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May 19, 2010

Angelique Juarez-Garcia  
Compliance Project Manager  
Siting, Transmission and Environmental Protection Division  
California Energy Commission  
1516 Ninth Street, MS-2000  
Sacramento, CA 95814

<b>DOCKET</b>	
<b>02-AFC-4C</b>	
<b>DATE</b>	<u>MAY 19 2010</u>
<b>RECD.</b>	<u>MAY 19 2010</u>

**RE: SUPPLEMENTAL REQUEST FOR STAFF APPROVED PROJECT  
MODIFICATION: WALNUT ENERGY CENTER AUTHORITY WALNUT  
ENERGY CENTER (02-AFC-4C): INSTALLATION OF MICRO FILTER FEED  
TANK AND SHADE STRUCTURE**

Dear Ms. Juarez-Garcia:

I am writing on behalf of Walnut Energy Center Authority (“WECA”), the license holder for the Walnut Energy Center (“WEC”). On March 9, 2010, WECA filed a “Request For Staff Approved Modification: Walnut Energy Center Authority Walnut Energy Center (02-AFC-4C): Installation Of Micro Filter Feed Tank And Shade Structure” (the “March 9, 2010 Request”).

While the March 9, 2010 Request was complete and accurate, we have agreed to withdraw the March 9, 2010 Request and re-submit this Supplemental Request, adding additional detail, clarifying the location and function of certain facilities to be added to the WEC project site.

With this background, the purpose of this Supplemental Request is to obtain Energy Commission Staff approval for the following modifications to the WEC: (1) the addition of a new Micro Filter Feed Tank, and (2) the addition of a new Shade Structure to cover other portions of the Zero Liquid Discharge (“ZLD”) system. As described below, the Micro Filter Feed Tank is needed for WEC to continue to effectively operate its ZLD water treatment process. The Shade Structure is necessary to prevent sun damage to certain other components of the ZLD system.

**Micro Filter Feed Tank**

In January 2009, Turlock Irrigation District (“TID”) determined it was necessary to upgrade and optimize some of the internal components of the existing WEC ZLD system. The system was using multi-media filters to filter contaminants found in the reclaimed water. However, the multi-media filters were allowing excessive amounts of submicron material to pass through.

This submicron material then fouled downstream equipment, resulting in poor performance, reduced run times, increased cleaning frequency, increased energy consumption, and additional waste.

As an alternative, TID sought to replace the multi-media filters with micro filtration equipment that provides more effective and efficient filtration. Since TID was replacing existing equipment with similar equipment within the same ZLD system area, the change contemplated at that time was not a modification requiring an amendment to the WEC license. The replacement of the filtration equipment's internal systems did not change the design, operation or performance of the WEC. In essence, the internal workings of the existing system was considered to be a "black box."

TID initiated a Request for Proposal process for the micro filtration equipment in the Spring of 2009. The responsive bids included, among other things, the addition of a Micro Filter Feed Tank to contain the cooling tower blowdown stream as a feed point for the new micro filtration equipment. Given the prior advice that the ZLD system was essentially a black box, no linkage was seen between the inclusion of a new tank in the responsive bids and the possibility of a need to notify the CEC, given the CEC's continuing oversight of new facilities that may affect project description. As a result of not seeing this linkage, the Micro Filter Feed Tank was installed with the micro filtration equipment.

The Micro Filter Feed Tank is a 24,000 gallon fiberglass tank (12' diameter x 30' in height). It is gray in color, matching the other structures at the WEC, and is located in the ZLD water treatment process area. This new tank is not clearly visible from outside of the plant property. The Micro Filter Feed Tank was sized to meet the design requirements of the new micro filtration equipment and stores the cooling tower blowdown for use in the micro filters. The tank provides enough storage to handle brief upsets in the micro filters without affecting the cooling tower chemistry.

Included in Attachment 1 are four figures that depict the tank location and dimensions. Figure 1 shows the new Micro Filter Feed Tank, the tank in the middle of the three tanks shown. The Micro Filter Feed Tank is approximately 2 feet shorter than the HERO Reject Storage Tank (on the right side in the picture). Figure 2 is a "Certified for Construction" drawing of the Micro Filter Feed Tank that shows its dimensions. The Certified for Construction designation is set forth in the "Revisions" table, dated July 13, 2009.<sup>1</sup> Figure 3 is As Built drawing for the Micro

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<sup>1</sup> The Micro Filter Feed Tank is a pre-fabricated tank. Drawings for prefabricated tanks are typically not Engineer stamped drawings. For example, there are seven prefabricated tanks on the WEC site, none of which required Engineer stamped drawings. The California Building Standards Code does not require that prefabricated tanks be Engineer stamped. Instead, prefabricated tanks are designed to applicable codes. In this case, the Micro Filter Feed Tank was designed to ASTM D3299, ASTM D4097, and PS 15-69, as applicable, and the 2006 IBC.

Filter Tank Foundation Plan and Details. Figure 4 is an aerial of the WEC plant showing the locations of the Micro Filter Feed Tank and the “Shade Structure” described below. Finally, Appendix A is a memorandum from a Professional Engineer of the District’s Civil Engineering and Water Resources Administration Department documenting the reports and inspections associated with the “Microfiltration Feed Tank and Concrete Foundation.” This memorandum confirms, among other things, “During the construction and installation, Civil Engineering staff was present to observe soil compaction underneath the concrete foundation, formwork, rebar installation, concrete finishing, and installation of the feed tank and steel anchors.”

