



City of Beaumont Wastewater Treatment Plant Salt Mitigation Upgrade Project Change Order No. 15

April 14, 2020

Contractor: W.M. Lyles Co.	Original Contract: \$ 53,312,000.00	Calendar Days: 820	Comp. Date: 1/26/2021
Project Name: Wastewater Treatment Plant Salt Mitigation Upgrade Project	Previous Approved Changes: \$1,640,717.91	95	5/1/2021
Contract No.: C18-80	This Change: Amount \$79,713.39	0	
CO Number: 15	Revised Contract: \$55,032,431.30	915	5/1/2021
	Previous Phase 1 Completion Date		4/26/2020
	Revised Phase 1 Completion Date		4/26/2020

This change order covers changes to the subject contract as described herein. The Contractor shall supply all labor, equipment and materials to complete the Change Order items for the lump sum price agreed upon herein. All Change Order items must be submitted to the City for approval prior to fabrication.

Item No.	PCO No.	Description of Changes	Amount	Phase 1 Time Extension (CD*)	Phase 2 / Project Completion Time Extension (CD*)
1	32	WML COP-037 Aeration Basin 24" Air Piping Block-outs and Pipe Seals	\$14,550.23	0	0
2	34	WML COP-038 Modifications to HACH Instrumentation Communications Protocol	\$60,534.92	0	0
3	35	MBR Module Lifting Safety Device	\$3,444.32	0	0
4	36	RO CIP-Skid Discharge Orifice Plate Addition	\$1,183.92	0	0
NET CHANGE IN CONTRACT AMOUNT – INCREASE (OR-DECREASE)			\$79,713.39	0	0

*Calendar Days

The amount of the Contract will be increased/decreased by the amount of Seventy-Nine Thousand Seven Hundred Thirteen Dollars and thirty-nine cents (\$79,713.39). The Contract Time will be increased by zero (0) calendar days.

The Contractor agrees to furnish all labor, equipment and materials and to perform all other necessary work, inclusive of the directly or indirectly related work, within the approved time extension required to complete the above Change Order items. The undersigned Contractor approves the foregoing Change Order as to the changes, if any, in the Contract Price specified for each item including any and all supervision costs and other miscellaneous costs relating to the change in Work, and as to the extension of time allowed, if any, for the completion of the entire Work on account of said Change Order. The City and the Contractor hereby agree that this Change Order constitutes full mutual accord and satisfaction for all time, all costs, and all impacts related directly or indirectly to this Change Order. The Contractor hereby agrees that this Change Order represents the full equitable adjustment owed under the Contract, and further agrees on behalf of himself and all subcontractors to waive all right to file any further claims or request for equitable adjustment arising out of or as a result of this Change Order or the cumulative effect of this Change Order on the performance of the overall Work under the Contract. This document will become a supplement of the contract and all provisions will apply hereto. It is understood that the Change Order shall be effective when approved by the City.

Recommended: Charles Bond, Date: 4-14-2020
MWH Constructors, Senior Resident Engineer

Accepted: [Signature], Date: 4/16/20
W.M. Lyles Co., Contractor

Approved: _____, Date: 4/16/2020
Albert A. Webb Associates, Program Manager

Approved: _____, Date: _____
City of Beaumont, City Manager



Technical Justification:

PCO-32	
Design Adjustment: WML COP-037	Aeration Basin Air Piping Block-outs [DCM-11]
<p><u>Reason for Design Changes:</u></p> <p>Design Engineer Requested Change. At the high-water level inside new aeration basins 1 through 4 the 20-inch aeration piping passes through the separation walls of each basin. The invert of the block out for the piping system is below the high-water level, which will cause unwanted cross flow of MLSS into adjacent basins.</p> <p><u>Design and Scope Changes:</u></p> <ul style="list-style-type: none">• The aeration basin wall separating basins #2 and #3 should have a block-out for air pipe like the block-out called out and detailed in section G on drawing ABS-6. Following the air pipe installation, the block-outs will need to be sealed to provide a water-proof separation between basins. The detail for this closure is shown in CLAR-17R1 and shall be provided of pipe through wall locations between basins 1 & 2, 2 & 3 and 3 & 4. <p><u>Cost Impact:</u></p> <p>MWHC has evaluated the extra cost proposal by the Contractor. MWHC recommends a contract cost increase of \$14,550.23 to be executed in a change order for the procurement and installation of additional structural/mechanical materials.</p>	

CITY OF BEAUMONT WWTP SALT MITIGATION UPGRADE PROJECT

**CHANGE ORDER PROPOSAL (COP) # 037
(By Contractor)**

To (Engineer/CM): MWH Constructors Attention: Charles Reynolds Phone: 702-497-8024 Email: Charles.w.reynolds@stantec.com	From (Contractor): W.M. Lyles Co. Attention: Oscar Mendoza Phone: 619-565-6064 Email: omendoza@wmlylesco.com
PCO/DCM No.: DCM #11	
Subject: Aeration Basin Air Piping Block-out	
Reference Documents: Reference Drawing Attached	
DESCRIPTION	
This COP addresses the addition of block-out covers around the 24" air piping to provide a watertight seal between Anoxic Basin tanks per DCM #11, CLAR #17R1.	
COST ESTIMATE	
Total Cost : \$ 14,550.23 – see attached breakdown	
SCHEDULE IMPACT	
None	
Received by MWH Constructors (Date):	

RESPONSE

Response By:

Date:

Final Distribution: Juan C. Ahumada, W.M. Lyles Co.
Brian Knoll, Webb Associates
MWH Inspector

W. M. Lyles Co.
 42142 Roick Drive
 Temecula, CA 92590

Date: 13-Feb-20

Reference #: DCM #11
 CLAR# 17R1

Attention: Charles W. Reynolds

JOB LOCATION: City of Beaumont WWTP Salt Mitigation Upgrade Project

DESCRIPTION: A-Basin Air Piping Block-out

Item:		Unit	Total MH	Total MH Cost	Eq. Cost	Material	Subcont.	Total Cost
1	A- Basin Block-out	1 LS	40	\$ 3,152.06	\$ 878.08	\$ 8,496.96	\$ -	\$ 12,527.10
2		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
3		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
Total Costs			40	\$ 3,152.06	\$ 878.08	\$ 8,496.96	\$ -	\$ 12,527.10

Subtotal		\$ 12,527.10
Mark-up - Labor	15%	\$ 472.81
Mark-up - Equipment	15%	\$ 131.71
Mark-up - Materials	15%	\$ 1,274.54
Mark-up - Subcontractor	5%	\$ -
Bond	1.0%	\$ 144.06
Total This Change Order		\$ 14,550.23

Comments:

Oscar Mendoza

From: Alex Majano <alex@alliedsteelco.com>
Sent: Thursday, February 13, 2020 9:53 AM
To: Oscar Mendoza
Subject: Beaumont Blockouts (Quote)

W.M. Lyles

Attn: Oscar Mendoz

Re: Beaumont WWTP

Subject: S.S. Blockouts

Per your request we were asked to provide a quote to furnish, fabricate, and deliver F.O.B. jobsite (3) S.S. Blockouts w/ bolts & gaskets included.

Our quote to do this extra work is **\$ 7,072.00 tax included.**

Please issue Allied Steel a change order if you wish for us to proceed with this extra work.

Thank you,

Alex Majano

Allied Steel Co.
1027 Palmyrita Ave
Riverside, CA 92507
Phone: 951-241-7000
Cell: 323-220-3170

Oscar Mendoza

From: Mark Speros <marksperos@kerr-engineering.com>
Sent: Thursday, February 13, 2020 11:29 AM
To: Oscar Mendoza
Subject: RE: Beaumont Link seal order

Oh, that's so much better. Lol We always cringe when our only options are the 600 series.

So, now this looks really cheap in comparison:

24" OD~27.25" ID = LS-400-S-22 \$363.22 x 3 penetrations = \$1,089.66 Total (+tax and freight)

All items are in stock in Foothill Ranch, CA
Can ship same day if ordered by 3pm
UPS Ground, costs are additional

Still OK for us to ship out today on PO# 55.1173 to the Beaumont address mentioned previously?

Your partner in success,

Mark Speros

KERR ENGINEERING & SALES, INC.

"Solving Piping Challenges Since 1983"

26010 Towne Centre Drive, Foothill Ranch, CA 92610-3441

Tel: 949-388-3100 / FAX 949-388-5208

www.kerr-engineering.com

Manufacturer's Reps & Stocking Distributors of:



Ranger II Casing Spacers ♦ Link-Seal® ♦ Hyspan ♦ PROCO ♦ Unisource Mfg Hoses ♦ Gripper Gaskets™

From: Oscar Mendoza <omendoza@wmlylesco.com>
Sent: Thursday, February 13, 2020 10:52 AM
To: Mark Speros <marksperos@kerr-engineering.com>
Subject: RE: Beaumont Link seal order

I'm sorry, I gave you the wrong dimension. It was supposed to be 24" OD pipe in a 27.25" ID sleeve. Please requote.
Thanks,

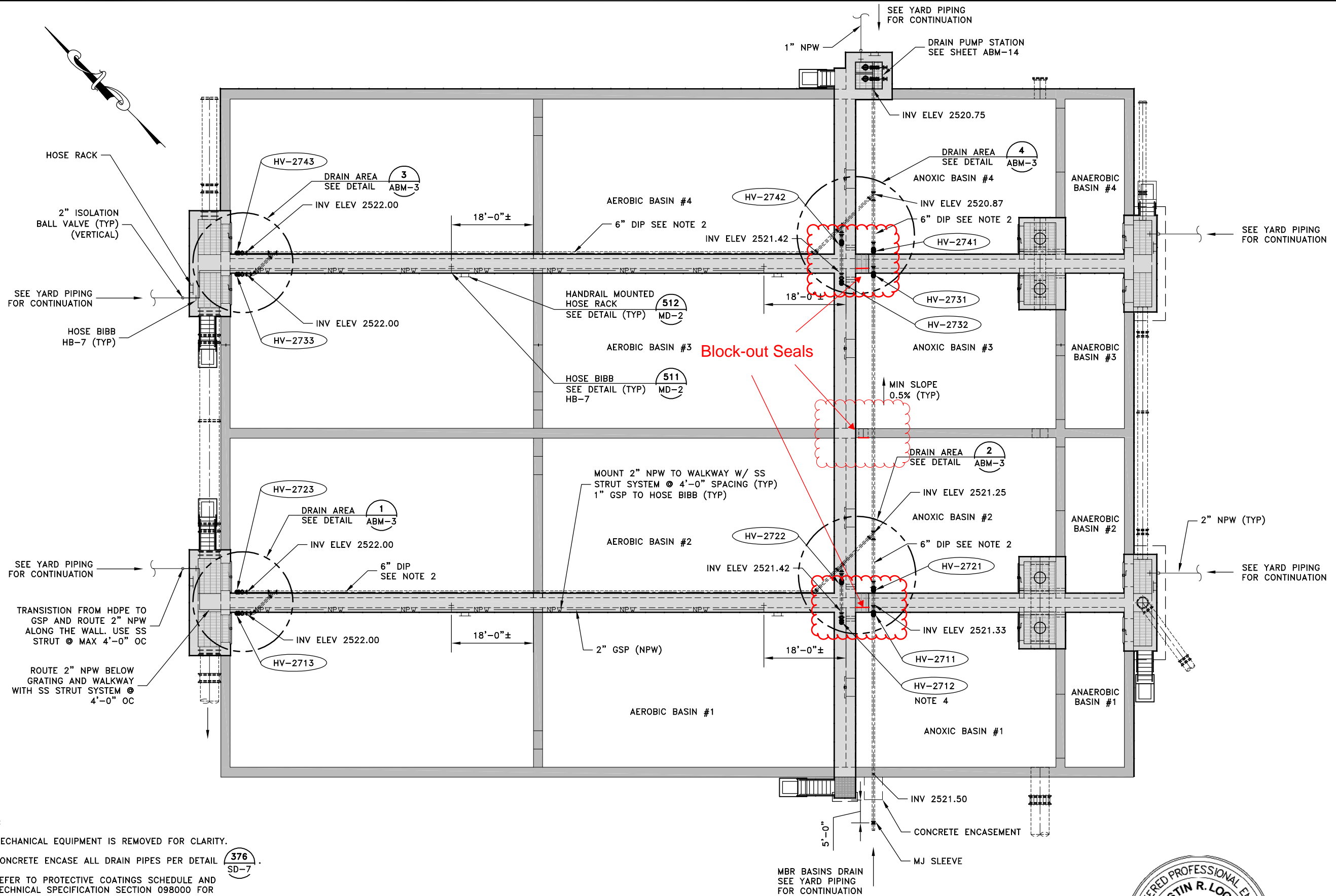
Oscar Mendoza | Project Manager

**CITY OF BEAUMONT WASTE WATER TREATMENT PLANT
SALT MITIGATION UPGRADE PROJECT**

CLARIFICATION 17R1

To (Construction Manager): MWH Constructors Attention: Charles Reynolds Phone: 702-497-8024 Email: Charles.W.Reynolds@mwhconstructors.com	
From (Engineer): AQUA/SKM Engineering Attention: Boris Petkovic, Phone: 801-683-3744 Email: boris.petkovic@aquaeng.com	
Subject: Aeration Basin Air Piping Block-out	Location: Aeration Basin
Reference Documents: ABS-2, ABS-6	
CLARIFICATION	
<p>Note the following:</p> <ul style="list-style-type: none"> The aeration basin wall separating basins #2 and #3 should have a block-out for air pipe similar to the block-out called out and detailed in section G on drawing ABS-6. Following the air pipe installation, the block-outs will need to be sealed to provide a water-proof separation between basins. The detail for this closure will be provided in the future. See attachments for locations and fabrication details of the proposed piping block-out seals between Aeration Basin Walls. <p>Attachments: CLAR-17R1 Location CLAR-17R1 Image CLAR-17R1 Details</p>	
Prepared By (Name): Boris Petkovic AQUA Engineering	Date: January 16, 2020
Distributed By: Charles Reynolds, MWHC	Date: January 16, 2020

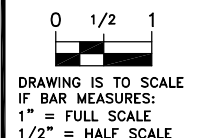
CAL 09/04/2018 X:\Beaumont\Salt Mitigation WWTP Upgrade WEBB170227\Drafting\AERATION BASIN\ABM-2.dwg



- NOTES:
- MECHANICAL EQUIPMENT IS REMOVED FOR CLARITY.
 - CONCRETE ENCASE ALL DRAIN PIPES PER DETAIL **376** SD-7.
 - REFER TO PROTECTIVE COATINGS SCHEDULE AND TECHNICAL SPECIFICATION SECTION 098000 FOR STRUCTURE, PIPING, EQUIPMENT AND MISC. COATING REQUIREMENTS.
 - PROVIDE SEALED CAST CARBON STEEL FLOOR BOX (EDP COATED) WITH POSITION INDICATOR. ALL HARDWARE SS TRUMBULL MODEL 367-4622 OR EQUAL.

DRAIN AND UTILITY WATER PLAN
 SCALE: 3/32"=1'-0"
 0 8 16
 Scale in Feet

CLAR-17R1 Location



NO.	DATE	DESIGN	DRAWN	CHECKED
C	09/05/18	BP	KRB	JRL

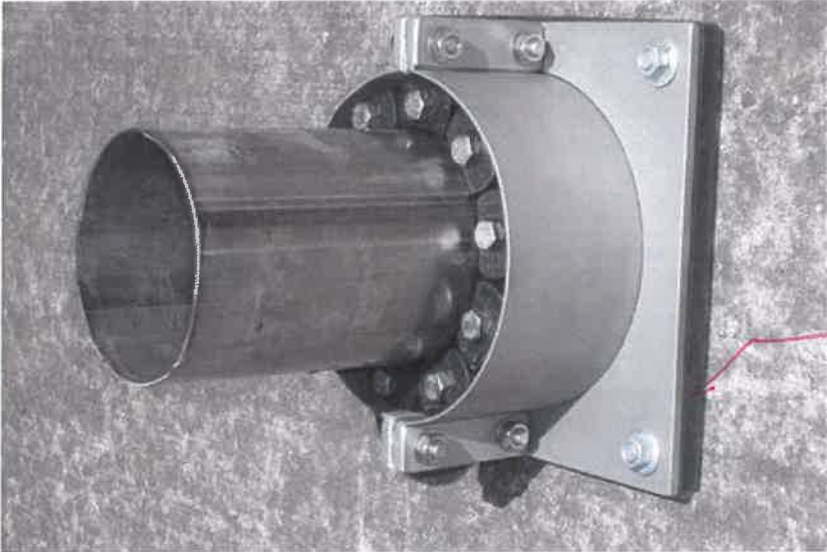
CITY OF BEAUMONT
 SALT MITIGATION WWTP UPGRADE
 AERATION BASIN
 DRAIN AND UTILITY WATER PLAN



