUMN REINFORCING BARS SHALL HAVE A MINIMUM EXTENSION OR ANCHORAGE INTO SUPPORTS IN ACCORDANCE WITH ACI 318.
7. STIRRUP SUPPORT BARS SHALL BE PROVIDED BETWEEN ENDS OF TOP BARS AS REQUIRED.
8. CONCRETE COVER OVER REINFORCEMENT SHALL BE AS FOLLOWS:
   A. SURFACES NOT EXPOSED DIRECTLY TO THE GROUND, WATER OR WEATHER AFTER FORM REMOVAL:
      CONCRETE SLABS - - - - - - - - - - - - - - - - - - 3/4"
      CONCRETE BEAMS, GIRDERS, COLUMNS AND WALLS - 1-1/2"
   B. SURFACES EXPOSED DIRECTLY TO THE GROUND, WATER OR WEATHER AFTER FORM REMOVAL:
      FOR #5 BARS OR SMALLER - - - - - - - - - - - - - 1-1/2"
      FOR #6 BARS OR LARGER - - - - - - - - - - - - - - 2"
      CONCRETE PLACED DIRECTLY AGAINST GROUND - - 3"
   C. REINFORCEMENT SHALL BE PLACED WITHIN A TOLERANCE OF ± 1/4" OF POSITION SPECIFIED.
9. KEYWAYS AND WATER STOP SHALL END 3" BELOW THE TOP OF WALLS, UNLESS THERE IS A SLAB ON TOP OF THE WALL, IN WHICH CASE IT SHALL END AT BOTTOM OF THE SLAB. IN JOINTS WHERE WATERSTOP TERMINATES AT ADJOINING SLAB OR WALL, WATERSTOP SHALL BE EMBEDDED IN ADJOINING SLAB OR WALL A MINIMUM OF 6".
10. CONCRETE CURING SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SOME CONCRETE WORK REQUIRES WATER CURING, AS MEMBRANE CURING IS NOT ALLOWED. THE CONTRACTOR IS WARNED THAT WATER CURING IS DIFFICULT AT TIMES DUE TO WIND AND DRY CONDITIONS. THE CONTRACTOR SHALL STUDY REQUIREMENTS AND SHALL FURNISH ADEQUATE SYSTEMS TO PROVIDE WATER CURING WHERE REQUIRED. TOP OF WALLS SHALL BE KEPT VISIBLY MOIST AT ALL TIMES AND SHALL BE FLOODED NOT LESS THAN THREE TIMES DAILY.
11. WATERSTOP SHALL BE PLACED IN ALL CONSTRUCTION, CONTRACTION, AND EXPANSION JOINTS IN ALL WATERBEARING SLABS AND WALLS, AND ALL WALLS AND SLABS SUBJECTED TO GROUNDWATER. WATERSTOP IN THE WALLS SHALL BE CARRIED INTO SLABS AND SHALL SPLICE THE WATERSTOP IN THE SLABS.
12. NO BACKFILL SHALL BE PLACED AGAINST WALLS UNTIL CONCRETE HAS REACHED FULL STRENGTH AND THE CONNECTING SLABS HAVE BEEN CAST AND HAVE REACHED FULL STRENGTH.

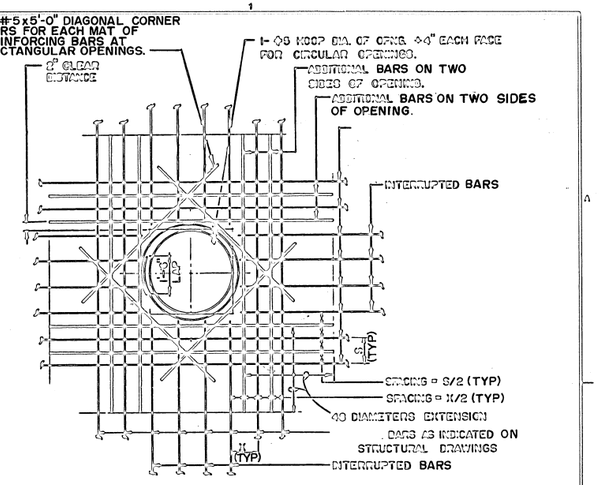
1 TYP — STRUCTURAL NOTES



20 TYP — CONSTRUCTION JOINT

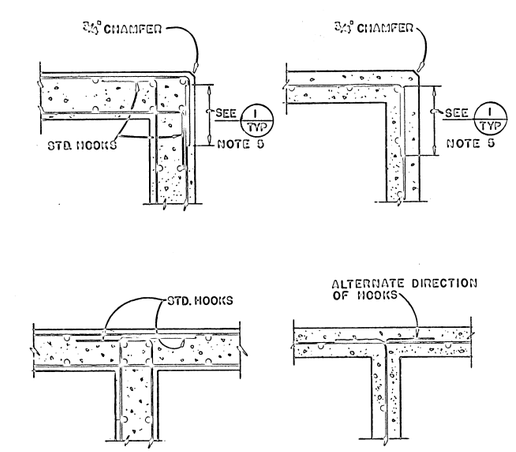


22 TYP — EXPANSION JOINT



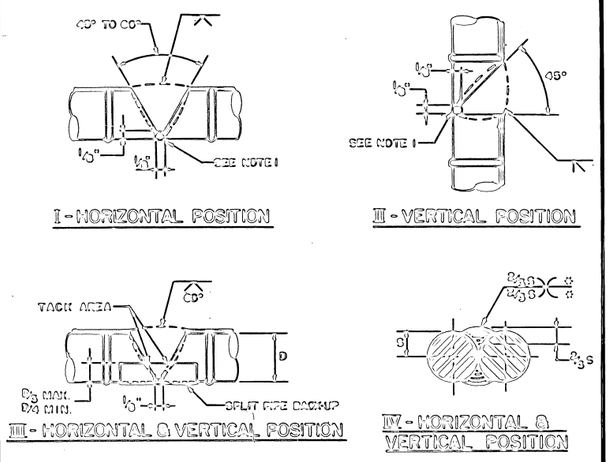
NOTES:
1. AREA OF ADDITIONAL BARS AT EACH EDGE OF OPENING, IN EACH DIRECTION, SHALL MATCH 1/2 THE CROSS SECTIONAL OF THE INTERRUPTED BARS.
2. PROVIDE STANDARD ACI HOOKS ON BARS IF STRAIGHT EXTENSION PAST THE OPENING CANNOT BE OBTAINED.
3. PLACE ADDITIONAL BARS IN SAME PLANES AS INDICATED REINFORCING.
4. PLACE Ø6 DIAGONAL BARS UNDER INDICATED REINFORCING FOR RECTANGULAR OPENING.
5. PLACE #5 HOOP UNDER INDICATED REINFORCING FOR CIRCULAR OPENING.

25 TYP — ADDITIONAL REINFORCING AT OPENINGS IN CONCRETE SLABS OR WALLS



NOTE:
HOOKS ARE ACI STANDARD HOOKS.

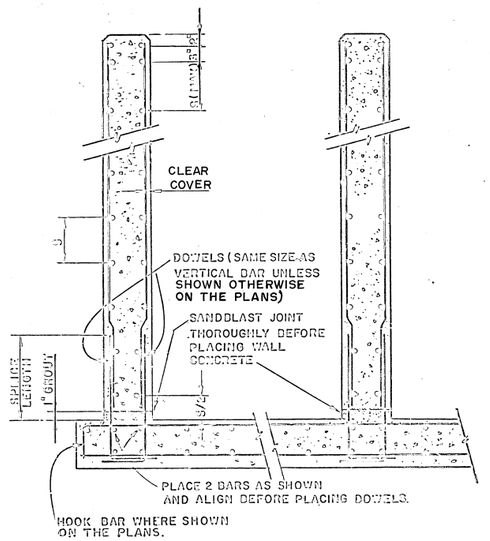
20 TYP — REINFORCEMENT AT ALL CORNERS AND JUNCTIONS



NOTES:
1. CHIP, GRIND, OR GOUGE TO SOUND METAL BEFORE WELDING OTHER SIDE.
2. USE DETAILS I & II FOR NO.9 AND LARGER BARS. USE DETAIL III FOR NO. 8 AND SMALLER BARS. USE DETAIL IV FOR NO. 6 AND SMALLER BARS.
3. E70 ELECTRODE FOR GRADE 40; E80 ELECTRODE FOR GRADE 60.
4. SEE AWS D1.4 FOR WELDING PROCESS, PREHEAT REQUIREMENTS, AND OTHER DETAILS.
5. ± 1½" FOR NO.3 AND NO.4 BARS, 2" FOR NO.6 BARS, AND 2½" FOR NO. 8 BARS.

20 TYP — WELDED SPLICE OF REINFORCING BARS

NOTE:
S = BAR SPACING SHOWN



23 TYP — WALL AND SLAB JOINT

REV.	DATE	BY	DESCRIPTION
	Nov 83	KF	As-Built

DESIGNED JCE | DRAWN JCE | CHECKED JCE | DATE FEB. 1983

APPROVED BY:
PARTNER Walter L. Howard RCE 14808 P.E. NO.
Steven H. Wasson M 18392 P.E. NO.
PROJECT ENGINEER
E.B.M.U.D.

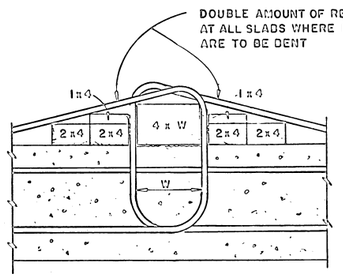
JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA | WALNUT CREEK CALIFORNIA | FOUNTAIN VALLEY CALIFORNIA | VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1900-1971)
H. HARVEY HUNT, P.E.
HOWARD H. WAY, P.E.
DONALD A. PREBOLEO, P.E.
GAIL P. LYNCH, P.E.
WALTER G. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST DAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
TYPICAL
REINFORCING AND CONCRETE DETAILS

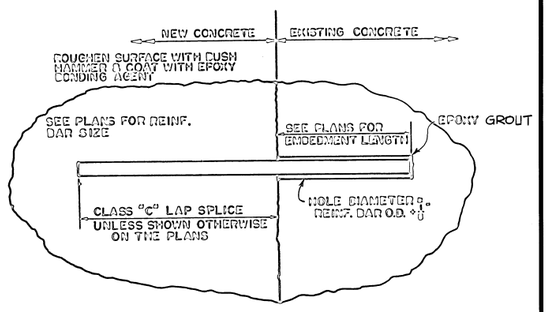
JOB NO. W 02401A12
DRAWING NO. JC-T-1
SHEET NO. 11 OF 106

A B C D E F G H J K L M N P Q R S U V W X Y Z



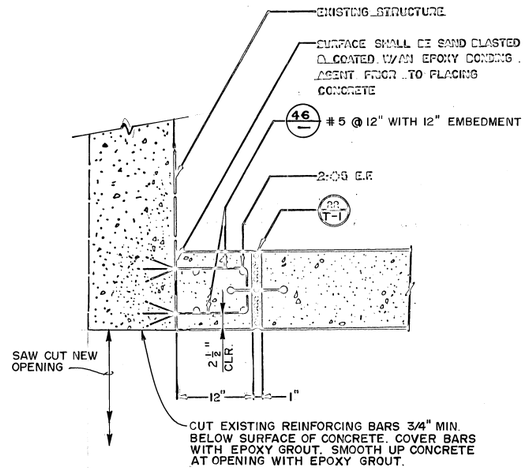
NOTES:
1. DETAIL REFERS ONLY TO SLABS ON GRADE.
2. DETAIL TO BE USED WHERE PERMITTED BY THE ENGINEER.

30 / TYP — TEMPORARY CROSSING OVER WALL DOWELS

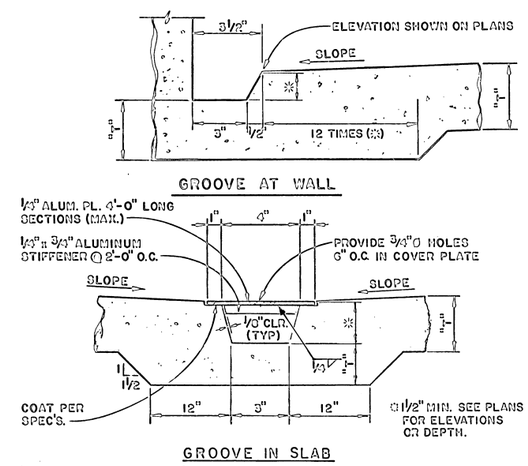


NOTES:
1. EPOXY SHALL BE MANUFACTURED BY ADHESIVE ENGINEERING CO., SIKA CHEMICAL CORP., OR EQUAL.
2. HOLES SHALL BE CLEAN AND DRY.
3. ALL MIXING, INSTALLING, AND CURING OF EPOXY SHALL CONFORM TO THE MANUFACTURER'S INSTRUCTIONS.
4. DRILL HOLES WITH IMPACT DRILL TO OBTAIN ROUGH HOLE SURFACE.

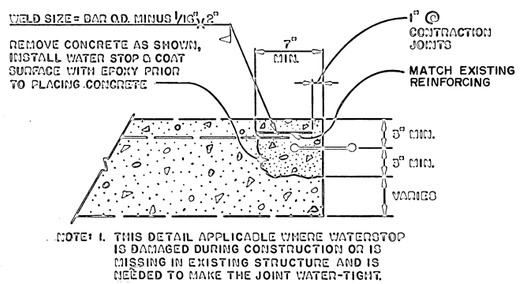
46 / TYP — EPOXY GROUTED REINFORCING BARS



40 / TYP — WALL ANCHORAGE TO EXISTING STRUCTURE

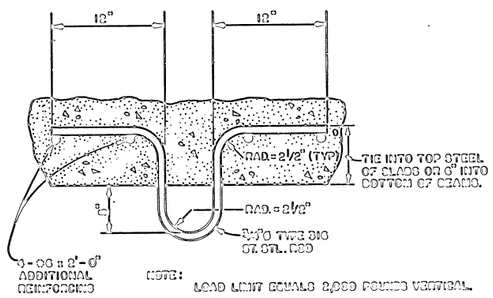


67 / TYP — DRAINAGE GROOVE



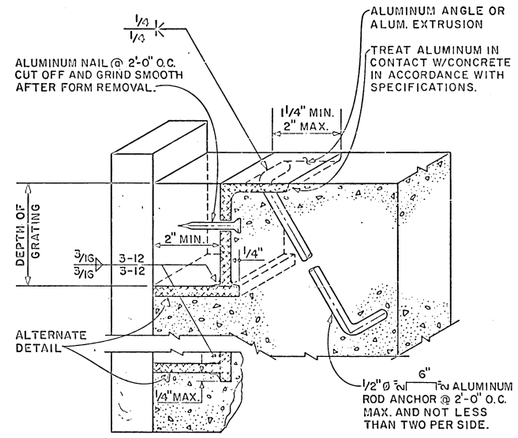
NOTE: 1. THIS DETAIL APPLICABLE WHERE WATERSTOP IS DAMAGED DURING CONSTRUCTION OR IS MISSING IN EXISTING STRUCTURE AND IS NEEDED TO MAKE THE JOINT WATER-TIGHT.
2. SEE PLANS FOR JOINT TYPE.

50 / TYP — WATERSTOP REPAIR



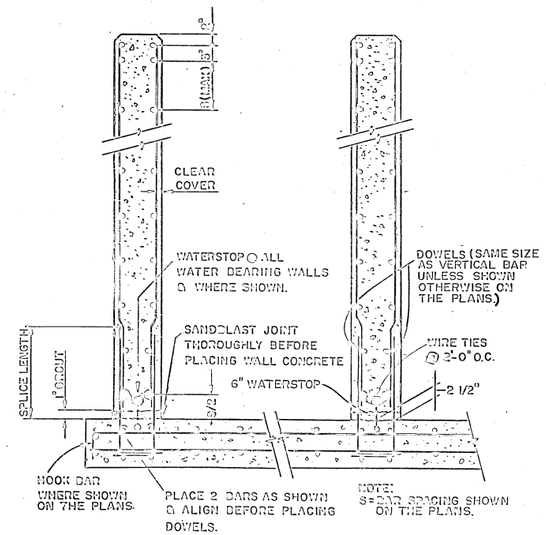
NOTE: LOAD LIMIT SHALL BE 2,000 POUNDS VERTICAL.

00 / TYP — LIFTING RING



NOTES
1. FOR GRATING SEE SPECIFICATIONS.
2. ANGLE REBATE TO BE CONTINUOUS AROUND ENTIRE OPENING.
3. ALUMINUM ANGLE AND BEARING PLATE SHALL BE 1/4" MIN. THICK.
4. REBATE MAY BE EXTRUDED, SUBJECT TO ENGINEER'S APPROVAL.
5. COAT ALL ALUM. IN CONTACT WITH CONCRETE PER SPECIFICATIONS

120 / TYP — GRATING REBATE



24 / TYP — WALL AND SLAB JOINT WITH WATERSTOP

REV.	DATE	BY	DESCRIPTION
1	Nov. 83	AS	As-Built

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

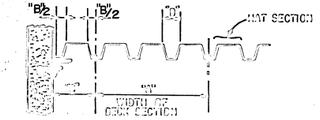
APPROVED BY:
Walter K. Howard — R.C.E. 14808 — P.E. NO.
Salwan W. Dason — M18392 — P.E. NO.
PROJECT ENGINEER
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1000-1071)
H. HARVEY HUNT, P.E.
RICHARD D. WAY, P.E.
DONALD A. PIRCHER, P.E.
GAIL P. LYNCH, P.E.
WALTER G. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KROPF, P.E.

EAST DAY MUNICIPAL UTILITY DISTRICT — EBMUD

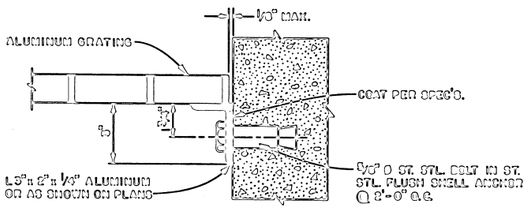
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-136
TYPICAL
CONCRETE JOINT AND REINFORCING DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-T-2
SHEET NO. 12 OF 106

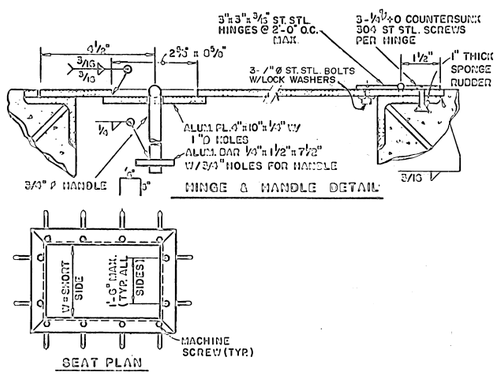


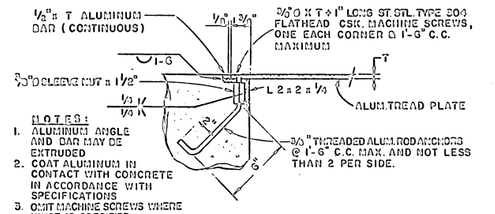
NOTES:
1. SIZE OF MAKE-UP SECTION SHALL BE THE SAME AS THE ROOF DECK SECTION SIZE AS NOTED ON THE PLANS.
2. IF "D" IS GREATER THAN 6.0 "in", THE MAKE-UP SECTION SHALL CONSIST OF THREE HAT SECTIONS. TWO HAT SECTIONS ARE REQUIRED WHEN "D" IS BETWEEN THREE INCHES AND SIX INCHES. ONE HAT SECTION IS REQUIRED WHEN "D" IS EQUAL TO OR LESS THAN 3.0".
3. SEE THE FRAMING PLAN FOR DECK WELDING.

07 TYP. ROOF DECK MAKE-UP SECTION



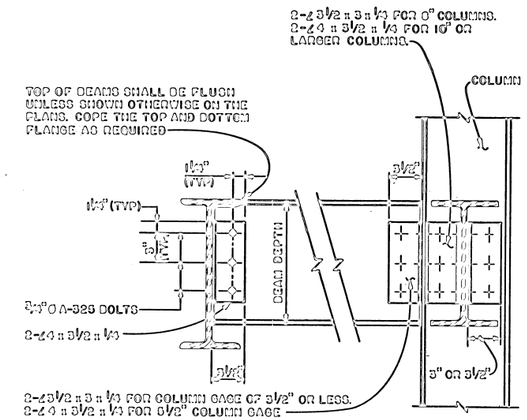
121 TYP. GRATING SEAT





NOTES:
1. ALUMINUM ANGLE AND BAR MAY BE EXTRUDED
2. COAT ALUMINUM IN CONTACT WITH CONCRETE IN ACCORDANCE WITH SPECIFICATIONS
3. OMIT MACHINE SCREWS WHERE HINGE IS SPECIFIED.
4. HINGE & HANDLE DETAIL SHALL APPLY WHERE SPECIFIED ON PLANS.

125 TYP. TREAD PLATE

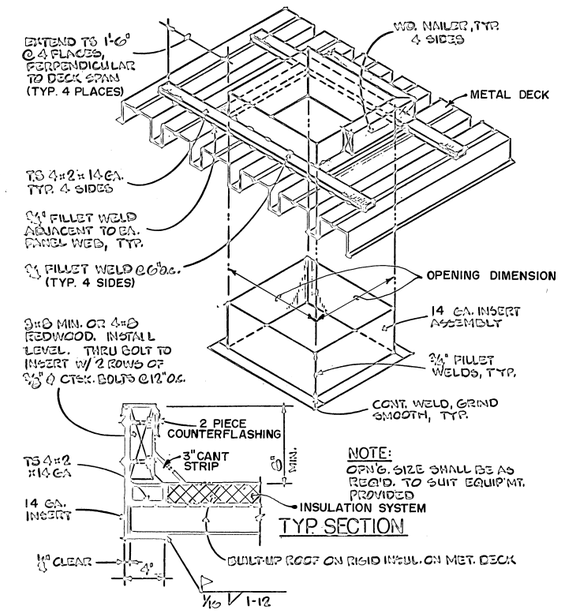


BEAM DEPTH	0 AND 10	12 THRU 16	18 THRU 21	24 THRU 30
NUMBER BOLTS PER LEG	2	3	4	6

NOTE:
SCHEDULE APPLIES TO ALL BEAMS UNLESS NUMBER OF BOLTS PER LEG IS SHOWN OTHERWISE ON FRAMING PLAN BY ⬡

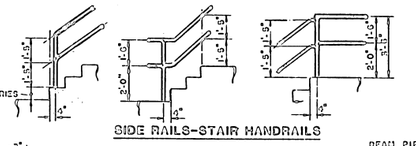
132 TYP. BOLTED CONNECTION

Note: CRC-19
Use 3x8 Redwood Nailer @ All Openings.

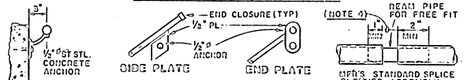


NOTE:
ORIG. SIZE SHALL BE AS REQ'D. TO SUIT EQUIP'MT. PROVIDED

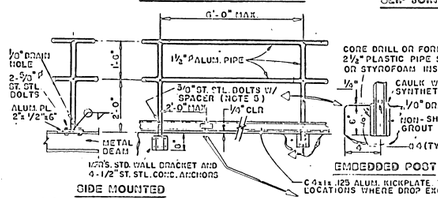
140 TYP. FRAMED ROOF OPENING ASSEMBLY (3" OR GREATER METAL DECK)



SIDE RAILS-STAIR HANDRAILS

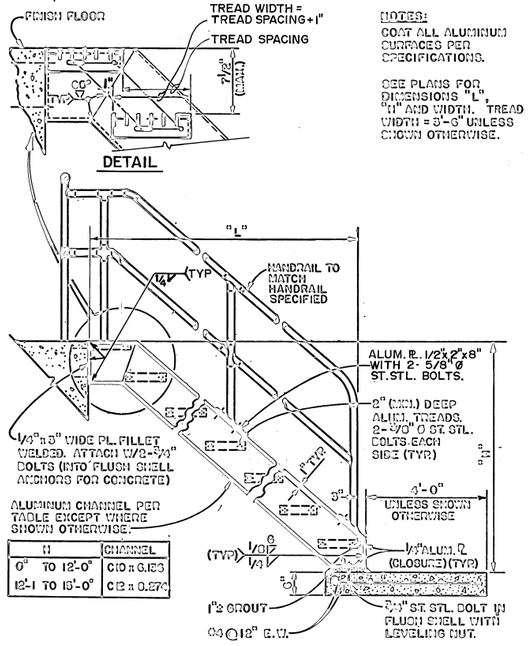


SINGLE RAIL BRACKETS



NOTES:
1. PLACE CENTER OF HANDRAIL 4" FROM EDGE OF CONCRETE UNLESS OTHERWISE NOTED.
2. PLACE HANDRAIL POSTS OPPOSITE EACH OTHER.
3. COAT ALL SURFACES OF ALUM. THAT COME IN CONTACT WITH CONCRETE IN ACCORDANCE WITH SPECIFICATIONS. PLACE NEOPRENE GASKET BETWEEN ALUM. AND STEEL.
4. PROVIDE SLIP JOINT AT 24' CENTERS FOR EXPANSION OF RAILS. GAP AT TIME OF INSTALLATION SHALL BE BASED ON TEMPERATURE (3/8" GAP AT T = 25°F, 0" GAP AT T = 125°F). AT CONCRETE EXP. JTS. PROVIDE 1" GAP IN SLIP JOINT.
5. BIRDPLATE MAY BE EXTRUDED OR BENT PLATE AND SHALL BE ATTACHED WITH ST. STL. BOLTS IN 1/2" HOLES. HAND TIGHTEN AND CENTER PUNCH BOLT TO LOCK. SPLICES TO ACCOMODATE TEMPERATURE EXPANSION OF 3/8". PROVIDE 1/4" CLEAR (MAX.) FROM SURFACE.
6. STAIR RAILS ALONG WALLS SHALL BE FASTENED WITH STANDARD WALL BRACKET AT 5'-0" O.C. MAXIMUM. END OF RAILS SHALL HAVE CLOSURES.
7. ALL HANDRAILS SHALL BE FIXED UNLESS OTHERWISE NOTED.
8. HANDRAILS ALONG WALLS SHALL BE SINGLE RAIL AT 2'-10" HEIGHT.

160 TYP. ALUMINUM HANDRAIL

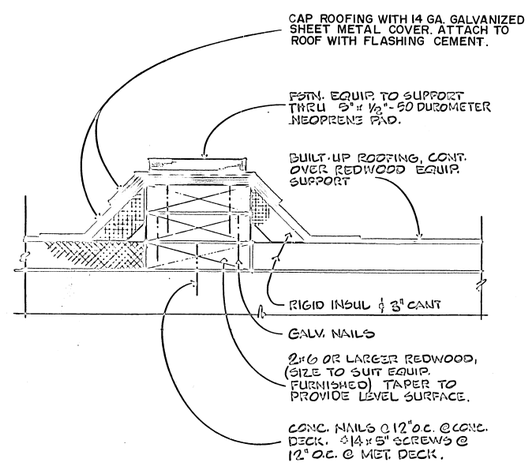


H	CHANNEL
0" TO 12'-0"	C10 x 6.163
12'-1 TO 15'-0"	C12 x 0.279

NOTES:
COAT ALL ALUMINUM SURFACES PER SPECIFICATIONS.

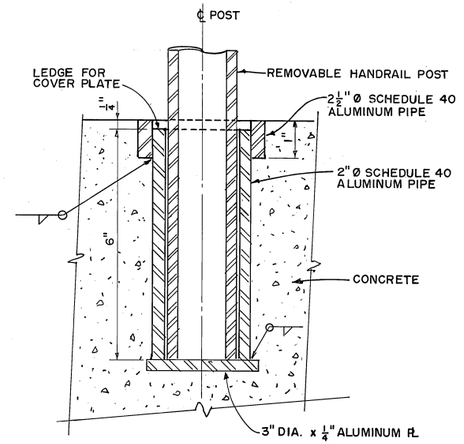
SEE PLANS FOR DIMENSIONS "L", "H" AND WIDTH. TREAD WIDTH = 3'-6" UNLESS SHOWN OTHERWISE.

153 TYP. ALUMINUM STAIRWAY



197 TYP. ROOF EQUIPMENT SUPPORT

Note: CRC-31
Surface Mounted Sockets Used in Lieu of Anchorage in Some Cases.



NOTES:
1. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE WITH ZINC CHROMATE AS SPECIFIED.
2. PROVIDE 1/4" ALUMINUM TREAD PLATE COVER FOR EACH REMOVABLE HANDRAIL POST ANCHORAGE.

155 TYP. REMOVABLE HANDRAIL POST ANCHORAGE

NO.	DATE	BY	DESCRIPTION
	NOV. 83	XX	As-Built

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATED FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard PCE 14408 P.E. NO.
PROJECT ENGINEER Salvatore N. Vasso M 18392 P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
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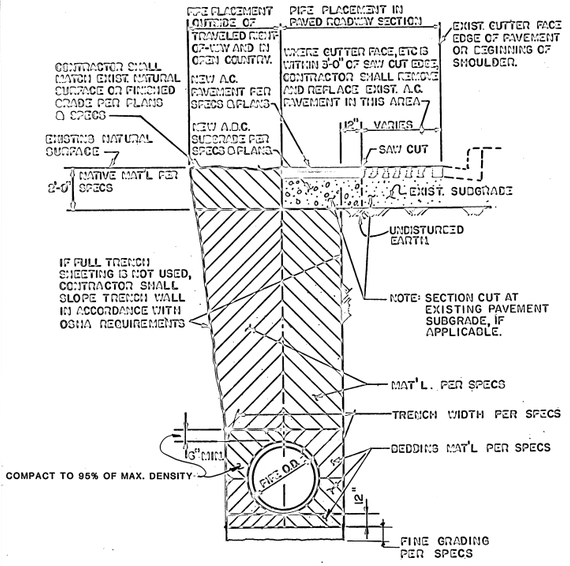
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
C. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

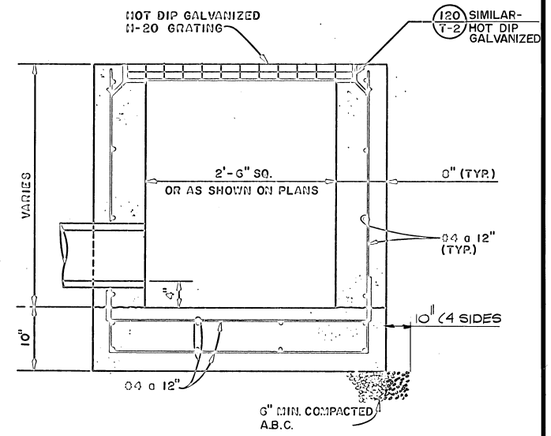
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION SPECIFICATION SD-135
TYPICAL
MISCELLANEOUS METAL DETAILS

JOB NO. W 02301A12
DRAWING NO. JC-T-3
SHEET NO. 13 OF 106

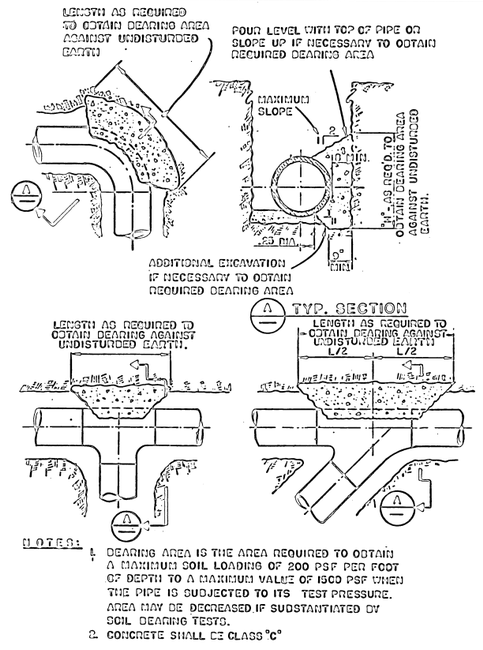
A B C D E F G H J K L M N P Q R S U V W X Y Z



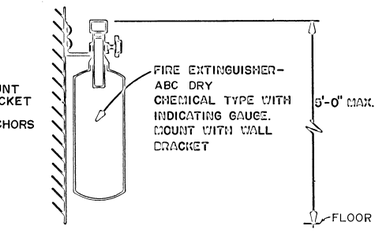
205 TYP — PIPE INSTALLATION AND PAVEMENT REPLACEMENT



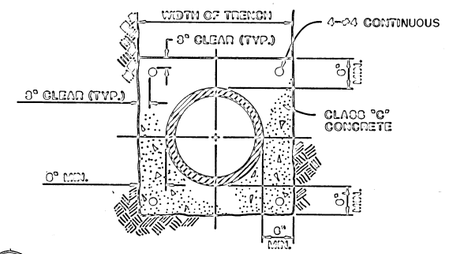
212 TYP — CATCH BASIN DETAIL



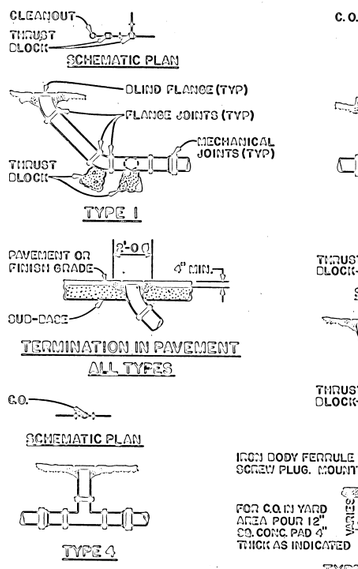
230 TYP — TYPICAL PIPE THRUST BLOCKING



302 TYP — FIRE EXTINGUISHER

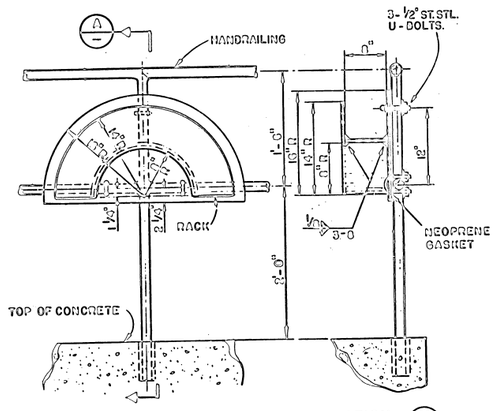


231 TYP — CONCRETE ENCASEMENT OF PIPE



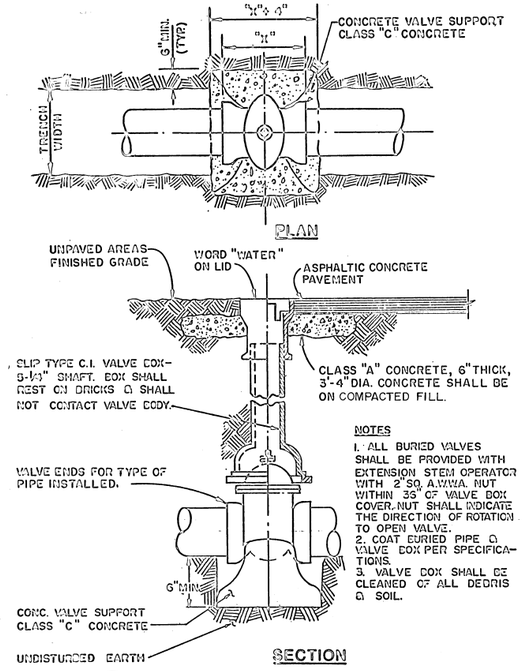
NOTES:
1. ALL THRUST BLOCKS SHALL BE PLACED PER TYPICAL DETAIL 230
2. CONCRETE RING SHALL BE PLACED AFTER PAVEMENT PLACEMENT.
3. ALL FLANGES CAST IN CONCRETE SHALL BE TAPPED TO ALLOW THE INSTALLATION OF BLIND FLANGES WITH CAP SCREWS.
4. CLEANOUT SAME SIZE AS PIPE DIAMETER.

295 TYP — CLEAN OUTS



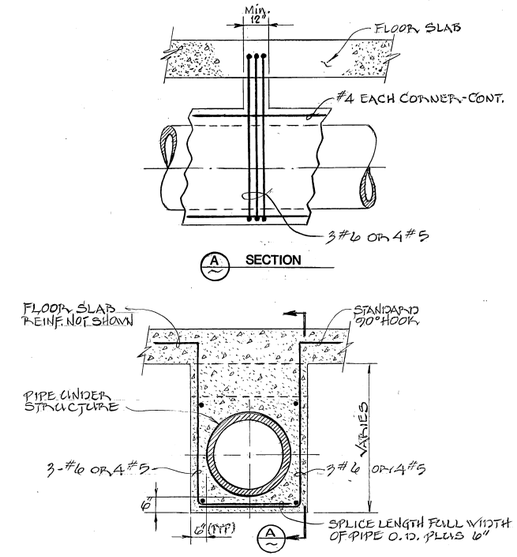
NOTES:
1. HOSE RACK SHALL BE FABRICATED FROM ½" ST. PL. ROUND ALL EDGES SMOOTH. HOT DIP GALV. AFTER FABRICATION PER ASTM A-153 2NIC COATING SHALL BE 2 OZ./SQ.FT.
2. WHERE HOSE RACK IS TO BE INSTALLED ON A POST, THE POST SHALL BE HOT DIP GALV. TS 3x3x.100 x 4'-0" AND SHALL BE SET IN CONCRETE 10" DIA. x 10" DEEP WELD CAP ON TOP OF POST
3. WALL MOUNTED HOSE RACK SHALL BE FASTENED WITH TWO 5/8" ST. STL. CONCRETE ANCHORS.

244 TYP — HOSE RACK



NOTES
1. ALL BURIED VALVES SHALL BE PROVIDED WITH EXTENSION STEM OPERATOR WITH 2" SQ. A.W.W.A. NUT WITHIN 3½" OF VALVE BOX COVER. NUT SHALL INDICATE THE DIRECTION OF ROTATION TO OPEN VALVE.
2. COAT BURIED PIPE & VALVE BOX PER SPECIFICATIONS.
3. VALVE BOX SHALL BE CLEANED OF ALL DEBRIS & SOIL.

266 TYP — VALVE BOX INSTALLATION



NOTE: COLD FIELD BENDS ARE PERMITTED FOR HOOK FOR THIS ADDITION ONLY.

232 TYP — PIPE SUPPORT UNDER SLABS

NO.	DATE	BY	DESCRIPTION

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

APPROVED BY:
PASTOR Walter D. Howard RCE 14408 P.E. NO.
PROJECT ENGINEER Salway L. Wason M18392 P.E. NO.
E.B.M.U.D.

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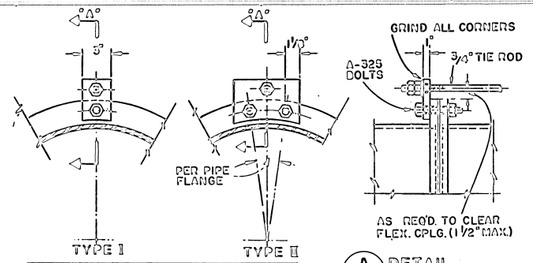
G. WILLIAM KNOPF, P.E.

EAST DAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
TYPICAL
PIPING DETAILS

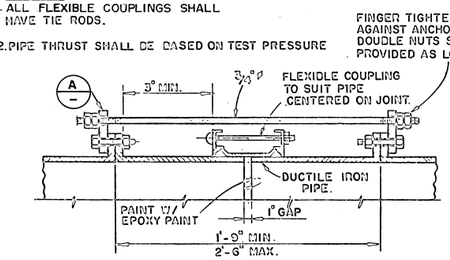
JOB NO. W 02401A12
DRAWING NO. JC-T-4
SHEET NO. 14 OF 106

A B C D E F G H J K L M N P Q R S U V W X Y Z

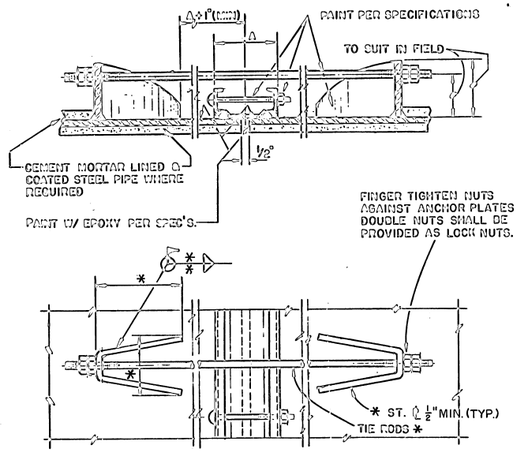


ROD SCHEDULE		
PIPE THRUST SEE NOTE 2	TYPE	NO. RODS
0 - 6000 #	I	2
6 000 - 12 000 #	II	2
12 000 - 18 000 #	II	3
18 000 - 24 000 #	II	4

NOTE:
1. ALL FLEXIBLE COUPLINGS SHALL HAVE TIE RODS.
2. PIPE THRUST SHALL BE BASED ON TEST PRESSURE

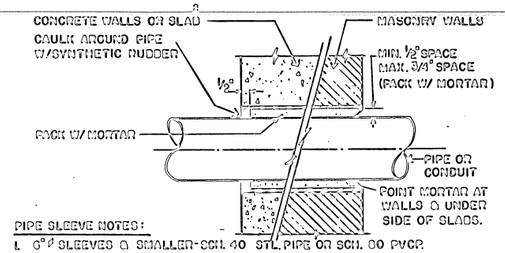


404 TYP — D.I.P. FLEXIBLE COUPLING TIE DOWN



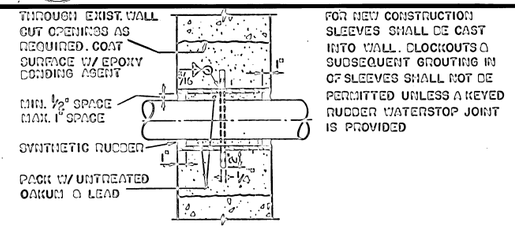
* NOTES:
1. ANCHOR LUGS AND TIE RODS SHALL BE DESIGNED BY PIPE MFR. IN ACCORDANCE WITH AWWA M11 STEEL PIPE MANUAL FOR PIPE TEST PRESSURE INDICATED IN SPECIFICATIONS.
2. GRIND ALL CORNERS.
3. ALL FLEXIBLE COUPLINGS SHALL HAVE TIE RODS.

STEEL PIPE
406 TYP — FLEXIBLE COUPLING TIE DOWN



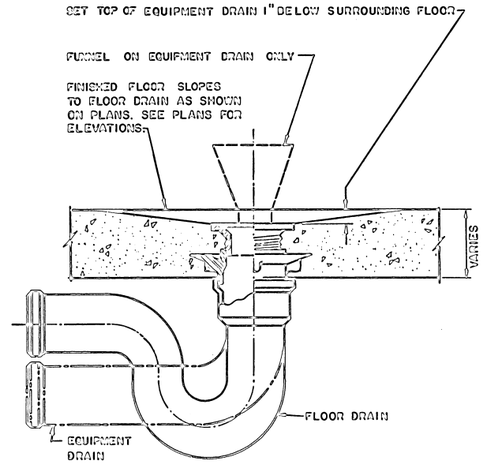
PIPE SLEEVE NOTES:
1. 6"ø SLEEVES & SMALLER-SCH. 40 STL. PIPE OR SCH. 80 PVCP.
2. 8"ø SLEEVES & LARGER-.25 THICK STL. PIPE
3. STL. PIPE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION
4. SLEEVE MAY BE OMITTED IF HOLE IS CORE DRILLED.

424 TYP — SLEEVE INSTALLATION THROUGH DRY WALLS & FLOOR SLABS



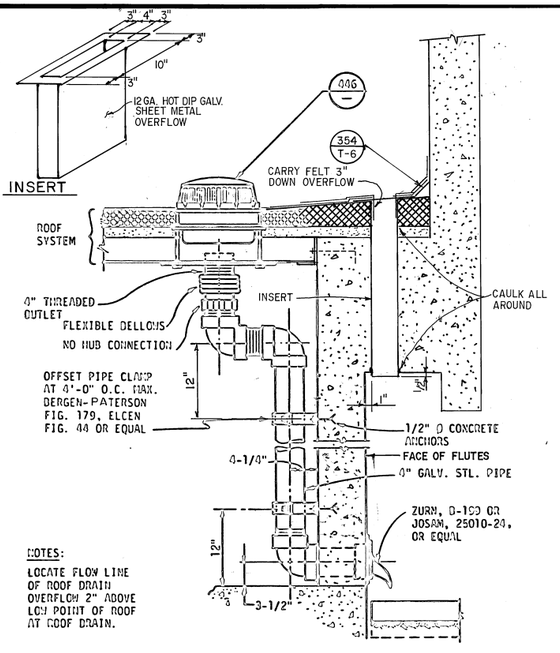
PIPE SLEEVE NOTES:
1. 6"ø SLEEVES & SMALLER SHALL BE SCH. 40 STL. PIPE OR SCH. 80 PVCP.
2. 8"ø SLEEVES & LARGER-SHALL BE .25 THICK STL. PIPE.
3. STL. PIPE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION
4. NEOPRENE LINK SEAL W/S.S. BOLTS MAY BE SUBSTITUTED FOR OAKUM & SYN. RUBBER SEAL.

425 TYP — SLEEVE INSTALLATION THROUGH WALLS & FLOOR SLABS (WATER BEARING)



NOTES:
1. TRAP IS REQUIRED WHEN DRAINING INTO SANITARY SEWER, PITS, AND LOCATIONS WHERE DISCHARGE IS ABOVE WATER LEVEL (UNLESS NOTED).
2. PROVIDE 12" RADIUS SLOPE TO EQUIPMENT DRAINS WHERE FLOOR DOES NOT SLOPE TO DRAIN.
3. EQUIPMENT DRAINS FOR SLOP OIL DRAINAGE SYSTEM SHALL NOT HAVE FLOOR DRAIN INLET.

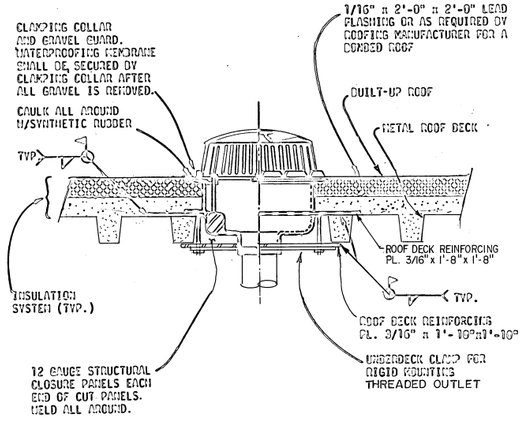
440 TYP — FLOOR DRAIN(F.D.) or EQUIPMENT DRAIN(E.D.)



NOTES:
LOCATE FLOW LINE OF ROOF DRAIN OVERFLOW 2" ABOVE LOW POINT OF ROOF AT ROOF DRAIN.

344 TYP — ROOF DRAIN SYSTEM

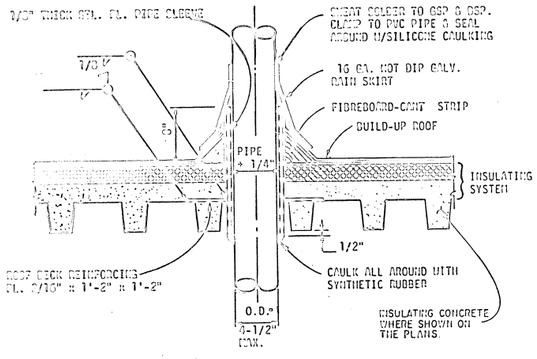
CRC ~ Put 3½" Board w/ 2" Board on Electric Room Roof



NOTE:
ROOF DRAIN SHALL BE ZURN Z-100 ERC, JOSAM 21500-3-10-20, OR EQUAL.

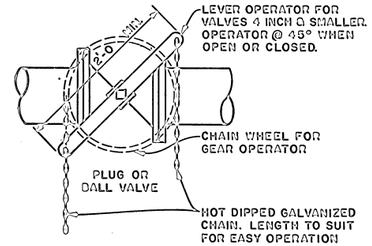
446 TYP — ROOF DRAIN

See CRC - 27

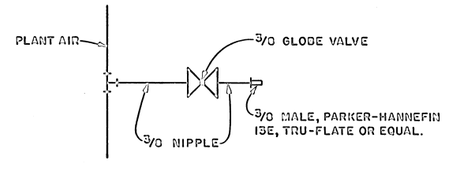


NOTES:
1. LOCATE PIPE BETWEEN WEBS ONLY. FOR INSTALLATIONS WHERE WEB IS CUT, THE CONSTRUCTION SHALL BE PER TYPICAL DETAIL 340 ON T-3 WITH SHIM SKIRT.
2. SLEEVE LENGTH VARIES WITH INSULATION SYSTEM THICKNESS.

450 TYP — PIPE THROUGH ROOF INSTALLATION



472 TYP — CHAIN OPERATOR



475 TYP — AIR TOOL CONNECTOR

NO.	DATE	BY	DESCRIPTION
	DEC. 83	JCE	As-Built

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

APPROVED BY:
Walter R. Howard RCE 14604
PAINTER P.C. NO.
Sal Wen W Wong M18392
PROJECT ENGINEER P.C. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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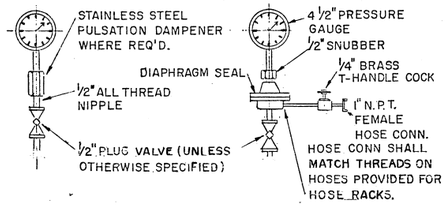
G. WILLIAM KROPF, P.E.

EAST DAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
TYPICAL
PIPING DETAILS

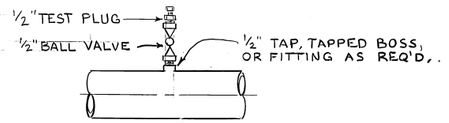
JOB NO. W 02401A12
DRAWING NO. JC-T-5
SHEET NO. 15 OF 106

A B C D E F G H J K L M N P Q R S U V W X Y Z



TYPE A-1 TYPE A-2

479 TYP PERMANENT PRESSURE GAUGE



TYPE "B"

482 TYP PRESSURE TEST PLUG

MARK	LOCATION	SERVICE	PRESSURE GAUGE TYPE	PULSATION DAMPENER REQUIRED		RANGE		
				YES	NO	P.S.I.G.	FT. OF WATER	INCHES MERCURY
1	BASKET TYPE STRAINER	NO. 3 WATER	A-2		✓	0-100		
2	AIR COMPRESSOR DISCHARGE	HP AIR	A-1	✓		0-300		
3	DIGESTER GAS PRESSURE @ ENGINES	DIGESTER GAS	A-2		✓	0-100		
4	DUPLEX FUEL-OIL STRAINER	NO. 2 DIESEL	A-1	✓		0-100		
5	DUPLEX FUEL-OIL FILTER	NO. 2 DIESEL	A-1	✓		0-100		
6	DIGESTER GAS SURGE TANK	DIGESTER GAS	A-2		✓	0-100		

NOTE: PRESSURE TEST PLUG (TYPE B) SHALL BE PROVIDED AS SPECIFIED.

481 TYP PRESSURE GAUGE SCHEDULE

MARK	LOCATION	SERVICE	TEMPERATURE RANGE	REMARKS
1	WASTE HEAT EXCHANGER - IN	HOT WATER	30°F-240°F	SEPARABLE SOCKET W/ EXTENSION NECK
2	WASTE HEAT EXCHANGER - OUT	HOT WATER	"	"
3	WASTE HEAT EXCHANGER - IN	NO. 3 COOLING WATER	30°F-180°F	"
4	WASTE HEAT EXCHANGER - OUT	"	"	"
5	LUBE OIL COOLER - OUT	HOT WATER	30°F-240°F	"
6	LUBE OIL COOLER - IN	LUBE OIL	"	"
7	LUBE OIL COOLER - OUT	"	"	"
8	JACKET WATER HEAT EXCHANGER - OUT	HOT WATER	"	"
9	JACKET WATER HEAT EXCHANGER - IN	JACKET WATER	"	"
10	JACKET WATER HEAT EXCHANGER - OUT	"	"	"
11	EXHAUST HEAT RECOVERY - OUT	HOT WATER	30°F-300°F	"
12	DIGESTER GAS AT ENGINE	DIGESTER GAS	30°F-240°F	"
13	VAPORIZER - IN	HOT WATER	30°F-180°F	"
14	VAPORIZER - OUT	"	"	"
15	UNIT SPACE HEATERS IN & OUT	"	"	"

478 TYP THERMOMETER SCHEDULE

STRUCTURE	FINAL FINISH (SEE SPEC. 030610)				
	EXTERIOR WALLS EXPOSED TO VIEW	INTERIOR WALLS EXPOSED TO VIEW	INTERIOR WALLS EXPOSED TO WATER	SLABS & SLOPING SURFACES	CEILINGS
POWER GENERATION BLDG	F-5**	F-4		S-4	F-3
YARD STRUCTURES	F-3	F-3	F-2*		
SIDEWALKS				S-4	
AIR INTAKE PLENUM		F-2		S-4	
BUILDING BASEMENT & TUNNEL	F-4	F-3*		S-4	F-3

* CONCRETE REQUIRING COATINGS SHALL RECEIVE F-4 FINISH.
** DOES NOT INCLUDE FLUTED CONCRETE AREAS.

18 TYP CONCRETE FINISH SCHEDULE

REV.	DATE	BY	DESCRIPTION
	DEC. 89	JC	As-Built

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard RCE 6008 P.E. NO.
PROJECT ENGINEER Salwan H. Wasfi M18392 P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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HOWARD M. WAY, P.E.
DONALD R. PREISLER, P.E.
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

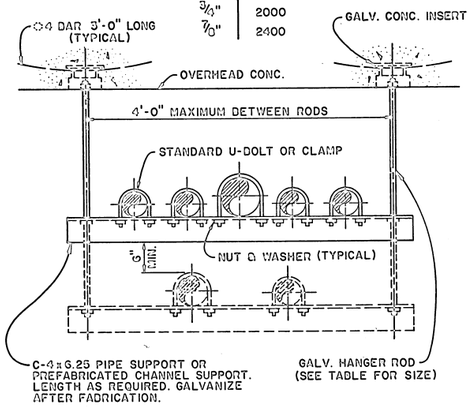
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
TYPICAL
PRESSURE GAUGE AND TEMPERATURE GAUGE SCHEDULES

JOB NO. W 02401A12
DRAWING NO. JC-T-6
SHEET NO. 16 OF 106

A B C D

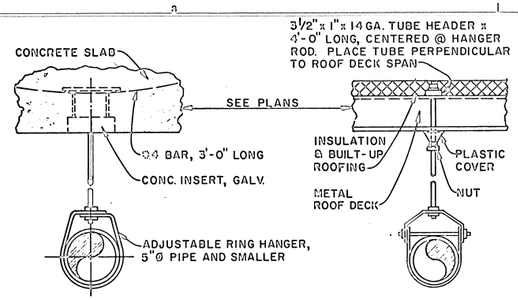
ABCDEFGHJKLMNPQRSUVWXYZ

DIA.	LOAD
1/2"	1150
5/8"	1550
3/4"	2000
7/8"	2400



NOTES:
1. WRAP COPPER PIPE WITH INSULATING TAPE UNDER U-BOLT.
2. HANGER SPACING AS SHOWN OR REQUIRED.
3. ALL THREAD ROD WILL BE ALLOWED ONLY ON DOUBLE HANGER.
4. USE 2" MAX. DIAMETER PIPE.

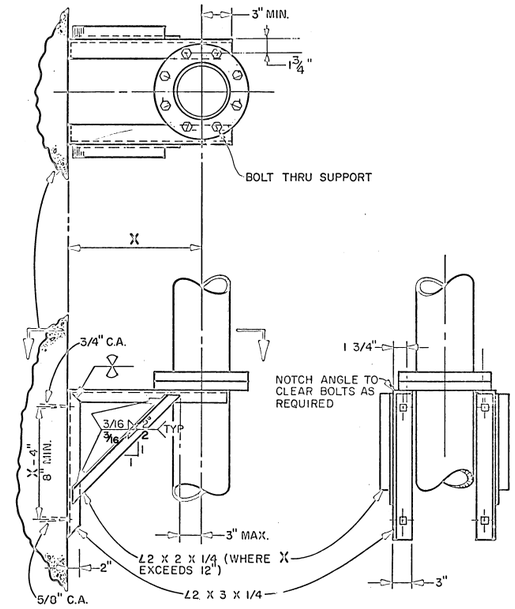
502 TYP — DOUBLE ROD PIPE HANGER



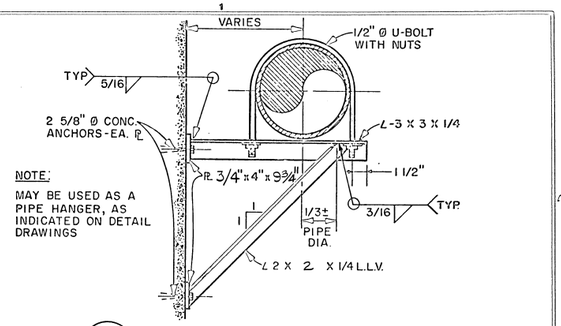
PIPE HANGER RODS AND SUPPORT SPACING			
PIPE DIA. (INCHES)	ROD DIA. (INCHES)	MAX. SUPPORT SPACING	
		STEEL PIPE	CAST IRON
3/4 & SMALLER	3/8	5 FEET	—
1 TO 2	3/8	5 FEET	5 FEET
2 1/2 TO 3 1/2	1/2	10 FEET	5 FEET
4 TO 5	5/8	10 FEET	5 FEET
6	3/4	10 FEET	5 FEET
8	7/8	10 FEET	5 FEET

NOTES:
1. USE THIS SUPPORT ONLY FOR PIPING SUSPENDED 12 INCHES OR LESS IN LENGTH FROM TOP OF PIPE TO BOTTOM OF HANGER SUPPORT
2. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION.
3. INSULATE ALL COPPER PIPE WITH PVC TAPE OR NEOPRENE WASHERS.

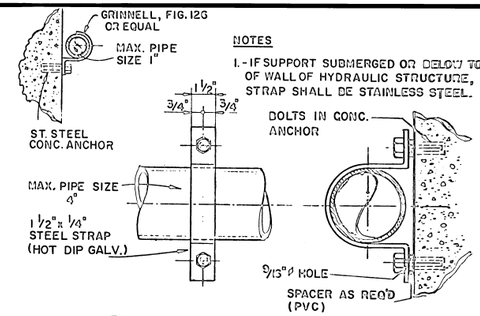
503 TYP — PIPE HANGER



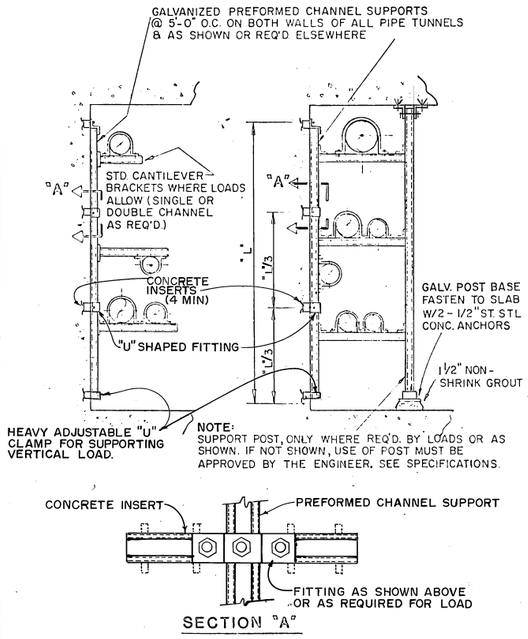
508 TYP — PIPE SUPPORT



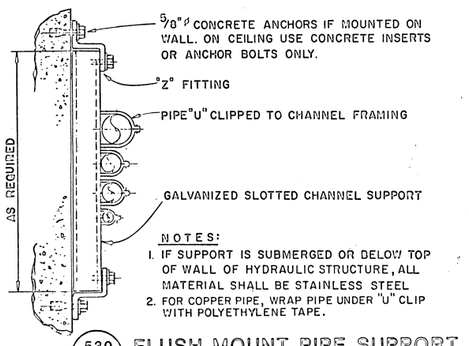
510 TYP — PIPE SUPPORT



513 TYP — STD. PIPE SUPPORT

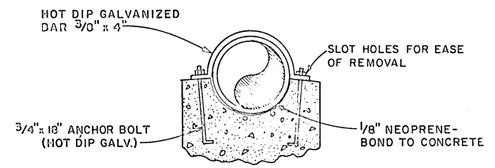


524 TYP — PREFORMED CHANNEL PIPE SUPPORT

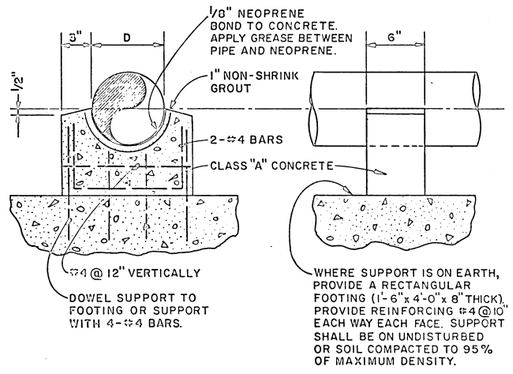


NOTES:
1. IF SUPPORT IS SUBMERGED OR BELOW TOP OF WALL OF HYDRAULIC STRUCTURE, ALL MATERIAL SHALL BE STAINLESS STEEL
2. FOR COPPER PIPE, WRAP PIPE UNDER "U" CLIP WITH POLYETHYLENE TAPE.

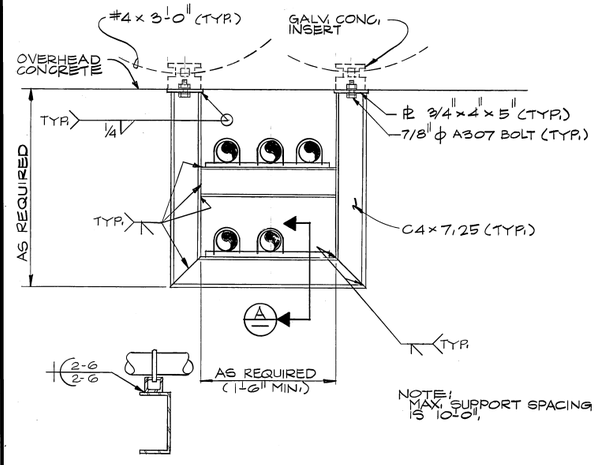
530 TYP — FLUSH MOUNT PIPE SUPPORT



STRAP DETAIL- WHEN INDICATED



541 TYP — CONCRETE PIPE SUPPORT



A SECTION

519 TYP — PIPE SUPPORT FRAME

NOTE:
PIPE SUPPORTS & HANGERS SHOWN ON DRAWINGS ARE REPRESENTATIVE ONLY. ADDITIONAL SUPPORTS WILL BE NEEDED. SEE SPECIFICATIONS FOR PIPE SUPPORT REQUIREMENTS.

REV.	DATE	BY	DESCRIPTION
	DEC 83	K	As-Built

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

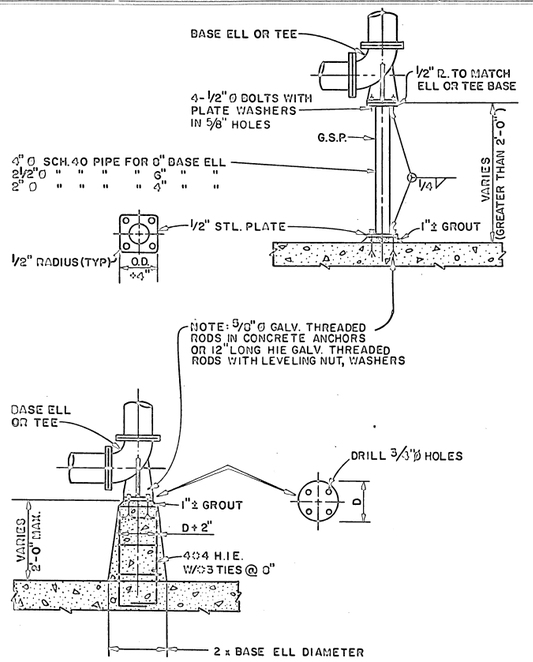
APPROVED BY:
PARTNER Walter L. Howard RCE 14804 P.E. NO.
PROJECT ENGINEER Salvatore L. Cassella M 18392 P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA — WALNUT CREEK CALIFORNIA — FOUNTAIN VALLEY CALIFORNIA — VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1900-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD O. PISCHOLGN, P.E.
GAIL P. LYNCH, P.E.
WALTER G. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST DAY MUNICIPAL UTILITY DISTRICT — EBMUD

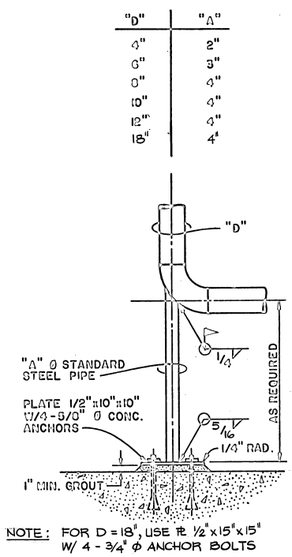
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
TYPICAL
PIPE SUPPORT DETAILS

ESS NO. W 02401A12
DRAWING NO. JC-T-7
SHEET NO. 17 OF 106



542 TYP — PIPE SUPPORT-BASE ELL OR TEE

"D"	"A"
4"	2"
6"	3"
8"	4"
10"	4"
12"	4"
18"	4"

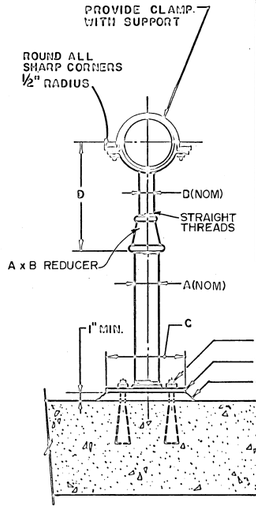


NOTE: FOR D = 18", USE PL 1/2"x15"x15" W/ 4 - 3/4" ϕ ANCHOR BOLTS

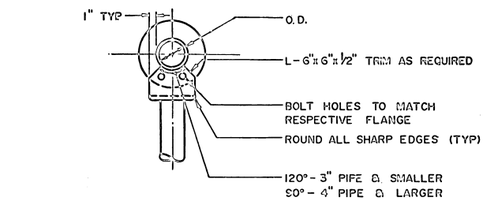
544 TYP — STEEL PIPE SUPPORT

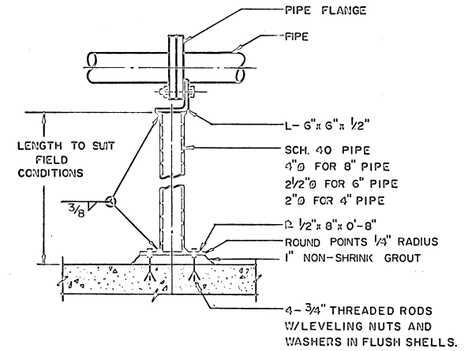
PIPE SIZE	A	B	C	D MINIMUM	D MAXIMUM
2½	2½	1½	9	0	13
3	2½	1½	9	0 ½	13½
3½	2½	1½	9	0 ½	13½
4	3	2½	9	9½	14
6	3	2½	9	10½	15½
8	3	2½	9	11½	16½
10	3	2½	9	13½	10½
12	3	2½	9	15	19½
14	4	3	11	16½	20½
16	4	3	11	17½	22½
18	6	3½	13½	19½	24
20	6	3½	13½	21	25½
24	6	4	13½	23½	20½
30	6	4	13½	27	31½
32	6	4	13½	28½	32½
36	6	4	13½	30½	34½

ADJUSTABLE PIPE SADDLE SUPPORT SCHEDULE
DIMENSIONS IN INCHES

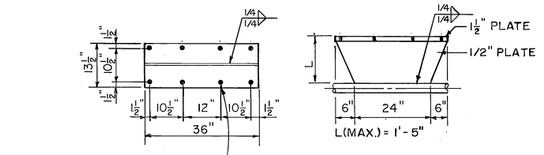


546 TYP — ADJUSTABLE PIPE SUPPORT

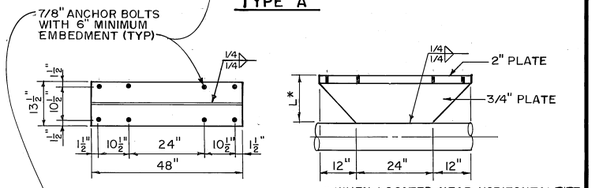




548 TYP — PIPE SUPPORT

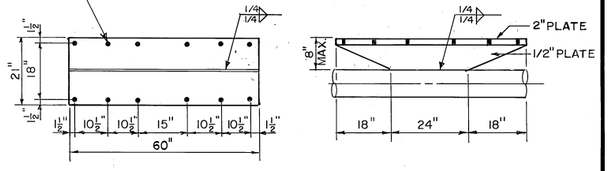


TYPE A



* WHEN LOCATED NEAR HORIZONTAL PIPE BEND, L(MAX.) = 1'-5". OTHERWISE L(MAX.) = 2'-5".

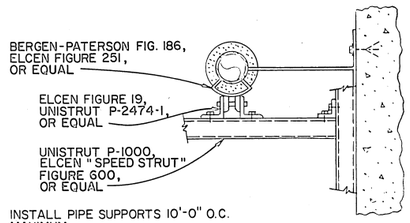
TYPE B



TYPE C

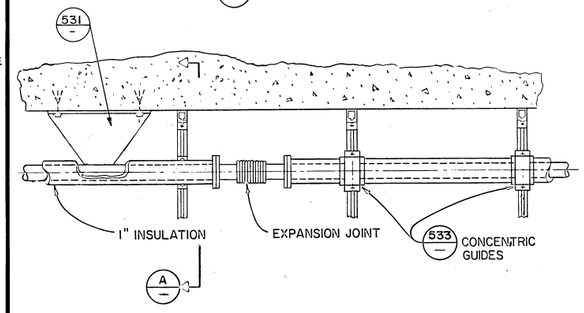
NOTE: MINIMUM EDGE DISTANCE REQUIRED FOR ANCHORS WHERE APPLICABLE.

531 TYP — HOT WATER PIPE ANCHOR

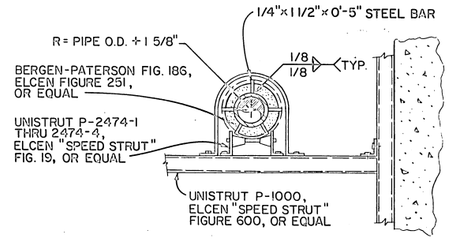


INSTALL PIPE SUPPORTS 10'-0" O.C. MAXIMUM

A — SECTION



532 TYP — PLAN-HOT WATER PIPE SUPPORT



533 TYP — CONCENTRIC GUIDE

NOTE:
PIPE SUPPORTS & HANGERS SHOWN ON DRAWINGS ARE REPRESENTATIVE ONLY. ADDITIONAL SUPPORTS WILL BE NEEDED. SEE SPECIFICATIONS FOR PIPE SUPPORT REQUIREMENTS.

NO.	DATE	BY	DESCRIPTION
	DEC 83	JC	As-Built

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

APPROVED BY:
PARTNER Walter N. Howard RCE 14408 P.E. NO.
PROJECT ENGINEER Sallyann L. Wasen M 18392 P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1000-1071)
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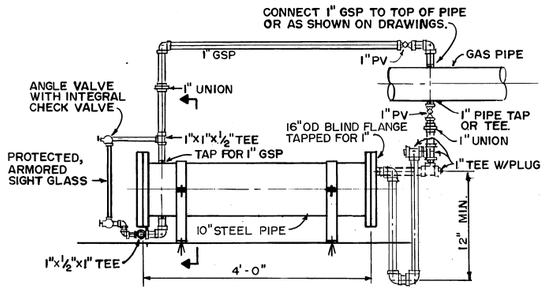
HOWARD N. WAY, P.E.
DONALD A. PRESCOTT, P.E.
GAIL P. LYNCH, P.E.
WALTER G. HOWARD, P.E.
J. DAVID COLEMAN, P.E.
G. WILLIAM KROPF, P.E.

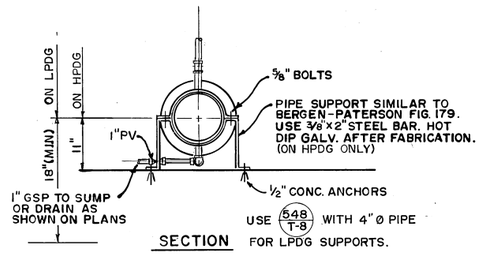
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
TYPICAL
PIPE SUPPORT DETAILS

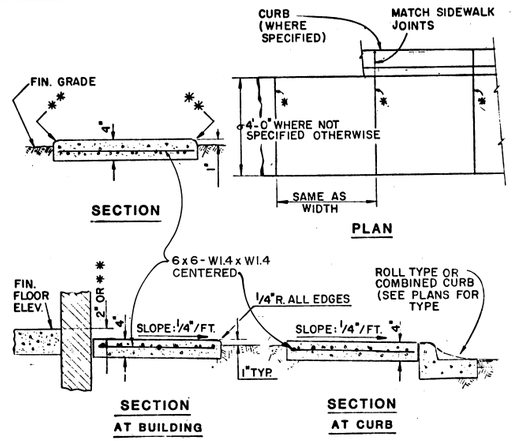
JOB NO. W 02401A12
DRAWING NO. JC-T-8
SHEET NO. 18 OF 106

A B C D E F G H J K L M N P Q R S U V W X Y Z





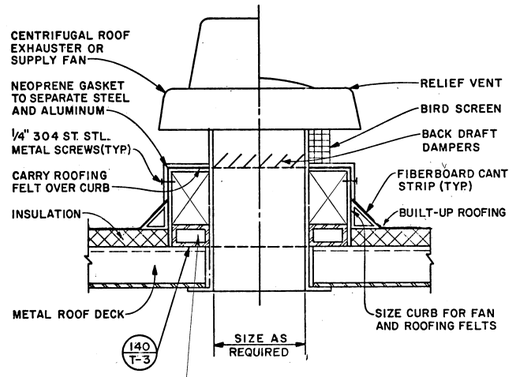
297 TYP **DRIP TRAP**



GENERAL NOTES:

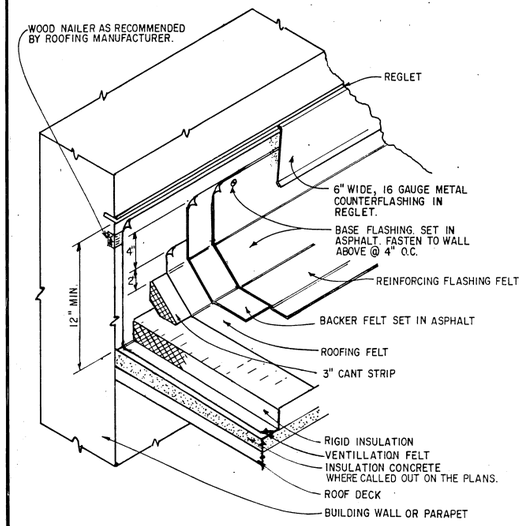
* JOINTS
  1. EXPANSION JOINTS - 3/4" THICK - CONSTRUCT AT THE END OF DAY'S WORK, AT POINTS OF CURVATURE, AND AT ADJOINING STRUCTURES. MAXIMUM SPACING BETWEEN EXPANSION JOINTS NOT TO EXCEED 100 LINEAR FEET.
  2. CONTRACTION JOINTS - MAXIMUM SPACING 15 LINEAR FEET. JOINT MAY BE FORMED BY STEEL DIVIDERS, SCORING OR SAW CUTTING TO A DEPTH NOT LESS THAN 1 1/2 INCHES.
  3. SCORED JOINTS - LOCATE BETWEEN CONTRACTION JOINTS AT A SPACING EQUAL TO THE WIDTH OF THE SIDEWALK DEPTH TO BE 1 1/2"
* * ELEVATIONS - SHALL BE AS SHOWN ON PLANS.

340 TYP **SIDEWALK**

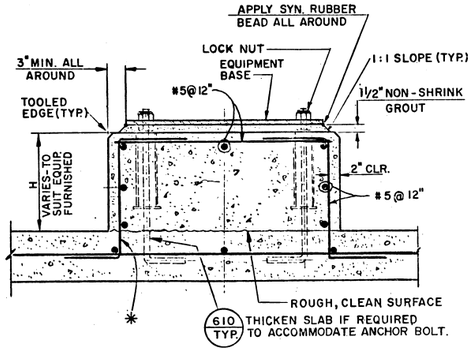


CRC #19
Use Redwood Curb Nailer instead Steel

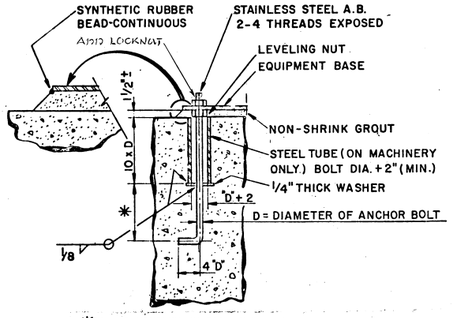
560 TYP **RELIEF, EXHAUST AND SUPPLY VENT DETAIL**



354 TYP **FLASHING AT PARAPET**

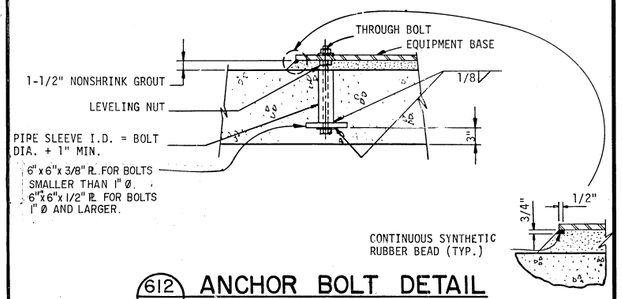


600 TYP **EQUIPMENT BASE**



*10 x D MINIMUM UNLESS LENGTH IS INDICATED ON THE PLANS. IF ANCHOR BOLT SIZE AND LENGTH ARE NOT SHOWN ON THE PLANS, ANCHOR BOLTS SHALL BE AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER. WHERE ANCHOR BOLT DEPTH CANNOT BE PROVIDED BECAUSE OF CONCRETE SLAB OR BEAM THICKNESS, PROVIDE EXTRA THICKNESS OF SLAB OR BEAM TO ACCOMMODATE ANCHOR BOLT OR USE ANCHOR BOLT DETAIL 612.

610 TYP **ANCHOR BOLT DETAIL**



612 TYP **ANCHOR BOLT DETAIL**

REV.	DATE	BY	DESCRIPTION
	DEC 85	KW	As-Built

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

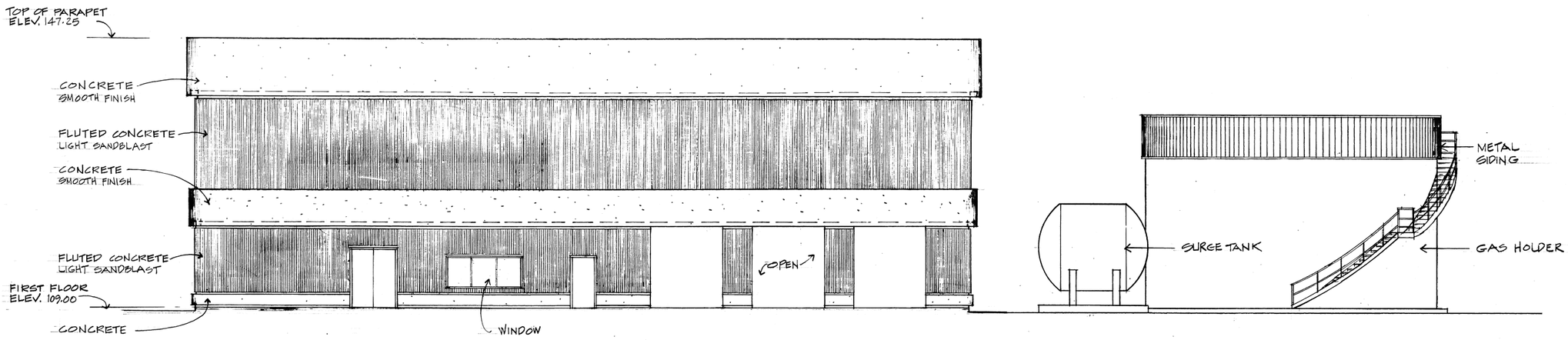
APPROVED BY:
PARTNER Walter R. Howard P.E. NO. M18392
PROJECT ENGINEER Sullivan H. Way P.E. NO. M18392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD R. PREIBLER, P.E.
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT

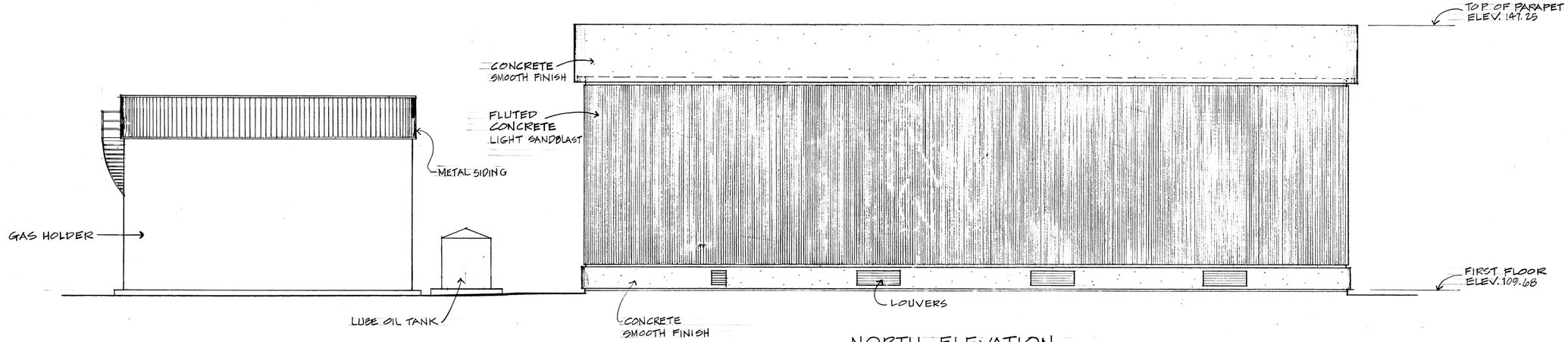
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
TYPICAL
MISCELLANEOUS DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-T-9
SHEET NO. 19 of 106



SOUTH ELEVATION

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



NORTH ELEVATION

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

WILLIE ALEXANDER BELL, A.I.A.
ARCHITECT (916) 454-5562

REV.	DATE	BY	DESCRIPTION
	DEC 83	AV	AS-BUILT

DESIGNED WAB
DRAWN T.U.
CHECKED W.B.
DATE FEB. 1983

APPROVED BY:
PARTNER RLE/14808 P.E. NO.
PROJECT ENGINEER M 18392 P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

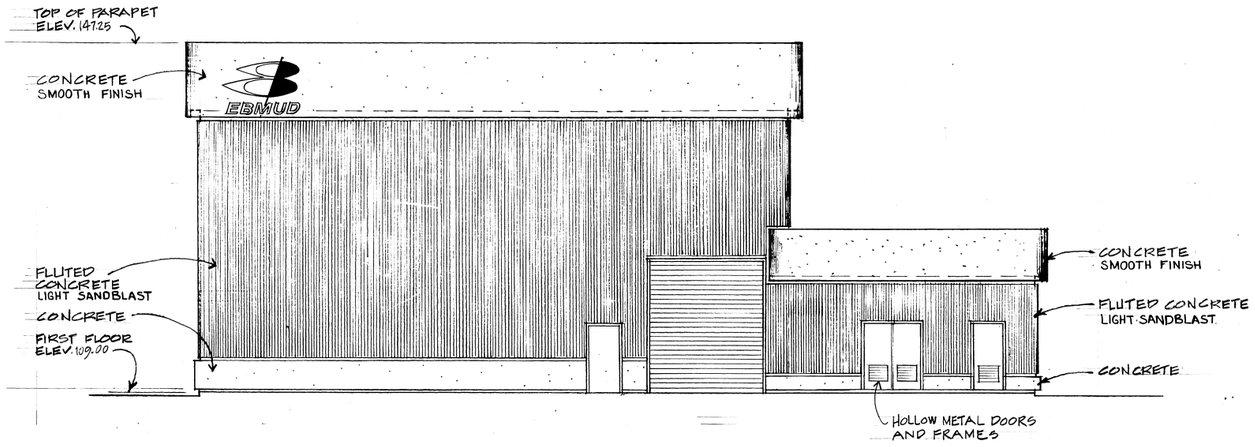
JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD R. PREISLER, P.E.
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ARCHITECTURAL
EXTERIOR ELEVATIONS

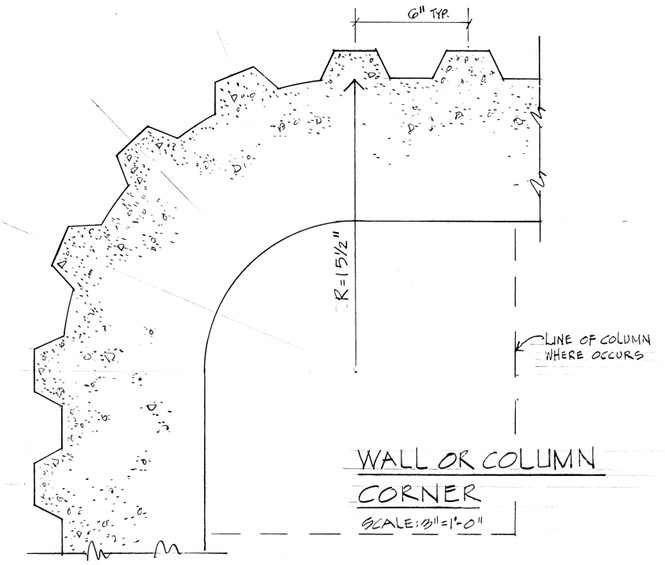
JOB NO. W 02401A12
DRAWING NO. JC-A-1
SHEET NO. 20 OF 106

ABCDEFGHJKLMNPQRSUVWXYZ



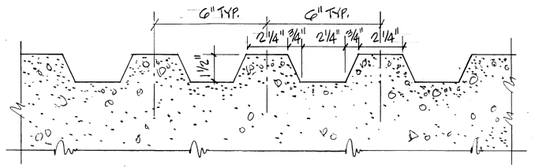
WEST ELEVATION

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



WALL OR COLUMN
CORNER

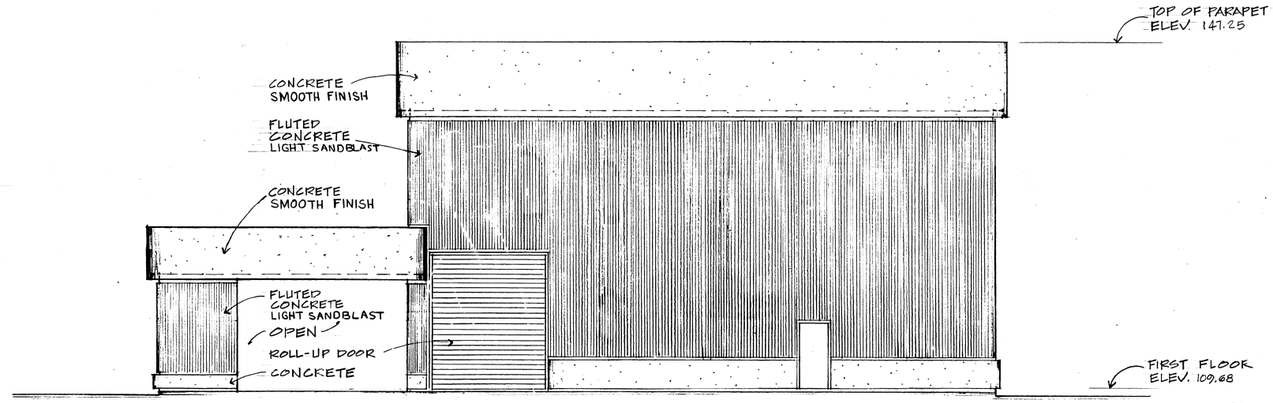
SCALE: 3"=1'-0"



WALL SECTION

TYPICAL FLUTED CONC. DETAIL

SCALE: 3"=1'-0"



EAST ELEVATION

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

WILLIE ALEXANDER BELL, A.I.A.
ARCHITECT (916) 454-5562

REV.	DATE	BY	DESCRIPTION
	DEC. 83	JC	As-Built

DESIGNED WAB
DRAWN T.U.
CHECKED W.B.
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1906-1971)
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DONALD R. PREIBLER, P.E.
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
Q. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ARCHITECTURAL
EXTERIOR ELEVATIONS

JOB NO. W 02401A12
DRAWING NO. JC-A-2
SHEET NO. 21 OF 106

A COLUMN · B COLUMN · C COLUMN · D COLUMN · E COLUMN · F COLUMN · G COLUMN · H COLUMN · J COLUMN · K COLUMN

1 COLUMN · 3 COLUMN · 5 COLUMN · 7 COLUMN

CEILING GYPSUM BOARD ROOF OVER. CEILING TO BE 5/8" PLYWOOD

CLOSET 2

CLEAN ROOM 3

STAIR 4

ENGINE ROOM 1

MAINTENANCE ROOM 5

SKYLIGHTS IN ROOF

DOWN · UP

28x84 (12) · 36x84 (15) · 36x84 (16) · 36x84 (2) · 36x84 (13) · (14)

RFI 183 EXPOSED PIPING

SEE RFI 228 TECTUM @ WINDOWS

LAVATORY 10

TRANSFORMER 9

BATTERY ROOM 8

ELECTRICAL ROOM 7

COMPRESSOR AREA 6

36x84 (10) · 36x84 (1) · 36x84 (11) · 36x84 (4) · 92x96 (8) · 36x84 (7) · 92x96 (6) · 36x84 (5) · 36x84 (3)

N

J COL · K COL · 1 COL

36x84 (17)

B / — BASEMENT STAIR

NOTE
SEE SHEETS S-1 AND S-3 FOR ADDITIONAL DOORS.

A / — MAIN FLOOR PLAN ELEV. 110.0
SCALE: 3/16"=1'-0"

WILLIE ALEXANDER BELL, A.I.A.
ARCHITECT (916) 454-5562

REV.	DATE	BY	DESCRIPTION
	DEC. 89	XX	As-Built

DESIGNED WAB · DRAWN T.U. · CHECKED WB · DATE FEB. 1983

APPROVED BY:
PARTNER Walter A. Howard RCE 11008 P.E. NO.
PROJECT ENGINEER Salwan H. Wazan 14 18372 P.E. NO.
E.B.M.U.D.

