

**The Enclosed Document Is Provided For Your Convenience.**

**Please Email ALL Questions:**

**[MailTo:ContractAdministration@TampaGov.net](mailto:ContractAdministration@TampaGov.net)**

**Please Let Us Know If You Plan To Bid**

City of Tampa  
Contract Administration Department  
306 E. Jackson St. #280A4N  
Tampa, FL 33602  
(813)274-8456

**PROJECT WORK SUMMARY:**

THIS PROJECT ENCOMPASSES THREE DIVISIONS OF WORK THAT INCLUDES CIVIL, MECHANICAL, AND ELECTRICAL TRADES. ALL PROJECT WORK WILL BE ACCOMPLISHED TO MAINTAIN UNINTERRUPTED METHANOL FEED OPERATIONS:

**CIVIL:** THIS WORK GENERALLY INCLUDES INSTALLATION OF NEW 4 INCH METHANOL TRANSFER AND FEED LINES (FROM THE EXISTING METHANOL STORAGE TANK CONTROL VALVES AND STRAINER TO THE IMPROVED METHANOL PUMP STATION), DEMOLITION AND RECONSTRUCTION OF THE AFFECTED FACILITY DRIVEWAY WITH NEW CONCRETE CURBING, CONCRETE PADS, AND OTHER MISCELLANEOUS POURED STRUCTURES. THE NEW METHANOL TRANSFER AND FEED LINES WILL BE INSTALLED IN A NEW TRAFFIC BEARING PIPE TRENCH AND GRATE (CAST IN PLACE STRUCTURE) AND A PRECAST SUMP AND ABOVE GRADE SELF-PRIMING SUMP PUMP WITH DISCHARGE PIPING DIRECTED TO THE EFFLUENT CHANNEL. THE CIVIL WORK ALSO INCLUDES IMPROVEMENTS IN BUILDING DRAINAGE WITH THE INSTALLATION OF NEW STORM GUTTER LINES ON THE PUMP STATION STRUCTURE, TO BE DIRECTED AWAY FROM THE BUILDING.

**MECHANICAL:** THIS WORK INCLUDES THE REMOVAL AND SALVAGE OF FOUR (4) EXISTING METHANOL PUMPS, FLOW METERS, AND RELATED EQUIPMENT AS NOTED ON THE PLANS. DEMOLITION AND REMOVAL OF EXISTING 2 INCH BLACK IRON PIPE AND APPURTENANCES, AND REPLACEMENT WITH FOUR (4) NEW PUMPS AND VALVES, PRESSURE SWITCHES, SPECIALTY PUMP PRESSURE CONTROLS AND EQUIPMENT, THE NEW EQUIPMENT WILL RECONFIGURED AND SUPPORTED WITH RELOCATED AND IMPROVED STAINLESS STEEL PIPE HANGERS AND PIPE SUPPORTS, STANCHIONS AND RELATED HARDWARE FOR THE NEW PIPING, VALVES, AND EQUIPMENT. ALL EXPOSED METALS WILL REQUIRE FIELD COATING AND ADDED COATING IN THE FIELD, AS SPECIFIED IN THE PLANS.

**ELECTRICAL:** THIS WORK WILL INCLUDE DEMOLITION OF THE EXISTING MOTOR CONTROL CENTER (MCC), INCLUDING THE CONTROL PANEL AND ANNUNCIATOR AND REMOVAL AND SALVAGE OF THE EXISTING GAS DETECTION EQUIPMENT. A NEW DOUBLE ENDED 480V MCC, 3 PHASE PANEL BOARD AND 480-120/208V, 3 PHASE TRANSFORMER TO SERVICE 120/208 V LOADS WILL BE INSTALLED IN PLACE OF THE FORMER MCC. A NEW METHANOL SYSTEM CONTROL PANEL WITH MAPLE TOUCHSCREEN GRAPHICS DISPLAY ANNUNCIATOR WILL BE INSTALLED. A NEW NEMA 4X ENCLOSURE WILL BE INSTALLED TO ENCLOSE THE EXISTING GAS DETECTION ANNUNCIATION EQUIPMENT. AN ADDITIONAL FEEDER CIRCUIT BREAKER IN EXISTING 'MCC 59' WILL BE PROVIDED TO THE NEW MCC (MCC59B) ALONG WITH TWO NEW FEEDER CIRCUITS.

**LOCAL, STATE & FEDERAL STATUTES NOTE:**

THE CONTRACTOR IS ADVISED THAT ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT SHALL COMPLY WITH LOCAL, STATE AND FEDERAL RULES AND STATUTES, WHETHER SHOWN OR IMPLIED ON THE PLANS OR CONTRACT DOCUMENTS. THE FOLLOWING RULES, LAWS AND STANDARDS APPLY.

THIS INCLUDES BUT IS NOT LIMITED TO:

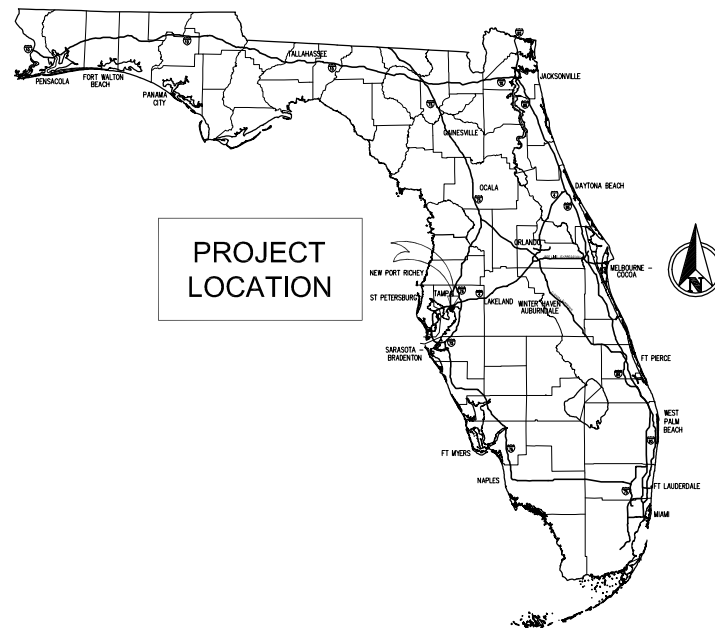
- 1) OSHA PART 1926 CFR 29, SAFETY & HEALTH REGULATIONS FOR CONSTRUCTION, US CLEAN WATER ACT (CWA) SECTION 402(p)(6) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) FIRE PREVENTION CODE HANDBOOK, RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES (A.K.A. 10 STATE STANDARDS).
- 2) FLORIDA STATUTES CHAPTER 553 PART III- TRENCH SAFETY ACT.
- 3) FLORIDA STATUTES CHAPTER 553, PART IV-FLORIDA BUILDING CODE.
- 4) FLORIDA ADMINISTRATIVE CODE CHAPTER 62-604.
- 5) FLORIDA STATUTES CHAPTER 40D RULES OF THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT.
- 6) HILLSBOROUGH COUNTY ENVIRONMENTAL PROTECTION COMMISSION (HCEPC) ENABLING ACT AND RULES.
- 7) IT IS THE INTENT OF THESE PLANS TO COMPLY WITH LOCAL, STATE, AND FEDERAL STATUTES. ANY DESIGN INFORMATION WHETHER SHOWN OR NOT SHOWN ON THE PLANS DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES TO COMPLY WITH ALL CODES, STATUTES AND RULES. THE CONTRACTOR SHALL INFORM THE ENGINEER IF THERE IS ANY QUESTION ABOUT THE INTENT OF THE PLANS AND THE REQUIREMENTS OF CODES, RULES, AND STATUTES.

# HOWARD F. CURREN AWWTP METHANOL FEED PUMP REPLACEMENT CONTRACT NO. 13-C-00041

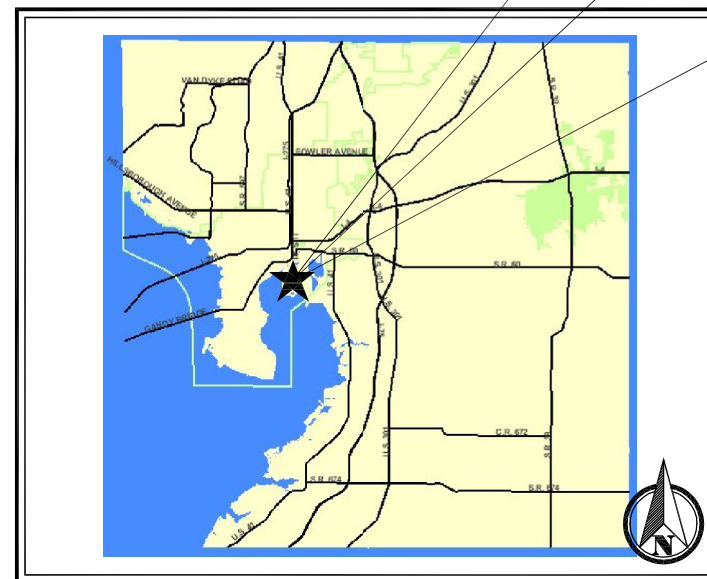
**INDEX OF DRAWINGS**

TITLE	SHEET NO.
<b>GENERAL</b>	
COVER SHEET	G-1
GENERAL NOTES AND LEGENDS	G-2
METHANOL FEED SCHEMATICS AND EQUIPMENT SCHEDULE	G-3
<b>CIVIL</b>	
DEMOLITION AND TEMPORARY SERVICE PLAN	C-1
CIVIL SITE IMPROVEMENTS	C-2
CIVIL SITE IMPROVEMENTS	C-3
<b>MECHANICAL</b>	
METHANOL PIPING LAYOUT	M-1
MECHANICAL PIPING LAYOUT	M-2
PUMP SYSTEM DETAILS	M-3
<b>ELECTRICAL</b>	
ELECTRICAL LEGEND	E-1
ELECTRICAL NOTES AND OVERALL SITE PLAN	E-2
ELECTRICAL SITE PLAN	E-3
CHEP ELECTRICAL DEMOLITION PLAN	E-4
CHEP ELECTRICAL PLAN	E-5
METHANOL STORAGE TANK SITE PLAN	E-6
CHEP AREA CLASSIFICATION PLAN	E-7
MOTOR CONTROL CENTERS ELEVATIONS AND DETAILS	E-8
NEW MCC-59B ELEVATION AND ONE-LINE DIAGRAM	E-9
ELECTRICAL DETAILS	E-10
ELECTRICAL DETAILS	E-11
MOTOR SCHEMATIC WIRING DIAGRAMS	E-12
CONDUIT AND CABLE SCHEDULE	E-13
CONDUIT AND CABLE SCHEDULE	E-14
CONDUIT AND CABLE SCHEDULE	E-15
<b>INSTRUMENTATION</b>	
INSTRUMENTATION AND CONTROLS LEGEND	I-1
MPCP DETAILS	I-2
MPCP WIRING DIAGRAM	I-3
MPCP DISCRETE I/O WIRING DIAGRAMS	I-4
MPCP ANALOG INPUTS	I-5
MPCP 4-20mA LOOP SCHEMATICS	I-6
MPCP COMMUNICATION RISER DIAGRAMS	I-7

REGIONAL MAP



VICINITY MAP



PROJECT SITE

SECTION 30 RANGE 29 TOWNSHIP 19

PREPARED FOR  
CITY OF TAMPA WASTEWATER DEPARTMENT  
306 E. JACKSON STREET - 6E  
TAMPA, FL 33602



Integrated Engineering Solutions for Florida's Water Environments  
1312 APOLLO BEACH BLVD., SUITE G, APOLLO BEACH, FL 33572 TEL: (813) 641-1200 FAX: (813) 641-1204  
COMPANY CERTIFICATE OF AUTHORIZATION: 25990



777 S. HARBOUR ISLAND BLVD., SUITE 870, TAMPA, FL 33602  
TEL: (813) 227-9190 FAX: (813) 227-9195  
COMPANY CERTIFICATE OF AUTHORIZATION 8363

ISSUED TO: CITY OF TAMPA  
DATE ISSUED: FEB 24, 2014  
ISSUED FOR BID

NO.	BY	DATE	DESCRIPTION
DESIGNED BY:	HAM	FEBRUARY 24, 2014	S T R
CHECKED BY:	MJF		JOB NO: 1013005 FOLIO # 19E
			199340.0000

THESE PLANS MAY NOT BE COPIED OR MODIFIED WITHOUT WRITTEN PERMISSION FROM WATERMARK ENGINEERING GROUP, INC.  
NOT VALID UNLESS SIGNED & EMBOSSED BY A REGISTERED ENGINEER

THESE PLANS MAY NOT BE COPIED OR MODIFIED WITHOUT WRITTEN PERMISSION FROM TRICON CONSULTING ENGINEERS  
NOT VALID UNLESS SIGNED & EMBOSSED BY A REGISTERED ENGINEER

