

PANELBOARD SCHEDULE													
CKT NO	USAGE	QTY	VA			BRKR	CKT NO	USAGE	QTY	VA			BRKR
			PHASE A	PHASE B	PHASE C					PHASE A	PHASE B	PHASE C	
1	TRANSFORMER D		5000			30/3	2	BIOSTYR		11085			50/3
3				5000		-	4			11085			-
5					5000	-	6				11085		-
7	BIOFOR UNIT-C		6928			30/3	8	BIOFOR UNIT-N		6928			30/3
9				6928		-	10			6928			-
11					6928	-	12				6928		-
13	MINIPOWER ZONE XFMR		1260			20/2	14	SUMP PUMP PANEL		333			20/3
15				540		-	16			333			-
17	SPARE					20/3	18				333		-
19						-	20	SPARE					30/3
21						-	22						-
23	SPACE					-	24						-
PHASE VA SUBTOTALS			13188	12468	11928		PHASE VA SUBTOTALS			18346	18346	18346	
PHASE VA TOTALS							PHASE VA TOTALS			31534	30814	30274	
PANELBOARD VA TOTALS							PANELBOARD VA TOTALS					92622	
PANELBOARD AMPS TOTALS							PANELBOARD AMPS TOTALS					11.4 A	

PANEL NO: DP-1
EQUIPMENT TAG:
LOCATION:
VOLTAGE: 480 VAC
MAIN BREAKER: 225A
BUS SIZE: 225A

MOUNTING: DP-1
TYPE: NEMA 3R
PHASE: 3 PHASE
WIRE: 3
SHORT CIRCUIT: 65 KAIC

PANELBOARD SCHEDULE													
CKT NO	USAGE	QTY	VA			BRKR	CKT NO	USAGE	QTY	VA			BRKR
			PHASE A	PHASE B	A/PLS					PHASE A	PHASE B	A/PLS	
1	RECEPTACLES		540			20/1 GFCI	2	RECEPTACLES		720			20/1 GFCI
3	RECEPTACLES			540		20/1 GFCI	4	SPARE					20/1
5	SPARE					20/1	6	SPARE					20/1
7							8						
PHASE VA SUBTOTALS			540	540			PHASE VA SUBTOTALS			720			
PHASE VA TOTALS							PHASE VA TOTALS			1260	540		
PANELBOARD VA TOTALS							PANELBOARD VA TOTALS					1800	
PANELBOARD AMPS TOTALS							PANELBOARD AMPS TOTALS					7.5 A	

PANEL NO: PNL P
EQUIPMENT TAG:
LOCATION:
VOLTAGE: 120/240 VAC
MAIN BREAKER: 40A
BUS SIZE: 40A (MIN)

MOUNTING: PNL P
TYPE: NEMA 3R
PHASE: 1 PHASE
WIRE: 1
SHORT CIRCUIT: 22 KAIC

NOTES:

- REPLACE EXISTING STARTER AND MCP FOR OTI-BLV-02 WITH A 225AF, 175AT, 480V, 65KAIC, 3-POLE MOLDED CASE CIRCUIT BREAKER.
- REPLACE EXISTING STARTER AND MCP FOR OTI-CPS-01 WITH A 20AF, 20AT, 480V, 65KAIC, 3-POLE MOLDED CASE CIRCUIT BREAKER.
- FUTURE RELOCATED FEED. REFERENCE ELECTRICAL SITE PLAN FOR RELOCATION.
- PROVIDE 3-POLE CIRCUIT BREAKER.
- PROVIDED BY OTHERS.
- PROVIDE HOA SWITCH AND RUN LIGHT.
- PROVIDED BY EQUIPMENT MANUFACTURER.

