



**DISTRICT BOARD**

Megan Clark  
Rabi Elias  
Russ Greenfield  
Craig K. Murray  
Judy Schriebman

**DISTRICT ADMINISTRATION**

Chris DeGabriele,  
General Manager  
Michael Cortez,  
District Engineer  
Mel Liebmann,  
Plant Manager  
Susan McGuire,  
Administrative Services Manager  
Greg Pease,  
Collection System/Safety Manager

**ADDENDUM NO. 2**

Date: August 31, 2018  
Project: **Secondary Treatment Plant Upgrade & Recycled Water Expansion**  
Job No.: 12600-07/16650-02

To: All Planholders and Prospective Bidders

This addendum consists of **fifty-seven (57) pages** including this page and all attachments with cover sheets broken down as follows:

- Main Addendum #2 Document (including cover/signature page) – 10 pages
- Attachment A – 4 pages (including cover sheet)
- Attachment B – 39 pages (including cover sheet)
- Attachment C – 2 pages (including cover sheet)
- Attachment D – 2 pages (including cover sheet)

Acknowledge receipt of this addendum in the space provided on page 2-5, Proposal Cover Page and Bid Schedule, of the Bid Forms, and by signing in the space provided below. Submit original copy of this addendum cover page along with the bid. Failure to do so may disqualify the bidder.

Las Gallinas Valley Sanitary District:

Bidder: \_\_\_\_\_

Michael P. Cortez, PE, District Engineer  
Tel. No. (415) 472-1033, ext. 18

\_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(Date)

The following changes and/or clarifications are hereby made to the Contract Documents, and shall become a part of the Contract Documents dated July 2018.

### **General Information:**

1. Regarding material removed from the sludge pond area (the ponds that are to be demolished for construction of the anoxic/aeration basins), the District has decided that this material may be stored and stockpiled onsite, adjacent to the existing stockpile area as shown on sheet C-1 of Volume 4A.

### **Volumes 1 & 2:**

1. Regarding conflicts among the Contract documents as discussed in Item 7 of the Agreement (page 19 of Volume 1), this order of precedence is replaced with the requirements listed in Sections 014000 and 014200. In summary, “The more stringent requirement rules unless approved by Owner.”
2. For emphasis and as a reminder, Page 2-41 of Volume 2 of the Contract Documents **requires a notarized site visit affidavit** to be executed and submitted with bid. Bidders shall examine and familiarize themselves with existing conditions that may affect cost, progress or performance of the work. Bidders are also welcome to schedule additional site visits to inspect existing structures and conditions if desired.

### **Volume 3A**

1. **Section 013550 – Security:** The requirements in paragraph 1.6 C concerning a “badge system” are not applicable to this project and are not required.
2. **Section 014000 – Quality Requirements:** The District **does not** require mockups as stated in paragraph **1.6, J** of this section.
3. **Section 098000 – Protective Coatings:**  
The protective floor coating system requirements for the concrete floor slab in the Dechlorination Dosing Building (reference coatings schedule sheet SCH-4 in Volume 4A) has been updated. This floor shall require the new system Q (rather than D); the specifications for which shall be added to Section 098000 Section 2.3 as Paragraph Q.

#### System Q – Concrete Floors in Moderate Chemical Exposure Installations

1. Examples of this classification include the following surfaces/area:  
Dechlorination Dosing Facility Concrete Floor/Slabs
2. Surface Preparation: Prepare in accordance with SSPC-SP13/NACE 6 and ICRI Technical Guidelines. Abrasive Blast, shot-blast or mechanically abrade concrete surfaces to provide a minimum ICRI-CSP 3 or greater surface profile.
3. Coating System:

- a. Prime Coat: Series 201 Epoxoprime at 200 – 260 square feet per gallon (6.0 – 8.0 mils).
- b. Intermediate Coat: Series 282 Tnemec-Glaze at 160 - 200 square feet per gallon (8.0 to 10.0 mils). For texture - randomly broadcast 30/50 mesh dry wash silica into the wet Series 282.
- c. Finish Coat: Series 282 Tnemec -Glaze at 160 - 200 square feet per gallon (8.0 to 10.0 mils).

## Volume 3B

### 1. Section 319000 – Geotechnical Report

As a clarification regarding expectations for caisson drilling and installation, the Contractor is responsible to review the geotechnical report and include appropriate measures for caisson drilling and installation, including maintaining hole integrity during installation, which may require temporary casings, drilling fluid, or other methods. All costs associated with caisson drilling and installation shall be included by the Contractor.

## Volume 4A

1. **Sheets MMD-1 thru MMD-9:** Some additional information regarding some of the existing structures and facilities at the MMWD site to be demolished have been located and **are provided for reference as an attachment to this addendum.** The additional information includes upgrade design drawings from 1989 (Attachment B) and information about concrete boxes (Attachment C). The conditions, dimensions, and contents of these drawings have not been field verified; bidders are encouraged to schedule a site visit to confirm actual site conditions and contents.
2. **Sheet AS-3:** The footing/floor slab and walls are mat foundation design and require construction joints. **A copy of this drawing indicating the required locations for construction joints is provided as an attachment to this addendum.** Note that the wall joints will be located inline with the floor joints as indicated in the drawing. Floor and wall construction joint details are already provided in Volume 4A, specifically detail 342 on sheet SD-7 and 341 on sheet SD-6.
3. **Sheet UVS-1:** Construction joints are required for the UV building floor and channel. **A copy of sheet UVS-1 is provided with this addendum indicating the required locations.** Construction joints shall be per detail 341 on sheet SD-6.
4. **Sheet EBS-1:** The structural engineer has added a construction joint in the center of this building to serve as crack control. **A copy of sheet EBS-1 is provided with this addendum indicating the required location.** The floor construction joints shall be per detail 334 on sheet SD-5, and the construction joint in the concrete stem wall shall be per detail 341 on sheet SD-6.
5. **Sheet SCH-4:** As described above for Section 098000 in Volume 3A, the coating system requirements for the concrete floor slab in the Dechlorination Dosing Building have been

updated to a new system, identified as system Q in this spec section and as described above.

**Volume 4B**

1. No comments or changes noted.



**Questions:**

The following questions were listed in a previous addendum but the responses were deferred to this addendum.

1. Drawing AS-3 does not appear to indicate any construction joints in the Aeration Basin floor slab. Please confirm.

**Addressed in comments for Volume 4A above.**

2. Drawing AS-3 has notations on the drawing: TYPE "A", TYPE "B", TYPE "C" without any reference to what they mean. Please clarify.

**The call outs Type "A" (etc.) on this sheet refer to specific wall designs as referenced in multiple structural sections (e.g. Section A on sheet AS-5 shows the left-most 2-foot thick wall as Wall "B", the center 16-inch wall is noted as Wall "A", etc.). These callouts are not necessary on sheet AS-3 but are intended to facilitate cross-referencing walls in the structural sections.**

3. Drawings AS-5 and AS-6 do not appear to indicate any wall construction joints. Please confirm.

**Addressed in comments for Volume 4A above.**

4. Drawing UVS-1, Note 1, indicates to Place Control and Construction Joints as Shown on Plans. None appear to be indicated in the concrete work, except at wall to floor connections. Are these the only ones required? We are not supposed to add or take away any throughout the project.

**Addressed in comments for Volume 4A above.**

5. Drawing EBS-1, Note 10, indicates the contractor shall place control joints per detail 347/SD-8 so as to limit cracking. EBS-2, Note 4, says to pour the slab monolithically. Specification section 032900 3.3.C.1 says to make control joints at locations shown on the Drawings. Do not eliminate or relocate control joints. As none are shown, none will be added. This shall be the case for all joint types on all structures. Please add to all structures so they can be included in the bid cost.

**As discussed above in the comments for Volume 4A, the structural engineer has elected to add a construction joint to the center of the building to serve as a control joint. Refer to the copy of EBS-1 that is attached to this addendum.**

The following questions were submitted on 8/28/2018. Responses are provided where available, but due to the timing of the questions with this addendum, some of the responses are deferred to a future addendum.

1. Note 1 on MMD-3, footing and foundations are to be demolished. Please provide thickness for footings listed in tags # 2, 13, 14, 15, 16, 17, 18, 19, 26, 29 and any other concrete slab.

**Complete record drawings of all facilities in this area are not available. Some improvements are detailed in a drawing set provided by MMWD from 1989. These drawings are provided as an attachment to this addendum (as discussed above), but are for reference purposes only and have not been verified by the District or Engineer. Page 2-41 of Volume 2 of the Contract Documents requires a notarized site visit affidavit to be executed and submitted with bid. Bidders shall examine and familiarize themselves with existing conditions that may affect cost, progress or performance of the work. Bidders are also welcome to schedule additional site visits to inspect existing structures and conditions if desired.**

2. MMD-5, Tag 16 indicates a quantity of 4 for the brick wall. MMD-1 only shows one location. Confirm which is right.

**Per MMD-1, there appears to be just 1 masonry-based wall within the demolition site. Regardless, the intent is to demolish, remove, and dispose of all improvements within the MMWD site except for specific items that are to remain. Note that many of the improvements shown in the MMWD demolition drawings are a compilation of multiple record drawing sets, and accordingly not every item has been field verified by the design engineer. Per the requirements in Volume 2, bidders shall examine and familiarize themselves with existing conditions that may affect cost, progress or performance of the work. Bidders are also welcome to schedule additional site visits to inspect existing structures and conditions if desired.**

3. Drawing D-4 requires 3 manholes to be removed, per note 6. Provide diameters and depths for each.

**Investigation of these manholes by operating staff provides the following approximations:**

**Southern most manhole (on the 6-inch gravity sewer line) to be removed – assumed 4-foot diameter manhole, approximately 5'-6" feet deep from rim to invert elevation.**

**Middle manhole (on the 10" sludge line) to be removed – assumed 4-foot diameter manhole and approximately 5-feet deep from rim to invert elevation.**

**Northern most manhole (on the 6-inch gravity sewer line) to be removed – assumed 4-foot diameter manhole, approximately 8'-9" deep from rim to invert elevation.**

4. Drawing D-4 requires the demolition of MCC #9 Building. Sheet D-12 does not provide any details on the concrete slabs, other than boundary dimensions. The structure is masonry. Does the masonry sit on stem walls and spread footings? Provide some kind of detail of the concrete work, to be verified during demolition.

**Record drawings or additional information for MCC #9 building are currently not available. Per the requirements in Volume 2, bidders shall examine and familiarize themselves with existing conditions that may affect cost, progress or performance of the work. Bidders are also welcome to schedule additional site visits to inspect existing structures and conditions if desired.**

5. Drawing FFD-2 indicates the removal and disposal of Wash Troughs. Provide the material of construction for these WT's. Indicate on FFD-1 where these WT's are located.

**Plan view of the existing troughs from 1982 record drawings is provided as an attachment (Attachment D) to this addendum for reference. The records indicate that these troughs are constructed from 1/4" thick hot dip galvanized plate.**

6. Drawing D-3, cannot find any as-built information on the two pads to be demolished by the Lab/ Visitor Center. Provide information to bid on, to be verified at the time of demolition.

**As-builts or additional information for these pads with CMU walls is currently not available, other than the plan view dimensions shown in the civil/site demolition drawings and a reference from older drawings as "storage pads." Note that the larger of the two pads includes a 4-foot tall masonry wall on 3 sides. Per the requirements in Volume 2, bidders shall examine and familiarize themselves with existing conditions that may affect cost, progress or performance of the work. Bidders are also welcome to schedule additional site visits to inspect existing structures and conditions if desired.**

7. Drawing MMD-5 describes Tags 7 and 12 as "Box", but only provides a pad dimension. Provide all dimensions of a box if in fact it is, to be verified during demolition.

**See additional information for MMWD demolition drawings as discussed above. Attachment C provided with this addendum has the presumed dimensions for the boxes listed with tags "7" and "12."**

8. Drawing MMD-3 provides little information on the wall construction of the Control Building. A review of pictures appears to show it is a wood frame structure. Please confirm.

**Observation by the District indicates that the structure walls are plywood.**

9. Drawing D-14 indicates to “Remove Chemical Storage Tanks”. There is a detail to remove the larger tank pad, Section C. Does the smaller tank pad get demolished also? Provide details.

**The contractor is to remove the storage pads for both the large and small tanks. Drawings for the smaller tank storage pad and fill station structure are not currently available.**

10. Drawing D-14 indicates to remove a fill station structure. It looks like it is connected to the large tank. Is there a fill station structure for the small tank also?

**There is not a separate fill structure for the smaller tank.**

11. Drawings D-6 and D-9 request the crushing and re-use for the “rock” in the Bio-Filters. Are there any noise ordinances that need to be adhered to?

**There are no noise ordinances of which the District is aware.**

12. Section 31 20 00, 3.4, c, requires over excavation of 24” below grade beams in the Basin Structure. Is this full over excavation required in areas where the existing bedrock is within 24” of the bottom of the grade beams?

**Under review – deferred to future addendum.**

13. Section 31 20 00, 3.4, contains several sections that require scarification and compaction of existing material. It is highly unlikely that the existing bay mud or other unsuitable materials can be re-compacted in order to achieve 90% density. Please confirm the applicability of this requirement.

**Under review – deferred to future addendum.**

14. DAC Geotechnical Report indicates that surcharging is recommended in several plant areas to a depth of 15’ over 8 to 12 months. Please confirm the applicability of this recommendation. If applicable, please detail the required surcharge locations, along with depths and timeframes.

**Under review – deferred to future addendum.**

15. Miller Pacific Geotechnical Report recommends that the district consult with a geotechnical firm to confirm whether specifications in 31 20 00 can be changed to allow for the use of dredge spoils. Will dredge spoils be allowed as fill, structural or otherwise?

**Suitable use for the existing stockpile material was addressed in addendum #1.**

16. Section 26 32 13, 3.2, F, references Division 16. Division 16 was not provided with the bid documents. Please confirm applicability of this reference.

**Under review – deferred to future addendum.**

17. Section 40 91 13, 2.3 & 2.4, require temperature control equipment in areas of outside of the -4F to 122F range. Please define any areas that lie outside of this temperature range.

**Under review – deferred to future addendum.**

18. Section 40 91 23, 2.2, requires temperature control equipment in areas of outside of the -4F to 122F range. Please define any areas that lie outside of this temperature range.  
**This appears to be a repeat of question #17, which is deferred to a future addendum.**
19. Section 40 94 43, 1.1, B, requires the contractor to provide one full version of PLC programming software. Section 40 96 00, 2.1, A, indicates that PLC programming software will be provided by the owner's SI. Please confirm who is to supply the PLC programming software.  
**Under review – deferred to future addendum.**
20. Section 01 35 50, 1.6, C, requires a badge system to be implemented by contractor upon the request of the owner. Please confirm whether or not a badge system will be required on this project.  
**The District does not intend to require or implement a badge system.**
21. Section 01 40 00, 1.3, B, & 01 42 00, 1.2, F, requires the contractor to use the more stringent standard in the event of a conflict between the Technical Specifications and Design Drawings. Item 7 in the contract Agreement defines the order of precedence as permits, typical details, specs, plans. In the unlikely event of conflicting documents, does the contractor follow the more stringent standard or the order of precedence?  
**The language provided in Section 014000, paragraph 1.3B and Section 014200 paragraph 1.2.F is the intent of the District. Specifically, the requirements are summarized as follows: "The more stringent requirement rules unless approved by Owner."**
22. Section 01 40 00, 1.6, J, requires mockups for each form of construction. Please provide a detailed list of all mockups that will be required for this project.  
**Upon further review by the District, mockups will not be required.**
23. Section 01 41 20, requires the contractor to obtain all permits, but does not provide a complete list of permit requirements. In lieu of carrying these unknown cost in the base bid and devoting bid phase resources to permit inquiry, please consider establishing a permit allowance to cover any required permit fees.  
**The District will reimburse the Contractor for permit fees that are unknown at this time.**
24. Will plant water be acceptable for use during Functional Acceptance Testing?  
**Under review – deferred to future addendum.**

**END OF QUESTIONS SECTION FOR ADDENDUM #2**

### LIST OF ATTACHMENTS

**Attachment A:** Revised drawing sheets from Volume 4A; total of two (3) sheets showing construction joint locations:

Sheet AS-3  
Sheet UVS-1  
Sheet EBS-1

**Attachment B:** 1989 Record Drawings for MMWD Reclamation Plant Improvements – **Provided for reference purposes only regarding demolition of existing MMWD facilities.**

**Attachment C:** 1989 Record drawings of “box” structures referenced in MMWD demolition drawings. **Provided for reference purposes only.**

**Attachment D:** 1982 Design Drawing of the Deep Bed Filter structure, including the layout and number of troughs to be removed from the deep bed filter media filter structure. **Provided for reference purposes to supplement the FFD drawings in Volume 4A.**

### END OF ADDENDUM #2

See following Sheets for Attachments

## **Attachment A**

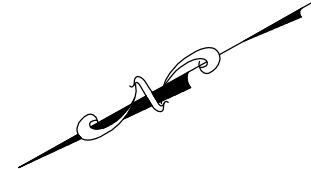
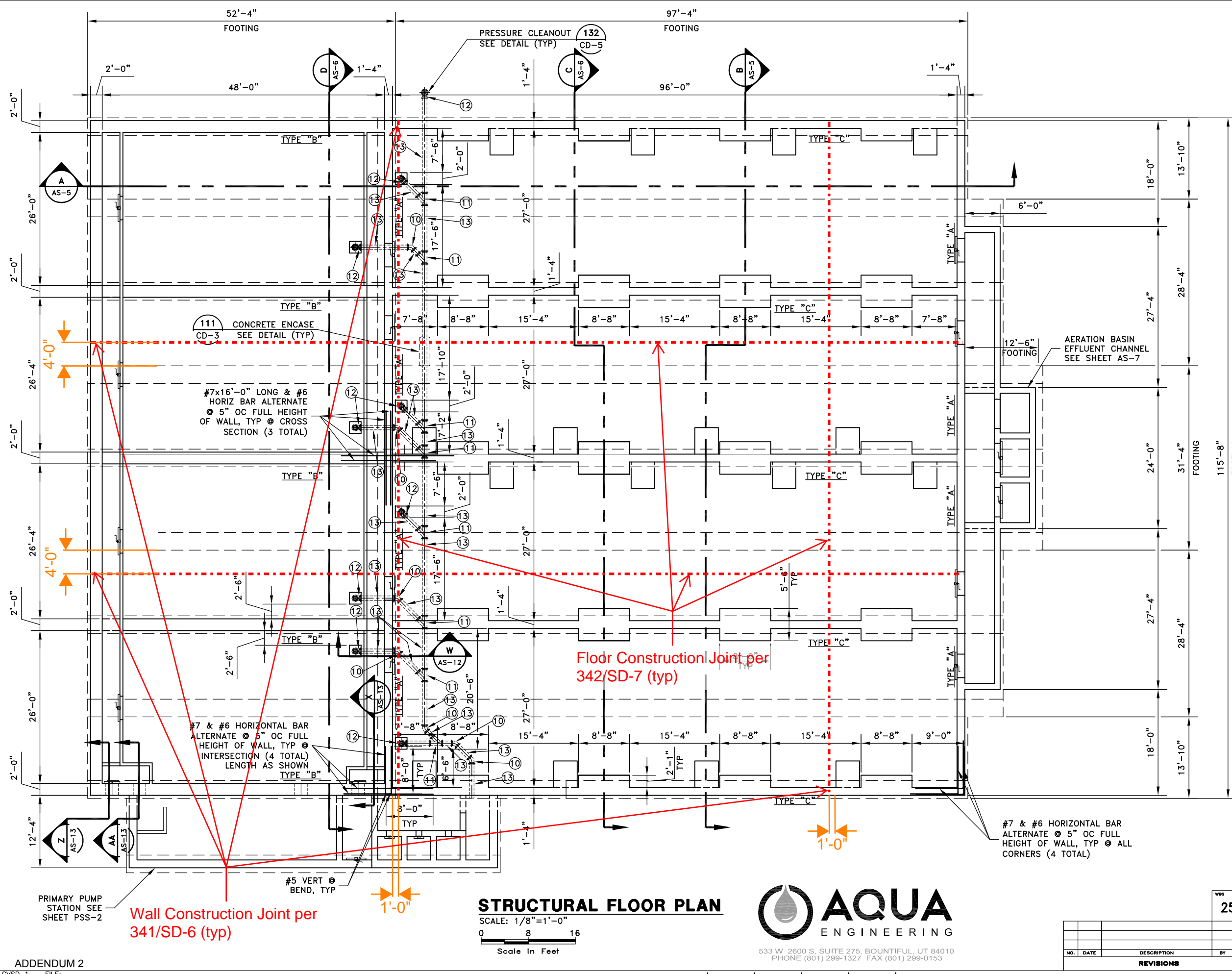
### **Revised Design Drawings (From Volume 4A)**

**Sheet AS-3**  
**Sheet UVS-1**  
**Sheet EBS-1**

CAL\_07/25/2018 X:\Las Gallinas\LASG150119-Secondary Treatment Upgrades\Drafting\STM\AS-3.dwg

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BORDER: 22,34

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YELLOW 0.20MM  
GREEN 0.25MM  
CYAN 0.40MM  
BLUE 0.50MM  
MAGENTA 0.20MM  
WHITE 0.35MM  
GRAY 0.15MM  
9 0.15MM  
10 1.00MM  
100 0.70MM  
210 0.60MM



NOTE:  
1- FOR PIPE SCHEDULE SEE SHEET AM-8.

JOB NO. 12600-07/16650-02  
LAS GALLINAS VALLEY SANITARY DISTRICT  
MARIN COUNTY, CALIFORNIA

SECONDARY TREATMENT PLANT AND RW EXPANSION

**AERATION BASIN  
STRUCTURAL FLOOR PLAN**

WBS <b>250</b>	CHECKED JRL	DRAWN CAL	SCALE AS SHOWN
	APPROVED JRL	DESIGNED EES	DATE 07/26/18
GENERAL MANAGER Chris DeGabriele		DISTRICT ENGINEER Michael P Cortez	
RCE # 54038		DRAWING NO. AS-3	
NO. DATE DESCRIPTION BY APPR'D SHEET		PLAN NO.	REVISION NO. B

**STRUCTURAL FLOOR PLAN**

SCALE: 1/8"=1'-0"  
0 8 16  
Scale in Feet



533 W. 2600 S, SUITE 275, BOUNTIFUL, UT 84010  
PHONE (801) 299-1327 FAX (801) 299-0153

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES

ADDENDUM 2

LGVSD 1 FILE:  
FD144793



KRB\_06/21/2018 X:\Las Gallinas\LASG150119-Secondary Treatment Upgrades\Drafting\UV\UVS-1.dwg

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SAVED:

PLOT: EXTEND  
SCALE: 1:1  
BORDER: 22,34  
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CYAN 0.40MM  
BLUE 0.50MM  
MAGENTA 0.20MM  
WHITE 0.35MM  
GRAY 0.15MM  
9 0.15MM  
10 1.00MM  
100 0.70MM  
210 0.60MM

- NOTES:
- 1- PLACE CONTROL AND CONSTRUCTION JOINTS AS SHOWN ON PLANS.
  - 2- COORDINATE/VERIFY ALL WALL AND FLOOR PENETRATIONS WITH CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS.
  - 3- 8" CMU BLOCK WALL W/#5 @ 16" OC VERTICAL EACH FACE AND #4 @ 24" OC HORIZONTAL EACH FACE. (TOTAL 2 BARS VERT @ 16" OC & 2 BARS HORIZ @ 24" OC). SOLID GROUT ALL CELLS.
  - 4- SEE STANDARD DETAILS 384 AND 390 IN STRUCTURAL DETAILS FOR REINFORCEMENT REQUIREMENTS FOR OPENINGS IN CMU.
  - 5- SEE STANDARD DETAILS ON DRAWINGS SD-11 FOR ADDITIONAL CMU REINFORCEMENT REQUIREMENTS.
  - 6- SEE STANDARD DETAILS 321/SD-4 FOR ADDITIONAL REINFORCEMENT AT PIPE PENETRATIONS.

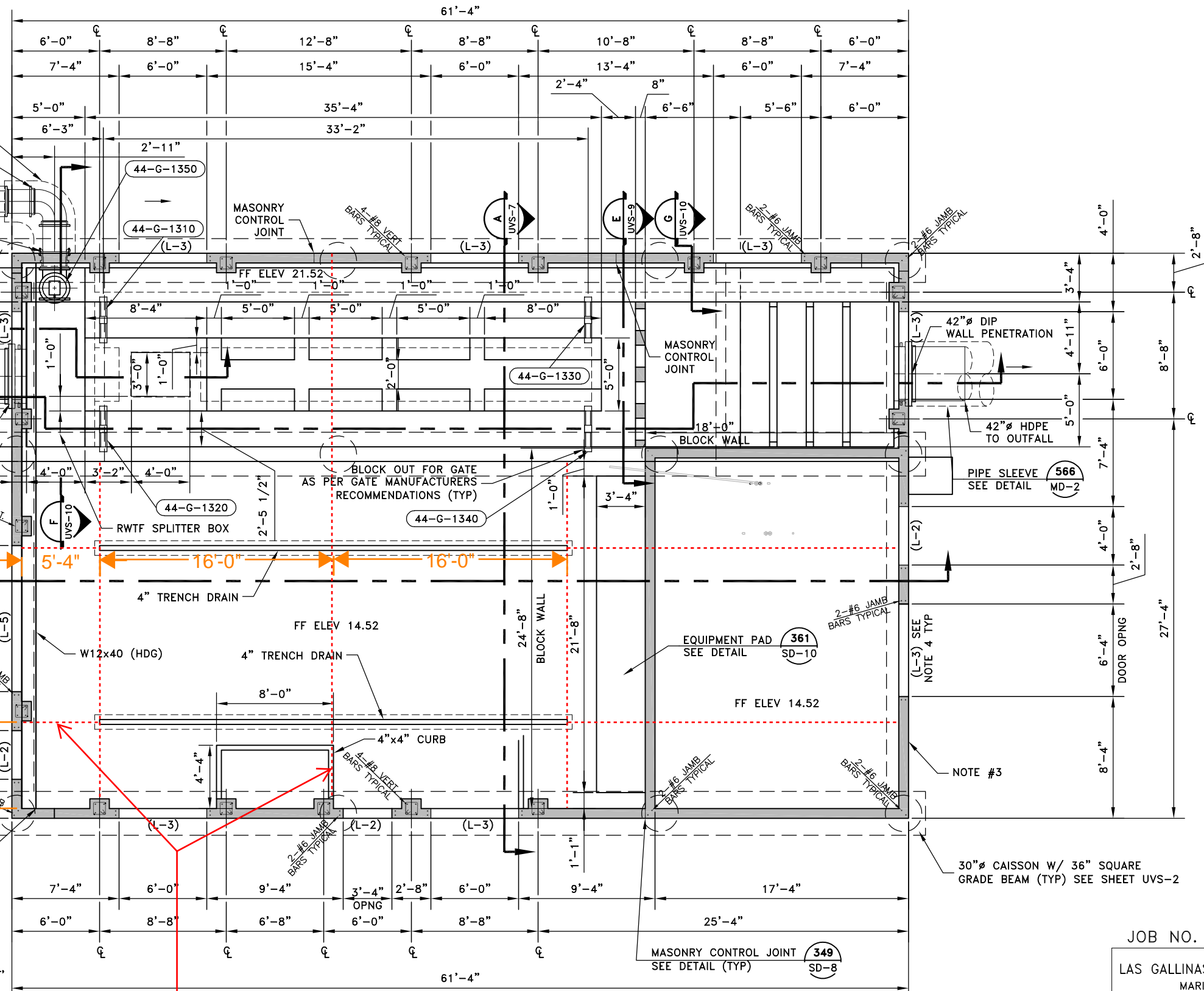
7- SEE STANDARD DETAILS 321/SD-4 FOR ADDITIONAL REINFORCEMENT AT PIPE PENETRATIONS.

8- SEE STANDARD DETAILS 321/SD-4 FOR ADDITIONAL REINFORCEMENT AT PIPE PENETRATIONS.

9- SEE STANDARD DETAILS 321/SD-4 FOR ADDITIONAL REINFORCEMENT AT PIPE PENETRATIONS.

10- SEE STANDARD DETAILS 321/SD-4 FOR ADDITIONAL REINFORCEMENT AT PIPE PENETRATIONS.

11- SEE STANDARD DETAILS 321/SD-4 FOR ADDITIONAL REINFORCEMENT AT PIPE PENETRATIONS.



Construction Joint per 341/SD-6 (typ)

### STRUCTURAL FLOOR PLAN

SCALE: 1/4"=1'-0"  
0 4 8  
Scale in Feet



533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010  
PHONE (801) 299-1327 FAX (801) 299-0153

JOB NO. 12600-07/16650-02

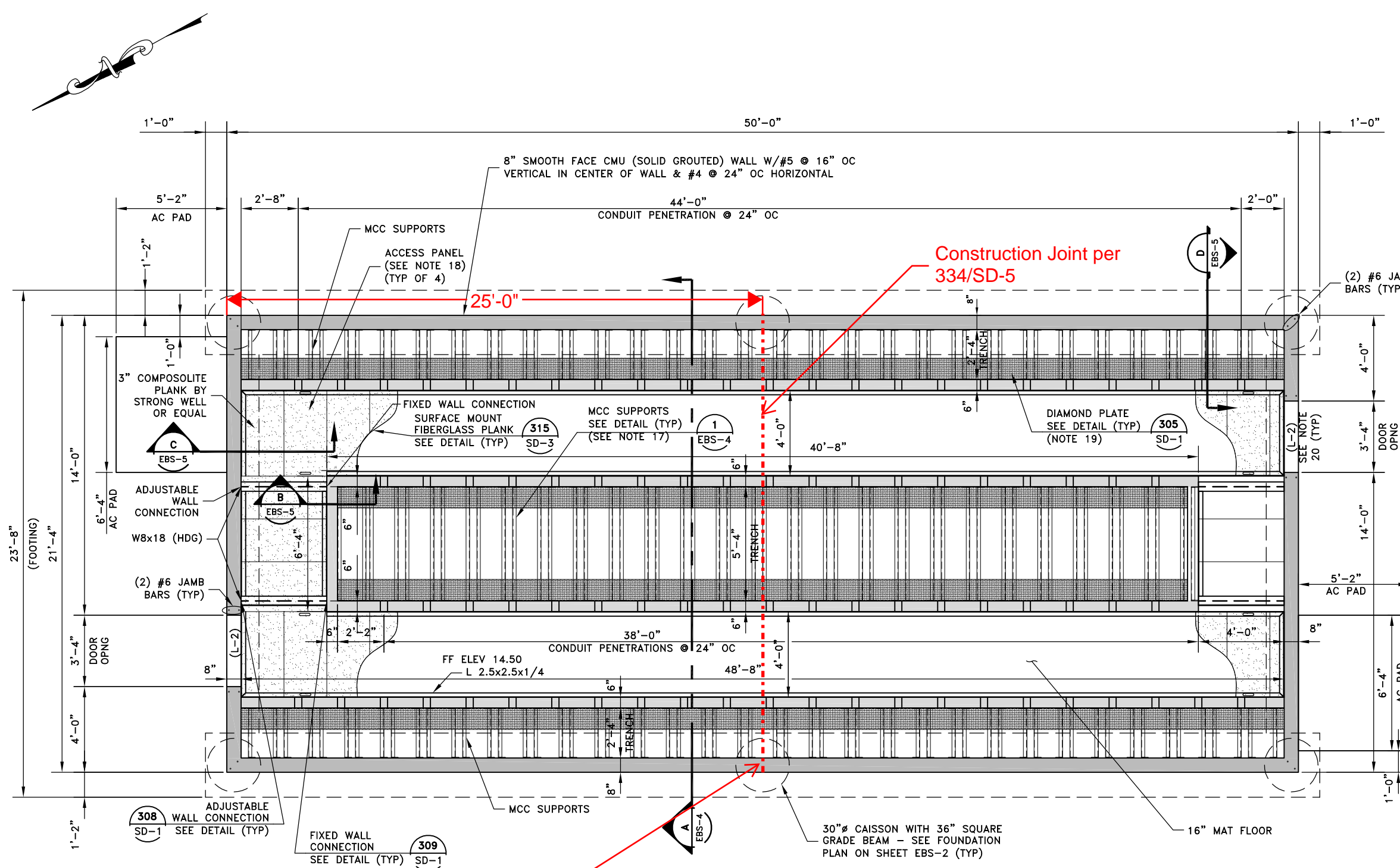
LAS GALLINAS VALLEY SANITARY DISTRICT  
MARIN COUNTY, CALIFORNIA

SECONDARY TREATMENT PLANT AND RW EXPANSION

### UV BUILDING STRUCTURAL FLOOR PLAN

<b>BID ALTERNATE</b>		WBS	CHECKED	DRAWN	SCALE
		270	JRL	CAL	AS SHOWN
			APPROVED	EES	DATE
			JRL	EES	07/26/18
			GENERAL MANAGER	DISTRICT ENGINEER	
			Chris DeGabriele	Michael P Cortez	
				RCE # 54038	
NO.	DATE	DESCRIPTION	BY	APPR'D	SHEET
<b>REVISIONS</b>					
				PLAN NO.	REVISION NO.
				UVS-71	B

SB 07/23/2018 X:\Las Gallinas\ASG150119-Secondary Treatment Upgrades\Drafting\ELECTRICAL\_BLDG\EBS-1.dwg  
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 BORDER: 22,34  
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 YELLOW 0.20MM  
 GREEN 0.25MM  
 CYAN 0.40MM  
 BLUE 0.50MM  
 MAGENTA 0.20MM  
 WHITE 0.35MM  
 GRAY 0.15MM  
 9 0.15MM  
 10 1.00MM  
 100 0.70MM  
 210 0.60MM



Wall Construction Joint per 341/SD-6 (typ)

**STRUCTURAL PLAN**  
 SCALE: 3/8"=1'-0"  
 0 2 4  
 Scale in Feet

- NOTES:
- FOR SUBGRADE PREPARATION AND REQUIREMENTS SEE SPECIFICATION SECTION 312000.
  - FOUNDATION IS TO BE POURED MONOLITHICALLY WITH SLAB. CONTRACTOR SHALL SUBMIT A CONTROL JOINT LAYOUT TO ENGINEER FOR APPROVAL.
  - IF FOUNDATION IS NOT POURED MONOLITHICALLY, PROVIDE #4 SLAB TO FOOTING DOWLES @ 24" OC UNO.
  - ALL DIMENSIONS ARE TO STUD LINE TYPICAL UNO.
  - RUN ALL GRADE BEAM REINFORCING THRU PAD FOOTING TYPICAL UNO ON DETAILS.
  - ANCHOR BOLT, HOLDOWN, AND POST BASE SIZES AND LOCATIONS SHALL BE PER STRUCTURAL PLANS. THE PLACEMENT OF THESE ITEMS SHALL BE COORDINATED WITH THE FRAMING CONTRACTOR.
  - ALL COLUMN BASES, COLUMN BOLTING, HOLDING STRAPS, AND HOLDOWN BOLTS, CRITICAL TO THE STRUCTURAL INTEGRITY OF THIS BUILDING, SHALL BE HELD IN PLACE BY MEANS OF TEMPLATE PRIOR TO FOUNDATION INSPECTION.
  - ALL EMBEDDED BOLTS, ANCHOR BOLTS, DOWEL INSERTS, ETC SHALL BE SECURELY TIED IN PLACE PRIOR TO POURING CONCRETE.
  - REINFORCING SHALL BE IN PLACE AND SUBJECT TO INSPECTION PRIOR TO POURING THE SLAB.
  - CONCRETE CONTRACTOR SHALL PLACE CONTROL JOINTS PER DETAIL (347) SD-8 SO AS TO LIMIT SLAB CRACKING.
  - PROVIDE CONTROL JOINTS WITHIN FIRST 8 HOURS OF POURING CONCRETE.
  - REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR MISC ITEMS TO BE CAST INTO CONCRETE AND FOR LOCATIONS OF FLOOR FINISHES, DEPRESSIONS, PITS, ETC.
  - PRIOR TO FOUNDATION INSPECTION  
A. REINFORCING FOR SLAB AND FOOTING SHALL BE PROPERLY SET.  
B. ALL EMBEDDED BOLTS AND ANCHOR BOLTS SHALL BE SECURELY TIED IN PLACE.
  - ALL HOLDOWN CONNECTION BOLTS/NUTS SHALL BE TORQUED 1/2 TURN BEYOND FINGER TIGHT AND/OR AS REQUIRED BY MANUFACTURER.
  - SEE SHEET EBS-2 FOR REMAINDER OF ALL FOUNDATION NOTES.
  - SEE STANDARD DETAIL DRAWINGS ON SD-11 AND SD-12 FOR ADDITIONAL CMU REINFORCEMENT REQUIREMENTS.
  - COORDINATE FINAL LOCATION AND NUMBER OF MCC SUPPORTS WITH ELECTRICAL DRAWINGS AND APPROVED ELECTRICAL GEAR SUBMITTALS.
  - PROVIDE 3" PLANK WITH RECESSED SS HANDLES AT NOTED LOCATIONS.
  - PROVIDE SS DIAMOND PLATE AS REQUIRED TO COVER ANY SPACE NOT OCCUPIED BY ELECTRICAL GEAR (COORDINATE WITH ELECTRICAL DRAWINGS).
  - SEE STANDARD DETAILS 384 AND 390 IN STRUCTURAL DETAILS FOR REINFORCEMENT REQUIREMENTS FOR OPENINGS IN CMU.

JOB NO. 12600-07/16650-02

LAS GALLINAS VALLEY SANITARY DISTRICT  
MARIN COUNTY, CALIFORNIA

SECONDARY TREATMENT PLANT AND RW EXPANSION

**ELECTRICAL BUILDING  
STRUCTURAL PLAN**

WBS	290	CHECKED JRL	DRAWN CAL	SCALE AS SHOWN
		APPROVED JRL	DESIGNED EES	DATE 7/26/18
		GENERAL MANAGER Chris DeGabriele	DISTRICT ENGINEER Michael P Cortez	
			RCE # 54038	

ADDENDUM 2

LGVSD 1 FILE:  
FD144793



FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

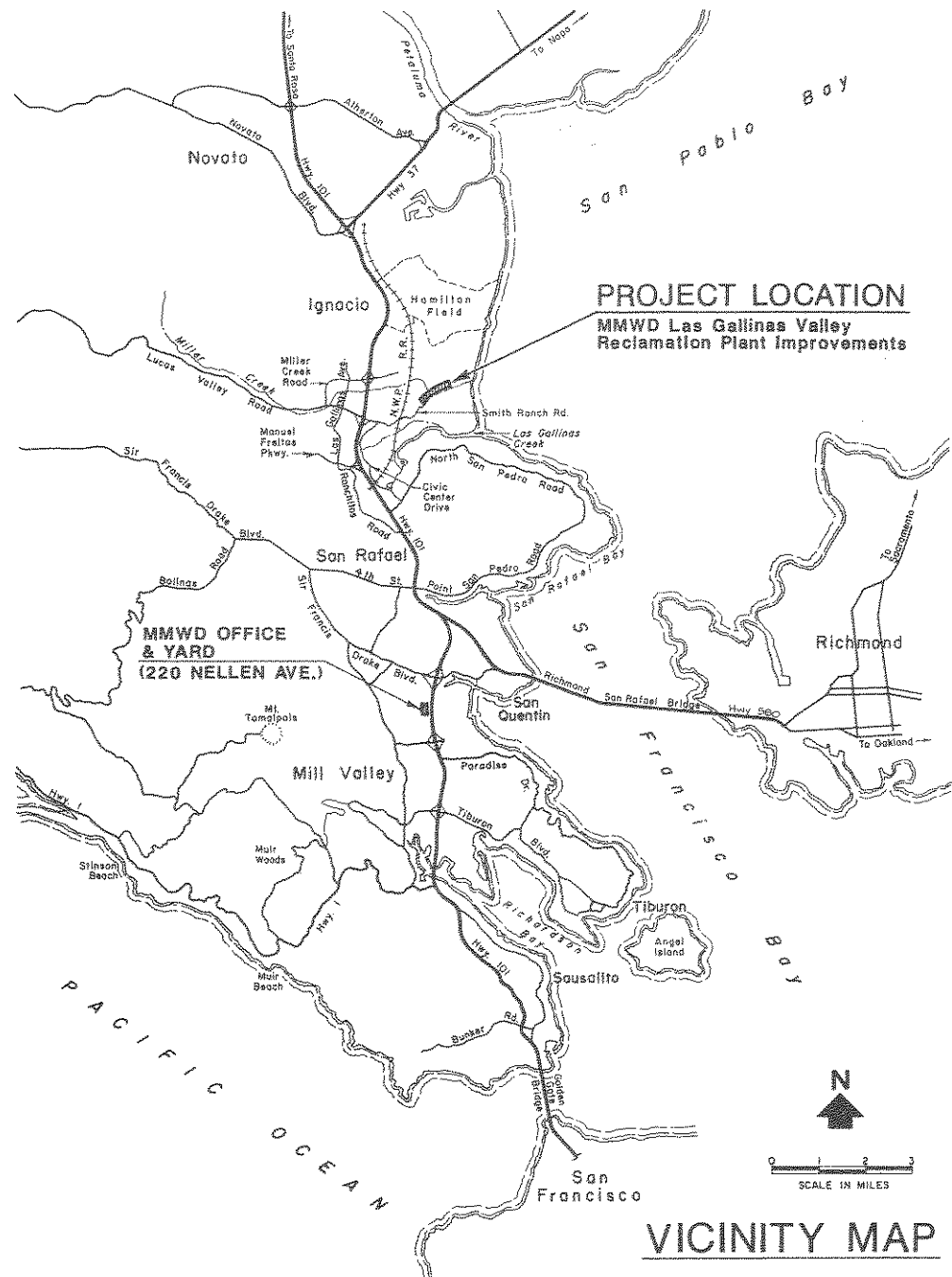
## **Attachment B**

### **1989 MMWD Reclamation Plant Improvements**

#### **Reference Drawings for MMWD Demolition**

# MMWD LAS GALLINAS VALLEY RECLAMATION PLANT IMPROVEMENTS

42



## LIST OF DRAWINGS

### GENERAL

- G-1 TITLE SHEET, VICINITY MAP AND LIST OF DRAWINGS
- G-2 LEGEND, SYMBOLS, GENERAL NOTES, ABBREVIATIONS & PIPE SCHEDULE
- G-3 HYDRAULIC PROFILE AND DESIGN CRITERIA

### CIVIL

- C-1 SITE PLAN AND INLET PIPELINE PROFILE
- C-2 DEMOLITION AND GRADING PLANS
- C-3 INLET PUMP STATION PLANS
- C-4 INLET PUMP STATION SECTION AND DETAILS
- C-5 BRIDGE CROSSING PLAN, ELEVATION AND SECTION
- C-6 MISCELLANEOUS DETAILS
- C-7 CATHODIC PROTECTION DETAILS

### ARCHITECTURAL

- A-1 CHEMICAL BUILDING PLAN AND ELEVATIONS
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- S-3 CLARIFIER AND FILTER SLAB SECTIONS AND DETAILS
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- E-6 ELEMENTARY DIAGRAMS - SHEET 1
- E-7 ELEMENTARY DIAGRAMS - SHEET 2
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- I-2 PROCESS AND INSTRUMENTATION DIAGRAM 1
- I-3 PROCESS AND INSTRUMENTATION DIAGRAM 2



112189

ADDENDUM 2

Reference Information and Notes:

Revised	Description	Submit	Appr'd	Date
	Refer to Tracing for Latest Revision			

Designed	ROO
Drawn	ROO
Checked	JAF
Date	1-6-89

### MMWD Las Gallinas Valley Reclamation Plant Improvements

Submitted:	Kennedy/Jenks/Chilton	Approved:	Marin Municipal Water District
	<i>Walter J. Hammer</i>		<i>Ronald L. Johnson</i>

TITLE SHEET, VICINITY MAP, page 16 of 57 AND LIST OF DRAWINGS

Scale	AS NOTED
Job No.	00058.00
Sheet	G-1

**LIST OF ABBREVIATIONS**

AC	ASBESTOS CEMENT, ASPHALTIC CONCRETE	EMERG	EMERGENCY	OSHA	OCCUPATIONAL SAFETY & HEALTH ACT
ACI	AMERICAN CONCRETE INSTITUTE	E.P.	EDGE OF PAVEMENT	PB	PROCESS BYPASS
ADDIT.	ADDITIONAL	E.W.	EACH WAY	PE	POND EFFLUENT
ADJ	ADJUSTABLE	EXP.	EXPANSION	PL.	PLATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	FBO	FILTER BACKWASH OVERFLOW	PLE	PLANT EFFLUENT
ALUM.	ALUMINUM	FBR	FILTER BACKWASH RETURN	PP	POWER POLE
ANCH	ANCHOR	FCA	FLANGED COUPLING ADAPTER	PPM	PARTS PER MILLION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	FD	FLOOR DRAIN	PSI,PSIG	POUNDS PER SQUARE INCH (GAUGE)
ARCH.	ARCHITECTURAL	FF	FILTER FLED	PT	POINT, POND TRANSFER
ARV	AIR RELEASE VALVE	FIN.	FINISHED	PVC	POLYVINYL CHLORIDE
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS	FLEX	FLEXIBLE	R	RADIUS
AVE	AVENUE	FLGD	FLANGED	RECIRC.	RECIRCULATION
AWS	AMERICAN WELDING SOCIETY	FLR	FLOOR	REINF.	REINFORCED
BC	BOTTOM OF CURB	FRI	FIXED FILM REACTOR INFLUENT	REQ'D	REQUIRED
BF	BLIND FLANGE	FT.	FEET	RESIL	RESILIENT
BFV	BUTTERFLY VALVE	GAL.	GALLON	RPM	REVOLUTIONS PER MINUTE
BLOG.	BUILDING	GALV.	GALVANIZED	RSI	RAW SEWAGE INFLUENT
BM	BEAM, BENCHMARK	GPM	GALLONS PER MINUTE	S	SEWER
C	CONDUIT	H.B.	HOSE BIBB	SCH.	SCHEDULE
CA	COMPRESSED AIR	HDP	HIGH DENSITY POLYETHYLENE	SCI	SECONDARY CLARIFIER INFLUENT
CB	CATCH BASIN	HGL	HYDRAULIC GRADE LINE	SDG	SULFUR DIOXIDE GAS
C.C.	CENTER TO CENTER	HORIZ.	HORIZONTAL	SF	SQUARE FEET
C.I.	CAST IRON	HP	HORSEPOWER	SHT.	SHEET
C.L.	CHAIN LINK	HTR	HEATER	SHVS	SHELVES
CLC	CHLORINE CONTACT CHAMBER	I.E.	INVERT ELEVATION	SIM	SIMILAR
CLG	CHLORINE GAS	INF	INFLUENT	SLL	SLUDGE TO LAGOON
CLR.	CLEARANCE	IRR	IRRIGATION	SPEC	SPECIFICATIONS
CLV	CHLORINE VACUUM	JT.	JOINT	SPR	SUMP PUMP RETURN
COL.	COLUMN	LBS.	POUNDS	SS	STAINLESS STEEL
CONC.	CONCRETE	LGVSD	LAS GALLINAS VALLEY SANITARY DISTRICT	STD.	STANDARD
CONN.	CONNECTION	MAT'L	MATERIAL	STL	STEEL
CONST.	CONSTRUCTION	MAX.	MAXIMUM	STRUCT.	STRUCTURAL
CONT.	CONTINUOUS	MB	METER BOX	SQ.	SQUARE
CPLG	COUPLING	MCC	MOTOR CONTROL CENTER	SV	SOLENOID VALVE
CR	CENTRATE RETURN	MECH.	MECHANICAL	SWD	SEWER DEPTH
CSD	CLARIFIER SLUDGE DRAFF	MFR'S	MANUFACTURER'S	T	TREAD
D	DRAIN	MGD	MILLION GALLONS PER DAY	T/	TOP OF
DET	DETAIL	MG/L	MILLIGRAMS PER LITER	TC	TOP OF CURB
DI	DRAIN INLET	MH	MANHOLE	THK	THICK
DIA	DIAMETER	MIN.	MINIMUM	TK	TANK
DN.	DOWN	MMWD	MARIN MUNICIPAL WATER DISTRICT	TYP.	TYPICAL
DWGS	DRAWINGS	MSL	MEAN SEA LEVEL	UBC	UNIFORM BUILDING CODE
DWY	DRIVEWAY	(N)	NEW	UH	UNIT HEATER
E	ELECTRICAL CONDUIT OR CABLE	NO.	NUMBER	VERT.	VERTICAL
(E), EXIST.	EXISTING	NTS	NOT TO SCALE	VTR	VENT THRU ROOF
EL, ELEV.	ELEVATION	NTU	NEPHELOMETRIC TURBIDITY UNIT	W	WATER
ELEC.	ELECTRICAL	O.C.	ON CENTERS	W/	WITH
ELL	ELBOW	O.D.	OUTSIDE DIAMETER	WCO	WALL CLEANOUT
		OPNG.	OPENING	W.S.	WATER SURFACE
				YCO	YARD CLEANOUT

NOTE: FOR ADDITIONAL MECHANICAL ABBREVIATIONS SEE PIPE LEGEND ON SHEET M-4.

**GENERAL NOTES**

- THE CONTRACTOR SHALL PHYSICALLY LOCATE AND UNCOVER (POTHOLE) ALL UTILITIES IN THE WORK AREA AHEAD OF THE TRENCHING OR EXCAVATION OPERATIONS AND SHALL BE RESPONSIBLE FOR DAMAGE THERETO.
- THESE DRAWINGS SHALL BE COORDINATED AND USED IN CONJUNCTION WITH FAVORABLY REVIEWED PIPE AND EQUIPMENT SHOP DRAWINGS.
- THE OVERHEAD ELECTRIC LOCAL DISTRIBUTION SYSTEMS AND INDIVIDUAL SERVICE LINES ARE NOT SPECIFICALLY INDICATED ON THE DRAWINGS BUT DO EXIST IN THE AREA. THE CONTRACTOR SHALL EXERCISE CAUTION WHILE WORKING NEAR OR UNDER ALL ELECTRIC LINES.