### **Shade Structure**

TID proposes to install the Shade Structure to protect specific components of the micro filtration equipment from sun damage. As shown in Attachment 1, Figure 4, the Micro Filter Feed Tank will not be covered by the Shade Structure. Instead, the Shade Structure will be built above certain Micro Filtration equipment, specifically, the Micro Filter membranes, pumping equipment and electrical controls. The primary purpose of the Shade Structure is to protect the Micro Filtration membranes from the damaging effects of sunlight and UV rays.

The Shade Structure would be 44’ long by 18’6” wide and approximately 13’ in height. The equipment and smaller ZLD system tanks that would be protected by the Shade Structure are approximately 7 feet in height. The Shade Structure would be supported by galvanized steel beams and the metal roof would be painted gray to match the rest of the WEC. Attachment 2 is a two-page, Engineer-stamped drawing of the Shade Structure.

### **Conclusion**

Based on these facts, the WECA believes that the inclusion of the Micro Filter Feed Tank and Shade Structure constitute an insignificant project change that can be approved by Staff. Pursuant to section 1769(a)(2), Title 20, California Code of Regulations, a formal amendment is not required if Energy Commission Staff determines that:

- There is no possibility that the modification may have a significant effect on the environment, and
- The modification will not result in a change to or deletion of a condition of certification, or make changes that would cause the project not to comply with applicable laws, ordinances, regulations, or standards (LORS).

Nevertheless, the information presented herein is consistent with the requirements of Section 1769 of the California Energy Commission regulations. The information presented herein provides a complete description of the proposed modifications, as required by Section

Supplemental Request  
Walnut Energy Center (02-AFC-4C):

May 19, 2010  
Page 4

1769(a)(1)(A). The information also includes a discussion of the necessity of the proposed changes, per Section 1769(a)(1)(B). The project modification is based on information that was not known during the time of the certification, and it does not undermine the assumptions, rationale, findings, or other bases for the final decision, per Sections 1769(a)(1)(C) and 1769(a)(1)(D). As discussed above, the modification does not have the potential to create any significant impacts on the environment and makes the project consistent with all applicable LORS, per Sections 1769(a)(1)(E) and 1769(a)(1)(F). The modification will not adversely affect the public, per Section 1769(a)(1)(G). In addition, the modification will have no adverse effects on nearby property owners, per Sections 1769(a)(1)(H) and 1769(a)(1)(I).

Should you have any questions, please do not hesitate to contact George Davies, Turlock Irrigation District Combustion Turbine Department Manager at (209) 883-3451 or me at 916-447-2166.

Sincerely,

ELLISON, SCHNEIDER & HARRIS L.L.P.



Jeffery D. Harris

Attorneys for Walnut Energy Center Authority

Attachments

cc: Chris Marxen, CEC, with Attachments

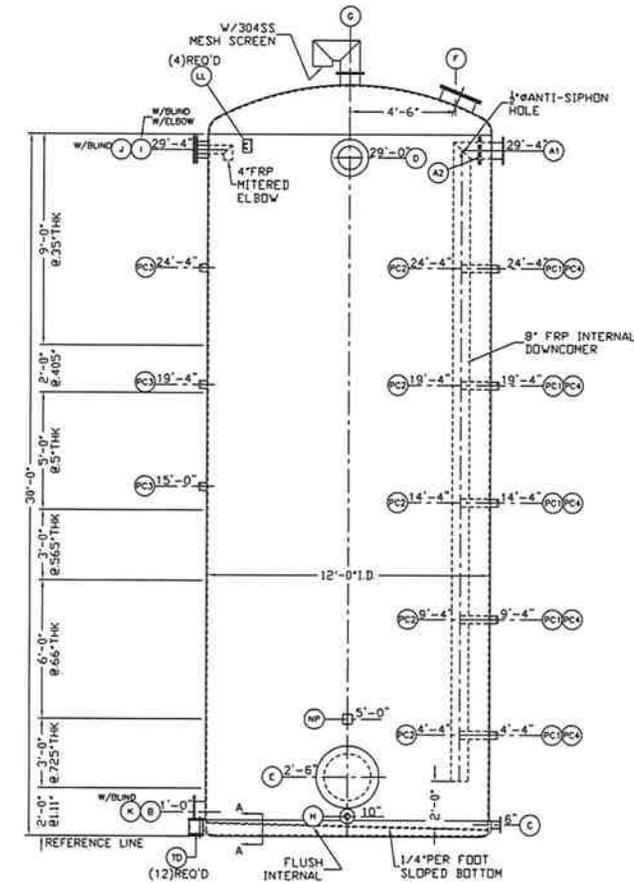
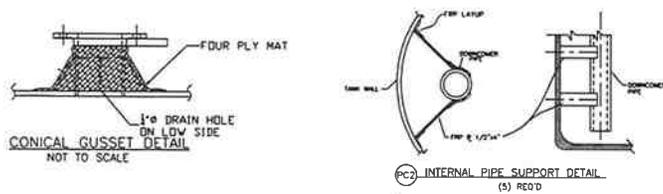
ATTACHMENT 1  
FIGURE 1  
MICRO FILTER FEED TANK

