REVISIONS			
NO	DESCRIPTION	DATE	BY
1	CONFORMED DRAWING	6/02/08	CP

SAUSALITO MARIN CITY SANITARY DISTRICT

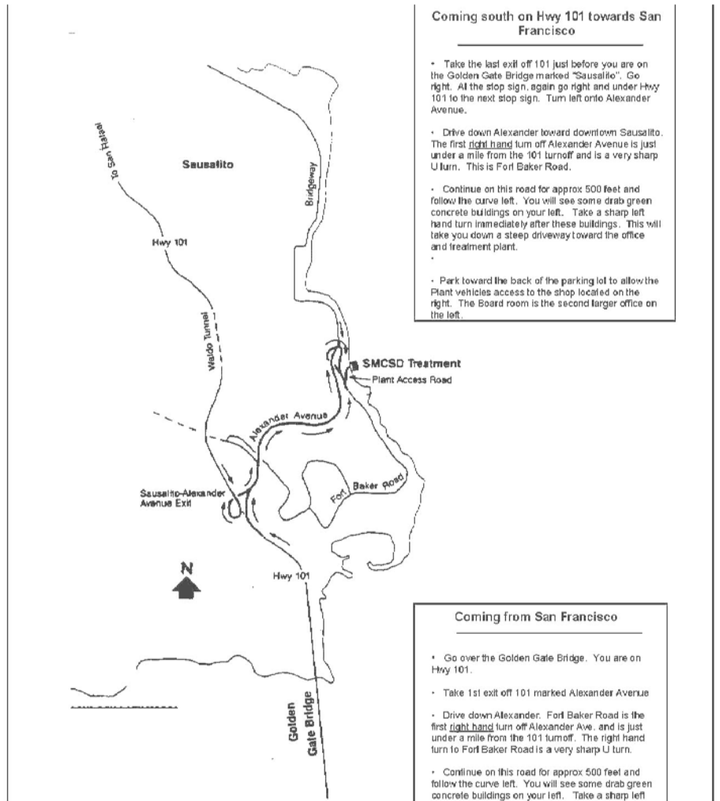
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

CONTRACT PROJECT PLANS
VOLUME 2 OF 2

CONFORMED AND ISSUED FOR CONSTRUCTION

JUNE 2008



Coming south on Hwy 101 towards San Francisco

- Take the last exit off 101 just before you are on the Golden Gate Bridge marked "Sausalito". Go right. At the stop sign, again go right and under Hwy 101 to the next stop sign. Turn left onto Alexander Avenue.
- Drive down Alexander toward downtown Sausalito. The first right hand turn off Alexander Avenue is just under a mile from the 101 turnoff and is a very sharp U-turn. This is Fort Baker Road.
- Continue on this road for approx 500 feet and follow the curve left. You will see some drab green concrete buildings on your left. Take a sharp left hand turn immediately after these buildings. This will take you down a steep driveway toward the office and treatment plant.
- Park toward the back of the parking lot to allow the Plant vehicles access to the shop located on the right. The Board room is the second larger office on the left.

Coming from San Francisco

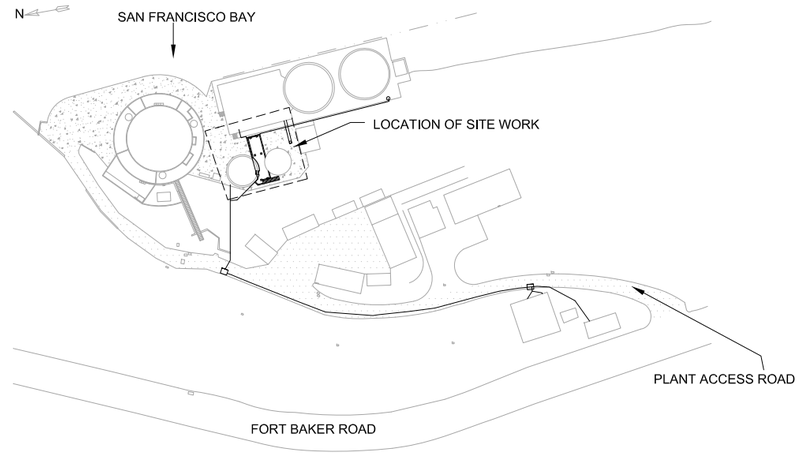
- Go over the Golden Gate Bridge. You are on Hwy 101.
- Take 1st exit off 101 marked Alexander Avenue
- Drive down Alexander. Fort Baker Road is the first right hand turn off Alexander Ave. and is just under a mile from the 101 turnoff. The right-hand turn to Fort Baker Road is a very sharp U turn.
- Continue on this road for approx 500 feet and follow the curve left. You will see some drab green concrete buildings on your left. Take a sharp left hand turn immediately after these buildings. This will take you down a steep driveway toward the office and treatment plant.
- Park toward the back of the parking lot to allow the Plant vehicles access to the shop located on the right. The Board room is the second larger office on the left.

LOCATION MAP

NO SCALE

LIST OF DRAWINGS

NO.	DWG.	TITLE
		GENERAL
1.	G-1	COVER SHEET, LOCATION MAP, AND TREATMENT PLANT SITE MAP
2.	G-2	LEGEND
		CIVIL
3.	C-1	SITE PLAN AND YARD PIPING
		STRUCTURAL
4.	S-1	STRUCTURAL NOTES
5.	S-2	PLAN AT EL. 116.00
6.	S-3	TOP PLAN
7.	S-4	SECTIONS AND DETAILS
8.	S-5	SECTIONS AND DETAILS
9.	S-6	SECTIONS AND DETAILS
		MECHANICAL
10.	M-1	MECHANICAL PLAN
11.	M-2	DEMOLITION DETAILS
11a.	M-2a	DEMOLITION DETAILS
12.	M-3	SECTIONS AND PHOTO DETAILS - 1
13.	M-4	SECTIONS AND PHOTO DETAILS - 2
14.	M-5	MECHANICAL DETAILS - 1
15.	M-6	MECHANICAL DETAILS - 2
16.	M-7	CHEMICAL PIPING - DETAILS
17.	M-8	CHEMICAL PIPING - DETAILS
18.	M-9	CHEMICAL PIPING - PHOTO DETAILS - 1
19.	M-10	CHEMICAL PIPING - PHOTO DETAILS - 2
20.	M-11	CHEMICAL PIPING - PHOTO DETAILS - 3
21.	M-12	SOIDUM HYPOCHLORITE PIPING SCHEMATIC
		INSTRUMENTATION
22.	I-1	INSTRUMENTATION LEGEND
23.	I-2	P&ID - SLUDGE DEWATERING PROCESS
24.	I-3	P&ID - SODIUM HYPOCHLORITE SYSTEM
		ELECTRICAL
25.	E-1	LEGEND AND NOTES
26.	E-2	MAIN SINGLE LINE DIAGRAM
27.	E-3	SCADA SYSTEM DIAGRAM, CONDUIT SCHEDULE AND MISC DIAGRAMS
28.	E-4	ELECTRICAL CONTROL SCHEMATICS AND CONTROL ONE-LINE DIAGRAM
29.	E-5	PARTIAL POWER AND LIGHTING PLAN
30.	E-6	EXISTING GEN. BLDG AND DETAILS
31.	E-7	CONSTRUCTION DETAILS
32.	E-8	CONSTRUCTION DETAILS
33.	E-9	TYPICAL DETAILS
34.	E-10	TYPICAL DETAILS AND CONSTRUCTION DETAILS
35.	E-11	LOAD SHEDDING CONTROL AND HYPO SYSTEM DIAGRAMS
36.	E-12	PARTIAL SITE PLAN - POWER - HYPO PROCESS
37.	E-13	HYPO SYSTEM CONSTRUCTION DETAILS



TREATMENT PLANT SITE MAP

NO SCALE

⚠ NOTES:

1. THE LOCATION OF THE SITE WORK ALSO INCLUDES WORK IN THE PLANT ACCESS ROAD.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL JOHN BARNES
05/01/08
NO. C 34038
EXP. 06/30/09
CIVIL
STATE OF CALIFORNIA

WHITLEY BURCHETT & *ASSOCIATES* Walnut Creek, California (925) 945-6850	DESIGN CP DRAWN CP CHECKED MB	JOB NUMBER SMC 07-01 DATE MAY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	**SAUSALITO MARIN COUNTY SANITARY DISTRICT** MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	COVER SHEET, LOCATION MAP AND TREAMENT PLANT SITE MAP	REV. --- DWG. NO. G-1 1 OF 37

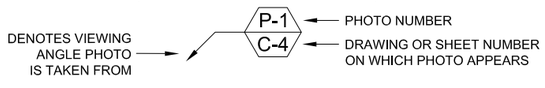
GENERAL NOTES

NOTES:

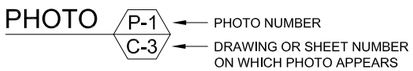
1. THE ALIGNMENT AND ELEVATION OF EXISTING FACILITIES AND UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON DESIGN AND RECORD INFORMATION AVAILABLE TO WHITLEY BURCHETT & ASSOCIATES AT THE TIME OF PREPARATION OF THESE PLANS. THEIR LOCATIONS HAVE NOT BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE TO THE ACCURACY OF THE INFORMATION SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE PRECISE DIMENSIONS AND UTILITY SIZES, LOCATIONS, ELEVATIONS AND INVERTS PRIOR TO THE START OF WORK. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN ACTUAL LOCATIONS AND/OR ELEVATIONS AND THOSE SHOWN ON THE DRAWINGS TO DETERMINE IF DESIGN CHANGES ARE REQUIRED.
2. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS NOT DESIGNATED FOR REMOVAL AND SHALL RESTORE DAMAGED OR TEMPORARILY RELOCATED IMPROVEMENTS TO A CONDITION EQUAL TO OR BETTER THAN THEY WERE PRIOR TO SUCH DAMAGE OR TEMPORARY RELOCATION.
3. ALL EXISTING IMPROVEMENTS REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND.

TYPICAL PHOTO DESIGNATION SYSTEM

1. DWG C-3 (WHERE THE PHOTO IS TAKEN FROM):



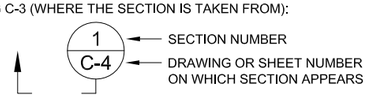
2. DWG C-4 (WHERE THE PHOTO APPEARS):



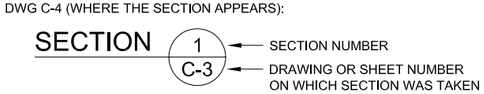
3. IF THE PHOTO APPEARS ON THE SAME DWG IT IS TAKEN FROM:

TYPICAL SECTION DESIGNATION SYSTEM

1. DWG C-3 (WHERE THE SECTION IS TAKEN FROM):



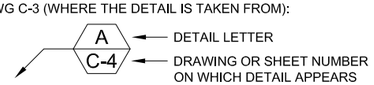
2. DWG C-4 (WHERE THE SECTION APPEARS):



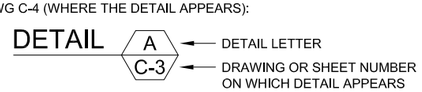
3. IF THE SECTION APPEARS ON THE SAME DWG IT IS TAKEN FROM:

TYPICAL DETAIL DESIGNATION SYSTEM

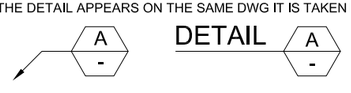
1. DWG C-3 (WHERE THE DETAIL IS TAKEN FROM):



2. DWG C-4 (WHERE THE DETAIL APPEARS):



3. IF THE DETAIL APPEARS ON THE SAME DWG IT IS TAKEN FROM:



GENERAL

- EXISTING EQUIPMENT OR MATERIALS TO BE REMOVED (SCREENED)
- EXISTING PIPING, EQUIPMENT OR STRUCTURES (SCREENED)
- NEW PIPING, EQUIPMENT OR STRUCTURES
- BURIED OR HIDDEN EXISTING PIPING, EQUIPMENT OR STRUCTURES (SCREENED)
- BURIED OR HIDDEN NEW PIPING, EQUIPMENT OR STRUCTURES
- CENTERLINE
- PROPERTY LINE OR MATCH LINE
- WATER SURFACE

ARCHITECTURAL AND STRUCTURAL

- CONCRETE
- NEOPRENE, RUBBER, OR PLASTIC
- GRATING
- STEEL OR STAINLESS STEEL
- MORTAR OR GROUT
- ALUMINUM
- REINFORCEMENT IN SECTION
- CHECKER PLATE

GATES

- SLUICE
- SLIDE
- STOP

PIPING

- ELBOW UP
- ELBOW DOWN
- UNION
- STRAINER

CIVIL

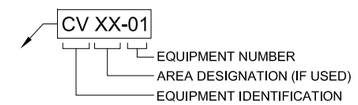
- CONCRETE
- NATIVE GROUND OR GRADE
- AC PAVEMENT IN PLAN
- AC PAVEMENT IN SECTION
- GRASS
- GRANULAR MATERIAL SUCH AS CRUSHED ROCK, GRAVEL, AGGREGATE BASE
- RIPRAP
- FENCE
- EXISTING GRADE CONTOURS (SCREENED) — 110
- FINISH GRADE CONTOURS — 110
- EXISTING SPOT ELEVATION (SCREENED) — 120.0 x
- FINISH GRADE SPOT ELEVATION — 120.0 x
- NORTHING AND EASTING — N 3043.17, E 1029.25
- SWALE OR DEPRESSION
- FLOWLINE WITH DIRECTIONAL ARROW
- SLOPE (3 HOR. TO 1 VERT.) — 3:1
- CUT OR FILL SLOPE; ARROWS POINT DOWN SLOPE
- TREES, SHRUBS, OR HEDGES
- BURIED VALVE
- MANHOLE — MH OR (MH)
- CB CATCH BASIN OR INLET
- HYDRANT
- LIGHT POST
- BOLLARD
- B5 SOIL BORING AND DESIGNATION (REFER TO SOILS REPORT FOR LOCATION)

VALVES

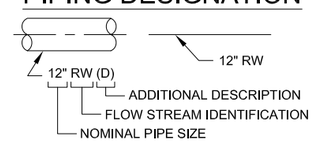
- GATE
- PLUG
- ECCENTRIC PLUG
- BUTTERFLY
- SWING CHECK
- DOUBLE DOOR CHECK
- GLOBE
- BALL
- PINCH
- DIAPHRAGM
- (BACK) PRESSURE (REDUCING/REGULATING)
- SOLENOID — S
- MOTORIZED — M
- AIR RELIEF
- PRESSURE RELIEF, VACUUM RELIEF

EQUIPMENT IDENTIFICATION

CV	CONTROL VALVE
CP	COMPRESSOR
F	FAN
LCV	LEVEL CONTROL VALVE
ME	MECHANICAL EQUIPMENT (MIXER, CLARIFIER, ETC)
P	PUMP
PCV	PRESSURE CONTROL VALVE
PRV	PRESSURE REDUCING VALVE / PRESSURE RELIEF VALVE
PSV	PRESSURE SAFETY VALVE
SG	SLUICE GATE
TK	TANK
V	VALVE (MANUAL, CHECK, ETC)



PIPING DESIGNATION



REVISIONS			
NO	DESCRIPTION	DATE	BY

REGISTERED PROFESSIONAL ENGINEER — MICHAEL JOHN BARNES — 02/26/08 — NO. C 34038 — EXP. 06/30/09 — CIVIL — STATE OF CALIFORNIA

WHITLEY BURCHETT & *ASSOCIATES*
Walnut Creek, California
(925) 945-6850

DESIGN	CP
DRAWN	CP
CHECKED	MB

JOB NUMBER SMC 07-01
DATE FEBRUARY 2008

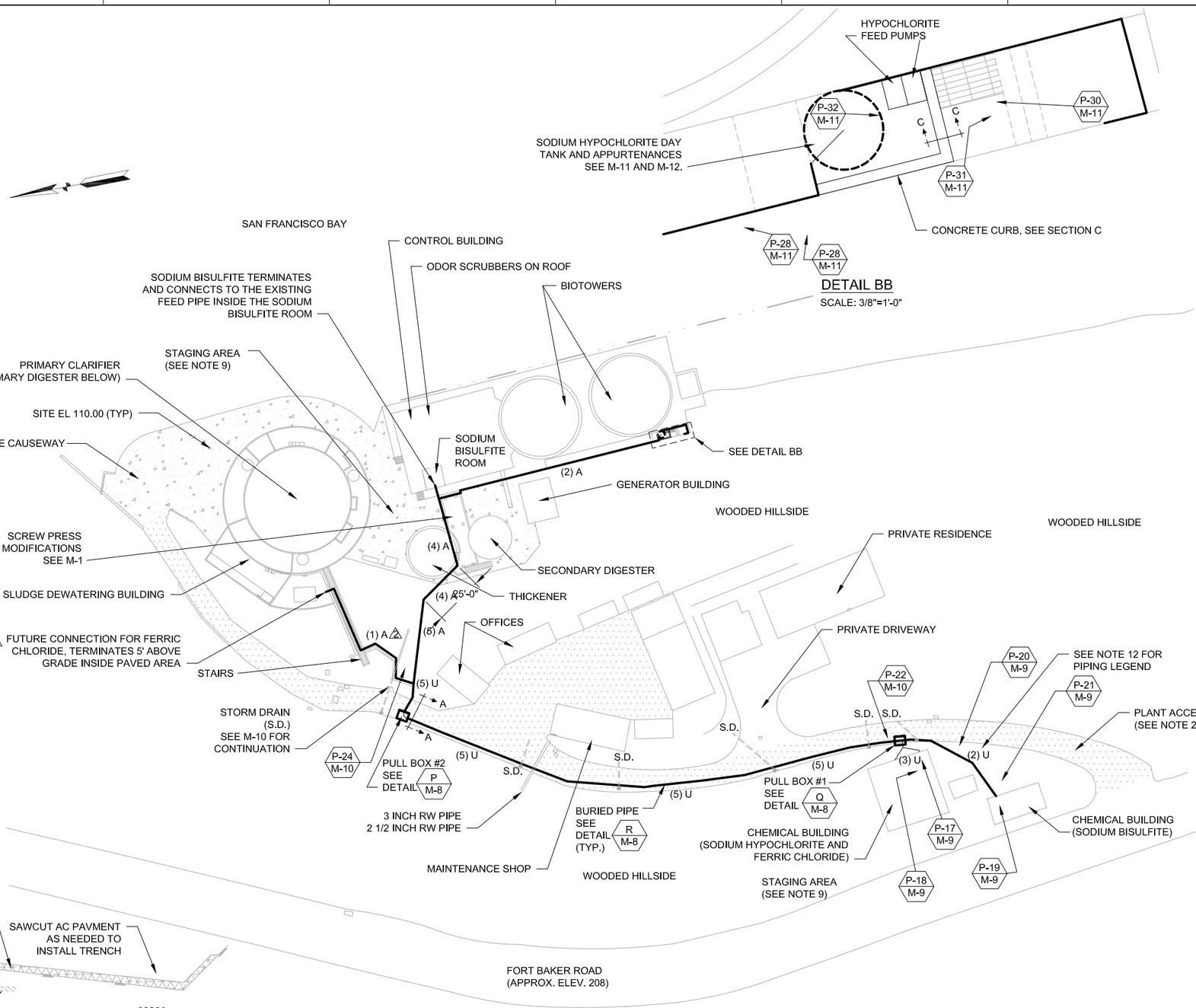
LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

SAUSALITO MARIN COUNTY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

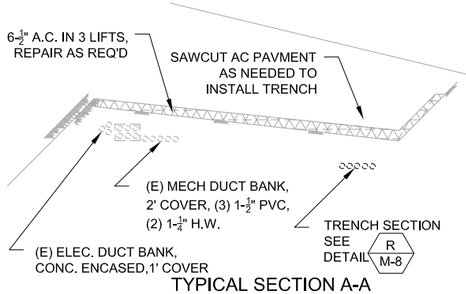
LEGEND

REV. ---
DWG. NO. G-2
2 OF 37

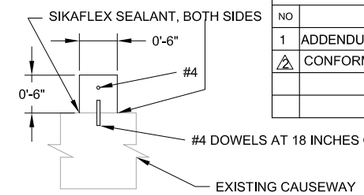


SITE PLAN

1 INCH = 30 FEET



TYPICAL SECTION A-A



SECTION C

SCALE: 3/8"=1'-0"

REVISIONS			
NO	DESCRIPTION	DATE	BY
1	ADDENDUM NO. 1 - REISSUANCE	3/21/08	CP
2	CONFORMED DRAWING	6/02/08	CP

NOTES:

1. FOR CHEMICAL BUILDING INTERIORS, SEE P-17, P-18 AND P-19 ON SHEET M-9.
2. PAVED ACCESS ROAD IS SINGLE LANE WITH GRADE AS STEEP AS 18%.
3. ELEVATIONS ARE BASED ON A SEA LEVEL ELEVATION OF 100.00.
4. CONTRACTOR SHALL FIELD DETERMINE AND ADJUST PIPING SUPPORTS SO THAT ALL PIPELINES ARE CONTINUOUSLY SLOPED DOWNWARD FROM THE CHEMICAL BUILDINGS TO THE APPLICATION POINTS.
5. ALL BURIED PIPING SHALL BE PLACED AT A MINIMUM DEPTH OF 2'-6" FROM GRADE UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER OR SHOWN OTHERWISE.
6. ALL EXPOSED PIPING ALONG THE WOODED HILLSIDE SHALL BE SUPPORTED, SEE DETAILS J & K, ON M-7. SPACING BETWEEN SUPPORTS SHALL NOT EXCEED 6' UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER. EXPOSED PIPING INSIDE THE TREATMENT PLANT SHALL BE SUPPORTED AND ANCHORED TO THE EXISTING STRUCTURES WITH NON-METALLIC SUPPORT SYSTEM, PER SPECIFICATION SECTION 15062.
7. THE ENTIRE SODIUM BISULFITE PIPING SHALL BE HEAT TRACED WITH HEAT TRACING TAPE, RATED 3 WATTS/FT, FROM THE CHEMICAL BUILDING TO THE APPLICATION POINT. THE HEAT TRACING TAPE SHALL BE INSTALLED (PULLED) WITH THE CHEMICAL TUBING INSIDE THE CARRIER PIPE. SPLICING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATION OF THE MANUFACTURER. THE EXPOSED PIPE SECTIONS SHALL BE INSULATED WITH ½" THICK FIBERGLASS INSULATION W/VINYL JACKET. CONTRACTOR SHALL PROPOSE AND SUBMIT A COMPLETED HEAT TRACING SYSTEM, INCLUDING INSTALLATION DETAILS AND CONTROL FEATURES, TO THE CONSTRUCTION MANAGER FOR REVIEW PER SPECIFICATION SECTION 01300. THE DESIGN PARAMETERS FOR THE SODIUM BISULFITE HEAT TRACING ARE AS FOLLOWS:
   A. HEAT TRACING TAPE (SELF REGULATING) WILL BE PLACED INSIDE 2" PVC PIPE. THIS PIPE IS A CARRIER PIPE FOR 1" TUBING WHICH CARRIES SODIUM BISULFITE SOLUTION.
   B. HEAT TRACING TAPE NEEDS TO BE FLEXIBLE AND STRONG ENOUGH FOR "PULLING" INSIDE THE PVC PIPE.
   C. ½" THICK FIBERGLASS PIPE INSULATION WILL BE APPLIED TO THE EXPOSED PIPE SECTION.
   D. SODIUM BISULFITE TEMPERATURE IS ASSUMED TO BE 60 DEG WHEN IT ENTERS THE PIPING SYSTEM.
   E. FOR DESIGN PURPOSES, THE AMBIENT TEMPERATURE MAY BE ASSUMED TO BE 25 DEG. F. THE ANNULAR SPACE BETWEEN THE PVC PIPE AND 1" TUBING SHALL BE MAINTAINED AT 60 DEG. MINIMUM.
   F. A CONTROL DEAD BAND OF 10 DEG. OR LESS WILL BE ACCEPTABLE.
   G. SIMPLE CONTROL SCHEME IS PREFERRED. (THERMOSTAT CONTROL FOR ON/OFF OPERATION OF THE TRACING TAPE.
   H. FLOW RATE OF SODIUM BISULFITE: 0.2 to 1.0 GALLONS PER MINUTE
8. CHEMICAL PIPING SHALL BE MARKED WITH ½" WIDE ELECTRICAL TAPES. MARKING SHALL BE APPLIED TO EACH STRAIGHT RUN AND AT A MAXIMUM SPACING OF 10'. MARKINGS SHALL BE COLOR CODED AS FOLLOW:
   8.1. SODIUM HYPOCHLORITE: ORANGE
   8.2. SODIUM BISULFITE: GREEN
   8.2. FERRIC CHLORIDE: BROWN
9. PARKING AND STAGING AREA TO BE IN THE PULLOUT AREAS AT THE TOP OF THE DRIVEWAY ON FORT BAKER ROAD, BUT NOT IN FRONT OF THE CHEMICAL STORAGE BUILDINGS. THE CAUSEWAY MAY BE USED AS A STAGING AREA AS LONG AS ACCESS TO EQUIPMENT IS NOT BLOCKED. ALL VEHICLES NOT REQUIRED FOR CURRENT CONSTRUCTION SHOULD BE PARKED ON FORT BAKER ROAD.
10. CONTRACTOR SHALL OVER EXCAVATE AND BACKFILL WITH 6" THICK CLASS II AB FOR PULL BOXES FOUNDATION.
11. CONTRACTOR TO EXPLORE AND CONFIRM ALL UTILITY CROSSINGS PRIOR TO TRENCHING AND REPORT SIZE AND VERTICAL ELEVATIONS TO OWNER WITHIN 30 DAYS AFTER NOTICE TO PROCEED.
12. CHEMICAL PIPING LEGEND:
    U: Underground
    A: Above grade
    (4) U
    Number of Pipes
13. ALL CHEMICAL PIPING SHALL BE DOUBLE CONTAINED PER DETAILS ON M-7, EXCEPT WHERE INDICATED OTHERWISE ON THE DRAWINGS.
14. FERRIC CHLORIDE LINE SHALL BE SUPPORTED UNDERNEATH STAIRS ON EXISTING UNISTRUTS. SUPPORT ALONG THE EXISTING RETAINING WALL PER DETAIL L, SHEET M-7.