**Reference Information and Notes:**

- THERE IS NO GUARANTEE THAT ALL UTILITIES OR OBSTRUCTIONS ARE SHOWN OR THAT THE LOCATIONS INDICATED ARE ACCURATE. CONTRACTOR SHALL ACQUIRE SETS OF LGVSD AND MMWD RECORD DRAWINGS AND SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES. SEE GENERAL CONDITIONS, PARAGRAPH 1-61 FOR ADDITIONAL REQUIREMENTS.

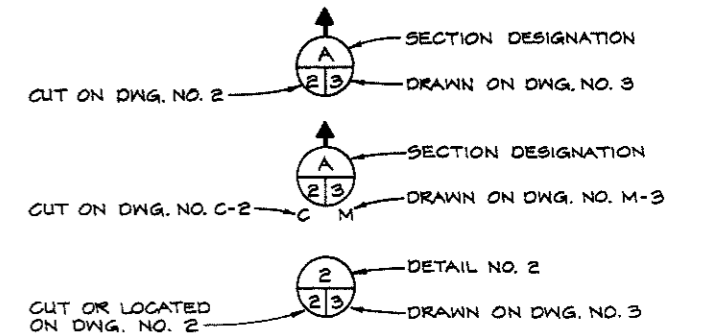
**PIPING SYMBOLS**

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
CHECK VALVE		ELBOW	
BUTTERFLY VALVE		REDUCER	
GATE VALVE		UNION	
BALL VALVE		FLEXIBLE COUPLING	
PLUG VALVE		RUBBER EXPANSION JOINT	
GLOBE VALVE		SINGLE BALL FLEXIBLE EXP. JT.	
SOLENOID VALVE		DOUBLE BALL FLEXIBLE EXP. JT.	
SPECIAL VALVE		STRAINER	
PRESSURE REDUCING VALVE		FLOOR DRAIN	
PRESSURE RELIEF VALVE		PUMP	
PRESSURE GAUGE		STATIC MIXER	
VOLTAGE METER		CALIBRATION CHAMBER	
FLOWMETER		HOSE BIBB	

**LEGEND**

	EXISTING STRUCTURE
	NEW STRUCTURE
	CONCRETE
	A.G. PAVEMENT
	PROPERTY LINE
	CHAIN LINK FENCE
	CENTERLINE
	REDWOOD HEADER
	EXISTING PIPELINE
	NEW PIPELINE
	TOP OF SLOPE
	TOE OF SLOPE
	SPOT ELEVATION
	TREE
	REMOVAL
	SWALE

**REFERENCE SYMBOLS**



**PIPE TYPE SCHEDULE**

PIPE DESIGNATION	MATERIAL DESIGNATION	PIPE MATERIAL
T.A-3.P	A-3	REINFORCED CONCRETE STORM DRAIN AND SEWER
T.T.P	T	COPPER
T.U-1.P	U-1	POLYETHYLENE, SDR 17
T.V-1.P	V-1	PVC, SCHEDULE 80
T.V-5.P	V-5	PVC, SEWER, SDR 35
T.V-6.P	V-6	PVC, DRAIN, WASTE AND VENT
T.W-1.P	W-1	STAINLESS STEEL, SCH 10
T.W-2.P	W-2	STAINLESS STEEL TUBING
T.X-1.P	X-1	STEEL, WELDED, SCH 40



Revised	Description	Submit	Appr'd.	Date

Designed ROO/MDS	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>		Scale NONE
Drawn ROO	Kennedy/Jankovic/Chilton		Job No. 080058.00
Checked JAF	San Francisco		Sheet G-2
Date 1-6-20	Submitted: Walter J. Jankovic	Approved: [Signature]	of

DESIGN CRITERIA FOR RECLAMATION PLANT IMPROVEMENTS  
(2 MGD CAPACITY)

Plant Capacity and Influent Characteristics

Existing Capacity	1 MGD
Design Treatment Capacity	2 MGD
Design Peak Hydraulic Capacity	3 MGD (No Backup Capacity at Peak)
Future Treatment Capacity	4 MGD
Future Peak Hydraulic Capacity	6 MGD (No Backup Capacity at Peak)
Raw Water Source	Secondary Effluent from LGVSD Treatment Plant, Marsh Pond or Effluent Storage Pond; Back-up and Plant Recirc from LGVSD Secondary Clarifier and LGVSD Gravity Filters
Influent Turbidity	10-30 NTU Average
BOD, 5 Day	<20 mg/l
Total Suspended Solids	<30 mg/l

Existing Feed Pumps (To be used for plant recirculation and back-up raw water feed source)

Capacity	2 Pumps @ 400 GPM each; one of which is for standby
Type	Horizontal Centrifugal Self-Prime
Size	15 Hp each, 1800 RPM
Location	1 pump at LGVSD Secondary Clarifier; 1 pump at LGVSD Gravity Filters
Feed Line	10" Polyethylene Reclamation Plant Influent
Return Line	6" (min) Polyethylene to Secondary Clarifier Influent

New Raw Water Feed Pumps (Pond)

Capacity	2 MGD Design Capacity - 2 Pumps @ 1,150 GPM each (one of which is for standby) 1 Pump @ 600 GPM 3 MGD Peak Capacity - No Backup Capacity at Peak
Type	Submersible Centrifugal
Size	2 Pumps @ 25 HP, 1 Pump @ 10 HP; 1,750 RPM
Location	LGVSD Effluent Storage Ponds
Feed Line	1450' of new 14" Polyethylene (5.5 MGD Capacity @ 8 FPS); 440' of Existing 10" Polyethylene (2.8 MGD Capacity @ 8 FPS Max)

New "DensaDeg" Thickener/Clarifier

Capacity	Design Flow = 2 MGD, Hydraulic Capacity = 3 MGD
Flash Mixer	5' D x 21' SWD (±) - 2 Minute Retention; 2 HP Mixer
Flocculator	15' D x 20' SWD - 10 Minutes Detention; 5 HP Turbine Agitator
Settler	19' D x 20' SWD Tube Settling Rate - 7 GPM/SF @ 2 MGD; 10.5 GPM/SF @ 3 MGD Detention = 30 Minutes @ 2 MGD
Sludge Recirc	1 HP Scraper 1-5% of Flow
Sludge Blowdown	5 Hp Progressive Cavity Pump, variable speed 2% Solid Concentration (Assumed) 400 lbs/day/MG Average @ 2% = 2,400 GPD/MGD 800 lbs/day/MG Maximum @ 2% = 4,800 GPD/MGD
Coagulant Dosage	5 HP Progressive Cavity Pump, Variable Speed, Standby for Sludge Recirc Pump Control Alum - 60 mg/L Average, 90 mg/L Peak Polyelectrolyte - 2 mg/L Average, 5 mg/L Peak
"DensaDeg" Recirc	200-400 GPM (use existing feed pumps) Manually throttled for desired flow rate

Gravity Filters

Type of Filter	Above ground, gravity downflow (new and existing)
Existing Filters	1 MGD Design Capacity @ 4 GPM/SF; 1.22 MGD Hydraulic Capacity @ 4.8 GPM/SF; 4-7.5' (±) Dia Filter Cells; 177 Square Feet
New Filters	1 MGD Design Capacity @ 4 GPM/SF; 1.5 MGD Hydraulic Capacity @ 5.9 GPM/SF; 4-7.5' (±) Dia Filter Cells; 177 Square Feet
Total Capacity	2 MGD Design Capacity @ 4 GPM/SF; 2.72 MGD Max Hydraulic Capacity @ 5.3 GPM/SF Ave; 354 Total Square Feet
Media	Retrofit existing and provide new dual Anthracite Silica Sand filter media Anthracite - 26" - 1.1 mm Effective Size Silica Sand - 10" - 0.5 mm Effective Size
Filter Aid Coagulant	Polyelectrolyte, 0.5 mg/L Average, 1 mg/L Peak
Backwash Rate	14-20 GPM/SF; 620-800 GPM/7.5' Diameter Filter Cell
Air Wash Rate	90 CFM/7.5' Diameter Filter Cell
Clearwell	Retrofit to accommodate backwash for new filter dual media
Filter Recirc	200-400 GPM (using existing feed pumps)
Filter Water Makeup	350 GPM, Standby for backwash water make-up from treated water storage vaults

Alum Feed System

New Storage	6,000 GAL Total - 2 tanks @ 3,000 GAL Each. 5,500 GAL Effective Storage, 30 days of storage @ 60 mg/L dosage and 2 MGD design flow.
Existing Pump	Salvage by MMWD
New Pump	50-500 GPD (Max. dosage, 160 mg/L @ 2 MGD)
New Standby Pump	50-500 GPD
Feed Points	Influent Line at existing Static Mixer & Rapid Mix Tank

Polymer Feed System

Storage	Plastic drums with Portable Drum Mixers
Existing Polymer Blender (Main Feeder)	0.01-0.6 GPH Neat Polymer, 4-40 GPH Mixed Feed Solution (Adequate for 2 MGD Plant Flow)
New Polymer Blender (Filter Aid & Standby)	0.0-0.2 GPH Neat Polymer, 1-12 GPH Mixed Feed Solution
Feed Points	Influent Line, Rapid Mix Tank and "DensaDeg" Reactor Tank; Filter Inlet

Existing Filter Product Pumps (To be replaced)

Capacity	2 Pumps @ 400 GPM Each
Type	Horizontal Split-Case Centrifugal
Size	30 Hp each, 1,800 RPM

New Filter Product Pumps (To replace existing)

Capacity	2 MGD Design Capacity, 2 Pumps @ 1,150 GPM Each (one of which is used for standby) and 1 Pump @ 600 GPM 3 MGD Peak Capacity - No Backup Capacity at Peak
Type	Horizontal Split-Case Centrifugal
Size	2 @ 40 Hp each and 1 @ 20 HP, 1,770 RPM

Existing Product Line to Existing Treated Water Storage Vaults

Size	10" Polyethylene
Capacity	Adequate for 2 MGD Design Flow; 2.8 MGD Capacity @ 8 FPS

Chlorination System

Existing Facilities	2 Chlorine Ton Containers with 2-200 Lbs/Day Tank Mounted Chlorinators and Auto Switchover, Gas Rotameters and Injectors, 2 Chlorine Residual Analyzers
Existing Capacity	200 lbs/Day/Ton Container
New Capacity	400 lbs/Day/Ton Container
Existing Mixing	In-Line Static Mixers (Adequate)
New Facilities	3-500 lbs/Day Wall Mounted V-Notch Vacuum Chlorinators, (located in a new fiberglass building) 1" injectors, and vacuum regulator check units (To replace existing chlorinators, gas rotameters and solenoid valves); Reuse all other existing equipment including chlorine residual analyzers
Feed Points	A - Influent Prechlorination and Filter Feed 500 lbs/Day Capacity Chlorinator with 400 lbs/Day Rotameter Dosage Range: 40 lbs/Day - 10 ppm @ 0.5 MGD 400 lbs/Day - 24 ppm @ 2 MGD B - Filtered Effluent to Storage 500 lbs/Day Capacity Chlorinator with 400 lbs/Day Rotameter Dosage Range: 40 lbs/Day - 10 ppm @ 0.5 MGD 400 lbs/Day - 24 ppm @ 2 MGD C - Treated Water from Storage 500 lbs/Day Capacity Chlorinator with 300 lbs/Day Rotameter Dosage Range: 30 lbs/Day - 7 ppm @ 0.5 MGD 300 lbs/Day - 18 ppm @ 2 MGD
Standby Equipment	Spare Rotameters, 250, 300, 400, and (2) 500 lbs/Day Chlorinator assigned for prechlorination to be used as a standby unit for chlorination of the filtered water to storage and residual chlorination of the treated water from storage.

Treated Water Storage and Chlorine Contact

Existing Facilities	3-Former Concrete Missile Storage Vaults
Existing Storage	1 MG Total, Approximately 350,000 GAL each Vault
Chlorine Contact Time	Existing 1 Storage Vault-240 Minutes @ 2 MGD Distribution (Adequate)
Required	Actual contact time of 120 minutes

Distribution System

Capacity	Existing 1500 GPM Total Capacity
Pumps	Existing 1 Jockey Pump, 100 GPM, 7 1/2 Hp, 3600 RPM; 1 Distribution Pump, 300 GPM, 25 Hp, 1800 RPM; 2 Distribution Pumps, 600 GPM, 40 Hp, 1800 RPM
Type	Horizontal Split Case Centrifugal

Potable Domestic Water

Treated Water Makeup	4" Line, 350 GPM
Plant Usage	1 1/4" Service

Filter Backwash Air Blower

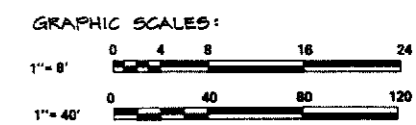
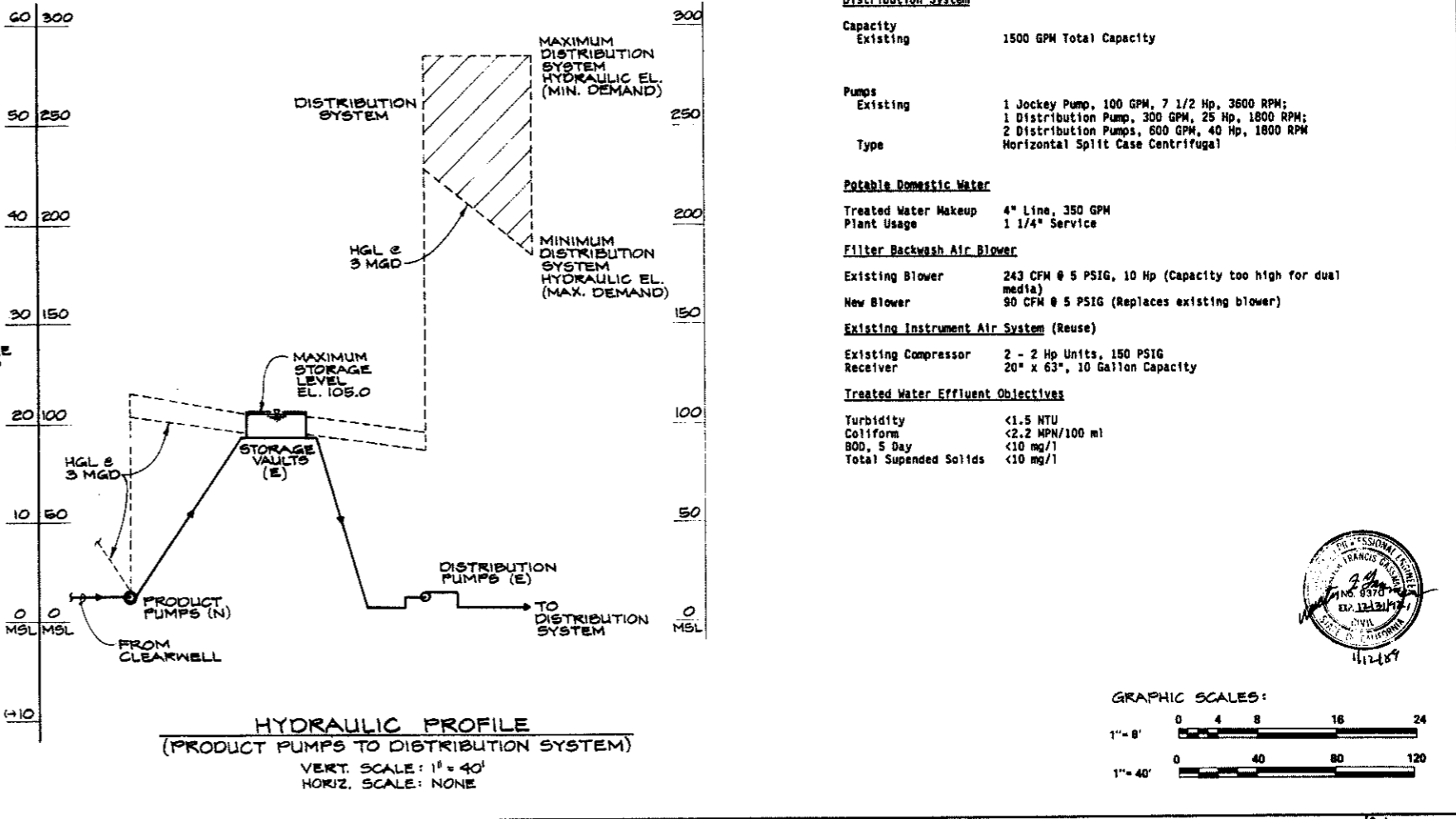
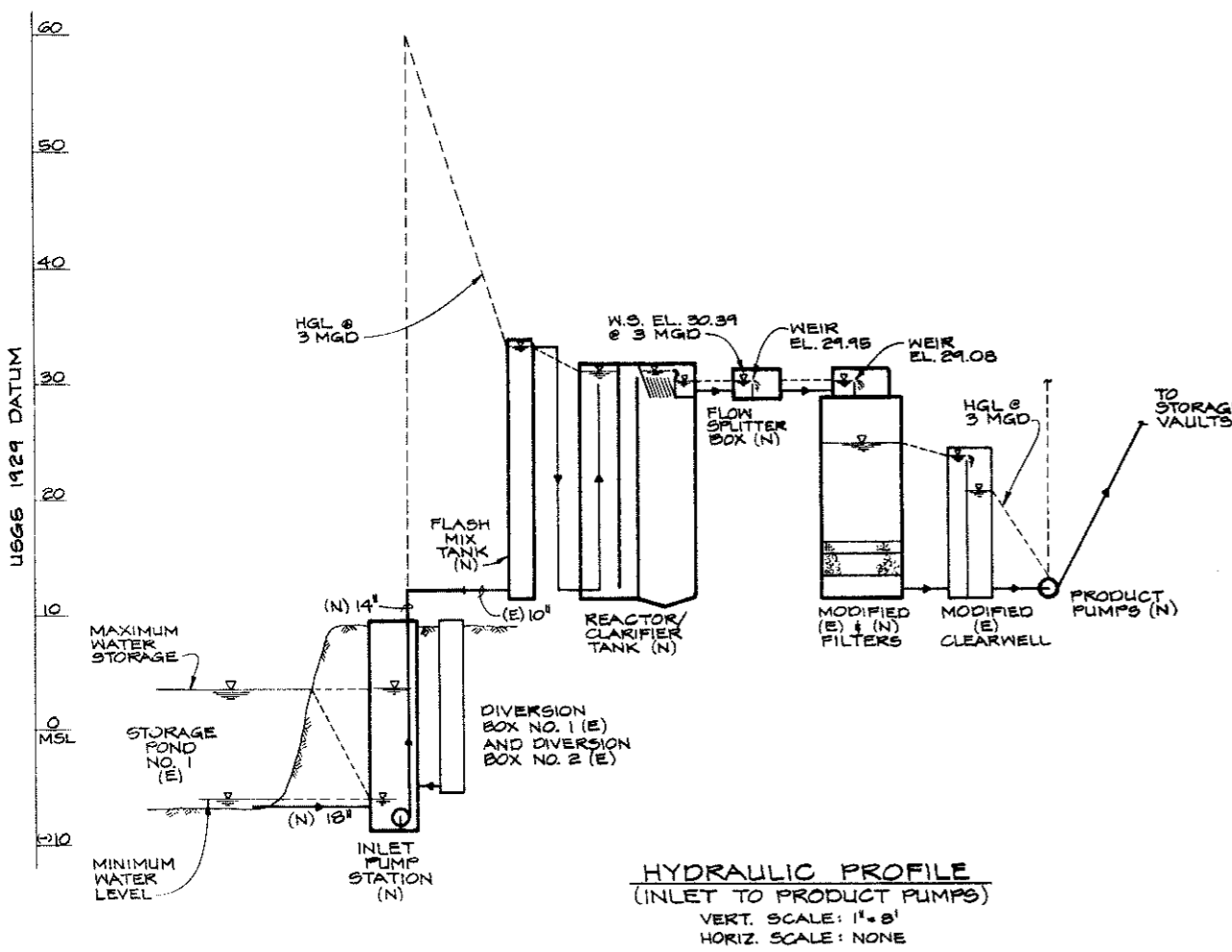
Existing Blower	243 CFM @ 5 PSIG, 10 Hp (Capacity too high for dual media)
New Blower	90 CFM @ 5 PSIG (Replaces existing blower)

Existing Instrument Air System (Reuse)

Existing Compressor	2 - 2 Hp Units, 150 PSIG
Receiver	20" x 63", 10 Gallon Capacity

Treated Water Effluent Objectives

Turbidity	<1.5 NTU
Coliform	<2.2 MPN/100 ml
BOD, 5 Day	<10 mg/l
Total Suspended Solids	<10 mg/l



Revised	Description	Submit	Appr'd	Date
	Refer to Tracing for Latest Revision			

Reference Information and Notes:

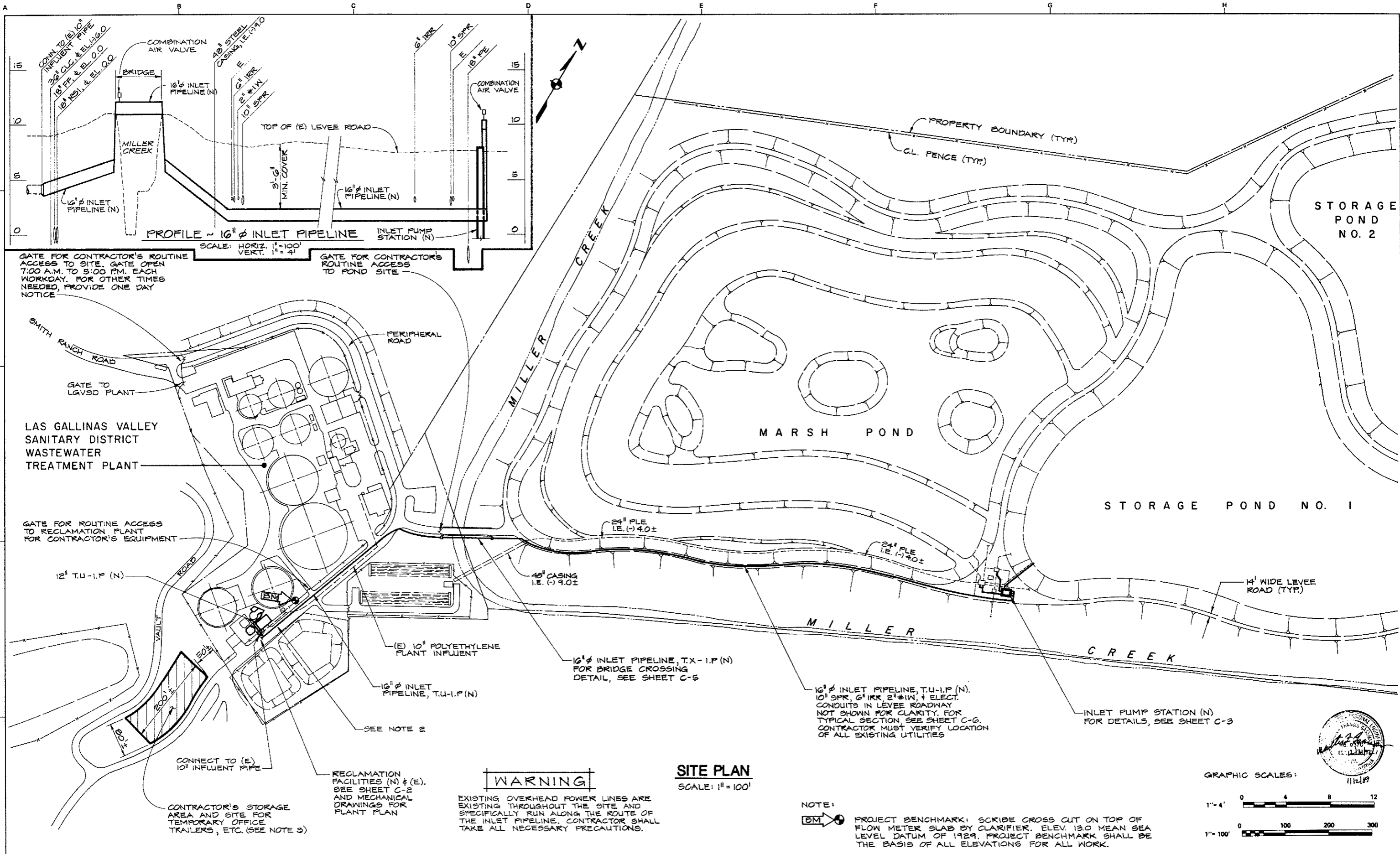
Designed: MDG/ROO  
 Drawn: ROO  
 Checked: JAF  
 Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
 Kennedy/Janus/Chilton  
 Submitted: [Signature]  
 Approved: [Signature]  
 20370 Marin Municipal Water District

Scale: AS NOTED  
 Job No. 880058.00  
 Sheet: G-3  
 of

**HYDRAULIC PROFILE AND DESIGN CRITERIA**





Revised	Description	Submit	Appr'd.	Date

**Reference Information and Notes:**

- ALL WORK SHOWN ON THIS SHEET IS EXISTING (E) UNLESS NOTED AS NEW (N).
- PROVIDE TEMPORARY FENCING AS NEEDED TO SECURE THE TREATMENT PLANT AREA DURING CONSTRUCTION.
- PROVIDE TEMPORARY FENCING TO SECURE STORAGE AREA AND PROVIDE HOUSED STORAGE FOR OWNER FURNISHED EQUIPMENT AS REQUIRED.

**MMWD Las Gallinas Valley Reclamation Plant Improvements**

Designed: R00/MDS  
 Drawn: R00  
 Checked: JAF  
 Date: 1-6-89

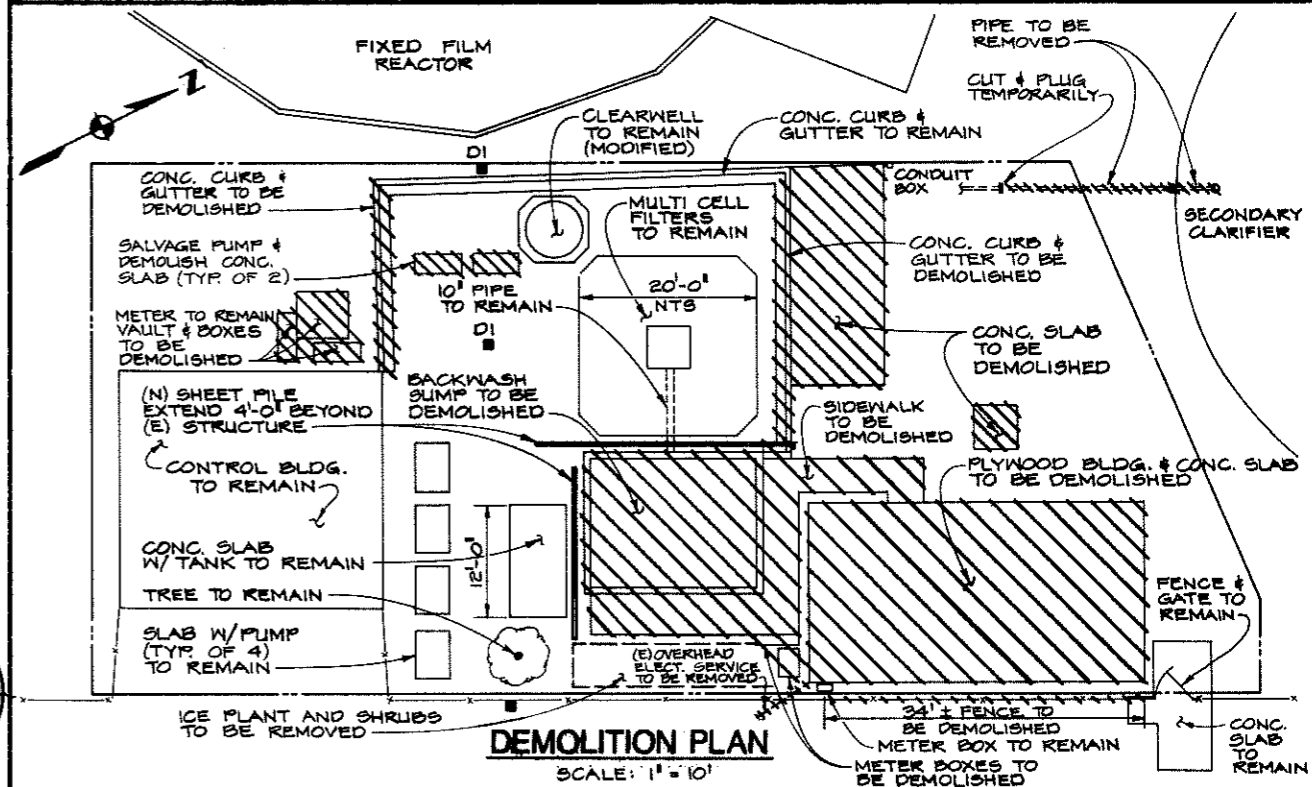
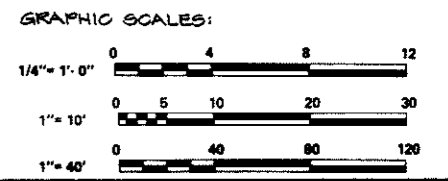
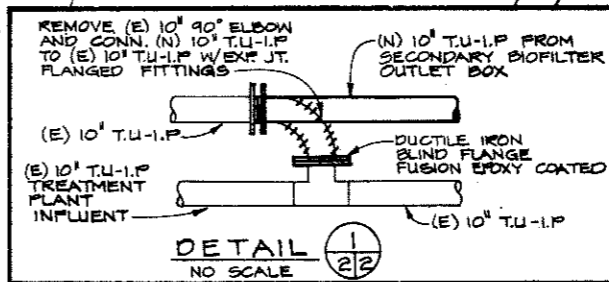
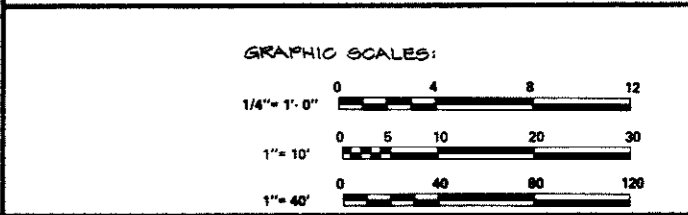
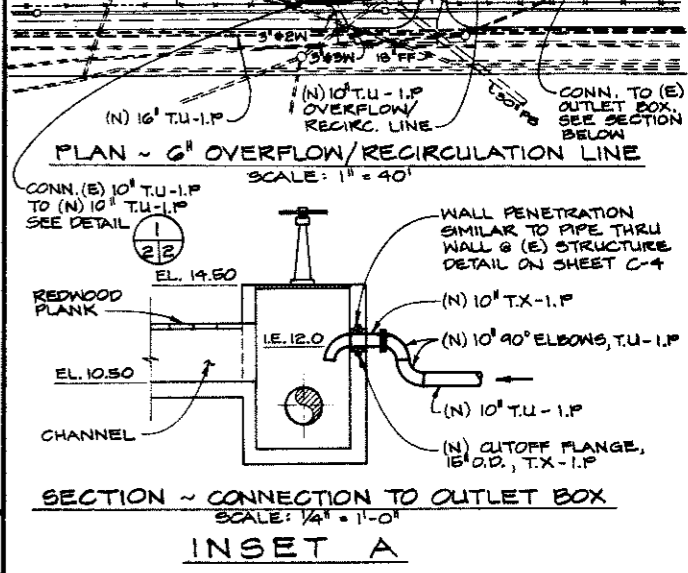
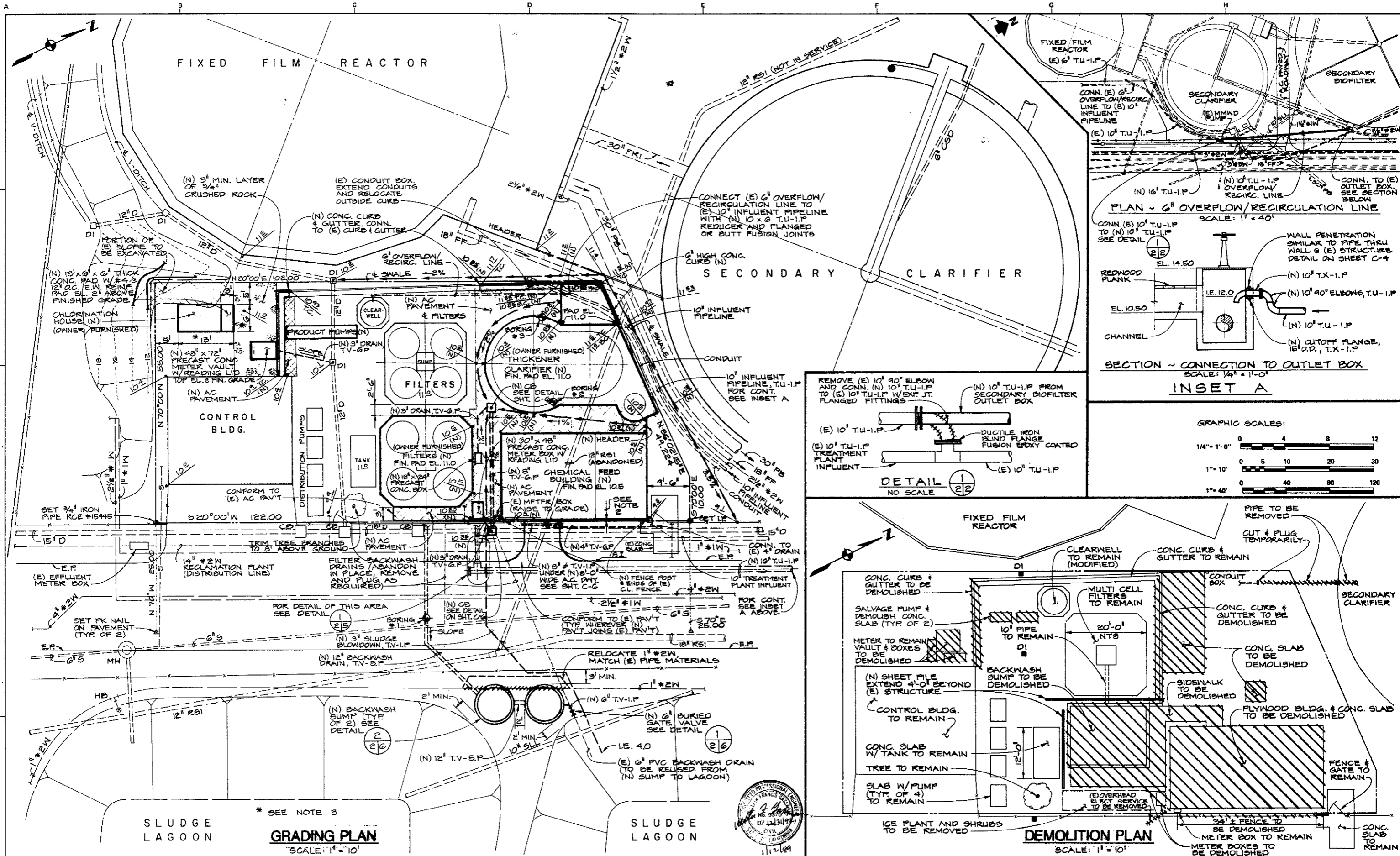
Submitted: *Walter J. Thomas*  
 Approved: *John M. McDaniel*

Kennedy/Jenks/Chilton  
 San Francisco  
 C9370  
 Marin Municipal Water District

**SITE PLAN AND INLET PIPELINE PROFILE**

Scale: 1" = 100'

Job No. 880058.00  
 Sheet C-1  
 of



**GRADING PLAN**  
SCALE: 1" = 10'

**DEMOLITION PLAN**  
SCALE: 1" = 10'

Reference Information and Notes:  
 1. ALL WORK SHOWN ON THIS SHEET IS EXISTING (E) UNLESS NOTED AS NEW (N).  
 2. CHEMICAL FEED BUILDING SETBACK 3' FROM PROPERTY LINE.  
 3. DIMENSIONS ARE ONLY APPROXIMATE. CONTRACTOR TO VERIFY AND COORDINATE WITH SUPPLIER OF CHLORINATION HOUSE. CONCRETE PAD SHALL ACCOMMODATE THE HOUSE ANCHOR FRAME AND PERMIT THE REQUIRED EMBEDMENT AND CLEARANCE FOR ANCHOR BOLTS.

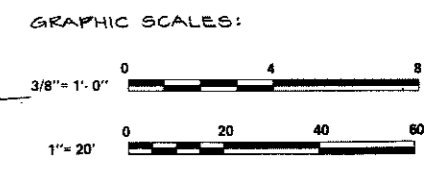
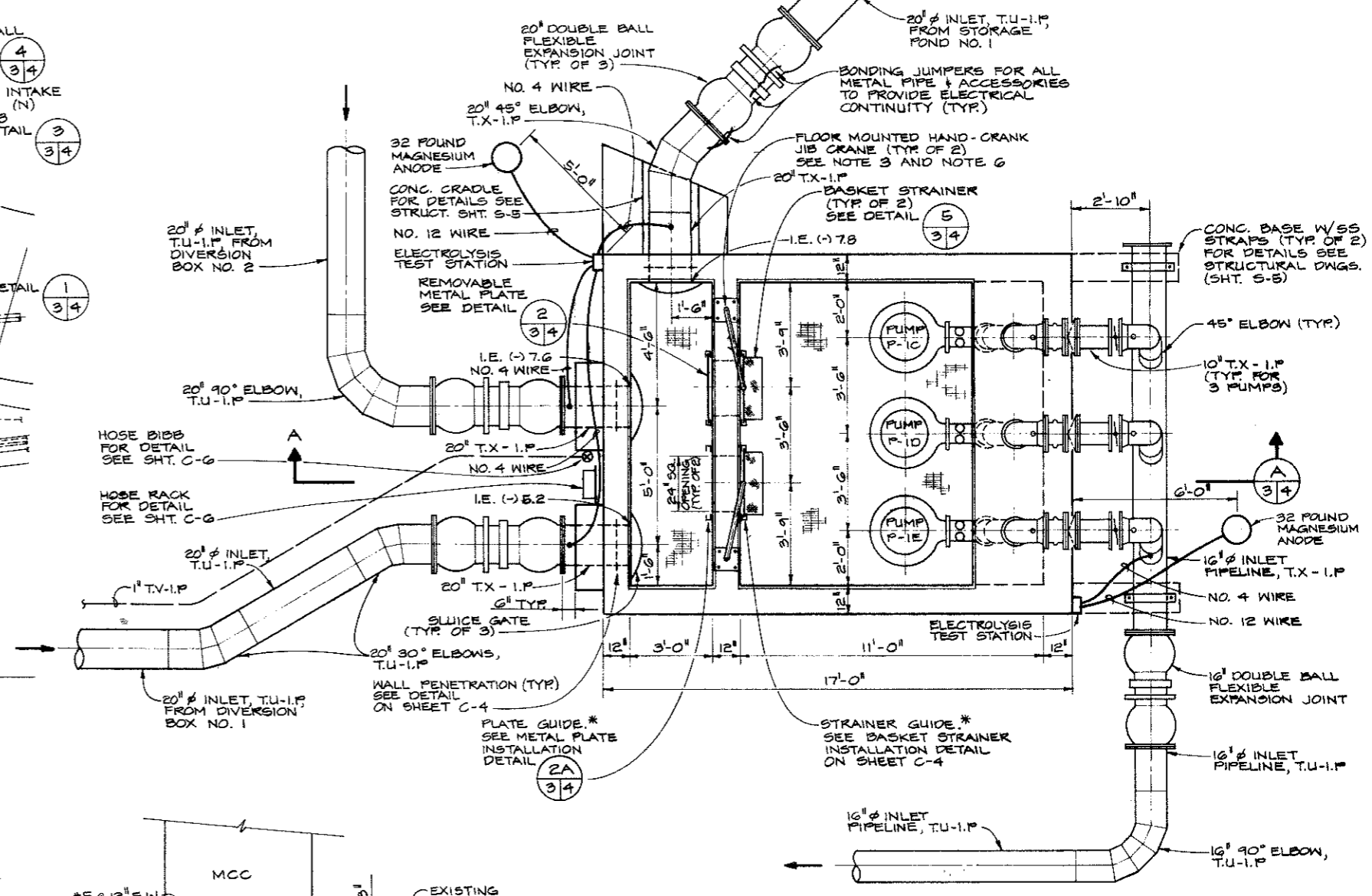
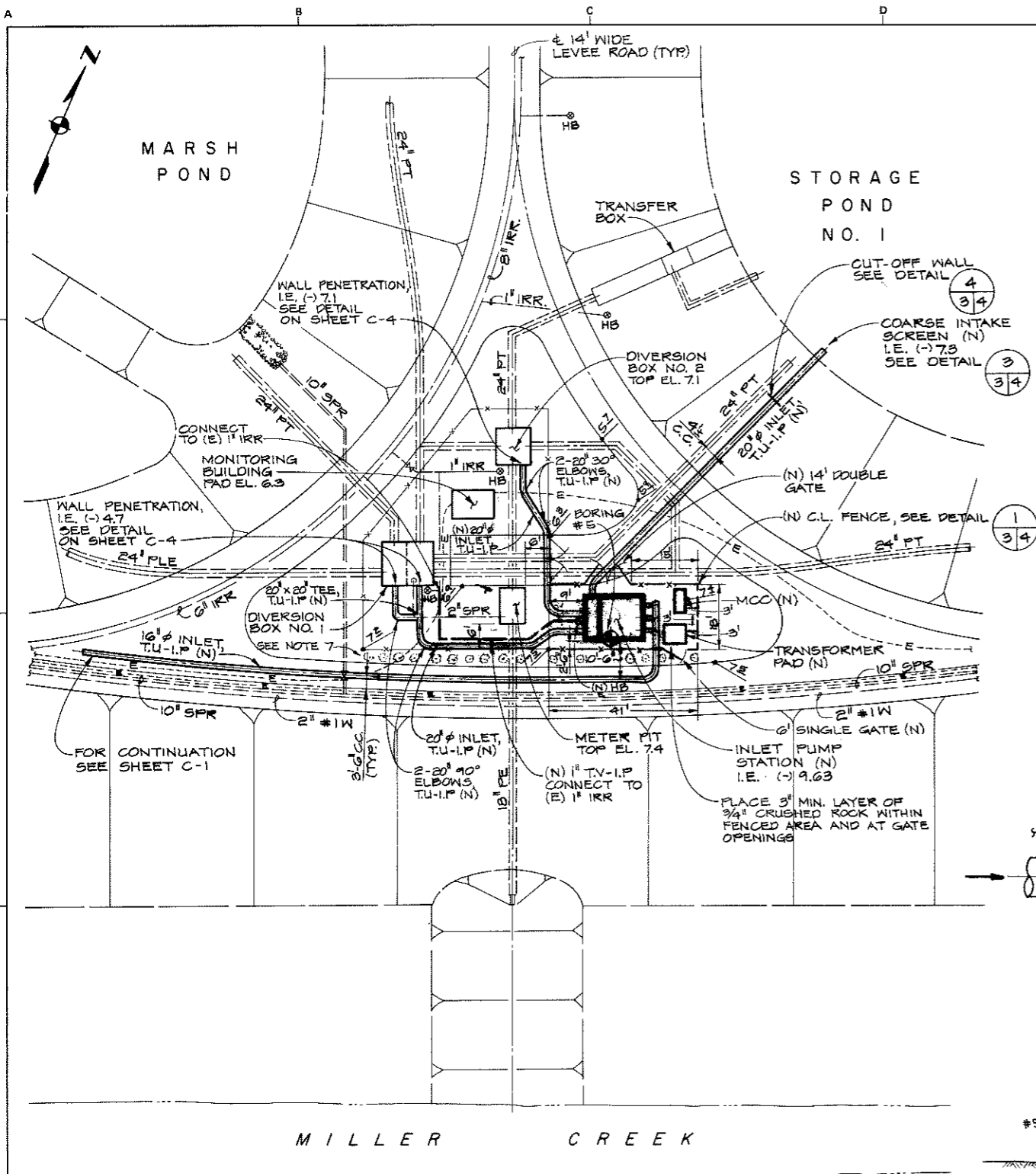
Designed: ROO/MDS  
 Drawn: ROO  
 Checked: JAF  
 Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
 Kennedy/Jenks/Chilton  
 Submitted: *Walter J. Jenks*  
 Approved: *Ken M. McDowell*  
 San Francisco  
 Marin Municipal Water District  
 C-370

Scale AS NOTED  
 Job No. 880055.00  
 Sheet **C-2**  
 of

Revised	Description	Submit	Appr'd	Date
	Refer to Tracing for Latest Revision			





Revised	Description	Submit.	Appr'd.	Date
	Refer to Tracing for Latest Revision			

Reference Information and Notes:

- ALL WORK SHOWN ON THE SITE PLAN IS EXISTING (E) UNLESS NOTED AS NEW (N).
- ALL WORK SHOWN ON THE INLET PUMP STATION PLAN IS NEW (N).
- PROVIDE 3" MINIMUM DISTANCE FROM JIB CRANE BASE ANCHORS TO EDGE OF CONCRETE. PROVIDE GALVANIZED STEEL WALL BRACKET TO SUPPORT JIB CRANE BASE AS REQUIRED.
- CONTRACTOR SHALL LOCATE ALL IRRIGATION SPRINKLER RISERS AND TREES IN THE DESIGNATED INLET PUMP STATION AREA. CONTRACTOR SHALL REMOVE ANY SPRINKLER RISERS AS NECESSARY AND SHALL REPAIR ANY DAMAGE DONE TO THE SPRINKLER SYSTEM AS A RESULT OF HIS ACTIVITY ON THE SITE.

Designed: ROO/MDS  
 Drawn: ROO  
 Checked: JAF  
 Date: 1-6-89

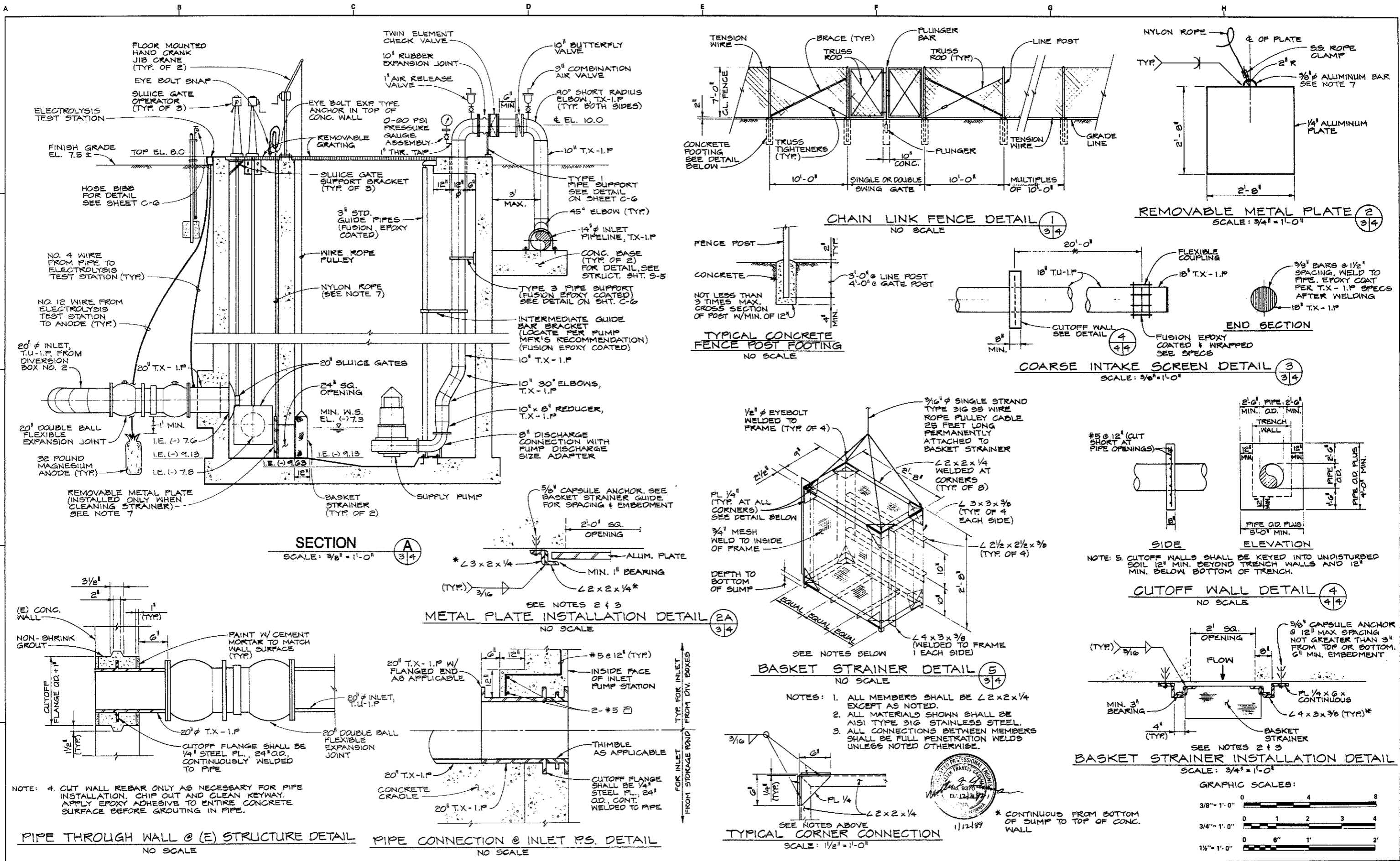
**MMWD Las Gallinas Valley Reclamation Plant Improvements**

Kennedy/Jenks/Chilton San Francisco

Submitted: *Walter J. ...* Approved: *James M. ...*  
 C9370 Marin Municipal Water District

Scale AS NOTED  
 Job No. 680058.00  
 Sheet **C-3**  
 of

**INLET PUMP STATION PLANS**



Revised	Description	Submit	App'd	Date

**Reference Information and Notes:**

6. ALL WORK ON THIS SHEET IS NEW (N) UNLESS NOTED AS EXISTING (E).

7. PROVIDE 251 OF 3/8" NYLON ROPE WITH WORKING LOAD LIMIT OF 275 LBS. MIN. AND 3350 LBS. BREAKING STRENGTH MIN. (MCMASTER-CARR NO. 3827T34 OR EQUAL). SECURELY TIE THE ROPE TO THE ALUMINUM BAR AND TO A 3/4" ROUND EYE BOLT SNAP (MCMASTER CARR NO. 3906T16 OR EQUAL). ATTACH THE FREE KNOTTED ENDS WITH CLIPS.