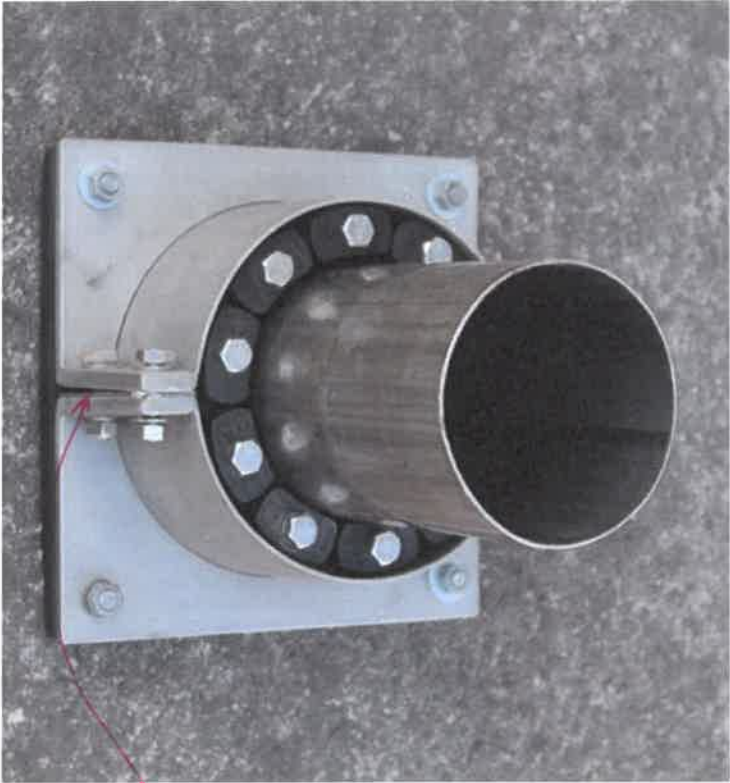
ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS
 CIVIL ENGINEERS
 3788 McCRAY STREET
 RIVERSIDE CA 92506
 PH. (951) 686-1070
 FAX (951) 788-1256

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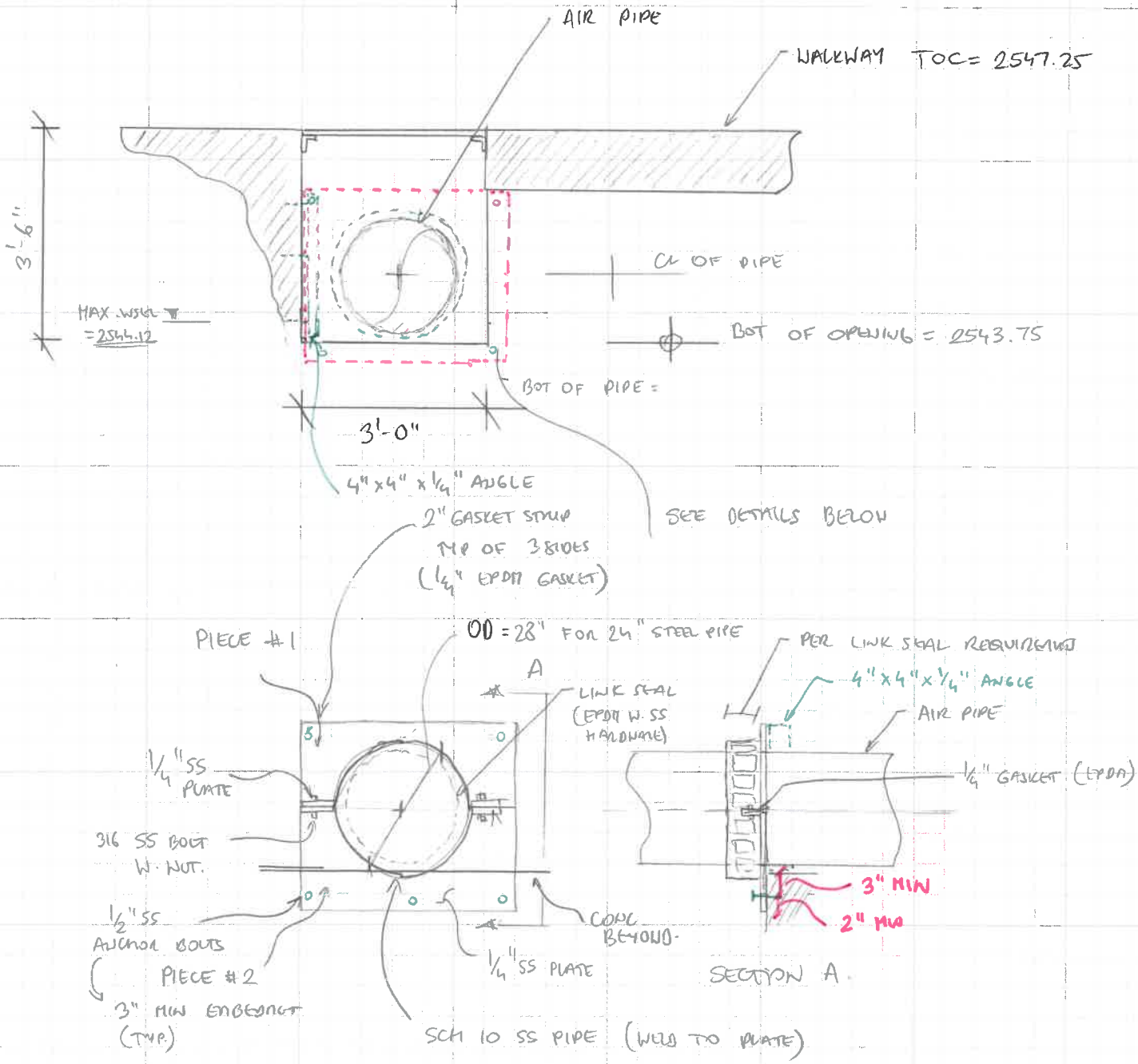
Example Images



GASKET



GASKET



CLAR-17R1 Details

Technical Justification:

PCO-34	
Design Adjustment: WML COP-038	CLAR-27 Modifications to HACH Instrumentation
<p><u>Reason for Design Changes:</u></p> <p>Owner Requested Changes. Due to technology advancements and to improve the data transfer over longer ranges the HACH water quality analyzers transmitters are to be upgraded to newer models. The newer Smart Instruments will provide more operator usable data, easy routine calibration and allow access to the instrument faster for troubleshooting. Direct City and Design Engineer discussion and negotiations with HACH newer updated transmitters were offered at no cost along with ammonia analyzer equipment. Upgrades to the SCADA communication network are also required, which includes a Wi-Fi network, changes in hardware, additional fiber optic and CAT6 cabling along with a new control panel at the Brine Meter Vault.</p> <p><u>Design and Scope Changes:</u></p> <ul style="list-style-type: none"> • The HACH transmitters will all be model sc4200, as requested by the owner. As a result, several changes have been made to the network in the facility and the communication network throughout the site. • This change includes an additional network control panel, modification to existing contract control panels, additional fiber optic and CAT6 network cabling. See CLAR-27 for full scope of work. <p><u>Cost Impact:</u></p> <p>MWHC and Project Design Engineers have evaluated the extra cost proposal by the Contractor. MWHC recommends a contract cost increase of \$60,534.92 to be executed in a change order for changes to the facility network system.</p>	

CITY OF BEAUMONT WWTP SALT MITIGATION UPGRADE PROJECT

**CHANGE ORDER PROPOSAL (COP) # 038
(By Contractor)**

To (Engineer/CM): MWH Constructors Attention: Charles Reynolds Phone: 702-497-8024 Email: Charles.w.reynolds@stantec.com	From (Contractor): W.M. Lyles Co. Attention: Oscar Mendoza Phone: 619-565-6064 Email: omendoza@wmlylesco.com
PCO/DCM No.: DCM #22	
Subject: Modifications to HACH Instruments	
Reference Documents: Reference Drawing Attached	
DESCRIPTION	
This COP addresses changes to HACH instruments per Clarification #27, DCM #22.	
COST ESTIMATE	
Total Cost : \$ 60,534.92 – see attached breakdown	
SCHEDULE IMPACT	
None	
Received by MWH Constructors (Date):	

RESPONSE

Response By:

Date:

Final Distribution: Juan C. Ahumada, W.M. Lyles Co.
Brian Knoll, Webb Associates
MWH Inspector

W. M. Lyles Co.
 42142 Roick Drive
 Temecula, CA 92590

Date: 5-Mar-20

Reference #: DCM #22
 CLAR #27

Attention: Charles W. Reynolds

JOB LOCATION: City of Beaumont WWTP Salt Mitigation Upgrade Project

DESCRIPTION: Modifications to HACH Instruments

Item:		Unit	Total MH	Total MH Cost	Eq. Cost	Material	Subcont.	Total Cost
1	Modifications to HACH Instruments	1 LS	0	\$ -	\$ -	\$ -	\$ 57,081.49	\$ 57,081.49
2		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
3		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
Total Costs			0	\$ -	\$ -	\$ -	\$ 57,081.49	\$ 57,081.49

Subtotal		\$	57,081.49
Mark-up - Labor	15%	\$	-
Mark-up - Equipment	15%	\$	-
Mark-up - Materials	15%	\$	-
Mark-up - Subcontractor	5%	\$	2,854.07
Bond	1.0%	\$	599.36
Total This Change Order		\$	60,534.92

Comments:



Southern Contracting Company
P.O. Box 445 San Marcos, CA 92079-0445
Tel 760-744-0760 Fax 760-744-6475
website: www.southerncontracting.com
email: info@southerncontracting.com

Change Order Request

103801 — Wastewater Treatment Plant Salt Mitigation Upgrade

COR Subject: CLAR-027 Hach Instrumentation Changes

To **Juan C. Ahumada**
W.M. Lyles
42142 Roick Drive
Temecula, CA 92590
951-973-7393

Contract No: 55.1173
COR Number: 103801-COR#017
COR Revision Number: 0

COR Date: 3/5/2020
Work Type: Price / Do Not Proceed

Return To **Dan Alcantar**
Southern Contracting Company
760-744-0760x621
619-778-0681
DAlcantar@southerncontracting.com

Owner COR No: DCM 000
CLAR-027
Days Valid: 5

Scope Of Work / Time Extension Request

The work associated with CLAR 027 is a change to Southern Contracting Company's scope of work in which a change in Contract Price and Time is to be considered.

Accordingly, Southern Contracting Company requests a Contract Change Order in the amount of \$57,081.49

Scope of Work is as follows:

- Labor and materials to install new instrumentation and controls as detailed in CLAR-027. Including Panels installation, Conduit, Wire, Cable installation and terminations. New Instrumentation provided by TSI Inc.

Exclusions:

-Digging, backfill, concrete formed or poured, dry packing, surface restoration, permits, inspections.

Change in time: NA

Southern Contracting reserves all rights to additional costs and time for changes not identified in the documents furnished, and is not responsible for additional costs or time for work which is not part of our contract scope of work, unless stipulated above. Should additional information or clarification be required, please contact me at your convenience.

Summary

Total: \$57,081.49

Reservation of Rights

This COR does not include any amount for impacts such as interference, disruptions, rescheduling, changes in the sequence of work, delays and/or associated acceleration. We expressly reserve the right to submit our request for any of these items.

Signed By:



Daniel Alcantar

PM

Dated: 3/5/2020

Bid Summary Report

103801 Beaumont Chang Orders Estimator: Dan Alcantar

Job #2336

Job Name: 103801 Beaumont Chang Orders

Contractor:

Estimator: Dan Alcantar

Notes:

Bid Date:

Summary Description	Material			Labor		
	Extended	%	Adjusted	Extended	%	Adjusted
COR#017 DCM CLAR-027	\$5,589.06	100.00%	\$5,589.06	181.45	100.00%	181.45

Top Sheet

Raw Cost	\$48,767.98	Sales per Month	\$0.00
Tax	\$433.15	Return per Month	\$0.00
Raw Cost with Tax	\$49,201.13	Price per Square Foot	\$0.00
Overhead	\$7,315.20	Hours per Square Foot	0.00
Profit	\$0.00	Square Feet	0.00
Total Return Amount	\$7,315.20	Job Months	0.00
Total Return %	12.82%	Hours per Week	0.00
Price	\$56,516.33	Workers per Day	0.00
Bond	\$565.16	Total Hours	181.45
Sell Price	\$57,081.49	Mark Up Sales Tax	Yes
Adjusted Sell ()	\$0.00	Use Bond Table	Yes
Adjusted Sell Return 0.00 %	\$0.00		

Labor

Class Description	Percent of Total	Hours Distributed	Hourly Rate	Burden		Labor Cost
				Rate	Percent	
General Foreman	12.00%	21.77	\$94.89	\$0.00	0.00%	\$2,066.11
Foreman	18.00%	32.66	\$88.33	\$0.00	0.00%	\$2,884.92
Journeyman	35.00%	63.51	\$81.76	\$0.00	0.00%	\$5,192.32
Appr-85%	35.00%	63.51	\$71.01	\$0.00	0.00%	\$4,509.62
Totals	100.00%	181.45	\$80.76	\$0.00	0.00%	\$14,652.98

Mark Ups

	OVERHEAD			PROFIT		
	Total	%	Amount	%	Amount	
Materials	\$5,589.06	+ 15.00%	\$6,427.42	+ 0.00%	\$6,427.42	
Labor	\$14,652.98	+ 15.00%	\$16,850.93	+ 0.00%	\$16,850.93	

Bid Summary Report

103801 Beaumont Chang Orders Estimator: Dan Alcantar

Job #2336

Supplier Quotes	\$26,316.00	+	15.00%	\$30,263.40	+	0.00%	\$30,263.40
SubContractors	\$0.00	+	5.00%	\$0.00	+	0.00%	\$0.00
Direct Job Expense	\$2,209.94	+	15.00%	\$2,541.43	+	0.00%	\$2,541.43
Equipment Rental	\$0.00	+	15.00%	\$0.00	+	0.00%	\$0.00
Totals	\$48,767.98		15.00%	\$56,083.17		0.00%	\$56,083.17

Tax Report

	Taxed Amount	Tax Rate %	Tax Amount
Materials	\$5,589.06	7.75%	\$433.15
Labor	\$14,652.98	0.00%	\$0.00
Supplier Quotes	\$0.00	0.00%	\$0.00
SubContractors	\$0.00	0.00%	\$0.00
Direct Job Expense	\$0.00	0.00%	\$0.00
Equipment Rental	\$0.00	0.00%	\$0.00
		Total Tax:	\$433.15

Supplier Quotes

Name	Supplier	Tax (0.0 %)	Unit Cost	Multiplier	Amount
Intrumentation and controls		No	\$26,316.00	1.00	\$26,316.00
Total:					\$26,316.00

Direct Job Expense

Name	Supplier	Tax (0.0 %)	Unit Cost	Multiplier	Amount
Site Truck		No	\$26.15	63.51	\$1,660.79
FM Truck		No	\$26.15	21.00	\$549.15
Total:					\$2,209.94

Job Name: 103801 Beaumont Chang Orders
 Job Number: 2336
 Extension Name: COR#017 DCM CLAR-027

Material Filter: <None>
 Report: COR - 2

[Items and ByProducts]

Item #	Item Name	Quantity	Ext Price	Ext Labor
Label Set: Combined, Combined, Combined, Combined, Combined, Combin				
Cost Code: 010 - Conduit/Raceway				
934	2 EMT ENTR CAP	2.00	\$147.09	2.51
1,121	2 GRC	20.00	\$133.75	2.76
1,418	2 GRC LB BODY	2.00	\$76.19	5.02
1,479	2 GRC FLAT COVER	2.00	\$20.21	0.00
1,491	2 GRC GASKET	2.00	\$2.73	0.00
1,882	2 HUB,INSULATED	2.00	\$82.52	1.76
2,658	1 5/8 STRUT-STAINLESS	40.00	\$475.00	7.54
2,676	2" SS PIPE U-BOLT	8.00	\$86.32	2.81
3,059	2 GRC/PVC C105 STRP	8.00	\$33.34	0.40
3,670	1/2 FLEX SQZ CONN,MAL	4.00	\$31.53	0.60
13,324	4/S BOX 2-1/8" DEEP	2.00	\$53.63	0.75
13,407	4/0 TO 3/0 MUD RING	2.00	\$26.38	0.38
60,040	Stanchion Installation	2.00	\$622.35	3.00
Cost Code: 020 - Wire/Cable				
4	16 TSP - SHIELDED CABLE BELDEN	800.00	\$576.00	10.05
728	6-FIBER OPTIC CABLE	650.00	\$51.60	24.49
732	CAT6E CABLE	3,050.00	\$2,897.50	95.77
733	CAT6 TERMINATION	24.00	\$158.40	7.54
Cost Code: 110 - Underground				
3,188	1 PVC 40 (TRENCH)	250.00	\$114.51	12.56
Cost Code: 140-Instrumentation				
60,036	Mount Control Panle	1.00	\$0.00	3.50
[Items and ByProducts] Total:				
			\$5,589.06	181.45

Scope Letter: 5 pages



Technical
Systems
Incorporated

February 26, 2020

Quote Number: CO#06

To: Southern Contracting
Attn: Dan Alcantar

Project: Beaumont WWTP Salt Mitigation
Beaumont Wastewater Treatment Plant

Reference: **CLAR-27 / RFI 092 Modifications to Hach Equipment**

2303 196th Street SW
Lynnwood, WA 98036
Tel: (425) 775-5696
Fax: (425) 775-9074
info@tsicontrols.com

Bid Date: N/A

Bid Time: N/A

Technical Systems, Inc. (TSI) is pleased to provide a quote for the above referenced project. Material for this project will be shipped FOB Lynnwood WA, complete, ready for field termination by others. TSI's price includes CA sales tax and does not include the cost to bond TSI's portion of the project.