REGISTERED PROFESSIONAL ENGINEER MICHAEL JOHN BURCHETT 05/01/08 NO. C 34038 EXP. 06/30/09 CIVIL STATE OF CALIFORNIA

WHITLEY BURCHETT & *ASSOCIATES* Walnut Creek, California (925) 945-6850	DESIGN CP DRAWN CP CHECKED MB	JOB NUMBER SMC 07-01 DATE MAY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	**SAUSALITO MARIN COUNTY SANITARY DISTRICT** MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	SITE PLAN AND YARD PIPING	REV. --- DWG. NO. C-1 3 OF 37

GENERAL STRUCTURAL NOTES

G1 SCOPE

1. THE GENERAL NOTES AND TYPICAL DETAILS APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFICATIONS TO THE CONTRARY.

2. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE (CBC 2007) EXCEPT WHERE OTHER APPLICABLE CODES OR PROJECT DOCUMENTS ARE MORE RESTRICTIVE.

3. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS AND DIMENSIONS PRIOR TO FABRICATION AND INSTALLATION.

4. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND THE SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY REQUIREMENTS OF ALL OTHER TRADES AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.

5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL LATEST SAFETY PRECAUTIONS AND REGULATIONS DURING CONSTRUCTION. THE ENGINEER WILL NOT ADVISE NOR ISSUE DIRECTIONS AS TO SAFETY PRECAUTIONS AND PROGRAMS.

6. CONTRACTORS SHALL VISIT THE PROJECT SITE PRIOR TO BID TO ASCERTAIN CONDITIONS WHICH MAY ADVERSELY AFFECT THE WORK OR COST THEREOF.

7. THE STRUCTURAL DRAWINGS HEREIN REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF ERECTION BRACING, SHORING TEMPORARY SUPPORTS, ETC. ARE THE SOLE RESPONSIBILITY OF THECONTRACTOR.

8. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES AND SEQUENCES OF PROCEDURES TO PERFORM THE WORK. THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

9. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN. SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO APPROVAL BY THE ENGINEER. STRUCTURAL DRAWINGS SHALL NOT BE SCALED.

10. ALL STRUCTURAL SYSTEMS WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH THE SUPPLIER'S INSTRUCTIONS AND REQUIREMENTS.

11. LOADING APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. THE LIVE LOADS USED IN THE DESIGN OF THIS STRUCTURE ARE INDICATED IN THE "DESIGN CRITERIA". DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND UNTIL ALL TEMPORARY SHORING AND BRACING IS IN PLACE.

12. ALL ASTM AND OTHER REFERENCES ARE PER THE LATEST EDITIONS OF THESE STANDARDS, UNLESS OTHERWISE NOTED.

13. SHOP DRAWINGS AND OTHER ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. ALL SHOP DRAWINGS SHALL BE REVIEWED, STAMPED AND SIGNED BY THE GENERAL CONTRACTOR BEFORE SUBMITTAL. THE ENGINEER'S REVIEW IS TO BE FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE RELEVANT CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW, CHECK AND COORDINATE THE SHOP DRAWINGS PRIOR TO SUBMISSION. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, DIMENSIONS, ETC.

14. SPECIAL INSPECTIONS

IN ACCORDANCE WITH SECTION CBC 2007, SPECIAL INSPECTIONS WILL BE REQUIRED FOR THIS PROJECT. SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE "SCHEDULE OF SPECIAL INSPECTIONS". ALL FABRICATORS SHALL SATISFY THE "EXCEPTION" NOTED IN SECTION 1705.2.2, WHICH REQUIRES THE FABRICATOR TO MAINTAIN AN AGREEMENT WITH AN APPROVED INDEPENDENT INSPECTION OR QUALITY CONTROL AGENCY. THE CONTRACTOR SHALL NOTIFY THE SPECIAL INSPECTOR AT LEAST 48 HOURS IN ADVANCE FOR WORK THAT WILL REQUIRE INSPECTION OR TESTING. SPECIAL INSPECTIONS ARE REQUIRED FOR THE FOLLOWING ITEMS:

A. ALL FIELD AND SHOP WELDING

B. BOLTS CAST IN CONCRETE - EPOXY ANCHORS, WEDGE ANCHORS & ANCHOR RODS

C. FIBER REINFORCED POLYMER STRENGTHENING SYSTEM

15. DEFERRED ITEMS

THE FOLLOWING ITEMS ARE DEFERRED SUBMITTALS AND NOT DESIGNED BY THE ENGINEER OF RECORD:

A. METAL STAIRS, GRATINGS AND RAILINGS INCLUDING ALL ATTACHMENTS

B. EQUIPMENT ANCHORAGES
SUBMIT ITEMS TO ENGINEER FOR REVIEW. GENERAL CONTRACTOR SHALL REVIEW AND APPROVE DIMENSIONS AND DETAILS SHOWN ON THE SHOP DRAWINGS PRIOR TO SUBMITTAL. DRAWINGS AND CALCULATIONS SHALL BE PREPARED, SEALED AND SIGNED BY CALIFORNIA LICENSED CIVIL OR STRUCTURAL ENGINEER.

16. FIBER REINFORCED POLYMER STRENGTHENING SYSTEM

A. PROPOSED FRP COMPOSITE SYSTEM SHALL HAVE A CURRENT ICC EVALUATION REPORT AND BE INSTALLED ACCORDING TO THE CONTRACT DOCUMENTS, MANUFACTURER'S AND ICC RECOMMENDATIONS AND PROCEDURES.

B. CONTRACTOR SHALL HAVE A MINIMUM OF TEN (10) STRENGTHENING PROJECTS REFERENCES USING FRP COMPOSITE SYSTEMS FOR SIMILAR PROJECTS AND APPLICATIONS IN THE LAST TWO YEARS. THIS LIST SHALL BE INCLUDED IN THE SHOP DRAWING SUBMITTAL.

C. THE ONSITE SUPERVISOR, FOREMAN AND SATURATION/MIXING TECHNICIAN SHALL HAVE A MINIMUM OF THREE (3) YEARS EXPERIENCE ON AT LEAST FIFTEEN (15) DIFFERENT PROJECTS. THESE THREE INDIVIDUALS SHALL PROVIDE WRITTEN VERIFICATION FROM THE MATERIAL MANUFACTURER AS BEING FULLY TRAINED AND CERTIFIED TO INSTALL THE FRP.

D. COMPOSITE SYSTEM APPLICATOR SHALL SUBMIT WITNESS PANELS PREPARED AT THE JOBSITE FOR MATERIALS TESTING (ASTM D339). THE TESTING SHALL BE DONE BY AN INDEPENDENT TESTING LABORATORY TO VERIFY ALL SUBMITTED DESIGN PROPERTIES. TESTING SHALL BE PAID FOR BY THE OWNER. FIELD TEST RESULTS THAT ARE LOWER THAN THE DESIGN PROPERTIES SUBMITTED SHALL REQUIRE THE CONTRACTOR TO PAY FOR REMEDIAL MEASURES TO BE APPROVED BY THE ENGINEER OF-RECORD.

E. CONTRACTOR SHALL SUBMIT CALCULATIONS VERIFYING COMPLIANCE WITH THE DESIGN CRITERIA STATED ON THE CONTRACT DRAWINGS. CALCULATIONS SHALL BE BASED ON THE VERIFIED MATERIAL PROPERTIES AND CORRESPONDING LAYER THICKNESS AND SHALL BE STAMPED AND DESIGNED BY A CIVIL AND STRUCTURAL ENGINEER REGISTERED IN STATE OF CLIFORNIA.

F. CONTRACTOR SHALL VERIFY AND COORDINATE LOCATION OF ALL ANCHORS AND ANCHOR BOLTS IN EXISTING CONCRETE PRIOR TO INSTALLATION OF FRP STRENGTHENING SYSTEM.

CAST IN PLACE CONCRETE

C1 APPLICABLE CODE

CONCRETE CONSTRUCTION SHALL CONFORM TO THE 2005 EDITION OF THE ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-05 AND ACI 318R-05) PLUS SUPPLEMENT.

C2 REINFORCING STEEL

ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES (CRSI AND ACI-315) LATEST EDITION.

C3 DESIGN STRESSES

A. CONCRETE (MINIMUM 28 DAYS COMPRESSIVE STRENGTH) SHALL BE 4000 PSI UNLESS OTHERWISE NOTED.

B. REINFORCING STEEL- ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60 UNLESS NOTED OTHERWISE.

C4 CONCRETE COVER

WHERE NOT SPECIFICALLY CALLED OUT, CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

A. FOOTINGS AND FLOOR SLAB CAST AGAINST EARTH - 3"

B. FORMED SURFACES IN CONTACT W/ EARTH OR WEATHER - 2"

C. OTHERS - 1 1/2"

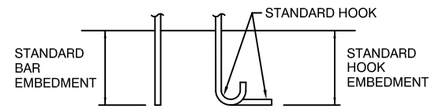
C5 EXTRA ACCESSORY BARS

IN ADDITION TO NORMAL ACCESSORIES USED TO HOLD REINFORCING STEEL FIRMLY IN POSITION, EXTRA ACCESSORY BARS SHALL BE USED WHEN REQUIRED TO CONFORM TO ACI TOLERANCES.

C6 BAR LAP SPLICES

1. ALL LAP SPLICES TO BE CLASS B, REFERENCE TABLE BELOW

REINFORCEMENT LAP SPLICE AND EMBEDMENT LENGTH								
BAR SIZE	BAR SPACING	** MIN. LAP LENGTH (IN.)				**MIN. EMBEDMENT LGTH.(IN)		
		TOP BARS		OTHER BARS		STRAIGHT BARS		WITH STD. HOOK
		CLASS		CLASS		TOP BARS	OTHER BARS	
		A	B	A	B			
REQUIREMENTS FOR SLABS & WALLS								
#3	6" TO 12"	14	19	12	14	14	12	6
#4		19	24	14	19	19	14	7
#5		23	30	18	23	23	18	9
#6		28	36	21	28	28	21	10
#7		32	42	25	32	32	25	12
#8		44	57	34	44	44	34	14
#9	6"	69	90	53	69	69	53	15
	7" TO 12"	55	72	43	55	55	43	
#10	6" TO 7"	88	114	67	88	88	67	17
	8" TO 12"	70	91	54	70	70	54	
#11	6" TO 8"	108	140	83	108	108	83	19
	9" TO 12"	86	112	66	86	86	66	



** FOR BAR CLEAR SPACING LESS THAN 3 BAR DIAMETER, ADD 40%
FOR BAR CLEAR SPACING LESS THAN 2 BAR DIAMETER, ADD 100%.

2. TOP BARS ARE ALL HORIZONTAL BARS PLACED SO THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BARS. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

C7 STANDARD HOOKS

ALL HORIZONTAL REINFORCING BARS SHALL BE TERMINATED IN STANDARD HOOKS UNLESS OTHERWISE SHOWN.

C8 CHAMFERS

EXCEPT WHERE OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.

STEEL

ST1 APPLICABLE CODE

STEEL CONSTRUCTION SHALL CONFORM TO SPECIFICATIONS AND STANDARDS PRESENTED IN THE AISC 9TH EDITION ASD STEEL CONSTRUCTION MANUAL.

ST2 MATERIAL

ALL STRUCTURAL STEEL SHAPES, BARS, PLATES AND SHEETS INDICATED ON THE DRAWINGS SHALL BE ASTM A-36 UNLESS OTHERWISE NOTED.

ST3 WELDING

WELDING SHALL CONFORM TO AWS D1.1 CODE LATEST EDITION FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. WELDER SHALL BE CERTIFIED BY AWS.

ST4 PAINTING

STRUCTURAL STEEL SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH SPECIFICATIONS.

REVISIONS			
NO	DESCRIPTION	DATE	BY

REGISTERED PROFESSIONAL ENGINEER
ROGESH B. PATEL
#1765
Exp. 6-30-2008
STRUCTURAL
STATE OF CALIFORNIA

2/25/08

Beyaz & Patel, Inc.
Consulting Engineers
W0715 Walnut Creek, California

WHITLEY BURCHETT & ASSOCIATES
Walnut Creek, California
(925) 945-6850

DESIGN W. MAN
DRAWN E. POSADAS
CHECKED C. PAO

JOB NUMBER SMC07-1
DATE FEBRUARY 2008

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

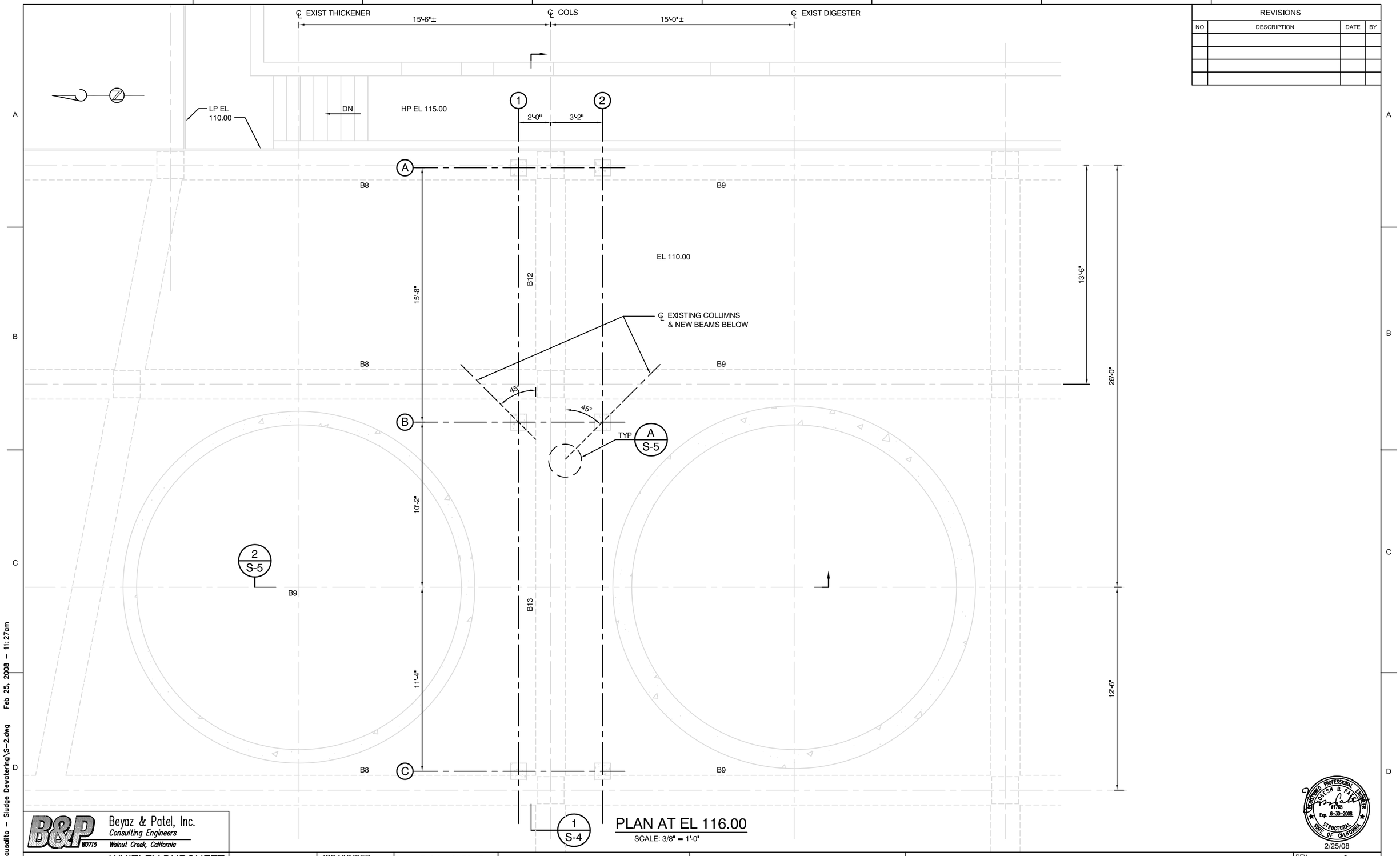
SAUSALITO MARIN CITY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

STRUCTURAL NOTES

REV. 0
DWG. NO. S-1
4 OF 37

T:\W0715 Sausalito - Sludge Dewatering\S-1.dwg Feb 25, 2008 - 11:26am



PLAN AT EL 116.00

SCALE: 3/8" = 1'-0"

REVISIONS			
NO	DESCRIPTION	DATE	BY

REGISTERED PROFESSIONAL ENGINEER — RAJESH B. PATEL — 21765 — Exp. 6-30-2008 — STRUCTURAL — STATE OF CALIFORNIA

2/25/08

Beyaz & Patel, Inc.
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DESIGN W. MAN
DRAWN E. POSADAS
CHECKED C. PAO

JOB NUMBER SMC07-1
DATE FEBRUARY 2008

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

SAUSALITO MARIN CITY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

PLAN AT EL 116.00

REV. 0
DWG. NO. S-2
5 OF 37

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REVISIONS			
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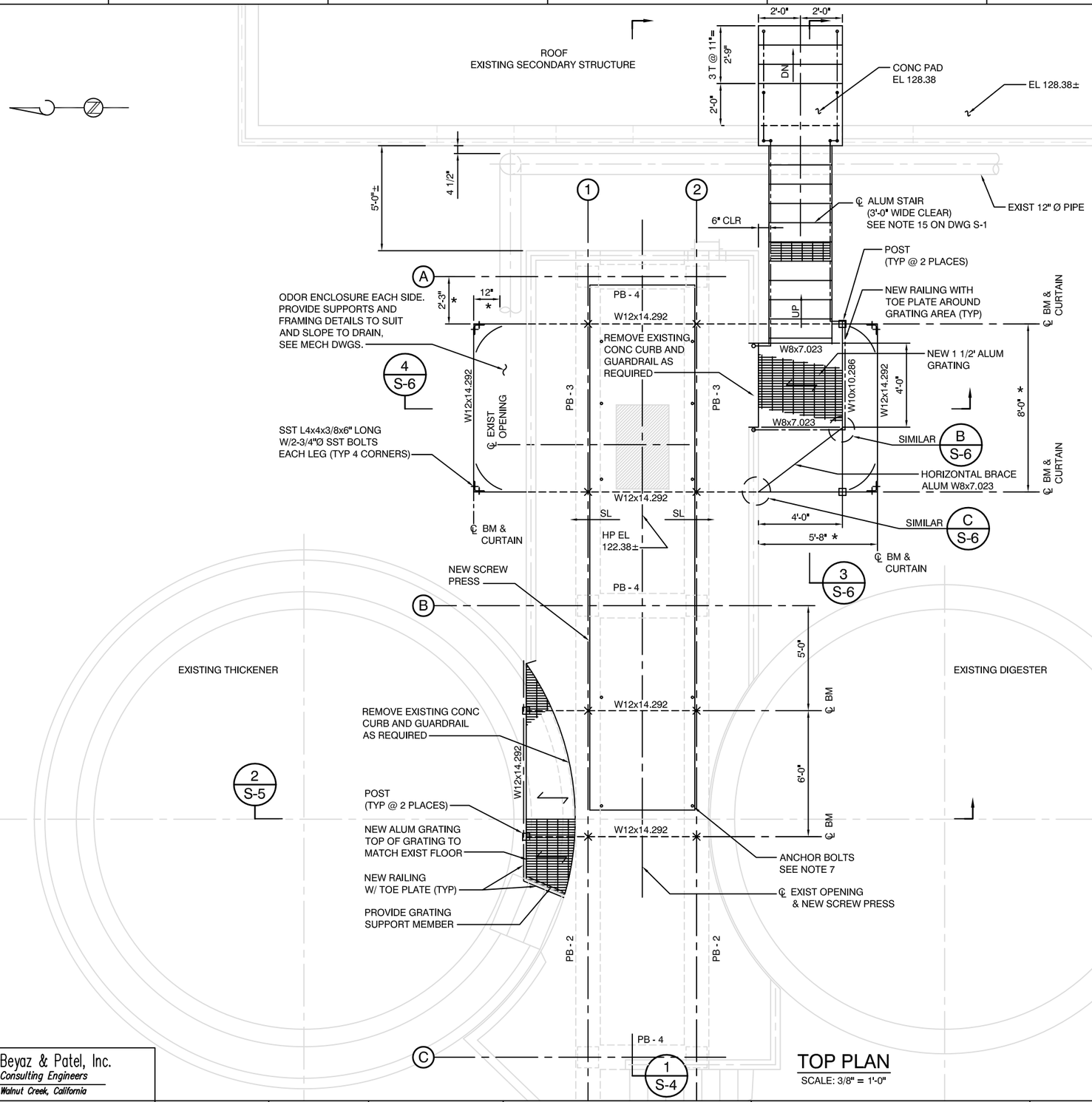

TOP PLAN

SCALE: 3/8" = 1'-0"

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND ELEVATIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION.
2. REMOVE, MODIFY AND REPLACE EXISTING RAILING AS REQUIRED. MODIFICATION AND REPLACEMENT OF RAILING SHALL CONFORM TO LATEST OSHA REQUIREMENTS.
3. ALL GRATINGS, RAILINGS AND STAIRS SHALL BE ALUMINUM AND ALL FASTENERS SHALL BE STAINLESS STEEL UNLESS INDICATED OTHERWISE. ALL BEAMS SHALL BE ALUMINUM, 6061-T6. SEE SPECIFICATIONS.
4. * VERIFY DIMENSIONS WITH MECHANICAL DRAWINGS.
5. DESIGN LIVE LOAD FOR METAL STAIR AND GRATING AREA = 100 PSF
6. FOR ODOR CONTROL ENCLOSURE AND CURTAIN SEE SECTION 2/M-5.
7. PROVIDE 10-1 1/8" DIAMETER SST AB WITH 4"X4"x1/4" SST PLATE THROUGH EXISTING SLAB. DRILL HOLES, SET BOLTS, LEVELING NUTS AND WASHERS WITH NON-SHRINK GROUT. VERIFY SIZE AND LOCATION WITH EQUIPMENT MANUFACTURER.