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BROWN AND CALDWELL

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

SCALE: HORIZONTAL NONE, VERTICAL NONE

METROPOLITAN WASTEWATER DEPARTMENT
City of San Diego

DRAWING STATUS									
NO.	DATE	REQ.	REVISION DESCRIPTION	DRAWN	CKD	APD	PE	EM	DA/QC

DRAWING NO. E-02
SHEET NO. 20

POINT LOMA WASTE WATER TREATMENT PLANT
BIOLOGICAL AERATED FILTER PILOT STUDY

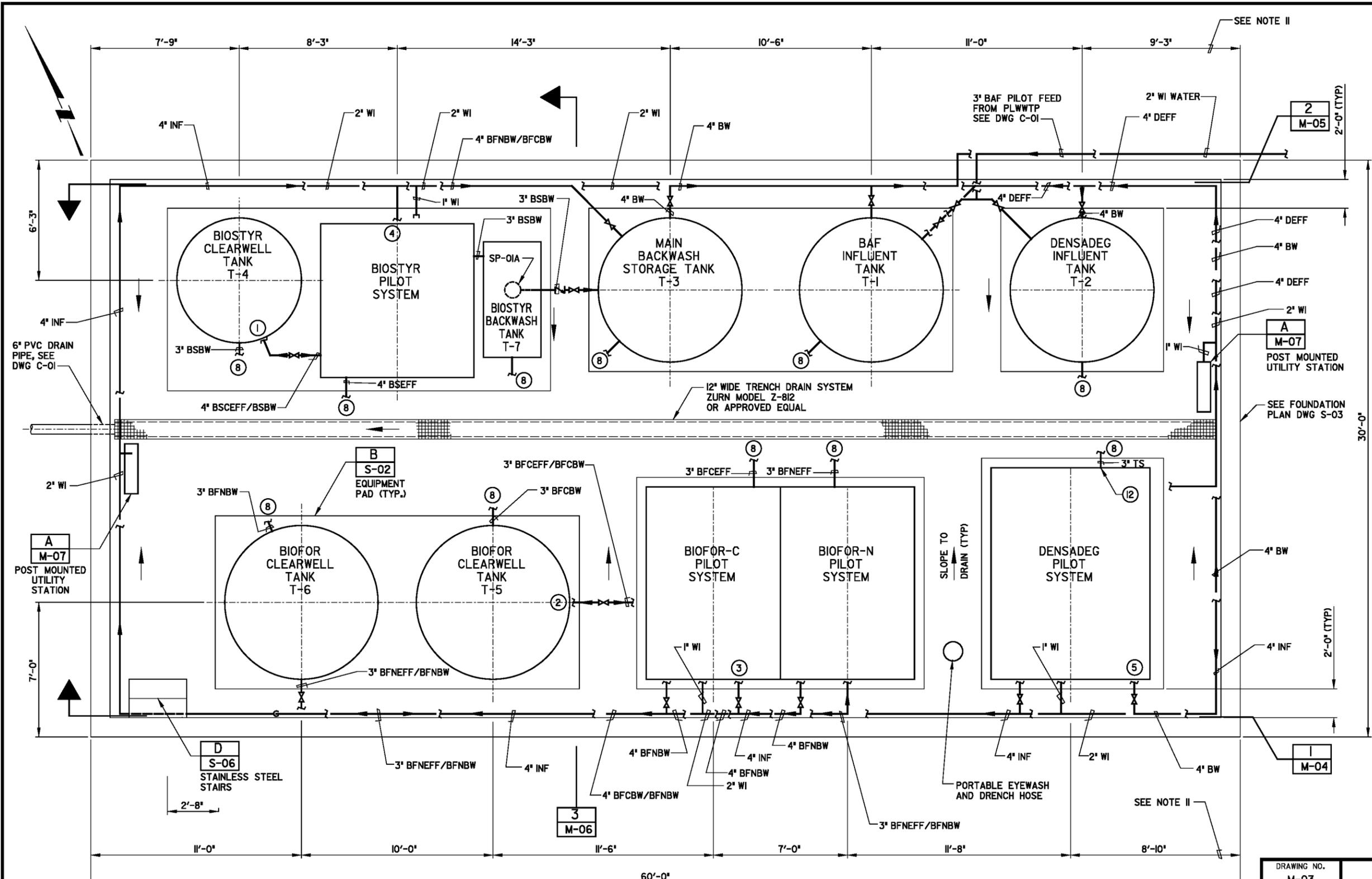
ELECTRICAL SINGLE LINE DIAGRAM AND PANELBOARD SCHEDULES

CITY OF SAN DIEGO, CALIFORNIA
SHEET 20 OF 22 SHEETS

WATER W.O. NA
SEWER W.O. NA

CONTRACTOR: _____ DATE STARTED: _____
INSPECTOR: _____ DATE COMPLETED: _____

00000-20-D



- NOTES:**
- MANUFACTURER SHALL CONNECT BIOSTYR PILOT SYSTEM EFFLUENT PIPING TO CLEARWELL TANK.
 - MANUFACTURER SHALL CONNECT BIOFOR PILOT SYSTEMS EFFLUENT PIPING TO CLEARWELL TANK.
 - MANUFACTURER SHALL CONNECT INFLUENT PIPING TO BIOFOR-C PILOT SYSTEM.
 - MANUFACTURER SHALL CONNECT INFLUENT PIPING TO BIOSTYR INFLUENT INLET.
 - MANUFACTURER SHALL CONNECT 4-INCH BACKWASH PIPING TO DENSADEG PILOT SYSTEM.
 - MANUFACTURER SHALL CONNECT 4-INCH BACKWASH PIPING TO BIOFOR-C PILOT SYSTEM.
 - MANUFACTURER SHALL CONNECT 4-INCH BACKWASH PIPING TO BIOSTYR PILOT SYSTEM.
 - FILANC SHALL PROVIDE 3-INCH TANK OVERFLOW AND TANK DRAIN PER DETAIL "F", DWG. M-07.
 - FILANC SHALL COORDINATE SIZING OF CONCRETE PAD WITH MANUFACTURER.
 - CENTER LINES DISTANCES ARE APPROXIMATE PER NOTE 10, DWG G-02
 - FILANC TO FURNISH PORTABLE EYEWASH AND SHOWER.
 - FILANC SHALL PROVIDE AND INSTALL SAMPLE TAP. LOCATIONS AND QUANTITIES SHALL BE COORDINATED WITH DWG M-01 AND FIELD ENGINEER.
 - FILANC SHALL INSTALL PIPE SUPPORTS PER DETAILS D AND E, DWG M-07 AND SPECIFICATION SECTION 15020.