TSI's price for the scope of work detailed on the following pages:

Change Order Proposal Pricing Total:	<u>\$26,316.00</u>
Subtotal Part 1 – Hach Equip (Included in above)	<u>\$9,028.00</u>
Subtotal Part 2 – LCP-4602 and Network (Included in above)	<u>\$17,288.00</u>

Part 1 – Modify Hach Equipment:

- Change Hach Equipment per RFI 92 Response as Follows:

The following Hach SC4200 transmitters shall be setup for WiFi connections:

- *All ORP and DO analyzers on the Anoxic and Aeration Basins (AIT-2111, 2151, 2152, 2211, 2251, 2252, 2311, 2351, 2352, 2411, 2451, 2452)*

-The following Hach SC4200 transmitters shall be setup for LAN connections:

- Membrane Building Analyzers (AIT-3000, 3193, 3393, 4004, 30094, 30095)*
- Brine Line Analyzers (AIT-4602, 4603). Note that these two sensors shall be combined into a single SC4200 transmitter, thereby eliminating one transmitter.*
- Recycle Water pH and Chlorine Analyzers (AIT-7472)*
- Because analyzers AIT-3193 and 3393 are in the same location, combine the two SC4200's with a single SC1500.*
- Similarly, the AIT-30095 should be changed from an SC4200 to an SC1500.*

SUMMARY Hach Deletions – Delete (17 Total SC200) [Additional AIT-30094 Deleted by Vendor package and additional savings should be reflected there]

- pH Analyzers – 3 Total SC200
AIT 4004, 4602, 30095 (4004 and 30095 added in CLAR-13 as model SC200)
- ORP Analyzers – 4 Total SC200
AIT 2111, 2211, 2311, 2411
- Conductivity Analyzers – 1 Total SC200
AIT 4603

DO Analyzers – 8 Total SC200

AIT 2151, 2152, 2251, 2252, 2351, 2352, 2451, 2452

TSS Analyzers – 1 Total SC200

AIT 3000

**Note AIT-7472 was quoted for CLAR-16 as an 4200 and is not included here*

SUMMARY Hach Additions – Total (15) SC4200 and (1) SC1500

-Note additional Hach startup is shown as it is mandated by Hach for the network setup for each 4200/1500 and is shown here. Only transmitters and related accessories are shown and only for reference to what has been affected by this change. Refer to related submittals for full information. All Hach Network/Cloud subscription for their services is not included and is to be purchased direct from Hach by Owner.

pH Analyzers

2	AIT 4004; 4602	LXV524.99.04120	SC4200c Controller w/o Plug, USB, mA Out, (2) Digital Sensor Inputs. Note: The required yearly subscription fees By Owner are required and will need to be purchased prior to use of the instrumentation.
1	AIT 30094/30095	LXV446.99.103N1	SC1500 Controller, (6) Sensor Inputs, (8) 4-20mA Outputs, 110V/Cond Ext Mod
1	AIT 30094/30095	YAB018	Communication Card, Internal, 4 mA Inputs, sc1500
3	AIT 4004; 4602; 30095	LZY472-01	USB 2.0 Ethernet-Adap. for SC Service Port
3	AIT 4004; 4602; 30095	LZY990	Network Cable, M12 to RJ45
3	AIT 4004; 4602; 30095	MSM-STARTUP	Configuration and Provisioning of the MSM-Enabled Controller and Connected Sensors. Charges are per controller. An additional travel charge may apply (p/n STARTUP TRAVEL)
1	AIT 4004; 4602; 30095	STARTUP TRAVEL	Manufacturer Startup Services Travel Charge

ORP Analyzers

4	AIT 2111; 2211; 2311; 2411	LXV524.99.04120	SC4200c Controller w/o Plug, USB, mA Out, (2) Digital Sensor Inputs. Note: The required yearly subscription fees By Owner are required and will need to be purchased prior to use of the instrumentation.
4	AIT 2111; 2211; 2311; 2411	LZY996	WiFi USB Adapter 2.4/5 GHz (US)
4	AIT 2111; 2211; 2311; 2411	MSM-STARTUP	Configuration and Provisioning of the MSM-Enabled Controller and Connected Sensors. Charges are per controller. An additional travel charge may apply (p/n STARTUP TRAVEL)
1	AIT 2111; 2211; 2311; 2411	STARTUP TRAVEL	Manufacturer Startup Services Travel Charge

Conductivity Analyzers – Transmitter Deleted

COMBINED WITH AIT-4602 AND INCLUDED ABOVE

DO Analyzers – 8 Total SC200

8	AIT 2151; 2152; 2251; 2252; 2351; 2352; 2451; 2452	LXV524.99.04120	SC4200c Controller w/o Plug, USB, mA Out, (2) Digital Sensor Inputs. Note: The required yearly subscription fees By Owner are required and will need to be purchased prior to use of the instrumentation.
8	AIT 2151; 2152; 2251; 2252; 2351; 2352; 2451; 2452	LZY996	WiFi USB Adapter 2.4/5 GHz (US)
8	AIT 2151; 2152; 2251; 2252; 2351; 2352; 2451; 2452	MSM-STARTUP	Configuration and Provisioning of the MSM-Enabled Controller and Connected Sensors. Charges are per controller. An additional travel charge may apply (p/n STARTUP TRAVEL)
2	AIT 2151; 2152; 2251; 2252; 2351; 2352; 2451; 2452	STARTUP TRAVEL	Manufacturer Startup Services Travel Charge

TSS Analyzers

1	AIT 3000	LXV524.99.04120	SC4200c Controller w/o Plug, USB, mA Out, (2) Digital Sensor Inputs. Note: The required yearly subscription fees By Owner are required and will need to be purchased prior to use of the instrumentation.
1	AIT 3000	LZY472-01	USB 2.0 Ethernet-Adap. for SC Service Port
1	AIT 3000	LZY990	Network Cable, M12 to RJ45
1	AIT 3000	MSM-STARTUP	Configuration and Provisioning of the MSM-Enabled Controller and Connected Sensors. Charges are per controller. An additional travel charge may apply (p/n STARTUP TRAVEL)
1	AIT 3000	STARTUP TRAVEL	Manufacturer Startup Services Travel Charge

Part 2 – Add LCP-4602 and Incorporate Network Changes to CTC-HW and CTC-MB:

- Provide LCP-4602 Based on Drawing SE-03
 - o 36HX24”Wx12”D 316SS NEMA 4X Enclosure
 - o Based on drawings. Additional isolation transformer and GFCI required for UL listing of panel to supply 120V transmitters which are not specifically UL listed
 - o Standard swing-out panel will not have 4” clearance to front, so taller panel is used to allow room for rear panel mounting of transmitters. Custom swing out may be an option.
- Update CTC-HW and CTC-MB Drawings

Terms: Net 30
FOB: Lynnwood WA
Freight: Prepaid

This quote is valid for 90 days.

Please call with any questions you may have concerning pricing or any technical questions.

Sincerely,

Colin Dightman-Kovak

Colin Dightman-Kovak
Technical Systems, Inc.
1-425-678-4116

Scope of Work

Misc Equipment:

Including:

1. Hardware Procurement
2. Required Testing
3. O&M, drawings updates

GENERAL

1. TSI supplies a bill of materials, CAD-based drawings, and Operations and Maintenance Manuals for all equipment furnished by TSI.
2. TSI supplies the required field startup services for this project.
3. Panels fabricated by TSI are UL 508 labeled.

STANDARD INCLUSIONS

We provide the following unless specifically excluded on our bill of material:

- 1) Equipment shipped FOB factory with freight allowed, tailgate, destination.
- 2) Field wiring diagrams showing interconnection of field instruments and instrumentation panels.
- 3) Instruction manuals as required.
- 4) All necessary field start-up and calibration of the equipment we supply.

STANDARD EXCLUSIONS

We do NOT include the following unless specifically included in our bill of material:

- 1) Pipe, tubing, valves or fittings between the instrument and the process.
- 2) Conduit, wire or cable not an integral part of the instrument.
- 3) Mounting brackets, stanchions, supports or mounting pads not an integral part of the instrument.
- 4) Labor to install the equipment.
- 5) The Cost, (if due to local union regulations), to have local craftsman make adjustments or wiring modifications to our equipment during start-up and calibration.
- 6) Any material or services not in our quoted sections.
- 7) This proposal is based on award of a supply purchase order and does not include any of the costs associated with bonding or subcontract administration. If bonding or a subcontract is required they can be provided for additional cost.

SPECIFIC EXCLUSIONS

- 1) Installation of Panels and Instruments
- 2) Subscription to Hach's Cloud Services
- 3) Provision of LCP-7472 (By Others)

**CITY OF BEAUMONT WASTE WATER TREATMENT PLANT
SALT MITIGATION UPGRADE PROJECT**

CLARIFICATION 27

To (Construction Manager): Stantec Attention: Charles Reynolds Phone: 702-497-8024 Email: Charles.w.reynolds@stantec.com	
From (Engineer): SKM Engineering Attention: Lindsey Stevens Phone: 801-677-0011 Email: lindsey.stevens@skmeng.com	
Subject: Modifications to HACH Instrumentation	Location: Throughout the Facility
Reference Documents: Drawing Nos. NI-01, NI-02, NI-04, NI-04A, NI-07, I-19, I-24, I-25, I-33, I-34, GE-08, SE-03, LE-07, LE-13, CE-07, CE-08, CE-09, CE-20	
CLARIFICATION	
Note the following:	
The HACH transmitters will all be model sc4200, as requested by the owner. As a result, several changes have been made to the network in the facility and the communication conduits required.	
NI-01 Communication wiring (CAT6 Shielded) has been added between CTC-MB and HH-203A, as well as CTC-MB and HH-202A. LCP-7410 has been replaced by LCP-7472, which shall house AIT-7472 the pH/chlorine analyzer at the recycled water lift station. CAT6 lines have been added from HH-203A to JB-2131 and HH-202A to JB-2111.	
NI-02 The local interface unit LIU-HW-7410 has been removed, and LIU-HW-7472 has been added to provide communications from LIU-HW-MB to LCP-7472.	
NI-04 and NI-04A Sheet NI-04A has been added to show communication to HACH instruments at the anoxic/aeration basins, brine lines and in the MBR building. Communication wires have been added at LIU-MB-HW and for the firewall at SW-SCADA-MB.	
NI-07 Networking information for AIT-7472 has been added.	
I-19 Networking labels at CTC-HW have been updated and now include LIU-HW-7472.	
I-24 Networking labels at CTC-MB have been updated and now include LIU-MB-4602 and SW-MB.	
I-25 Connections for SW-MB and the associated firewall have been added.	
I-33 and I-34 The wiring diagram and panel drawings have been added for LCP-4602. Sheet I-34 also shows the layout for LCP-7472.	
GE-08 and LE-07 The anoxic/ aeration basin junction boxes now have wireless access points as shown in the updated detail on GE-08, at the locations shown on LE-07.	

**CITY OF BEAUMONT WASTE WATER TREATMENT PLANT
SALT MITIGATION UPGRADE PROJECT**

SE-03

LCP-4602 has been added at the brine meter vault and houses AIT-4602, AIT-4603 and FIT-4605.

LE-13

A television and data outlets have been added in the control room and office area of the membrane building. The television will be provided and installed by the Owner.

CE-07

CAT6 cables have been added to conduits S2111, S2151, S3193, S4004 and S4602. Conduits S3000 and S3000A have been added to provide signal wiring to Hach instruments.

CE-08

Conduit S8531 has been added to provide signal wires from RIO-SH to FV-8531 and FV-8532. Conduit S30094 has been modified to include a CAT6 cable to AIT-30094 and AIT-30095.

CE-09

Conduit F7410 has been modified to provide communications to HH-108 and AIT-7472.

CE-20

Conduit routing to AIT-4603 has been modified to show a signal connection only. Labelling for FIT-4605 and the anoxic and aeration basin junction boxes have been updated.

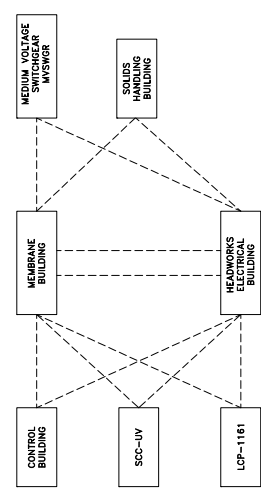
Prepared By (Name): Lindsey Stevens, SKM

Date: Dec. 19, 2019

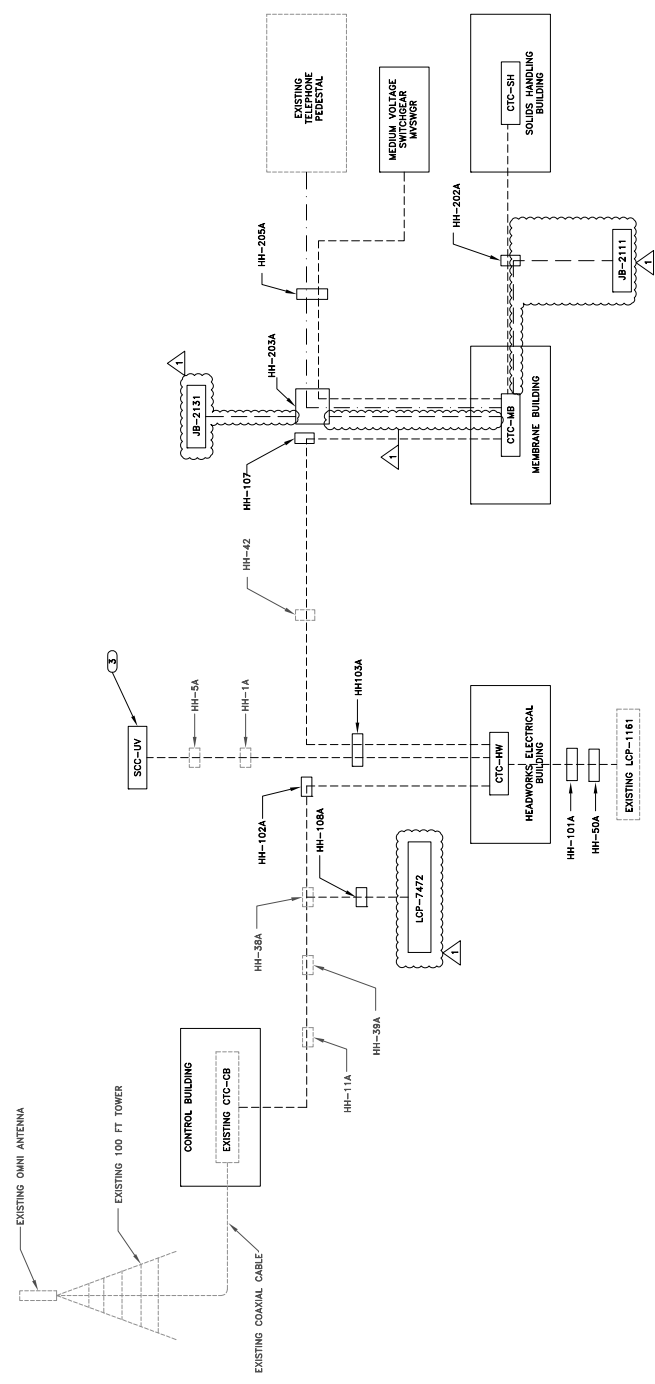
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SCADA NETWORK TOPOLOGY



PHYSICAL NETWORK LAYOUT



- LEGEND**
- SINGLEMODE CABLE OSP
 - FIBER OPTIC CABLE OSP
 - INTERNET SERVICE CABLE BY OTHERS
 - CAT6 SHIELDED

NOTES:

- ALL FIBER INSTALLATION, TERMINATION AND CERTIFICATION SHALL BE PERFORMED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL ADAPTER PLATES SHALL BE PROVIDED BY CONTRACTOR.
- WHERE EXISTING DUCTBANK IS USED REMOVE EXISTING CABLEING AND RE-USE CONDUITS.
- THE EXISTING UV SYSTEM CONTROL CENTER SCC-UV WILL BE REPLACED BY THE UV VENDOR. THE CONTRACTOR SHALL COORDINATE WITH THE VENDOR THE INSTALLATION OF THE FIBER OPTIC CABLEING TO THE NEW SCC-UV.