PROPERTIES OF EXISTING MATERIALS:

1. CONCRETE f'c=3000 psi
2. REINFORCING STEEL-ASTM A615 - GRADE 60.

REGISTERED PROFESSIONAL ENGINEER JOGESH B. PATEL M7765 Exp. 6-30-2008 STRUCTURAL STATE OF CALIFORNIA

2/25/08

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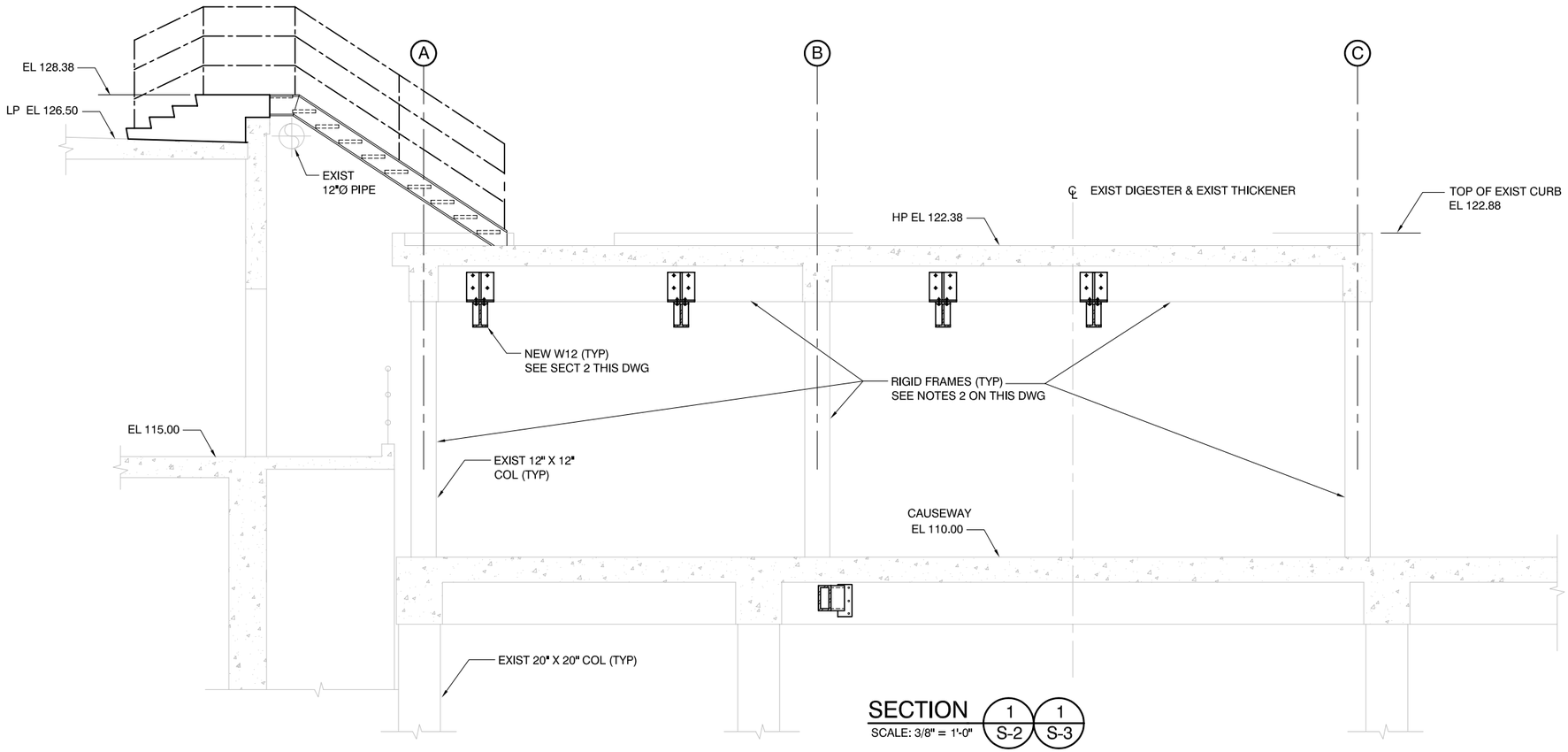
DESIGN W. MAN DRAWN E. POSADAS CHECKED C. PAO	JOB NUMBER SMC07-1 DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	**SAUSALITO MARIN CITY SANITARY DISTRICT** MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	TOP PLAN	REV. 0 DWG. NO. S-3 6 OF 37

T:\W0715 Sausalito - Sludge Dewatering\S-3.dwg Feb 25, 2008 - 11:28am

REVISIONS			
NO	DESCRIPTION	DATE	BY
1	CONFORMED DRAWING	6/2/08	CP



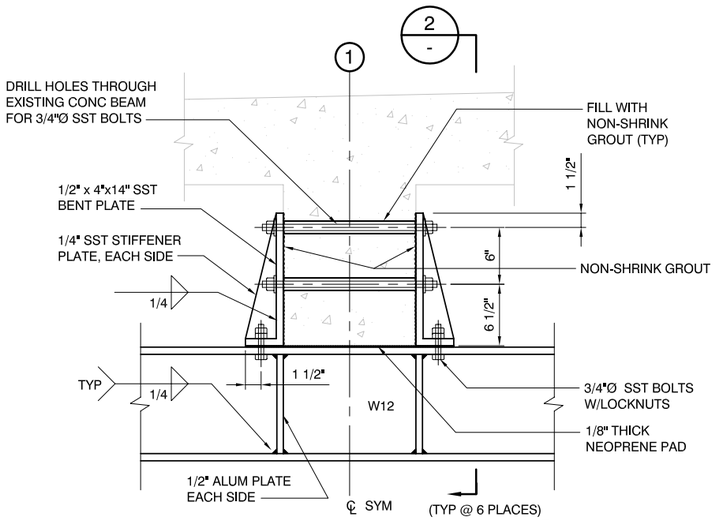
SECTION 1 / S-2 — 1 / S-3
SCALE: 3/8" = 1'-0"

NOTES:

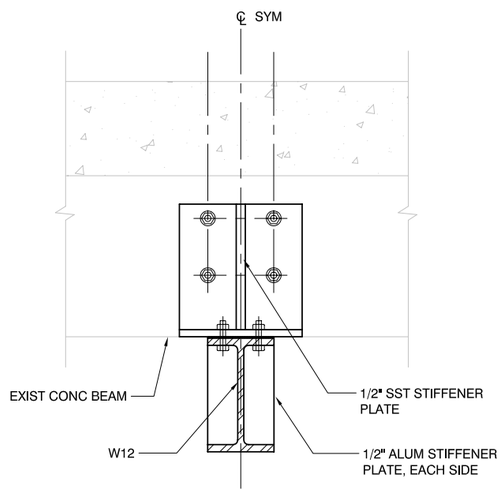
1. RIGID FRAME AT COLUMN LINE (2) AS SHOWN.
   RIGID FRAME AT COLUMN LINES (1) SIMILAR.
2. EXISTING REINFORCED CONCRETE RIGID FRAMES SHALL BE STRENGTHED USING EXTERNALLY BONDED FIBER REINFORCED POLYMER (FRP) SYSTEM. PER SPECIFICATION SECTION 13900.
3. ALL EXISTING COLUMNS SHALL BE STRENGTHENED FOR ADDITIONAL CAPACITIES AS FOLLOWS:

   SHEAR V_R = 4 KIPS FULL HEIGHT EACH DIRECTION
   MOMENT M_R = 68 ft KIPS FULL HEIGHT EACH FACE EACH DIRECTION

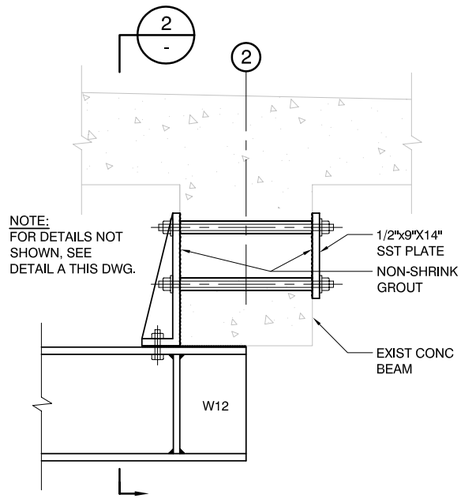
4. ALL EXISTING BEAMS SHALL BE STRENGTHENED FOR ADDITIONAL SHEAR AND MOMENT CAPACITIES, SEE DWG S-6.
5. ⚠1 THE BEAM CANTILIVERED ALONG COLUMN LINE #1, WEST OF COLUMN LINE #4 SHALL BE STRENGTHENED IN ACCORDANCE WITH NOTE 4 ABOVE.
6. ⚠1 REMOVE THE STAIRS AND GRATING ON THE WEST END OF COLUMN LINE C AS NEEDED SO THAT THE COLUMNS AND/OR BEAMS CAN PROPERLY PREPARED AND WRAPPED AS SPECIFIED.



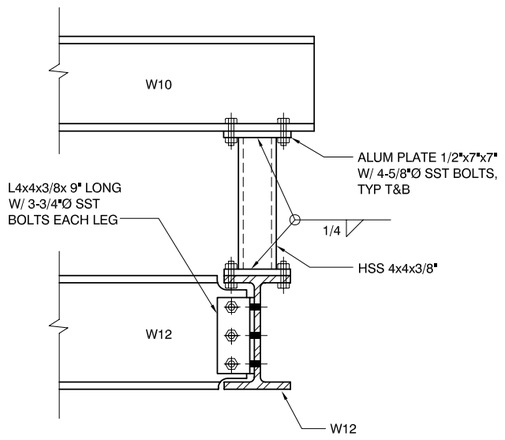
DETAIL A / S-6
SCALE: 1 1/2" = 1'-0"



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



DETAIL B / S-5
SCALE: 1 1/2" = 1'-0"



DETAIL C / S-6 (TYP)
SCALE: 1 1/2" = 1'-0"

2/25/08

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Consulting Engineers
W0715 Walnut Creek, California

WHITLEY BURCHETT & ASSOCIATES
Walnut Creek, California
(925) 945-6850

DESIGN	W. MAN	JOB NUMBER SMC07-1	LINE IS 2 INCHES AT FULL SCALE
DRAWN	E. POSADAS	DATE FEBRUARY 2008	IF NOT 2 INCHES, SCALE ACCORDINGLY
CHECKED	C. PAO		

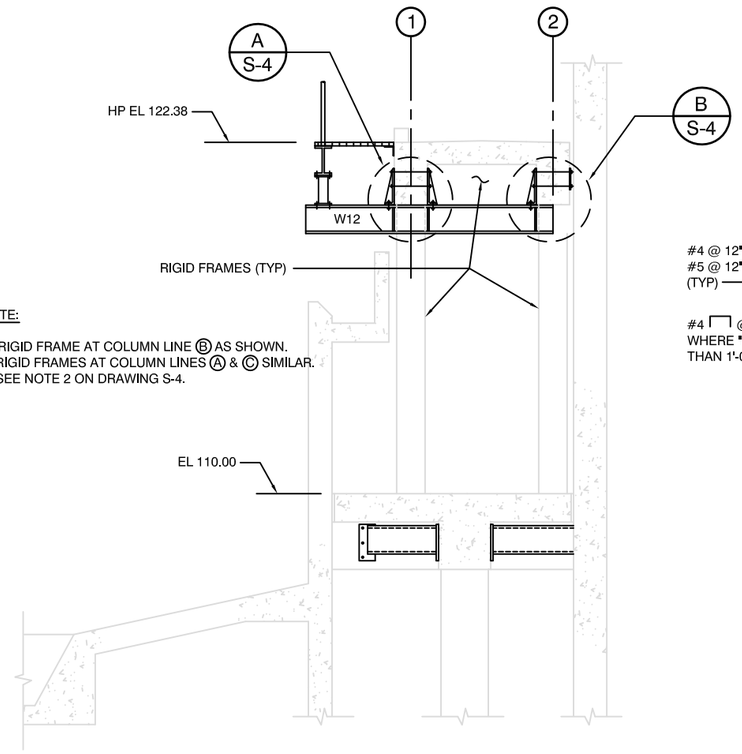
SAUSALITO MARIN CITY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

SECTIONS AND DETAILS

REV. 0
DWG. NO. S-4
7 OF 37

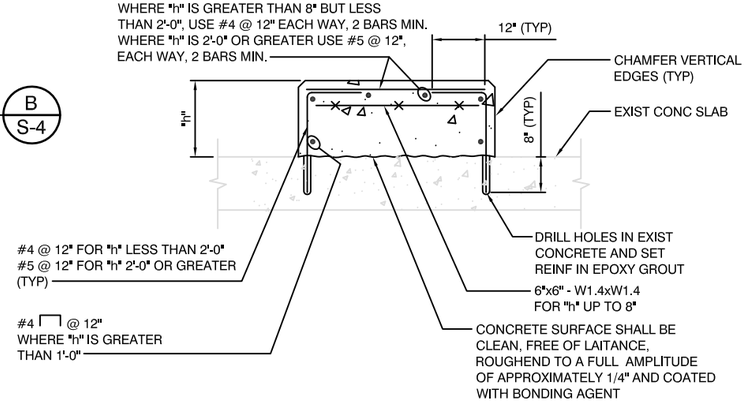
T:\W0715 Sausalito - Sludge Dewatering\S-4.dwg Jun 02, 2008 - 10:40am



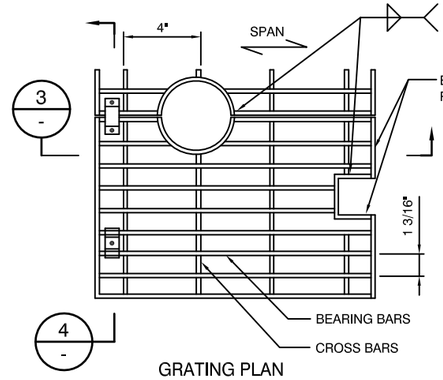
NOTE:

1. RIGID FRAME AT COLUMN LINE Ⓑ AS SHOWN. RIGID FRAMES AT COLUMN LINES Ⓐ & Ⓒ SIMILAR. SEE NOTE 2 ON DRAWING S-4.

SECTION 2/S-2 2/S-3
SCALE: 3/8" = 1'-0"



EQUIPMENT PAD C VAR
NTS

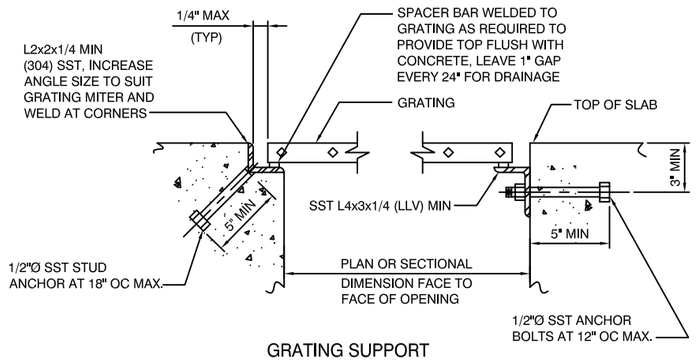


GRATING PLAN

REVISIONS			
NO	DESCRIPTION	DATE	BY

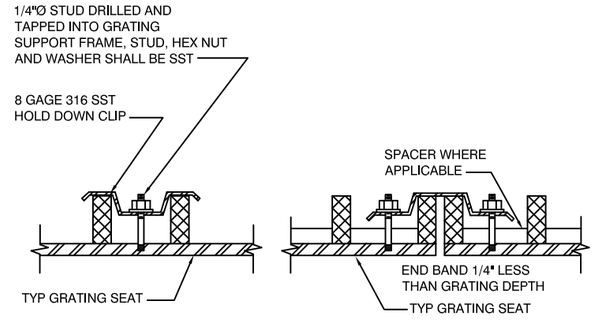
NOTES:

1. GRATING SHALL CONFORM TO THE METAL BAR GRATING MANUAL OF NAAMM. UNLESS OTHERWISE SPECIFIED, GRATING SHALL BE ALUMINUM.
2. GRATING SHALL BE SWAGED AND FORGED.
3. GRATING SHALL BE REMOVABLE.
4. PROVIDE 4 GRATING CLIPS APPROX 4" FROM THE CORNERS OF EACH PIECE. ADJACENT PIECES MAY BE ANCHORED WITH ONE CLIP AND TWO STUDS.
5. CLEAR SPAN SHALL BE PLAN DIMENSION, FACE TO FACE OF OPENING.
6. END BAND TO BE A 1/4" LESS THAN GRATING DEPTH.

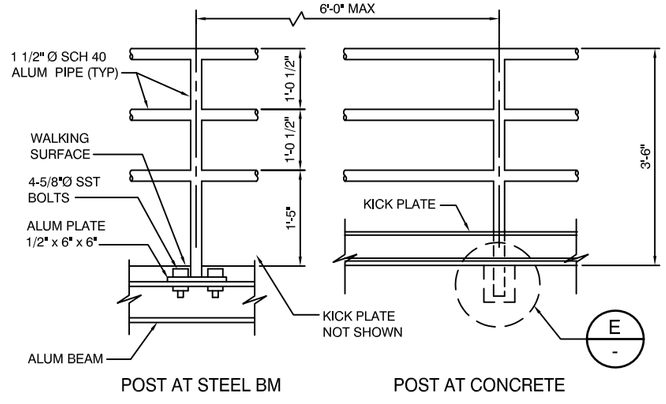


GRATING SUPPORT

SECTION 3
NTS

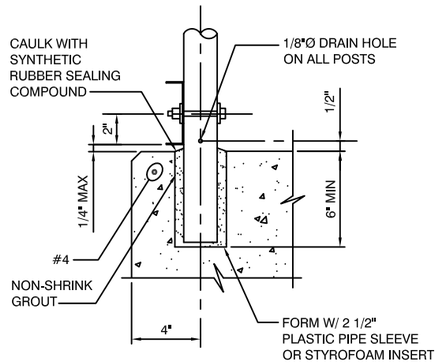


SECTION 4
NTS



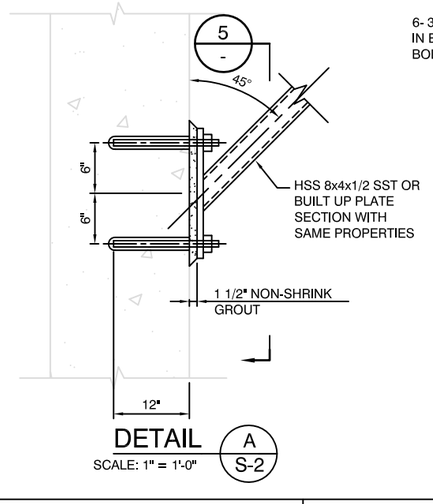
POST AT STEEL BM POST AT CONCRETE

GUARDRAIL ELEVATION D VAR
NTS

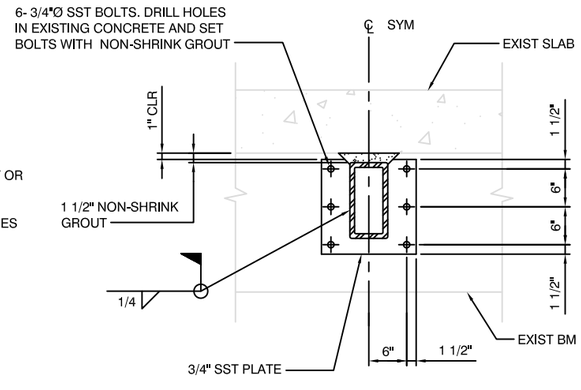


DETAIL E
NTS

GRATING DETAIL B VAR
NTS



DETAIL A S-2
SCALE: 1" = 1'-0"



(TYPICAL @ 4 PLACES)

SECTION 5
SCALE: 1" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER RAJESH B. PATEL #17765 Exp. 6-30-2008 STRUCTURAL STATE OF CALIFORNIA

2/25/08

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Walnut Creek, California
(925) 945-6850

DESIGN	W. MAN	JOB NUMBER SMC07-1	LINE IS 2 INCHES AT FULL SCALE
DRAWN	E. POSADAS	DATE FEBRUARY 2008	IF NOT 2 INCHES, SCALE ACCORDINGLY
CHECKED	C. PAO		

SAUSALITO MARIN CITY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

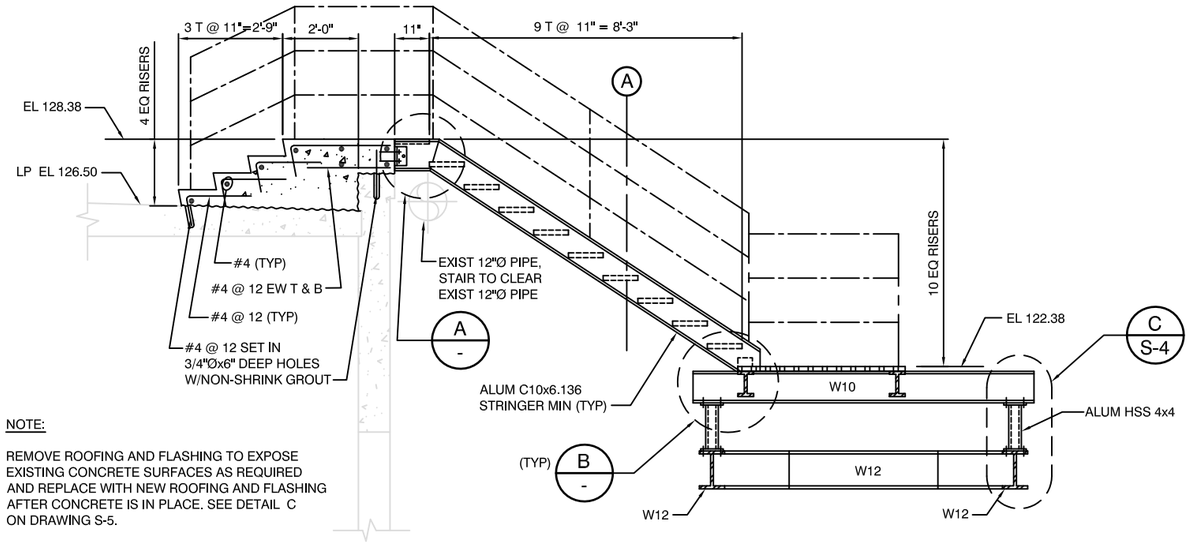
SLUDGE DEWATERING PROJECT

SECTIONS AND DETAILS

REV. 0
DWG. NO. S-5
8 OF 37

T:\W0715 Sausalito - Sludge Dewatering\S-5.dwg Feb 25, 2008 - 11:30am

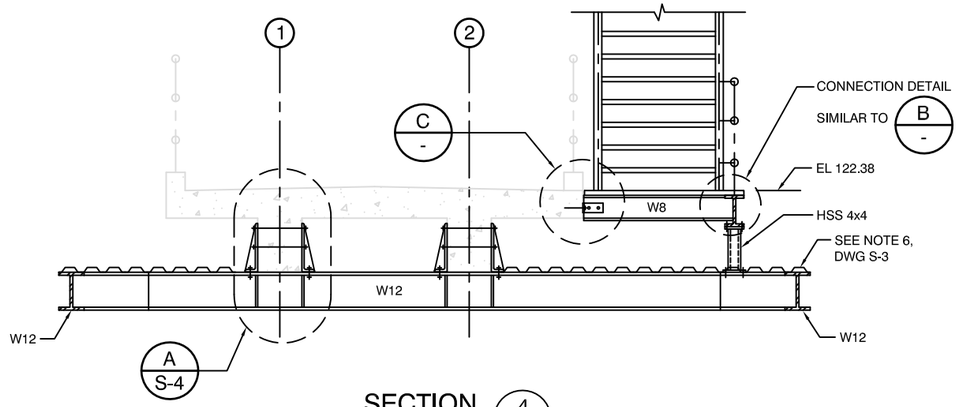
REVISIONS			
NO	DESCRIPTION	DATE	BY



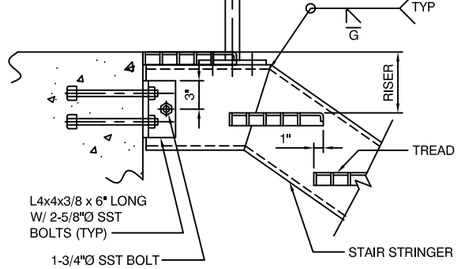
NOTE:

REMOVE ROOFING AND FLASHING TO EXPOSE EXISTING CONCRETE SURFACES AS REQUIRED AND REPLACE WITH NEW ROOFING AND FLASHING AFTER CONCRETE IS IN PLACE. SEE DETAIL C ON DRAWING S-5.