PIPING SHOWN IS SCHEMATIC ONLY. FILANC SHALL COORDINATE ACTUAL ROUTING AND QUANTITIES IN ACCORDANCE WITH DRAWING M-01 AND BROWN AND CALDWELL'S FIELD ENGINEER

DRAWING NO. M-03		POINT LOMA WASTE WATER TREATMENT PLANT BIOLOGICAL AERATED FILTER PILOT STUDY	
SHEET NO. 8		MECHANICAL PLAN	
CITY OF SAN DIEGO, CALIFORNIA SHEET 8 OF 22 SHEETS		WATER W.O. NA	SEWER W.O. NA
PROJECT MANAGER _____ DATE _____		DESIGN ENGINEER _____	
DESCRIPTION BY APPROVED DATE FILMED		CONTROL CERTIFICATION	
CONTRACTOR _____ DATE STARTED _____		188-1692 LAMBERT COORDINATES	
INSPECTOR _____ DATE COMPLETED _____		00000-08-D	

DRAWING STATUS										
NO.	DATE	REQ.	REVISION	DESCRIPTION	DRAWN	CKD	APD	PE	EM	QA/QC

METROPOLITAN WASTEWATER DEPARTMENT
City of San Diego

BROWN AND CALDWELL

SCALE: HORIZONTAL 3/8" = 1'-0" VERTICAL NONE

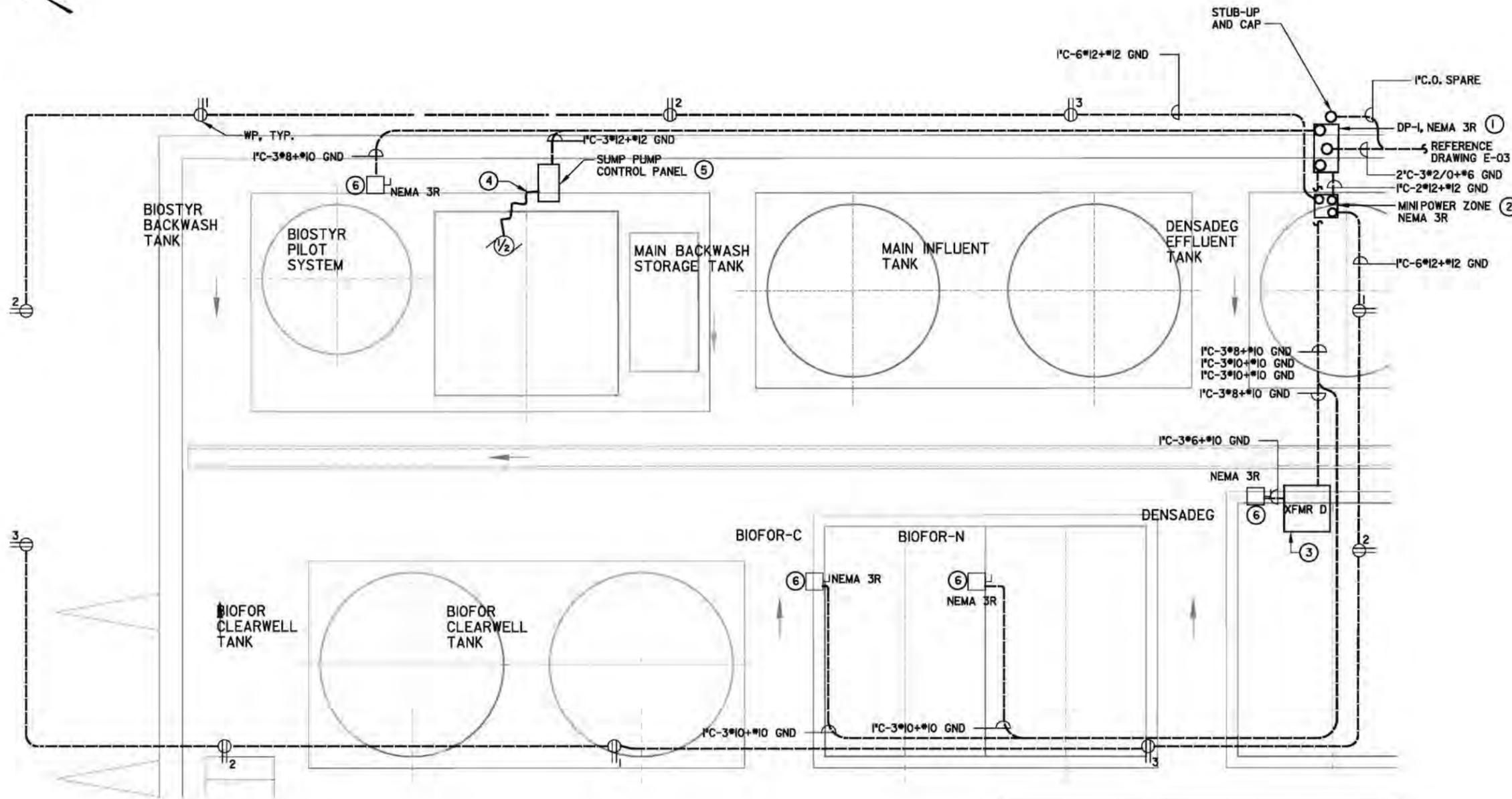
WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

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NOTES:

- ① PROVIDE ALUMINUM SUPPORTS AND ALL NECESSARY HARDWARE FOR MOUNTING DISTRIBUTION PANEL.
- ② PROVIDE ALUMINUM SUPPORTS AND ALL NECESSARY HARDWARE FOR MOUNTING MINIPOWER ZONE TRANSFORMER AND PANEL.
- ③ PROVIDED BY OTHERS.
- ④ MANUFACTURER SUPPLIED CABLE.
- ⑤ PROVIDE ALUMINUM SUPPORTS AND ALL NECESSARY HARDWARE FOR MOUNTING NEMA 4X FIBERGLASS SUMP PUMP CONTROL PANEL.
- ⑥ PROVIDED BY EQUIPMENT MANUFACTURER.