NO.	DATE	DESIGN	DRAWN	CHECKED
C	09/05/18	MJD	DCL	MJD
I	12/02/19	MJD	BB	MJD

REVISIONS

CITY OF BEAUMONT
SALT MITIGATION WTRF UPGRADE
INSTRUMENTATION - NETWORK
NETWORK TOPOLOGY DIAGRAM



ALBERT A. WEBB & ASSOCIATES
CIVIL ENGINEERS
3788 MCCRAY STREET
RIVERSIDE, CA 92506
PHONE (951) 686-1070
FAX (951) 788-1256

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NI-01

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
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CITY OF BEAUMONT
SALT MITIGATION WWTP UPGRADE
INSTRUMENTATION - NETWORK
MEMBRANE BUILDING NETWORK DIAGRAM

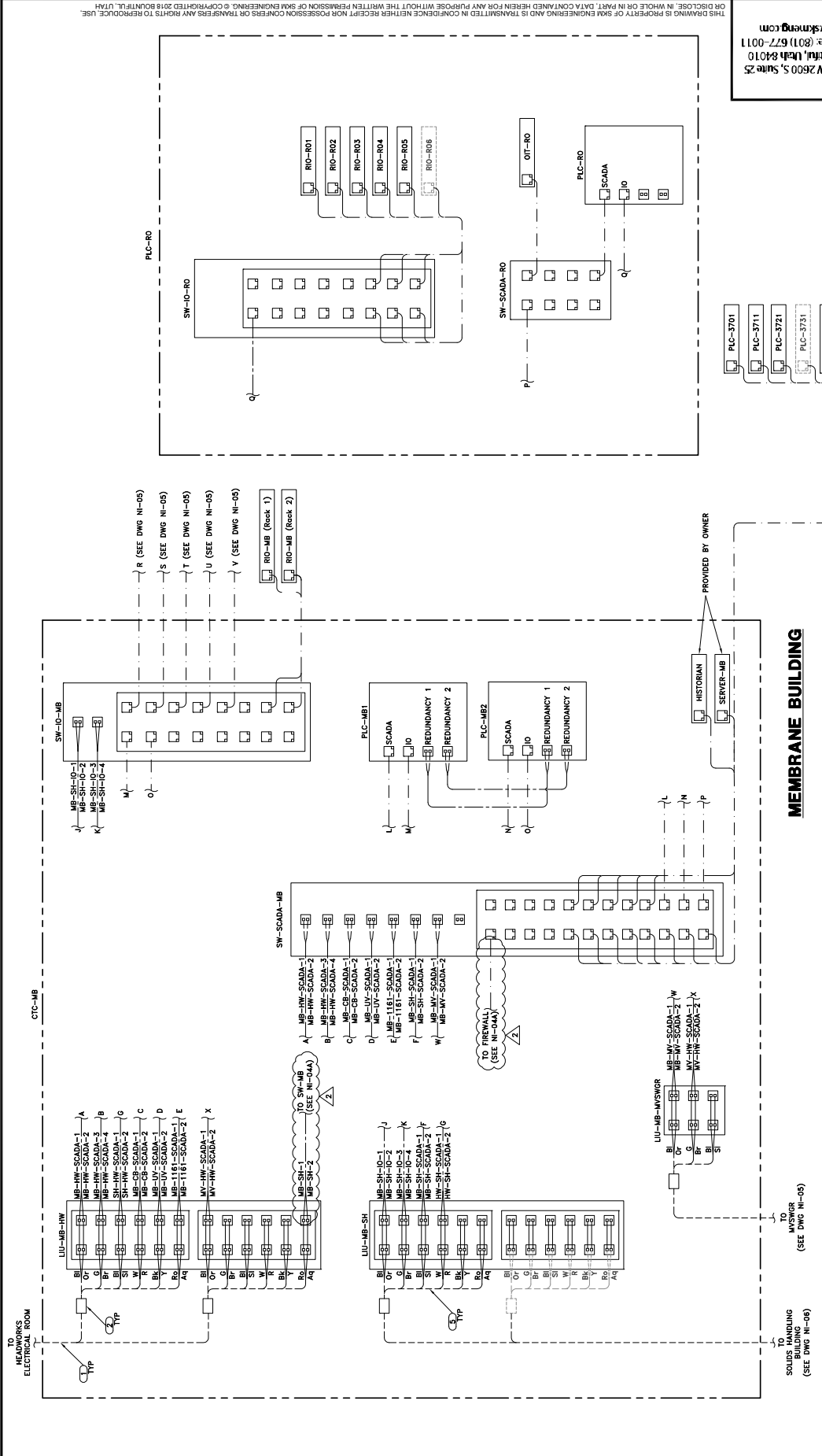


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ENGINEERING CONSULTANTS
3788 MCARY STREET
HOUSTON, TEXAS 77058
PHONE (801) 288-1327 FAX (801) 288-0183

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- PLC-2701
- PLC-2711
- PLC-2721
- PLC-2731
- PLC-2801
- PLC-2811
- PLC-2821
- PLC-2831
- OWS-MB1
- OWS-MB2
- OWS-MB3

MEMBRANE BUILDING

- 24 STRAND SINGLEMODE FIBER CABLE.
- FANOUT KIT OR FUSION KIT.
- PROGRAMMING TO BE PROVIDED BY OWNERS SYSTEM INTEGRATOR.
- CONTRACTOR IS RESPONSIBLE FOR TERMINATING, LABELING, AND TESTING THE FIBER OPTIC CABLES ENTERING AND EXITING THE OWNER PROVIDED PANEL.
- CONTRACTOR TO TERMINATE 12 STRANDS OF THE 24 STRAND CABLE. THE SAME 12 STRANDS SHALL BE TERMINATED AT EACH END.

- CAT6 NETWORK CABLE ETHERNET
- SINGLEMODE FIBER OPTIC CABLE
- SINGLEMODE DUPLEX PATCH CABLE
- RS-485 RATED CABLE
- ETHERNET PORT
- LC TYPE FIBER OPTIC CONNECTOR
- SC TYPE FIBER OPTIC CONNECTOR
- ST TYPE FIBER OPTIC CONNECTOR

LEGEND

TO HEADWORKS ELECTRICAL ROOM
TO SOLIDS HANDLING BUILDING (SEE DWG NI-08)
TO WWTP (SEE DWG NI-05)

NOTES

TO PREWALL (SEE NI-04A)
TO FIBER WALL (SEE NI-04A)

MEMBRANE BUILDING

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CITY OF BEAUMONT
SALT MITIGATION WWTFF UPGRADE
INSTRUMENTATION - NETWORK
MEMBRANE BUILDING NETWORK DIAGRAM I/A

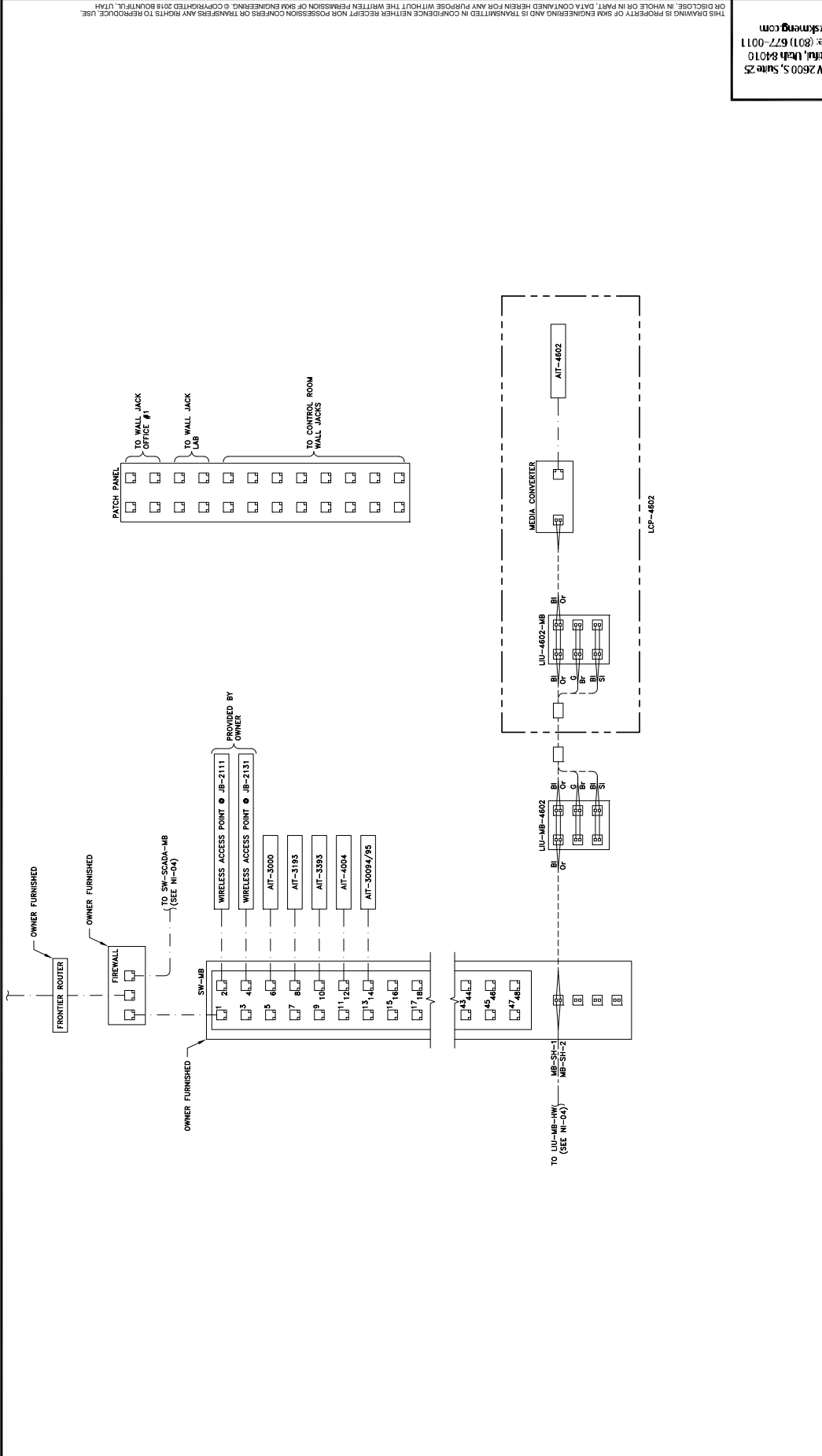


ALBERT A. WEBB & ASSOCIATES
CIVIL ENGINEERS
3788 MCCRAY STREET
RIVERSIDE, CA 92508
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SHEET ADDED

NOTES

- 1. 24 STRAND SINGLEMODE FIBER CABLE.
- 2. FANOUT KIT OR FUSION KIT.
- 3. PROGRAMMING TO BE PROVIDED BY OWNERS SYSTEM INTEGRATOR.
- 4. CONTRACTOR IS RESPONSIBLE FOR TERMINATING, TESTING AND LABELING ALL FIBER OPTIC CABLES ON CABLING ENTERING AND EXITING THE OWNER PROVIDED PANEL.
- 5. CONTRACTOR TO TERMINATE 12 STRANDS OF THE 24 STRAND CABLE. THE SAME 12 STRANDS SHALL BE TERMINATED AT EACH END.

LEGEND

- CAT6 NETWORK CABLE ETHERNET
- SINGLEMODE FIBER OPTIC CABLE
- SINGLEMODE DUPLEX PATCH CABLE
- RS-485 RATED CABLE
- ETHERNET PORT
- LC TYPE FIBER OPTIC CONNECTOR
- SC TYPE FIBER OPTIC CONNECTOR
- ST TYPE FIBER OPTIC CONNECTOR

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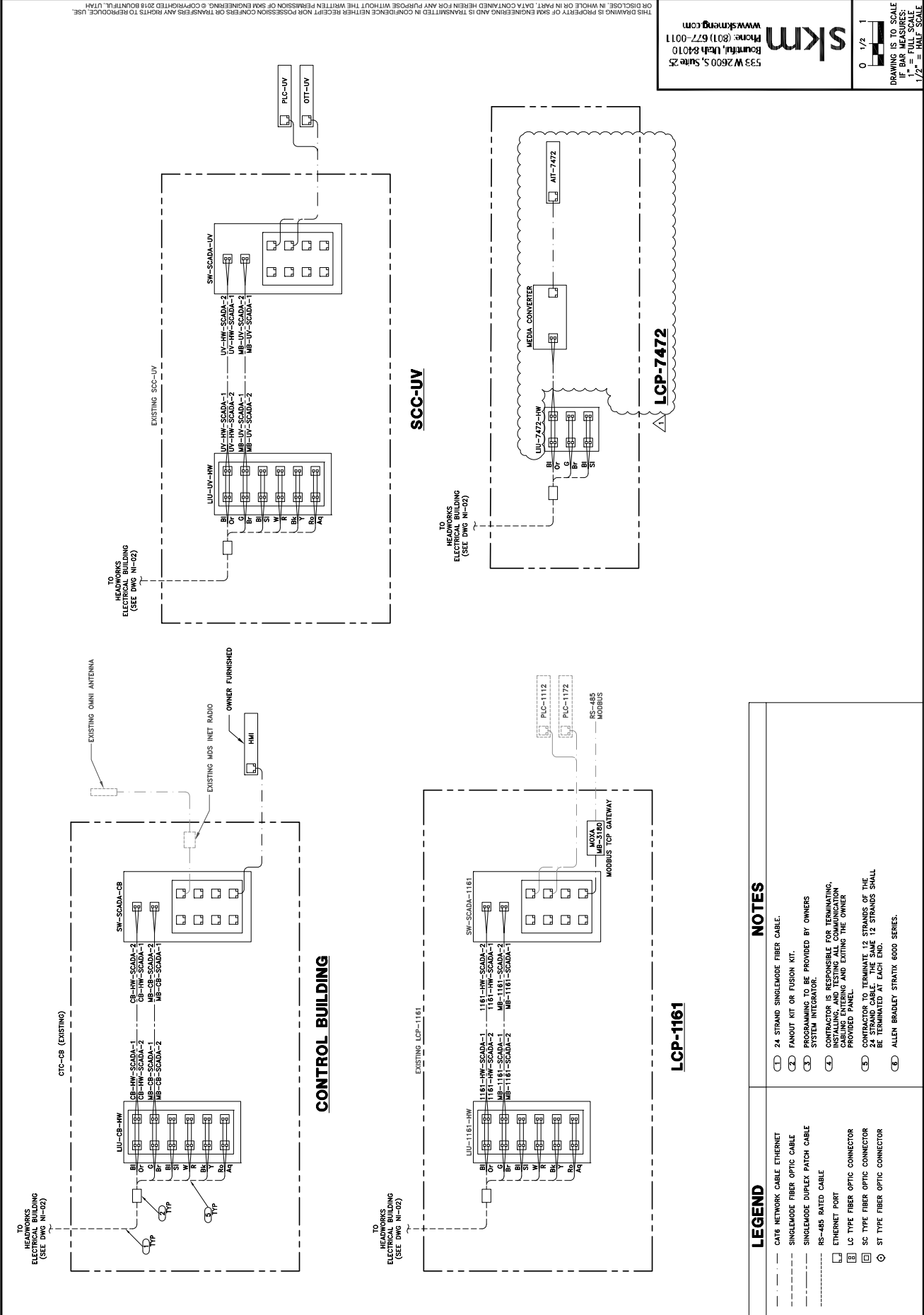
CITY OF BEAUMONT
 SALT MITIGATION WWTU UPGRADE
 INSTRUMENTATION - NETWORK
 ADDITIONAL NETWORK DIAGRAMS



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ALBERT A. WEBB & ASSOCIATES
 CIVIL ENGINEERS
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LEGEND	NOTES
--- CAT6 NETWORK CABLE ETHERNET	(1) 24 STRAND SINGLEMODE FIBER CABLE.
--- SINGLEMODE FIBER OPTIC CABLE	(2) FANOUT KIT OR FUSION KIT.
--- SINGLEMODE DUPLEX PATCH CABLE	(3) PROGRAMMING TO BE PROVIDED BY OWNERS
--- RS-485 RATED CABLE	(4) SYSTEM INTEGRATOR.
[E] ETHERNET PORT	(5) CONTRACTOR IS RESPONSIBLE FOR TERMINATING, LABELING AND TESTING THE FIBER OPTIC CABLES ON CABLES ENTERING AND EXITING THE OWNER PROVIDED PANEL.
[F] LC TYPE FIBER OPTIC CONNECTOR	(6) CONTRACTOR TO TERMINATE 12 STRANDS OF THE 24 STRAND CABLE. THE SAME 12 STRANDS SHALL BE TERMINATED AT EACH END.
[G] SC TYPE FIBER OPTIC CONNECTOR	(7) ALLEN BRADLEY STRATIX 6000 SERIES.
[H] ST TYPE FIBER OPTIC CONNECTOR	

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CITY OF BEAUMONT
SALT MITIGATION WWTP UPGRADE
INSTRUMENTATION - PLC DRAWINGS
CTC-HW PANEL LAYOUT



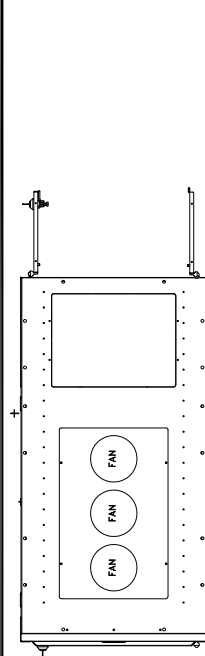
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I-19

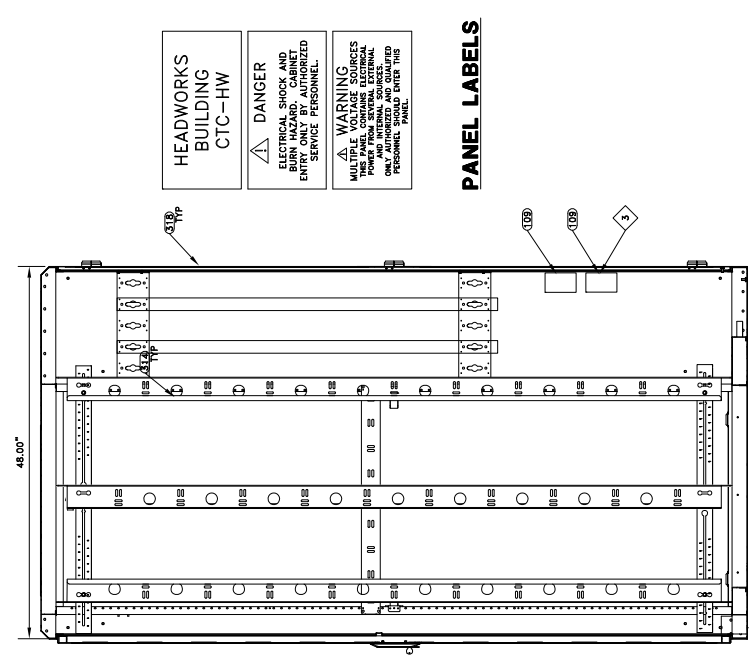
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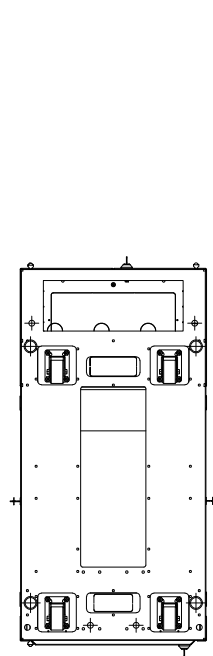
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TOP VIEW W/FANS



SIDE VIEW



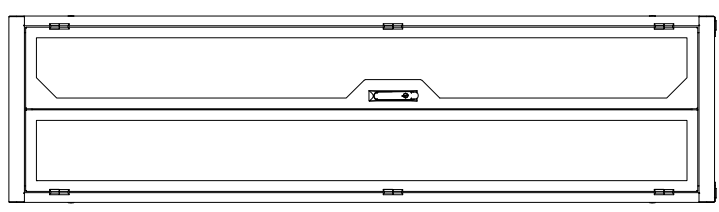
BOTTOM VIEW

HEADWORKS BUILDING CTC-HW

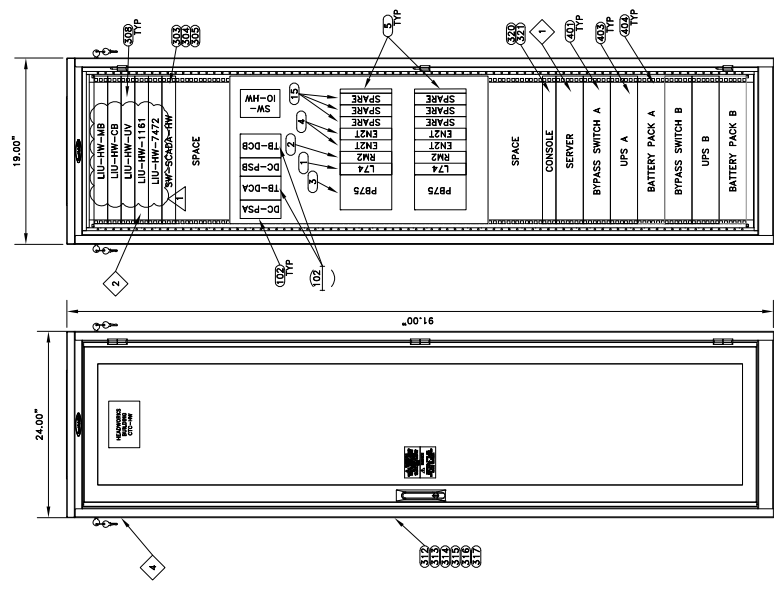
⚠ DANGER
ELECTRICAL SHOCK AND BURN HAZARD. CABINET ENTRY ONLY BY AUTHORIZED SERVICE PERSONNEL.