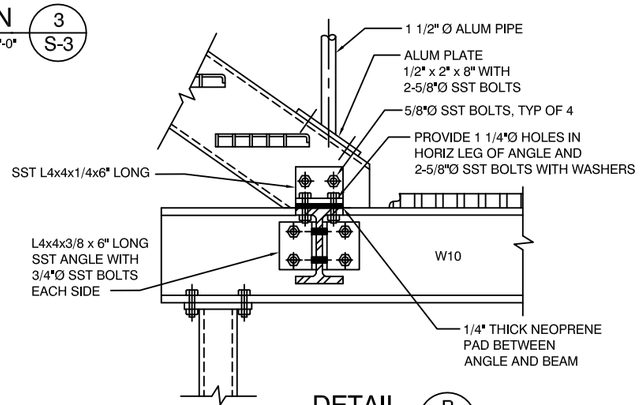
SECTION 3 S-3
SCALE: 1/2" = 1'-0"



SECTION 4 S-3
SCALE: 1/2" = 1'-0"



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



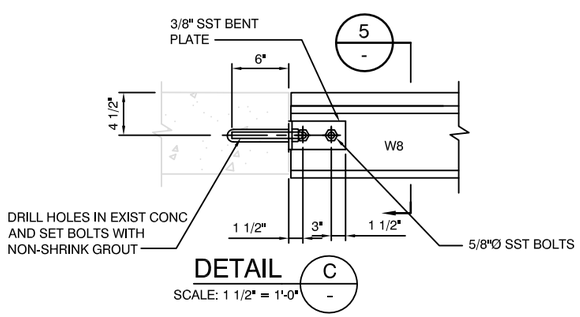
DETAIL B
SCALE: 1 1/2" = 1'-0"

BEAM SCHEDULE						
BEAM NO. SEE PLANS	EXISTING BEAM SIZE	M_R @ TOP OF END SUPPORT	M_R @ BOTTOM	M_R @ TOP OF INTERMEDIATE SUPPORT	V_R	REMARKS
PB - 2	14 x 28	34.0	16.0	54.0	16.0	ADDITIONAL ULTIMATE SHEAR CAPACITIES REQUIRED FOR 1/4 LENGTH OF THE BEAM SPAN
PB - 3	14 x 28	20.0	–	54.0	8.0	ADDITIONAL ULTIMATE SHEAR CAPACITIES REQUIRED FOR 1/4 LENGTH OF THE BEAM SPAN
PB - 4	14 x 28	38.0	–	–	16.0	ADDITIONAL CAPACITIES REQUIRED FULL LENGTH OF THE BEAM

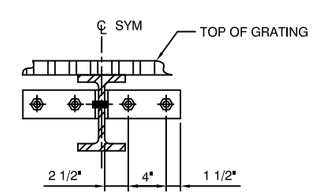
NOTE:

M_R - ADDITIONAL ULTIMATE MOMENT CAPACITY REQUIRED IN FT KIPS

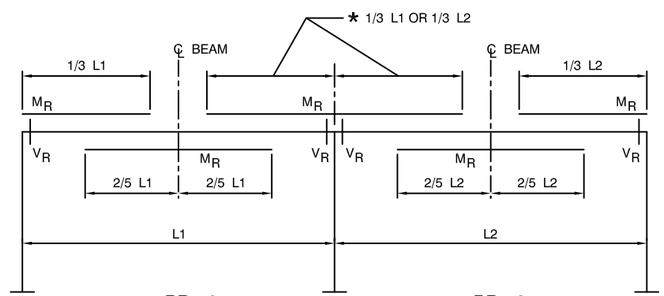
V_R - ADDITIONAL ULTIMATE SHEAR CAPACITY REQUIRED IN KIPS FROM FACE OF EACH SUPPORT AND IN BOTH DIRECTIONS FOR INTERMEDIATE SUPPORTS



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

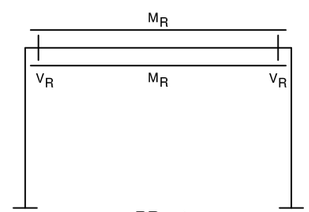


SECTION 5
SCALE:1 1/2" = 1'-0"



PB - 2 PB - 3

(TYPICAL 2 - PLACES)



PB - 4

(TYPICAL 3 - PLACES)

NOTE:

* WHICHEVER IS GREATER.

REGISTERED PROFESSIONAL ENGINEER DILESH B. PATEL #51765 Exp. 6-30-2008 STRUCTURAL STATE OF CALIFORNIA

2/25/08

Beyaz & Patel, Inc.
Consulting Engineers
W0715 Walnut Creek, California

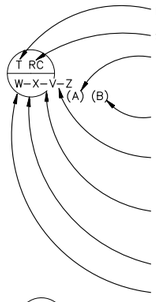
WHITLEY BURCHETT & ASSOCIATES
Walnut Creek, California
(925) 945-6850

DESIGN	W. MAN	JOB NUMBER SMC07-1	LINE IS 2 INCHES AT FULL SCALE	SAUSALITO MARIN CITY SANITARY DISTRICT MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	SECTIONS AND DETAILS	REV. 0
DRAWN	E. POSADAS	DATE FEBRUARY 2008	IF NOT 2 INCHES, SCALE ACCORDINGLY				DWG. NO. S-6
CHECKED	C. PAO						9 OF 37

T:\W0715 Sausalito - Sludge Dewatering\S-6.dwg Feb 25, 2008 - 11:31am

INSTRUMENT IDENTIFICATION

EXAMPLE SYMBOLS



- FIRST LETTER (S)
- SUCCEEDING LETTERS
- THE TOTAL NUMBER OF SETS OF UNITS (Y VARIES FROM 1 TO A)
- THE TOTAL NUMBER OF SETS OF UNITS (Z VARIES FROM 1 TO B)
- SET NUMBER (USED WHEN THERE ARE MULTIPLE SETS OF UNITS WITH THE SAME W–X–Y DESIGNATIONS)
- UNIT NUMBER (USED WHEN THERE ARE MULTIPLE UNITS WITH THE SAME W–X DESIGNATIONS)
- LOOP NUMBER
- UNIT PROCESS NUMBER

FIELD MOUNTED INSTRUMENT

REAR–OF–PANEL MOUNTED INSTRUMENT

PANEL MOUNTED INSTRUMENT

SHARED DISPLAY, SHARED CONTROL (DCS) PRIMARY LOCATION, NORMALLY ACCESSIBLE TO OPERATOR

SPECIAL CASES

ON AND OFF EVENT LIGHTS

OPENED AND CLOSED POSITION LIGHTS

OPENED AND CLOSED POSITION SWITCHES

ON–OFF HAND SWITCH. MAINTAINED CONTACT SWITCH (CONTROLLED DEVICE WILL RESTART ON RETURN OF POWER AFTER POWER FAILURE).

STOP–START HAND SWITCH MOMENTARY CONTACT SWITCHES (CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE).

ELECTRIC ACTUATOR WITH INTEGRAL OPEN–STOP–CLOSE MOMENTARY CONTACT CONTROL SWITCH

FLOW INDICATING, COMPUTER/MANUAL CONTROL STATION

FLOW INDICATING, COMPUTER/AUTO/MANUAL CONTROL STATION

INSTRUMENT SOCIETY OF AMERICA TABLE

	FIRST LETTER (S)		SUCCEEDING LETTERS		
LETTER	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (+)		ALARM		
B	BURNER FLAME		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
C	CONDUCTIVITY			CONTROL	
D	DENSITY (S.G)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAUGE		GLASS	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION				MIDDLE
N	USERS CHOICE (+)		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
O	USERS CHOICE (+)		ORIFICE		
P	PRESSURE (OR VACUUM)		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT(+)	INTEGRATE	INTEGRATE		
R			RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (+)		MULTIFUNCTION (+)	MULTIFUNCTION (+)	MULTIFUNCTION (+)
V	VISCOSITY			VALVE OR DAMPER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED (+)		UNCLASSIFIED (+)	UNCLASSIFIED (+)	UNCLASSIFIED (+)
Y	USERS CHOICE (+)			RELAY OR COMPUTE (+)	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.

TRANSDUCERS

A	ANALOG	I	CURRENT
D	DIGITAL	P	PNEUMATIC
E	VOLTAGE	PF	PULSE FREQUENCY
F	FREQUENCY	PD	PULSE DURATION
H	HYDRAULIC	R	RESISTANCE

EXAMPLE:

CURRENT TO PNEUMATIC TRANSDUCER (BACK OF PANEL, IN A FLOW LOOP)

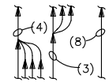
SELF CONTAINED VALVE & EQUIPMENT TAG NUMBERS

PAWDX–Y

- PA: PLANT ABBREVIATION
- W: UNIT PROCESS NUMBER
- D: ARV = AIR RELEASE VALVE
  - AVRV = AIR AND VACUUM RELEASE VALVE
  - E = EJECTOR
  - FCV = FLOW CONTROL VALVE
  - G = GATE
  - LCV = LEVEL CONTROL VALVE
  - M = MECHANICAL EQUIPMENT
  - P = PUMP
  - PCV = PRESSURE CONTROL VALVE
  - VRV = VACUUM RELIEF VALVE
  - PSV = PRESSURE RELIEF VALVE
  - T = TANK
  - TCV = TEMPERATURE CONTROL VALVE
  - AHU = AIR HANDLING UNIT
- X: LOOP NUMBER
- Y: UNIT NUMBER

LINE LEGEND

- PROCESS (CLOSED CONDUIT, DASHED LINE INDICATES ALTERNATE FLOW STREAM)
- PROCESS (OPEN CHANNEL)
- STOP LOGS
- ANALOG SIGNAL (4 TO 20 mAdc, ETC.)
- DISCRETE SIGNAL (ON/OFF, ETC.)
- PNEUMATIC SIGNAL
- FIELD SYSTEM SIGNAL
- HYDRAULIC SYSTEM SIGNAL
- BUILDING OR FACILITY BOUNDARY
- EXISTING BUILDING OR FACILITIES
- DATA LINK



PARALLELING LINES (PARENTHETICAL NUMBER INDICATES THE NUMBER OF SIGNALS REPRESENTED)

CONNECTING LINES

NON–CONNECTING LINES

INTERFACE SYMBOLS

= PROCESS INTERFACE

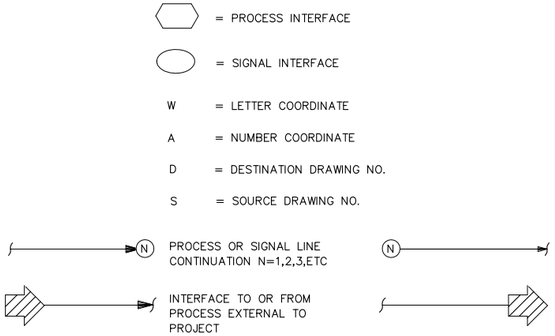
= SIGNAL INTERFACE

W = LETTER COORDINATE

A = NUMBER COORDINATE

D = DESTINATION DRAWING NO.

S = SOURCE DRAWING NO.



GENERAL NOTES

1. P & ID'S ARE FOR INFORMATION ON CONTROL CONCEPTS AND INSTRUMENTATION ONLY. REFER TO PLANS AND SPECIFICATIONS FOR DETAILS: PIPING: VALVING: PACKAGED EQUIPMENT CONTROLS AND MISCELLANEOUS ITEMS.
2. THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THE SYMBOLS ARE USED ON THIS PROJECT.

ABBREVIATIONS & LETTER SYMBOLS

AI	ANALOG INPUT
AM	AUTO–MANUAL
AO	ANALOG OUTPUT
CAM	COMPUTER–AUTO–MANUAL
CM	COMPUTER–MANUAL
CP–X	CONTROL PANEL NO. X
CG	COMBUSTIBLE GAS
CO	CARBON MONOXIDE
CTEL	CONNECT TO EXISTING LINE
CP/DCS	CONTROL PANEL/DCS
DSRSD	DUBLIN SAN RAMON SERVICES DISTRICT
DCS	DISTRIBUTED CONTROL SYSTEM
DCU	DISTRIBUTED CONTROL UNIT
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
(E)	EXISTING
ES	EMERGENCY STOP
FLP	FAIL IN LAST POSITION
FBM	FIELD BUS MODULE
FM	FORCE MAIN
FOR	FORWARD–OFF–REVERSE
FP–W–X	FIELD PANEL NO. WX WHERE W = UNIT PROCESS NUMBER X = PANEL NUMBER)
FR	FORWARD–REVERSE
FS	FAST – SLOW
GBT	GRAVITY BELT THICKENER
H_2S	HYDROGEN SULFIDE
HOA	HAND–OFF–AUTO
HOR	HAND–OFF–REMOTE
LA	LOCAL–AUTO
LP/DCS	LOCAL PANEL–DISTRIBUTED CONTROL SYSTEM
LOC	LOCAL (AT FIELD DEVICE)
LOS	LOCKOUT STOP
LP	LOCAL PANEL
L/S	LEAD–STANDBY
LR	LOCAL–REMOTE
MA	MANUAL–AUTO
MCC–X	MOTOR CONTROL CENTER NO. X
MW	MOTOR WINDINGS
NS	NORTH–SOUTH
O_2	OXYGEN
OC	OPEN–CLOSE (D)
OCA	OPEN–CLOSE–AUTO
OCR	OPEN–CLOSE–REMOTE
OCU	ODOR CONTROL UNIT
OO	ON–OFF – RTU REMOTE TERMINAL UNIT
OOA	ON–OFF–AUTO
OOR	ON–OFF–REMOTE
ORP	OXIDATION REDUCTION POTENTIAL
OSC	OPEN–STOP–CLOSE
REV	REVERSE
SBD	SODIUM BISULFITE DRAIN
SHD	SODIUM HYPOCHLORITE DRAIN
SLOS	START–LOCKOUT–STOP
S/D	SEDIMENTATION–DEWATERING
S/D/C	SEDIMENTATION–DEWATERING–CLOSED
SS	START–STOP
SSC	SUPERVISORY SET POINT CONTROL
VFD	VARIABLE FREQUENCY DRIVE
VHC	VOLATILE HYDROCARBON
*	PROVIDED AS PACKAGED EQUIPMENT

RTU TERMINATIONS

- △ DISCRETE INPUT
- ▽ DISCRETE OUTPUT
- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT

REVISIONS			
NO	DESCRIPTION	DATE	BY

REGISTERED PROFESSIONAL ENGINEER DIEP TAN NGUYEN No. 7072 Exp. 12/31/08 CONTROL SYSTEMS STATE OF CALIFORNIA 2-26-08

DTN ENGINEERS, INC.

WHITLEY BURCHETT & ASSOCIATES
Walnut Creek, California
(925) 945-6850

DESIGN	TP
DRAWN	EA
CHECKED	DN

JOB NUMBER SMC 07-1
DATE FEBRUARY 2008

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

SAUSALITO MARIN CITY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

INSTRUMENTATION LEGEND

REV. 0
DWG. NO. I-1
22 OF 37

SHEET NOTES:

1. INTERCEPT EXISTING CIRCUIT AND ROUTED TO LCP–SP AS A COMPLETE LOOP.
2. SCADA/PLC SOFTWARE IS PROVIDED BY OTHERS.

REVISIONS			
NO	DESCRIPTION	DATE	BY

SCADA (HMI)

LCP – SP
BY SCREW PRESS MANUFACTURER (OWNER–FURNISHED EQUIPMENT)

FIELD

LI 1 | LI 1 | PIR 801 / PI 801 | CLOSE ZLC 921 / OPEN ZLO 921 | FAIL UA 910 / RUN NL 910 | SI 910 | FIR 912 / FIQ 912 / FI 912 | SI 911 | NL 912 / UA 912 | SI 913 | RUN NL 913 / FAIL UA 913 | LI 910 | SI 915 | RUN NL 915 / FAIL UA 915 | UIC 930 | HIR 931 SEQUENCE SELECT

LI 1 | PI 801 / PAY 801 | ZLC 921 / ZLO 921 | FAIL UA 910 / RUN NL 910 / SIC 910 / SI 910 / HS 910 | REMOTE NL 910 | FI 912 | HS 911 / SI 911 / SIC 911 / RUN NL 911 / FAIL UA 911 | REMOTE NL 911 | HS 916 / HS 917 | SC 913 / HS 913 / HS 913 HOA SS VFD | LI 910 | HS 913 / SI 913 / SIC 913 / NL 913 / UA 913 | HS 915 / SI 915 / SIC 915 / NL 915 / UA 915 | SIC 915 / HS 915 / HS 915 HOA SS VFD

LIT 1 | LIT 1 | PRV 1 | PIT 801 | PI 910 | FIT 912 / FE 912 | V-923 | V-924 | 3" DSL | HS 913 | FLOCCULATION MIXER | LIT 910 | LE 910 | MAIN DRIVE | M

V-922 | LCP–SF | SS HS 910 / HS 910 / HS 910 HOA | VFD | 120VAC | SAMPLE | LCP–POLY | SC 911 / UA 911 / HS 911 HOA | SCREW PRESS ME–915

ZSO 921 / MOV 921 / ZSC 921 | PI 910 | 4" S | 3" DSL | MOV–921 | P–910 DIGESTED SLUDGE FEED PUMP | 1" PO (HOSE) | POL–911 POLYMER FEED SYSTEM | 1–1/2" PO | 4" D | TO SLUDGE CONTAINER BELOW | DRAIN TO THICKENER OUTLET | 4" D

PRIMARY DIGESTER (NIS) | SECONDARY DIGESTER (NIS) | DS | BYPASS FROM PRIMARY DIGESTER SLUDGE PUMP

NEAT POLYMER TOTE | FROM POTABLE WATER HEADER 55GPM@50PSIG | FROM UTILITY WATER HEADER 55GPM@50PSIG | 1" UW | SOV–916 | SOV–917

DTN ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER — DIEP TAN NGUYEN — No. 7072 Exp. 12/31/08 — CONTROL SYSTEMS — STATE OF CALIFORNIA — 2-26-08

WHITLEY BURCHETT & ASSOCIATES, Walnut Creek, California (925) 945-6850	DESIGN TP / DRAWN EA / CHECKED DN	JOB NUMBER SMC 07-1 / DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE — IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT, MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	PROCESS AND INSTRUMENTATION DIAGRAM SLUDGE DEWATERING SYSTEM	REV. 0 / DWG. NO. I-2 / 23 OF 37

REVISIONS			
NO	DESCRIPTION	DATE	BY

SHEET NOTES:

1. ALL SIGNALS ASSOCIATED WITH THE SODIUM HYPOCHLORITE SYSTEM SHALL BE PHYSICALLY ROUTED THROUGH NEW PLC REMOTE I/O DROP AS SHOWN.
2. SCADA/PLC SOFTWARE IS PROVIDED BY OTHERS.

SCADA (HMI)

EXISTING CONTROL BUILDING PLC\OIT (ANALYSER RM)

NEW REMOTE I/O DROP

LEAK AAH 703 — LEAK AAH 702 — LEAK AAH 701 — LAHH 701 / ZLO 701 — ZLC 701

RUN AUTO NL 710A / NL 710B — LEAK FAIL NAH 710 / UA 710

RUN AUTO NL 711A / NL 711B — LEAK FAIL NAH 711 / UA 711

EYE WASH FLOW ALARMS FAH 704

LC 701

LEAK AAH 703 — LEAK AAH 702 — LEAK AAH 701 — LYL 701 — LYH 701 — LAHH 701 — ZLO 701 — AUTO NL 701 — ZLC 701

RUN AUTO NL 710A / NL 710B — HS 710 — SI 710 — SIC 710 — LEAK FAIL NAH 710 / UA 710

RUN AUTO NL 711A / NL 711B — HS 711 — SI 711 — SIC 711 — LEAK FAIL NAH 711 / UA 711

FAH 704

TO WATERCHAM

RST HS 704 — I — FAH 704 BEACON LIGHT (MOUNT IT CLOSE TO SHOWER)

ZSO 701 / MOV 701 / HS 701 / ZSC 701

MOV-701

LSH 701 / LSHH 701 / LSL 701

AE 702 LEAK

AE 703 LEAK

TO YARD PIPING

AE 701 LEAK

SODIUM HYPOCHLORITE TANK T-701

NY 711 / HS 711 / SEC 711 / NAY 711A / NAY 711B

HYPO FEED PUMP NO. 2 P-711

AUTO DEGASSING VALVE (TYP)

NY 710 / HS 710 / SEC 710 / NAY 710A / NAY 710B

HYPO FEED PUMP NO. 1 P-710

FS 704

TEPID WATER SUPPLY

EYE WASH SHOWER

REGISTERED PROFESSIONAL ENGINEER — DIEP TAN NGUYEN — No. 7072 Exp. 12/31/08 — CONTROL SYSTEMS — STATE OF CALIFORNIA — 2-26-08

DTN ENGINEERS, INC.

WHITLEY BURCHETT & ASSOCIATES, Walnut Creek, California (925) 945-6850	DESIGN TP / DRAWN EA / CHECKED DN	JOB NUMBER SMC 07-1 / DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE — IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT, MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	PROCESS AND INSTRUMENTATION DIAGRAM SODIUM HYPOCHLORITE SYSTEM	REV. 0 / DWG. NO. I-3 / 24 OF 37

CONTROL DIAGRAM SYMBOLS

120V / 120V — CONTROL TRANSFORMER, PRIMARY AND SECONDARY VOLTAGES SHOWN, SIZE AS SHOWN OR SPECIFIED

40A — CIRCUIT BREAKER, THERMAL–MAGNETIC, 3 POLE, UON, RATING IN AMPS

DESIGNATES PLC INPUT TERMINATION OR CONTROL PANEL TERMINATION

ID — FUSE

MODIFIERS:
- CLF = CURRENT LIMITING FUSE
- DE = DUAL ELEMENT
- F = CLASS F

ID / DESCPTN — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY OPEN

ID / DESCPTN — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY CLOSED

ID / DESCPTN — STOP PUSHBUTTON WITH LOCKOUT

ID — SELECTOR SWITCH (H, O, A)
3 POSITION MAINTAINED CONTACT
X = CONTACTS CLOSED

LINE — LEGEND — INDICATING LIGHT
PUSH TO TEST, TEST VOLTAGE TERMINAL SHOWN

L = LENS COLOR:
- A = AMBER
- B = BLUE
- G = GREEN
- R = RED
- W = WHITE

2 CR — FUNCTION — CONTROL RELAY OPERATING COIL

CR = CONTROL RELAY
U = UNLATCH
L = LATCH

OL — THERMAL OVERLOAD RELAY

2CR 2CR — OUTPUT CONTACTS

2 TR — TIMING RELAY OPERATING COIL

ON or OFF DELAY
RANGE: SEC/MIN
SET: SEC/MIN

NORMALLY OPEN	NORMALLY CLOSE	
2TR OR TC	2TR OR TO	DELAY ON COIL ENERGIZATION (ON DELAY)
		POSITION (LIMIT) SWITCH
		TEMPERATURE SWITCH
		PRESSURE SWITCH

STANDARD ABBREVIATIONS

A	AMMETER
ATS	AUTOMATIC TRANSFER SWITCH
BCW	BARE COPPER WIRE
C	CONDUIT
C.O.	CONDUIT ONLY (EMPTY CONDUIT)
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CS	CONTROL SWITCH
CT	CONTACTOR (HEAVY DUTY)
FS	FLOAT SWITCH
G	GROUND
HZ	HERTZ
KVAR	REACTIVE POWER
KW	KILOWATT
KWHR	KILOWATTHOUR
I/O	INPUT/OUTPUT
LOS	LOCKOUT STOP
MTS	MANUAL TRANSFER SWITCH
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MF	MULTI–FUNCTION METER DISPLAY
MIN	MINIMUM
MSGR	MAIN SWITCHGEAR
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
PAIR OR PR	TWISTED, SHIELDED PAIRS
PB	PULL BOX
PLC	PROGRAMMABLE LOGIC CONTROLLER
QUAD	TWISTED, SHIELDED 4–CONDUCTOR CABLE
PP	POWER POLE
RTD	RESISTANCE THERMAL DETECTOR
RTU	REMOTE TERMINAL UNIT
SCADA	SUPERVISORY CONTROL & DATA ACQUISITION
SSRS	SOLID STATE REDUCED VOLTAGE STARTER
SWGR	SWITCHGEAR
THD	HARMONIC DISTORTION
TS	TEMPERATURE SWITCH
UON	UNLESS OTHERWISE NOTED
V	VOLTMETER
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHER PROOF (NEMA 4X)
XFMR	TRANSFORMER

DTN ENGINEERS, INC.

LIGHTING

FIXTURE IDENTIFIER:

5 — XX / 2/40 — R — 8'–6

- NUMBER OF FIXTURES (SHOWN ONLY WHEN REQUIRED FOR CLARITY)
- FIXTURE TYPE REFER TO FIXTURE SCHEDULE TYPE APPLIES TO ALL FIXTURES OF THE SAME SHAPE WITHIN A ROOM OR AREA.
- MOUNTING:
  - C = CEILING
  - PP = POLE
  - P = PENDANT
  - R = RECESSED
  - S = STANCHION
  - W = WALL
- MOUNTING HEIGHT, FLOOR TO BOTTOM OF FIXTURE UON. AHAP = AS HIGH AS POSSIBLE.
- NUMBER OF LAMPS/LAMP WATTAGE

LIGHTING FIXTURE SHAPES AND SCALE ARE REPRESENTED WHERE POSSIBLE. THE EXAMPLES SHOWN BELOW ARE TYPICAL APPLICATIONS.