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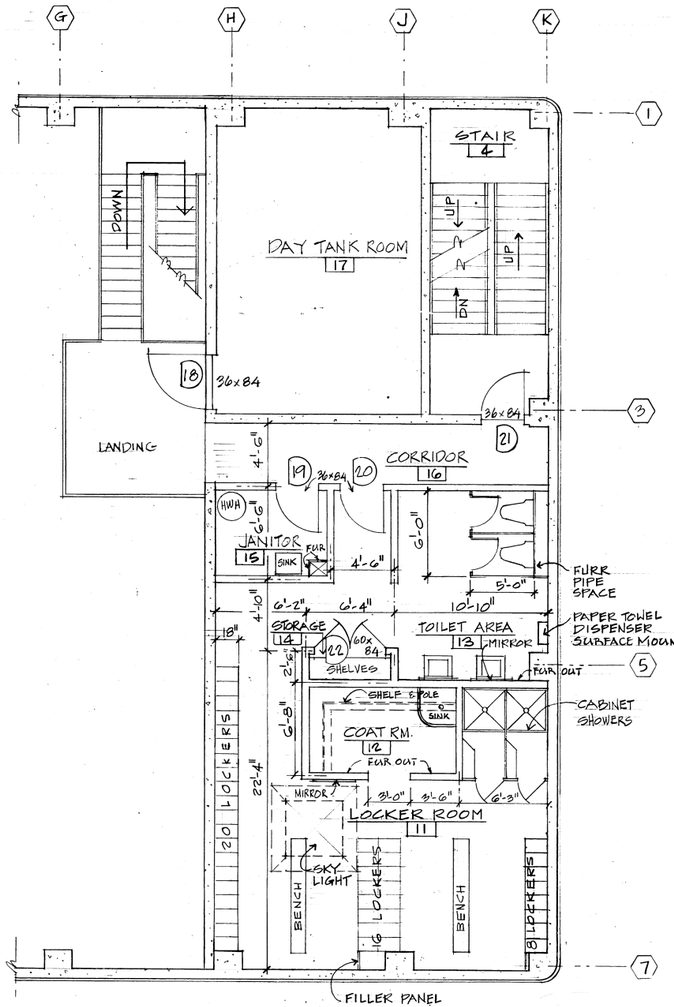
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION 3D-135
ARCHITECTURAL
FLOOR PLAN

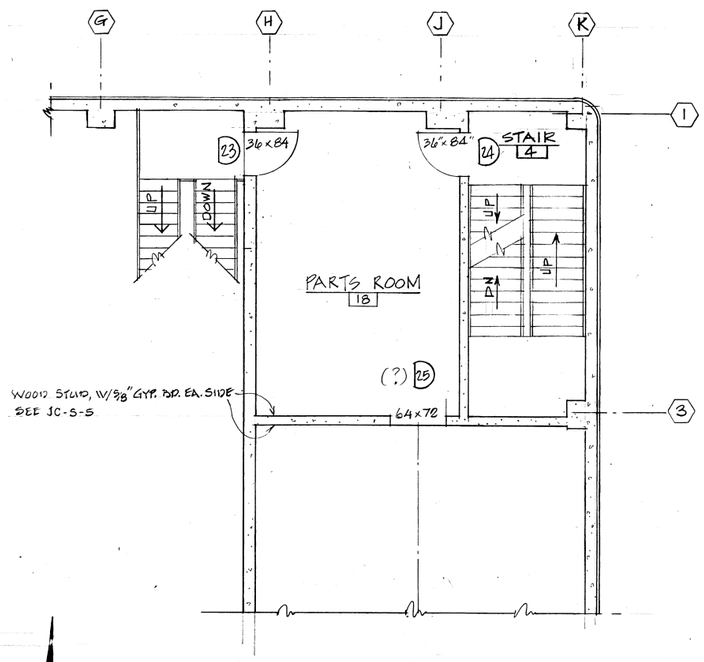
JOB NO. W 02401A12
DRAWING NO. JC-A-3
SHEET NO. 22 OF 106

ABCDEFGHJKLMNPQRSUVWXYZ

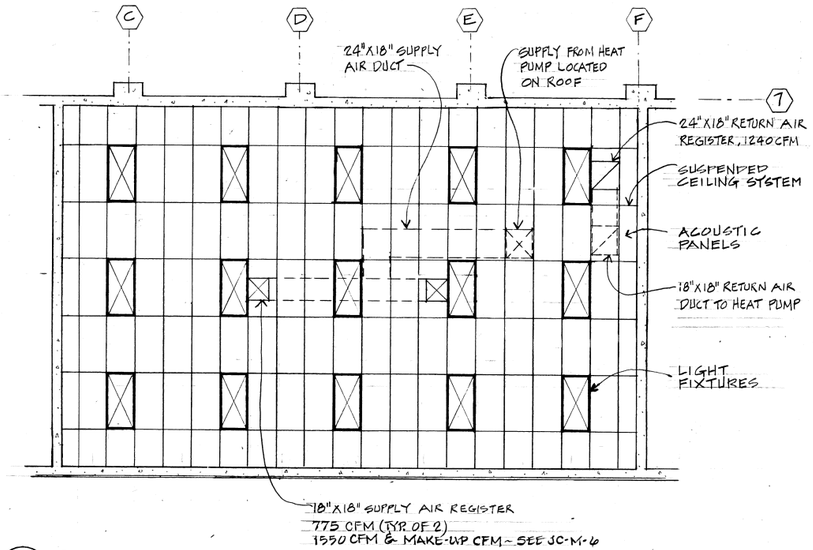


A FLOOR PLAN - ELEV. 127.50

SCALE: 3/16"=1'-0"



B FLOOR PLAN - ELEV. 118.75



C REFLECTED CEILING PLAN ELECTRICAL ROOM ELEV. 110.0

SCALE: 3/16"=1'-0"

R.F1-212 PAINT UNDERSIDE OF DECK PRIOR TO INSULATION

* THE ROOF OVER THE CEILING AND 2x4 ON 2x6 JOISTS MAYBE 5/8" PLYWOOD DECKING

NOTES:
- CEILING HEIGHT 7'-3" to 7'-0" (EL.118.75)
- FOR BASEMENT & TUNNEL FINISH
- WALL OF P.G.S. WESTERN BEIGE COLORS.

ROOM FINISH SCHEDULE

	ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	TRIM	CEILING MAT'L	CEILING HEIGHT	REMARKS
	1	ENGINE ROOM	C.	—	C*	C*	C*	C*				*ACOUSTIC PANELS
*	2	CLOSET	C	R	C	C	GB.	GB.		G.B	7'-3" to 7'-0"	
	3	CLEAN ROOM	C	—	C	C	C	C		C		
	4	STAIR	C	—	C	C	C	C		C		
	5	MAINTENANCE RM.	C	—	C	C	C	C		C		
	6	COMPRESSOR AREA	C	—	C	C	C	C		—		
ADD.#11	7	ELECTRICAL ROOM	VAT.	R	GB	GB	GB	GB		AT	9'-0"	
	8	BATTERY ROOM	C	—	C	C	C	C		C		
	9	TRANSFORMER	C	—	C	C	C	C		C		
	10	LAVATORY	VAT	R	C	C	C	C		C		
	11	LOCKER ROOM	T	R	GB	C	C	C		GB	9'-0"	
	12	COAT ROOM	T	R	GB	GB	GB	GB.		GB	9'-0"	
	13	TOILET AREA	T	R	GB	GB	GB	GB		GB	9'-0"	
	14	STORAGE	T	R	GB	GB	GB	GB		GB	9'-0"	
	15	JANITOR	C	R	GB	GB	GB	GB		GB	9'-0"	
	16	CORRIDOR	T	R	C	C	GB	—		GB	9'-0"	
	17	DAY TANK ROOM	C	—	C	C	C	C		C		
	18	PARTS ROOM	C	—	C	C	C	C		C		

PAINTING

ROOM NO.	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEIL'G	TRIM	DOORS
1	—	—	—	—	—		SGE
2	EGS	EGS	EGS	EGS	EGS		SGE
3	—	—	—	—	—		SGE
4	EGS	EGS	EGS	EGS			SGE
5	—	—	—	—	—		SGE
6	—	—	—	—	—		—
7	EGS	EGS	EGS	EGS	—	SGE	SGE
8	—	—	—	—	—		SGE
9	—	—	—	—	—		SGE
10	EGS	EGS	EGS	EGS	EGS		SGE
11	SGE	SGE	SGE	SGE	SGE		—
12	SGE	SGE	SGE	SGE	SGE		SGE
13	SGE	SGE	SGE	SGE	SGE		SGE
14	SGE	SGE	SGE	SGE	SGE		SGE
15	SGE	SGE	SGE	SGE	SGE		SGE
16	SGE	SGE	SGE	SGE	SGE		SGE
17	—	—	—	—	—		SGE
18	—	—	—	—	—		SGE

NOTE: FOR CONCRETE FINISH SCHEDULE SEE DRAWING T-6

VAT. VINYL ASBESTOS TILE
C. CONCRETE
T. TERRAZZO
E.C. EXPOSED CONCRETE
R RUBBER
G.B GYPSUM BOARD
A.T ACOUSTIC TILE
SGE SEMI GLOSS ENAMEL
EGS EGG SHELL FINISH

D ROOM FINISH SCHEDULE

WILLIE ALEXANDER BELL, A.I.A.
ARCHITECT (916) 454-5562

REV.	DATE	BY	DESCRIPTION
	DEC 83	XV	As-Built

DESIGNED WAB
DRAWN T.U.
CHECKED WB
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO. RCE 14804
PROJECT ENGINEER P.E. NO. M 1839 2
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA — WALNUT CREEK CALIFORNIA — FOUNTAIN VALLEY CALIFORNIA — VISALIA CALIFORNIA
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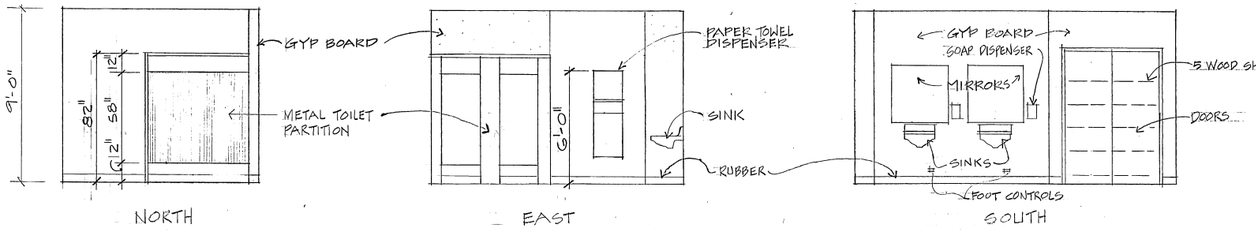
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION SPECIFICATION SD-135
ARCHITECTURAL
UPPER FLOOR PLAN AND FINISH SCHEDULE

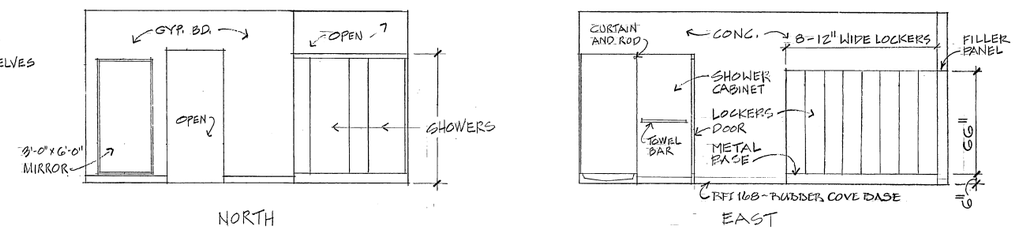
JOB NO. W 02401A12
DRAWING NO. JC-A-4
SHEET NO. 23 of 106

ABCDEFGHJKLMNPQRSUVWXYZ

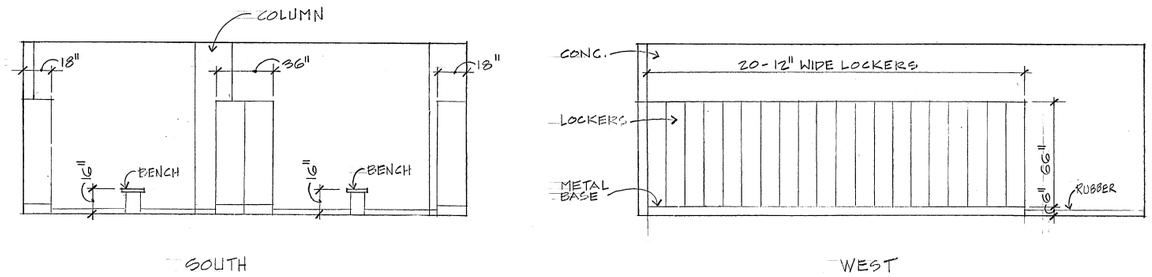


A — TOILET

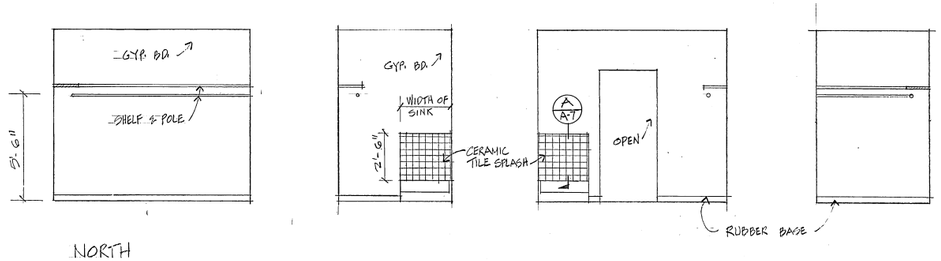
SCALE: 1/4"=1'-0"



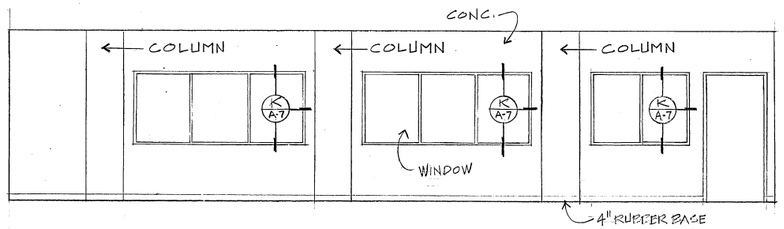
B — SHOWER AND LOCKERS

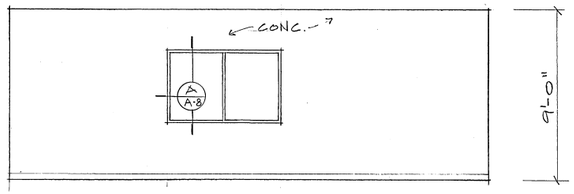


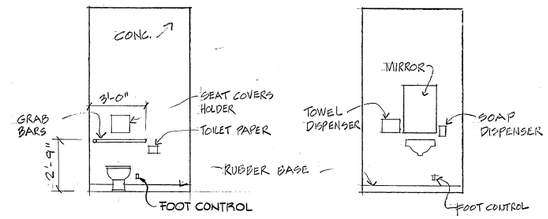
C — LOCKER ROOM



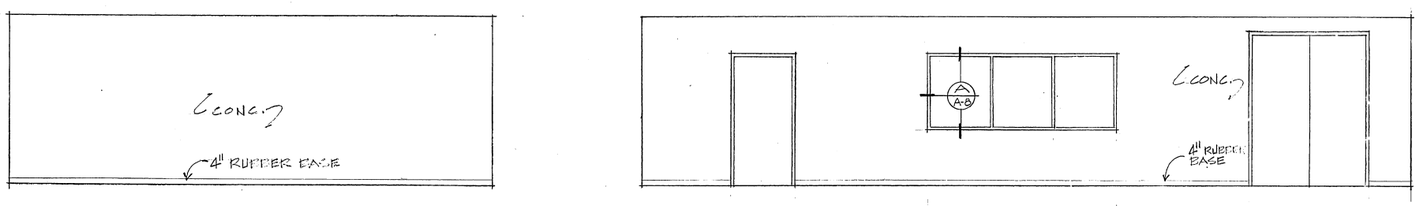
D — COAT ROOM







E — LAVATORY



F — ELECTRICAL ROOM

RFI 232
DRYWALL FINISH
MEDIUM STIPPLE

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

WILLIE ALEXANDER BELL, A.I.A.
ARCHITECT (916) 454-5562

REV.	DATE	BY	DESCRIPTION
	DEC. 89	JW	As-Built

DESIGNED WAB
DRAWN T.U.
CHECKED WB
DATE FEB. 1983

APPROVED BY:
PARTNER Walter K. Howard REVISED P.E. NO.
Sarwan G. Wason M 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

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EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ARCHITECTURAL
INTERIOR ELEVATIONS

JOB NO. W 02401A12
DRAWING NO. JC-A-5
SHEET NO. 24 of 106

N82064

ABCDEFGHJKLMNPQRSUVWXYZ

DOOR AND HARDWARE SCHEDULE

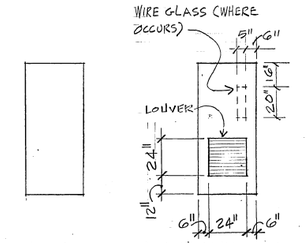
NO.	SIZE	THICK	TYPE	FRAME MAT.	FRAME FINISH	DETAILS HEAD	DETAILS JAMB	DETAILS JAMB	DETAILS SILL	DOOR MAT.	DOOR FINISH	HARDWARE GROUP	HARDWARE OTHERS	HARDWARE THRES	HARDWARE SEALS	FIRE LAB	LOUVER SIZE	REMARKS
1	3'-0"x7'-0"	1 3/4"	J	HM		S/A-7	S/A-7	S/A-7	T/A-7	HM		HW-1		ALUM.		1HR	–	* WITH WIRE GLASS
2	3'-0"x7'-0"	1 3/4"	B*	HM		S/A-7	S/A-7	S/A-7	T/A-7	HM		HW-1		ALUM.			24"X24"	* WITH WIRE GLASS
3	12'-0"x14'-0"		G	STL.		B/A-7	C/A-7	C/A-7	D/A-7	ALUM.		–	MOTORIZED					
4	3'-0"x7'-0"	1 3/4"	J	HM		S/A-7	S/A-7	S/A-7	T/A-7	HM		HW-2		ALUM.		1HR		* WITH WIRE GLASS
5	3'-0"x7'-0"	1 3/4"	A*	HM		S/A-7	S/A-7	S/A-7	T/A-7	HM		HW-1		ALUM.				* WITH WIRE GLASS
6	PR. 92"x 96"	1 3/4"	C	HM		S/A-7	S/A-7	S/A-7	T/A-7	HM		HW-4		ALUM				
7	3'-0"x 7'-0"	1 3/4"	B	HM		S/A-7	S/A-7	S/A-7	–	HM		HW-1		–	–	–	24"X24"	
8	PR. 92"x 96"	1 3/4"	F	HM		S/A-7	S/A-7	S/A-7	–	HM		HW-6					32"x24"	
9	12'-0" x 14'-0"		G	STL.		B/A-7	C/A-7	C/A-7	D/A-7	ALUM.		–	MOTORIZED					
10	3'-0"x7'-0"	1 3/4"	D	HM		S/A-7	S/A-7	S/A-7	–	HM		HW-3				1HR		
11	3'-0" x 7'-0"	1 3/4"	J*	HM		L/A-7	L/A-7	L/A-7	–	HM		HW-3	FLOOR SEAL		SOUND	1HR		* SOUND DOOR W/WIRE GLASS
12	28"x 84"	1 3/4"	D	HM		O/A-7	O/A-7	O/A-7	–	HM		HW-3				1HR		
13	3'-0"x7'-0"	1 3/4"	J*	HM		S/A-7	S/A-7	S/A-7	–	HM		HW-3				1HR		* SOUND DOOR W/WIRE GLASS
14	10'-0"x15'-0"		H	STL.		C/A-8	D/A-8	D/A-8	F/A-8	STL.		–						
15	3'-0"x7'-0"	1 3/4"	B*	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-11					24"X24"	* WITH WIRE GLASS
16	3'-0"x7'-0"	1 3/4"	B*	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-11					24"X24"	* WITH WIRE GLASS
17	3'-0"x7'-0"	1 3/4"	B*	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-3					24"X24"	* WITH WIRE GLASS
18	36" x 84"	1 3/4"	I	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-3				3HR		
19	3'-0"x7'-0"	1 3/4"	D	HM		O/A-7	O/A-7	O/A-7	–	HM		HW-11				1 HR		
20	3'-0"x7'-0"	1 3/4"	D	HM		O/A-7	O/A-7	O/A-7	–	HM		HW-5				1HR		
21	3'-0"x7'-0"	1 3/4"	J	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-3				1HR		* WITH WIRE GLASS
22	PR.2'-6"x7'-0"	1 3/4"	A	HM		O/A-7	O/A-7	O/A-7	–	HM		HW-8						
23	3'-0"x 7'-0"	1 3/4"	D	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-11				1HR		
24	3'-0" x 7'-0"	1 3/4"	A	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-11					24"X24"	
25	64"x 72"	1 3/4"	D	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-9						DUTCH DOOR
26	3'-0" x7'-0"	1 3/4"	D	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-7				1HR		
27	4'-0"x7'-0"	1 3/4"	D	HM		P/A-7	P/A-7	P/A-7	–	HM		HW-10	ELECTRONIC FIRE DETECTOR			1HR		

HM - HOLLOW METAL
STL. - STEEL
ALUM. - ALUMINUM

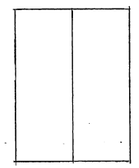
WINDOW AND LOUVER SCHEDULE

NO.	SIZE	TYPE	FRAME MAT.	FRAME FINISH	DETAILS HEAD	DETAILS JAMB	DETAILS JAMB	DETAILS SILL	GLASS	REMARKS
1	4'-0"x9'-0"	F	STL.		K/A-7	K/A-7	K/A-7	K/A-7	CLR./WIRE	
2	4'-0" x9'-0"	F	STL.		K/A-7	K/A-7	K/A-7	K/A-7	CLR./WIRE	
3	4'-0" x 5'-0"	G	STL.		K/A-7	K/A-7	K/A-7	K/A-7	CLR./WIRE	
4	4'-0" x 6'-0"	H	STL.		K/A-8	K/A-8	K/A-8	K/A-8	CLR./WIRE	
5	4'-0" x 10'-0"	E	ALUM.		A/A-8	A/A-8	A/A-8	B/A-8	CLEAR	
6	2'-0" x9'-0"	A	S.STL.		F/A-7	G/A-7	G/A-7	H/A-7	–	
7	2'-0" x9'-0"	A	S.STL.		F/A-7	G/A-7	G/A-7	H/A-7	–	
8	2'-0" x9'-0"	A	S.STL.		F/A-7	G/A-7	G/A-7	H/A-7	–	
9	2'-0" x 2'-0"	B	S.STL.		F/A-7	G/A-7	G/A-7	H/A-7	–	

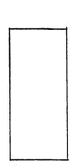
S.STL. - STAINLESS STEEL



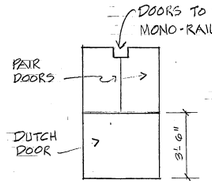
HOLLOW METAL DOOR — A
HOLLOW METAL DOOR WITH LOUVER — B



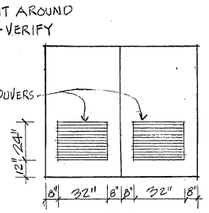
PAIR HOLLOW METAL DOORS — C



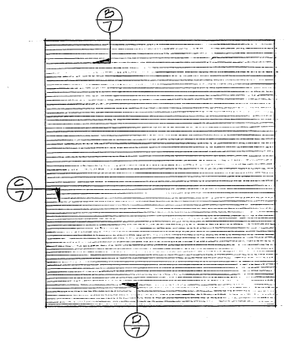
HOLLOW METAL DOOR 1 HOUR FIRE RATED — D



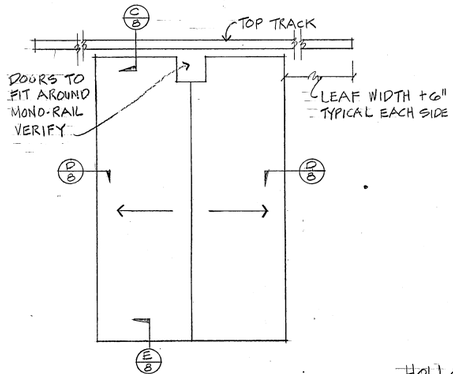
HOLLOW METAL DOORS — E



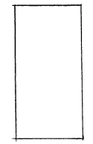
PAIR HOLLOW METAL DOORS WITH LOUVERS — F



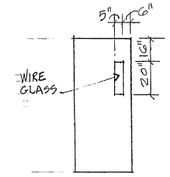
ALUMINUM ROLL-UP DOOR — G



STEEL SLIDING DOOR — H



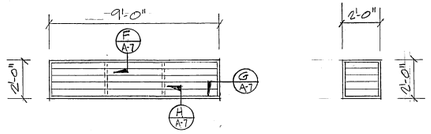
HOLLOW METAL DOOR 3 HOUR FIRE RATED — I



HOLLOW METAL DOOR 1 HOUR FIRE RATED WITH WIRE GLASS — J

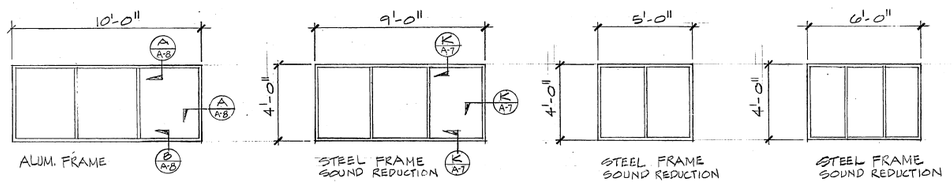
(A) DOOR SCHEDULE (TYPE)

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



A B

STAINLESS STEEL LOUVERS



E F G H

(B) WINDOW & LOUVER SCHEDULE

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

WILLIE ALEXANDER BELL, A.I.A.
ARCHITECT (916) 454-5562

REV.	DATE	BY	DESCRIPTION
	DEC. 83	XY	As-Built

DESIGNED WAB
DRAWN T.U.
CHECKED W.B.
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
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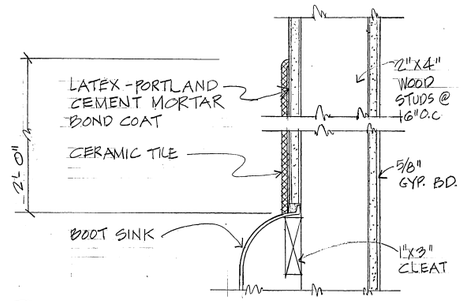
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

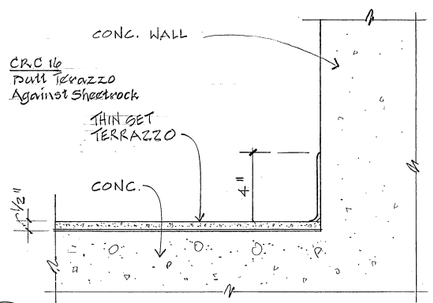
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ARCHITECTURAL
DOOR AND WINDOW SCHEDULE

JOB NO. W 02401A12
DRAWING NO. JC-A-6
SHEET NO. 25 of 106

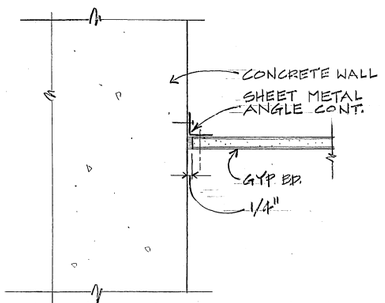
N31066



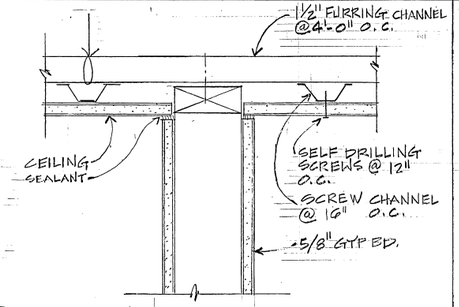
A — CERAMIC TILE AT SINK
SCALE: 1½"=1'-0"



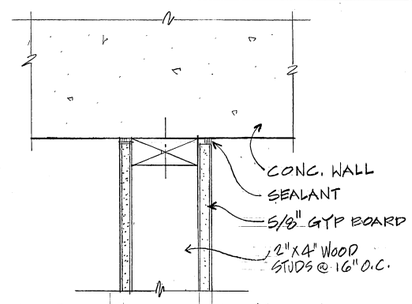
E — TERRAZZO FLOOR - THIN SET
SCALE: 3"=1'-0"



I — CEILING GYP BOARD @ CONC. WALL
SCALE: 3"=1'-0"

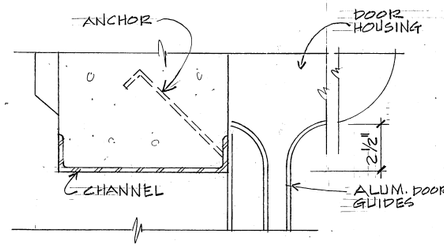


M — STUD WALL PERPEN. TO FURRING CHAN.
SCALE: 3"=1'-0"

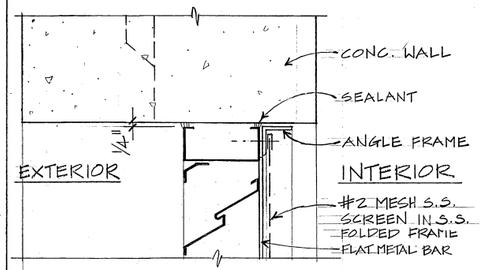


R — WOOD STUD PARTITION @ CONC. WALL
SCALE: 3"=1'-0"

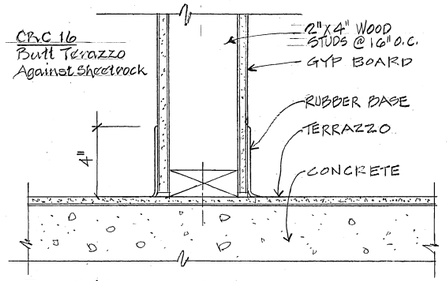
SEE RFI 117 (At Full & Between Flutes)



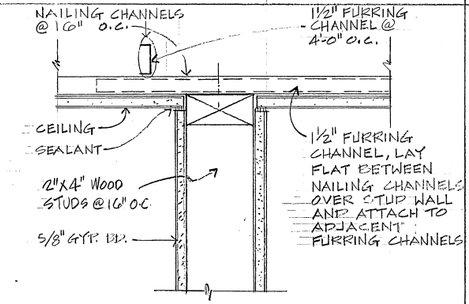
B — ROLL-UP DOOR, HEAD
SCALE: 3"=1'-0"



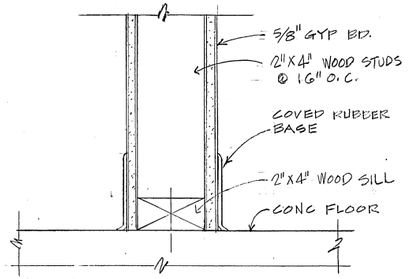
F — FIXED WALL LOUVER - HEAD
SCALE: 3"=1'-0"



J — TYPICAL SILL
SCALE: 3"=1'-0"

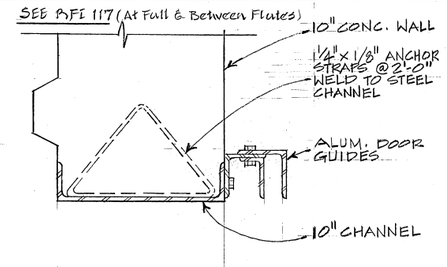


N — STUD WALL PARALLEL TO FURRING CHAN
SCALE: 3"=1'-0"

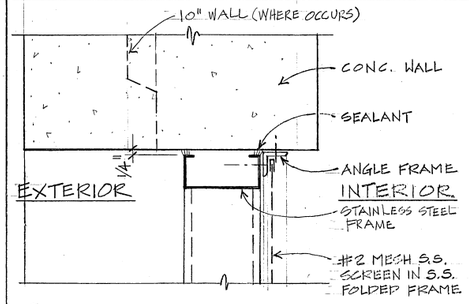


R — WOOD STUD PARTITION @ CONC. FLOOR
SCALE: 3"=1'-0"

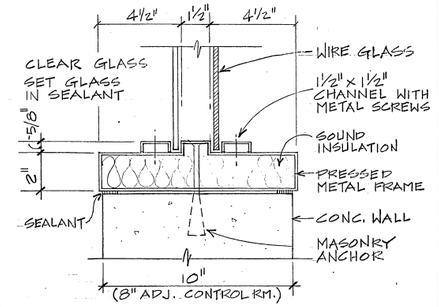
SEE RFI 117 (At Full & Between Flutes)



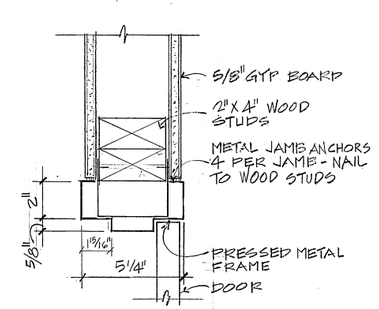
C — ROLL-UP DOOR, JAMB
SCALE: 3"=1'-0"



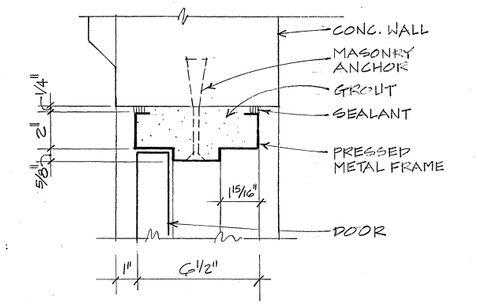
G — FIXED WALL LOUVER - JAMB
SCALE: 3"=1'-0"



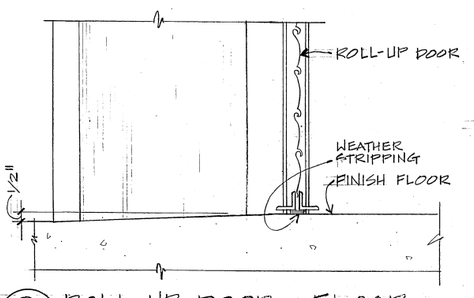
K — SOUND REDUCTION WINDOW - HEAD, JAMB, SILL
SCALE: 3"=1'-0"



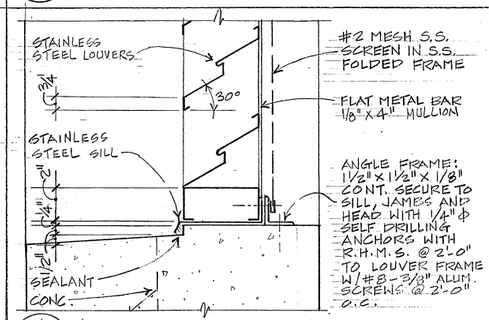
O — DOOR HEAD-JAMB SIMILAR
SCALE: 3"=1'-0"



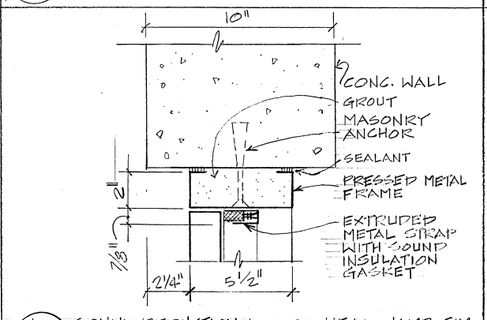
S — EXTERIOR DOOR HEAD (JAMB SIM.)
SCALE: 3"=1'-0"



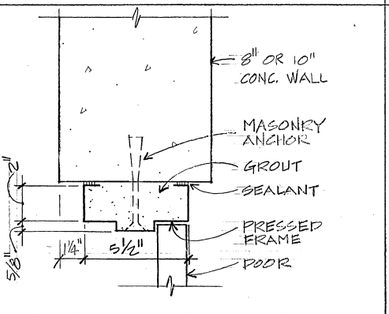
D — ROLL-UP DOOR, FLOOR
SCALE: 3"=1'-0"



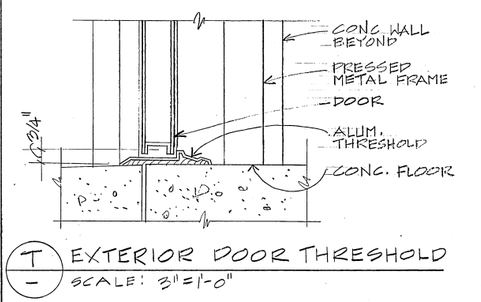
H — FIXED WALL LOUVER
SCALE: 3"=1'-0"



L — SOUND REDUCTION DOOR - HEAD, JAMB SIM.
SCALE: 3"=1'-0"



P — DOOR HEAD-JAMB SIMILAR
SCALE: 3"=1'-0"



T — EXTERIOR DOOR THRESHOLD
SCALE: 3"=1'-0"

WILLIE ALEXANDER BELL, A.I.A.
ARCHITECT (916) 454-5562

REV.	DATE	BY	DESCRIPTION
	DEC 83	AS-BUILT	

DESIGNED WAB
DRAWN T.O.
CHECKED WB.
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO. M 18392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD R. PREIßLER, P.E.
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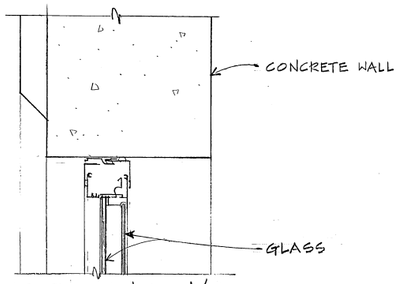
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

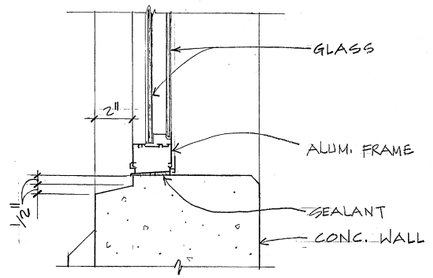
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ARCHITECTURAL
INTERIOR DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-A-7
SHEET NO. 26 OF 106

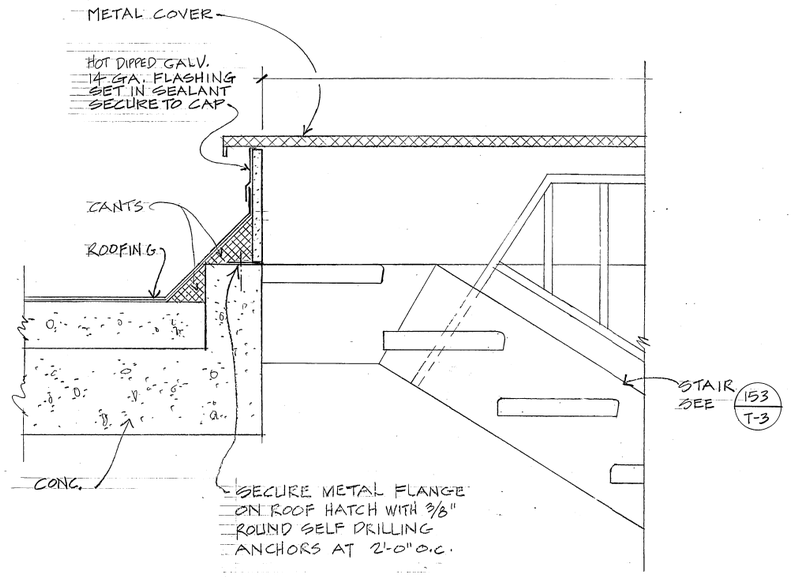
A B C D
A B C D E F G H J K L M N P Q R S U V W X Y Z



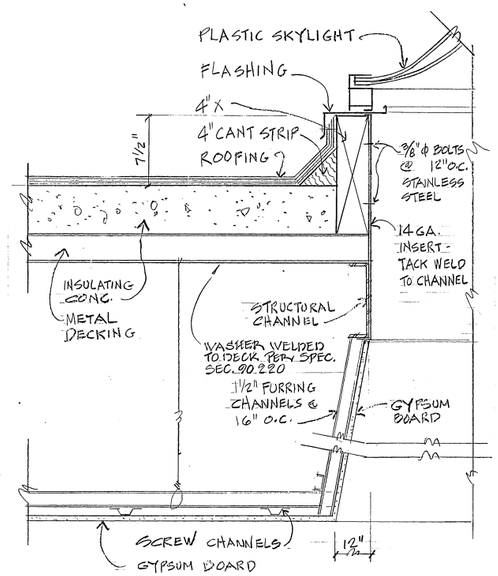
A / — EXT. FIXED WINDOW/HEAD, JAMB SIM.
SCALE: 3"=1'-0"



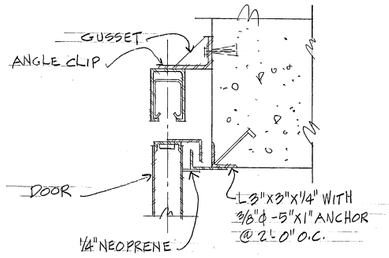
B / — EXT. FIXED WINDOW SILL
SCALE: 3"=1'-0"



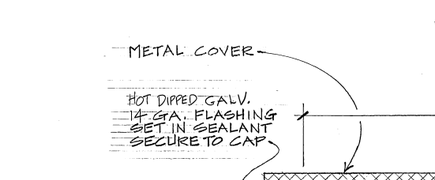
E / — ROOF ACCESS HATCH
SCALE: 1½"=1'-0"



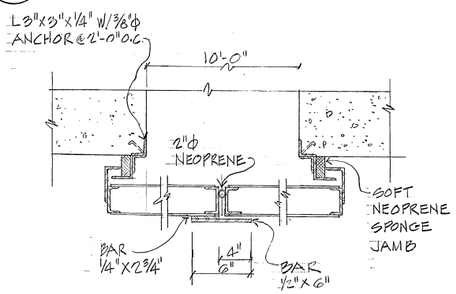
G / — SKYLIGHT AT LOCKER ROOM
SCALE: 1½"=1'-0"



C / — HEAD - SLIDING DOOR

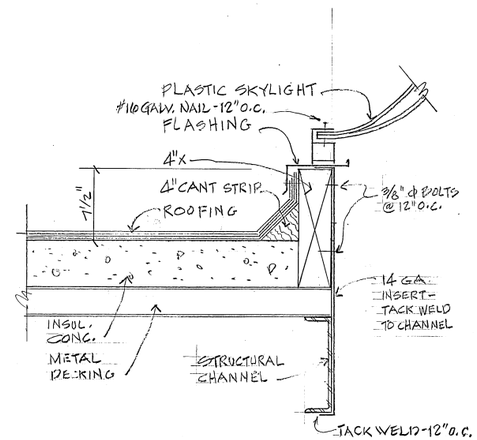


F / — SILL - SLIDING DOOR

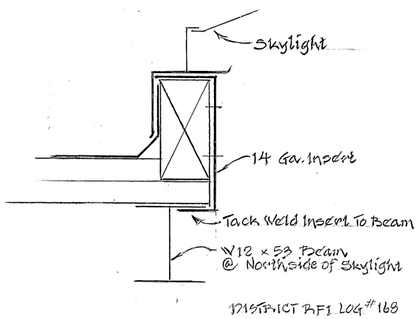


D / — JAMB - DOUBLE SLIDING DOOR
SCALE: 1½"=1'-0"

ADDENDUM No. 1 - Fig. 1
Add Insulation & Dry Wall System To All Four Walls For Electrical Rm.



H / — SKYLIGHT AT ENGINE ROOM
SCALE: 1½"=1'-0"



DISTRICT BFI LOG # 168

INSERT ATTACHMENT FOR W12x53 BEAM
NTS

WILLIE ALEXANDER BELL, A.I.A.
ARCHITECT (916) 454-5562

REV.	DATE	BY	DESCRIPTION
	DEC 83	KF	As-Built

DESIGNED WAB
DRAWN TJ
CHECKED WB
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER Samuel L. Watson — P.E. NO. M 18392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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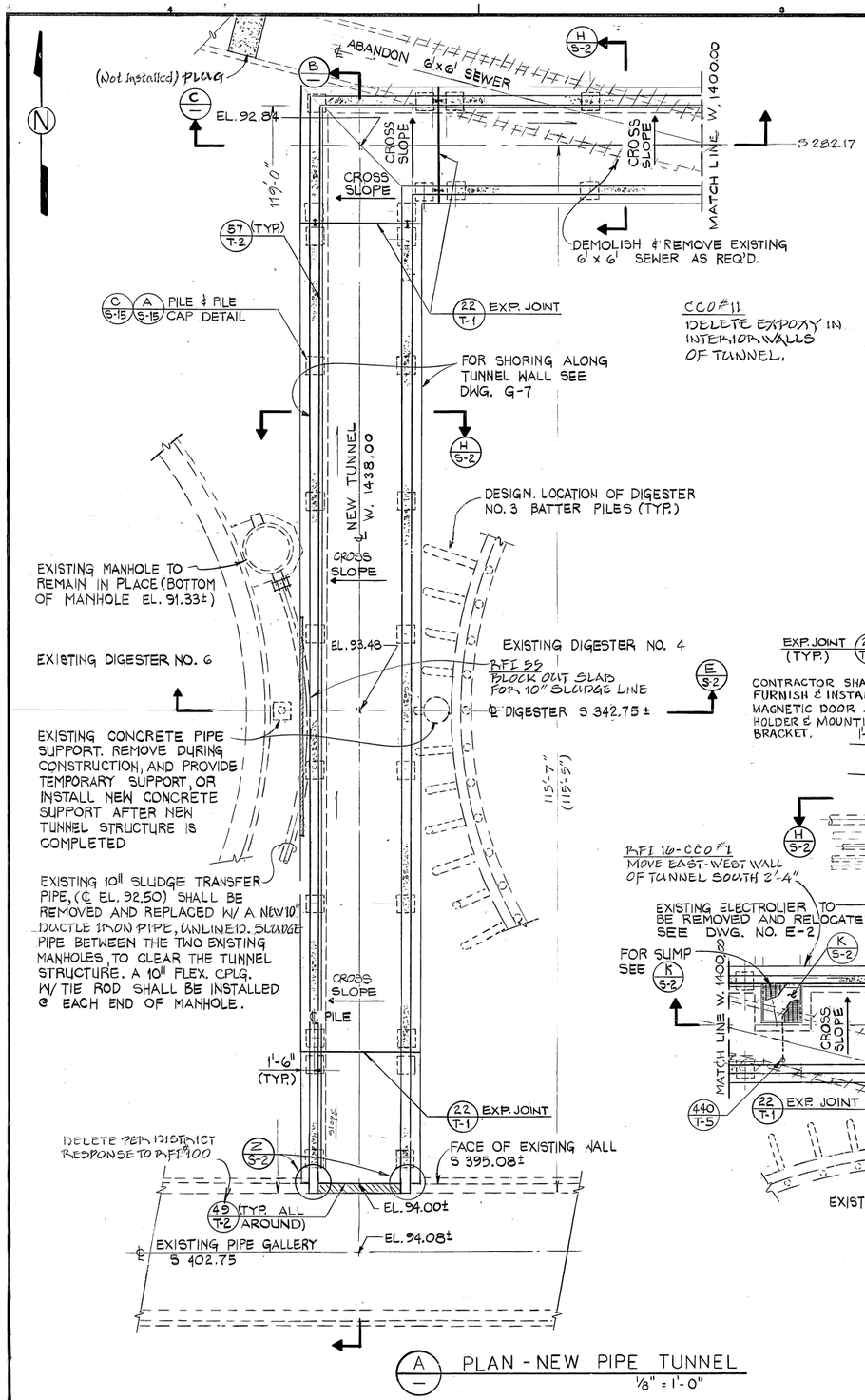
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ARCHITECTURAL
MISCELLANEOUS DETAILS

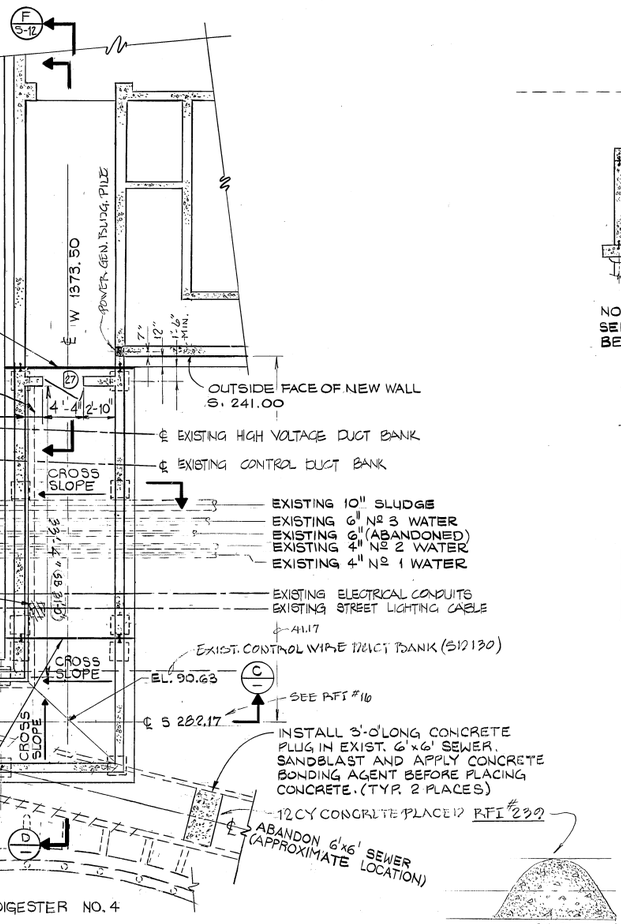
JOB NO. W 02401A12
DRAWING NO. JC-A-8
SHEET NO. 27 OF 106

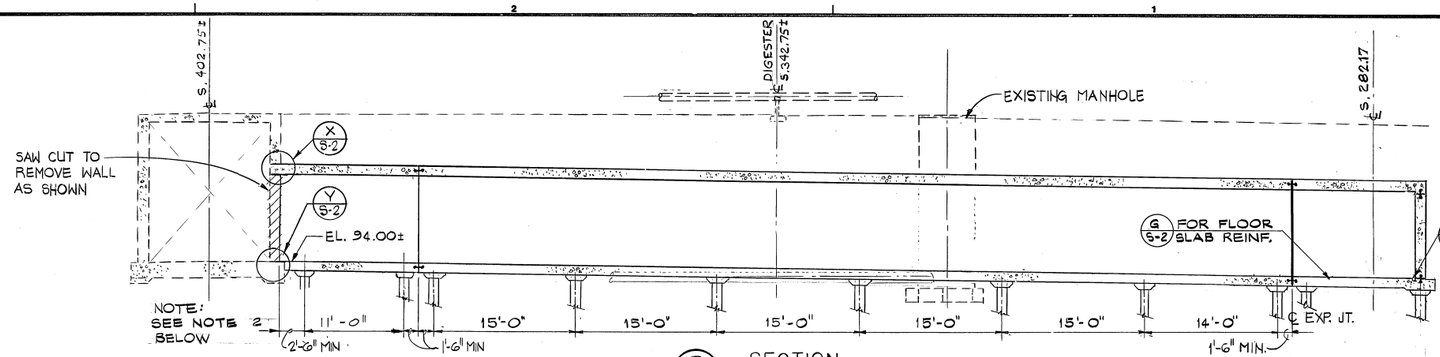
ABCDEFGHJKLMNPQRSUVWXYZ



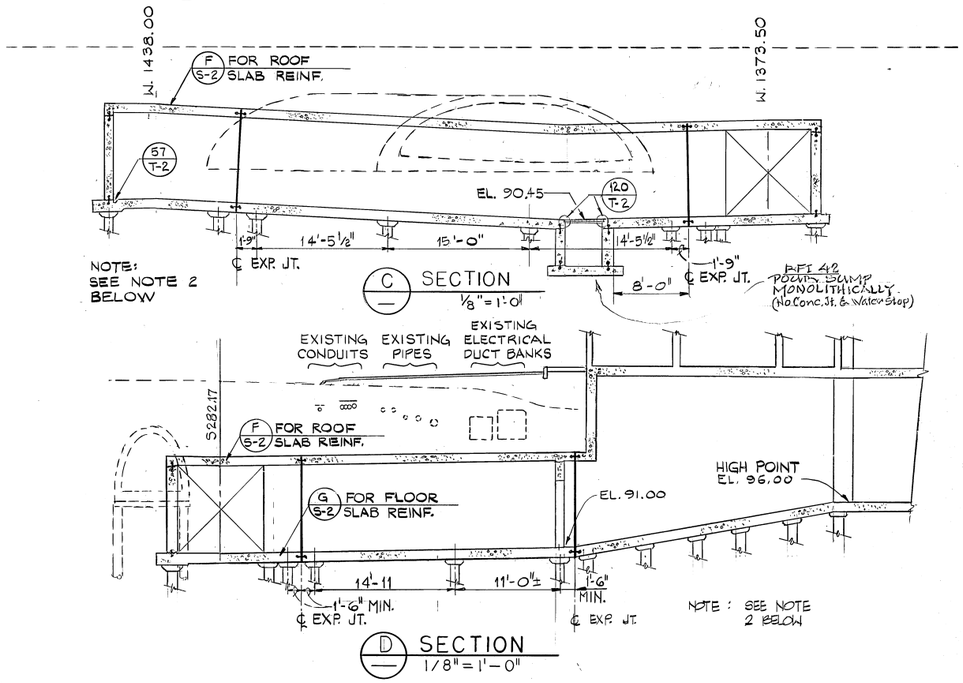
A PLAN - NEW PIPE TUNNEL
1/8" = 1'-0"

CCO #11
DELETE EPOXY IN INTERIOR WALLS OF TUNNEL.





B SECTION
1/8" = 1'-0"



C SECTION
1/8" = 1'-0"

D SECTION
1/8" = 1'-0"

NOTES:

1. LOCATIONS SHOWN FOR EXISTING STRUCTURES, PIPES, ELECTRICAL DUCTS, PILES, ETC. ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, SUPPORTING, AND PROTECTING THEM DURING CONSTRUCTION.
2. DUE TO THE RISK OF ENCOUNTERING EXISTING DIGESTER BATTER PILES, PREDRILLING IS RECOMMENDED FOR LOCATING THE TUNNEL PILES, USE AN AUGER SIZE OF LESS THAN OR EQUAL TO 10" ϕ. DRILL TO TUNNEL PILE TIP ELEVATION, OR AT LEAST TO THE DIGESTER PILE TIP ELEVATION, IF THE TUNNEL PILE TIP ELEVATION IS BELOW THE DIGESTER PILE TIP ELEVATION. IF THERE IS ANY INTERFERENCE FROM ANY EXISTING PILES, PIPES CONDUITS ETC., THE TUNNEL PILES CAN BE SHIFTED 2'-0" IN EITHER DIRECTION ALONG THE LENGTH OF THE TUNNEL, EXCEPT THE CENTER OF ANY PILES SHALL NOT BE LOCATED CLOSER THAN 1'-6" TO ANY EXPANSION JOINT. PILES SHALL BE CENTERED UNDER TUNNEL WALLS.

REV.	DATE	BY	DESCRIPTION
	12/20/83	KR	As-Built

DESIGNED SDS
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER Howard P. Hunt P.E. NO. RCE 14808
PROJECT ENGINEER Sanway Li-Wilson P.E. NO. M 18,392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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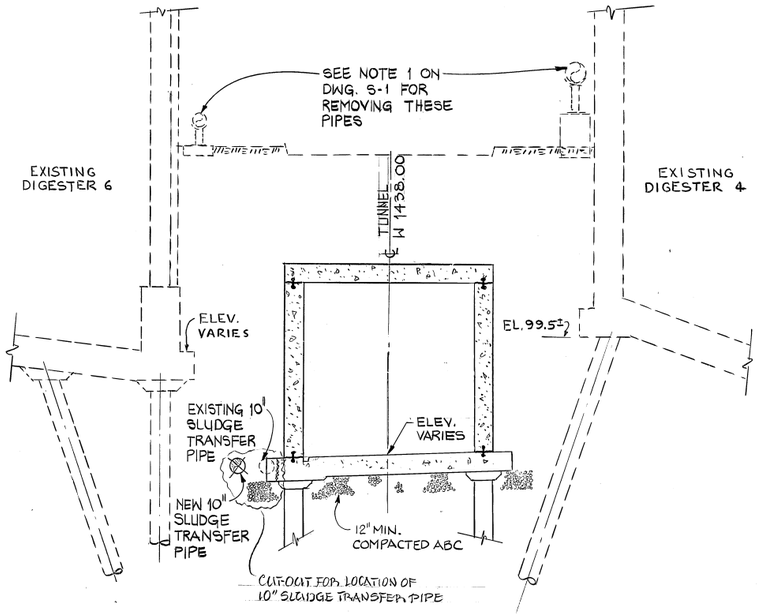
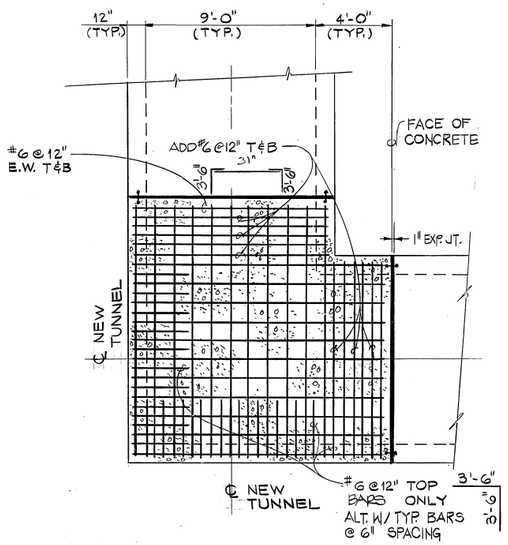
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
TUNNEL
PLAN AND SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-S-1
SHEET NO. 28 OF 106

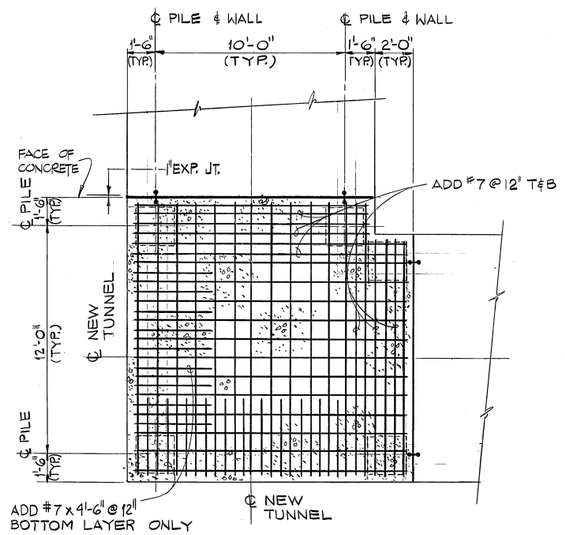


E S-1 SECTION 1/4" = 1'-0"



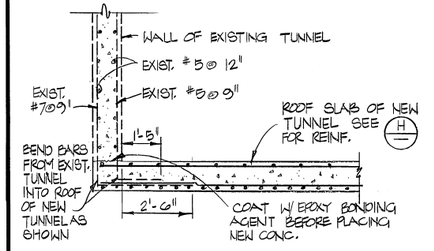
NOTE:
FOR WALL REINF. SEE H S-1

F S-1 ROOF PLAN-TUNNEL INTERSECTION 1/4" = 1'-0"

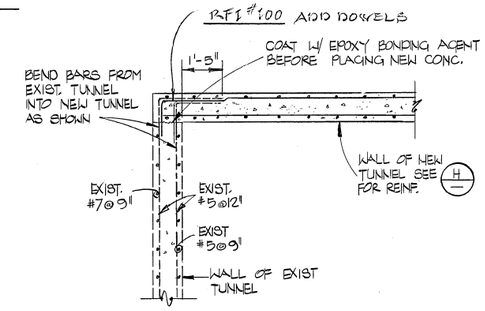


NOTE:
FOR WALL REINF. SEE H S-1

G S-1 FLOOR PLAN-TUNNEL INTERSECTION 1/4" = 1'-0"

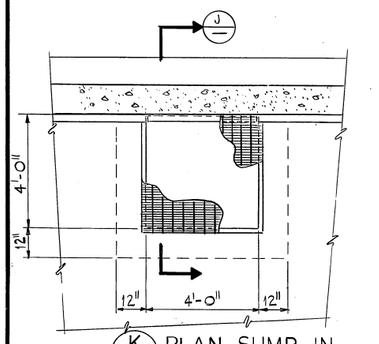


X S-1 WALL TO ROOF CONNECTION DETAIL 3/8" = 1'-0"

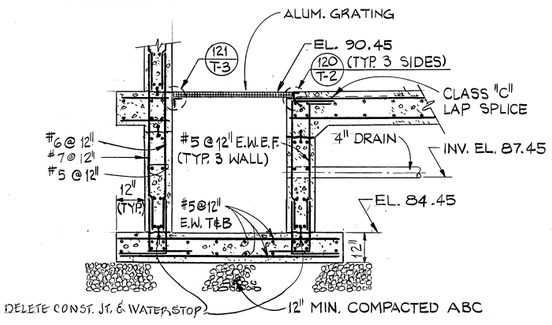


Z S-1 WALL CONNECTION DETAIL 3/8" = 1'-0"

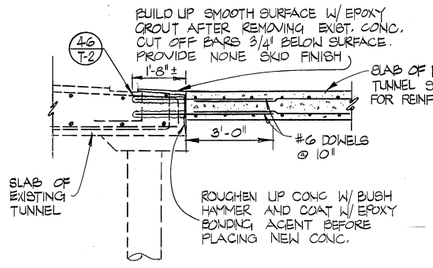
REVISED PER RFI #100



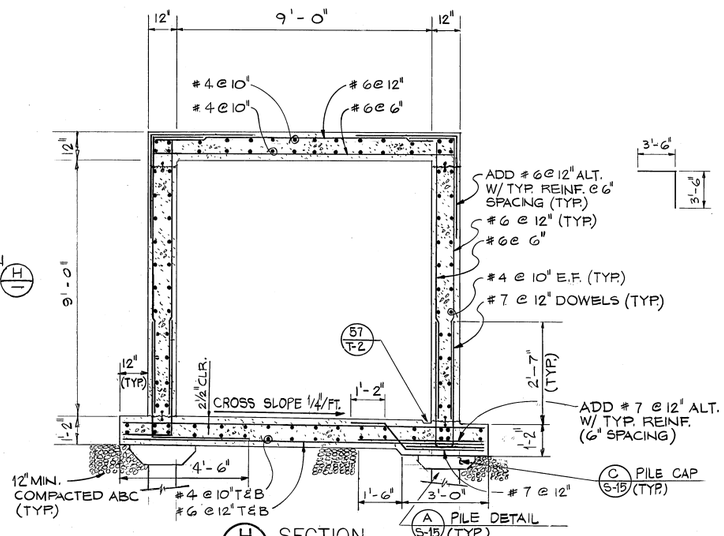
K S-1 PLAN SUMP IN TUNNEL 3/8" = 1'-0"



J — SECTION 3/8" = 1'-0"



Y S-1 SLAB CONNECTION DETAIL 3/8" = 1'-0"



H S-1 SECTION 3/8" = 1'-0"

ABCDEFGHJKLMNPQRSUVWXYZ

REV.	DATE	BY	DESCRIPTION
	DEC 89	AV	As-Built

DESIGNED	SDS
DRAWN	DST
CHECKED	CAG
DATE	FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO. M18392
E.B.M.U.D.

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PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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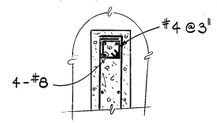
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

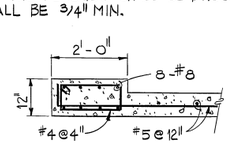
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
TUNNEL
PLAN AND SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-S-2
SHEET NO. 29 of 106

NOTES:

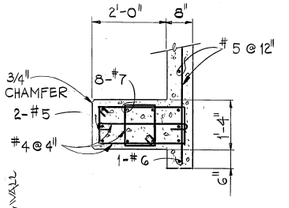
1. LIVE LOAD = 200 POUNDS PER SQUARE FOOT
2. SEE MECHANICAL PLANS FOR SIZE AND LOCATION OF EQUIPMENT BASES.
3. ADD 2-#7 E.F. ABOVE THE OPENINGS, EXTEND 4'-0" ON BOTH SIDES OF OPENINGS.
4. CONTRACTOR SHALL INSTALL A BRONZE PLAQUE CAST IN THE CONCRETE ON EACH FLOOR TO INDICATE THE DESIGN LIVE LOADS OF THE STRUCTURE. LOCATIONS OF THE PLAQUES SHALL BE DIRECTED BY THE ENGINEER. LETTER SIZE SHALL BE 3/4" MIN.





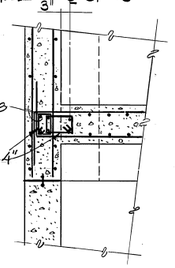
X DETAIL 1/2" = 1'-0"

R DETAIL 1/2" = 1'-0"

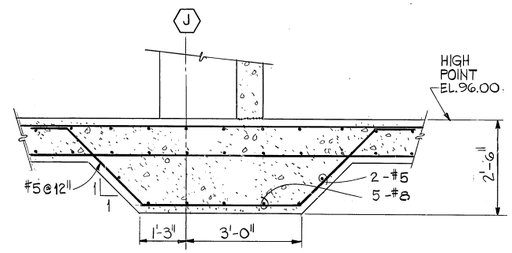


Q DETAIL 1/2" = 1'-0"

NOTE:
- ⊛ DENSITY TEST LOCATION BY CONTR.
- ⊕ " " " " EBMUD
- ▪ INDICATOR PILES
- FLOOR DRAINS, SEE DWG. M-27
- CCO #3 DELETE POLYETHELENE MEMBRANE & SAND LAYER UNDER SLAB
- CCO #4 PLACE CONC. IN ENGINE FOUNDATION IN TWO LIFTS.
- CORRECTIVE REBAR OF PILE #69, 70, 84, 130, 150,



V DETAIL 1/2" = 1'-0"



C SECTION 1/2" = 1'-0"

A LOWER FLOOR PLAN 3/16" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	DEC 83	XV	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
LOWER FLOOR PLAN

JOB NO. W 02401A12
DRAWING NO. JC-S-3
SHEET NO. 30 OF 106

NOTES:

LIVE LOADS:

a. ELECTRICAL ROOM = 200 POUNDS PER SQUARE FOOT.
b. GAS COMPRESSOR ROOM = EQUIPMENT PLUS 150 POUNDS PER SQUARE FOOT
c. TRAFFIC CORRIDOR BETWEEN 12' WIDE TRAFFIC DOORS = H20; 400 POUNDS PER SQUARE FOOT.
d. ENGINE GENERATOR ROOM, MAINTENANCE ROOM, AND CLEAN ROOM = 400 POUNDS PER SQUARE FOOT; 35,000 POUNDS IN 4 FOOT SQUARE AREA
e. STAIRWELL AND STAIRS = 100 POUNDS PER SQUARE FOOT; 1000 POUNDS CONCENTRATED LOAD (ALL STAIRS IN BUILDING)
f. BRIDGE CRANE CAPACITY = 20 TONS
g. MONORAIL CAPACITY = 2 TONS

NOTE: SEE DOOR SCHEDULE FOR W & H DIMENSIONS.

K DETAIL 3/8" = 1'-0"

J SECTION 1/2" = 1'-0"

G SECTION 3/8" = 1'-0"

A SECTION 3/8" = 1'-0"

B MAIN FLOOR PLAN - ELEV. 110.00 3/16" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	DEC 89	KK	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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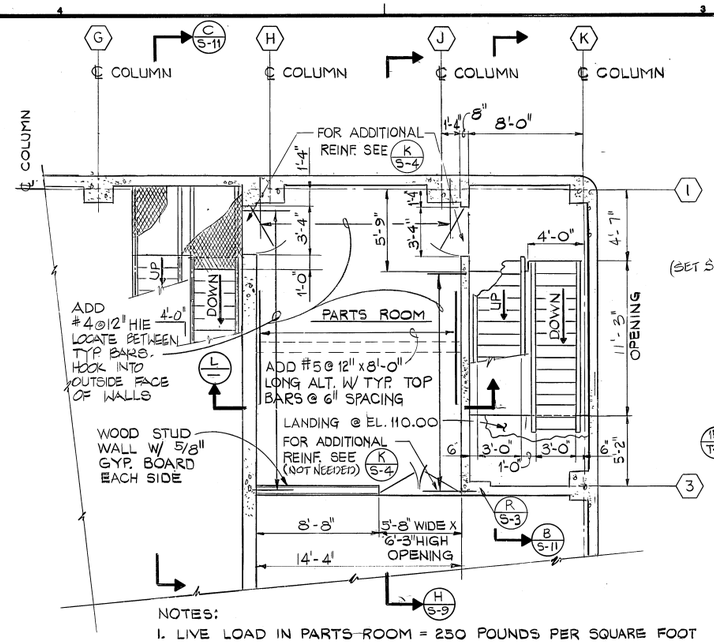
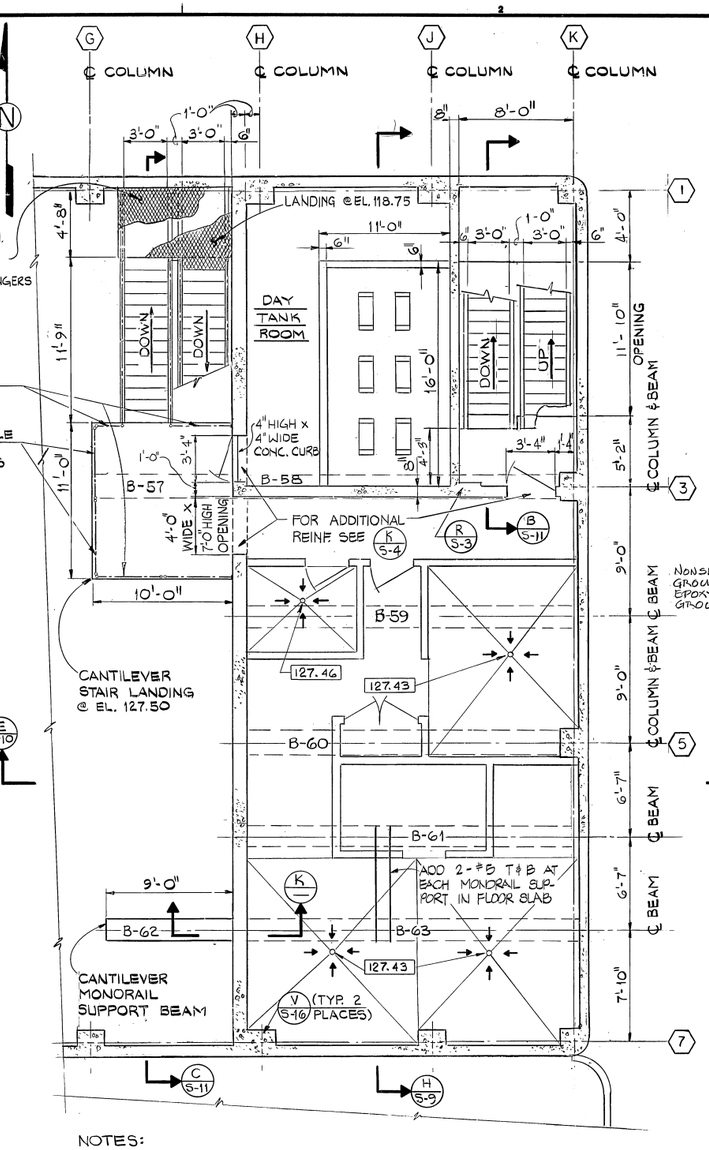
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

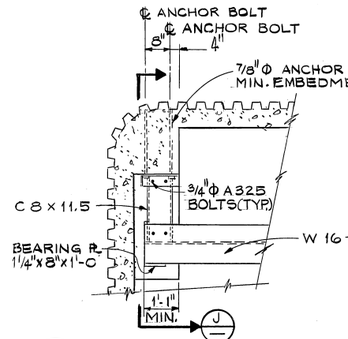
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
MAIN FLOOR PLAN AND SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-S-4
SHEET NO. 31 OF 106

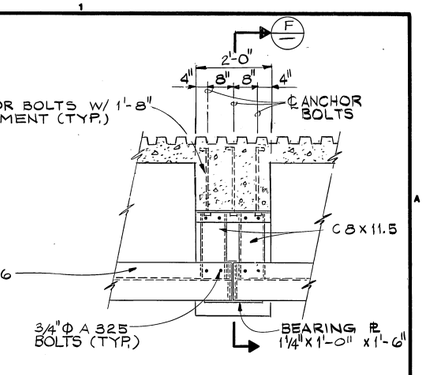


C — PLAN-FLOOR @ EL. 118.75
3/16"= 1'-0"

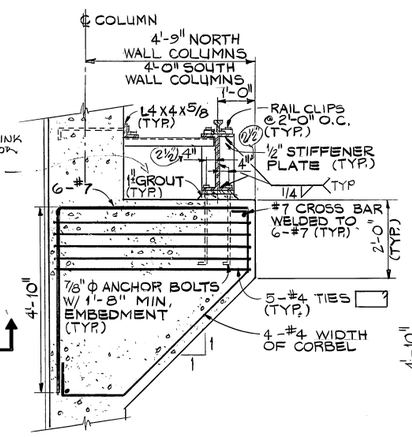




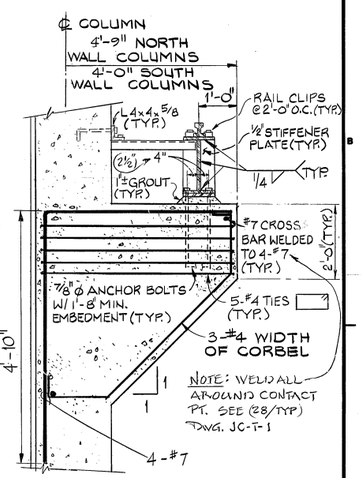
M S-10 CORBEL @ CORNER COLUMN 1/2"= 1'-0"



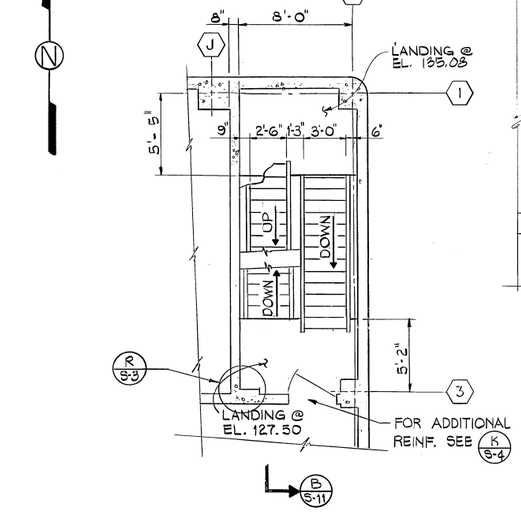
N S-10 CORBEL @ INTERMEDIATE COLUMN 1/2"= 1'-0"

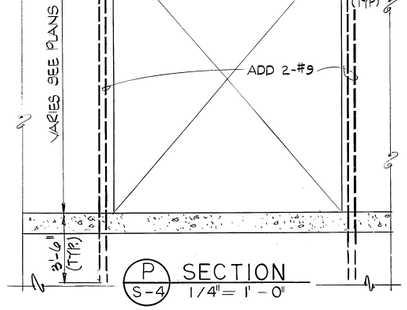


F — SECTION
1/2"= 1'-0"

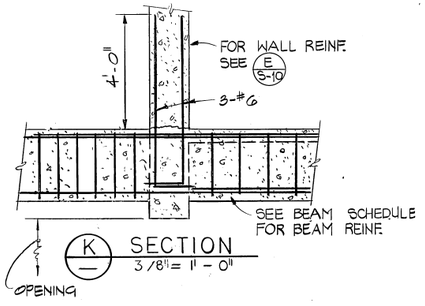


J — SECTION
1/2"= 1'-0"





P S-4 SECTION
1/4"= 1'-0"

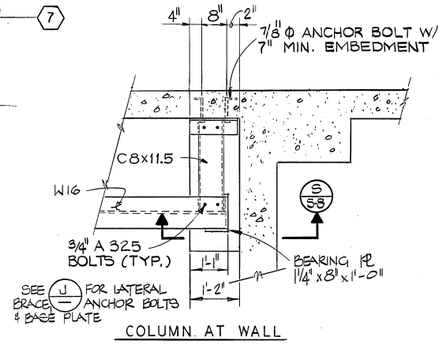


K — SECTION
3/8"= 1'-0"

E — PLAN-LANDING @ EL. 135.08
3/16"= 1'-0"

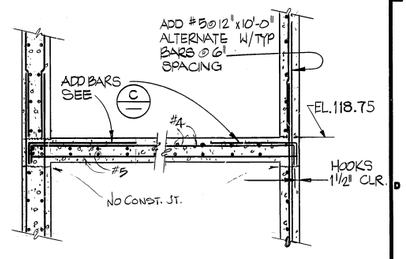
D — PLAN-FLOOR @ EL. 127.50
3/16"= 1'-0"

NOTES:
1. LIVE LOAD:
   a. DAY TANK ROOM = 250 POUNDS PER SQUARE FOOT
   b. LOCKER ROOM AREA AND CORRIDORS = 100 POUNDS PER SQUARE FOOT
   c. CANTILEVER STAIR LANDINGS = 100 POUNDS PER SQUARE FOOT.
2. SEE ARCHITECTURAL PLANS FOR LOCATION OF PARTITIONS IN LOCKER ROOM AND DETAILS OF PARTITION WALLS.



COLUMN AT WALL

G CORBEL DETAIL
1/2"= 1'-0"



L — SECTION
3/8"= 1'-0"

REV.	DATE	BY	DESCRIPTION

DESIGNED SDS\WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

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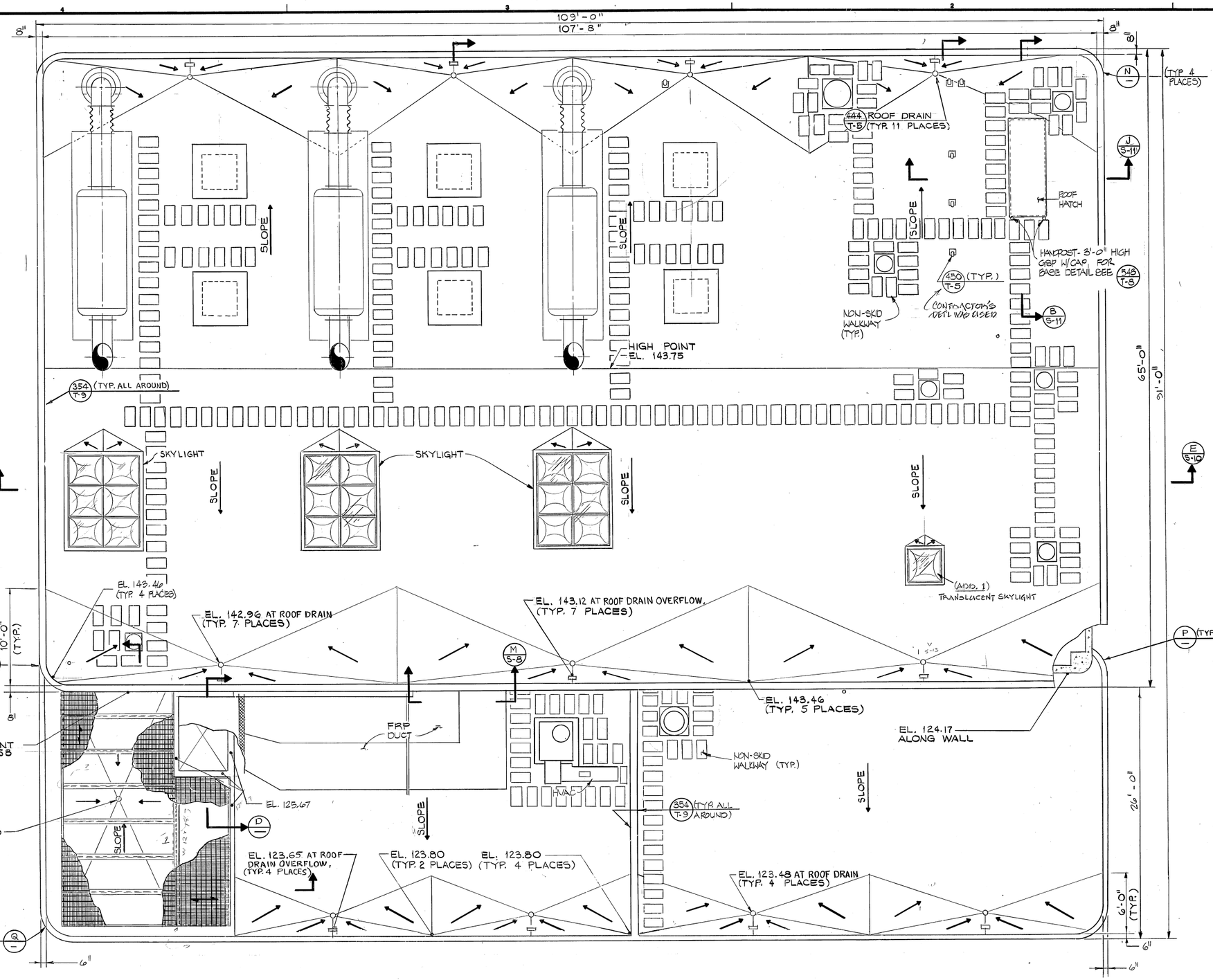
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
PARTIAL FLOOR PLANS AND DETAILS

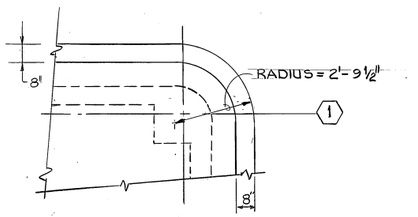
JOB NO. W 02401A12
DRAWING NO. JC-S-5
SHEET NO. 32 of 106

NOTES:

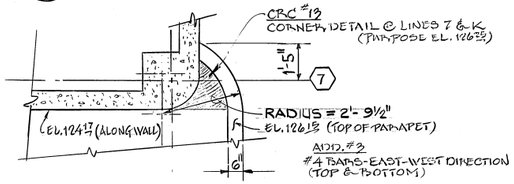
1. ELEVATIONS SHOWN ON ROOF PLAN ARE TO TOP OF INSULATING CONCRETE.
2. ROOF LIVE LOAD: 20 POUNDS PER SQUARE FOOT
3. GRATING LIVE LOAD: 100 POUNDS PER SQUARE FOOT
4. MIN. INSULATING CONCRETE THICKNESS MEASURED FROM TOP OF STEEL DECK SHALL BE 2".



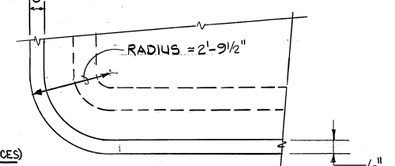
G — ROOF PLAN
3/16" = 1'-0"



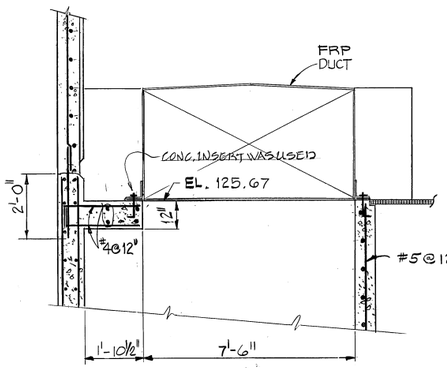
N — CORNER DETAIL
3/8" = 1'-0"



P — CORNER DETAIL
3/8" = 1'-0"



Q — CORNER DETAIL
3/8" = 1'-0"



D — SECTION
3/8" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	DEC 85	XP	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

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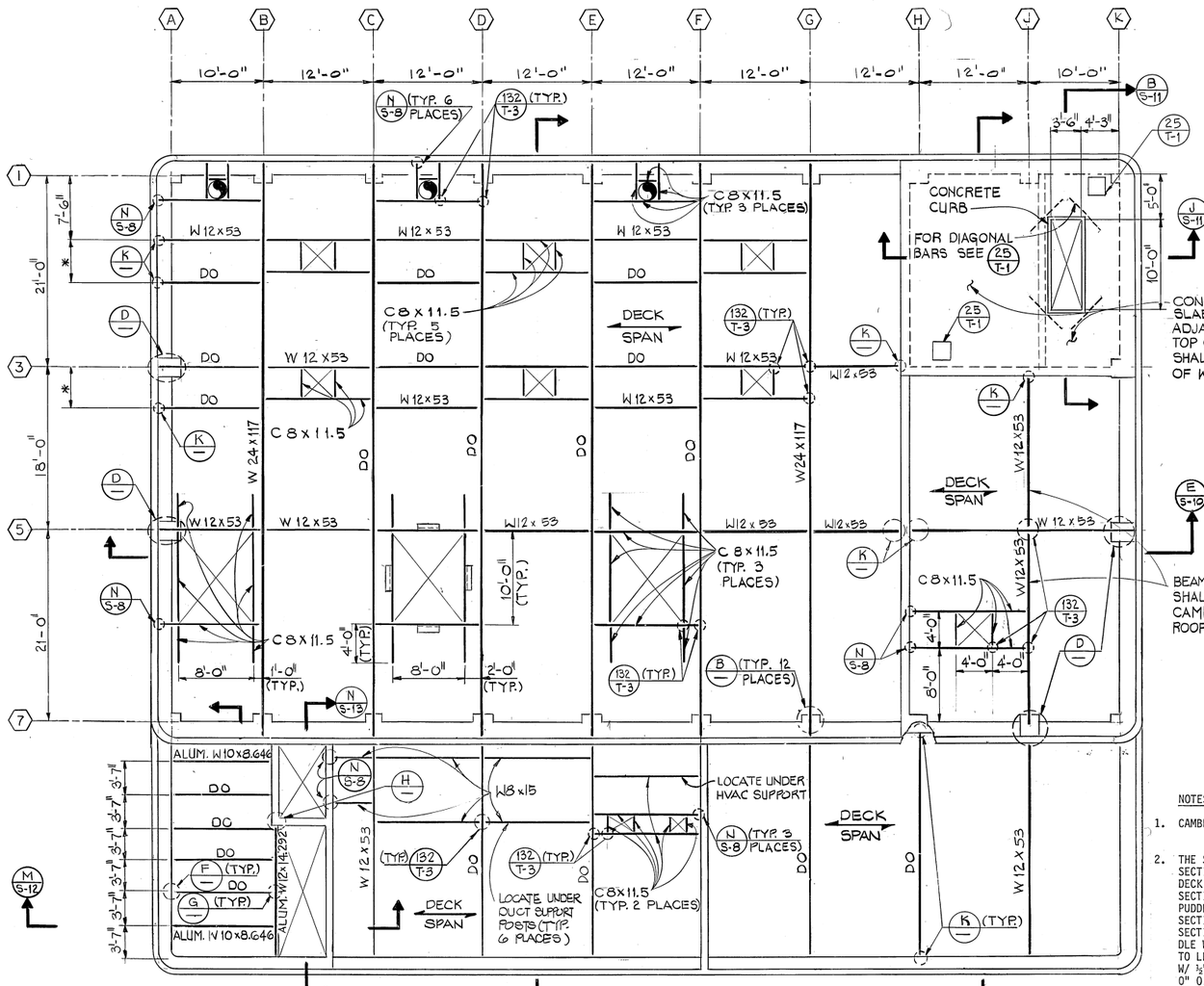
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
ROOF PLAN

JOB NO. W 02401A12
DRAWING NO. JC-S-6
SHEET NO. 33 OF 106

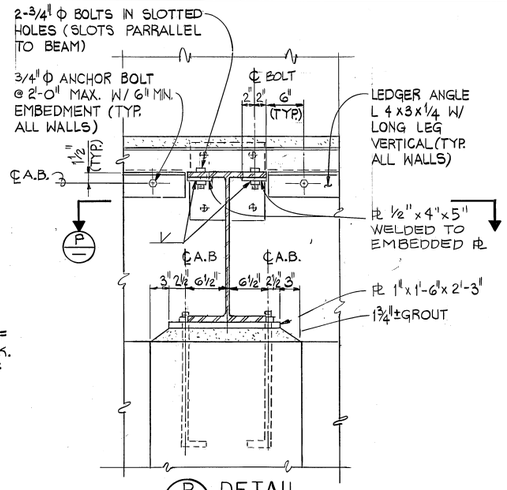
ABCDEFGHJKLMNPQRSUVWXYZ



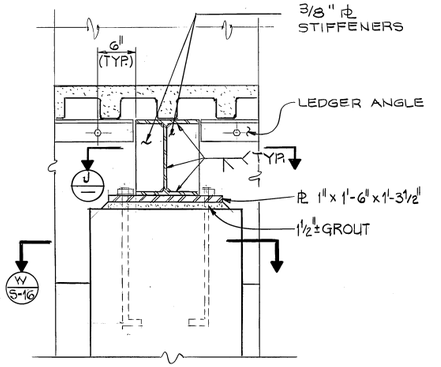
A ROOF FRAMING PLAN
1/8"=1'-0"

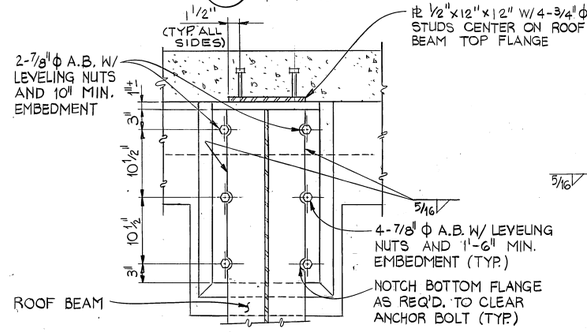
NOTES

1. CAMBER W24 ROOF BEAMS 4".
2. THE STEEL ROOF DECK SHALL BE H.H. ROBERTSON SECTION 21, 14 GAUGE, OR EQUAL. WELD EACH DECK SECTION TO SUPPORTS TRANSVERSE TO DECK SECTION SPAN W/ 4 - ⅝" EFFECTIVE DIAMETER PUDDLE WELDS AT EACH SUPPORT. WELD DECK SECTIONS TO BEAM SUPPORTS PARALLEL TO DECK SECTION SPAN W/ ⅝" EFFECTIVE DIAMETER PUDDLE WELDS AT 1' - 0" O.C. WELD DECK SECTIONS TO LEDGER ANGLES PARALLEL TO DECK SECTIONS W/ ⅜" EFFECTIVE DIAMETER PUDDLE WELDS @ 1' - 0" O.C. WELD DECK SEAMS W/ 1½" LONG TOP SEAM WELDS AT 1' - 0" O.C.
3. SEE 37 T-3 FOR ROOF DECK MAKE-UP SECTION
4. * TO SUIT SILENCER EQUIPMENT SUPPLIED.



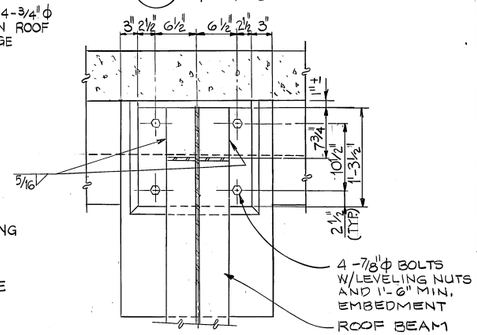
B DETAIL
1"=1'-0"





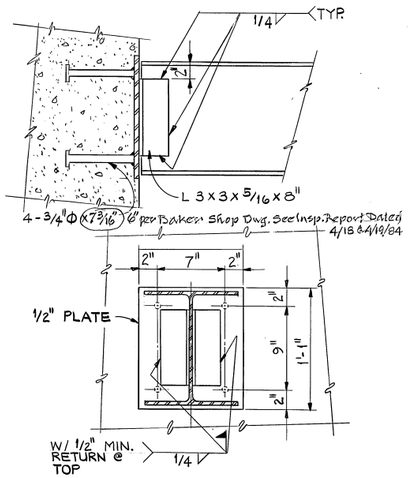
P SECTION
1"=1'-0"

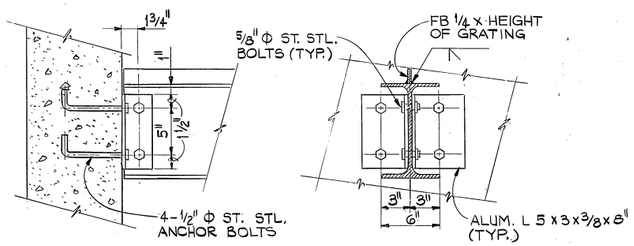
D DETAIL
1"=1'-0"



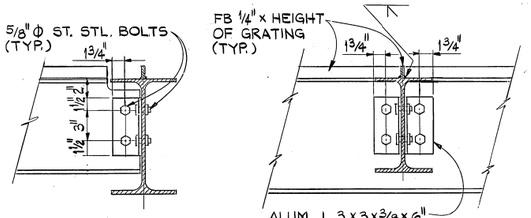
J SECTION
1"=1'-0"

CPC #28
CORRECTIVE WORK FOR BEAM SUPPORT CONNECTION

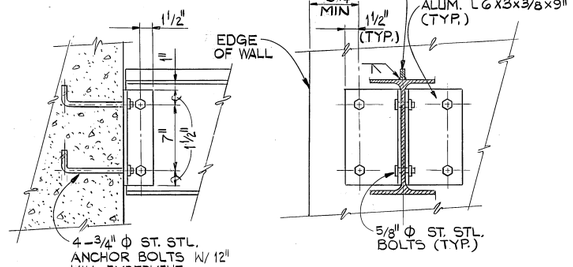




F DETAIL-BEAM TO WALL CONNECTION
1 1/2"=1'-0"



G DETAIL-BEAM TO BEAM CONNECTION
1 1/2"=1'-0"



H DETAIL-BEAM TO WALL CONNECTION
1 1/2"=1'-0"

K DETAIL-ROOF BEAM TO WALL CONNECTION
1 1/2"=1'-0"

REV.	DATE	BY	DESCRIPTION
	DEC 83	JV	As-built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

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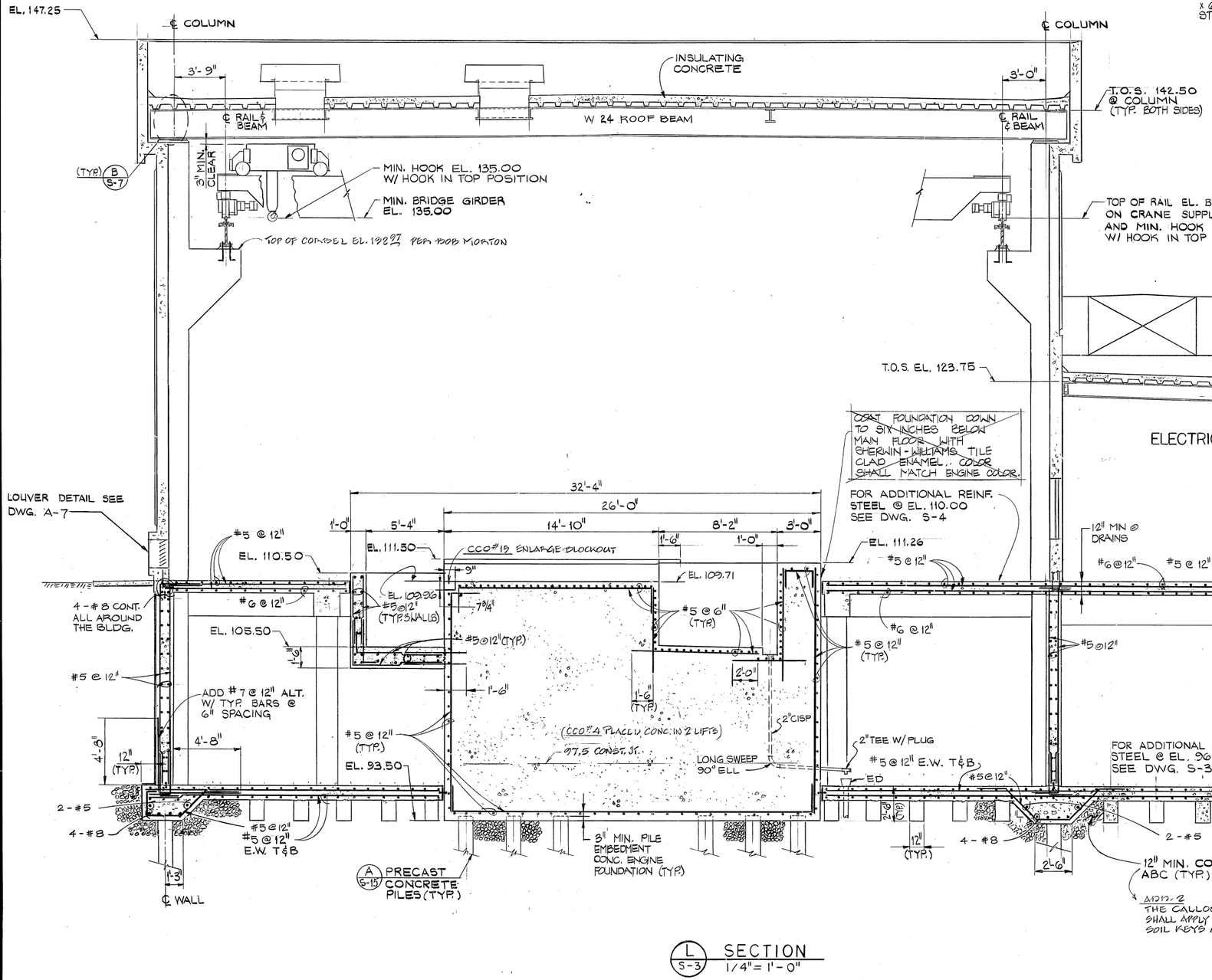
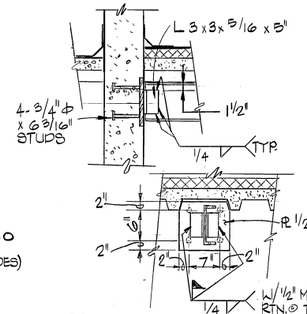
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

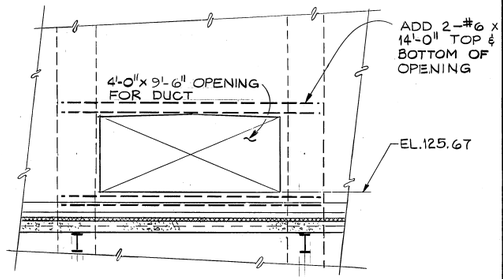
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
ROOF FRAMING PLAN AND DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-S-7
SHEET NO. 34 of 106

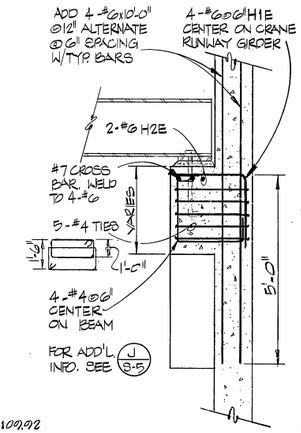




N S-7 DETAIL - CHANNEL TO WALL CONNECTION 3/4" = 1'-0"



M S-6 SECTION 1/4" = 1'-0"



S S-5 SECTION 1/2" = 1'-0"

CCO #24
PROVIDE SLAB & KEYWAYS @ FLUTED WALL

L S-3 SECTION 1/4" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	DEC 89	JV	As-built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. NO. 11392
PROJECT ENGINEER Sawan K. Wasson P.E. NO.
E.B.M.U.D.