⚠ WARNING
MULTIPLE VOLTAGE SOURCES ARE PRESENT. SEVERAL INTERNAL POWER FEEDS. ONLY AUTHORIZED AND QUALIFIED PERSONNEL SHOULD ENTER THIS CABINET.

PANEL LABELS



BACK MESH DOOR



FRONT VIEW WITHOUT DOOR

FRONT VIEW

- KEYED NOTES:**
- SCADA SERVER WILL BE SUPPLIED AND INSTALLED BY THE OWNER'S SYSTEM INTEGRATOR. PROVIDE 2U OF SPACE FOR THIS SERVER.
 - PROVIDE FIBER PATCH PANELS WITH ADAPTER PANELS FOR CONNECTION OF SCADA NETWORK TO OTHER BUILDINGS. FIBER TERMINATIONS SHALL BE PERFORMED BY THE CONTRACTOR.
 - POWER TWO DEDICATED OUTLETS IN SINGLE GANG BOXES AT THE BACK OF THE CTC.
 - CTC SHALL BE A COMPLETE ASSEMBLY. THE EQUIPMENT IN THE CTC SHALL BE ASSEMBLED FOR THE FACTORY ACCEPTANCE TEST. THE EQUIPMENT SHOULD THEN BE REMOVED, AND THE CTC SHALL BE PERMANENTLY INSTALLED. THE EQUIPMENT SHALL BE RE-INSTALLED AND ALL CONNECTIONS RECONNECTED.

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I	12/02/19	MPJ	BB	MPJ

CITY OF BEAUMONT
SALT MITIGATION WWTP UPGRADE
INSTRUMENTATION - PLC DRAWINGS
CTC-MB PANEL LAYOUT

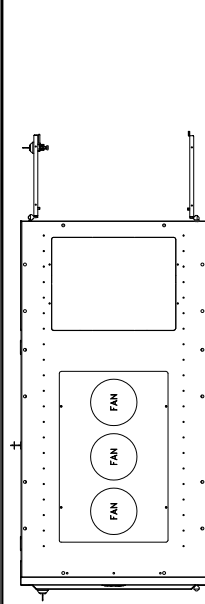


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3788 MCCRAY STREET
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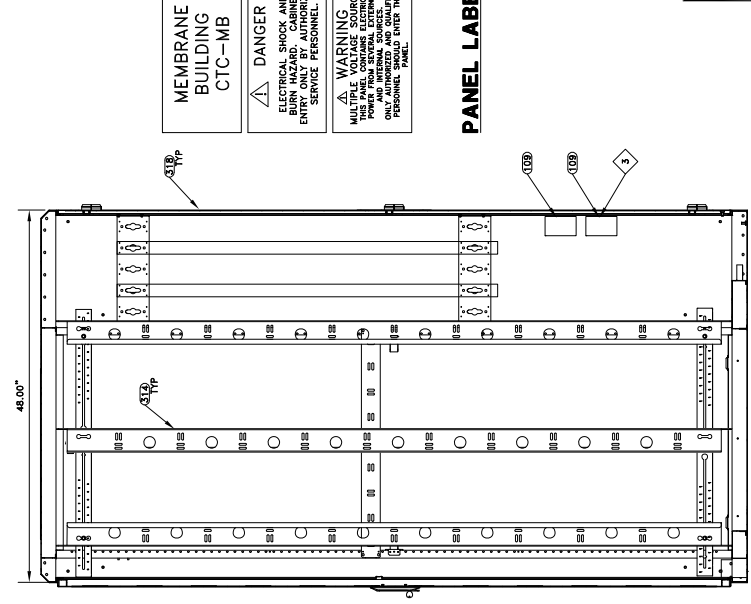
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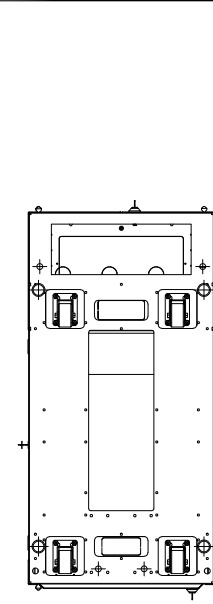
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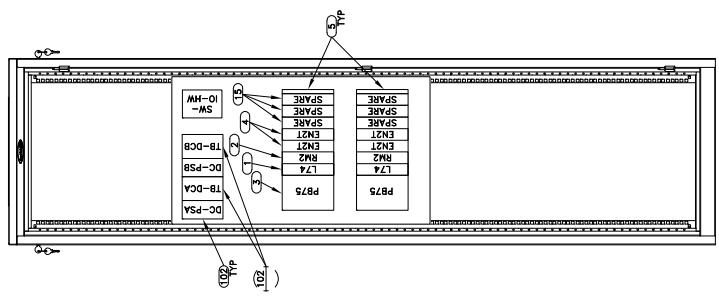
TOP VIEW W/FANS



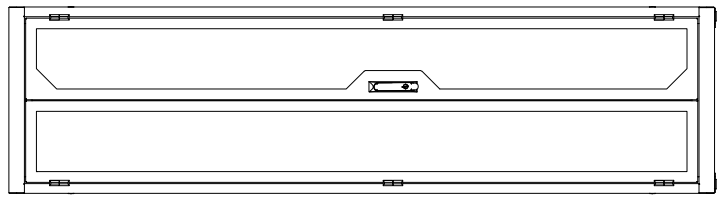
SIDE VIEW



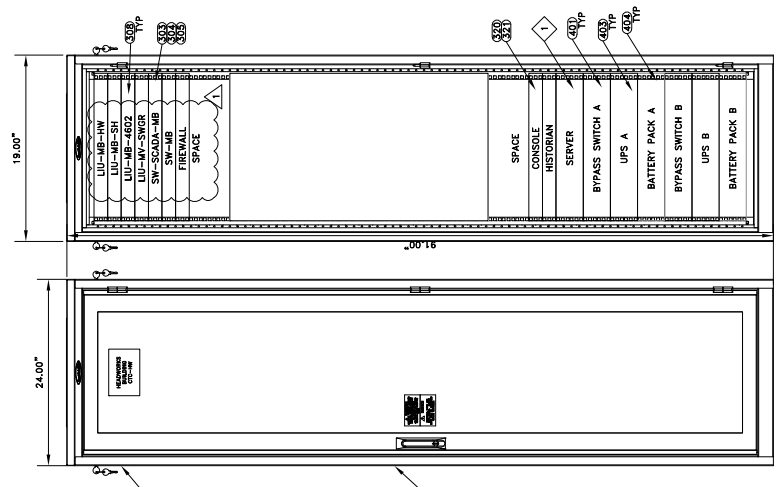
BOTTOM VIEW



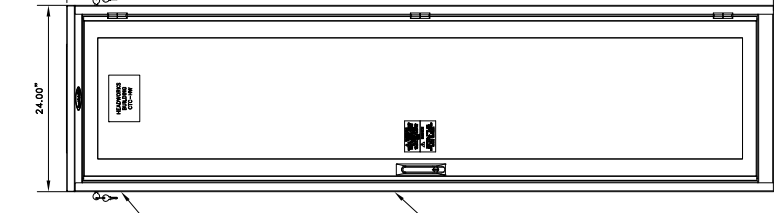
BACK VIEW WITHOUT DOOR



BACK MESH DOOR



FRONT VIEW WITHOUT DOOR



FRONT VIEW

MEMBRANE BUILDING CTC-MB

DANGER
SHOCK AND BURN HAZARD. CABINET ENTRY ONLY BY AUTHORIZED SERVICE PERSONNEL.

WARNING
MULTIPLE VOLTAGE SOURCES. DO NOT TOUCH INTERNAL POWER WIRING. SEVERAL INTERNAL ONLY AUTHORIZED AND QUALIFIED PERSONNEL SHOULD ENTER THIS

PANEL LABELS

- KEYED NOTES:
- SCADA SERVER WILL BE SUPPLIED AND INSTALLED BY THE OWNER'S SYSTEM INTEGRATOR. PROVIDE 2U OF SPACE FOR THIS SERVER.
 - PROVIDE FIBER PATCH PANELS WITH ADAPTER PANELS FOR CONNECTION OF SCADA NETWORK TO OTHER BUILDINGS. FIBER TERMINATIONS SHALL BE PERFORMED BY THE CONTRACTOR.
 - POWER WILL BE BROUGHT TO THE CTC BY THE CONTRACTOR. MOUNT TWO DEDICATED OUTLETS IN SINGLE GANG BOXES AT THE BACK OF THE CTC.
 - CTC SHALL BE A COMPLETE ASSEMBLY. THE EQUIPMENT IN THE CTC SHALL BE ASSEMBLED FOR THE FACTORY ACCEPTANCE TEST. THE EQUIPMENT SHOULD THEN BE REMOVED, AND HAS BEEN PERMANENTLY INSTALLED. THE EQUIPMENT SHALL BE RE-INSTALLED AND ALL CONNECTIONS RECONNECTED.

NO.	DATE	DESIGN	DRAWN	CHECKED
C	09/05/18	MPJ	DCL	MPJ
REVISIONS				
1	12/02/19	MPJ	BB	MPJ

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INSTRUMENTATION - PLC DRAWINGS
CTC-MB AC & DC WIRING DIAGRAMS

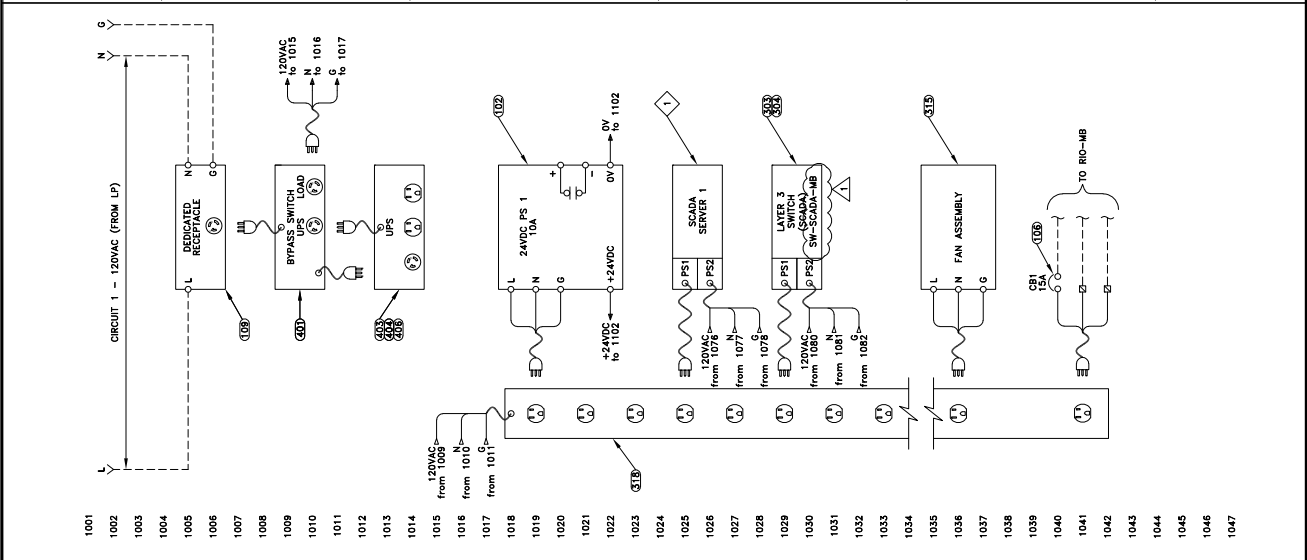
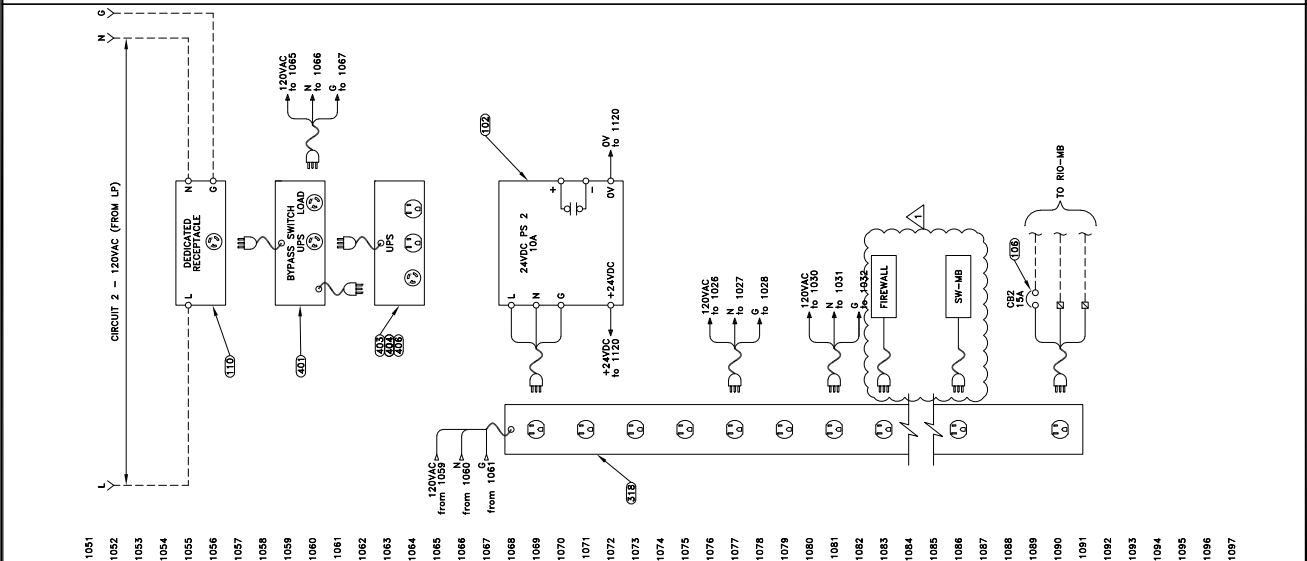
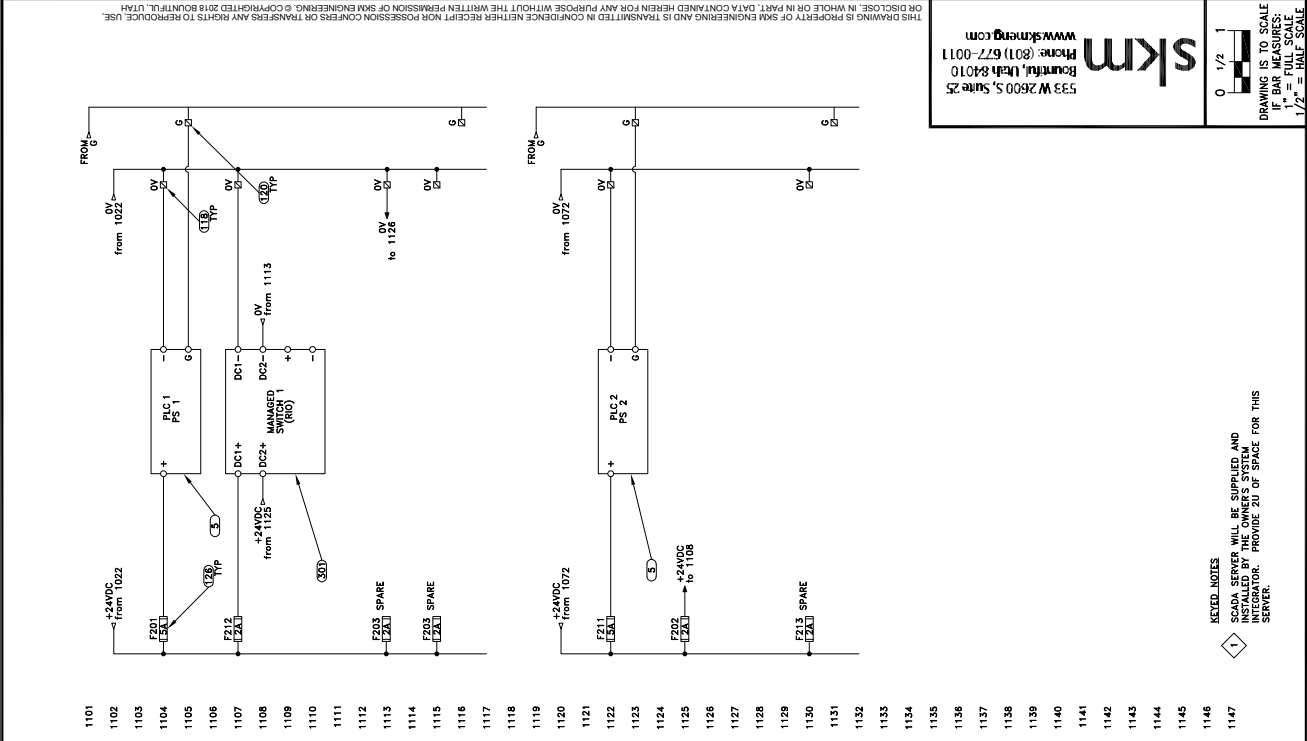


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HOUSTON, TX 77058
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SHEET 61 OF 172
DRAWING IS TO SCALE
IF RAG UP ASSES
1" = FULL SCALE
1/2" = HALF SCALE

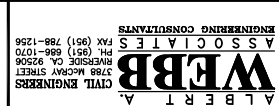
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Beaumont, Texas 77601
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KEYED NOTES
SCADA SERVER WILL BE SUPPLIED AND INSTALLED BY THE SCADA INTEGRATOR. PROVIDE 20' OF SPACE FOR THIS SERVER.