G-1

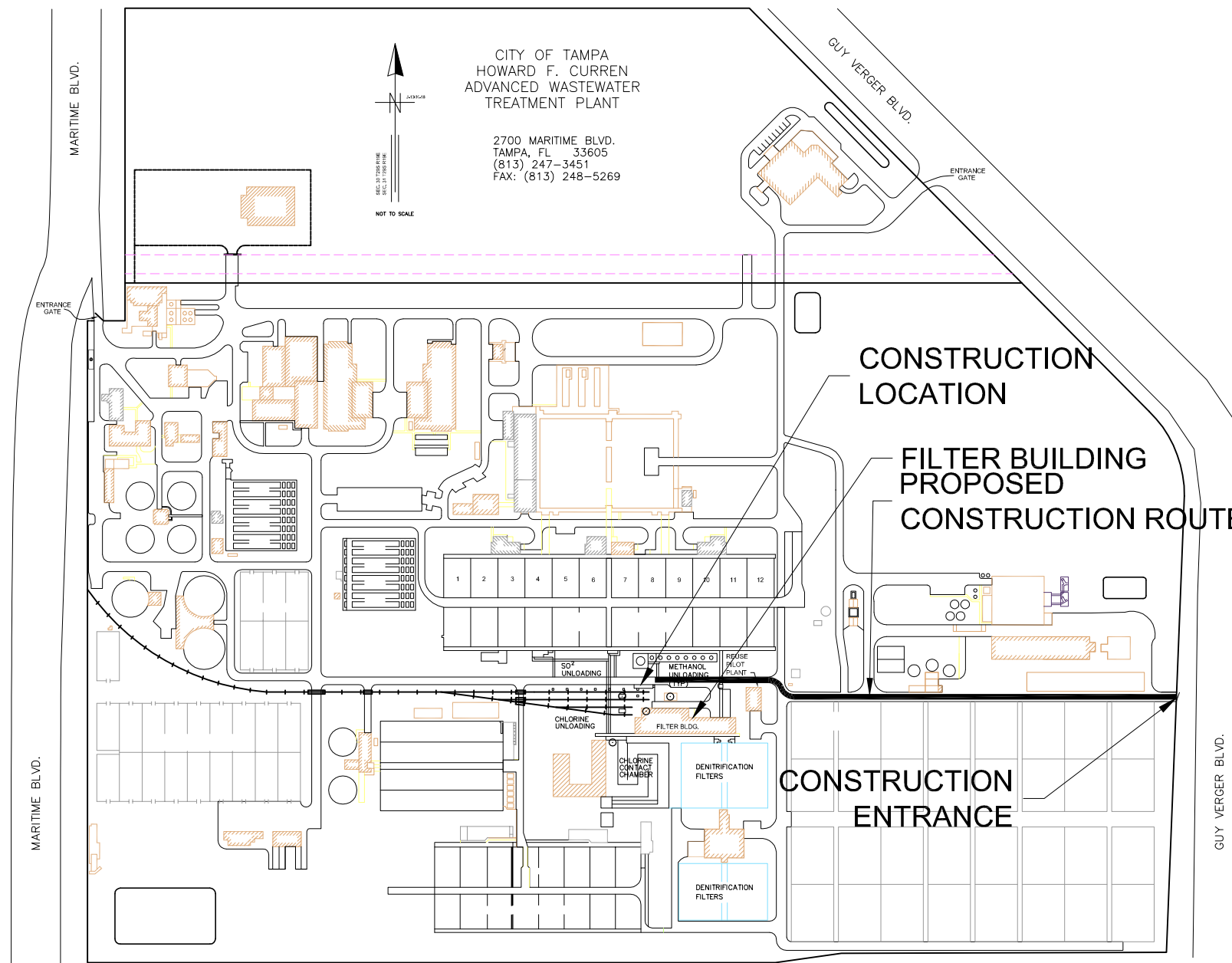
MARK FLINT, P.E., #3827 ENGINEER OF RECORD

TIMOTHY THOMAS, P.E., #47079 ELECTRICAL ENGINEER

**GENERAL NOTES:**

1. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING EQUIPMENT, UTILITIES WITHIN THE WORK AREA, AND ANY OTHER FEATURES PRIOR TO CONSTRUCTION.
2. DIMENSIONS SHOWN ON THESE PLANS ARE DERIVED FROM RECORD DRAWINGS AND SUPPLEMENTED WITH FIELD MEASUREMENTS, WHERE REQUIRED. THE CONTRACTOR IS ADVISED THAT DIMENSIONS SHOWN ARE SUBJECT TO REVISIONS OR ADJUSTMENTS BY FIELD VERIFICATION AND MEASUREMENTS DURING THE CONSTRUCTION PHASE. NO ADDITIONAL CHANGES IN CONTRACT SHALL BE CLAIMED AS A RESULT OF MODIFIED DIMENSIONS OR PLACEMENT OF EQUIPMENT.
3. WHERE DEMOLITION OF PIPES, VALVES, APPURTENANCES OR EQUIPMENT IS SHOWN ON THE PLANS, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY ELECTRONICS OR OTHER SCRAP MATERIALS IN AN APPROVED LANDFILL, OR ALTERNATIVELY RECYCLE METAL MATERIALS WHERE POSSIBLE.
4. WHERE MATERIALS ARE TO BE SALVAGED (I.E. DECOMMISSIONED PUMPS), THE CONTRACTOR SHALL COORDINATE THE TRANSPORT AND STORAGE OF THE EQUIPMENT.
5. ALL SITE AND ELECTRICAL WORK SHALL BE COORDINATED WITH CITY OF TAMPA STAFF TO ALLOW FOR UN-INTERRUPTED METHANOL PUMPING DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A PLAN FOR REVIEW AND APPROVAL TO KEEP THE METHANOL PUMPS/CONTROLS OPERATIONAL DURING THE REMOVAL OF THE EXISTING MCC-59B, CONTROL CABINET, AND OTHER ASSOCIATED ITEMS.

SEE SHEET C-1 FOR TEMPORARY SERVICE PLAN REQUIREMENTS



**ABBREVIATIONS**

AF	AIR FAIL
AG	ABOVE GROUND
AS	AIR SUPPLY
ATM	ATMOSPHERE
CSC	CAR SEAL CLOSED
CSO	CAR SEAL OPEN
DCS	DISTRIBUTED CONTROL SYSTEM
DE	DE-ENERGIZED
EL	ELEVATION
EMERG	EMERGENCY
FV	FURNISHED BY VENDOR
FB	FULL BORE
FF	FLAT FACE
FC	FULL CLOSED
FO	FULL OPEN
FL	FAIL LAST POSITION
HC	HOSE CONNECTION
HH	HAND HOLE
ILC	INTERLOCKED CLOSED
ILO	INTERLOCKED OPEN
LC	LOCKED CLOSED
LIQ	LIQUID
LO	LOCKED OPEN
LCP	LOCAL CONTROL PANEL
MOV	MOTOR OPERATED VALVE
MW	MANWAY
MC	MANUAL CONTROL
MFP	METHANOL FEED PUMP
MPCP	METHANOL PUMP CONTROL PANEL
MTP	METHANOL TRANSFER PUMP
N	NORTH
NC	NORMALLY CLOSED
NNF	NORMALLY NO FLOW
NO	NORMALLY OPEN
PSV	PRESSURE SAFETY VENT
RD	RUPTURE DISK
RF	RAISED FACE
S	SOUTH
SG	SIGHT GLASS
TSO	TIGHT SHUTOFF
UG	UNDERGROUND
UTS	UTILITY STATION
VB	VORTEX BREAKER

**EQUIPMENT, PIPE VALVES, AND COMPONENTS SCHEMATICS LEGEND**

GATE		BLIND FLG		DUPLEX BASKET STRAINER		FLANGE		SUMP PUMP	
BUTTERFLY		UNION		PRESSURE REDUCING REGULATOR		BASKET STRAINER		MFP PUMP	
CHECK		REDUCER		BACK PRESSURE REGULATOR		PULSATION DAMPER		PRESSURE SENSOR	
BALL VALVE		HOSE CONNECTION		MOTOR OPERATED		PRESSURE GAUGE		FLOW DIRECTION	
PLUG		CAP		SOLENOID OPERATED		FLOW METER			

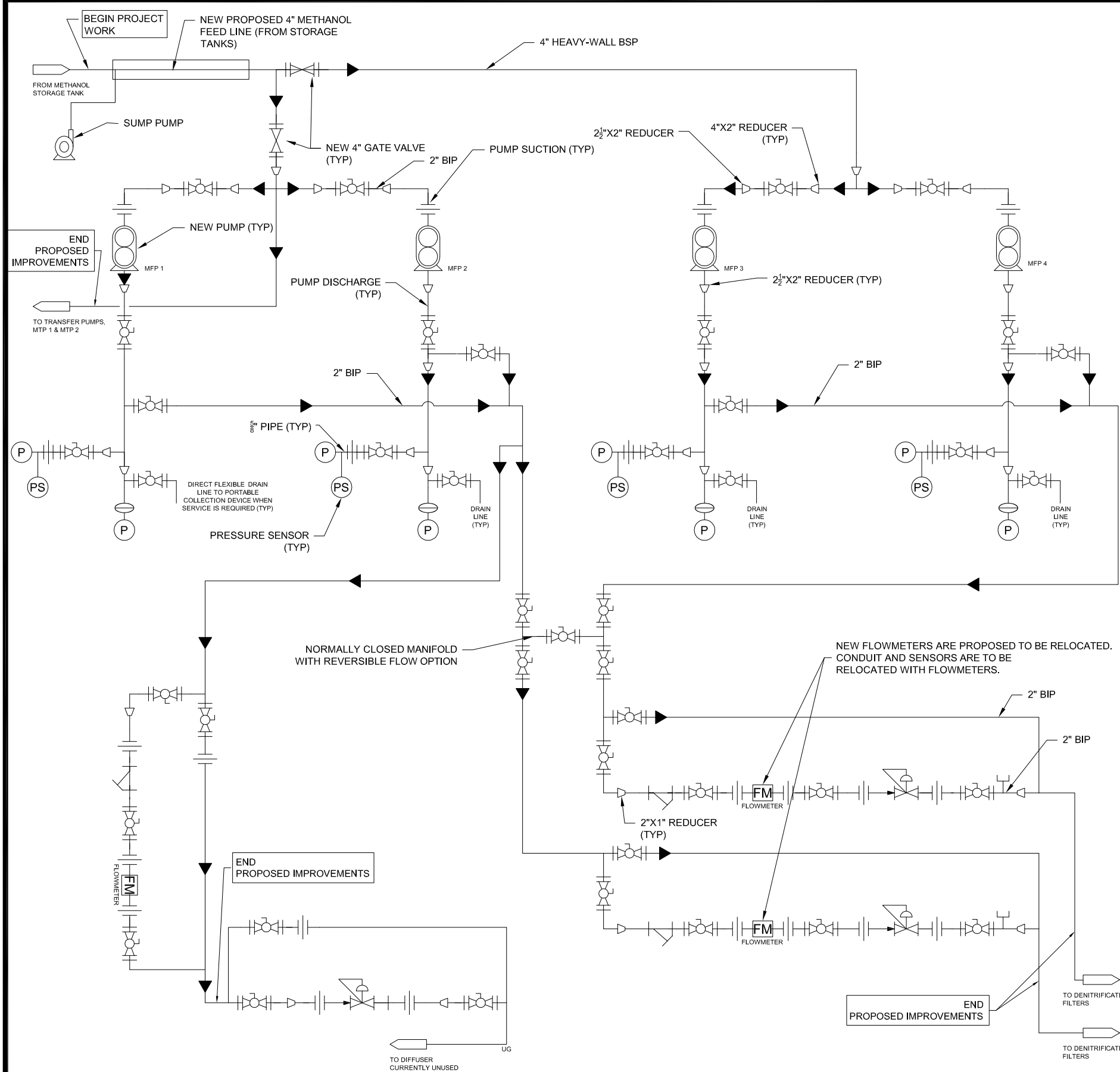
NO.	BY	DATE	ISSUED BY	DATE	DESCRIPTION
1	HAM	SEPTEMBER 30, 2013	HAM		
2	HAM		HAM		
3	HAM		HAM		
4	HAM		HAM		
5	HAM		HAM		
6	HAM		HAM		
7	HAM		HAM		
8	HAM		HAM		
9	HAM		HAM		
10	HAM		HAM		
11	HAM		HAM		
12	HAM		HAM		
13	HAM		HAM		
14	HAM		HAM		
15	HAM		HAM		
16	HAM		HAM		
17	HAM		HAM		
18	HAM		HAM		
19	HAM		HAM		
20	HAM		HAM		
21	HAM		HAM		
22	HAM		HAM		
23	HAM		HAM		
24	HAM		HAM		
25	HAM		HAM		
26	HAM		HAM		
27	HAM		HAM		
28	HAM		HAM		
29	HAM		HAM		
30	HAM		HAM		
31	HAM		HAM		
32	HAM		HAM		
33	HAM		HAM		
34	HAM		HAM		
35	HAM		HAM		
36	HAM		HAM		
37	HAM		HAM		
38	HAM		HAM		
39	HAM		HAM		
40	HAM		HAM		
41	HAM		HAM		
42	HAM		HAM		
43	HAM		HAM		
44	HAM		HAM		
45	HAM		HAM		
46	HAM		HAM		
47	HAM		HAM		
48	HAM		HAM		
49	HAM		HAM		
50	HAM		HAM		
51	HAM		HAM		
52	HAM		HAM		
53	HAM		HAM		
54	HAM		HAM		
55	HAM		HAM		
56	HAM		HAM		
57	HAM		HAM		
58	HAM		HAM		
59	HAM		HAM		
60	HAM		HAM		
61	HAM		HAM		
62	HAM		HAM		
63	HAM		HAM		
64	HAM		HAM		
65	HAM		HAM		
66	HAM		HAM		
67	HAM		HAM		
68	HAM		HAM		
69	HAM		HAM		
70	HAM		HAM		
71	HAM		HAM		
72	HAM		HAM		
73	HAM		HAM		
74	HAM		HAM		
75	HAM		HAM		
76	HAM		HAM		
77	HAM		HAM		
78	HAM		HAM		
79	HAM		HAM		
80	HAM		HAM		
81	HAM		HAM		
82	HAM		HAM		
83	HAM		HAM		
84	HAM		HAM		
85	HAM		HAM		
86	HAM		HAM		
87	HAM		HAM		
88	HAM		HAM		
89	HAM		HAM		
90	HAM		HAM		
91	HAM		HAM		
92	HAM		HAM		
93	HAM		HAM		
94	HAM		HAM		
95	HAM		HAM		
96	HAM		HAM		
97	HAM		HAM		
98	HAM		HAM		
99	HAM		HAM		
100	HAM		HAM		