ATTACHMENT 1:FIGURE 1:Micro Filter Feed Tank



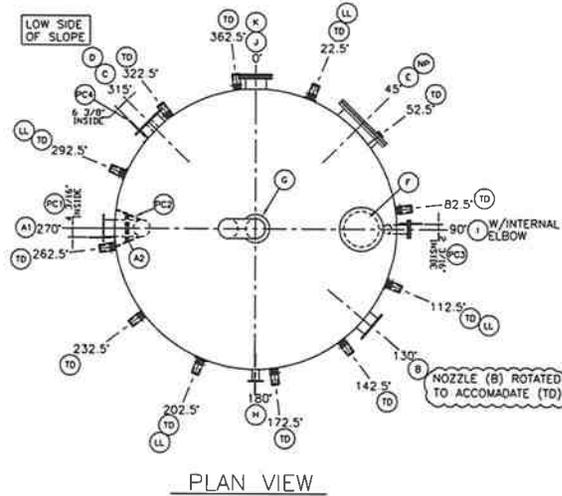
**ATTACHMENT 1**  
**FIGURE 2**  
**CERTIFIED FOR CONSTRUCTION DRAWING OF THE**  
**MICRO FILTER FEED TANK**

ATTACHMENT 1: FIGURE 2: Certified for Construction drawing of the Micro Filter Tank

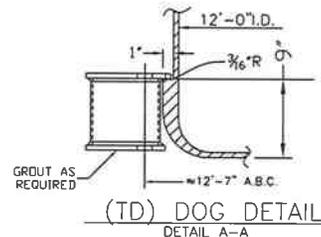
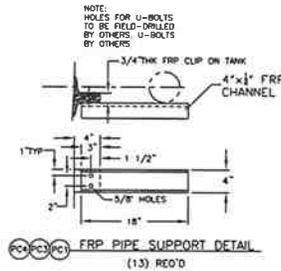


ELEVATION VIEW  
(TRUE ORIENTATION IN PLAN VIEW ONLY)

UNLESS OTHERWISE NOTED, ALL 150# FF FLANGES TO BE 25 PSI RATED.  
 Δ - CONICAL GUSSET    ○ - NON-GUSSETED



PLAN VIEW



APPROXIMATE ANCHOR BOLT CIRCLE IS 12'-7"Ø.  
 PLEASE NOTE DIAMOND RECOMMENDS THAT ANCHOR BOLTS BE SET AFTER TANK IS IN PLACE TO INSURE PROPER FIT. SEE IND5458A

NOZZLE SCHEDULE

MARK	SIZE	REO'D	DESCRIPTION	SERVICE	O.C. CHECK LIST		
					NOZ	MAN	FLG
A1	8"	1	EXT. 150# FF FLG W/INT. D/C INLET				
A2	8"	1	INTERNAL 150# FF FLG				
B	10"	1	150# FF FLG	INLET			
C	3"	1	150# FF FLG	DRAIN			
D	12"	1	150# FF FLG	OVERFLOW			
E	24"	1	SID. SIDE ENTRY	MANWAY			
F	18"	1	SID. TOP ENTRY	MANWAY			
G	10"	1	DUCT FLG. W/FRP MTRD. G/N VENT				
H	3"	1	150# FF FLG				
I	4"	1	150# FF FLG W/FRP BLIND/ELBOW	SPARE			
J	8"	1	150# FF FLG W/FRP BLIND	SPARE			
K	10"	1	150# FF FLG W/FRP BLIND	SPARE			
LD	---	12	CALVANIZED: SEE REF062B	GALV. TIE DOWN			
LL	---	4	CALVANIZED: SEE REF027	GALV. LIFT LUG			
NP	---	1	SEE REF010	OFF NAMEPLATE			
PC1	---	5	EXTERNAL: SEE DETAIL	(A) PIPE CLIPS			
PC2	---	5	INTERNAL: SEE DETAIL	(A) PIPE CLIPS			
PC3	---	3	EXTERNAL: SEE DETAIL	(D) PIPE CLIPS			
PC4	---	5	EXTERNAL: SEE DETAIL	(D) PIPE CLIPS			

NOTES:

RESIN, CORROSION LINER: ISOPHTHALIC POLYESTER  
 CORROSION LINER THICKNESS: 100 MILS NOMINAL  
 SURFACING VEIL: SINGLE PLY NEXUS

RESIN, STRUCTURAL: ISOPHTHALIC POLYESTER

GELCOAT: LIGHT GRAY WITH UV INHIBITORS

DOME TOP THK: 355" W/455" KNUCKLE INTERNAL FLOOR THK: .375"  
 FLAT BTM THK: .375" W/1.0" KNUCKLE  
 SIDEWALL THK: SEE ELEVATION VIEW

EXTERNAL NOZZLE PROJECTION: 6" FROM O.D. UNLESS OTHERWISE NOTED  
 INTERNAL NOZZLE PROJECTION: 2" FROM I.D. EXCEPT (H) TO BE FLUSH

GASKET MATERIAL: 1/8" THK NEOPRENE  
 BOLT MATERIAL: ZINC-PLATED

POST CURE REO'D: NO  
 HYDROTEST REO'D: NO

NOMINAL CAPACITY: 24,500 GAL.  
 TANK WEIGHT EMPTY: 8,378 LBS.  
 TANK WEIGHT FULL: 212,708 LBS.