FLUORESCENT FIXTURE

WALL MOUNTED FIXTURE

EMERGENCY LIGHTING UNIT. SELF CONTAINED.

WIRING DEVICES

SWITCHES:

UNLESS OTHERWISE SPECIFIED, ALL SWITCHES ARE WALL MOUNTED.

TOGGLE SWITCH, SINGLE POLE, 20 AMP

GANGED SWITCHES IN COMMON BOX WITH COMMON WALL PLATE

$ A 3 — SUPERSCRIPT INDICATES CIRCUIT CONTROLLED: a, b, c, ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 4b, ETC.

SUBSCRIPT MODIFIER INDICATES:
- 2 = DOUBLE POLE
- 3 = THREE WAY
- 4 = FOUR WAY
- K = KEY OPERATED
- MC = MOMENTARY CONTACT, THREE POSITION
- MS = MANUAL (MOTOR) STARTER OR SWITCH
- R = RHEOSTAT (DIMMER, SPEED CONTROL)
- WP = WEATHER PROOF

RECEPTACLES:

UNLESS OTHERWISE SPECIFIED, ALL RECEPTACLES ARE 125 VOLT, SINGLE PHASE, STRAIGHT BLADE, NON LOCKING, GROUNDING STYLE.

DUPLEX RECEPTACLE, 20 AMP, 3 WIRE

RECEPTACLE MODIFIERS:
- WP = WEATHER PROOF
- GF = GROUND FAULT CIRCUIT INTERRUPTER
- H = HAZARDOUS AREA–EXPLOSION PROOF

DOUBLE DUPLEX RECEPTACLE,

CIRCUITS AND RACEWAYS

- RACEWAY EXPOSED
- DIRECT BURIED CONDUIT (UON)
- RACEWAY CONCEALED
- RACEWAY TURNED TOWARD THE VIEWER.
- RACEWAY TURNED DOWN
- HH23 — MANHOLE (MH) OR HANDHOLE (HH),
- J — JUNCTION BOX.
- TB — TERMINAL BOX.
- 3#10 AWG, #10 AWG G, 1"C — RACEWAY SIZE WITH CONDUCTOR CONTENTS AND SIZES.
- LP–1 — CIRCUIT HOMERUN W/ DESTINATION NOTED (2#12, #12 GND MIN.)
- T — TELEPHONE SYSTEM CONDUIT WITH PULLING NYLON ROPE
- LIGHT CIRCUIT W/ CONDUCTOR QUANTITY INDICATED
- ICXXX — INSTRUMENTATION CONDUIT
- CCXXX — CONTROL CONDUIT
- P–4XX — POWER CIRCUIT 480V WITH POWER SOURCE IDENTIFICATION
- LI–2XX — POWER CIRCUIT 240V WITH POWER SOURCE IDENTIFICATION
- CI–1XX — POWER CIRCUIT 120V WITH POWER SOURCE IDENTIFICATION

MOTORS AND EQUIPMENT

- DISCONNECT SWITCH, NON–FUSED
- M — MOT=MOTOR, SV=SOLENOID VALVE, CV=CONTROL VALVE, A=ADJUSTABLE SPEED DRIVE; 125 = 125HP
- FIELD INSTRUMENT
- CONTROL STATION. SEE CONTROL DIAGRAMS FOR DEVICES REQUIRED

TELEPHONE & COMMUNICATION SYSTEMS

UNLESS OTHERWISE SPECIFIED, TELEPHONE OUTLETS SHALL BE MOUNTED AT SAME HEIGHT AS THE RECEPTACLES, VERIFY.

EXTERNAL LINE OR PLANT PHONE SYSTEM OUTLET

MODIFIERS:
- T = TELEPHONE

GROUNDING

- GROUND ROD
- GROUND ROD WITH GROUND WELL
- GROUND CONNECTION, BOLTED TYPE
- GROUND CONNECTION, COMPRESSION TYPE
- G — GROUNDING CONDUCTOR, MINIMUM #2/0 BARE COPPER
- INSTRUMENT CABLE SHIELD GROUND

MISCELLANEOUS

- E150 / TYP — TYPICAL DETAIL DESIGNATION
- GROUND CONNECTION
- RTU OUTPUT
- T — THERMOSTAT
- 5 — NOTE DESIGNATION
- △ — DESIGNATES EQUIPMENT OR DEVICE LOCATED AT LOAD IN THE FIELD
- ✳ — DESIGNATES EQUIPMENT OR DEVICES LOCATED IN MCC
- □ — DESIGNATES EQUIPMENT OR DEVICES LOCATED IN CONTROL PANEL
- RTU I/O TERMINATION
- IONIZATION SMOKE DETECTOR
- E — END–OF–LINE DEVICE
- F — FIRE ALARM PULLSTATION
- F — COMBINATION STROBE LIGHT/HORN
- FIREALARM CONTROL PANEL
- SPACE HEATER

ONE–LINE DIAGRAM SYMBOLS

SIZE 2 COMBINATION FULL VOLTAGE NON–REVERSING MAGNETIC STARTER MCP SIZED BY MANUFACTURER (OVERLOAD RELAY NOT SHOWN)
RV = REDUCED VOLTAGE
2S2W = TWO–SPEED TWO–WINDING
2 = SIZE 2

400/3 / 3 — CURRENT TRANSFORMER WITH RATIO AND NUMBER OF UNITS

MAIN SERVICE METER (BY UTILITY COMPANY)

MF — MULTI–FUNCTION ELECTRONIC METER

KIRK–KEY INTERLOCK

POWER TRANSFORMER. IMPEDANCE SHOWN — 5.75% Z 480/277V

480V, 3ø, 4W / 600KW / 60HZ — GENERATOR. POWER RATING, FREQUENCY, VOLTAGE, SHOWN

200A — 200 AMP SHOWN

FU — FUSE WITH BLOWN INDICATOR

STANDBY GENERATOR

REVISIONS

NO	DESCRIPTION	DATE	BY

GENERAL NOTES

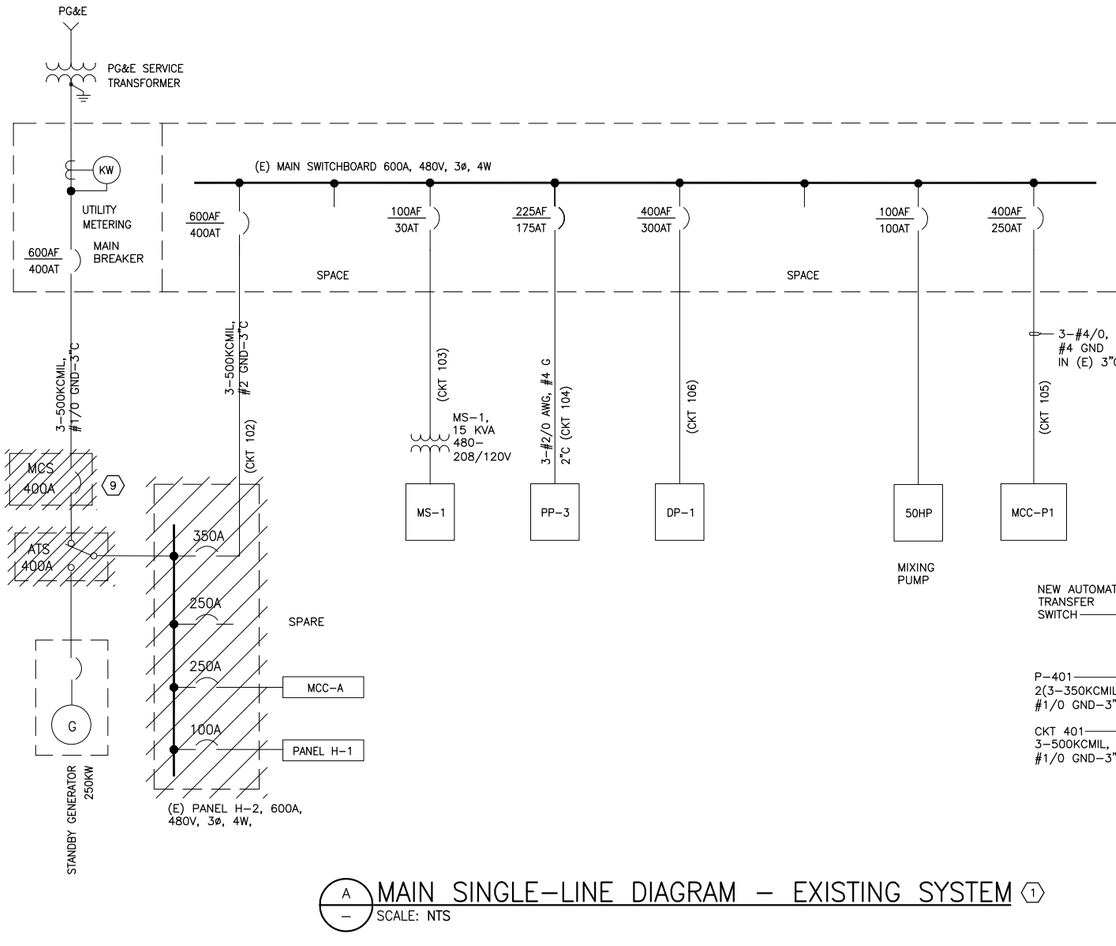
1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
2. IDENTIFICATIONS (ID), SIZES, RATINGS, LOCATIONS AND SIMILAR INFORMATION SHOWN ASSOCIATED WITH SYMBOLS ARE OPTIONAL; EXAMPLES OF SUCH INFORMATION ARE SHOWN WITH SOME SYMBOLS FOR CLARITY.
3. THE ELECTRICAL DRAWINGS USE THE ONE–LINE DIAGRAMS AND PANEL SCHEDULES IN CONJUNCTION WITH SHOWING THE LOCATION OF THE ELECTRICAL/INSTRUMENTATION SOURCES AND LOADS/DEVICES SHOWN ON THE PLAN DRAWINGS TO DEPICT THE WORK. THE CONTRACTOR SHALL USE THESE DOCUMENTS TO DETERMINE AND PROVIDE THE NECESSARY RACEWAY AND WIRING SYSTEM FOR EACH CIRCUIT. ALL INDOOR RACEWAY SHALL BE RUN EXPOSED, AND ROUTED BY THE CONTRACTOR, UNLESS OTHERWISE NOTED. THE TYPE OF RACEWAY AND WIRE USED SHALL BE AS SPECIFIED IN THE SPECIFICATIONS UNLESS OTHERWISE NOTED.
4. THE LOCATION OF THE CONTROL STATIONS SHOWN ON THE PLAN DRAWINGS ARE DIAGRAMMATIC AND THE ACTUAL LOCATION SHALL BE COORDINATED IN THE FIELD WITH THE CONSTRUCTION MANAGER.
5. THE EXACT LOCATION OF THE MOTORS AND ACCESSORIES ARE NOT SHOWN. THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL AND MECHANICAL DRAWINGS FOR CONDUIT STUBOUT AND TERMINATION LOCATIONS.
6. ALL EQUIPMENT SHALL BE LABELED WITH NAMEPLATES. DESCRIPTION OF EQUIPMENT SHALL BE IN ACCORDANCE WITH THE ONE–LINE DIAGRAM DESCRIPTION . A LIST OF THE NAMEPLATES SHALL BE SUBMITTED TO THE CONSTRUCTION MANAGER PRIOR TO ENGRAVING.
7. UNLESS OTHERWISE NOTED, ALL CONVENIENCE OUTLETS SHALL BE MOUNTED AT 48–INCHES ABOVE FINISHED FLOOR. ALL LIGHT SWITCHES SHALL BE MOUNTED AT 54–INCHES ABOVE FINISHED FLOOR.
8. EACH CONVENIENCE OUTLET AND LIGHTING CIRCUIT SHALL BE PROVIDED WITH A #12AWG GREEN GROUNDING CONDUCTOR
9. FOR SPARE CONDUCTORS, AT EACH END, TAPE & COIL UP AND PROVIDE ENGRAVED TAG IDENTIFYING "FROM AND TO" DESTINATION.
10. ALL EXTERIOR CONDUITS SHALL BE PVC COATED RIGID GALVANIZED STEEL. ALL OUTDOOR ENCLOSURES SHALL BE NEMA 4X.
11. CONDUIT ENTERING OR LEAVING CLASSIFIED HAZARDOUS LOCATION SHALL BE PROVIDED WITH "EYS" SEALS PER NEC.
12. ELECTRICAL DRAWINGS DO NOT SHOW ALL REQUIRED DEMOLITION. SEE MECHANICAL DRAWINGS FOR ADDITIONAL DEMOLITION.

REGISTERED PROFESSIONAL ENGINEER — STEP TAN NGUYEN — No. E–10687 Exp. 6/30/08 — ELECTRICAL — STATE OF CALIFORNIA
2–26–08

WHITLEY BURCHETT & ASSOCIATES, Walnut Creek, California (925) 945-6850	DESIGN TP / DRAWN EA / CHECKED DN	JOB NUMBER SMC 07-1 / DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE — IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT, MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	LEGEND AND NOTES

REV. 0
DWG. NO. E-1
25 OF 37

REVISIONS			
NO	DESCRIPTION	DATE	BY



A — MAIN SINGLE-LINE DIAGRAM – EXISTING SYSTEM (1)
SCALE: NTS

B — MAIN SINGLE-LINE DIAGRAM – MODIFICATIONS (5)
SCALE: NTS

SHEET NOTES:

1. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING EQUIPMENT (CROSS HATCHED) AND SHALL RETURN THESE EQUIPMENT TO THE DISTRICT AT LOCATION AS DIRECTED BY THE DISTRICT. REFER TO DIV. 16 SPECIFICATIONS FOR REQUIRED SEQUENCE OF WORK TO MINIMIZE INTERRUPTIONS TO EXISTING PLANT'S OPERATIONS.
2. CONTRACTOR SHALL RECONNECT EXISTING STANDBY GENERATOR, EXISTING MCC-A, EXISTING POWER PANEL H-1, EXISTING MAIN SWITCHBOARD TO NEW BREAKER OR EQUIPMENT AS SHOWN ON THE SINGLE-LINE DIAGRAM.
3. DISCONNECT AND REMOVE EXISTING 500Kcmil CONDUCTORS PRIOR TO INSTALLATION OF NEW CONDUCTORS. REUSE ONE EXISTING 3" CONDUIT AND INSTALL ONE NEW 3"C.
4. REMOVE EXISTING 400A TRIP ELEMENT OF THE EXISTING MAIN BREAKER (600A FRAME) AND REPLACE WITH A NEW 600A TRIP ELEMENT. BREAKER'S AUXILIARIES SHALL BE CUTLER-HAMMER TO MATCH EXISTING INSTALLATION.
5. SEE CONDUIT AND CABLE SCHEDULE ON DRAWING E-3 FOR ADDITIONAL DETAILS OF CONTROL AND INSTRUMENTATION WIRING.
6. COMPLETE WIRING AND CONNECTIONS OF ALL EQUIPMENT ARE REQUIRED.
7. NEMA 4X, 480V, 3P, 30A HEAVY DUTY INDUSTRIAL DISCONNECT SWITCH.
8. MULTI-FUNCTION ELECTRONIC ENERGY METER IS AN INTEGRAL PART OF THE ATS.
9. SEE DEMOLITION OF THESE EQUIPMENT SHOWN ON DRAWING E-7.
10. NEW CIRCUIT BREAKERS SHALL BE CURRENT LIMITING TYPE CIRCUIT BREAKERS MANUFACTURED BY GENERAL ELECTRIC (SPECTRA RMS SERIES) TO MATCH EXISTING INSTALLATION. NO SUBSTITUTIONS.
11. ALL CIRCUIT BREAKERS ARE 480VAC THREE-POLE.
12. THIS BREAKER SHALL BE PROVIDED WITH A 120VAC SHUNT TRIP COIL FOR USE AS A COMPONENT OF THE AUTOMATIC LOAD SHEDDING SYSTEM.

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REGISTERED PROFESSIONAL ENGINEER
DIEP TAN NGUYEN
No. E-10687
Exp. 6/30/08
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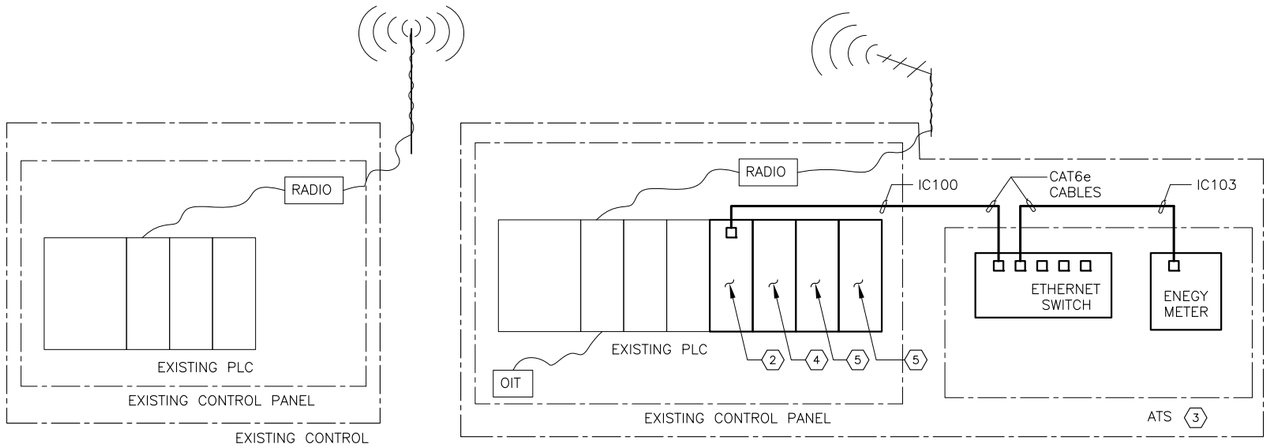
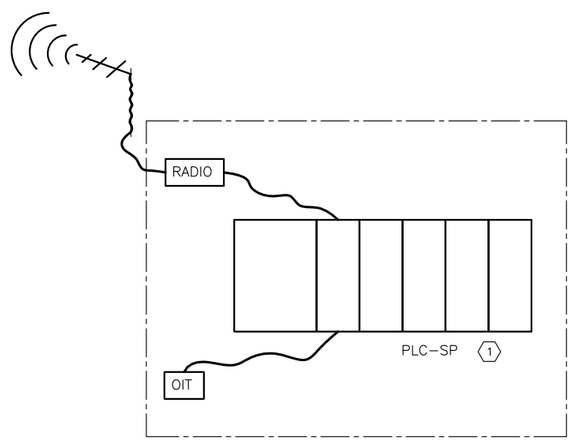
WHITLEY BURCHETT & ASSOCIATES Walnut Creek, California (925) 945-6850	DESIGN TP DRAWN EA CHECKED DN	JOB NUMBER SMC 07-1 DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	MAIN SINGLE LINE DIAGRAM	REV. 0 DWG. NO. E-2 26 OF 37



A — PARTIAL SCADA SYSTEM DIAGRAM
SCALE: NTS



REVISIONS			
NO	DESCRIPTION	DATE	BY
1	CONFORMED DRAWING	6/02/08	DTN

SHEET NOTES:

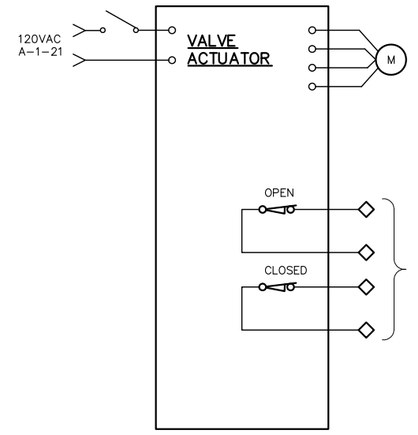
1. REFER TO SECTION 11247 OF DIV. 11 OF THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING INTERNAL COMPONENTS OF THIS SCREW PRESS CONTROL PANEL.
2. FURNISH AND INSTALL IN EXISTING AVAILABLE SPARE SLOT A NEW ETHERNET COMMUNICATION MODULE AUTOMATION DIRECT MODEL NO. H2-ECOM FOR COMMUNICATION WITH THE ENERGY METER AS SHOWN.
3. REFER TO DIV. 16 OF THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING INTERNAL COMPONENTS OF THIS AUTOMATIC TRANSFER SWITCH. ETHERNET SWITCH AND ENERGY METER SHALL BE POWERED BY INTERNAL CONTROL POWER SOURCES (NORMAL POWER AND STANDBY POWER). ETHERNET SWITCH SHALL HAVE SIX COMMUNICATION PORTS MINIMUM (SPARE PORTS ARE FOR FUTURE USE).
4. FURNISH AND INSTALL A NEW RELAY OUTPUT CARD.
5. FURNISH AND INSTALL A D2 FILLER CAP TO COVER SPARE SLOT.
1. 6. FOR NEMA 4X AREAS AND AREAS DESIGNATED AS OUTDOORS, CONDUITS SHALL BE PVC-COATED RGS.

CONDUIT SCHEDULE

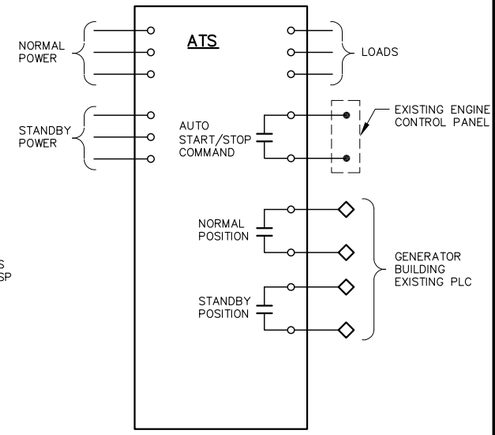
CONDUIT NO.	CONDUIT SIZE	TYPE	FROM	TO	CABLES	NOTES
P-400	2-3"	RGS	NEW MAIN SERVICE BREAKER	NEW ATS	2(350Kcmil, #1/0 GND)	ONE 3"C IS EXISTING TO BE REUSED
P-401	2-3"	RGS	NEW ATS	NEW POWER PANEL H-2	2(350Kcmil, #1/0 GND)	
P-402	1"	RGS	NEW POWER PANEL H-2	SCREW PRESS CONTROL PANEL	3#10, #10 GND	
P-402A	1"	RGS	SCREW PRESS CONTROL PANEL	SCREW PRESS MOTOR	3#10, #10 GND & 4#14 (SPARE)	
P-403	1"	RGS	NEW POWER PANEL H-2	POLYMER FEED CONTROL	3#10, #10 GND	
P-404	1"	RGS	NEW POWER PANEL H-2	SLUDGE FEED SYS. CONTROL PANEL	3#10, #10 GND	
P-404A	1"	RGS	SLUDGE FEED PUMP CONTROL PANEL	SLUDGE FEED PUMP MOTOR	3#10, #10 GND	
CC100	1"	RGS	POLYMER SYSTEM CONTROL PANEL	SCREW PRESS CONTROL PANEL	14#14 (4 SPARES)	
CC101	1"	RGS	SLUDGE FEED PUMP CONTROL PANEL	SCREW PRESS CONTROL PANEL	12#14 (4 SPARES)	
CC102	3/4"	RGS	SOV-916 & SOV-917	SCREW PRESS CONTROL PANEL	4#12, #12 GND	
CC103	3/4"	RGS	MOV-921	SCREW PRESS CONTROL PANEL	8#14 (4 SPARES)	
CC104	3/4"	RGS	POWER PANEL H-2	EXISTING GENERATOR BLDG PANEL	8#14 (2 SPARES)	LOAD SHEDDING CONTROLS
CC105	3/4"	RGS	MOV-701	REMOTE I/O DROP	10#14	
CC106A	1"	RGS	CHEMICAL PUMP CONTROLLER NO. 1	REMOTE I/O DROP	12#14	
CC106B	1"	RGS	CHEMICAL PUMP CONTROLLER NO. 2	REMOTE I/O DROP	12 #14	
CC107	3/4"	RGS	CHEMICAL TANK LEVEL SWITCHES	REMOTE I/O DROP	8#14	DC POWER FROM REMOTE I/O DROP
CC108	3/4"	RGS	CHEMICAL SYSTEM ALARM PANEL	REMOTE I/O DROP	4#14	
CC109	3/4"	RGS	LEAK DETECTOR AE-701	REMOTE I/O DROP	4#14	DC POWER FROM REMOTE I/O DROP
CC110	3/4"	RGS	LEAK DETECTOR AE-702	REMOTE I/O DROP	4#14	DC POWER FROM REMOTE I/O DROP
CC111	3/4"	RGS	LEAK DETECTOR AE-703	REMOTE I/O DROP	4#14	DC POWER FROM REMOTE I/O DROP
IC100	1"	RGS	NEW ATS	EXISTING GENERATOR BUILDING PLC	CAT6e CABLE	
IC101	1"	RGS	POLYMER SYSTEM CONTROL PANEL	SCREW PRESS CONTROL PANEL	2 PAIRS	
IC102	1"	RGS	SLUDGE FEED PUMP CONTROL PANEL	SCREW PRESS CONTROL PANEL	2 PAIRS	
IC103			ENERGY METER (GEN BLDG)	ETHERNET SWITCH	CAT6e CABLE	INTERNAL WIRING
IC104	3/4"	RGS	FLOW METER FIT-912	SCREW PRESS CONTROL PANEL	1 PAIR	
IC105	3/4"	RGS	LEVEL METER LIT-910	SCREW PRESS CONTROL PANEL	1 PAIR	
IC106	3/4"	RGS	PRESSURE TRANSMITTER PIT-801	SCREW PRESS CONTROL PANEL	1 PAIR	
IC107	3/4"	RGS	(E) LIT-01	SCREW PRESS CONTROL PANEL	1 PAIR	
IC108A	3/4"	RGS	CHEMICAL PUMP CONTROLLER NO. 1	REMOTE I/O DROP	2 PAIRS	
IC108B	3/4"	RGS	CHEMICAL PUMP CONTROLLER NO. 2	REMOTE I/O DROP	2 PAIRS	
IC109	3/4"	RGS	REMOTE I/O DROP	(E) PLC IN CONTROL BLDG ANALYSER RM	LOW CAPACITANCE RS485 CABLE	PLC REMOTE DROP DATALINK
IC110	3/4"	RGS	LIT-912	SCREW PRESS CONTROL PANEL	1 PAIR	

1

B — CONDUIT SCHEDULE
SCALE: NTS



C — VALVE MOV-921 SCHEMATIC DIAGRAM
SCALE: NTS



D — ATS BLOCK DIAGRAM
SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER
DIEP TAN NGHIEM
No. E-10687
Exp. 6/30/08
ELECTRICAL
STATE OF CALIFORNIA
2-26-08

DTN ENGINEERS, INC.