DRAWING NO. E-04	POINT LOMA WASTE WATER TREATMENT PLANT BIOLOGICAL AERATED FILTER PILOT STUDY	
SHEET NO. 22	ELECTRICAL POWER PLAN	
	CITY OF SAN DIEGO, CALIFORNIA	WATER W.O. NA
	SHEET 22 OF 22 SHEETS	SEWER W.O. NA
PROJECT MANAGER		DATE
DESCRIPTION	BY	APPROVED DATE FILMED
CONTRACTOR		DATE STARTED
INSPECTOR		DATE COMPLETED
		00000-22-D

DRAWING STATUS										
NO.	DATE	REQ.	REVISION	DESCRIPTION	DRAWN	CKD	APD	PE	EM	DA/QC

METROPOLITAN WASTEWATER DEPARTMENT
City of San Diego

BROWN AND CALDWELL	
SUBMITTER	PROJECT NUMBER
APPROVED	DATE
APPROVED	DATE
SCALE	HORIZONTAL 3/8" = 1'-0"
	VERTICAL NONE

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.



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EXHIBIT B

PILOT TEST UNIT SPECIFICATIONS



Technical Addendum to Proposal

USFilter/Kruger Products is pleased to provide an equipment list and technical specifications for the Biostyr[®] pilot test unit to be used at the referenced site.

BIOSTYR[®] Pilot Unit

Equipment

The Biostyr[®] pilot unit contains the following equipment:

- One (1) 36" OD tank
- Media (4.5 mm polystyrene beads)
- One (1) pH meter and transmitter
- One (1) dissolved oxygen meter and transmitter
- Two (2) flow meters and transmitters
- One (1) temperature sensor and transmitter
- One (1) 1700 gallon fiberglass backwash tank
- One (1) 0.75 HP/1725 RPM motor powering an agitator for backwash tank mixing
- One (1) 8.6 SCFM @ 100 PSIG air compressor with 60-gallon horizontal receiver
- One (1) compressed air dryer
- One (1) process air flow controller
- All necessary air distribution piping both for air grid and valves
- Two (2) air actuated butterfly valves with actuator and solenoid
- Two (2) manual butterfly valves for manual flow adjustments
- Two (2) submersible non-clog centrifugal pumps
- Two (2) check valves ensuring forward flow
- One (1) SCADA system to control and monitor process

Technical Specifications

Dimensions

Biostyr[®] tower's assembled height is 28'6" in height by 8' wide by 8' in Length.

Biostyr[®] tower's shipping height is 18'6".

Biostyr[®] tower weighs approximately 10,000 LBS without water and 13,245 LBS loaded with water.

Control Building is 8'2" in height by 7'7" wide by 12'3" in length

Backwash drain tank is 6'6" OD fiberglass tank and weighs approximately 240 LBS without water and 15,000 LBS with water



Kruger Products
401 Harrison Oaks Blvd.
Ste. 100
Cary, NC 27513

TELEPHONE 919-677-8310
FACSIMILE 919-677-0082

Capacity

Water:

Nominal Flow: 16 GPM

Minimum Flow: 7 GPM

Air:

Forward flow: 2 CFM @ < 10 psi

Backflush: 5 CFM @ < 10 psi

Hydraulic Connections:

Influent:

Customer supplies feed tank. Pre-wired, pre-piped pump is placed in feed tank. US Filter provides approximately 10' of flex hose for immersion in feed tank. Customer provides a standard ¾" hose bib and sufficient garden hose to reach Biostyr[®] tower.

Effluent:

One (1) 3", 150 LB flange connection for backwash drain tank overflow

One (1) 3" NPT valve to drain 1700 gallon backwash drain tank

One (1) 4", 150 LB flange connection for water back flush discharge

One (1) ¾" nipple connection for compressed air dryer discharge

Electrical

Customer provides 480 volt, 100 Amp service.

Foundation

Customer provides level paved surface to support the Biostyr[®] tower, the backwash drain tank, and field office.