**GENERAL NOTES AND LEGENDS**

HOWARD F. CURREN  
AWWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD

WATERMARK ENGINEERING  
GROUP, INC.  
1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641  
TEL: (813) 641-1200 FAX: (813) 641-1204  
CERTIFICATE OF AUTHORIZATION 25960





**PROPOSED METHANOL FEED PIPING SCHEMATIC  
NTS**

NOTE:  
 BIP BLACK IRON PIPE  
 BSP BLACK STEEL PIPE  
 ALL PIPING AND FITTINGS SHALL BE FLANGED.  
 SEE SHEET G-2 FOR SCHEMATIC LEGEND.

**MECHANICAL PIPING NOTES:**

1. SCHEMATIC PLANS SHOW NEW MECHANICAL PIPING DIAGRAM TO PROVIDE FUNCTIONAL SYSTEM INFORMATION ONLY. SEE MECHANICAL PLANS FOR THE LOCATION OF SYSTEM COMPONENTS .
2. ALL METHANOL PIPING LESS THAN 3 INCHES IN DIAMETER SHALL BE FLANGED JOINT 3000 PSI BLACK IRON PIPE.
3. ALL PROPOSED METHANOL PIPING OF 3 INCHES OR GREATER IN DIAMETER SHALL BE HEAVY-WALL BLACK STEEL PIPE.
4. ALL BELOW GRADE STEEL PIPE SHALL BE PRIMED AND COATED AND POLYWRAPPED.
5. NEW PROPOSED PIPING IN THE CHEMICAL FEED BUILDING SHALL BE INSTALLED WITH FIELD ADJUSTMENTS TO ADD OVERHEAD SUPPORT WITH STAINLESS STEEL PIPE HANGERS AND ADJUSTABLE PIPE THREADED STAINLESS STEEL RODS WITH STAINLESS STEEL HARDWARE. THE MAXIMUM ROD SPACING SHALL BE 3 FEET.
6. ALL SUPPORTS SHALL PROVIDE METHODS TO REMOVE PIPING COUPLINGS OR FITTINGS WITHOUT CREATING BENDING STRESS FROM UNSUPPORTED PIPE.
7. ALL PIPING, FASTENERS, AND OTHER METAL APPURTENANCES SHALL BE OF SIMILAR METALS, OR INSULATED TO PREVENT DISSIMILAR METAL CONTACT.
8. ALL VALVES LESS THAN 4 INCHES IN DIAMETER SHALL BE BALL VALVES AND CONSTRUCTED OF 316 STAINLESS STEEL.
9. ALL METHANOL SUCTION AND DISCHARGE PIPING WITHIN THE PUMP PADS SHALL BE SUPPORTED FROM ABOVE BY UNI-FLANGE PIPE HANGERS AND ADJUSTABLE THREADED SS RODS, AND INSULATED.
10. ALL METHANOL PIPING SHALL BE PRIMED AND PAINTED (COLOR ORANGE) PRIOR TO ASSEMBLY, AND FOLLOWED WITH A FINAL COAT AROUND ALL VALVES AND FITTINGS-NO EXPOSURE OF BARE PIPE OR PIPE CONNECTIONS SHALL BE ALLOWED.
11. LENGTHS AND ELEVATIONS OF PIPING SHALL BE FIELD MEASURED AS REQUIRED.
12. ALL METHANOL PIPE FITTINGS, AND VALVES SHALL UTILIZE TEFLON GASKETS AND/OR VALVE SEATS THAT ARE METHANOL RESISTANT.

NO.	BY	DATE	DESCRIPTION	APPROVED BY	DATE
1	HAJ	SEPTEMBER 30, 2013	ISSUED FOR PERMIT	HAJ	
2	HAJ		REVISED	HAJ	
3	HAJ		REVISED	HAJ	

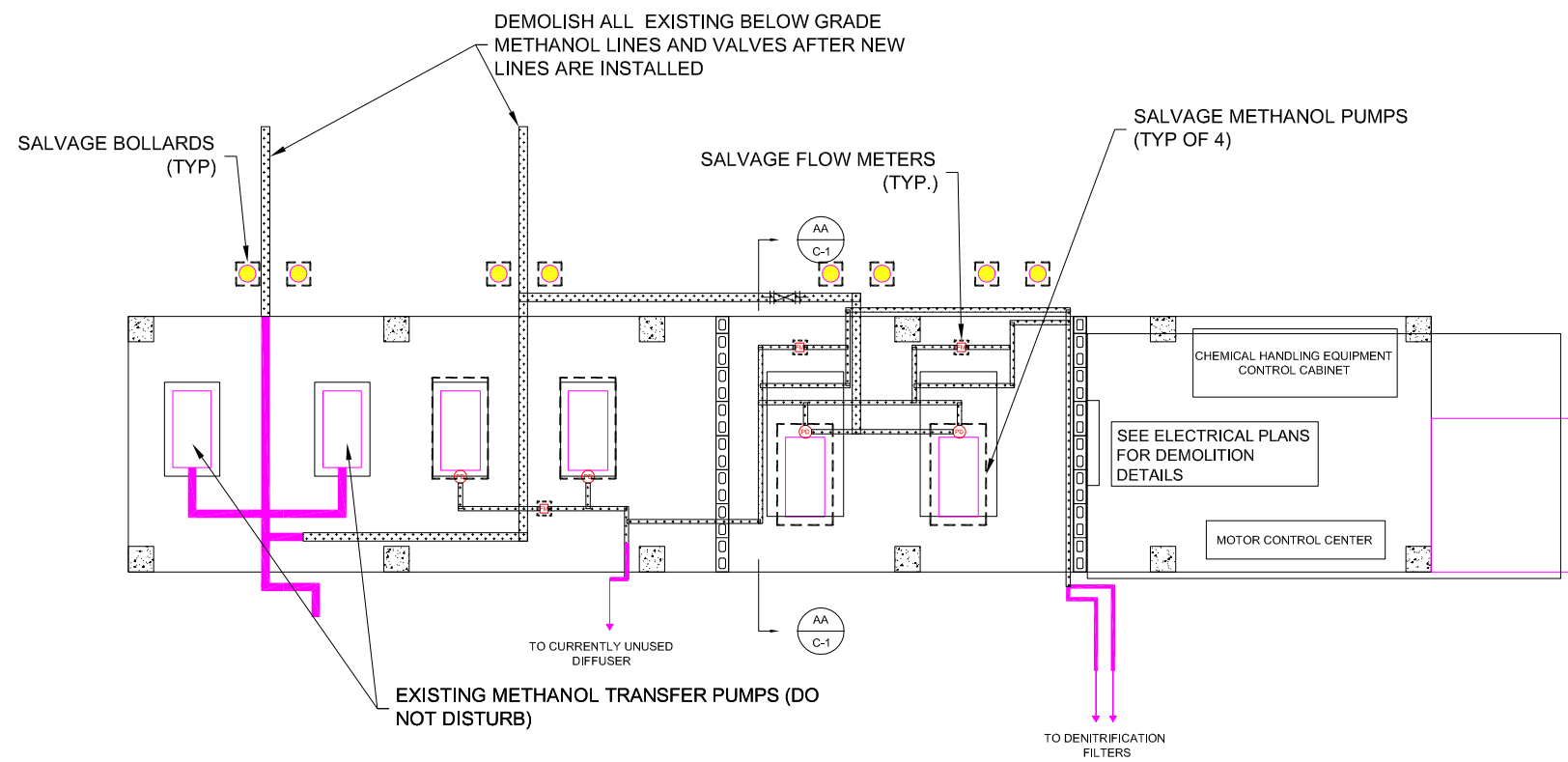
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF WATERMARK ENGINEERING GROUP, INC.  
 WATERMARK ENGINEERING GROUP, INC. IS AN EQUAL OPPORTUNITY EMPLOYER.  
 WATERMARK ENGINEERING GROUP, INC. P.E. #0007 ENGINEER OF RECORD  
 JOB NO. 1013005

**METHANOL FEED  
SCHEMATICS AND  
EQUIPMENT  
SCHEDULE**

**HOWARD F. CURREN  
AWWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD**

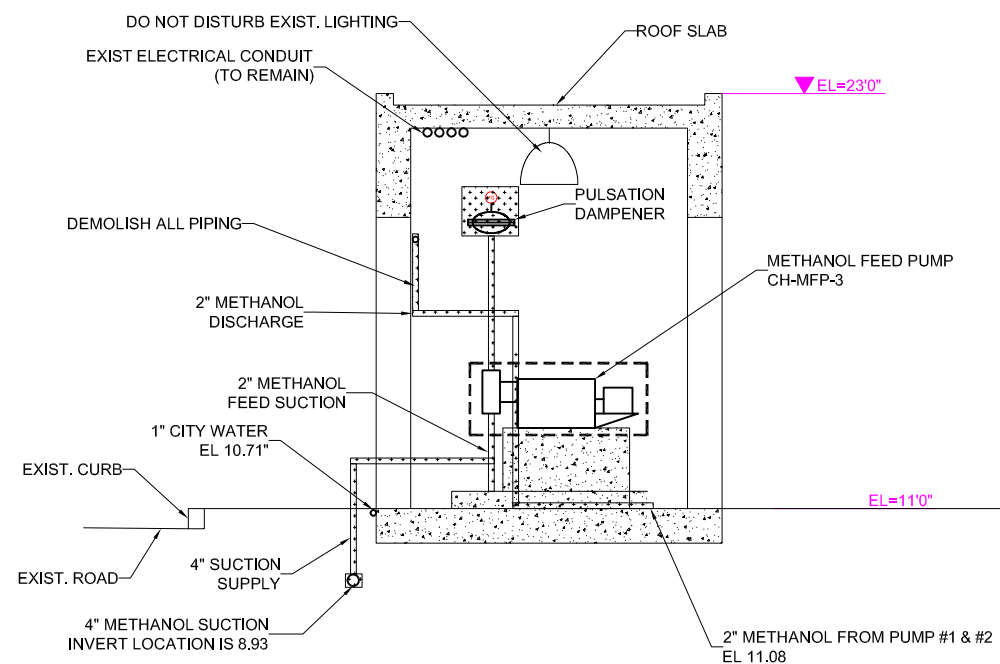
**WATERMARK ENGINEERING  
GROUP, INC.**  
 1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641  
 TEL: (813) 841-1200 FAX: (813) 841-1204  
 CERTIFICATE OF AUTHORIZATION 25960





**EXISTING PIPING FACILITIES DEMOLITION PLAN**

SCALE: NTS



AA  
C-1

**EXISTING PIPING FACILITIES DEMOLITION**

**PROFILE (TYP)**

SCALE: NTS

**EQUIPMENT SALVAGE NOTES:**

1. THE CONTRACTOR SHALL SALVAGE EQUIPMENT IN ACCORDANCE WITH THE PLANS. SALVAGED EQUIPMENT SHALL BE REMOVED FROM SERVICE, CLEANED, AND DELIVERED TO A LOCATION SPECIFIED BY THE CITY OF TAMPA.
2. ALL SALVAGED EQUIPMENT SHALL BE INSPECTED FOR ANY DAMAGE AND WEAR, OR OTHER PERFORMANCE ISSUE AFFECTING THE EQUIPMENT. EQUIPMENT FUNCTION SHALL BE NOTED AND TAGGED AND ATTACHED TO THE EQUIPMENT WITH PERMANENT INK, AND WIRED TAG.