WHITLEY BURCHETT & ASSOCIATES
Walnut Creek, California
(925) 945-6850

DESIGN	TP
DRAWN	EA
CHECKED	DN
JOB NUMBER	SMC 07-1
DATE	FEBRUARY 2008

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

SAUSALITO MARIN CITY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

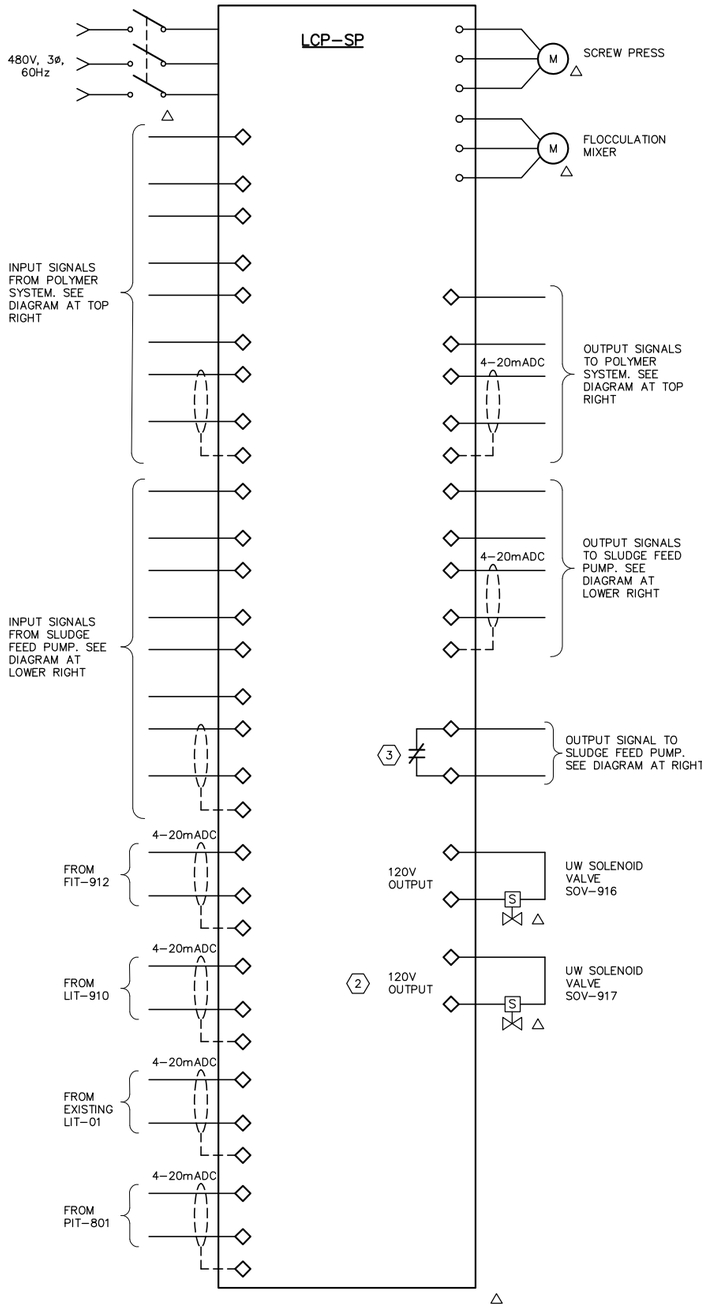
SCADA SYSTEM DIAGRAM, CONDUIT SCHEDULE AND MISC DIAGRAMS

REV. 0
DWG. NO. E-3
27 OF 37

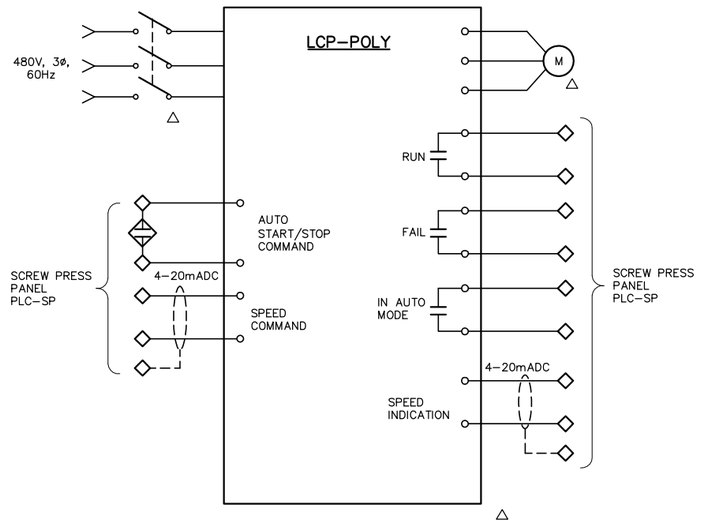
REVISIONS			
NO	DESCRIPTION	DATE	BY

SHEET NOTES:

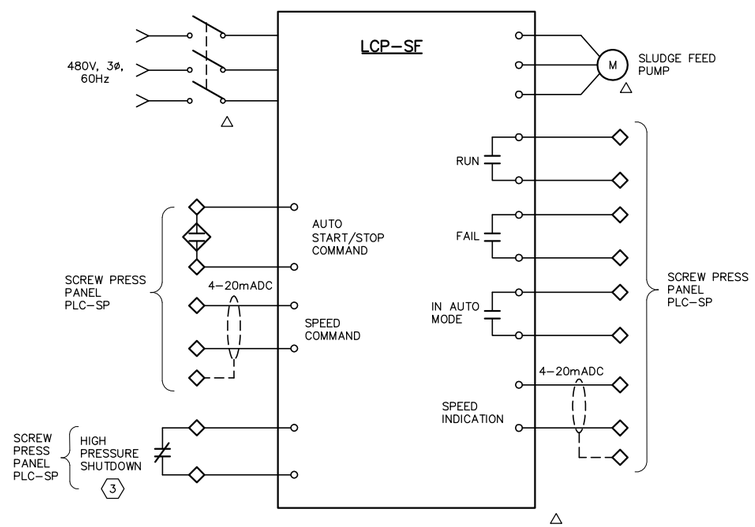
1. SEE CONDUIT SCHEDULE SHOWN ON DRAWING E-3 FOR REQUIRED CONDUIT AND CABLE QUANTITY.
2. THIS SCREW PRESS CONTROL PANEL CONTAINS PLC-SP AND A LOCAL OIT. REFER TO DIV. 11 SECTION 11247 OF THE SPECIFICATIONS FOR INTERNAL COMPONENTS OF THIS PANEL.
3. THIS SET POINT RELAY CONTACT IS HARDWIRED FOR SHUTDOWN OF SLUDGE PUMP IN CASE OF HIGH DIGESTER PRESSURE,



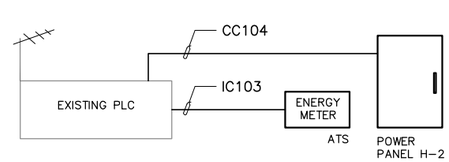
A SCREW PRESS – CONTROL SCHEMATIC
SCALE: NTS

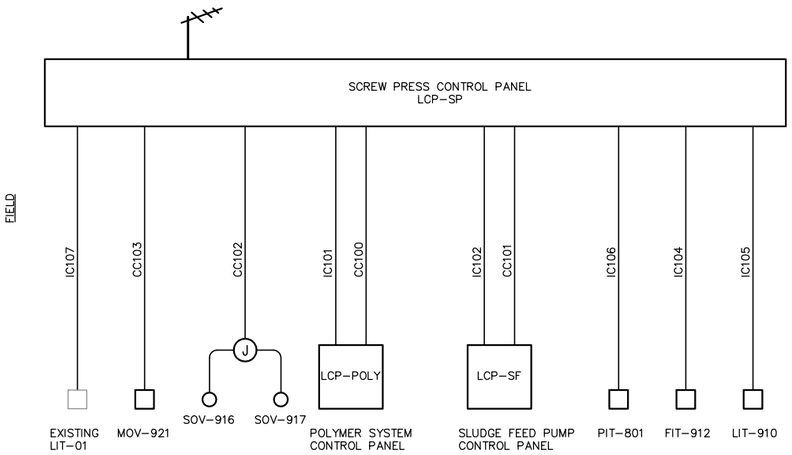


B POLYMER SYSTEM – CONTROL SCHEMATIC
SCALE: NTS



C SLUDGE FEED PUMP – CONTROL SCHEMATIC
SCALE: NTS





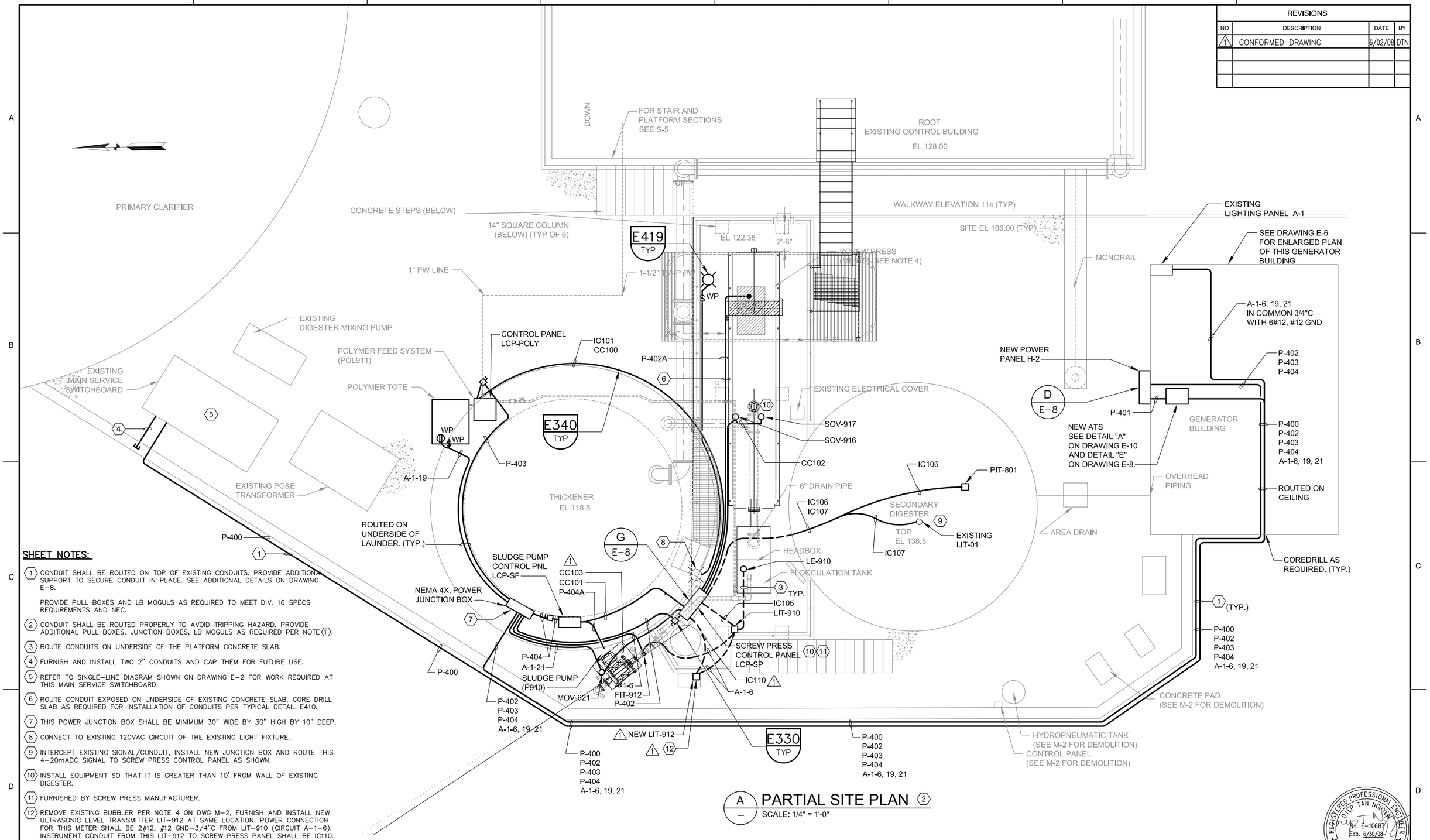
D CONTROL SYSTEM ONE-LINE DIAGRAM (1)
SCALE: NTS

DTN ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER DIEP TAN NGUYEN No. E-10687 Exp. 6/30/08 ELECTRICAL STATE OF CALIFORNIA 2-26-08

WHITLEY BURCHETT & ASSOCIATES, Walnut Creek, California (925) 945-6850	DESIGN TP DRAWN EA CHECKED DN	JOB NUMBER SMC 07-1 DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	ELECTRICAL CONTROL SCHEMATICS AND CONTROL ONE-LINE DIAGRAM	REV. 0 DWG. NO. E-4 28 OF 37

REVISIONS			
NO	DESCRIPTION	DATE	BY
1	CONFORMED DRAWING	6/02/08	DTN



SHEET NOTES:

1. CONDUIT SHALL BE ROUTED ON TOP OF EXISTING CONDUITS. PROVIDE ADDITIONAL SUPPORT TO SECURE CONDUIT IN PLACE. SEE ADDITIONAL DETAILS ON DRAWING E–8.

   PROVIDE PULL BOXES AND LB MOGULS AS REQUIRED TO MEET DIV. 16 SPECS REQUIREMENTS AND NEC.
2. CONDUIT SHALL BE ROUTED PROPERLY TO AVOID TRIPPING HAZARD. PROVIDE ADDITIONAL PULL BOXES, JUNCTION BOXES, LB MOGULS AS REQUIRED PER NOTE 1.
3. ROUTE CONDUITS ON UNDERSIDE OF THE PLATFORM CONCRETE SLAB.
4. FURNISH AND INSTALL TWO 2" CONDUITS AND CAP THEM FOR FUTURE USE.
5. REFER TO SINGLE–LINE DIAGRAM SHOWN ON DRAWING E–2 FOR WORK REQUIRED AT THIS MAIN SERVICE SWITCHBOARD.
6. ROUTE CONDUIT EXPOSED ON UNDERSIDE OF EXISTING CONCRETE SLAB. CORE DRILL SLAB AS REQUIRED FOR INSTALLATION OF CONDUITS PER TYPICAL DETAIL E410.
7. THIS POWER JUNCTION BOX SHALL BE MINIMUM 30" WIDE BY 30" HIGH BY 10" DEEP.
8. CONNECT TO EXISTING 120VAC CIRCUIT OF THE EXISTING LIGHT FIXTURE.
9. INTERCEPT EXISTING SIGNAL/CONDUIT, INSTALL NEW JUNCTION BOX AND ROUTE THIS 4–20mADC SIGNAL TO SCREW PRESS CONTROL PANEL AS SHOWN.
10. INSTALL EQUIPMENT SO THAT IT IS GREATER THAN 10' FROM WALL OF EXISTING DIGESTER.
11. FURNISHED BY SCREW PRESS MANUFACTURER.
12. REMOVE EXISTING BUBBLER PER NOTE 4 ON DWG M–2, FURNISH AND INSTALL NEW ULTRASONIC LEVEL TRANSMITTER LIT–912 AT SAME LOCATION. POWER CONNECTION FOR THIS METER SHALL BE 2#12, #12 GND–3/4"C FROM LIT–910 (CIRCUIT A–1–6). INSTRUMENT CONDUIT FROM THIS LIT–912 TO SCREW PRESS PANEL SHALL BE IC110.

A — PARTIAL SITE PLAN 2
SCALE: 1/4" = 1'-0"

DTN ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER — DIEP TAN NGUYEN — No. E–10687 Exp. 6/30/08 — ELECTRICAL — STATE OF CALIFORNIA — 2–26–08

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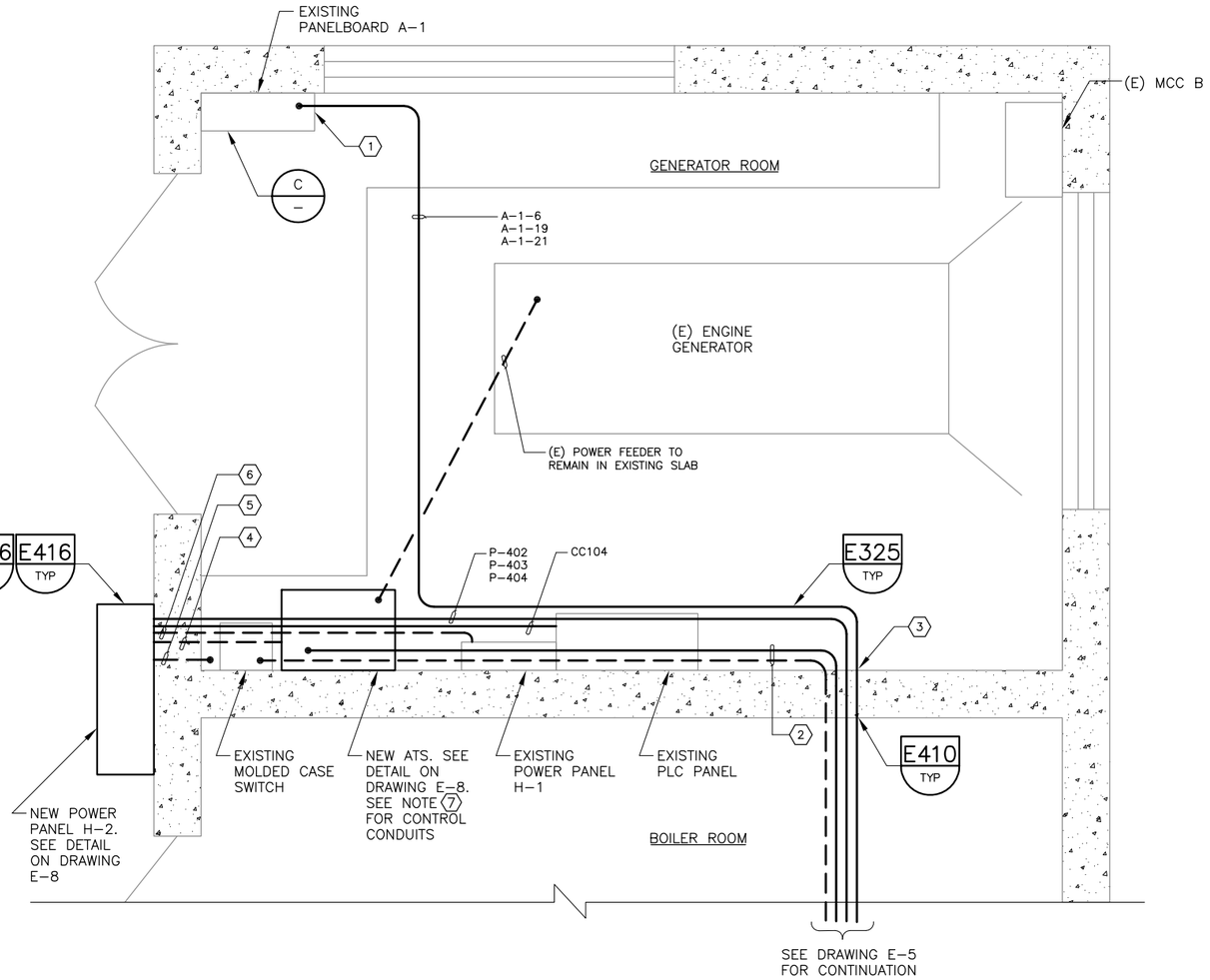
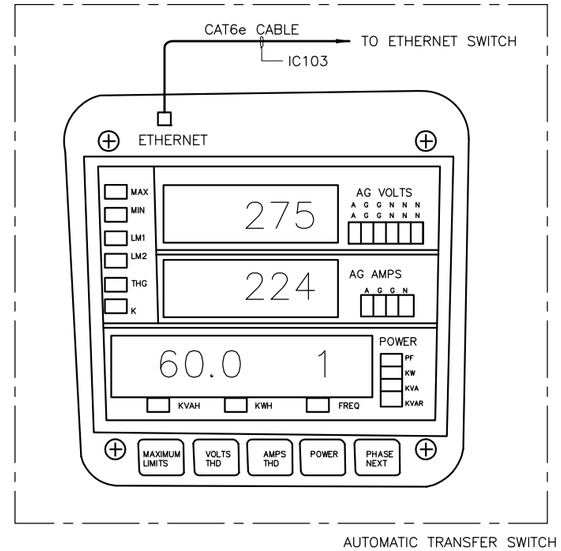
REVISIONS			
NO	DESCRIPTION	DATE	BY



A — SCALE: 3/4"=1'-0"

PARTIAL EXISTING GENERATOR BUILDING



AUTOMATIC TRANSFER SWITCH

B — SCALE: NTS (LOCATED IN ATS)

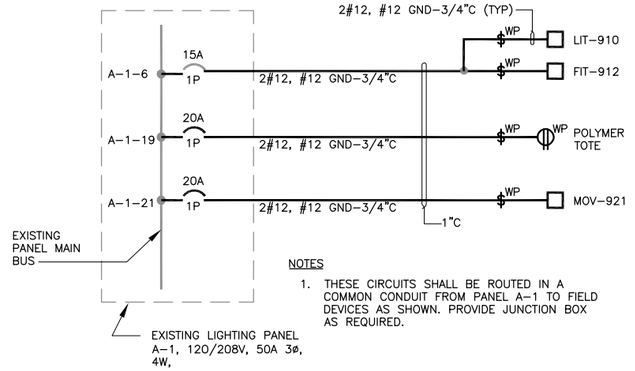
ENERGY METER

SHEET NOTES:

1. FURNISH AND INSTALL IN THIS PANEL TWO NEW 20A, IP 120VAC CIRCUIT BREAKER TO BE USED TO FEED NEAT POLYMER TOTE AND MOV-921. NEW BREAKERS SHALL MATCH EXISTING MAKE AND MODEL.

   REVISE CIRCUIT DIRECTORY TO SHOW NEW LOADS.
2. P-400, SEE NOTE 3 SHOWN ON SINGLE-LINE DIAGRAM OF DRAWING E-2.
3. CORE DRILL WALL AS REQUIRED.
4. P-401 (REUSE TWO EXISTING 3" CONDUITS).
5. FEEDER CABLES TO EXISTING MCC-A IN EXISTING 3" CONDUIT.
6. FEEDER CABLES TO EXISTING POWER PANEL H-1 IN EXISTING 1 1/2"C.
7. A. RECONNECT REMOTE AUTO START/STOP SIGNAL FROM EXISTING STANDBY GENERATOR CONTROL PANEL.