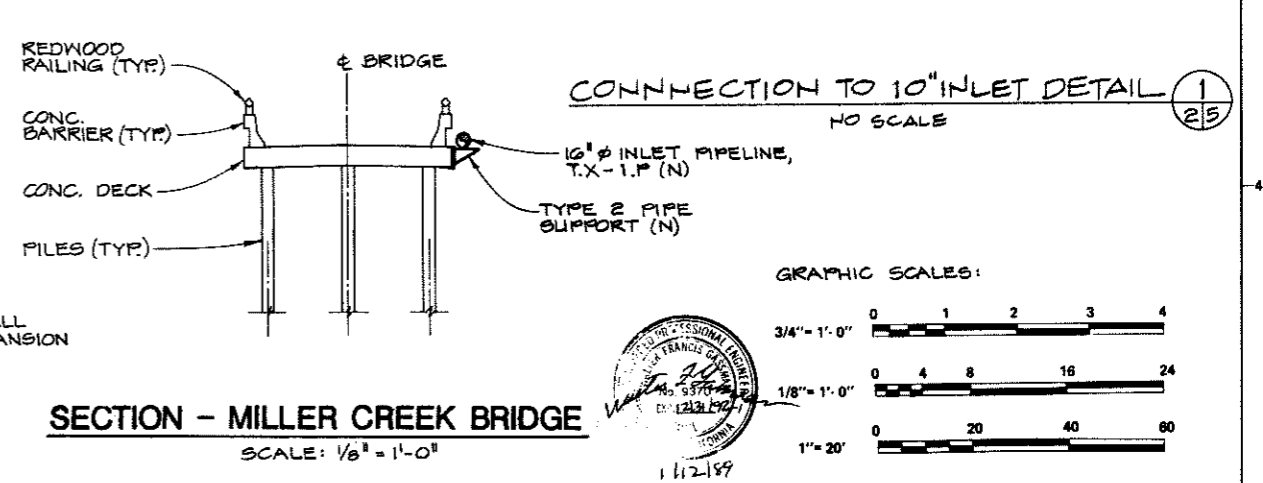
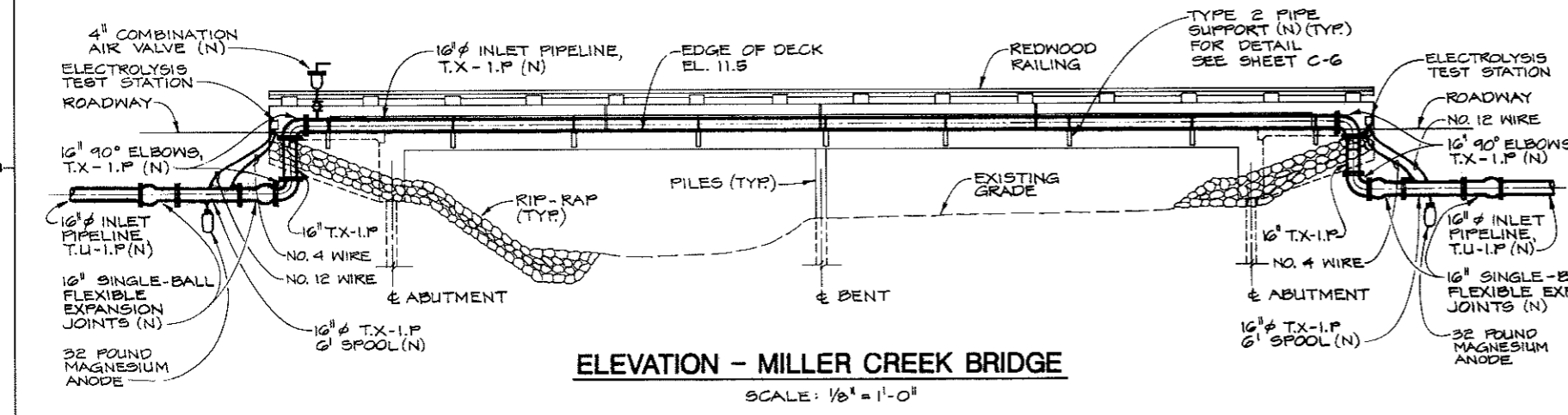
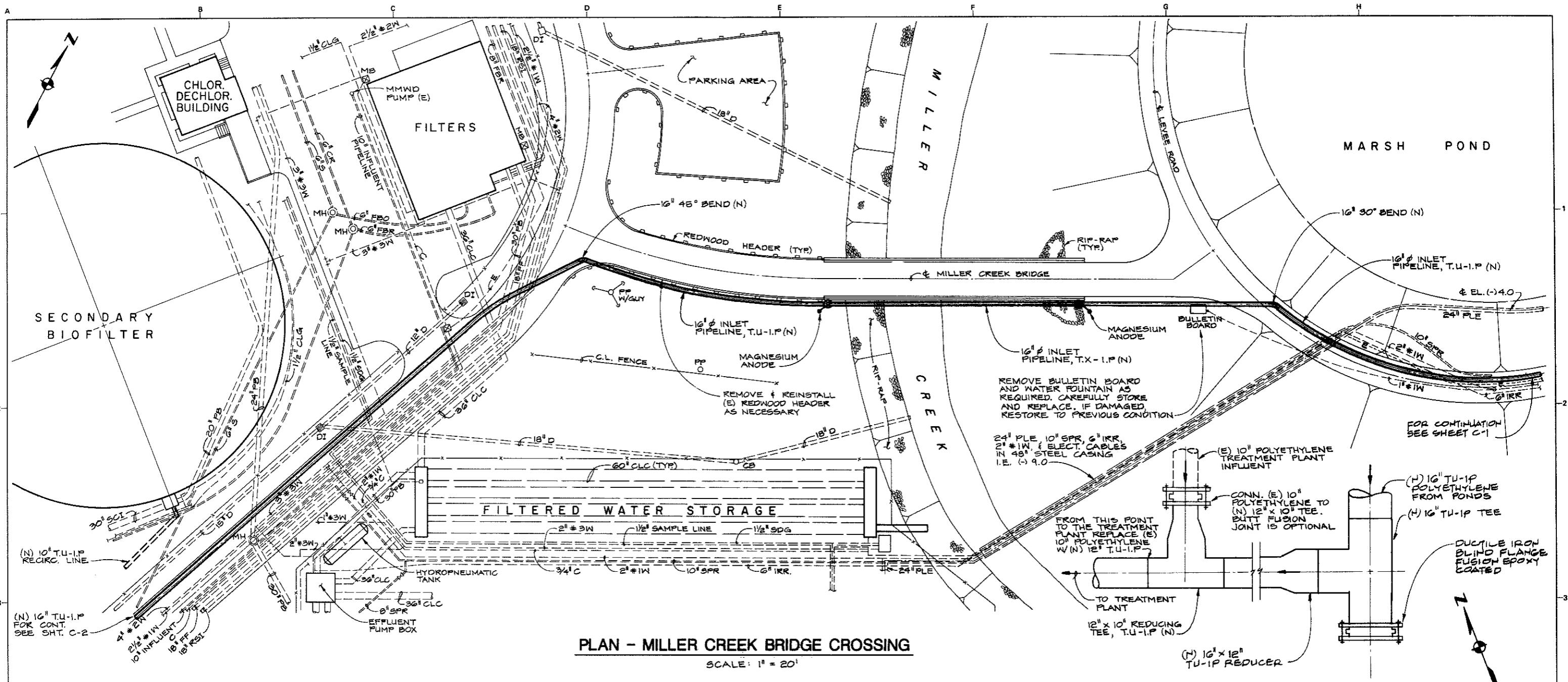
Designed: ROO, MDS  
 Drawn: ROO  
 Checked: JAF  
 Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**

Kennedy/Jenks/Chilton  
 Submitted: *Walter Jenks*  
 Approved: *Tom M. Powell*  
 San Francisco  
 Marin Municipal Water District  
 C9370

**INLET PUMP STATION SECTION AND DETAILS**

Scale: AS NOTED  
 Job No. 88058.00  
 Sheet C-4 of



Reference Information and Notes:  
 1. ALL WORK SHOWN ON THIS SHEET IS EXISTING (E) UNLESS NOTED AS NEW (N).

Designed <b>ROO/MDS</b>	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>	
Drawn <b>ROO</b>	<b>San Francisco</b>	
Checked <b>JAF</b>	Submitted: <i>Walter J. Hansen</i>	Approved: <i>Ken M. McDell</i>
Date <b>1-6-89</b>	<b>C-9370</b>	<b>Marin Municipal Water District</b>

**BRIDGE CROSSING PLAN,  
ELEVATION AND SECTION**

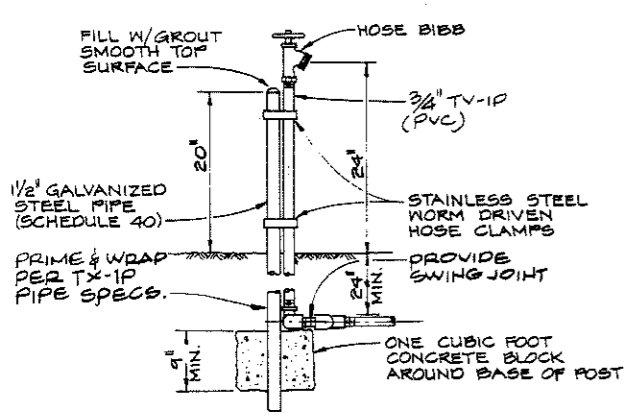
Scale  
**AS NOTED**

Job No.  
**000058.00**

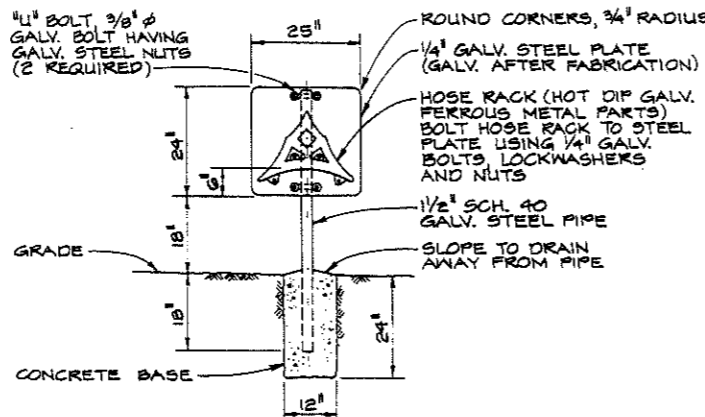
Sheet  
**C-5**

of

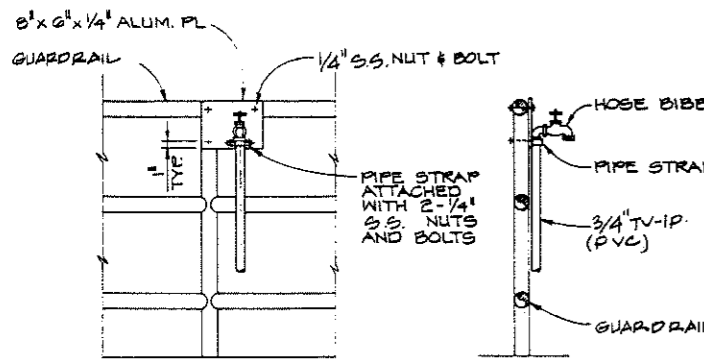
Revised	Description	Submit.	Appr'd.	Date
	Refer to Tracing for Latest Revision <b>ADDENDUM 2</b>			



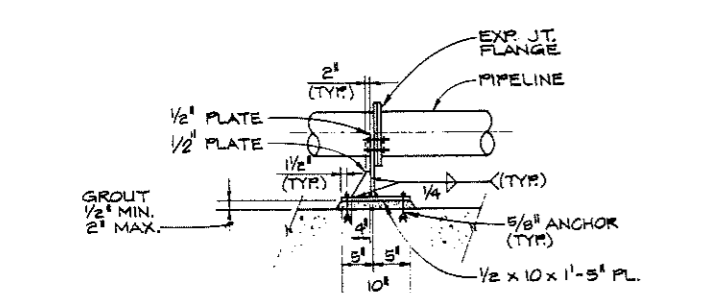
**TYPICAL EXTERIOR HOSE BIBB DETAIL**  
SCALE: 1" = 1'-0"



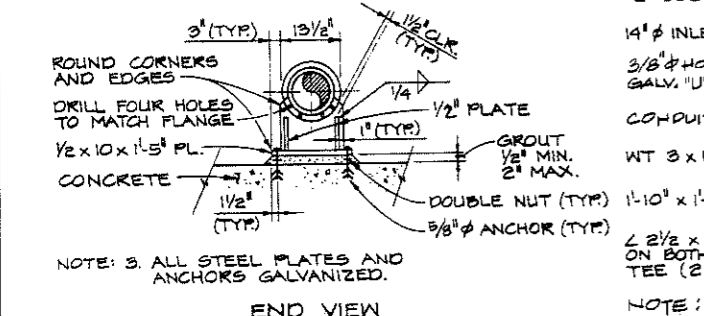
**TYPICAL HOSE RACK IN GRADED AREA**  
NO SCALE



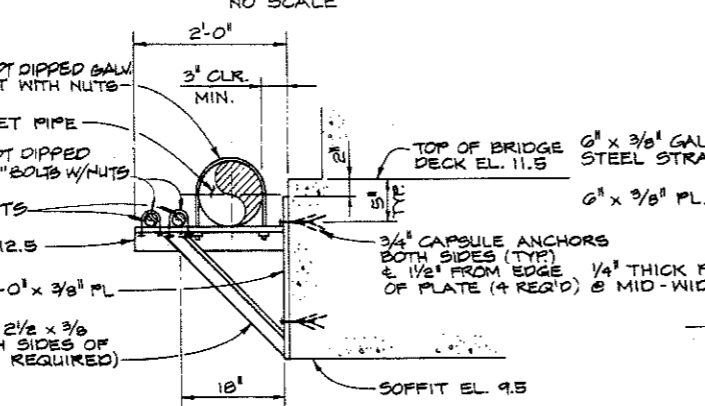
**HOSE BIBB ATTACHED TO GUARDRAIL**  
SCALE: 1" = 1'-0"



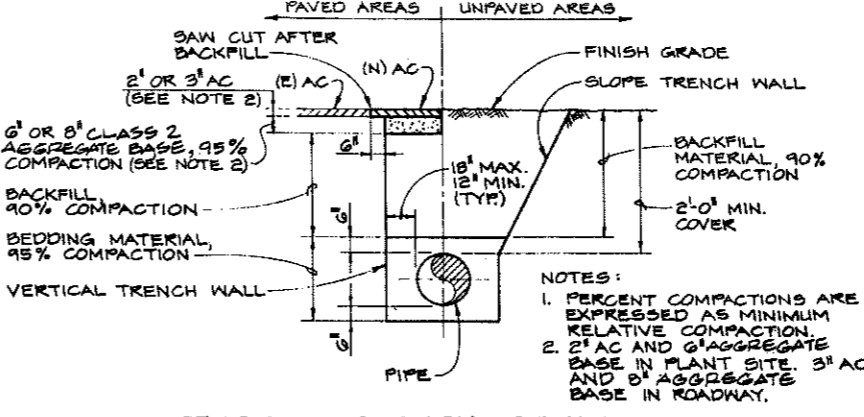
**TYPICAL CATCH BASIN DETAIL**  
NO SCALE



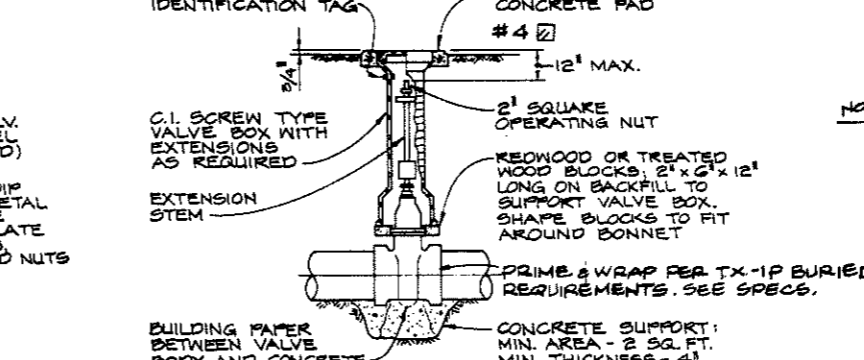
**TYPE 1 PIPE SUPPORT**  
NO SCALE



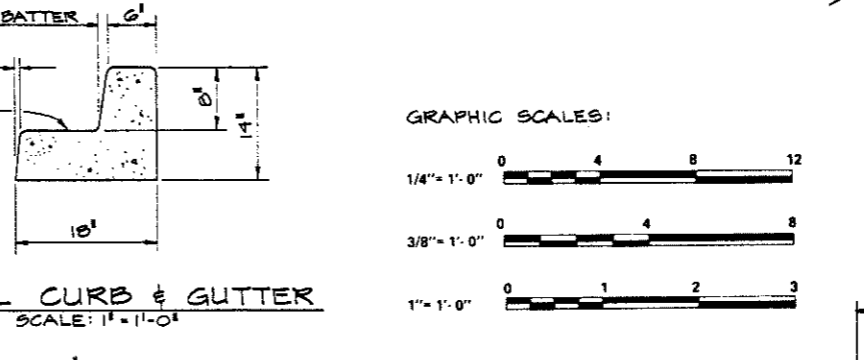
**TYPE 2 PIPE SUPPORT**  
NO SCALE



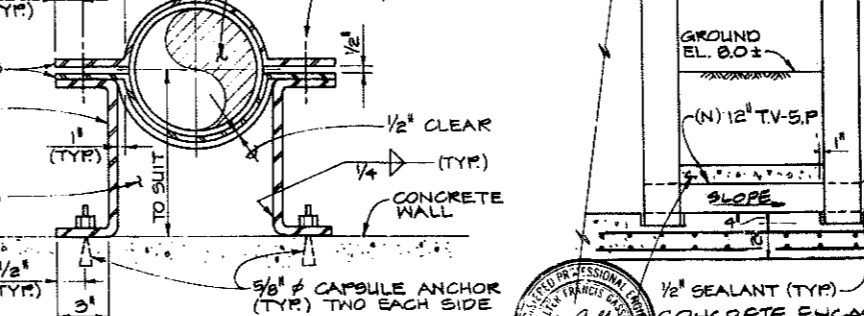
**TYPICAL TRENCH DETAIL**  
NO SCALE



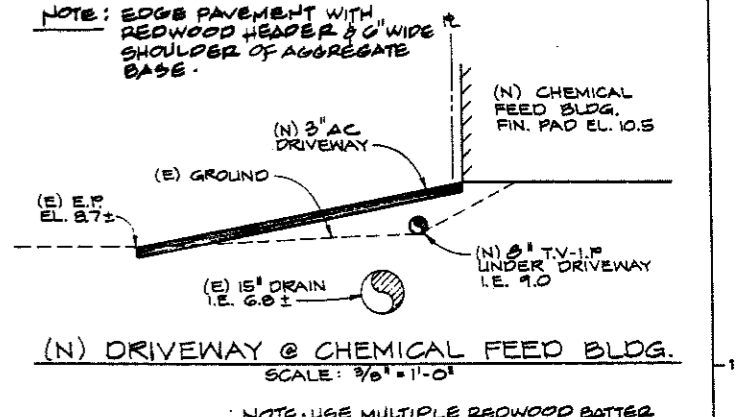
**BURIED VALVE DETAIL**  
NO SCALE



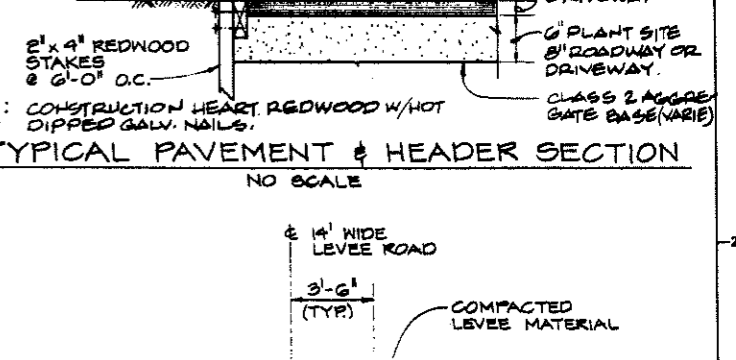
**TYPICAL CURB & GUTTER**  
SCALE: 1" = 1'-0"



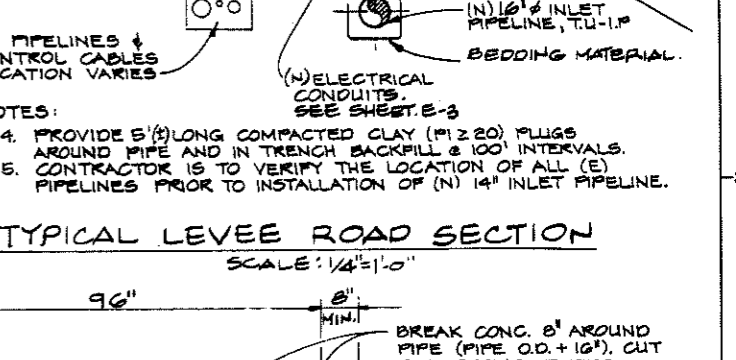
**TYPE 3 PIPE SUPPORT**  
NO SCALE



**TYPICAL PAVEMENT & HEADER SECTION**  
NO SCALE



**TYPICAL LEVEL ROAD SECTION**  
SCALE: 1/4" = 1'-0"



**BACKWASH SUMP DETAIL**  
NO SCALE

Revised	Description	Submit	Appr'd	Date

Reference Information and Notes:  
 G. ALL WORK ON THIS SHEET IS NEW (N) UNLESS NOTED AS EXISTING (E).  
 7. ALL FERROUS MISC. METAL ON THIS SHEET SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE SPECIFICALLY NOTED.

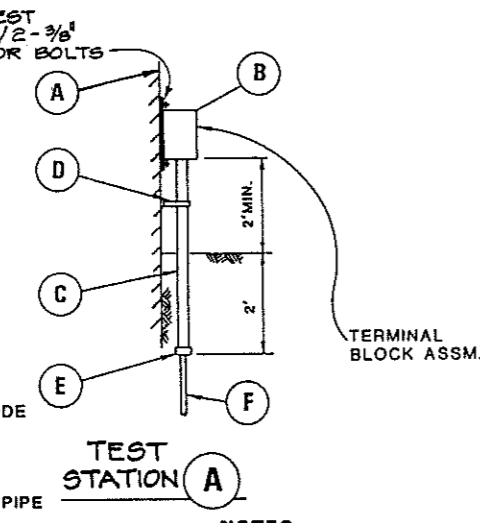
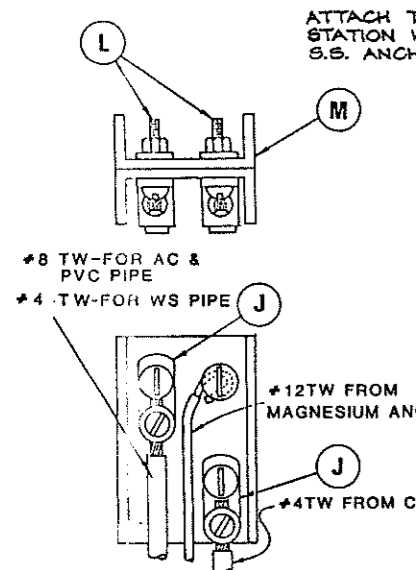
Designed: ROO, MOS  
 Drawn: ROO  
 Checked: JAF  
 Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**

Kennedy/Jenka/Chilton  
 Submitted: *Walter J. Jenka*  
 Approved: *Walter J. Jenka*  
 San Francisco  
 C-9370  
 Main Municipal Water District

Scale: AS NOTED  
 Job No.: 880088.00  
 Sheet: **C-6**

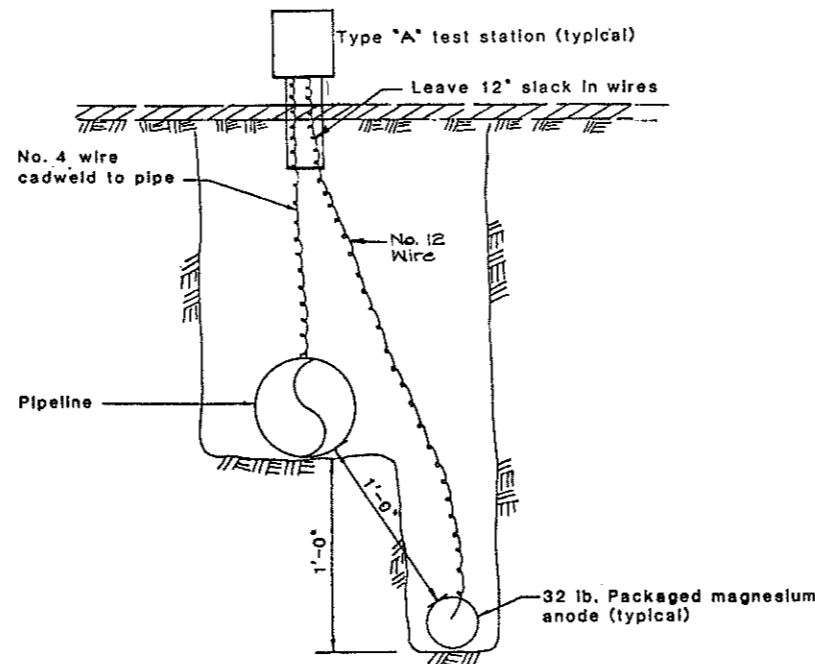
MISCELLANEOUS DETAILS



**TERMINAL BLOCK ASSEMBLY**

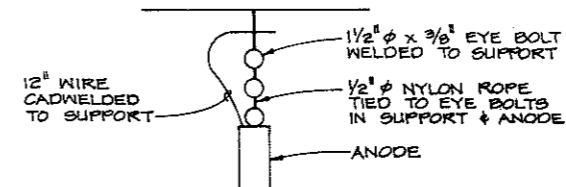
MATERIAL LIST	
ITEM	DESCRIPTION
A	WALL
B	1 1/2" CONDUIT, TYPE E, W/BLANK COVER
C	1 1/2" CONDUIT, RIGID IRON GALV., W/BUSHING
D	1 1/2" CONDUIT STRAP
E	BUSHING
F	TW STRANDED WIRE-#4, #8 OR #12
G	COVER (8" OR 5" CTS)
H	ALUMINUM TUBING (8" OR 5")
J	LUG, 50A
K	COLOR CODE TAPE
L	#12X 1/2" R.H. BRASS MACH. SCR. W/NUT
M	1 1/2" SQ. PHENOLIC TUBING

- 1-LEAVE SLACK IN TEST LEADS ADJACENT TO PIPE TO PREVENT DAMAGE BY BACKFILLING. LEAVE 12" OF SLACK IN TEST LEADS AT TEST STATIONS FOR TEST PURPOSES. HORZ. RUNS ARE TO HAVE 30" MIN. COVER TO TEST STATION. TEST LEADS MAY BE RUN IN PIPE DITCH.
- 2-COLOR CODE TEST LEADS AT TEST STATION, WHEN INDICATED.
- 3-AFTER ELECTRICAL TEST OF INSULATING ADAPTORS, ALL PARTS OF VALVES, FLANGED INSULATING ASSEMBLIES, BONDS AND TEST LEADS, AND ALL OTHER BARE METAL & PIPE, SHALL BE PRIMED AND WRAPPED.
- 4-ITEM "B" DRILL HOLE IN BACK WALL AND MOUNT WITH STEEL ROUND HEAD WOOD SCREW, NO. 10X 1 1/2".



**TYPICAL BURIED MAGNESIUM ANODE AND TEST STATION**

NO SCALE

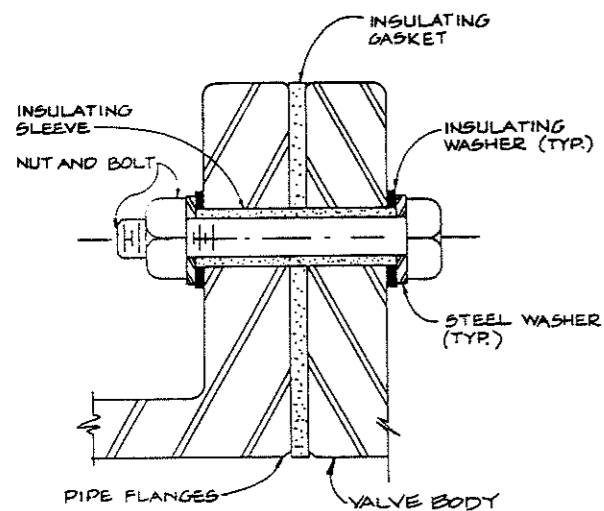


**TYPICAL TANK ANODE SUPPORT DETAIL**

NO SCALE

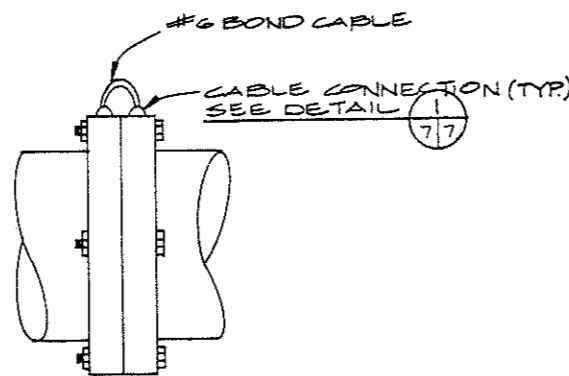
**TYPICAL TEST STATION**

NO SCALE



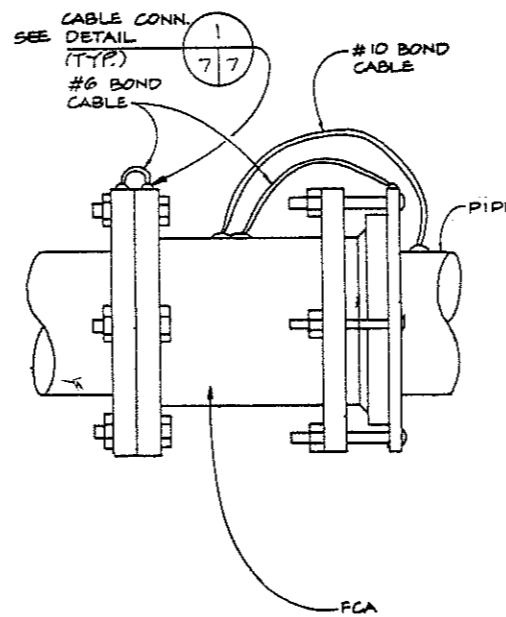
**INSULATING FLANGE DETAIL**

NO SCALE



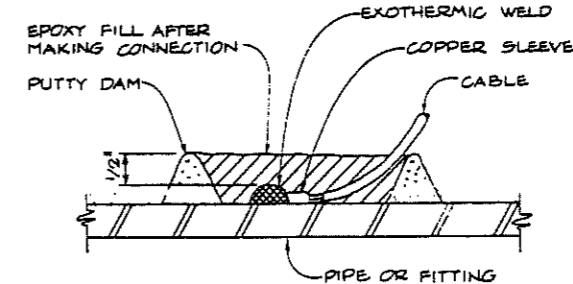
**FLANGED JOINT BONDING DETAIL**

NO SCALE



**COUPLING BONDING DETAIL**

NO SCALE



**CABLE TO PIPE CONNECTION**

TYPE X-1 PIPE DETAIL

NO SCALE

- NOTES: 1. UTILIZE THIS TYPE OF CABLE CONNECTION FOR BONDING ACROSS FLANGES AND FITTINGS.
2. FOR CABLE BONDING AT JOINTS FOR TYPE N-1, N-3, PIPES SEE SHEET 13.



16269

Revised	Description	Submit	App'd.	Date

Reference Information and Notes:

Designed: RAR

Drawn: ROO

Checked: JAF

Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**

Kennedy/Jenks/Chilton

Submitted: *Walter J. Jensen*

Approved: *Walter J. Jensen*

San Francisco

C9370

Marin Municipal Water District

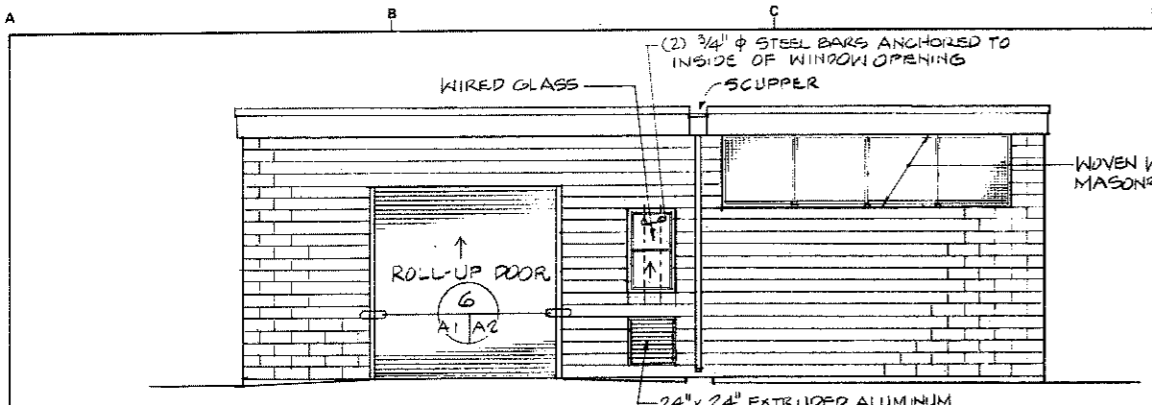
**CATHODIC PROTECTION DETAILS**

Scale: NONE

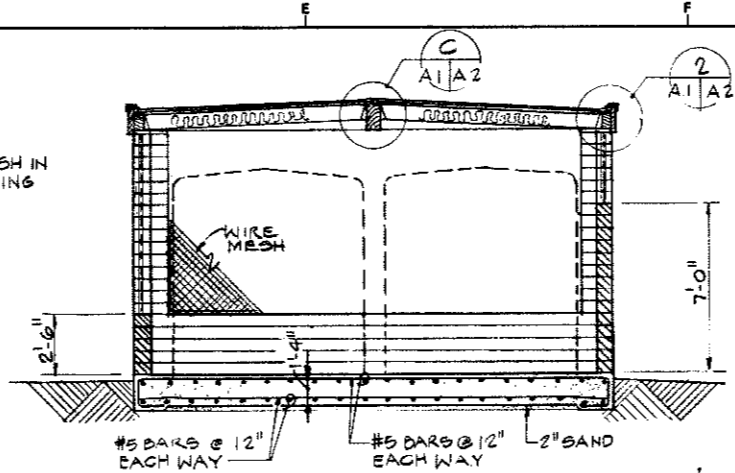
Job No.: 88008800

Sheet: C-7

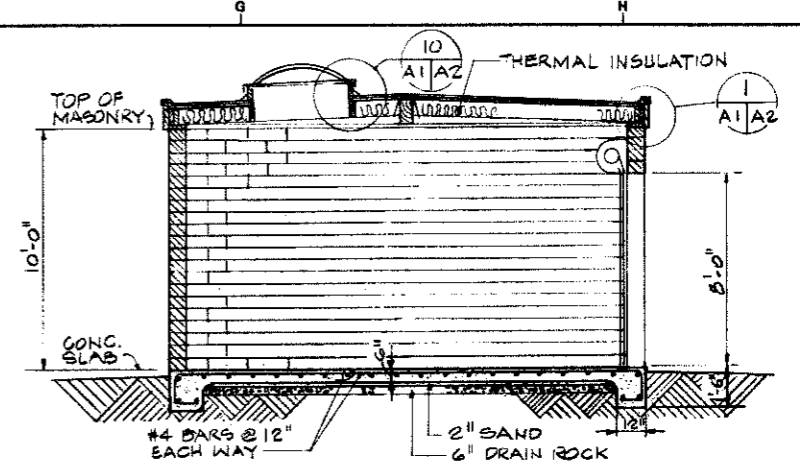




**EAST ELEVATION**  
1/4" = 1'-0"



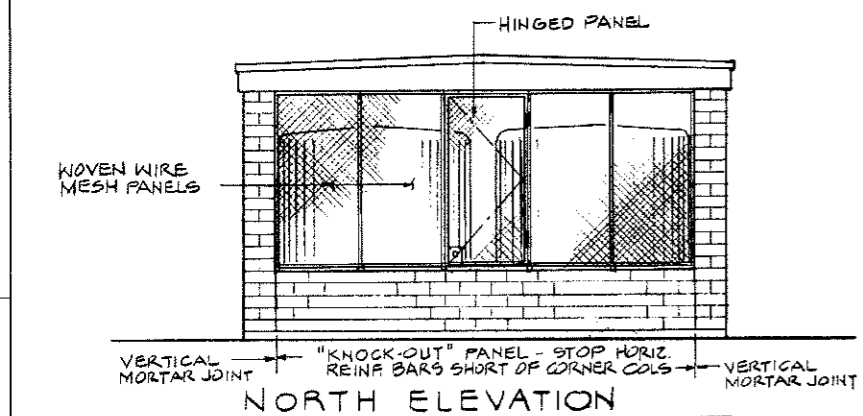
**SECTION**  
1/4" = 1'-0"



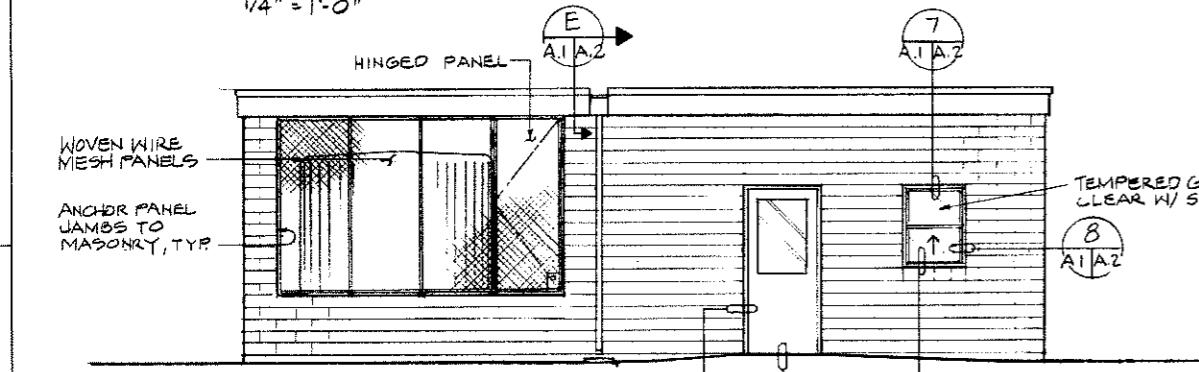
**SECTION**  
1/4" = 1'-0"

**MASONRY REINFORCING:**

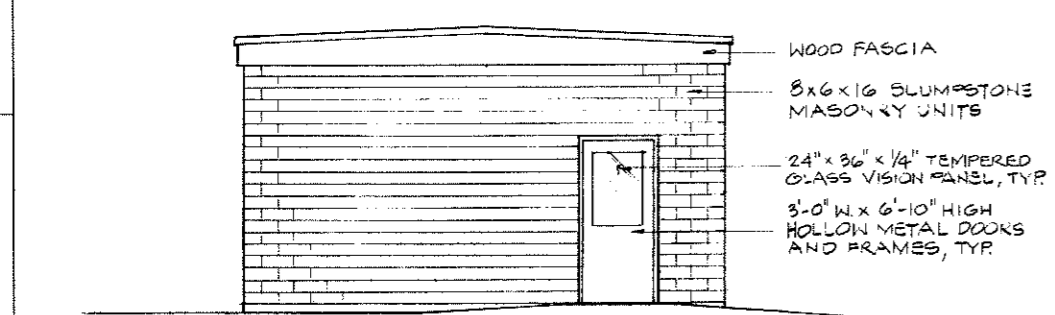
- VERTICAL REINF: #4 BARS @ 16" O.C. FULL LENGTH AT CENTER OF WALL. LAP BARS 1'-9" WITH #4 DWELS PROJECTING FROM SLAB.
- HORIZ REINF: 1-#5 BAR IN BOND BEAM UNITS AT BOTTOM OF WALLS AND SPACED 2'-0" O.C. ALONG HEIGHT OF WALLS. 2-#5 BARS IN EACH OF 3 BOND BEAM COURSES AT TOP OF WALLS. LAP BARS 2'-2" AT SPLICES.
- ADDITIONAL VERT. REINF: 1-#5 BAR FULL LENGTH AT WALL CORNERS AND INTER-SECTIONS AND ON EACH SIDE OF OPENINGS. LAP BARS 3'-10" WITH #5 DWELS PROJECTING FROM SLAB BELOW.
- SEE PLAN FOR SPECIAL REINF AT CORNER COLUMNS.
- ADDITIONAL HORIZ REINF: 2-#5 BARS IN BOND BEAM COURSE OVER ALL OPENINGS.



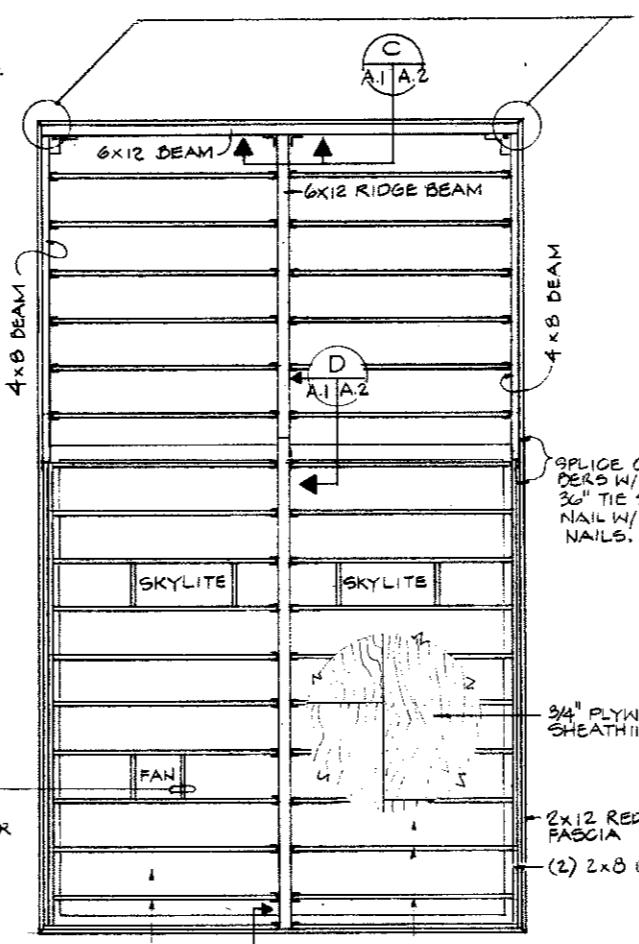
**NORTH ELEVATION**  
1/4" = 1'-0"



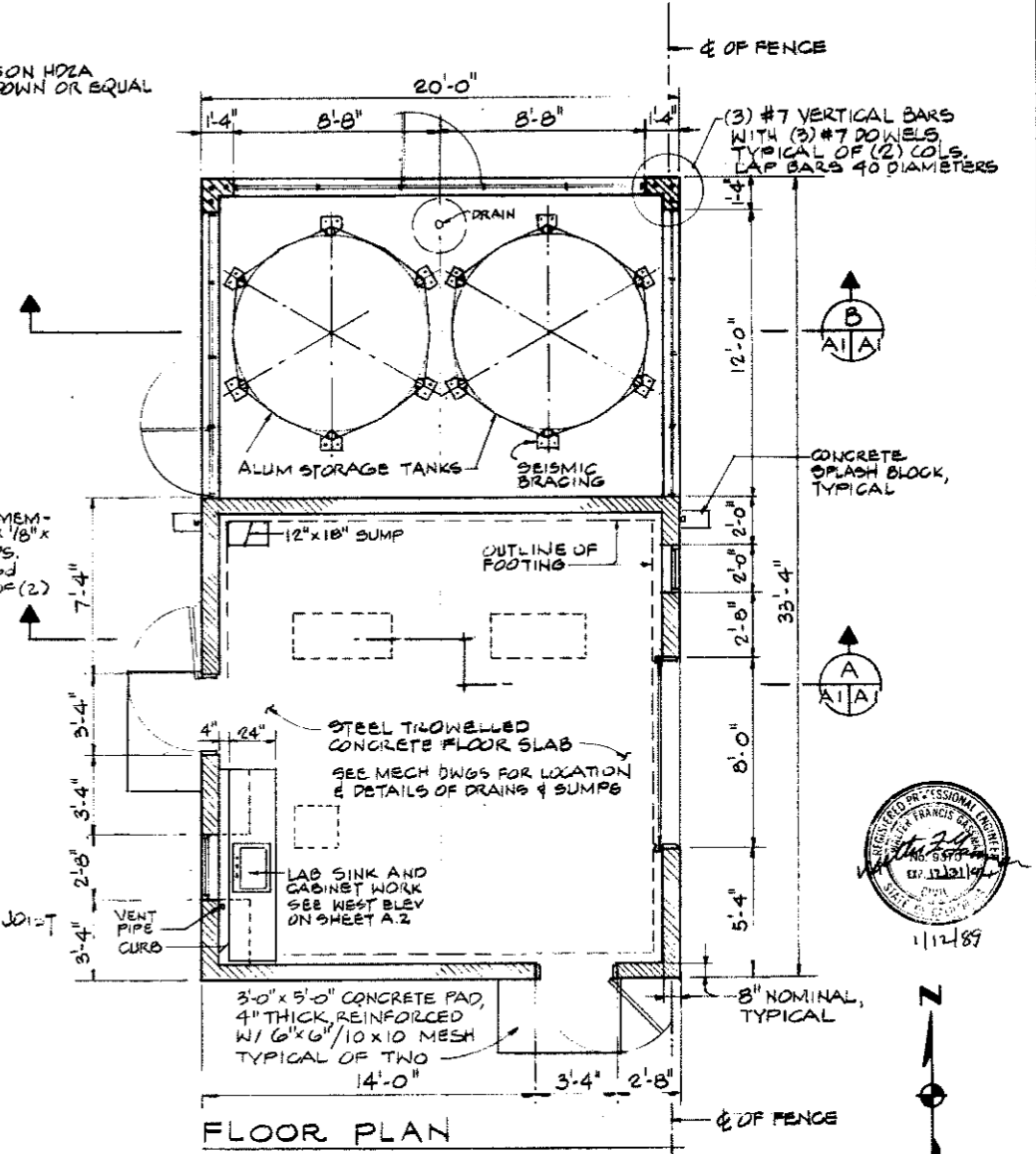
**WEST ELEVATION**  
1/4" = 1'-0"



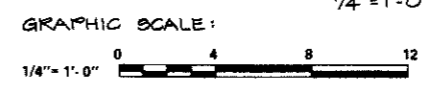
**SOUTH ELEVATION**  
1/4" = 1'-0"



**ROOF FRAMING PLAN**  
1/4" = 1'-0"



**FLOOR PLAN**  
1/4" = 1'-0"



Revised	Description	Submit	App'd.	Date

Reference Information and Notes:

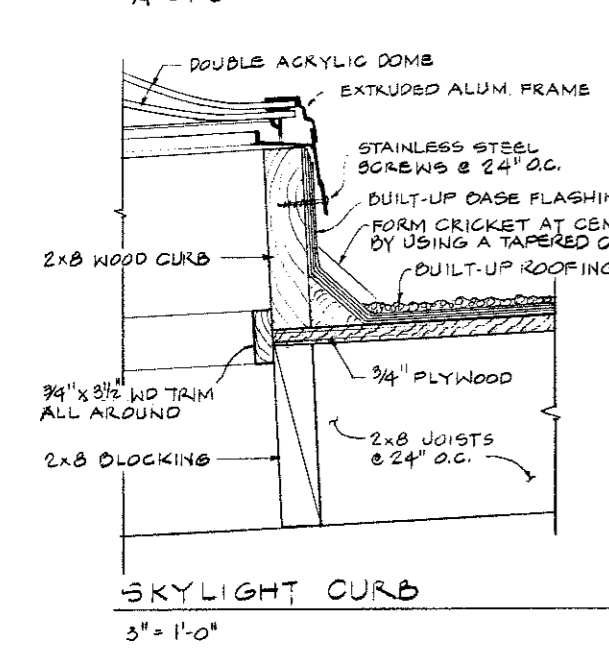
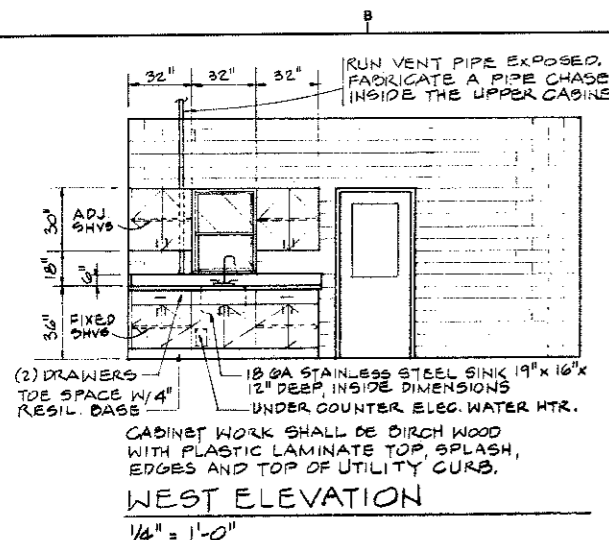
Designed: EJB  
 Drawn: EJB  
 Checked: JGW  
 Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
 Kennedy/Jenks/Chilton  
 Submitted: *Walter J. Hasman*  
 C9370