**EQUIPMENT DEMOLITION NOTES:**

3. ALL DEMOLISHED MATERIAL SHALL BE SAFELY REMOVED FROM SERVICE WITHOUT INTERRUPTION OR COMPROMISE OF ANY FUNCTION TO THE HOWARD F CURREN FACILITY.
4. DEMOLISHED MATERIAL SHALL BE PROPERLY DISPOSED OF IN A LANDFILL, OR RECYCLED WHERE POSSIBLE. THE CASH VALUE OF ALL RECYCLED MATERIALS SHALL BE RETAINED BY THE CONTRACTOR UNDER THIS CONTRACT.
5. ELECTRONIC EQUIPMENT SHALL BE APPROPRIATELY DISPOSED OF IN AN APPROVED FDEP LANDFILL.
6. ANY METHANOL SPILLS THAT MAY OCCUR ON PVIOUS AREAS SHALL BE REMEDIATED IMMEDIATELY BY THE CONTRACTOR.

**TEMPORARY SERVICE PLAN:**

7. THE CONTRACTOR SHALL ESTABLISH A TEMPORARY SERVICE PLAN FOR THE METHANOL PUMPING SYSTEM TO COMPLY WITH THE FOLLOWING CONDITIONS:
  - 7.1 AT LEAST 50% OF THE TOTAL PUMPING SYSTEM SHALL REMAIN IN SERVICE AT ALL TIMES.
  - 7.2 TEMPORARY SERVICE SHALL INCLUDE PROVISIONS TO ALLOW FOR AUTOMATIC DOSING AND FEED CONTROL AT ALL TIMES.
  - 7.3 THE CONTRACTOR SHALL REMAIN AVAILABLE FOR EMERGENCY CALLS DURING THE INTERIM TEMPORARY SERVICE PERIOD.
  - 7.4 THE TEMPORARY SERVICE PLAN MUST BE SUBMITTED AND APPROVED BY THE ENGINEER AND CITY OF TAMPA OPERATIONS STAFF PRIOR TO ANY WORK COMMENCING.

**DEMOLITION LEGEND:**

-  PIPING AND COMPONENTS TO BE DEMOLISHED (SEE NOTES THIS SHEET)
-  SALVAGE (SEE NOTES THIS SHEET)
-  DO NOT DISTURB THESE FACILITY

NO.	BY	DATE	DESCRIPTION	APPROVED BY	DATE
1	HAM	SEPTEMBER 30, 2013		HAM	
2	MAF			MAF	

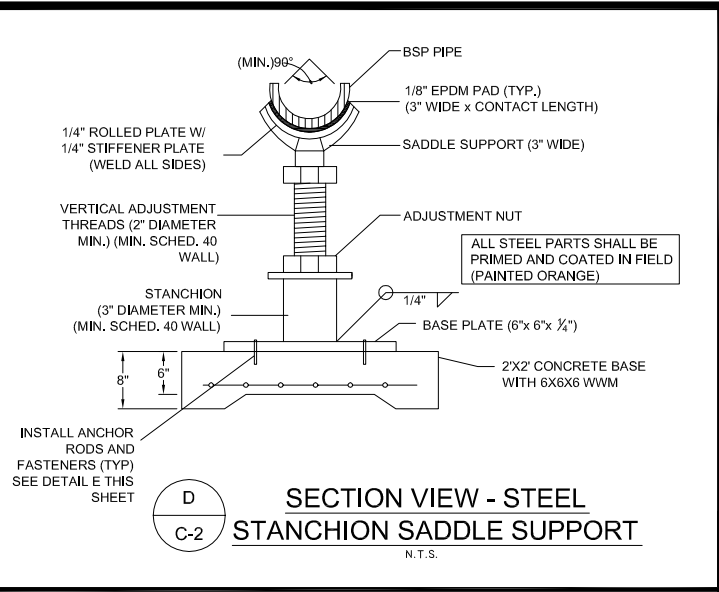
THESE PLANS MAY NOT BE COPIED OR MODIFIED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.  
 THESE PLANS HAVE BEEN PREPARED AND CHECKED BY A REGISTERED ENGINEER.  
 W. J. HUNT, P.E. #3487 ENGINEER OF RECORD

**DEMOLITION AND TEMPORARY SERVICE PLAN**

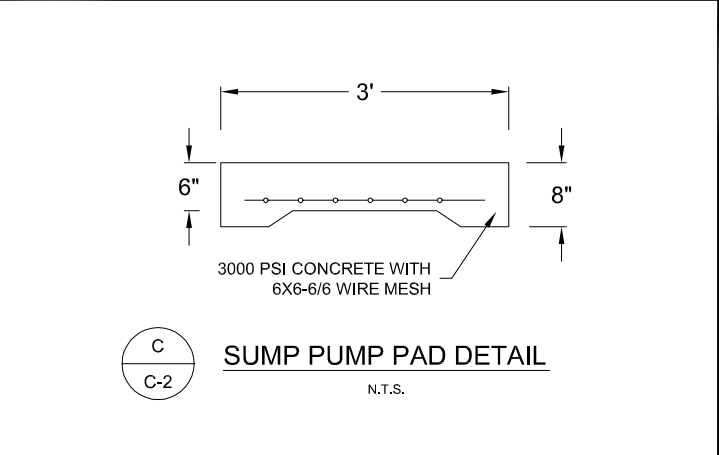
**HOWARD F. CURREN  
 AWWTP METHANOL FEED  
 PUMP REPLACEMENT  
 2700 MARITIME BLVD**

**WATERMARK ENGINEERING GROUP, INC.**  
 1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641  
 TEL: (813) 641-1200 FAX: (813) 641-1204  
 CERTIFICATE OF AUTHORIZATION 25960

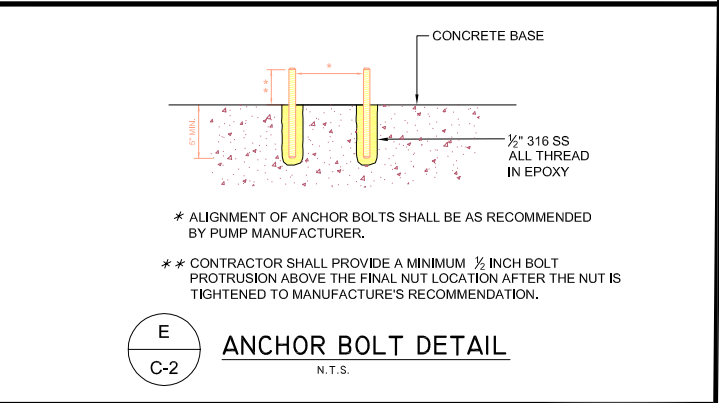




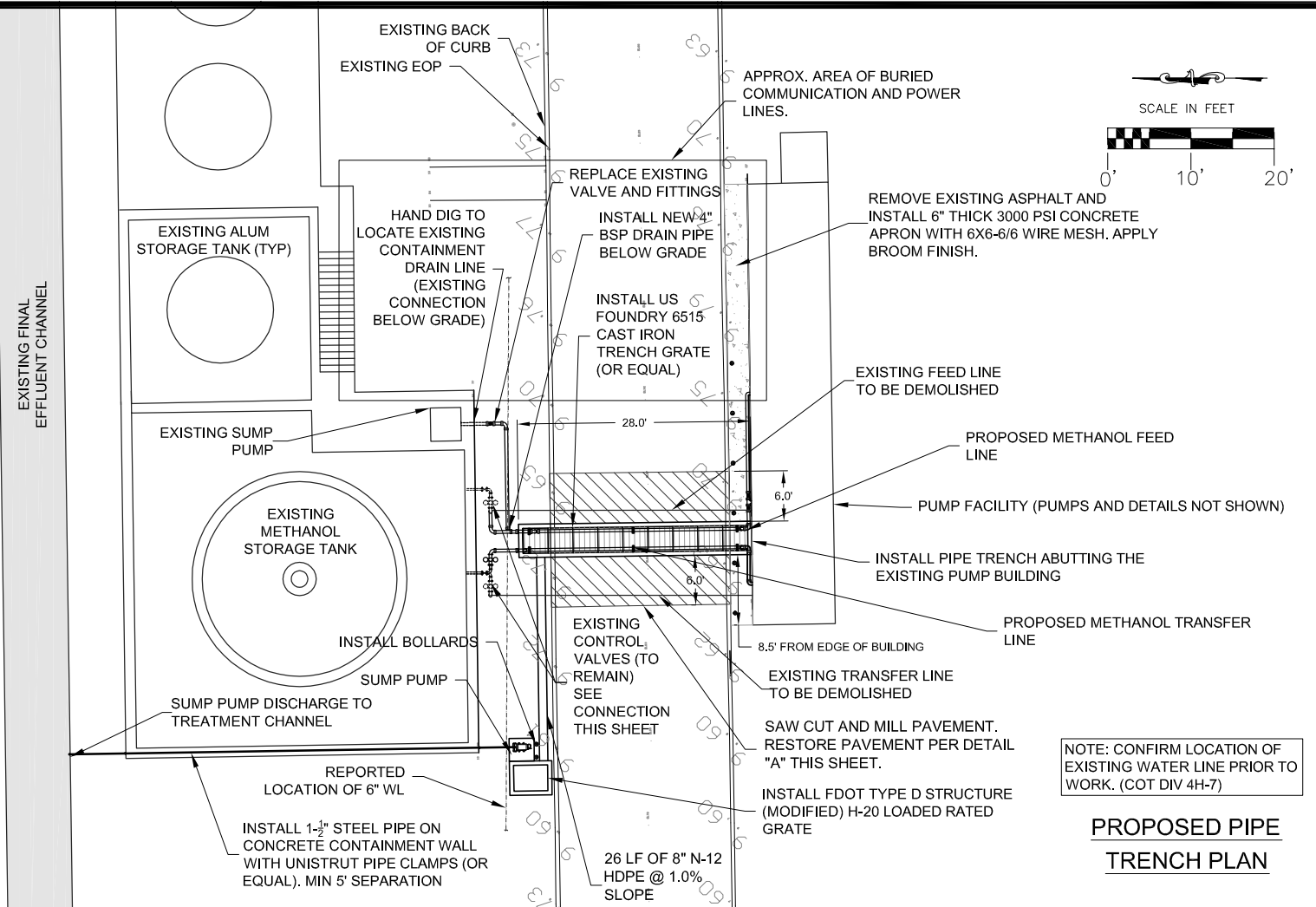
**D**  
C-2  
**SECTION VIEW - STEEL STANCHION SADDLE SUPPORT**  
N.T.S.



**C**  
C-2  
**SUMP PUMP PAD DETAIL**  
N.T.S.

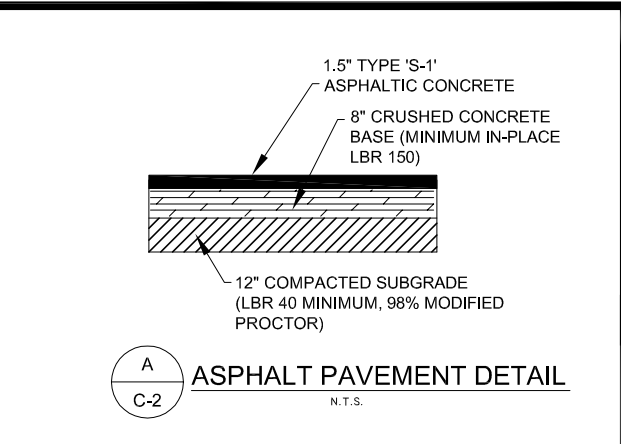


**E**  
C-2  
**ANCHOR BOLT DETAIL**  
N.T.S.

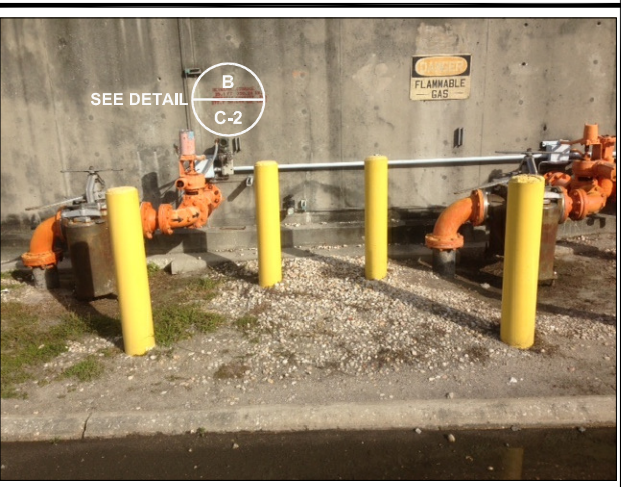


NOTE: CONFIRM LOCATION OF EXISTING WATER LINE PRIOR TO WORK. (COT DIV 4H-7)