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EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
SECTION

JOB NO. W 02401A12
DRAWING NO. JC-S-8
SHEET NO. 35 of 106

EL. 147.25

T.O.S. EL. 142.50 @ COLUMNS

SEE (B / S-11) FOR REINF.

DAY TANK ROOM

LOCKER ROOM

EL. 129.50

#4@6"

HIGH POINT EL. 127.50

10"

#5@6"

PARTS ROOM

#4 @ 12" E.W. T&B

T.O.S. EL. 123.75

6" MIN. AT DRAINS

HIGH POINT EL. 127.46

EL. 126.75

T.O.S. EL. 123.00

(A / —) DETAIL

10" MIN. TRACK DEPTH

ROD HANGERS (TYP.)

TOP OF MONORAIL EL. 124.83

FOR ADDITIONAL REINF. STL. @ EL. 118.75 SEE DWG. S-5

EL. 118.75

CONST. JT. W/3/4" DEEP KEY (BETW. SLAB & WALL)

#5@12"

#4@6"

10"

MAINTENANCE ROOM

GAS COMPRESSOR ROOM

#5@12"

CLEAN ROOM

HIGH POINT EL. 110.00

FOR REINF. STL. @ EL. 110.00 SEE (L / S-5) # (G / S-5)

L/S-8 As verified by Ed M. 2/27/84 @ 9:00 Also H/S-9 has same rebar as L/S-9 on JC-S-8.

(600 / T-9) w/6@12 T-9 Anchor Bolt Det'l.

SEE M-10 Sec. FM-3 For Embed. Miss. Metal

CLASS "C" LAP SPLICE (TYP.)

(D / —) (TYP.)

Spec. 070140 P.T.-2 6 Mil. Black Polythelene Membrane

P.F.I. S-71 REBAR VS WATERSTOP

9'-0" SQ.

4'-6"

℄ OF WALL

4'-6"

3'-0" (TYP.)

3'-6"

FOR REINF. STL. @ EL. 96.00 SEE DWG. S-8

12" (TYP.)

HIGH POINT EL. 96.00

#8@6"

#9@12

1'-2"

3'-6"

EL. 93.00

4-#6

Top of pile EL. 93.25

℄ WALL

#5@12" E.F. (TYP. 4 WALLS)

GROUT FILLET #5@12 T&B

12" (TYP.)

EL. 89.50

Omit Grout Fillet per Memo

1" to 2" Layer of Sand

EL. 92.5

#8@6"

2'-6" (TYP.)

#9@12

4-#6

12" MIN. COMPACTED ABC (TYP.) - SEE JC-S-8, Addn. 2

1'-3" (TYP.)

4'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 4'-0" 3'-4½" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 4'-7½"

4'-6" (TYP.) 4'-6" (TYP.) 9'-0" SQ.

DELETE CONST. JT. & WATERSTOP

(H / S-3) SECTION 1/4" = 1'-0"

℄ Grade Beam ℄ Soil Key

FILL W/CONC. Per B.S. 10/10/83

DET'L FOR SOIL KEY INTERFERENCE W/GRADE BEAM

LAP LENGHT PER (1 / TYP) ON JC-T-1

#4@18"

2-#4

2"#4 (CONTRACTOR ADDED BARS)

P.F.I. 18 CHANGE REBARS IN SOIL KEYS

SEE BEAM SCHEDULE FOR REINF.

1½"

FOR SLAB REINF. SEE (H / —)

(D / —) SECTION-SOIL KEY 3/4" = 1'-0"

(A / —) DETAIL 3/4" = 1'-0"

(P / —)

PLACEMENT OF FIRST STIRRUP 3" FROM BOTTOM EDGE OF THICKENED SLAB (BOTH SIDES)

#4@18"

5"@

2"#5

ORIG. 2"#4

3"

ADDED 2"#4

SOIL KEY ELEV.

(P / M-10)

2-#5

#4@12"

2'-0"

9"

4'-0" SQ.

#5@12" E.W. E.F. (TYP. 3 WALLS OF SUMP)

12" (TYP.)

EL. 96.00?

#5@12" T&B

45°

#5@12"

P.F.I. #60 MOD. SUMP FOOTING ADDITIONAL CLASS "A" CONCRETE

(X / S-4) SECTION 3/8" = 1'-0"

A B C D E F G H J K L M N P Q R S U V W X Y Z

REV.	DATE	BY	DESCRIPTION
	DEC 83	AS	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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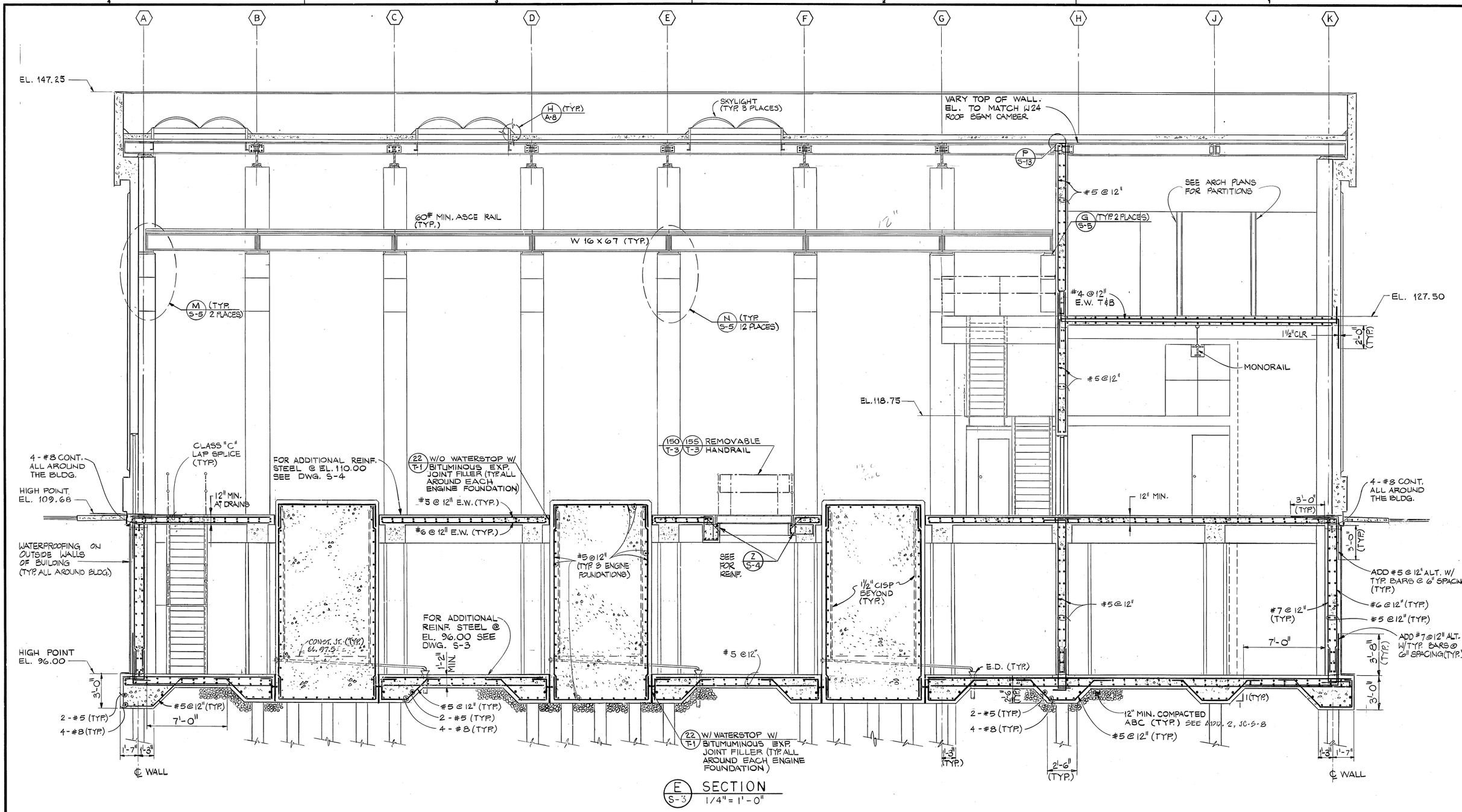
EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD)

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. 8D135
STRUCTURAL
POWER GENERATION BUILDING
SECTION

JOB NO. W 02401A12
DRAWING NO. JC-S-9
SHEET NO. 36 OF 106



E S-3 SECTION
1/4" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	DEC 89	KV	AS-BUILT

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
Walter R. Howard P.E. 6525
PARTNER P.E. NO.
Samuel H. Wasson M 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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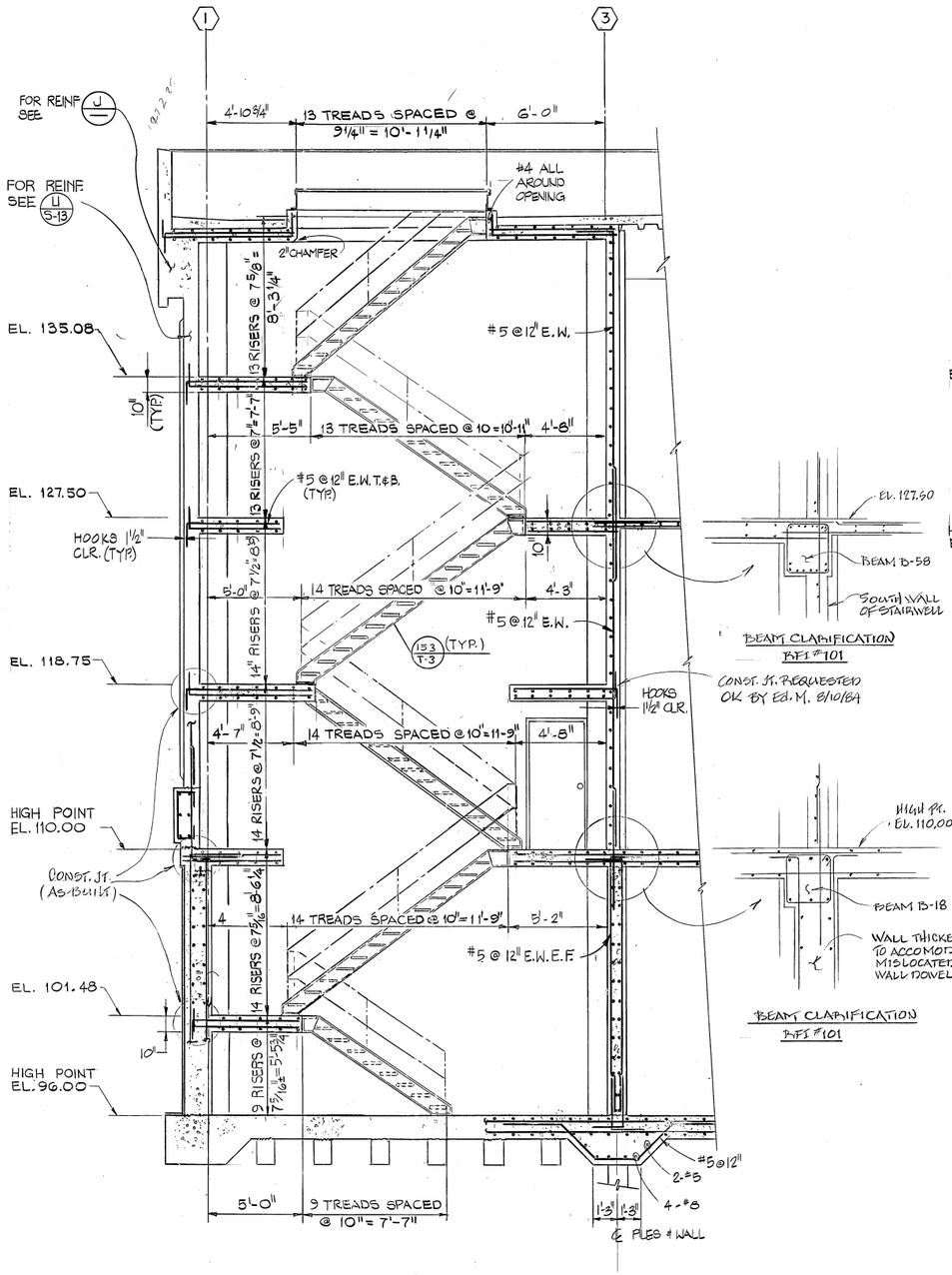
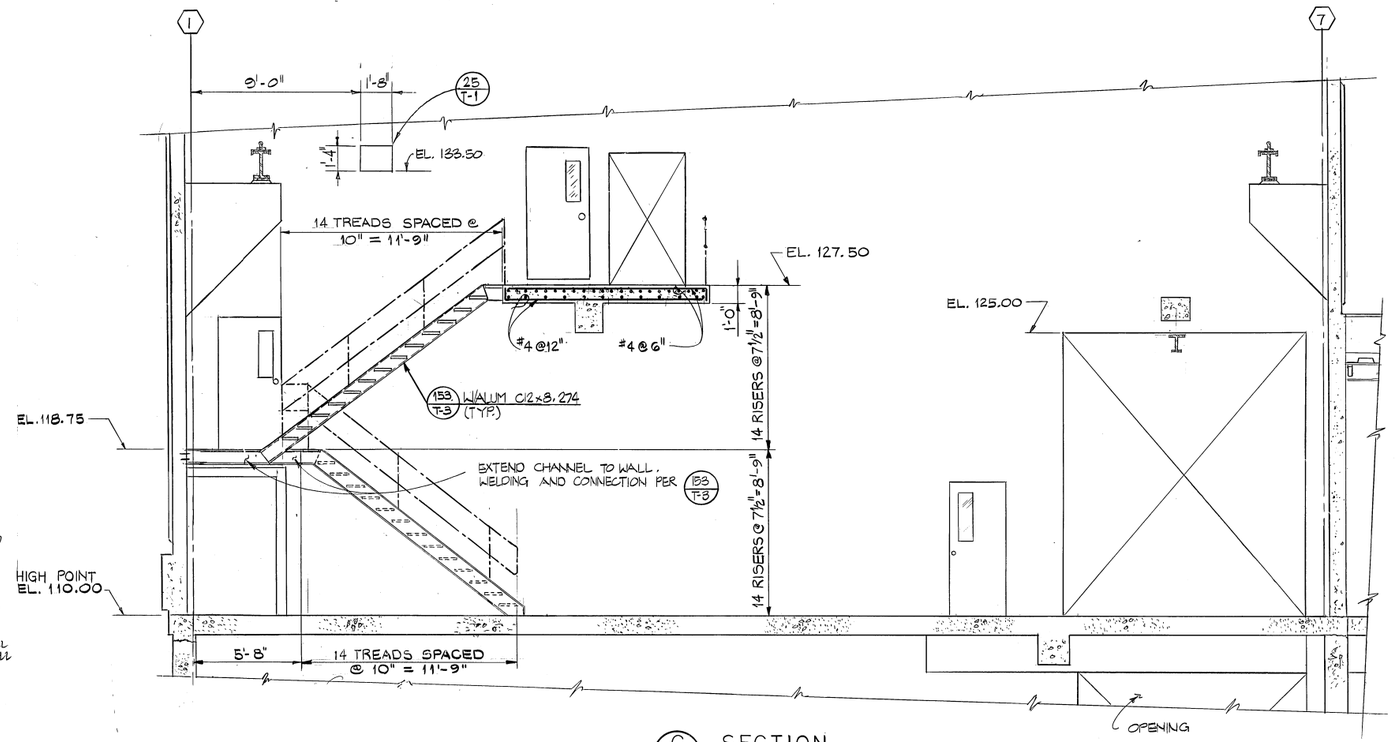
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
SECTION

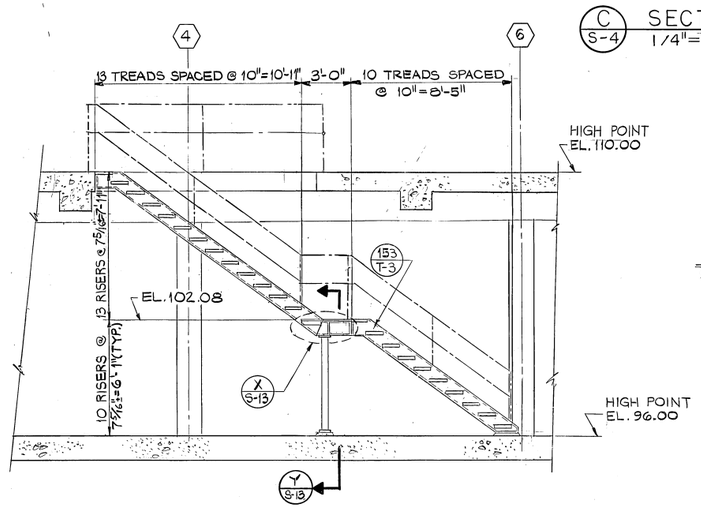
JOB NO. W 02401A12
DRAWING NO. JC-S-10
SHEET NO. 37 OF 106



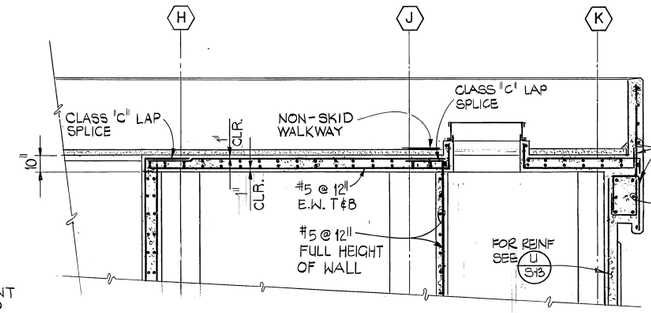
B S-4 SECTION
1/4" = 1'-0"



C S-4 SECTION
1/4" = 1'-0"



D S-4 SECTION
1/4" = 1'-0"



J S-6 SECTION
3/8" = 1'-0"

ABCDEFGHJKLMNPQRSUVWXYZ

REV.	DATE	BY	DESCRIPTION
	DEC 89	JV	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
H. Walter P. Howard R.C.E. 14908
PARTNER P.E. NO.
Seaman G. Watson M 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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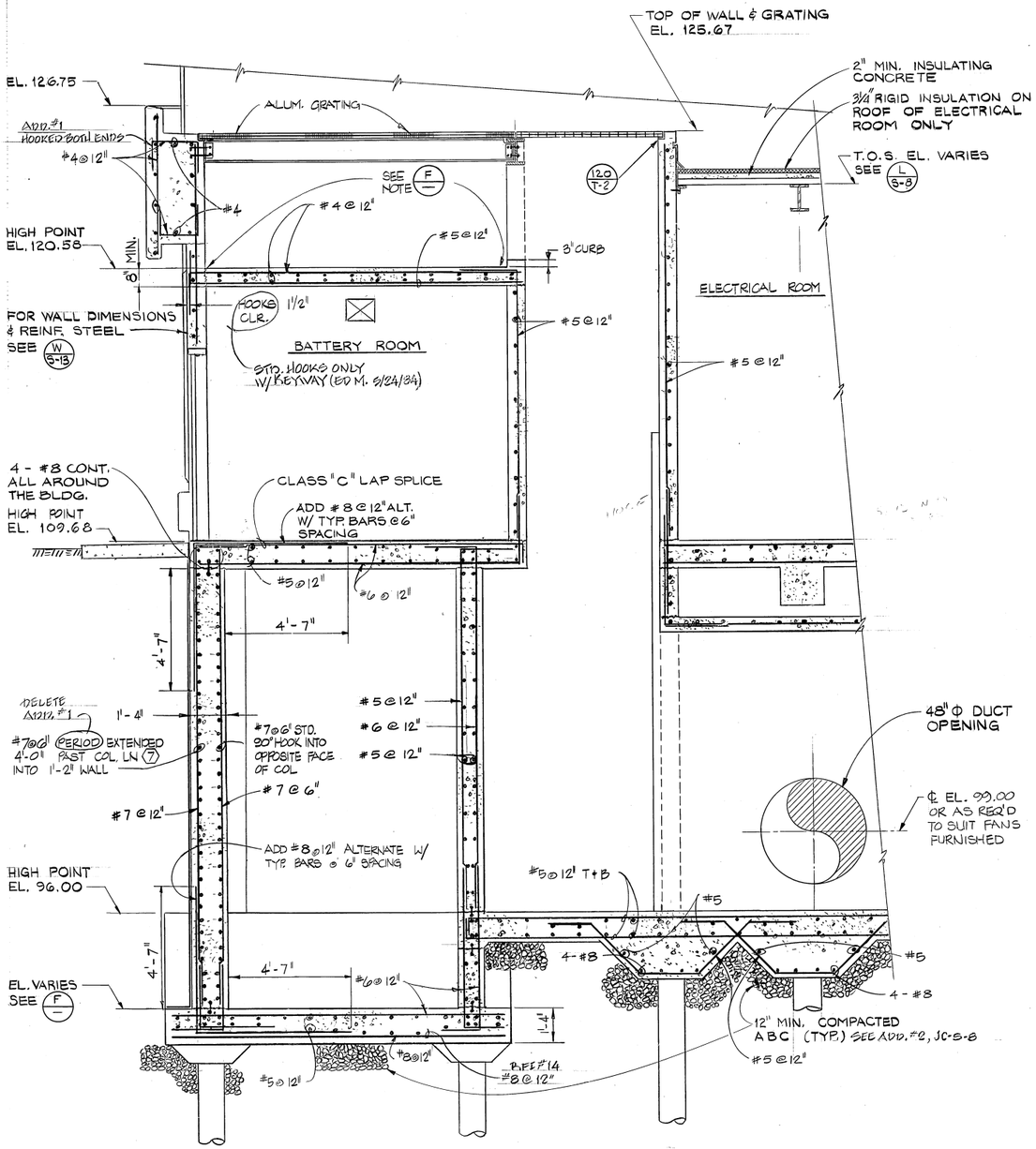
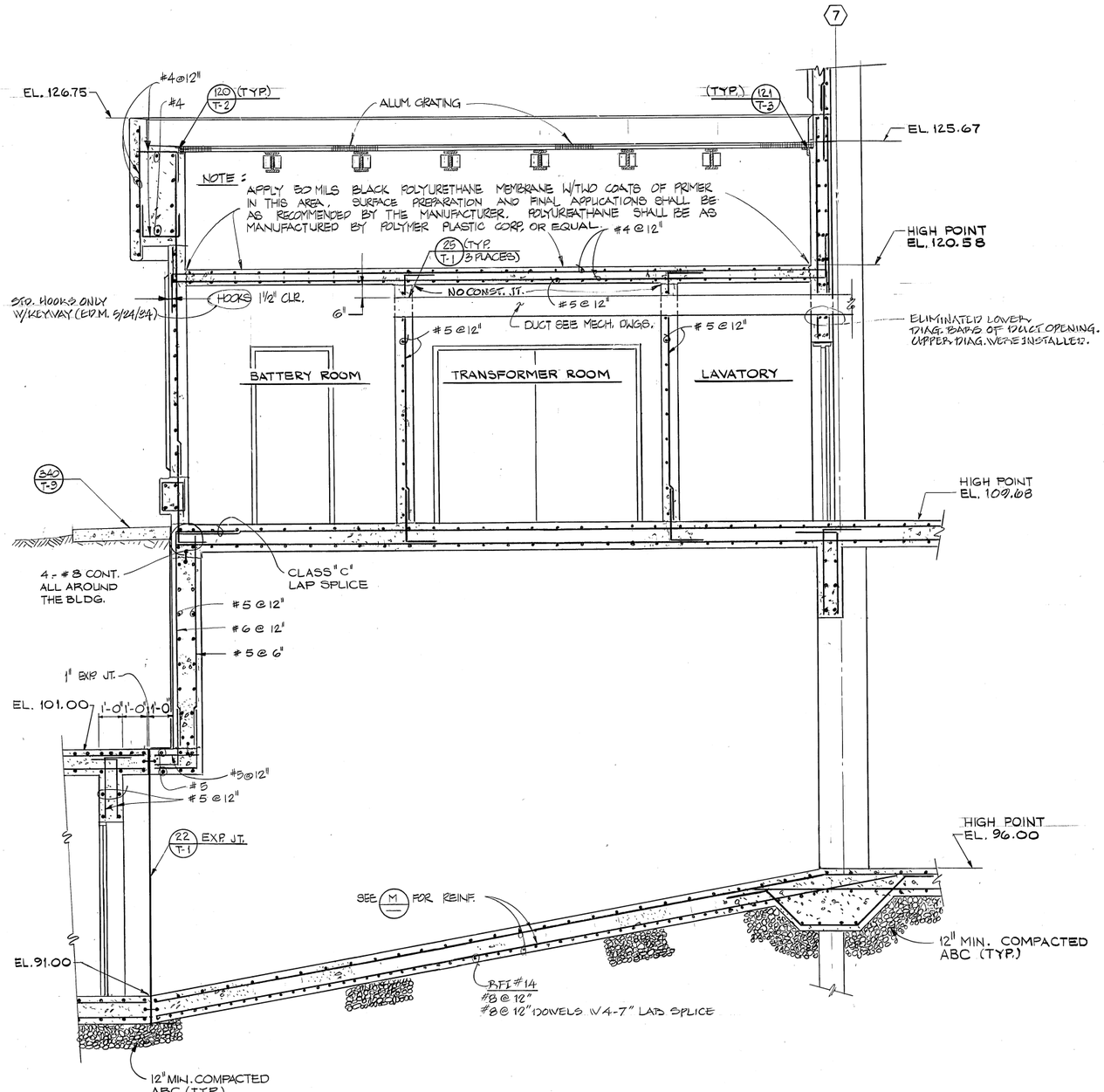
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-S-11
SHEET NO. 38 OF 106



M S-3 SECTION
3/8"=1'-0"



F S-3 SECTION
3/8"= 1'-0"

REV.	DATE	BY	DESCRIPTION
	DEC 85	KV	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER Walter P. Moore P.E. 16808
PROJECT ENGINEER Salwan K. Wason M18392 P.E. NO.
E.B.M.U.D.

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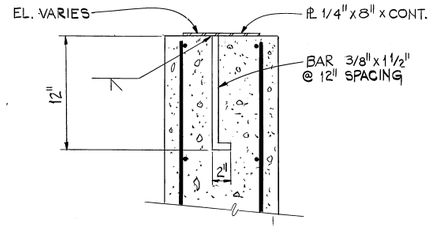
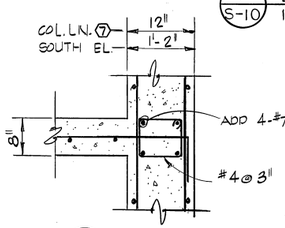
EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD)

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
SECTIONS

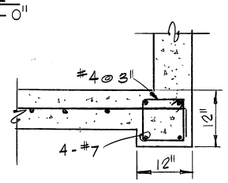
JOB NO. W 02401A12
DRAWING NO. JC-S-12
SHEET NO. 39 OF 106

N31366
ABCDEFGHJKLMNPQRSUVWXYZ



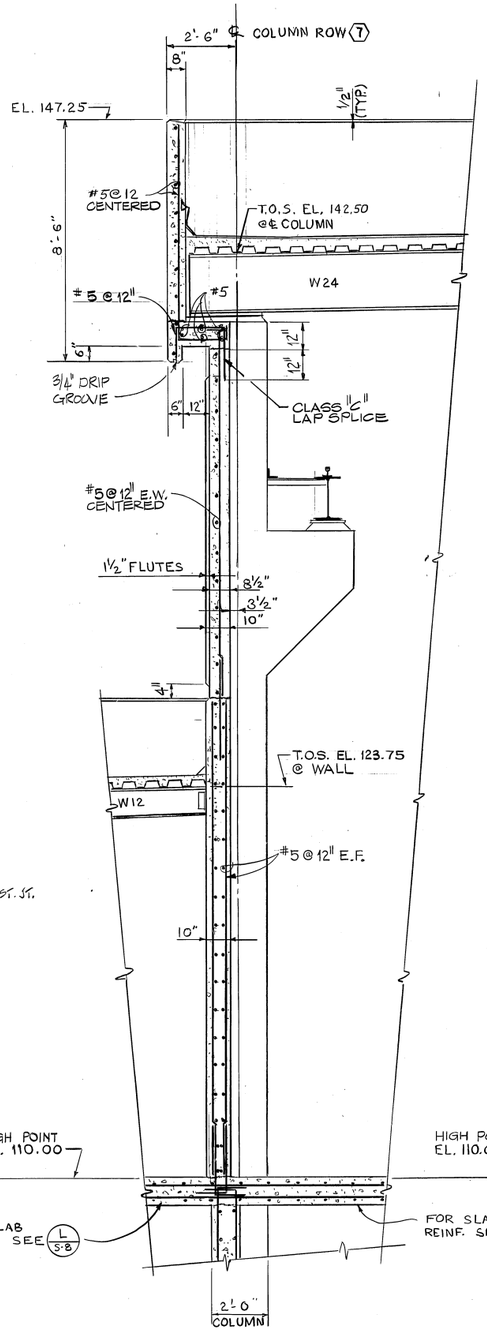


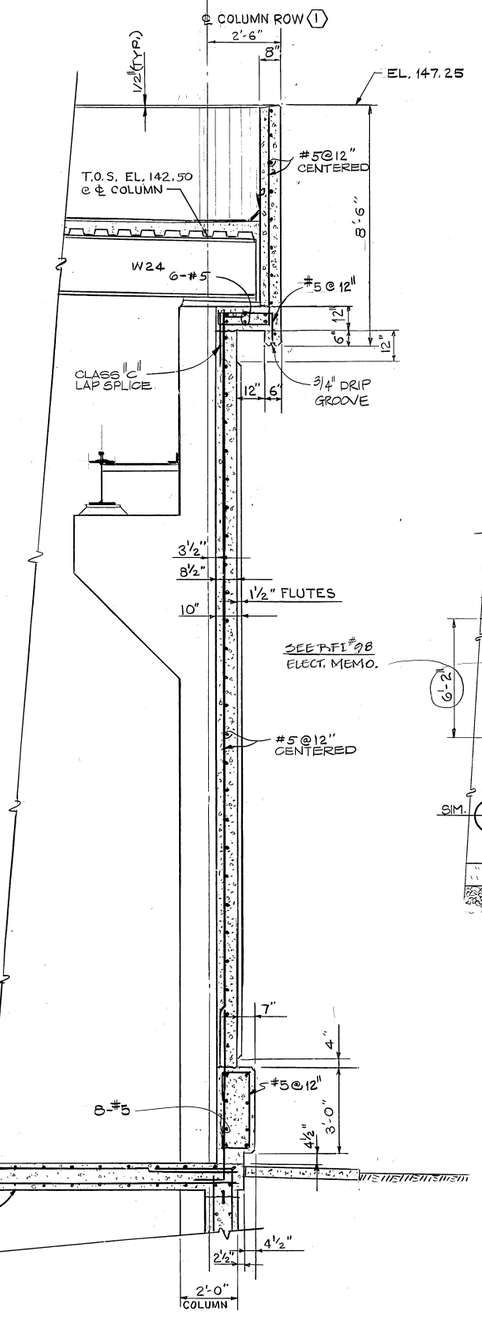
P DETAIL S-10 1 1/2" = 1'-0"

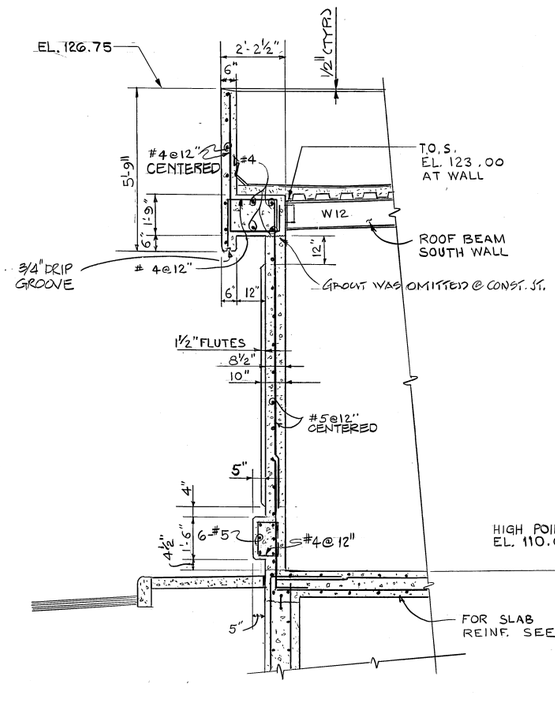


D DETAIL 3/4" = 1'-0"

E DETAIL 3/4" = 1'-0"



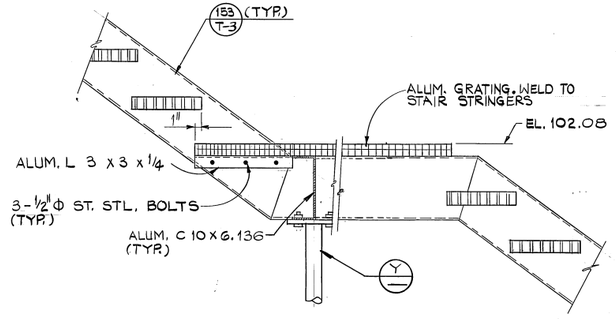




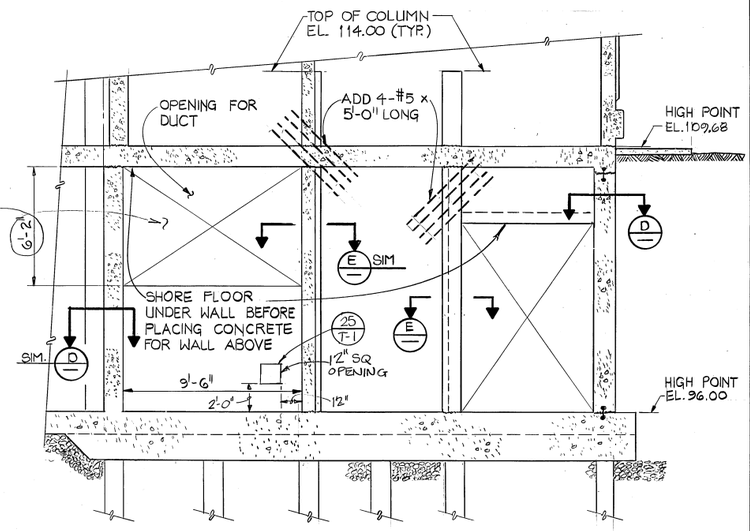
W SECTION-TYPICAL WALL S-4 3/8" = 1'-0"

V SECTION-TYPICAL WALL S-4 3/8" = 1'-0"

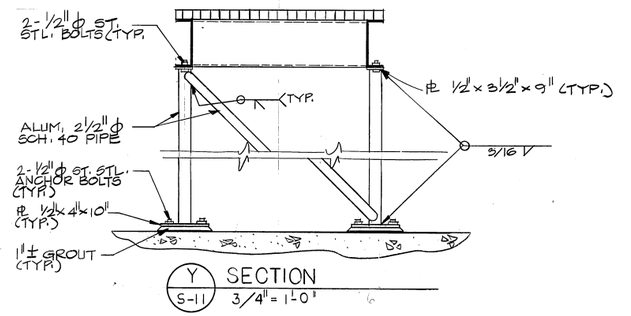
U SECTION-TYPICAL WALL S-4 3/8" = 1'-0"



X DETAIL S-11 1" = 1'-0"



N SECTION S-3 1/4" = 1"-0"



Y SECTION S-11 3/4" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	DEC 83	KR	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
Walter K. Howard P.E. 21690 PARTNER
Salwan G. Wardak M 18392 P.E. NO. PROJECT ENGINEER
E.B.M.U.D

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD R. PREISLER, P.E.
GAIL P. LYNCH, P.E.
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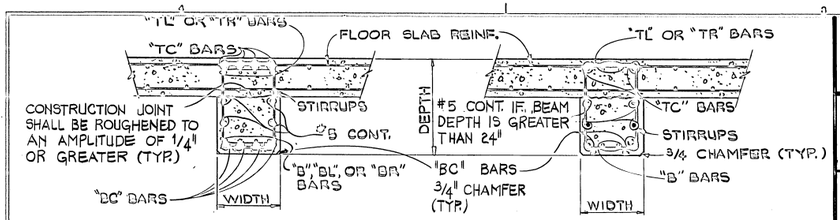
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
WALL SECTIONS AND DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-S-13
SHEET NO. 40 OF 106

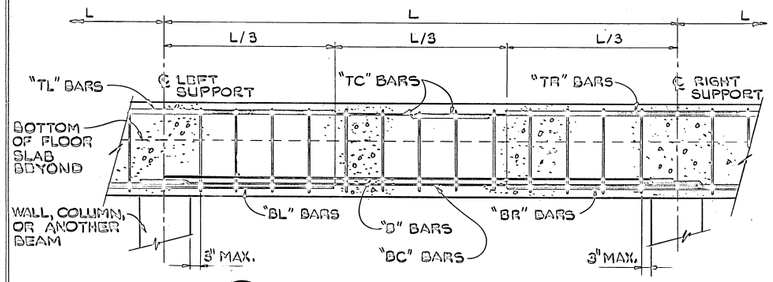
ABCDEFGHJKLMNPQRSUVWXYZ



BEAMS B-57 TO B-63 BEAMS B-1 TO B-56

NOTE: CONSTR. JT. DELETED AT CONTRACTOR'S OPTION. (ADD. #2)

(B) TYPICAL BEAM SECTIONS
1/2" = 1'-0"



(A) TYPICAL BEAM ELEVATION
N.T.S.

ADD. #1

NOTES:

1. THE LEFT SUPPORT OF A BEAM SHALL BE AT THE NORTH OR WEST END OF THE BEAM.
2. TOP BARS ("TL" & "TR") AND BOTTOM BARS ("BL" & "BR") CONTINUOUS OVER INTERIOR SUPPORTS ARE REFERENCED TWICE IN THE BEAM SCHEDULE, FOR EXAMPLE "TR" BAR = "TL" BARS OF ADJACENT SPANS. ADD. #1
3. SEE BEAM SCHEDULE FOR SIZE AND SPACING OF STIRRUPS AND SIZE AND NUMBER OF LONGITUDINAL MAIN REINFORCING BARS. ADD. #1

BEAM NO.	BEAM SIZE WIDTH (inches)	BEAM SIZE DEPTH (inches)	MAIN REINFORCING BARS No. & SIZE	MAIN REINFORCING BARS TYPE	STIRRUPS SIZE	STIRRUPS SPACING FROM LEFT SUPPORT	REMARKS
B-1	20"	24"	2 - #6 1 - #7 1 - #7 2 - #6 1 - #7	TC TL TR BC B	#3	3'-4" FULL LENGTH @ 12" 10'-0"	STD 90° HOOK TC AND TL BARS INTO OPPOSITE FACE OF COL. STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF BM. EXTEND BC BARS TO OUTSIDE FACE OF COL OR BM.
B-2	20"	24"	2 - #6 1 - #7 1 - #7 2 - #6 1 - #7	TC TL TR BC B	#3	3'-4" FULL LENGTH @ 12" 10'-0"	STD 90° HOOK TC AND TL BARS INTO OPPOSITE FACE OF COL. STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF BM. EXTEND BC BARS TO OUTSIDE FACE OF COL OR BM.
B-3	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL. (w/Std. Hooks)
B-4	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	STD 90° HOOK TC AND TL BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-5	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 3 - #9	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	ADD 3 - #9 BARS, 12' LONG, TO TOP OF BM. PLACE IN A LAYER 2" BELOW TC BARS. ADD 1 - #8 BAR, 8' LONG, @ BTM. LEFT AND BTM. RT. PLACE AS SHOWN ON (A)
B-6	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	
B-7	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	
B-8	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	
B-9	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 3 - #9	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	ADD 3 - #9 BARS, 12' LONG, TO TOP OF BM. PLACE IN A LAYER 2" BELOW TC BARS. ADD 1 - #8 BAR, 8' LONG, @ BTM. LEFT AND BTM. RT. PLACE AS SHOWN ON (A)
B-10	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 2 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	STD 90° HOOK TC, TL AND TR BARS INTO OPPOSITE FACES OF BM.37 AND BM42. EXTEND BC BARS TO OUTSIDE FACES OF BM.37 AND BM.42.
B-11	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	
B-12	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	
B-13	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	4'-0" FULL LENGTH @ 12" 12'-0"	
B-14	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	3'-6" FULL LENGTH @ 12" 10'-6"	
B-15	20"	30"	2 - #6 2 - #6 3 - #6 2 - #7 3 - #6 (Add #1)	TC TL TR BC B	#3	3'-6" FULL LENGTH @ 12" 10'-6"	
B-16	20"	30"	2 - #6 3 - #6 2 - #6 2 - #7 3 - #6	TC TL TR BC B	#4	4'-6" FULL LENGTH @ 10" 13'-6"	STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-17	20"	30"	2 - #6 3 - #6 3 - #6 2 - #7 2 - #7	TC TL TR BC B	#3	4'-6" FULL LENGTH @ 10" 13'-6"	
B-18	20"	24"	2 - #6 1 - #7 1 - #7 2 - #6 1 - #7	TC TL TR BC B	#3	3'-4" FULL LENGTH @ 12" 10'-0"	STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF COL. STD 90° HOOK TC AND TL BAR INTO OPPOSITE FACE OF BM. EXTEND BC BARS TO OUTSIDE FACE OF COL OR BM.
B-19	20"	30"	2 - #6 2 - #6 2 - #6 2 - #7 1 - #8	TC TL TR BC B	#3	3'-4" FULL LENGTH @ 12" 10'-0"	STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF COL. STD 90° HOOK TC AND TL BAR INTO OPPOSITE FACE OF BM. EXTEND BC BARS TO OUTSIDE FACE OF COL OR BM.
B-20	20"	30"	2 - #6 3 - #6 3 - #6 2 - #7 2 - #7	TC TL TR BC B	#3	3'-4" FULL LENGTH @ 12" 10'-0"	STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACE OF WALL.
B-21	20"	30"	2 - #7 2 - #7 5 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	4'-10" FULL LENGTH @ 12" 14'-6"	STD 90° HOOK TC AND TR BAR INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-22	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	
B-23	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 3 - #7	TC TL TR BC B	#4	5'-10" FULL LENGTH @ 10"	ADD 3 - #7 BARS TO TOP OF BM. PLACE IN A LAYER 2" BELOW TC BARS, AND RUN BARS FULL LENGTH OF BEAM.
B-24	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 3 - #7	TC TL TR BC B	#4	3'-6" FULL LENGTH @ 10" 10'-6"	STD 90 HOOK TC AND TL BARS INTO OPP. FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL. ADD 3-#7 BARS TO TOP OF BM. PLACE IN A LAYER 2" BELOW TC BARS, AND RUN BARS FULL LENGTH OF BEAM.
B-25	20"	36"	2 - #7 2 - #6 3 - #9 4 - #6 4 - #7 3 - #7	TCL TCR TL TR BC B	#4	8'-09¾" FULL LENGTH @ 12" 26'-5"	STD. 90° HOOK TCR AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACES OF WALL AND COL. TCL: TC BARS AT LEFT SUPPORT TCR: TC BARS AT RIGHT SUPPORT
B-26	20"	30"	2 - #7 2 - #7 3 - #9 2 - #7 2 - #7	TC TL TR BC B	#3	4'-10" FULL LENGTH @ 12" 14'-6"	EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-27	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	
B-28	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	
B-29	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	3'-6" FULL LENGTH @ 12" 10'-6"	STD 90° HOOK TC AND TL BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-30	20"	36"	2 - #7 2 - #6 3 - #9 4 - #6 4 - #7 3 - #7	TCL TCR TL TR BC B	#4	8'-09¾" FULL LENGTH @ 12" 26'-5"	STD 90° HOOK TCR AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACES OF WALL AND COL. TCL: TC BARS AT LEFT SUPPORT TCR: TC BARS AT RIGHT SUPPORT
B-31	20"	30"	2 - #7 2 - #7 3 - #9 2 - #7 2 - #7	TC TL TR BC B	#3	4'-10" FULL LENGTH @ 12" 14'-6"	EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-32	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	
B-33	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 3 - #7	TC TL TR BC B	#4	5'-10" FULL LENGTH @ 10" 17'-6"	ADD 3 - #7 BARS TO TOP OF BM. PLACE IN A LAYER 2" BELOW TC BARS, AND RUN BARS FULL LENGTH OF BEAM.
B-34	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 3 - #7	TC TL TR BC B	#4	3'-6" FULL LENGTH @ 10" 10'-6"	STD 90 HOOK TC AND TL BARS INTO OPP. FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL. ADD 3 - #7 BARS TO TOP OF BM. PLACE IN A LAYER 2" BELOW TC BARS, AND RUN BARS FULL LENGTH OF BEAM.
B-35	20"	36"	2 - #7 2 - #6 3 - #9 4 - #6 4 - #7 3 - #7	TCL TCR TL TR BC B	#4	8'-09¾" FULL LENGTH @ 12" 26'-5"	STD 90° HOOK TCR AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACES OF WALL AND COL. TCL: TC BARS AT LEFT SUPPORT. TCR: TC BARS AT RIGHT SUPPORT.
B-36	20"	30"	2 - #7 2 - #7 3 - #9 2 - #7 2 - #7	TC TL TR BC B	#3	4'-10" FULL LENGTH @ 12" 14'-6"	EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-37	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	
B-38	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	
B-39	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	3'-6" FULL LENGTH @ 12" 10'-6"	STD 90° HOOK TC AND TL BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-40	20"	36"	2 - #7 2 - #6 3 - #9 4 - #6 4 - #7 3 - #7	TCL TCR TL TR BC B	#4	8'-09¾" FULL LENGTH @ 12" 26'-5"	STD 90° HOOK TCR AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACES OF WALL AND COL. TCL: TC BARS AT LEFT SUPPORT TCR: TC BARS AT RIGHT SUPPORT
B-41	20"	30"	2 - #7 2 - #7 3 - #9 2 - #7 2 - #7	TC TL TR BC B	#3	4'-10" FULL LENGTH @ 12" 14'-6"	EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-42	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	

NO.	DATE	BY	DESCRIPTION
	JAN 86	XC	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PASTORO P.E. NO. M19392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1900-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD O. PIRNIE, P.E.
GAIL P. LYNCH, P.E.
WALTER D. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
C. WILLIAM KROPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
BEAM SCHEDULE AND DETAILS

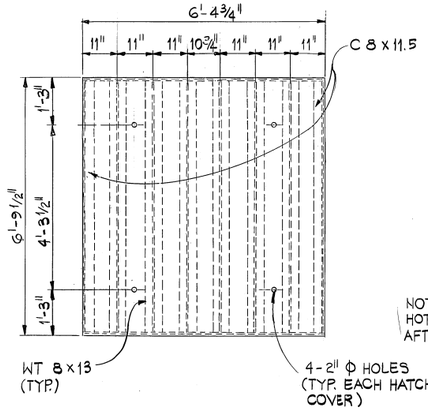
JOB NO. W 02401A12
DRAWING NO. JC-S-14
UNIT NO. 41 OF 106

BEAM NO.	BEAM SIZE WIDTH (inches)	BEAM SIZE DEPTH (inches)	MAIN REINFORCING BARS No. & SIZE	MAIN REINFORCING BARS TYPE	STIRRUPS SIZE	STIRRUPS SPACING FROM LEFT SUPPORT	REMARKS
B-43	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 3 - #7	TC TL TR BC B	#4	5'-10" FULL LENGTH @ 10" 17'-6"	(SAME AS B-23)
B-44	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 3 - #7	TC TL TR BC B	#4	3'-6" FULL LENGTH @ 10" 10'-6"	STD 90° HOOK TC AND TL BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL. (SAME AS B-23)
B-45	20"	36"	2 - #7 2 - #6 3 - #9 4 - #6 4 - #7 3 - #7	TCL TCR TL TR BC B	#4	8'-9¾" FULL LENGTH @ 12" 26'-5"	STD 90° HOOK TCR AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACES OF WALL AND COL. TCL: TC BARS AT LEFT SUPPORT TCR: TC BARS AT RIGHT SUPPORT
B-46	20"	30"	2 - #7 2 - #7 3 - #9 2 - #7 2 - #7	TC TL TR BC B	#3	4'-10" FULL LENGTH @ 12" 14'-6"	EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-47	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	
B-48	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	5'-10" FULL LENGTH @ 12" 17'-6"	
B-49	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	3'-6" FULL LENGTH @ 12" 10'-6"	STD 90° HOOK TC AND TL BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-50	20"	36"	2 - #7 2 - #6 3 - #9 4 - #6 4 - #7 3 - #7	TCL TCR TL TR BC B	#4	8'-9¾" FULL LENGTH @ 12" 26'-5"	STD 90° HOOK TCR AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACES OF WALL AND COL. TCL: TC BARS AT LEFT SUPPORT TCR: TC BARS AT RIGHT SUPPORT
B-51	20"	36"	2 - #7 3 - #7 3 - #9 2 - #8 2 - #7	TC TL TR BC B	#3	4'-10" FULL LENGTH @ 12" 14'-6"	EXTEND TC, TL AND BC BAR INTO BM. BUILD INTO WALL
B-52	20"	36"	2 - #7 2 - #6 3 - #9 4 - #6 4 - #7 3 - #7	TCL TCR TL TR BC B	#4	8'-9¾" FULL LENGTH @ 12" 26'-5" c.c.	**STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACES** OF WALL AND COL. TCL: TC BARS AT LEFT SUPPORT TCR: TC BARS AT RIGHT SUPPORT
B-53	20"	30"	2 - #7 2 - #7 3 - #9 2 - #7 2 - #7	TC TL TR BC B	#3	4'-10" FULL LENGTH @ 12" 14'-6"	EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-54	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	4'-6" FULL LENGTH @ 12" 13'-6"	
B-55	20"	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	3'-6" FULL LENGTH @ 12" 10'-6"	
B-56	(J S-4)	30"	2 - #7 2 - #7 2 - #7 2 - #7 2 - #7	TC TL TR BC B	#3	3'-6" FULL LENGTH @ 12" 10'-6"	STD 90° HOOK TC AND TL BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-57	20"	30"	6 - #5 2 - #5 2 - #6	TC TR BC	#3	3'-6" FULL LENGTH @ 10"10'-6"	
B-58	20"	23"	6 - #5 2 - #5 2 - #5 6 - #6 2 - #6	TC TL TR BC B	#3	7'-10" FULL LENGTH @ 6" 28'-6"	STD. 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF COL. EXTEND BC BARS TO OUTSIDE FACE OF COL.
B-59	18"	23"	6 - #5 2 - #5 2 - #5 6 - #6 2 - #6	TC TL TR BC B	#3	8'-0½" FULL LENGTH @ 10" 24'-1¾"	STD 90° HOOK TC, TL AND TR BARS INTO OPPOSITE FACES OF WALLS. EXTEND BC BARS TO OUTSIDE FACES OF WALLS.
B-60	18"	23"	6 - #5 2 - #5 2 - #5 6 - #6 2 - #6	TC TL TR BC B	#3	7'-10" FULL LENGTH @ 10" 28'-6"	STD 90° HOOK TC, TL, AND TR BARS INTO OPPOSITE FACES OF WALL AND COL. EXTEND BC BARS TO OUTSIDE FACES OF WALL AND COL.

BEAM NO.	BEAM SIZE WIDTH (inches)	BEAM SIZE DEPTH (inches)	MAIN REINFORCING BARS No. & SIZE	MAIN REINFORCING BARS TYPE	STIRRUPS SIZE	STIRRUPS SPACING FROM LEFT SUPPORT	REMARKS
B-61	18"	23"	6 - #5 2 - #5 2 - #5 6 - #6 2 - #6	TC TL TR BC B	#3	8'-0½" FULL LENGTH @ 10" 24'-1¾"	STD 90° HOOK TC, TL AND TR BARS INTO OPPOSITE FACES OF WALLS. EXTEND BC BARS TO OUTSIDE FACES OF WALLS.
B-62	18"	23"	6 - #5 2 - #5 2 - #6	TC TR BC	#3	3'-6" FULL LENGTH @10" 9'-6"	
B-63	18"	23"	6 - #5 2 - #5 2 - #5 6 - #6 2 - #6	TC TL TR BC B	#3	8'-0½" FULL LENGTH @ 10" 24'-1¾"	STD 90° HOOK TC AND TR BARS INTO OPPOSITE FACE OF WALL. EXTEND BC BARS TO OUTSIDE FACE OF WALL.
B-64	18"	30"	—	—	—	—	FOR REINF. SEE (Z S-4)

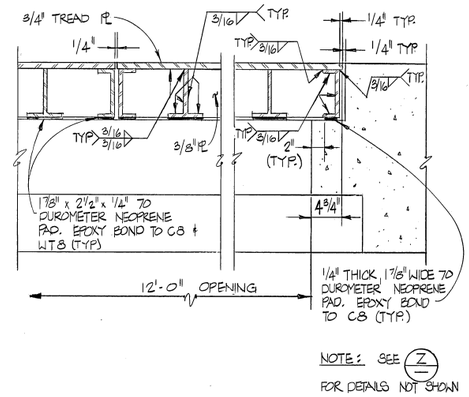
PILE SCHEDULE

STRUCTURE	PILE CAPACITY TONS	CONCRETE PILE TIP ELEVATION	COMMENTS
TUNNEL	60		PILE LENGTH = 45'-0"
LOW PRESSURE GAS HOLDER	—		" " = 45'-0"
SURGE TANK FOUNDATION	—		" " = 45'-0"
LUBE OIL TANK FOUNDATION	—	—	" " = 45'-0"
POWER GENERATION BUILDING	60	—	PIPE LENGTH = 45'-0"



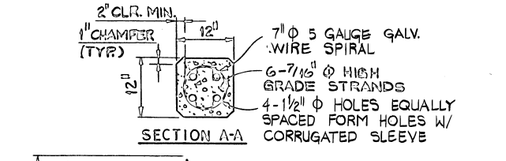
NOTE: HOT DIP GALV. AFTER FABRICATION

Y S-4 DETAIL - HATCH COVER
1/2" = 1'-0"

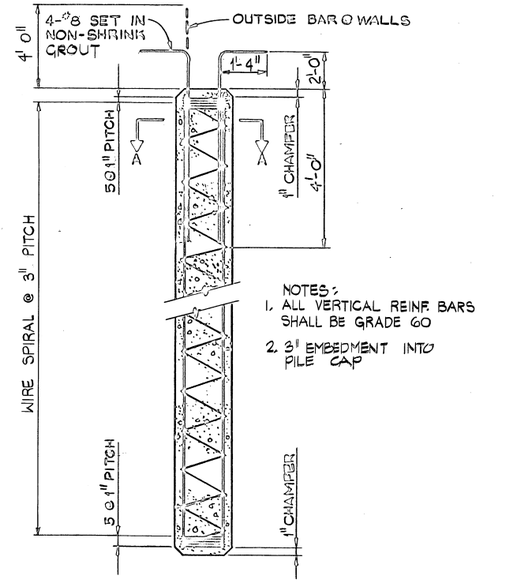


NOTE: SEE (Z S-4) FOR DETAILS NOT SHOWN

V S-4 SECTION
1" = 1'-0"

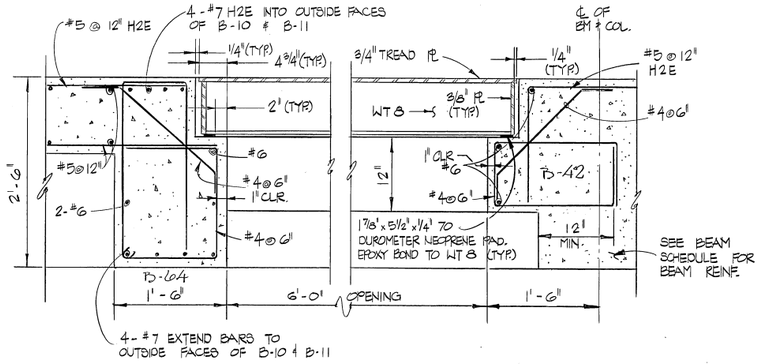


SECTION A-A

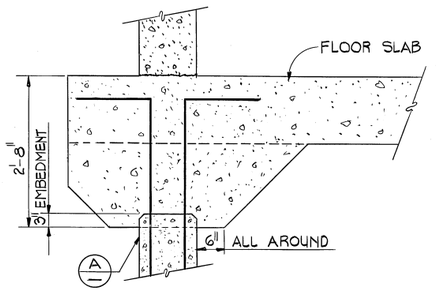


NOTES:
1. ALL VERTICAL REINF. BARS SHALL BE GRADE 60
2. 3" EMBEDMENT INTO PILE CAP

A — PRESTRESSED PRECAST CONCRETE PILES N.T.S.



Z S-4 SECTION
1" = 1'-0"



C S-2 PILE CAP
3/4" = 1'-0"

Add. #1

A B C D E F G H J K L M N P Q R S U V W X Y Z

NO.	DATE	BY	DESCRIPTION
	JAN 86	AR	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

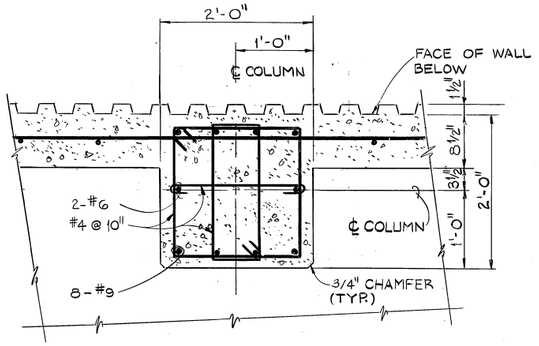
APPROVED BY:
PASTORINI P.E. NO.
P.E. NO.
PROJECT ENGINEER
P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1000-1071)
H. HARVEY HUNT, P.E.
HOWARD H. WAY, P.E.
DONALD H. PRINCHIN, P.E.
GAIL P. LYNCH, P.E.
WALTER G. HOWARD, P.E.
J. DAVID COPPIN, P.E.
O. WILLIAM HOPPE, P.E.

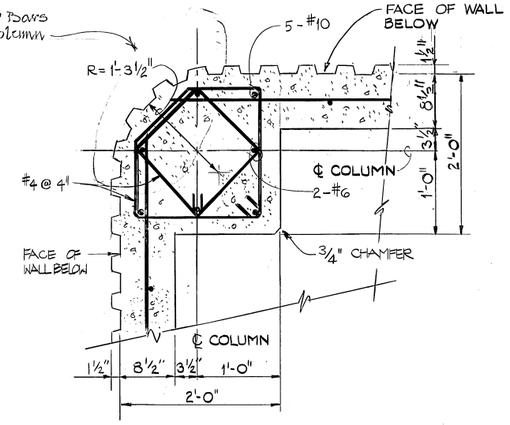
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
PILE SCHEDULE AND BEAM SCHEDULE

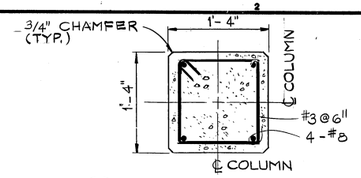
JOB NO. W 02401A12
DRAWING NO. JC-S-15
UNIT NO. 42
SHEET NO. 106



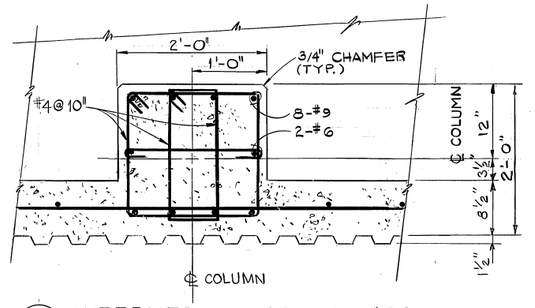
N S-4 INTERMEDIATE COLUMN ABOVE ELEV. 110.00 1"= 1'-0"



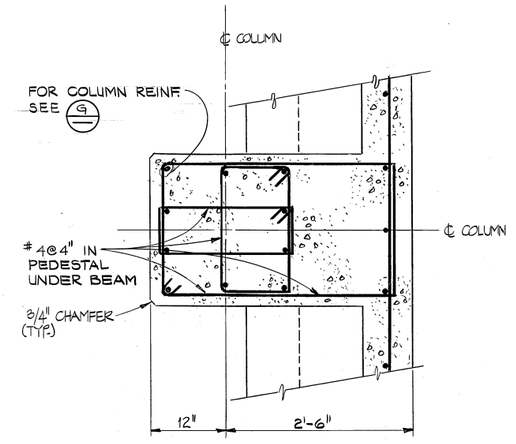
Q S-4 CORNER COLUMN ABOVE ELEV. 110.00 1"= 1'-0"



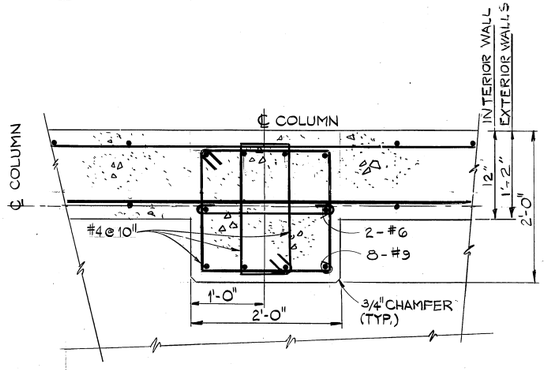
J S-3 INTERIOR COLUMN 1"= 1'-0"



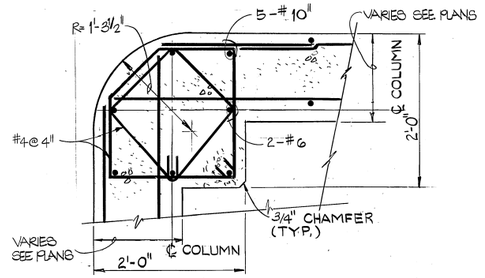
S S-4 INTERMEDIATE COLUMN ABOVE ELEV. 110.00 1"= 1'-0"



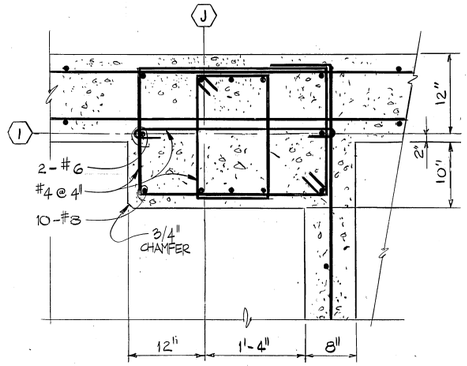
W S-7 COLUMN PEDESTAL 1" = 1'-0"



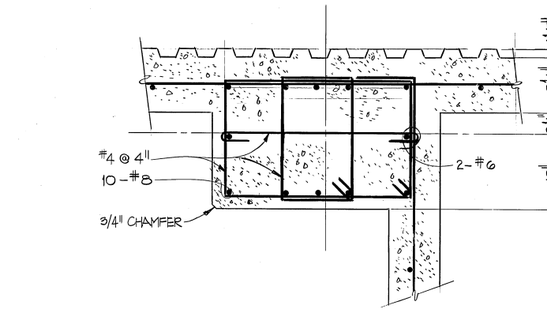
G S-3 INTERMEDIATE COLUMN BELOW ELEV. 110.00 1"= 1'-0"



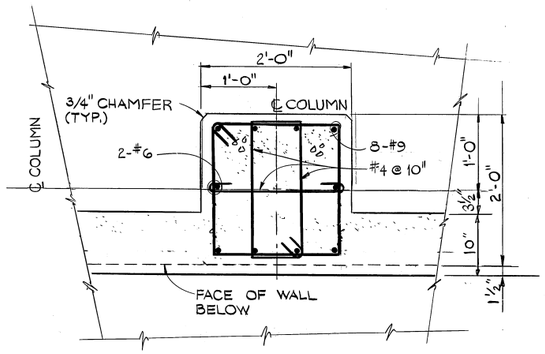
H S-3 CORNER COLUMN BELOW ELEV. 110.00 1"= 1'-0"



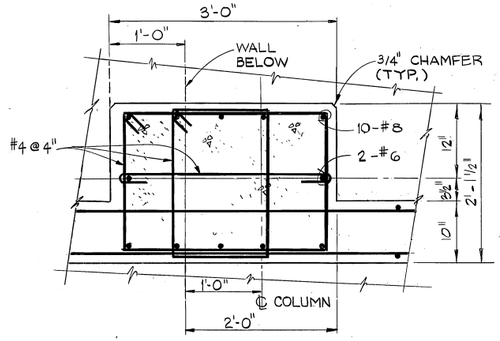
P S-3 COLUMN AT WALL BELOW EL. 110.00 1"= 1'-0"



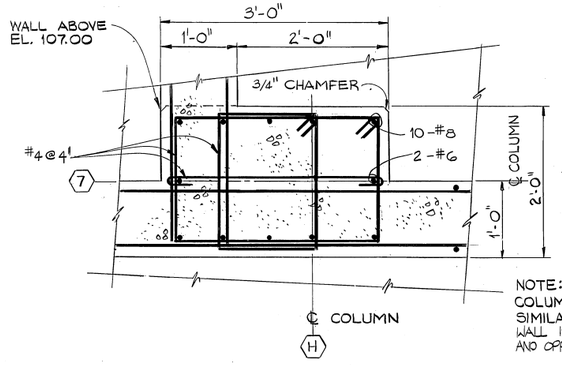
X S-4 COLUMN AT WALL ABOVE EL. 110.00 1"= 1'-0"



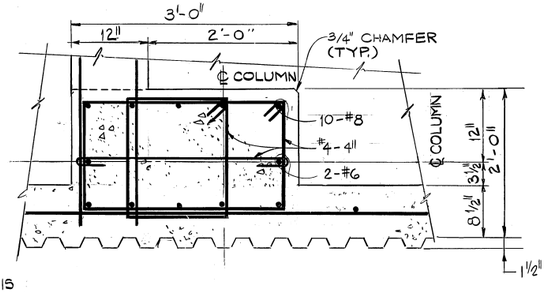
R S-4 INTERMEDIATE COLUMN ABOVE ELEV. 110.00 1"= 1'-0"



U S-4 COLUMN @ WALL ABOVE ELEV. 110.00 1"= 1'-0"



K S-3 COLUMN @ WALL BELOW ELEV. 110.00 1"= 1'-0"



V S-5 COLUMN @ WALL ABOVE ELEV. 126.75 1"= 1'-0"

REV.	DATE	BY	DESCRIPTION
	JAN 86	XR	As-Built

DESIGNED SDS/WTT
DRAWN DKM
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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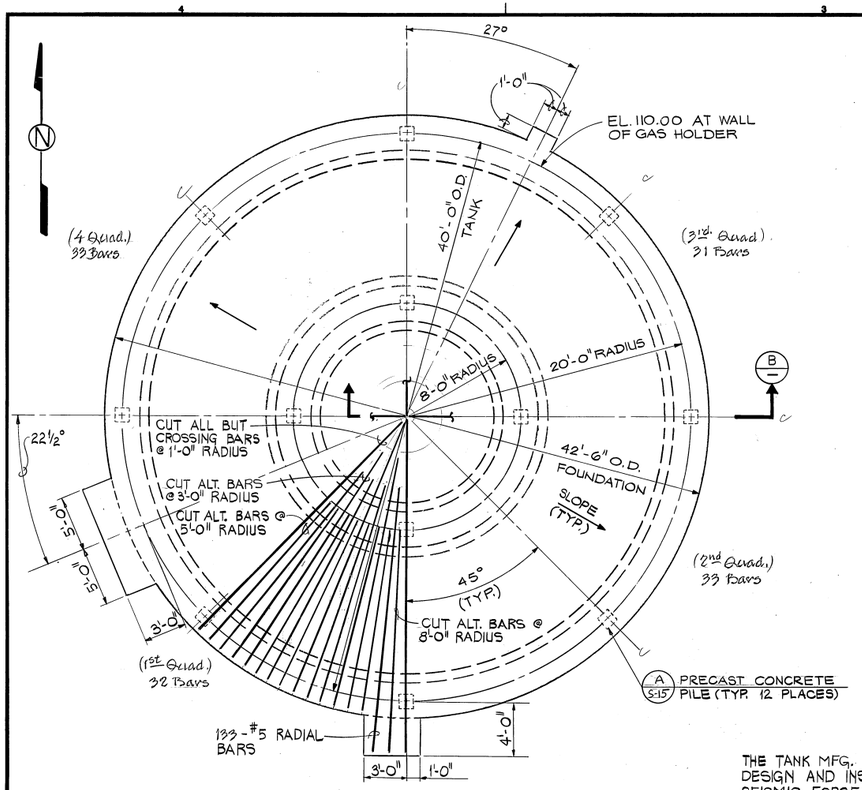
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

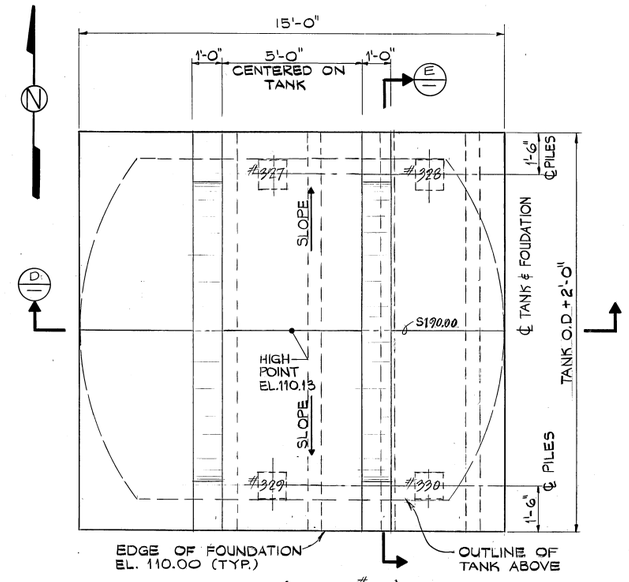
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
POWER GENERATION BUILDING
COLUMN DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-S-16
SHEET NO. 43 OF 106

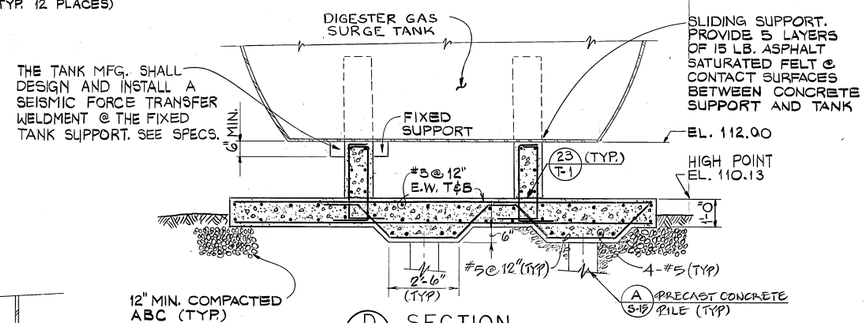


A FOUNDATION PLAN-LOW PRESSURE GAS HOLDER 3/16" = 1'-0"

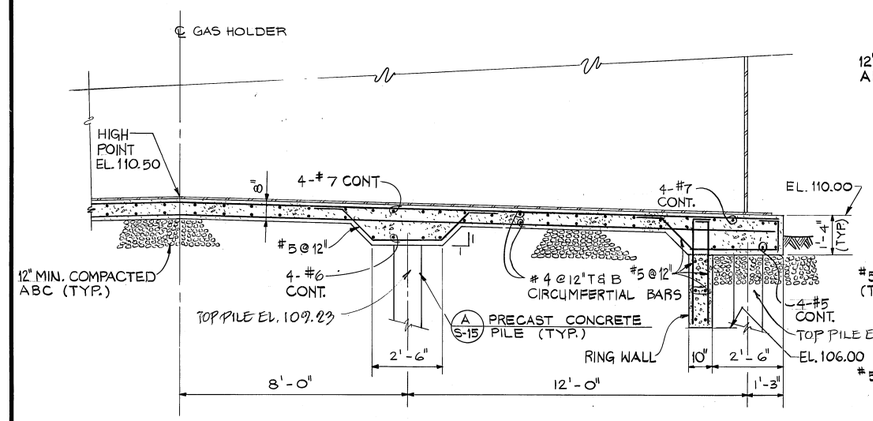


(SEE BFI #170)

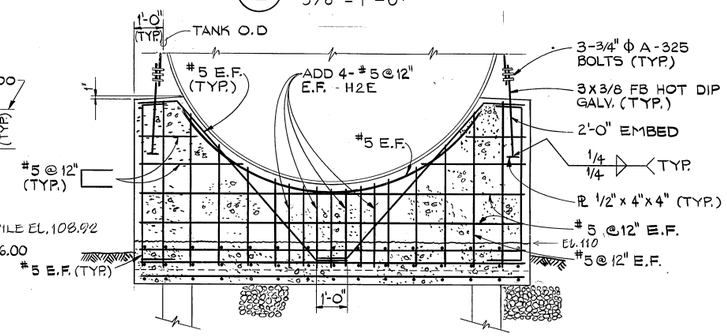
C FOUNDATION PLAN-DIGESTER GAS SURGE TANK 3/8" = 1'-0"



D SECTION 3/8" = 1'-0"

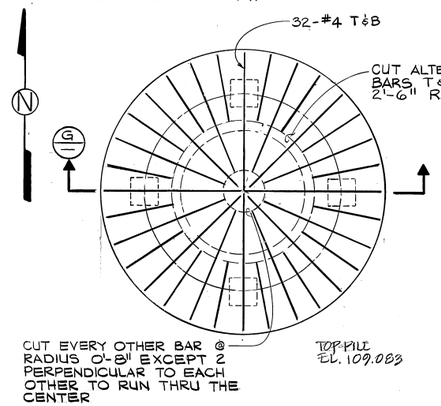


B SECTION 3/8" = 1'-0"

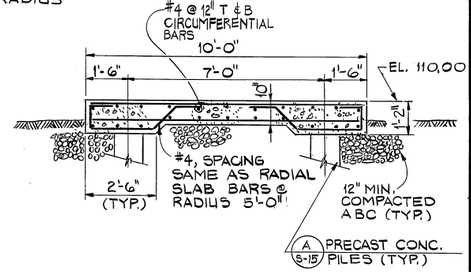


E SECTION 3/8" = 1'-0"

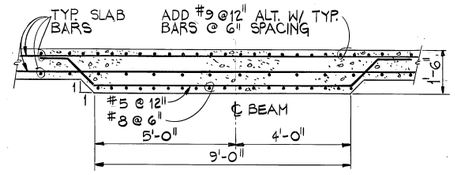
NOTE:
CIRCUMFERENTIAL REINF. NOT SHOWN FOR CLARITY.



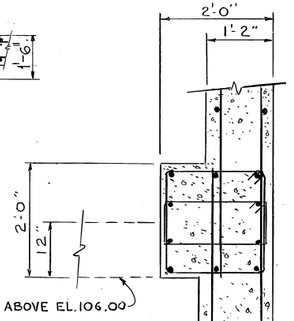
F FOUNDATION PLAN-LUBE OIL STORAGE TANK 3/8" = 1'-0"



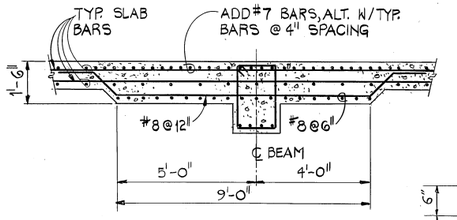
G SECTION 3/8" = 1'-0"



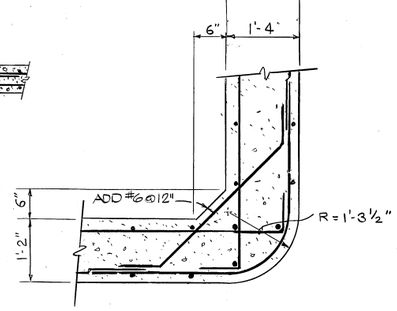
AA S-4 SECTION 3/8" = 1'-0"



Z S-3 COLUMN 3/4" = 1'-0"



BB S-4 SECTION 3/8" = 1'-0"



Y S-3 CORNER 3/4" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	JAN 86	XV	As-Built

DESIGNED SDS/WTT
DRAWN DST
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. NO. 11428
PROJECT ENGINEER Samuel Li Wong P.E. NO. M18392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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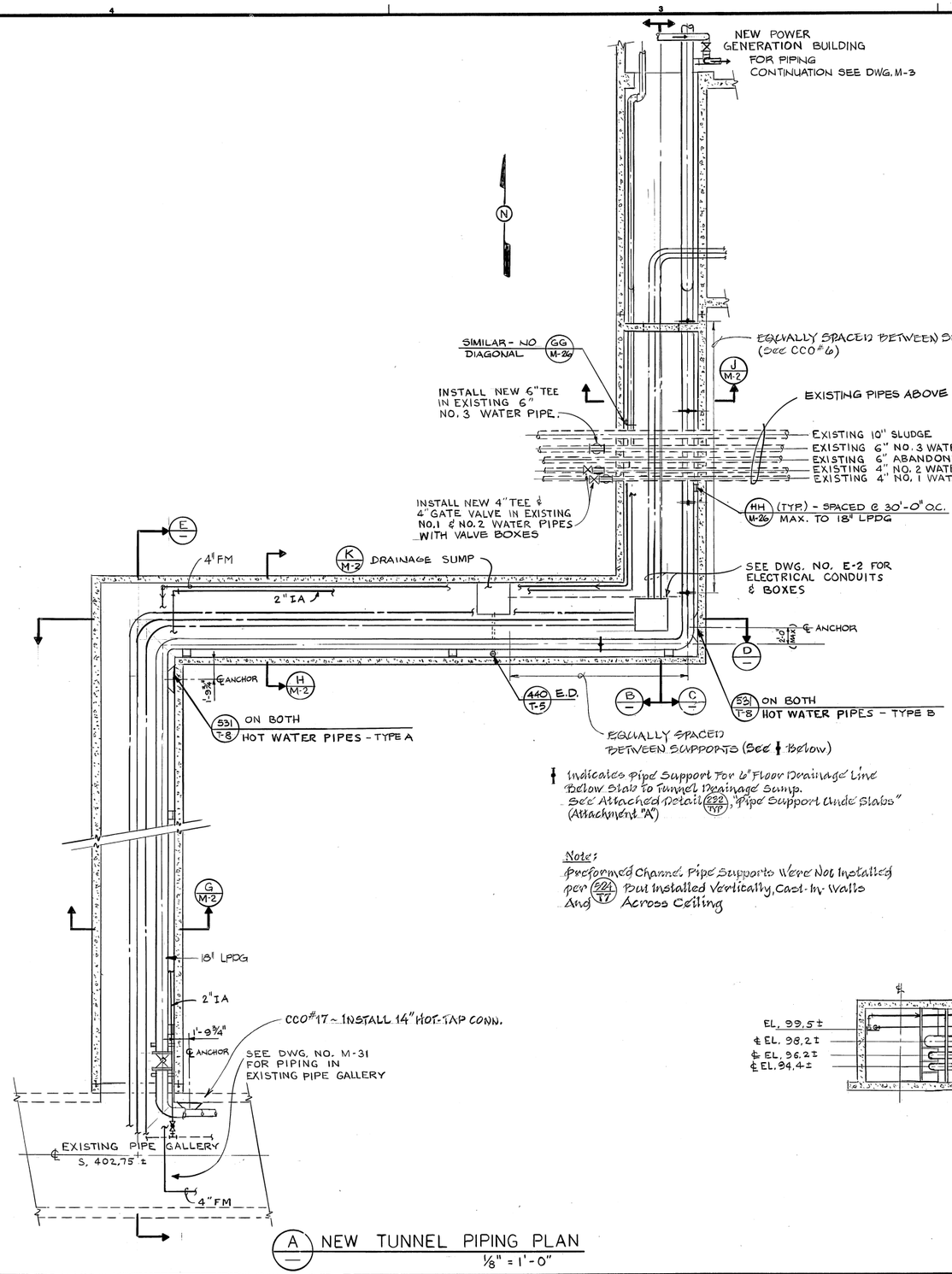
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
STRUCTURAL
SURGE TANK AND GAS HOLDER
PLANS, SECTIONS AND DETAILS

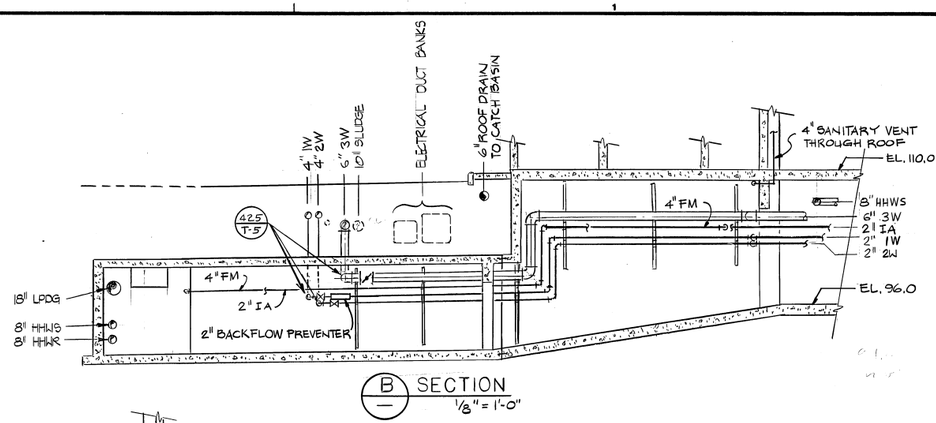
JOB NO. W 02401A12
DRAWING NO. JC-S-17
SHEET NO. 44 OF 106



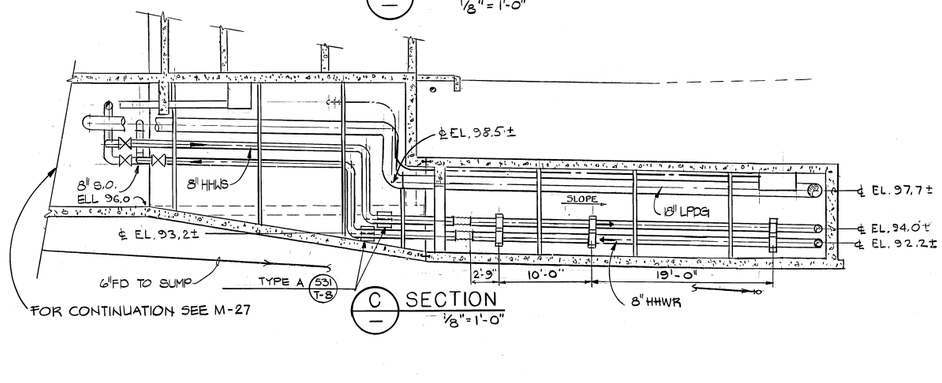
‡ Indicates Pipe Support For 6" Floor Drainage Line Below Slab to Tunnel Drainage Sump. See Attached Detail (222 TYP) "Pipe Support Under Slabs" (Attachment "A")

Note:
Preformed Channel Pipe Supports Were Not Installed per (22A T-7) But Installed Vertically, Cast-In-Walls And Across Ceiling

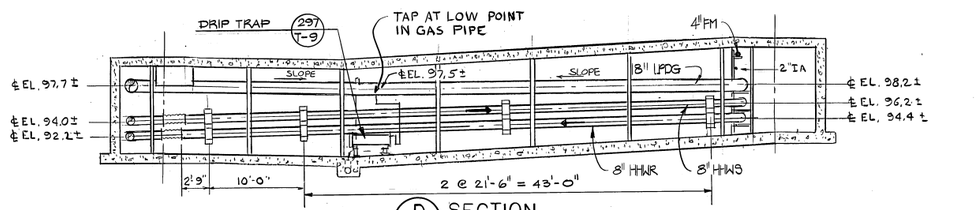
A — NEW TUNNEL PIPING PLAN
1/8" = 1'-0"



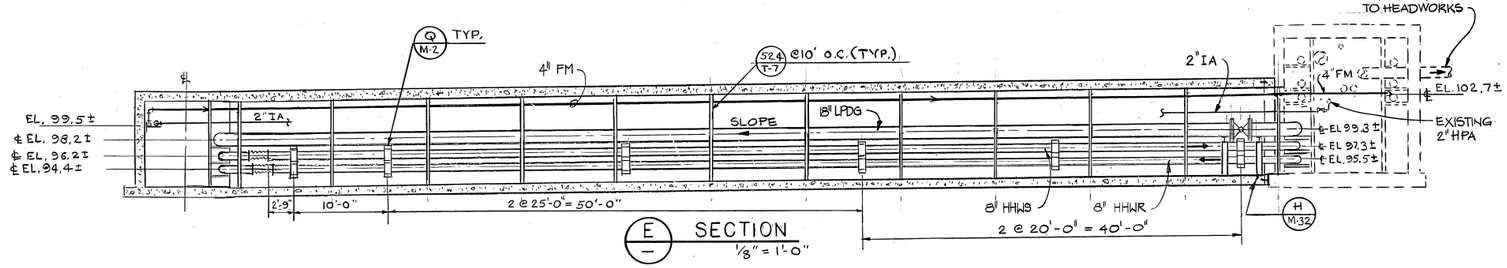
B — SECTION
1/8" = 1'-0"



C — SECTION
1/8" = 1'-0"



D — SECTION
1/8" = 1'-0"



E — SECTION
1/8" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	JAN 86	XV	As-Built

DESIGNED	DT
DRAWN	ELP
CHECKED	DS
DATE	FEB. 1983

APPROVED BY:
PARTNER — Walter R. Howard — P.E. No. RCE 14408
PROJECT ENGINEER — Sawtelle G. Walsh — P.E. No. M 18392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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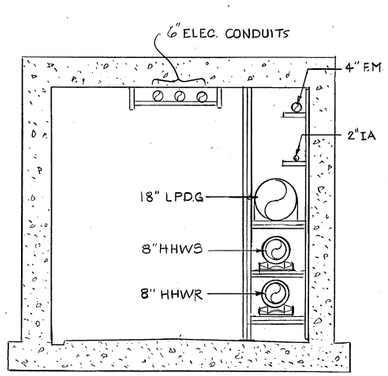
EAST BAY MUNICIPAL UTILITY DISTRICT

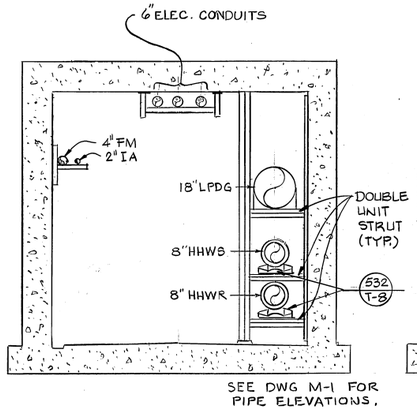
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
TUNNEL
PIPING PLAN AND SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-M-1
SHEET NO. 45 of 106

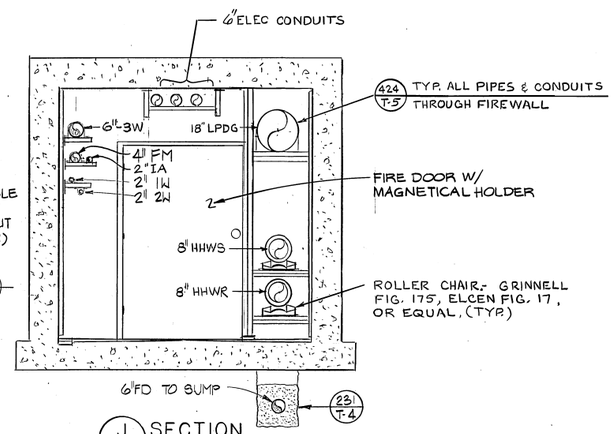
A B C D E F G H J K L M N P Q R S U V W X Y Z



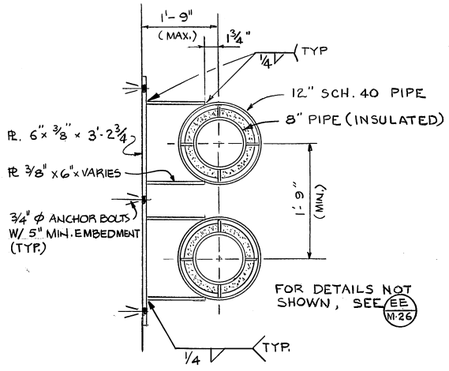
G / M-1 SECTION
3/8" = 1'-0"



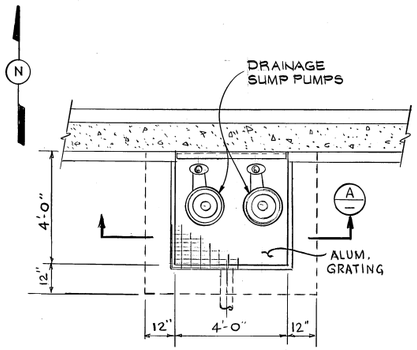
H / M-1 SECTION
3/8" = 1'-0"



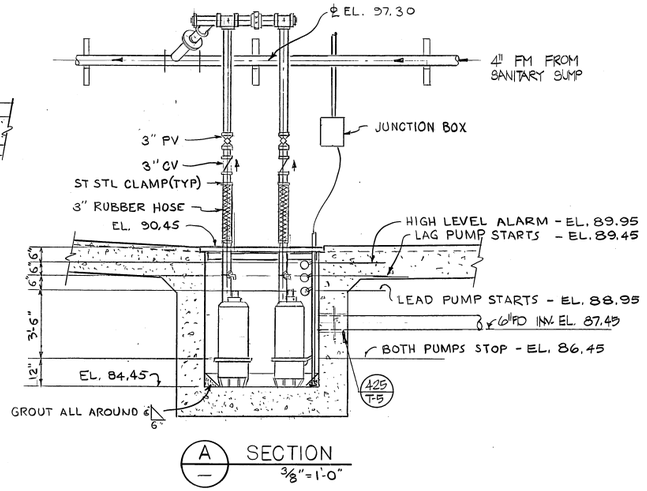
J / M-1 SECTION
3/8" = 1'-0"



Q / M-1 HOT WATER PIPE GUIDE
1" = 1'-0"



K / M-1 PLAN - TUNNEL SUMP
3/8" = 1'-0"



A / — SECTION
3/8" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	JAN 86	XR	As-Built

DESIGNED DT
DRAWN ELP
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter R. Howard P.E. 14905
PARTNER P.E. NO.
Salwan H. Wesley 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
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EAST BAY MUNICIPAL UTILITY DISTRICT
EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
TUNNEL
PIPING SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-M-2
SHEET NO. 46 of 106

A B C D E F G H J K L M N P Q R S U V W X Y Z

RFI # 243 - Install Nitrogen Bottles

CCO #22 - Replace LFM Flowmeters w/ Hydril Flowmeters Meters Installed @ Engines

RFI # 220 Location of Hydril Flowmeters

N_2 PURGE CYLINDER (TYP. OF 3)

ROOF DRAIN (TYP.)