San Francisco  
 Approved: *Ken M. McNeill*  
 Marin Municipal Water District

**CHEMICAL FEED BUILDING PLAN, SECTIONS & ELEVATIONS**

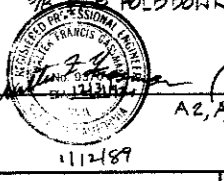
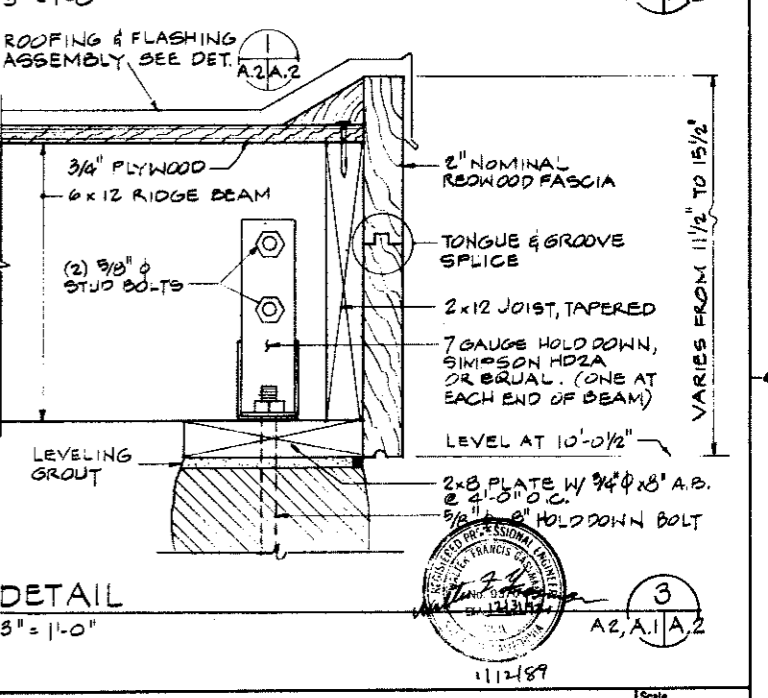
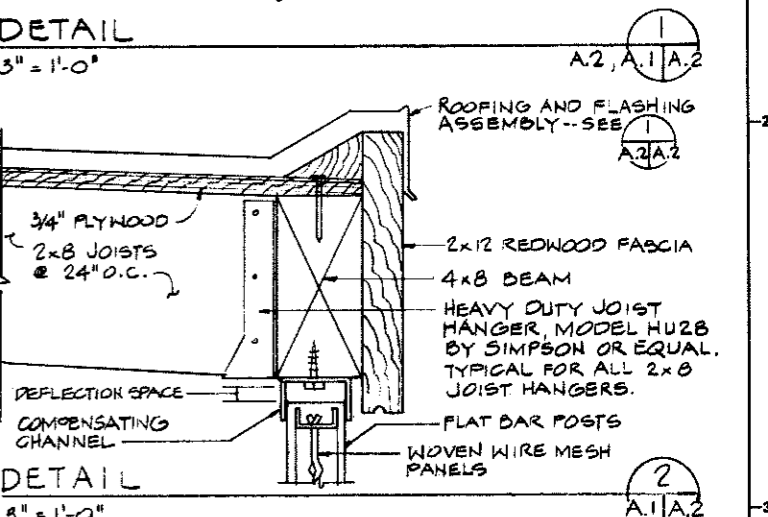
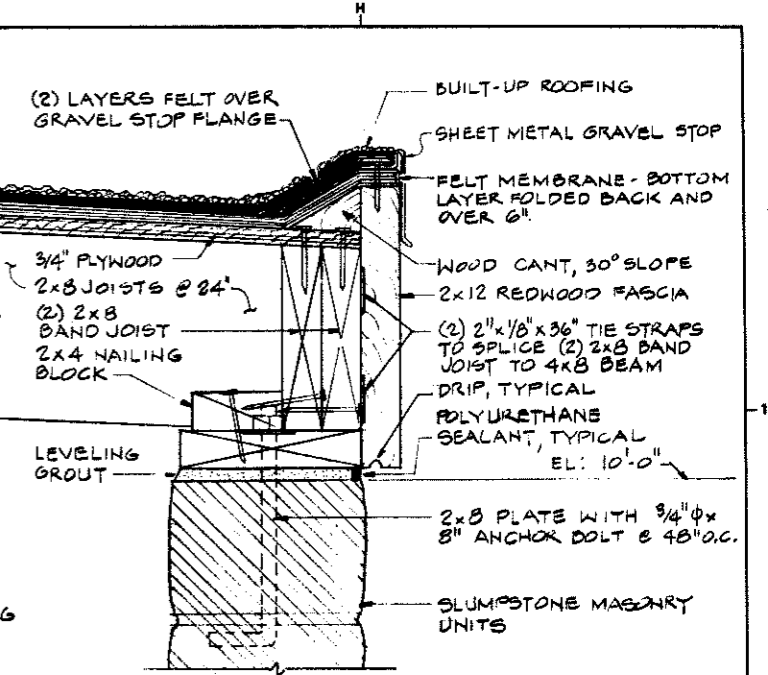
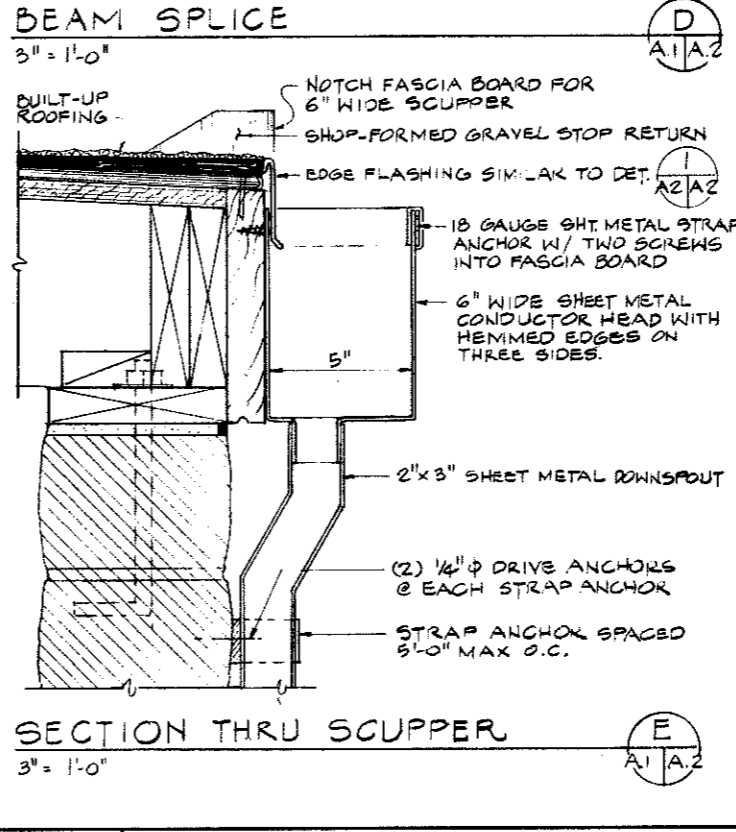
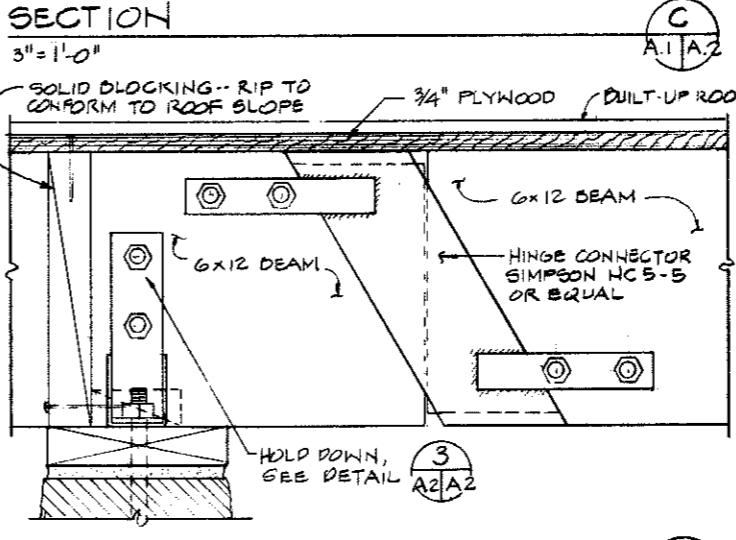
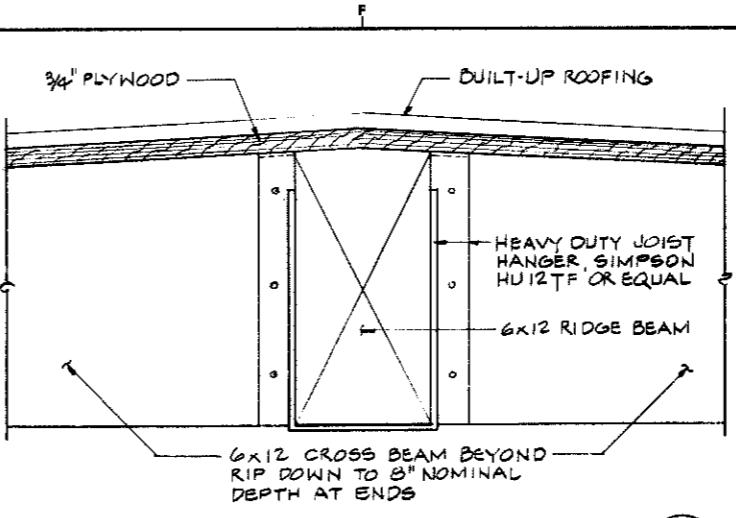
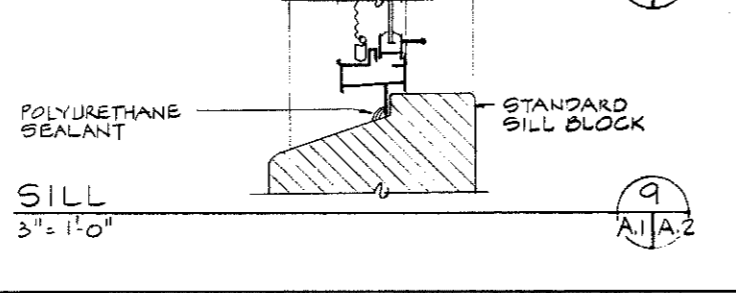
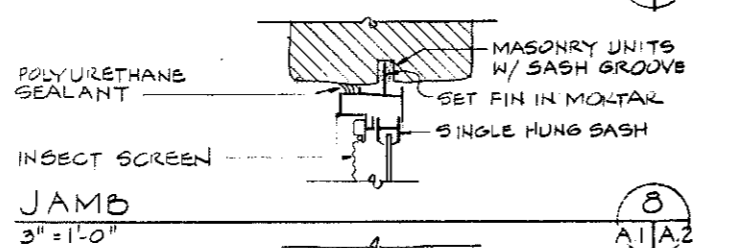
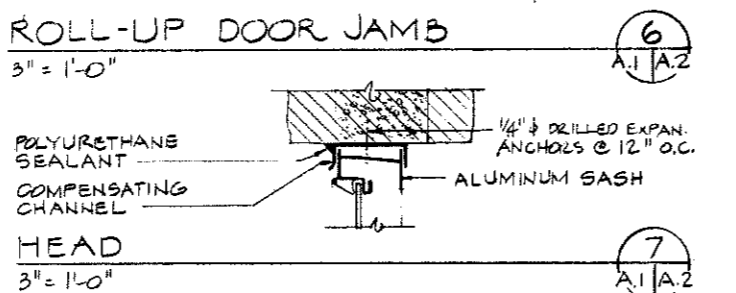
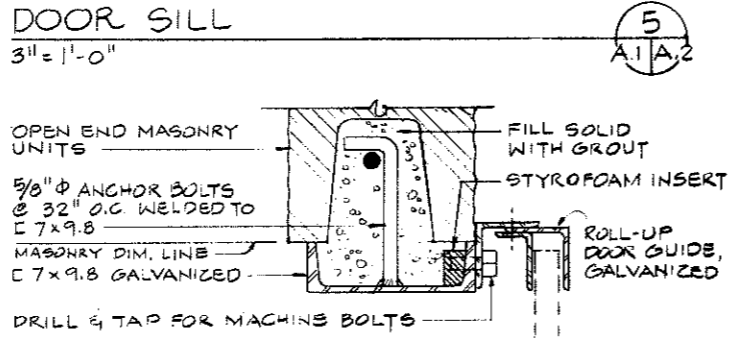
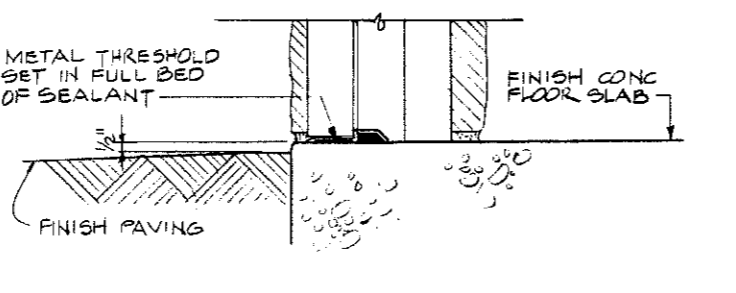
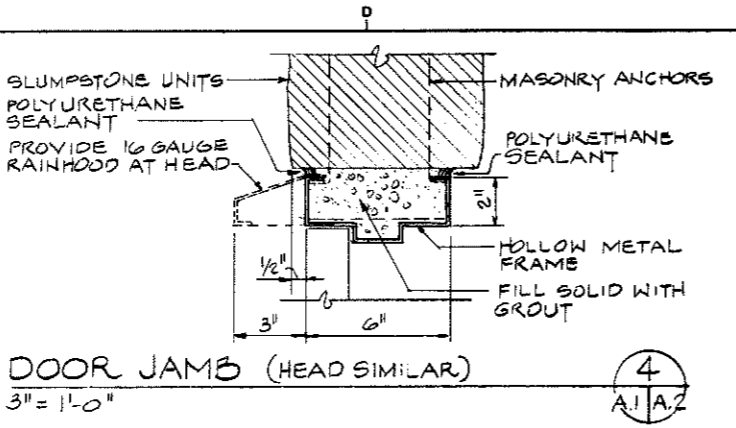
Scale: 1/4" = 1'-0"  
 Job No: 880058  
 Sheet: **A-1**



**FINISH SCHEDULE:** (SEE SPEC SECTION 09400 FOR DESCRIPTION OF PAINT SYSTEMS)

HOLLOW METAL DOORS & FRAMES: SYSTEM 'A'  
 SHEET METAL WORK: SYSTEM 'A'  
 ROLL-UP DOOR & FRAME: SYSTEM 'A'  
 EXPOSED EXTERIOR PIPES & CONDUITS: SYSTEM 'A'  
 WOOD FASCIA SYSTEM 'A'  
 CONCRETE MASONRY UNITS: CLEAR SEALER  
 INTERIOR SIDES OF SKYLIGHT CURBS: SYSTEM 'A'  
 INTERIOR SIDES OF FAN OPENING: SYSTEM 'A'  
 ALUMINUM WINDOWS: FACTORY FINISHED LOUVERS: FACTORY FINISH  
 CABINET WORK: SYSTEM 'C'  
 WIRE MESH PANELS: SYSTEM 'A'

**GRAPHIC SCALES:**  
 1/4" = 1'-0"  
 3" = 1'-0"



Revised	Description	Submit	Appr'd.	Date

Refer to Tracing for Latest Revision  
 ADDENDUM 2

Reference Information and Notes:

Designed: EJB  
 Drawn: EJB  
 Checked: JGW  
 Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
 Kennedy/Jenks/Chilton  
 Submitted: *Walter J. Hansen*  
 Approved: *Walter J. Hansen*  
 License No. 111289

San Francisco  
 Submitted: *Walter J. Hansen*  
 Approved: *Walter J. Hansen*  
 License No. 111289

**CHEMICAL FEED BUILDING DETAILS & FINISH SCHEDULE**

Scale: AS NOTED  
 Job No.: 22005B  
 Sheet: **A-2**  
 of

**GENERAL STRUCTURAL NOTES**

ALL NOTES AND TYPICAL STRUCTURAL DETAILS SHOWN ON THESE SHEETS APPLY EXCEPT WHERE OTHERWISE SHOWN OR NOTED ON CONTRACT DOCUMENTS.  
 DESIGN, MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE 1982 "UNIFORM BUILDING CODE."  
 ALL DRAWINGS FOR THIS CONTRACT SHALL BE COORDINATED WITH FAVORABLY REVIEWED EQUIPMENT MANUFACTURER'S DRAWING.  
 "x" DIMENSIONS NOTED THUS TO BE COORDINATED WITH FAVORABLY REVIEWED EQUIPMENT MANUFACTURER'S DRAWING.

**CONCRETE**  
 ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT THE AGE OF 28 DAYS.  
 ALL REINFORCING BARS SHALL BE ASTM A615-GRADE 60.  
 ARRANGEMENT AND DETAILS OF REINFORCING STEEL, INCLUDING BAR SUPPORTS AND SPACERS, SHALL BE IN ACCORDANCE WITH THE LATEST ACI 315 DETAILING MANUAL.  
 ALL SLAB REINFORCING SHALL HAVE MINIMUM EXTENSION INTO THE SUPPORT IN ACCORDANCE WITH THE LATEST UNIFORM BUILDING CODE. IF SUCH EXTENSION IS NOT POSSIBLE, BARS SHALL TERMINATE IN STANDARD HOOKS.  
 ALL REINFORCING SHALL LAP A MINIMUM OF 1.7l<sub>d</sub> AT SPLICES UNLESS OTHERWISE SHOWN.

WHEREVER IT IS NECESSARY TO SPLICE REINFORCEMENT OTHERWISE THAN AS SHOWN ON THE CONTRACT DRAWINGS, THE CHARACTER OF THE SPLICE SHALL BE AS SPECIFIED BY THE ENGINEER. SPLICING SHALL NOT BE MADE AT POINTS OF MAXIMUM STRESS. BAR SPLICES SHALL BE STAGGERED.  
**HOOK BARS AT OPENINGS**  
 HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS SHOWN ON THE CONTRACT DRAWINGS ARE RECOMMENDED. LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE SUBMITTED TO THE ENGINEER FOR FAVORABLE REVIEW PRIOR TO START OF WORK ON FORMS, REINFORCING STEEL OR CONCRETE PLACEMENT. ANY ADDITIONAL JOINTS OR DEVIATION FROM THOSE SHOWN SHALL HAVE A STANDARD KEYWAY AND SHALL BE FAVORABLY REVIEWED BY THE ENGINEER. REFER TO SPECIFICATIONS AND TYPICAL DETAILS FOR ADDITIONAL INFORMATION. REINFORCING SHALL EXTEND THROUGH THESE JOINTS.

ALL EXPOSED EDGES AND CORNERS OF CONCRETE SHALL BE CHAMFERED 3/4-INCH.  
 REFER TO PERTINENT CONTRACT DRAWINGS, EQUIPMENT MANUFACTURER'S DRAWINGS AND SPECIFICATIONS FOR ALL SLEEVES, PIPES, CONDUITS AND MISCELLANEOUS ANCHORING DEVICES TO BE INCORPORATED IN THE CONSTRUCTION.  
 UNLESS OTHERWISE SHOWN, THE MINIMUM COVER FOR REINFORCING STEEL SHALL BE:  
**SLAB:** BOTTOM AND SIDE CAST AGAINST EARTH.....3"  
 FORMED SIDE AND TOP EXPOSED TO EARTH.....2-1/2"  
 TOP AND BOTTOM EXPOSED TO INTERIOR TANK ATMOSPHERE.....2"  
 TOP AND BOTTOM EXPOSED TO WEATHER.....1-1/2"  
 TOP AND BOTTOM ALL OTHER EXPOSURES.....1"  
**WALLS:** UNDER 12 INCHES IN THICKNESS.....1-1/2"  
 12-INCHES OR OVER IN THICKNESS.....2-1/2"

ALL CONCRETE SHALL BE REINFORCED UNLESS SPECIFICALLY NOTED NOT TO BE REINFORCED. MINIMUM REINFORCING SHALL BE # 5 AT 12-INCHES EACH FACE, EACH WAY, UNLESS OTHERWISE NOTED.  
**STRUCTURAL STEEL**  
 FIELD CONNECTIONS SHALL BE FASTENED WITH 3/4-INCH DIAMETER ASTM A325 FRICTION TYPE BOLTS UNLESS OTHERWISE NOTED. ALL WELDED CONNECTIONS SHALL BE MADE WITH AWS A5.1 OR A5.5 E 70 XX ELECTRODES.  
 ALL WELDING SHALL BE CONFORM TO THE LATEST "CODE FOR WELDING IN BUILDING CONSTRUCTION" OF THE AMERICAN WELDING SOCIETY.  
 BEAM CONNECTIONS NOT DETAILED ON THE CONTRACT DRAWINGS SHALL BE SELECTED TO SUPPORT ONE-HALF THE TOTAL ALLOWABLE UNIFORM LOAD OF THE BEAM AS TABULATED IN "UNIFORM LOAD CONSTANTS" IN THE MANUAL OF STEEL CONSTRUCTION" OF THE AISC, 8TH EDITION.

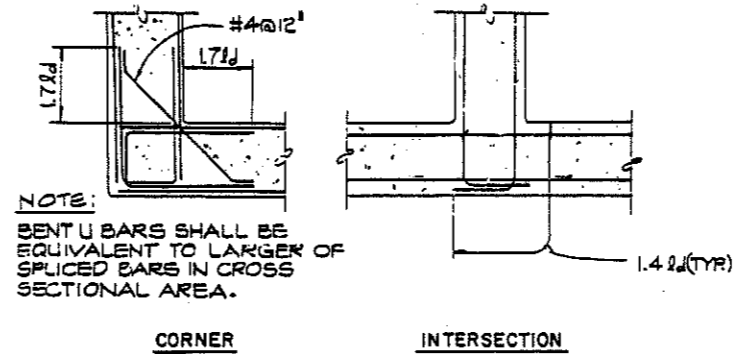
**MISCELLANEOUS**

- WHEREVER MECHANICAL EQUIPMENT IS TO BE INSTALLED, STRUCTURAL DRAWINGS SHALL BE SUITABLY MODIFIED TO SUIT EQUIPMENT MANUFACTURERS' REQUIREMENTS AT NO ADDITIONAL COST TO OWNER.
- ALL PIPES, PLUMBING AND CONDUITS UNDER SLAB IN EARTH OR FILL SHALL BE ENCASED IN CONCRETE, WHETHER OR NOT SPECIFICALLY NOTED.
- REINFORCED CONCRETE ITEMS ARE SHOWN ON DRAWINGS OTHER THAN STRUCTURAL (S-DRAWINGS) REFER TO SHEETS C3, C4, C6, A-1, M-2 & M3

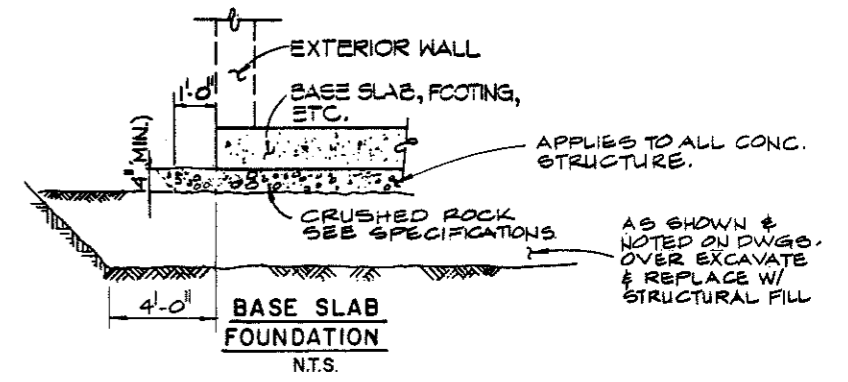
BAR SIZE	TENSION DEVELOPMENT LENGTH $l_d$
#3	12"
#4	12"
#5	15"
#6	19"
#7	24"
#8	30"
#9	44"

NOTE: SPLICING TABLE APPLY TO ALL REBARS

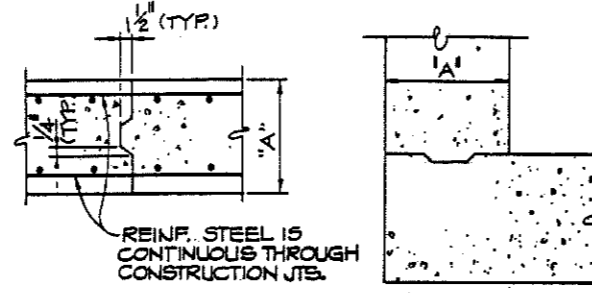
**SPLICING**



CORNER INTERSECTION  
 TYPICAL DETAILS OF WALL REINFORCEMENT  
 N.T.S.

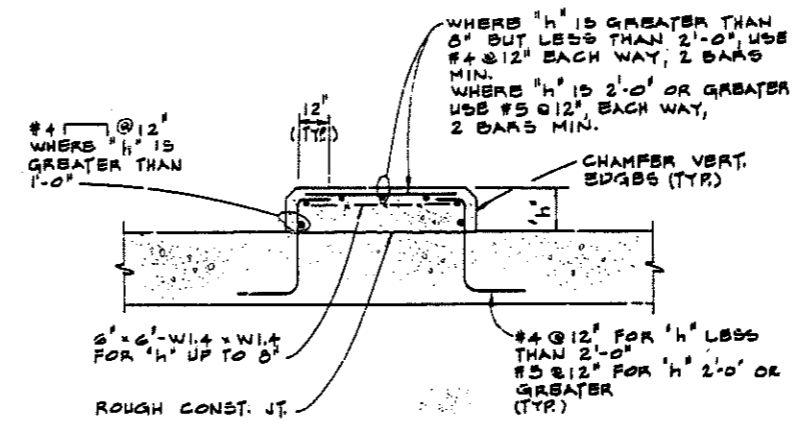


EXTERIOR WALL  
 BASE SLAB, FOOTING, ETC.  
 CRUSHED ROCK SEE SPECIFICATIONS  
 BASE SLAB FOUNDATION  
 N.T.S.

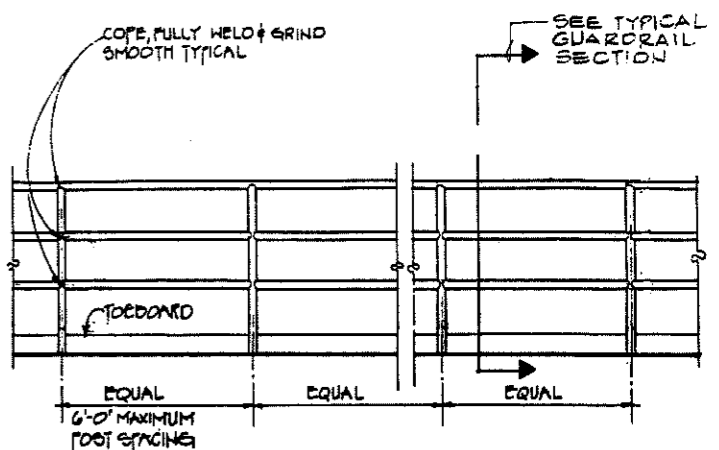


l <sub>A</sub>	NOMINAL KEY SIZE
UP TO 8"	1-2"x3" KEY
9" TO 12"	1-2"x4" KEY

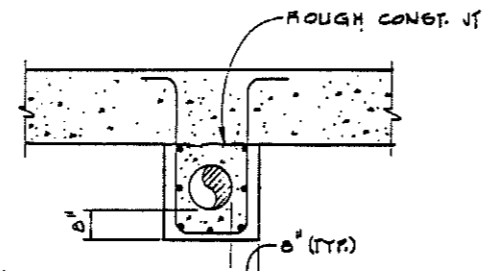
LONGITUDINAL KEYS  
 CONSTRUCTION JOINTS  
 N.T.S.



EQUIPMENT PAD  
 N.T.S.

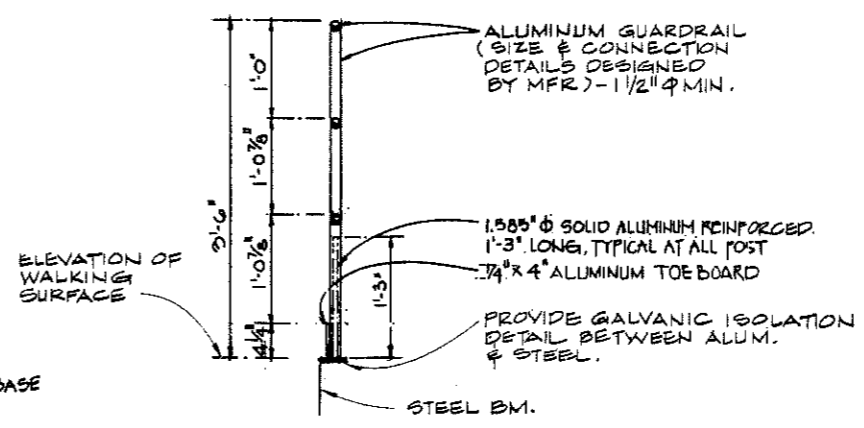


TYPICAL GUARDRAIL ELEVATION  
 N.T.S.

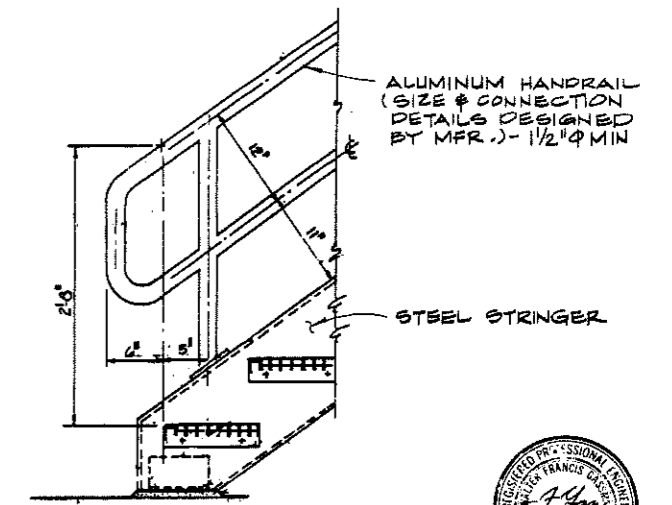


NOTE: ALL REINFORCING SHOWN SHALL BE #4 @ 12" @ BASE SLABS, #5 @ 12" @ WALLS.

PIPE ENCASEMENT  
 N.T.S.



TYPICAL GUARDRAIL SECTION  
 N.T.S.



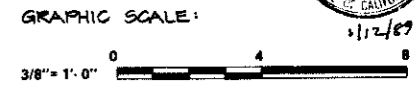
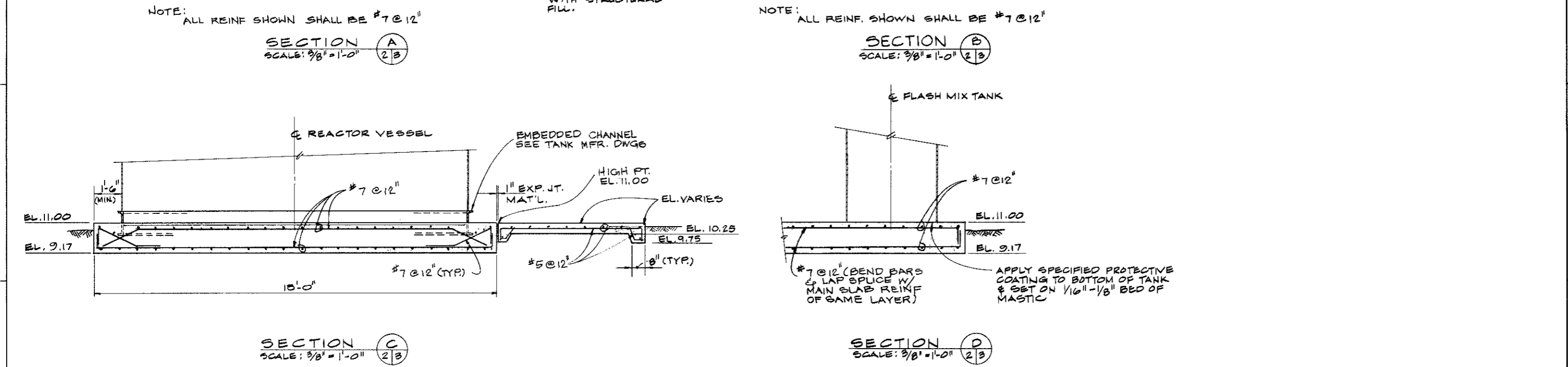
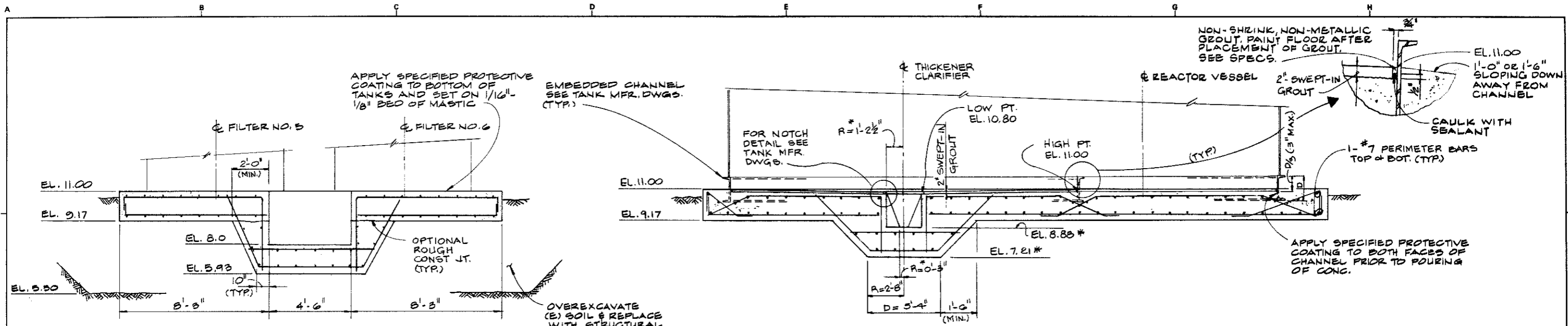
TYPICAL STAIR HANDRAIL ELEVATION  
 N.T.S.



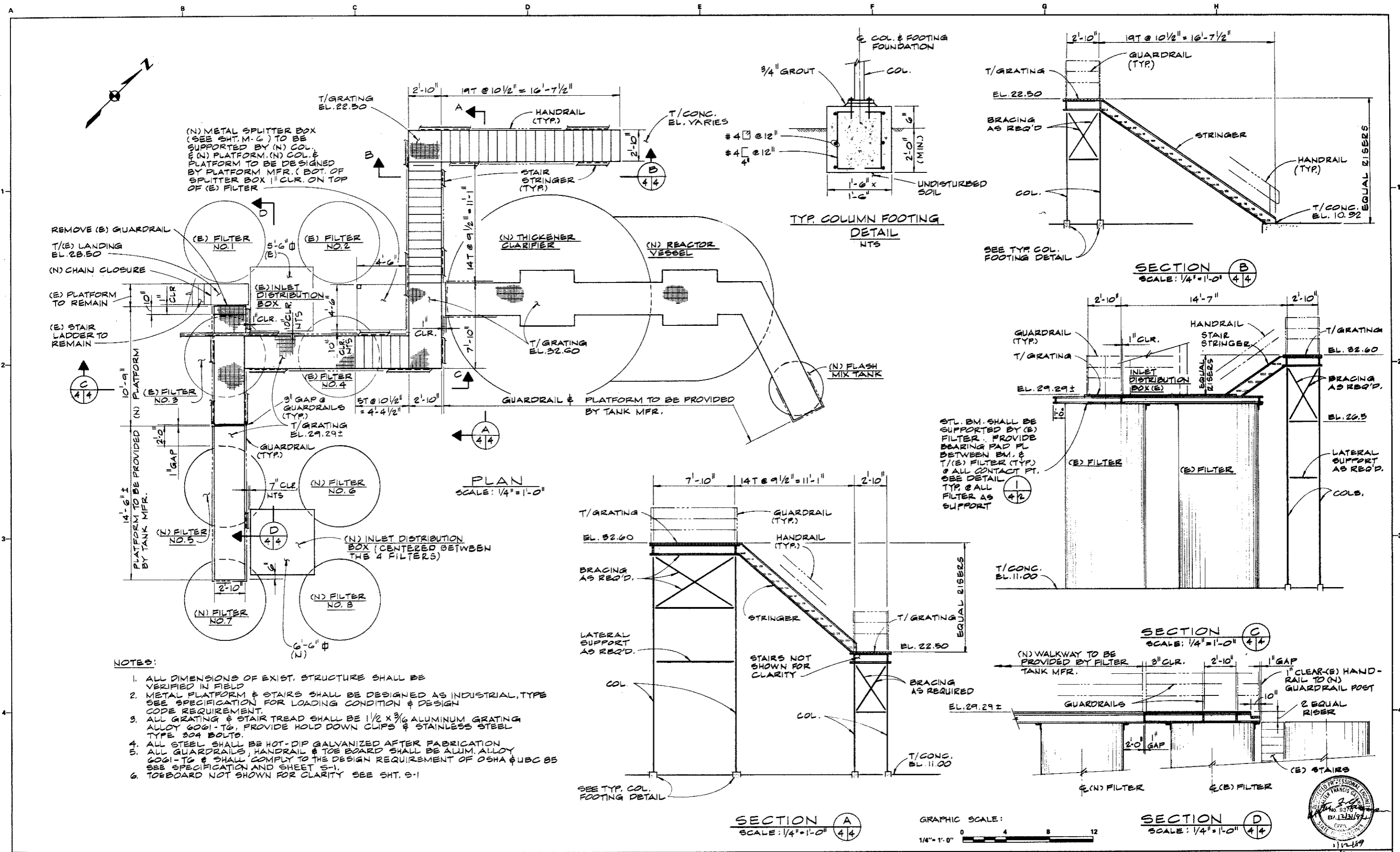
Reference Information and Notes:				Designed: BF	<b>MMWD Las Gallinas Valley                  Reclamation Plant Improvements</b> Kennedy/Jenks/Chilton San Francisco		Scale: NONE
Addendum 2 Refer to Tracing for Latest Revision				Drawn: EDG			Job No: 880058.00
				Checked: JAF	Submitted: <i>Walter J. Hammer</i> Approved: <i>Ken M. McDaniel</i>		Sheet: S-1
				Date: 1-6-89	C9370 Marin Municipal Water District		of: 28







Reference Information and Notes:				Designed BF	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b> Kennedy/Jenks/Chilton San Francisco		Scale AS NOTED Job No. 880058.00 Sheet S-3 of
				Drawn SDA			
Revised	Description	Submit	Appr'd. Date	Date 1-6-89			



(N) METAL SPLITTER BOX (SEE SHT. M-6) TO BE SUPPORTED BY (N) COL. & (N) PLATFORM. (N) COL. & PLATFORM TO BE DESIGNED BY PLATFORM MFR. (BOT. OF SPLITTER BOX 1" CLR. ON TOP OF (E) FILTER

REMOVE (E) GUARDRAIL  
T/(E) LANDING EL. 28.50  
(N) CHAIN CLOSURE

(E) PLATFORM TO REMAIN  
(E) STAIR LADDER TO REMAIN

(E) FILTER NO. 1  
(E) FILTER NO. 2

(E) FILTER NO. 3  
(E) FILTER NO. 4

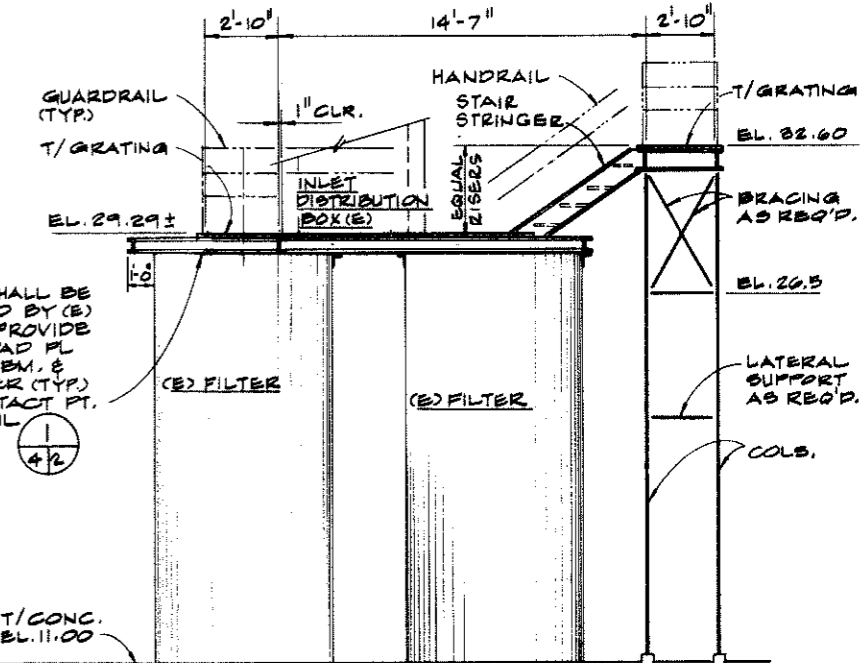
(N) FILTER NO. 5  
(N) FILTER NO. 6

(N) FILTER NO. 7  
(N) FILTER NO. 8

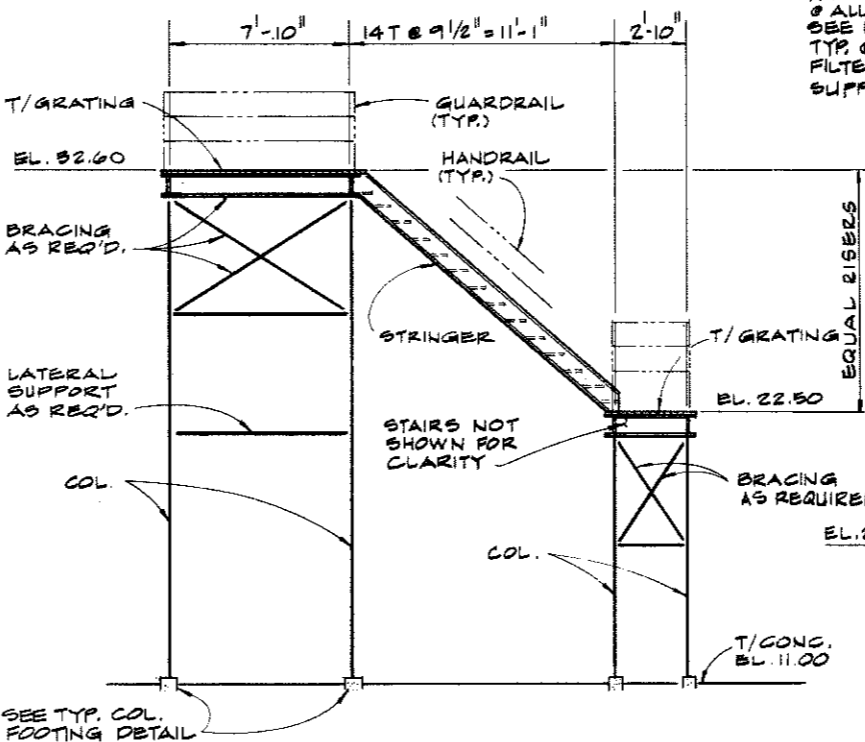
PLAN  
SCALE: 1/4" = 1'-0"

TYP. COLUMN FOOTING  
DETAIL  
NTS

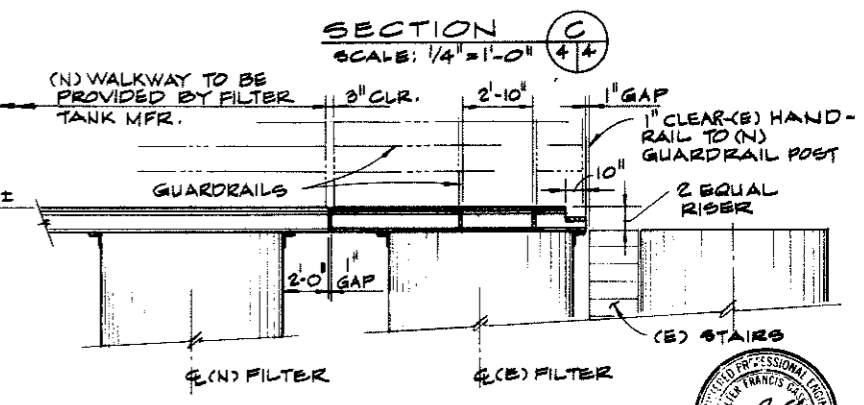
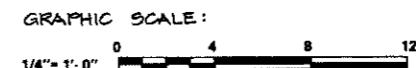
SECTION B  
SCALE: 1/4" = 1'-0"



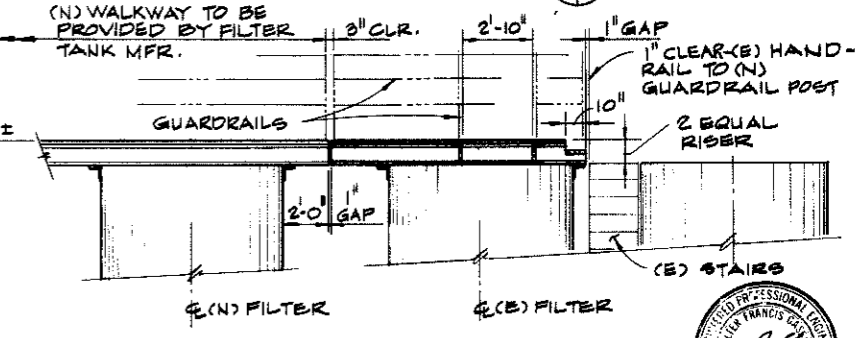
STL. BM. SHALL BE SUPPORTED BY (E) FILTER. PROVIDE BEARING PAD PL BETWEEN BM. & T/(E) FILTER (TYP.) & ALL CONTACT PT. SEE DETAIL TYP. & ALL FILTER AS SUPPORT



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



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



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

NOTES:

1. ALL DIMENSIONS OF EXIST. STRUCTURE SHALL BE VERIFIED IN FIELD
2. METAL PLATFORM & STAIRS SHALL BE DESIGNED AS INDUSTRIAL, TYPE SEE SPECIFICATION FOR LOADING CONDITION & DESIGN CODE REQUIREMENT.
3. ALL GRATING & STAIR TREAD SHALL BE 1/2" X 3/8" ALUMINUM GRATING ALLOY 6061-T6, PROVIDE HOLD DOWN CLIPS & STAINLESS STEEL TYPE 304 BOLTS.
4. ALL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION
5. ALL GUARDRAILS, HANDRAIL & TOE BOARD SHALL BE ALUM. ALLOY 6061-T6 & SHALL COMPLY TO THE DESIGN REQUIREMENT OF OSHA & UBC BS SEE SPECIFICATION AND SHEET S-1.
6. TOEBOARD NOT SHOWN FOR CLARITY SEE SHT. S-1

Reference Information and Notes:

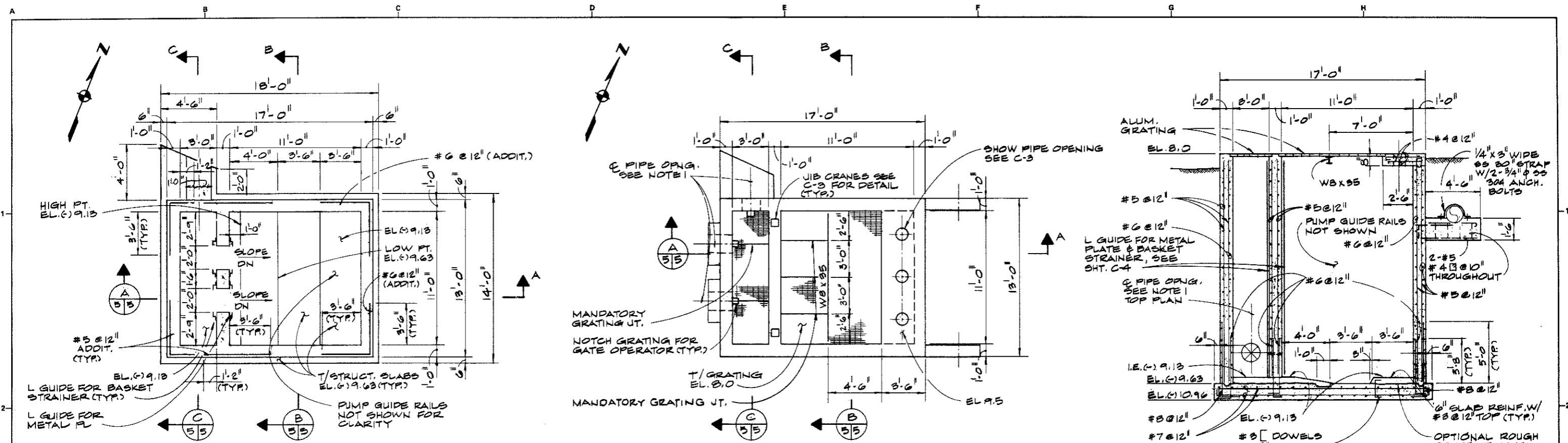
Revised	Description	Submit.	Appr'd.	Date

Designed DF	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b> Kennedy/Jerka/Chilton San Francisco
Drawn EDR	
Checked JAF	
Date 1-6-89	
Submitted: <i>Walter J. Thurman</i>	
Approved: <i>Mark M. McDowell</i>	Approved: Mark M. McDowell Marin Municipal Water District

PLATFORM AND STAIRS  
PLAN AND SECTIONS



Scale AS NOTED
Job No. 080056-00
Sheet S-4
Date 1/12/89



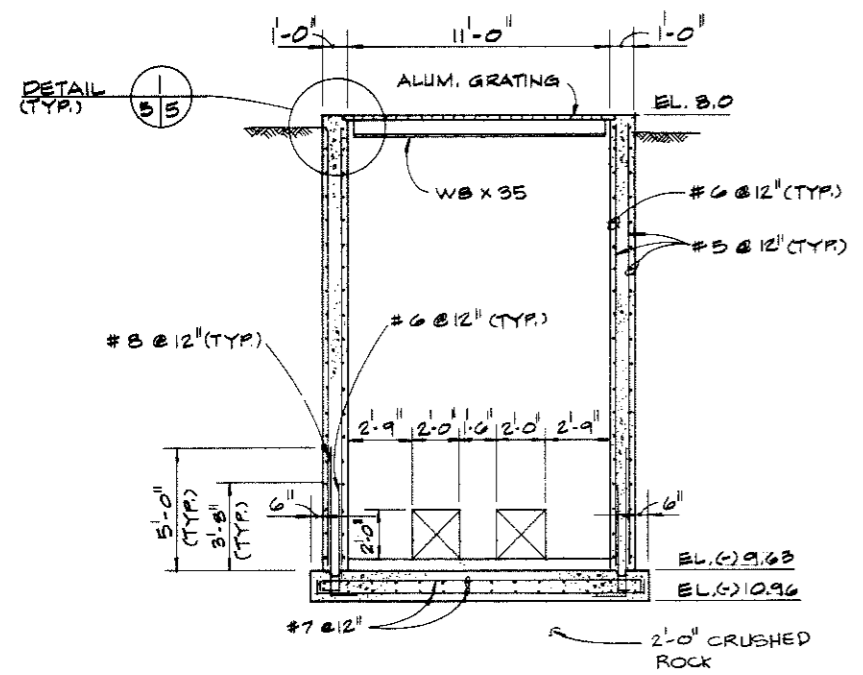
**NOTES**  
 1. OVEREXCAVATE TWO FEET OF SOIL & REPLACE WITH TWO FEET OF CRUSHED ROCK PRIOR TO POURING SLAB.  
 2. BACKFILL TO TOP OF BASE SLAB PRIOR TO POURING WALLS.