DESIGN PRESSURE: ATMOSPHERIC DESIGNED WIND SPEED: 90MPH  
 DESIGN TEMPERATURE: AMBIENT DESIGNED SEISMIC ZONE: PER IBC 2006  
 DESIGN SPECIFIC GRAVITY: 1.0 Ss=.873 S1=.313 I=1.0  
 CONTENTS: WATER

TANK TO BE BUILT PER ASTM D3299, ASTM D4097, AND PS 15-69, AS APPLICABLE. PROPER VENTING OF THE VESSEL TO BE THE RESPONSIBILITY OF THE CUSTOMER. VENTS SHALL BE SIZED TO PREVENT ANY OCCURRENCE OF PRESSURE OR VACUUM BEYOND THE DESIGN PARAMETERS STATED ABOVE.

ALL ELEVATIONS TO BE MEASURED FROM REFERENCE LINE.

ALL NOZZLE BOLT HOLES TO STRADDLE TANK'S MAJOR CENTERLINES. ALL NOZZLES TO BE COVERED WITH PLYWOOD DURING TRANSIT.

FULL FACE GASKETS MUST BE USED ON ALL FIBERGLASS FLANGES. RING TYPE GASKETS ARE NOT SUITABLE.

FLANGE BOLT-UP TORQUE SHOULD NOT EXCEED 25 FT-LBS. FOR BOLTS UP TO 1/2" DIAMETER AND 50 FT-LBS. FOR 5/8" DIAMETER AND LARGER BOLTS.

APPLICABLE REFERENCE DRAWINGS

DWG NO.	DESCRIPTION	DWG NO.	DESCRIPTION
REF004	CONTACT MOLDED FLANGE	REF024	FRP MITRED VENT
REF005	NOZZLE INSTALLATION	REF027	GALV. LIFT LUG
REF010	OFF NAMEPLATE	REF062B	GALV. TIE DOWN
REF017	SIDE ENTRY MANWAY	REF137	18" TOP MANWAY

ASSEMBLY PARTS LIST

QTY	SIZE	DESCRIPTION	MATERIAL	SERVICE
1	24"	STD. SIDE ENTRY GASKET	NEOPRENE	MANWAY
20	5/8" X 3/4"	BOLTS, NUTS, WASHERS	PLATED	MANWAY
1	18"	STD. TOP ENTRY GASKET	NEOPRENE	MANWAY
16	3/8" X 2"	BOLTS, NUTS, WASHERS	PLATED	MANWAY
1	10"	DUCT GASKET	NEOPRENE	G
12	3/8" X 3/4"	BOLTS, NUTS, WASHERS	PLATED	G
1	4"	BLIND/GASKET	FRP/NEO	I
8	5/8" X 3/4"	BOLTS, NUTS, WASHERS	PLATED	I
1	8"	BLIND/GASKET	FRP/NEO	J
8	3/4" X 3/4"	BOLTS, NUTS, WASHERS	PLATED	J
1	10"	BLIND/GASKET	FRP/NEO	K
12	7/8" X 1/2"	BOLTS, NUTS, WASHERS	PLATED	K
26	1/2" X 2"	BOLTS, NUTS, WASHERS	PLATED	PC1, PC3

THIS DRAWING IS PROPERTY OF DIAMOND FIBERGLASS. ALL RIGHTS TO THE DESIGN SHOWN IN THE DRAWING, INCLUDING THE RIGHT TO PROTECTION THEREOF BY PATENT OR OTHERWISE ARE RESERVED BY DIAMOND FIBERGLASS. THE DRAWING MUST NOT BE COPIED OR ITS CONTENTS MADE KNOWN OR AVAILABLE TO THIRD PARTIES WITHOUT THE PRIOR WRITTEN CONSENT OF DIAMOND FIBERGLASS.

NUMBER REQUIRED: 1

DESIGN NO. 5504415  
 TANK SERIAL #  
 TANK COMPLETION DATE:  
 DRAWN BY: 2/27/09  
 PLOT: APV, BT

MODEL NO. VI230 DT-SB  
 MF FEED TANK  
 TURLOCK IRRIGATION DISTRICT  
 WALNUT ENERGY CENTER  
 TURLOCK, CALIFORNIA

REV	DATE	DESCRIPTION	BY	CHKD
0	6-11-09	SUBMITTED FOR CUSTOMER APPROVAL		
1	6-24-09	REVISED PER CUSTOMER COMMENTS		
2	7-07-09	RE-SUBMITTED FOR CUSTOMER APPROVAL		
3	7-13-09	ADDED PIPE CLIPS FOR (D) AND ELBOW ON (I)		
4		RE-SUBMITTED FOR CUSTOMER APPROVAL		
5		APPROVED AS SUBMITTED, CERTIFIED FOR CONSTRUCTION		