NO.	DATE	DESIGN	DRAWN	CHECKED
ORIGINAL				
REVISIONS				
I	12/02/19	MPJ	BB	MPJ
CITY OF BEAUMONT				
SALT MITIGATION WWTP UPGRADE				
INSTRUMENTATION - PLC DRAWINGS				
LCP-4602 AC & DC WIRING DIAGRAM				

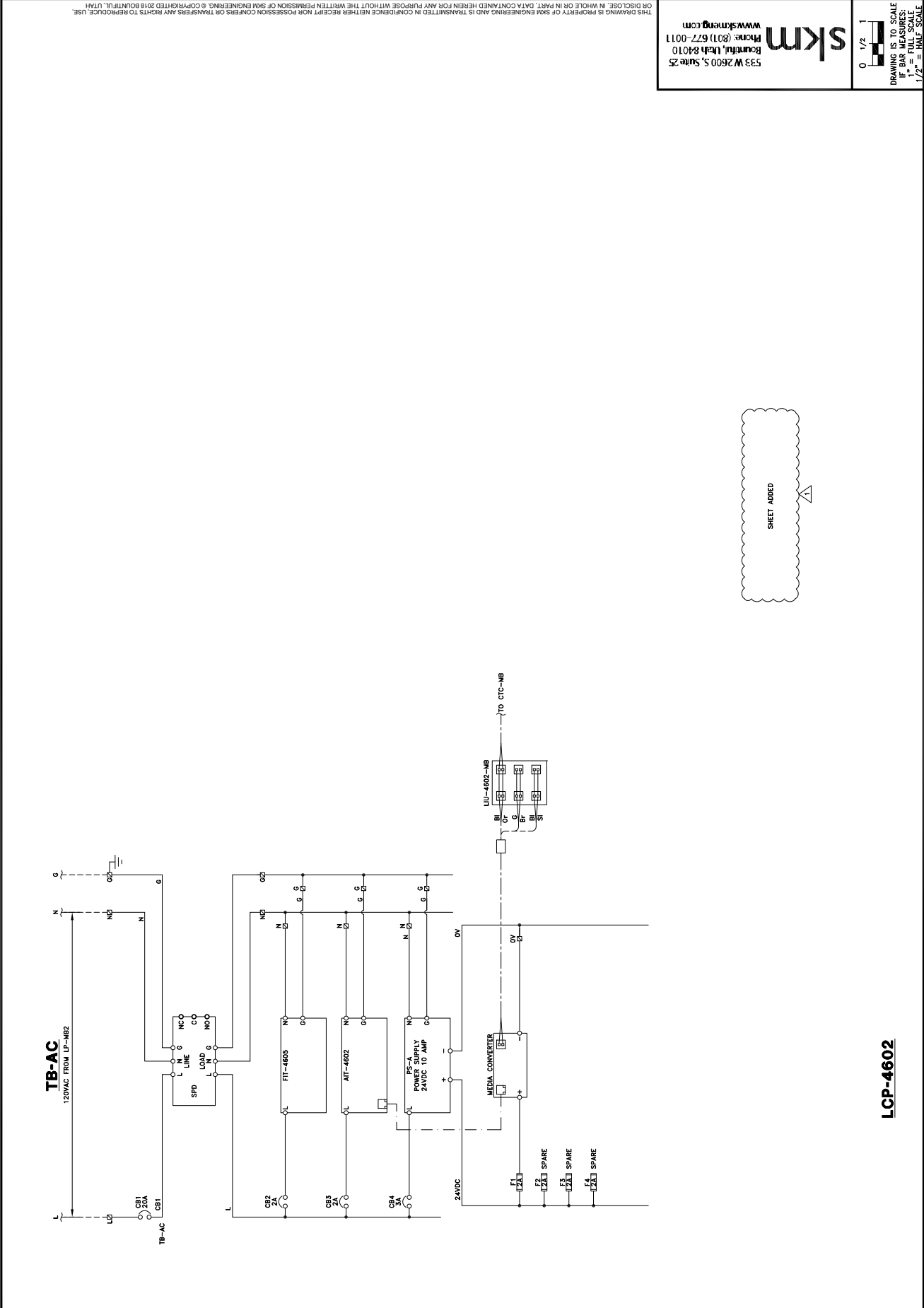
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INSTRUMENTATION - PLC DRAWINGS
LCP-4602 AC & DC WIRING DIAGRAM



SHEET 69 OF 172
I-33

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0 1/2 1
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1/2" = HALF SCALE



SHEET ADDED

LCP-4602

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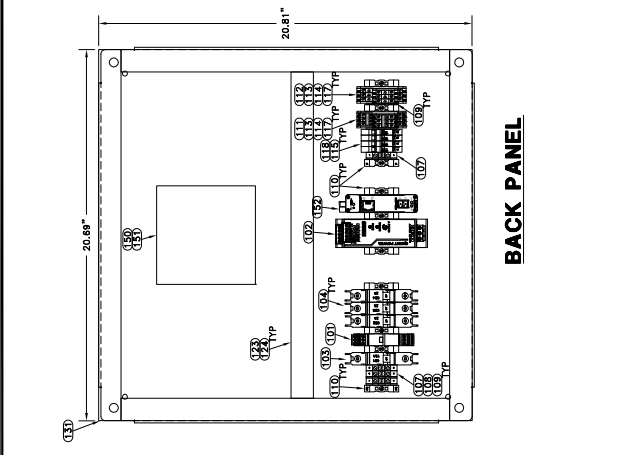
CITY OF BEAUMONT
SALT MITIGATION WWTP UPGRADE
INSTRUMENTATION - PLC DRAWINGS
LCP-4602 & LCP-7472 PANEL LAYOUT



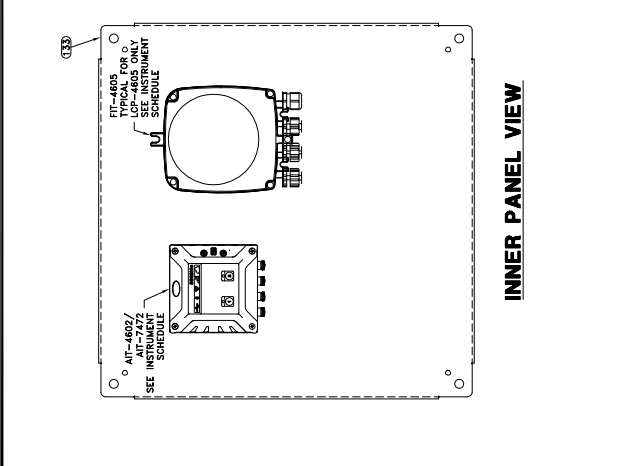
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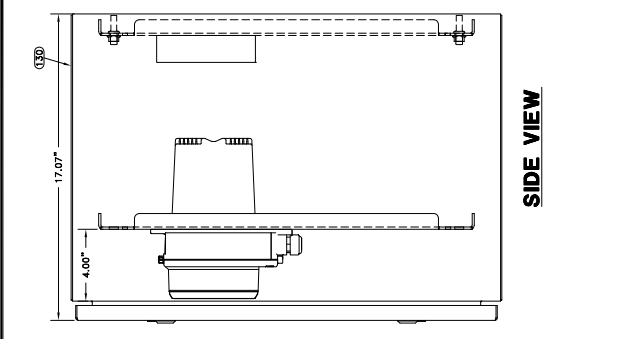
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DRAWING IS TO SCALE
IF RAS OR ASURES
1" = FULL SCALE
1/2" = HALF SCALE



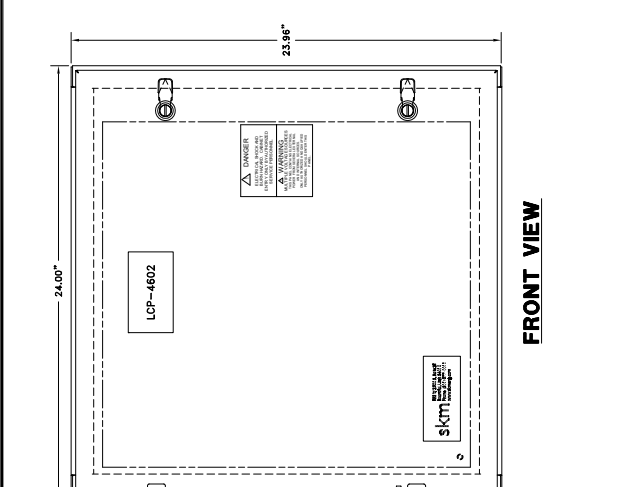
FRONT VIEW



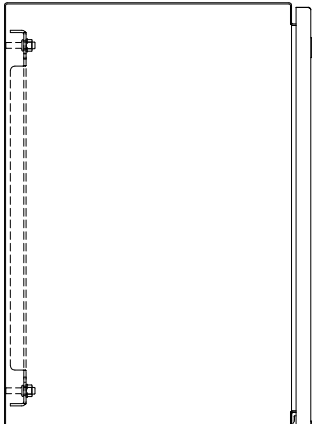
SIDE VIEW



INNER PANEL VIEW



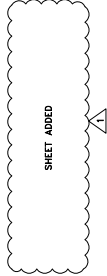
BACK PANEL



TOP VIEW

ITEM	MAKE	MODEL	DESCRIPTION	TOTAL	NOTES
101	PHOENIX	2897R18	120VAC IN-LINE SPD	1	OR APPROVED EQUAL
102	PHOENIX	2804000	240VDC DIGITAL POWER SUPPLY 5A OUTPUT	2	OR APPROVED EQUAL
103	PHOENIX	2804000	240VDC DIGITAL POWER SUPPLY 5A OUTPUT	2	OR APPROVED EQUAL
104	SCHEFFER	MIF-4112	24VDC CPU I/O BOARD	3	OR APPROVED EQUAL
107	PHOENIX	3044131	8.2MM TERMINAL BLOCK, FITS UP TO 4R. UTS	LOT	OR APPROVED EQUAL
108	PHOENIX	3044157	8.2MM GND TERMINAL BLOCK UTR/PE	LOT	OR APPROVED EQUAL
109	PHOENIX	3047028	UT SERIES END PLATE	LOT	OR APPROVED EQUAL
110	PHOENIX	3044089	8.2MM GROUND TERMINAL BLOCK	LOT	OR APPROVED EQUAL
111	PHOENIX	3044758	6.2MM DOUBLE LEVEL TERMINAL UT/RA	LOT	OR APPROVED EQUAL
112	PHOENIX	3044758	6.2MM DOUBLE LEVEL GROUND TERMINAL UT/RA	LOT	OR APPROVED EQUAL
113	PHOENIX	3047293	DOUBLE LEVEL TERMINAL END PLATE	LOT	OR APPROVED EQUAL
114	PHOENIX	3047293	SPACER PLATE	LOT	OR APPROVED EQUAL
115	PHOENIX	3066814	8.2MM UT SERIES END PLATE	LOT	OR APPROVED EQUAL
116	PHOENIX	3044089	8.2MM GROUND TERMINAL BLOCK	LOT	OR APPROVED EQUAL
117	PHOENIX	3032608	UT/RA SERIES BAR, 50 PRECISE BLUE	LOT	OR APPROVED EQUAL
118	PHOENIX	3032608	UT/RA SERIES BAR, 10 PRECISE BLUE	LOT	OR APPROVED EQUAL
123	PANDUIT	F14AL08	1.5" X 4" WIRE DUCT, LT GRAY	LOT	OR APPROVED EQUAL
124	PANDUIT	CI1L08	1.5" WIRE COVER, LT GRAY	LOT	OR APPROVED EQUAL
128	BOCO	ODM3F	DRIN DRAIN	LOT	OR APPROVED EQUAL
129	BOCO	ODM3F	DRIN DRAIN	LOT	OR APPROVED EQUAL
142	TI100N	CRANT	THE DOOR GUSSETS	LOT	OR APPROVED EQUAL
130	SAGINAW	SCE-2AEL2X18SSB1P	24X24X1P, NEMA 4X SINGLE DOOR ENCLOSURE	1	OR APPROVED EQUAL
131	SAGINAW	SCE-2AMP4	BACKPANEL FOR 24X24P ENCLOSURE	1	OR APPROVED EQUAL
132	SAGINAW	SCE-PP10201	INTERIOR PRINT POCKET	1	OR APPROVED EQUAL
133	SAGINAW	SCE-PP10201	INTERIOR PRINT POCKET	1	OR APPROVED EQUAL
134	HANVEK	HSS14HWG	14WG AGF POWER CORD RASTAIL 15A, 6FT	1	OR APPROVED EQUAL
135	SOUTHWARE	8780	M1W TUNED CONTROL WIRE (SIZE, COLOR VARIES)	LOT	OR APPROVED EQUAL
136	BELDEN	8780	#18 TWISTED SHIELDED PAIR, TUNED COPPER	LOT	OR APPROVED EQUAL
139	PHOENIX	VARIES	TERMINAL BLOCK LABELS	LOT	OR APPROVED EQUAL
140	PHOENIX	VARIES	TERMINAL BLOCK LABELS	LOT	OR APPROVED EQUAL
141	PHOENIX	VARIES	TERMINAL BLOCK LABELS	LOT	OR APPROVED EQUAL
142	CUSTOM	VARIES	STANDARD & CUSTOM ADHESIVE LABELS	LOT	OR APPROVED EQUAL
143	CUSTOM	VARIES	ENGRAVED LABELS	LOT	OR APPROVED EQUAL
NETWORK EQUIPMENT					
150	CORNING	SPH-DIP	FIBER OPTIC PATCH PANEL	1	OR APPROVED EQUAL
151	PHOENIX	10000-CL3	FIBER TO COPPER FIBERNET CONVERTER	1	OR APPROVED EQUAL
152	NIHON	10000-CL3	FIBER TO COPPER FIBERNET CONVERTER	1	OR APPROVED EQUAL
153	CSG	26244	FIBER OPTIC PATCH CABLE 2M DUPLEX LC LC	LOT	OR APPROVED EQUAL
154	CSG	VARIES	CAT 6 PATCH CABLES (LENGTH VARIES)	LOT	OR APPROVED EQUAL
155	CSG	VARIES	CAT 6 PATCH CABLES (LENGTH VARIES)	LOT	OR APPROVED EQUAL

BILL OF MATERIAL

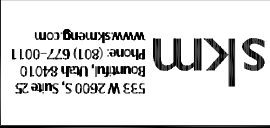


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REVISIONS				
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2	12/02/19	MJD	DCL	MJD