**NOTE:**  
 1. FOR SIZE, LOCATION & DETAIL OF PIPE OPENGS. @ WALLS & SLABS SEE CIVIL DWG. SHEETS C-3 & C-4  
 2. ALL GRATING SHALL BE 1/2" X 3/16" ALUM. GRATING

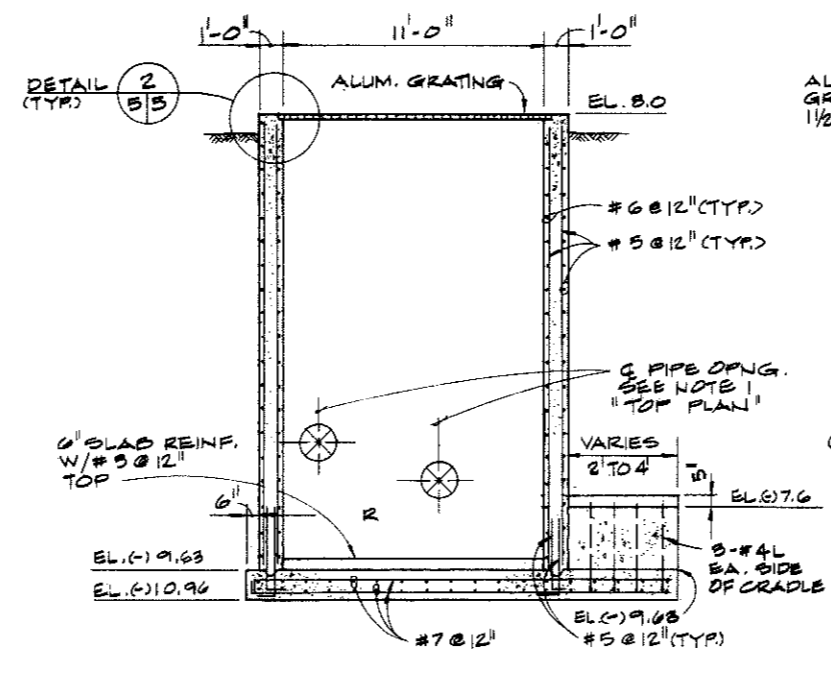
**BASE PLAN**  
 SCALE: 1/4" = 1'-0"

**TOP PLAN**  
 SCALE: 1/4" = 1'-0"

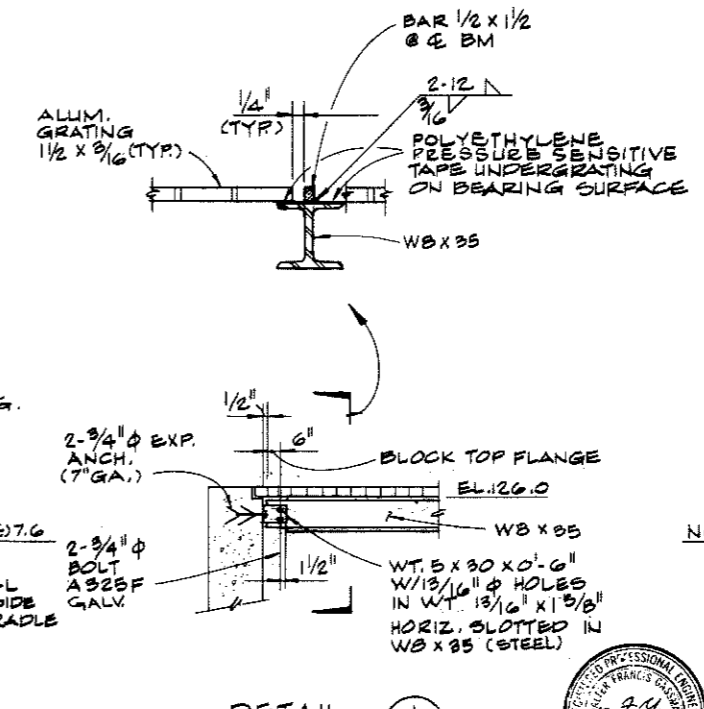
**SECTION A**  
 SCALE: 1/4" = 1'-0"



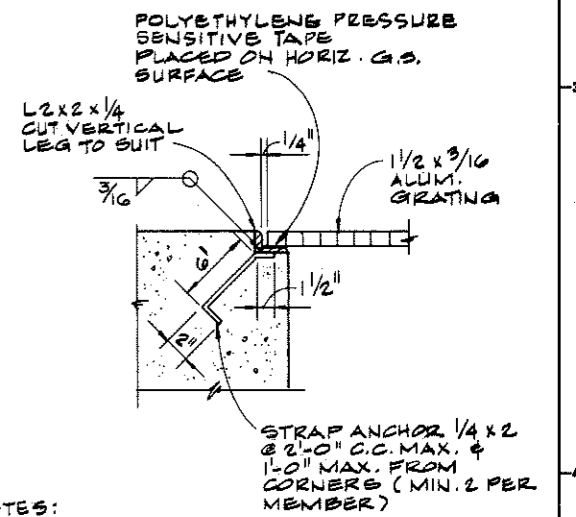
**SECTION B**  
 SCALE: 1/4" = 1'-0"



**SECTION C**  
 SCALE: 1/4" = 1'-0"



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



**NOTES:**  
 1. ALL ANGLES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION  
 2. ANGLES SHALL BE CONT. AROUND OPENING, WELDED TO FORM A COMPLETE FRAME. HOT DIP GALVANIZE AFTER FABRICATION. COVER GRATING BEARING SURFACE WITH POLYETHYLENE PRESSURE SENSITIVE TAPE  
**GRATING SUPPORT DETAIL 2**  
 N.T.S.

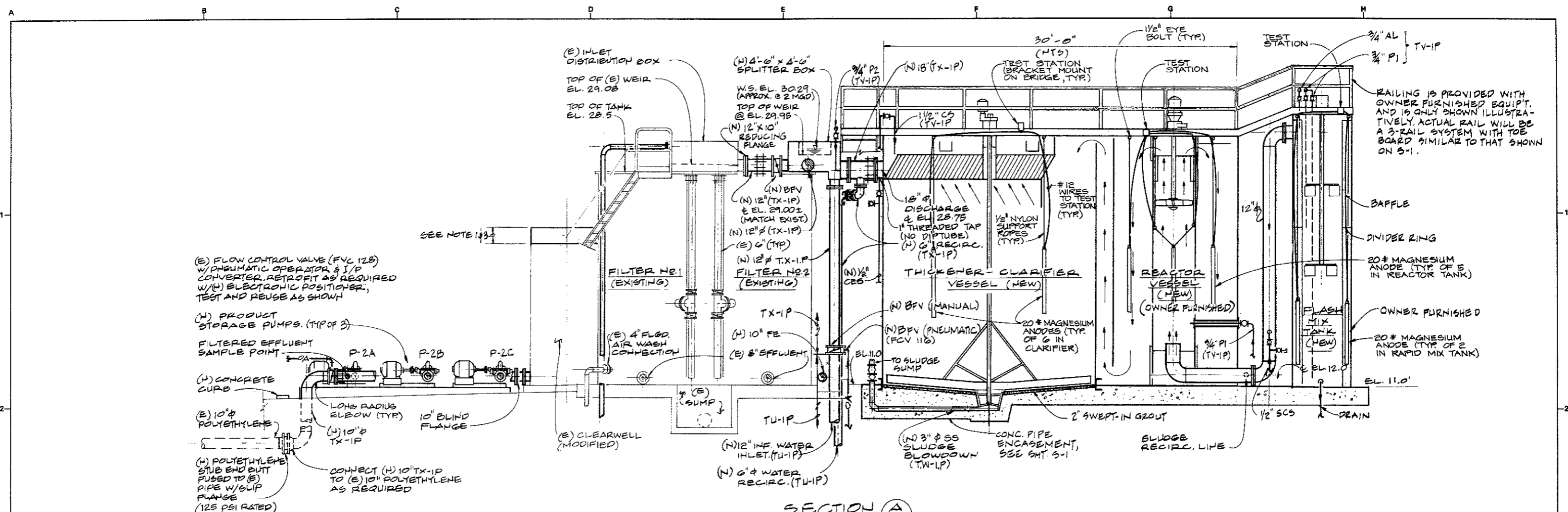
GRAPHIC SCALE:  
 1/4" = 1'-0"



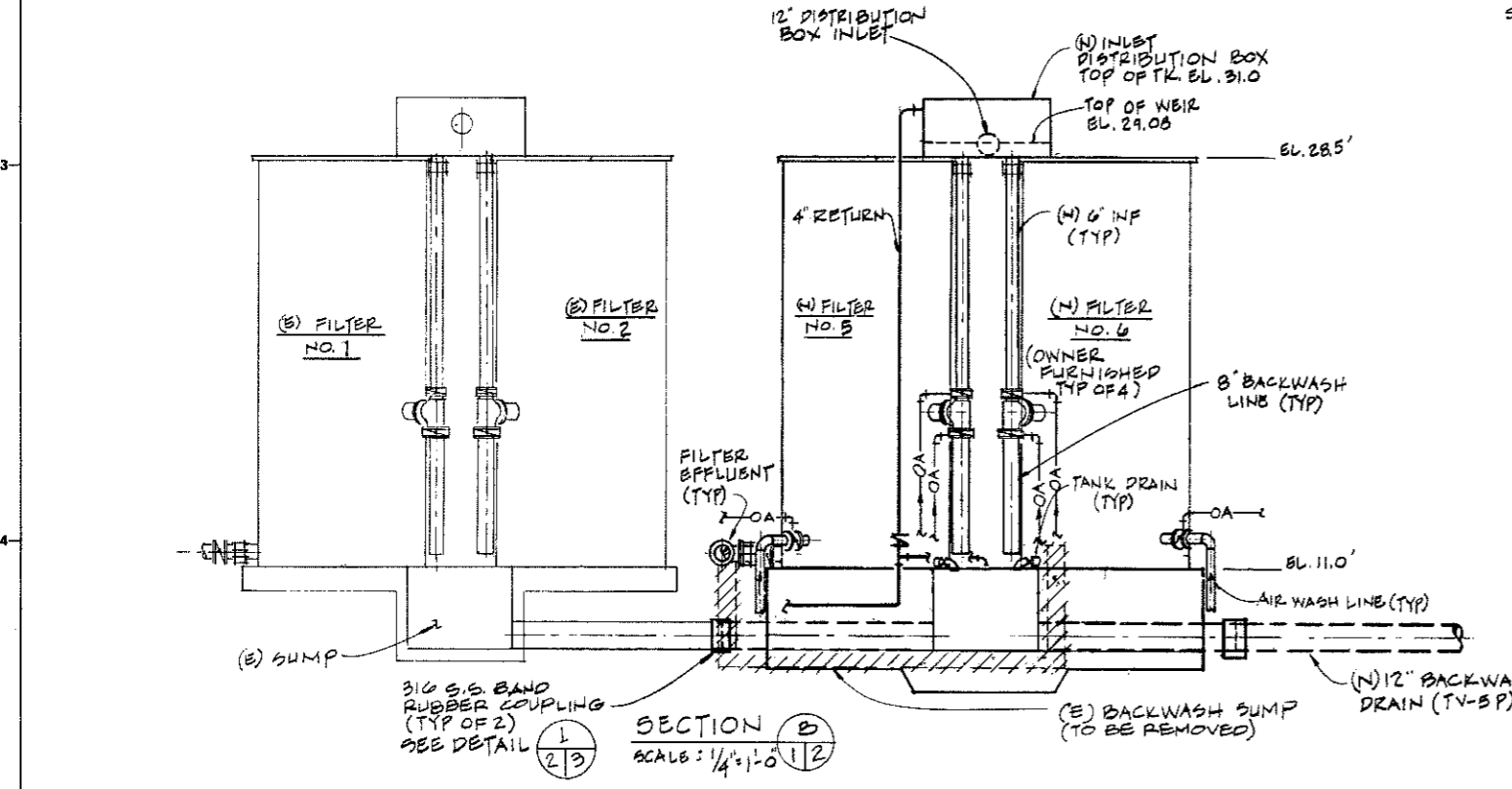
Reference Information and Notes:				Designed BF	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>		Scale AS NOTED
				Drawn EDG.			
				Checked JAF	Kennedy/Jenks/Chilton	San Francisco	Sheet S-5
				Date 1-6-89	Submitted: Walter J. Hammer	Approved: Kevin M. McDaniel	of





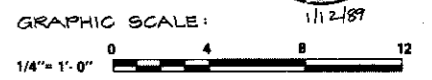
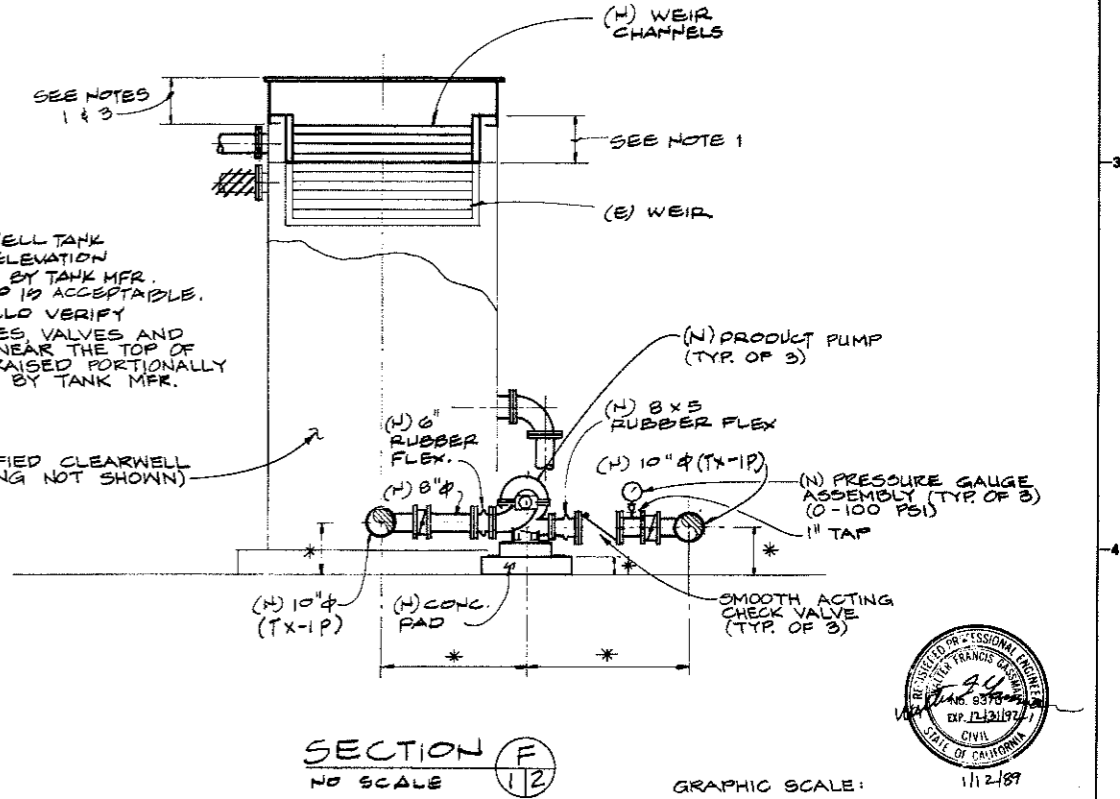


SECTION A  
SCALE: 1/4" = 1'-0" (1/2)

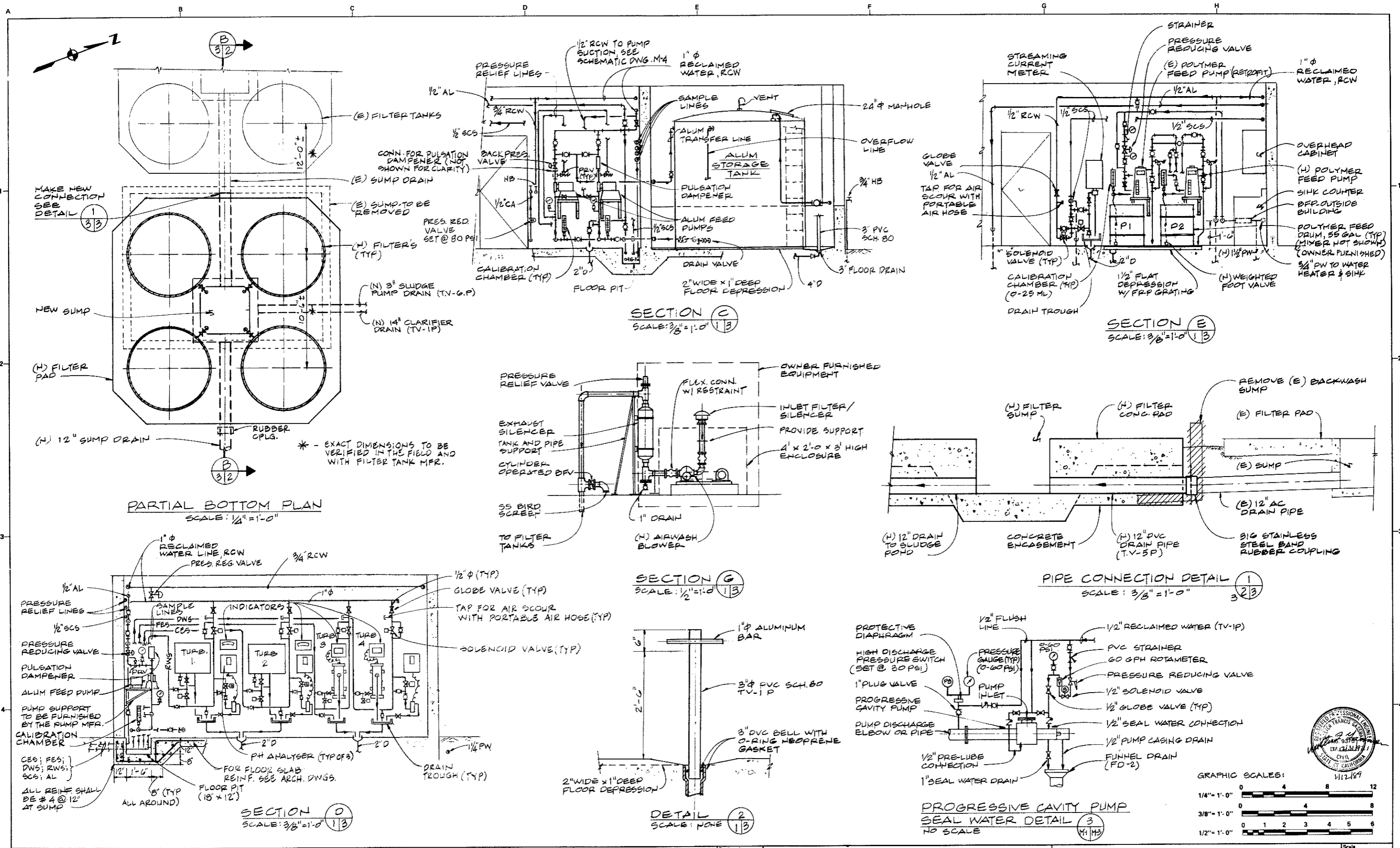


NOTE:

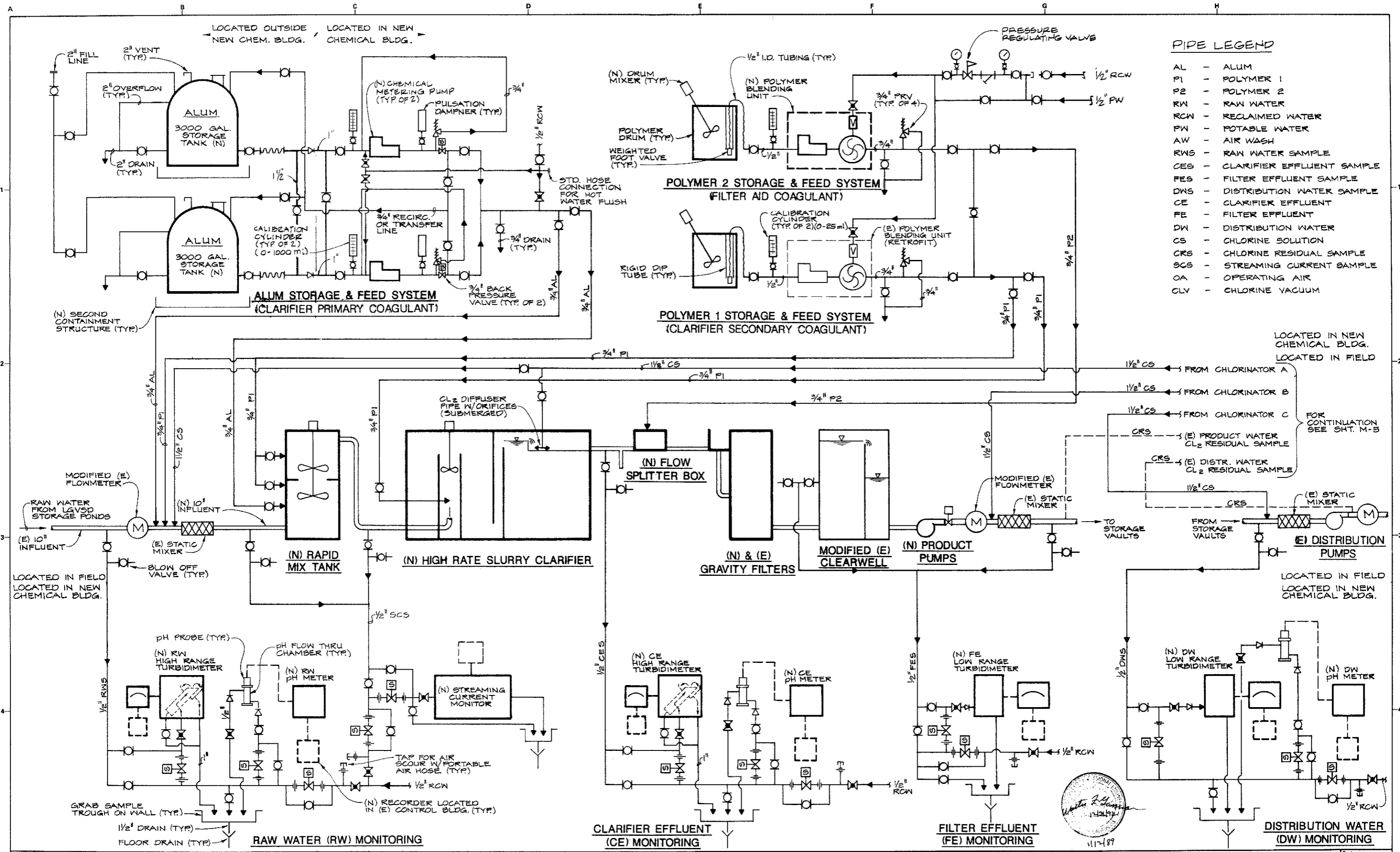
1. EXTEND CLEARWELL TANK AND RAISE WEIR ELEVATION AS RECOMMENDED BY TANK MFR. WELDED BUTT STRAP IS ACCEPTABLE.
2. \* - DENOTES FIELD VERIFY
3. ALL EXISTING PIPES, VALVES AND CONTROLS AT OR NEAR THE TOP OF TANK SHALL BE RAISED PORTIONALLY AS RECOMMENDED BY TANK MFR. OR ENGINEER.



Reference Information and Notes:				Designed JAF/JBG	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>		Scale AS SHOWN
				Drawn NEB	Kennedy/Janki/Chilton		Job No. 880058.00
				Checked JAF	San Francisco		Sheet M-2
				Date 1-6-89	Submitted: <i>Walter J. Yerman</i>	Approved: <i>Ken M. McCall</i>	of 12
ADDENDUM 2				Date 1-6-89		Civil STATE OF CALIFORNIA	

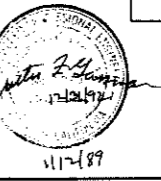


Reference Information and Notes:				Designed: JAF/JBG	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b> Kennedy/Jenks/Chilton San Francisco Submitted: <i>Walter F. Harman</i> Approved: <i>John M. McDonnell</i> Date: 1-6-89		Scale: AS SHOWN Job No. 880058.00 Sheet <b>M-3</b> of
Revised	Description	Submit.	Appr'd.	Date			
Refer to Tracing for Latest Revision ADDENDUM 2				1-6-89		Page 35 of 57	



Reference Information and Notes:  
 1. ALL CHEMICAL FEED AND SAMPLE PIPING SHALL BE TV-1P, SCH. 80 PVC.  
 2. ON 3/8" SAMPLE LINES IF 3/8" VALVES ARE NOT AVAILABLE USE 1/2" VALVES WITH REDUCING BUSHINGS.

Designed JAF	<b>MMWD Las Gallinas Valley          Reclamation Plant Improvements</b> Kennedy/Jenks/Chilton San Francisco
Drawn ROO	
Checked JAF	Submitted: _____ Approved: _____
Date 1-6-89	_____ Marin Municipal Water District

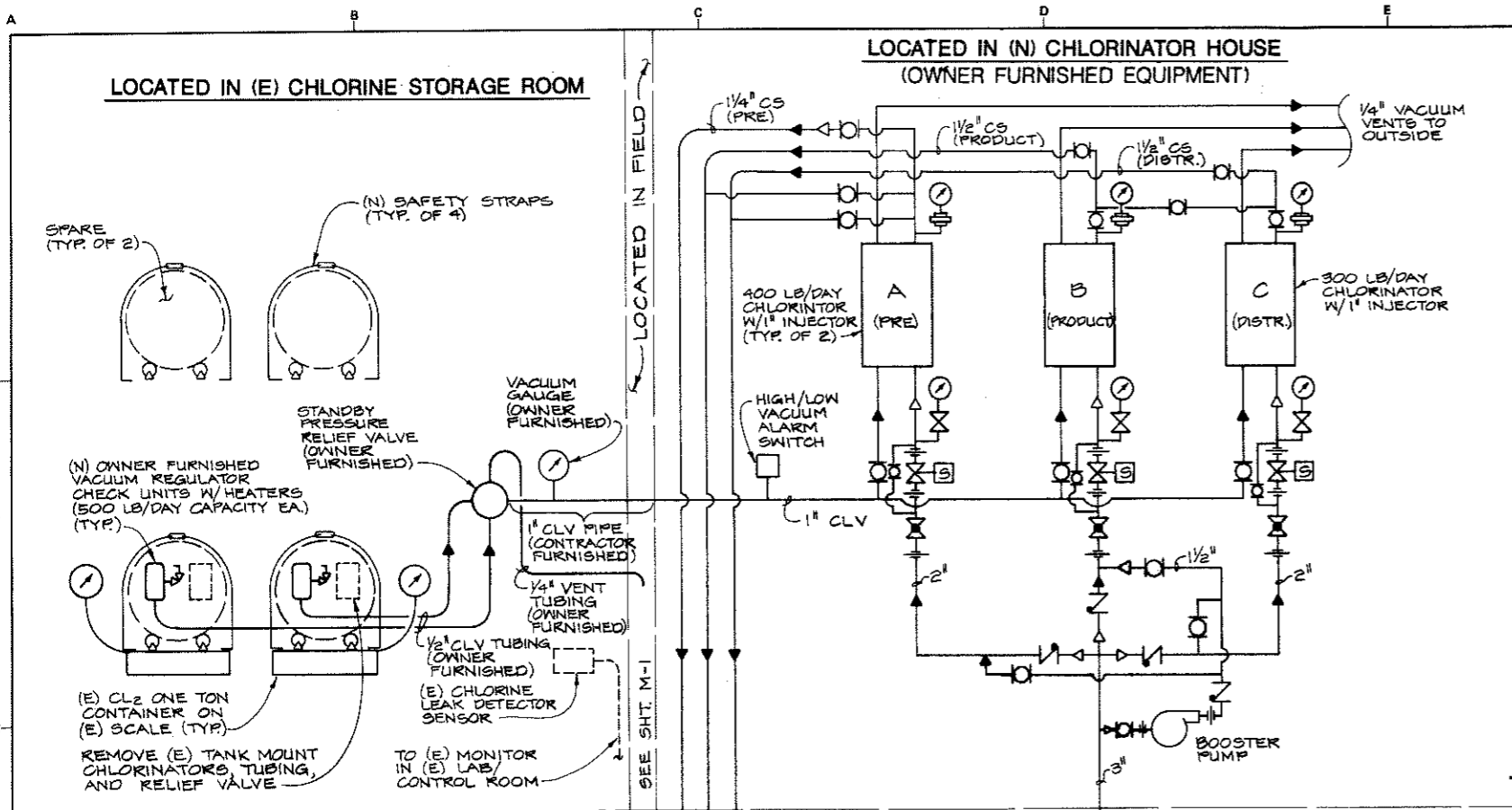


**COAGULANT FEED & MONITORING  
 SYSTEM SCHEMATIC**

Revised	Description	Submit.	Appr'd.	Date
	Refer to Tracing for Latest Revision			

Scale	NONE
Job No.	08005200
Sheet	M-4
of	





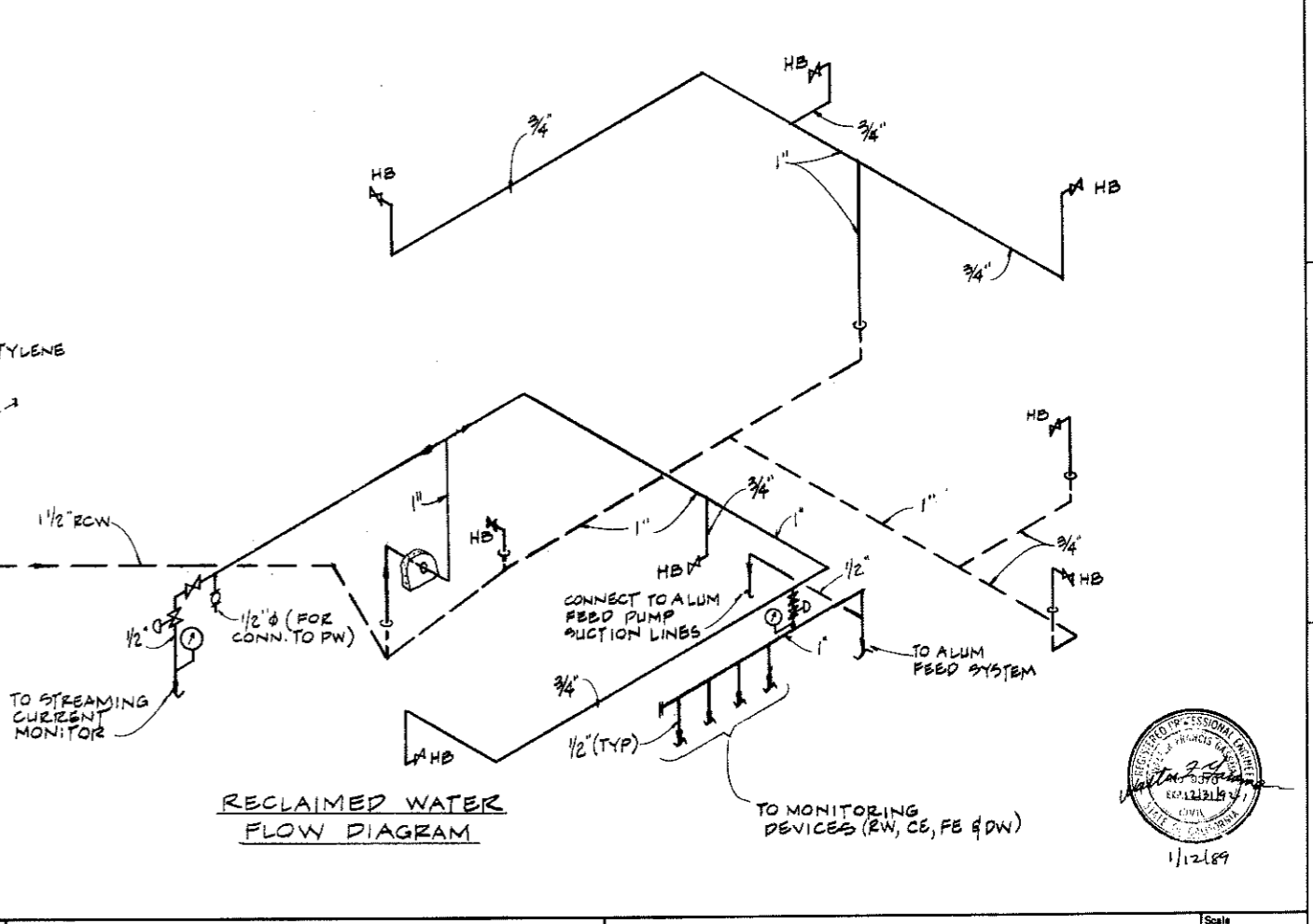
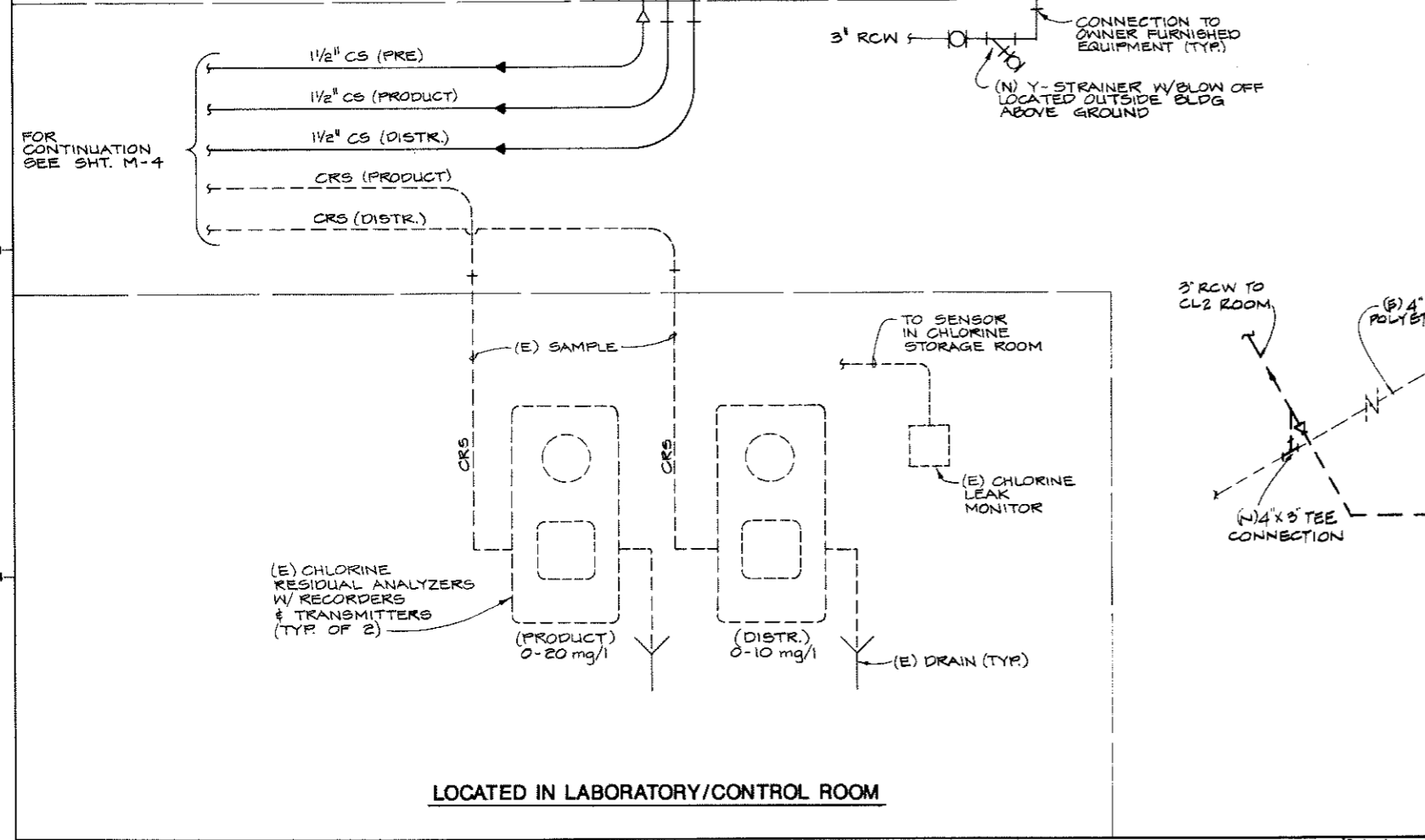
**PIPE MATERIAL LEGEND**

**Material**  
 Cu Copper  
 PE Polyethylene  
 PVC Polyvinyl Chloride  
 SS Stainless Steel  
 WS Welded Steel

**Service**  
 B Buried In contact with soil  
 C Concrete Encased In contact with concrete  
 E Exposed In contact with the atmosphere  
 S Submerged Continuously or Intermittently in contact with water

**Flow**  
 G Gravity Pipes flowing partially full due to gravity forces  
 P Pressure Pipes which are continuously or intermittently flowing full due to pumping or gravity forces  
 V Vacuum Pipes which are continuously or intermittently under vacuum

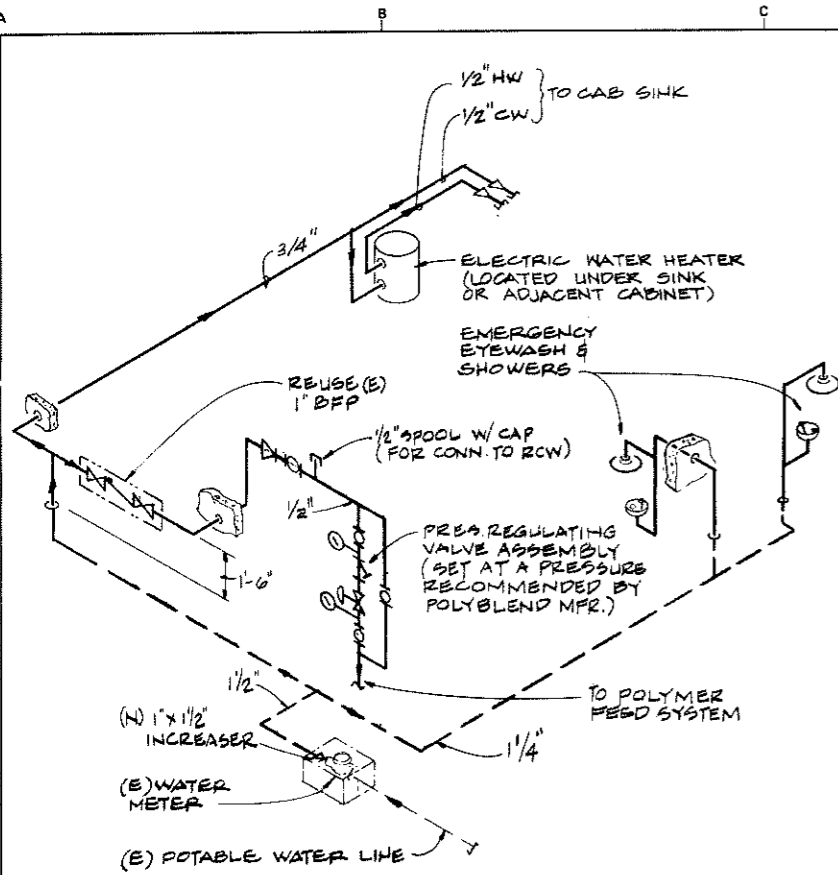
LEGEND	SYSTEM	SIZE	SERVICE	FLOW	MATERIAL	PIPE TYPE	VALVE SYSTEM	NOTES/REMARKS
DA	DISTRIBUTION WATER SAMPLE	1/2"	E/B	P	PVC	V-1	C	
CE	CLARIFIED EFF.	6"-18"	E	G	MS	X-1	A	
FE	FILTER EFF.	6"-12"	E/B	G/P	MS (E) PE (B)	X-1 U-1	A	EXCEPT AS NOTED
DM	DISTRIBUTION WATER	14"	B	P	PE	-	A	EXISTING
CS	CHLORINE SOL.	1 1/2" & 1 1/4"	E/B	P	PVC	V-1	C	
CRS	CHLORINE RESIDUAL SAMPLE	1/2"	E/B	P	PVC	-	C	EXISTING
SCS	STREAMING CURRENT SAMPLE	1/2"	E/B	P	PVC	V-1	C	
CA:[OA]	COMPRESSED AIR; OPERATING AIR	3/4"; 1/2"	E/B	P	CU	T	F	
OF	OVERFLOW (ALUM TANK)	2"	E	-	PVC	V-1	-	
	OVERFLOW/RECIRC. (SEC. CLAR.)	6"	E/B	G/P	PE (B) MS (E)	U-1 X-1	-	
V	VENT (CHEM)	1"	E	-	PVC	V-1	-	
	VENT (DRAIN)	4"	E/B	-	PVC	V-6	-	
D	BACKWASH DRAIN	12"	B	G	PVC	V-5	-	
	STORM DRAIN	ALL	B	G	PVC	V-6	-	
	SANITARY DRAIN (CHEM BLDG)	2" & 4"	B	G	PVC	V-6	-	
	TANK DRAIN (DENSADBG)	2" & 4"	E/B	G/P	PVC	V-1	-	
IN	INLET WATER	10"-18"	E/B/S	G/P	MS (E&S) PE (B)	X-1 U-1	A	EXCEPT AS NOTED
SB	SLUDGE BLOWDOWN	3"	E/B	P	PVC	V-1	B	
			C	P	SS	W-1		
SR	SLUDGE RECIRC.	ALL	E	P	PVC	V-1	B	
CLV	CHLORINE VACUUM	1"	E/B	V	PVC	V-1	C	



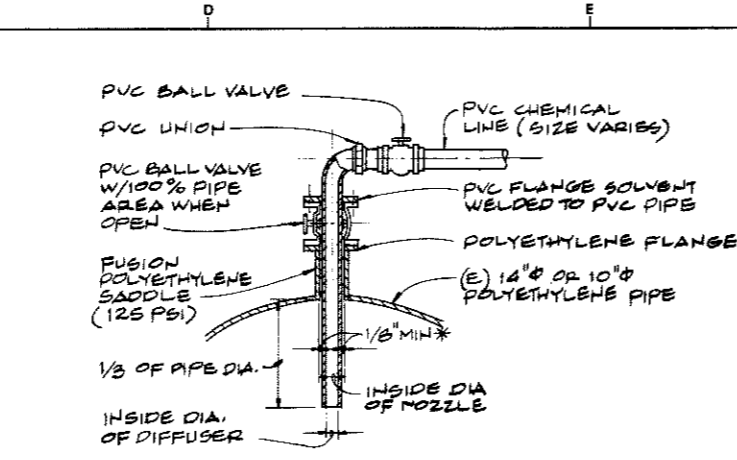
Reference Information and Notes:				Designed JAF	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>		Scale NONE
				Drawn ROO	Kennedy Jenks, Chilton San Francisco		Job No. 000058.00
				Checked JAF	Submitted: <i>Walter J. J...</i> C9370		Sheet M-5
				Date 1-6-89	Approved: <i>Thomas M. ...</i> Marin Municipal Water District		of

ADDENDUM 2

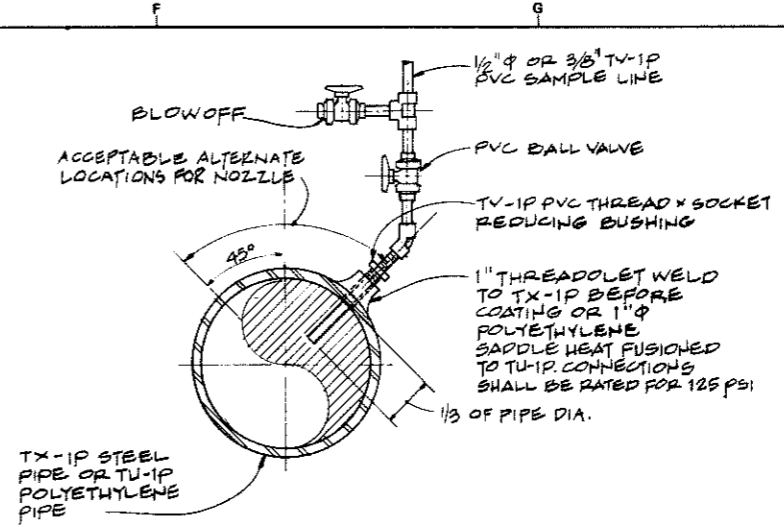
1/12/89



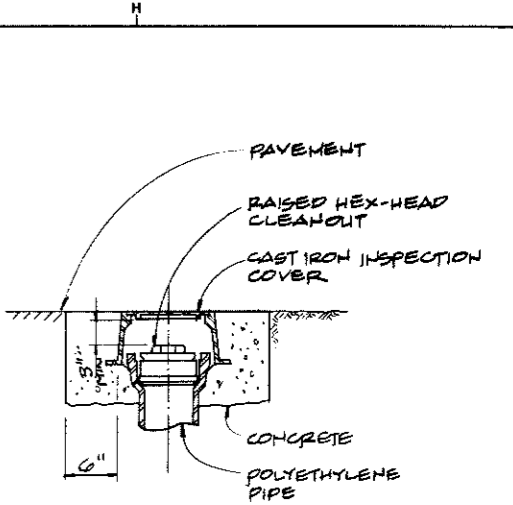
**DOMESTIC WATER SCHEMATIC DIAGRAM**  
(CHEMICAL FEED BUILDING)  
NO SCALE



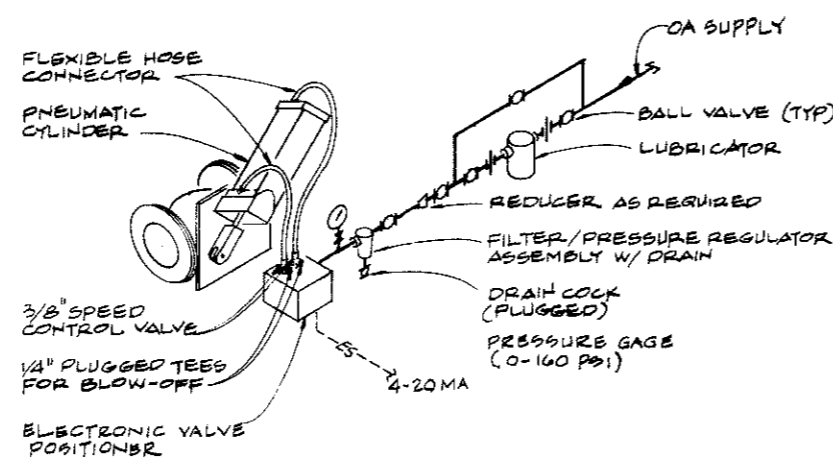
**TYPICAL CHEMICAL INJECTION DETAIL**  
NO SCALE



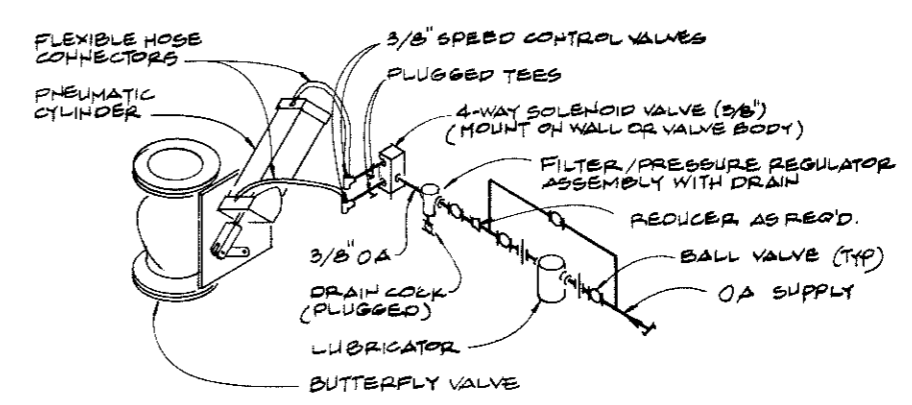
**TYPICAL SAMPLE POINT CONNECTION DETAIL**  
NO SCALE



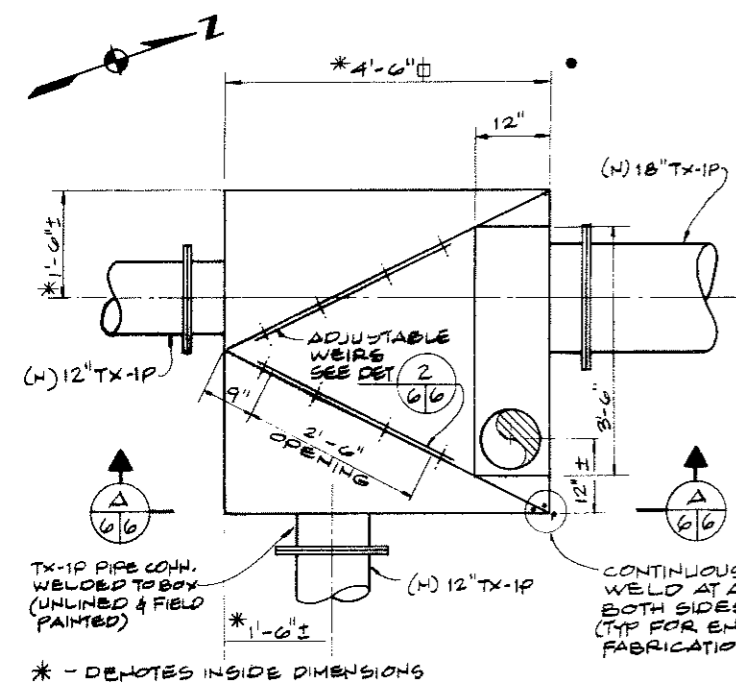
**YARD CLEANOUT DETAIL**  
NO SCALE



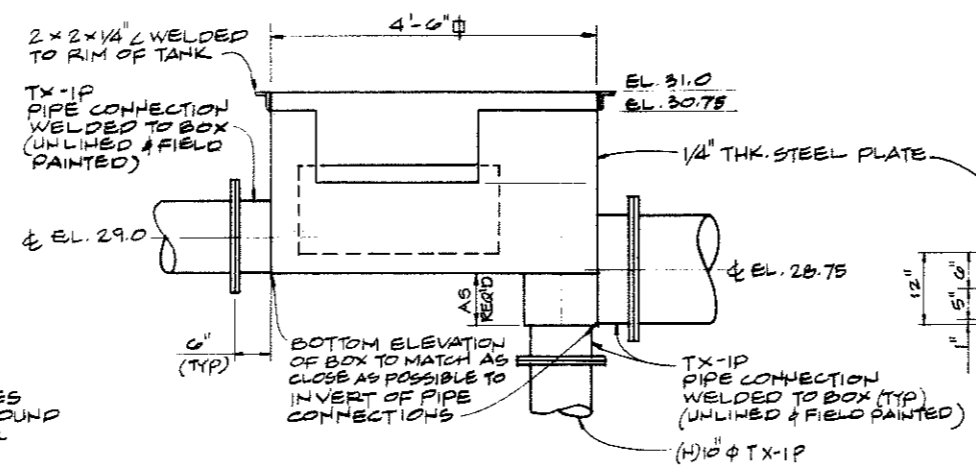
**TYPICAL PNEUMATIC ACTUATED BUTTERFLY VALVE MODULATING CONTROL VALVE DETAIL**  
NO SCALE