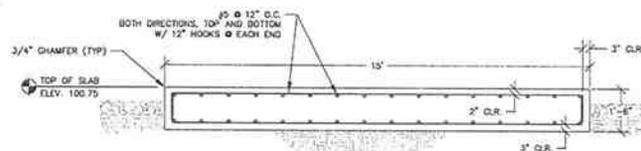
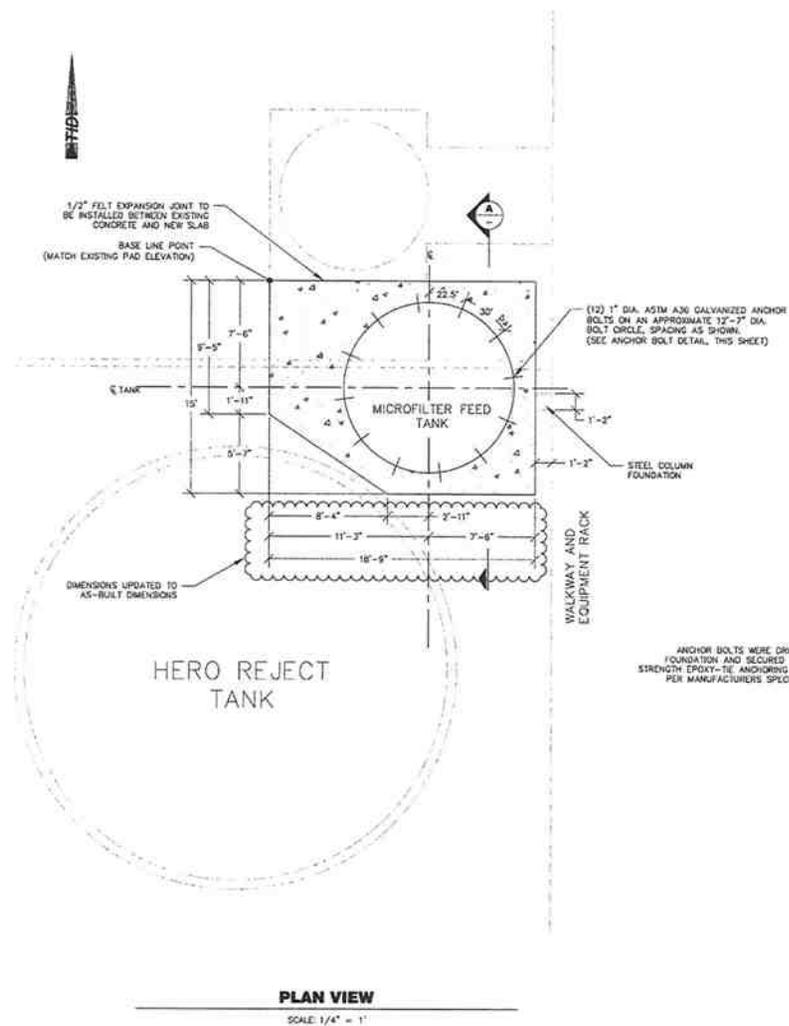
SCALE 3/8"=1'-0"  
 DRAWN DATE 6-3-09

DWG NO. IND5458  
 REV 3

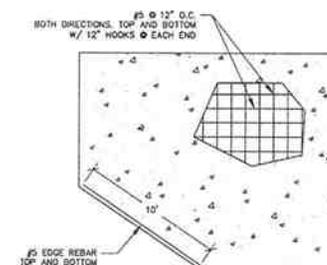
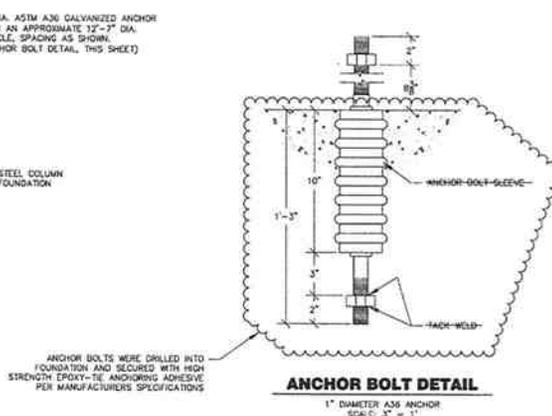


1038 Industrial Park Dr. Victoria, Texas 77905  
 Tel (361) 572-6040 Fax (361) 573-0451  
 www.diamondfiberglass.com

**ATTACHMENT 1**  
**FIGURE 3**  
**AS BUILT DRAWING FOR THE MICRO FILTER TANK**  
**FOUNDATION PLAN AND DETAILS**



**A SLAB CROSS-SECTION**  
SCALE: 1/2" = 1'



**REINFORCING DETAIL**  
SCALE: 1/4" = 1'

**GENERAL NOTES**

1. THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 4000 PSI AT 28 DAYS.
2. ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60 AND HAVE A MINIMUM CONCRETE COVER OF 2" UNLESS OTHERWISE NOTED.
3. ALL EXPOSED CONCRETE EDGES ARE TO HAVE A 3/4" CHAMFER.
4. ALL STEEL SPLICES SHALL BE A MINIMUM OF 43" IN LENGTH. LOCATIONS OF SPLICES ARE NOT CRITICAL AND CAN BE LOCATED AS REQUIRED.
5. ALL HOOKS ARE STANDARD DIMENSIONS. EMBEDMENT LENGTH FOR BARS THAT TERMINATE IN A STANDARD HOOK SHALL BE 12" AS A MINIMUM FOR 4000 PSI CONCRETE.
6. ANCHOR BOLT LOCATIONS AND GROUTING REQUIREMENTS SHALL FOLLOW VENDOR SPECIFICATIONS.
7. SOIL IS TO BE EXCAVATED SUFFICIENTLY TO ESTABLISH PAD SURFACE ELEVATION. THE AREA OF DISTURBED SOIL IS TO BE COMPACTED TO 95% RELATIVE COMPACTION.