   B. PROVIDE AND INSTALL NEW 4#14-3/4"C FROM ATS TO EXISTING RTU PANEL.
8. FURNISHED BY SCREW PRESS MANUFACTURER.



C — SCALE: NTS

(E) LIGHTING PANEL A-1 MODIFICATIONS

REGISTERED PROFESSIONAL ENGINEER — DIEP TAN NGUYEN — No. E-10687 Exp. 6/30/08 — ELECTRICAL — STATE OF CALIFORNIA — 2-26-08

DTN ENGINEERS, INC.

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REVISIONS			
NO	DESCRIPTION	DATE	BY

SHEET NOTES:

1. DISCONNECT AND REMOVE THIS EXISTING POWER PANEL H–2 PRIOR TO INSTALLATION OF NEW POWER PANEL AT SAME LOCATION. EXISTING FEEDER CONDUCTORS FOR EQUIPMENT TO BE RECONNECTED TO NEW PANEL H–2 SHALL BE RETAINED FOR RECONNECTIONS.
2. DISCONNECT AND REMOVE EXISTING ATS AND MOLDED CASE DISCONNECT SWITCH PRIOR TO INSTALLATION OF NEW ATS AT SAME LOCATION. ENCLOSURE OF THE MOLDED CASE SWITCH SHALL REMAIN. SEE NOTE 8 ON DRAWING E–8.
3. EXISTING PLC SHALL BE MODIFIED TO COMMUNICATE WITH NEW PLC AND OTHER DEVICES. SEE DETAILS ON DRAWING E–3.
4. REMOVE EXISTING 400AT ELEMENT OF THE EXISTING MAIN BREAKER (600A FRAME) AND REPLACE WITH NEW 600AT UNIT. SEE SINGLE–LINE DIAGRAM ON DRAWING E–2 FOR ADDITIONAL, REQUIRED WORK REGARDING NEW FEEDER FROM THIS NEW MAIN.

   ALSO INSTALL TWO NEW CIRCUIT BREAKERS (250A AND 225A) FOR FUTURE USE.

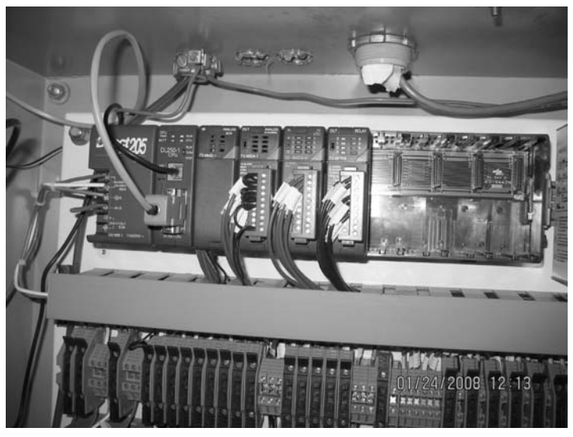
A (E) POWER PANEL H–2 (1)
SCALE: NTS

B EXISTING ATS & MCS (2)
SCALE: NTS

C (E) MAIN SWITCHBOARD (4)
SCALE: NTS

D SCREW PRESS AREA LIGHT
SCALE: NTS

E EXISTING SCADA HMI
SCALE: NTS (FOR INFORMATION ONLY)



F (E) PLC (GENERATOR BUILDING) (3)
SCALE: NTS

DTN ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER
DIEP TAN NGUYEN
No. E–10687
Exp. 6/30/08
ELECTRICAL
STATE OF CALIFORNIA
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WHITLEY BURCHETT & ASSOCIATES
Walnut Creek, California
(925) 945-6850

DESIGN	TP
DRAWN	EA
CHECKED	DN
JOB NUMBER	SMC 07-1
DATE	FEBRUARY 2008

LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

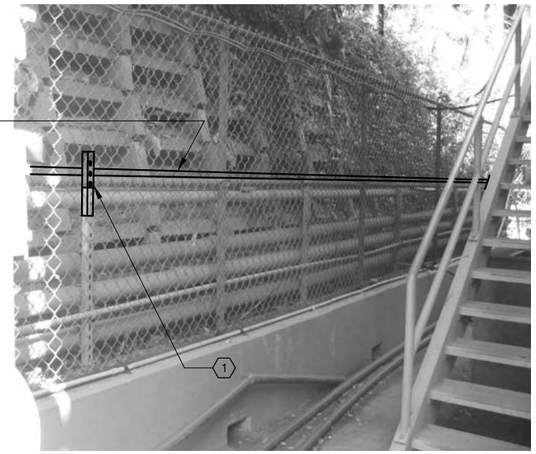
SAUSALITO MARIN CITY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

CONSTRUCTION DETAILS

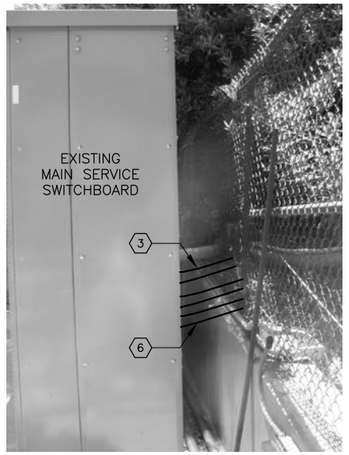
REV. 0
DWG. NO. E-7
31 OF 37

REVISIONS			
NO	DESCRIPTION	DATE	BY



A NEW CONDUIT DETAIL 1
SCALE: NTS

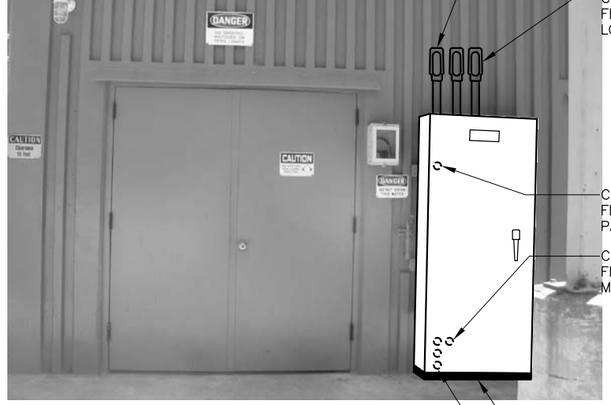
B NEW CONDUIT DETAIL 2
SCALE: NTS



C NEW CONDUIT DETAIL 3
SCALE: NTS

SHEET NOTES:

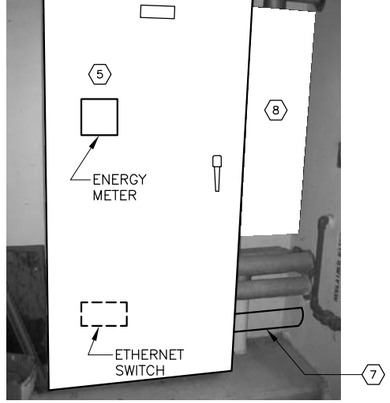
1. PROVIDE AND INSTALL ADDITIONAL SUPPORTS AS REQUIRED. SUPPORTS SHALL BE HEAVY DUTY RGS UNISTRUT CHANNELS AND GALVANIZED STEEL ACCESSORIES.
2. REPLACE EXISTING TRIP UNIT WITH NEW. SEE NOTE 4 ON DRAWING E-7.
3. NEW 3" CONDUIT FOR POWER FEEDER P-400.
4. PROVIDE NEW HOUSEKEEPING PAD 5" HIGH.
5. REFER TO DIV. 16 SPECIFICATIONS FOR FRONT PANEL MOUNTED DEVICES INCLUDING MULTI-FUNCTION ELECTRONIC ENERGY METER. NEW ATS SHALL NOT EXCEED THE FOLLOWING MAXIMUM DIMENSIONS: WIDTH=24", DEPTH=17.11" AND HEIGHT=63".
6. NEW SPARE 2"C FOR FUTURE USE. TYPICAL FOR 2.
7. FURNISH AND INSTALL NEW SPARE 3" CONDUIT AS SHOWN.
8. DISCONNECT AND REMOVE EXISTING MOLDED CASE SWITCH AND CONVERT IT INTO A JUNCTION BOX. PROVIDE NEW BLANK DOOR AND REPAINT IT WITH ANSI GRAY 70 FINISH TO MATCH FINISH OF NEW ATS.
9. FURNISHED BY SCREW PRESS MANUFACTURER.



D NEW POWER PANEL H-2
SCALE: NTS

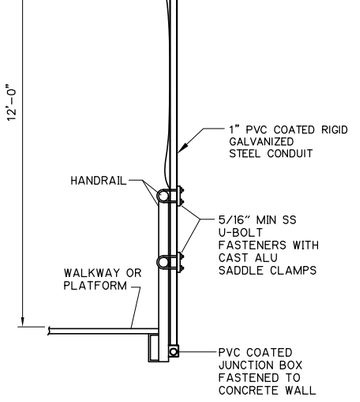
COREDRILL WALL AS REQUIRED. SEE DETAIL E410 TYP

3" CONDUIT TO ATS (TYP. FOR 3). THE TOP TWO ARE EXISTING THE BOTTOM IS NEW. SEE NOTE 7



E NEW ATS
SCALE: NTS

F NEW MAIN SERVICE BREAKER
SCALE: NTS

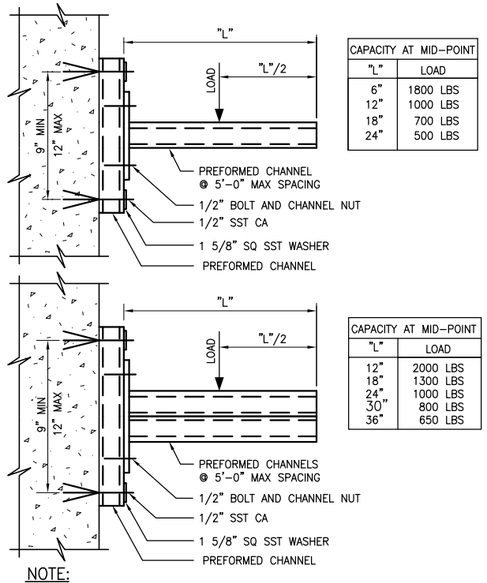


G ANTENNA MOUNTING DETAIL
SCALE: NTS

DTN ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER
DIEP TAN NGUYEN
No. E-10687
Exp. 6/30/08
ELECTRICAL
STATE OF CALIFORNIA
2-26-08

WHITLEY BURCHETT & ASSOCIATES Walnut Creek, California (925) 945-6850	DESIGN TP DRAWN EA CHECKED DN	JOB NUMBER SMC 07-1 DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	CONSTRUCTION DETAILS	REV. 0 DWG. NO. E-8 32 OF 37



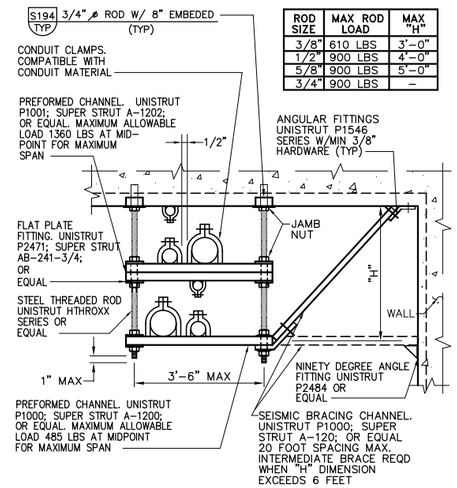
CAPACITY AT MID-POINT	
"L"	LOAD
6"	1800 LBS
12"	1000 LBS
18"	700 LBS
24"	500 LBS

CAPACITY AT MID-POINT	
"L"	LOAD
12"	2000 LBS
18"	1300 LBS
24"	1000 LBS
30"	800 LBS
36"	650 LBS

NOTE:

1. HOT-DIP GALVANIZE THE PREFORMED CHANNELS AND OTHER ACCESSORIES AFTER FABRICATION.

E302 CONDUIT SUPPORT
TYP SCALE: NTS



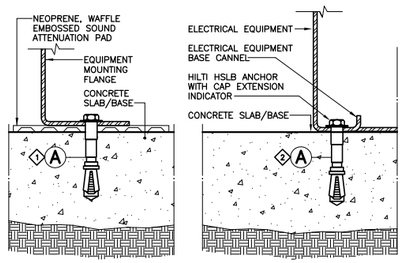
ROD SIZE	MAX ROD LOAD	MAX "H"
3/8"	610 LBS	3'-0"
1/2"	900 LBS	4'-0"
5/8"	900 LBS	5'-0"
3/4"	900 LBS	–

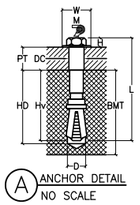
NOTE:

1.) PREFORMED CHANNEL AND OTHER ACCESSORIES SHALL BE 316 ST STL OR FRP.

2.) EXPOSED SUPPORT CHANNEL AND CONDUIT STRAPS SHALL BE PVC COATED, EXPOSED METAL/NUTS AND RODS SHALL BE 304 SS.

E325 TRAPEZE CONDUIT SUPPORT
TYP SCALE: NTS





ANCHOR SIZE		M10/20	M16/25
		1	2
SETTING DETAILS			
D (in) DRILL BIT DIA.		.585	.936
HD (in) HOLE DEPTH		3.315	4.875
Hv (in) MIN. DEPTH OF EMBEDMENT		2.925	4.095
PT (in) MAX. THICKNESS FASTENED		.780	.975
L (in) ANCHOR LENGTH		4.173	5.772
H (in) HEAD HEIGHT + WASHER		.390	.546
M (FT.-LBS.)	MAX. TIGHTENING TORQUE	1.56	5.850
	MIN. TIGHTENING TORQUE	1.326	4.875
MAX. GAP (in)		.195	.3510
DC (in) CLEARANCE HOLE		.663-.702	1.014-1.092
W (in) WASHER DIAMETER		.975	1.560
BMT (in) MIN. BASE MATERIAL THICKNESS (CONCRETE THICKNESS)		5.46	7.020

1 SHALL BE USED FOR TRANSFORMER ATTACHMENT.

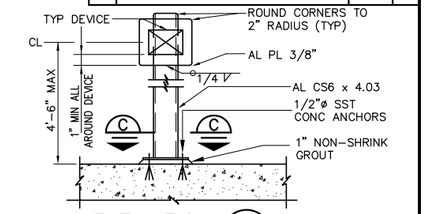
2 SHALL BE USED FOR MAIN SWITCHBOARD (MSB), MOTOR CONTROL CENTERS (MCC), AND DISTRIBUTION BOARDS.

NOTES:

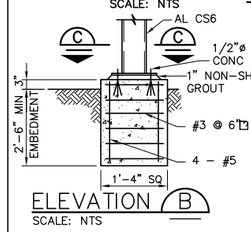
1. EXPANSION ANCHORS SHALL BE A SINGLE-END EXPANSION SHIELD ANCHOR WHICH MEETS THE DESCRIPTIVE PART OF FEDERAL SPECIFICATIONS FF-S-325 GROUP II, TYPE 2, CLASS 2, STYLE 1. ANCHORS SHALL BE DIMENSIONED AS PER HILTI FASTENING SYSTEMS, 5400 SOUTH 122nd EAST AVENUE, TULSA, OK 74146.
2. HSLB EXPANSION ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH HILTI CARBIDE TIPPED DRILL BITS. ANCHORS SHALL BE INSTALLED AND TORQUED PER MANUFACTURERS RECOMMENDATIONS.
3. INSTALL ANCHORS 15" ON CENTER AROUND ENTIRE PERIMETER OF EQUIPMENT. 2 MINIMUM PER SIDE.

E326 ELECTRICAL EQUIPMENT MOUNTING DETAIL
TYP SCALE: NTS

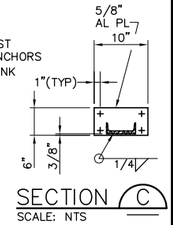
REVISIONS			
NO	DESCRIPTION	DATE	BY



ELEVATION A
SCALE: NTS



ELEVATION B
SCALE: NTS

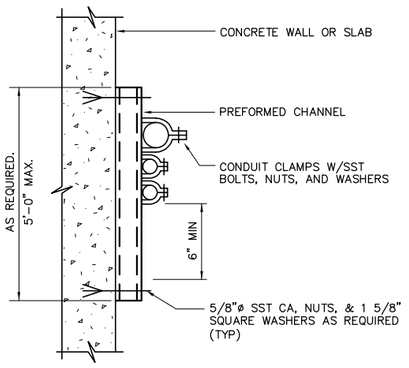


SECTION C
SCALE: NTS

NOTES:

1. WHERE SEPARATE FOUNDATION IS REQD, SEE B.
2. COAT ALUMINUM SURFACES IN CONTACT W/CONCRETE PER SPECS.
3. USE SST FASTENERS FOR MOUNTING DEVICES.
4. WEIGHT OF DEVICE(S) SHALL NOT EXCEED 100 POUNDS.

E330 DEVICE SUPPORT AND MOUNTING
TYP

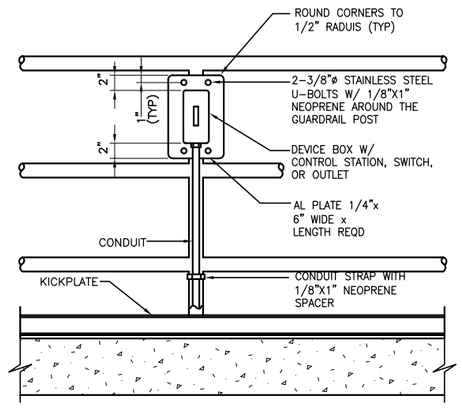


ELEVATION

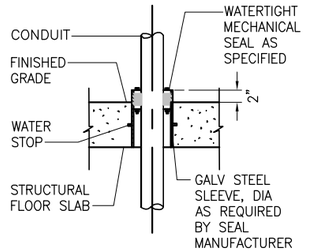
NOTES:

1. THIS DETAIL TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING.
2. PREFORMED CHANNEL, FITTINGS, AND CLAMPS SHALL BE HOT-DIP GALVANIZED STEEL. FIELD COAT ALL CUTS PER SPECIFICATIONS.
3. CHANNELS TO BE SPACED AT 5'-0" OC MAXIMUM.
4. IF CONDUIT IS WITHIN TANK CONTAINMENT AREA, PROVIDE FRP PREFORMED CHANNELS.

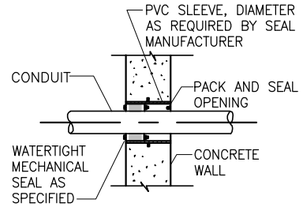
E340 CONDUIT SUPPORT
TYP SCALE: NTS



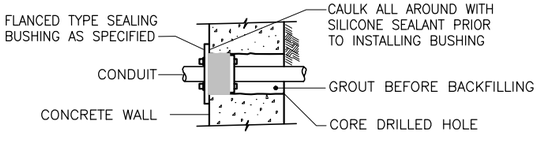
E350 GUARDRAIL MOUNTED CONTROL SWITCH OR OUTLET, STATION
TYP SCALE: NTS



A — CONDUIT PENETRATION
SCALE: NTS

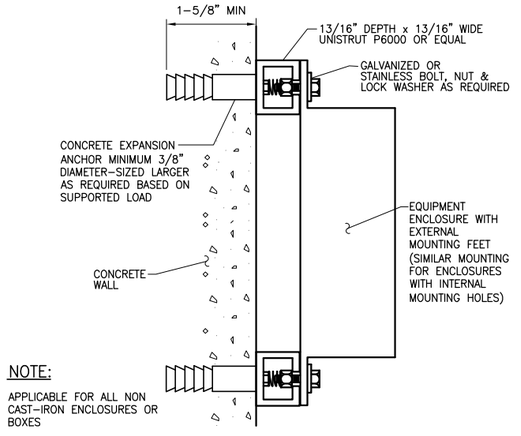


B — WATERTIGHT CONDUIT PENETRATION
SCALE: NTS



C — CONDUIT PENETRATION THROUGH EXISTING CONCRETE WALL
SCALE: NTS

E410 DETAILED CONDUIT PENETRATION
TYP SCALE: NTS



NOTE:

APPLICABLE FOR ALL NON CAST-IRON ENCLOSURES OR BOXES

E416 EQUIPMENT ENCLOSURE MTG. ON CONCRETE WALL
TYP SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER
DIEP TAN NGUYEN
No. E-10687
Exp. 6/30/08
ELECTRICAL
STATE OF CALIFORNIA
2-26-08

DTN ENGINEERS, INC.

WHITLEY BURCHETT & ASSOCIATES
Walnut Creek, California
(925) 945-6850

DESIGN	TP
DRAWN	EA
CHECKED	DN
JOB NUMBER	SMC 07-1
DATE	FEBRUARY 2008

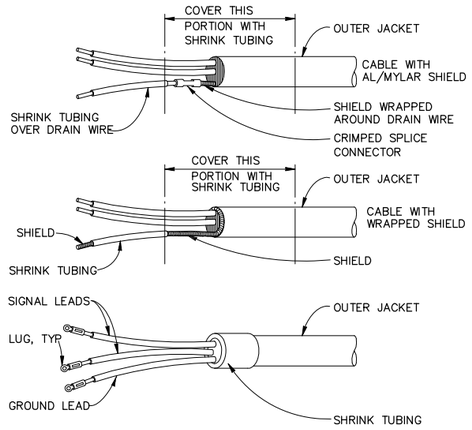
LINE IS 2 INCHES AT FULL SCALE
IF NOT 2 INCHES, SCALE ACCORDINGLY

SAUSALITO MARIN CITY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SLUDGE DEWATERING PROJECT

TYPICAL DETAILS

REV. 0
DWG. NO. E-9
33 OF 37

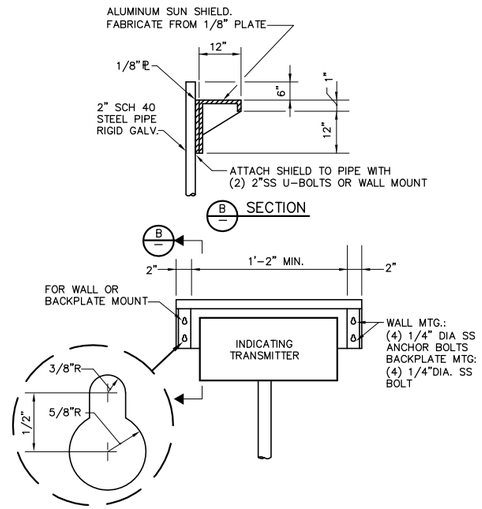


NOTES:

1. SHIELD GROUNDED AT TERMINATION CABLES MAY BE MULTIPLE PAIRS.
2. FOR USE WHENEVER SHIELDED CONTROL CABLES ARE USED. APPLIES AT TERMINATIONS WHERE SHIELD IS TO BE GROUNDED. SEE OTHER DETAILS FOR GROUNDING SHIELD. GROUND ONE END OF CABLE ONLY.