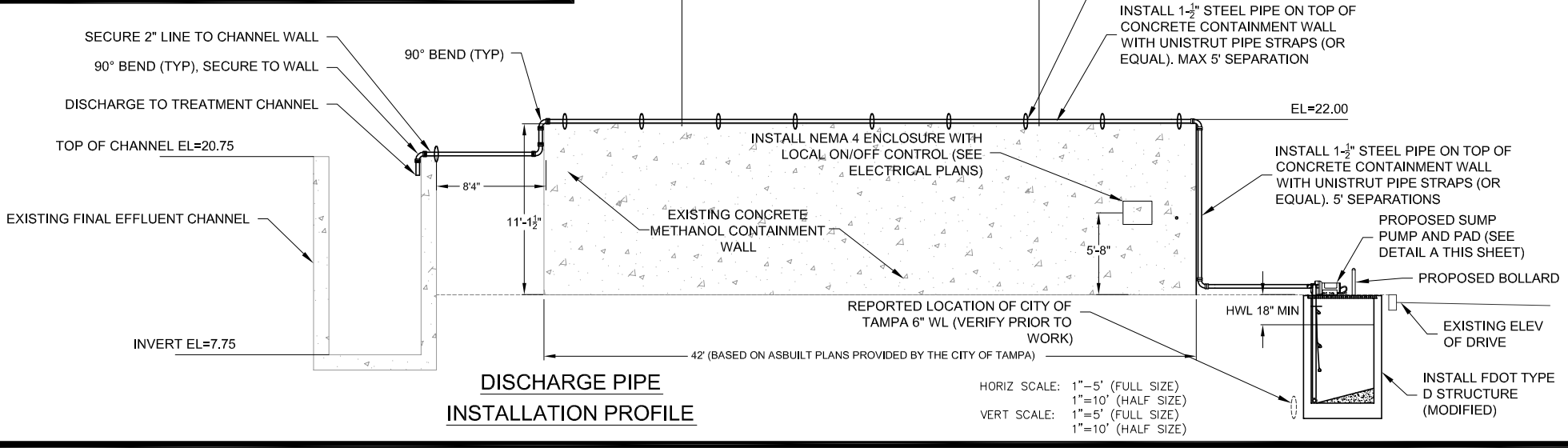
**PROPOSED PIPE TRENCH PLAN**



**A**  
C-2  
**ASPHALT PAVEMENT DETAIL**  
N.T.S.



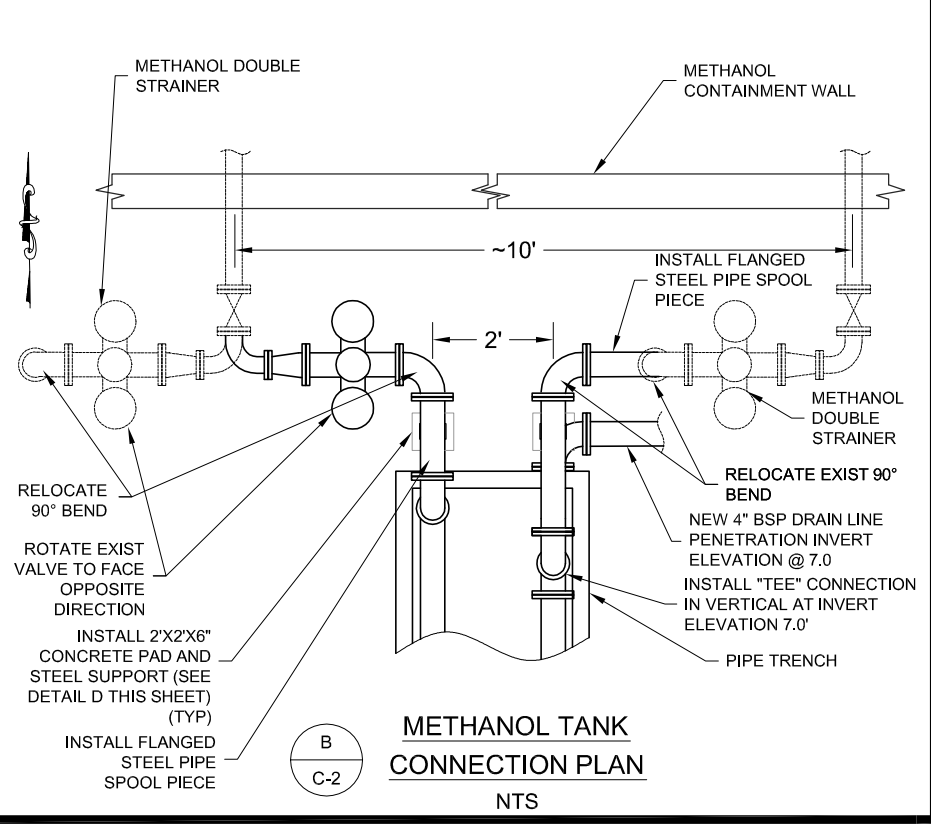
**PIPE TRENCH INSTALLATION AREA PHOTO**  
N.T.S.



**DISCHARGE PIPE INSTALLATION PROFILE**

HORIZ SCALE: 1"=5' (FULL SIZE)  
1"=10' (HALF SIZE)  
VERT SCALE: 1"=5' (FULL SIZE)  
1"=10' (HALF SIZE)

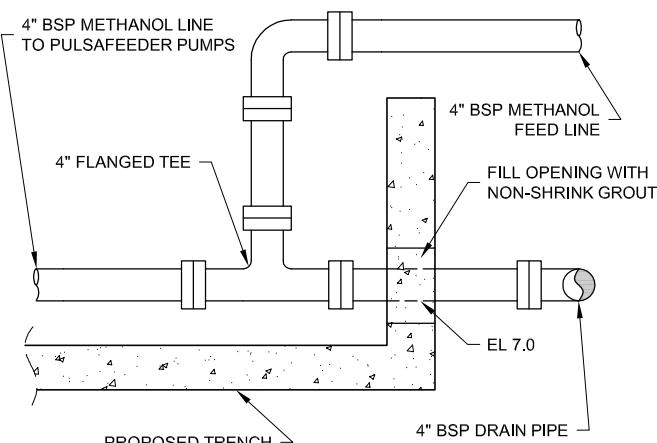
- 1) ROTATE EXISTING ELBOW ON TRANSFER LINE CONTROL VALVE AND INSTALL SPOOL SECTIONS AND ELBOWS AS NECESSARY TO CONNECT TO NEW ABOVE GROUND TRANSFER LINE FROM MTP PUMPS.
- 2) INSTALL SPOOL SECTIONS AND ELBOWS AS NECESSARY TO EXISTING FEED CONTROL VALVE TO CONNECT TO NEW ABOVE GROUND METHANOL FEED LINE TO MFP PUMPS.



**B**  
C-2  
**METHANOL TANK CONNECTION PLAN**  
NTS

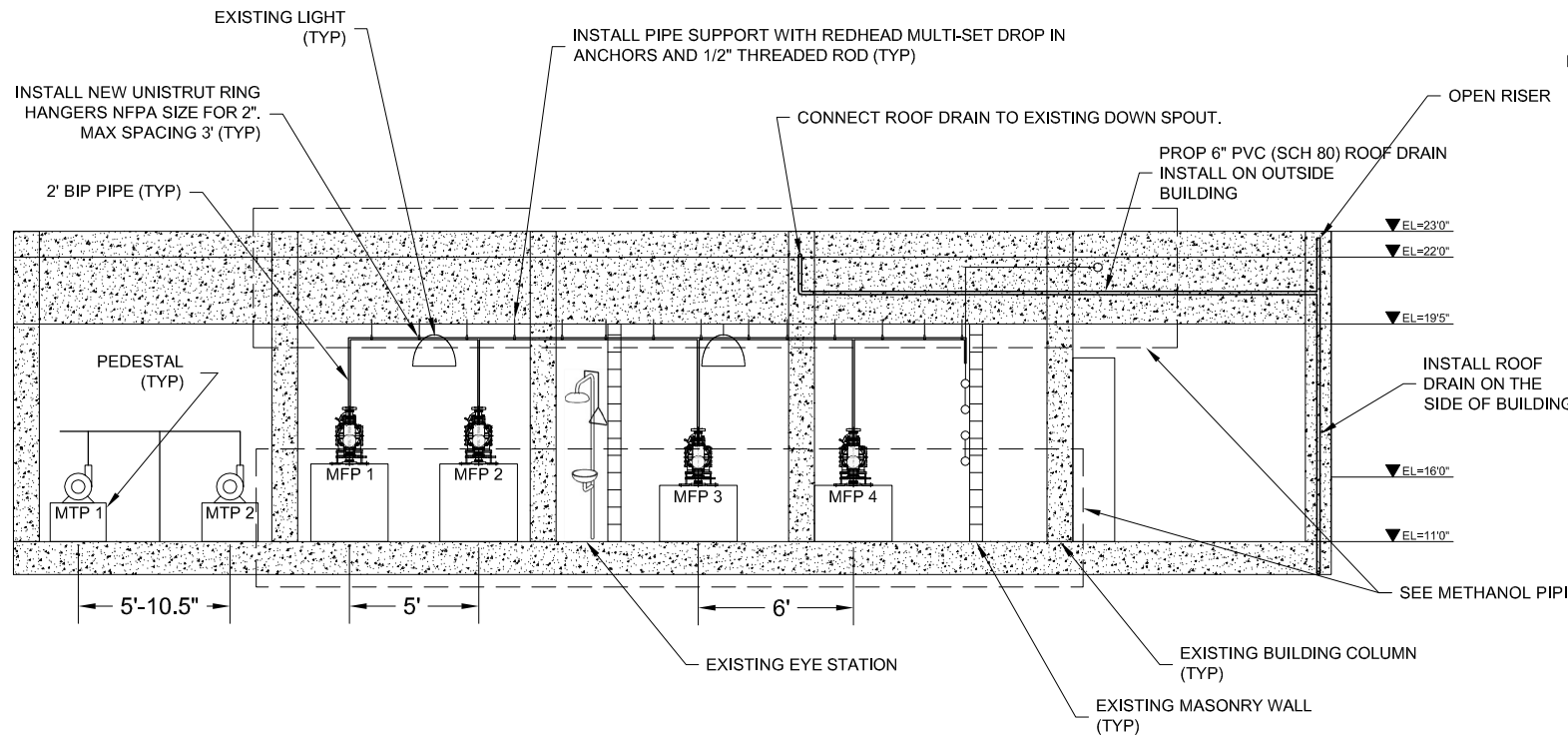
NO. 1 DATE BY CHECKED BY DESIGNED BY DRAWN BY SCALE SHEET NO. 1013305 PROJECT NO. 1013305	<b>CIVIL SITE IMPROVEMENTS</b>  <b>HOWARD F. CURREN AWWTP METHANOL FEED PUMP REPLACEMENT 2700 MARITIME BLVD</b>  <b>WATERMARK ENGINEERING GROUP, INC.</b> 1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641 TEL: (813) 641-1200 FAX: (813) 641-1204 CERTIFICATE OF AUTHORIZATION 25960
-------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

NOTE: METHANOL TRANSFER PIPES, TRENCH COVER, AND HDPE PIPE NOT SHOWN FOR CLARITY



**PROPOSED DRAIN TO TRENCH CONNECTION DETAIL**

SCALE: NTS



**PUMP FACILITY DISCHARGE PIPE SUPPORTS PROFILE (S ELEVATION)**

SCALE: NTS

- NOTES:
1. ALL DISCHARGE PIPING SHALL BE INSTALLED AT MINIMUM 6'-4" CLEARANCE ABOVE EXISTING PAD.
  2. FIELD MEASURE AND INSTALL ALL PIPING ONSITE.
  3. ALL PIPING SHALL BE COATED IN FIELD FOLLOWING INSTALLATION
  4. ALL PIPE SUPPORTS, RODS, AND HARDWARE SHALL BE PRIMED AND COATED STEEL.

NO.	BY	DATE	DESCRIPTION	APPROVED BY	DATE
1	HAM	SEPTEMBER 30, 2013	DESIGN	HAM	
2	HAM		REVISION	HAM	
3	HAM		REVISION	HAM	
4	HAM		REVISION	HAM	

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF WATERMARK ENGINEERING GROUP, INC. ANY UNLAWFUL USE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO WATERMARK ENGINEERING GROUP, INC.