DRIP TRAP (TYP. 4)

10" HPDG

10X4 RED. ELL.

LUBE OIL FULL FLOW FILTER (TYP. 3)

10" 3W ENGINE INTERCOOLER SUPPLY & RETURN

ACOUSTICAL PANEL (TYP.)

COMBUSTION AIR FILTER (TYP. 3)

SIM. NO DIAGONAL (TYP.) TO 10" 3W SUPPLY & RETURN

1" TO AND FROM SPACE HEATERS

4" SO DRAIN

2" VENT FROM SO SUMP

2" VENT

3" - 3W TO YARD HYDRANT

SLOP OIL STORAGE TANK SEE DWG. NO. M-34

2" VENT

4" SOD

4" FILL

3" FROM SO PUMP

10" 3W TO SECONDARY EFFLUENT CHANNEL FOR CONTINUATION SEE G-7

18" 3W FROM SECONDARY EFFLUENT CHANNEL

W. 1273.00

S. 153.00

5'-0"

W. 1228.00

W. 1256.50

4' (MIN.)

S. 170.50

LOW PRESSURE GAS HOLDER (ABOVE) SEE DWG. NO. M-16

LO STORAGE TANK (ABOVE) SEE DWG M-34

DIG. GAS FILTER (TYP. 3)

4" HPDG

HPDG METER (TYP. 3)

8" HHWS

6" HHWR

4" LO

6" JWR

6" JWS

6" HHWS FROM EXHAUST HEAT RECOVERY SILENCER (TYP. 3)

4" LO TO LO COOLER

2" LO

4" 3W

4" LO SUMP DRAIN

TYPE B (TYP.) 531 T-8

(TYP.) 532 T-8

533 T-8

362 T-4 SIMILAR USE W/GUIDE FROM EE M-26

AA M-26

HOT WATER CIRCULATING PUMP (TYP. 3)

BEFORE & AFTER LUBE OIL PUMP (TYP.)

1½" LO TO LO PURIFIER (INSULATED & JACKETED)

LO SUMP DRAIN

TO CONTROL PANEL (TYP.)

TO AIR TOOL CONNECTOR ABOVE & BELOW (TYP.)

JACKET WATER HEAT EXCHANGER (TYP. 3)

LUBE OIL COOLER (TYP. 3)

475 T-5 TYP 3

3'-0"

14'-0" (TYP.)

3/8" I.A.

6" I.A.

(TYP.) EE M-26

FOR SUPPORT DETAIL SEE B E-17

362 T-4 B:C (TYP. 4)

GAS CALORIMETER See (RFI # 2)

NEUTRAL GROUNDING RESISTOR HOUSING (TYP. 3)

2" HPA

½" I.A.

AIR RECEIVER SEE DWG VG-1499

AIR DRYER

1" ST. STL. DIG. GAS SAMPLE LINE

10" x 36" REGISTERS (1440 CFM) (TYP. OF 9)

24" x 36" FRP DUCT

Y M-25

B

2" I.A.

V M-9

FX

FF M-26

12x36 REGISTERS (2000 CFM)

18" LPDG

24" x 24" FRP DUCT

3-1" I.A.

2" I.A.

6" 3W

10X6 RED

8" HHWR

WASTE HEAT EXCHANGERS

3/8 I.A.

DIG. GAS FLOWMETER

M-15

R

24" x 24" FRP DUCT

1" I.A.

2" I.A.

(TYP.) W M-25

10X10X6 TEE (TYP.2)

10" 3W

3/8" I.A.

P M-12

8" HHWR

518 (TYP.) T-7

Q M-2 (TYP.)

SEE DWG. M-27

SANITARY SUMP

6" 3W

324 T-7

531 TYPE A T-8 (TYP.)

TYPE B/531 (TYP.) T-8

18" LPDG (TYP.) HH M-26

SEE DETAIL E M-25 AIR DUCT

2" IW

8" HHWR

8" HHWS

4" FM

6" 3W

18" LPDG

SIMILAR - NO GG DIAGONAL, USE L 6x6x½ (TYP.)

SUPPLY GRILLE (BELOW DUCT)

4-PIECE MITER 90° ELL (TYP. OF 4)

NO. 4 NO. 3 NO. 2 NO. 1

54" x 30" FRP DUCT DWN TO HEAT EXCH. CONTROL

ACOUSTICAL GAS METER TRANSMITTER

ACOUSTICAL PANEL (TYP.)

RFI # 92 - Lovejoy HVAC Duct 6" TO EL. 102.5

10" x 24" REGISTER (1675 CFM)

S M-15

6" ROOF DRAIN

3/8" I.A. FAN (TYP 4)

DN TO AIR DAMPER ACTUATOR (TYP. OF 4)

FLEX. V.B. J.T. (TYP. 2) X M-25

4" ROOF DRAIN AIR INTAKE PLENUM

SIMILAR (TYP. OF 4) 424 T-5

ACOUSTICAL PANEL

FRP INLET BELL & GUARD (TYP OF 4)

ROOF DRAIN (TYP.)

FOR CONTINUATION, SEE DWG. NO. M-1

6" DIP

INV. 106.29

ROOF DRAIN LINE FOR CONTINUATION SEE DWG. G-7

235 C.O. T-4

9'-0"

GAS COMPRESSOR INLET FILTER (TYP 3)

6" HPDG (TYP. OF 3)

E.D.

NO. 3

GAS COMPRESSOR INLET SEPARATOR (TYP. 3)

8" LPDG (TYP. OF 3)

¾" I.A.

PRV

NO. 2

NO. 1

4" 3W

18" X 18" X 8" TEE (TYP. 3)

C M-8

D M-9

524 (TYP.) T-7

HH FOR 18" LPDG & 10" HPDG M-26

8'-0"

LUBE OIL PURIFIER

M M-11

14" x 14" x 10" TEE

F M-10

510 T-7

BASKET STRAINER

AA M-26

2" FO TO & FROM DAY TANKS

C M-9

SEE NOTE C DETAIL

GG M-26 (TYP.) SIM. NO DIAGONAL

2" LO TO LUBE OIL PURIFIER

½" W/ TIE ROD (TYP.) RFI # 95

1¼"/FT SLOPE MIN

℄ EL. 103.75

℄ EL. 104.41

1½" BSP

1A TO PNEUMATIC OPERATOR ON 18" PV. RFI # 26 Use Note 2(m)

ACOUSTICAL PANEL

Note: See 10-S-17 For Final Relocation

DIGESTER GAS SURGE TANK (ABOVE) SEE DWG. NO. M-34

S. 190.00

5'-0" MIN.

10" HPDG

TO 10" 3W 10" HPDG

B M-7

1" DRIP TRAP DRAIN F.C. W/ TIE ROD (TYP.)

10" 3W TO EFFLUENT CHANNEL

HH (TYP. FOR 18" LPDG & 10" HPDG) M-26

4x3x4 TEE

10x8x8 TEE

8x4 RED

548 T-8 W/ 4" Φ SCH. 40 PIPE

F.C. W/ TIE-ROD (TYP.)

3" 3W TO YARD HYDRANT

425 (TYP.) T-5

2" F.O. PURIFIER RTN.

2" F.O. DAYTANK RTN

4" FILL

S. 224.00

2" F.O. TO PURIFIER

2" VENT

519 (TYP.) T-7

FUEL OIL STORAGE TANK (SEE DWG. M-34)

N M-15

1" I.A.

1" ARV

10x4 RED

3W

1" IW TO & FROM HEAD TANK ABOVE

3" SLUDGE LINE TO SLOP OIL DRAIN

1" CS

3" FC. W/ TIE ROD (TYP.)

FUEL OIL PURIFIER

½" I.A.

FUEL OIL FILTER DN TO HEAT FUEL OIL EXCH. COUNT. TRANSFER PUMPS

531 TYPE A T-8 SIM.

FUEL OIL STRAINER

L M-11

2" FO TO & FROM DAY TANKS

3/4" I.A.

18" LPDG

10" HPDG

8" 3W

4" 3W

531 TYPE B T-8

AIR COMPRESSORS

#1 #2

10" 3W

2" HPA

1" HPA

8" HHWR

AIR RECEIVERS

NO. 1

NO. 2

NO. 3 COOLING WATER PUMP

14" 3W

6" 3W (TYP.)

8" 3W (TYP.)

8" BV

6" CV

10" HPDG

1A ACOUSTICAL PANEL

2'-6"

2'-0" O.C.

2'-0" O.C.

A LOWER FLOOR PLAN – ELEV. 96.0

3/16" = 1'-0"

As-Built:

- PLAN A, Added An Acoustical Panel 12 Feet Long x 8 Feet High Located North-South & 3 Feet East From East Edge of Vent. Fan No. 1 Exact Panel Location Shall Be As Directed By The Engineer.
- Added 10" Butterfly Valve in 10" No. 3 Water Piping Just West 14"x14"x10" Tee (Above Slop Oil Sump).
- Added 4" Butterfly Valve in 4" No. 3 Water Piping Just East of 10" Reducer (So. of 18" LPDG Nr. E Bmf. Wall).
- Added 10" Butterfly Valve in 10" No. 3 Water Piping Just West of Tee (Conn To The 10x4" Reducer).
- Performed Channel Pipe Supports Were Not Installed per (224) But Installed Vertically.
- CCO 17 #5, Added 40 Drain Supports Under C.I.P.

NOTES:

1. SEE ENGINE SCHEMATICS FOR DISTRICT FURNISHED EQUIPMENT
2. NOT ALL PIPING HAS BEEN SHOWN. SEE PIPING SCHEMATICS FOR COMPLETE PIPING DETAILS
3. NOT ALL PIPE SUPPORTS AND PIPE BRACING HAVE BEEN SHOWN, SEE PIPING SPECIFICATION FOR REQUIREMENTS.
4. INSTALL ACOUSTICAL PANEL FROM FLOOR TO CEILING AS SHOWN EXCEPT AT COLUMN, BEAM AND DOOR
5. SPRAY 1" SPRAY-ON ACOUSTICAL TREATMENT ON BASEMENT CEILING AFTER PIPES ARE INSTALLED
6. ALL EQUIPMENT IN BASEMENT SHALL HAVE LIFTING RING (60) T-2

RFI # 128 & 132 - ROTATE 180° TO DISPLAY DIFFERENTIAL PRESSURE GAUGES LUBE OIL FULL FLOW & DIGEST. P., GAS FILTERS.

REV.	DATE	BY	DESCRIPTION
1	4-15-83	RJS	ADDED AIR RECEIVER & AIR DRYER W/PIPING
	JAN 80	RV	AS-BUILT

DESIGNED DT/RJ
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA — WALNUT CREEK CALIFORNIA — FOUNTAIN VALLEY CALIFORNIA — VISALIA CALIFORNIA

JOHN A. CAROLLO, P.E. (1906-1971)
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EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
MECHANICAL
POWER GENERATION BUILDING
LOWER FLOOR PLAN

JOB NO. W 02401A12
DRAWING NO. JC-M-3
SHEET NO. 47 OF 106

CCO #27
Todo Air Blowoff.
(Delete Drains)

RFI #22
Piping Silencers

CCO #42
Engine Ladder Relocation
(typ. for Engines #1, 2 & 3)

RFI #237
Tecturn Installation

E — MAIN FLOOR PLAN — ELEV. 110.0
3/16" = 1'-0"

S — SECTION
1/4" = 1'-0"

U — SECTION
1/4" = 1'-0"

NOTES:
1. SEE ENGINE SCHEMATIC DRAWINGS FOR DISTRICT FURNISHED EQUIPMENT.
2. NOT ALL PIPING & SUPPORTS HAVE BEEN SHOWN, SEE PIPING SCHEMATICS FOR COMPLETE PIPING DETAILS.
3. SEE SPECIFICATIONS FOR ADDITIONAL PIPE SUPPORTS.
4. EXACT LOCATION OF GAS COMPRESSOR PIPING TO BE DETERMINED BY GAS COMPRESSOR FURNISHED.
5. PROVIDE ACOUSTICAL WALL PANEL ON THE INTERIOR WALL OF ENGINE ROOM FROM FLOOR UP TO CEILING EXCEPT AT WINDOWS, DOORS & COLUMNS
6. PROVIDE ACOUSTICAL WALL PANEL ON THE INTERIOR WALL OF COMPRESSORS AREA FROM FLOOR UP TO CEILING EXCEPT AT DOOR & WINDOW.
7. PROVIDE 1" SPRAY ON TYPE ACOUSTICAL TREATMENT ON THE CEILING OF ENGINE ROOM

REV.	DATE	BY	DESCRIPTION
	JAN 86	XR	AS-BUILT

DESIGNED DT
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

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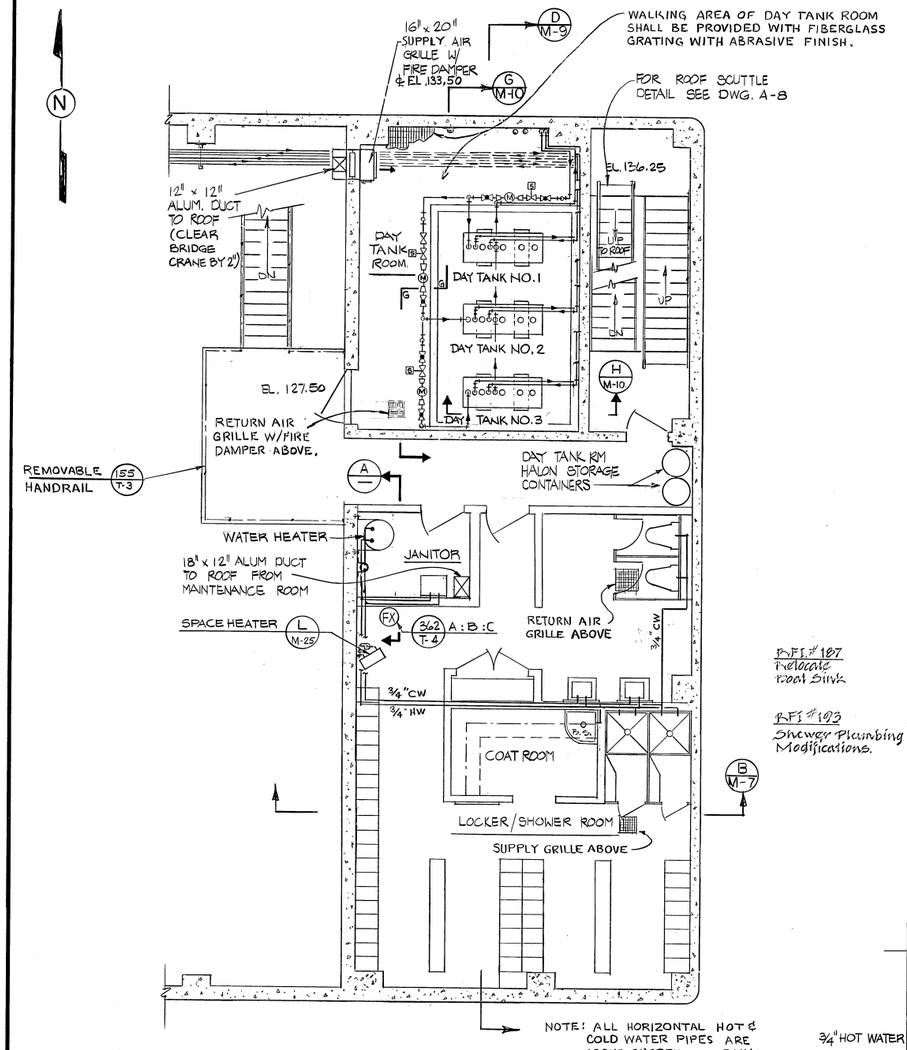
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. 8D135
MECHANICAL
POWER GENERATION BUILDING
MAIN FLOOR PLAN

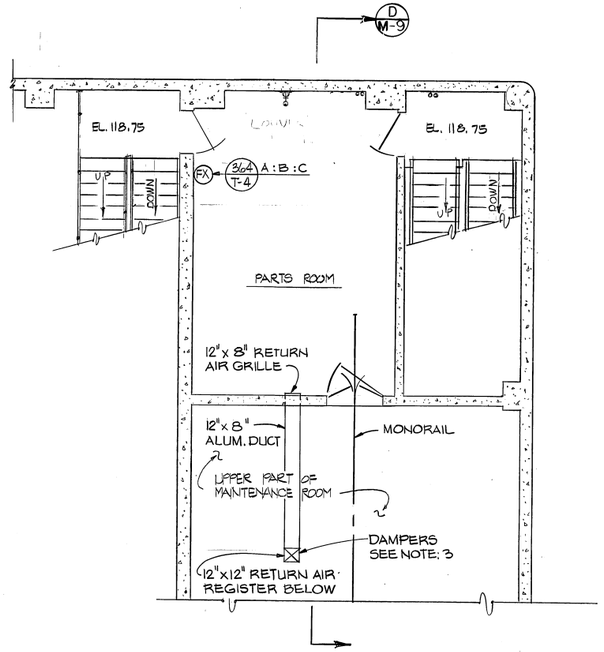
JOB NO. W 02401A12
DRAWING NO. JC-M-4
SHEET NO. 48 of 106



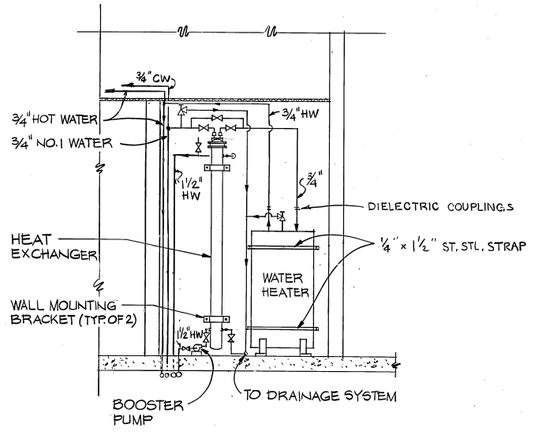
F — FLOOR PLAN – ELEV. 127.50
3/16" = 1' – 0"

RFI #187 Relocate Float Sink

RFI #193 Shower Plumbing Modifications.



J — FLOOR PLAN – ELEV. 118.75
3/16" = 1' – 0"



A — SECTION
3/8" = 1'-0"

NOTES:
1. FOR LOCKER/SHOWER ROOM LAYOUT SEE DWG A-4
2. FOR LOCKER/SHOWER ROOM DRAIN & VENT PIPING SEE C M-28
3. DAMPERS TO BE INSTALLED SUCH THAT 300 CFM IS EXHAUSTED FROM THE PARTS ROOM AND THE REMAINDER FROM THE MAINTENANCE ROOM. 12"x12" RETURN AIR REGISTER FOR MAINTENANCE ROOM SHALL BE INSTALLED BELOW DAMPERS.

REV.	DATE	BY	DESCRIPTION
	JAN 86	JV	As-Built

DESIGNED DT
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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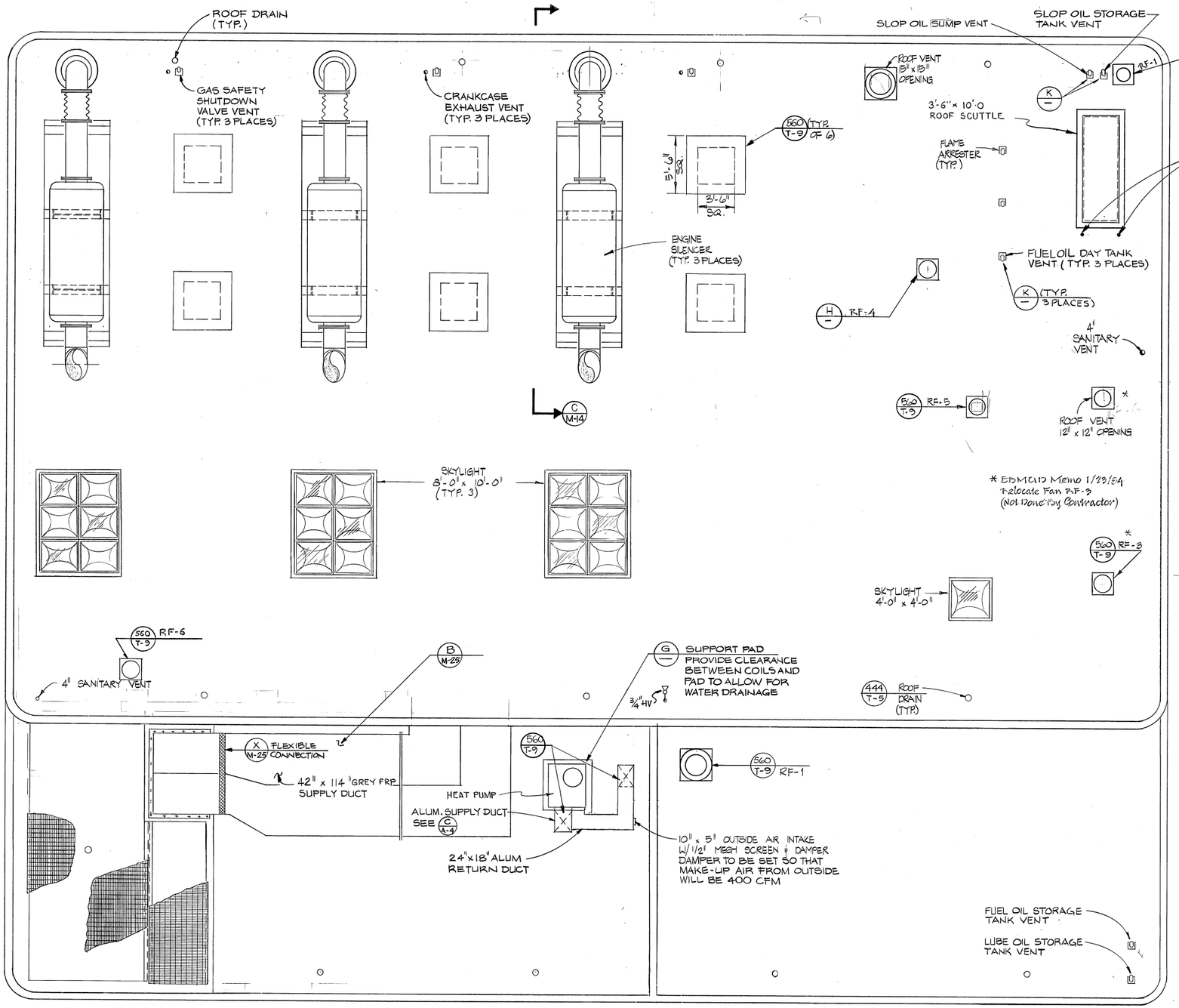
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
POWER GENERATION BUILDING
PARTIAL FLOOR PLAN

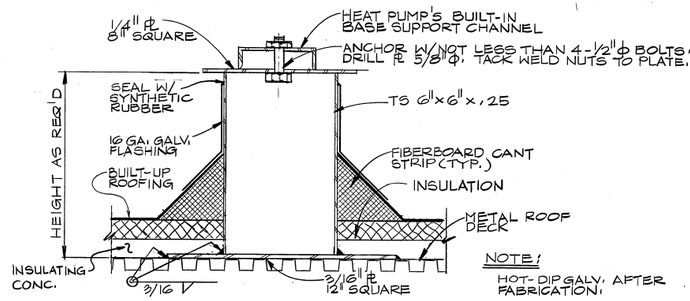
JOB NO. W 02401A12
DRAWING NO. JC-M-5
SHEET NO. 49 OF 106

M81706
ABCDEFGHJKLMNPQRSUVWXYZ

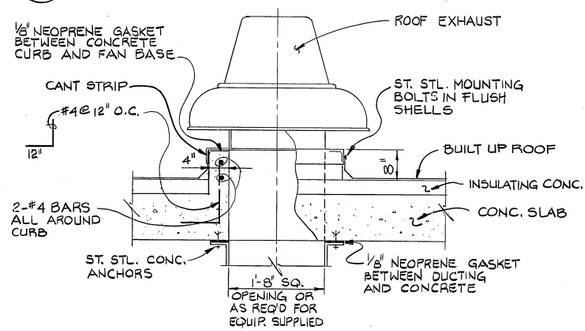


NOTE: ROOF EXHAUST VENTILATORS RF-5 AND RF-6 SHALL HAVE FLEXIBLE CONNECTIONS BETWEEN THE VENTILATOR AND THE DUCT BELOW AS SHOWN IN SECTION D, DWG. M-7 FOR RF-3

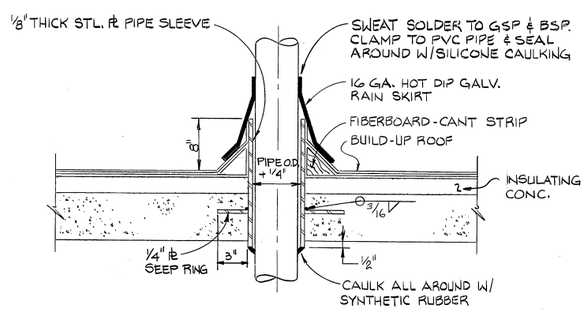
J — ROOF PLAN - POWER GENERATION BUILDING
3/16" = 1'-0"



G — DETAIL — HEAT PUMP SUPPORT
3" = 1'-0"



H — RELIEF & EXHAUST VENT
N.T.S.



K — PIPE TROUGH ROOF INSTALLATION
N.T.S.

REV.	DATE	BY	DESCRIPTION
	JAN 86	JV	As-Built

DESIGNED DT
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

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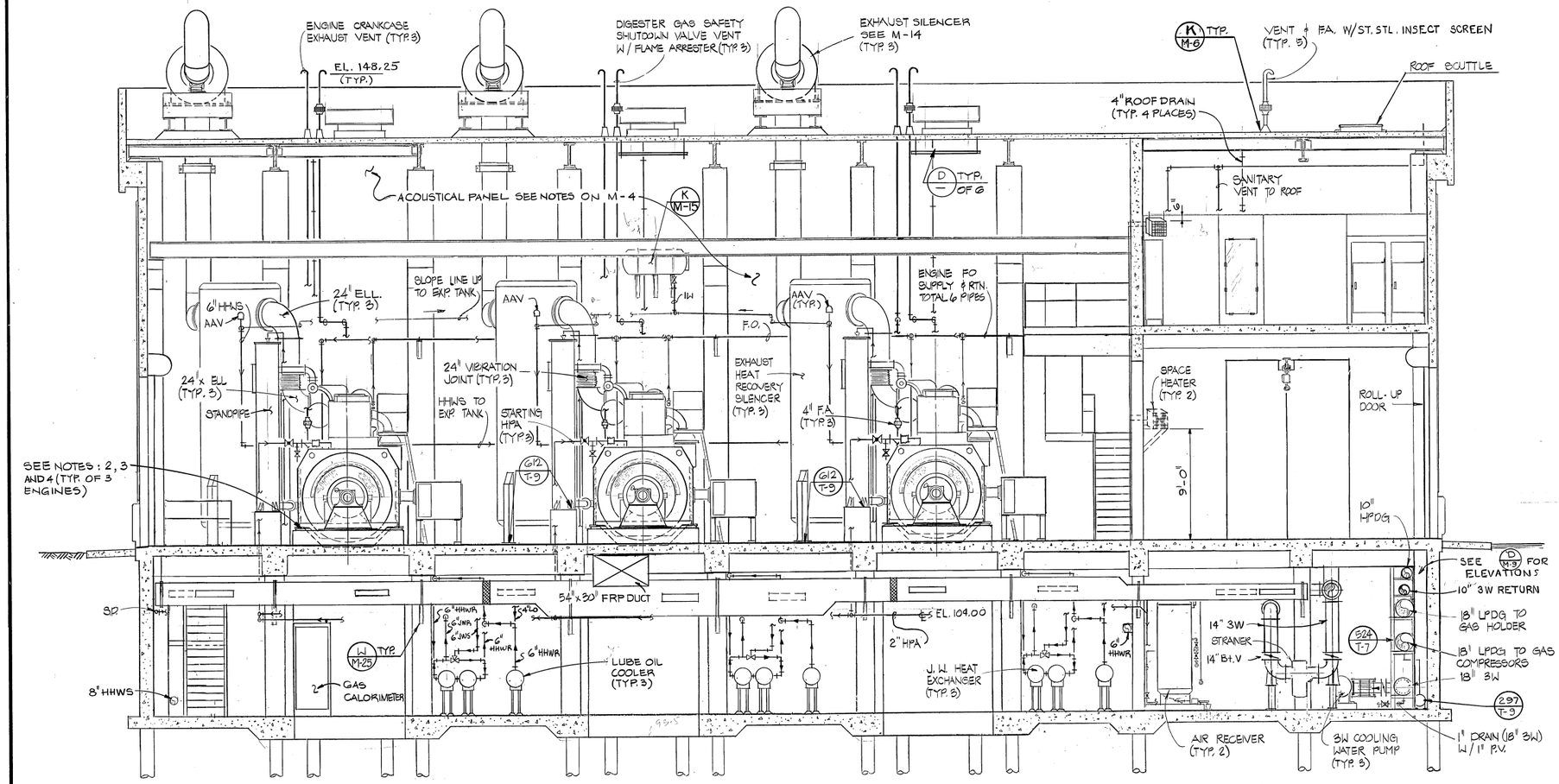
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
POWER GENERATION BUILDING
ROOF PLAN

JOB NO. W 02401A12
DRAWING NO. JC-M-6
SHEET NO. 50 of 106



B M-3 SECTION 3/16" = 1'-0"

NOTES:

1. NOT ALL PIPING HAS BEEN SHOWN, SEE PIPING SCHEMATICS FOR COMPLETE PIPING DETAILS
2. FOR ENGINE BOLTING INSTALLATION SEE DELAVAL FOUNDATION BOLTING PLAN SHOP DWG. NO. R-4120
3. CEILCOTE #648 GROUT OR CARTERWATERS #604 GROUT SHALL BE USED FOR ENGINE BASE, A REPRESENTATIVE OF THE GROUT SUPPLIER SHALL BE PRESENT AT INSTALLATION TO BE SURE THAT GROUT IS PREPARED AND PLACED ACCORDING TO SPECIFICATIONS.

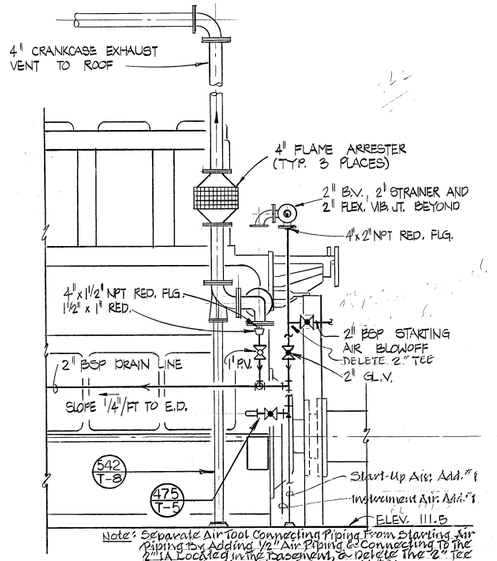
ADD. #2 - 4. ALL ENGINE-GENERATOR FOUNDATION BOLTS & SOLE PLATE ARE FURNISHED BY TRANSAMERICA DELAVAL (Part of Owner-Furnished Equipt.)

5. NO., SIZE AND LOCATION OF ANCHOR BOLTS AS REQ'D BY TRANSAMERICA DELAVAL

CCO #19 - DFF #219
F. & I. Conduits on Standpipes
F. & I. Grout Under Full Supporting

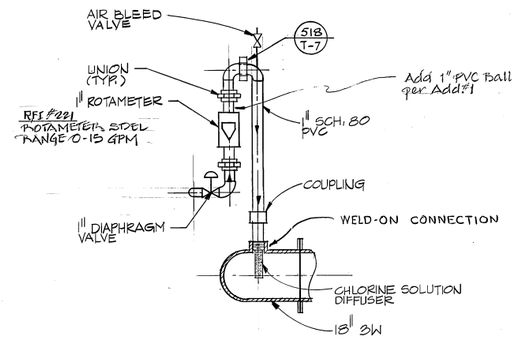
CRC #10
Weld Filler Plate for Pedestal Bearing #2 On Generator Pedestal.

PC 52
Heat Recovery Silencers

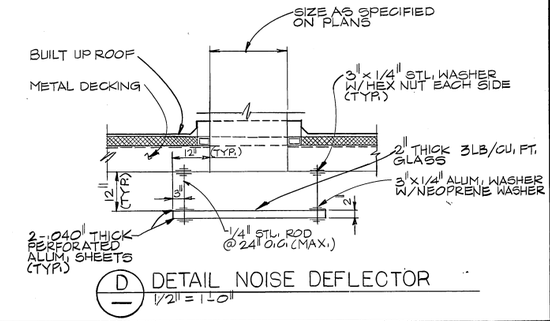


Note: Separate Air Tool Connecting Piping From Starting Air Piping By Adding ½" Air Piping & Connecting To The 2" IA Located In The Basement, & Delete The 2" Tee In The Starting Air Piping. (Add.#1)

P M-4 SECTION 1/2" = 1'-0"



C M-9 DETAIL — CHLORINE SOLUTION CONNECTION NTS



D — DETAIL NOISE DEFLECTOR 1/2" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	JAN 86	XV	As-Built

DESIGNED DT
DRAWN JBR
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter R. Howard P.E. 14808
PARTNER P.E. NO.
Sawyer L. Wasser M13392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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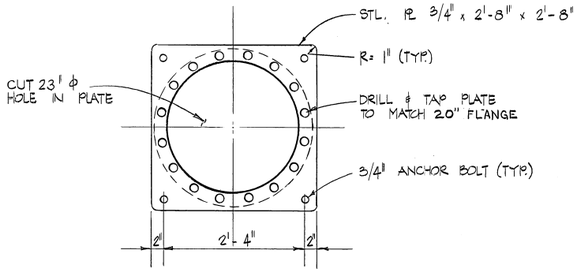
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

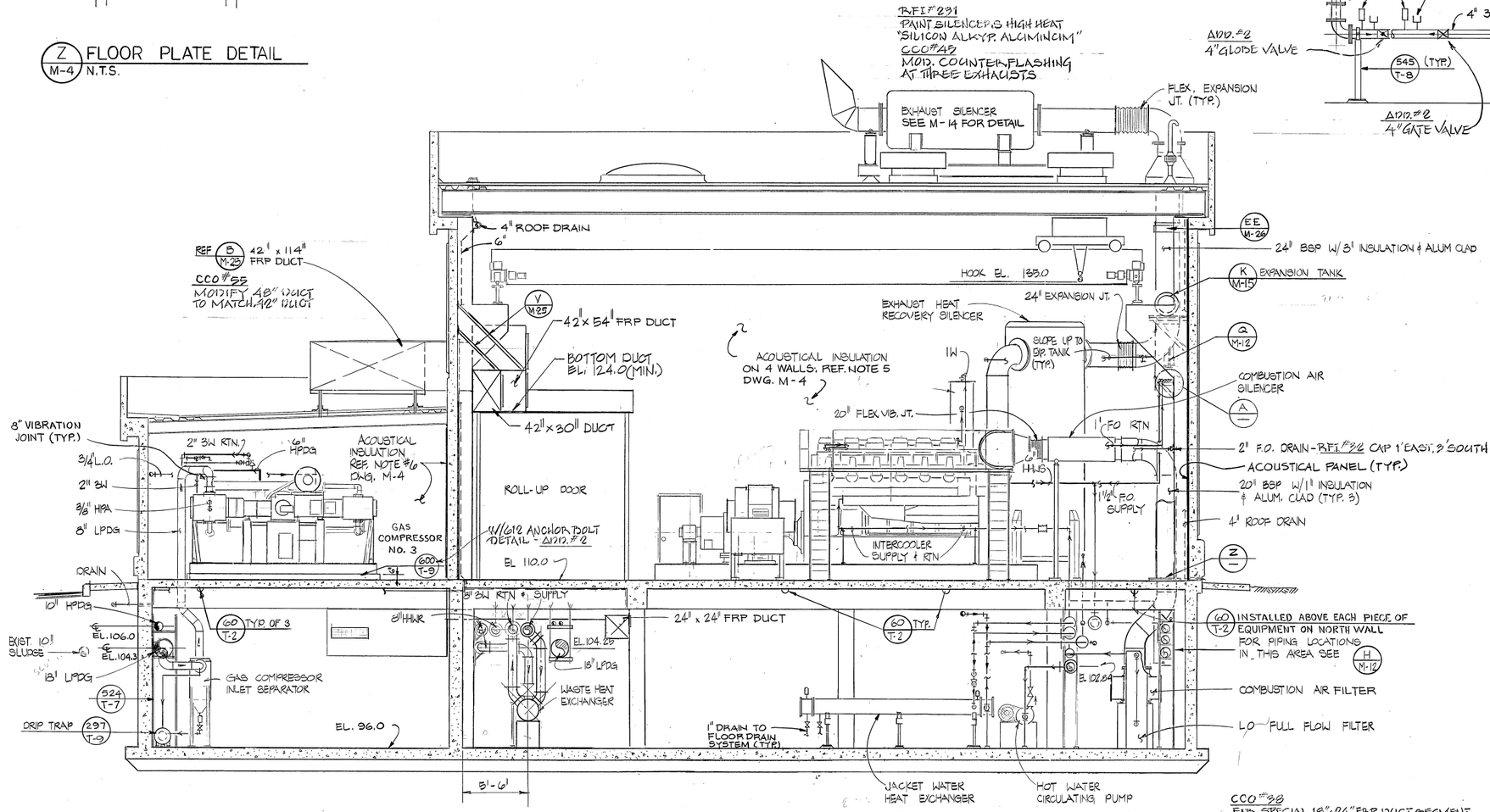
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
MECHANICAL
POWER GENERATION BUILDING SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-M-7
SHEET NO. 51 OF 106

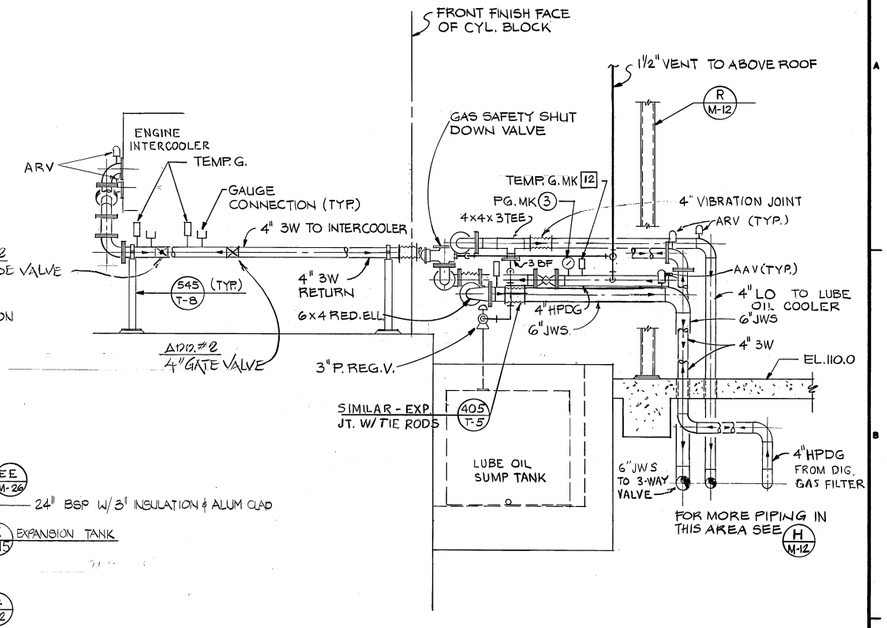
ABCDEFGHJKLMNPQRSUVWXYZ



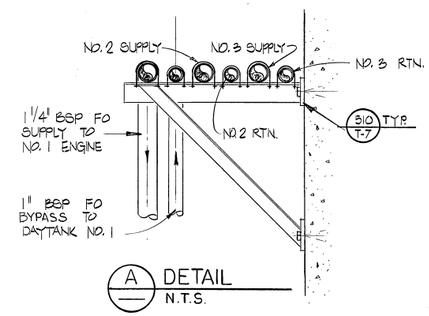
Z / M-4 FLOOR PLATE DETAIL N.T.S.



C / M-3 SECTION 3/16" = 1'-0"



F / M-4 SECTION 3/8" = 1'-0"



A / — DETAIL N.T.S.

CCO #38
FAB. SPECIAL 18" x 24" FRP DUCT SEGMENT W/ HORIZONTAL OFFSET TO CLEAR WALL.
CCO #39
BOLT 3-24 ELBOWS IN EXHAUST PIPING BETW. TURBOCHARGER & INTERCOOLER.

NOTES:
1. FOR DISTRICT FURNISHED EQUIPMENT SEE PIPING SCHEMATICS
2. NOT ALL PIPING HAS BEEN SHOWN. SEE PIPING SCHEMATICS FOR COMPLETE PIPING DETAILS.
3. ALL FLOOR DRAINS AND SLOP OIL DRAINS UNDER SLAB SHALL BE ENCASED IN CONCRETE

REV.	DATE	BY	DESCRIPTION
	JAN 86	AV	AS-Built

DESIGNED DT
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter R. Howard RCE 14822
PARTNER P.E. NO.
Sallyann L. Wason M18382
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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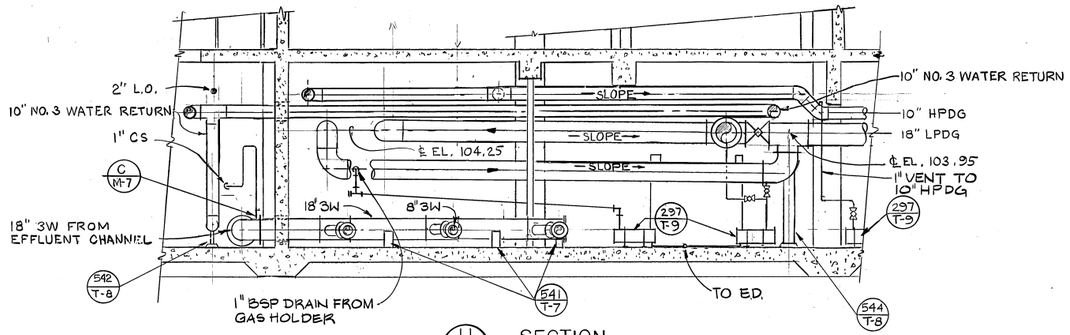
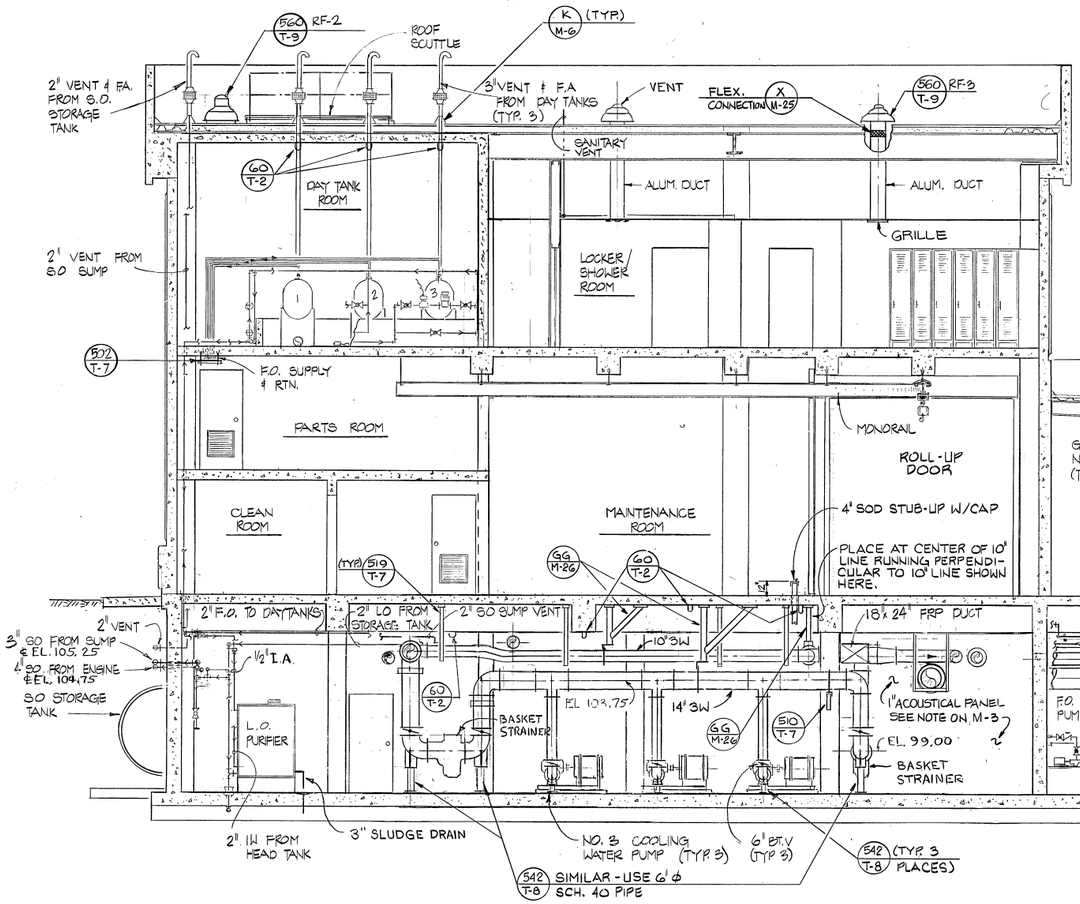
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
MECHANICAL
POWER GENERATION BUILDING SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-M-8
SHEET NO. 52 of 106

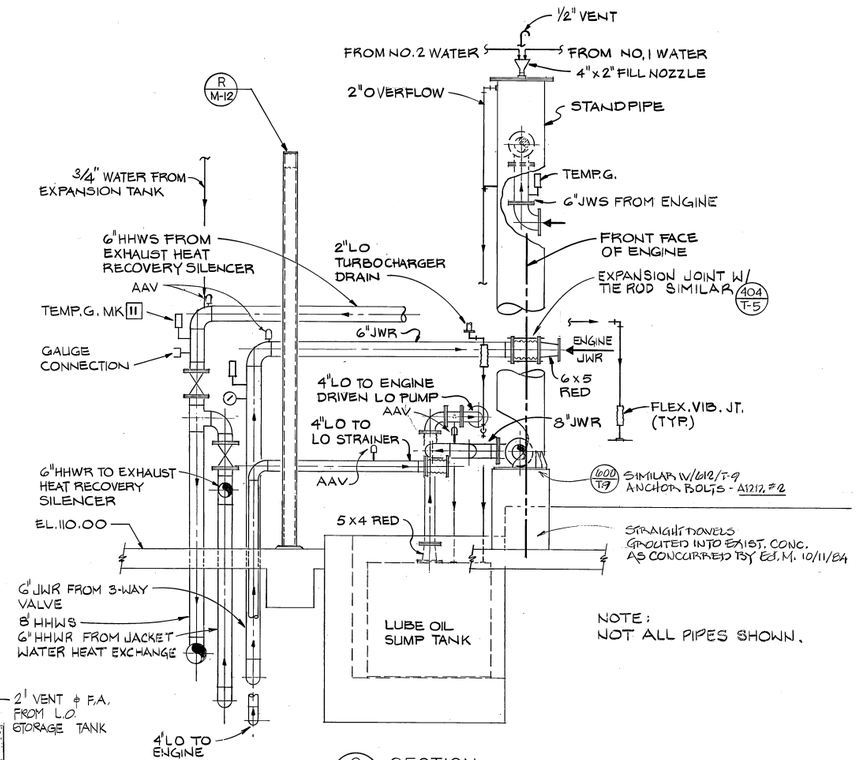


U M-3 SECTION 3/16" = 1'-0"



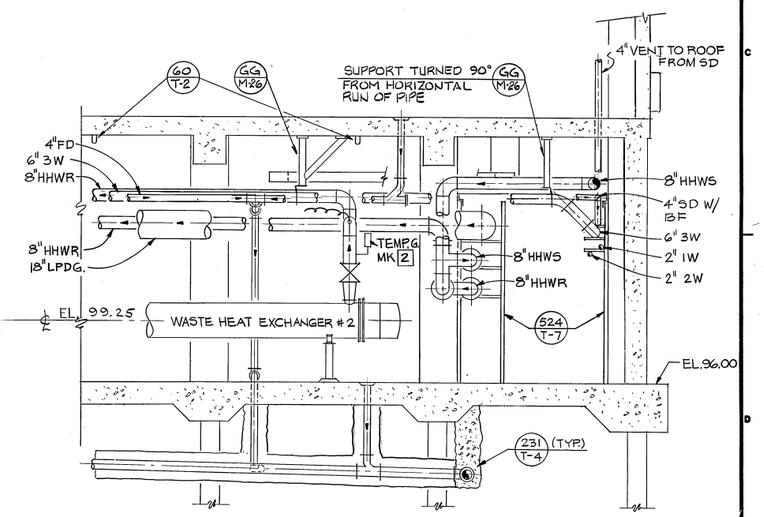
D M-3 SECTION 3/16" = 1'-0"

CCO #36
MODIFY JACKET WATER PIPING



NOTE:
NOT ALL PIPES SHOWN.

G M-4 SECTION 3/8" = 1'-0"



V M-3 SECTION 1/4" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	JAN 86	XV	As-Built

DESIGNED DT
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. NO. 16808
PROJECT ENGINEER Sidney G. Wasson M 18,392 P.E. NO.
E.B.M.U.D.

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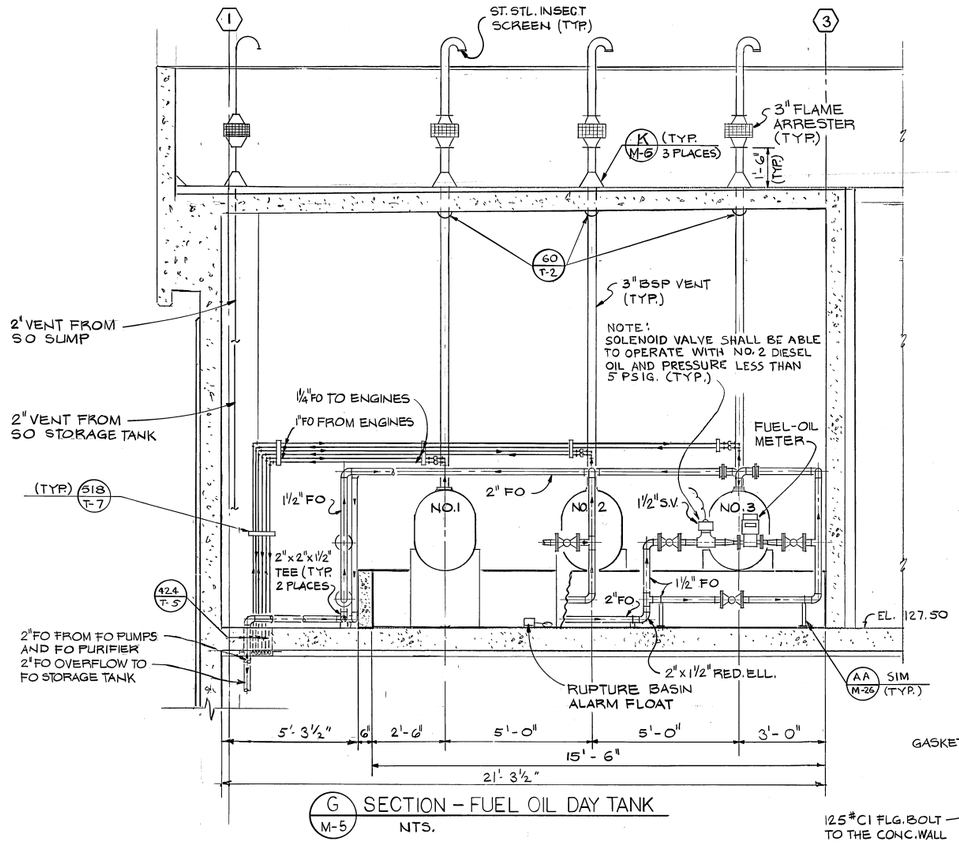
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

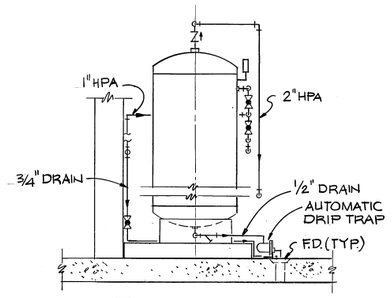
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
POWER GENERATION BUILDING SECTIONS

JOB NO. W 02401A12
DRAWING NO. JC-M-9
SHEET NO. 53 of 106

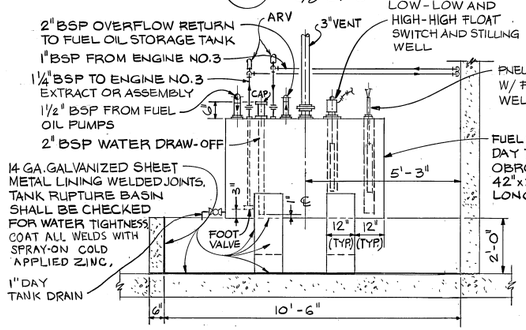
ABCDEFGHJKLMNPQRSUVWXYZ



G M-5 SECTION – FUEL OIL DAY TANK
NTS.

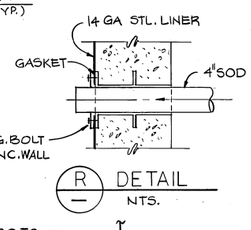


L — SECTION
3/8" = 1'-0"

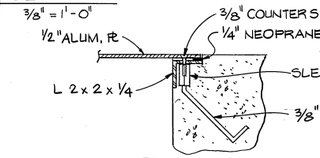


NOTE: TYP. FOR ENGINE NO.1 & NO.2 DAY TANK

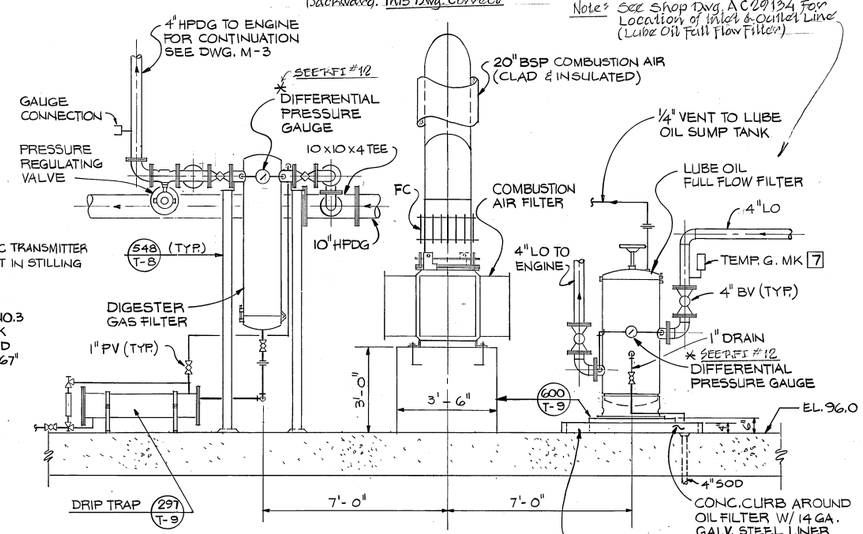
H M-5 SECTION
3/8" = 1'-0"



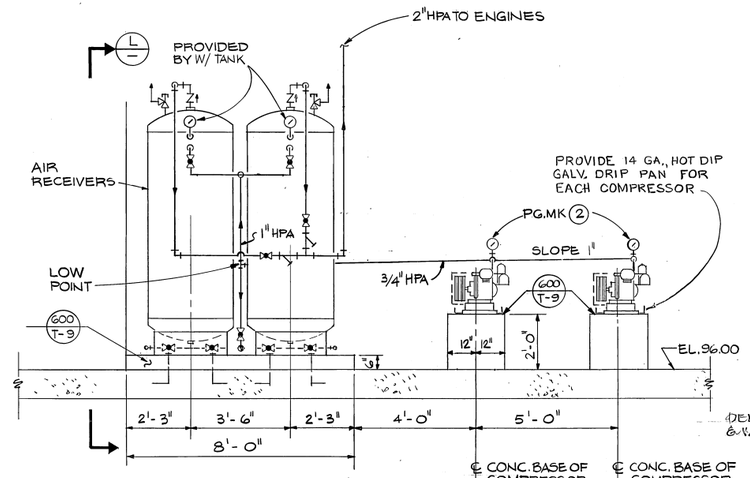
R — DETAIL
NTS.



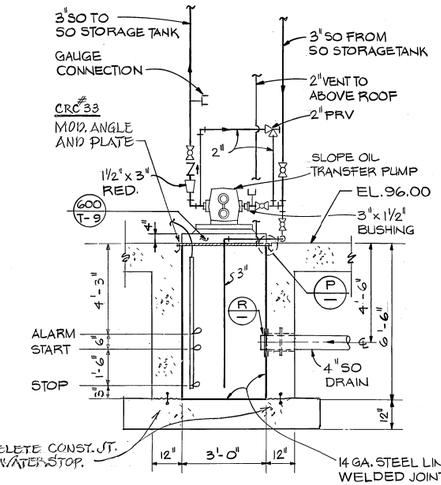
P — DETAIL
NTS.



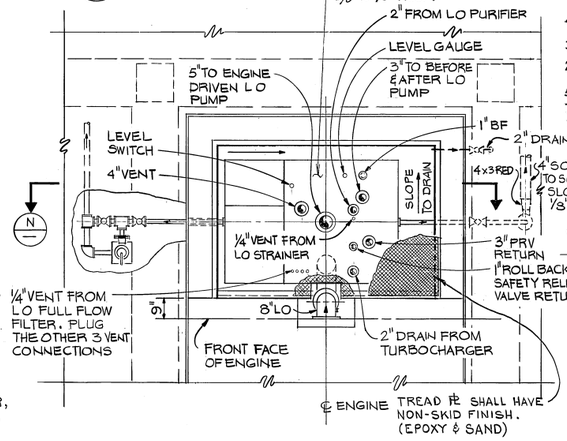
K M-3 SECTION
3/8" = 1'-0"



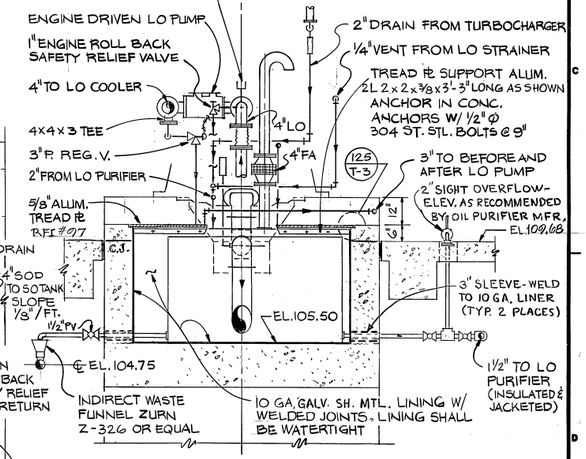
E M-3 SECTION
3/8" = 1'-0"



F M-3 SECTION
NTS.



M M-4 PLAN - LUBE OIL SUMP TANK
3/8" = 1'-0"



NOTE: TREAD & COVER SHALL HAVE OPENINGS FOR MANHOLE, PIPING AND A 3" DIA. INSPECTION HOLE FOR EA. SIDE OF THE LUBE OIL SUMP TANK. A 5/8" THICK ALUM. COVER SHALL BE PROVIDED FOR THE MANHOLE, FILLER PL'S SHALL BE PROVIDED AROUND FLANGED PIPES WITH 1/2" CLEARANCE AROUND PIPE – ALL SCREWS SHALL BE 304 ST. STL. FILLER PL'S & MANHOLES TO BE SUPPORTED BY 3/8" PL WELDED TO BOTTOM OF 5/8" COVER.

N — SECTION
NTS.

REV.	DATE	BY	DESCRIPTION
	JAN 86	AK	As-Built

DESIGNED DT/RJ
DRAWN DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. NO. RCE 11624
PROJECT ENGINEER Salwan G. Wasan P.E. NO. M 18392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
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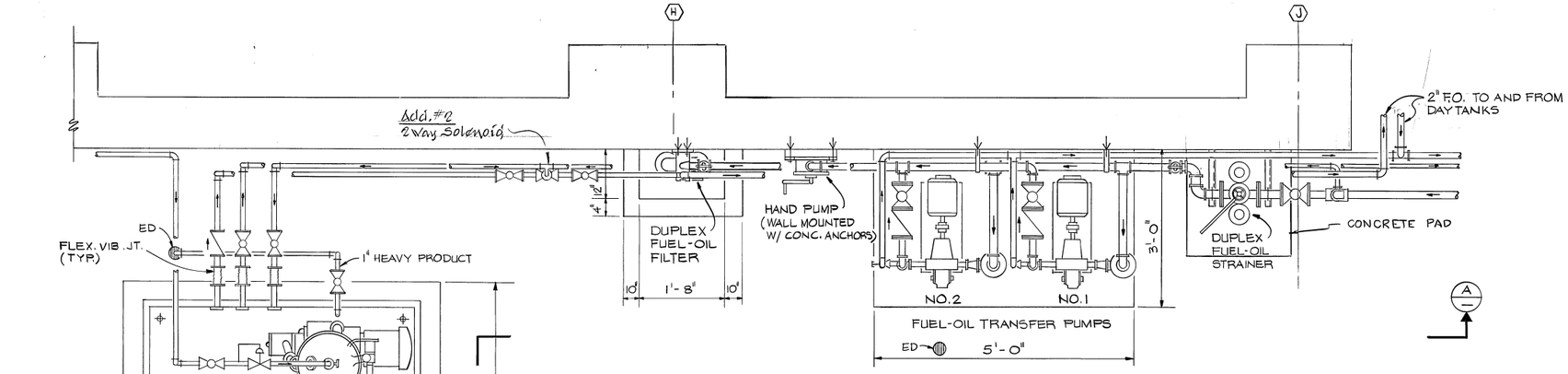
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

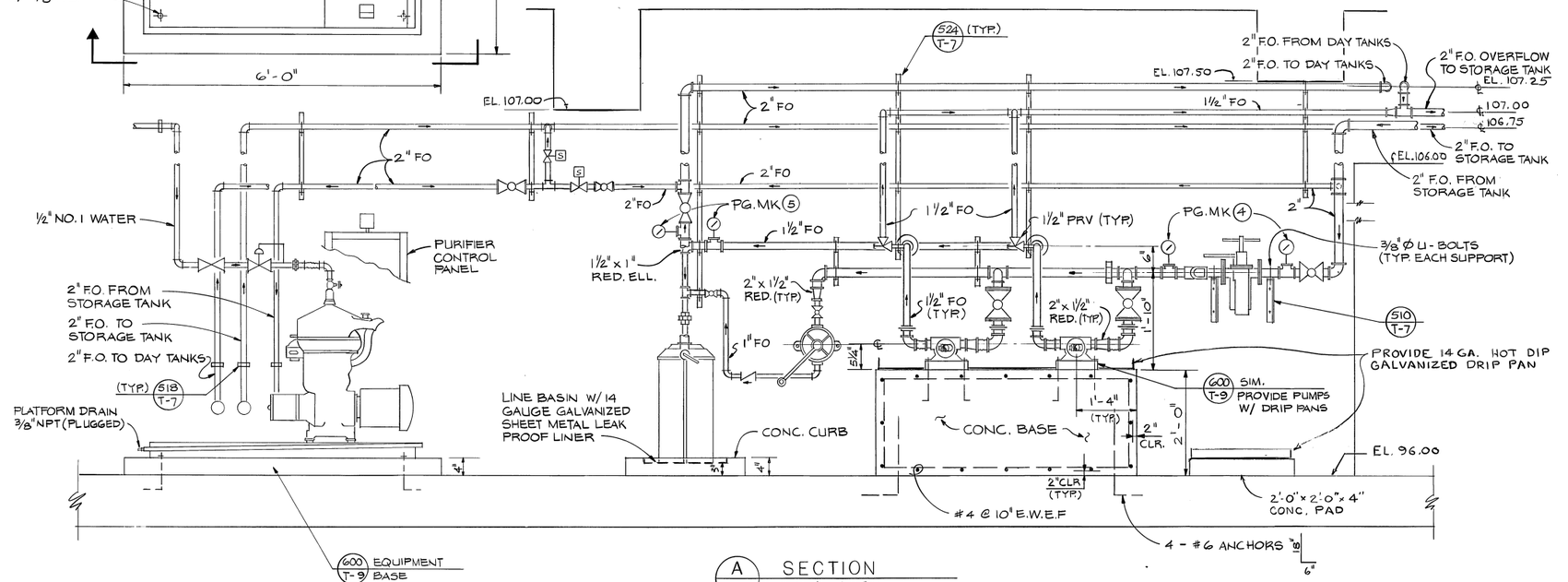
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION SPECIFICATION SD-135
MECHANICAL
POWER GENERATION BUILDING DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-M-10
SHEET NO. 54 OF 106



L M-3 PLAN-FUEL OIL

3/4" = 1'-0"

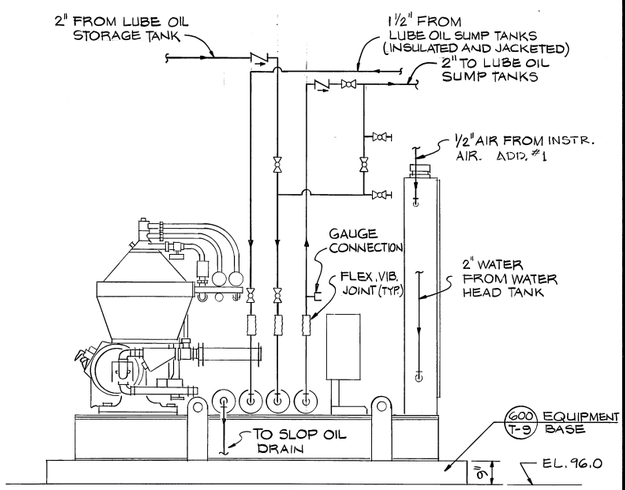


A — SECTION

3/4" = 1'-0"

INSTALL EQUIPMENT HOOK (60 T-2) ABOVE PURIFIER

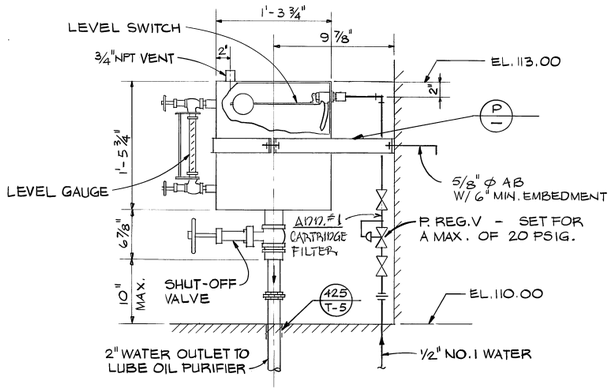
NOTE:
INSTALL LIFTING RING (60 T-2) OVER EACH PIECE OF EQUIPMENT IN BASEMENT.



INSTALL EQUIPMENT HOOK (60 T-2) ABOVE PURIFIER

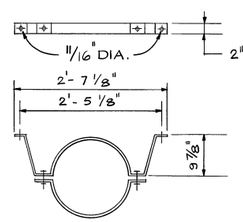
M M-3 SECTION-LUBE OIL PURIFIER

NO SCALE



N M-4 DETAIL-WATER HEAD TANK

NO SCALE



P — DETAIL-TANK BRACKET

NO SCALE

REV.	DATE	BY	DESCRIPTION
	JAN 86	XR	AS-BUILT

DESIGNED DT/RJ
DRAWN DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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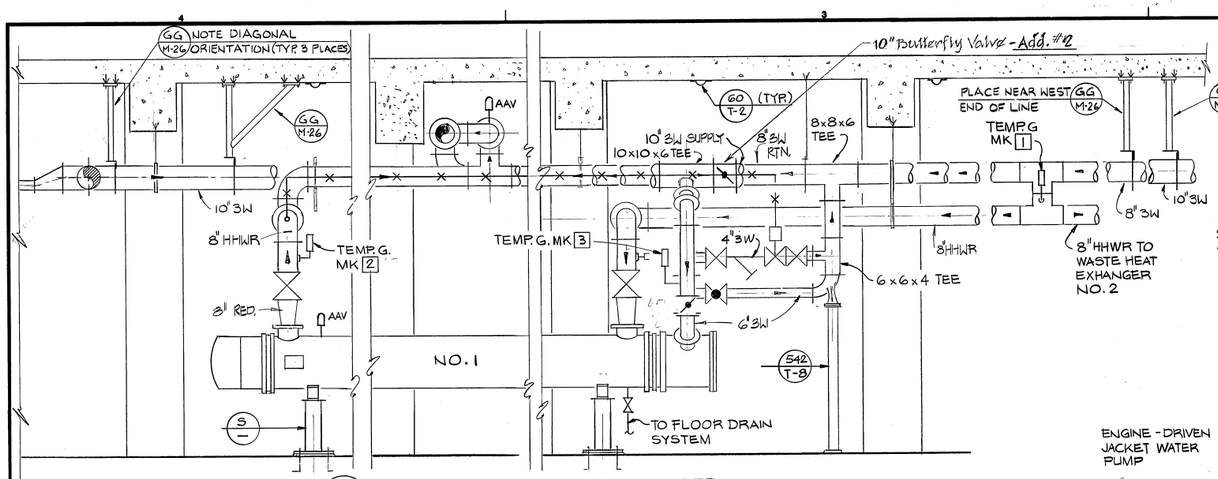
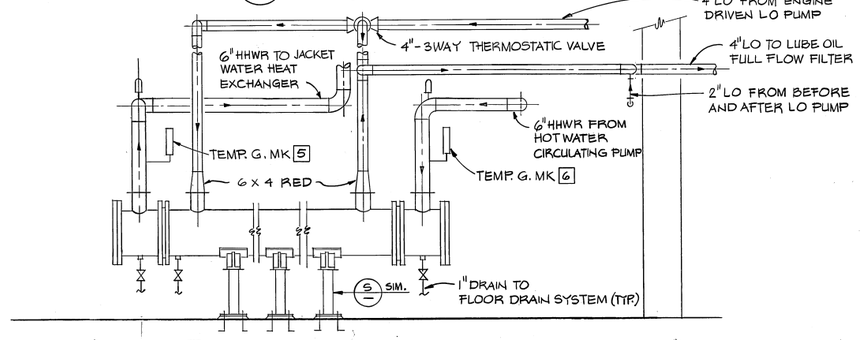
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
POWER GENERATION BUILDING DETAILS

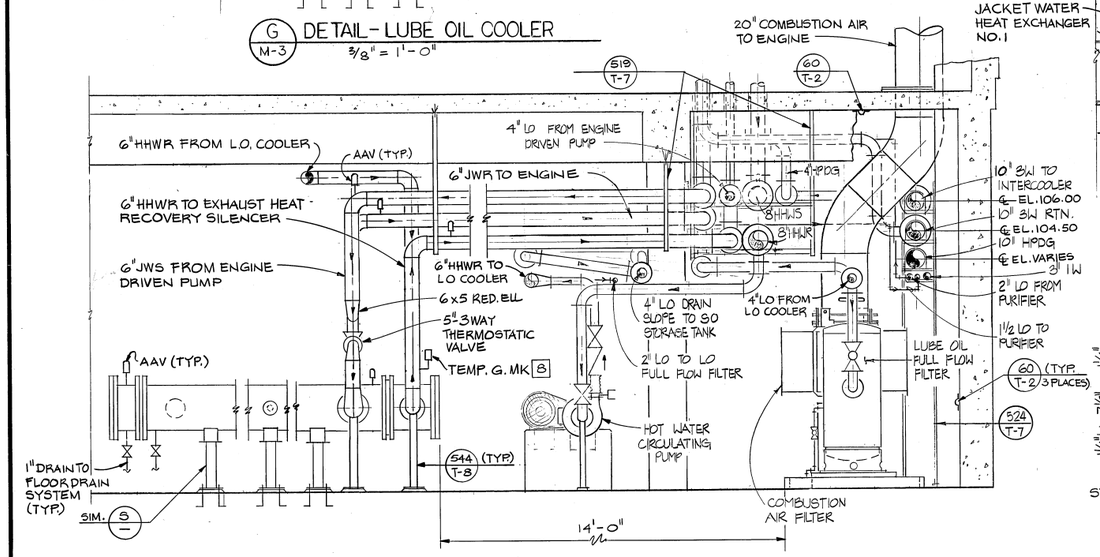
JOB NO. W 02401A12
DRAWING NO. JC-M-11
SHEET NO. 55 OF 106



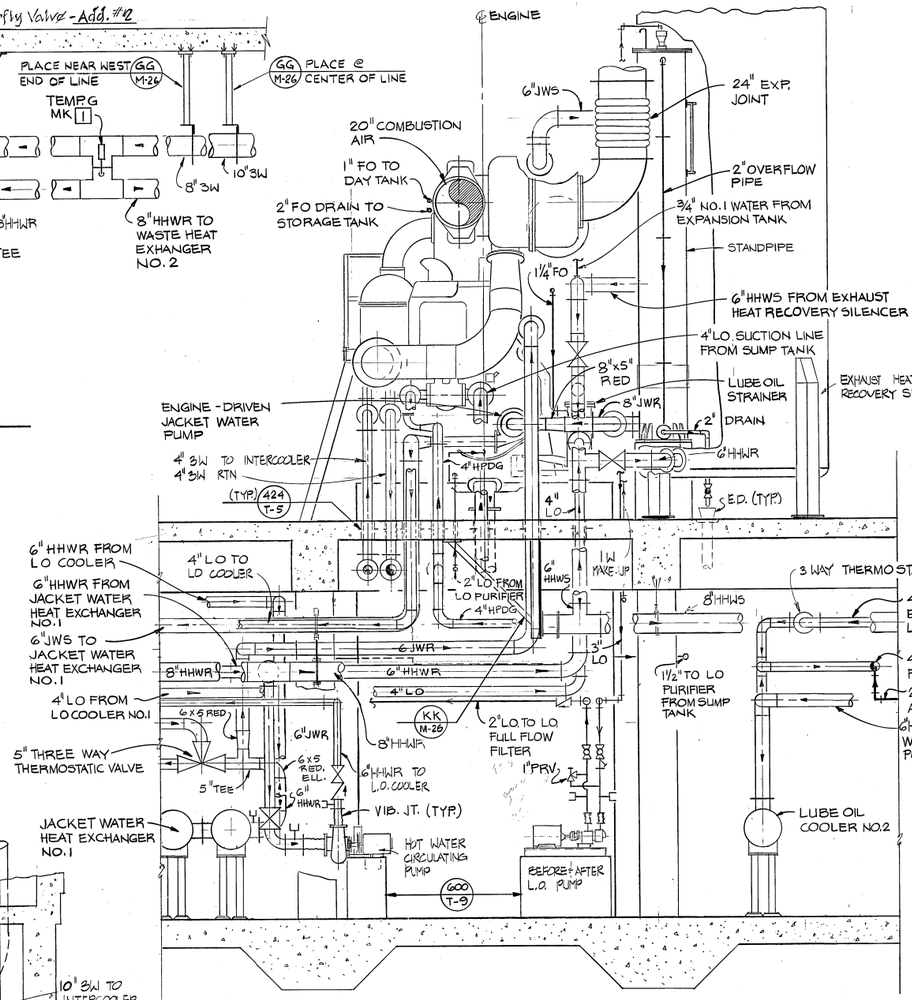
P M-3 DETAIL - WASTE HEAT EXCHANGER
3/8" = 1'-0"



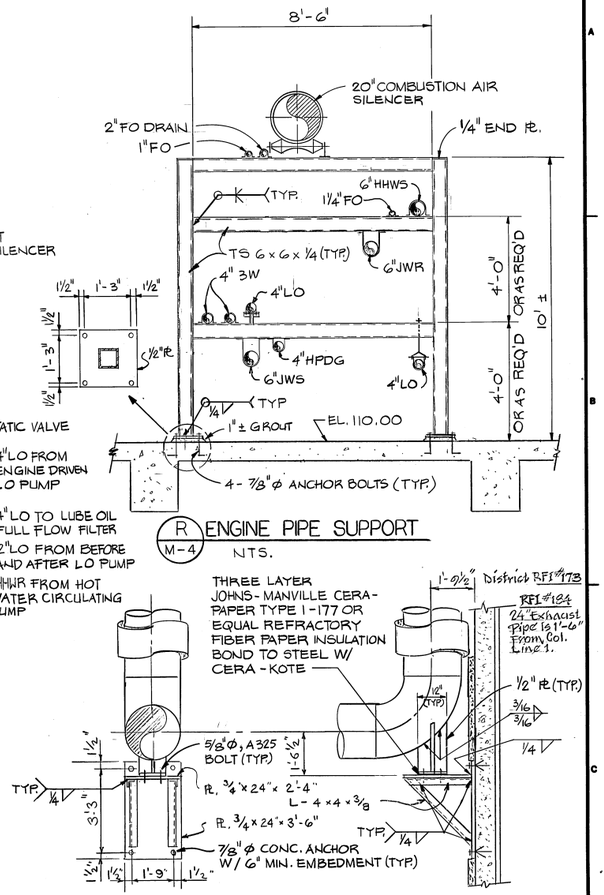
G M-3 DETAIL - LUBE OIL COOLER
3/8" = 1'-0"



H M-3 DETAIL - JACKET WATER HEAT EXCHANGER
3/8" = 1'-0"

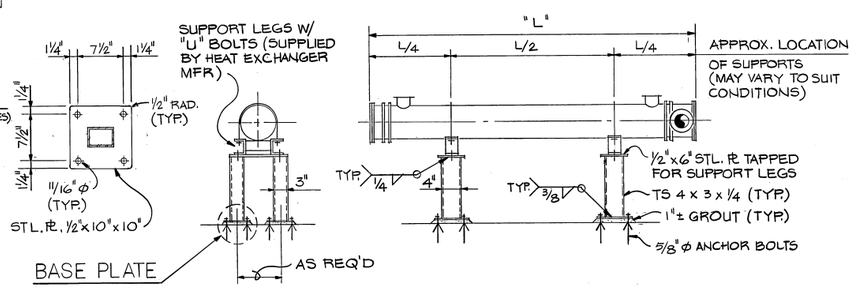


J M-3 SECTION (SEE ADD. #2)
3/8" = 1'-0"



R M-4 ENGINE PIPE SUPPORT
NTS.

Q M-4 EXHAUST PIPE SUPPORT
3/8" = 1'-0"



S — WASTE HEAT EXCHANGER PIPE SUPPORT
NTS.

NOTE: ADD. #2
- 24" Elbow in the Exhaust Piping Downstream of Turbocharger & Combustion Air Piping Between Turbocharger & Intercooler is provided Piping On The Engines W/ The Owner Furnished Equipment. 24" Expansion Joint is Provided Loose W/ The Owner Furnished Equipment.
- The 24" Elbow Downstream of Turbocharger Has 2" Drain Connection (Not Shown). Rem A 2" Schedule 40 Steel Pipe From This Drain Connection To A Floor Drain With A 2" Gate Valve Near The Floor Drain (Typ. 3 Places).

REV.	DATE	BY	DESCRIPTION
	JAN 86	KV	As-Built

DESIGNED DT | DRAWN JBR/DST | CHECKED DS | DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

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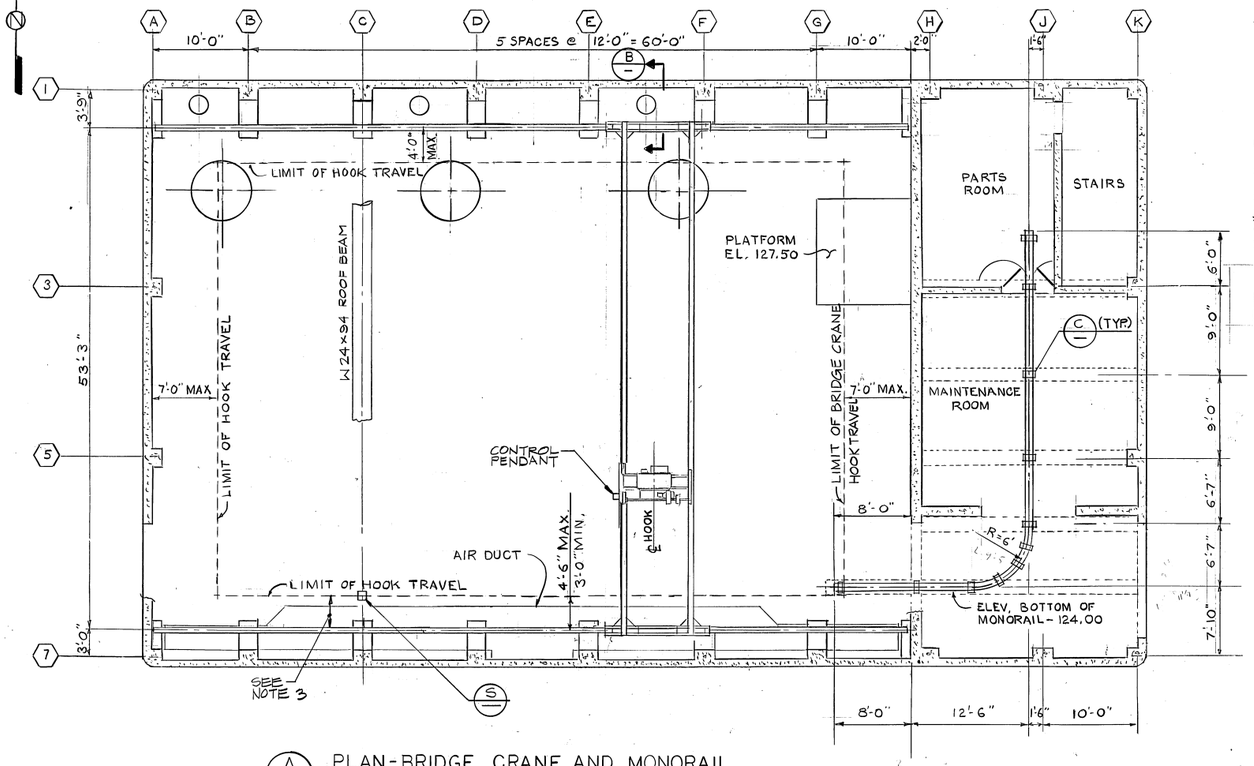
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
POWER GENERATION BUILDING
DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-M-12
SHEET NO. 56 of 106

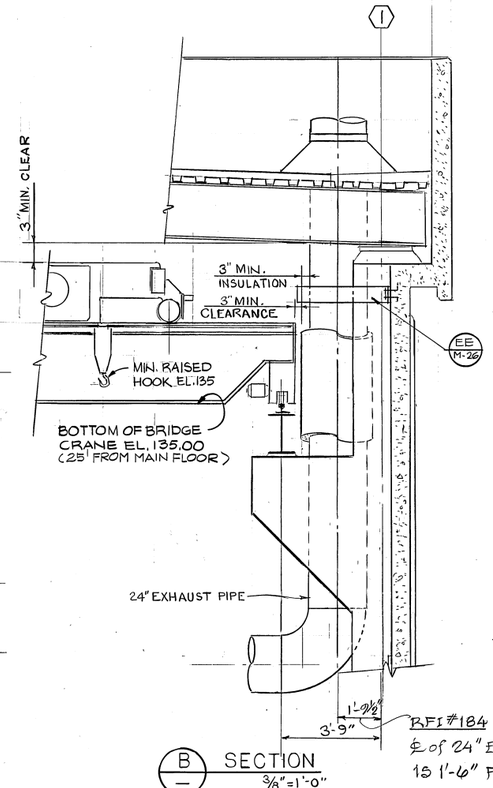


A M-4 PLAN - BRIDGE CRANE AND MONORAIL

1/8" = 1'-0"

NOTES:

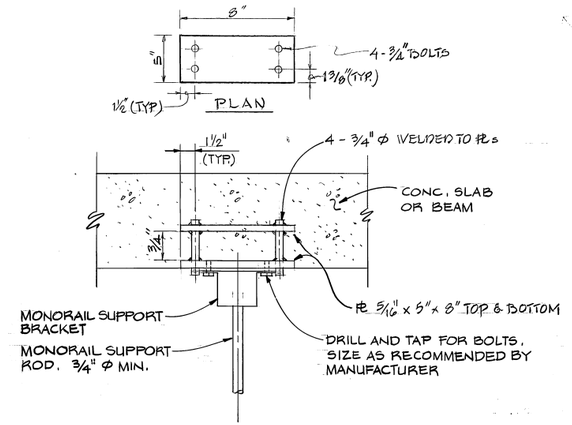
1. DISTANCES FROM TOP OF RAIL TO TOP OF BRIDGE CRANE TROLLEY SHALL NOT BE GREATER THAN 5'-7"
2. DETAIL DESIGN OF HOIST, RUNWAY CARRIAGE & ALL RELATED HARDWARE SHALL BE BY THE CRANE MFR. & APPROVED BY THE ENGINEER.
3. EXACT LOCATION OF TAKE UP REEL SHALL BE DETERMINED BY THE CRANE MFR.



B — SECTION

3/8" = 1'-0"

RFI #184
℄ of 24" EXHAUST
15 1'-6" FROM
COL. 1 - LINE



C — DETAIL

1 1/2" = 1'-0"

S — DETAIL TAKE UP REEL

NTS

REV.	DATE	BY	DESCRIPTION
	JAN 06	XC	As-Built

DESIGNED DT | DRAWN ELP | CHECKED DS | DATE FEB. 1983

APPROVED BY:

PARTNER — P.E. NO.

PROJECT ENGINEER — P.E. NO.

E.B.M.U.D.