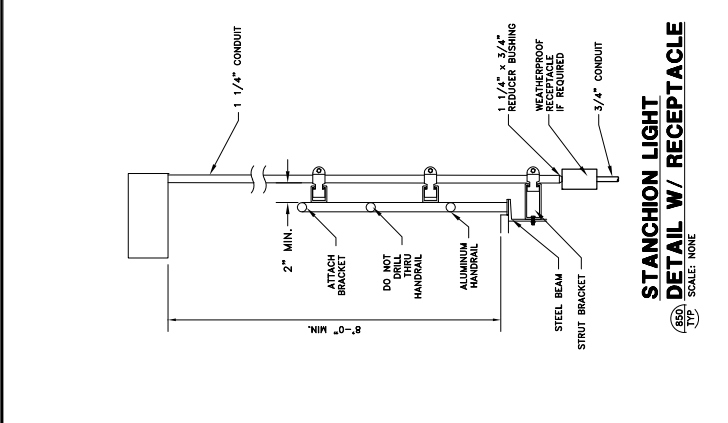
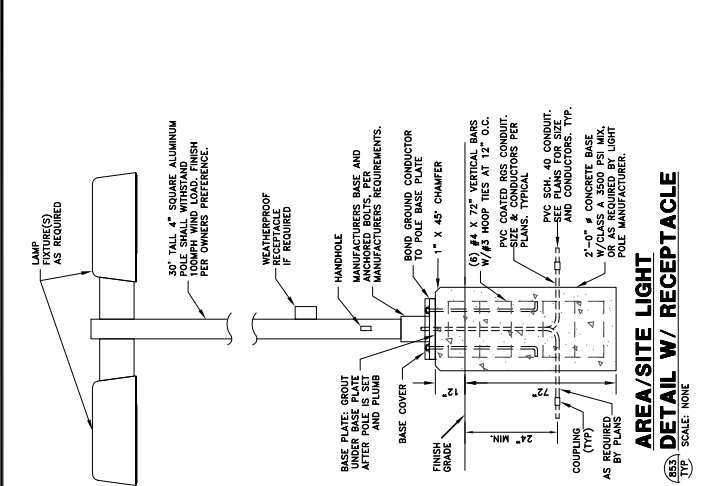
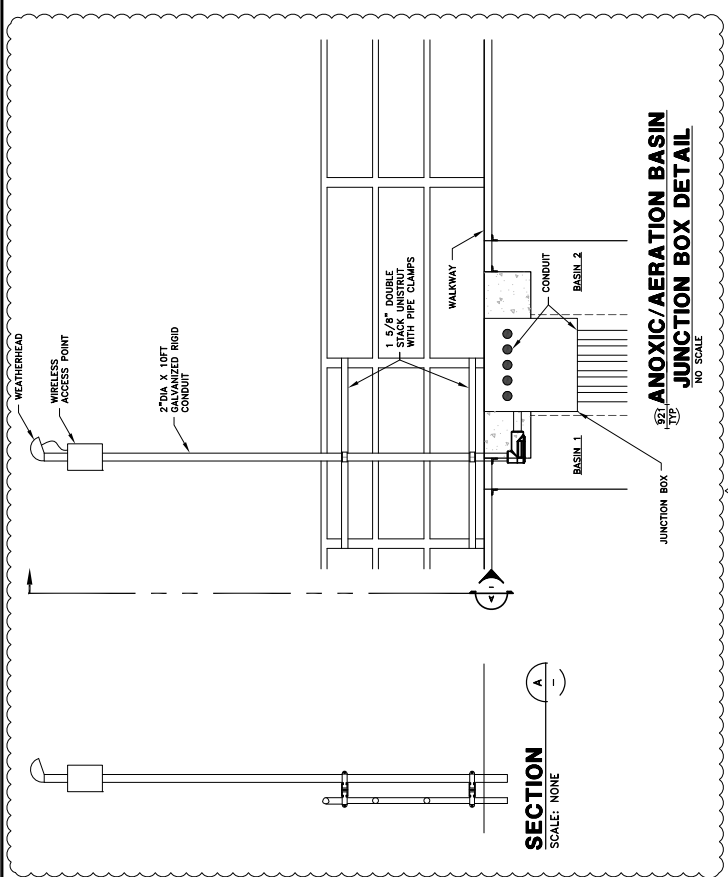
CITY OF BEAUMONT
SALT MITIGATION WWTP UPGRADE
ELECTRICAL - GENERAL
DETAILS 7



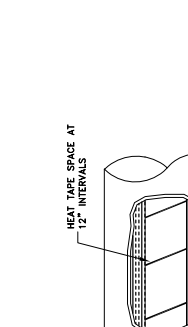
GE-08
SHEET 76 OF 172



0 1/2" 1"
DRAWING IS TO SCALE
IF RING UP ASSURES
1" = FULL SCALE
1/2" = HALF SCALE



- NOTES:
1. ALL LETTERS TO BE 1/4\"/>



- NOTES:
1. ALL LETTERS TO BE 1/4\"/>

NO.	DATE	DESIGN	DRAWN	CHECKED
C	09/05/18	MPJ	DCL	MPJ
REVISIONS				
1	06/26/19	MPJ	DCL	BB
2	12/02/19	MPJ	DCL	MPJ

CITY OF BEAUMONT
SALT MITIGATION WTRP UPGRADE
ELECTRICAL - SITE
SITE PLAN 2

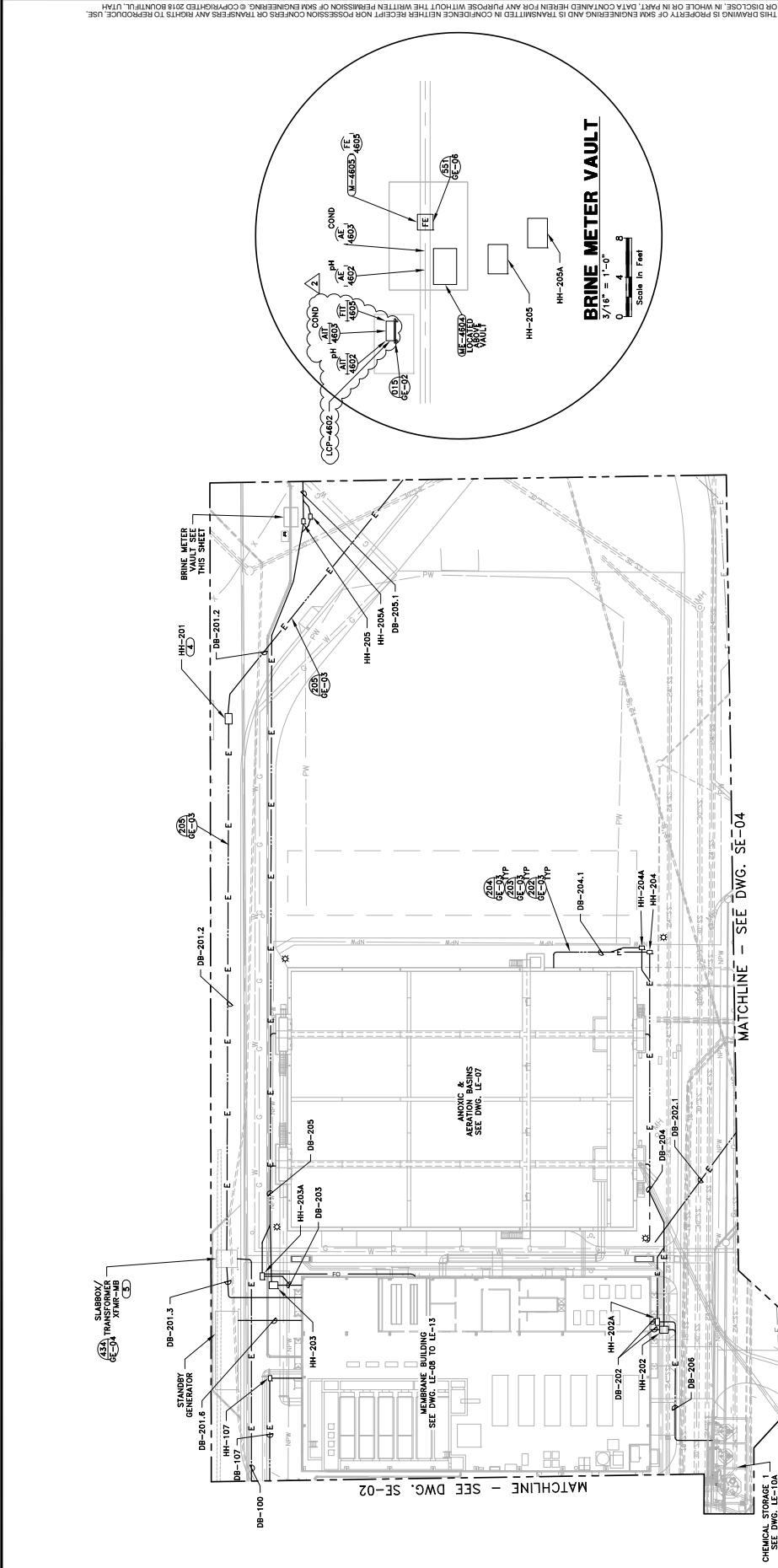
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ENGINEERING
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ENGINEERING CONSULTANTS
7378 MCCRAY STREET
RIVERSIDE, CA 92506
PHONE (951) 788-1256
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SHEET 92 OF 172
SE-03

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0 1/2 1
DRAWING IS TO SCALE
IF RING UP ASSETS
1" = FULL SCALE
1/2" = HALF SCALE



BRINE METER VAULT
3/16" = 1'-0"
Scale In Feet

0 4 8
Scale In Feet

MATCHLINE - SEE DWG. SE-04

MATCHLINE - SEE DWG. SE-02

SITE PLAN 2

1:30
0 30 60
Scale In Feet

- NOTES:**
- 1 CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT SHALL BE PVC COATED. PANELS SHALL BE STAINLESS STEEL NEMA 4X.
 - 2 CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN IN AUTOCAD FORMAT TO THE ELECTRICAL ENGINEER FOR APPROVAL.
 - 3 LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
 - 4 INSTALL UTILITY PULLBOX PER SCE UNDERGROUND STRUCTURES STANDARDS FOR TERT SYSTEMS.
 - 5 INSTALL 10' X 12' PRECAST SLAB BOX PER SCE UNDERGROUND STRUCTURES STANDARDS DETAIL S3555.

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ORIGINAL

NO.	DATE	DESIGN	CHECKED
C	09/05/18	MPL	DCL
I	12/02/19	MPL	BB

CITY OF BEAUMONT
SALT MITIGATION WWTPL UPGRADE
ELECTRICAL - LAYOUT
ANOXIC & AERATION BASINS PLAN



ALBERT A. WEBB & ASSOCIATES
CIVIL ENGINEERS
3788 MCCRAY STREET
HOUSTON, TEXAS 77058
PHONE (817) 288-1256
FAX (817) 788-1256

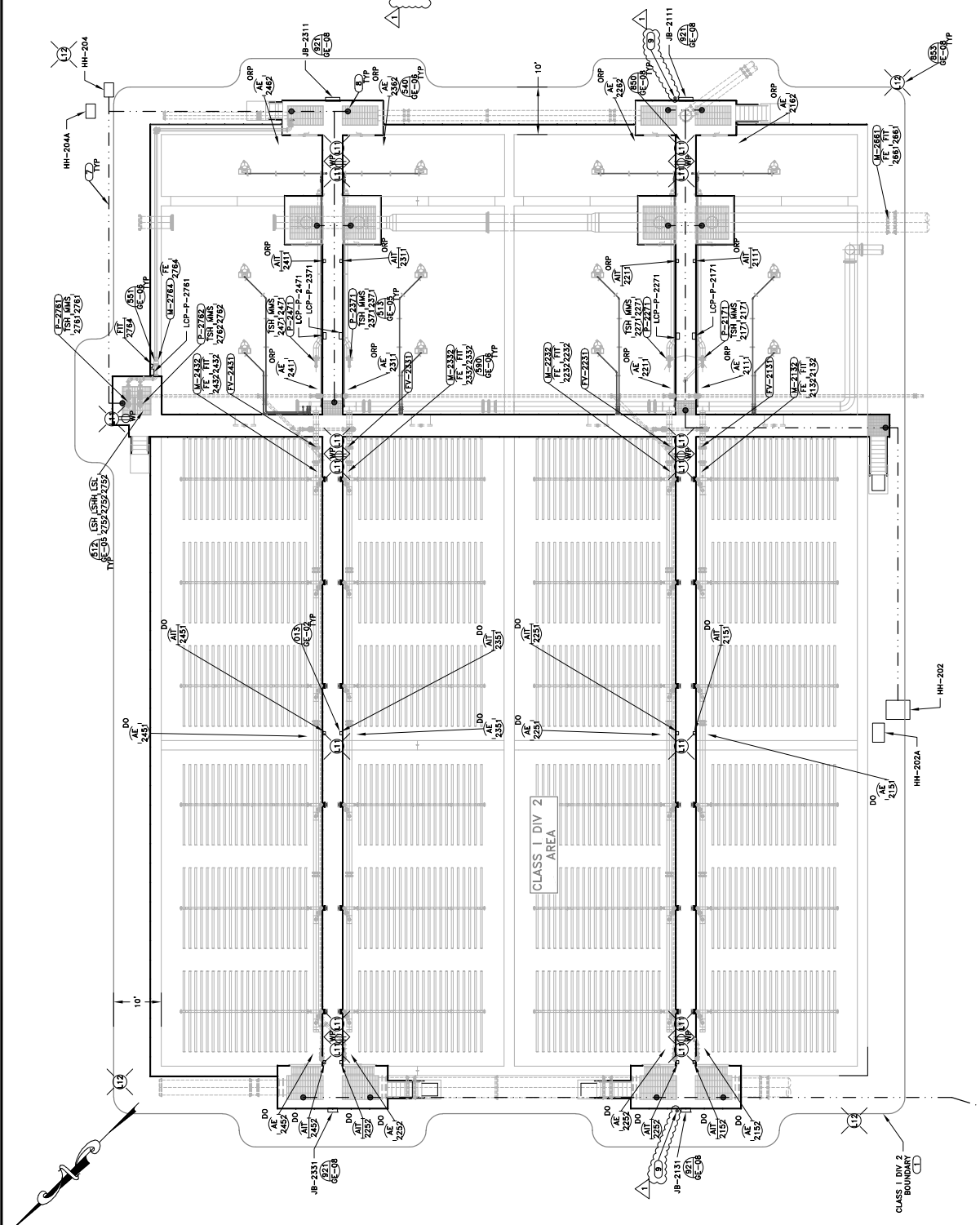
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SHEET 100 OF 172

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0 1/2" 1"
DRAWING IS TO SCALE
IF BAG UP ASSETS
1" = FULL SCALE
1/2" = HALF SCALE

- NOTES:
- THE INTERIOR OF THE ANOXIC BASIN AND EXTENDING OUT TO FEET HORIZONTALLY AND 1.5 FEET VERTICALLY IS RATED CLASS 1, DIV2 (SEE SECTION 05-20-00) AND SHALL BE MAINTAINED AS SUCH. ALL ELECTRICAL COMPONENTS SHALL BE RATED CLASS 1, DIV 2. SEAL OFFTS SHALL BE INSTALLED TO MAINTAIN THE UNCLASSIFIED SPACE SURROUNDING THIS AREA. ALL COMPONENTS SHALL BE CORROSION RESISTANT TO 100% RELATIVE HUMIDITY.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR SUBMITTING PLANS AND EQUIPMENT TO THE ELECTRICAL ENGINEER FOR APPROVAL.
 - LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
 - MOUNT ALL LCP'S AND PANELS AT LEAST 3' ABOVE THE HIGHEST LIQUID LEVEL.
 - ALL ELECTRONIC DISPLAYS SUBJECT TO OUTDOOR EXPOSURE SHALL BE PROTECTED AS PER DETAIL 901.
 - CONTRACTOR TO KEEP APPROPRIATE SEPARATION BETWEEN 480VAC, 120VAC AND 240VAC IN ALL JUNCTION AND HAND HOLES.
 - GROUND GRID SHALL BE CONNECTED TO MAIN GROUND THROUGH DUCT BANK SYSTEM.
 - BOND ALL BUILDING STEEL TO GROUND PER NEC.
 - INSTALL 2" MAST FOR WIRELESS ACCESS POINT (WAP SUPPLIED BY CITY.) SEE DETAIL 921 ON SHT. GE-08.

- ELECTRICAL LEGEND**
- GARDOO STANCHION MOUNTED 89W LED LIGHT, 120V, 16W WITH DIMMING/SENSOR OR APPROVED EQUAL.
 - GE EVOLVE SERIES LED COBRA HEAD MODEL ER1-0-F2-D1-5-40-2-GRAY-F WITH 2 HEADS, OR APPROVED EQUAL.
 - DUPLEX OUTLET
 - WF: WEATHER-PROOF OUTLET GFCI PROTECTED.



ANOXIC & AERATION BASINS PLAN
3/32" = 1'-0"
0 8 16
Scale in Feet

NO.	DATE	DESIGN	DRAWN	CHECKED
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REVISIONS				
2	12/02/19	MPJ	DCL	BB
1	06/26/19	MPJ	DCL	MPJ

CITY OF BEAUMONT
SALT MITIGATION WWTP UPGRADE
ELECTRICAL - LAYOUT
MEMBRANE BLDG-LIGHTING & HVAC PLAN 2

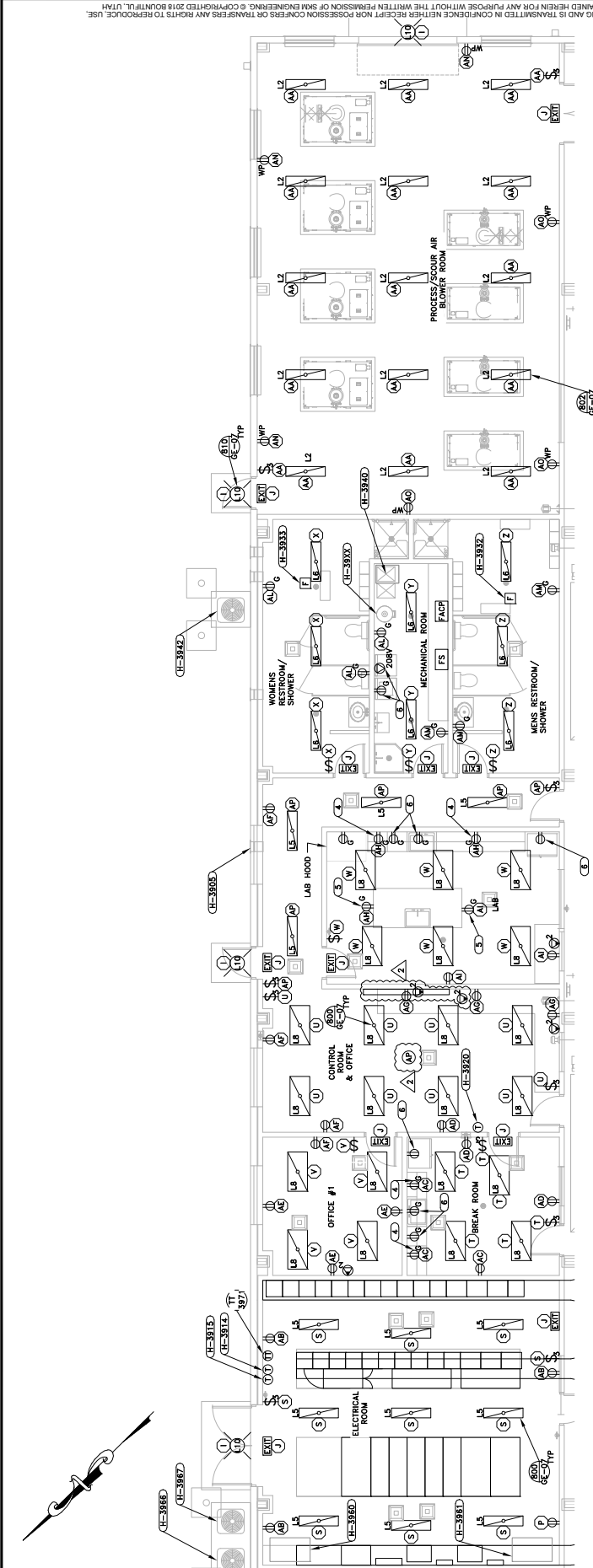
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533 W 2600 S, SUITE 275, BEAUMONT, TX 77601-1256
PHONE (801) 288-1327 FAX (801) 288-0135

ALBERT A. WEBB & ASSOCIATES
CIVIL ENGINEERS
3788 MCCRAY STREET
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PHONE (951) 788-1256
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SHEET 106 OF 172
LE-13

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0 1/2" = 1'
DRAWING IS TO SCALE
IF RAS OR ASURES
1" = FULL SCALE
1/2" = HALF SCALE



MEMBRANE BLDG-LIGHTING & HVAC PLAN 2

Scale in Feet
0 4 8

- NOTES:
- CONDUIT SHALL ONLY BE EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT SHALL BE GRS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN IN APPROVED FORMAT TO THE ELECTRICAL ENGINEER FOR APPROVAL.
 - UNITE EXPOSED CONDUITS, RT BRIMS, INS. WALL PENETRATIONS MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
 - OUTLET MOUNTED AT 44" AFF.
 - OUTLET MOUNTED BELOW ISLAND COUNTER.
 - DEDICATED OUTLET FOR APPLIANCE.