DATE: 09/30/13

PROJECT: HOWARD F. CURREN AWWTP METHANOL FEED PUMP REPLACEMENT 2700 MARITIME BLVD

SCALE: NTS

DATE: 09/30/13

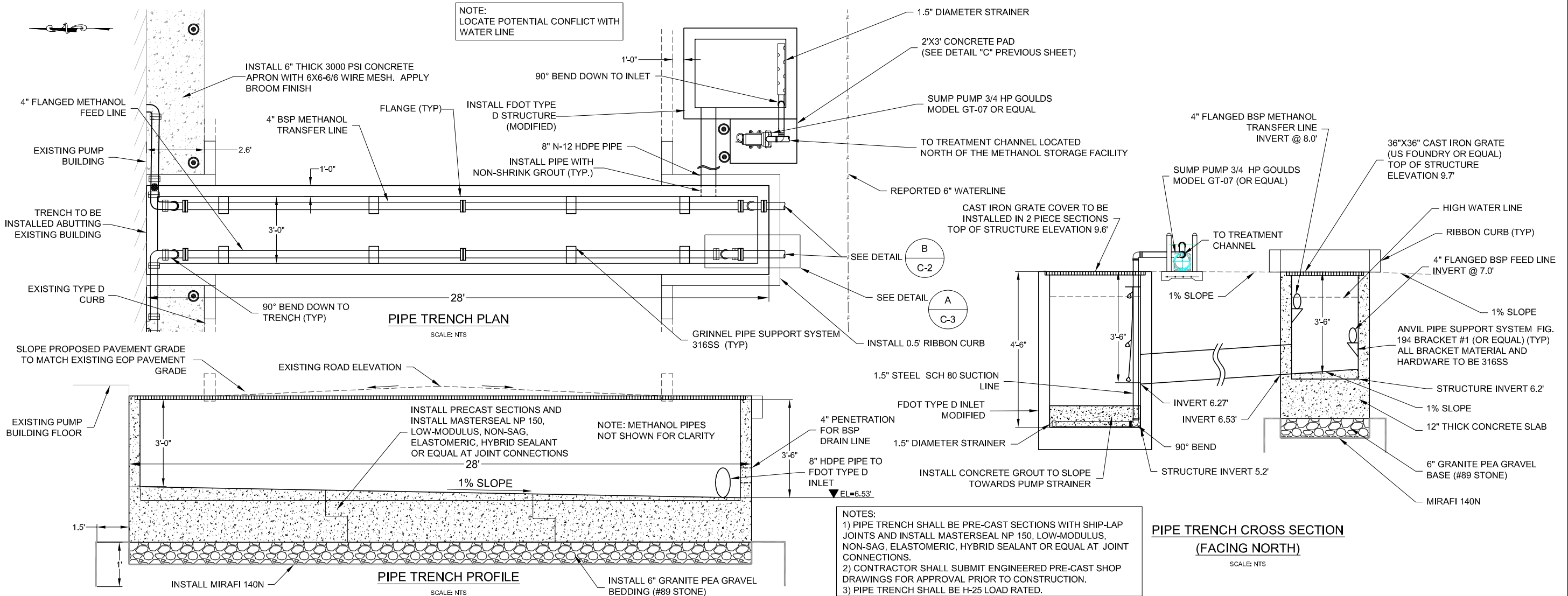
PROJECT: HOWARD F. CURREN AWWTP METHANOL FEED PUMP REPLACEMENT 2700 MARITIME BLVD

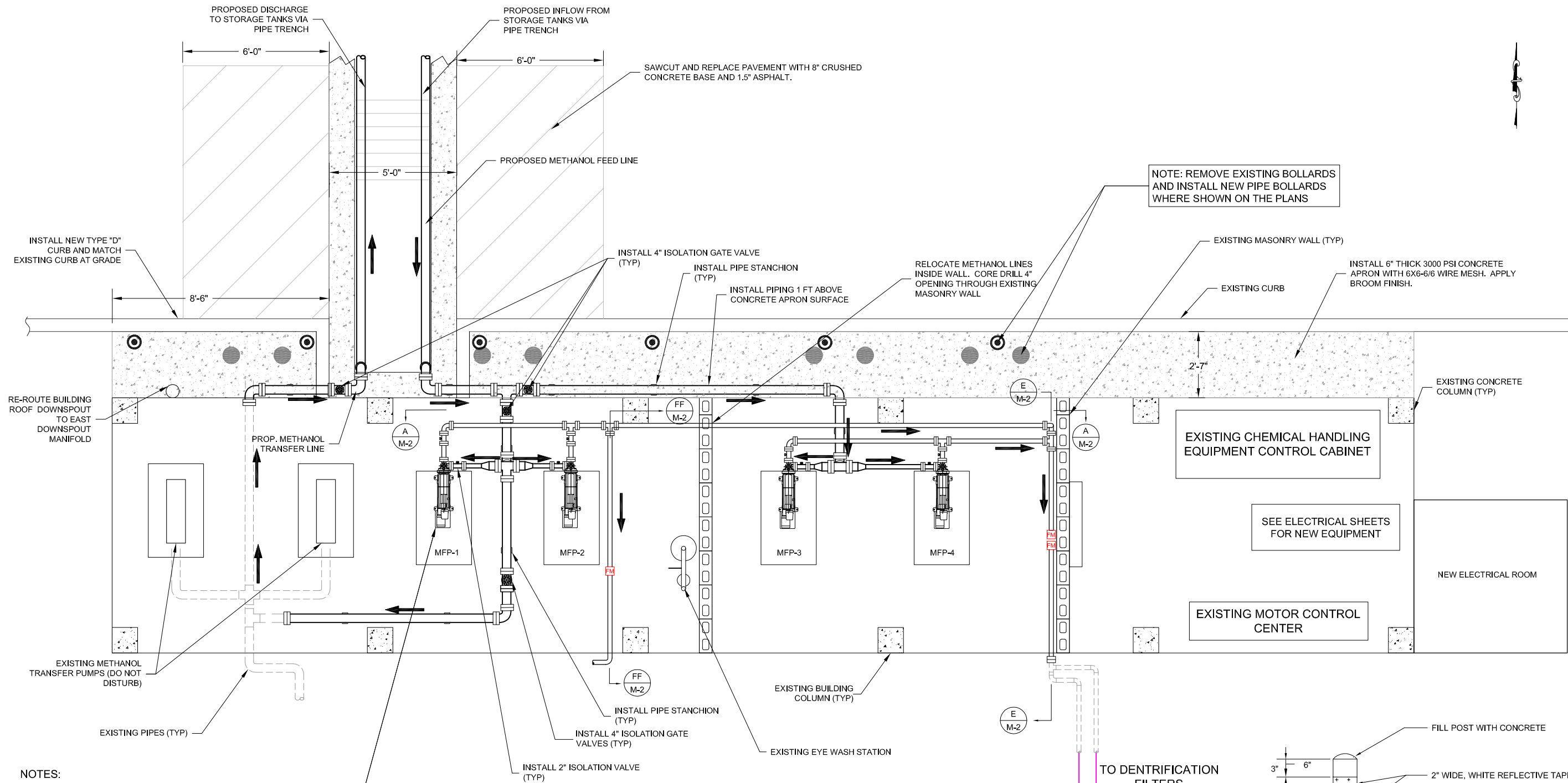
SCALE: NTS

CIVIL SITE IMPROVEMENTS

HOWARD F. CURREN AWWTP METHANOL FEED PUMP REPLACEMENT 2700 MARITIME BLVD

WATERMARK ENGINEERING GROUP, INC.  
 1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641  
 TEL: (813) 641-1200 FAX: (813) 641-1204  
 CERTIFICATE OF AUTHORIZATION 25060



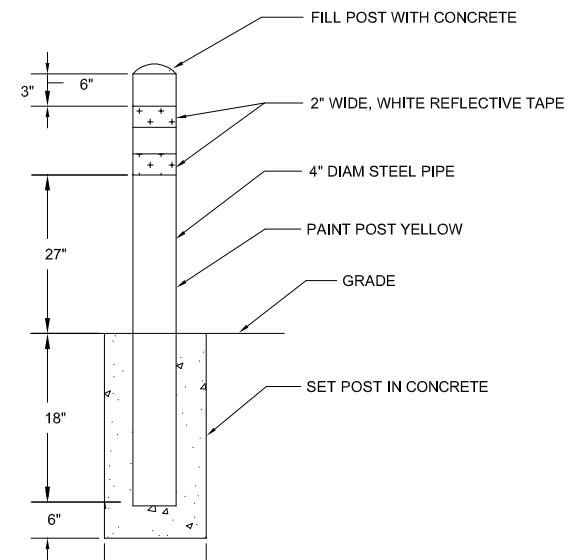


NOTES:  
 1) LIGHTING, ELECTRICAL CONDUITS, PULSATION DAMPENER, PRESSURE SENSOR, AND PRESSURE GAUGE NOT SHOWN FOR CLARITY  
 2) THIS SHEET DOES NOT SHOW LOCATIONS OF DEMOLISHED TRANSFER AND FEED LINES.

NOTE: MFP-1 AND MFP-2 ARE PLACED WITH REVERSE FACING FROM ORIGINAL INSTALLATION

**PROPOSED METHANOL PIPING LAYOUT PLAN**

SCALE: NTS



A  
M-1

**BOLLARD DETAIL**

N.T.S.

NO.	BY	DATE	DESCRIPTION
1	HAM	SEPTEMBER 30, 2013	ISSUED FOR PERMIT
2	HAM	SEPTEMBER 30, 2013	ISSUED FOR PERMIT
3	HAM	SEPTEMBER 30, 2013	ISSUED FOR PERMIT

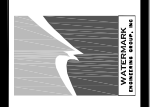
THESE PLANS MAY NOT BE COPIED OR MODIFIED WITHOUT THE WRITTEN CONSENT OF WATERMARK ENGINEERING GROUP, INC. THESE PLANS INCLUDE DESIGN & CONSTRUCTION BY A REGISTERED PROFESSIONAL ENGINEER.