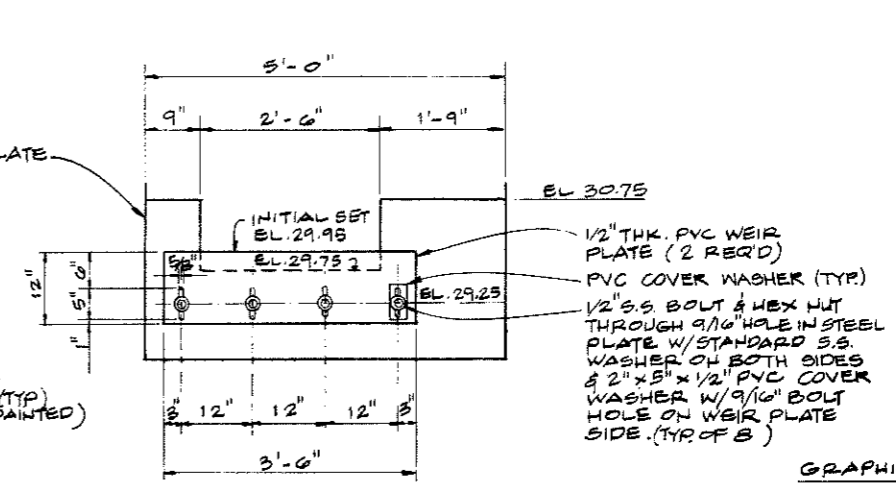
**TYPICAL PNEUMATIC ACTUATED BUTTERFLY VALVE DETAIL**  
NO SCALE



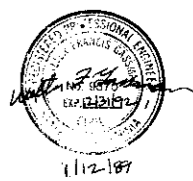
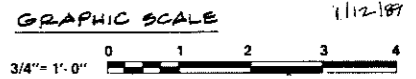
**SPLITTER BOX DETAIL (1)**  
SCALE: 3/4" = 1'-0"



**SECTION (A)**  
SCALE: 3/4" = 1'-0"



**WEIR PLATE DETAIL (2)**  
SCALE: 3/4" = 1'-0"



Revised	Description	Submit	App'd	Date

Reference Information and Notes:

Designed: JAF/JBG  
 Drawn: NEB  
 Checked: JAF  
 Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
 Kennedy/Jenkins/Chilton  
 Submitted: *William J. Jenkins*  
 Approved: *Thomas M. McQuinn*  
 San Francisco  
 Marin Municipal Water District

**MISCELLANEOUS SCHEMATICS AND DETAILS**

Scale: AS SHOWN  
 Job No.: 880058.00  
 Sheet: **M-6**  
 of

**ABBREVIATIONS**

A	AMPERES, AMBER
AC	ALTERNATING CURRENT
AFD	ADJUSTABLE FREQUENCY DRIVE
AM	AMMETER
AR	ALARM RELAY
AS	AMMETER SWITCH
AUTO	AUTOMATIC
AUX.	AUXILIARY
BW	BACKWASH
BCG	BARE COPPER GROUND
BLDG	BUILDING
CL2	CHLORINE
CKT	CIRCUIT
C	CONDUIT OR CONTACTOR
CONT.	CONTINUATION OR CONTINUED
CR	CONTROL RELAY
CPT	CONTROL POWER TRANSFORMER
DC	DIRECT CURRENT
ETH	ELAPSED TIME METER
(E), EXIST. EQ., EQUIP.	EXISTING EQUIPMENT
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FS	FLOW SWITCH/ FIXED SPEED
GFI	GROUND FAULT INTERRUPTER
G	GREEN
GALV.	GALVANIZED
GND	GROUND
HI	HIGH
HOA	HAND-OFF-AUTOMATIC
INC	INCANDESCENT
J	JUNCTION BOX
KV	KILOVOLTS
KVA	KILOVOLTS AMPERES
KW	KILOWATTS
KWD	KILOWATT DEMAND METER
LS	LIMIT SWITCH, LEVEL SENSOR
L	LINE
LIX, L2X	CONTROL POWER SOURCE
LSL, LSH	LEVEL SENSOR LOW, HIGH
LOS	LOCKOUT STOP
MA	MILLIAMPERE
M	MOTOR
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MS	MOTOR STARTER
MCP	MOTOR CIRCUIT PROTECTOR
N, (N)	NEUTRAL, NEW
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION NUMBER
NO.#	NUMBER
NEC	NATIONAL ELECTRICAL CODE
OL	THERMAL OVERLOAD RELAY
PNL	PANEL
PR	PROBE RELAY
PS	PRESSURE SWITCH
PSL, PSH	PRESS. SWITCH LOW, HIGH
PVC	POLYVINYL CHLORIDE
PG&E	PACIFIC GAS & ELECTRIC
R	RED
RECEPT.	RECEPTACLE
SH, SHT. SPEC, SPECS	SHEET SPECIFICATIONS
SV	SOLENOID VALVE

**ADDITIONAL ABBREVIATIONS**

AT	AT
WYE CONNECTED	WYE CONNECTED
DELTA CONNECTED	DELTA CONNECTED
AND	AND
PHASE	PHASE
TO CIRCUIT	TO CIRCUIT
INCHES	INCHES
FEET	FEET

**GENERAL NOTES**

- LOWER CASE LETTER ADJACENT TO A FIXTURE INDICATES SWITCH CIRCUIT. ADJACENT NO. INDICATES CIRCUIT NO.
- LOWER CASE LETTER ADJACENT TO SWITCH INDICATES SWITCH CIRCUIT.
- "NORMAL" STATUS OF SWITCHES OR VALVES IS THE SHELF POSITION.
- NUMBER AND/OR LETTERS IDENTIFY CONTACTS OPERATING COIL.
- NUMBER AND/OR LETTERS IDENTIFY DEVICE.
- CONDUIT SIZE & FILL SHALL BE AS INDICATED. WHERE NO SIZE IS SHOWN, THE CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE RECENT EDITION OF THE NATIONAL ELECTRICAL CODE. WHERE NO FILL IS INDICATED, THE FILL SHALL BE 2 #12.
- UNDERLINED WORDS SHOWN AT PUSHBUTTONS, LIGHTS, SELECTOR SWITCHES, ETC., INDICATE THE LEGEND PLATE REQUIREMENT FOR THAT PARTICULAR DEVICE. ANY ADDITIONAL NAMEPLATES ARE INDICATED ON ELEVATIONS WITH THE REQUIRED NAMEPLATE INSCRIPTIONS.
- ADJACENT NO. IDENTIFIES CIRCUIT NO.
- EXCEPT AS NOTED, EQUIP. MOUNTING HEIGHTS ABOVE FLOOR SHALL BE AS FOLLOWS:  
 PANELBOARD 6'-6" (TOP OF ENCLOSURE)  
 SWITCHES 4'-0"  
 RECEPTACLES 2'-0"  
 CONTROL STATIONS 4'-2"
- SEE SHEET I-1 FOR ADDITIONAL ABBREVIATIONS.
- TRIP SETTING SHALL BE ADJUSTED TO SUIT ACTUAL MOTOR INSTALLED. SETTING SHALL BE 10X NAMEPLATE FLA.

**PLANS**

LL	CONDUIT FANOUT ACCUMULATION OF CONDUITS, ALL GOING IN SAME DIRECTION
////	INDICATES EQUIPMENT REMOVAL
----	EXPOSED CONDUIT, SEE NOTE 6
---	UNDERGROUND CONDUIT, SEE NOTE 6
---	CONDUIT CONCEALED IN WALL OR CEILING, SEE NOTE 6
---	CONDUIT CONCEALED IN SLAB, FLOOR, SEE NOTE 6
C 3/4" C-5 #12	CALL OUT, INDICATING CONDUIT SIZE, NUMBER OF WIRES & WIRE SIZE
(102)	CALL OUT, INDICATING CONDUIT PER SCHEDULE
---	LIGHTING CONDUIT RUN. HATCH MARKS INDICATE NO. OF #12 CONDUCTORS. NO HATCH MARKS IS 2 #12.
---	HOMERUN TO PANELBOARD OR AS INDICATED
---	FLEXIBLE CONDUIT
---	CONDUIT RUN, BROKEN & CONTINUED ON SAME SHEET, EXCEPT AS NOTED
---	CAP ON CONDUIT STUB
○	OPEN CIRCLE DENOTES UPWARD RISER
●	SOLID CIRCLE DENOTES DOWNWARD RISER
□	SAFETY SWITCH
□ 1/2	FLUORESCENT LIGHT FIXTURE, SEE NOTE 1
○ 1/2	WALL MOUNTED FIXTURE, SEE NOTE 1
⊥	SINGLE POLE SWITCH, SEE NOTE 2
⊥ 3	THREE-WAY SWITCH, SEE NOTE 2
⊥ 6	DUPLEX RECEPTACLE
○	POST MOUNTED EQUIP.
○	GROUND ROD
□	CONTROL STATION
⊗	INDICATES AN INSTRUMENTATION EQUIP PROVIDED BY INST. SUB-CONTRACTOR

**SINGLE LINE**

⌋	CIRCUIT BREAKER - 3P EXCEPT WHERE NOTED. RATING IN AMPS AS NOTED.
⌋ MCP 7	3P MOTOR CIRCUIT PROTECTOR. NUMBER INDICATES FRAME SIZE IN AMPS. SEE NOTE II
□	PANELBOARD
⊞	TRANSFORMER, RATING AS NOTED.
⊞ 5	MOTOR NO. INDICATES HORSEPOWER.
⊞	FULL VOLTAGE, NON-REVERSING MAGNETIC STARTER, SIZE AS NOTED.
⊞	RECEPTACLE
⊞	CURRENT TRANSFORMER, RATIO AS NOTED
AFD	ADJUSTABLE FREQUENCY DRIVE W/FULL SPEED BACKUP
□ 2	ELEMENTARY DIAGRAMS REFERENCE NO.
////	INDICATES EQUIPMENT REMOVAL
⊞	DEVICE PER ABBREVIATION

**ELEMENTARY DIAGRAMS**  
(SEE NOTES 3, 4, 7)

⊞	OVERLOAD THERMAL ELEMENT
MS	MOTOR STARTER
---	ENCLOSURE AS INDICATED
□ 2	DIAGRAM NO. REFERENCE
⌋	3-POLE CIRCUIT BREAKER
⊞	FUSE, AMPERE RATING AS NOTED
⊞	CONTROL DEVICE COIL, PREFIX NO. WHEN USED DISTINGUISHES BETWEEN DEVICES OF THE SAME TYPE. DEVICE TYPE PER ABBREVIATIONS.
⊞	CONTROL POWER TRANSFORMER
⊞	PUSH-TO-TEST, INDICATING LIGHT, COLOR PER ABBREVIATION
⊞	2-POSITION SELECTOR SWITCH
⊞	3-POSITION SELECTOR SWITCH
⊞	NORMALLY OPEN PUSHBUTTON
⊞	NORMALLY CLOSED PUSHBUTTON
⊞	DISCONNECTING TYPE TERMINALS
⊞	TERMINALS
⊞	GROUND CONNECTION
⊞	PROCESS CONTROL WIRING
⊞	CONTACT NORMALLY OPEN - SEE NOTES 3 & 4
⊞	CONTACT NORMALLY CLOSED - SEE NOTES 3 & 4

SYMBOL	NORMAL	OPEN TO CLOSE	CLOSE TO OPEN
⊞	OPEN	DELAY	INST.
⊞	CLOSED	INST.	DELAY
⊞	CLOSED	DELAY	INST.
⊞	OPEN	INST.	DELAY

SYMBOL	TYPE	CLOSED ON
⊞	LEVEL	RIISING LEVEL
⊞	LEVEL	FALLING LEVEL
⊞	PRESSURE	RIISING PRESSURE
⊞	PRESSURE	FALLING PRESSURE
⊞	TEMPERATURE	RIISING TEMPERATURE
⊞	TEMPERATURE	FALLING TEMPERATURE
⊞	LIMIT	ACTUATION
⊞	LIMIT	DE-ACTUATION

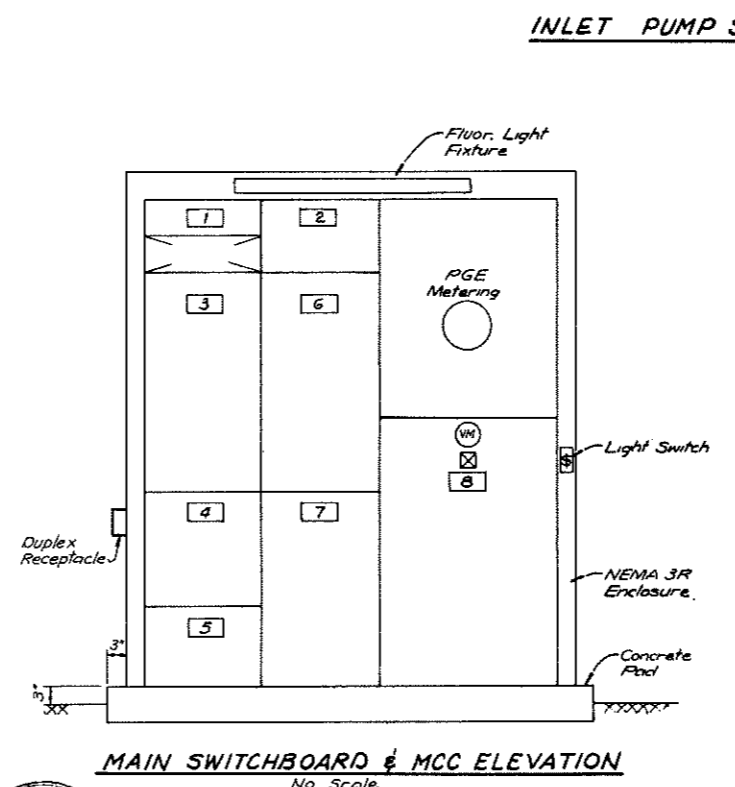
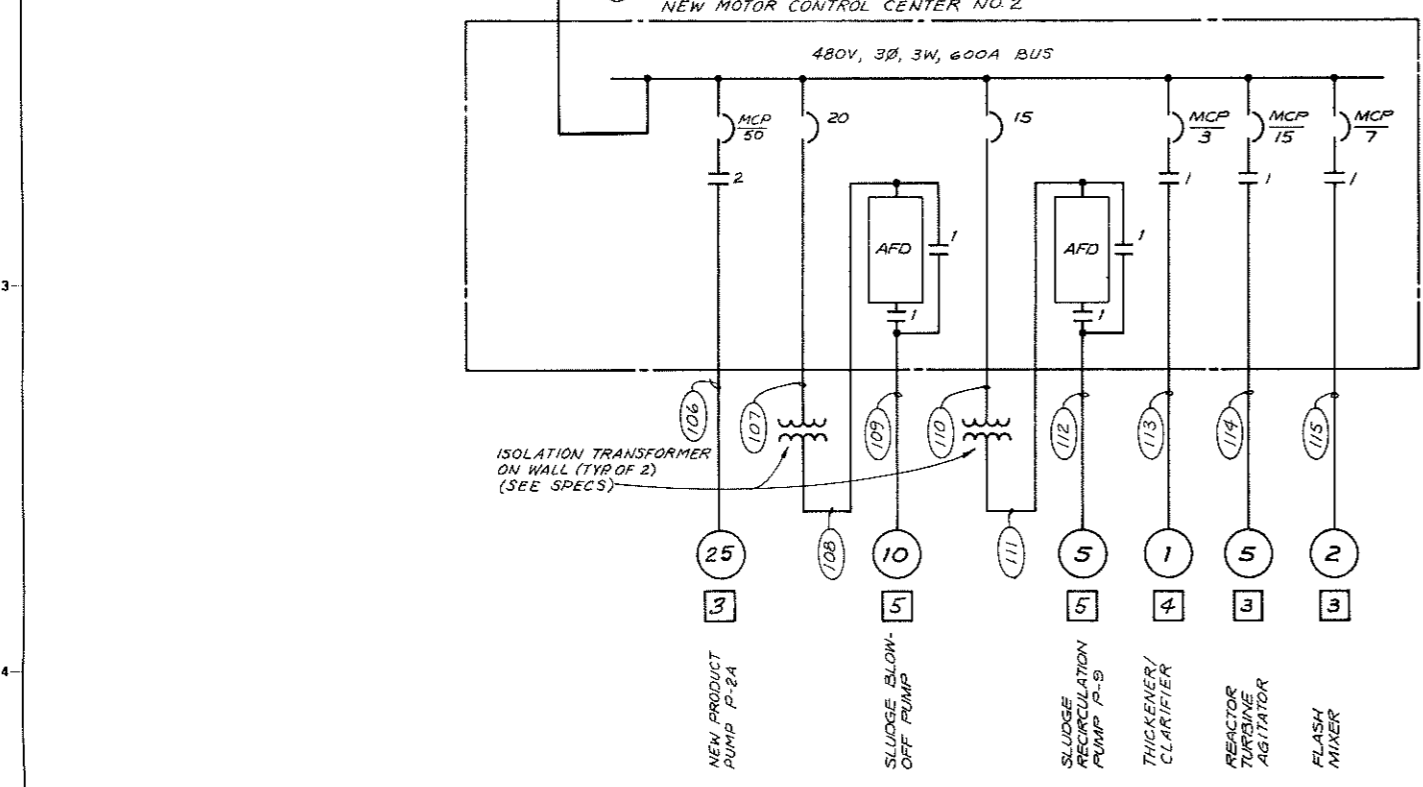
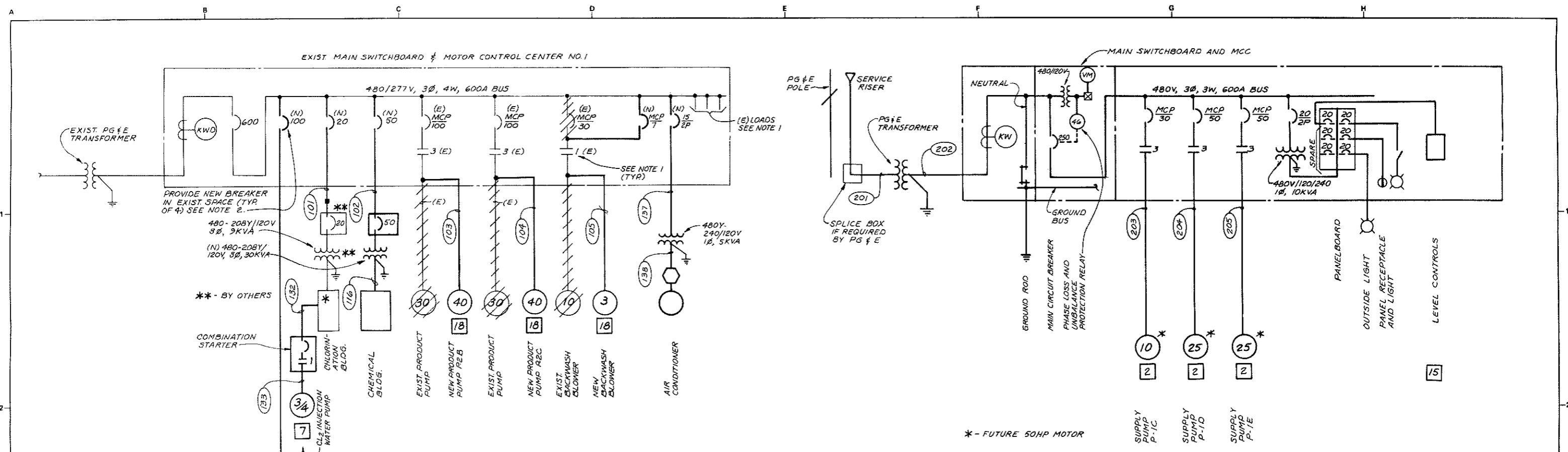


Revised	Description	Submit.	Appr'd.	Date

Reference Information and Notes:	
Designed TIW	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>  Kennedy/Jenks/Chilton San Francisco  Submitted: <i>Nicholas J. Peros</i> Approved: <i>[Signature]</i> Marin Municipal Water District
Drawn JC	
Checked TIW/RRP	
Date 1-6-88	

Scale NONE Job No. 880058.00 Sheet <b>E-1</b> of	
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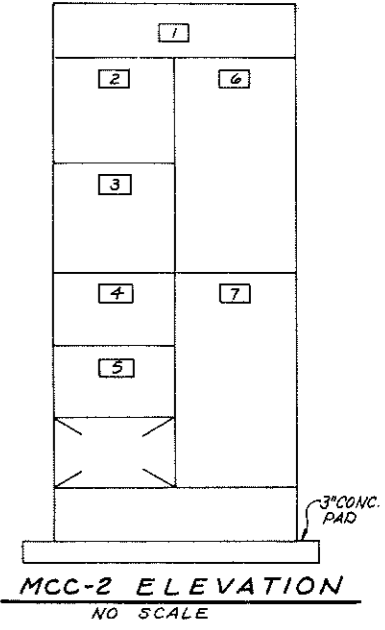
<b>ABBREVIATIONS, LEGEND AND GENERAL NOTES</b>	
--	--



**INLET PUMP STATION - SINGLE LINE DIAGRAM**

MAIN SWITCHBOARD AND MCC NAMEPLATE SCHEDULE	
NO.	DESCRIPTION
1	Lighting Transformer Breaker
2	Wet Well Level Control
3	Supply Pump P-1C
4	Load Center
5	Lighting Transformer
6	Supply Pump P-1D
7	Supply Pump P-1E
8	Main Circuit Breaker

NAMEPLATE SCHEDULE	
NO.	DESCRIPTION
1	MOTOR CONTROL CENTER NO. 2
2	CLARIFIER / THICKENER DRIVE
3	REACTOR TURBINE AGITATOR
4	FLASH MIXER
5	PRODUCT PUMP
6	SLUDGE RECIRCULATION PUMP
7	SLUDGE BLOW-OFF PUMP



Professional Engineer  
 Nicholas J. Perera  
 Electrical  
 State of California  
 No. 8137  
 Exp. 7/30/10

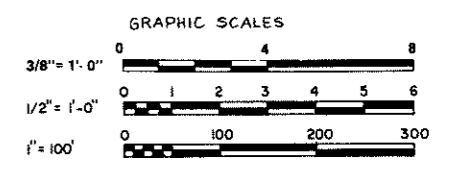
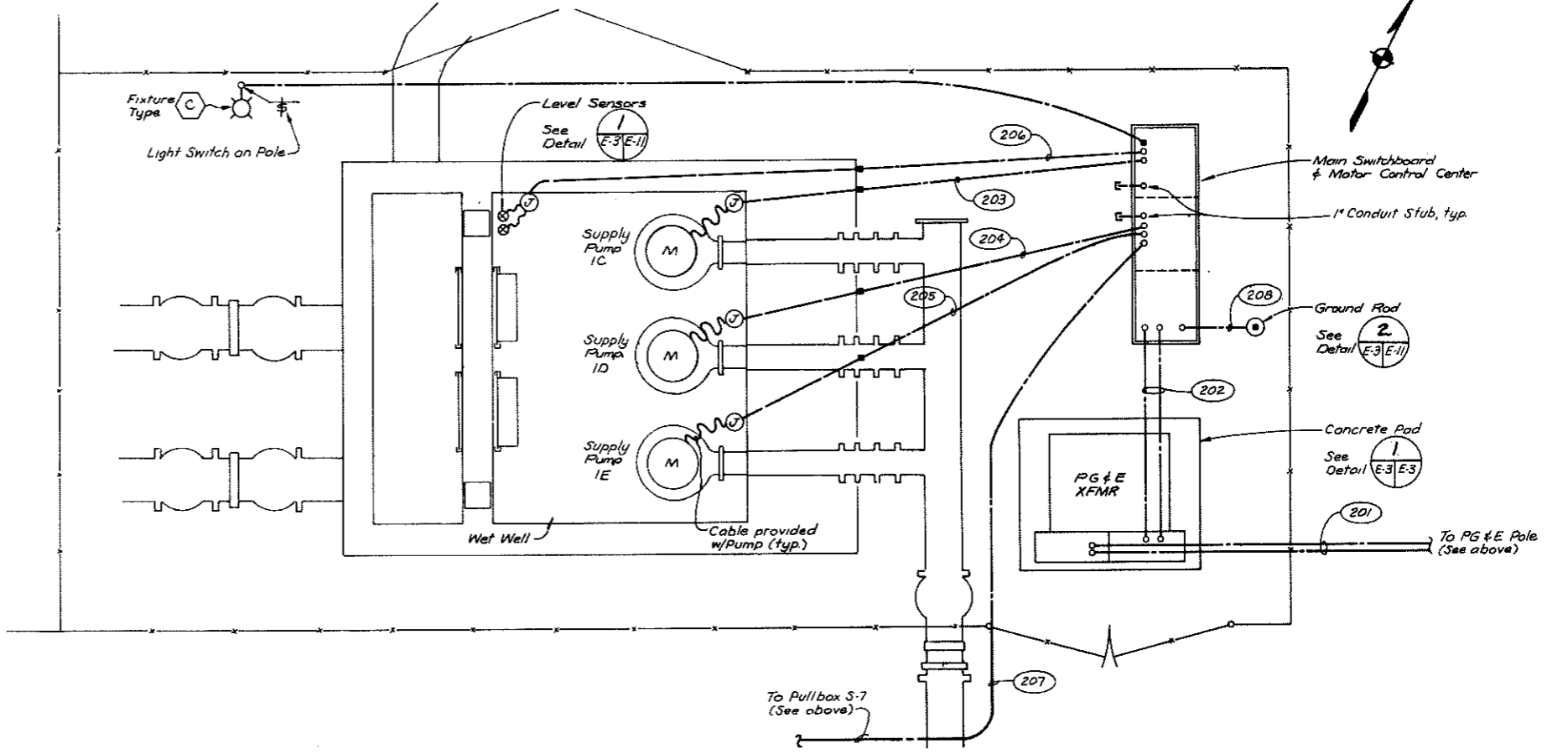
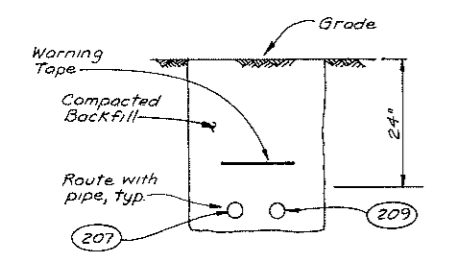
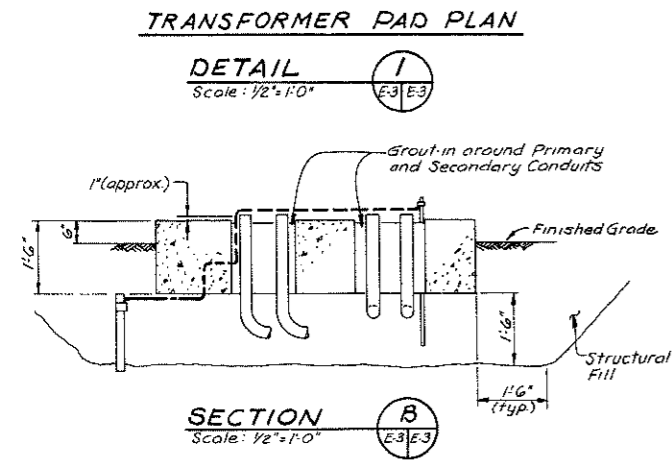
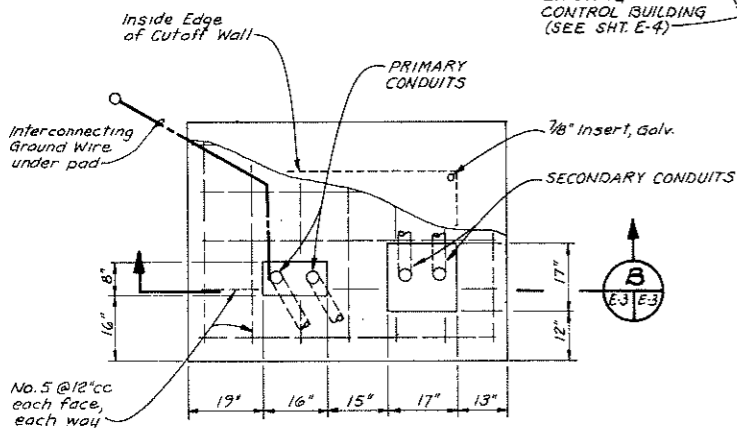
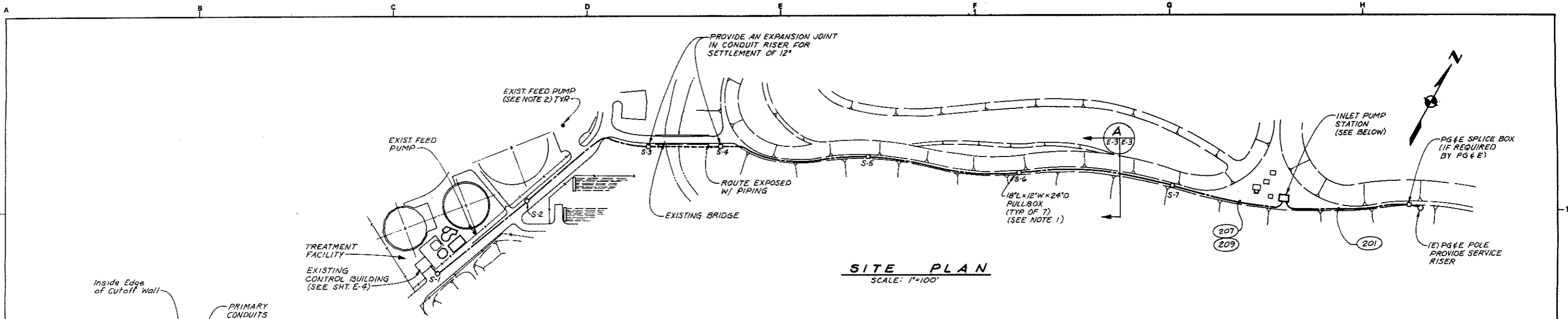
Reference Information and Notes:  
 1. For Existing Distribution Pumps 3, 3A, 3B, 3C and Feed Pumps (Renamed Recirc. Supply Pumps), Air Blower and Product Pumps 2B, 2C, provide New CPT @ each cubicle and rewire exist. motor starter. In addition provide an HOA Station and LOS at Pump. Add additional wiring. See Diagrams.  
 2. Provide Nameplate at Main Switchboard.

Designed: TIW  
 Drawn: JC CAJ  
 Checked: TIW / R.R.  
 Date: 1-6-89

**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
 Kennedy Jenks/Chilton San Francisco  
 Submitted: [Signature]  
 Approved: [Signature]  
 Marín Municipal Water District

**SINGLE LINE DIAGRAMS  
 MCC - ELEVATIONS**

Scale: NONE  
 Job No.: 880058.00  
 Sheet: E-2  
 of



Revised	Description	Submit	Appr'd	Date

ADDENDUM for Latest Revision

**Reference Information and Notes:**  
 1. Install Pullboxes on side of Levee Roadway.  
 2. Existing Feed Pumps, renamed Recirc. Supply Pumps. Replace Existing Control Station.  
 3. For most of the Conduit Run, install conduit in the same trench with Piping. See Drawing C-1. The continuation of the run shall be in a separate trench.

Designed: TIW  
 Drawn: CAJ/JC  
 Checked: TIW/RPR  
 Date: 1-6-89

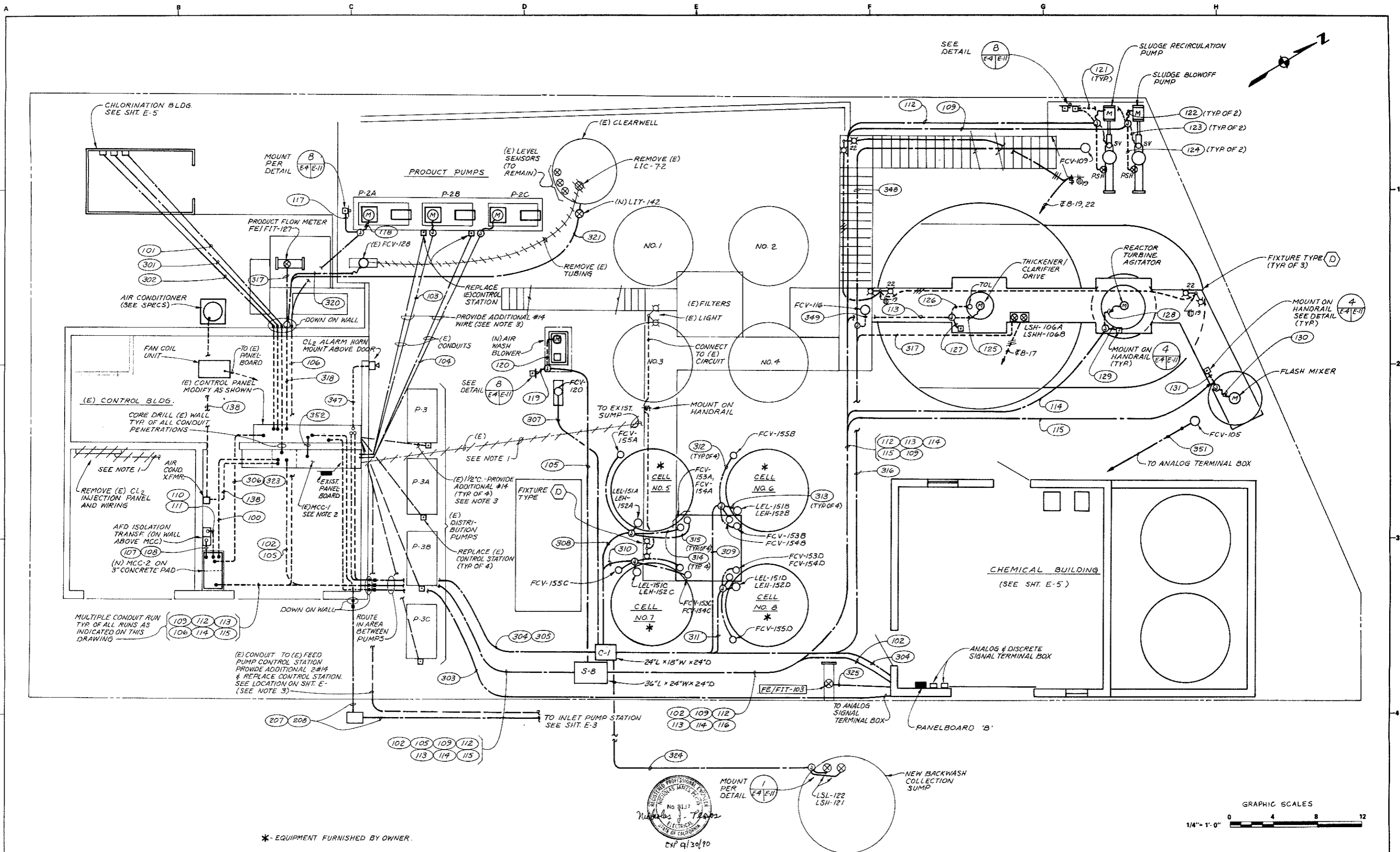
**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
 Kennedy/Jenks/Chilton  
 San Francisco

Submitted: Nicholas J. Lewis  
 Approved: [Signature]  
 Marin Municipal Water District

**INLET PUMP STATION PLANS**

Scale: AS NOTED  
 Job No.: 880058.00  
 Sheet: E-3  
 of

Page 41 of 57



\*-EQUIPMENT FURNISHED BY OWNER.

Reference Information and Notes:  
 1. EXIST. CONDUIT, REMOVE EXIST. WIRES, CUT AND ABANDON CONDUIT.  
 2. PROVIDE NEW CONTROL POWER TRANSFORMERS FOR EIGHT PUMPS AND REWIRE STARTERS TO THE CPT INSTEAD OF THE EXISTING CONTROL PANEL POWER.  
 3. EXTEND WIRES FROM CONTROL PANEL TO EXIST. MCC. SEE ELEMENTARY DIAGRAMS.

DESIGNED BY  
 DRAWN BY  
 CHECKED BY  
 DATE  
 1-6-89

Submitted:  
 Approved:  
 Kennedy/Jenks/Chilton  
 San Francisco  
 Marin Municipal Water District

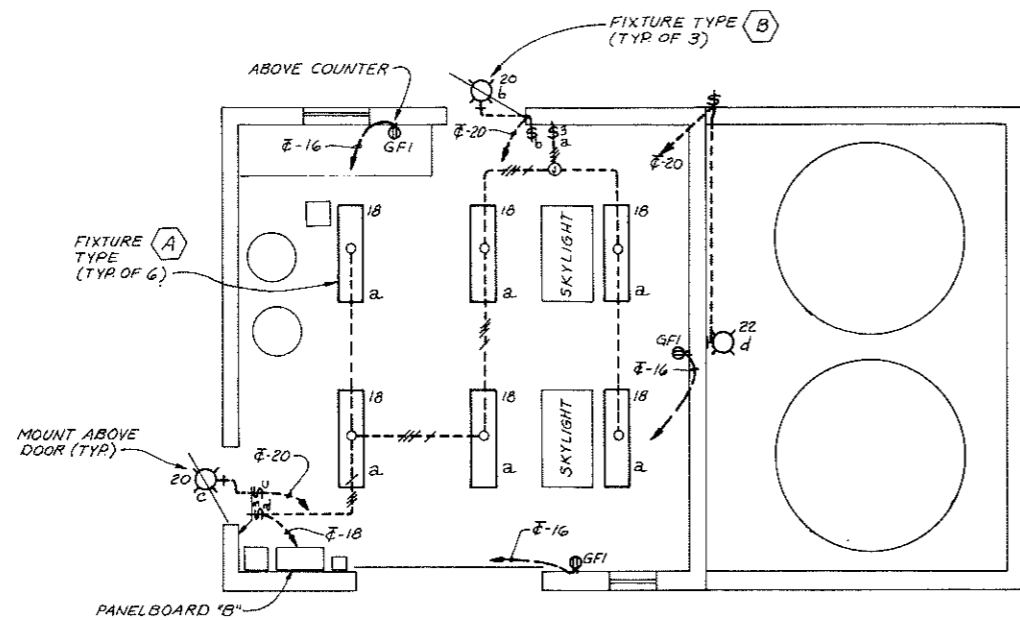
Designed  
 TIW  
 Drawn  
 JC  
 Checked  
 TIW / RPR  
 Date  
 1-6-89

Submitted:  
 Approved:  
 Kennedy/Jenks/Chilton  
 San Francisco  
 Marin Municipal Water District

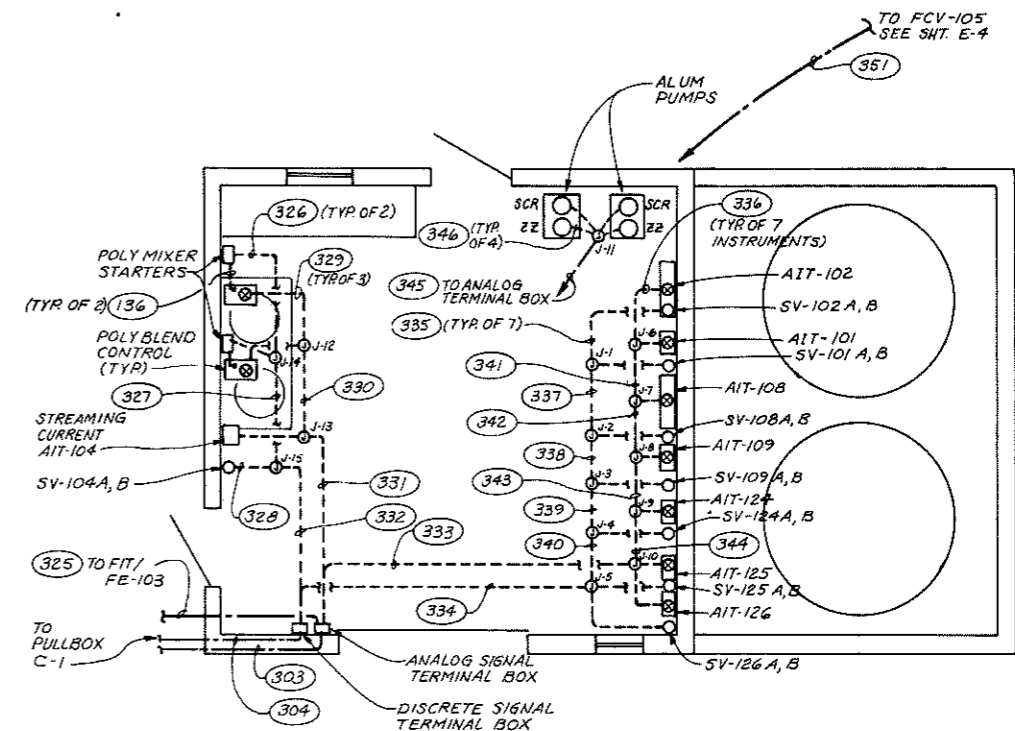
TREATMENT PLANT PLAN

Scale  
 1/4" = 1'-0"  
 Job No.  
 880058.00  
 Sheet  
 E-4  
 of

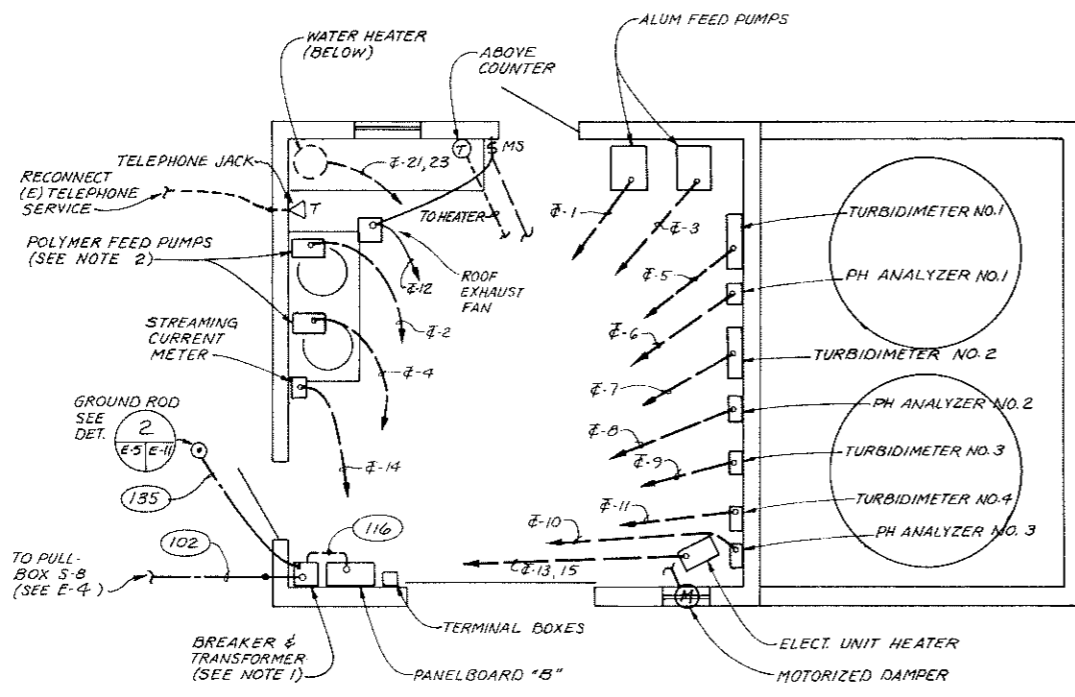
Revised	Description	Submit	Appr'd.	Date



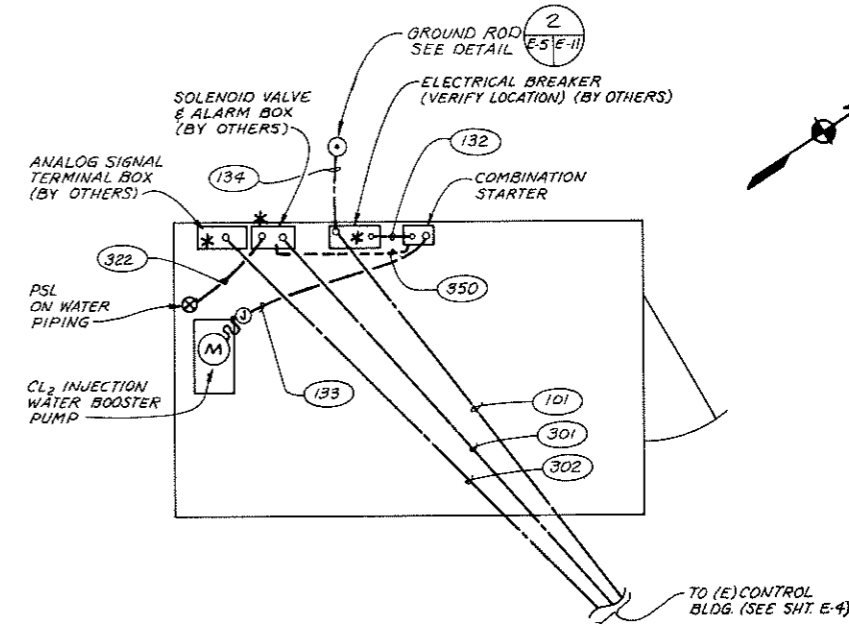
**CHEMICAL BUILDING LIGHTING PLAN**  
SCALE: 1/4"=1'-0"



**CHEMICAL BLDG. INSTRUMENT PLAN**  
SCALE: 1/4"=1'-0"

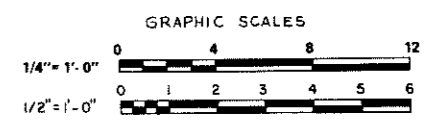


**CHEMICAL BLDG. POWER PLAN**  
SCALE: 1/4"=1'-0"



**CHLORINATION BLDG.**  
SCALE: 1/2"=1'-0"

\* - EQUIP FURNISHED BY OWNER



Revised	Description	Submit	App'd.	Date

Reference Information and Notes:  
1. PROVIDE MOUNTING BRACKET FOR TRANSFORMER. MOUNT ON WALL ABOVE PANELBOARD "B".  
2. CONNECT POLYMER PUMPS TO COMBINATION STARTER AND MIXER. SEE DIAGRAMS.