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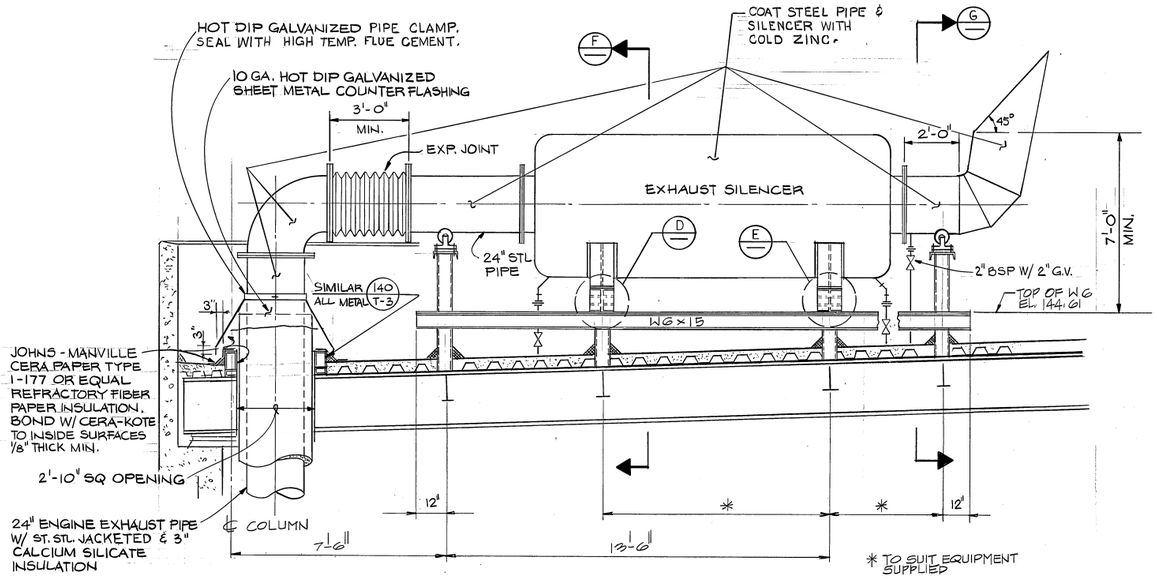
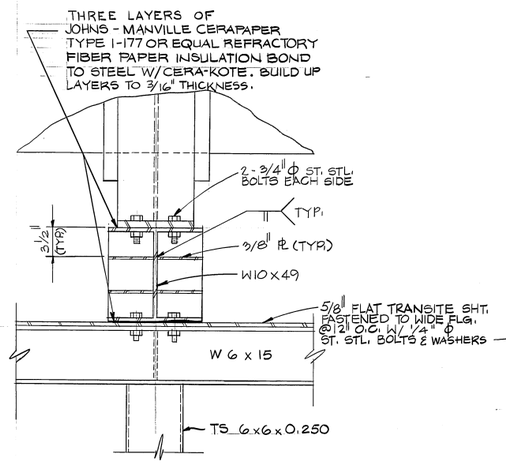
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
POWER GENERATION BUILDING
BRIDGE CRANE DETAILS

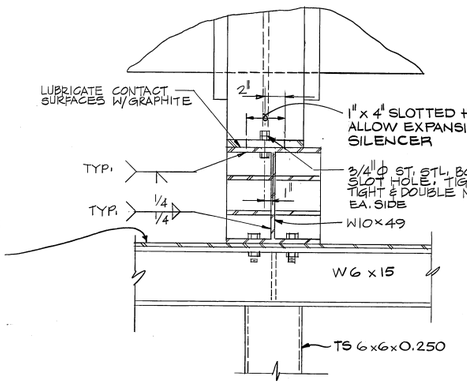
JOB NO. W 02401A12
DRAWING NO. JC-M-13
SHEET NO. 57 of 106



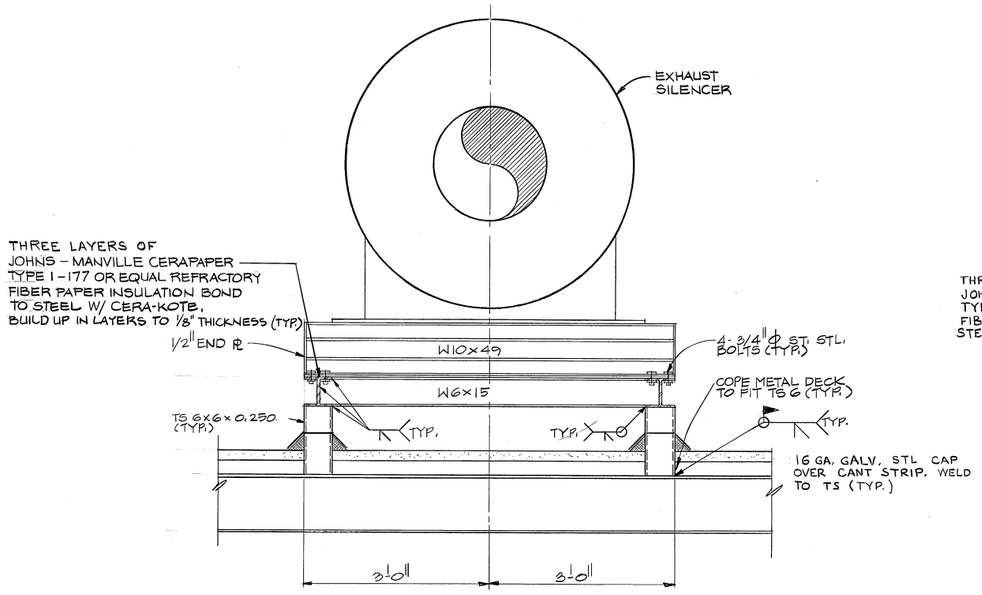
C / M-6 SECTION
3/8" = 1'-0"



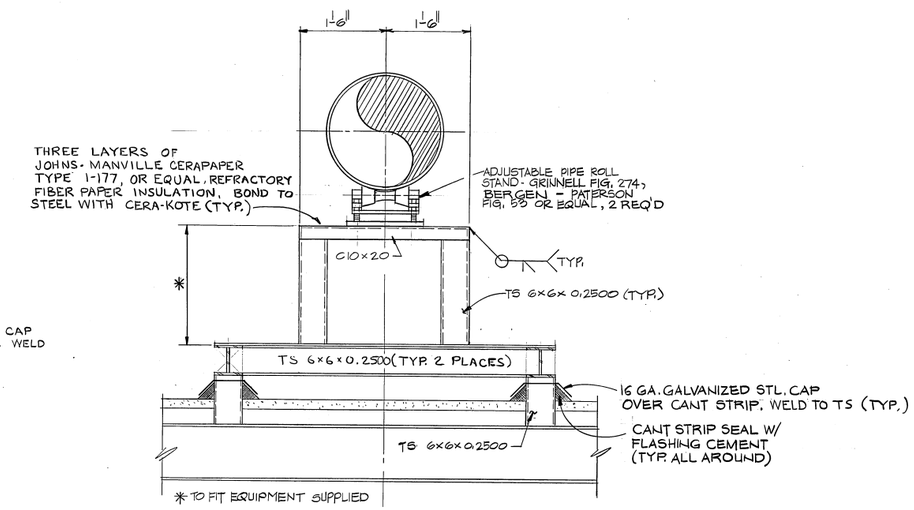
D / — DETAIL
1 1/2" = 1'-0"



E / — DETAIL
1 1/2" = 1'-0"



F / — SECTION
3/4" = 1'-0"



G / — SECTION
3/4" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	JAN 86	XV	As-Built

DESIGNED DT
DRAWN FB/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter R. Howard R.E. 19808
PARTNER P.E. NO.
Sawan L. Wason M 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

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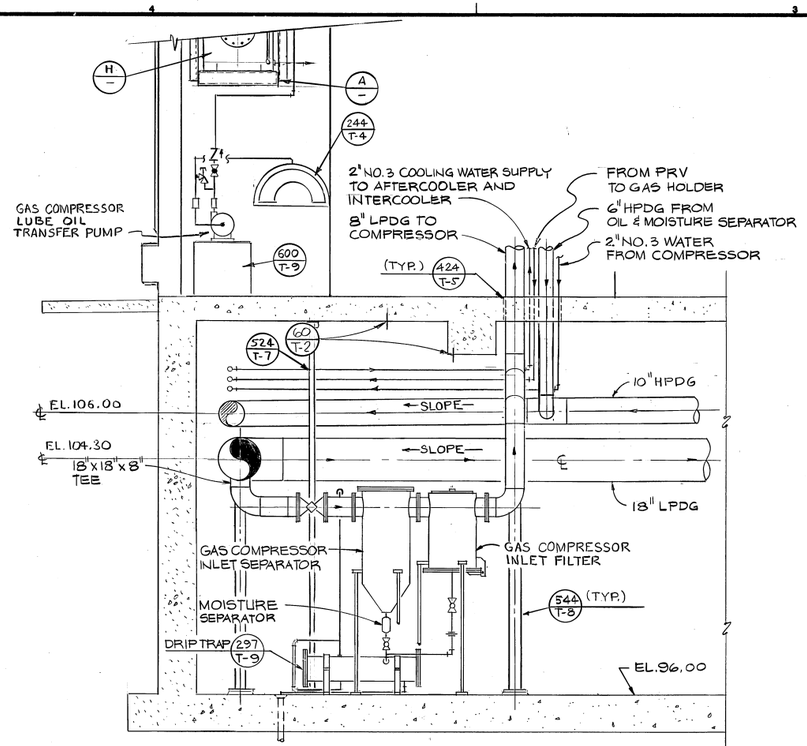
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT

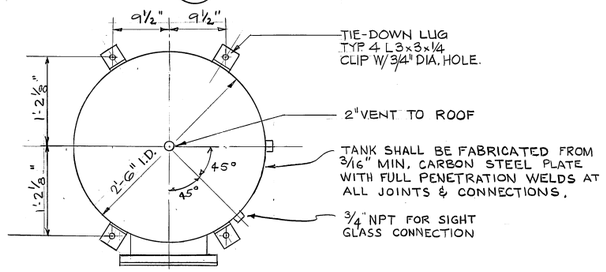
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
EXHAUST SILENCER
SECTIONS AND DETAILS

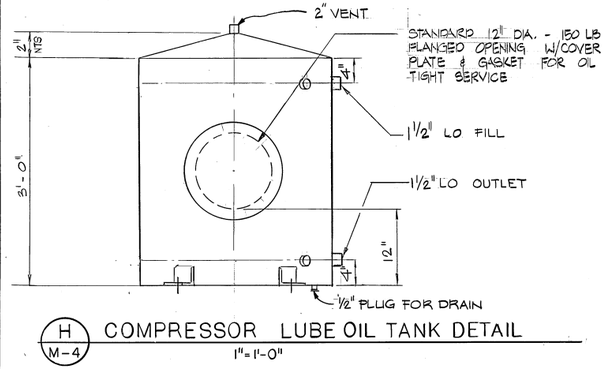
JOB NO. W 02401A12
DRAWING NO. JC-M-14
SHEET NO. 58 OF 106



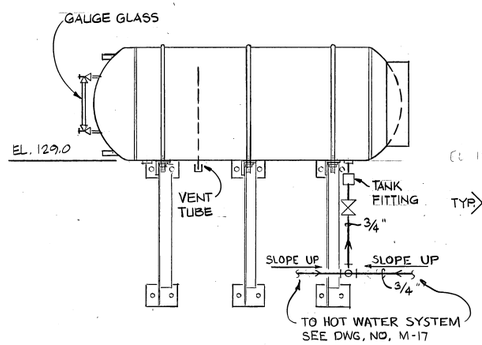
N M-3 SECTION
3/8" = 1'-0"

A1212 #2: INSTALL TWO 1½" DRAIN PIPES FROM CONDENSATE TRAPS (ABOVE MAIN FLOOR) TO EQUIPMENT DRAIN (AT THE LOWER FLOOR) PER GAS COMPRESSOR PIPING SCHEMATIC TO DWG. M-20.

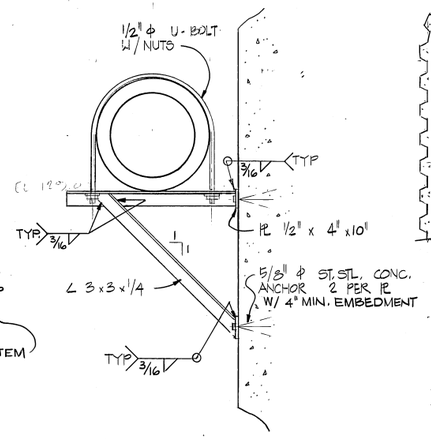


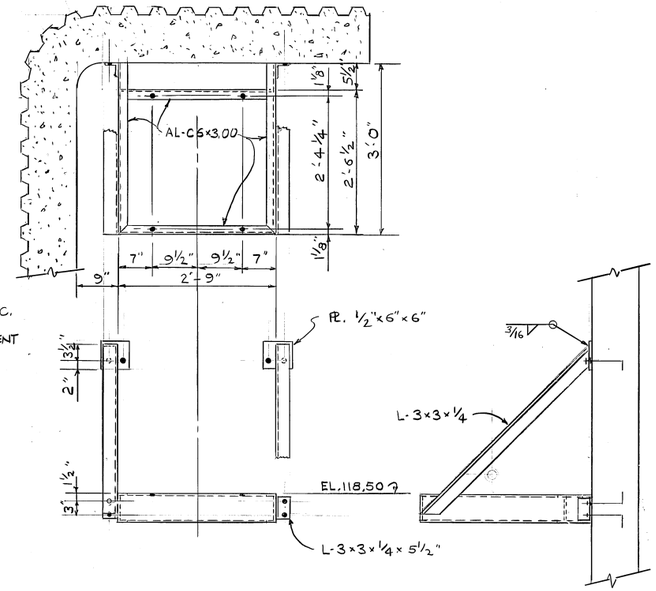


H M-4 COMPRESSOR LUBE OIL TANK DETAIL
1"=1'-0"

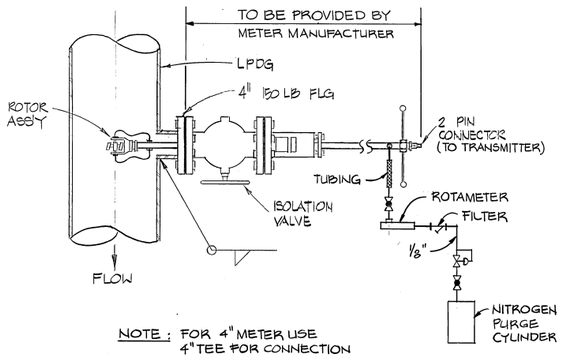


K M-4 DETAIL - EXPANSION TANK
3/4" = 1'-0"



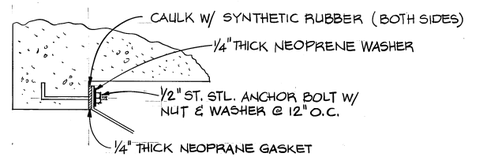


A M-4 LUBE OIL TANK SUPPORT
¾" = 1'-0"

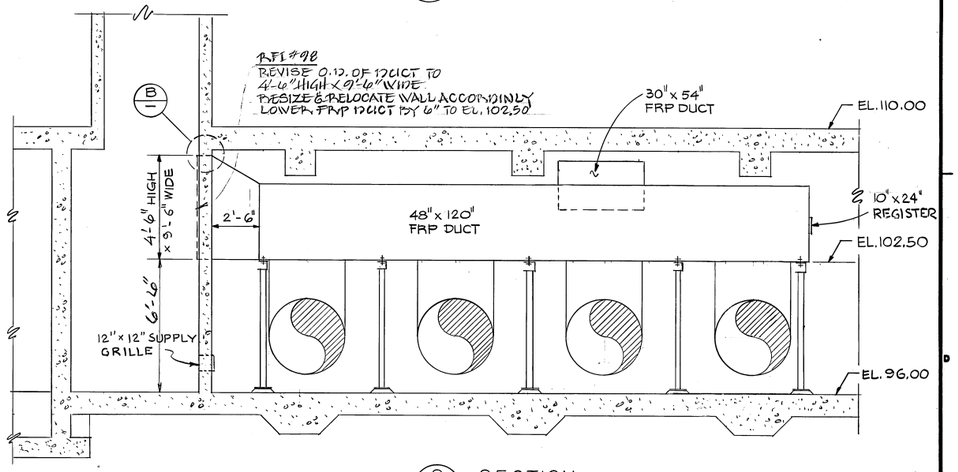


NOTE: FOR 4" METER USE 4" TEE FOR CONNECTION

R M-3 DETAIL - DIGESTER GAS FLOW METER
NTS



B — DETAIL
1½" = 1'-0"



S M-3 SECTION
¼" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	JAN 86	KV	As-Built

DESIGNED DT/THF
DRAWN DST/ELP
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter P. Howard P.E. 19408
PROJECT ENGINEER Sallorn M. Wasson M 18382 P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

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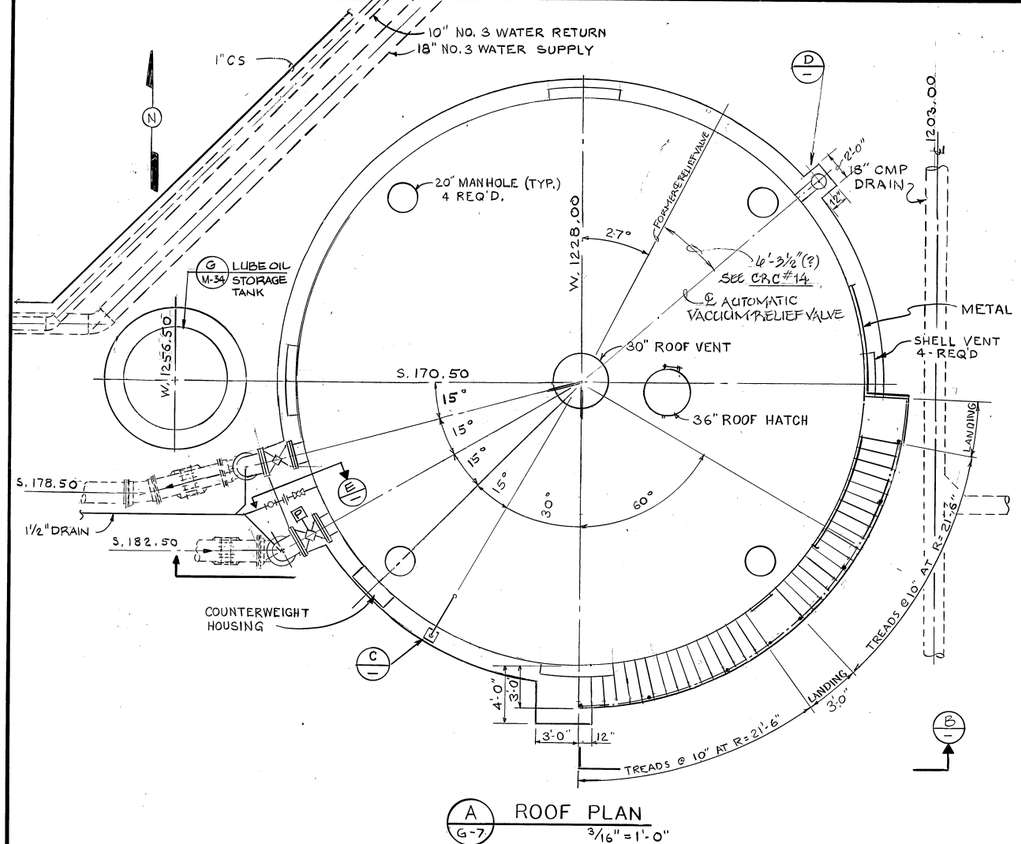
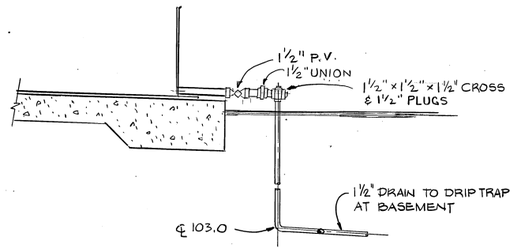
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
MISCELLANEOUS SECTIONS AND DETAILS

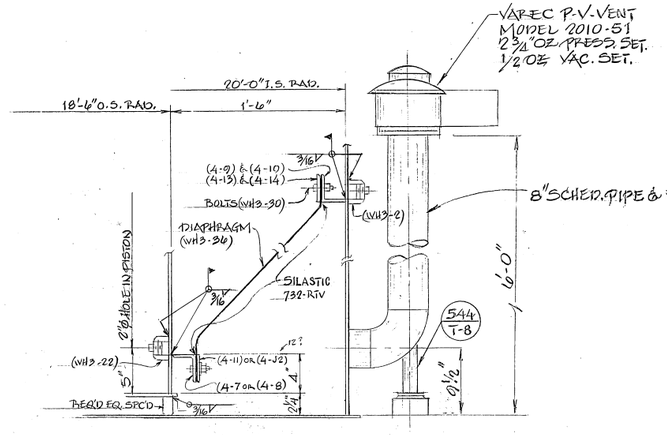
JOB NO. W 02401A12
DRAWING NO. JC-M-15
SHEET NO. 59 OF 106



A ROOF PLAN
G-7 3/16" = 1'-0"

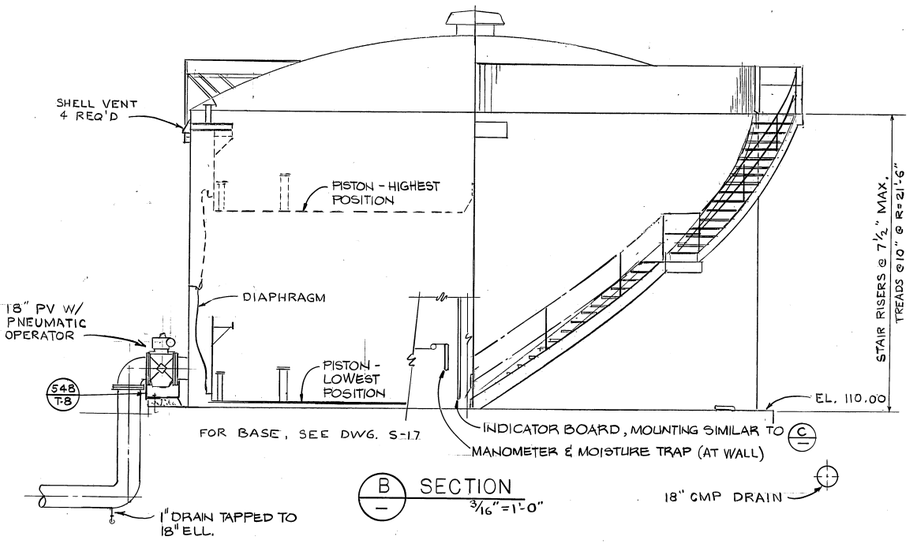


E SECTION
— 1½" = 1'-0"

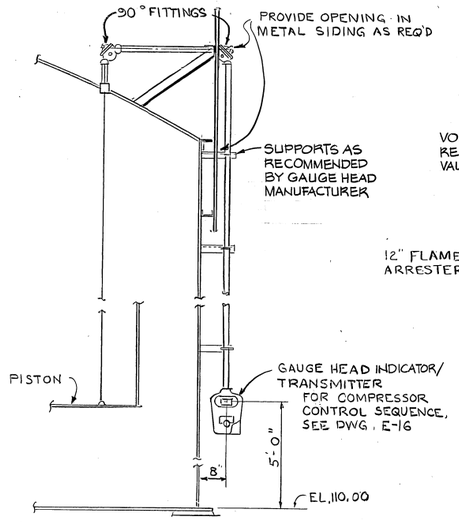


8" DIA. BREATHER VENT

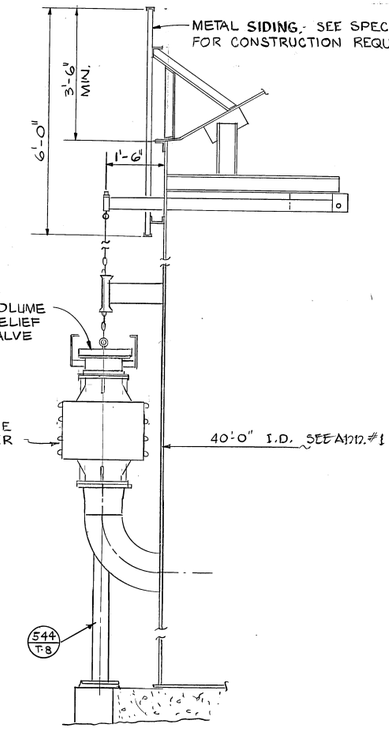
REF: 15000 FT³ 1 DRY SEAL GASHOLDER - CONT. 33025 SKETCH 1
(PITTSBURGH-DES MOINES COMP.)



B SECTION
— 3/16" = 1'-0"



C DETAIL - GAUGE HEAD ASSEMBLY
—



D DETAIL - VOLUME RELIEF VALVE
—

REV.	DATE	BY	DESCRIPTION
	JAN 86	XV	As-Built

DESIGNED DT
DRAWN ELP
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter R. Howard RCE 14004
PARTNER P.E. NO.
Samuel J. Wason R18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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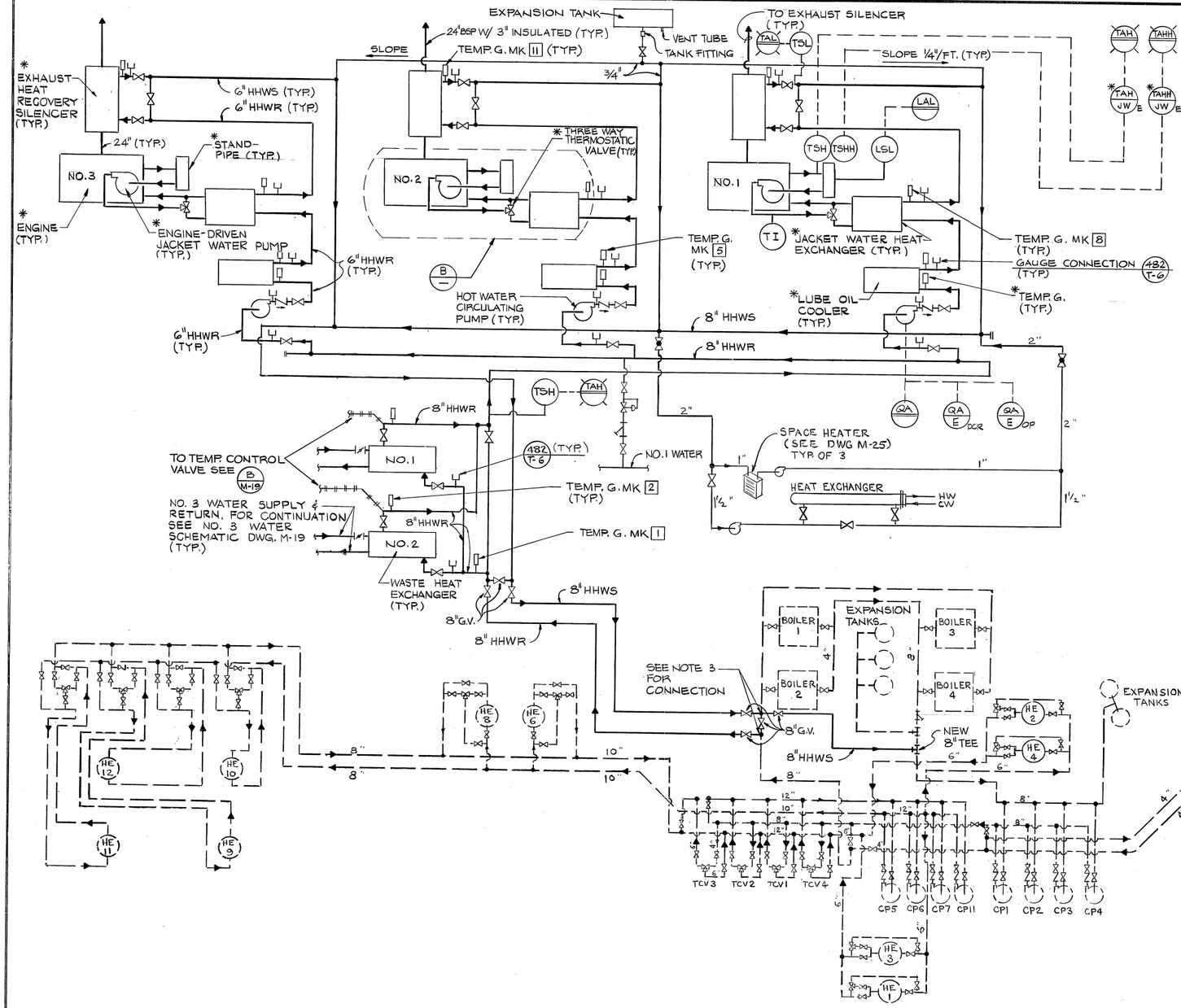
G. WILLIAM KNOFF, P.E.

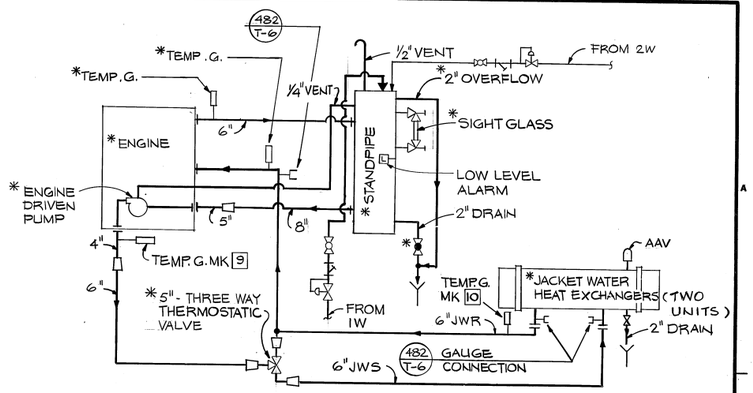
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
LOW PRESSURE GAS HOLDER
PLAN AND DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-M-16
SHEET NO. 60 of 106



A HOT WATER PIPING SCHEMATIC
NO SCALE



B JACKET WATER CONNECTION AT ENGINE
(TYP. 3 PLACES)

NOTES:

1. ITEMS MARKED "*" ARE FURNISHED BY THE DISTRICT.
2. INSTRUMENTATION SHOWN FOR ENGINE NO. 1 IS TYPICAL TO ENGINE NO. 2 & NO. 3
3. SEE SPECIFICATIONS REGARDING TIME LIMITATIONS DURING WHICH THESE CONNECTIONS TO EXISTING HOT WATER SYSTEM CAN BE MADE

LEGEND

HE HEAT EXCHANGER
TCV TEMPERATURE CONTROL VALVE
CP CIRCULATING PUMP

REV.	DATE	BY	DESCRIPTION
	FEB 86	JW	As-Built

DESIGNED DT
DRAWN ELP/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter P. Howard P.E. NO. R 1618
PROJECT ENGINEER Salwan H. Mason P.E. NO. R 18392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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HOWARD M. WAY, P.E.
DONALD R. PREISLER, P.E.
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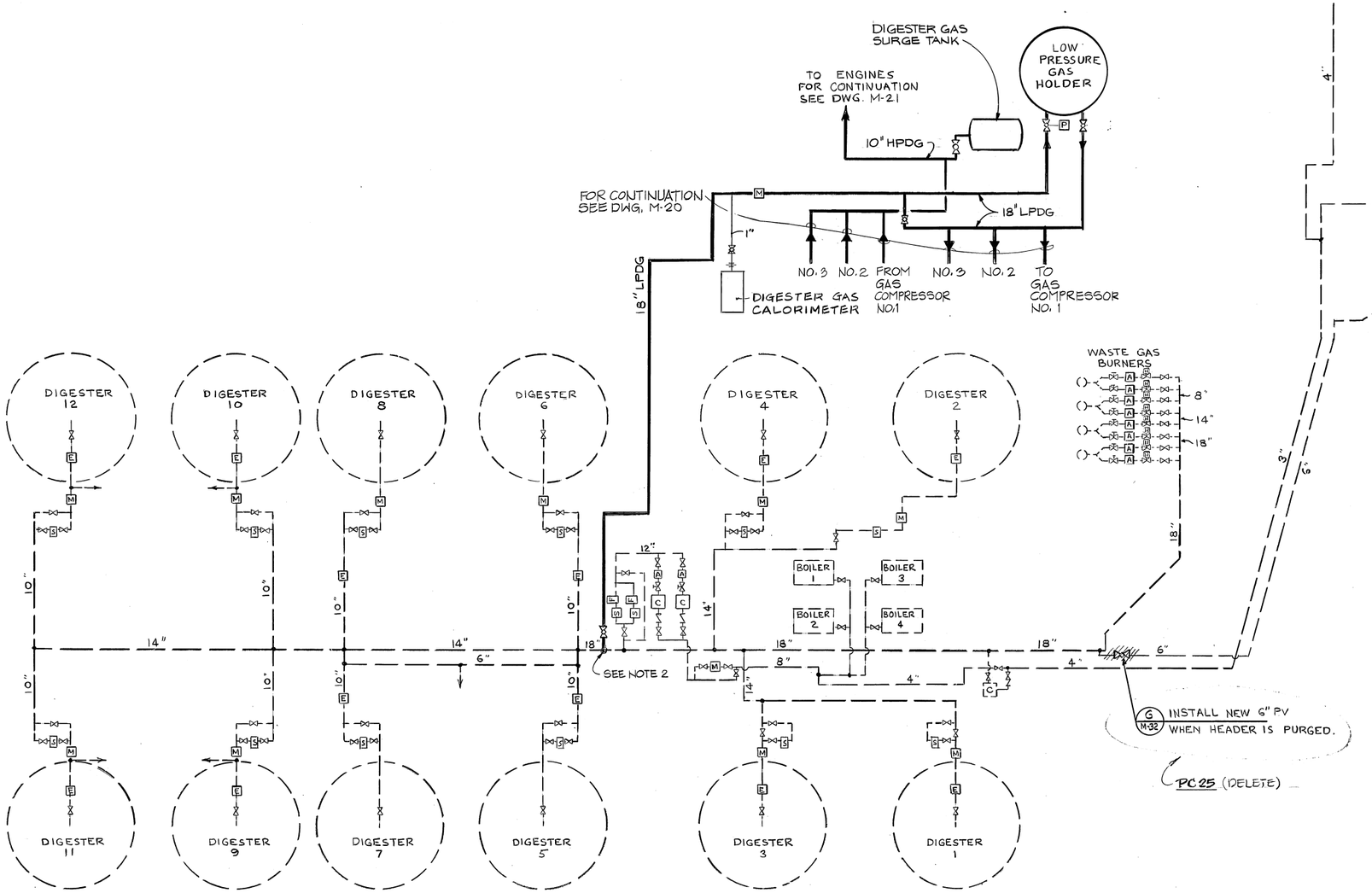
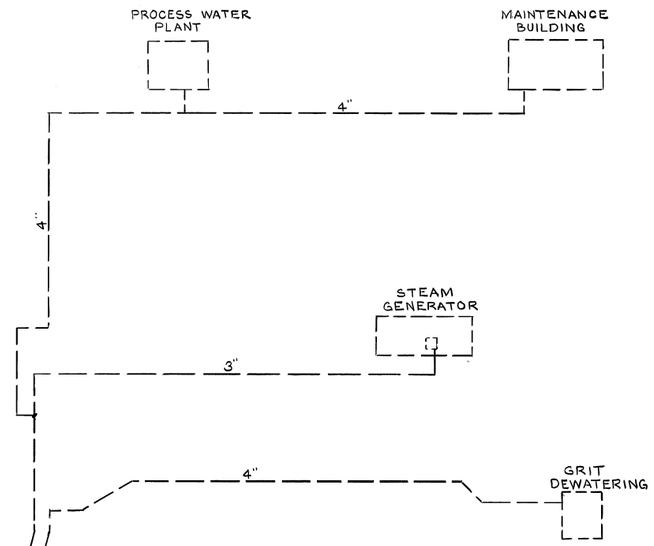
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
MECHANICAL
PLANT HOT WATER PIPING SCHEMATIC

JOB NO. W 02401A12
DRAWING NO. JC-M-17
SHEET NO. 61 OF 106





LEGEND

- A — FLAME ARRESTER
- C — COMPRESSOR
- E — EARTHQUAKE VALVE
- F — FILTER
- M — METER
- S — MOISTURE SEPARATOR
- E — PNEUMATICALLY OPERATED VALVE
- H — HYDRAULICALLY OPERATED VALVE

NOTES:

1. SEE DWG. I-2 FOR DIGESTER GAS SYSTEM INSTRUMENTATION.
2. SEE SPECIFICATIONS REGARDING TIME LIMITATIONS DURING WHICH THESE CONNECTIONS TO EXISTING LOW PRESSURE GAS HOLDER CAN BE MADE

A — DIGESTER GAS PIPING SCHEMATIC

REV.	DATE	BY	DESCRIPTION
	FEB 84	XV	As-Built

DESIGNED DT
DRAWN ELP
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER H. Wesley L. Howard P.E. 16808
PROJECT ENGINEER Salwan H. Wason P.E. 18392
E.B.M.U.D.

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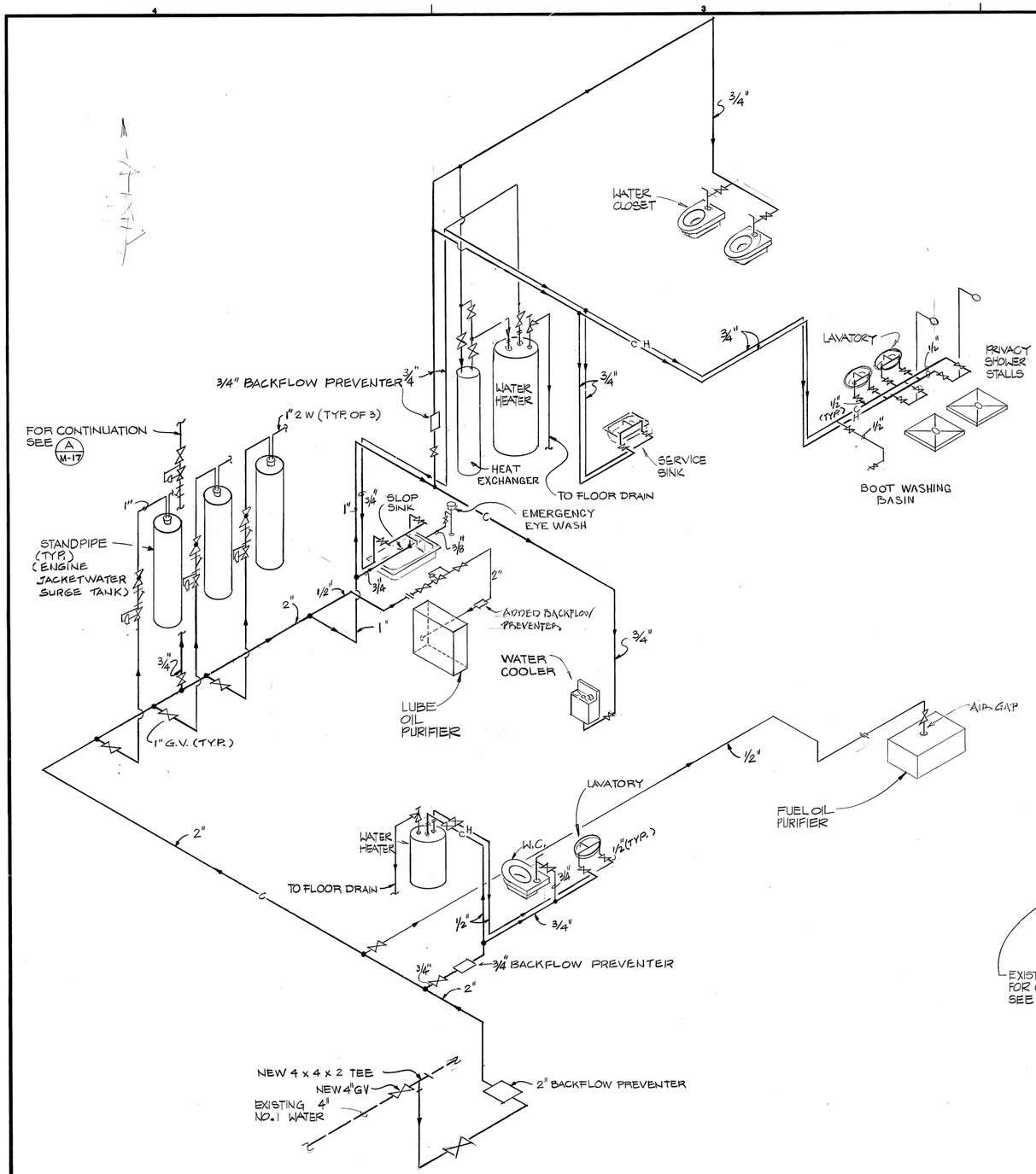
G. WILLIAM KNOPF, P.E.

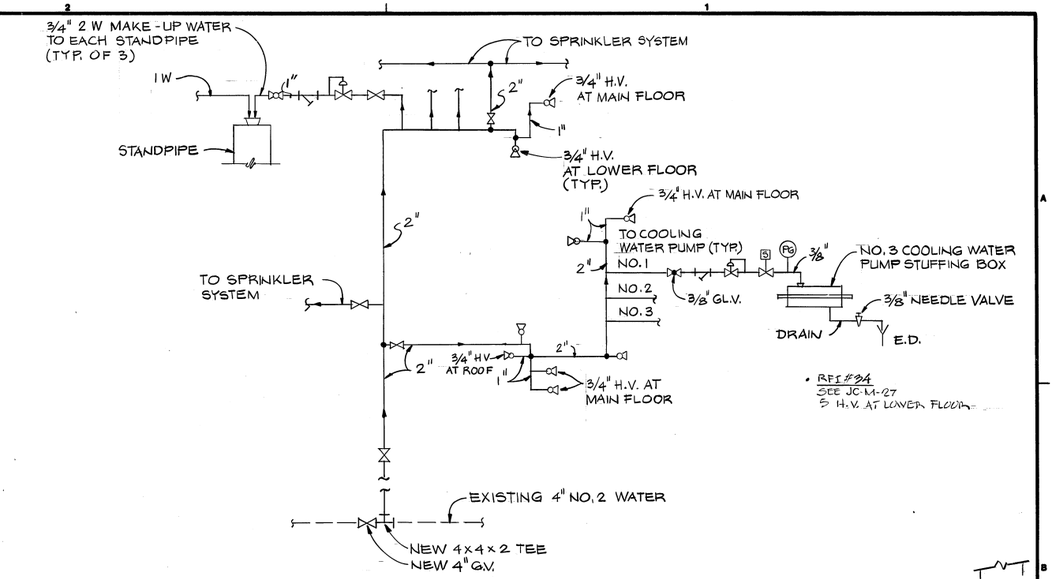
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
DIGESTER GAS PIPING SCHEMATIC

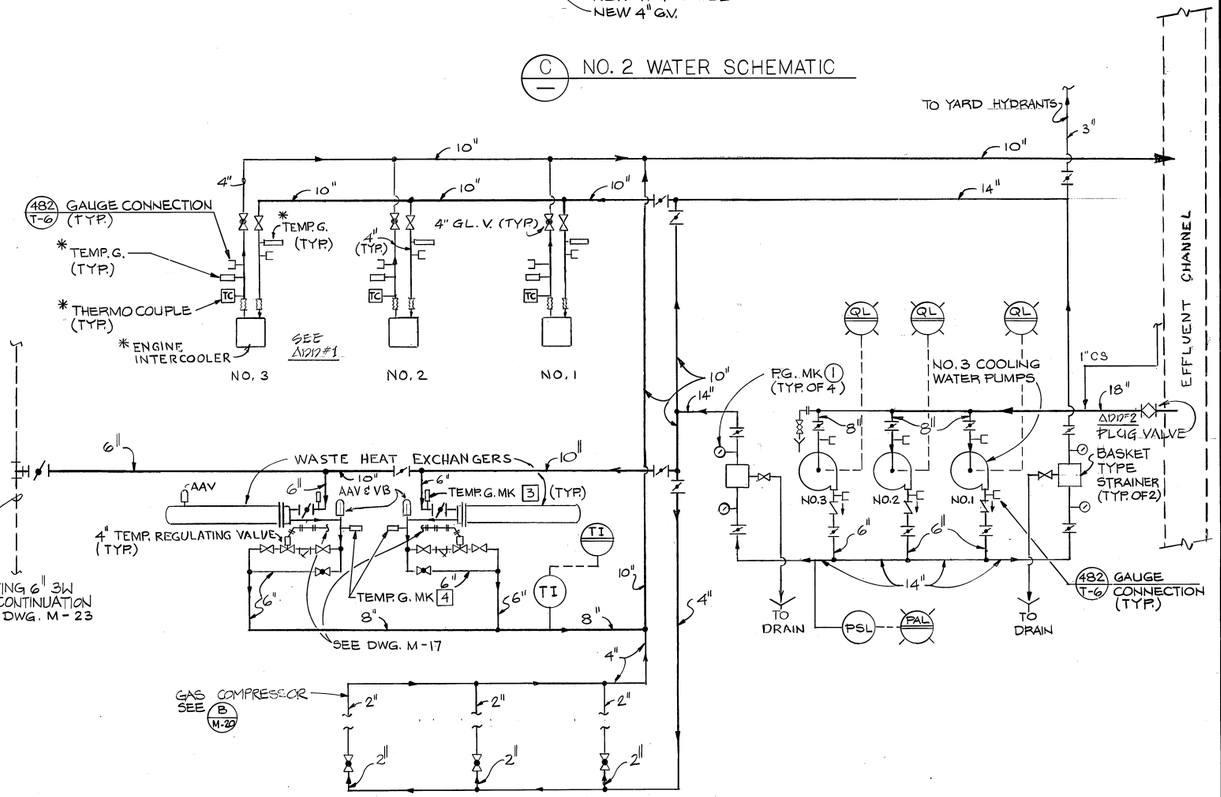
JOB NO. W 02401A12
DRAWING NO. JC-M-18
SHEET NO. 62 OF 106



A NO. 1 WATER ISOMETRIC SCHEMATIC



C NO. 2 WATER SCHEMATIC



B NO. 3 WATER SCHEMATIC

SEE ADD. #1 & #2

REV.	DATE	BY	DESCRIPTION
	FEB 86	XC	As-Built

DESIGNED DT
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA — WALNUT CREEK CALIFORNIA — FOUNTAIN VALLEY CALIFORNIA — VISALIA CALIFORNIA

JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
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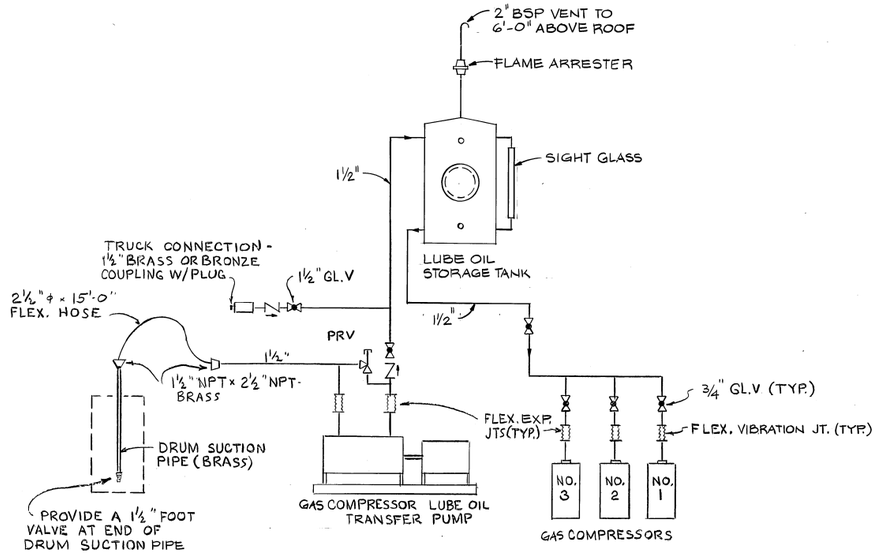
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

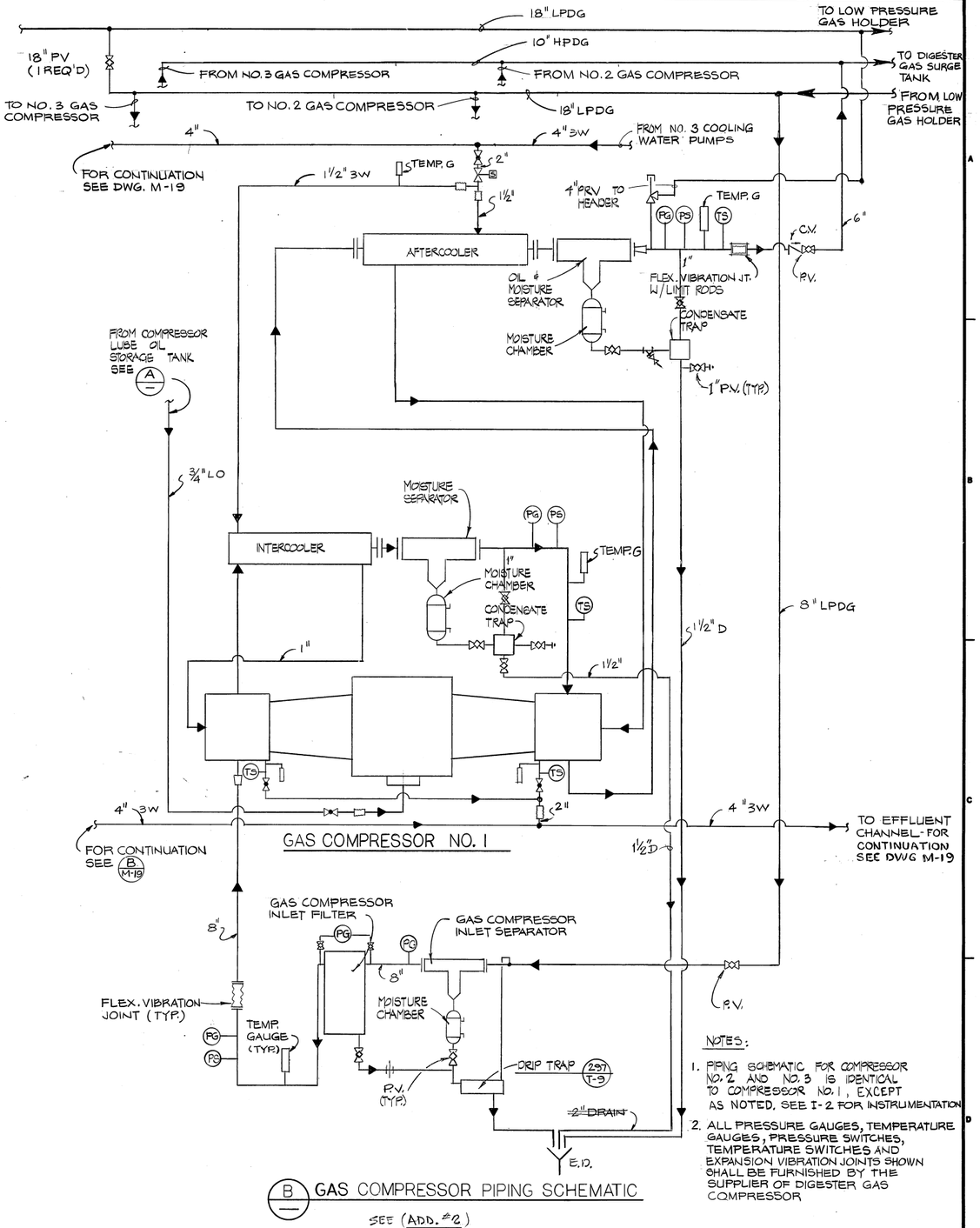
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
NO. 1, NO. 2, AND NO. 3 WATER SCHEMATIC

JOB NO. W 02401A12
DRAWING NO. JC-M-19
SHEET NO. 63 OF 106



A — GAS COMPRESSOR LUBE OIL SCHEMATIC



NOTES:

1. PIPING SCHEMATIC FOR COMPRESSOR NO. 2 AND NO. 3 IS IDENTICAL TO COMPRESSOR NO. 1, EXCEPT AS NOTED. SEE I-2 FOR INSTRUMENTATION
2. ALL PRESSURE GAUGES, TEMPERATURE GAUGES, PRESSURE SWITCHES, TEMPERATURE SWITCHES AND EXPANSION VIBRATION JOINTS SHOWN SHALL BE FURNISHED BY THE SUPPLIER OF DIGESTER GAS COMPRESSOR

B — GAS COMPRESSOR PIPING SCHEMATIC

SEE (ADD. #2)

REV.	DATE	BY	DESCRIPTION
	FEB. 84	JV	As-Built

DESIGNED DT/TF
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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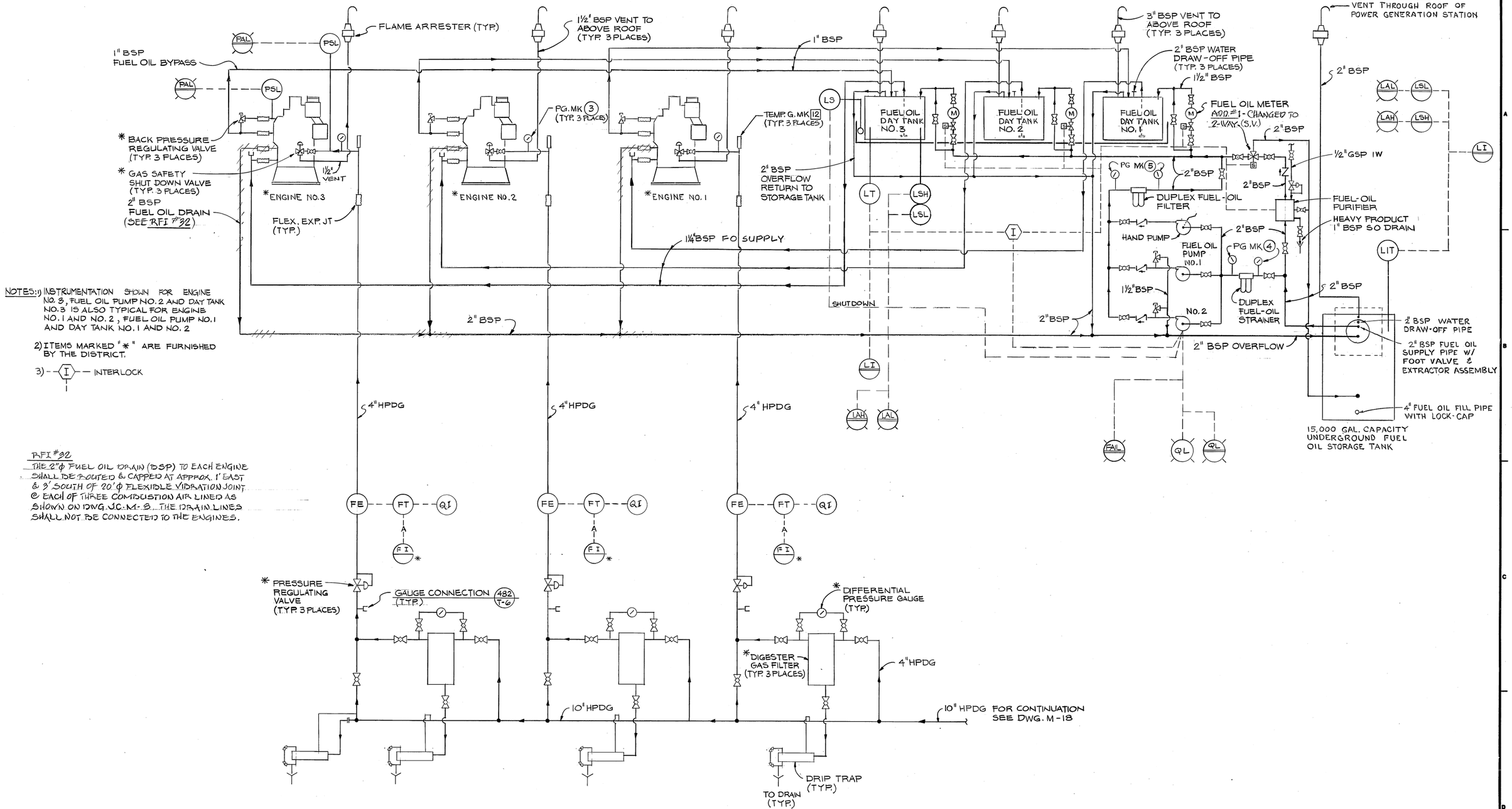
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
MECHANICAL
GAS COMPRESSOR SCHEMATICS

JOB NO. W 02401A12
DRAWING NO. JC-M-20
SHEET NO. 64 of 106



NOTES: 1) INSTRUMENTATION SHOWN FOR ENGINE NO. 3, FUEL OIL PUMP NO. 2 AND DAY TANK NO. 3 IS ALSO TYPICAL FOR ENGINE NO. 1 AND NO. 2, FUEL OIL PUMP NO. 1 AND DAY TANK NO. 1 AND NO. 2

2) ITEMS MARKED "*" ARE FURNISHED BY THE DISTRICT.

3) —(I)— INTERLOCK

RFI #32

THE 2"ϕ FUEL OIL DRAIN (DSP) TO EACH ENGINE SHALL BE ROUTED & CAPPED AT APPROX. 1' EAST & 3' SOUTH OF 20'ϕ FLEXIBLE VIBRATION JOINT @ EACH OF THREE COMBUSTION AIR LINES AS SHOWN ON DWG. JC-M-3. THE DRAIN LINES SHALL NOT BE CONNECTED TO THE ENGINES.

(A) ENGINE FUEL SYSTEM SCHEMATIC

REV.	DATE	BY	DESCRIPTION
	FEB 86	XV	As-Built

DESIGNED DT
DRAWN ELP/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

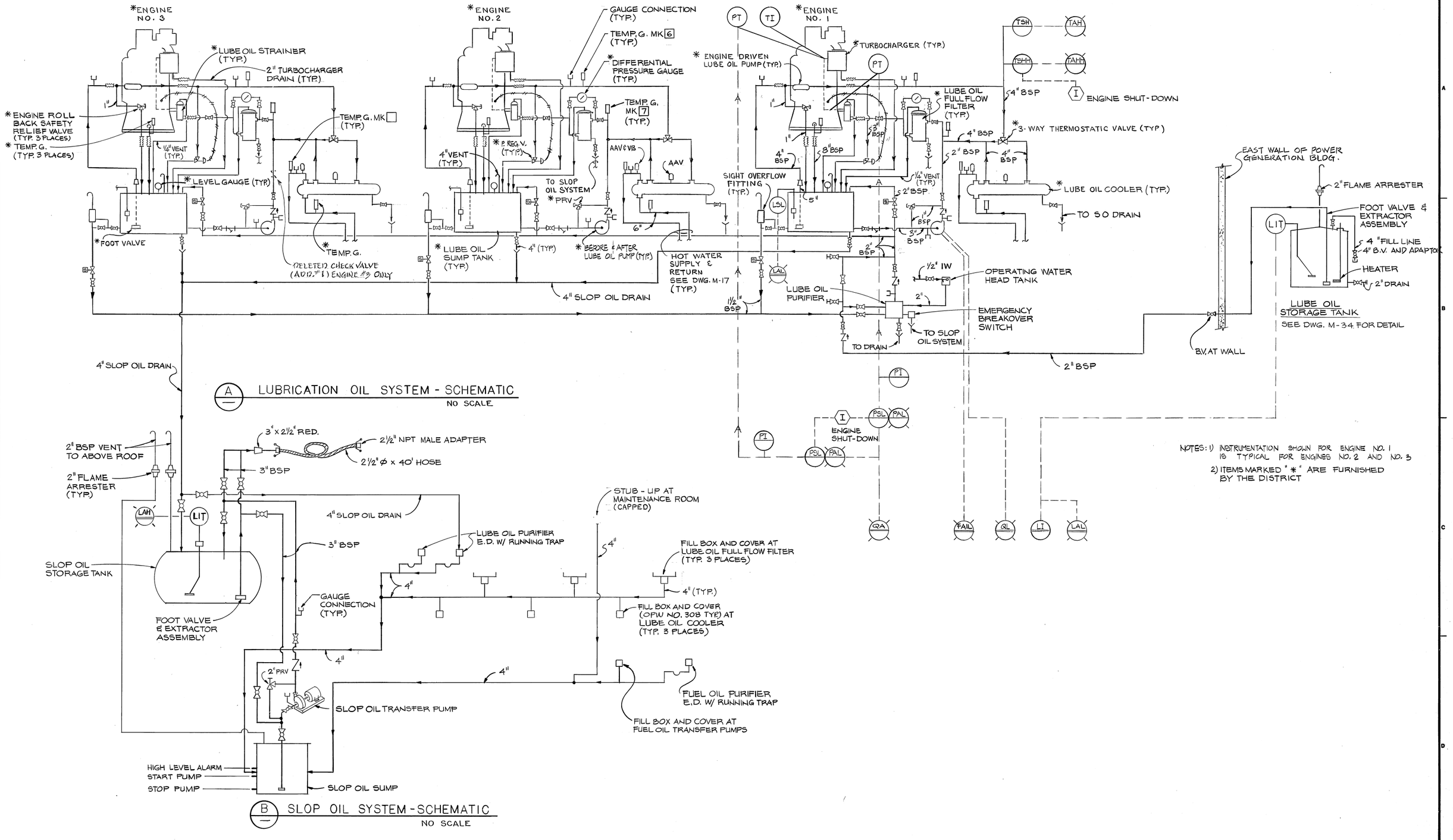
JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD R. PREISLER, P.E.
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
ENGINE FUEL SYSTEM SCHEMATIC

JOB NO. W 02401A12
DRAWING NO. JC-M-21
SHEET NO. 65 of 106

ABCDEFGHJKLMNPQRSUVWXYZ



NOTES: 1) INSTRUMENTATION SHOWN FOR ENGINE NO. 1 IS TYPICAL FOR ENGINES NO. 2 AND NO. 3

2) ITEMS MARKED "*" ARE FURNISHED BY THE DISTRICT

REV.	DATE	BY	DESCRIPTION
	FEB 86	XC	As-Built

DESIGNED DT/RJ
DRAWN ELP/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. 6599
PROJECT ENGINEER Salway H. Ward M18392 P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
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EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION SPECIFICATION SD-135
MECHANICAL
ENGINE LUBE OIL AND SLOP OIL SCHEMATIC

JOB NO. W 02401A12
DRAWING NO. JC-M-22
SHEET NO. 66 OF 106

LEGEND

- EXISTING NO. 1 WATER
- EXISTING NO. 2 WATER
- EXISTING NO. 3 WATER
- EXISTING NO. 3 WATER SUPPLY
- NEW WATER PIPE AS NOTED

EFFLUENT PUMP STATION

PROCESS WATER PLANT

MAINTENANCE BUILDING

EFFLUENT CHANNEL

NEW 10" NO. 3 WATER RETURN

POWER GENERATION BUILDING

NEW 18" NO. 3 WATER SUPPLY

NEW 6" - 3W

NEW 2" - 2W

NEW G.V.

NEW 2" - 1W

PRIMARY SEDIMENTATION TANKS

GRIT TANKS

INFLUENT PUMP STATION

SCUM BLDG.

GRIT BLDG.

MAIN SUBSTATION

DIGESTER HEATING BUILDING

OPERATIONS CENTER

ADMINISTRATION BUILDING

OXYGEN PRODUCTION PLANT

REV.	DATE	BY	DESCRIPTION
	FEB 86	JC	As-Built

DESIGNED DT | DRAWN JBR | CHECKED DS | DATE FEB. 1983

APPROVED BY:

PARTNER _____ P.E. NO. _____

PROJECT ENGINEER _____ P.E. NO. _____

E.B.M.U.D.

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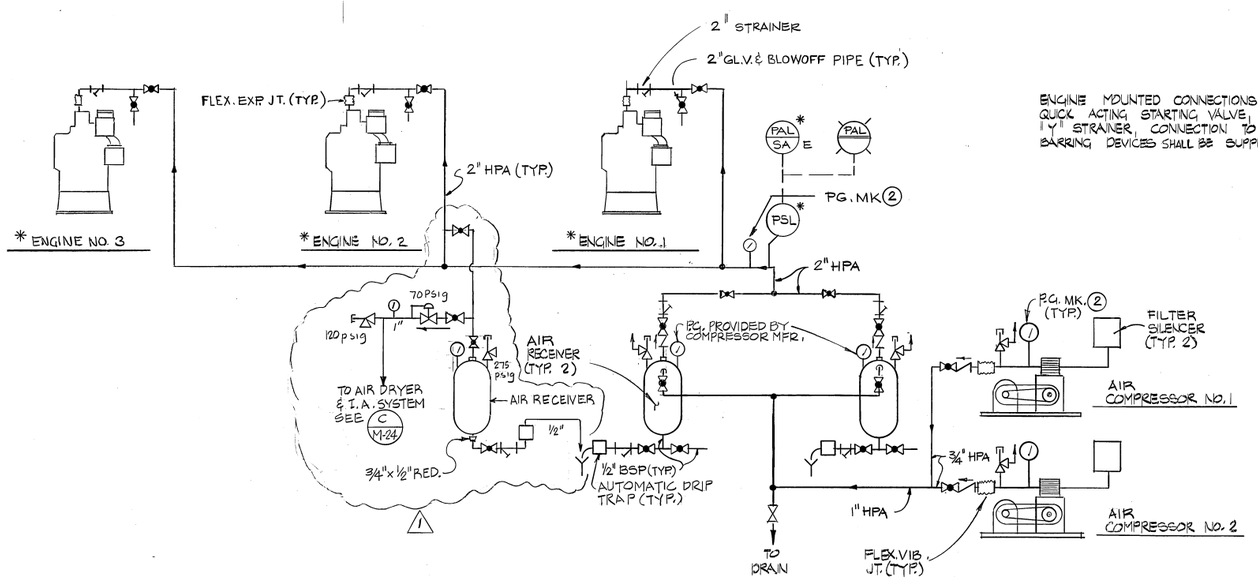
EAST BAY MUNICIPAL UTILITY DISTRICT

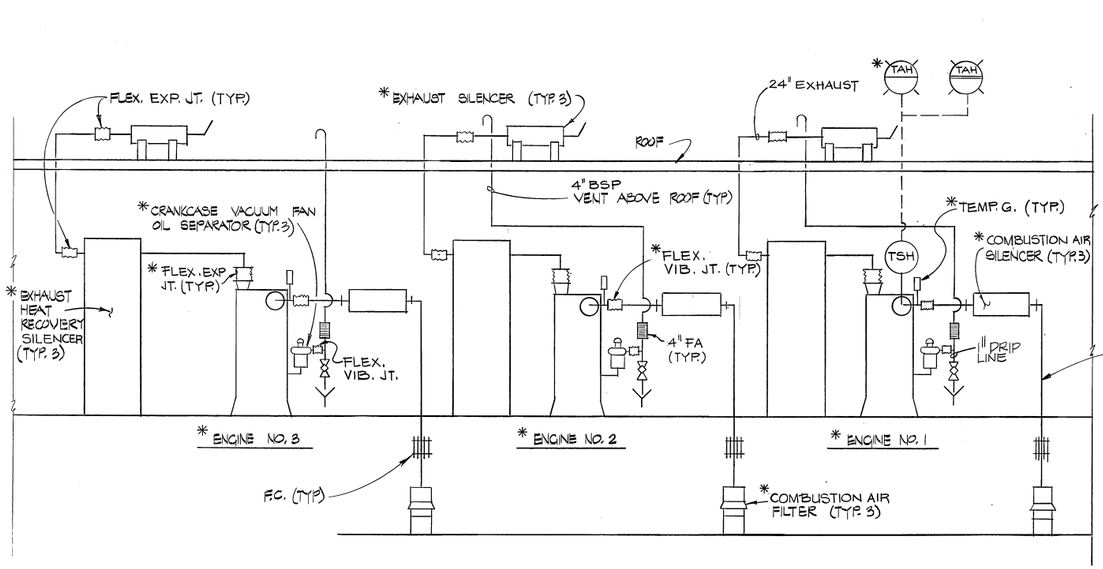
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
PLANT WATER SCHEMATICS

JOB NO. W 02401A12
DRAWING NO. JC-M-23
SHEET NO. 67 of 106

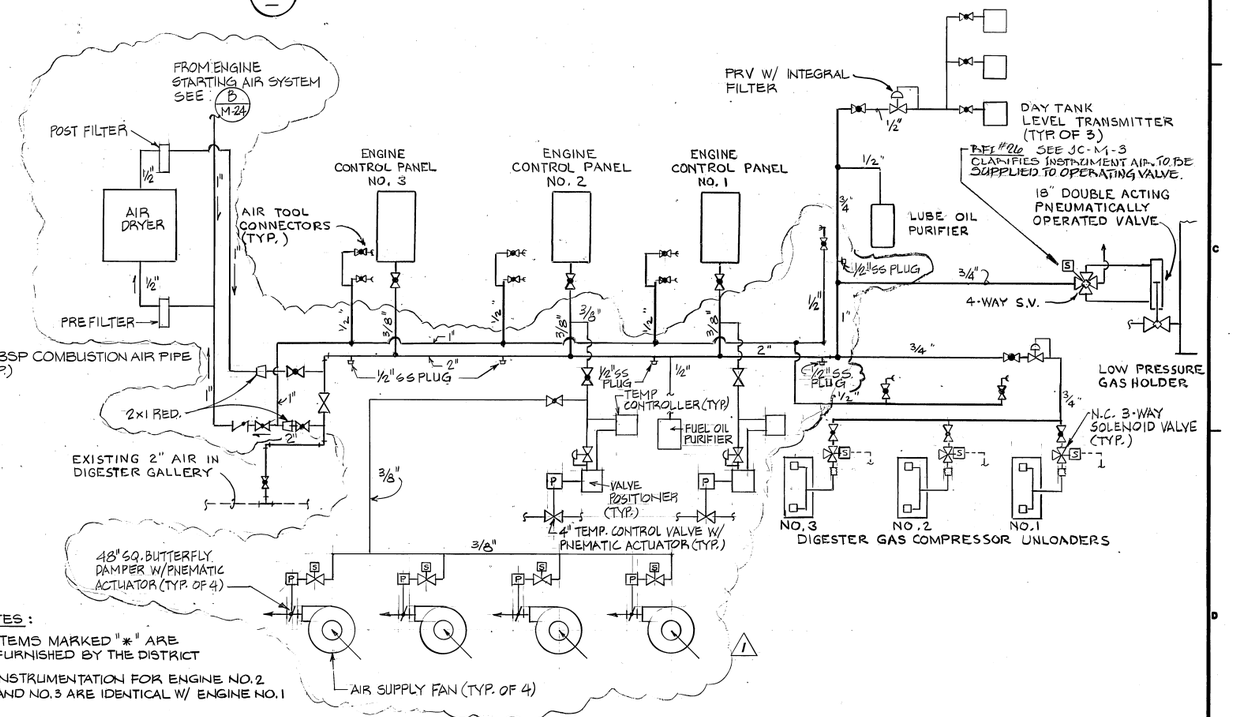


ENGINE MOUNTED CONNECTIONS NOT SHOWN. QUICK ACTING STARTING VALVE, GLOBE VALVE, "Y" STRAINER, CONNECTION TO PNEUMATIC BARRING DEVICES SHALL BE SUPPLIED W/ ENGINE

B — ENGINE STARTING AIR SCHEMATIC



A — ENGINES AIR INTAKE, EXHAUST AND CRANKCASE VACUUM PIPING SCHEMATICS



NOTES:

1. ITEMS MARKED "*" ARE FURNISHED BY THE DISTRICT
2. INSTRUMENTATION FOR ENGINE NO.2 AND NO.3 ARE IDENTICAL W/ ENGINE NO.1

C — INSTRUMENT AIR SCHEMATIC

REV.	DATE	BY	DESCRIPTION
⚠	4-15-88	RYE	REVISED SCHEMATICS B & C
	FEB 86	XV	AS-Built

KBH

DESIGNED DT
DRAWN JBR/ELP
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

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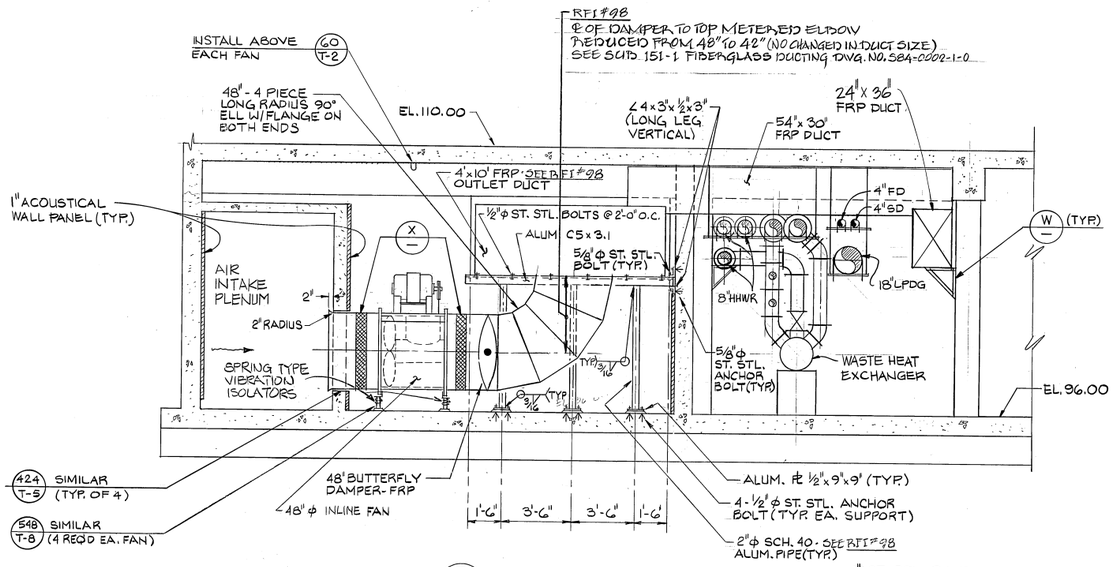
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

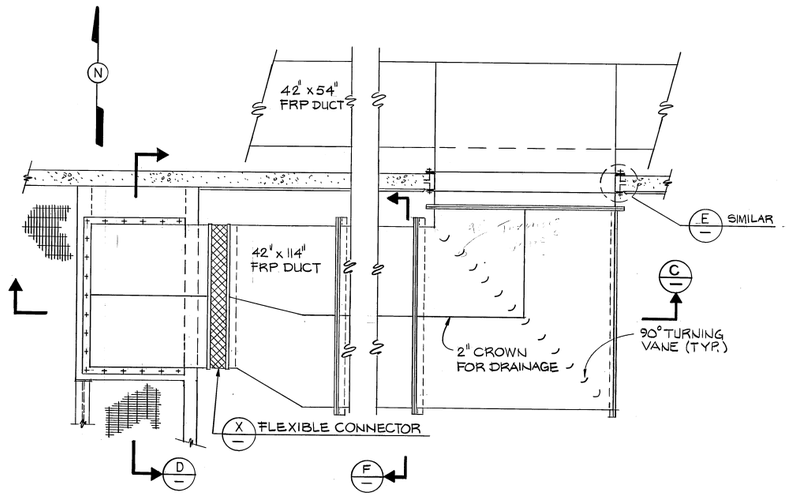
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
ENGINE STARTING AIR AND INSTRUMENT AIR SCHEMATICS

JOB NO. W 02401A12
DRAWING NO. JC-M-24
SHEET NO. 68 OF 106

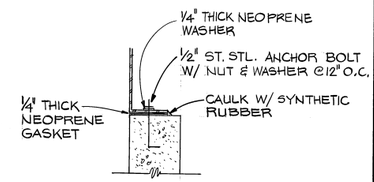
ABCDEFGHJKLMNPQRSUVWXYZ



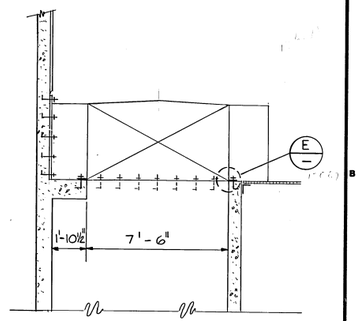
Z M-3 SECTION
1/4" = 1'-0"



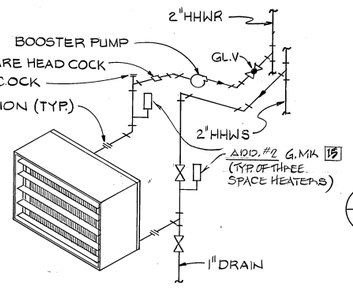
B M-6 PLAN-AIR DUCT
1/4" = 1'-0"



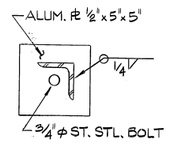
E (—) DETAIL
1" = 1'-0"

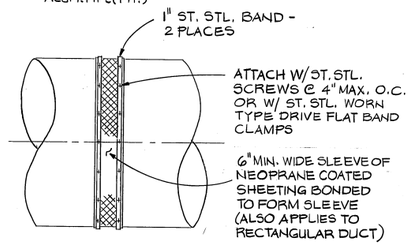


D (—) SECTION
1/4" = 1'-0"

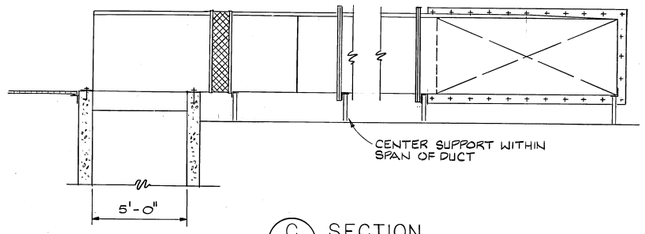


A (—) DETAIL
N.T.S.

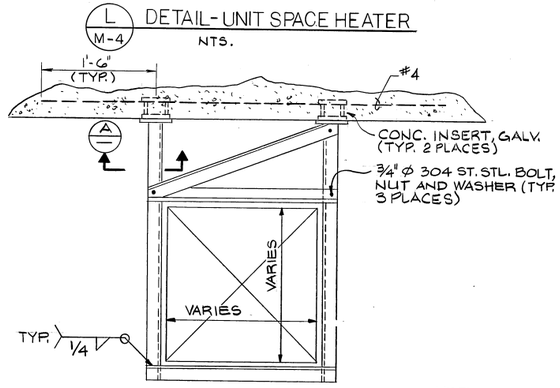




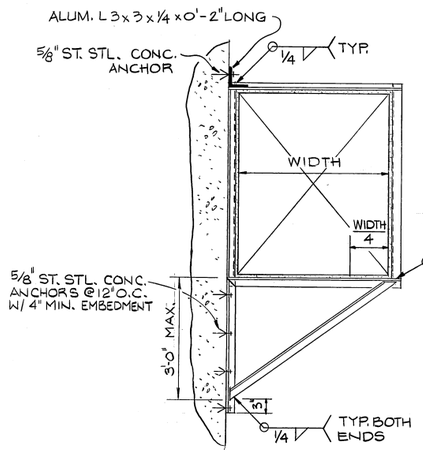
X M-3 DETAIL - FLEXIBLE CONNECTION
NTS.



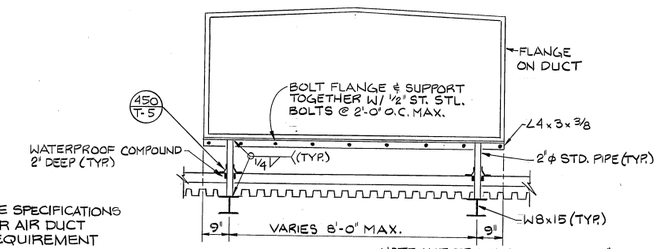
C (—) SECTION
1/4" = 1'-0"



NOTE:
ANGLE FOR SUPPORTS SHALL BE SIZED SO THAT DUCT IS FREE TO TRAVEL THROUGH SUPPORT WHEN UNDER THERMAL EXPANSION

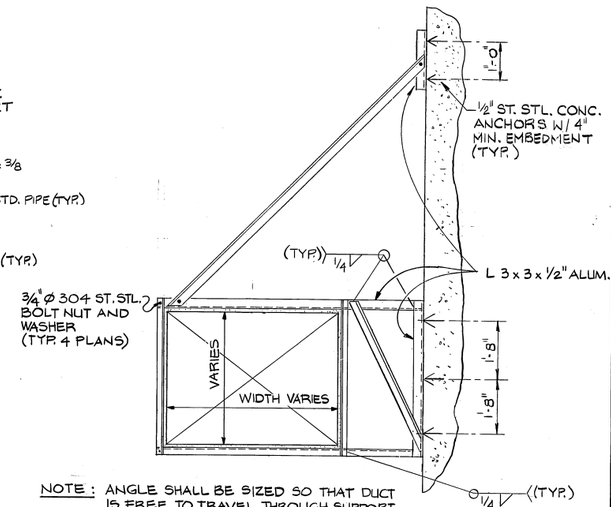


SEE SPECIFICATIONS FOR AIR DUCT REQUIREMENT



NOTE: HOT DIP GALV. ALL MEMBERS ABOVE THE ROOF LEVEL.

AIR DUCT SUPPORT SCHEDULE		
DUCT WIDTH	ALUMINUM ANGLE SIZE	SPACING WHEN NOT SHOWN
UP TO 18"	2" x 2" x ¼"	8'-0" O.C. MAX.
19" THRU 40"	2½" x 2½" x ⅜"	8'-0" O.C. MAX.
41" AND OVER	3" x 3" x ⅜"	4'-0" O.C. MAX.



NOTE: ANGLE SHALL BE SIZED SO THAT DUCT IS FREE TO TRAVEL THROUGH SUPPORT WHEN UNDER TO THERMAL EXPANSION

REV.	DATE	BY	DESCRIPTION
	FEB 86	KC	As-Built

DESIGNED DT/RJ
DRAWN DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. 19808
P.E. NO.
PROJECT ENGINEER Samuel H. Wilson M 18892
P.E. NO.
E.B.M.U.D.

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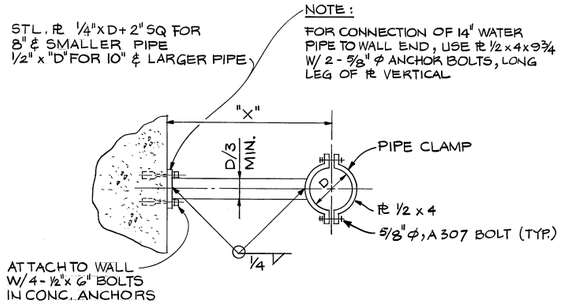
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

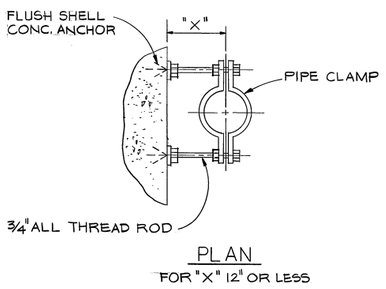
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
HVAC SECTIONS AND DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-M-25
SHEET NO. 69 OF 106

ABCDEFGHJKLMNPQRSUVWXYZ

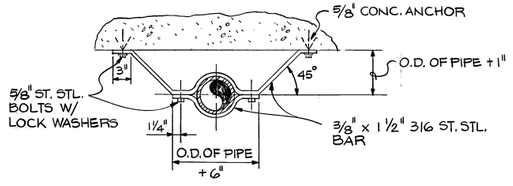


PLAN
FOR "X" GREATER THAN 12"

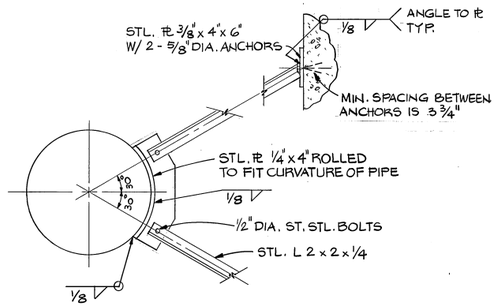


PLAN
FOR "X" 12" OR LESS

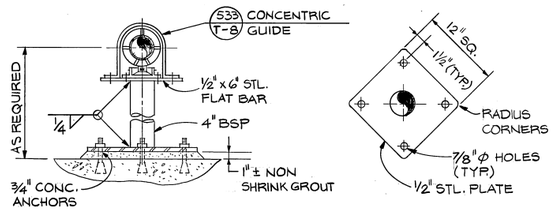
AA M-3 PIPE SWAY BRACE
NTS.



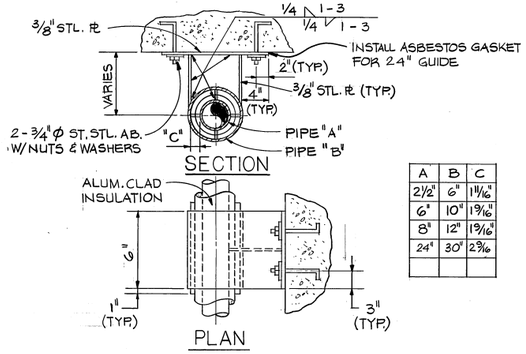
BB PIPE SUPPORT (WALL)
NTS.



CC M-4 PIPE BRACE DETAIL
NTS.

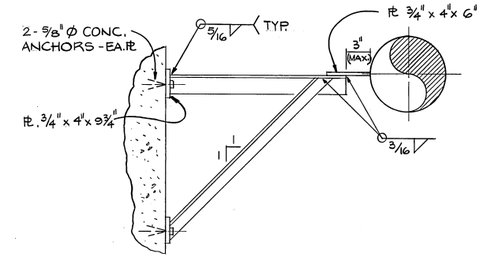


DD CONCENTRIC GUIDE SUPPORT
1" = 1'-0"

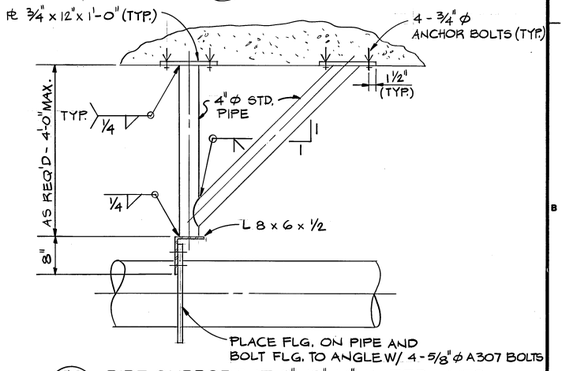


A	B	C
2 1/2"	6"	11 11/16"
6"	10"	13 1/16"
8"	12"	13 1/16"
24"	30"	23 3/16"

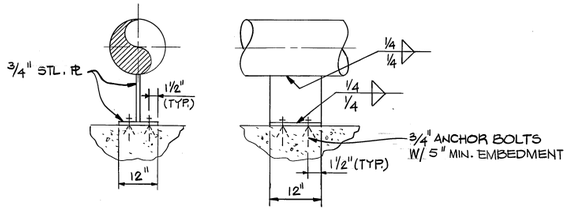
EE M-3 INSULATED PIPE GUIDE SUPPORT
1" = 1'-0"



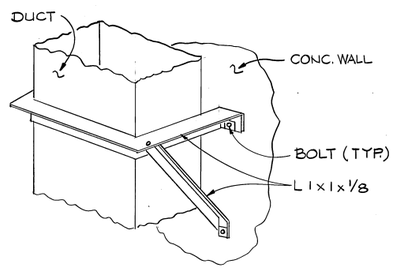
FF M-3 PIPE SUPPOPT
NTS.



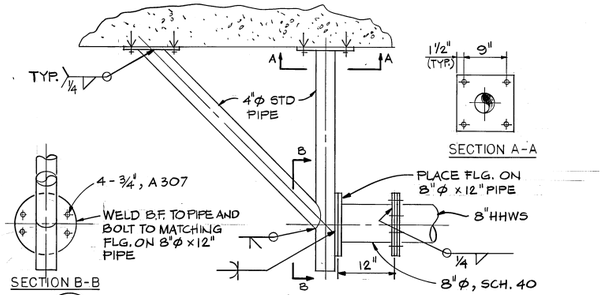
GG M-3 PIPE SUPPORT AT 8", 10", 14" WATER LINES
NTS.



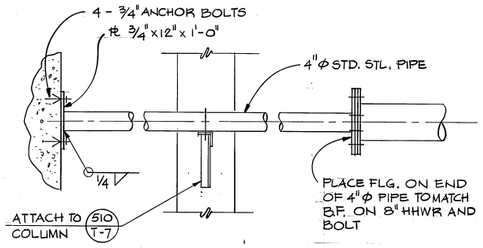
HH M-3 PIPE ANCHOR
NTS.



JJ M-4 VERTICAL DUCT SUPPORT
NTS.



KK M-3 PIPE SUPPORT AT 8" HHWS
NTS.



LL M-3 PIPE ANCHOR AT 8" HHWR
NTS.

A B C D E F G H J K L M N P Q R S U V W X Y Z

REV.	DATE	BY	DESCRIPTION
	FEB 86	AS	As-Built

DESIGNED SDS/DT
DRAWN DST
CHECKED CAG
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard RE 14808 P.E. NO.
PROJECT ENGINEER Sawan L. Wason M 18392 P.E. NO.
E.B.M.U.D.

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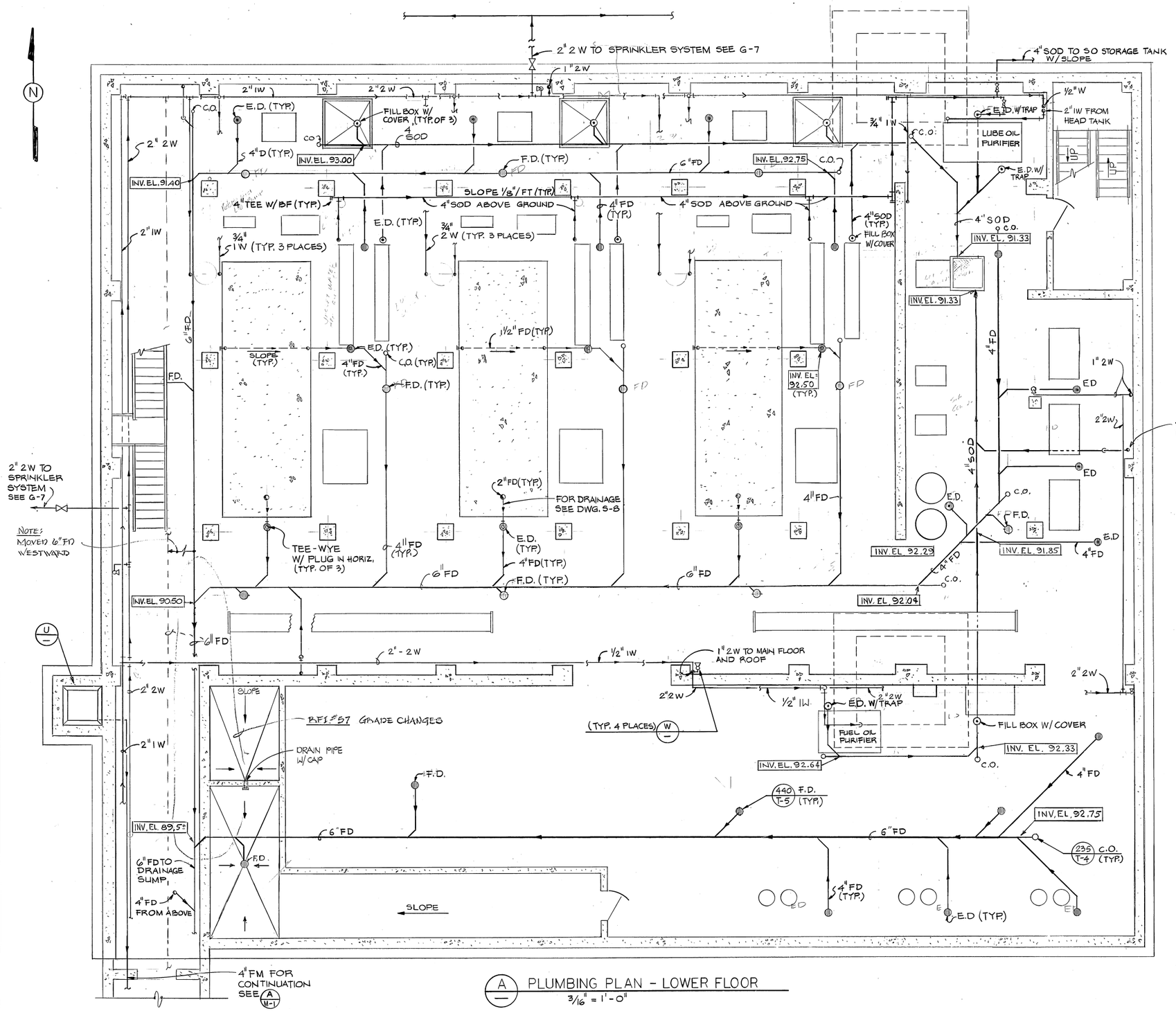
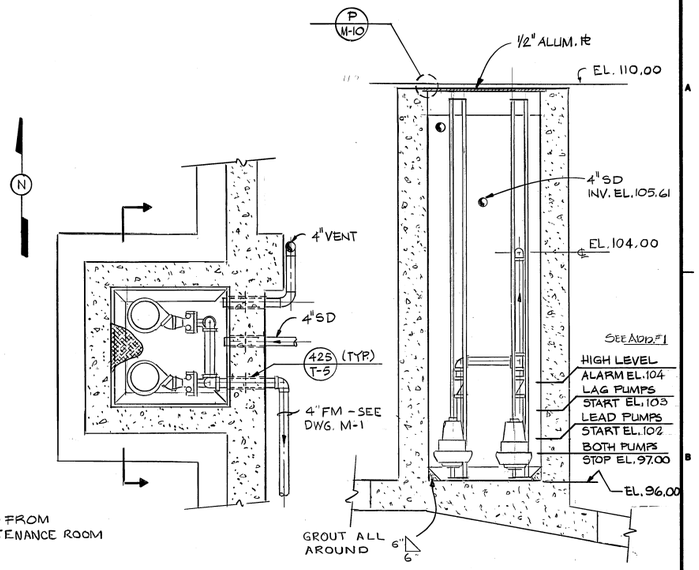
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
MISCELLANEOUS PIPE SUPPORTS

JOB NO. W 02401A12
DRAWING NO. JC-M-26
SHEET NO. 70 OF 106



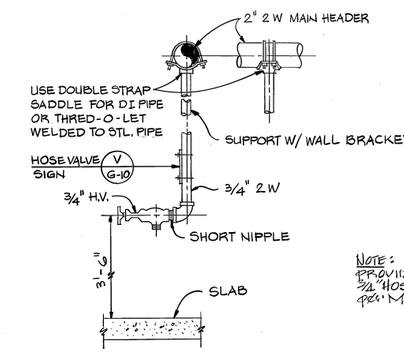
A PLUMBING PLAN - LOWER FLOOR
3/16" = 1'-0"



PLAN SECTION

U DETAIL - SANITARY SUMP PUMP
3/8" = 1'-0"

M-3



NOTE: PROVIDE FIVE (5) 3/4" HOSE VALVES PER MEMO, 11/22/83

W INTERIOR HOSE VALVE
NTS.

NOTES:
1. ALL FLOOR DRAIN, EQUIPMENT DRAIN AND SLOP OIL PIPING SHOWN IS UNDER SLAB UNLESS OTHERWISE INDICATED
2. ALL PIPE UNDER SLAB SHALL BE CONCRETE ENCASED, SEE JC-T-4. - (221 T/P)
3. ALL HOT AND COLD WATER PIPES SHOWN ARE ABOVE SLAB UNLESS OTHERWISE INDICATED.
4. ALL SOD SHALL BE SCHEDULE 40 ISP (A120.2)

REV.	DATE	BY	DESCRIPTION
	FEB 86	XV	As-Built

DESIGNED DT
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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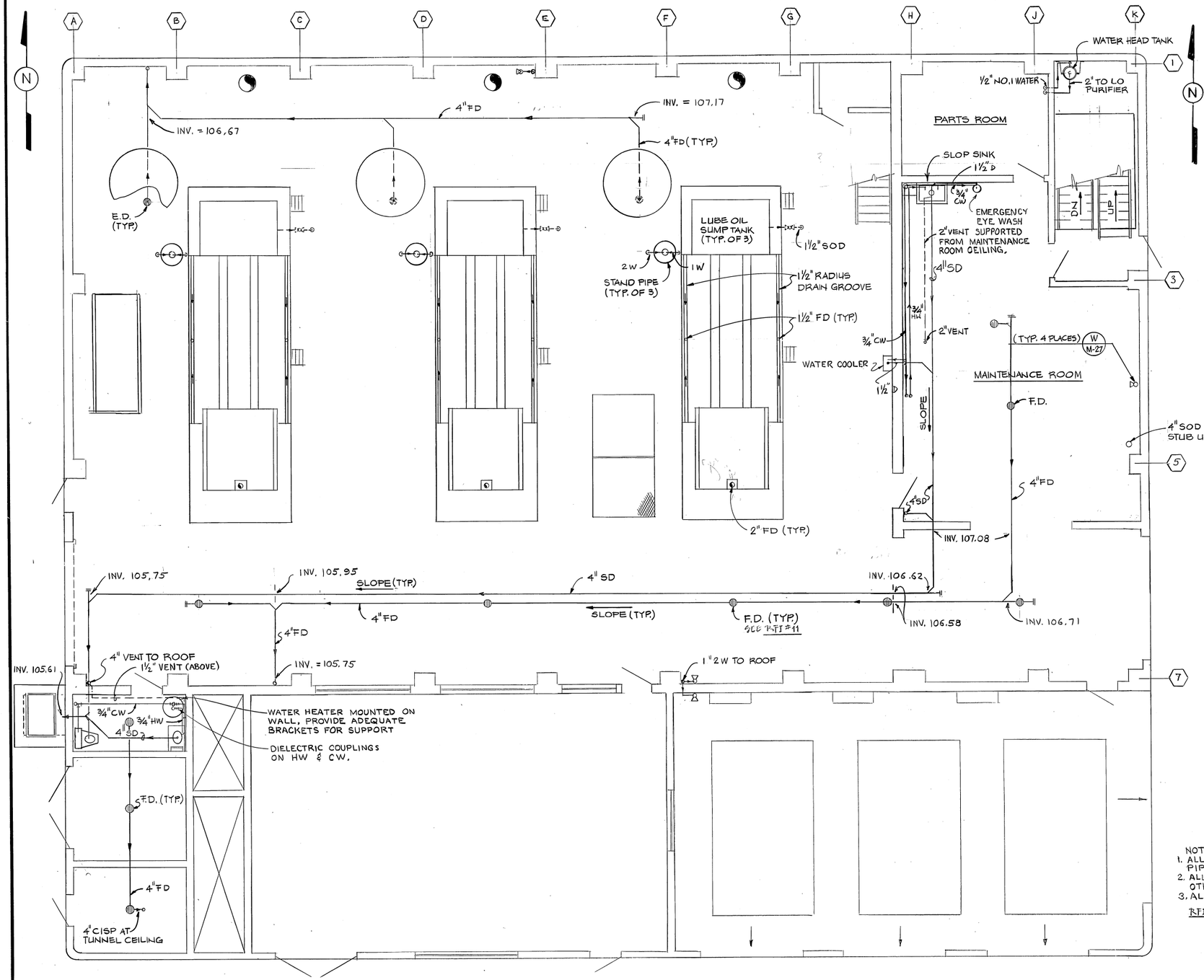
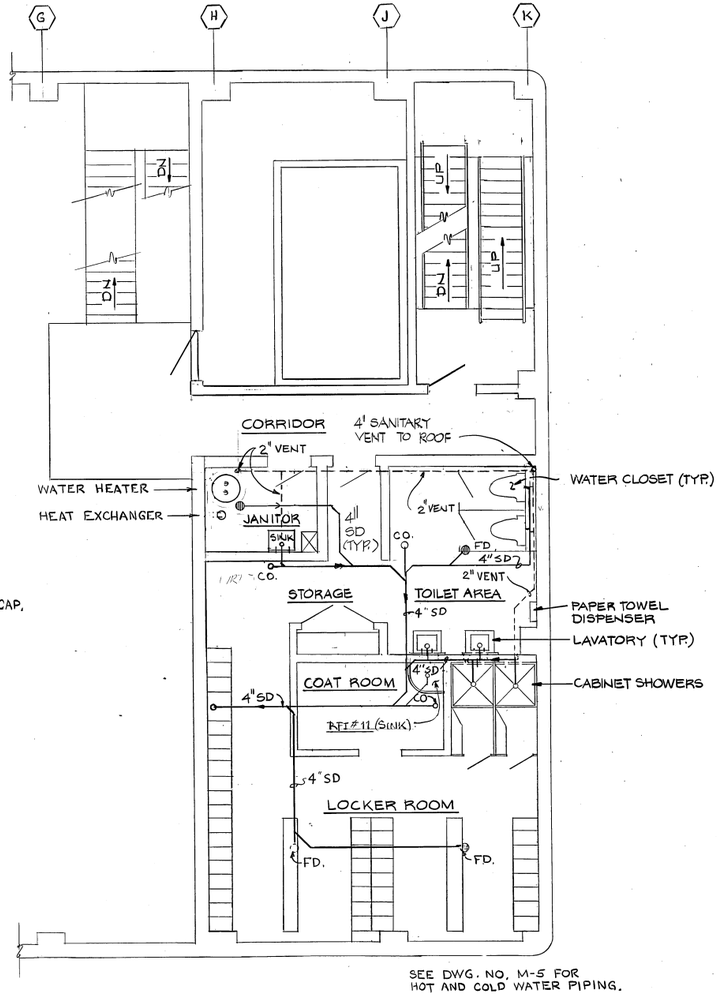
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
PLUMBING PLAN AND DETAILS
LOWER FLOOR

JOB NO. W 02401A12
DRAWING NO. JC-M-27
SHEET NO. 71 OF 106



B PLUMBING PLAN – MAIN FLOOR
3/16" = 1'-0"



SEE DWG. NO. M-5 FOR HOT AND COLD WATER PIPING.