**AS-BUILT**

REV	DATE	DESCRIPTION	DR	CHK	APPV	DATE	DESCRIPTION	DR	CHK	APPV	DATE	DESCRIPTION
1.2	08/07/11	AS-BUILT										

CE&WO ADMINISTRATION  
WEC Microfiltration Project

MICROFILTRATION FEED TANK  
FOUNDATION PLAN  
AND DETAILS

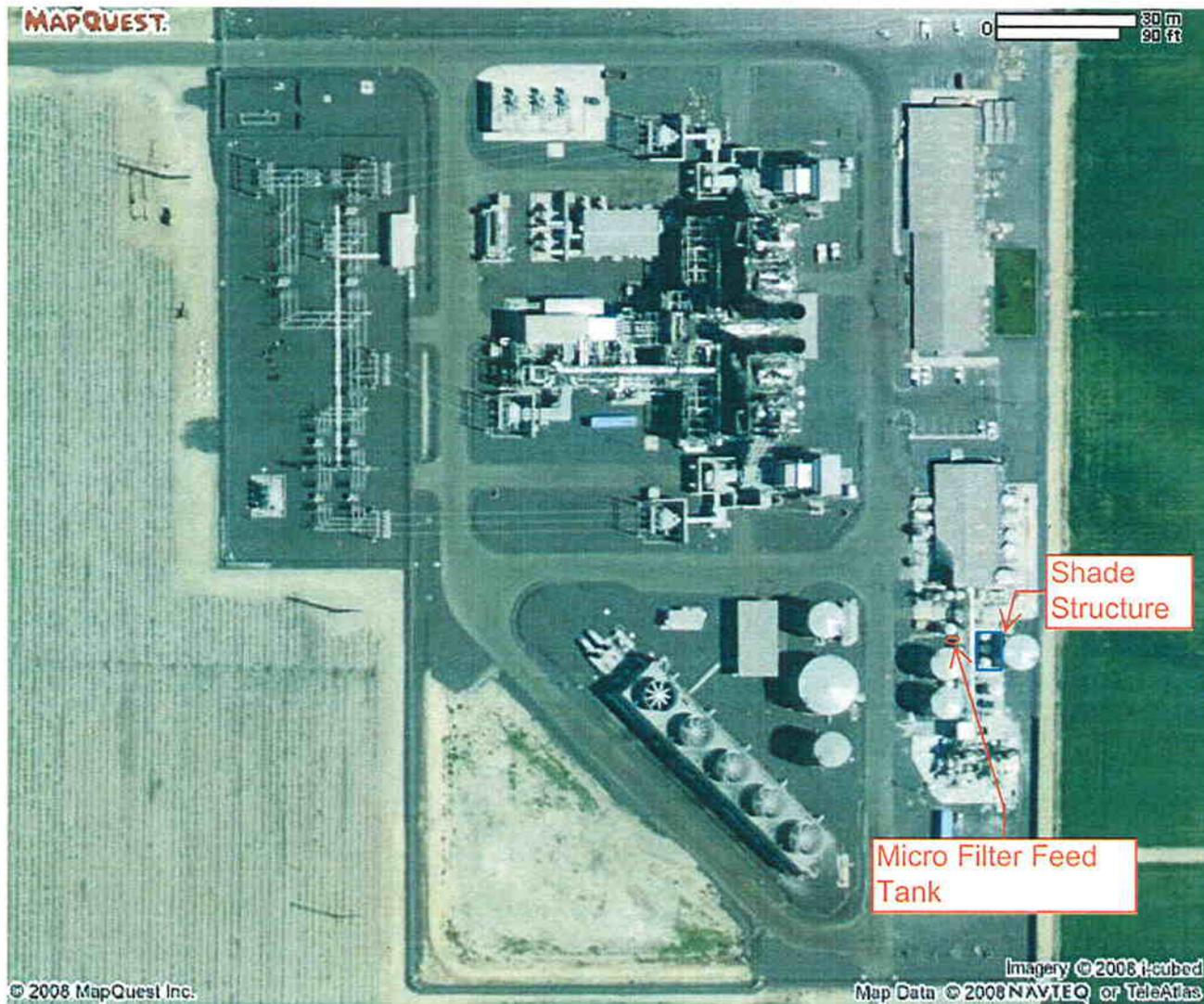
D	SOUND	AS SHOWN
S	SHEET	3 OF 3
P	FILE #	
REV #	2409	

ATTACHMENT 1

FIGURE 4

AERIAL OF THE WEC PLANT SHOWING THE  
LOCATIONS OF THE MICRO FILTER FEED TANK AND  
THE “SHADE STRUCTURE”