Designed: TIW  
Drawn: JC  
Checked: TIW/RFR  
Date: 1-6-89

Submitted: *Nicholas J. Peros*  
Approved: *[Signature]*  
Marin Municipal Water District

**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
San Francisco

**CHEMICAL BUILDING AND CHLORINATION BUILDING PLANS**

Scale: AS NOTED  
Job No.: 880058.00  
Sheet: **E-5**  
of

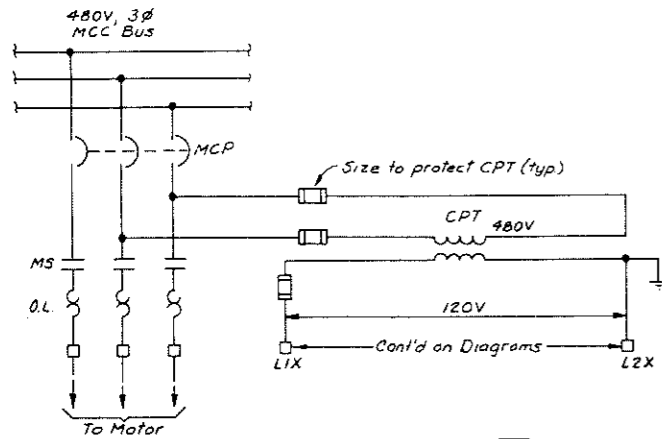


DIAGRAM 1  
TYPICAL CONTROL POWER SOURCE

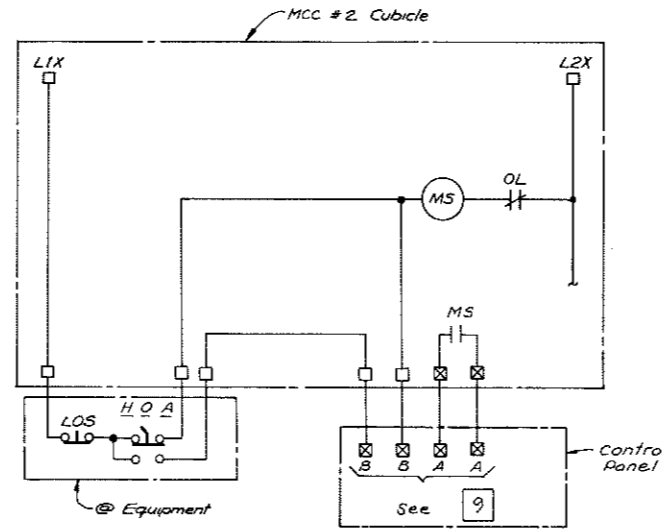


DIAGRAM 3  
PRODUCT PUMP 2A  
TURBINE AGITATOR  
FLASH MIXER

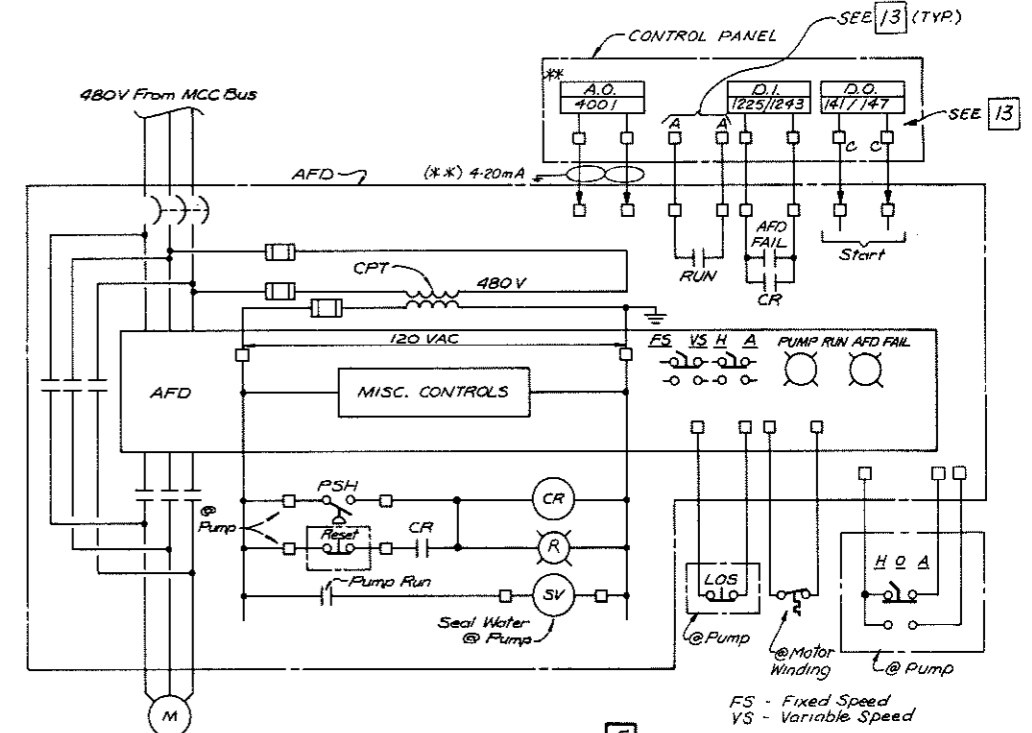


DIAGRAM 5  
SLUDGE RECIRCULATION PUMP  
SLUDGE BLOW-OFF PUMP (\*\* - NOT REQUIRED)

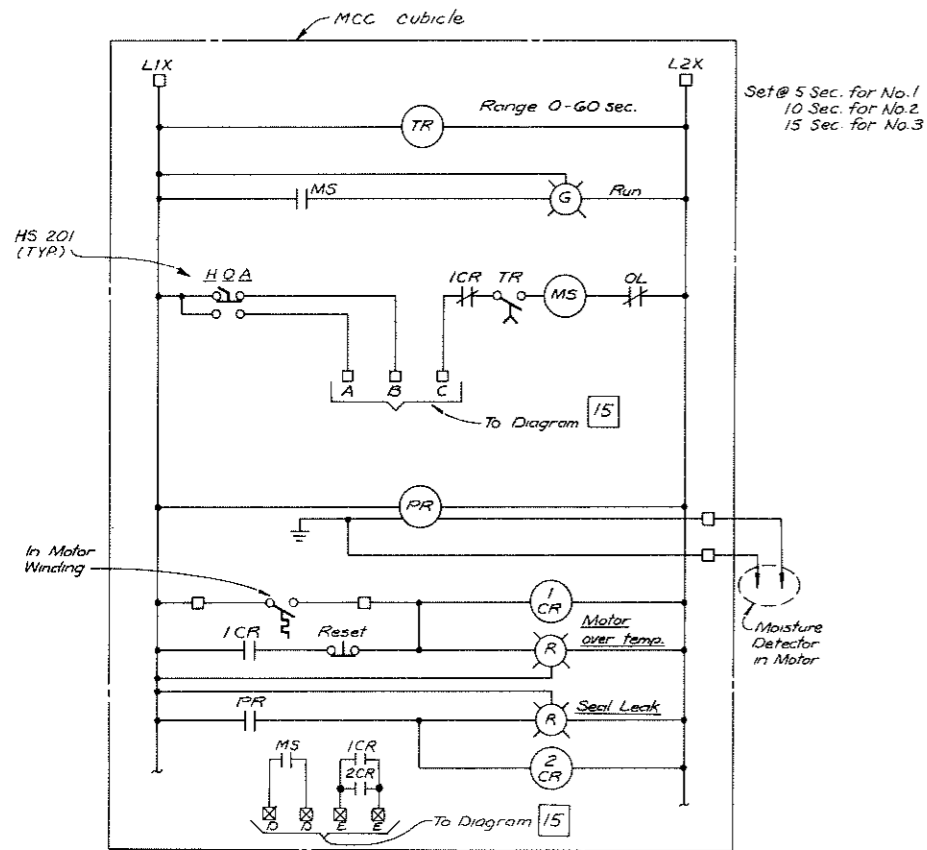


DIAGRAM 2  
SUPPLY PUMP 1C  
SUPPLY PUMP 1D  
SUPPLY PUMP 1E

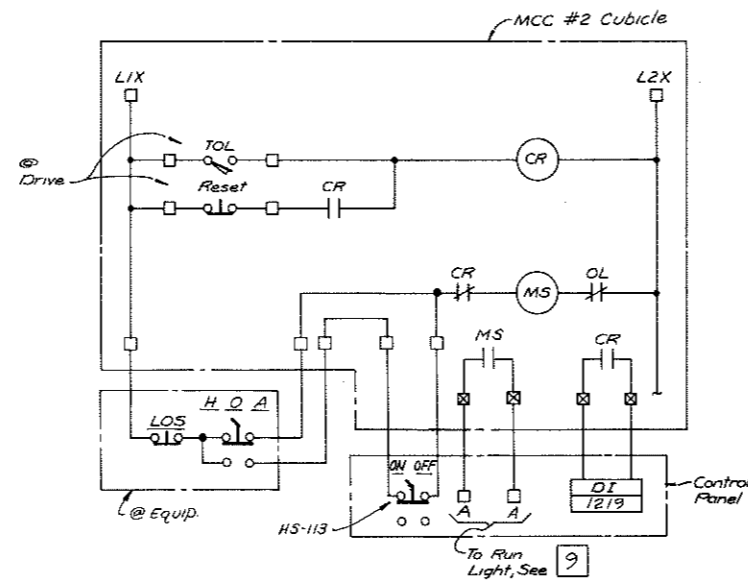


DIAGRAM 4  
THICKENER / CLARIFIER

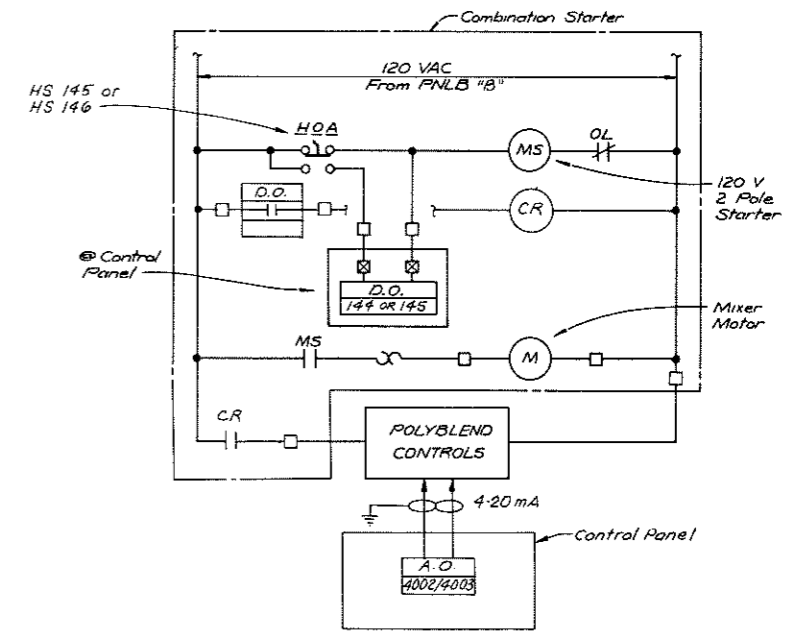


DIAGRAM 6  
POLYBLEND NO. 1, NO. 2



Reference Information and Notes:

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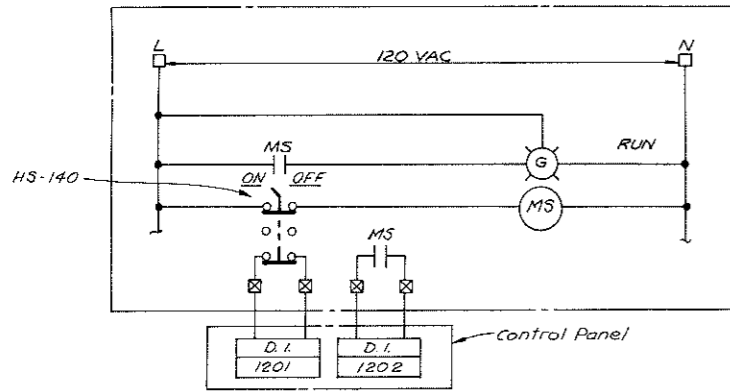
Designed  
TIW  
Drawn  
JC CAJ  
Checked  
TIW/RRR  
Date  
1-6-89

**MMWD Las Gallinas Valley  
Reclamation Plant Improvements**  
San Francisco  
Submitted:  
*Nicholas J. Brown*  
Approved:  
*John M. [Signature]*  
Marin Municipal Water District

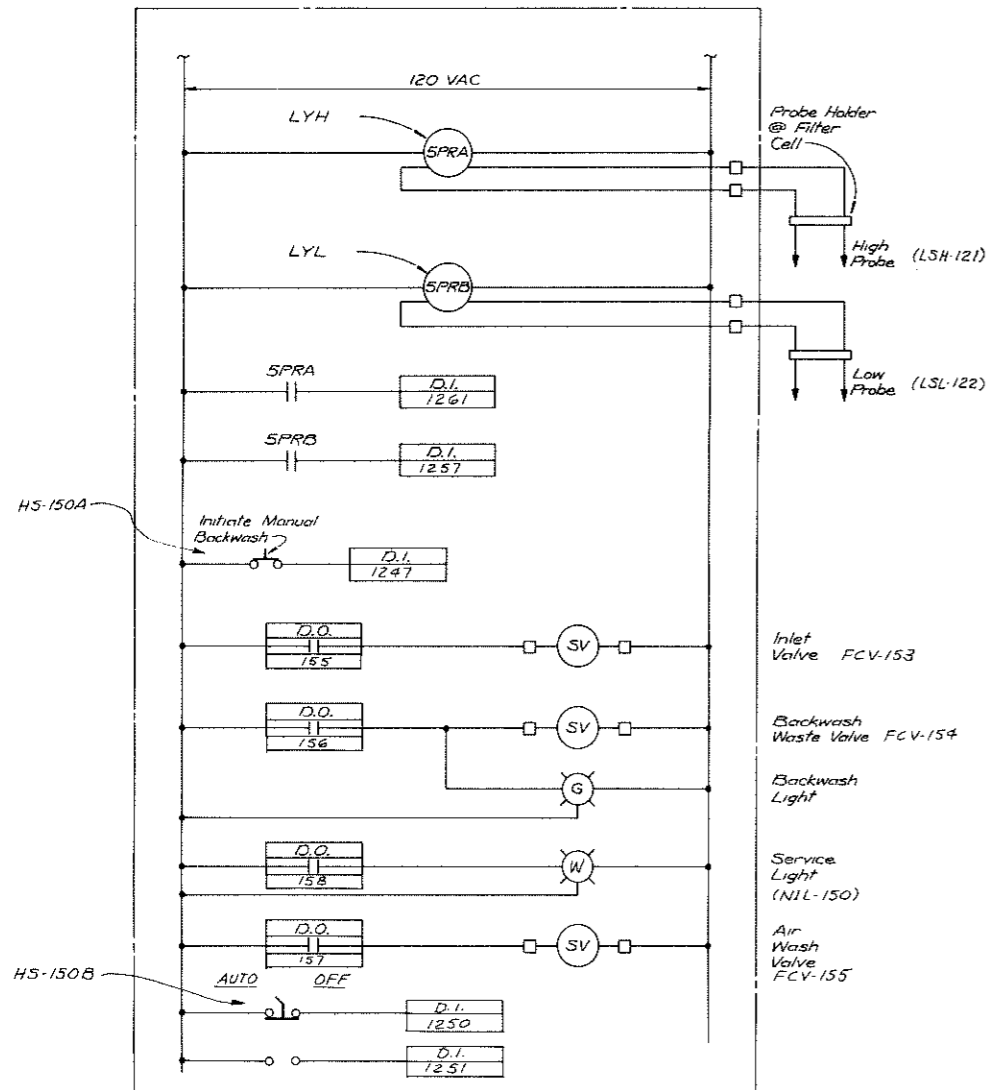
ELEMENTARY DIAGRAMS - SHEET 1

Scale  
NONE  
Job No.  
880058.00  
Sheet  
**E-6**

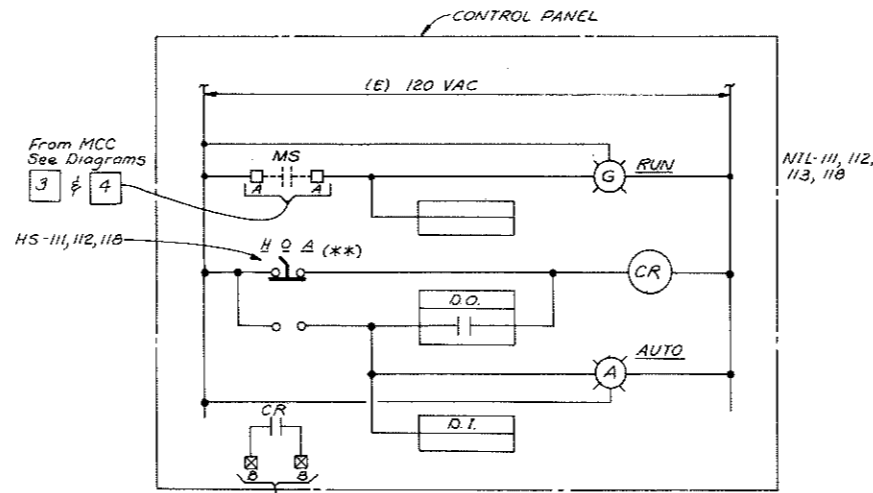




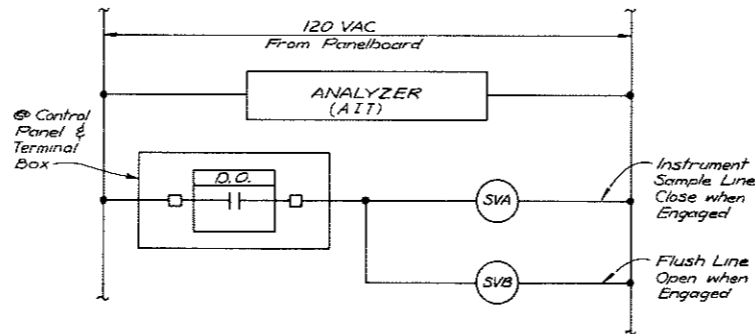
**DIAGRAM 7**  
CL<sub>2</sub> INJECTION WATER BOOSTER PUMP



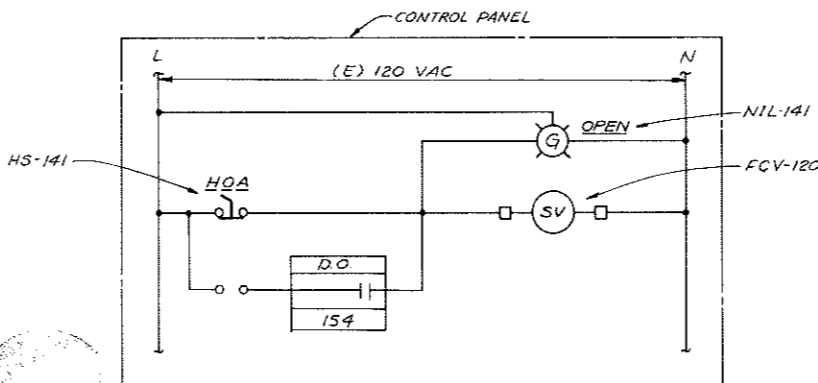
**DIAGRAM 8**  
TYPICAL FILTER CELL CONTROL  
(POINT NO.'S FOR CELL #5 SHOWN  
REFER TO SPECS)



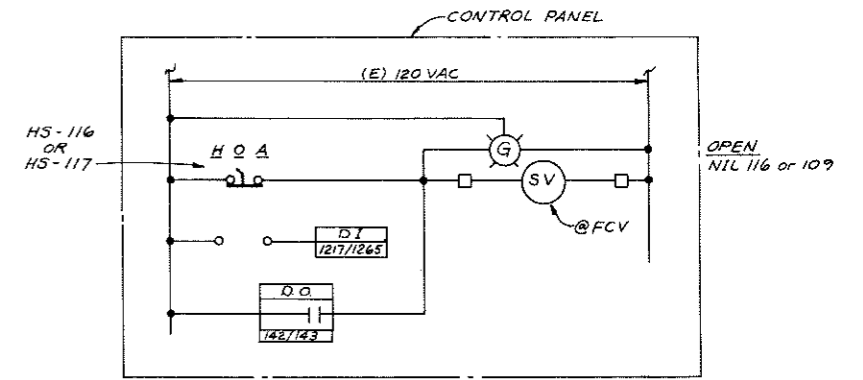
**DIAGRAM 9**  
TYPICAL FOR: PRODUCT PUMP 2A  
TURBINE AGITATOR  
FLASH MIXER  
THICKENER/CLARIFIER (\*\*-Not Required)



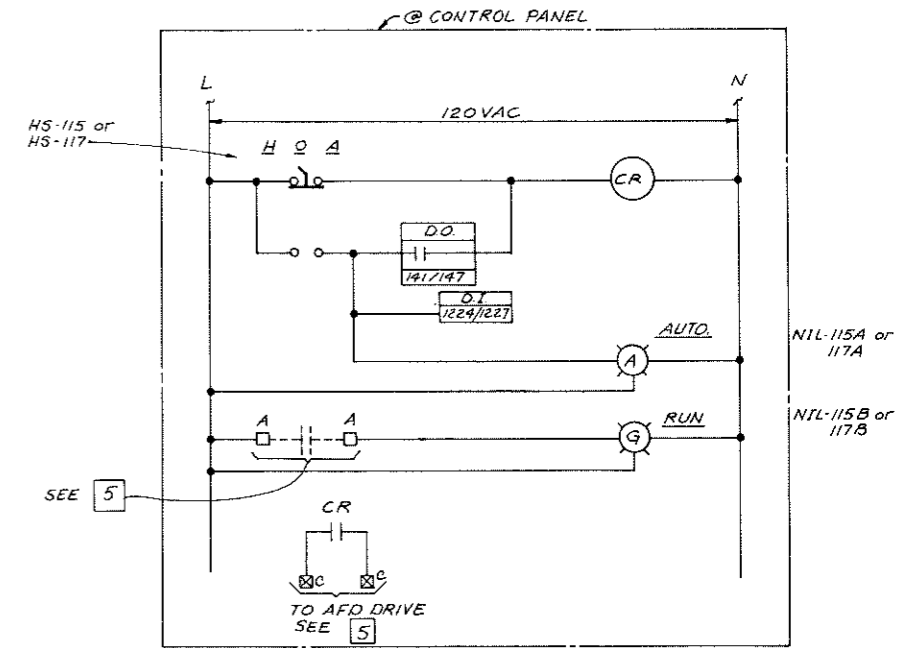
**DIAGRAM 10**  
TYPICAL INSTRUMENT FLUSHING



**DIAGRAM 11**  
AIR BLOWER VENT VALVE FCV-120



**DIAGRAM 12**  
TYPICAL FOR FCV-109  
FCV-116



**DIAGRAM 13**  
CONTROLS FOR: SLUDGE RECIRCULATION PUMP  
SLUDGE BLOW-OFF PUMP  
(LOCATED @ CONTROL PANEL)

*Nicholas J. Peros*  
E.S.P. 9/20/90

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Reference Information and Notes:

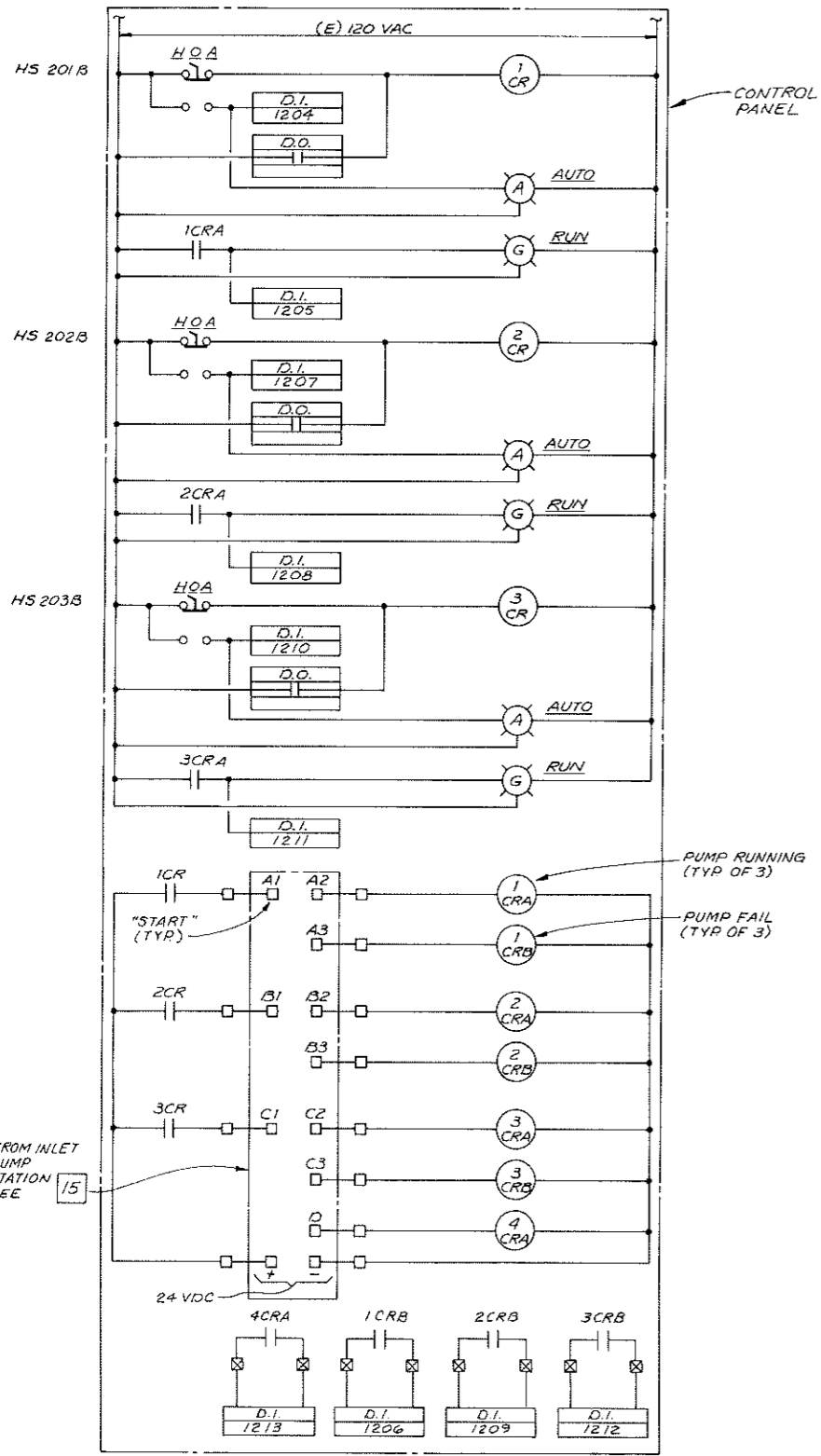
Designed: TIW  
 Drawn: JC CAJ  
 Checked: TIW IRFR  
 Date: 1-6-89

**MMWD Las Gallinas Valley  
Reclamation Plant Improvements**  
 Kennedy/Jenks/Chilton  
 San Francisco

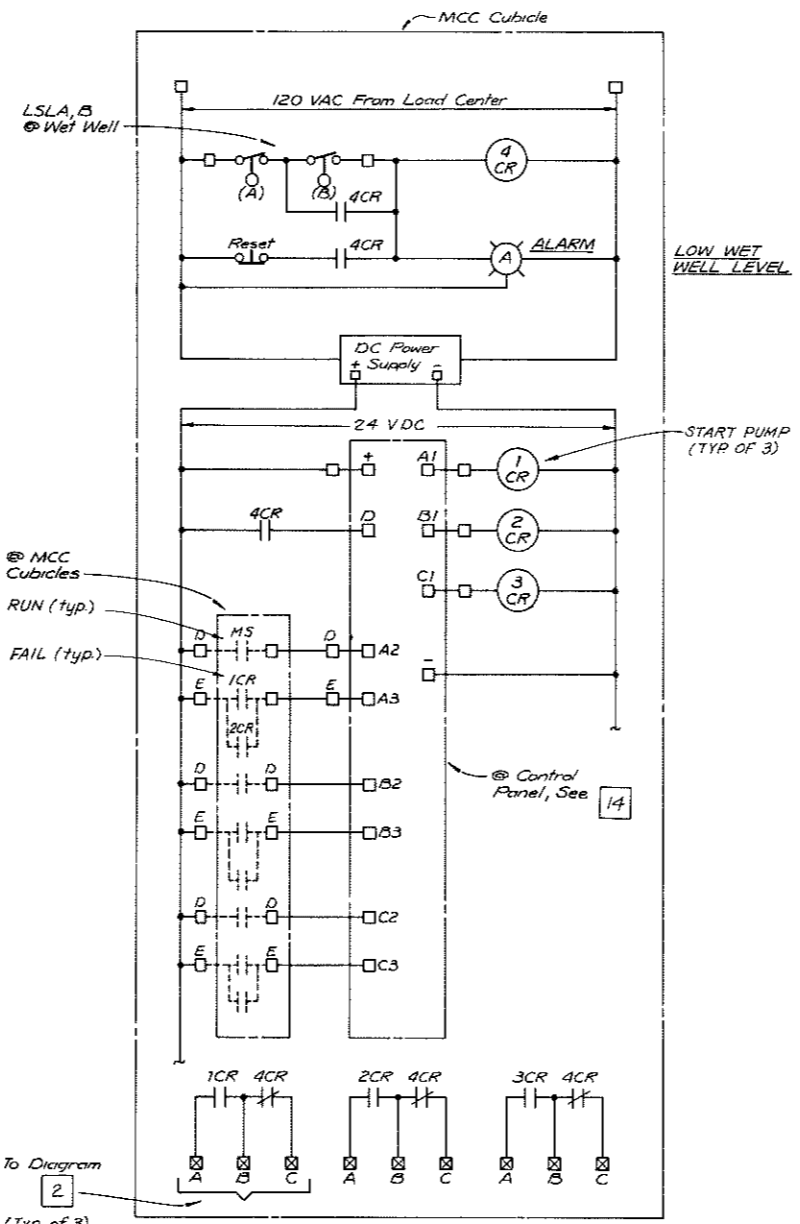
Submitted: *Nicholas J. Peros*  
 Approved: *Tom W. McMillan*  
 Marin Municipal Water District

**ELEMENTARY DIAGRAMS - SHEET 2**

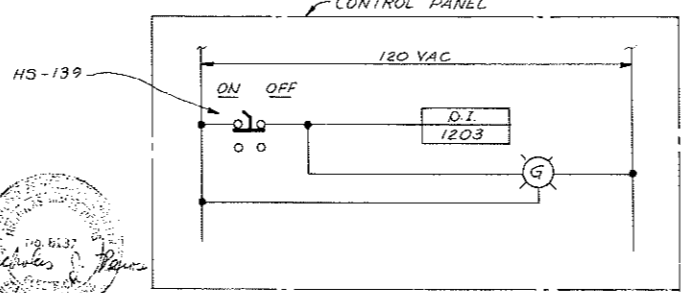
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 Job No.: 880058.00  
 Sheet: **E-7**  
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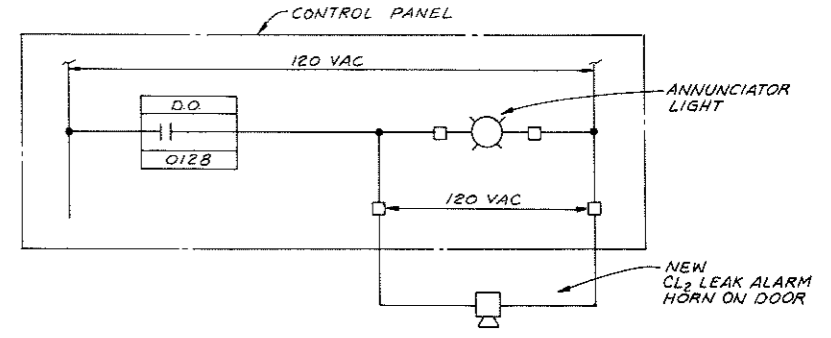
**DIAGRAM 14**  
**INLET PUMP STATION CONTROLS**  
 (@ CONTROL PANEL)



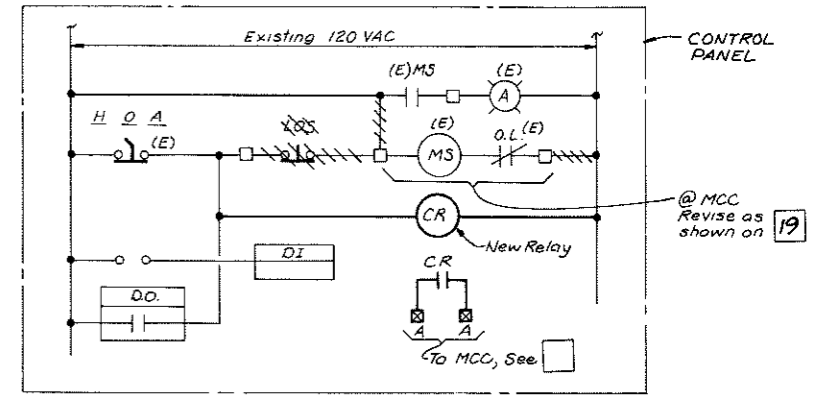
**DIAGRAM 15**  
**INLET PUMP STATION MCC CONTROLS**



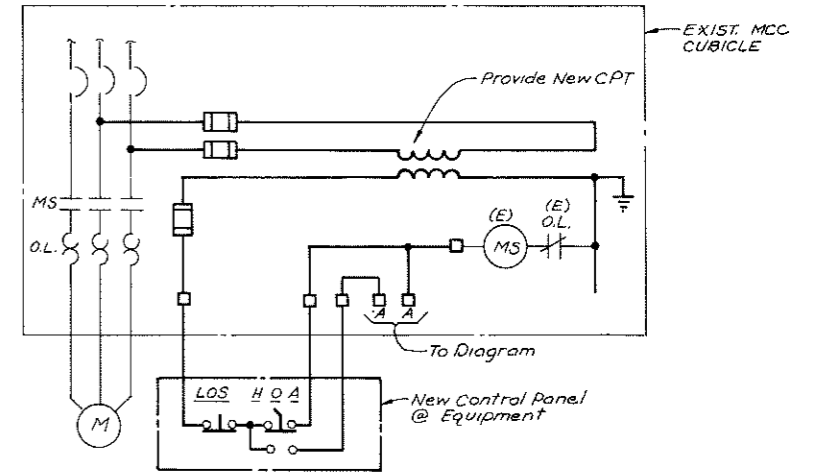
**DIAGRAM 16**  
**PRE-CHLORINATION SWITCH**



**DIAGRAM 17**  
**ALARM HORN**



**DIAGRAM 18**  
 TYPICAL FOR: DISTRIBUTION PUMPS  
 PRODUCT PUMPS 2B & 2C  
 RECIRC. SUPPLY (FEED) PUMPS  
 AIR BLOWER



**DIAGRAM 19**  
 TYPICAL FOR: DISTRIBUTION PUMPS  
 PRODUCT PUMPS 2B & 2C  
 RECIRC. SUPPLY (FEED) PUMPS  
 AIR BLOWER

19.6137  
 Nicholas J. Perez  
 EXP. 9/30/99

Revised	Description	Submit	Appr'd	Date

Reference Information and Notes:

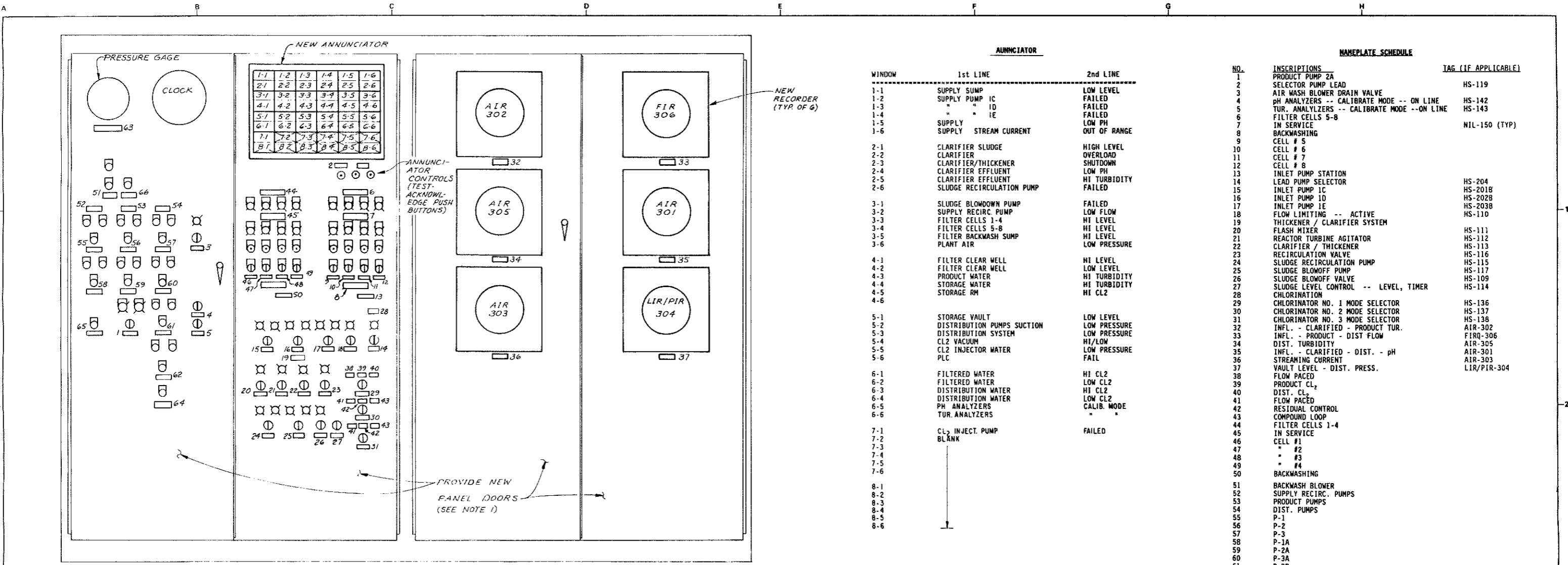
Designed: TIW  
 Drawn: CAJ  
 Checked: TIW / RFR  
 Date: 1-6-89

**MMWD Las Gallinas Valley  
 Reclamation Plant Improvements**

Kennedy/Jenks/Chilton  
 Submitted: *Nicholas J. Perez*  
 Approved: *[Signature]*  
 San Francisco  
 Marin Municipal Water District

Scale: NONE  
 Job No.: 880058.00  
**E-8**  
 of

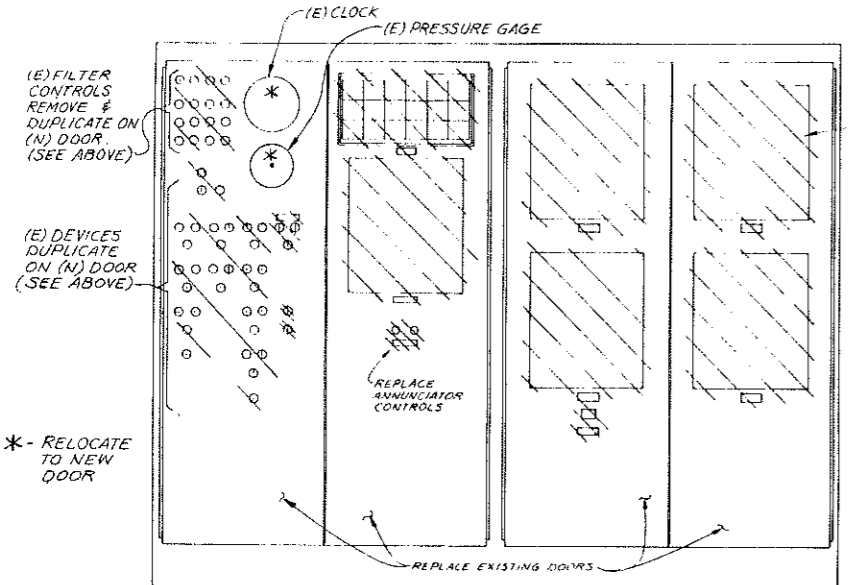
**ELEMENTARY DIAGRAMS - SHEET 3**



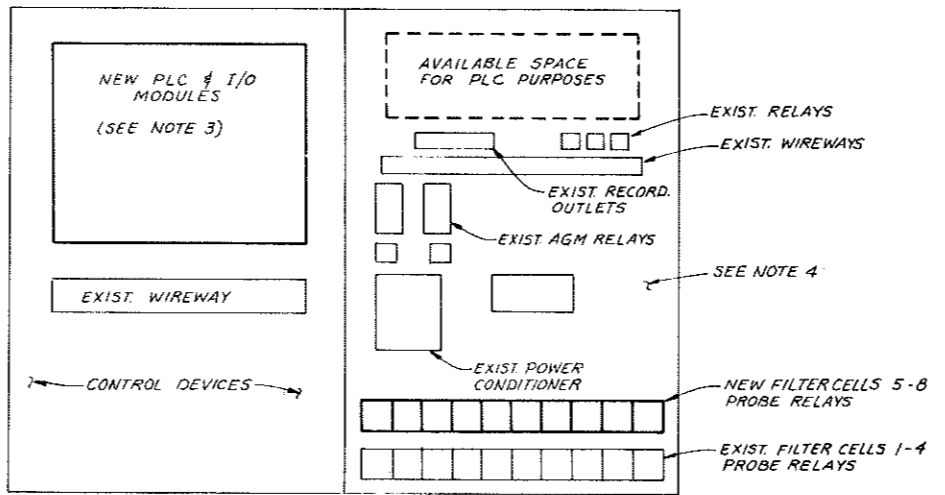
**CONTROL PANEL ELEVATION**  
SCALE: 1/8"=1"

WINDOW	1st LINE	2nd LINE
1-1	SUPPLY SUMP	LOW LEVEL
1-2	SUPPLY PUMP IC	FAILED
1-3	" " ID	FAILED
1-4	" " IE	FAILED
1-5	SUPPLY	LOW PH
1-6	SUPPLY STREAM CURRENT	OUT OF RANGE
2-1	CLARIFIER SLUDGE	HIGH LEVEL
2-2	CLARIFIER	OVERLOAD
2-3	CLARIFIER/THICKENER	SHUTDOWN
2-4	CLARIFIER EFFLUENT	LOW PH
2-5	CLARIFIER EFFLUENT	HI TURBIDITY
2-6	SLUDGE RECIRCULATION PUMP	FAILED
3-1	SLUDGE BLOWDOWN PUMP	FAILED
3-2	SUPPLY RECIRC. PUMP	LOW FLOW
3-3	FILTER CELLS 1-4	HI LEVEL
3-4	FILTER CELLS 5-8	HI LEVEL
3-5	FILTER BACKWASH SUMP	HI LEVEL
3-6	PLANT AIR	LOW PRESSURE
4-1	FILTER CLEAR WELL	HI LEVEL
4-2	FILTER CLEAR WELL	LOW LEVEL
4-3	PRODUCT WATER	HI TURBIDITY
4-4	STORAGE WATER	HI TURBIDITY
4-5	STORAGE RM	HI CL2
4-6		
5-1	STORAGE VAULT	LOW LEVEL
5-2	DISTRIBUTION PUMPS SUCTION	LOW PRESSURE
5-3	DISTRIBUTION SYSTEM	LOW PRESSURE
5-4	CL2 VACUUM	HI/LOW
5-5	CL2 INJECTOR WATER	LOW PRESSURE
5-6	PLC	FAIL
6-1	FILTERED WATER	HI CL2
6-2	FILTERED WATER	LOW CL2
6-3	DISTRIBUTION WATER	HI CL2
6-4	DISTRIBUTION WATER	LOW CL2
6-5	PH ANALYZERS	CALIB. MODE
6-6	TUR. ANALYZERS	" "
7-1	CL2 INJECT. PUMP	FAILED
7-2	BLANK	
7-3		
7-4		
7-5		
7-6		
8-1		
8-2		
8-3		
8-4		
8-5		
8-6		

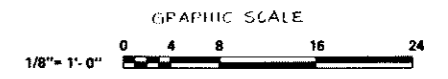
NO.	INSCRIPTIONS	TAG (IF APPLICABLE)
1	PRODUCT PUMP 2A	
2	SELECTOR PUMP LEAD	HS-119
3	AIR WASH BLOWER DRAIN VALVE	
4	PH ANALYZERS -- CALIBRATE MODE -- ON LINE	HS-142
5	TUR. ANALYZERS -- CALIBRATE MODE -- ON LINE	HS-143
6	FILTER CELLS 5-8	
7	IN SERVICE	NIL-150 (TYP)
8	BACKWASHING	
9	CELL # 5	
10	CELL # 6	
11	CELL # 7	
12	CELL # 8	
13	INLET PUMP STATION	
14	LEAD PUMP SELECTOR	HS-204
15	INLET PUMP IC	HS-201B
16	INLET PUMP 1D	HS-202B
17	INLET PUMP 1E	HS-203B
18	FLOW LIMITING -- ACTIVE	HS-110
19	THICKENER / CLARIFIER SYSTEM	
20	FLASH MIXER	
21	REACTOR TURBINE AGITATOR	HS-111
22	CLARIFIER / THICKENER	HS-112
23	RECIRCULATION VALVE	HS-113
24	SLUDGE RECIRCULATION PUMP	HS-116
25	SLUDGE BLOWOFF PUMP	HS-115
26	SLUDGE BLOWOFF VALVE	HS-117
27	SLUDGE LEVEL CONTROL -- LEVEL, TIMER	HS-109
28	CHLORINATION	HS-114
29	CHLORINATOR NO. 1 MODE SELECTOR	HS-136
30	CHLORINATOR NO. 2 MODE SELECTOR	HS-137
31	CHLORINATOR NO. 3 MODE SELECTOR	HS-138
32	INFL. - CLARIFIED - PRODUCT TUR.	AIR-302
33	INFL. - PRODUCT - DIST FLOW	FIRQ-306
34	DIST. TURBIDITY	AIR-305
35	INFL. - CLARIFIED - DIST. - pH	AIR-301
36	STREAMING CURRENT	AIR-303
37	VAULT LEVEL - DIST. PRESS.	LIR/PIR-304
38	FLOW PACED	
39	PRODUCT CL <sub>2</sub>	
40	DIST. CL <sub>2</sub>	
41	FLOW PACED	
42	RESIDUAL CONTROL	
43	COMPOUND LOOP	
44	FILTER CELLS 1-4	
45	IN SERVICE	
46	CELL #1	
47	" #2	
48	" #3	
49	" #4	
50	BACKWASHING	
51	BACKWASH BLOWER	
52	SUPPLY RECIRC. PUMPS	
53	PRODUCT PUMPS	
54	DIST. PUMPS	
55	P-1	
56	P-2	
57	P-3	
58	P-1A	
59	P-2A	
60	P-3A	
61	P-3B	
62	P-3C	
63	INSTRUMENT	AIR PRESSURE
64	DIST. PUMP	CONTROL MODE
65	SUPPLY RECIRC. PUMPS	LOW FLOW RESET
66	POWER	



**CONTROL PANEL ELEVATION- REMOVAL**  
NO SCALE



**INTERIOR CONTROL PANEL ELEVATION**  
NO SCALE



<p>Reference Information and Notes:          1. NEW DOORS SHALL MATCH THE COLOR OF EXISTING PANEL.          2. REMOVE EXIST. RECORDERS AND DELIVER TO OWNER.          3. REMOVE EXIST. PLC AND I/O DEVICES AND DELIVER TO OWNER. REARRANGE WIRING AS REQ'D FOR (N) PLC SYSTEM.          4. REARRANGE DEVICES WITHIN THE CONTROL PANEL FOR ADDITIONAL SPACE FOR PLC, I/O OR REDUNDANT PLC UNIT.</p>				<p>Designed TIW</p> <p>Drawn JC</p> <p>Checked TIW / RPK</p> <p>Date 1-6-89</p>	<p><b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b></p> <p>Kennedy/Jerka/Chilton San Francisco</p> <p>Submitted: <i>Nicholas J. Perone</i></p> <p>Approved: <i>[Signature]</i> Marin Municipal Water District</p>	<p>Scale AS NOTED</p> <p>Job No. 880058.00</p> <p>Sheet <b>E-9</b></p> <p>of</p>
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**CONTROL PANEL MODIFICATIONS**