C PLUMBING PLAN – UPPER FLOOR
3/16" = 1'-0"

NOTES:
1. ALL FLOOR DRAIN, EQUIPMENT DRAIN & SLOP OIL DRAIN PIPING SHOWN IS UNDER SLAB UNLESS OTHERWISE INDICATED.
2. ALL HW & CW PIPES SHOWN ARE ABOVE SLAB UNLESS OTHERWISE INDICATED.
3. ALL DRAINS CONNECTED TO SANITARY DRAINS SHALL BE TRAPPED.

RFI #11, CCO #2 - FLOOR DRAINS - SHOWS 11 EA. S-4 SHOWS 13 EA.

REV.	DATE	BY	DESCRIPTION
	FEB 86	XV	As-Built

DESIGNED DT
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

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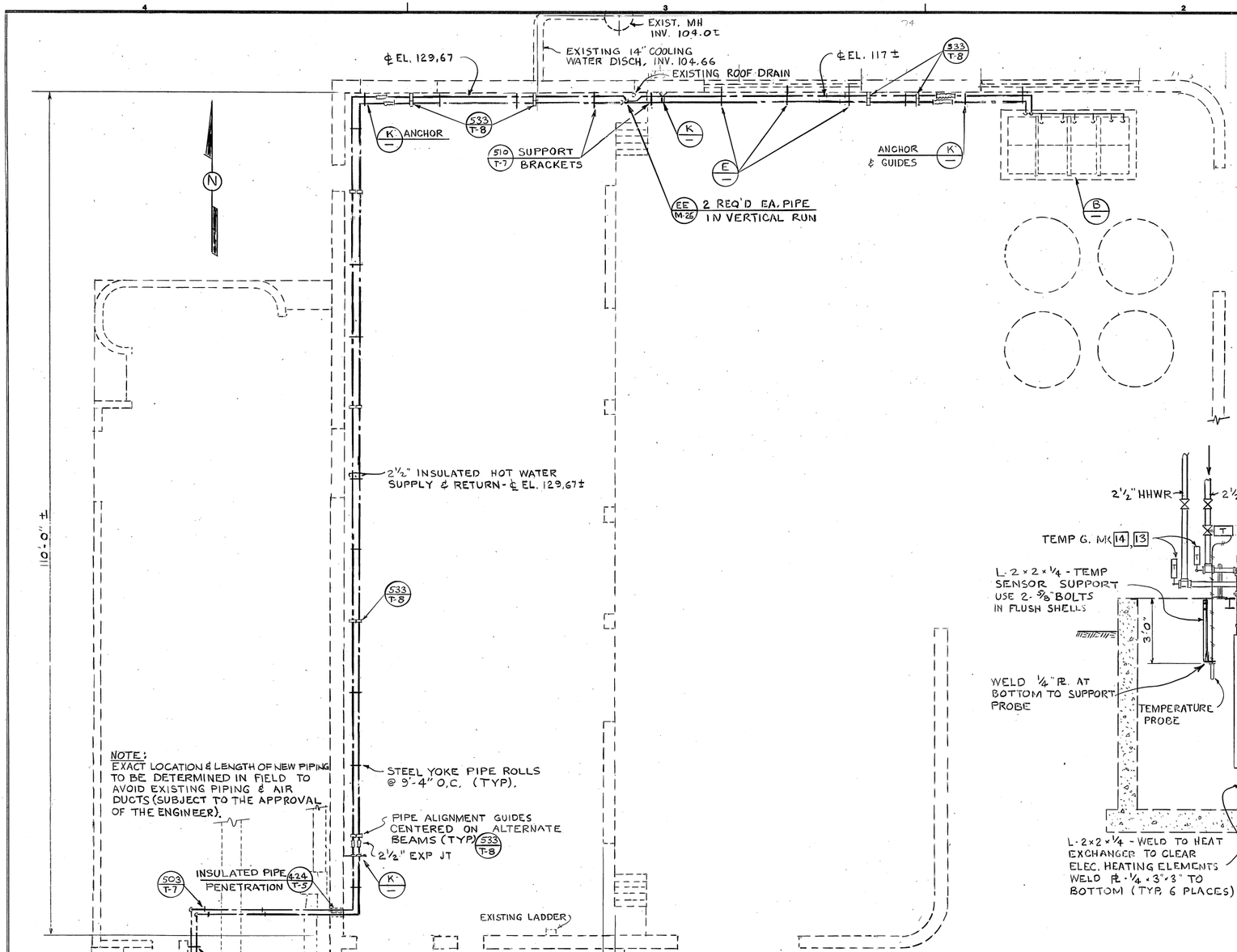
G. WILLIAM KNOPF, P.E.

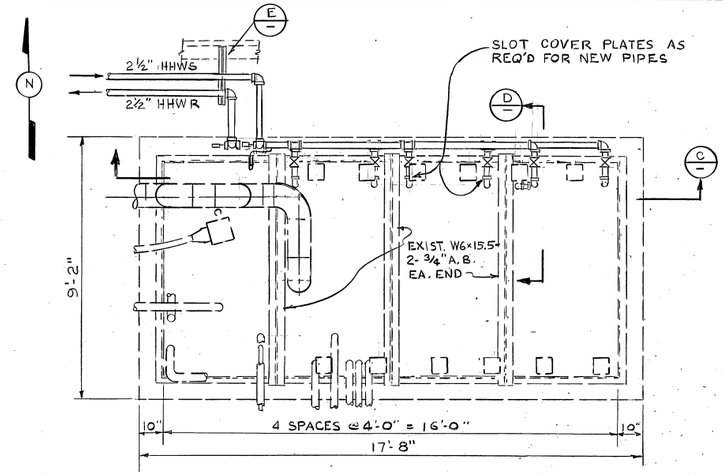
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
PLUMBING PLAN AND DETAILS
MAIN FLOOR AND LOCKER ROOM

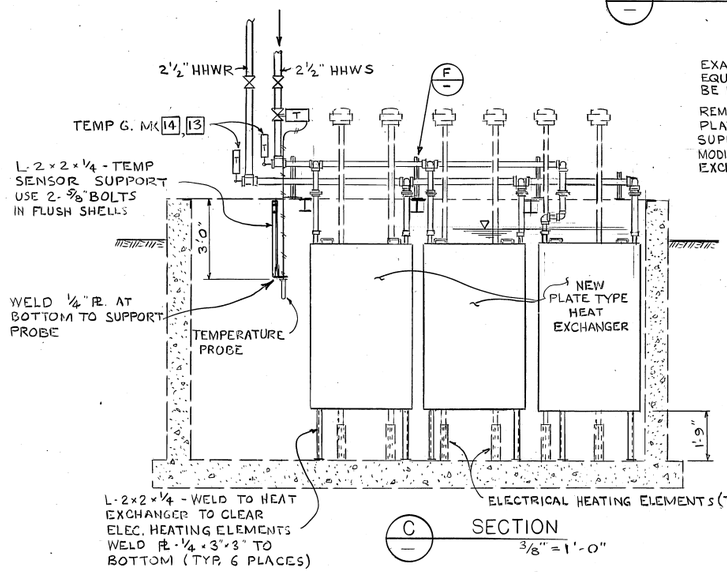
JOB NO. W 02401A12
DRAWING NO. JC-M-28
SHEET NO. 72 OF 106



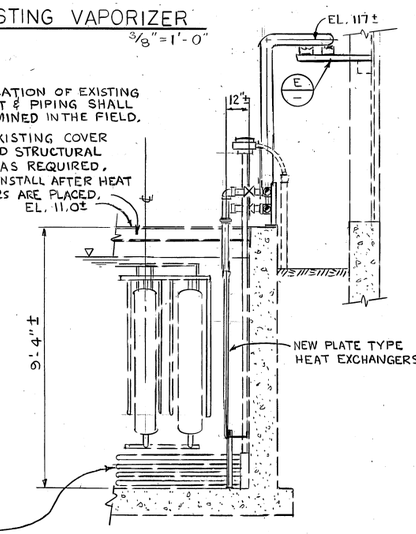
A PLAN - EXISTING OXYGEN PRODUCTION FACILITY
1/8" = 1'-0"



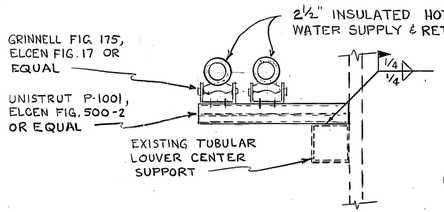
B PLAN - EXISTING VAPORIZER
3/8" = 1'-0"



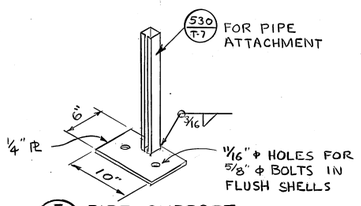
C SECTION
3/8" = 1'-0"



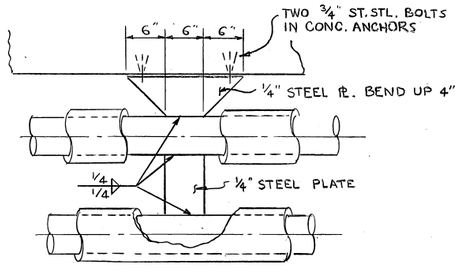
D SECTION
3/8" = 1'-0"



E PIPE SUPPORT



F PIPE SUPPORT



K HOT WATER PIPE ANCHOR

REV.	DATE	BY	DESCRIPTION
	FEB 86	JV	As-Built

DESIGNED DT/TF
DRAWN ELP
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter Howard RCE 19884
PARTNER P.E. NO.
Sawan G. Wasan M 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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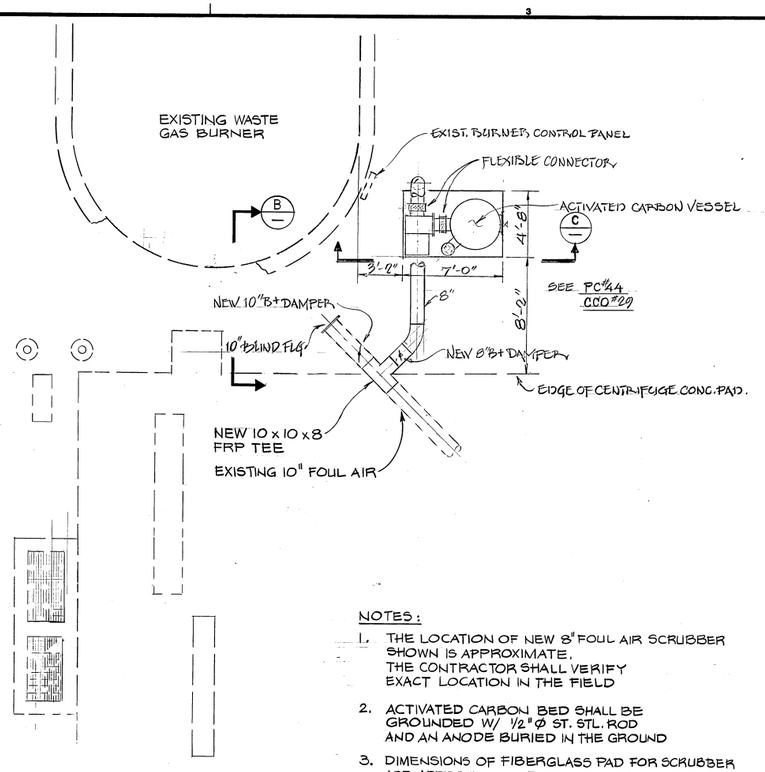
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
VAPORIZER MODIFICATIONS

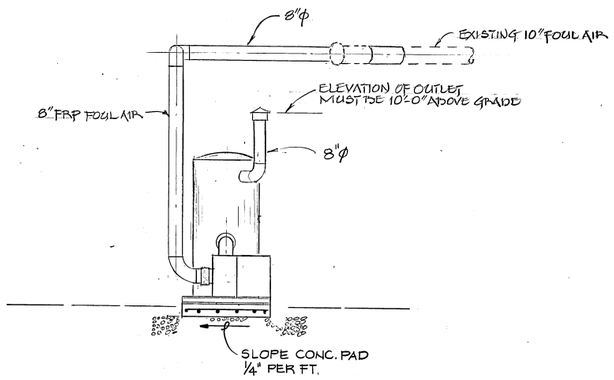
JOB NO. W 02401A12
DRAWING NO. JC-M-29
SHEET NO. 73 OF 106



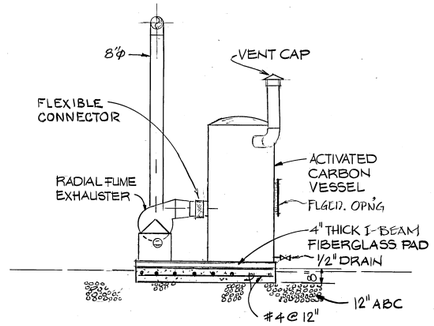
NOTES:

1. THE LOCATION OF NEW 8" FOUL AIR SCRUBBER SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL VERIFY EXACT LOCATION IN THE FIELD
2. ACTIVATED CARBON BED SHALL BE GROUNDED W/ ½"ϕ ST. STL. ROD AND AN ANODE BURIED IN THE GROUND
3. DIMENSIONS OF FIBERGLASS PAD FOR SCRUBBER ARE APPROXIMATE. DIMENSIONS OF CONC. PAD TO MATCH FIBERGLASS PAD AS SUPPLY BY MANUFACTURER.

(A) PLAN - FOUL AIR SCRUBBER
(IN EXISTING CENTRIFUGE AREA)
3/16" = 1'-0"



(B) SECTION
¼" = 1'-0"



(C) SECTION
¼" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	FEB 86	JV	As-Built

DESIGNED RJ
DRAWN JBR/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Wheeler R. Howard P.E. 19680
P.E. NO.
PROJECT ENGINEER Sawan h. Wasan M 12392
P.E. NO.
E.B.M.U.D.

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EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
CENTRATE ODOR CONTROL MODIFICATIONS

JOB NO. W 02401A12
DRAWING NO. JC-M-30
SHEET NO. 74 OF 106

FOR CONTINUATION, SEE DWG. M-1

8" HHWR
8" HHWS
2" I.A.

G M-2

W. 1438.00

NEW 18" LPDG

4" FM

SEE CCO# 17 MOD. W/ HOT TAP

NEW 16" TEE IN EXISTING 16" LPDG

℄ DIG. 324 W. 1378.00

EXISTING 18" D.G.

2" I.A.

1½" H.P. AIR

10" HHWR

10" HHWS

NEW 4" FM ℄ EL. 102.7 ±

NEW 4" FM ℄ EL. 104.33±

C.O.

C.O.

C.O.

EXISTING 12" SCH. 40 SUPERNATANT OVERFLOW

F M-32

C M-32

E M-32

W. 1433 ±

L-6×6×½ × 0'-11"

6" ℄ STD. PIPE

TYP.

PLACE SLIP-ON FLANGE ON 6" ℄ PIPE AND BOLT TO L-6×6×½ WITH ⅝" ℄ A307 BOLTS.

H — SECTION

EXISTING PIPES NOT SHOWN

18" DIG. GAS

EL. 112.0 ±

10" RAW SLUDGE

8" RAW SLUDGE

8" HHWS

8" HHWR

EXISTING DRIP TRAP

510 T-7 USE ONE SLIP-ON WELDING FLANGE-EACH PIPE.

EL. 104.33 ±

EL. 103.33

10" SLUDGE TRANS.

EL. 101.83

10" DIG. CLEANING

NOTE; ELECTRICAL CONDUITS AND SMALL PIPES NOT SHOWN.

D — SECTION
¼" = 1'-0"

DIGESTER 4

DIGESTER 2

W. 138.00

8" RAW SLUDGE

NOT INSTALLED

519 T-7

510 T-7

D —

℄ EL. 110.0

6" HHWS (INSUL.) ± EL. 113.00

BOTH H.W. PIPES ANCHOR - TYPE 'A' (TYP. 2 PLACES)

532 T-8

B M-32

(HWV.) ± EL. 112.3

18" DIG. GAS ℄ EL. 111.58

LOCATE IN FIELD TO CLEAR EXISTING PIPE & CONDUITS. (TYP.)

503 T-7

8" HHWR

EL. 110.4
EL. 110.8

99 M-26 PLANE OF SUPPORT PERPENDICULAR TO PIPE AXIS

6" № 3 WATER EL. 110.20

S. 402.75

8" HHWS

PROVIDE NEW TEE AND CONNECT TO EXISTING 8" HHWR AT EL. 108.9±

8" GV

AAV

AV

8" G.V. (NORMALLY CLOSED)

INSTALL 8" GATE VALVE IN RISER BELOW NEW 8" TEE (NORM. CLOSED)

EL. 111.8±

510 T-7 TYP.

PROVIDE NEW TEE AND CONNECT TO EXISTING 8" HHWS AT EL. 111.8±

CONNECT TO EXISTING 8" HHWR RISER AT EL. 111.0±

NOTE: EXISTING HHWS & HHWR PIPING IS WELDED STEEL PIPE & FITTINGS, 8"×8" WELDING OUTLETS SHALL BE USED WHERE CONNECTING TO EXISTING PIPE

DIGESTER 3

DIGESTER 1

CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORTING EXISTING PIPING WHILE CUTTING PIPE AND INSTALLING NEW FLANGES AND 8" GATE VALVE.

NEW 4" FM ℄ EL. 110.5±

J M-32

EXISTING SANITARY DRAINS

DIGESTER CONTROL BUILDING

NOTES: 1) FINAL ROUTING AND ELEVATION OF NEW PIPES TO BE DETERMINED IN THE FIELD, SUBJECT TO THE APPROVAL OF THE ENGINNER
2) SEE SPECIAL REQUIREMENTS IN SPECIFICATIONS REGARDING CONNECTIONS TO EXISTING HOT WATER SYSTEM.

A — PIPING PLAN - EXISTING GALLERY AND DIGESTER CONTROL BUILDING
¼" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	FEB 84	XV	As-Built

DESIGNED DT
DRAWN ELP
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter L. Howard RCE 14908
PARTNER P.E. NO.
Salwan H. Wasan M12392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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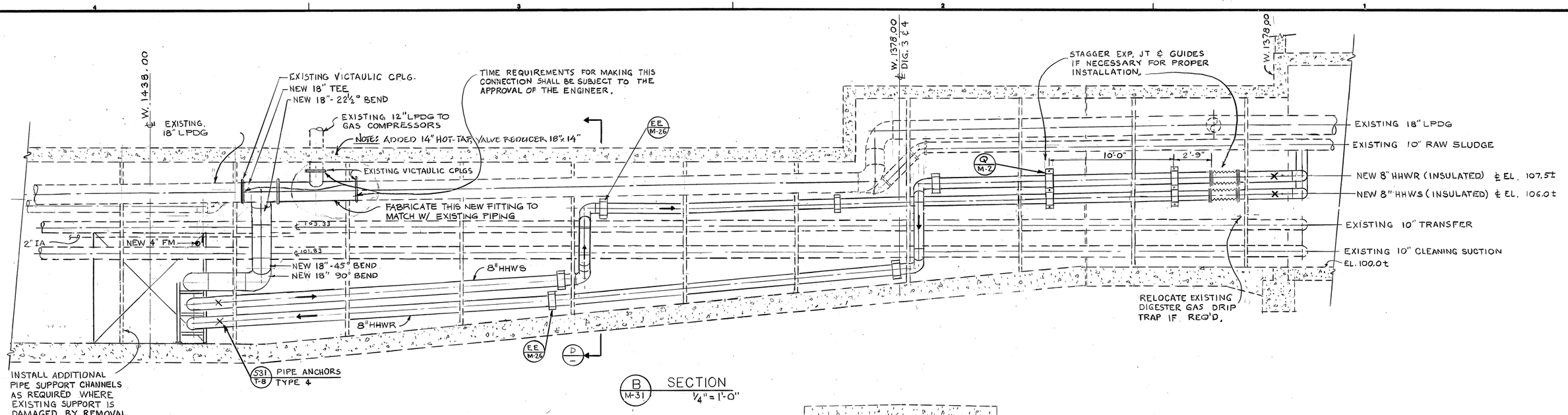
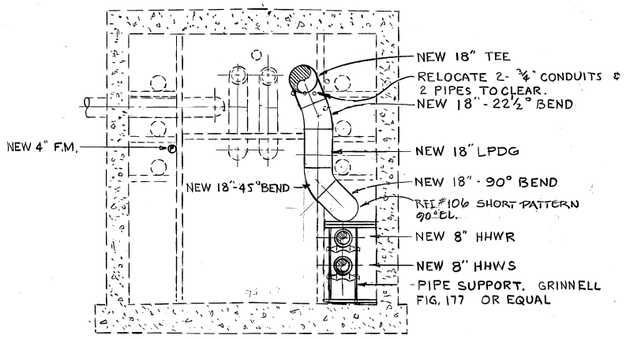
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
MECHANICAL
PIPING IN EXISTING DIGESTER GALLERY
PLAN

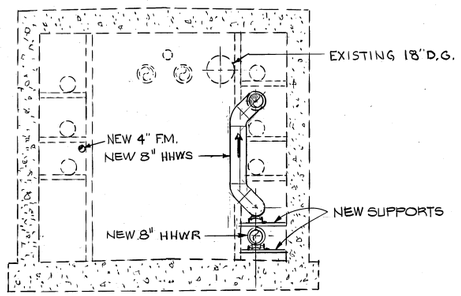
JOB NO. W 02401A12
DRAWING NO. JC-M-31
SHEET NO. 75 OF 106



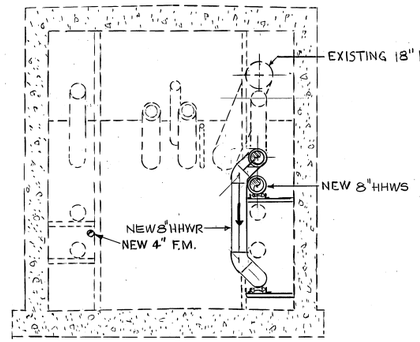
B M-31 SECTION
1/4" = 1'-0"



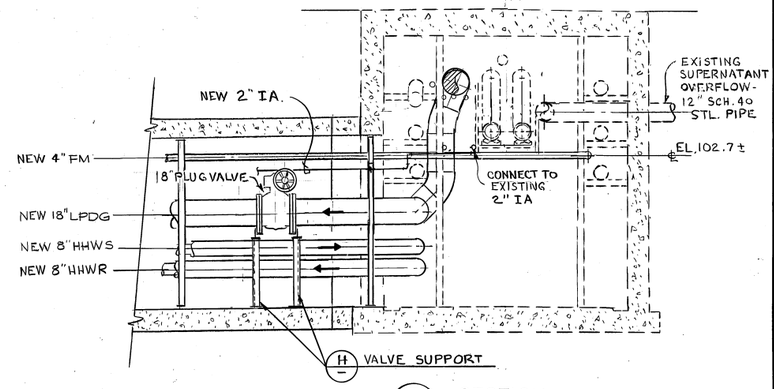
C M-31 SECTION
1/4" = 1'-0"



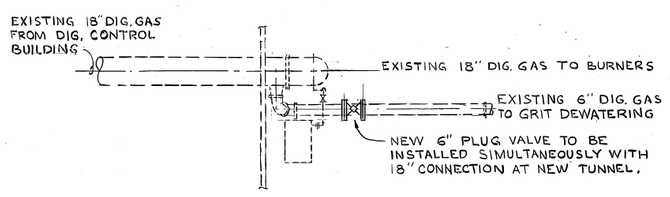
D — SECTION
1/4" = 1'-0"



E M-31 SECTION
1/4" = 1'-0"

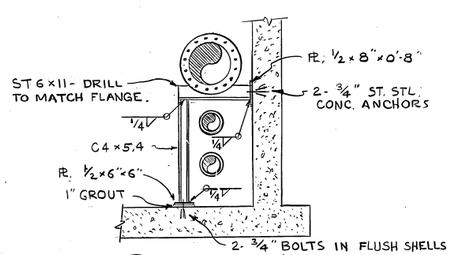


F M-31 SECTION
1/4" = 1'-0"

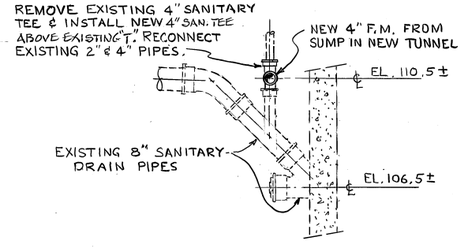


NOTE:
EXISTING 6" D.G. PIPE HAS VICTAULIC COUPLINGS.

G M-18 NEW 6" PLUG VALVE IN EXISTING LINE



H — VALVE SUPPORT
3/8" = 1'-0"



J M-31 SECTION
3/8" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	Feb 86	XV	As-Built

DESIGNED DT
DRAWN ELP
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter R. Howard RCE 14409
PARTNER P.E. NO.
Salwan G. Wason M 18392
PROJECT ENGINEER P.E. NO.
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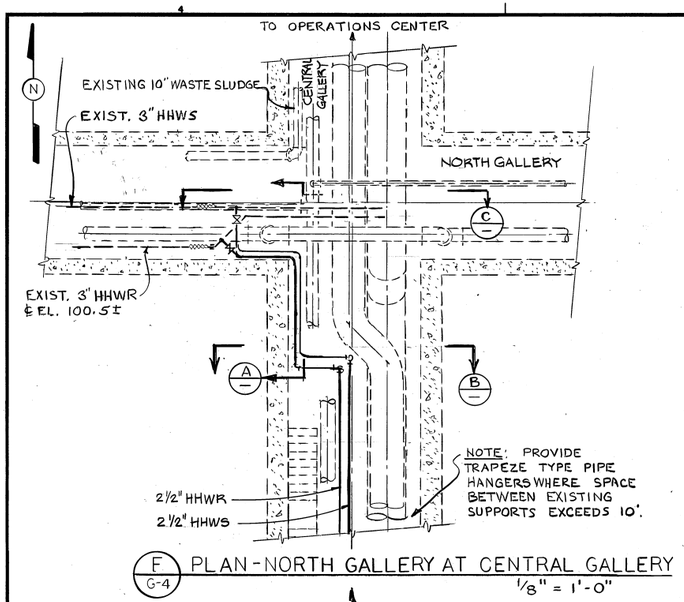
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

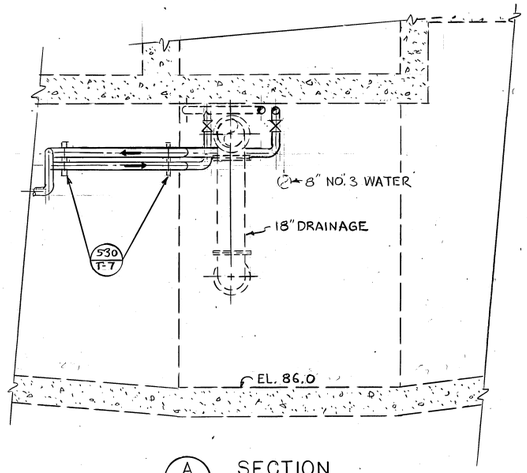
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
MECHANICAL
PIPING IN EXISTING DIGESTER GALLERY
SECTIONS AND DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-M-32
SHEET NO. 76 OF 106

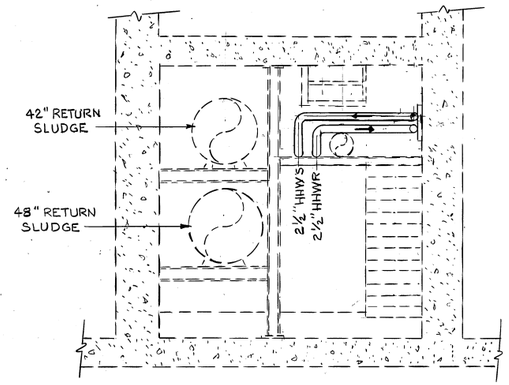
ABCDEFGHJKLMNPQRSUVWXYZ



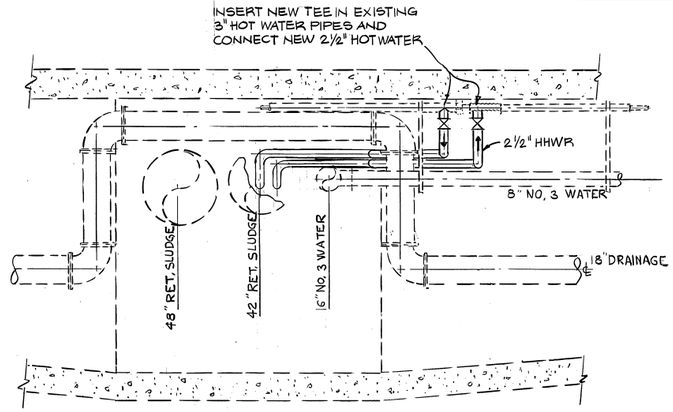
F / G-4 PLAN - NORTH GALLERY AT CENTRAL GALLERY
1/8" = 1'-0"



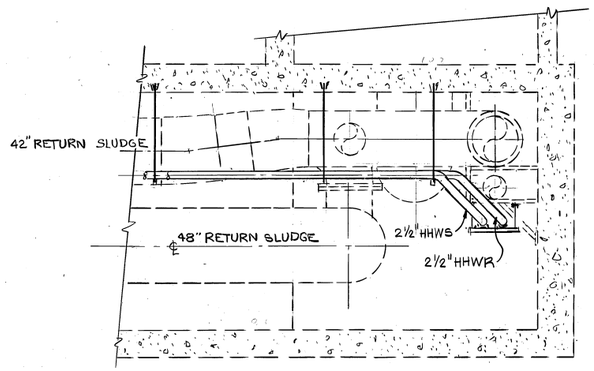
A — SECTION
1/4" = 1'-0"



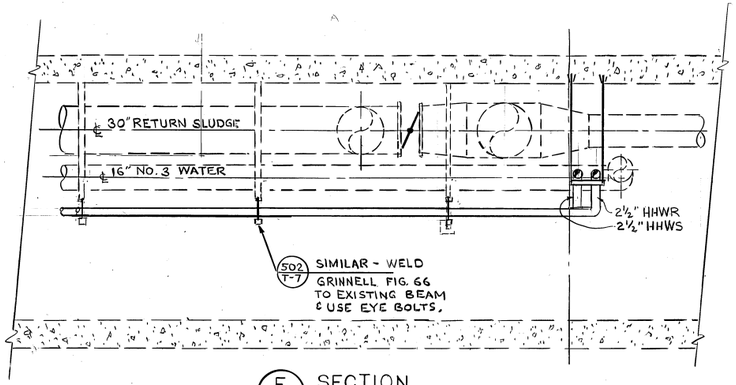
B — SECTION
1/4" = 1'-0"



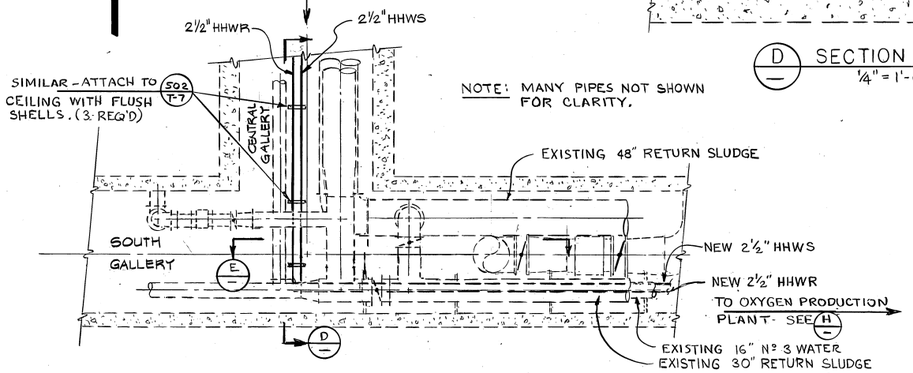
C — SECTION
1/4" = 1'-0"



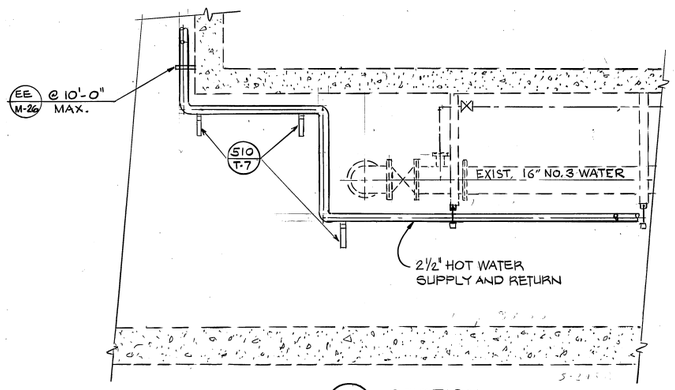
D — SECTION
1/4" = 1'-0"



E — SECTION
1/4" = 1'-0"



G / G-4 PLAN - SOUTH GALLERY AT CENTRAL GALLERY
1/8" = 1'-0"



H / M-29 SECTION
1/4" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	FEB 86	XV	AS-BUILT

DESIGNED DT
DRAWN ELP
CHECKED DS
DATE FEB: 1983

APPROVED BY:
Walter R. Howard R.C.E. 14808
PARTNER P.E. NO.
Salvador L. Wason M12392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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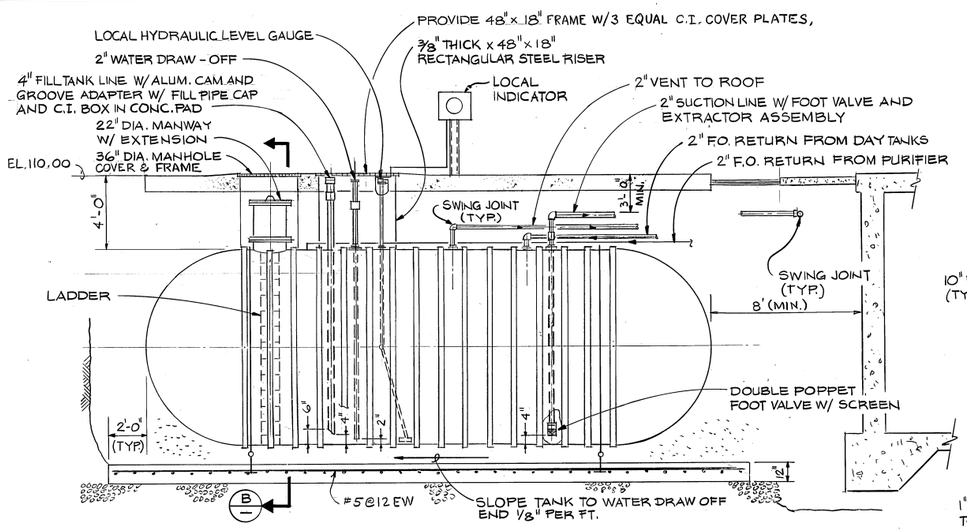
G. WILLIAM KNOPF, P.E.

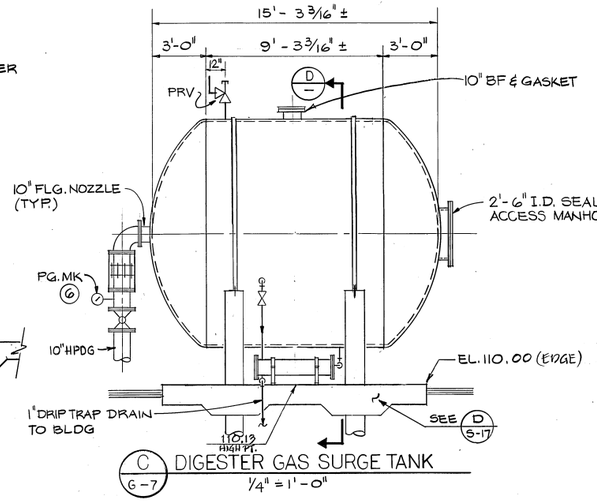
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
PIPING IN SOUTH AND CENTRAL GALLERIES
PLAN AND SECTIONS

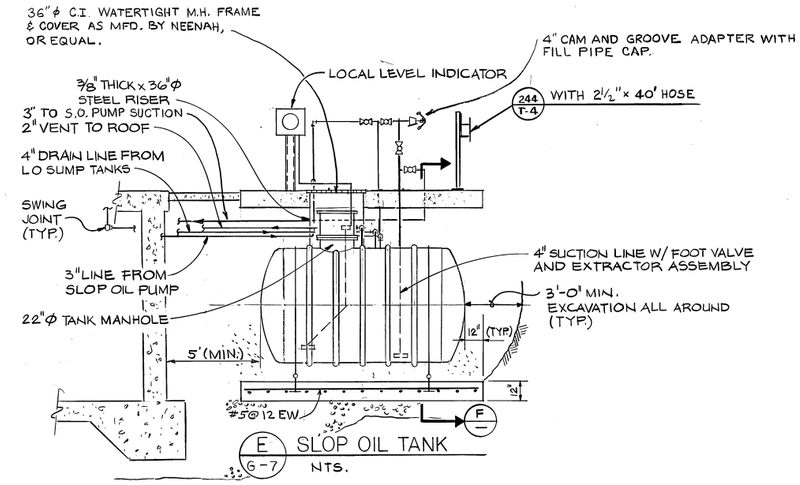
JOB NO. W 02401A12
DRAWING NO. JC-M-33
SHEET NO. 77 of 106



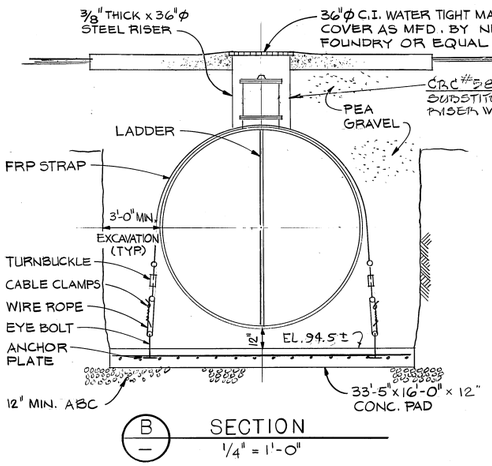
A G-7 FUEL OIL STORAGE TANK
1/4" = 1'-0"



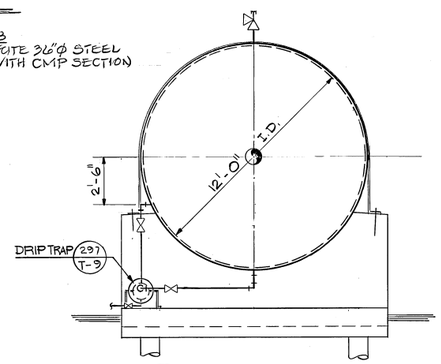
C G-7 DIGESTER GAS SURGE TANK
1/4" = 1'-0"



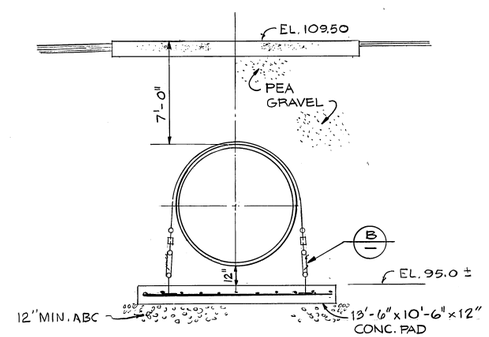
E G-7 SLOP OIL TANK
NTS.



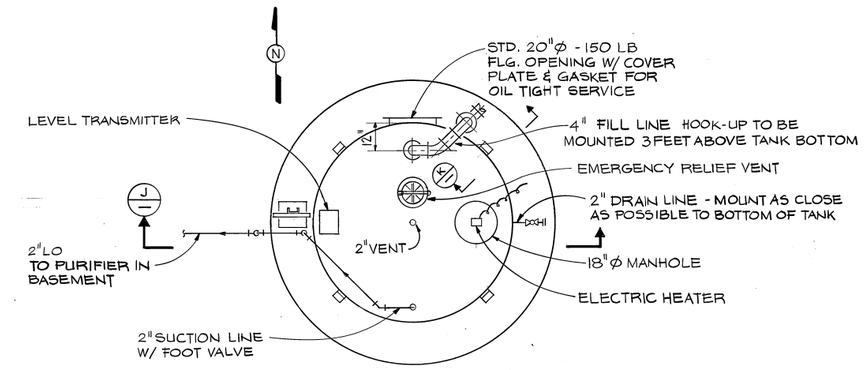
B SECTION
1/4" = 1'-0"



D SECTION



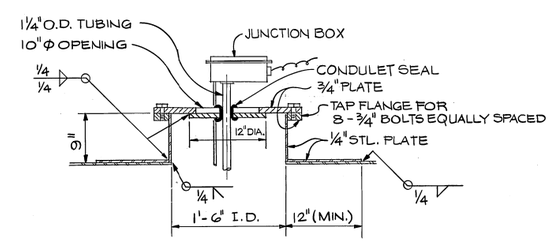
F SECTION
NTS.



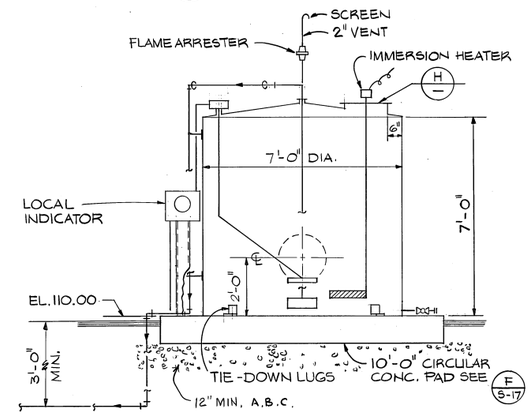
G G-7 PLAN-LUBE OIL STORAGE TANK
3/8" = 1'-0"

NOTES:

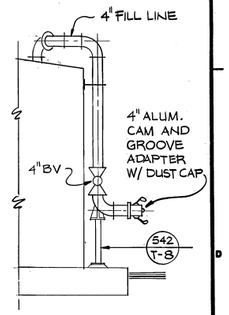
1. FOR TANK FOUNDATION DETAIL SEE DWG. S-17
2. TIE-DOWN LEGS, PIPE SUPPORTS ETC. SHALL BE PER SPECIFICATIONS AND APPROVED MFR'S SHOP DRAWING
3. DESIGNATION ON THE COVER SHALL BE APPROVED BY THE ENGINEER.



H DETAIL
1" = 1'-0"



J SECTION
3/8" = 1'-0"



K SECTION
3/8" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	FEB 84	KR	AS-Built

DESIGNED RJ/THF
DRAWN DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. 6161 P.E. NO.
PROJECT ENGINEER Salwan H. Wason M 18372 P.E. NO.
E.B.M.U.D. P.E. NO.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

JOHN A. CAROLLO, P.E. (1906-1971)
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HOWARD M. WAY, P.E.
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GAIL P. LYNCH, P.E.
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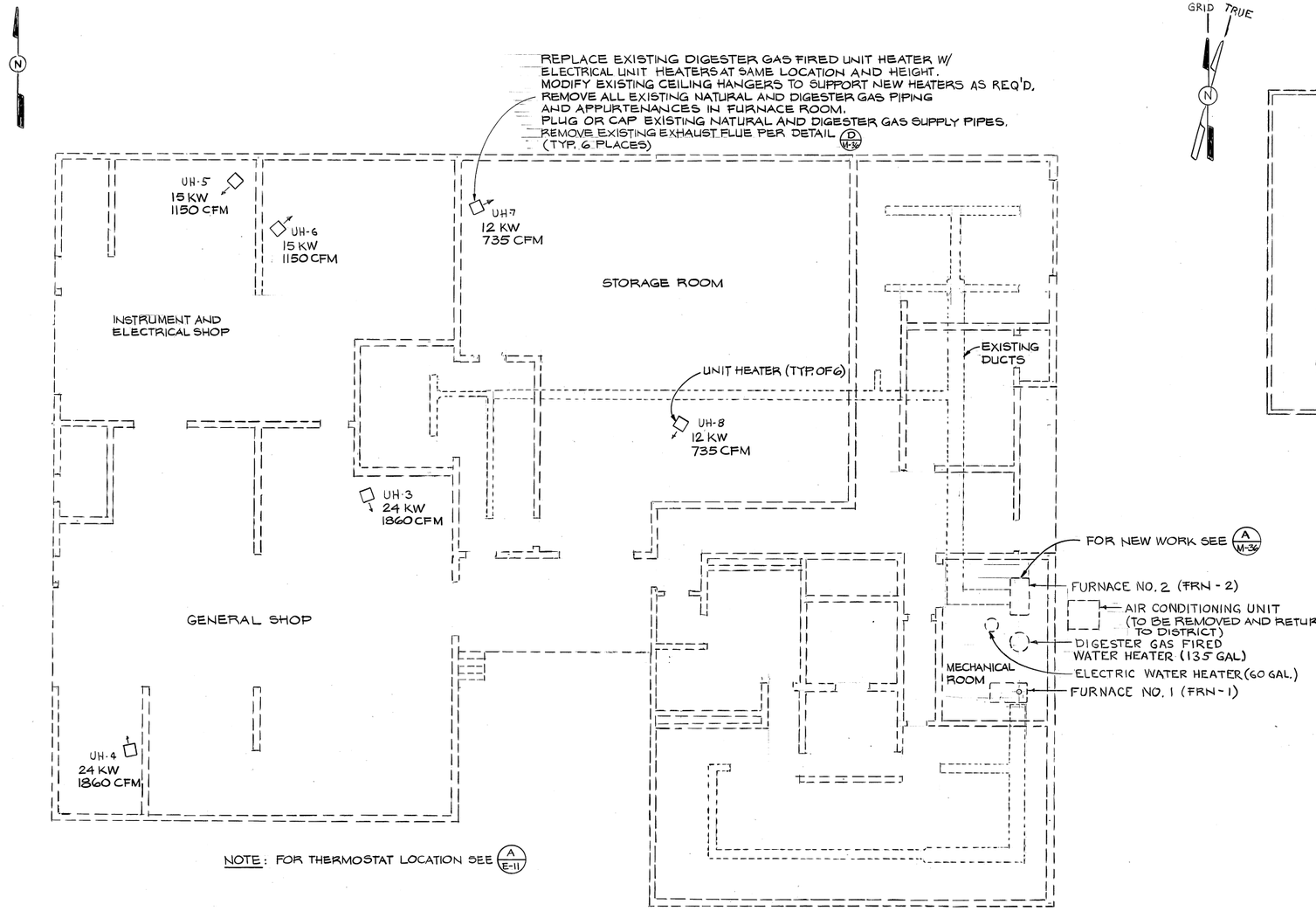
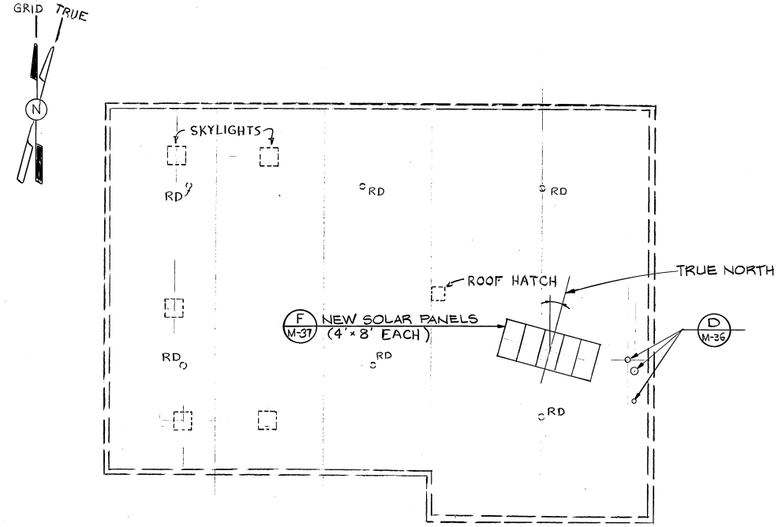
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
TANK PIPING DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-M-34
SHEET NO. 78 of 106



A — PLAN - EXISTING MAINTENANCE CENTER
1/8" = 1'-0"



NOTE: THE CONTRACTOR TO DETERMINE THE DIRECTION OF TRUE SOUTH FOR INSTALLING THE SOLAR PANELS. THE EXACT LOCATION OF SOLAR PANELS SHALL BE DETERMINED IN FIELD AND APPROVED BY THE ENGINEER

B — ROOF PLAN
1/16" = 1'-0"

REV.	DATE	BY	DESCRIPTION
	FEB 86	XV	As-Built

DESIGNED THF
DRAWN ELP/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
Walter K. Howard P.E. 14408
PARTNER P.E. NO.
Steven G. Wason M18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
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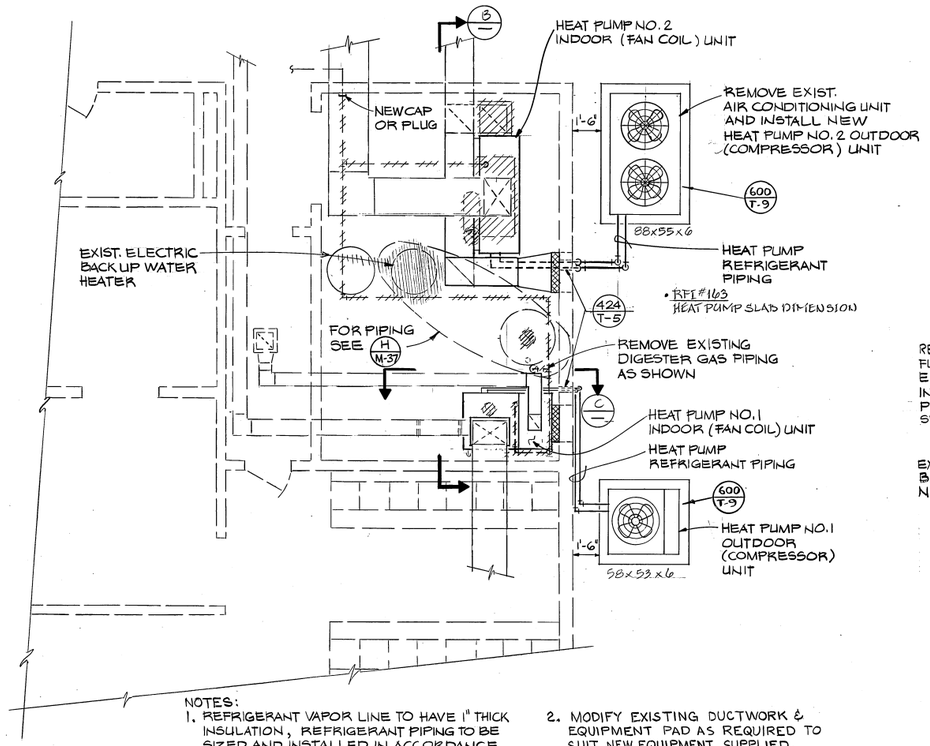
EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD)

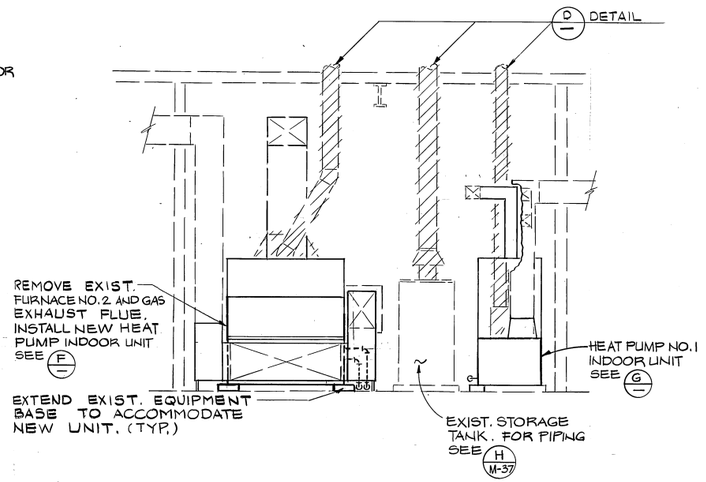
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION NO. SD135
MECHANICAL
MAINTENANCE CENTER
HVAC AND PLUMBING MODIFICATIONS

JOB NO. W 02401A12
DRAWING NO. JC-M-35
SHEET NO. 79 OF 106

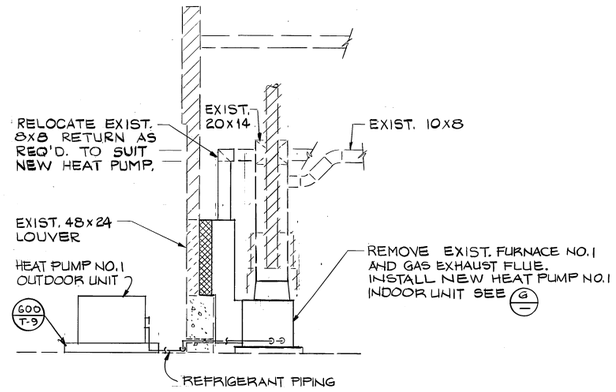


NOTES:
1. REFRIGERANT VAPOR LINE TO HAVE 1" THICK INSULATION, REFRIGERANT PIPING TO BE SIZED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
2. MODIFY EXISTING DUCTWORK & EQUIPMENT PAD AS REQUIRED TO SUIT NEW EQUIPMENT SUPPLIED.

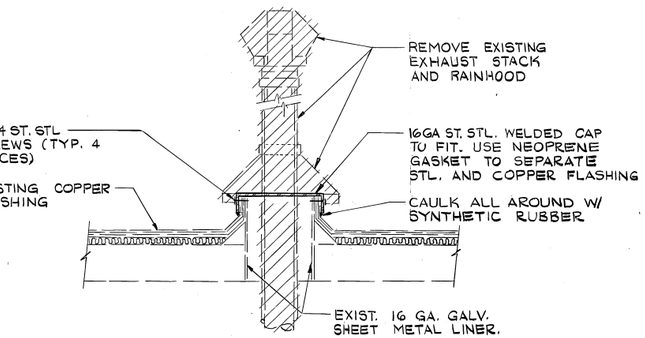
A / M-35 PARTIAL FLOOR PLAN
1/4" = 1'-0"



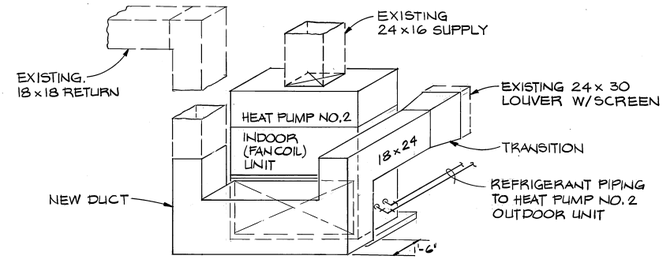
B / SECTION
1/4" = 1'-0"



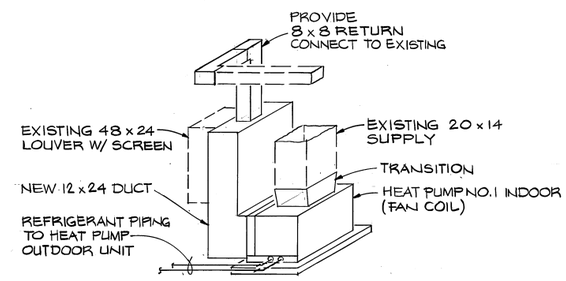
C / SECTION
1/4" = 1'-0"



D / M-35 DETAIL-EXHAUST FLUE COVERS
NO SCALE



F / — DETAIL- HEAT PUMP NO.2 INDOOR UNIT
NO SCALE



G / — DETAIL- HEAT PUMP NO.1 INDOOR UNIT
NO SCALE

REV.	DATE	BY	DESCRIPTION
	FEB 86	AS	As-Built

DESIGNED THF
DRAWN DM/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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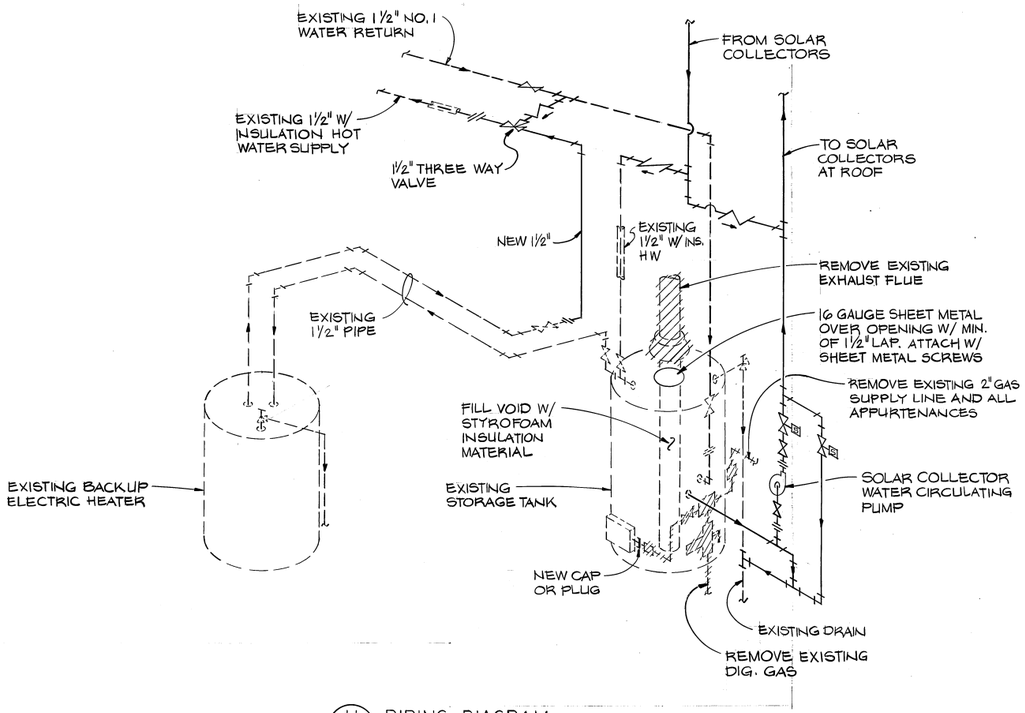
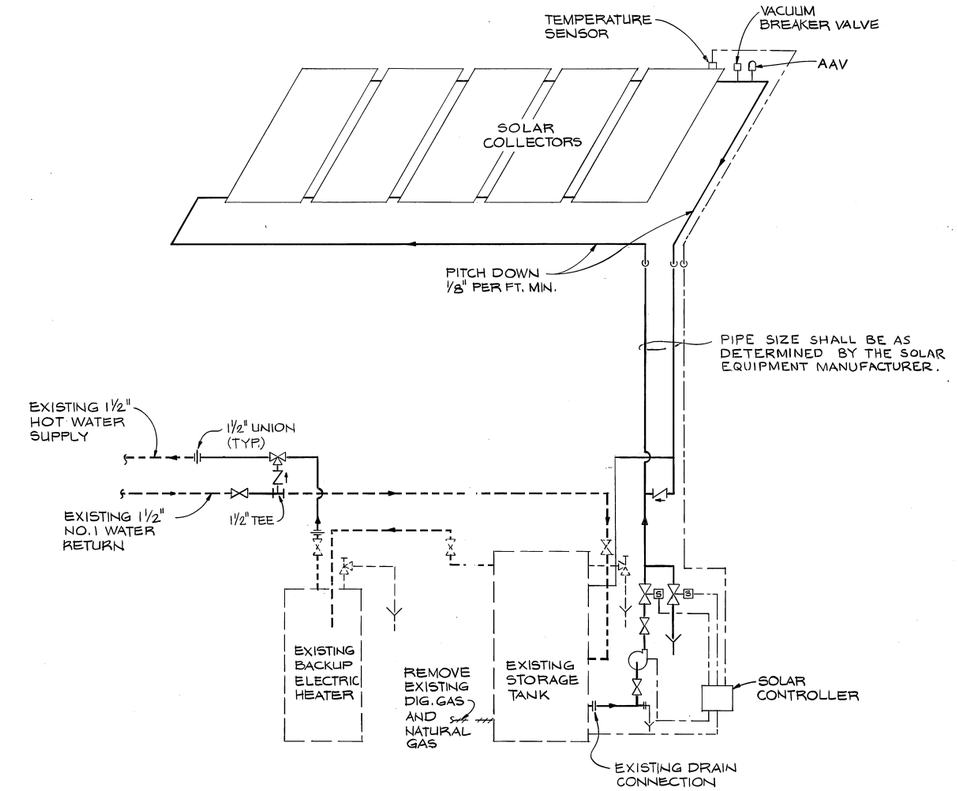
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
MAINTENANCE CENTER
HVAC AND PLUMBING MODIFICATIONS

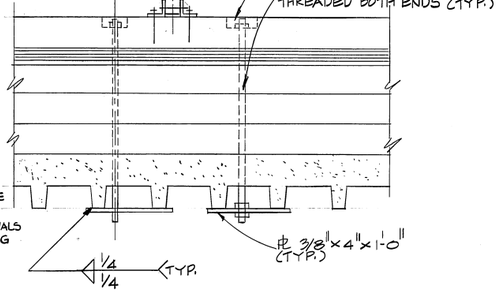
JOB NO. W 02401A12
DRAWING NO. JC-M-36
SHEET NO. 80 of 106



H M-36 PIPING DIAGRAM
NO SCALE

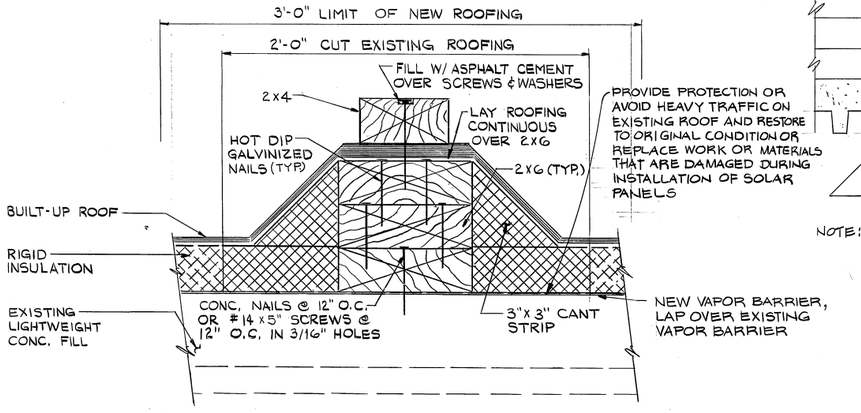


C SOLAR SYSTEM SCHEMATIC

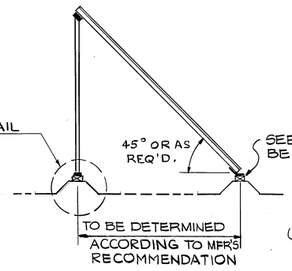


NOTE: LOCATE A307 RODS NEAR BRACKETS @ OPPOSITE SUPPORT OF SOLAR PANEL SIMILAR TO ABOVE.

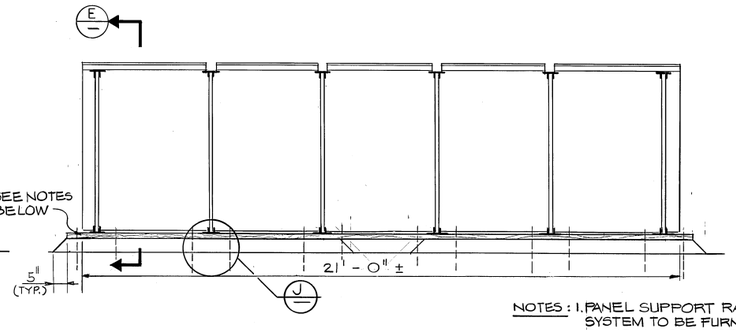
J DETAIL
NTS



D DETAIL
NO SCALE



D DETAIL



E SECTION
3/8" = 1'-0"

F M-35 DETAIL-SOLAR PANELS AND SUPPORTS
3/8" = 1'-0"

NOTES: 1. PANEL SUPPORT RACK SYSTEM TO BE FURNISHED BY SOLAR COLLECTION PANELS SUPPLIER
2. CONTINUOUS TREATED 2x4, DF-L NO. 1 SHALL BE SET LEVEL AND SHALL BE PAINTED AS SPECIFIED

REV.	DATE	BY	DESCRIPTION
	FEB 86	XC	AS-BUILTS

DESIGNED THF
DRAWN DM/DST
CHECKED DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter L. Howard P.E. NO. E14878
PROJECT ENGINEER Solwyn L. Wasen P.E. NO. M18392
E.B.M.U.D.

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EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
MECHANICAL
MAINTENANCE CENTER
HVAC AND PLUMBING MODIFICATIONS

JOB NO. W 02401A12
DRAWING NO. JC-M-37
SHEET NO. 81 OF 106

ABCDEFGHJKLMNPQRSUVWXYZ

LEGEND

- CONDUIT, EXPOSED, UNLESS OTHERWISE NOTED
- CONDUIT, DIRECT BURIAL
- CONDUIT, CONCRETE ENCASED
- NEW CABLES IN EXISTING DUCT BANK
- CONDUIT AND WIRE TURNED UP
- CONDUIT AND WIRE TURNED DOWN
- ---P--- PAGING SYSTEM, CONDUIT AND WIRE
- ---F--- FIRE ALARM SYSTEM, CONDUIT AND WIRE
- ---GA--- GAS DETECTION SYSTEM, CONDUIT AND WIRE (SEE E-18)
- ---T--- TELEPHONE SYSTEM, CONDUIT ONLY
- CONDUIT (1" MAXIMUM), EMBEDDED IN FLOOR SLAB
- ---IC--- INSTRUMENTATION CABLE AND CONDUIT
- [F] SINGLE PROJECTOR FIRE ALARM HORN
- [F] DOUBLE PROJECTOR FIRE ALARM HORN
- HEAT DETECTOR
- GAS DETECTION SENSOR
- IONIZATION DETECTOR
- [E] END OF LINE DEVICE
- TELEPHONE OUTLET
- [F] FIRE ALARM MANUAL PULL STATION
- (J) JUNCTION BOX, CEILING MOUNTED
- (J) JUNCTION BOX, WALL MOUNTED
- (⊗) EMERGENCY EXIT SIGN, CEILING MOUNTED
- (⊗) EMERGENCY EXIT SIGN, WALL MOUNTED
- (⊗) GROUND ROD
- (S) SPEAKER, WALL MOUNTED
- POLE MOUNTED FIXTURE
- DUAL HEAD, WALL MOUNTED EMERGENCY LIGHTING FIXTURE
- FLUORESCENT FIXTURE
- EMERGENCY LIGHTING FIXTURE, CEILING MOUNTED
- (5) MOTOR CONNECTION, NUMERAL DENOTES HORSEPOWER
- (M) MOTOR STARTER COIL
- (A / 2/40) FIXTURE DESIGNATION WITH TYPE, NUMBER OF LAMPS AND WATTAGE NOTED
- INCANDESCENT OR HID FIXTURE, CEILING MOUNTED
- INCANDESCENT OR HID FIXTURE, WALL MOUNTED
- EXISTING POLE MOUNTED FIXTURE TO REMAIN, UNLESS OTHERWISE NOTED
- [CR] OR (CR) CONTROL RELAY
- [S] OR [SV] SOLENOID VALVE
- (TDR) OR [TDR] TIME DELAY RELAY
- (A / E-4) DETAIL DESIGNATION WITH NUMBER OF DRAWING WHERE DETAIL IS SHOWN
- (C) CLOCK OUTLET AND CLOCK
- GROUNDED DUPLEX RECEPTACLE
- DEVICE LOCATED IN MOTOR CONTROL CENTER
- △ DEVICE LOCATED AT/OR NEAR LOAD (FIELD)
- LIGHTNING ARRESTER
- CAPACITOR
- ▽ DEVICE LOCATED IN DAY TANK CONTROL PANEL

- (R) OR [ ] INDICATING LAMP, LETTER DENOTES COLOR
- $ OR [S] LIGHT SWITCH, SINGLE POLE
- $2 OR [S]2 LIGHT SWITCH, 2 POLE
- $3 OR [S]3 LIGHT SWITCH, 3 WAY
- $M OR [S]M MANUAL STARTER, WITH OVERLOAD PROTECTION
- [F-1] FEEDER DESIGNATION
- M / 1 MOTOR STARTER OR RELAY CONTACT, NUMERAL DENOTES NEMA SIZE
- 15A / 3P CIRCUIT BREAKER, WITH TRIP CURRENT & NUMBER OF POLES
- BIMETALLIC OVERLOAD
- TRANSFORMER
- PAGING SPEAKER
- OR [ ] SELECTOR SWITCH
- OR [ ] STOP PUSHBUTTON STATION WITH LOCKOUT
- OR [ ] STOP PUSHBUTTON STATION
- OR [ ] START PUSHBUTTON STATION
- [△] PUSHBUTTON STATION AT MOTOR (PLAN DRAWINGS)
- OR [ ] DISCONNECT SWITCH
- OR [FS] FLOAT SWITCH
- OR [PS] PRESSURE SWITCH
- OR [FLS] FLOW SWITCH
- OR [TS] TEMPERATURE SWITCH
- (T) THERMOSTAT
- RECEPTACLE WITH RATING AND TYPE NOTED
- $p OR [S]p SINGLE POLE LIGHT SWITCH WITH PILOT LIGHT
- 2 (JT) POWER TRANSDUCER

ABBREVIATIONS

N.O.	NORMALLY OPEN	MIP	MASTER INSTRUMENTATION PANEL
N.C.	NORMALLY CLOSED	LPU	LINE PROTECTION UNIT
TIS	TIME SWITCH	BPS	BYPASS SWITCH
GND	GROUND	CPT	CONTROL POWER TRANSFORMER
DN	DOWN	TDTO	TIME DELAY TO OPEN
C	CONDUIT	TDTC	TIME DELAY TO CLOSE
SP.C	SPARE CONDUIT	N.T.S.	NOT TO SCALE
WP	WEATHERPROOF	L.O.	LOCK OUT
MCC	MOTOR CONTROL CENTER	AUX.	AUXILIARY
XP	EXPLOSION PROOF	O.L.	OVERLOAD
H-O-A	HAND-OFF-AUTOMATIC	TRANSF	TRANSFORMER
HID	HIGH INTENSITY DISCHARGE	PNL	PANEL
		GFI	GROUND FAULT INTERRUPTER
TYP.	TYPICAL		

GENERAL NOTES

1. REFER TO DRAWINGS OF OTHER DIVISIONS FOR EXACT LOCATION OF ALL EQUIPMENT OR DEVICES REQUIRING ELECTRICAL SERVICE.
2. POWER FACTOR CORRECTION CAPACITORS SHALL BE PROVIDED FOR MOTORS RATED AT 25 HP OR LARGER. CORRECT POWER FACTOR TO BETWEEN 95% AND 98% AT (FULL LOAD.) LOCATE CAPACITOR BANKS AT APPROPRIATE LOCATION NEAR MOTOR IN NEMA I ENCLOSURE. WIRE SIZE, GROUNDING AND NAMEPLATE SHALL BE PROVIDED FOR CAPACITORS.
3. A DISCONNECT SWITCH SHALL BE PROVIDED AS REQUIRED BY NATIONAL ELECTRICAL CODE FOR ANY EQUIPMENT FURNISHED OR SUPPLIED WITHOUT A DISCONNECT.
4. ALL LIGHTING AND RECEPTACLE BRANCH CIRCUIT CONDUCTORS 75 FEET AND LONGER FROM SERVING PANEL SHALL BE #10 AWG. MINIMUM.
5. LIGHTING FIXTURES SHALL BE IDENTIFIED BY SYMBOL AND FIXTURE DESIGNATION. UNLESS OTHERWISE INDICATED, TYPICAL FIXTURE TYPE IS SHOWN IN EACH ROOM OR AREA. REFER TO SPECIFICATION DIVISION 16 FOR FIXTURE SCHEDULE.
6. THE FOLLOWING EQUIPMENT SHALL BE FURNISHED BY THE DISTRICT AND INSTALLED BY THE CONTRACTOR:
   - 4160 V SWITCHGEAR
   - GENERATOR SURGE PROTECTION EQUIPMENT
   - GENERATOR NEUTRAL GROUNDING RESISTORS AND CURRENT TRANSFORMERS WITH HOUSINGS
   - ENGINE / GENERATOR CONTROL PANELS
   - 120 VDC BATTERIES, RACK AND BATTERY CHARGER

REV.	DATE	BY	DESCRIPTION
2	Nov 89	RYE	IN SERVICE 1987 AS BUILT ISSP. D. Nguyen
	FEB 86	XV	As-Built

DESIGNED DTN | DRAWN DEY | CHECKED GOH | DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. 10808
PROJECT ENGINEER Solomon W. Wong P.E. M18392
E.B.M.U.D.

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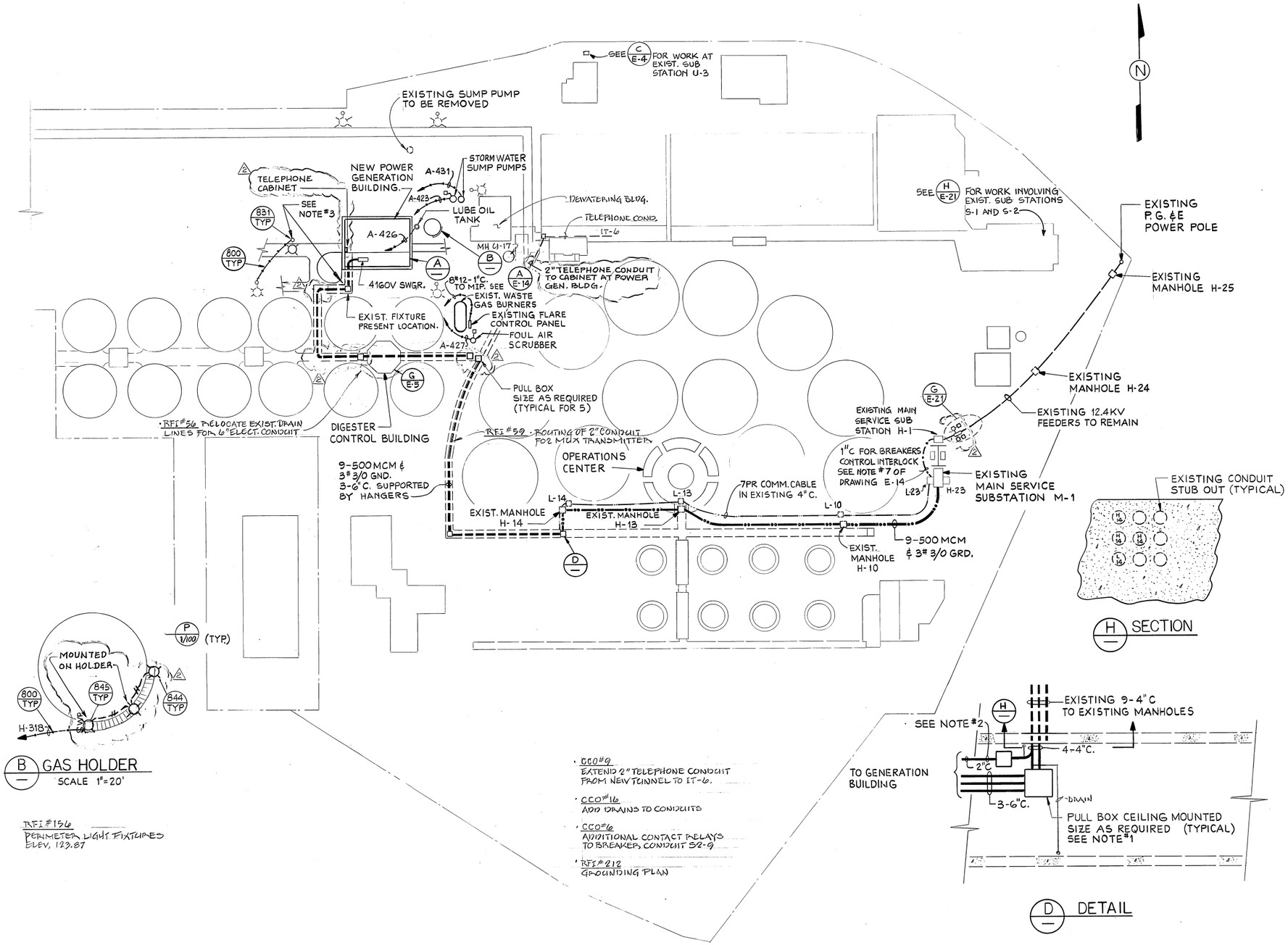
EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD)

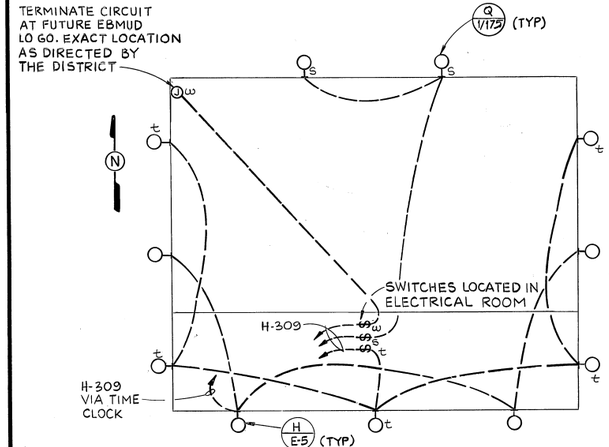
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
LEGEND, ABBREVIATIONS AND GENERAL NOTES

JOB NO. W 02401A12
DRAWING NO. JC-E-1
SHEET NO. 82 OF 106

NOTES

1. 5KV FEEDER CABLES SHALL BE SPLICED IN PULL BOX. TERMINATIONS & SPLICES SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS AND BE IN ACCORDANCE WITH DIV. 16 SPECIFICATIONS.
2. NEW 2"C AND 7PR. COMM. CABLE TO BE TERMINATED IN MUX TRANSMITTER CABINET LOCATED IN ELECTRICAL ROOM IN POWER GENERATION BUILDING.
3. EXISTING POLE MOUNTED FIXTURE AND POLE TO BE RELOCATED AS SHOWN. EXISTING CIRCUITING TO REMAIN. CONNECT RELOCATED FIXTURE TO EXISTING FIXTURE AS SHOWN.
4. ELECTRICAL CONTRACTOR SHALL RELOCATE EXIST. LIGHTING FIXTURES AND ELECTRIC EQUIPT. AS REQUIRED FOR INSTALLATION OF PIPING BY OTHERS IN THE TUNNELS.





A/— NEW POWER GENERATION BUILDING
PERIMETER LIGHTING PLAN
SCALE 1"=20'

B/— GAS HOLDER
SCALE 1"=20'

RFI #156
PERIMETER LIGHT FIXTURES ELEV. 123.87

- CCO #9 EXTEND 2" TELEPHONE CONDUIT FROM NEW TUNNEL TO IT-6.
- CCO #16 ADD DRAINS TO CONDUITS
- CCO #6 ADDITIONAL CONTACT RELAYS TO BREAKER, CONDUIT 52-9
- RFI #212 GROUNDING PLAN

PLOT PLAN
SCALE 1"= 100'

H/— SECTION

D/— DETAIL

REV.	DATE	BY	DESCRIPTION
2	Nov 89	RYE	TO SERVICE 1987 AS BUILT ISSD D. Nguyen
1	FEB 86	XV	AS-BUILT

DESIGNED DTN
DRAWN URN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
Walter R. Howard P.E. 14908
PARTNER P.E. NO.
Salwan H. Watson M 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
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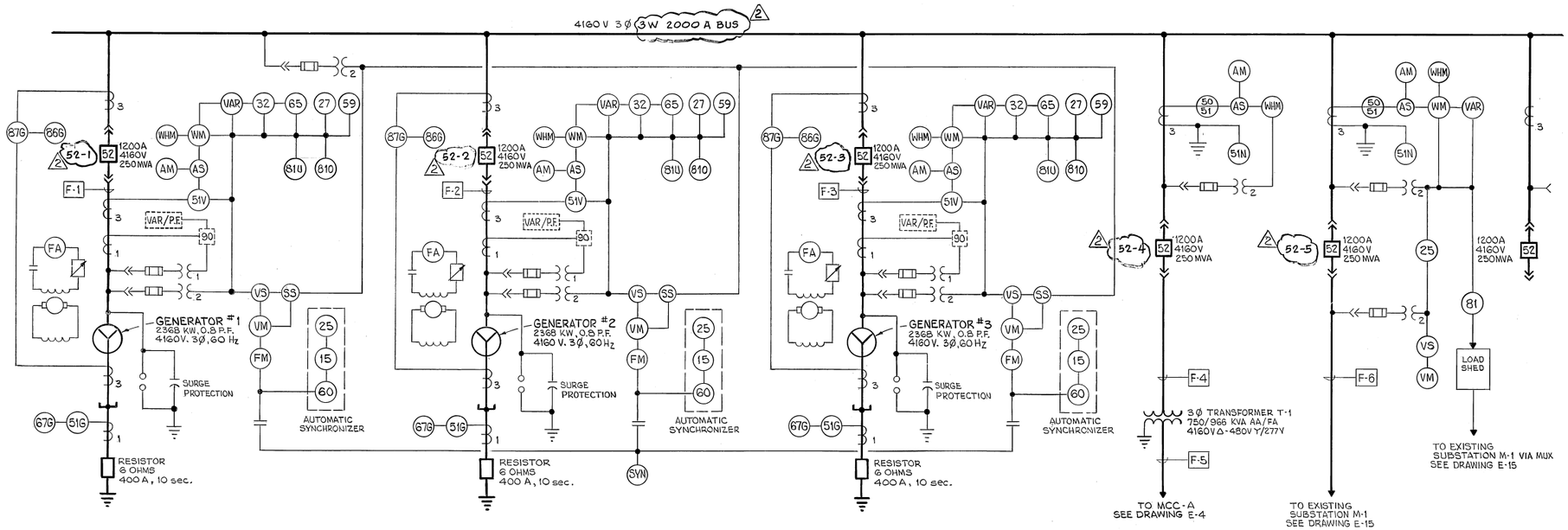
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
SITE PLAN AND DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-E-2
SHEET NO. 83 OF 106

ABCDEFGHJKLMNPQRSUVWXYZ



MODE AND SEQUENCE OF GENERATING PLANT OPERATION

2 1. THE NORMAL MODE OF GENERATING PLANT OPERATION IS TO SUPPLY LOADS ON SUBSTATION M-1 BUSES C AND B IN PARALLEL WITH PACIFIC GAS AND ELECTRIC COMPANY LINE C-1107 IN THIS CONFIGURATION SUBSTATION M-1 BUS TIE BREAKER 52-25 IS CLOSED AND BUS TIE BREAKER 52-5 IS OPEN.

2. TO PLACE THE GENERATING PLANT IN OPERATION THE GENERATING PLANT TIE BREAKER 52-9 AT SUBSTATION M-1 MUST BE CLOSED FIRST. THE FEEDER BREAKER F6 IN THE GENERATING PLANT SWITCHGEAR IS CLOSED NEXT ENERGIZING THE 4160 VOLT SWITCHGEAR BUS. FEEDER BREAKER F4 IS THEN CLOSED PROVIDING STATION SERVICE AND ENABLING ENGINE STARTING. AFTER ENGINE STARTING AUTOMATIC SYNCHRONIZING ACROSS THE GENERATOR BREAKERS IS MANUALLY INITIATED AND EACH GENERATOR IS PLACED IN PARALLEL WITH THE P.G. & E. LINE BY THE AUTOMATIC SYNCHRONIZER.

2 3. IN THE EVENT OF AN OUTAGE OF P.G. & E. LINE C-1107 THE OPERATING LOAD ON SUBSTATION M-1 BUSES C AND B WILL EXCEED THE CAPACITY OF THE ENGINE GENERATORS AND THE PLANT FREQUENCY WILL BEGIN TO DROP. THIS WILL INITIATE LOAD SHEDDING IN PRIORITY SEQUENCE ON THE BUSES AT SUBSTATION M-1 UNTIL THE FREQUENCY HAS STABILIZED. (SEE DRAWING E-15)

4. WHEN P.G. & E. SERVICE IS AGAIN AVAILABLE IT IS NECESSARY TO TRIP BREAKERS 52-9 AND F6 AND BEFORE CLOSING THE MAIN BREAKER IN SUBSTATION M-1 AS THE NEW SYNCHRONISM VERIFICATION RELAY WOULD PREVENT CLOSURE. AFTER P.G. & E. SERVICE IS RESTORED THE SYNCHRONIZATION PROCESS IS REPEATED TO PLACE THE GENERATING PLANT BACK IN SERVICE.

SINGLE LINE DIAGRAM LEGEND

15	SPEED MATCHING RELAY	AM	AMMETER
25	SYNCHRONIZING RELAY	AS	AMMETER SWITCH
27	UNDERVOLTAGE RELAY	FM	FREQUENCY METER
32	ANTI-MOTORING RELAY	SS	SYNCHRONIZING SWITCH
46	PHASE BALANCE RELAY	SYN	SYNCHRONOSCOPE
50/51	OVERCURRENT RELAY		
51G	GROUND OVERCURRENT RELAY	VAR	VARMETER
51N	RESIDUAL GROUND OVERCURRENT RELAY	VAR/P.F.	VAR/POWER FACTOR CONTROLLER
51V	OVERCURRENT RELAY WITH VOLTAGE RESTRAINT	VM	VOLTMETER
52	CIRCUIT BREAKER	VS	VOLTMETER SWITCH
59	OVERVOLTAGE RELAY	WHM	WATTHOUR DEMAND METER
60	VOLTAGE MATCHING RELAY		
65	GOVERNOR	WM	WATTMETER
67G	DIRECTIONAL GROUND RELAY	K	KEY INTERLOCK
81O	OVER FREQUENCY RELAY	FA	FIELD AMMETER
81U	UNDERFREQUENCY RELAY	CS	CONTROL SWITCH
81	FREQUENCY RELAY		
86G	LOCKOUT RELAY		
87G	DIFFERENTIAL RELAY		
90	VOLTAGE REGULATOR		
94	TRIPPING RELAY		
79	RECLOSING RELAY		
83	AUTOMATIC SELECTIVE CONTROL RELAY		
47	PHASE BALANCE VOLTAGE RELAY		

NOTES

1. PHASE SEQUENCE IN THE SWITCHGEAR SHALL BE ABC LEFT TO RIGHT, FRONT TO BACK AND TOP TO BOTTOM. CONTRACTOR SHALL DETERMINE BY ACTUAL TEST THE PHASE ROTATION IN THE EXISTING SUBSTATION M-1 SWITCHGEAR AND INSURE THAT THE FEEDER CIRCUIT BREAKER F-6 IS CONNECTED TO PROVIDE THE CORRECT PHASE SEQUENCE AT THE GENERATING PLANT. THE INCOMING PHASE ROTATION FROM F-6 SHALL BE VERIFIED BY TEST BEFORE BEGINNING OTHER TESTS OR START-UP.

2. SEE DRAWING E-15 FOR CONTINUATION OF THE 4160 V SYSTEM SINGLE LINE DIAGRAM.

2 3. REFER TO RTE. DELTA SHOP DRAWINGS No. D10881O1 SHEET No.1 TO SHEET No. 34 FOR INTER EQUIPMENT INTERNAL CONNECTIONS.

FEEDER SCHEDULE

FEEDER NUMBER	FROM	TO	CABLE NUMBER & SIZE	CONDUIT SIZE	REMARKS
F-1	GENERATOR #1	CONTROL ROOM MAIN SWITCHGEAR	3 #500 MCM	1-6"	PROVIDE 1 #3/0 GND. IN SAME CONDUIT
F-2	GENERATOR #2	CONTROL ROOM MAIN SWITCHGEAR	↓	↓	↓
F-3	GENERATOR #3	CONTROL ROOM MAIN SWITCHGEAR	↓	↓	↓
F-4	CONTROL ROOM MAIN SWITCHGEAR	TRANSFORMER T-1	3-#2/0	1-2"	
F-5	TRANSFORMER T-1	MCC-A	1200A 3Ø BUS DUCT		
F-6	CONTROL ROOM MAIN SWITCHGEAR	EXISTING MAIN SUBSTATION	9-500 MCM	3-6"	PROVIDE 1 #3/0 GND. IN EACH CONDUIT.