DATE: 09/30/13  
 DRAWN BY: HAM  
 CHECKED BY: M.J.F.  
 APPROVED BY: M.J.F.  
 JOB NO.: 1013005

**METHANOL PIPING LAYOUT**

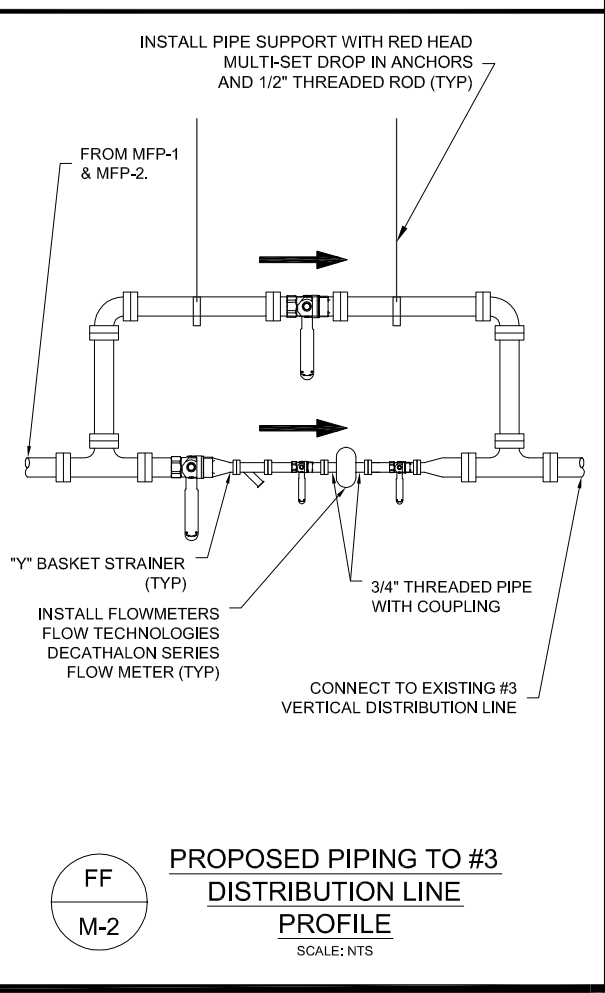
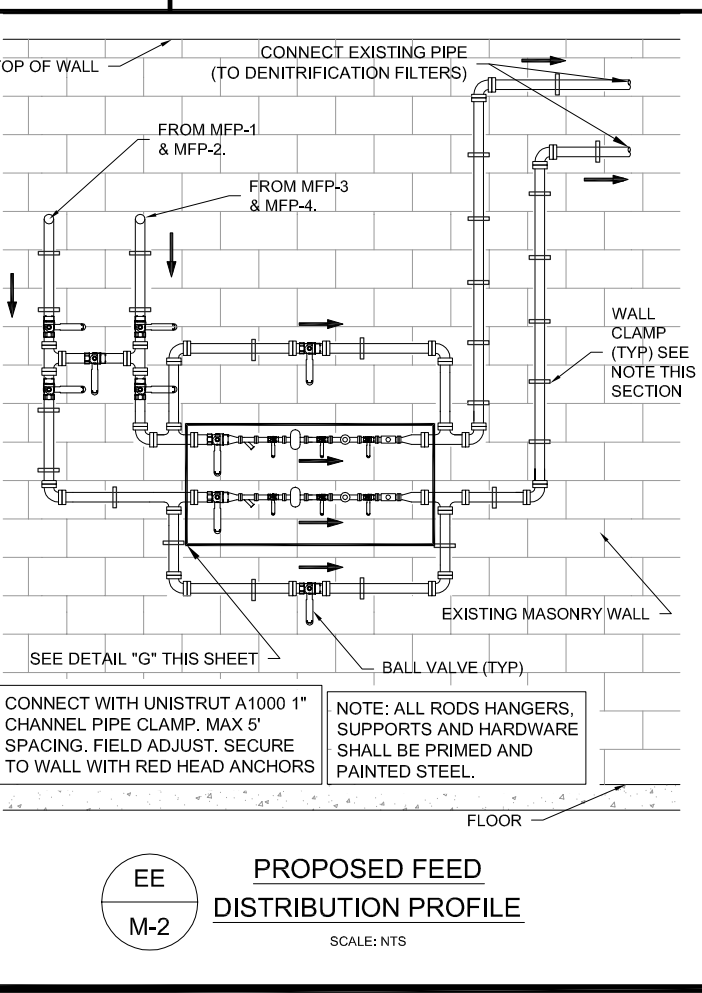
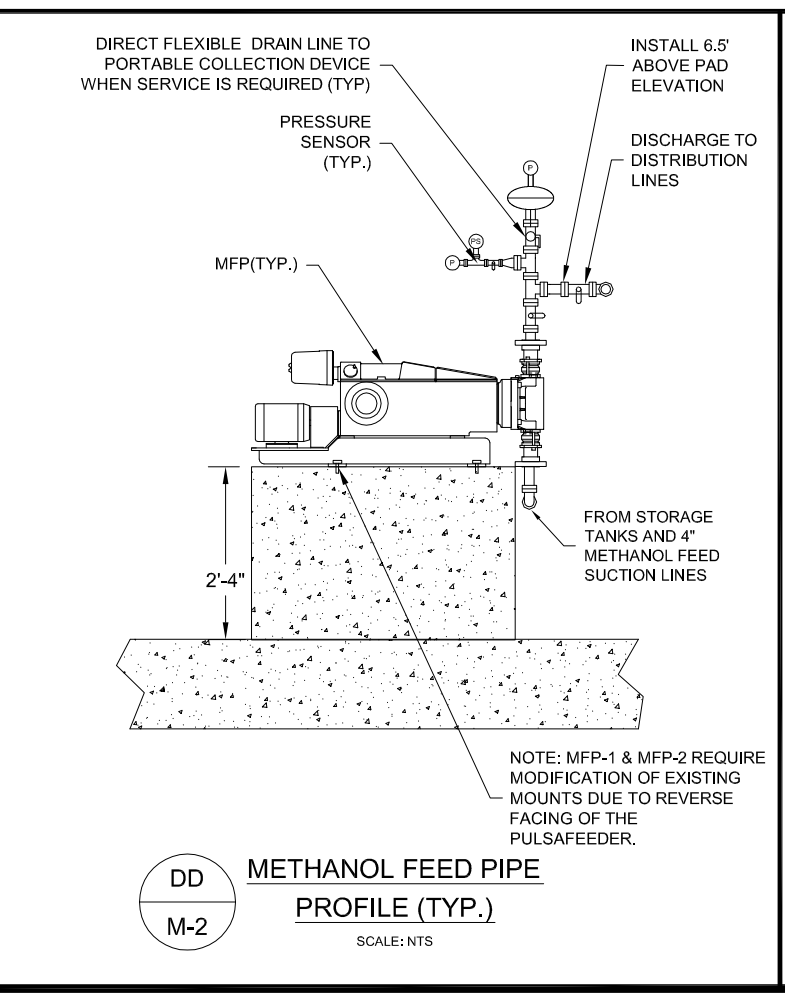
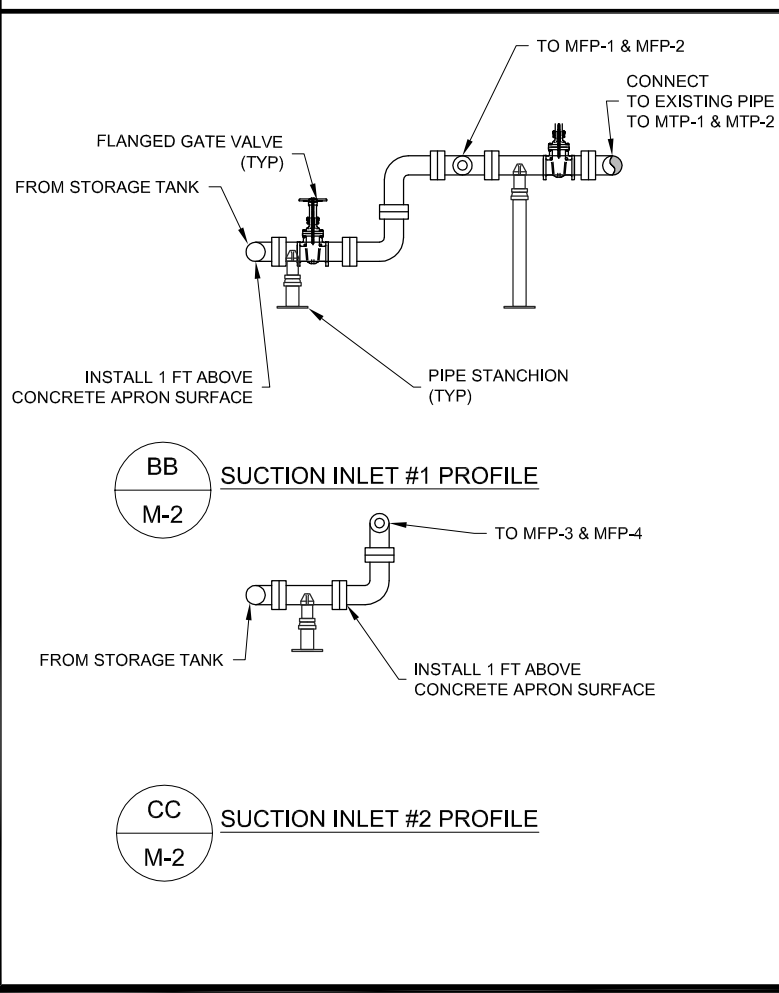
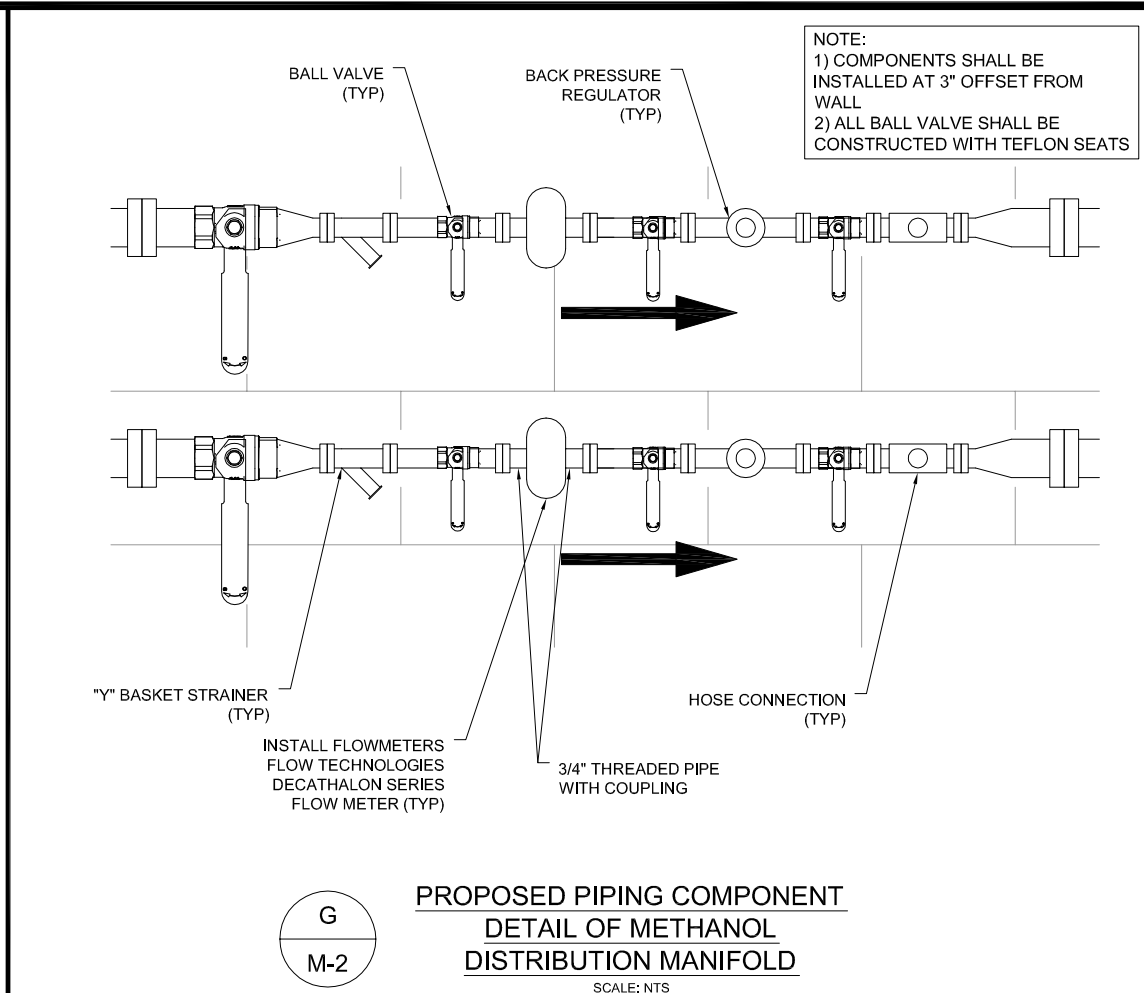
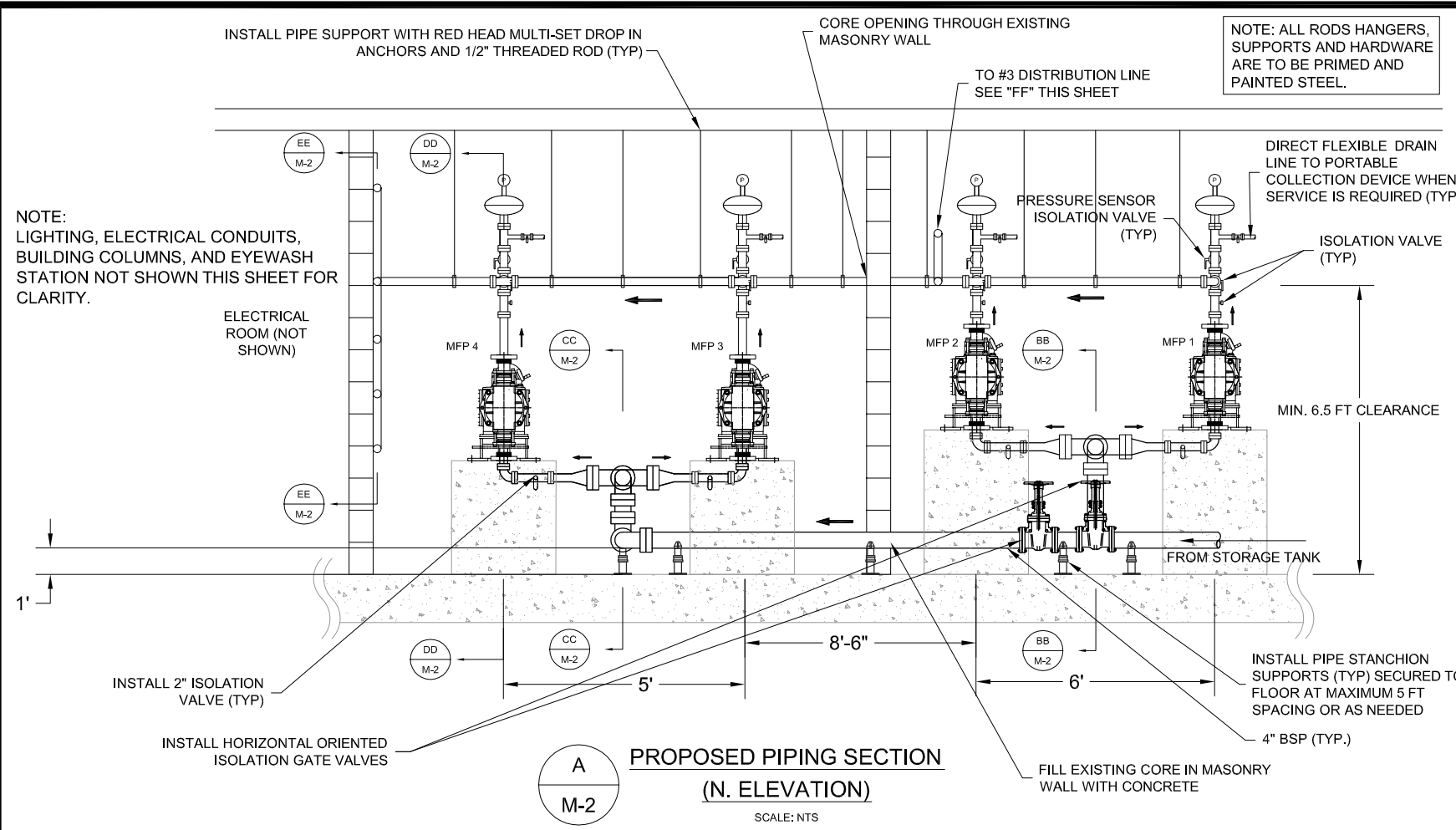
**HOWARD F. CURREN  
 AWWTP METHANOL FEED  
 PUMP REPLACEMENT  
 2700 MARITIME BLVD**