CONDUIT AND WIRE SCHEDULE

NUMBER	FROM	TO	CONDUIT SIZE	CONDUIT TYPE	POWER WIRES	NEUTRAL WIRE	GROUND WIRE	CONTROL WIRES	REMARKS
100	SWITCHBOARD	MCC-2	1 1/2	GRS	3 #2		#8		
101	SWITCHBOARD	CL2 BLDG	3/4	GRS/PVC	3 #12		#12		
102	SWITCHBOARD	CHEM. BLDG	1	GRS/PVC	3 #6		#8		
103	MCC-1	PRODUCT PUMP 2B	1/2	GRS	3 #4		#12		
104	MCC-1	PRODUCT PUMP 2C	1/2	GRS	3 #4		#12		
105	MCC #1	AIR BLOWER	3/4	GRS/PVC	3 #12		#12	3 #14	
106	MCC #2	PRODUCT PUMP 2A	1	GRS/PVC	3 #8		#12	3 #14	
107	MCC #2	AFD XFMR	3/4	GRS	3 #10		#12		
108	AFD XFMR	MCC #2	3/4	GRS	3 #10		#12		
109	MCC #2	BLOWOFF PUMP	1 1/2	GRS/PVC	3 #10		#12	10 #14	
110	MCC #2	AFD XFMR	3/4	GRS	3 #10		#12		
111	AFD XFMR	MCC #2	3/4	GRS	3 #10		#12		
112	MCC #2	RECIRC. PUMP	1 1/2	GRS/PVC	3 #10		#12	10 #14	
113	MCC #2	THICK/CLARIF.	1 1/2	GRS/PVC	3 #12		#12	5 #14	
114	MCC #2	REACTOR TURBINE	3/4	GRS/PVC	3 #12		#12	3 #14	
115	MCC #2	FLASH MIXER	3/4	GRS/PVC	3 #12		#12	3 #14	
116	XFMR	PNLB. B	1 1/2	GRS	3 #1	#1	#8		
117	J BOX	CONTROL STATION	3/4	GRS				3 #14	
118	J BOX	MOTOR P2A	1	GRS	3 #8		#12		
119	J BOX	CONTROL STATION	3/4	GRS				3 #14	
120	J BOX	AIR BLOWER	3/4	GRS	3 #12		#12		
121	J BOX	CONTROL STATION	3/4	GRS				5 #14	
122	J BOX	PUMP	3/4	GRS	3 #10		#12		
123	J BOX	SV	3/4	GRS				2 #14	
124	J BOX	PSH	3/4	GRS				2 #14	
125	J BOX	THICKENER	3/4	GRS	3 #12		#12		
126	J BOX	TOL	3/4	GRS				2 #14	
127	J BOX	CONTROL STATION	3/4	GRS				4 #14	
128	J BOX	TURBINE REACTOR	3/4	GRS	3 #12		#12		
129	J BOX	CONTROL STATION	3/4	GRS				3 #14	
130	J BOX	FLASH MIXER	3/4	GRS	3 #12		#12		
131	J BOX	CONTROL STATION	3/4	GRS				3 #14	
132	CL2 PNLB.	COMBINATION STARTER	3/4	GRS	3 #12	#12	#12		
133	COMB. STARTER	BOOSTER PUMP	3/4	GRS	3 #12		#12		
134	CL2 BLDG.	GRND. ROD	3/4	GRS			#6		
135	CHEM. BLDG.	GRND. ROD	3/4	GRS			#6		
136	COMBINATION STARTER	POLYBLEN	3/4	GRS	2 #12		#12		
137	MAIN SWITCHBOARD	XFMR.	3/4	GRS	3 #12		#12		
138	XFMR.	AIR CONDITIONER	3/4	GRS	3 #10		#12		
201	PGE XFMR	PGE POLE	2-4	PVC	***				WIRES BY PGE
202	PGE XFMR	MCC #2	2-4	PVC	***				WIRES BY PGE
203	MCC	INLET PUMP STATION	1 1/2	GRS/PVC	3 #2		#8	4 #14	
204	MCC	"	1 1/2	GRS/PVC	3 #2		#8	4 #14	
205	MCC	"	1 1/2	GRS/PVC	3 #2		#8	4 #14	
206	MCC	"	3/4	GRS/PVC			#14	4 #14	
207	MCC	"	1	PVC			#14	12 #14	PLUS 8 #14 SPARES
208	MCC	"	1	PVC			1/0		
209	MCC	"	1	PVC					EMPTY

CONDUIT AND WIRE SCHEDULE

NUMBER	FROM	TO	CONDUIT SIZE	CONDUIT TYPE	POWER WIRES	NEUTRAL WIRE	GROUND WIRE	CONTROL WIRES	REMARKS
301	CONTROL PANEL	CL2 BLDG	1	GRS/PVC			#14	14 #14	PLUS 6#14 SPARES
302	CONTROL PANEL	CL2 BLDG	1	GRS/PVC				3 TSP	
303	CONTROL PANEL	CHEMICAL BLDG.	1 1/2	GRS/PVC				13 TSP	USE MSP (SEE SPECS)
304	CONTROL PANEL	CHEMICAL BLDG.	1 1/2	GRS/PVC				24 #14	PLUS 8#14 SPARES
305	CONTROL PANEL	PULLBOX C-1						152 #14	PLUS 8#14 SPARES
306	CONTROL PANEL	MCC NO. 2	2	GRS/PVC				30#14	PLUS 10#14 SPARES
307	PULLBOX C1	FCV -120	3/4	PVC				2#14	
308	PULLBOX C1	CELL NO. 5 J BOX	1	PVC				10#14	
309	PULLBOX C1	CELL NO. 6 J BOX	1	PVC				10#14	
310	PULLBOX C1	CELL NO. 7 J BOX	1	PVC				10#14	
311	PULLBOX C1	CELL NO. 8 J BOX	1	PVC				10#14	
312	J BOX	FCV	3/4	GRS				2 #14	
313	J BOX	LEL,LEH	3/4	GRS				4#14	
314	J BOX	FCV	3/4	GRS				2 #14	
315	J BOX	FCV	3/4	GRS				2 #14	
316	C-1	FCV 109/FCV 116	3/4	GRS				4 #14	
317	C-1	LSH,LSRH 106	3/4	GRS				2 #14	
318	CONTROL PANEL	J-BOX	3/4	GRS				3 TSP	
319	J BOX	FE 127	3/4	GRS				1 TSP	
320	J BOX	FCV 128	3/4	GRS				1 TSP	
321	J BOX	ILIT 142	3/4	GRS/PVC			#14	1 TSP	
322	IPBL	TERMINAL BOX	3/4	GRS				1 TSP	
323	MCC #2	CONTROL PANEL	3/4	GRS				1 TSP	
324	PULLBOX C-1	BACKWASH COLL. SUMP	3/4	GRS				14 #14	
325	CHEM. BLDG. A. BOX	IFIT	3/4	GRS				1 TSP	
326	J BOX	POLY MIXER STARTER	3/4	GRS				4 #14	
327	J-14	J-15	3/4	GRS				8 #14	
328	J-15	SV 104A,B	3/4	GRS				2 #14	
329	J-12	POLY BLEND	3/4	GRS				1 TSP	
330	J-12	J-13	3/4	GRS				2 TSP	
331	J-13	ANALOG TERMINAL BOX	3/4	GRS				3 TSP	
332	J-15	DISCRETE TERM. BOX	3/4	GRS				4 #14	
333	ANALOG TERMINAL BOX	J-10	1	GRS				7 TSP	
334	DISCRETE TERM. BOX	J-5	1	GRS				14 #14	
335	J-BOX	SV	3/4	GRS				2 #14	
336	J-6	AIT	3/4	GRS				1 TSP	
337	J-1	J-2	3/4	GRS				4 #14	
338	J-2	J-3	3/4	GRS				6 #14	
339	J-3	J-4	3/4	GRS				8 #14	
340	J-4	J-5	3/4	GRS				10 #14	
341	J-5	J-6	3/4	GRS				12 TSP	
342	J-7	J-8	3/4	GRS				3 TSP	
343	J-8	J-9	3/4	GRS				4 TSP	
344	J-9	K-10	3/4	GRS				5 TSP	
345	J-11		3/4	GRS				4 TSP	
346	J-11		3/4	GRS				1 TSP	
347	CONTROL PANEL	HORN	3/4	GRS				2 #14	
348	J BOX	FCV-109	3/4	PVC			#14	2 #14	
349	J BOX	FCV-116	3/4	GRS				2 #14	
350	COMBINATION STARTER	TERMINAL BOX	3/4	GRS				4 #14	
351	FCV-105	ANALOG TERMINAL BOX	3/4	GRS/PVC			#14	1 TSP	
352	CONTROL PANEL	EXIST. MCC	1	GRS				18 #14	PLUS 6#14 SPARES

FIXTURE SCHEDULE

FIXTURE TYPE	LAMP			1Ø VOLTS	MOUNTING ARRGT	DESCRIPTION	CATALOG NO.
	NO.	TYPE	WATTS				
A	2	FLUOR	40	120	PENDANT OR SURFACE	1' X 4' INDUSTRIAL ENCLOSED AND GASKETED WITH HIGH IMPACT ACRYLIC LENS.	HOLOPHANE 7200-4-LT DR. BENJAMIN FA-2424-4R
B	1	HPS	70	120	WALL MOUNT	ENCLOSED AND GASKETED DIE CAST ALUMINUM HOUSING, NATURAL FINISH, PRISMATIC GLASS REFRACTOR, 1/8 INCH NEOPRENE GASKET, INTEGRAL FUSED BALLAST ASSEMBLY, STAINLESS STEEL HARDWARE.	HOLOPHANE WP2A070HP126R BENJAMIN OWM-070-HX-120
C	1	HPS	150	120	6" SHORT ARM POST TOP	FORMED ALUMINUM HOUSING WITH FUSED REGULATED OUTPUT 150 WATT BALLAST, HYDROFORMED SPECULAR ALZAC REFLECTOR, EXTRUDED ALUMINUM DOOR FRAME WITH GASKETED FLAT CLEAR TEMPERED GLASS LENS	HOLOPHANE SMST-1A-150-12-BK-F2 ON 15 FT. ALUMINUM POLE. GARDCO H1413 ON 15 FT. ALUMINUM POLE.
D	2	HPS	100	120	STANCHION MOUNTED	FIXTURE SHALL BE SUITABLE FOR CORROSIVE ATMOSPHERE. FIXTURE SHALL BE FULLY GASKETED WITH AN EPOXY FINISH. FIXTURE SHALL PROVIDE A LONG AND NARROW DISTRIBUTION WITH 1-1/4" BY TEN FT. POLE.	HOLOPHANE PETL 100HP-12-545 ST FT CR CROUSE-HINDS VMV5J100GP/120GP OR EQUAL



PANELBOARD B SCHEDULE

DESCRIPTION		CONNECTED VOLT - AMPS			TRIP AMPS/POLES	DESCRIPTION		CONNECTED VOLT - AMPS			TRIP AMPS/POLES
CKT. NO.		A	B	C	CKT. NO.		A	B	C		
1	ALUM FEED PUMP #1	860			20/1	2 POLYMER FEED PUMP #1	860			20/1	
3	ALUM FEED PUMP #2		860		20/1	4 POLYMER FEED PUMP #2		860		20/1	
5	TURBIDITY ANALYZER #1			150	20/1	6 PH ANALYZER #1			150	20/1	
7	TURBIDITY ANALYZER #2	150			20/1	8 PH ANALYZER #2	150			20/1	
9	TURBIDITY ANALYZER #3		150		20/1	10 PH ANALYZER #3		150		20/1	
11	TURBIDITY ANALYZER #4			150	20/1	12 ROOF EXHAUST FAN			450	20/1	
13	UNIT HEATER	3,000			20/2	14 STREAMING CURRENT ANALYZER	150			20/1	
15	UNIT HEATER		3,000		16	RECEPT.		540		20/1	
17	SLUDGE LEVEL DETECTOR			150	20/1	18 INTERIOR LIGHTS			600	20/1	
19	OUTSIDE RECEPT.	360			20/1	20 OUTSIDE LIGHTS	300			20/1	
21	WATER HEATER		3,000		20/2	22 CLARIFIER LIGHTS		600		20/1	
23	WATER HEATER			3,000		24 SPARE				20/1	
25	SPARE				20/1	26 SPARE				20/1	
27	SPARE				20/1	28 SPARE				20/1	
29	SPARE				20/1	30 SPARE				20/1	
31	SPARE				20/1	32 SPARE				20/1	
33	SPARE				20/1	34 SPARE				20/1	
35	SPARE				20/1	36 SPARE				20/1	
SUBTOTALS		4,370	7,010	3,450			1,460	2,150	1,200		
PHASE							5,830	9,160	4,650		
TOTAL										19,640	

Reference Information and Notes:

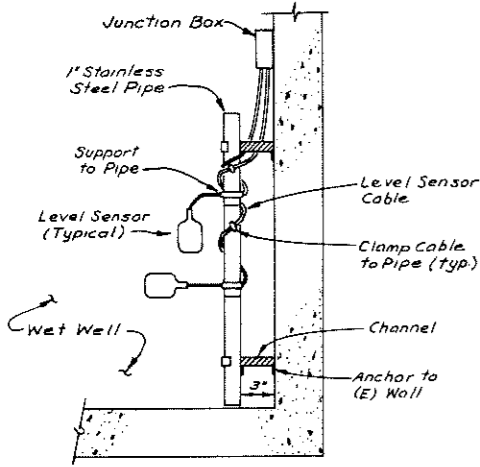
Revised	Description	Submit.	Appr'd.	Date

Designed TIW  
 Drawn JC  
 Checked TIW/JRF  
 Date 1-6-89

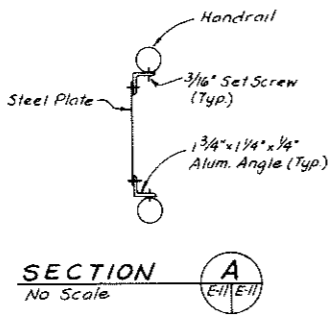
**MMWD Las Gallinas Valley Reclamation Plant Improvements**  
 Kennedy/Jenkins/Chilton  
 San Francisco  
 Submitted: *Nicholas J. Peros*  
 Approved: *Tom M. McDaniel*  
 Marin Municipal Water District

CONDUIT, FIXTURE AND PANELBOARD SCHEDULES

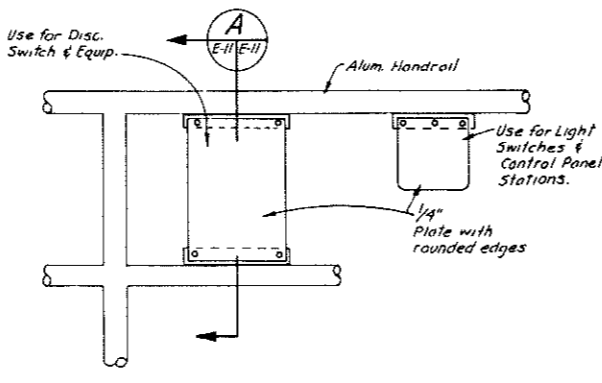
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 Job No. 880058.00  
 Sheet E-10



**DETAIL 1**  
No Scale  
E-3/E-11

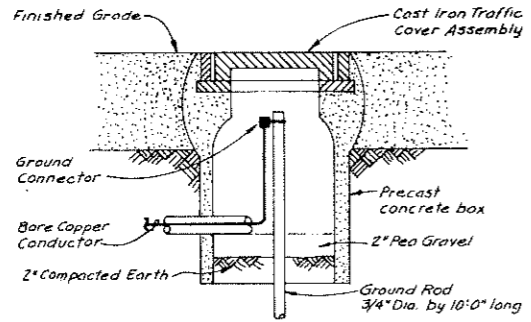


**SECTION A**  
No Scale  
E-11/E-11



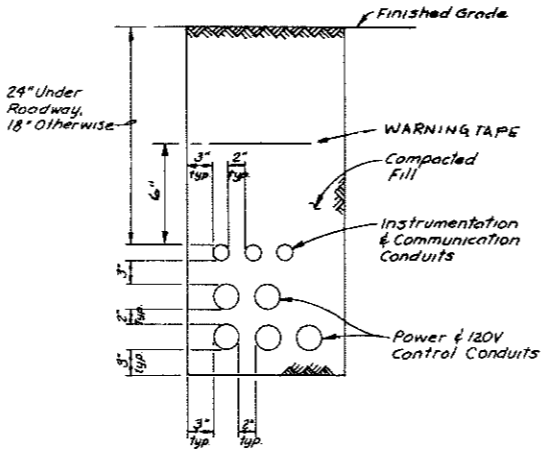
**EQUIPMENT ON HANDRAIL INSTALLATION**

**DETAIL 4**  
No Scale  
E-4/E-11

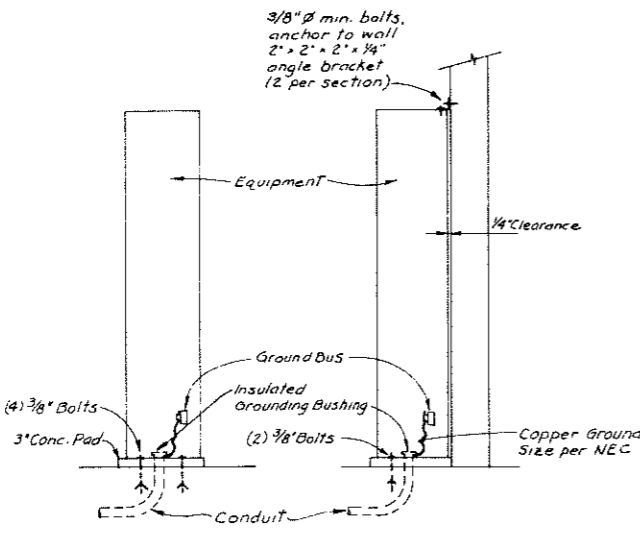


**TYPICAL GROUND BOX INSTALLATION**

**DETAIL 2**  
No Scale  
E-3/E-11

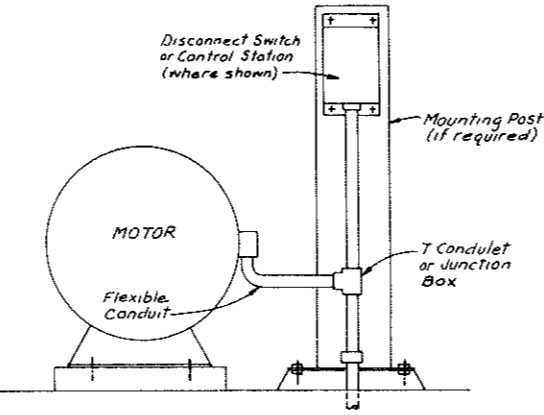


**DETAIL 5**  
No Scale  
E-11/E-11



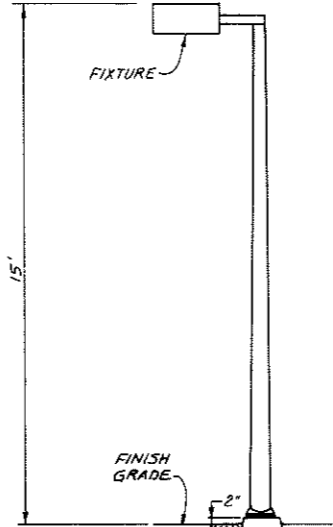
**TYPICAL MCC INSTALLATION**

**DETAIL 3**  
No Scale  
E-11/E-11



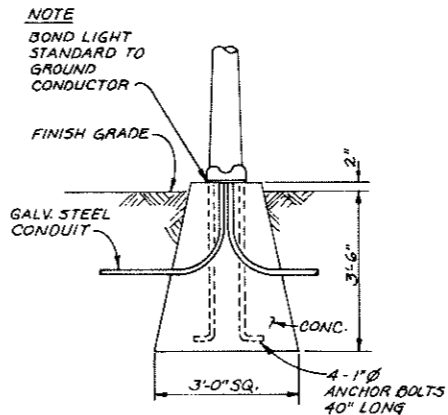
**TYPICAL MOTOR CONNECTION**

**DETAIL 6**  
No Scale  
E-11/E-11



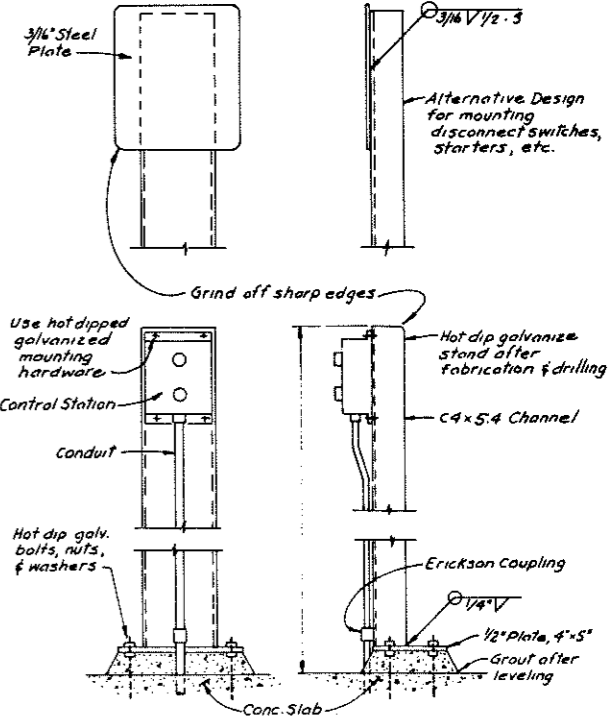
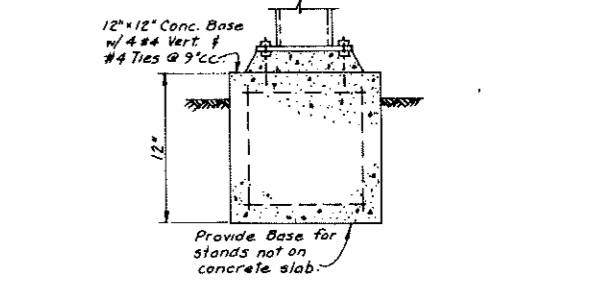
**MOUNTING OF AREA LIGHTS**

**DETAIL 7**  
NO SCALE  
E-11/E-11



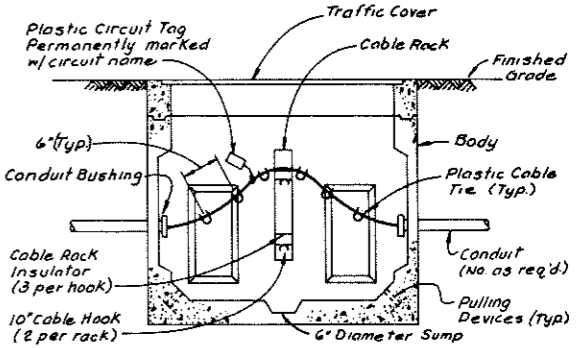
**BASE DETAIL (TYP)**

**NO SCALE**



**EQUIPMENT MOUNTING STAND**

**DETAIL 8**  
No Scale  
E-4/E-11



**TYPICAL PRECAST CONCRETE PULLBOX INSTALLATION**

**DETAIL 9**  
No Scale  
E-11/E-11



Revised	Description	Submit	Appr'd.	Date

Reference Information and Notes:	

Designed TIW	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>  Kennedy/Jenks/Chilton San Francisco
Drawn JC	
Checked TIW /RPR	
Date 1-6-89	
Submitted: <i>Nicholas J. Pappas</i>	
Approved: <i>[Signature]</i>	Marin Municipal Water District

Scale NONE
Job No. 880058.00
Sheet <b>E-11</b>
of

A B C D E F G H

**INSTRUMENT LEGEND**

FIRST LETTER INITIATING VARIABLE	SUCCESSING LETTERS OUTPUT FUNCTIONS
A	ALYSIS ALARM
B	
C	CONDUCTIVITY CONTROL
D	
E	POTENTIAL (VOLTS) PRIMARY ELEMENT
F	FLOW RATE
G	
H	HAND (MANUALLY) HIGH
I	INDICATE
J	POWER
K	TIME CONTROL STATION
L	LEVEL LIGHT PILOT / LOW
M	
N	STATUS
O	
P	PRESSURE/VACUUM
Q	QUANTITY INTEGRATE (TOTALIZE)
R	RECORD/PRINT
S	SIGNAL SWITCH
T	TEMPERATURE TRANSMIT
U	
V	
W	WEIGHT/FORCE/TORQUE
X	ISOLATE
Y	RELAY/COMPUTE
Z	POSITION DRIVE/ACTUATE

**FUNCTION DESIGNATION AND ABBREVIATIONS**

SYMBOL	FUNCTION
AFD	ADJUSTABLE FREQUENCY DRIVE
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
D	DERIVATIVE CONTROL ACTION
CPU	CENTRAL PROCESSOR UNIT
CS	CONTROL STRATEGY
I/O	INPUT/OUTPUT
I	INTEGRAL CONTROL ACTION
MCC	MOTOR CONTROL CENTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
P	PROPORTIONAL CONTROL ACTION
RCT	REPEAT CYCLE TIMER
SEL	SELECTOR
SP	SET POINT
T/H	TRACK/HOLD
	GENERALIZED SYMBOL FOR INTERLOCK-LOGIC NUMBER INDICATES THE DIAGRAM NUMBER SHOWN ON INSTRUMENTATION DRAWINGS
	REFERENCE TO ELEMENTARY DIAGRAM SHOWN ON THE ELECTRICAL DRAWINGS
	SOFTWARE FUNCTION
	REFERENCE TO OTHER SHEET DRAWING /COORDINATE
	PLC INPUT/OUTPUT POINT AS INDICATED
	GENERALIZED SYMBOL FOR INTERLOCK LOGIC PROVIDED BY ELECTRICAL. ADJACENT NUMBER INDICATES ELEMENTARY DIAGRAM NO.

**INSTRUMENT LINE SYMBOLS**

SYMBOL	DESCRIPTION
	PROCESS FLOW LINE
	PNEUMATIC SIGNAL
	HYDRAULIC SIGNAL
	ELECTRICAL SIGNAL
	MECHANICAL CONNECTION OR LINKAGE
	AIR SUPPLY
	ELECTRICAL SUPPLY (120 VAC)
	LINES CROSSING (NO CONNECTION)
	LINES JOINING

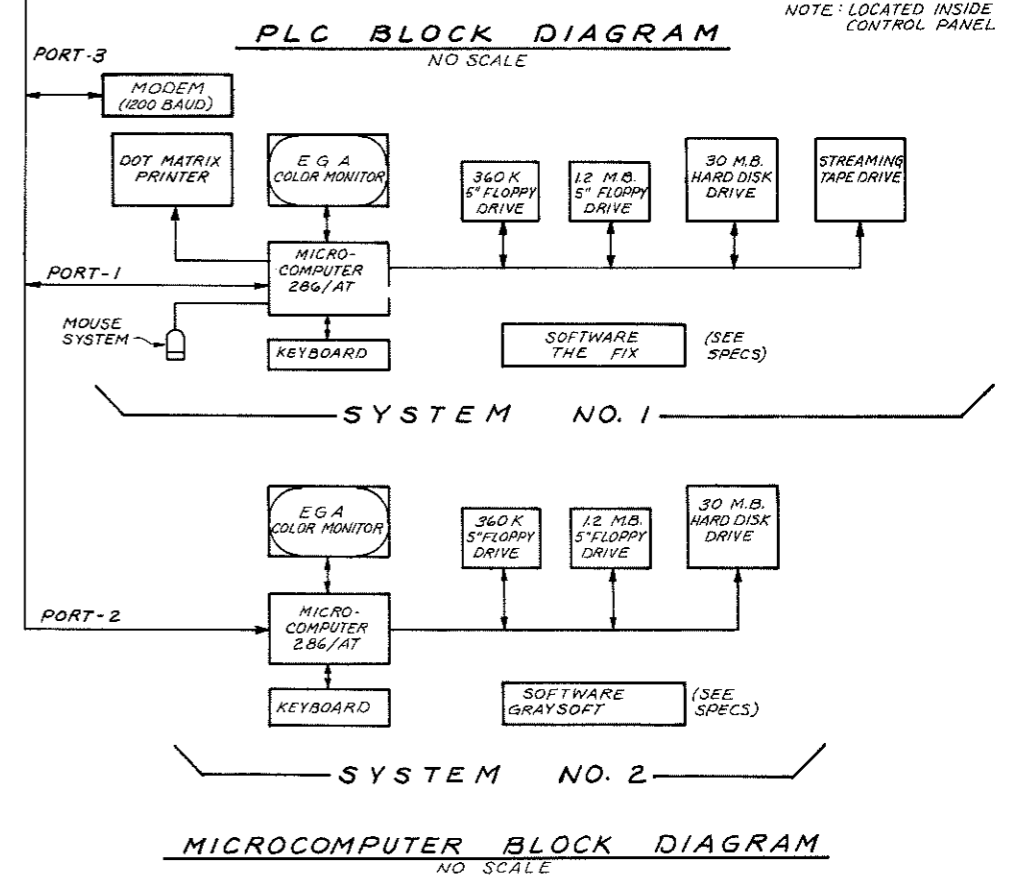
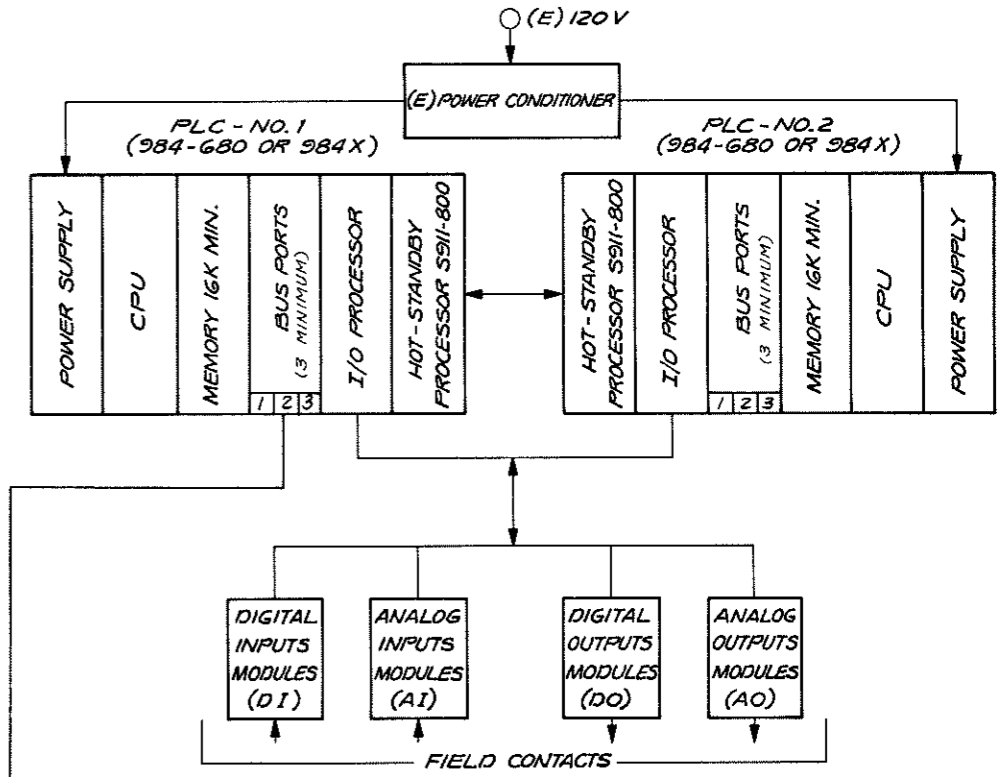
**INSTRUMENT SYMBOLS**

SYMBOL	DESCRIPTION
	PANEL MOUNTED INSTRUMENT
	FIELD MOUNTED INSTRUMENT
	INSTRUMENT MOUNTED INSIDE PANEL
	INDICATES LIGHT
	PRIMARY ELEMENT FLOW METER
	PITOT TUBE
	PROPELLER OR TURBINE METER
	ANNUNCIATOR WINDOW

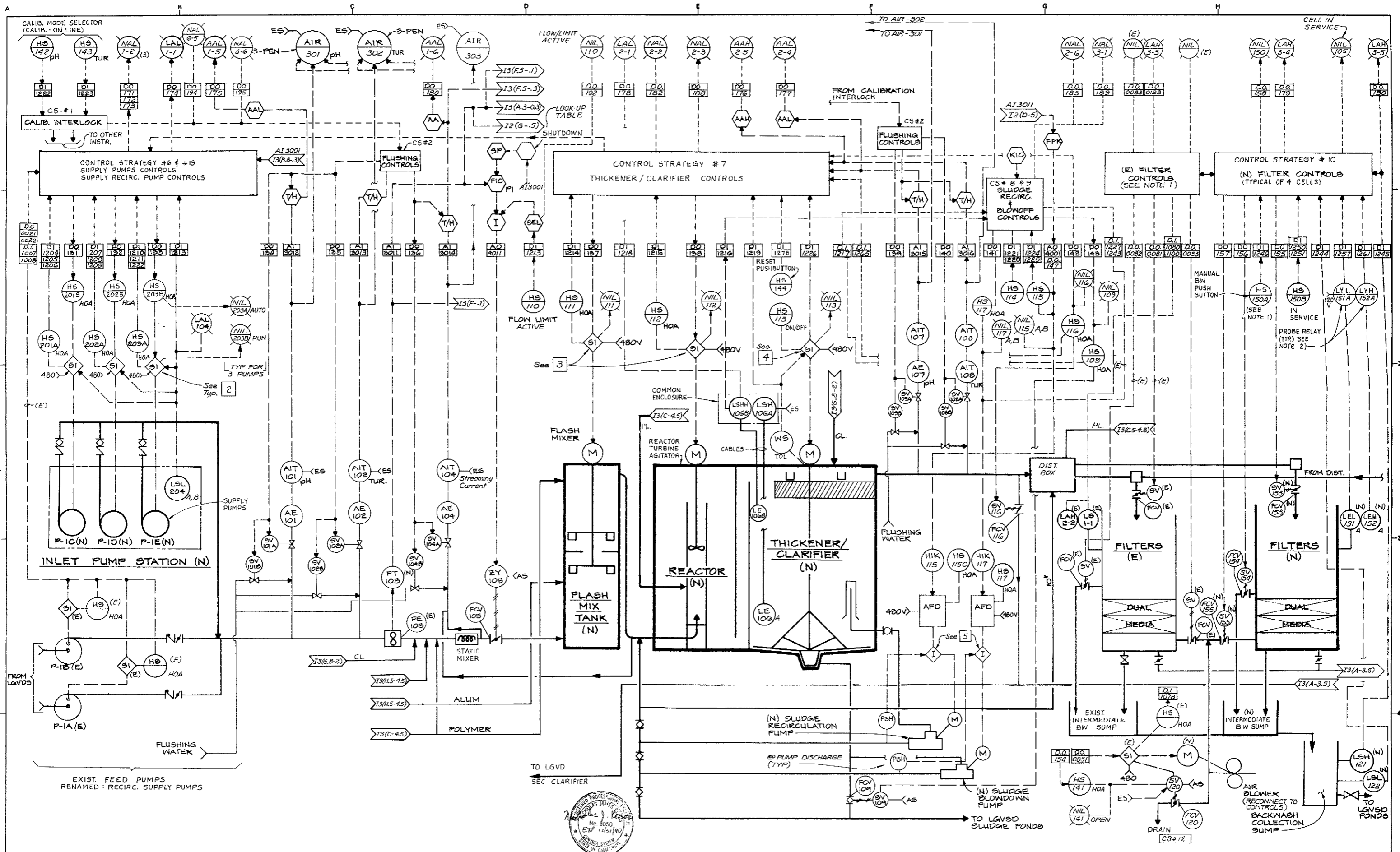
**GRAPHIC SYMBOLS**

GRAPHIC SYMBOL	DESCRIPTION
	SHUT OFF VALVE
	SLUICE GATE
	INSTRUMENT (TAG LIT-1)
	ROTARY MOTOR (SHOWN TYPICALLY WITH ELECTRIC SIGNAL)
	PURGE DEVICE (BUBBLER PANEL)
	PRESSURE REGULATOR
	PNEUMATIC ACTUATED BALL VALVE
	PUMP
	RUPTURE DISC.
	DIAPHRAGM SEAL

SUCCEEDING LETTERS } FUNCTIONAL IDENTIFICATION  
 MEASURED OR INITIATING VARIABLE } (SEE INSTRUMENT LEGEND)



Reference Information and Notes:				Designed: TIW	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b> Kennedy/Janka/Chilton San Francisco Submitted: <i>Nicholas J. Peros</i> Approved: <i>Sam W. [Signature]</i> Date: 1-6-89 Marin Municipal Water District		Scale: NONE
				Drawn: JC CAJ			Job No.: 880058.00
				Checked: TIW / RPR			Sheet: 1-1
				Date: 1-6-89			of: 1



**References Information and Notes:**  
 1. SIGNALS FOR FILTER CELLS G-B AND EXISTING FILTER CELLS 2-4, SEE SCHEDULES IN THE SPECIFICATIONS.  
 2. RELAYS FOR FILTER CELLS G-B USE DESIGNATIONS: LYL, LYH, 1B, C, D.  
 3. FOR MORE DETAILED PIPING SEE MECHANICAL DRAWINGS.

Designed TIW	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>	
Drawn ROO JC		
Checked TIW / RPR	Submitted by: <i>Nicholas J. Reur</i>	
Date 1-6-89	Approved: <i>[Signature]</i> Marin Municipal Water District	

San Francisco

**PROCESS AND INSTRUMENTATION  
DIAGRAM 1**

Scale NONE
Job No. 880058.00
Sheet <b>1-2</b>
of

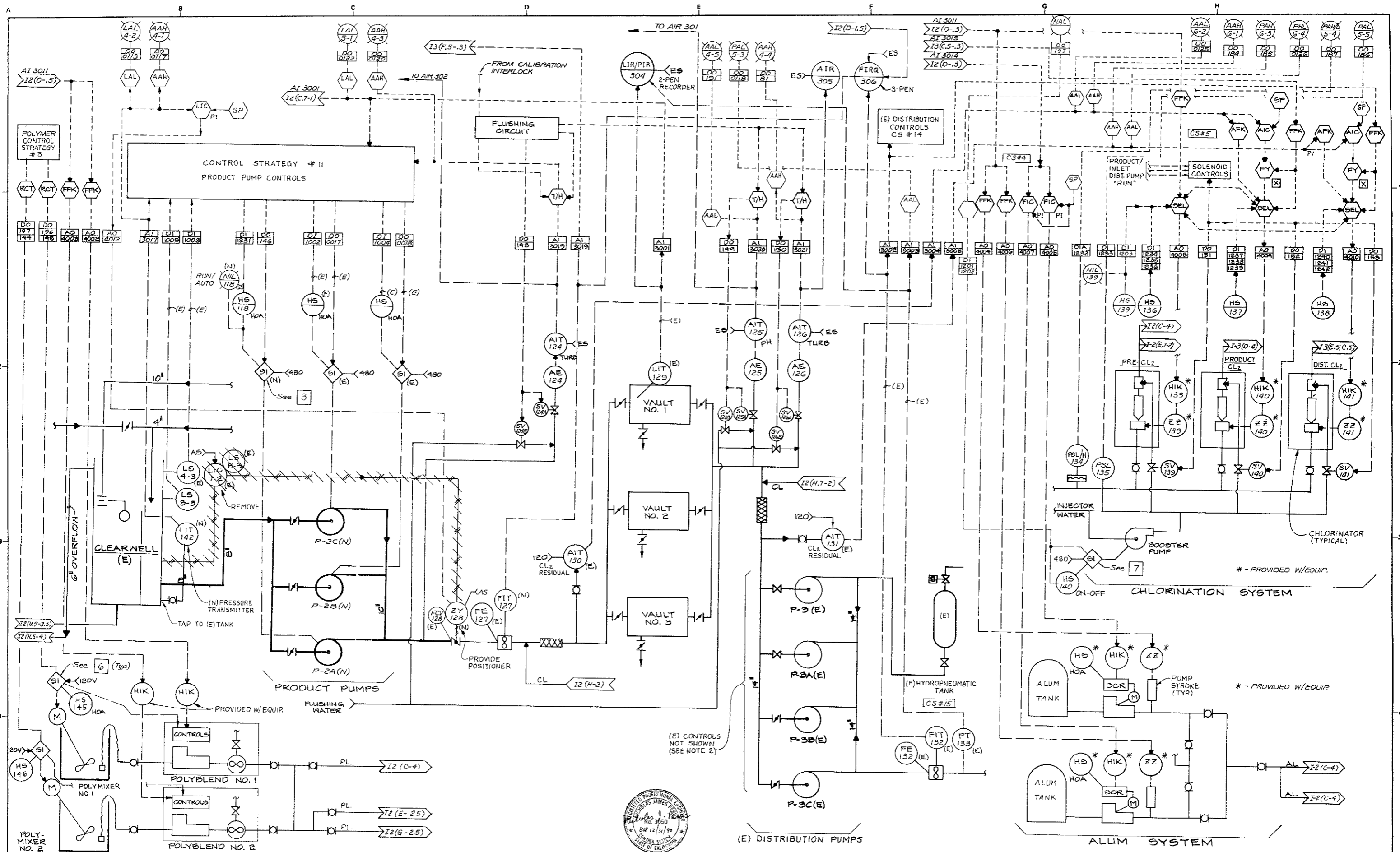
Page 51 of 57

Revised	Description	Submit	Appr'd	Date

Refer to Tracing for Latest Revision

ADDENDUM 2





Reference Information and Notes:  
 1. FOR MORE DETAILED PIPING, SEE MECHANICAL DRAWINGS.  
 2. EXISTING DISTRIBUTION PUMP SWITCHES & INDICATING LIGHTS ARE EXISTING. PLC SIGNALS ARE TABULATED IN THE SPECS.

Designed TIW	MMWD Las Gallinas Valley Reclamation Plant Improvements
Drawn ROO JC	Kennedy/Jenks/Chilton
Checked TIW / RPR	San Francisco
Date 1-6-89	Submitted: <i>Nicholas J. Peros</i> Approved: <i>[Signature]</i> Marin Municipal Water District

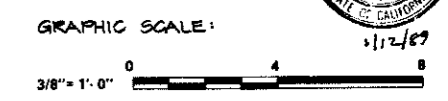
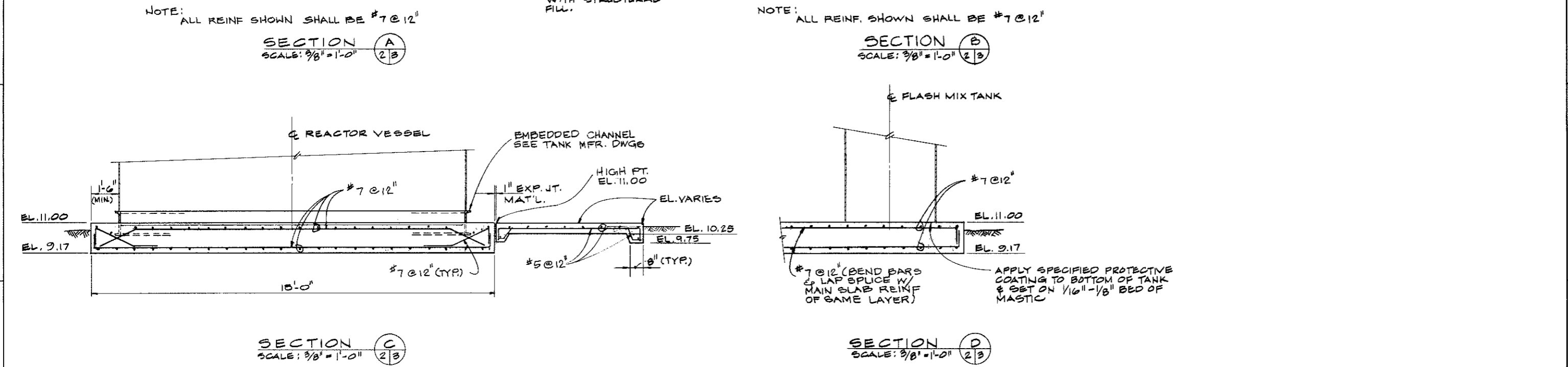
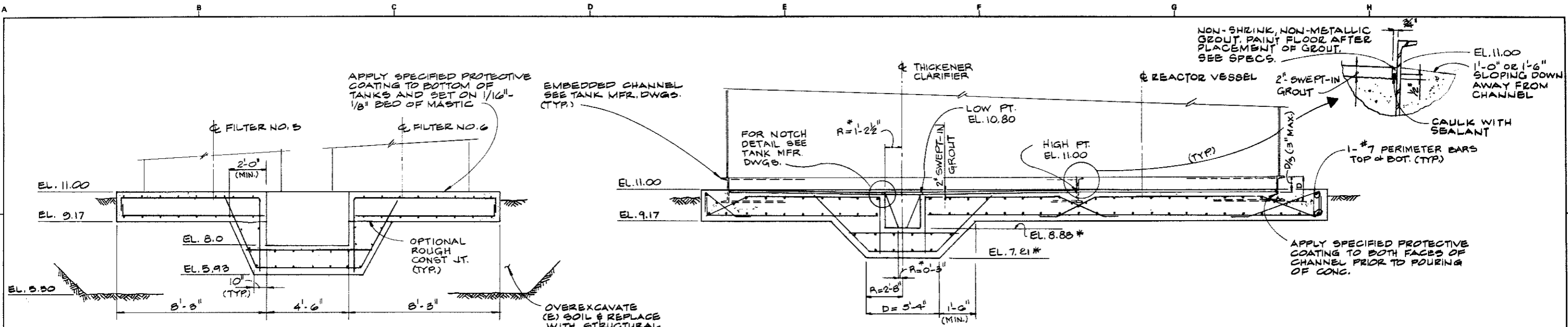
Scale: NONE  
 Job No.: 880058.00  
 Sheet: 1-3  
 of: 1-3  
**PROCESS AND INSTRUMENTATION  
 DIAGRAM 2**  
 Page 52 of 57

Revised	Description	Submit	App'd.	Date
APPENDIX 9 for Latest Revision				



## **Attachment C**

### **1989 Reference Drawings for “Box” Structures to be removed at MMWD Site**

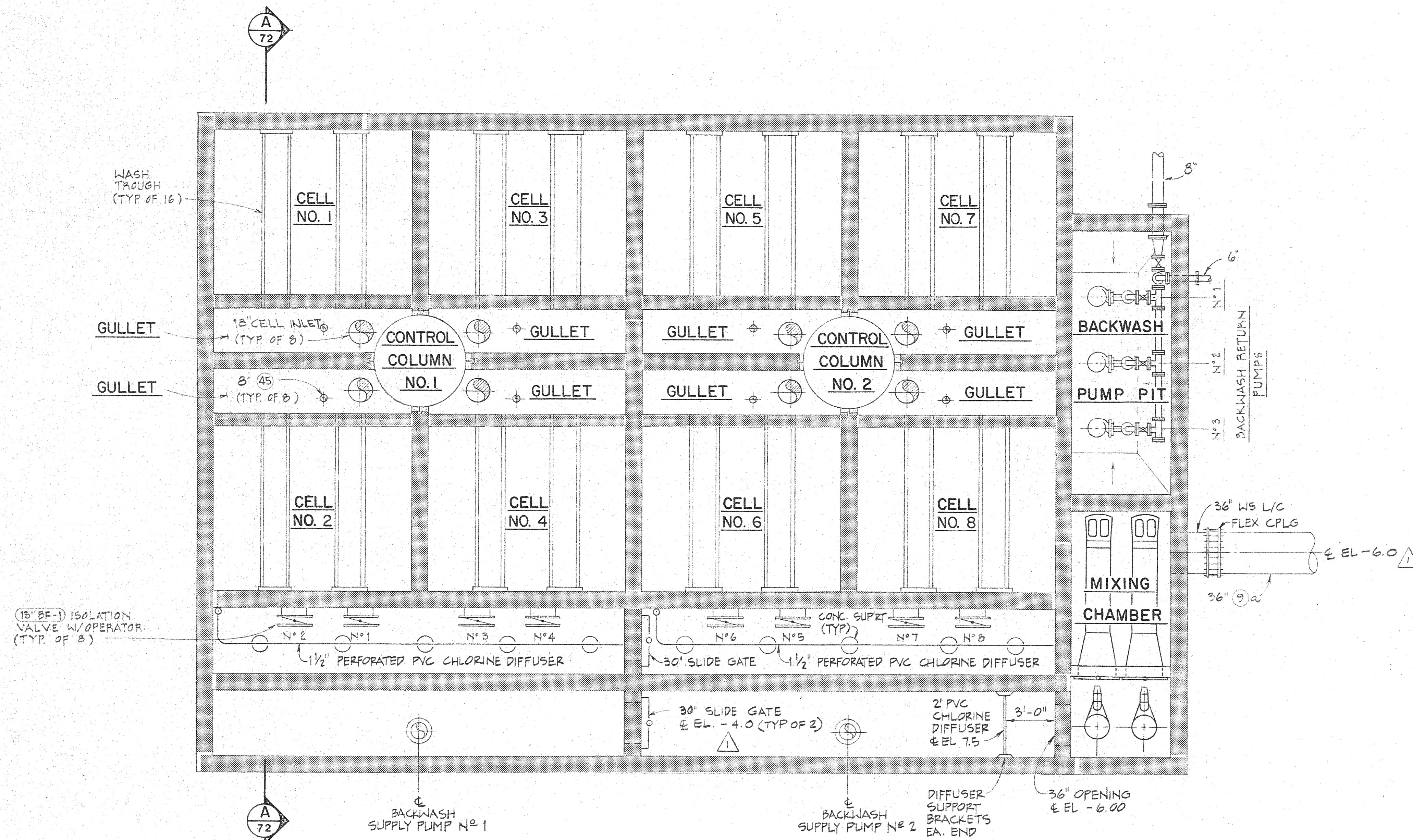


Reference Information and Notes:				Designed BF	<b>MMWD Las Gallinas Valley Reclamation Plant Improvements</b>		Scale AS NOTED
				Drawn SDA			
				Checked JAF	Submitted: Kennedy/Jenks/Chilton San Francisco		Sheet <b>S-3</b>
				Date 1-6-89	Approved: <i>Kevin M. McDermott</i> Marin Municipal Water District		

## **Attachment D**

### **1982 Reference Drawings for Deep Bed Filter Trough Structures**





**SECTIONAL PLAN**

These as built or record drawings for construction specifications have been prepared in part on the basis of information compiled and furnished by others. The Engineer will not be responsible for any errors or omissions or for any loss or damage incorporated into the drawings.

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OF  
180

AS BUILT	1/85
LAS GALLINAS VALLEY SANITARY DISTRICT Marin County, California	
WASTEWATER TREATMENT PLANT IMPROVEMENTS	
DEEP BED FILTERS PIPEWORK & EQUIPMENT SECTIONAL PLAN	
NUTE ENGINEERING SAN RAFAEL, CALIFORNIA	
Drawn by: J.C.	Scale: 1/4" = 1'-0"
Des/Chkd by: WEN	Date: JAN 1982