REV.	DATE	BY	DESCRIPTION
2	Nov. 89	RYE	IN SERVICE 1987 AS BUILT INSP. D.Nguyen
	FEB 86	XV	As-Built

DESIGNED DTN | DRAWN DEY | CHECKED GOH | DATE FEB. 1983

APPROVED BY:
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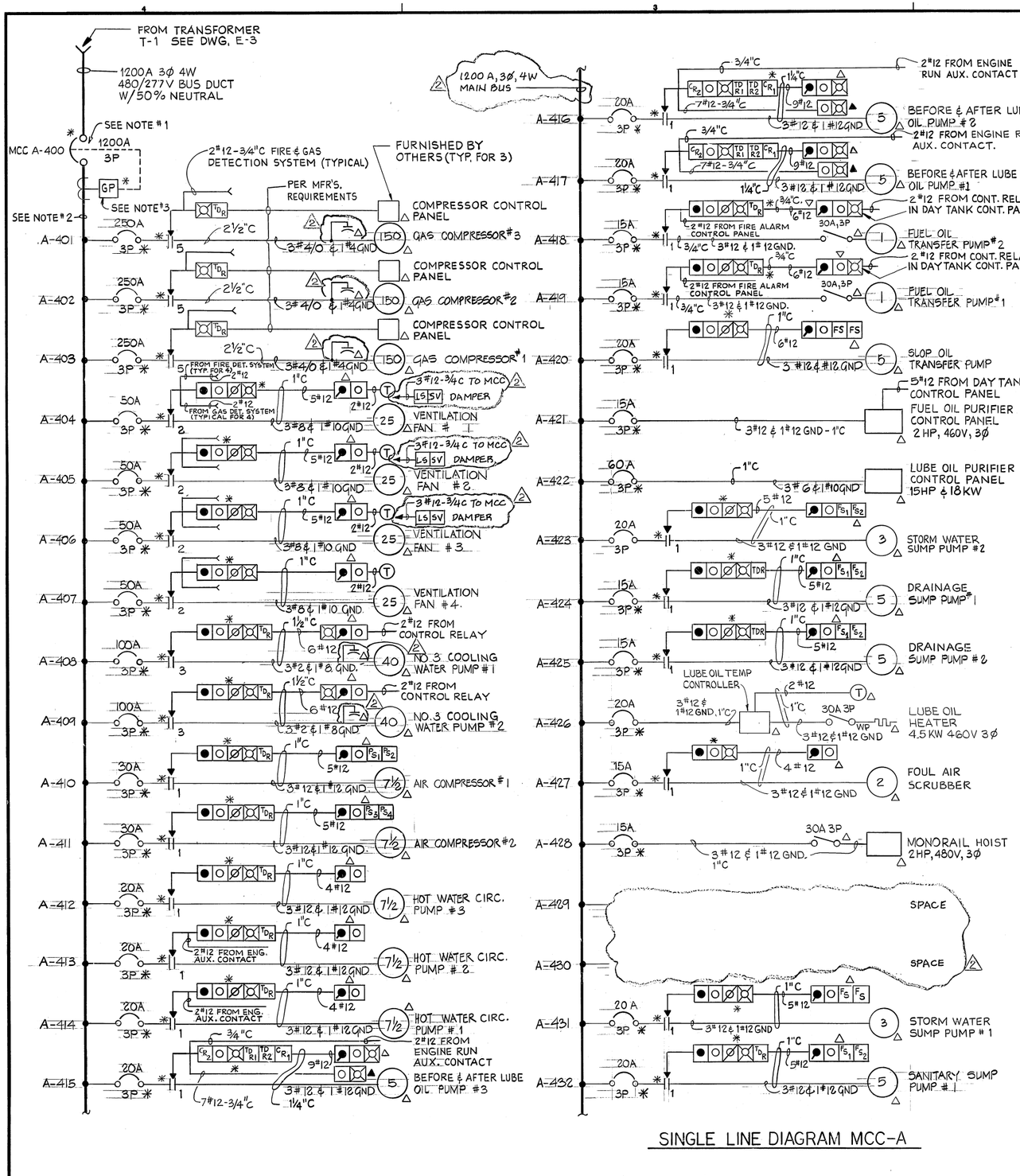
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
SINGLE LINE DIAGRAM-4160V

JOB NO. W 02401A12
DRAWING NO. JC-E-3
SHEET NO. 84 of 106



SINGLE LINE DIAGRAM MCC-A

NOTES:

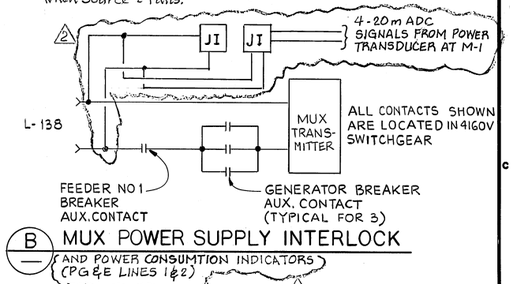
1. PROVIDE KIRK TYPE KEY INTERLOCK BETWEEN MAIN CIRCUIT BREAKER & PORTABLE GENERATOR CIRCUIT BREAKER TO PREVENT CLOSING BOTH BREAKERS AT THE SAME TIME.
2. MOTOR CONTROL CENTER MCC-A MAIN BUS SHALL BE RATED 1200A 480/277V, 3Ø, 4W, WITH 50% NEUTRAL.
3. MAIN CIRCUIT BREAKER SHALL BE PROVIDED WITH COMPLETE GROUND FAULT PROTECTION SYSTEM HAVING CURRENT TRANSFORMER, GROUND FAULT SOLIDSTATE RELAY, MONITOR PANEL, SHUNT TRIP & TWO AUX. N.O. CONTACTS. POWER FROM GROUND FAULT PROTECTION SYSTEM SHALL BE FROM CONTROL POWER TRANSFORMER CONNECTED TO THE LINE SIDE OF THE MAIN BREAKER VIA CURRENT LIMITING FUSES.
4. THE PURPOSE OF THIS MODIFICATION IS TO REVERSE THE PREFERENCE OF THE EXISTING AUTOMATIC TRANSFER SCHEME WHEREBY THE EXISTING PREFERRED SOURCE WILL BECOME THE ALTERNATE SOURCE AND THE EXISTING ALTERNATE SOURCE WILL BECOME THE PREFERRED SOURCE.
   THE EXISTING TRANSFER RELAY, DEVICE NO 83 SHALL REMAIN ITS RESPECTIVE PHYSICAL LOCATION, HOWEVE IT SHALL BE RECONNECTED TO THE OPPOSITE INCOMING SOURCE POTENTIAL CIRCUIT AS SHOWN. ALL OTHER CONNECTIONS SHALL REMAIN UNCHANGED.
   REFER TO AS-BUILT SHOP DRAWING FOR GENERAL ELECTRIC CO. REQUISITION NO. 449-94642 AVAILABLE FROM E B MUD MAINTENANCE DEPARTMENT.

• NOTES FROM MEMO 9/11/85 (DIEP TO PAUL COLLINS) PROJECT #2401
POWER PLANT - BREAKER ARRANGEMENT FOR SUBSTATION S-1, S-2 & U-3

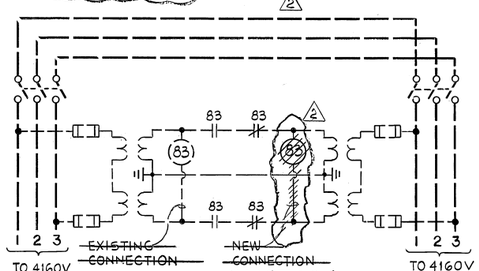
1. - For Substation S-1 & S-2:
   In Order To Make Source 2 As Preferred Source A Jumper Connecting Terminals 43-1C & 43-2C Is Required (GE Sht 4 Contract 0184b1798 For S-1);
   (" " " " 0184b4032 " S-2).

1a- Rewire To Original Condition S-1, S-2 & U-3.
   Then Trip Breaker Connecting Source 1 & Close Breaker Source 2 Now, The Substation Should Be Powered By Source 2 & Should Transfer To Source 1 Automatically When Source 2 Fails.

2 - For Substation U-3:
   There Is A Selector Switch SSM10BX565 On Sht #1 Contract 08B87945, Which Should Enable The Selection of Source 1 or 2 As Normal Source. For Example Source 2 Is Chosen, Its Breaker Should Then Be Normally Closed & Automatically Transfer To Source 1 Should Be Made When Source 2 Fails.



B — MUX POWER SUPPLY INTERLOCK
AND POWER CONSUMTION INDICATORS (PG&E LINES 1 & 2)



• Note: See Memo 9-11-85 Above
Remove Spring From Selector Switch To Permit Selection of Line 1 or Line 2 W/O Automatic Return of Sw.

C — PARTIAL SCHEMATIC OF POTENTIAL CIRCUIT UNIT SUBSTATION U-3

A — LOAD SEQUENCER CONNECTIONS TO MUX

	FROM LOAD SEQUENCER TERM. NUMBERS IN SECT. 8 4160V SWGR		TO MULTIPLEXER TRIP PRIORITY SEQUENCE	NOTES
IN SECTION LDS-5	R96⊗	⊗R95	1	
	R92⊗	⊗R91	2	
	R88⊗	⊗R87	3	
	R84⊗	⊗R83	4	
IN SECTION LDS-4	R80⊗	⊗R79	5	
	R76⊗	⊗R75	6	
	R72⊗	⊗R71	7	
	R68⊗	⊗R67	8	
	R64⊗	⊗R63	9	
IN SECTION LDS-3	R60⊗	⊗R59	10	
	R56⊗	⊗R55	11	
	R52⊗	⊗R51	12	
	R48⊗	⊗R47	13	
	R44⊗	⊗R43	14	
IN SECTION LDS-2	R40⊗	⊗R39	15	
	R36⊗	⊗R35	16	
	R32⊗	⊗R31	17	
	R28⊗	⊗R27	18	

ABCDEFGHJKLMNPQRSUVWXYZ

REV.	DATE	BY	DESCRIPTION
2	NOV 89	RYE	IN SERVICE 1987 AS BUILT INSP. D. Nguyen
1	FEB 86	XV	AS-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. NO. 8888
PROJECT ENGINEER Salwan H. Waroon P.E. NO. M18392
E.B.M.U.D.

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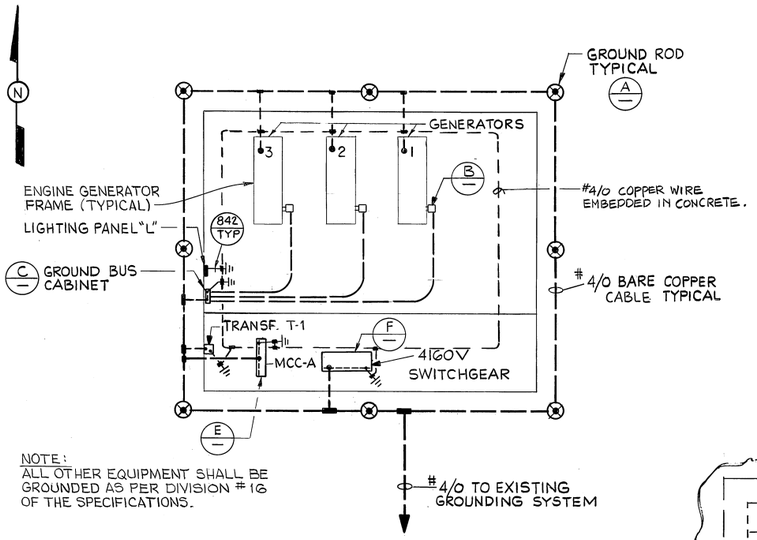
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

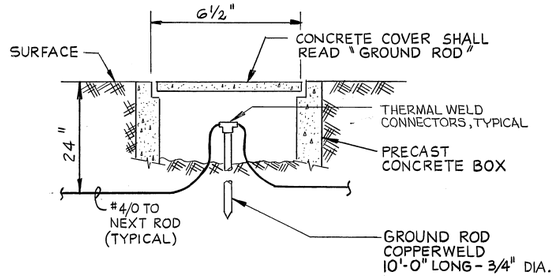
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION SPECIFICATION SD-135
ELECTRICAL
SINGLE LINE DIAGRAM-480V

JOB NO. W 02401A12
DRAWING NO. JC-E-4
SHEET NO. 85 OF 106

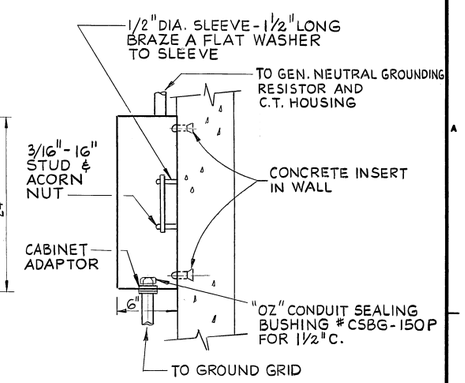


NOTE:
ALL OTHER EQUIPMENT SHALL BE GROUNDED AS PER DIVISION # 16 OF THE SPECIFICATIONS.

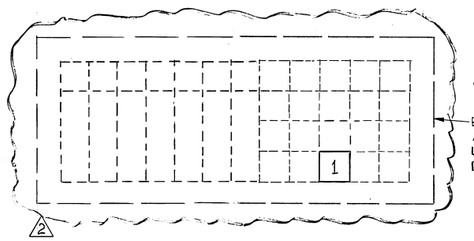
D NEW POWER GENERATION BUILDING GROUNDING PLAN
N.T.S.



A GROUND ROD BOX
N.T.S



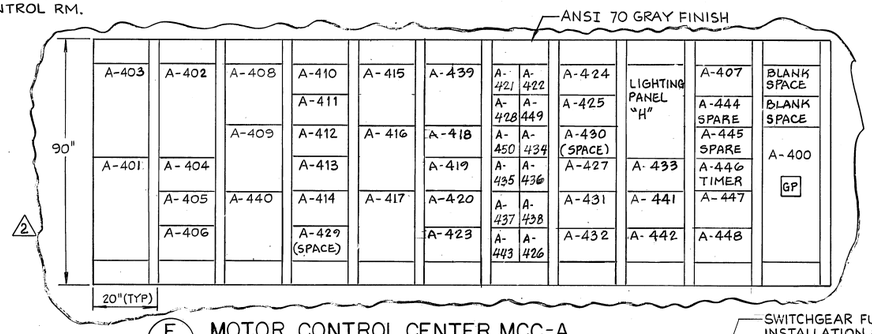
C GROUND BUS CABINET
N.T.S.



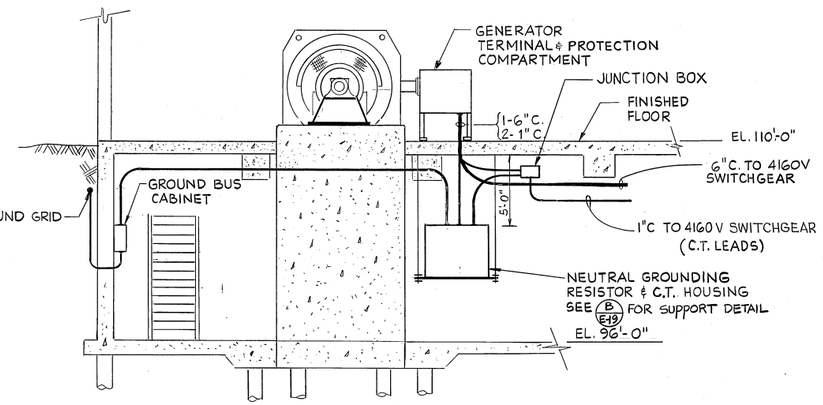
NAMEPLATE
1. POWER GENERATION BUILDING ALARM (ALARM CONTACT IS LOCATED IN MIP-POWER PLANT BUILDING) 2

EXISTING ALARM ANNUNCIATOR PANEL LOCATED IN EXISTING DIGESTER CONTROL RM.

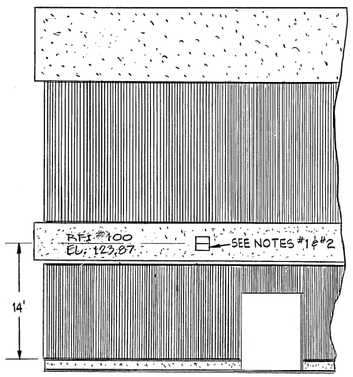
G REMOTE ALARM ANNUNCIATION
N.T.S.



E MOTOR CONTROL CENTER MCC-A
N.T.S.

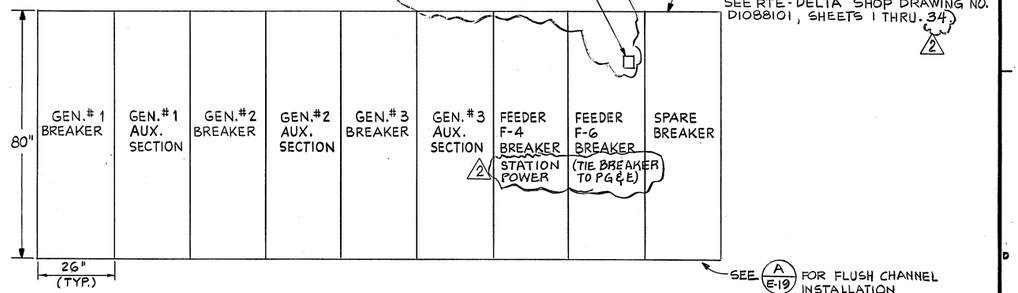


B GENERATOR #3 NEUTRAL GROUNDING DETAIL (TYPICAL FOR GEN.# 1&2)
N.T.S.



H PARTIAL SOUTH ELEVATION POWER GENERATION BLDG.

1. MOUNT FIXTURE 'Q' @ ELEV. AS SHOWN FOR LOCATION SEE DRAWING E-2
2. ALL CONDUITS RUNNING TO FIXTURES 'Q' SHALL BE RUN EXPOSED INSIDE BLDG. AND STUBBED THRU WALL TO FIXTURE.



F 4160V SWITCHGEAR
N.T.S.

REV.	DATE	BY	DESCRIPTION
2	29 Nov 86	RME	1257 AS BUILT INSP. D. Nguyen
	FEB 86	XV	As-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER Howard P.E. 19605
PROJECT ENGINEER Wesson P.E. 18392
E.B.M.U.D.

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EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
GROUNDING PLAN AND DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-E-5
SHEET NO. 86 OF 106

N:\E1066

ABCDEFGHJKLMNPQRSUVWXYZ

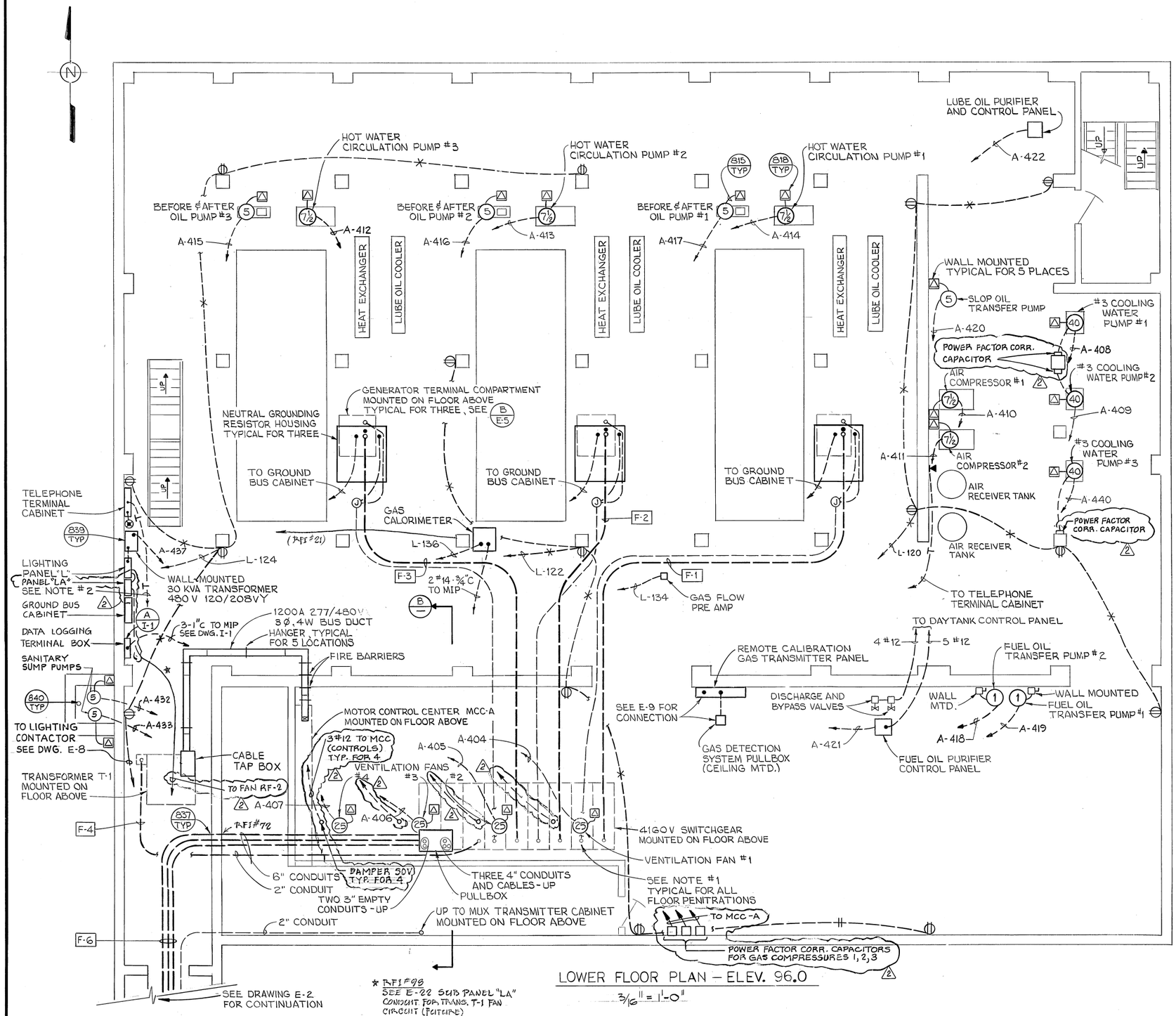
NOTES

1. ALL FLOOR PENETRATIONS TO THE MAIN SWITCHGEAR SHALL BE MADE IN A MANNER SUCH THAT NO STRUCTURAL STEEL SHALL BE DAMAGED OR DRILLED.
2. 2" EMPTY CONDUIT FOR TELEPHONE SYSTEM SHALL BE TERMINATED AT EXISTING TELEPHONE TERMINAL BACKBOARD IT-6 LOCATED IN EXISTING GALLERY, (TUNNEL - SEE DRAWING E-2).

RFI #38, CCO #9
PROVIDE NEW CONDUIT

RFI #62
CONDUITS IN LOWER FLOOR SLAB

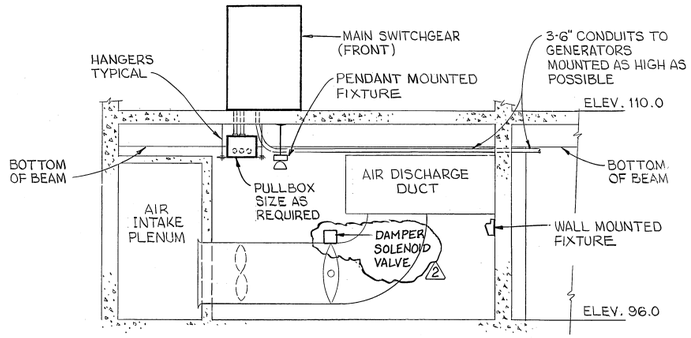
PC #55, CCO #34
PROVIDE 120V CONDUITS FOR ROLL UP DOORS.



LOWER FLOOR PLAN – ELEV. 96.0

3/16" = 1'-0"

* RFI #98
SEE E-22 SUB PANEL "LA" CONDUIT FOR TRANS. T-1 FAN CIRCUIT (FUTURE)



B SECTION
NO SCALE

REV.	DATE	BY	DESCRIPTION
2	30 Nov 89	XV	IN SERVICE 1987 AS BUILT INSP. D. Nguyen
1	FEB 86	XV	As-Built

DESIGNED DTN
DRAWN DEY
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER Charles R. Howard P.E. 11002
PROJECT ENGINEER Steven L. Watson M18392 P.E. NO.
E.B.M.U.D.

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EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
POWER PLAN AND DETAIL
LOWER FLOOR

JOB NO. W 02401A12
DRAWING NO. JC-E-6
SHEET NO. 87 OF 106

- RFI #47 ~ ENGINE CONTROL PANEL LAYOUT. 3'-3" SOUTH OF NORTH EDGE OF ENGINE FOUNDATION; WEST SIDE OF PANEL SHALL BE LOCATED 6'-3" PAST THE E OF ENGINE FOUNDATIONS.
- RFI #83 ~ 5 CONDUITS GOING FROM PANEL D.C. TO 4160V SWGEAR, RUN 1" CONDUIT INSTEAD.
- RFI #84 ~ CONDUITS GOING TO 3 ENGINE CONTROL PANELS, LOOP CONTROL PANELS.
- RFI #105 ~ CAPACITORS FOR GAS COMPR., RELOCATE THEM IN LOWER LEVEL IN AREA BELOW THE MCC-A.
- RFI #97 ~ RELOCATE DUPLEX RECEPTACLES ON COLUMN FACES.
- CCO # 7 ~ ADD CONTACT RELAYS TO BREAKER CIRCUIT 52-9.

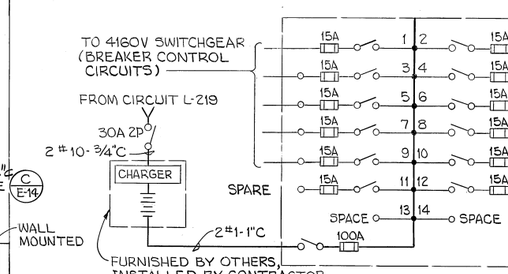
GENERAL NOTES

1. SEE DRAWING E-6 FOR ADDITIONAL CONDUITS CONNECTING EQUIPMENT ON THIS FLOOR VIA BASEMENT CEILING.
2. TERMINATE AND CAP CONDUITS ABOVE FALSE CEILING FOR FUTURE USE.

SCHEDULE OF INTERCONNECTIONS FOR ENGINE GENERATOR CONTROL (TYPICAL FOR 3 UNITS)

CIRCUIT RUN DESIGNATION	FROM	TO	FUNCTION
(1)	SWITCHGEAR VOLTAGE REGULATOR	GENERATOR EXCITER FIELD	VOLTAGE REGULATION
(2)	SWITCHGEAR; LOAD SHARING AND SPEED CONTROL UNIT	ENGINE GOVERNOR ACTUATOR	ENGINE GOVERNOR CONTROL
	SWITCHGEAR; LOAD SHARING AND SPEED CONTROL UNIT	ENGINE MAGNETIC PICKUP	ENGINE SPEED SENSING
(3)	SWITCHGEAR; GOVERNOR PRESSURE CONTROLLER (ONE UNIT ONLY)	MASTER INSTRUMENTATION PANEL SELECTOR SWITCH	4-20 mA CONTROL SIGNAL SUPPLY
(4)	ENGINE CONTROL PANEL	MASTER INSTRUMENTATION PANEL	INDICATION AND ANNUNCIATION
(5)	ENGINE CONTROL PANEL	MOTOR CONTROL CENTER	INTERLOCK AND CONTROL
(6)	GENERATOR TEMPERATURE DETECTORS	SWITCHGEAR; GENERATOR PANEL	TEMPERATURE INDICATION
(7)	ENGINE CONTROL PANEL	SWITCHGEAR; GENERATOR PANEL	INTERLOCK AND SHUTDOWN
—	REMOTE SENSING DEVICES	ENGINE CONTROL PANEL	INDICATIONS AND ALARMS
—	ENGINE SENSING DEVICES	ENGINE CONTROL PANEL	INDICATIONS, ALARMS, THERMOCOUPLES & TUBING

NOTE:
ALL INTERCONNECTING CABLES SHALL BE OF SIZE, QUANTITY AND TYPE RECOMMENDED BY COMPONENT MANUFACTURERS. SEE RESPECTIVE SHOP DRAWINGS. PROVIDE A MINIMUM OF 20 PERCENT SPARE CONDUCTORS.



FUSIBLE PANEL DC DIAGRAM
(125 VDC)

NOTES
1. ALL BRANCH CIRCUITS SHALL BE 2 #12 - 3/4"C.
2. PANEL MAIN BUS SHALL BE RATED AT 100A. PANEL SHALL BE SUITABLE FOR SURFACE MOUNTING WITH DIMENSIONS AS REQUIRED.

MAIN FLOOR PLAN
3/16"=1'-0"

** CONTROL CABINETS LOCATED PER SUBMITTALS
* RFI #89

REV.	DATE	BY	DESCRIPTION
2	30 NOV 89	JRN/DEY	IN SERVICE 1989 AS BUILT INSP. D.Nguyen
1	FEB 84	JRN/DEY	AS-BUILT

DESIGNED DTN
DRAWN JRN/DEY
CHECKED GOH
DATE FEB. 1983

APPROVED BY: Walter R. Howard 8/14/89
PARTNER P.E. NO.
Sawan Liddar M18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
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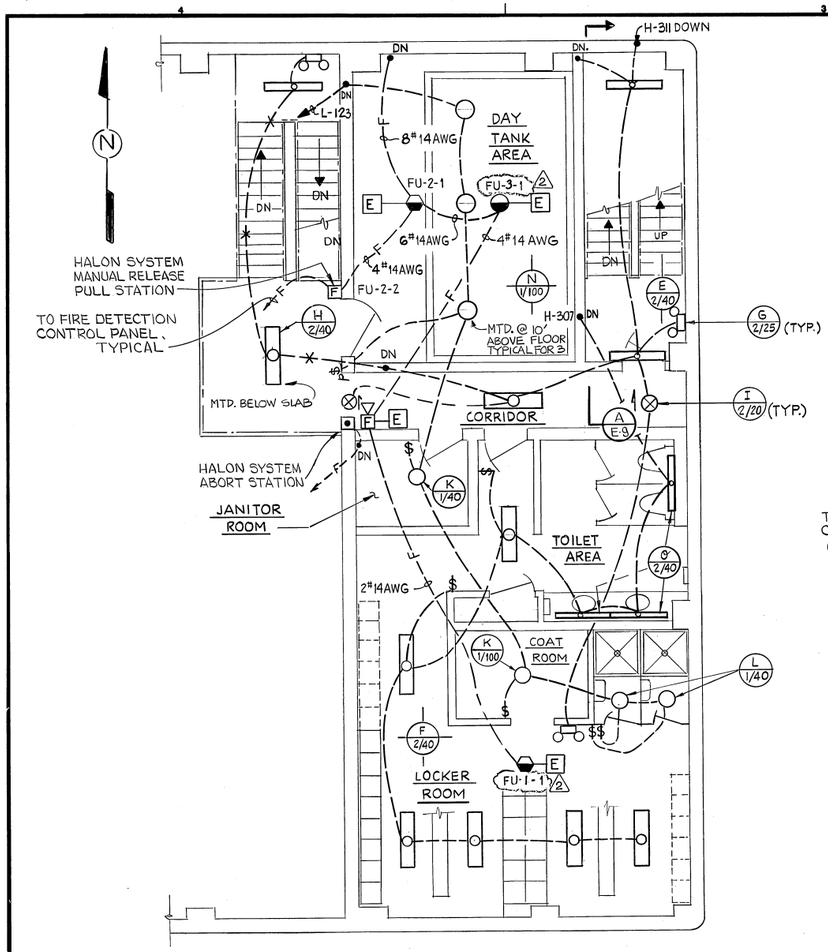
EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

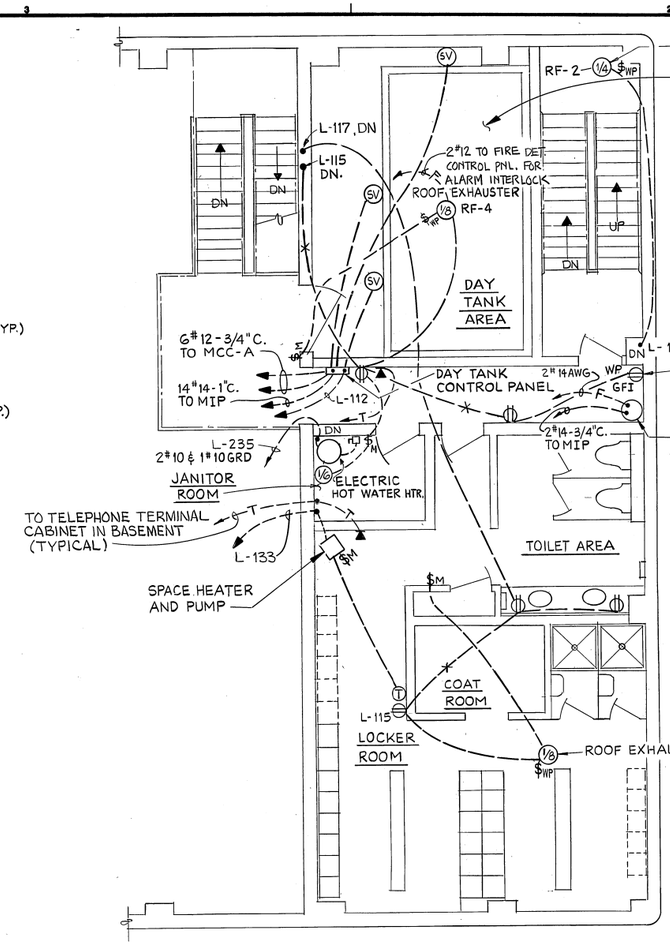
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
POWER PLAN AND DETAIL - MAIN FLOOR

JOB NO. W 02401A12
DRAWING NO. JC-E-7
SHEET NO. 88 OF 106



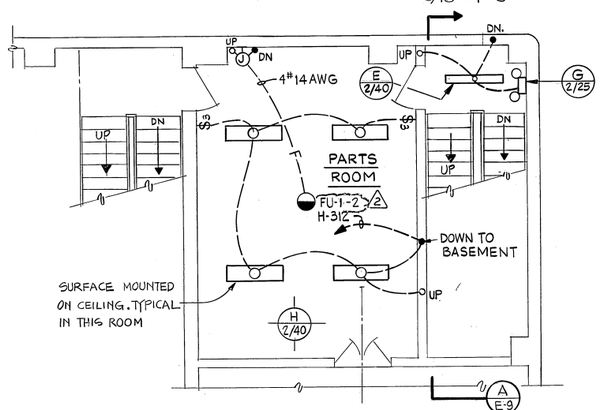
PLAN AT ELEV 127.5

3/16"=1'-0"



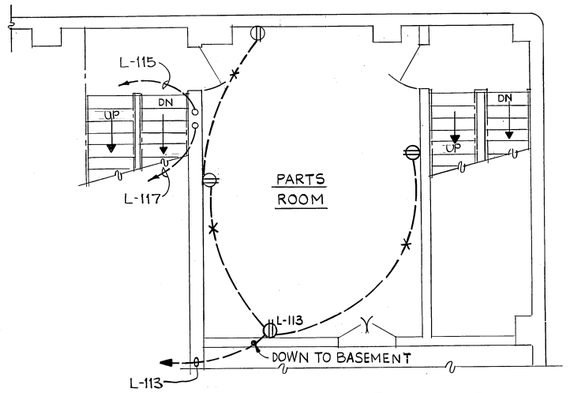
PLAN AT ELEV 127.5

3/16"=1'-0"



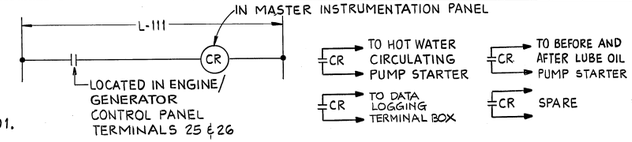
PLAN AT ELEV 118.75

3/16"=1'-0"

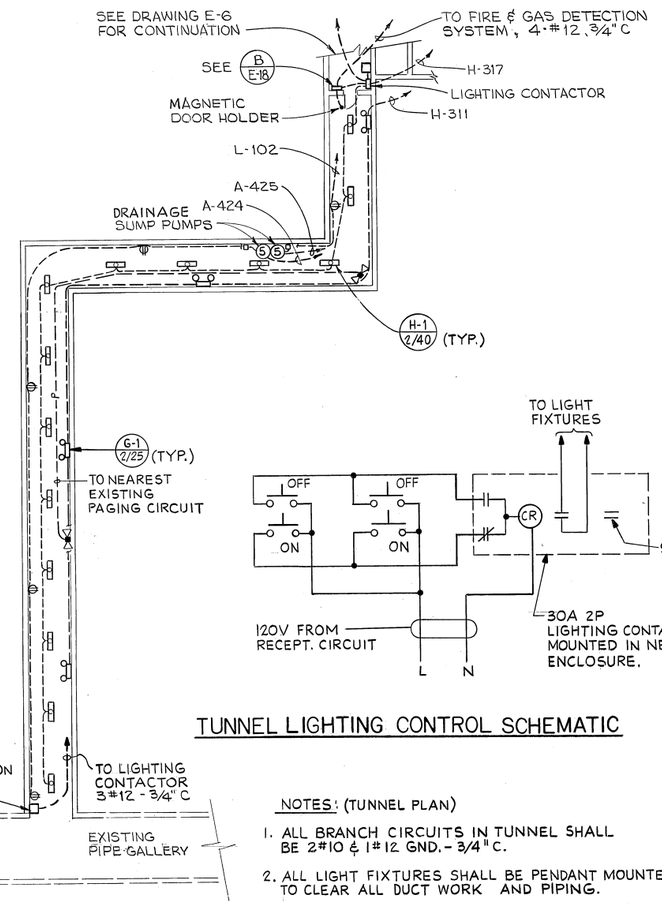


PLAN AT ELEV 118.75

3/16"=1'-0"



A ENGINE/GENERATOR RUN INTERPOSING CONTROL SCHEMATIC (TYPICAL FOR 3)



TUNNEL LIGHTING CONTROL SCHEMATIC

TUNNEL PLAN

SCALE 1/16"=1'-0"

NOTES: (TUNNEL PLAN)

1. ALL BRANCH CIRCUITS IN TUNNEL SHALL BE 2#10 & 1#12 GND.-3/4"C.
2. ALL LIGHT FIXTURES SHALL BE PENDANT MOUNTED TO CLEAR ALL DUCT WORK AND PIPING.
3. ELECTRICAL INSTALLATION, EQUIPMENT, LIGHT FIXTURES ETC. SHALL BE SUITABLE FOR USE IN CLASS 1 DIVISION 2 LOCATION.
4. ALL SIMPLEX E.P. CBC 12 RECEPTACLE BOXES SHALL BE MOUNTED W/THE LONGER DIMENSION HORIZONTAL @ 52" ABOVE FINISHED FLOOR.
5. FOR CLARITY, FEEDER F-6 IS NOT SHOWN. SEE DWG. NO. E-2 FOR ADDITIONAL EQUIPMENT AND CONDUIT LOCATED IN TUNNEL.

RFI # 65

~HEIGHTS OF OUTLETS~

1. ELECTRICAL PAN. 12" ABOVE FINISHED FLR.
2. LOCKER ROOM 6" ABOVE SINK
3. TUNNEL 52" ABOVE FINISHED FLOOR.

REV.	DATE	BY	DESCRIPTION
12	30NOV89	RYE	1987 SERVICE AS BUILT INSP. D.Nguyen
	FEB 86	JC	As-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. 16048
PROJECT ENGINEER Stanley L. Wilson P.E. M12392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOFF, P.E.

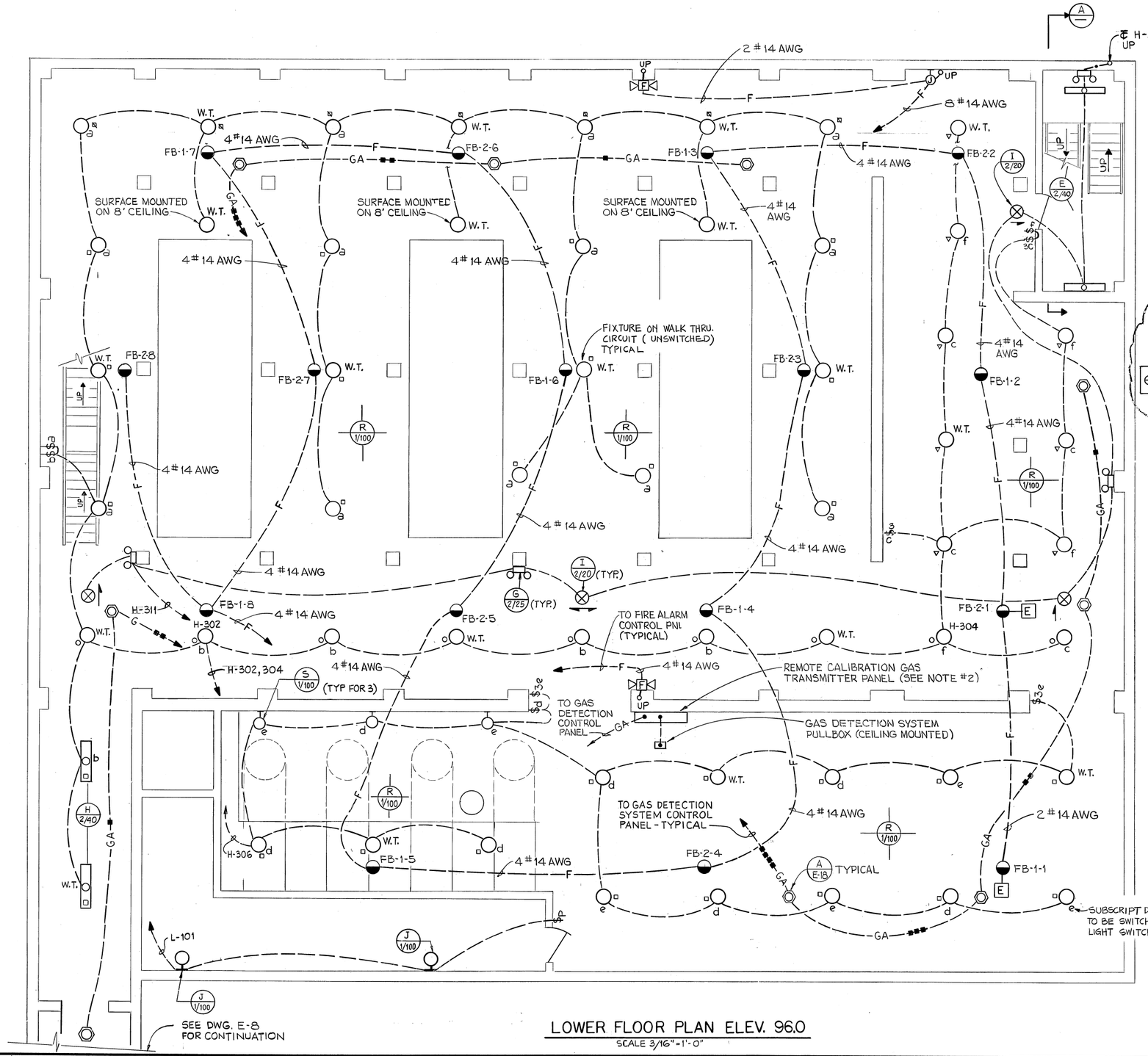
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
POWER AND LIGHTING PLANS
PARTIAL FLOORS AND TUNNEL

JOB NO. W 02401A12
DRAWING NO. JC-E-8
SHEET NO. 89 OF 106

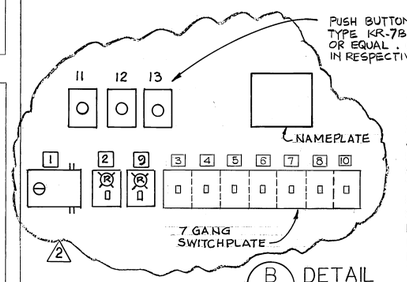
NOTES

1. FOR CLARITY, WALL MOUNTED AND FLOOR MOUNTED EQUIPMENT ARE NOT SHOWN ON THIS PLAN. SEE DRAWING E-6.
2. REFER TO DRAWING E-18 FOR COMPLETE GAS DETECTION SYSTEM RISER DIAGRAM.
3. THESE MOUNTING HEIGHT SYMBOLS ARE APPLICABLE TO FIXTURES TYPE 'H' ON THIS SHEET ONLY. OTHER MOUNTING HEIGHTS ARE AS SHOWN OR INDICATED ON THE PLANS.
   - ▫ 10' ABOVE FINISHED FLOOR
   - ▿ 9' ABOVE FINISHED FLOOR
   - ○ 7½' ABOVE FINISHED FLOOR
   - ⊠ 8½' ABOVE FINISHED FLOOR



LOWER FLOOR PLAN ELEV. 96.0

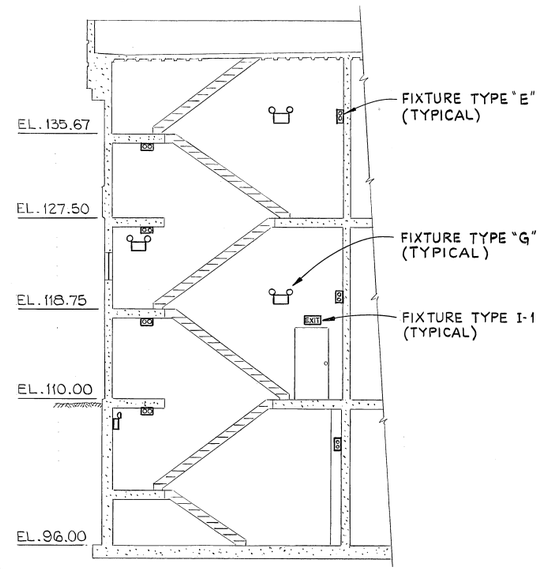
SCALE 3/16"=1'-0"



NAMEPLATE SCHEDULE

1. HEAT PUMP CONTROL STATION
2. GAS COMPRESSOR AREA EXHAUST FAN
3. ENGINE ROOM LIGHTS
4. ENGINE ROOM LIGHTS
5. ENGINE ROOM LIGHTS
6. GAS COMPRESSOR AREA LIGHTS
7. EXTERIOR LIGHTS - NORTH SIDE
8. EXTERIOR LIGHTS - EAST, WEST, SOUTH SIDES
9. TRANSFORMER ROOM - EXHAUST FAN
10. EBMUD LOGO LIGHT
11. ENGINE #1 - EMERGENCY SHUTDOWN
12. ENGINE #2 - EMERGENCY SHUTDOWN
13. ENGINE #3 - EMERGENCY SHUTDOWN

B — DETAIL
NOT TO SCALE



A — SECTION THRU STAIRWELL
1/8" = 1'-0"

CCO #41
MOVE LIGHT FIXTURES TO A LOCATION ABOVE HOT WATER CIRC. PUMPS FROM BELOW LUBE OIL SUMPS.

REV.	DATE	BY	DESCRIPTION
2	1 DEC 89	RYE	IN SERVICE 1987 AS BUILT INSP. D.Nguyen
	FEB86	XS	As-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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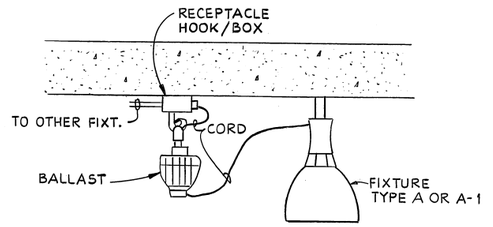
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
LIGHTING PLAN
LOWER FLOOR

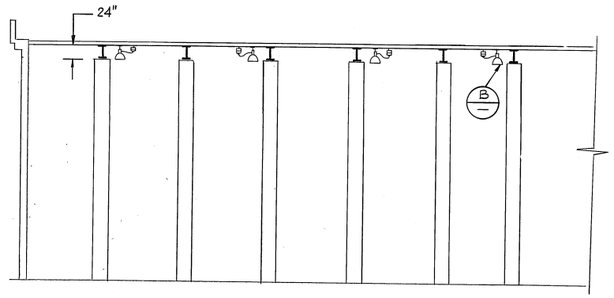
JOB NO. W 02401A12
DRAWING NO. JC-E-9
SHEET NO. 90 OF 106

NOTES

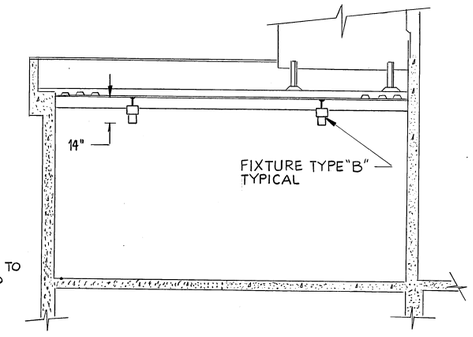
1. FOR CLARITY, FLOOR MOUNTED AND WALL MOUNTED EQUIPMENT ARE NOT SHOWN ON THIS PLAN. SEE DRAWING E-7.
2. ALL FIXTURES TYPE "M" IN MAINTENANCE ROOM SHALL BE MOUNTED AT 14' ABOVE FINISHED FLOOR.
3. DETAIL SHOWN IS FOR REFERENCE ONLY. EXACT MOUNTING METHOD & REQUIRED ACCESSORIES SHALL BE PER MANUFACTURERS' RECOMMENDATION.



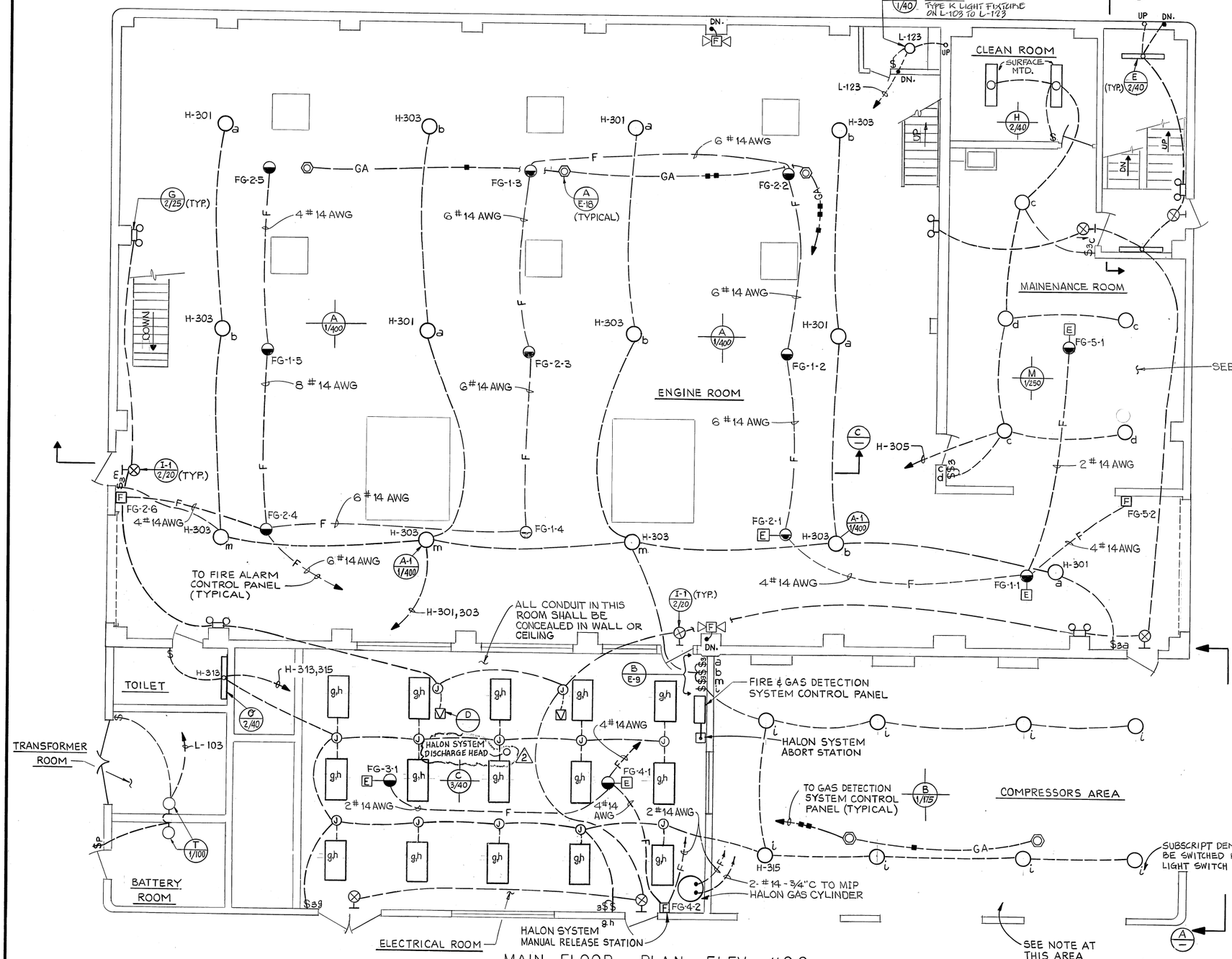
B — DETAIL
SEE NOTE #3



C — FIXTURES "A" MOUNTING DETAIL



A — SECTION



MAIN FLOOR PLAN ELEV 110.0
SCALE 3/16" = 1'-0"

REV.	DATE	BY	DESCRIPTION
2	1 DEC 89	RYE	IN SERVICE: 1987 AS BUILT INSP. D. Nguyen
	FEB 86	XV	As-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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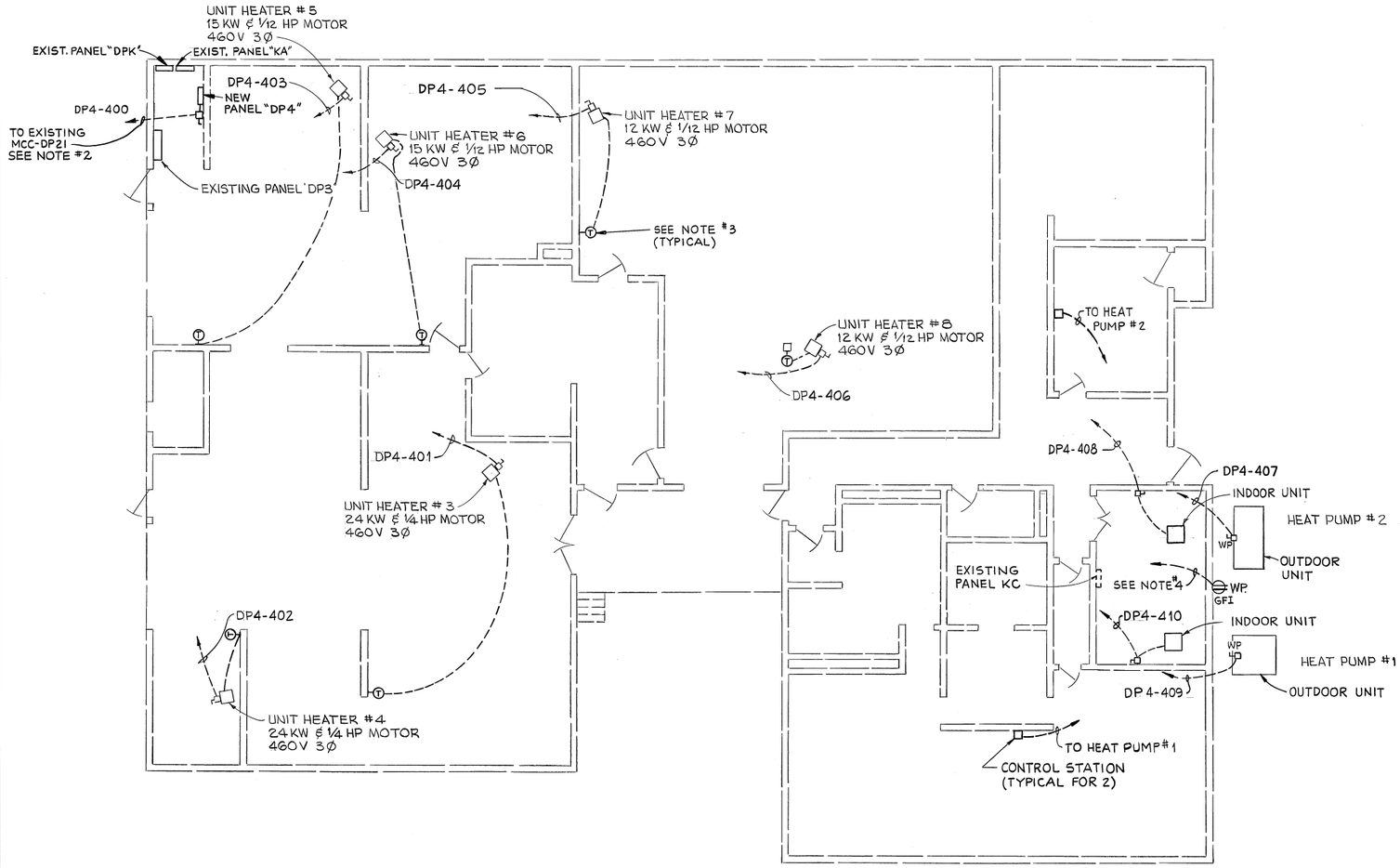
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOFF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
LIGHTING PLAN - MAIN FLOOR

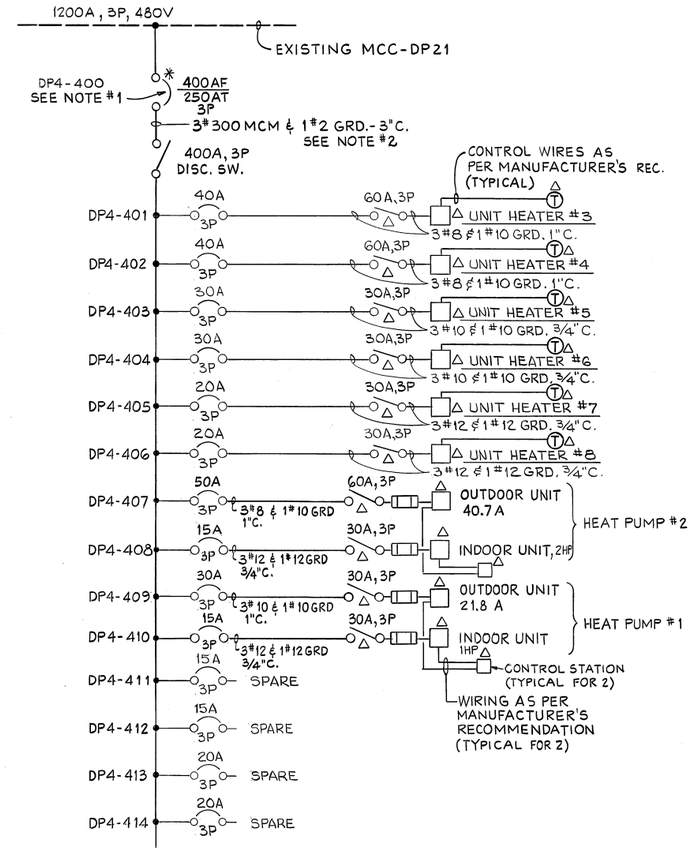
JOB NO. W 02401A12
DRAWING NO. JC-E-10
SHEET NO. 91 OF 106

N81006

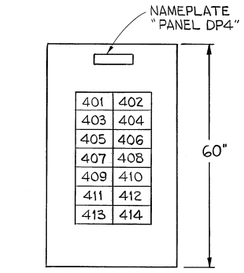


A PLAN-EXISTING MAINTENANCE BUILDING

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



SINGLE LINE PANEL DP4



PANEL-DP4
FRONT ELEVATION

NOTES:

1. PROVIDE AND INSTALL IN EXISTING SPACE IN EXISTING MOTOR CONTROL CENTER MCC-DP21 NEW CIRCUIT BREAKER NOTED TO FEED NEW PANEL PD4.
2. NEW CABLES SHALL BE ROUTED IN EXISTING CONDUIT. VERIFY EXISTING.
3. REMOVE EXISTING THERMOSTATS & ASSOSCIATED WIRING INSTALL NEW ONES AS SHOWN.
4. CONNECT HOMERUN TO EXISTING 20 1P SPARE BREAKER IN EXISTING PANEL KC.

REV.	DATE	BY	DESCRIPTION
2	1 DEC 89	RME	IN SERVICE 1987 AS BUILT INSP. D. Nguyen
	FEB 86	XV	As-Built

DESIGNED DTN
DRAWN DEY
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
Walter R. Howard P.E. 14268
PARTNER P.E. NO.
Salvador L. Dolor M 19392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
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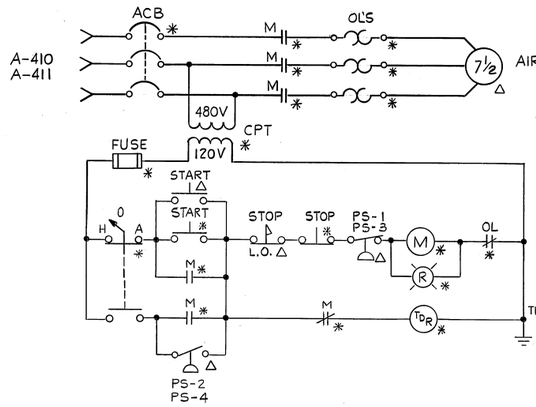
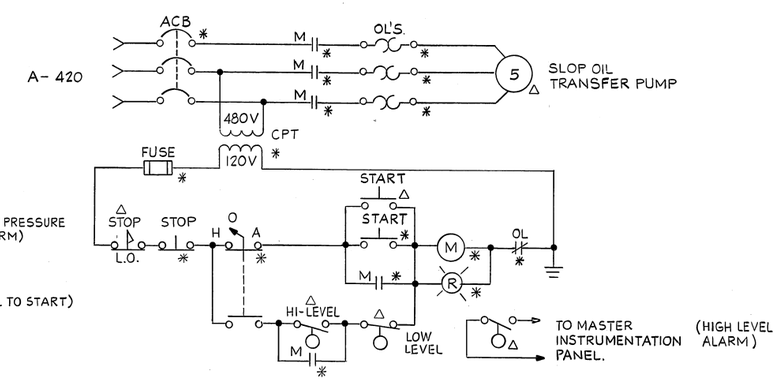
EAST BAY MUNICIPAL UTILITY DISTRICT
EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
EXISTING MAINTENANCE CENTER
POWER PLAN

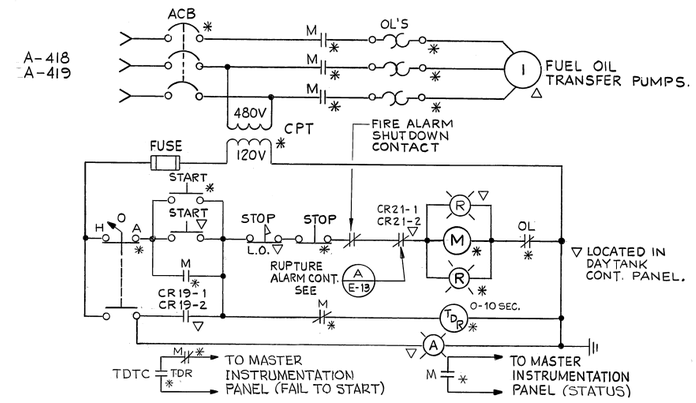
JOB NO. W 02401A12
DRAWING NO. JC-E-11
SHEET NO. 92 OF 106



AIR COMPRESSORS SCHEMATIC

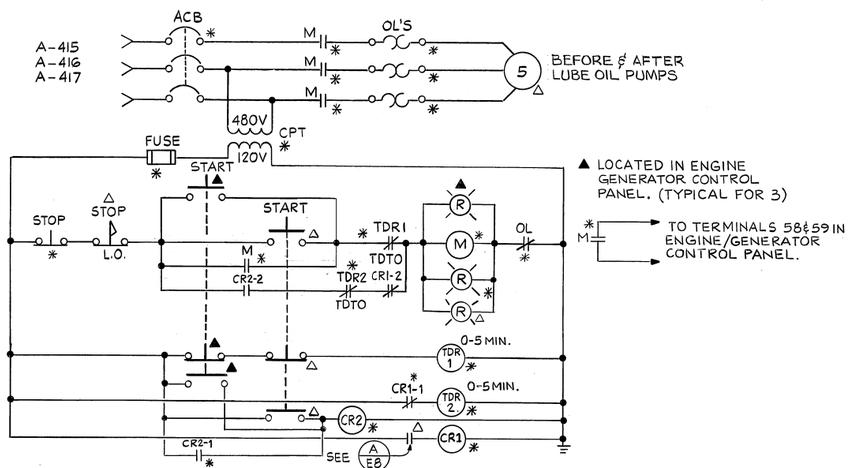


SLOP OIL TRANSFER PUMP SCHEMATIC

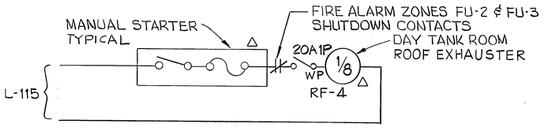


FUEL OIL TRANSFER PUMPS SCHEMATIC

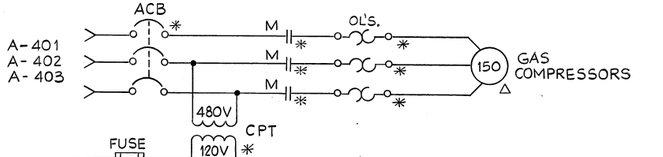
DRAINAGE SUMP PUMPS SCHEMATIC



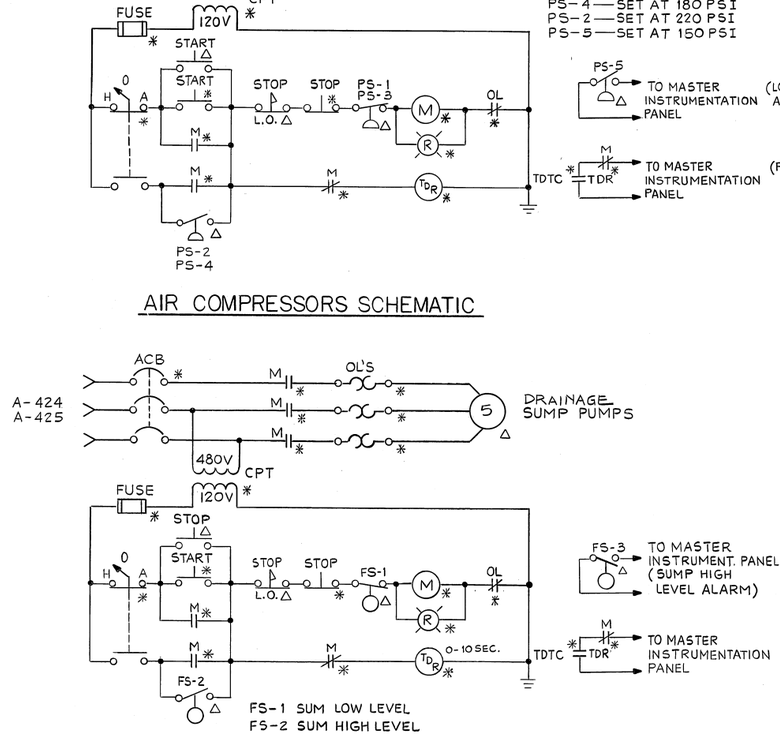
BEFORE & AFTER LUBE OIL PUMPS SCHEMATIC



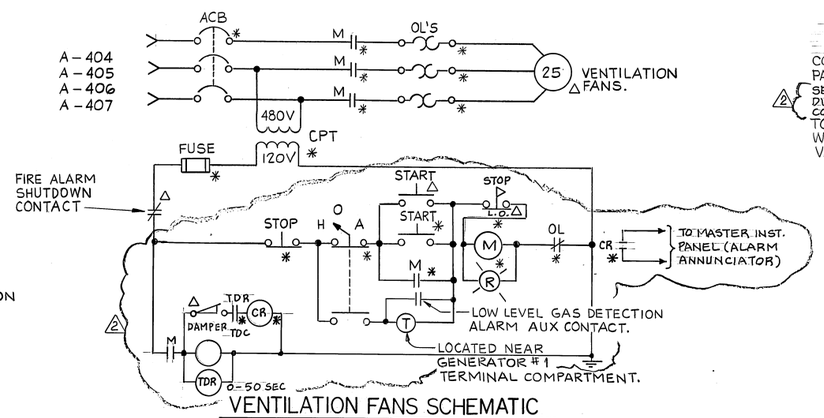
EXHAUST VENTILATOR SCHEMATIC



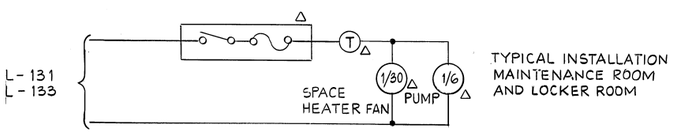
GAS COMPRESSORS SCHEMATIC



HOT WATER CIRCULATING PUMPS SCHEMATIC



VENTILATION FANS SCHEMATIC



SPACE HEATERS & PUMPS SCHEMATIC

REV.	DATE	BY	DESCRIPTION
2	1DEC89		IN SERVICE 1987 AS BUILT INSP.: D. Nguyen
1	FEB 86	XV	As-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. NO. 6808
Sullivan H. Wilson M18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

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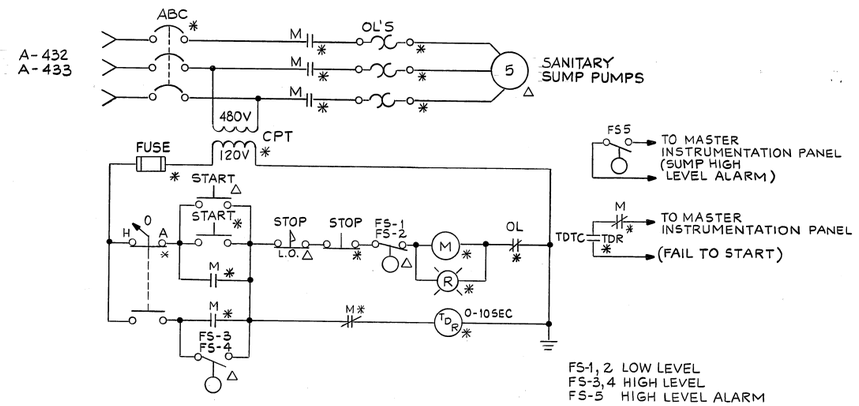
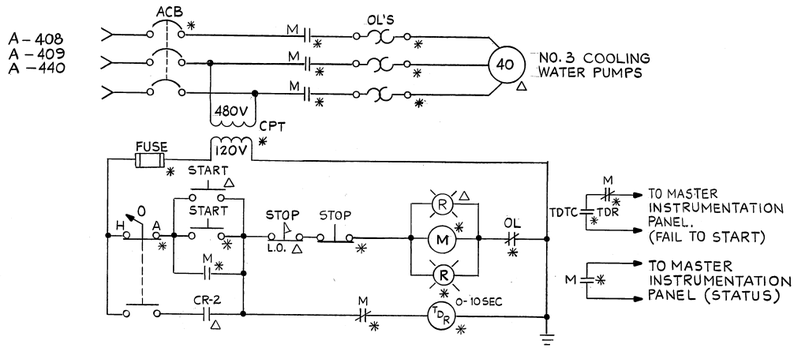
EAST BAY MUNICIPAL UTILITY DISTRICT · EBMUD

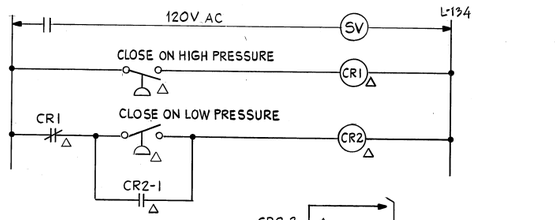
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
SCHEMATIC AND CONTROL DIAGRAMS

JOB NO. W 02401A12
DRAWING NO. JC-E-12
SHEET NO. 93 OF 106



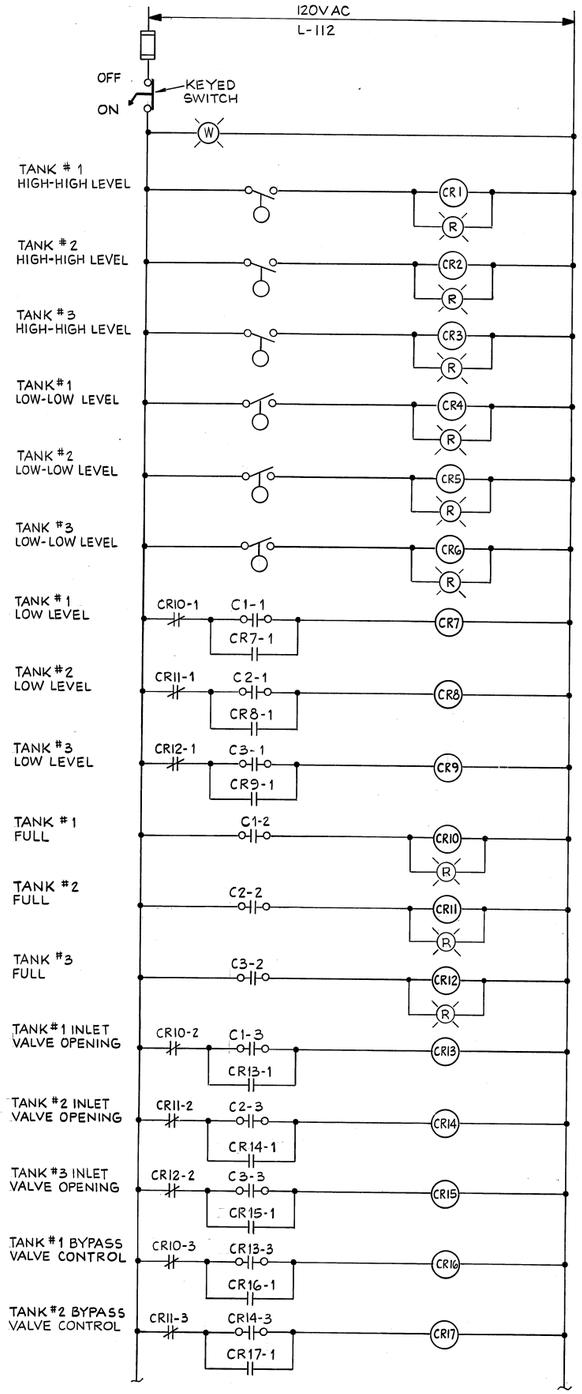
SANITARY SUMP PUMPS SCHEMATIC

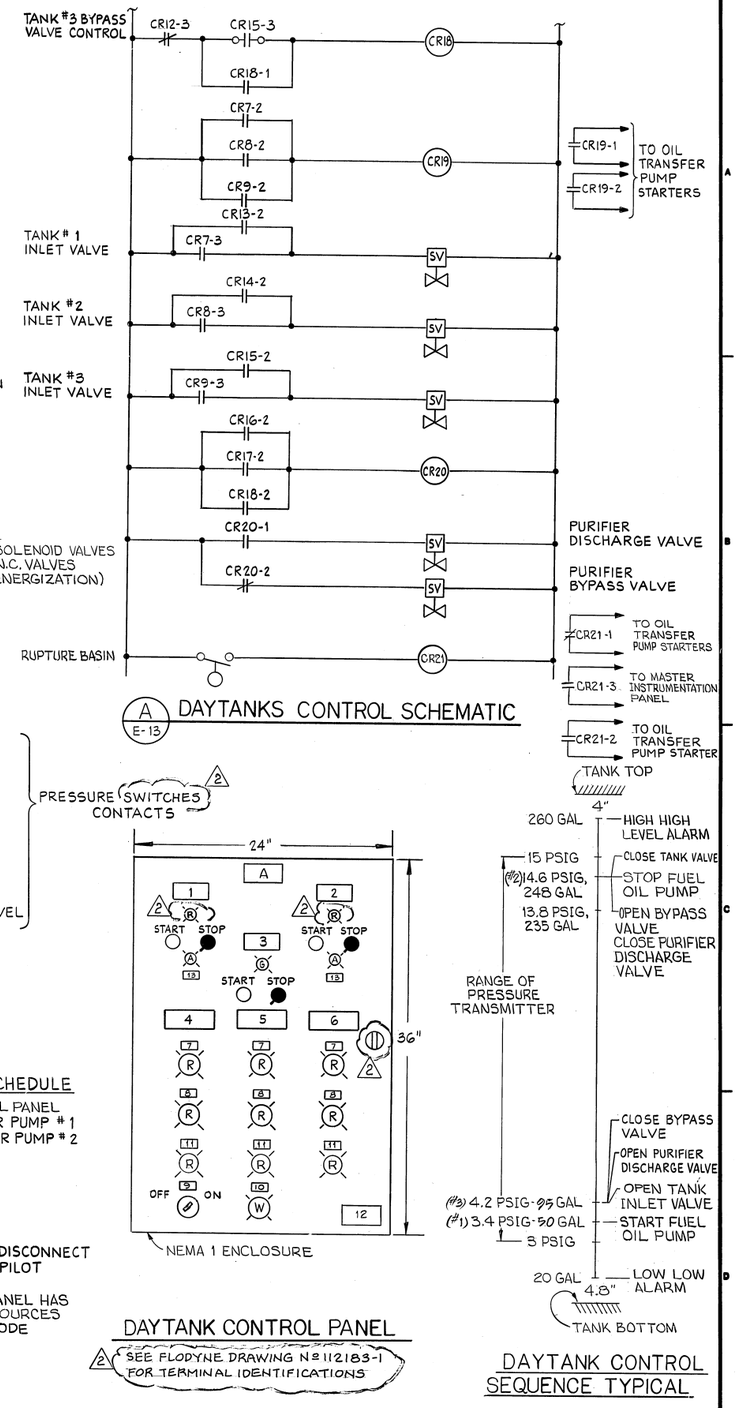




NOTE
CONTROL RELAYS CR1 & CR2 SHALL BE MOUNTED IN NEMA 1 ENCLOSURE LOCATED NEAR WATER PUMPS.

NO. 3 COOLING WATER PUMPS SCHEMATIC





NOTE
ALL SOLENOID VALVES ARE N.C. VALVES (DE-ENERGIZATION)

A DAYTANKS CONTROL SCHEMATIC
E-13

NAMEPLATE SCHEDULE

A — DAYTANK CONTROL PANEL
1 — FUEL OIL TRANSFER PUMP # 1
2 — FUEL OIL TRANSFER PUMP # 2
3 — OIL PURIFIER
4 — TANK # 1
5 — TANK # 2
6 — TANK # 3
7 — HIGH-HIGH LEVEL
8 — LOW-LOW LEVEL
9 — CONTROL POWER DISCONNECT
10 — CONTROL POWER PILOT
11 — FULL
12 — CAUTION! THIS PANEL HAS FOREIGN POWER SOURCES
13 — IN AUTOMATIC MODE

DAYTANK CONTROL PANEL

2 SEE FLODYNE DRAWING No 112183-1 FOR TERMINAL IDENTIFICATIONS

DAYTANK CONTROL SEQUENCE TYPICAL

REV.	DATE	BY	DESCRIPTION
2	1 DEC 89	RYE	IN SERVICE 1987 | AS BUILT INSP. D. Nguyen
1	FEB 86	XV	As-built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO.
E.B.M.U.D.

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EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
SCHEMATIC AND CONTROL DIAGRAMS

JOB NO. W 02401A12
DRAWING NO. JC-E-13
SHEET NO. 94 OF 106

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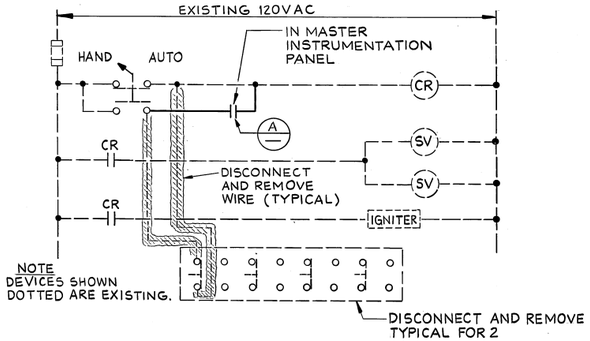
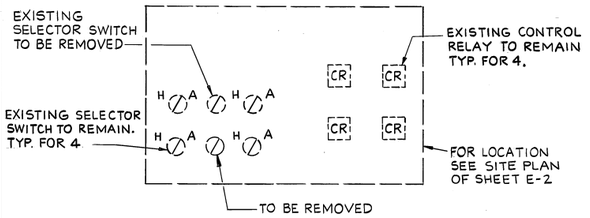
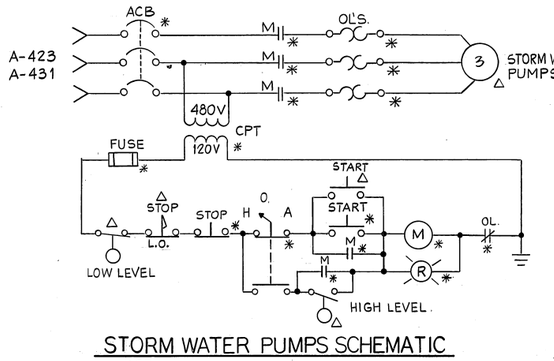


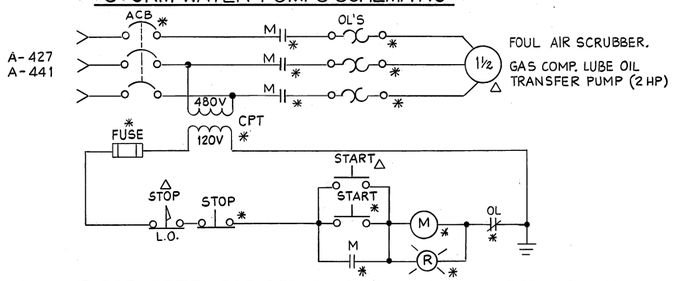
WASTE GAS BURNER CONTROL MODIFICATIONS
(TYPICAL FOR 4)



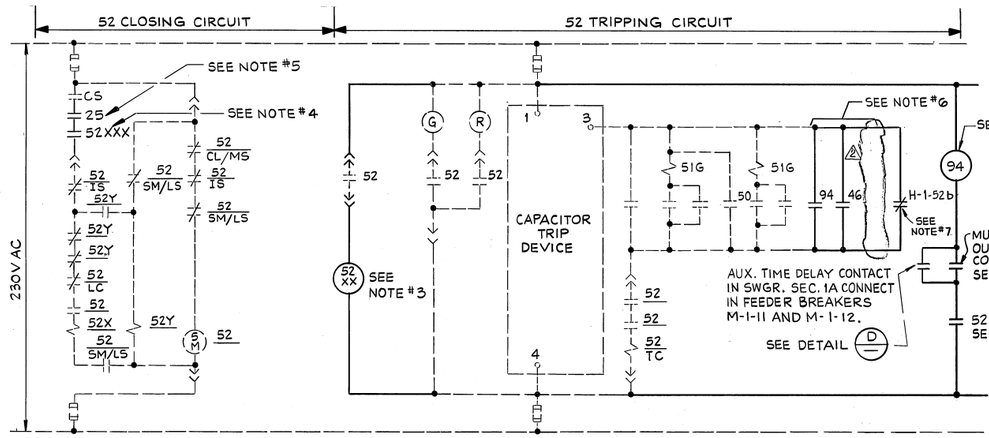
WASTE GAS BURNER CONTROL PANEL MODIFICATIONS



STORM WATER PUMPS SCHEMATIC

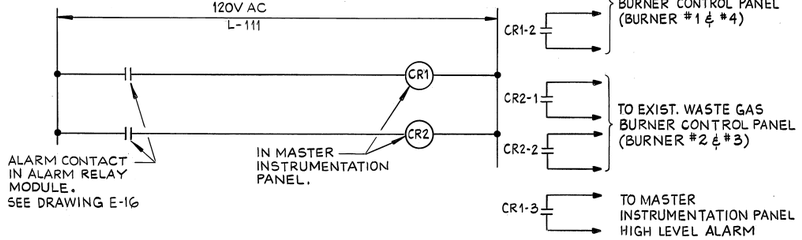


FOUL AIR SCRUBBER & GAS COMP. TRANSFER PUMP SCHEMATIC

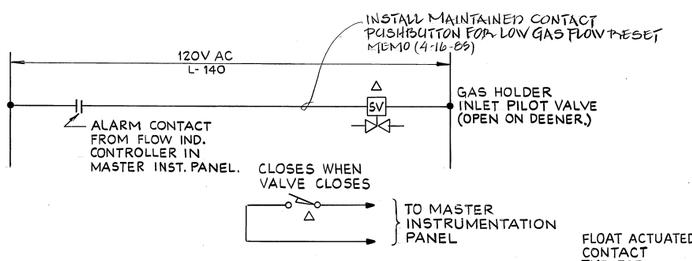


CIRCUIT BREAKER CONTROL SCHEMATIC
SUBSTATION SWITCHGEAR M-1

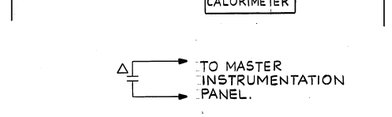
NOTE: SEE DWG SP-1006-D FOR INTERLOCKING OF CIRCUIT BREAKERS 52-5, 52-25 AND 52-9.



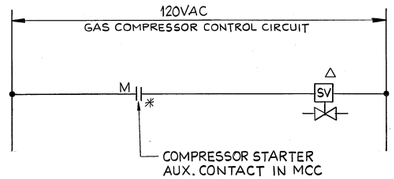
(A) WASTE GAS BURNER CONTROL SCHEMATIC



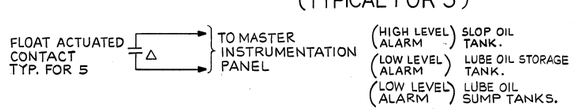
(B) GAS HOLDER INLET VALVE CONTROL



GAS CALORIMETER SCHEMATIC



(C) INTERCOOLER WATER INLET VALVE CONTROL
(TYPICAL FOR 3)



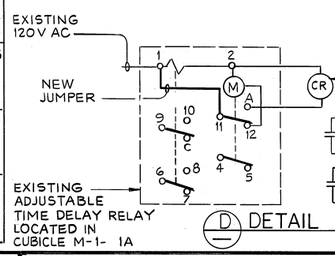
SLOP, LUBE OIL SUMP & STORAGE TANKS

RELAY SCHEDULE
MODIFICATIONS TO SWITCHGEAR M-1

DEVICE NO.	MFR. OR EQUAL.	MODEL NO.	SETTING	FUNCTION
25	BASLER ELECTRIC	PRS 150	—	SYNCHRONISM VERIFICATION. AT 52-1 AND 52-21 CLOSURE ON DEAD BUS PERMITTED, AT 52-9 CLOSURE ON DEAD LINE PERMITTED.
2				
46	GENERAL ELECTRIC CO.	12IJC-51B4A	—	REVERSE PHASE AND PHASE BALANCE RELAY TO PROTECT AGAINST LOSS OF ONE PHASE.
50/51	GENERAL ELECTRIC CO.	12IFC-77B3A		OVER CURRENT PROTECTION ON GENERATING PLANT TIE LINE
51G	GENERAL ELECTRIC CO.	12IFC 53A2A		GROUND OVERCURRENT PROTECTION ON GENERATING PLANT TIE LINE.
52 XX	GENERAL ELECTRIC CO.	12HGA 111J8	—	ENABLES LOAD SHEDDING WHEN BUS TIE BREAKER IS CLOSED. DUPLICATE FOR REQUIRED QUANTITY OF CONTACTS.
52XXX	GENERAL ELECTRIC CO.	12HGA 111J8	—	SUPERVISORY RELAY TO PREVENT CLOSURE WITH OUT INCOMING VOLTAGE.
94	GENERAL ELECTRIC CO.	12HGA 111J8	—	INTERPOSING AUXILIARY TRIPPING RELAY BETWEEN MULTIPLEX CONTROL RECEIVER AND FEEDER CIRCUIT BREAKER TRIP CIRCUIT.
CR	GENERAL ELECTRIC CO.	12HGA 111J8	—	AUXILIARY TRIPPING RELAY FOR TIME DELAY TRIPPING OF BRKRS. M-1-11 & M-1-12 FOR LOAD SHED IN EVENT OF OVERLOAD OF PG&E LINE 1.

NOTES

1. MOUNT NEW TRIPPING RELAY IN EACH FEEDER BREAKER CUBICLE. SEE DRAWING E-15.
2. SEE DRAWING E-15 AND USE TRIP PRIORITY CONTACT NUMBER CORRESPONDING TO FEEDER BREAKER NUMBER.
3. INSTALL NEW AUXILIARY RELAYS 52XX ON BREAKERS M-1-5 AND M-1-25. CONNECT RELAY COILS AS SHOWN USING EXISTING BREAKER AUXILIARY SWITCH "a" CONTACT (TERMINALS 13 AND 14). CONNECT 52XX NORMALLY OPEN "a" CONTACTS IN SERIES WITH RELAY 94 COIL ONLY FOR TRIP CIRCUITS OF BREAKERS M-1-2, M-1-3, M-1-4, M-1-24, M-1-23, M-1-23, M-1-26, M-1-28, M-1-27, M-1-32, M-1-31 AND M-1-30. FOR TOTAL OF 12 BREAKERS. SEE DRAWING E-15
4. INSTALL NEW 52XXX RELAY IN MAIN INCOMING BKR'S. M-1-1 & M-1-21 ONLY. CONNECT IN SERIES WITH CLOSING CIRCUIT. SEE DRAWING E-15.
5. INSTALL NEW SYNCHRONISM VERIFICATION RELAY DEVICE 25, IN BRK'S. M-1-1 & M-1-21 ONLY. CONNECT AS SHOWN.
6. INSTALL NEW (REVERSE POWER RELAYS) DEVICE 32 & PHASE BALANCE RELAYS, DEVICE 46 IN BREAKERS M-1-1 & M-1-21 ONLY. CONNECT AS SHOWN.
7. CONNECT EXISTING SPARE "b" AUXILIARY CONTACT IN 12KV BREAKER H-1-1 IN PARALLEL WITH TRIPPING CONTACTS OF BREAKER M-1-1 AS SHOWN, CONNECT EXISTING "b" AUXILIARY CONTACT OF H-1-2, IN PARALLEL WITH TRIPPING CONTACTS OF BREAKER M-1-21 AS SHOWN. SEE DRAWING E-2 FOR CONDUIT.



(D) DETAIL

REV.	DATE	BY	DESCRIPTION
2	1 DEC 89	RYE	IN SERVICE 1987 AS BUILT INSP. D. Nguyen
1	FEB 86	XV	AS-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER — P.E. NO.
PROJECT ENGINEER — P.E. NO. M18392
E.B.M.U.D.

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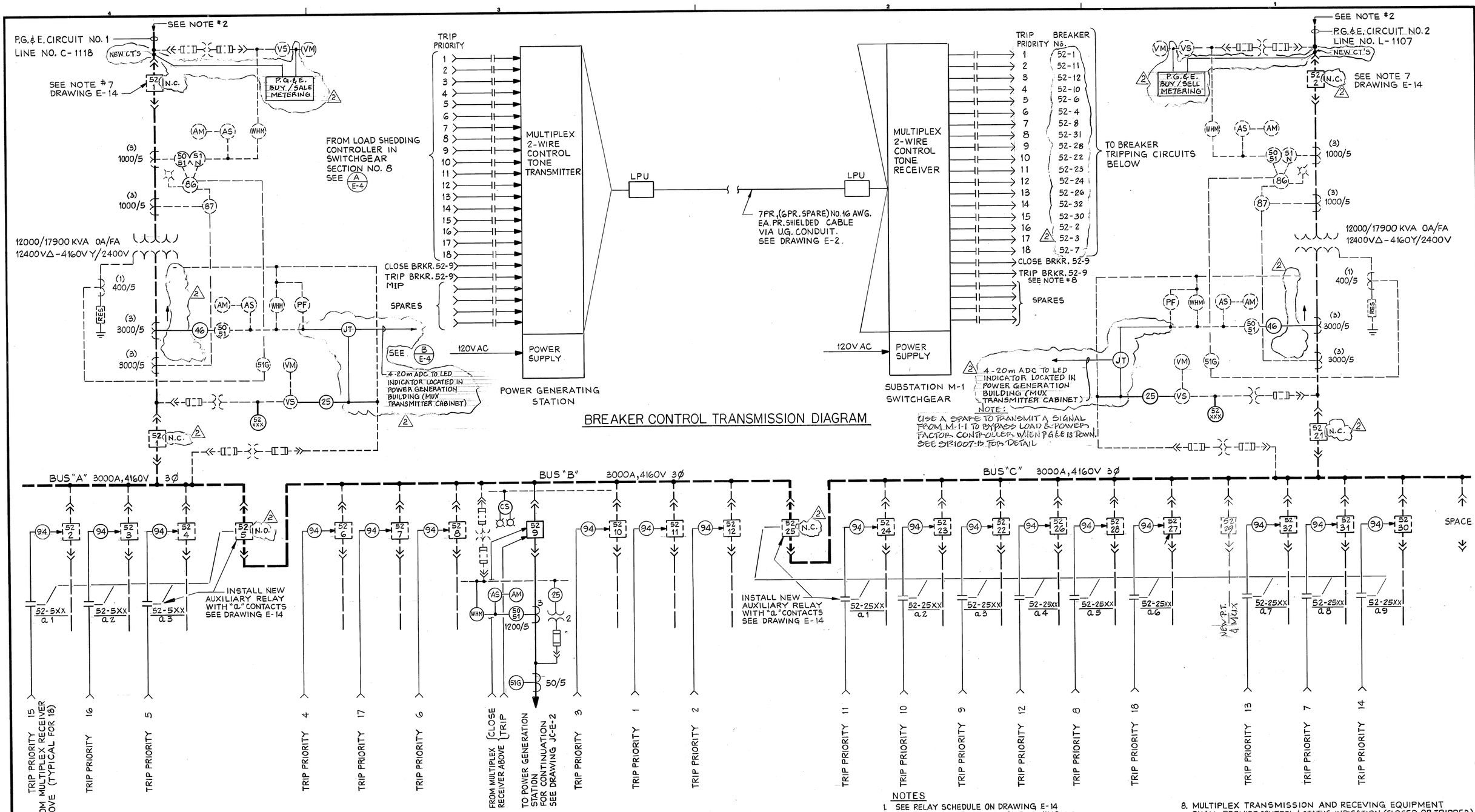
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
SCHEMATIC AND CONTROL DIAGRAMS

JOB NO. W 02401A12
DRAWING NO. JC-E-14
SHEET NO. 95 OF 106

ABCDEFGHJKLMNPQRSUVWXYZ



BREAKER CONTROL TRANSMISSION DIAGRAM

SINGLE LINE DIAGRAM - SWITCHGEAR M-1

NOTES

1. SEE RELAY SCHEDULE ON DRAWING E-14
2. SEE SINGLE LINE LEGEND ON DRAWING E-3
3. SEE DRAWING E-21 FOR WORK INVOLVING P.G.&E. FEEDER MODIFICATIONS.
4. LOCATE PT'S. AND MULTIPLEX RECEIVER IN SPARE COMPARTMENT 29. SEE DRAWING E-21
5. FOR CONTROL TRANSMISSION AND RECEVING EQUPMENT DETAILS SEE SPECIFICATIONS.
6. FOR CONTROL SCHEMATIC DIAGRAM SEE DRAWING E-14
7. FOR LOCATION OF MULTIPLEX TRANSMITTER SEE DRAWING E-7 (ELECTRICAL ROOM)
8. MULTIPLEX TRANSMISSION AND RECEVING EQUIPMENT SHALL PROVIDE CONTROL & STATUS INDICATION (CLOSED OR TRIPPED) FOR CIRCUIT BREAKER 52-9 AT THE MASTER INSTRUMENTATION PANEL IN THE POWER GENERATING STATION.
9. FOR LOCATION OF MULTIPLEX RECEIVER SEE DRAWING E-21 (SUBSTATION M-1).
10. BREAKERS M1-1, 5, 25 AND 29 ARE KEY INTERLOCKED SUCH THAT ONLY 3 MAY BE CLOSED AT ANY ONE TIME.