ATTACHMENT 1: FIGURE 4: Aerial of the WEC plant showing the locations of the Micro Filter Feed Tank and the "Shade Structure"



**ATTACHMENT 2**  
**ENGINEER-STAMPED DRAWING OF THE**  
**SHADE STRUCTURE – PAGES 1 & 2**

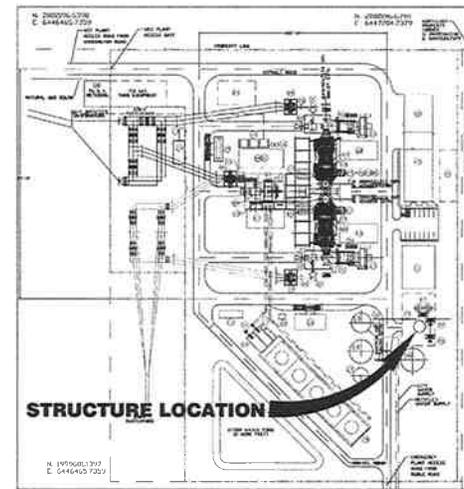
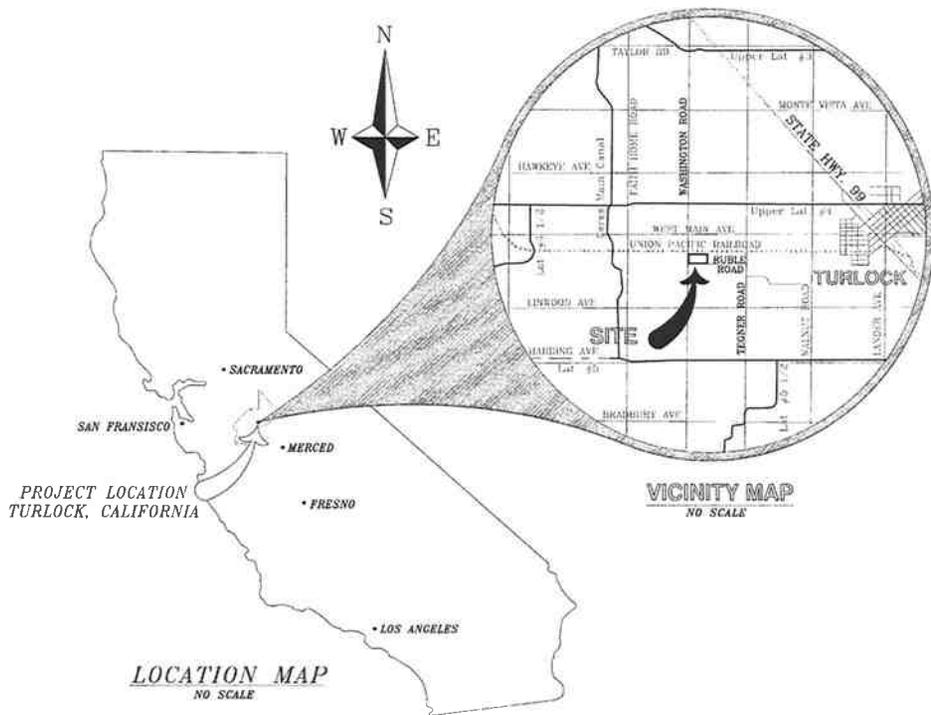
PROJECT PLANS FOR  
**WALNUT ENERGY CENTER**  
**Z.L.D. - PALL M.F.S. SHADE STRUCTURE**

**PROJECT DATA**

PROJECT: ZLD PALL MTS SHADE STRUCTURE  
 PROJECT LOCATION: WALNUT ENERGY CENTER  
 600 S. WASHINGTON ROAD  
 TURLOCK, CA 95380  
 TECHNICAL CONTACT: **TURLOCK IRRIGATION DISTRICT**  
 TOLU HER  
 SENIOR CIVIL ENGINEER  
 (209) 663-8365