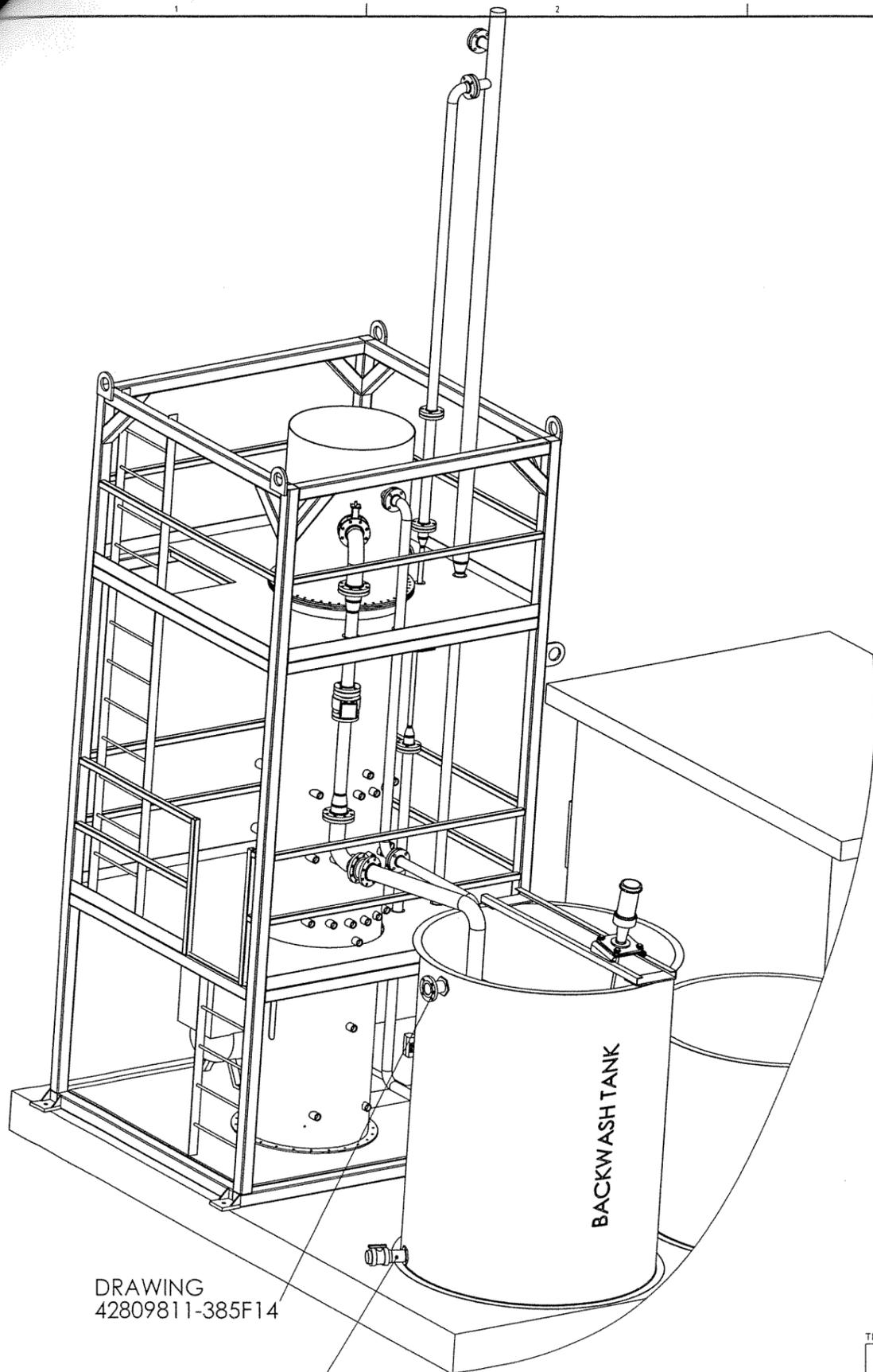
Protocol, Data and Visitation

Pilot study protocol must be agreed upon by both the client/engineer and US Filter prior to the start of treatment.

US Filter reserves the right to all data collected (including Biostyr[®] running conditions and laboratory samples) by the client/engineer or US Filter. All data shall be shared between the client/engineer and US Filter at the time the data is collected or available.

US Filter reserves the right to use any collected data.

US Filter reserves the right to bring visitors to the pilot unit throughout the course of the study.