ELECTRICAL LEGEND

- | | | | | |
|--|---|--|--------------------------|---|
| | DAY-BRITE 59W 1'x4' WET LOCATION LED FIXTURE WITH EMERGENCY DRIVER, MODEL ATSI-14-L40/940-D-EM/10WFL(D48)-DIM-UNY OR APPROVED EQUAL | | EXIT | DAY-BRITE VE SERIES EXIT SIGN, MODEL VIEW OR APPROVED EQUAL |
| | H.E. WILLIAMS 39W 1'x4' LED FIXTURE WITH EMERGENCY AND DIMMING DRIVERS, MODEL ATSI-14-L40/940-D-EM/10WFL(DIM-UNY) OR APPROVED EQUAL | | DUPLX OUTLET | DUPLX OUTLET |
| | H.E. WILLIAMS 34W 1'x4' LED FIXTURE WITH EMERGENCY AND DIMMING DRIVERS, MODEL ATSI-14-L40/940-D-EM/10WFL(L35)-DIM-UNY OR APPROVED EQUAL | | WP, WEATHER-PROOF OUTLET | WP, WEATHER-PROOF OUTLET GFCI PROTECTED. |
| | H.E. WILLIAMS 54W 2'x4' LED FIXTURE WITH EMERGENCY AND DIMMING DRIVERS, MODEL ATSI-24-L55/940-D-EM/10WFL(L48)-DIM-UNY OR APPROVED EQUAL | | 208V | 208V OUTLET GFCI PROTECTED. |
| | MAXLITE LED FULL CUTOFF 40W WALL LIGHT (SMALL PACK) WITH MOTION/DAYLIGHT SENSING, MODEL HLLP40LED0005854 OR APPROVED EQUAL | | 208V | 208V OUTLET GFCI PROTECTED. |
| | WIRELESS ACCESS POINT | | AP | ACCESS POINT |
| | PORT ETHERNET JACK W/ 2 REPRESENTS | | AP | ACCESS POINT WITH DATA |

NO.	DATE	DESIGN	CHECKED
1	08/14/19	MJD	MJD
2	10/11/19	MJD	MJD
3	12/02/19	MJD	MJD

CITY OF BEAUMONT
SALT MITIGATION WTRP UPGRADE
ELECTRICAL - CONDUITS AND DUCTBANKS
CONDUIT SCHEDULE 9



ALBERT A. WEBB & ASSOCIATES
ENGINEERING CONSULTANTS
3788 MCCRAY STREET
HOUSTON, TEXAS 77058
PHONE (817) 288-1327 FAX (817) 288-0733

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IF NOT OTHERWISE NOTED
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1/2" = HALF SCALE

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CONDUIT #	SIZE	CONDUCTORS	SERVICE	FROM	TO	COMBINED	DUCTBANKS	NOTES
F1001	2"	2 SHIELDED CATB	COMMS	SMGR-HW	CIC-HW			
F1002	1"	2 SHIELDED CATB	COMMS	MCC-HWT	CIC-HW			
F1003	1"	2 SHIELDED CATB	COMMS	MCC-HWT	CIC-HW			
F1004	2"	2 SHIELDED CATB	COMMS	RG-HW	CIC-HW		102, 38	REUSE EXISTING CONDUITS PAST FH-38
F1005	2"	2 1/2 S BRAND FIBER SM OSP	COMMS	CIC-HW	CIC-OB		103, 103.1, 107	
F1006	2"	2 1/2 S BRAND FIBER SM OSP	COMMS	CIC-HW	CIC-OB			
F1007	2"	2 SHIELDED CATB	COMMS	SMGR-HW	CIC-HW			
F1008	1"	2 SHIELDED CATB	COMMS	MCC-HWT	CIC-HW			
F1009	1"	2 SHIELDED CATB	COMMS	MCC-HWT	CIC-HW			
F1010	2"	2 SHIELDED CATB	COMMS	PLG-RO	CIC-HW		203, 205, 205.1	
F1011	2"	2 SHIELDED CATB	COMMS	PLG-RO	CIC-HW		202, 202.1	
F1012	2"	2 SHIELDED CATB	COMMS	CIC-HW	RO-SH			
F1013	2"	2 SHIELDED CATB	COMMS	CIC-HW	RO-SH			
F1014	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1015	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1016	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1017	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1018	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1019	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1020	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1021	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1022	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1023	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1024	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1025	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1026	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1027	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1028	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1029	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1030	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1031	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1032	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1033	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1034	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1035	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1036	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1037	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1038	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1039	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1040	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1041	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1042	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1043	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1044	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1045	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1046	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1047	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1048	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1049	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1050	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1051	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1052	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1053	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1054	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1055	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1056	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1057	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1058	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1059	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1060	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1061	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1062	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1063	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1064	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1065	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1066	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1067	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1068	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1069	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1070	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1071	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1072	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1073	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1074	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1075	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1076	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1077	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1078	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1079	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1080	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1081	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
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F1083	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1084	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1085	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1086	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1087	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1088	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
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F1090	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1091	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1092	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1093	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1094	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1095	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1096	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1097	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1098	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1099	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1100	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1101	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1102	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1103	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1104	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1105	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1106	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1107	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1108	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1109	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1110	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
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F1112	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
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F1115	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
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F1118	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1119	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1120	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1121	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1122	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1123	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1124	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1125	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1126	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
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F1128	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1129	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1130	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1131	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
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F1137	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1138	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
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F1143	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1144	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1145	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1146	2"	2 SHIELDED CATB	COMMS	PLG-RO	RO-SH			
F1147	2"	2 SHIEL						



Technical Justification:

PCO-36	
Design Adjustment: WML COP-040.1	RO CIP Skid Discharge Orifice Plate
<p><u>Reason for Design Changes:</u></p> <p>Design Engineer Initiated Change: The RO CIP Skid supplied by H2O Innovations is used to clean the RO membranes prolonging the life of the membranes. The pump which boost the pressure to the membranes along with being used to recirculate and mix the cleaning solution is also used to pump spent cleaning solution to waste. When used to waste cleaning solution a flow restriction plate is required to maintain back-pressure on the pump. The design engineer and equipment manufacturer have reviewed the pump curves and sized an orifice plate to meet the design curve conditions for this pumping condition.</p> <p><u>Design and Scope Changes:</u></p> <ul style="list-style-type: none"> • W.M. Lyles shall procure and install an orifice plate pre-engineered by H2O Innovation and Aqua Engineering on the CIP skid discharge to waste piping system. Orifice plate shall be installed at the location shown on the revised drawing attached. • Cost proposal shall also include the cost for new gaskets and longer bolt hardware kit. <p><u>Cost Impact:</u></p> <p>Design Engineer Aqua Engineering and equipment manufacturer H2O Innovation has previously negotiated the material costs of the orifice plate. MWHC has reviewed the contractor's 1st cost proposal requesting \$1,854.54 to perform the work. After review and negotiation, WML COP-040 was revised for a contract cost increase of \$1,183.92. MWHC recommends a contract cost increase to be executed in a change order for the sum of \$1,183.92.</p>	

CITY OF BEAUMONT WWTP SALT MITIGATION UPGRADE PROJECT

**CHANGE ORDER PROPOSAL (COP) # 040.1
(By Contractor)**

To (Engineer/CM): MWH Constructors Attention: Charles Reynolds Phone: 702-497-8024 Email: Charles.w.reynolds@stantec.com	From (Contractor): W.M. Lyles Co. Attention: Oscar Mendoza Phone: 619-565-6064 Email: omendoza@wmlylesco.com
PCO/DCM No.: DCM 025	
Subject: CIP Discharge Pump Orifice Plate	
Reference Documents: N/A	
DESCRIPTION	
This COP is for the purchase and installation of one Orifice Plate per DCM 25, CLAR 31. Thanks,	
COST ESTIMATE	
Total Cost : \$ 1,183.92 – see attached breakdown	
SCHEDULE IMPACT	
None	
Received by MWH Constructors (Date):	

RESPONSE

Response By:

Date:

Final Distribution: Juan C. Ahumada, W.M. Lyles Co.
Brian Knoll, Webb Associates
MWH Inspector

W. M. Lyles Co.
 42142 Roick Drive
 Temecula, CA 92590

Reference #: DCM 25
 CLAR 31

Attention: Charles W. Reynolds

JOB LOCATION: City of Beaumont WWTP Salt Mitigation Upgrade Project

DESCRIPTION: CIP Discharge Pump Orifice Plate rev1

Item:		Unit	Total MH	Total MH Cost	Eq. Cost	Material	Subcont.	Total Cost
1	CIP Discharge Pump Orifice Plate rev1	1 LS	2	\$ 152.99	\$ -	\$ 866.31	\$ -	\$ 1,019.30
2		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
3		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
		1 LS	0	\$ -	\$ -	\$ -	\$ -	\$ -
Total Costs			2	\$ 152.99	\$ -	\$ 866.31	\$ -	\$ 1,019.30

Subtotal		\$	1,019.30
Mark-up - Labor	15%	\$	22.95
Mark-up - Equipment	15%	\$	-
Mark-up - Materials	15%	\$	129.95
Mark-up - Subcontractor	5%	\$	-
Bond	1.0%	\$	11.72
Total This Change Order		\$	1,183.92

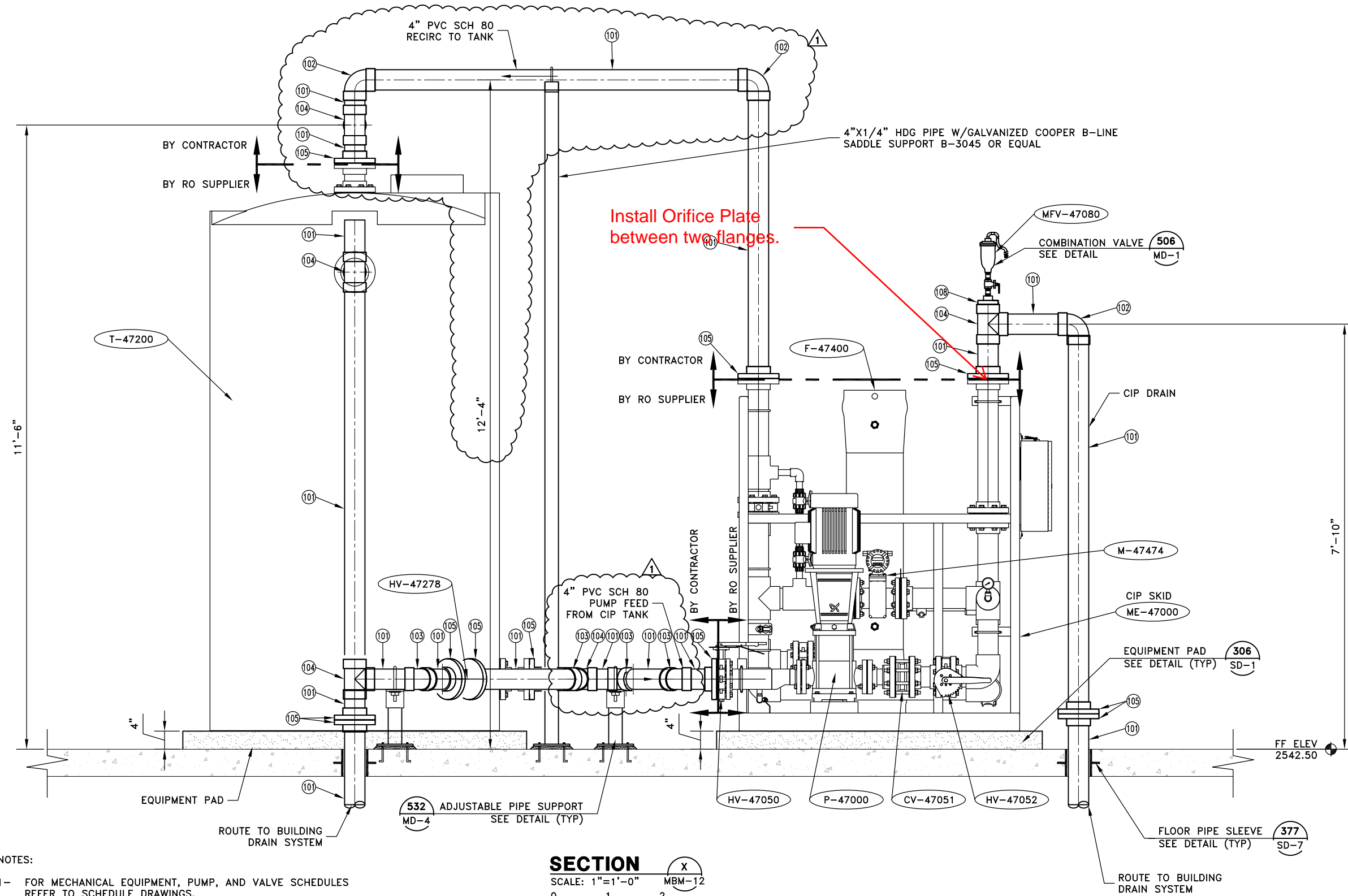
Comments:

**CITY OF BEAUMONT WASTE WATER TREATMENT PLANT
SALT MITIGATION UPGRADE PROJECT**

CLARIFICATION 31

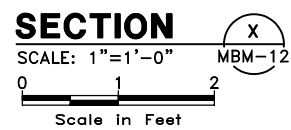
To (Construction Manager): Stantec Attention: Charles Reynolds Phone: 702-497-8024 Email: Charles.w.reynolds@stantec.com	
From (Engineer): AQUA Engineering Attention: Boris Petkovic Phone: 801-299-1327 Email: boris.petkovic@aquaeng.com	
Subject: RO CIP Pump Discharge Orifice Plate	Location: MBR Building
Reference Documents: Drawing MBM-22	
CLARIFICATION	
<p>Note the following:</p> <p>In order to ensure proper CIP pump operation by maintaining required discharge back pressure an orifice plate needs to be fabricated and installed as noted in the attached drawing. H2O will fabricate the orifice plate to ensure that adequate back pressure is maintained. Attached is the proposed cost to fabricate the orifice plate.</p>	
Prepared By (Name): Boris Petkovic, AQUA Engineering	Date: 4/07/2020
Distributed By:	Date:

CAL 05/06/2019 X:\Beaumont\Salt Mitigation WWTP Upgrade WEBB170227\Drafting\WBR BLDG\MBM-21.22.23.24.dwg



NOTES:

- 1- FOR MECHANICAL EQUIPMENT, PUMP, AND VALVE SCHEDULES REFER TO SCHEDULE DRAWINGS.
- 2- REFER TO OWNER SELECTED EQUIPMENT SECTION OF TECHNICAL SPECIFICATIONS FOR COMPLETE RO EQUIPMENT SCOPE OF SUPPLY.
- 3- FOR PIPING SCHEDULE REFER TO DRAWING MBM-30.



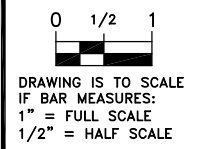
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CITY OF BEAUMONT
 SALT MITIGATION WWTP UPGRADE
 MEMBRANE BUILDING
 SECTION



ALBERT A. WEBB
 CIVIL ENGINEERS
 3788 McCRAV STREET
 RIVERSIDE CA. 92506
 PH. (951) 686-1070
 FAX (951) 788-1256
 ASSOCIATES ENGINEERING CONSULTANTS

NO.	DATE	DESIGN	DRAWN	CHECKED	REVISIONS	
					BP	CAL
C	09/05/18				JRL	
1	04/22/19				JRL	



SHEET
MBM-22