REV.	DATE	BY	DESCRIPTION
2	4DEC89	RYE	IN SERVICE 1989 AS BUILT ISSD. D.Nguyen
	FEB 86	XV	As-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. 16508
PROJECT ENGINEER Salwan Li Wason P.E. M18392
E.B.M.U.D.

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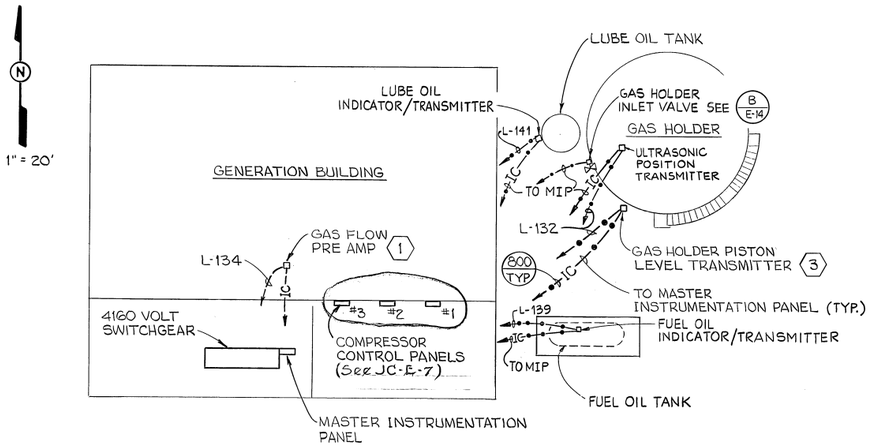
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
LOAD SHEDDING AND CONTROLS

JOB NO. W 02401A12
DRAWING NO. JC-E-15
SHEET NO. 96 OF 106

A B C D E F G H J K L M N P Q R S U V W X Y Z

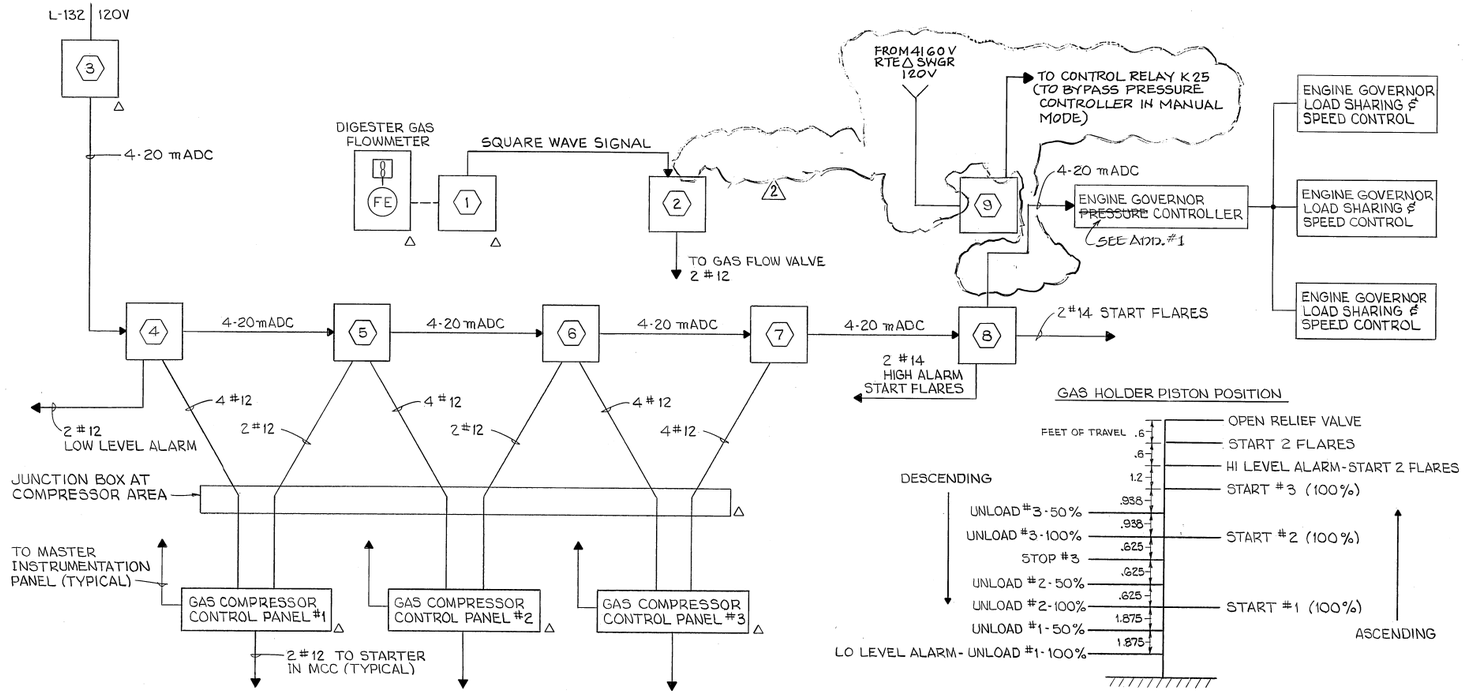


LOCATION PLAN

NOTES

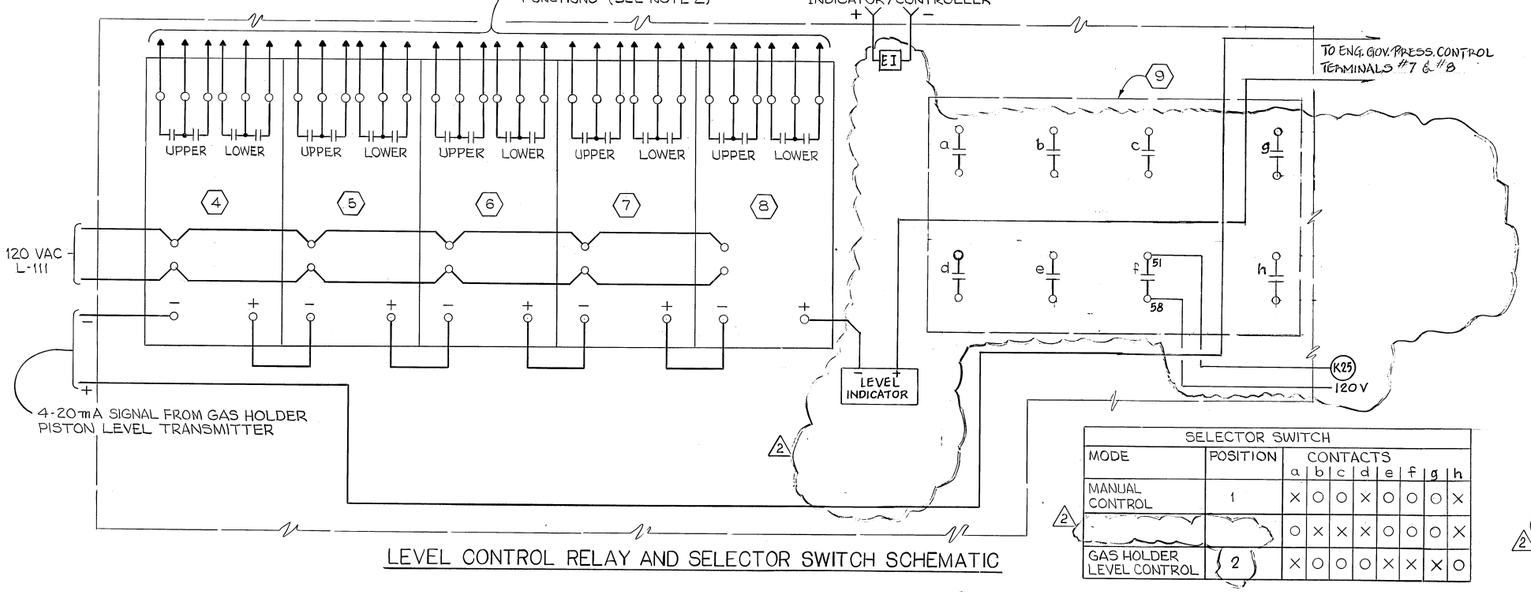
1. THE SET POINT OF EACH SECTION OF EACH RELAY MODULE SHALL BE FIELD ADJUSTED TO THE LOOP CURRENT CORRESPONDING TO THE GAS HOLDER PISTON POSITION INDICATED, THE LOOP CURRENT SHALL BE DETERMINED BY ACTUAL FIELD OBSERVATION.

2. COMPRESSOR CONTROL PANELS SHALL BE PROVIDED WITH INTERPOSING RELAYS BETWEEN OUTPUT SIGNALS FROM ALARM MODULES TO COMPRESSOR CONTROL CIRCUITS FOR STARTING, STOPPING, LOADING AND UNLOADING. PROVIDE STOP PUSHBUTTONS WITH LOCKOUT PROVISION



A — DIGESTER FUEL GAS COMPRESSION & FLOW CONTROL SCHEMATIC

COMPRESSOR CONTROL SEQUENCE



LEVEL CONTROL RELAY AND SELECTOR SWITCH SCHEMATIC

SELECTOR SWITCH									
MODE	POSITION	CONTACTS							
		a	b	c	d	e	f	g	h
MANUAL CONTROL	1	×	O	O	×	O	O	O	×
		O	×	×	×	O	O	O	×
GAS HOLDER LEVEL CONTROL	2	×	O	O	O	×	×	×	O

CONTROL SELECTOR SWITCH

EQUIPMENT LIST

ITEM NO.	NAME	MANUFACTURER OR EQUAL	MODEL NUMBER	FUNCTION	ENCLOSURE & MOUNTING
(1)	GAS FLOW PRE AMP	ELECTRONIC FLOWMETERS, INC.	SQ-2	TRANSMITS FLOW SIGNAL TO GAS FLOW INDICATOR / CONTROLLER	EXPLOSION PROOF, AT GAS FLOWMETER
(2)	GAS FLOW INDICATOR/ CONTROLLER	ELECTRONIC FLOWMETERS, INC.	TR-20	1. PROVIDES 4-20 mADC SIGNAL TO INDICATOR	IN MASTER INSTRUMENTATION PANEL
(3)	GAS HOLDER LEVEL TRANSMITTER	VAREC	8212P-1	TRANSMITS 4-20 mADC SIGNAL TO RELAY ALARM MODULES	EXPLOSION PROOF, AT GAS HOLDER
(4)	ALARM RELAY MODULE	MOORE INDUSTRIES	DCA/4-20mA/ DX1X4/117AC/ TT,DPDT/STD.	1. LOW LEVEL ALARM (UPPER SECTION) 2. UNLOAD COMPRESSOR #1 100% (LOWER SECTION) 3. UNLOAD COMPRESSOR #1 50% (LOWER SECTION)	STANDARD, IN MASTER INSTRUMENTATION PANEL
(5)			DCA/4-20mA/ DX2X3/117AC/ TT,DPDT/STD.	1. START COMPRESSOR #1 (UPPER SECTION) 2. UNLOAD COMPRESSOR #2 100% (LOWER SECT.) 3. UNLOAD COMPRESSOR #2 50% (LOWER SECT.)	
(6)			DCA/4-20mA/ DX1X4/117AC/ TT,DPDT/STD	1. STOP COMPRESSOR #3 - UPPER SECTION 2. UNLOAD COMPRESSOR #3 100% (LOWER SECTION) 3. START COMPRESSOR #2	
(7)			DCA/4-20mA/ DX1X4/117AC/ TT,DPDT/STD.	1. UNLOAD COMPRESSOR #3 50% - UPPER SECTION 2. START COMPRESSOR #3 - LOWER SECTION	
(8)			DCA/4-20mA/ DX2X3/117AC/ TT,DPDT/STD.	1. START 2 FLARES (UPPER SECTION) 2. HIGH LEVEL ALARM 3. START 2 REMAINING FLARES (LOWER SECTION)	
(9)	SELECTOR SWITCH	ELECTRO-SWITCH	24203D	SELECTS SIGNAL INPUT FOR GOVERNOR CONTROL	
				DELETED	

CCO #10 F.I. ELECTRICAL SWITCH

REV.	DATE	BY	DESCRIPTION
2	14DEC89	RJE	IN SERVICE 1987 AS BUILT INSP. D.Nguyen
	FEB 86	XV	As-Built

DESIGNED DTN
DRAWN DEY
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. NO. RCE 14908
PROJECT ENGINEER Salvatore L. Wason P.E. NO. M 17392
E.B.M.U.D.

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WATER POLLUTION CONTROL PLANT
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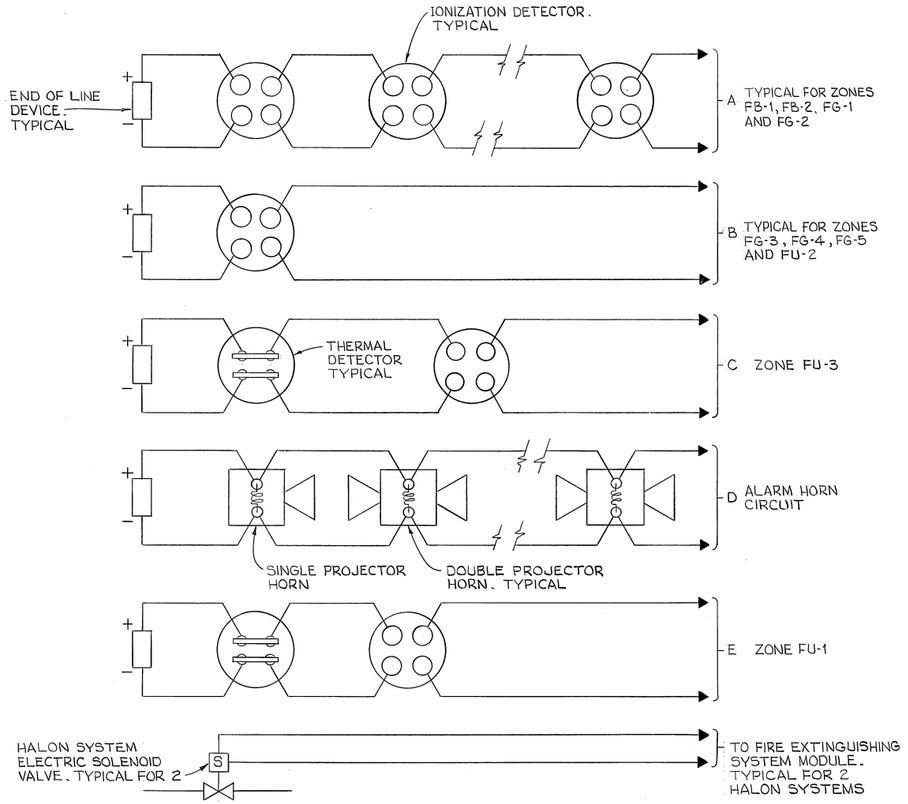
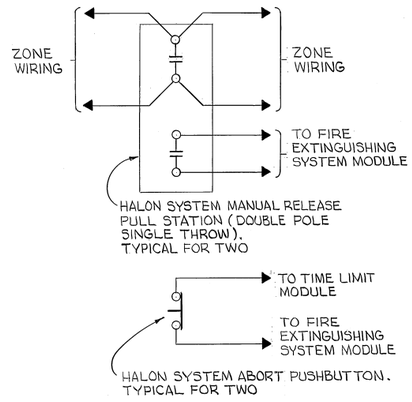
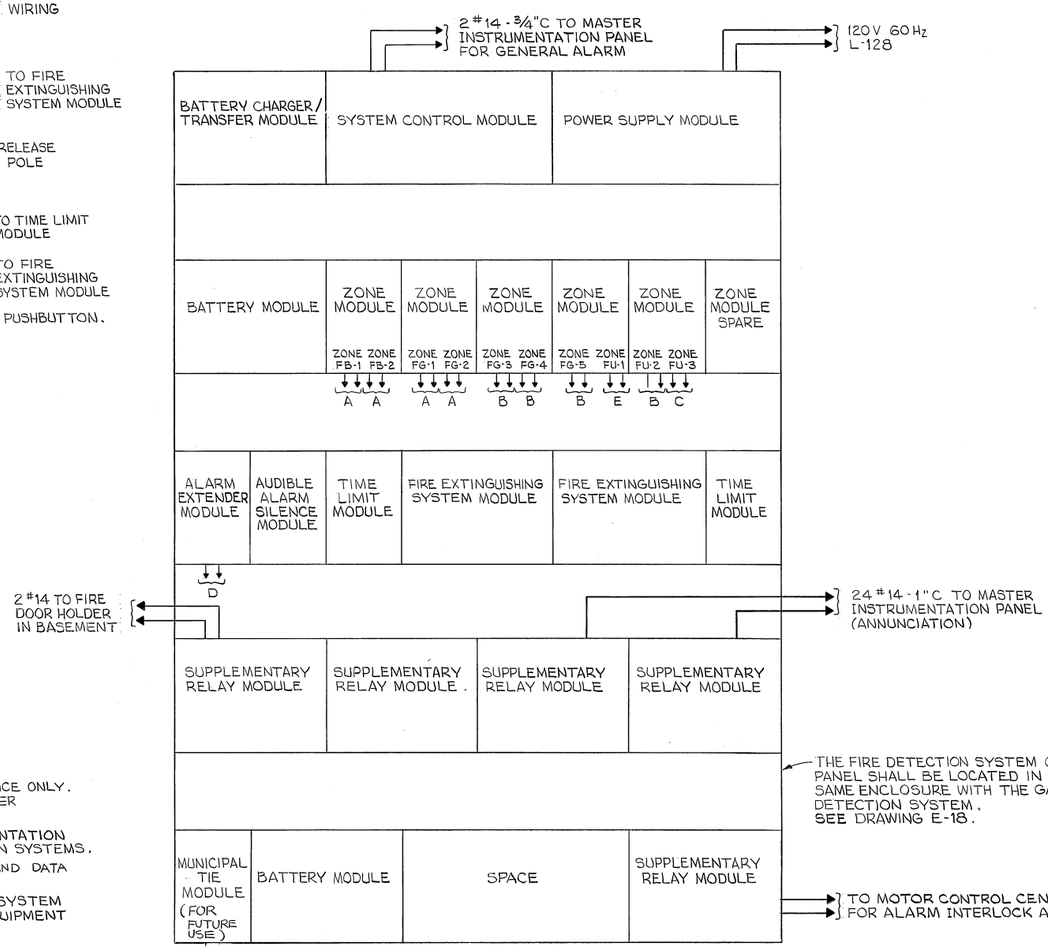
COMPRESSOR AND GAS HOLDER CONTROLS

JOB NO. W 02401A12
DRAWING NO. JC-E-16
SHEET NO. 97 OF 106







FIRE DETECTION CONTROL PANEL
NOT TO SCALE

FIRE ALARM ZONE SCHEDULE		
ZONE	AREA COVERED	NOTES
FB-1	BASEMENT	CROSS ZONING WITH FB-2
FB-2	BASEMENT	CROSS ZONING WITH FB-1
FG-1	GROUND FLOOR ENGINE ROOM	CROSS ZONING WITH FG-2
FG-2	GROUND FLOOR ENGINE ROOM	CROSS ZONING WITH FG-1
FG-3	GROUND FLOOR ELECTRICAL ROOM	CROSS ZONING WITH FG-4
FG-4	GROUND FLOOR ELECTRICAL ROOM	CROSS ZONING WITH FG-3
FG-5	GROUND FLOOR MAINTENANCE ROOM	
FU-1	UPPER FLOOR PART ROOM, LOCKER RM.	
FU-2	UPPER FLOOR DAY TANK ROOM	CROSS ZONING WITH FU-3
FU-3	UPPER FLOOR DAY TANK ROOM	CROSS ZONING WITH FU-2

GENERAL NOTES

1. THE ARRANGEMENT OF THE MODULES SHOWN IS FOR REFERENCE ONLY. ACTUAL LAYOUT AND NUMBER OF MODULES SHALL BE AS PER MANUFACTURERS' RECOMMENDATION.
2. DRY CONTACTS (NORMALLY OPEN) TO MASTER INSTRUMENTATION PANEL SHALL BE PROVIDED FOR ALL ZONES AND TWO HALON SYSTEMS.
3. DRY CONTACTS TO MASTER INSTRUMENTATION PANEL AND DATA LOGGING TERMINAL BOX FOR GENERAL ALARM
4. REFER TO SPECIFICATION DIVISION 16 - FIRE DETECTION SYSTEM FOR SPECIFIC REQUIREMENTS REGARDING FIRE ALARM EQUIPMENT SHUT-DOWN.
5. TYPICAL DEVICE IDENTIFICATION
   FB-1 - 1
   FIRE ZONE WIRING ORDER
6. REFER TO FLOOR PLANS FOR EXACT NUMBER OF DEVICES AND WIRING ORDER OF EACH FIRE ALARM ZONE. ALL CONDUITS SHOWN SHALL BE 1" UNLESS OTHERWISE NOTED.

HALON SYSTEM - LOW PRESSURE ALARM
TYPICAL FOR TWO SYSTEMS

ABCDEFGHJKLMNPQRSUVWXYZ

REV.	DATE	BY	DESCRIPTION
2	4DEC89	RYE	UN SERVICE 1987 AS BUILT INSP. D.Nguyen
	FEB86	XV	As-Built

DESIGNED DTN
DRAWN DEY
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
Walter R. Howard R.E. 14808
PARTNER P.E. NO.
Salvash Warren M18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

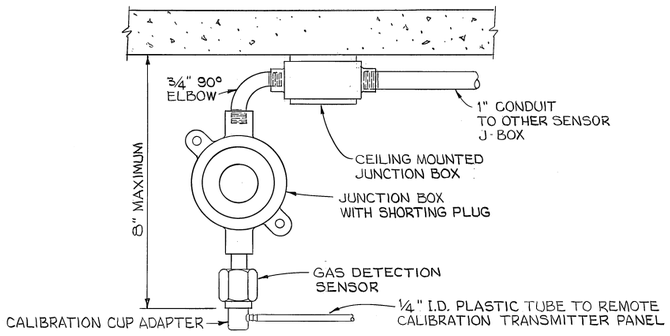
JOHN CAROLLO ENGINEERS
PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA
JOHN A. CAROLLO, P.E. (1906-1971)
H. HARVEY HUNT, P.E.
HOWARD M. WAY, P.E.
DONALD R. PREISLER, P.E.
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

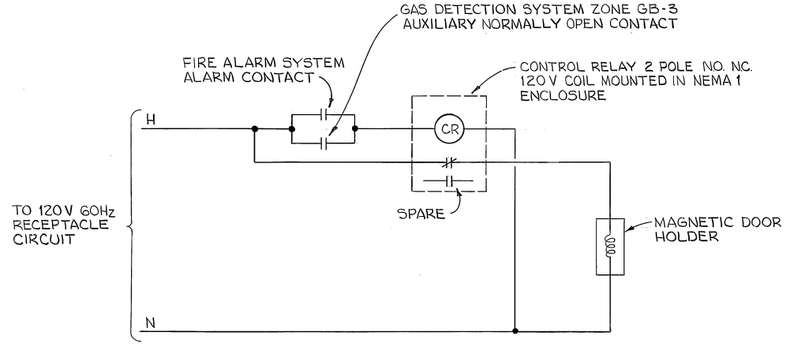
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
FIRE DECTECTION SYSTEM DIAGRAM

JOB NO. W 02401A12
DRAWING NO. JC-E-17
SHEET NO. 98 OF 106

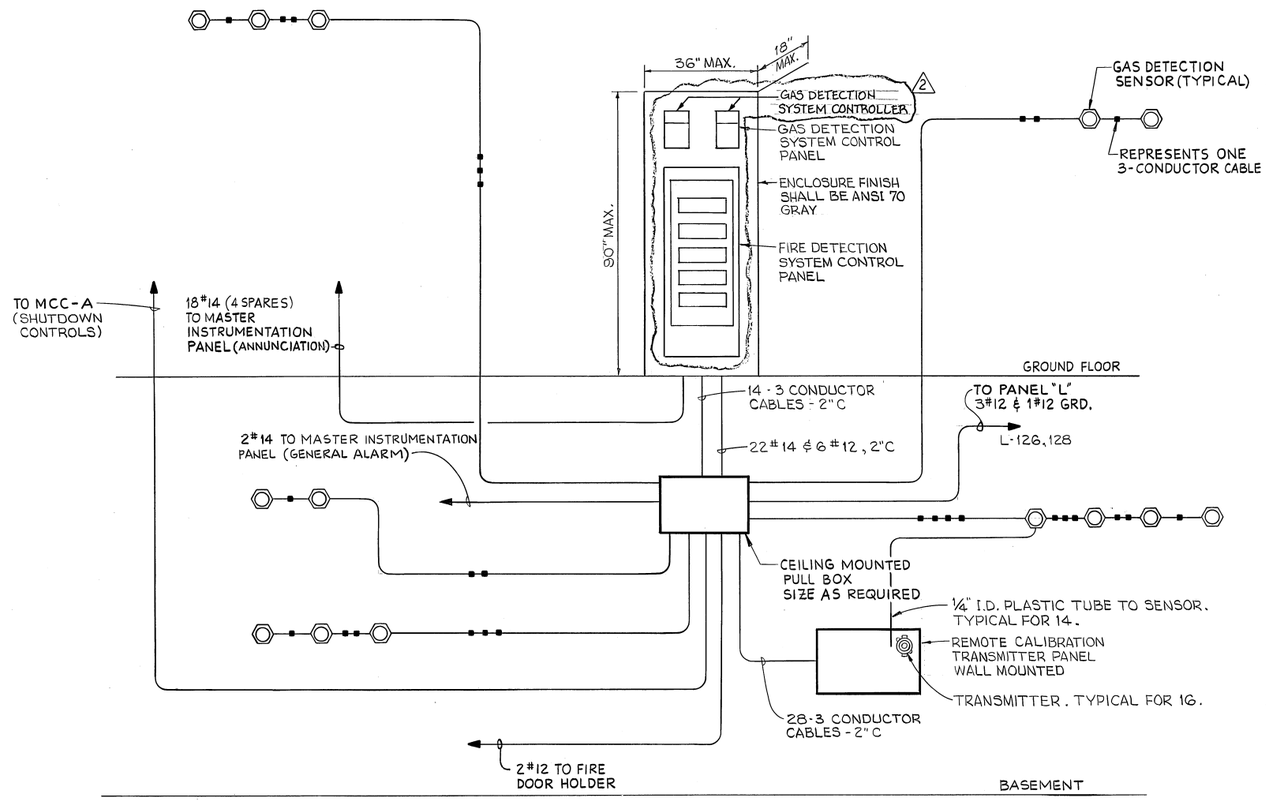
GAS DETECTION SYSTEM ZONE SCHEDULE			
ZONE	AREA COVERED	NUMBER OF SENSORS	NOTES
GB-1	BASEMENT BELOW ENGINES	3	
GB-2	BASEMENT BELOW GAS COMPRESSORS	2	
GB-3	BASEMENT TUNNEL ENTRANCE	1	
GB-4	BASEMENT SOUTH WEST CORNER	1	
GB-5	BASEMENT DIGESTER GAS PIPE ENTRANCE TO GENERAL BUILDING	2	
GG-1	GROUND FLOOR GAS COMPRESSORS	2	
GG-2	GROUND FLOOR ENGINE ROOM	3	
	SPARE	2	TURN OVER SENSORS TO THE DISTRICT FOR FUTURE USE



A TYPICAL GAS DETECTION SENSOR INSTALLATION
NOT TO SCALE



B FIRE DOORS CONTROL DIAGRAM



C GAS DETECTION SYSTEM RISER DIAGRAM

NOTES:

1. ALL CONDUIT SHOWN SHALL BE 1" UNLESS OTHERWISE INDICATED.
2. COMMON ENCLOSURE FOR THE TWO DETECTION SYSTEMS SHALL BE NEMA 1 WITH EXTERIOR FINISH AS INDICATED.
3. PROVIDE DRY CONTACT (NORMALLY OPEN) TO DATA LOGGING TERMINAL BOX. SEE DETAIL ON DRAWING I-1.
2 4. SEE FIREMASTER DRAWING NO 2823 FOR SYSTEM INTERNAL WIRINGS.

REV.	DATE	BY	DESCRIPTION
2	4DEC89	RJE	INSTALLED 1987 AS BUILT INSP. D.Nguyen
	FEB 86	KV	As-Built

DESIGNED DTN | DRAWN DEY/JRN | CHECKED GOH | DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard P.E. 14885 P.E. NO.
PROJECT ENGINEER Salvador L. Worsa M18342 P.E. NO.
E.B.M.U.D.

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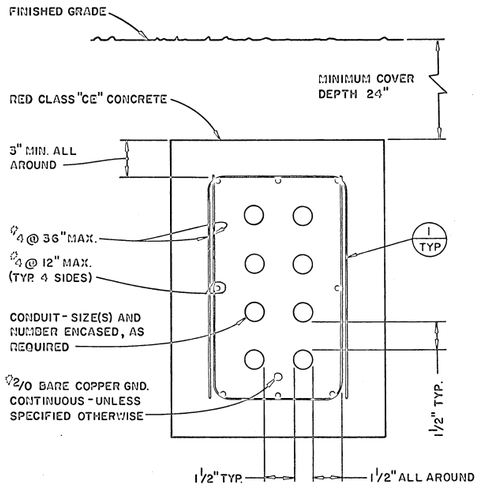
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
GAS DETECTION SYSTEM DIAGRAM

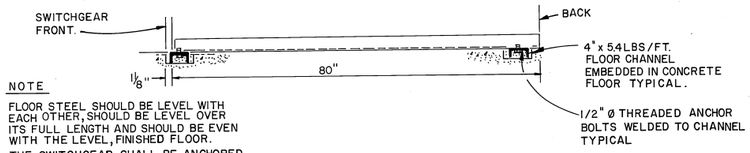
JOB NO. W 02401A12
DRAWING NO. JC-E-18
SHEET NO. 99 OF 106

ABCDEFGHJKLMNPQRSUVWXYZ



NOTE:
1. ALL DIMENSIONS ARE MINIMUM, EXCEPT WHERE SHOWN OTHERWISE.

800 TYP. s ENCASED ELECTRICAL CONDUITS

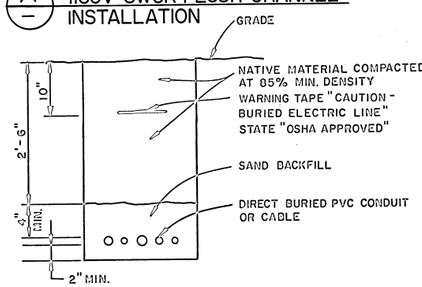


NOTE

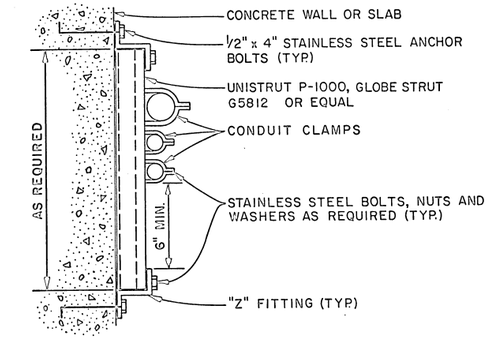
FLOOR STEEL SHOULD BE LEVEL WITH EACH OTHER, SHOULD BE LEVEL OVER ITS FULL LENGTH AND SHOULD BE EVEN WITH THE LEVEL, FINISHED FLOOR.

THE SWITCHGEAR SHALL BE ANCHORED TO THE FLOOR STEEL BY 1/2" BOLTS, FURNISHED BY THE CONTRACTOR THERE SHALL BE TOTAL OF 10 ARCHOR BOLTS EVENLY SPACED PER CHANNEL.

A/— 4160V SWGR FLUSH CHANNEL INSTALLATION



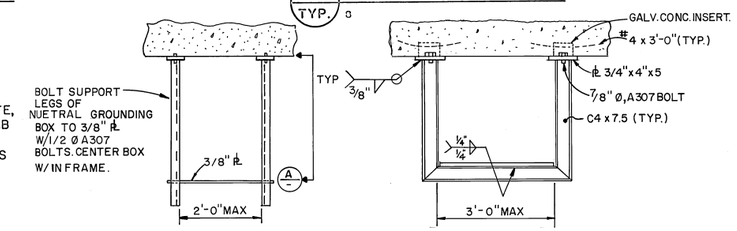
804 TYP. s DIRECT BURIED CONDUIT OR CABLE



NOTES

1. THIS DETAIL TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING.
2. CHANNEL AND ALL SUPPORT DEVICES TO BE HOT DIP GALVANIZED STEEL. FIELD COAT ALL CUTS, ETC. TO MATCH.
3. CHANNELS TO BE SPACED 5' MAXIMUM.

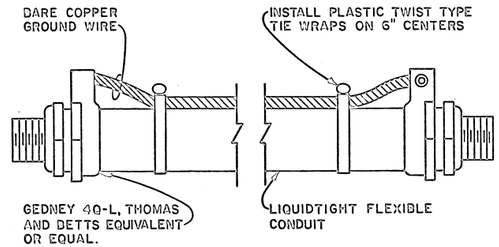
613 TYP. s CONDUIT SUPPORT

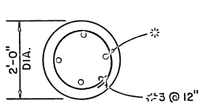


A/— SECTION

B/— NEUTRAL GROUNDING BOX SUPPORT

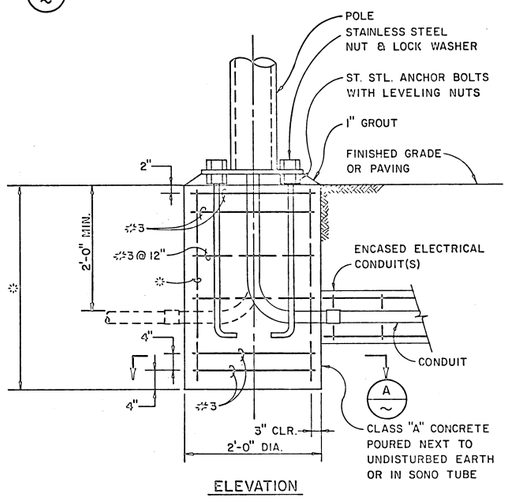
815 TYP. FLEXIBLE CONDUIT GROUNDING





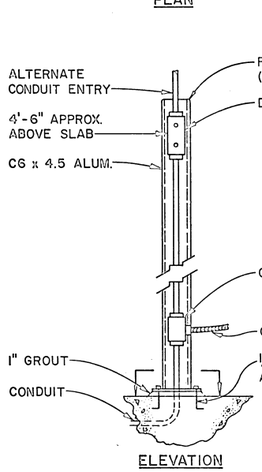
A/~ SECTION

*IF NOT SPECIFIED, DEPTH AND REINFORCEMENT SHALL BE DETERMINED BY POLE MANUFACTURER. LOADING SHALL BE DEAD LOAD PLUS 100 MPH WIND SPEED, MIN.



ELEVATION

831 TYP. s AREA LIGHTING FIXTURE MOUNTING

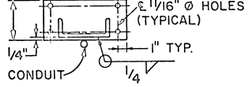


PLAN

NOTE
SUPPLY 1'-2" DIA. x 2'-6" DEEP CONCRETE FOUNDATION WHERE MOUNTING SURFACE IS NOT AVAILABLE.

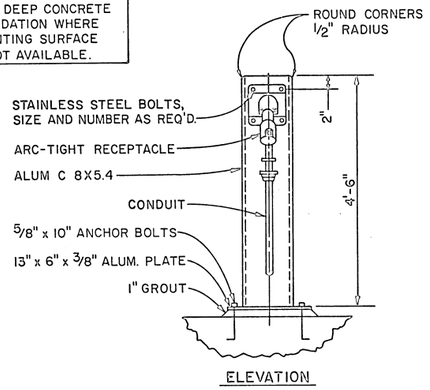
ELEVATION

818 TYP s PUSHBUTTON STATION



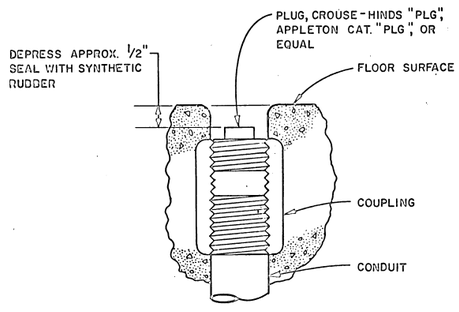
PLAN

NOTE
SUPPLY 1'-6" DIA. x 2'-6" DEEP CONCRETE FOUNDATION WHERE MOUNTING SURFACE IS NOT AVAILABLE.



ELEVATION

819 TYP. s STAND FOR ARC-TIGHT RECEPTACLE



825 TYP. s CONDUIT FLOOR STUB-UP

NO.	DATE	BY	DESCRIPTION
2	4DEC89	ZYE	AS BUILT DSP. D.Nguyen
	FEB 86	XV	As-Built

IN SERVICE 1987

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

APPROVED BY:
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PARTNER P.E. NO.
Salwan H. Wonsh M18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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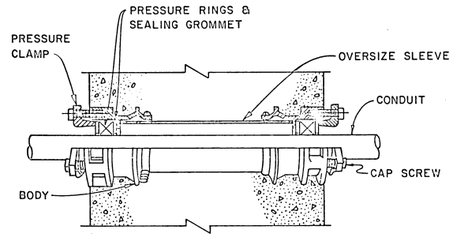
HOWARD H. WAY, P.E.
DONALD R. PRIBOLEN, P.E.
GAIL P. LYNCH, P.E.
WALTER A. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
C. WILLIAM KNOPP, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT
EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
ELECTRICAL DETAILS

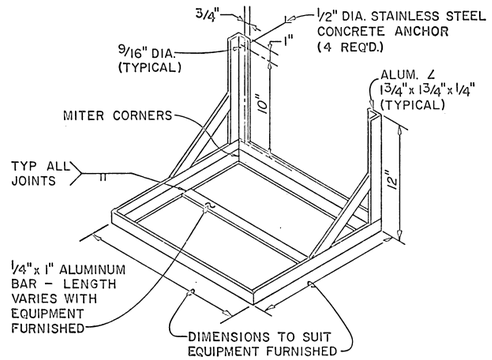
JOB NO. W 02401A12
DRAWING NO. JC-E-19
SHEET NO. 100 OF 106

A B C D E F G H J K L M N P Q R S U V W X Y Z



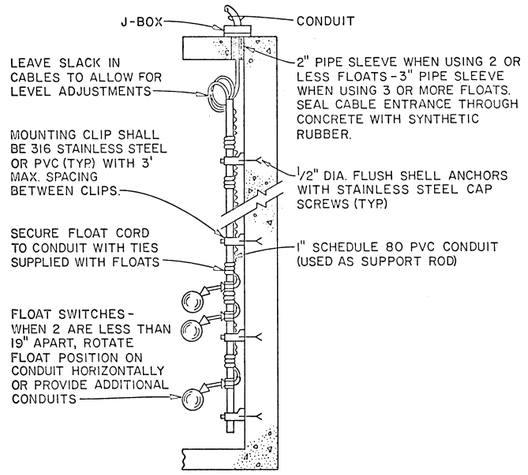
NOTE:
1. USE O.Z. GEDNEY SEAL, TYPE "FSK" OR "WSK"

837 TYP s CONDUIT THRUWALL SEALS

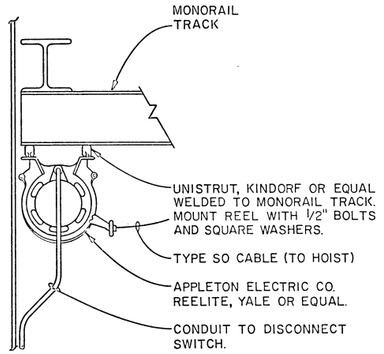


NOTE: RFI #165
ELIMINATE BRACKET ON TRANSFORMER

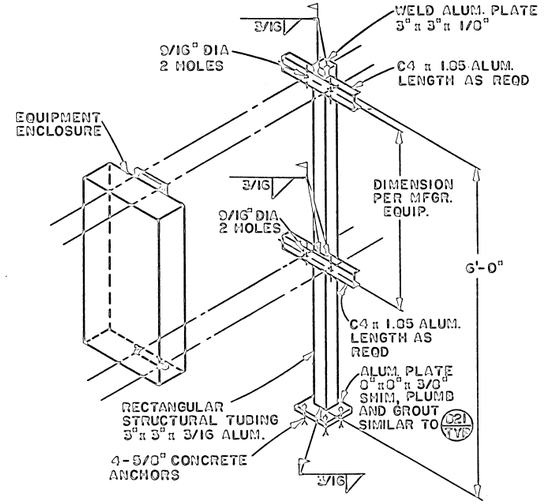
839 TYP. s MOUNTING BRACKET



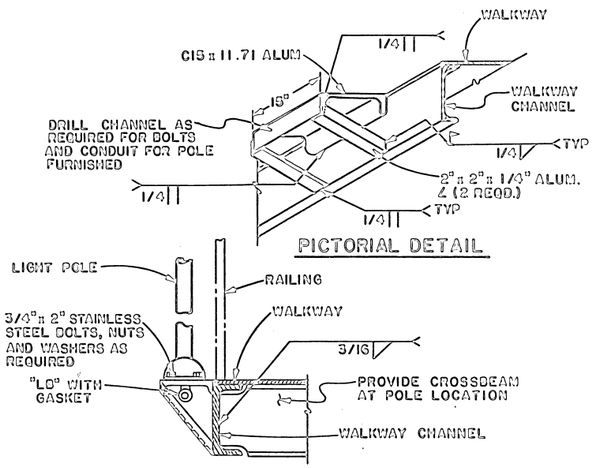
840 TYP. s FLOAT SWITCH MOUNTING



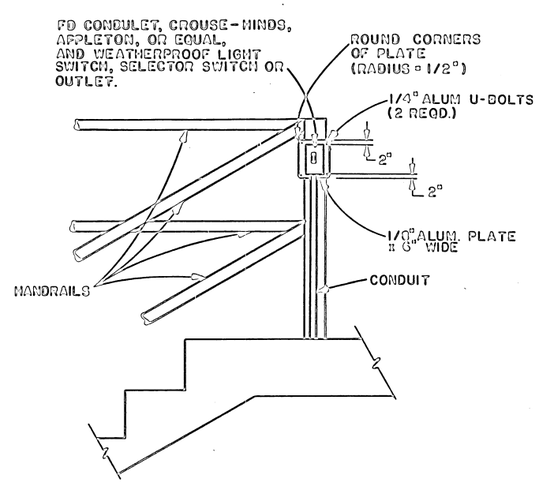
841 TYP. s HOIST REEL MOUNTING



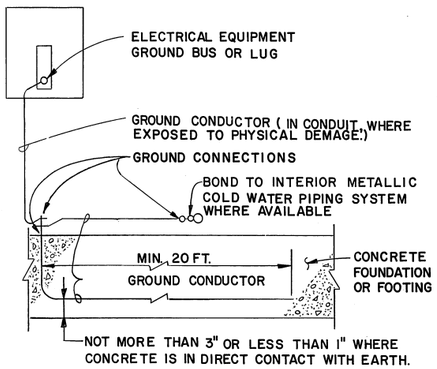
843 TYP EQUIPMENT MOUNTING



044 TYP LIGHT FIXTURE ON BASIN WALKWAY



045 TYP SWITCH OR OUTLET MOUNTED ON HANDRAIL



842 TYP CONCRETE ENCASED GROUND

REV.	DATE	BY	DESCRIPTION
2	4DEC89	RJE	IN SERVICE 1987 AS BUILT USE D.Nguyen
1	FEB 86	XV	As-Built

DESIGNED JCE
DRAWN JCE
CHECKED JCE
DATE FEB. 1983

APPROVED BY:
Willett K. Howard RCE 11408
PARTNER P.E. NO.
Sidney L. Wason M18292
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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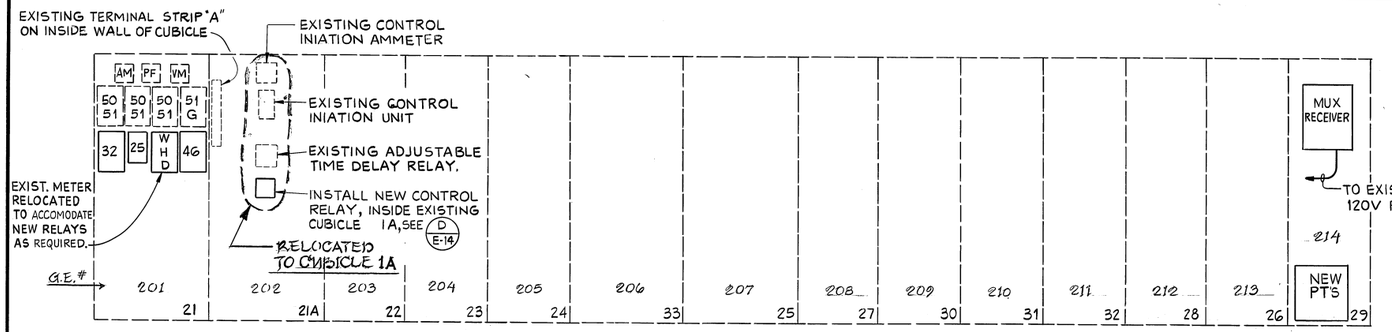
HOWARD H. WAY, P.E.
DONALD R. PIRSOLER, P.E.
GAIL P. LYNCH, P.E.
WALTER G. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
C. WILLIAM KROPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT EBMUD

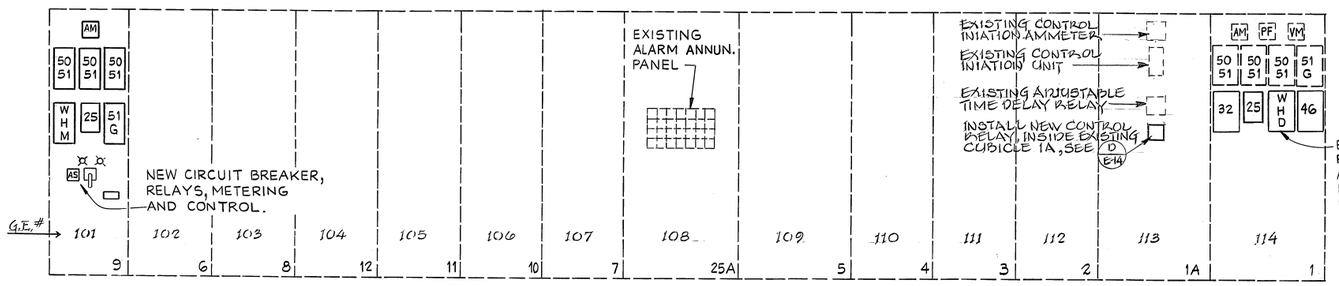
WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
ELECTRICAL DETAILS

JOB NO. W 02401A12
DRAWING NO. JC-E-20
SHEET NO. 101 OF 106

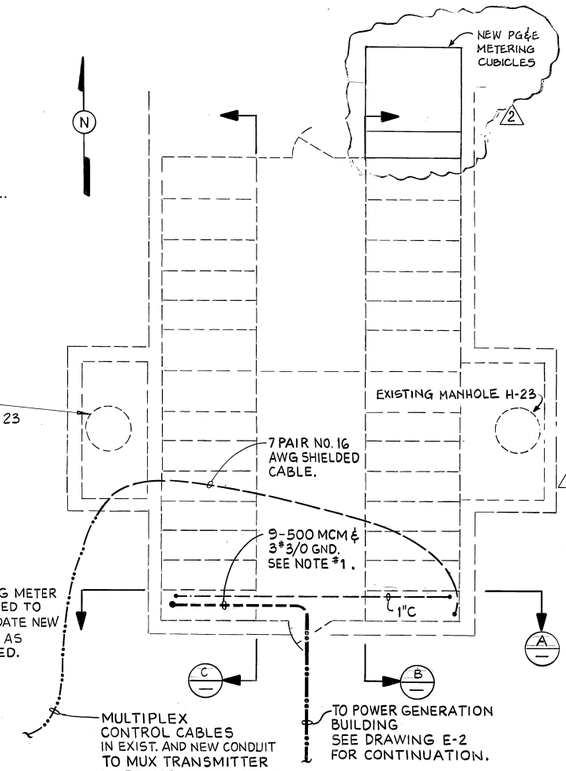
ABCDEFGHJKLMNPQRSUVWXYZ



B — EXISTING SWITCHGEAR M-1 (EAST SIDE) ELEVATION
N.T.S.



C — EXISTING SWITCHGEAR M-1 (WEST SIDE) ELEVATION
N.T.S.



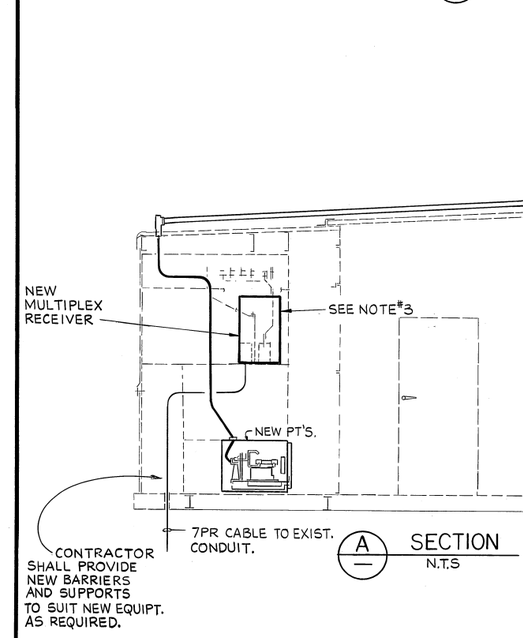
EXISTING SWITCHGEAR M-1
PLAN
N.T.S.

NOTES:

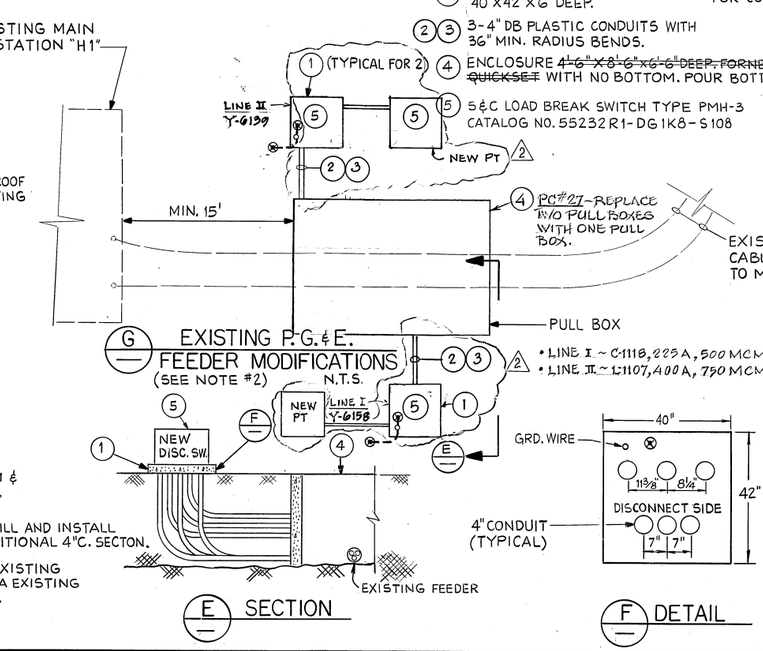
1. NEW FEEDER CABLE SHALL BE ROUTED TO EXISTING CONDUITS VIA EXISTING CABLE TRAY LOCATED UNDER SWITCHGEAR.
2. THE CONTRACTOR SHALL CAREFULLY INTERCEPT EXISTING FEEDERS AND PROVIDE AND INSTALL EQUIPMENT SHOWN FOR COMPLETE INSTALLATION OF THE LOAD BREAK SWITCHES.

   THE CONTRACTOR SHALL USE PG&E ENGINEERING STANDARD DRAWINGS NO. 53318 SHEET NO. 4 & 6 AS REFERENCES.

   ALL WORK NECESSARY FOR INSTALLATION OF THE LOAD BREAK SWITCHES AND CABLE SHALL BE UNDER OF THE DIRECTION PG&E PERSONNEL.
3. CONNECT MUX OUTPUT CONTACTS TO TRIPPING CIRCUITS OF INDIVIDUAL EXISTING 4160V FEEDER CIRCUIT BREAKERS. SEE DWG E-14. PROVIDE 100 PERCENT SPARE CONDUCTORS.
4. THE PURPOSE OF THIS MODIFICATION IS TO REVERSE THE PREFERENCE OF THE EXISTING AUTOMATIC TRANSFER SCHEME WHEREBY THE EXISTING PREFERRED SOURCE WILL BECOME THE ALTERNATE SOURCE AND THE EXISTING ALTERNATE SOURCE WILL BECOME THE PREFERRED SOURCE. THE EXISTING VOLTAGE SENSING RELAYS, DEVICE No 47, SHALL REMAIN IN THEIR RESPECTIVE PHYSICAL LOCATIONS. SEE NOTES ON E-4 (MEMO DATED 9/11/85)
5. REFER TO AS-BUILT SHOP DRAWING FOR GENERAL ELECTRIC CO. REQUISITION NO. 449-94429 AVAILABLE FROM E B MUD MAINTENANCE DEPARTMENT.



A — SECTION
N.T.S

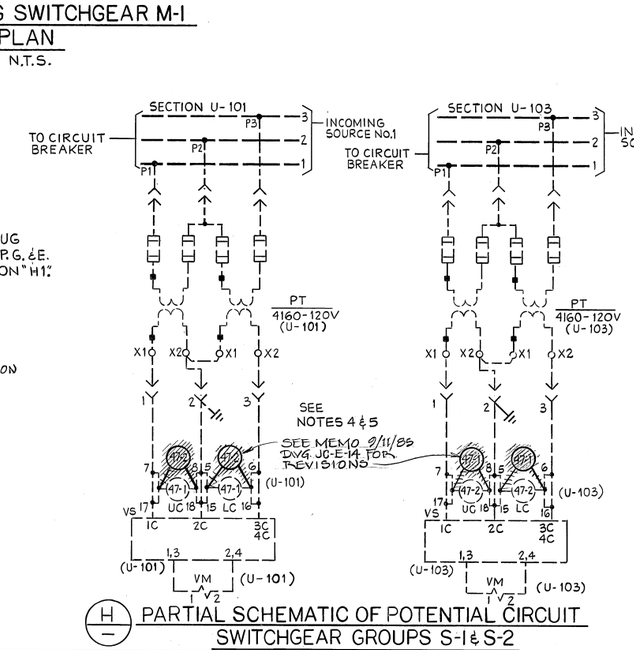


G — EXISTING P.G.&E. FEEDER MODIFICATIONS (SEE NOTE #2) N.T.S.

E — SECTION

F — DETAIL

1. CONCRETE PAD (REINFORCED) 40"X42"X6" DEEP.
2. 3-4" DB PLASTIC CONDUITS WITH 36" MIN. RADIUS BENDS.
3. 3-4" DB PLASTIC CONDUITS WITH 36" MIN. RADIUS BENDS.
4. ENCLOSURE ~~4'-6"X8'-6"X6'-6" DEEP, FORNEY OR QUICKSET~~ WITH NO BOTTOM. POUR BOTTOM IN FIELD.
5. 5&C LOAD BREAK SWITCH TYPE PMH-3 CATALOG NO. 55232R1-DG1K8-S108



H — PARTIAL SCHEMATIC OF POTENTIAL CIRCUIT
SWITCHGEAR GROUPS S-1 & S-2

REV.	DATE	BY	DESCRIPTION
2	19DEC89	RME	AS BUILT by D.Nguyen
	FEB 86	XV	As-Built

DESIGNED DTN
DRAWN JRN
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO.
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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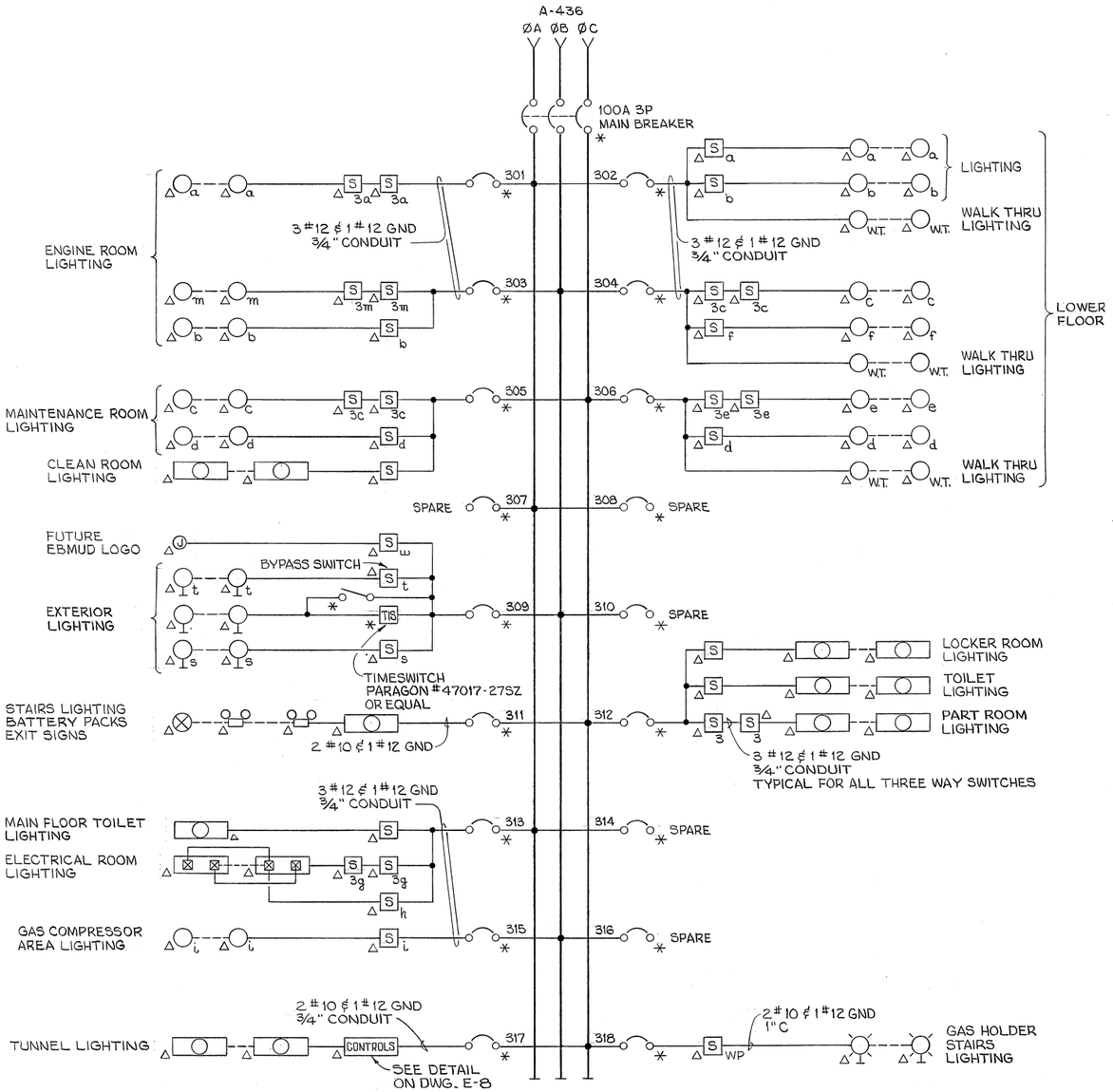
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
EXISTING SUBSTATION M1 AND DETAILS

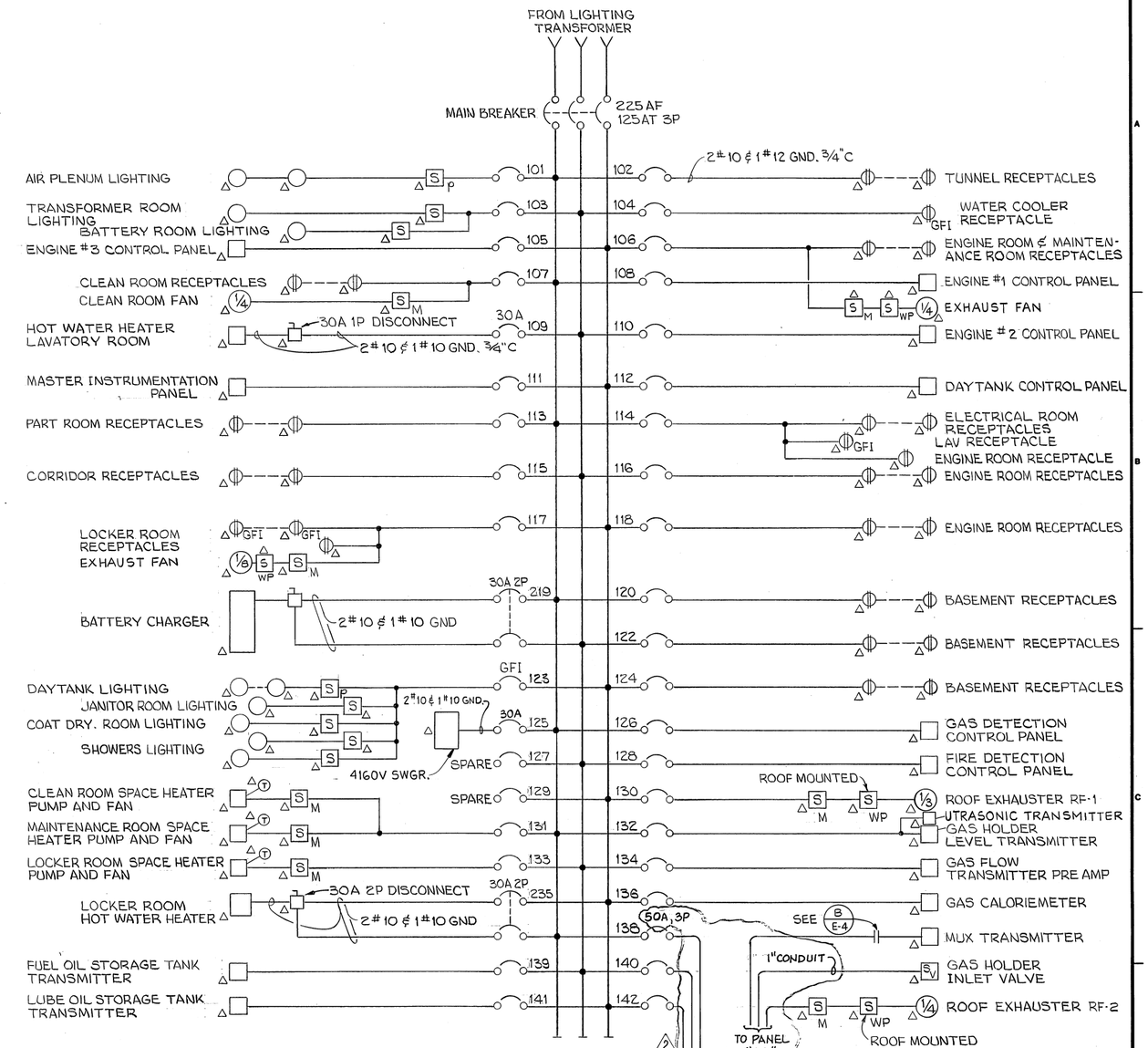
JOB NO. W 02401A12
DRAWING NO. JC-E-21
SHEET NO. 102 OF 106



NOTES:

1. PANEL "H" SHALL BE RATED 100A 3Ø 4 WIRE 480/277 V.
2. PANEL "H" SHALL BE PROVIDED WITH A GROUND BUS.
3. ALL BRANCH CIRCUIT BREAKERS SHOWN SHALL BE 20A 1P.
4. ALL BRANCH CIRCUITS SHALL BE 2 #12 & 1 #12 GND-3/4"C UNLESS OTHERWISE INDICATED.

SINGLE LINE DIAGRAM LIGHTING PANEL "H"



NOTES:

1. ALL BRANCH CIRCUIT BREAKERS SHOWN ARE 20A 1P UNLESS INDICATED OTHERWISE.
2. ALL BRANCH CIRCUITS SHALL BE 2 #12 & 1 #12 GND - 3/4" CONDUIT UNLESS NOTED OTHERWISE.
3. PANEL SHALL BE RATED 225A 208/120V 3Ø 4W.

SINGLE LINE DIAGRAM PANEL "L"

REV.	DATE	BY	DESCRIPTION
2	19DEC89	RYE	AS BUILT 1987
	FEB 86	W	As-built

DESIGNED DTN
DRAWN DEY
CHECKED GOH
DATE FEB. 1983

APPROVED BY:
PARTNER P.E. NO. R 14808
PROJECT ENGINEER P.E. NO. M 18392
E.B.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

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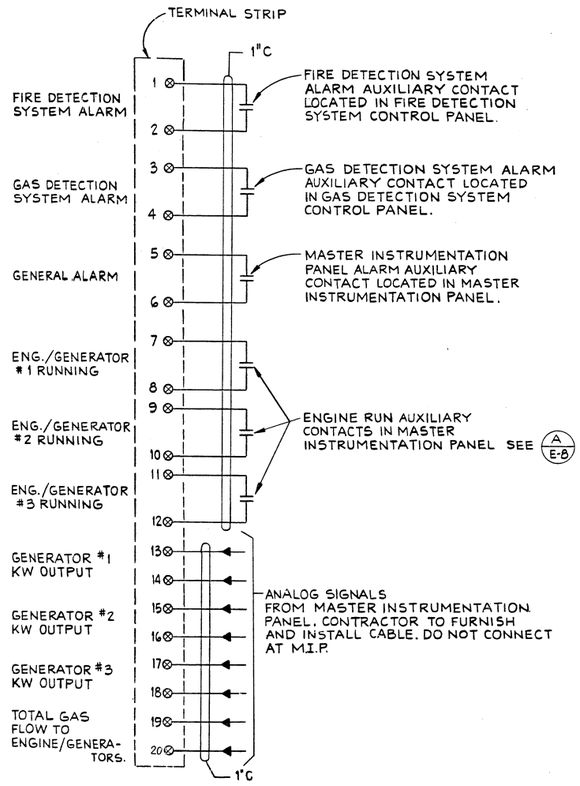
EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
ELECTRICAL
SINGLE LINE DIAGRAMS - LIGHTING PANELS "H" & "L"

JOB NO. W 02401A12
DRAWING NO. JC-E-22
SHEET NO. 103 OF 106



NOTES

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TWO 20-POINT, 20A, 300V TERMINAL STRIPS (ONE SPARE) TO BE LOCATED IN DATA LOGGING TERMINAL BOX (NEMA 1A ENCLOSURE) WITH ENGRAVED NAMEPLATE. SEE DRAWING E-8 FOR LOCATION. BOX SHALL BE 24"X24"X8" WITH HINGED DOOR COVER.
2. IN ADDITION TO THE ABOVE CONDUCTORS TO BE CONNECTED, PROVIDE 20 PERCENT SPARE CONDUCTORS IN EACH CONDUIT. PROVIDE ONE ADDITIONAL EMPTY 1" CONDUIT FROM DATA LOGGING TERMINAL BOX TO MASTER INSTRUMENTATION PANEL.
3. ALL TERMINALS SHALL BE CLEARLY IDENTIFIED BY TERMINAL NUMBERS AND FUNCTION NAMEPLATES WHICH SHALL BE BLACK LAMICOID PLASTIC WITH WHITE LETTERS AND SHALL BE FASTENED WITH ROUND HEAD BRASS SCREWS.

(A) DATA LOGGING TERMINAL CONNECTIONS

GENERAL NOTES

1. THE ENGINES, GENERATORS AND ENGINE/GENERATOR PANELS ARE FURNISHED BY THE DISTRICT AND INSTALLED BY THE CONTRACTOR.
2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INSTRUMENTATION SYSTEMS TO BE INSTALLED.

INSTRUMENTATION SYMBOLS

- PRIMARY PROCESS FLOW.
- SECONDARY PROCESS FLOW OR CONNECTION TO PROCESS.
- ELECTRIC SIGNAL.
- (S) ELECTRIC SOLENOID VALVE OR SOLENOID VALVE ACTUATOR OR OPERATOR.
- COMPRESSOR
- (TAH) EVENT LIGHT WITH FUNCTION NOTED
- (TAH / E) FIRST LETTER; SUCCEEDING LETTERS; EQUIPMENT IDENTIFICATION
- (TI) FIELD MOUNTED INSTRUMENT.
- (TI) PANEL MOUNTED INSTRUMENT.
- (TI C) GAS COMPRESSOR PANEL MOUNTED INSTRUMENT.
- (TI E/G) ENGINE/GENERATOR PANEL MOUNTED INSTRUMENT.
- (TI) MASTER INSTRUMENTATION PANEL MOUNTED INSTRUMENT.
- (QA DCR) INSTRUMENT MOUNTED IN ALARM PANEL IN DIGESTER CONTROL ROOM.
- (QA OP) INSTRUMENT MOUNTED IN ALARM PANEL IN OPERATIONS CENTER.
- (FAIL) EQUIPMENT FAIL TO START.
- AUDIBLE/VISIBLE ALARM.

INSTRUMENTATION DEVICE FUNCTION LETTERS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	Analysis		Alarm		
B	Burner Flame		User's Choice	User's Choice	User's Choice
C	Conductivity (Electrical)			Control	
D	Density (Mass) or Specific Gravity	Differential			
E	Voltage (EMF)		Primary Element		
F	Flow Rate	Ratio (Fraction)			
G	Gaging (Dimensional)		Glass		
H	Hand (Manually Initiated)				High
I	Current (Electrical)		Indicate		
J	Power	Scan			
K	Time or Time-Schedule			Control Station	
L	Level		Light (Pilot)		Low
M	Moisture or Humidity				Middle or Intermediate
N	User's Choice		User's Choice	User's Choice	User's Choice
O	User's Choice		Orifice (Restriction)		
P	Pressure or Vacuum		Point (Test Connection)		
Q	Quantity or Event	Integrate or Totalize			
R	Radioactivity		Record or Print		
S	Speed or Frequency	Safety		Switch	
T	Temperature			Transmit	
U	Multivariable		Multifunction	Multifunction	Multifunction
V	Viscosity			Valve, Damper, or Louver	
W	Weight or Force		Well		
X	Unclassified		Unclassified	Unclassified	Unclassified
Y	User's Choice			Relay or Compute	
Z	Position			Drive, Actuate or Unclassified Final Control Element	

LEGEND

AC = AIR COMPRESSOR
ACR = AFTER COOLER COOLING WATER RETURN
ACS = AFTER COOLER COOLING WATER SUPPLY
ACW = AFTER COOLER COOLING WATER
BAP = BEFORE AND AFTER PUMP
C = GAS COMPRESSOR
CA = COMBUSTION AIR
CAT = COMBUSTION AIR TO TURBOCHARGER
CG = COMPRESSOR GAS
CRAN = ENGINE CRANKCASE
DT = DAY TANK
E = ENGINE
EA = ENGINE AUXILIARY EQUIPMENT
EB = ENGINE BEARING
EE = ENGINE EXHAUST
ES = EXHAUST SILENCER
FG = FUEL GAS (DIGESTER GAS)
FGM = FUEL GAS MANIFOLD
FO = FUEL OIL
FOS = FUEL OIL STORAGE TANK
FOT = FUEL OIL TRANSFER PUMP
G = GENERATOR
GB = GENERATOR BEARING
GF = DIGESTER GAS FILTER
GH = GAS HOLDER
GW = GENERATOR WINDING
HWP = HOT WATER PUMP
JW = JACKET WATER
JWR = JACKET WATER RETURN
JWS = JACKET WATER SUPPLY
LOC = COOLING WATER TO LUBE OIL COOLER
LU = LUBE OIL
LUR = LUBE OIL RETURN
LUS = LUBE OIL SUPPLY
LUT = LUBE OIL STORAGE TANK
LUTG = LUBE OIL TO TURBO CHARGER

EER = ENGINE EXHAUST HEAT RECOVERY
SA = STARTING AIR
TFG = TOTAL FUEL GAS
TG = TURBO CHARGER
WHE = WASTE HEAT EXCHANGER
3P = NO. 3 WATER PUMP

REV.	DATE	BY	DESCRIPTION
2	4DEC89	RYE	IN SERVICE 1987 AS BUILT INSP. D. Nguyen
	FEB 86	XV	As-built

DESIGNED DN/DT
DRAWN JN
CHECKED GH, DS
DATE FEB. 1983

APPROVED BY:
Walter R. Howard RCE 16808
PARTNER P.E. NO.
Solomon L. Wason M 18392
PROJECT ENGINEER P.E. NO.
E.B.M.U.D.

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EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD)

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
INSTRUMENTATION
LEGENDS, NOTES AND MISCELLANEOUS PANELS

JOB NO. W 02401A12
DRAWING NO. JC-I-1
SHEET NO. 104 OF 106

NOTES

1. REFER TO DRAWING E-16 FOR SPECIFIC INFORMATION REGARDING COMPRESSOR CONTROL SEQUENCE, ALARM FUNCTIONS AND EQUIPMENT INTERCONNECTION.
2. COMPRESSOR ALARM AND SHUTDOWN CONTROL SHOWN IS TYPICAL FOR EACH OF THREE COMPRESSORS.
3. FOR EQUIPMENT AND DEVICES FURNISHED BY THE COMPRESSOR SUPPLIER SEE SPECIFICATIONS.

ELECTRICAL ROOM

GAS COMPRESSOR LOCAL PANELS

FIELD

EXISTING DIGESTER CONTROL ROOM

[K-1]

QA

HS

PC

FIR

LAY

LT

LAH

LAL

ALARM SIGNALS FROM OTHER SYSTEMS, SEE DRAWING I-1

COMPRESSOR STARTER AUX. CONTACT N.O.

COMPRESSOR START, STOP AND UNLOAD CONTROLS

COMPRESSOR SHUTDOWN CONTROL

PAL

TAH

LAL

PAH

DIGES.

2 FLARES

S

FT

FE

FV

ZS

ULTRASONIC POSITION TRANSMITTER

LIT

LOW PRESSURE GAS HOLDER

TO COMPRESSOR NO. 2

TO COMPRESSOR NO. 3

PE

PSL

1ST STAGE

INTER COOLER

2ND STAGE

AFTER COOLER

TE

TSH

COOLING WATER

COOLING WATER DISCHARGE

LE

LSL

LUBRICATION SYSTEM

3W- COOLING WATER

GOVERNOR CONTROLLER

SURGE TANK

FROM COMPRESSOR NO. 2

FROM COMPRESSOR NO. 3

ENGINE NO. 3

ENGINE NO. 2

ENGINE NO. 1

ENG. GOV.

DIGESTER GAS SYSTEM P. & I. D.

REV.	DATE	BY	DESCRIPTION
2	4DEC89	RYE	IN SERVICE 1987 AS BUILT INSP. D. Nguyen
1	FEB 86	XV	As-Built

DESIGNED DN/TF
DRAWN JN/DY
CHECKED GH, DS
DATE FEB. 1983

APPROVED BY:
PARTNER Herbert L. Howard P.E. 11808
PROJECT ENGINEER Sallyann L. Watson M 13892
E.B.M.U.D.

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VISALIA CALIFORNIA

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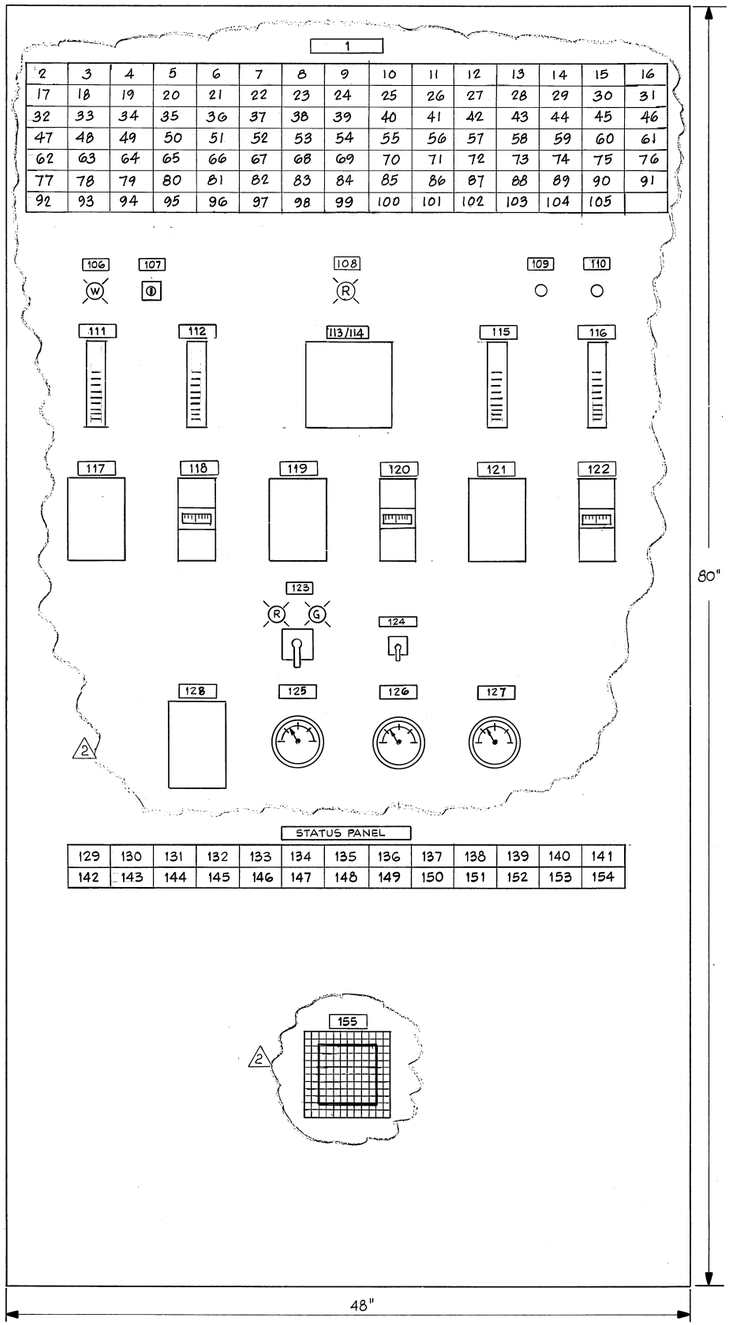
EAST BAY MUNICIPAL UTILITY DISTRICT

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
INSTRUMENTATION
DIGESTER GAS SYSTEM P.&I.D.

JOB NO. W 02401A12
DRAWING NO. JC-I-2
SHEET NO. 105 OF 106



FRONT ELEVATION

N.T.S.

NAMEPLATE SCHEDULE

1. MASTER INSTRUMENTATION PANEL
2. FIRE ALARM - ZONE B1 BASEMENT
3. FIRE ALARM - ZONE B2 BASEMENT
4. FIRE ALARM - ZONE FG-1 GND. FLOOR - ENGINE ROOM
5. FIRE ALARM - ZONE FG-2 GND. FLOOR - ENGINE ROOM
6. FIRE ALARM - ZONE FG-3 GND. FLOOR - ELECTRICAL ROOM
7. FIRE ALARM - ZONE FG-4 GND. FLOOR - ELECTRICAL ROOM
8. FIRE ALARM - ZONE FG-5 GND. FLOOR - MAINTENANCE ROOM
9. FIRE ALARM - ZONE FU-1 UPPER FLOOR - PART & LOCKER RMS
10. FIRE ALARM - ZONE FU-2 UPPER FLOOR - DAYTANK ROOM
11. FIRE ALARM - ZONE FU-3 UPPER FLOOR - DAYTANK ROOM
12. HALON SYSTEM DISCHARGE - ELECTRICAL ROOM
13. HALON SYSTEM DISCHARGE - DAYTANK ROOM
14. GAS LEAK LOW LEVEL - ZONE GB-1- BASEMENT - BELOW ENGINES
15. GAS LEAK LOW LEVEL - ZONE GB-2 - BASEMENT - BELOW GAS COMPRESSORS
16. GAS LEAK LOW LEVEL - ZONE GB-3 - BASEMENT - TUNNEL ENTRANCE
17. GAS LEAK LOW LEVEL - ZONE GB-4 - BASEMENT - SOUTHWEST CORNER
18. GAS LEAK LOW LEVEL - ZONE GB-5 - BASEMENT - GAS PIPE ENTRANCE INTO BUILDING
19. GAS LEAK LOW LEVEL - ZONE GG-1 - GROUND FLOOR - COMPRESSOR AREA
20. GAS LEAK LOW LEVEL - ZONE GG-2 - GROUND FLOOR - ENGINE ROOM
21. GAS LEAK - HIGH LEVEL ZONE GB-1
22. GAS LEAK - HIGH LEVEL ZONE GB-2
23. GAS LEAK - HIGH LEVEL ZONE GB-3
24. GAS LEAK - HIGH LEVEL ZONE GB-4
25. GAS LEAK - HIGH LEVEL ZONE GB-5
26. GAS LEAK - HIGH LEVEL ZONE GG-1
27. GAS LEAK - HIGH LEVEL ZONE GG-2
28. AIR COMPRESSOR #1 FAIL TO START
29. AIR COMPRESSOR #2 FAIL TO START
30. LOW DISCHARGE - AIR PRESSURE
31. SUMP PUMP #1 - FAIL TO START
32. SUMP PUMP #2 - FAIL TO START
33. HIGH SUMP LEVEL
34. HOT WATER PUMP #1 - FAIL TO START
35. HOT WATER PUMP #2 - FAIL TO START
36. HOT WATER PUMP #3 - FAIL TO START
37. SLOP OIL TANK - HIGH LEVEL
38. SLOP OIL PUMP - FAIL TO START
39. FUEL OIL TRANSFER PUMP #1 - FAIL TO START
40. FUEL OIL TRANSFER PUMP #2 - FAIL TO START
41. DAYTANK RUPTURE
42. GAS COMPRESSOR #1 - FAIL TO START
43. GAS COMPRESSOR #2 - FAIL TO START
44. GAS COMPRESSOR #3 - FAIL TO START

★★ 45. GAS COMPRESSOR #1 - EMERGENCY SHUTDOWN
★★ 46. GAS COMPRESSOR #2 - EMERGENCY SHUTDOWN
★★ 47. GAS COMPRESSOR #3 - EMERGENCY SHUTDOWN

48. SANITARY SUMP PUMP #1 - FAIL TO START
49. SANITARY SUMP PUMP #2 - FAIL TO START
50. SANITARY SUMP - HIGH LEVEL
51. NO. 3 WATER PUMP #1 - FAIL TO START
52. NO. 3 WATER PUMP #2 - FAIL TO START
53. NO. 3 WATER PUMP #3 - FAIL TO START
54. NO. 3 WATER - LOW PRESSURE
55. DAYTANK #1 - LOW LOW LEVEL
56. DAYTANK #1 - HIGH HIGH LEVEL
57. DAYTANK #2 - LOW LOW LEVEL
58. DAYTANK #2 - HIGH HIGH LEVEL
59. DAYTANK #3 - LOW LOW LEVEL
60. DAYTANK #3 - HIGH HIGH LEVEL
61. GAS CALORIMETER - LOW BTU CONTENT
62. FUEL OIL STORAGE TANK - LOW LEVEL
63. FUEL OIL STORAGE TANK - HIGH LEVEL
64. DIGESTER LOW PRESSURE GAS HOLDER - LOW LEVEL
65. DIGESTER LOW PRESSURE GAS HOLDER - HIGH LEVEL
66. LUBE OIL STORAGE TANK - LOW LEVEL
67. ENGINE WASTE HEAT EXCHANGER WATER - HIGH TEMPERATURE
68. SLOP OIL SUMP - HIGH LEVEL
69. BEFORE AND AFTER LUBE OIL PUMP #1-FAIL TO START
70. BEFORE AND AFTER LUBE OIL PUMP #2-FAIL TO START
71. BEFORE AND AFTER LUBE OIL PUMP #3-FAIL TO START
72. GAS HOLDER INLET VALVE - CLOSED
73. ENGINE #1 STAND PIPE WATER - LOW LEVEL
74. ENGINE #2 STAND PIPE WATER - LOW LEVEL
75. ENGINE #3 STAND PIPE WATER - LOW LEVEL
76. SPARE
77. SPARE
78. SPARE
79. SLOP OIL TANK - HIGH LEVEL
80. LUBE OIL SUMP TANK NO.1-LOW LEVEL.
81. LUBE OIL SUMP TANK NO.2-LOW LEVEL.
82. LUBE OIL SUMP TANK NO.3-LOW LEVEL.

★ 83. ENGINE #1 EMERGENCY SHUTDOWN
★ 84. ENGINE #2 EMERGENCY SHUTDOWN
★ 85. ENGINE #3 EMERGENCY SHUTDOWN

86. ELECTRICAL ROOM-HALON CYLINDER LOW PRESSURE
87. DAY TANK ROOM-HALON CYLINDER LOW PRESSURE
88. HOT WATER OUTLET #1 AT EXHAUST HEAT-RECOVERY-LOW TEMPERATURE
89. HOT WATER OUTLET #2 AT EXHAUST HEAT-RECOVERY-LOW TEMPERATURE
90. HOT WATER OUTLET #3 AT EXHAUST HEAT-RECOVERY-LOW TEMPERATURE
91. SPARE
92. UNIT #1 HIGH TEMP JACKET WATER
93. UNIT #2 HIGH TEMP JACKET WATER
94. UNIT #3 HIGH TEMP JACKET WATER
95. VENT FAN #1 DAMPER FAILURE
96. VENT FAN #2 DAMPER FAILURE

△2

97. VENT FAN #3 DAMPER FAILURE △2
98. VENT FAN #4 DAMPER FAILURE
99. SPACE
100. SPACE
101. SPACE
102. SPACE
103. SPACE
104. SPACE
105. SPACE
106. POWER-ON
107. ON - OFF
108. ALARM ON
109. ALARM SILENCE
110. PUSH TO TEST PILOT
111. LUBE OIL TANK LEVEL
112. NO. 3 WATER TEMPERATURE FROM WASTE HEAT EXCHANGER
113. DIGESTER GAS FLOW INDICATOR/TOTALIZER
114. GAS FLOW RECORDER
115. GAS HOLDER LEVEL INDICATOR
116. FUEL OIL STORAGE TANK LEVEL INDICATOR
117. ENGINE #1 DIGESTER GAS TOTALIZER (NOTE 4)
118. GENERATOR #1 KW OUTPUT RECORDER (NOTE5)
119. ENGINE #2 DIGESTER GAS TOTALIZER
120. GENERATOR #2 KW OUTPUT RECORDER
121. ENGINE #3 DIGESTER GAS TOTALIZER
122. GENERATOR #3 KW OUTPUT RECORDER
123. CIRCUIT BREAKER M1-52-9 CONTROL SWITCH
124. ENGINE GOVERNOR CONTROL MODE
MANUAL - GENERATOR - GAS HOLDER LEVEL
125. DAYTANK #1 LEVEL INDICATOR △2
126. DAYTANK #2 LEVEL INDICATOR
127. DAYTANK #3 LEVEL INDICATOR
128. GAS CALORIMETER RECORDER
129. ENGINE #1
130. ENGINE #2
131. ENGINE #3
132. HOT WATER PUMP #1
133. HOT WATER PUMP #2
134. HOT WATER PUMP #3
135. NO. 3 WATER PUMP #3
136. NO. 3 WATER PUMP #2 △2
137. NO. 3 WATER PUMP #1
138. GAS COMPRESSOR #1
139. GAS COMPRESSOR #2
140. GAS COMPRESSOR #3
141. FUEL OIL TRANSFER PUMP #1
142. FUEL OIL TRANSFER PUMP #2
143. SPARE
144. SPARE
145. SPARE
146. SPARE
147. SPARE
148. SPARE
149. SPARE
150. SPARE
151. SPARE
152. SPARE
153. SPARE
154. SPARE
155. ALARM HORN

△2

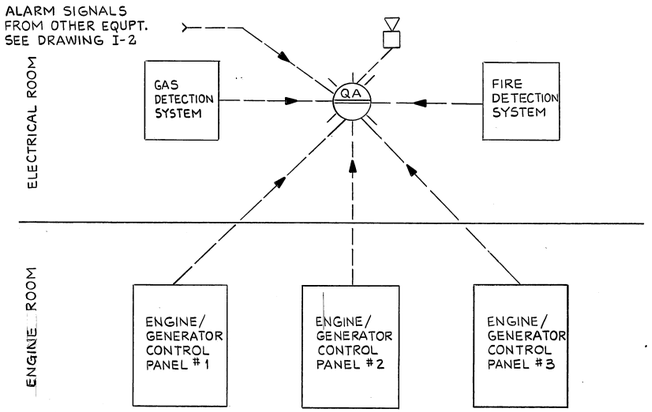
156. LOW GAS FLOW RESET (JUMPER IS CONNECTED)

★ ALARM FUNCTIONS WITH ALARM CONTACT (N.O.) LOCATED IN ENGINE/ GENERATOR CONTROL PANELS.

★★ ALARM FUNCTIONS WITH ALARM CONTACT (N.O.) LOCATED IN GAS COMPRESSOR CONTROL PANELS.

NOTES

1. MASTER INSTRUMENTATION PANEL ENCLOSURE SHALL BE NEMA 1 WITH ANSI 70 GRAY EXTERIOR FINISH AND WHITE INTERIOR.
2. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE MASTER INSTRUMENTATION PANEL WITH ALL EQUIPMENT INDICATED. THE PHYSICAL DIMENSIONS OF THE PANEL SHALL BE 80" HIGH AND NOT EXCEED 48" WIDE WITH DEPTH AS REQUIRED TO HOUSE THE SPECIFIED EQUIPMENT.
3. THE PROPOSED PANEL LAYOUTS SHOWN SHALL BE MODIFIED AS REQUIRED TO FACILITATE THE EQUIPMENT FURNISHED.
4. PROVIDE AND MOUNT, BUT DO NOT CONNECT, A SUMMATION DEVICE AND TRANSDUCER FOR FUTURE TRANSMISSION OF A 4-20mA ANALOG SIGNAL FOR FUTURE REMOTE DISPLAY AND RECORDING OF TOTAL GAS FLOW FOR COMBINED 3 ENGINES. FURNISH DIAGRAMS AND INSTRUCTIONS FOR FUTURE CONNECTION.
5. PROVIDE AND MOUNT, BUT DO NOT CONNECT, KILOWATT TRANSDUCERS FOR FUTURE TRANSMISSION OF 4-20mA ANALOG SIGNALS FOR FUTURE REMOTE DISPLAY AND RECORDING OF KW OUTPUT OF EACH GENERATOR. TRANSDUCERS SHALL BE CROMPTON INSTRUMENTS "PALADIN" TYPE, SERIES 250 OR EQUAL. FURNISH DIAGRAMS AND INSTRUCTIONS FOR FUTURE CONNECTION.



ALARM INPUTS TO M.I.P DIAGRAM

REV.	DATE	BY	DESCRIPTION
△2	5DEC89		1st SERVICE 1987 AS BUILT INSP: D.Nguyen
	FEB 86	JK	AS-Built

DESIGNED DN/DT
DRAWN JN
CHECKED GH, DS
DATE FEB. 1983

APPROVED BY:
PARTNER Walter R. Howard REGISTERED P.E. NO.
Samuel H. Wasson M 18392
PROJECT ENGINEER P.E. NO.
E.R.M.U.D.

JOHN CAROLLO ENGINEERS

PHOENIX ARIZONA · WALNUT CREEK CALIFORNIA · FOUNTAIN VALLEY CALIFORNIA · VISALIA CALIFORNIA

JOHN A. CAROLLO, P.E. (1906-1971)
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HOWARD M. WAY, P.E.
DONALD R. PREIBLER, P.E.
GAIL P. LYNCH, P.E.
WALTER R. HOWARD, P.E.
J. DAVID GRIFFITH, P.E.
G. WILLIAM KNOPF, P.E.

EAST BAY MUNICIPAL UTILITY DISTRICT — EBMUD

WATER POLLUTION CONTROL PLANT
POWER GENERATION STATION
SPECIFICATION SD-135
INSTRUMENTATION
MASTER INSTRUMENTATION PANEL AND NAMEPLATE SCHEDULE

JOB NO. W 02401A12
DRAWING NO. JC-I-3
SHEET NO. 106 OF 106

M81066