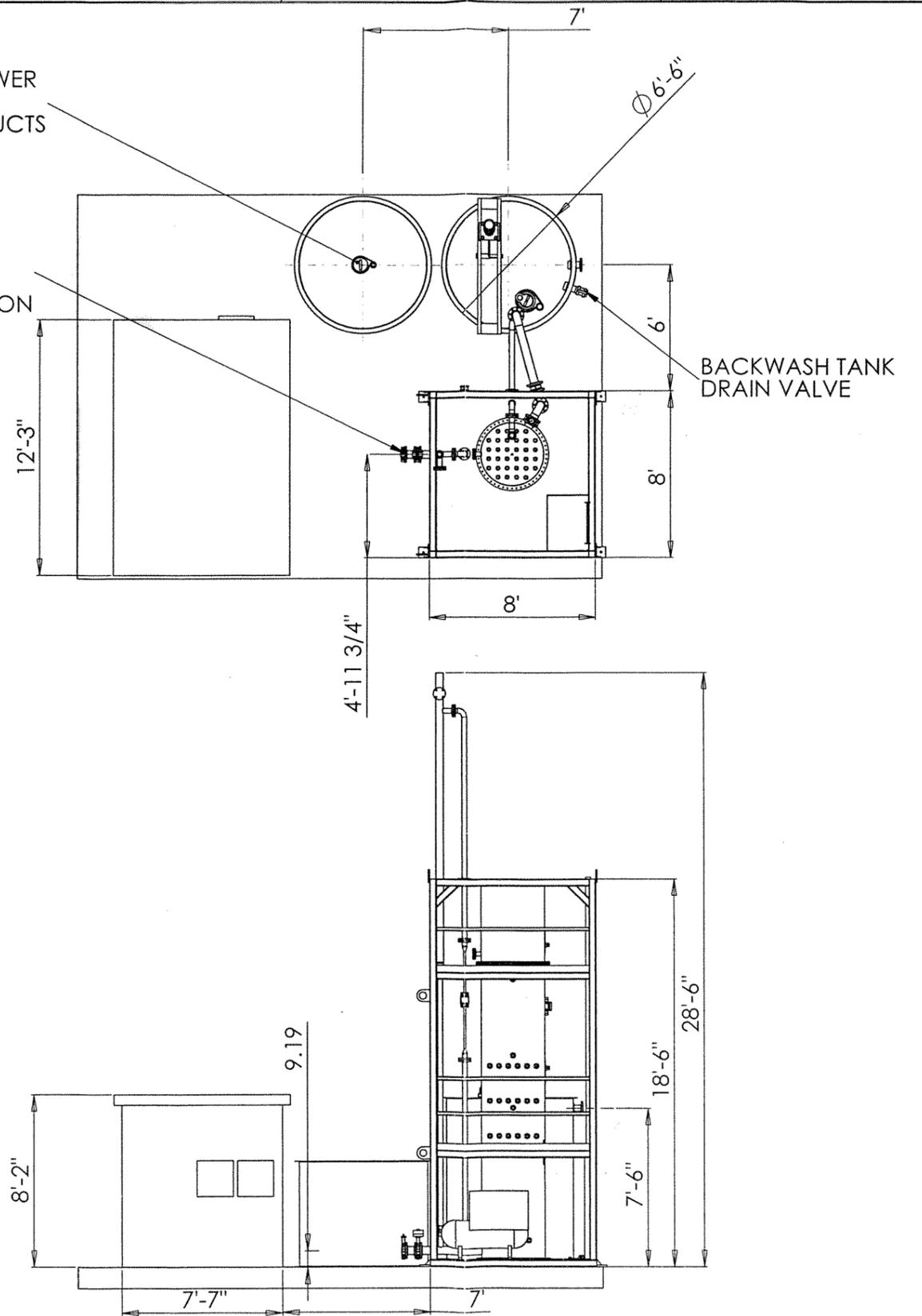


DRAWING
42809811-385F14

DRAWING
42809811-385F15

FEED PUMP/HOSE TO TOWER
PROVIDED BY
US FILTER/KRUGER PRODUCTS

4", 150 LB BACKWASH
CONNECTION
CUSTOMER TO ROUTE
TO APPROPRIATE LOCATION



THE PRESENCE OF A PROFESSIONAL ENGINEERS SEAL ON THIS DRAWING INDICATES THAT A SIGNED AND SEALED ORIGINAL IS ON FILE.

				COMPANY CONFIDENTIAL		DESIGNER	DATE	TITLE		
				ANY THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN ARE THE PROPERTY OF THE USFILTER AND/OR ITS AFFILIATES (USF). THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN ARE PROPRIETARY TO USF AND ARE SUBMITTED IN CONFIDENCE. THEY ARE NOT TRANSFERABLE AND MUST BE USED ONLY FOR THE PURPOSE FOR WHICH THE DOCUMENT IS EXPRESSLY LOANED. THEY MUST NOT BE DISCLOSED, REPRODUCED, LOANED OR USED IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF USF. IN NO EVENT SHALL THEY BE USED IN ANY MANNER DETRIMENTAL TO THE INTEREST OF USF. ALL PATENT RIGHTS ARE RESERVED. THE DEMAND OF USF THIS DOCUMENT ALONG WITH ALL COPIES AND EXTRACTS AND ALL RELATED NOTES AND ANALYSES, MUST BE RETURNED TO USF OR DESTROYED AS INSTRUCTED BY USF. ACCEPTANCE OF THE DELIVERY OF THIS DOCUMENT CONSTITUTES AGREEMENT TO THESE TERMS AND CONDITIONS.		SDD	06.18.03	BIOSTYR PILOT SYSTEM SYSTEM LAYOUT		
						CHECKER	DATE	CLIENT		
						ENGINEER	DATE			
						S.DEAN	06.18.03			
						MANAGER	DATE			
						FILE:				
						SCALE:	NONE			
INTERNAL REF NO:		IF BAR IS NOT 1", ADJUST SCALE ACCORDINGLY								
GRAPHICAL SCALE		0 0.5 1 2 3 6								
CLASSIFICATION		PROJECT No.		DRAWING		SHEET		RE		
		42809811		385M001		4 OF 4		0		



**ONDEO
Degremont,
Inc.**

**Technical Data Sheet
Biofor™ Process
(2-Foot Column) Single Stage Unit**

Description:

The Biofor™ Pilot Plant accurately simulates the Biofor™ process, a fixed-film aerobic biological treatment system. It operates on the principle of an upflow co-current flow of process and air. The media, Biolite, is an expanded clay material with a high specific area to provide a surface for the biomass to attach to and filter suspended solids.

Weight:

- 10,000 lbs. (shipping)
- 14,000 lbs. (operating)

Overall Plan Area:

- 7'0" x 10'-0" (skid)
- 8'0" diameter x 5'8" (clearwell)

Overall Height:

- 22'-0"

Electrical Requirements:

- 480V, 3 Phase, 25 amps
- Raw Water Pump: 3.0 hp, 60 Hz
- Backwash Pump: 1.5 hp, 60 Hz
- Scour Air Compressor: 2 hp, 60 Hz
- Process Air Compressor: 1 hp, 60 Hz

Connections:

- Influent: 2" half coupling
- Effluent: 4" male NPT
- Service Water: 0.75" female connection



**ONDEO
Degrémont,
Inc.**

**Technical Data Sheet
Biofor™ Process
(2-Foot Column) Single Stage Unit**

Process Data:
- Column Area: 3.1 ft²

Parameters	Process	Carboneous Pollution Removal	Nitrification	Denitirification
<u>Raw Water</u> m/h (USGPM/ft ²)	Minimum Maximum	4 (1.64) 20 (8.20)	4 (1.64) 20 (8.20)	-- 30 (12.26)
<u>Process Air</u> m/h	Minimum Maximum	4 15-20	4 35	-- --
<u>Loadings</u> kg/m ³ /d	(Maximum) COD Suspended Solids Total BOD ₅ N-NH ₄ NO ₃ -N	15 5 6 -- --	8 3 3 1.6 --	-- -- -- -- 4
<u>Filter Run</u> hours	Maximum	48	48	24
<u>Head Loss</u> (per meter of media) height m WC (in WC)	(Maximum)	0.4 (16)	0.4 (16)	--



**ONDEO
Degremont,
Inc.**

**Technical Data Sheet
Biofor™ Process
(1-Foot Column) Single Stage Unit**

Description:

The Biofor™ "DN" Pilot Plant accurately simulates the Biofor™ "denitrification" process, a fixed-film anoxic biological treatment system. It operates on the principle of an upflow flow. The media, Biolite, is an expanded clay material with a high specific area to provide a surface for the biomass to attach to and filter suspended solids.