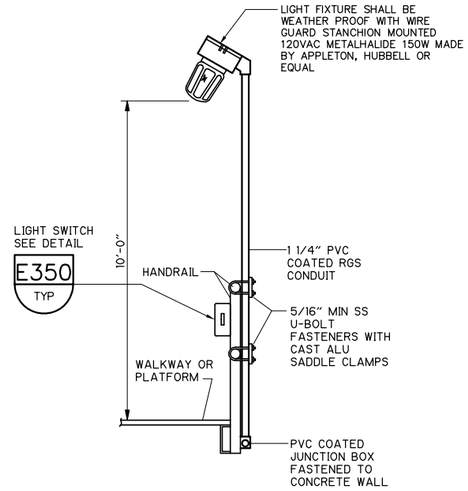
E417 TERMINATION OF SHIELDED CABLE

TYP SCALE: NTS



E418 SUN SHIELD FOR TRANSMITTER

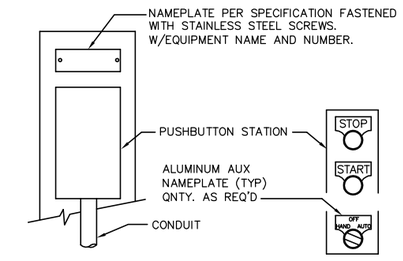
TYP SCALE: NTS



E419 WALKWAY LIGHTING FIXTURE MOUNTING DETAIL

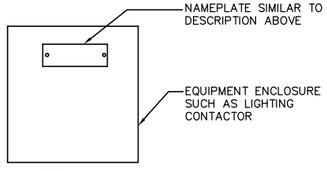
TYP SCALE: NTS

REVISIONS			
NO	DESCRIPTION	DATE	BY



A — PUSHBUTTON STATION

SCALE: NTS



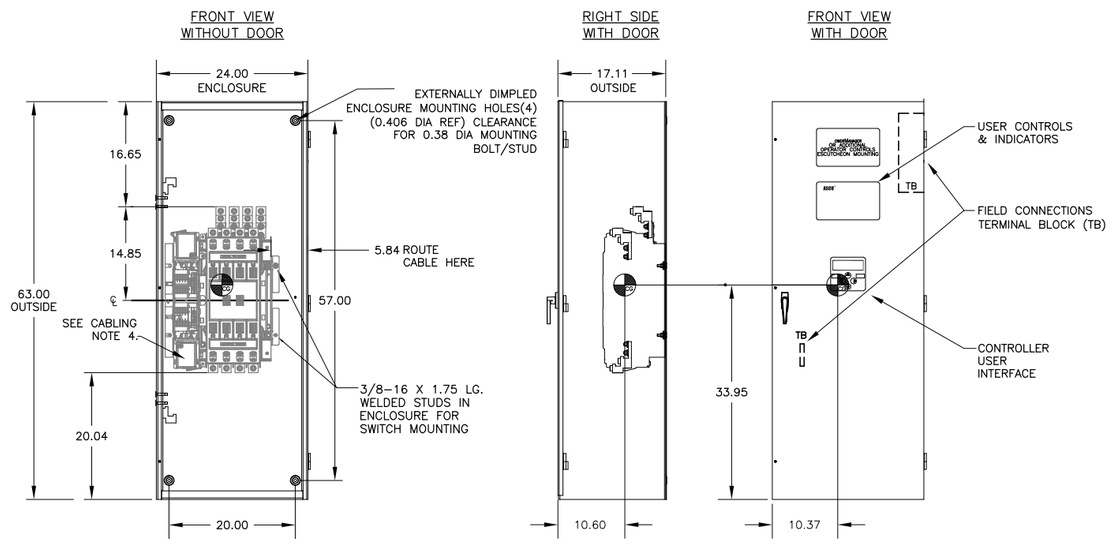
B — ENCLOSURE

SCALE: NTS

E525 DEVICE NAMEPLATE INSTALLATION

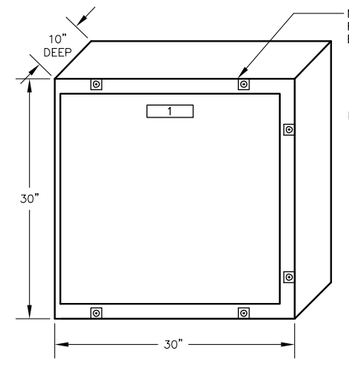
TYP SCALE: NTS

DTN ENGINEERS, INC.



A — NEW 600A, 480V ATS DETAIL

SCALE: NTS



NAMEPLATE:

1. PLC REMOTE I/O DROP

NOTES:

1. THIS PANEL IS FURNISHED AND INSTALLED BY CONTRACTOR.
2. SEE DIV. 13 FOR REQUIREMENTS REGARDING INTERNAL COMPONENTS.

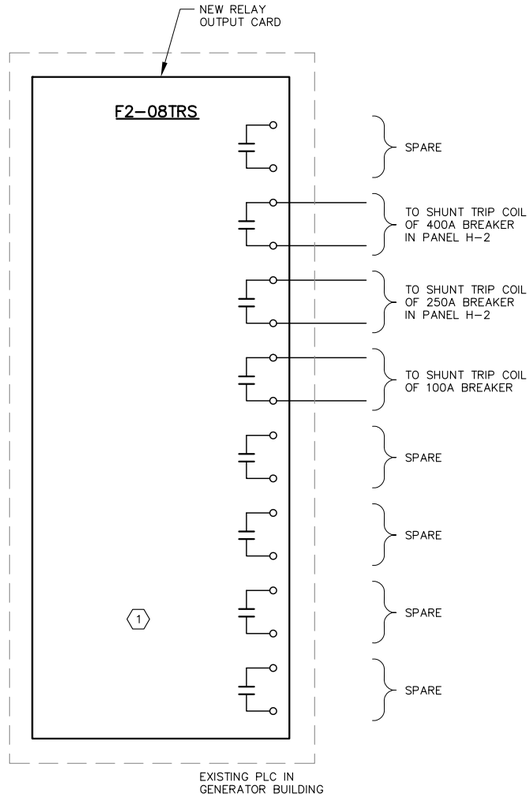
B — PLC REMOTE I/O DROP

SCALE: NTS

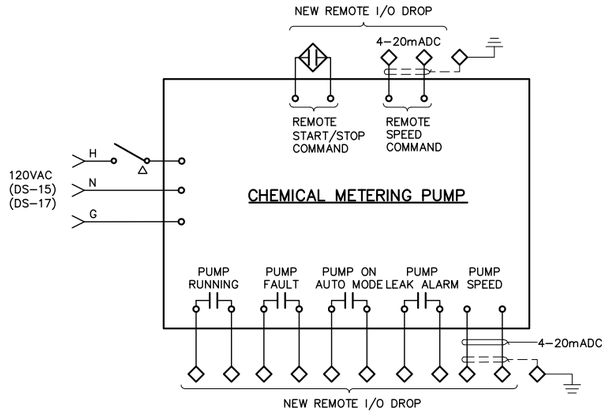
REGISTERED PROFESSIONAL ENGINEER DIEP TAN NGUYEN No. E-10687 Exp. 6/30/08 ELECTRICAL STATE OF CALIFORNIA 2-26-08

WHITLEY BURCHETT & ASSOCIATES Walnut Creek, California (925) 945-6850	DESIGN TP DRAWN EA CHECKED DN	JOB NUMBER SMC 07-1 DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	TYPICAL DETAILS AND CONSTRUCTION DETAILS	REV. 0 DWG. NO. E-10 34 OF 37

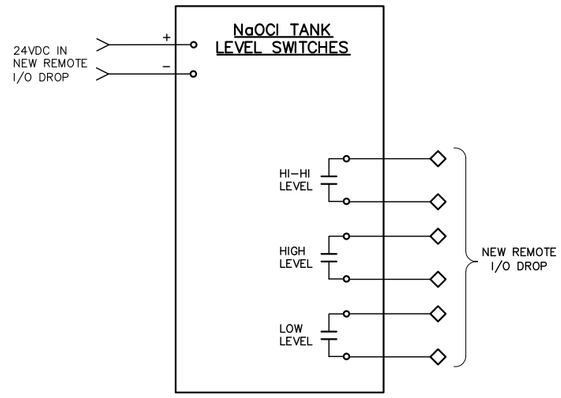
REVISIONS			
NO	DESCRIPTION	DATE	BY



A LOAD SHEDDING CONTROL SCHEMATIC
SCALE: NTS



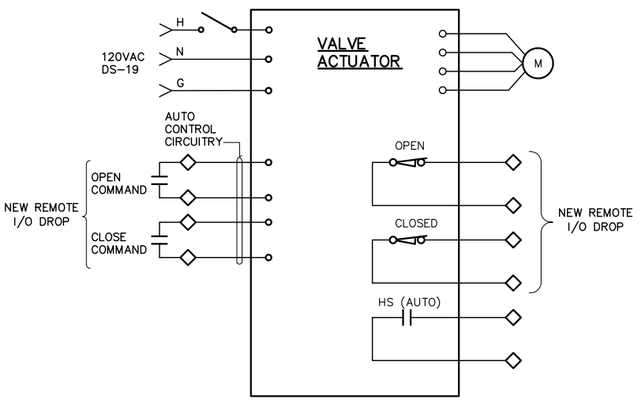
C CHEMICAL FEED PUMP CONTROL SCHEMATIC
SCALE: NTS (TYPICAL FOR 2 PUMPS)



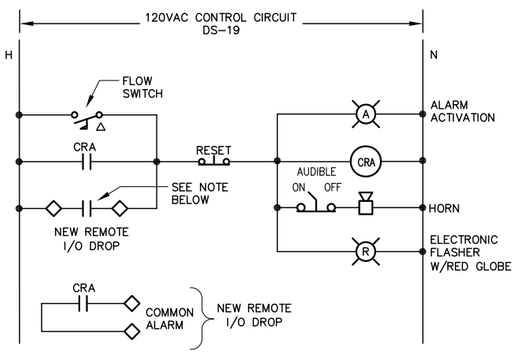
E NaOCl TANK LEVEL SWITCHES
SCALE: NTS

SHEET NOTES:

1. SEE DETAIL "A" ON DRAWING E-3 FOR EXACT LOCATION OF THIS CARD INSTALLED IN EXISTING PLC RACK.



B VALVE MOV-701 SCHEMATIC DIAGRAM
SCALE: NTS

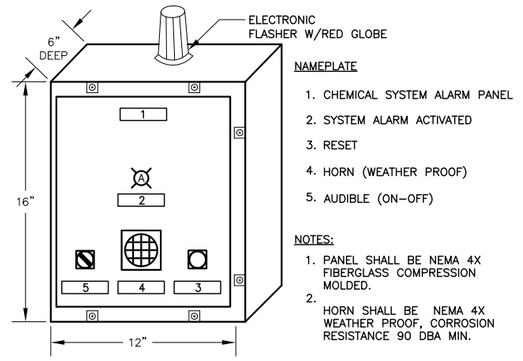


NOTES:

CONTACT SHALL CLOSE WHEN ANY OF THE FOLLOWING HAPPENS:

1. NaOCl TANK HI HI LEVEL
2. PIPING LEAK
3. PUMP FAIL
4. PUMP LEAK

D CHEMICAL SYSTEM ALARM SCHEMATIC
SCALE: NTS

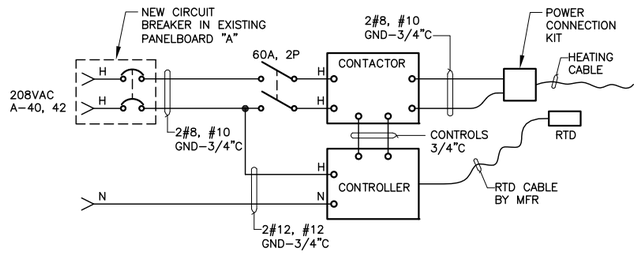


NAMEPLATE

1. CHEMICAL SYSTEM ALARM PANEL
2. SYSTEM ALARM ACTIVATED
3. RESET
4. HORN (WEATHER PROOF)
5. AUDIBLE (ON-OFF)

NOTES:

1. PANEL SHALL BE NEMA 4X FIBERGLASS COMPRESSION MOLDED.
2. HORN SHALL BE NEMA 4X WEATHER PROOF, CORROSION RESISTANCE 90 DBA MIN.



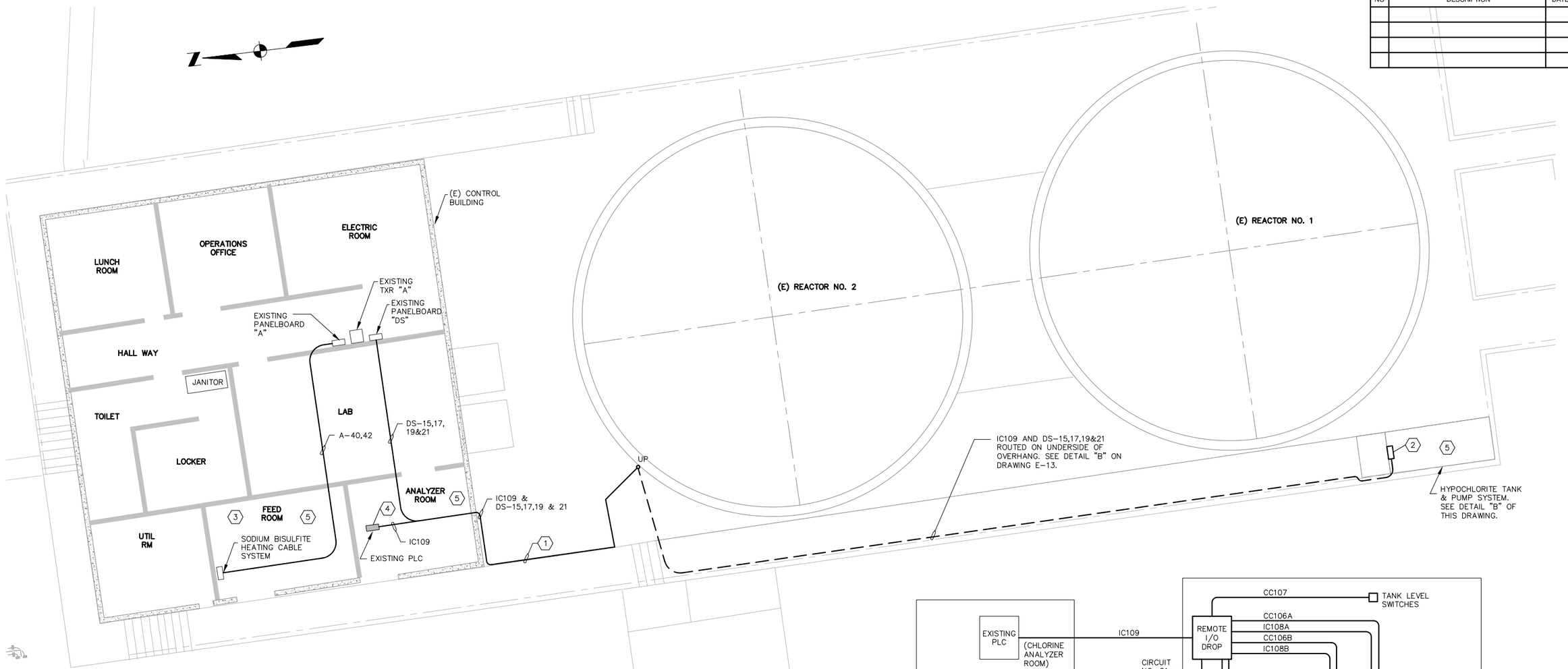
F HEATING CABLE CONTROL SCHEMATIC
SCALE: NTS

ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER DIEP TAN NGUYEN No. E-10687 Exp. 6/30/08 ELECTRICAL STATE OF CALIFORNIA
2-26-08

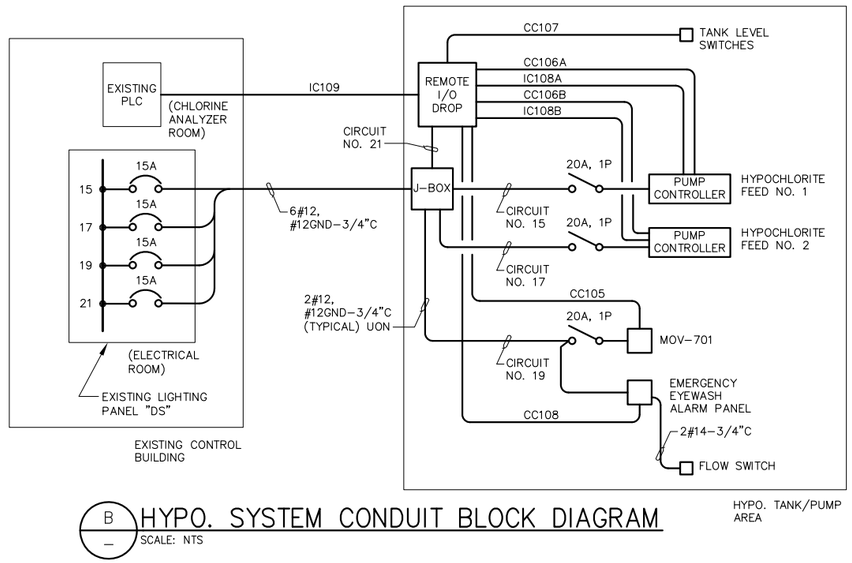
WHITLEY BURCHETT & ASSOCIATES Walnut Creek, California (925) 945-6850	DESIGN TP DRAWN EA CHECKED DN	JOB NUMBER SMC 07-1 DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	LOAD SHEDDING CONTROL AND HYPO SYSTEM DIAGRAMS	REV. 0 DWG. NO. E-11 35 OF 37

REVISIONS			
NO	DESCRIPTION	DATE	BY



SHEET NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXACT ROUTING OF THESE NEW CONDUITS INTO EXISTING CONTROL BUILDING. CORE DRILL WALLS AS REQUIRED. CONDUITS ROUTED IN LAB AND OFFICE AREA SHALL BE CONCEALED IN FALSE CEILING. PVC COATED RGS CONDUITS INSTALLED IN FEED ROOM AND ANALYZER ROOM SHALL BE EXPOSED.
2. EXACT LOCATION OF THE HYPO. SYSTEM EQUIPMENT SHALL BE AS DIRECTED BY THE DISTRICT DURING CONSTRUCTION.
3. EXACT LOCATION OF THE SODIUM BISULFITE, HEATING CABLE EQUIPMENT SHALL BE AS DIRECTED BY THE DISTRICT DURING INSTRUCTION.
4. EXACT LOCATION OF EXISTING PLC SHALL BE FIELD VERIFIED BY THE CONTRACTOR. SEE SPECS (DIV 13) FOR REQUIRED MODIFICATIONS.
5. THIS AREA IS CLASSIFIED AS NEMA 4X, CORROSIVE ENVIRONMENT. EQUIPMENT AND INSTALLATION MATERIALS SHALL BE SUITABLE FOR SUCH LOCATION AS SPECIFIED IN THE SPECIFICATIONS.
6. CONDUITS SHOWN ARE GENERALLY DIAGRAMATIC. JUNCTION BOXES, FITTINGS, CONDUIT SUPPORTS ETC SHALL BE PROVIDED AS PER DIVISION 16 OF THE SPECIFICATIONS.



A SITE PLAN 6
SCALE: AS SHOWN
0 4 8 16
3/16"=1'-0"

B HYPO. SYSTEM CONDUIT BLOCK DIAGRAM
SCALE: NTS

DTN ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER DIEP TAN NGUYEN No. E-10687 Exp. 6/30/08 ELECTRICAL STATE OF CALIFORNIA
2-26-08

WHITLEY BURCHETT & ASSOCIATES Walnut Creek, California (925) 945-6850	DESIGN _____ DRAWN _____ CHECKED _____	JOB NUMBER SMC 07-1 DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	PARTIAL SITE PLAN - POWER - HYPO PROCESS	REV. 0 DWG. NO. E-12 36 OF 37

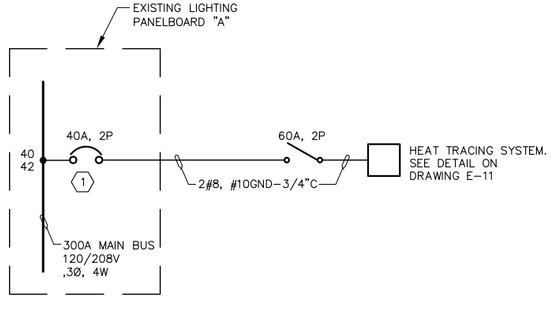
REVISIONS			
NO	DESCRIPTION	DATE	BY

SHEET NOTES:

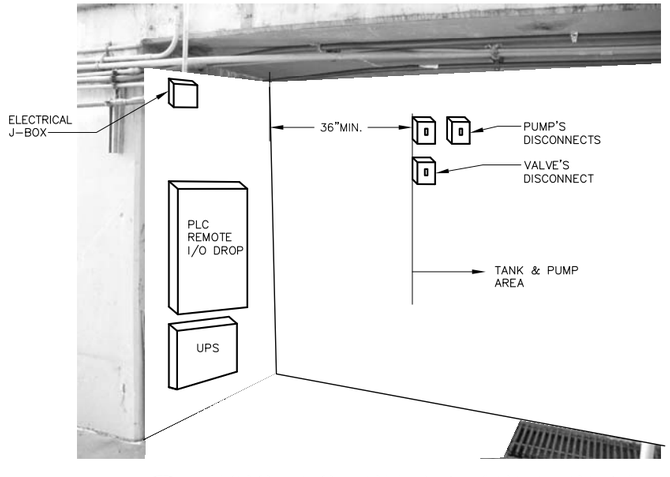
1. REMOVE EXISTING SPARE SINGLE POLE BREAKERS IN CIRCUIT NO. 40 AND NO. 42 AND REPLACE WITH A NEW 40A, 2P CIRCUIT BREAKER TO FEED SODIUM BISULFITE HEAT TRACING SYSTEM. NEW BREAKER SHALL BE CUTLER HAMMER (FORMERLY WESTINGHOUSE ELECTRIC) EB SERIES TO MATCH EXISTING INSTALLATION.
2. SUPPORT AND ROUTE NEW CONDUITS TO SODIUM HYPOCHLORITE TANK/PUMP AREA. SEE FLOOR PLAN ON DRAWING E-12 FOR CONTINUATION. ALSO SEE DETAIL "B" ON DRAWING E-13 FOR QUANTITY OF REQUIRED CONDUITS.
3. SEE DETAIL E-12 FOR EXISTING CIRCUIT BREAKERS TO BE USED FOR FEEDING HYPO. SYSTEM EQUIPMENT.

A — EXISTING LIGHTING PANELBOARD "A" IN EXISTING CONTROL BUILDING
SCALE: NTS

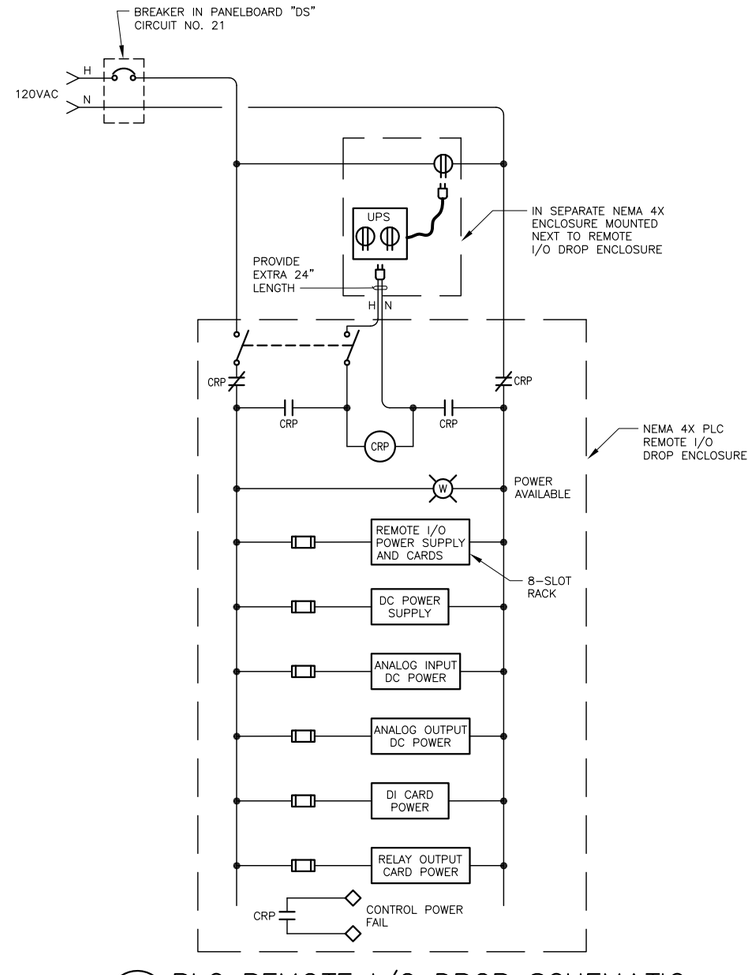
B — CONDUIT INSTALLATION DETAIL
SCALE: NTS



C — (E) PANELBOARD "A" MODIFICATION
SCALE: NTS



D — HYPO. EQUIPMENT AREA DETAIL
SCALE: NTS



E — PLC REMOTE I/O DROP SCHEMATIC
SCALE: NTS

ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER — DIEP TAN NGUYEN — No. E-10687 Exp. 6/30/08 — ELECTRICAL — STATE OF CALIFORNIA — 2-26-08

WHITLEY BURCHETT & ASSOCIATES, Walnut Creek, California (925) 945-6850	DESIGN TP DRAWN EA CHECKED DN	JOB NUMBER SMC 07-1 DATE FEBRUARY 2008	LINE IS 2 INCHES AT FULL SCALE IF NOT 2 INCHES, SCALE ACCORDINGLY	SAUSALITO MARIN CITY SANITARY DISTRICT MARIN COUNTY, CALIFORNIA	SLUDGE DEWATERING PROJECT	HYPO. SYSTEM CONSTRUCTION DETAILS	REV. 0 DWG. NO. E-13 37 OF 37