**SHEET INDEX**

TITLE	SHEET NO.
TITLE SHEET	1
PLAN AND DETAILS	2



**UNAUTHORIZED CHANGES & USES**  
 CAUTION: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.



NO.	DATE	DESCRIPTION	BY	CHECKED	DATE	APPROVED	DATE

**C.E.W.A.A. - CIVIL ENGINEERING**

**WALNUT ENERGY CENTER**

ZLD - PALL M.F.S.  
SHADE STRUCTURE  
PLAN @ FL. 113'-9" & SECTIONS

SCALE: 1" = 40' SHOWN

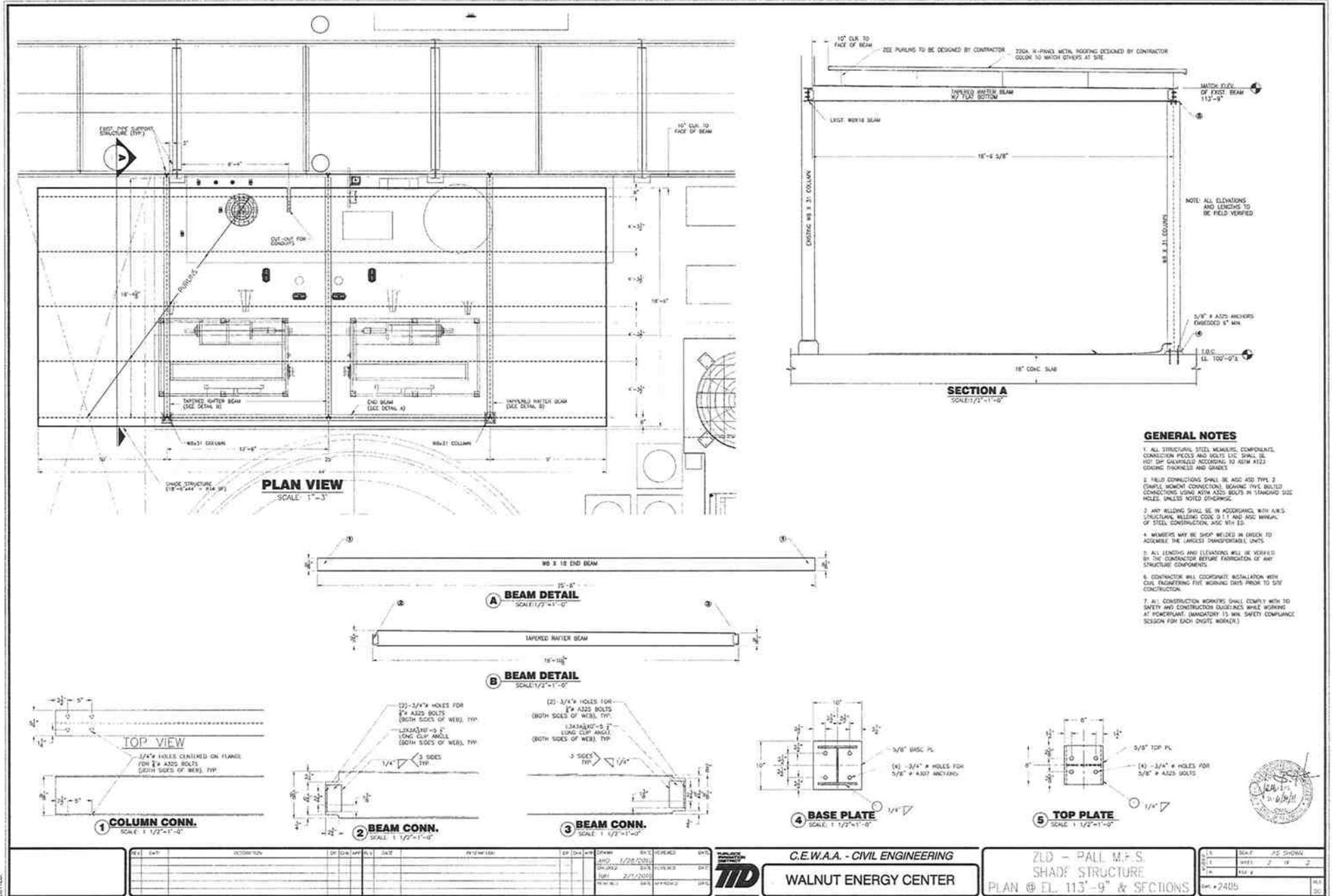
DATE: 11/28/2018

BY: [Signature]

CHECKED: [Signature]

DATE: 12/11/2018

APPROVED: [Signature]



P.LOTTED

REV.	DATE	DESCRIPTION	BY	CHKD.	DATE

**C.E.W.A.A. - CIVIL ENGINEERING**  
**WALNUT ENERGY CENTER**

**ZLD - PALL M.F.S.**  
**SHADE STRUCTURE**  
**PLAN @ EL. 113'-9" & SECTIONS**

NO.	REV.	BY	CHKD.
1			
2			
3			
4			

NO. 2485



## APPENDIX A

Memorandum from a Professional Engineer of the District's Civil  
Engineering and Water Resources Administration Department



**CIVIL ENGINEERING AND WATER  
RESOURCES ADMINISTRATION**

**MEMORANDUM**



To: George Davies  
cc: Les Barrigar  
From: Tou Her  
Date: May 19, 2010  
Re: Microfiltration Feed Tank and Concrete Foundation

The microfiltration feed tank concrete foundation was prepared and constructed by September 08, 2009. The feed tank was subsequently installed and anchored in place by October 19, 2009. During the construction and installation, Civil Engineering staff was present to observe soil compaction underneath the concrete foundation, formwork, rebar installation, concrete finishing, and installation of the feed tank and steel anchors. The following observations and conclusions were made:

1. Soil underneath the concrete foundation was well compacted and meets the relative compaction requirements of 95 percent.
2. All forms and rebars were inspected prior to concrete pour. Rebar size, spacing, clearances, splice lengths, and hooks meet specifications. All rebar intersections were tied.
3. Concrete foundation area was free of all debris. Concrete delivery times were verified to be acceptable. Concrete mix descriptions were consistent and meet design specifications.
4. The steel anchors were drilled and set in place with high strength epoxy at locations specified. Anchor bolt sleeves were not used.
5. Overall preparation, construction, and installation of the microfiltration feed tank and concrete foundation was completed per plans and specifications.