Weight:

- 10,000 lbs. (shipping)
- 12,000 lbs. (operating)

Overall Plan Area:

- 7'0" x 10'-0" (skid)
- 8'0" diameter x 5'8" (clearwell)

Overall Height:

- 22'-0"

Electrical Requirements:

- 480V, 3 Phase, 25 amps
- Raw Water Pump: 3.0 hp, 60 Hz
- Backwash Pump: 1.5 hp, 60 Hz

Connections:

- Influent: 2" half coupling
- Effluent: 4" male NPT
- Service water: 0.75" female connection



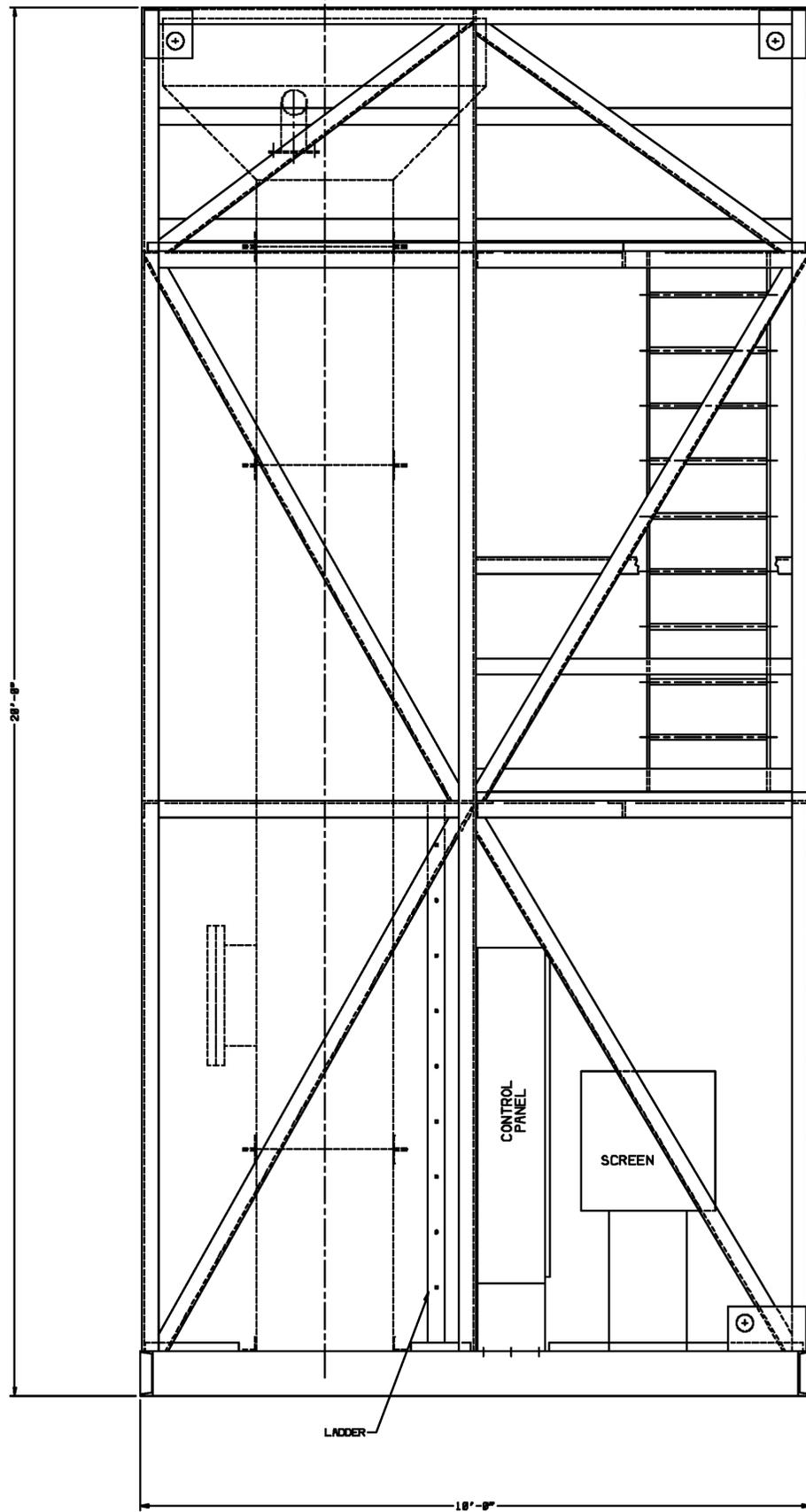
**ONDEO
Degrémont,
Inc.**

**Technical Data Sheet
Biofor™ "DN" Process
(1-Foot Column) Single Stage Unit**

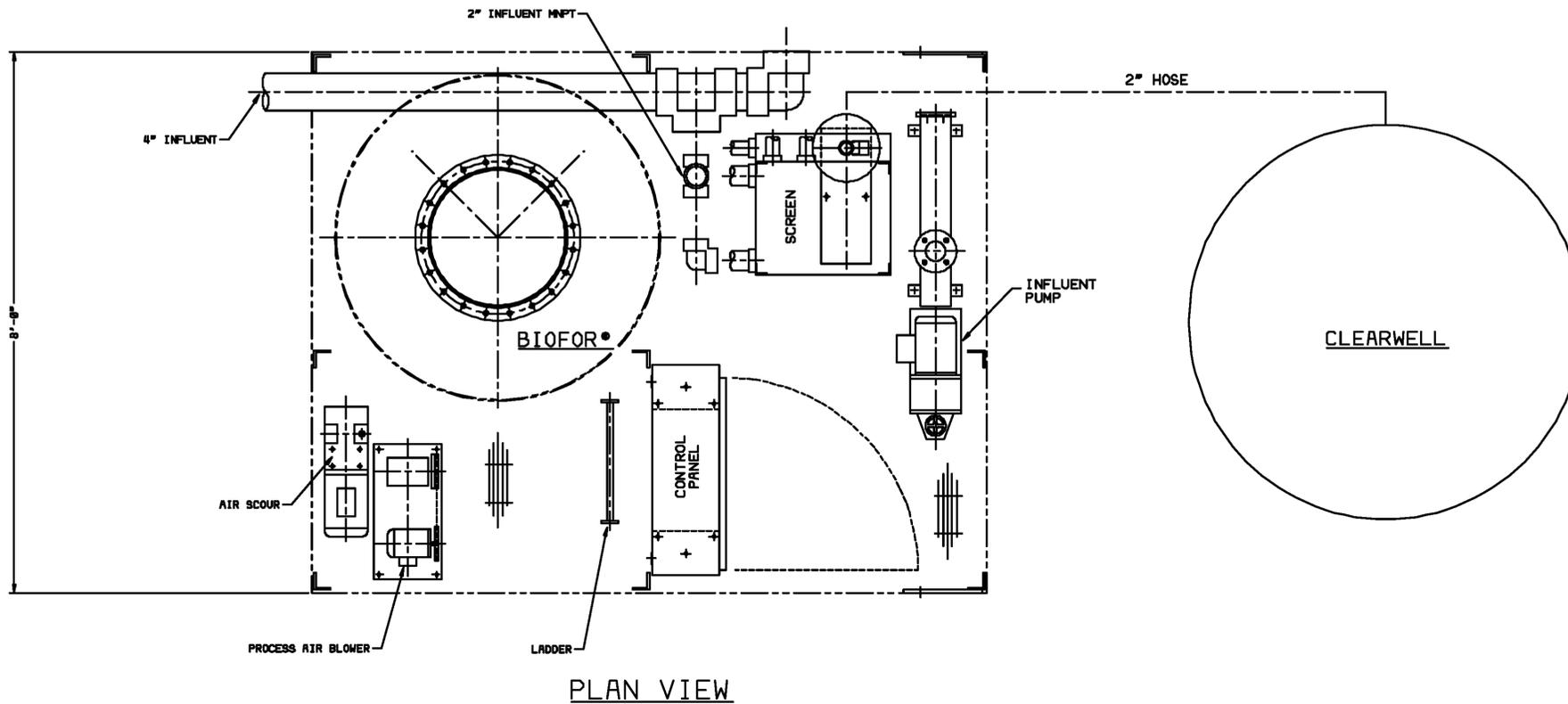
Process Data:

- Column Area: 0.78 ft²

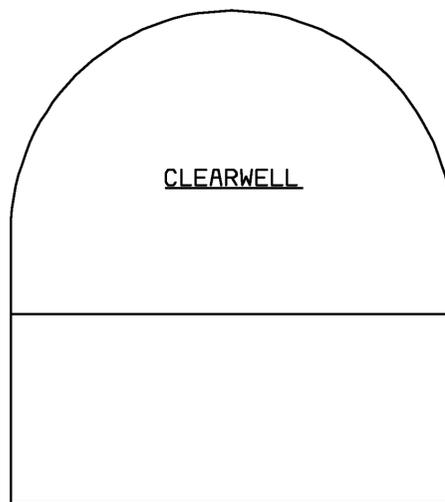
Parameters	Process	Carbaceous Pollution Removal	Nitrification	Denitrification
Raw Water m/h (USGPM/ft ²)	Minimum Maximum	4 (1.64) 20 (8.20)	4 (1.64) 20 (8.20)	-- 30 (12.26)
Process Air SCFM	Minimum Maximum	4 15-20	4 35	-- --
Loading kg/m ³ /d	(Maximum) COD Suspended Solids Total BOD ₅ N-NH ₄ NO ₃ -N	15 5 6 -- --	8 3 3 1.6 --	-- -- -- -- 4
Filter Run hours	Maximum	48	48	24
Head Loss (per meter of media) height m WC (in WC)	(Maximum)	0.4 (16)	0.4 (16)	--



SECTIONAL ELEVATION



PLAN VIEW



CLEARWELL

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REV	REVISION DESCRIPTION	DRAWN	CHECKED	APP	DATE

REV	REVISION DESCRIPTION	DRAWN	CHECKED	APP	DATE
-	ORIGINAL ISSUE				mm/yy

PROJECT INFORMATION	

ONDEO Degremont, Inc.
 Post Office Box 71300
 Richmond, Virginia 23266-1300
 PH: (800) 448-1150

BY	DATE
DRAWN L. LANGLOIS	
CHECKED J. LEWICKI	
APP J. LEWICKI	

BIOFOR PILOT PLANT LAYOUT	

SIZE	DATE	REV
DO NOT SCALE	032097-1427	-
SCALE NONE		