**WATERMARK ENGINEERING GROUP, INC.**  
 1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641  
 TEL: (813) 641-1200 FAX: (813) 641-204  
 CERTIFICATE OF AUTHORIZATION 25960



**M-1**



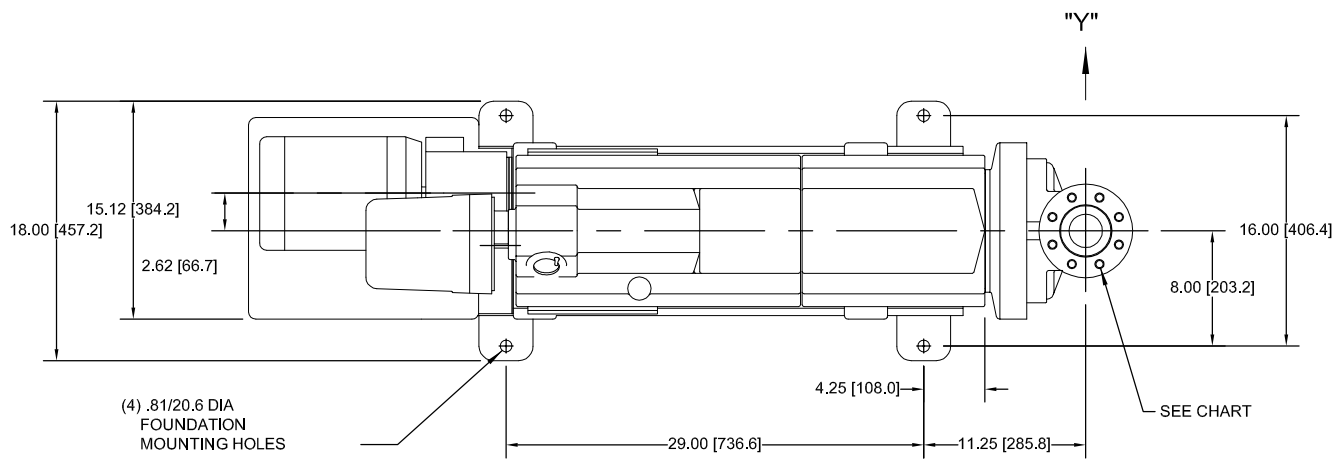


DESCRIPTION	DATE	BY	CHKD	APP'D	DATE
MECHANICAL PIPING LAYOUT					
NO.	REV.	DATE	BY	CHKD	APP'D
1					

HOWARD F. CURREN  
AWWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD

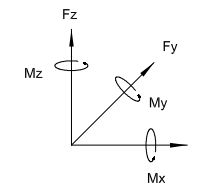
WATERMARK ENGINEERING GROUP, INC.  
1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641  
TEL: (813) 641-1200 FAX: (813) 641-1204  
CERTIFICATE OF AUTHORIZATION 25960

**M-2**

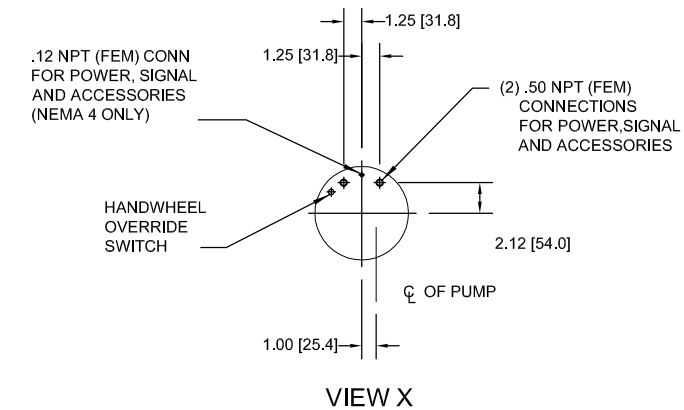


**PULSAFEEDER SERIES 8480**  
(TOP ELEVATION)

SCALE: NTS

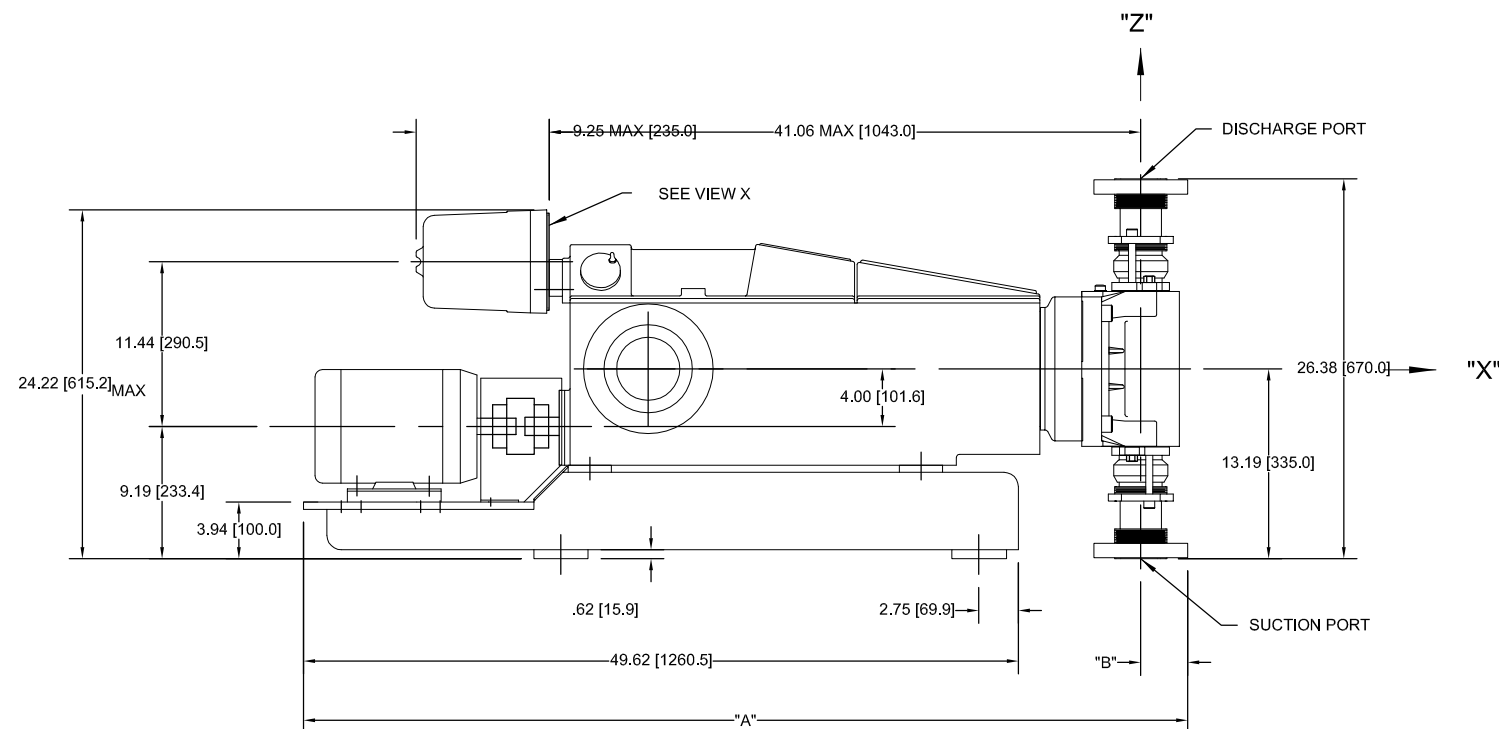


FORCES STATIC & DYNAMIC		SUCTION	DISCHARGE
NOZZLE FORCES	F <sub>x</sub> (LB)	30	30
NOZZLE FORCES	F <sub>y</sub> (LB)	45	45
NOZZLE FORCES	F <sub>z</sub> (LB)	90	90
NOZZLE FORCES	M <sub>x</sub> (FT-LB)	45	45
NOZZLE FORCES	M <sub>y</sub> (FT-LB)	30	30
NOZZLE FORCES	M <sub>z</sub> (FT-LB)	30	30



**ELECTRIC PULSAMATIC STROKE LENGTH**  
**CONTROLLER**  
(N.ELEVATION)

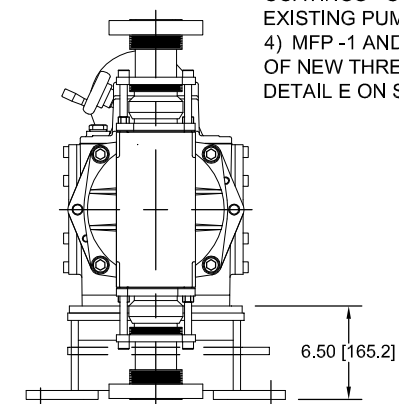
SCALE: NTS



**PULSAFEEDER SERIES 8480**  
(W. ELEVATION)

SCALE: NTS

- NOTES:
- 1) DISCHARGE PIPE SHALL BE 2"
  - 2) USE FLANGE CONNECTIONS AT PUMP (TYP.)
  - 3) SUPPLY PUMP WITH FACTORY APPLIED COATINGS - COLOR ORANGE TO MATCH EXISTING PUMPS
  - 4) MFP -1 AND MFP-2 REQUIRE INSTALLATION OF NEW THREADED ROD ANCHORS SEE DETAIL E ON SHEET C-2.



**PULSAFEEDER SERIES 8480**  
(N. ELEVATION)

SCALE: NTS

FLANGE	DIM "A"	DIM "B"	BOLT CIRCLE	BOLT SIZE / QTY
2.00- 150LB	61.12/1552.6	3.00/76.2	Ø4.75/Ø120.7	.62-11 UNC-2B / (4)
2.00- 300LB	61.38/1558.9	3.25/82.6	Ø5.00/Ø127.0	.62-11 UNC-2B / (8)

NO.	BY	DATE	DESCRIPTION	APP'D BY	DATE
1	HAM	SEP 2013	ISSUED FOR CONSTRUCTION	HAM	SEP 2013
2	HAM	SEP 2013	REVISED FOR CONSTRUCTION	HAM	SEP 2013

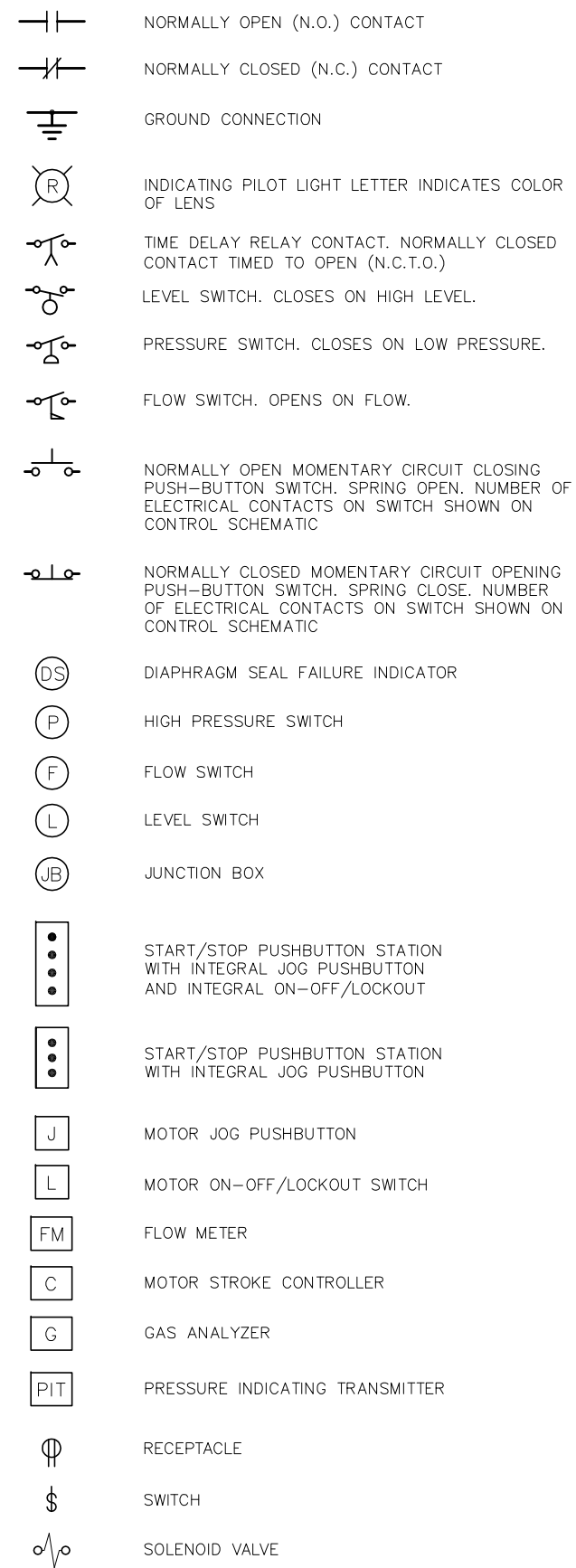
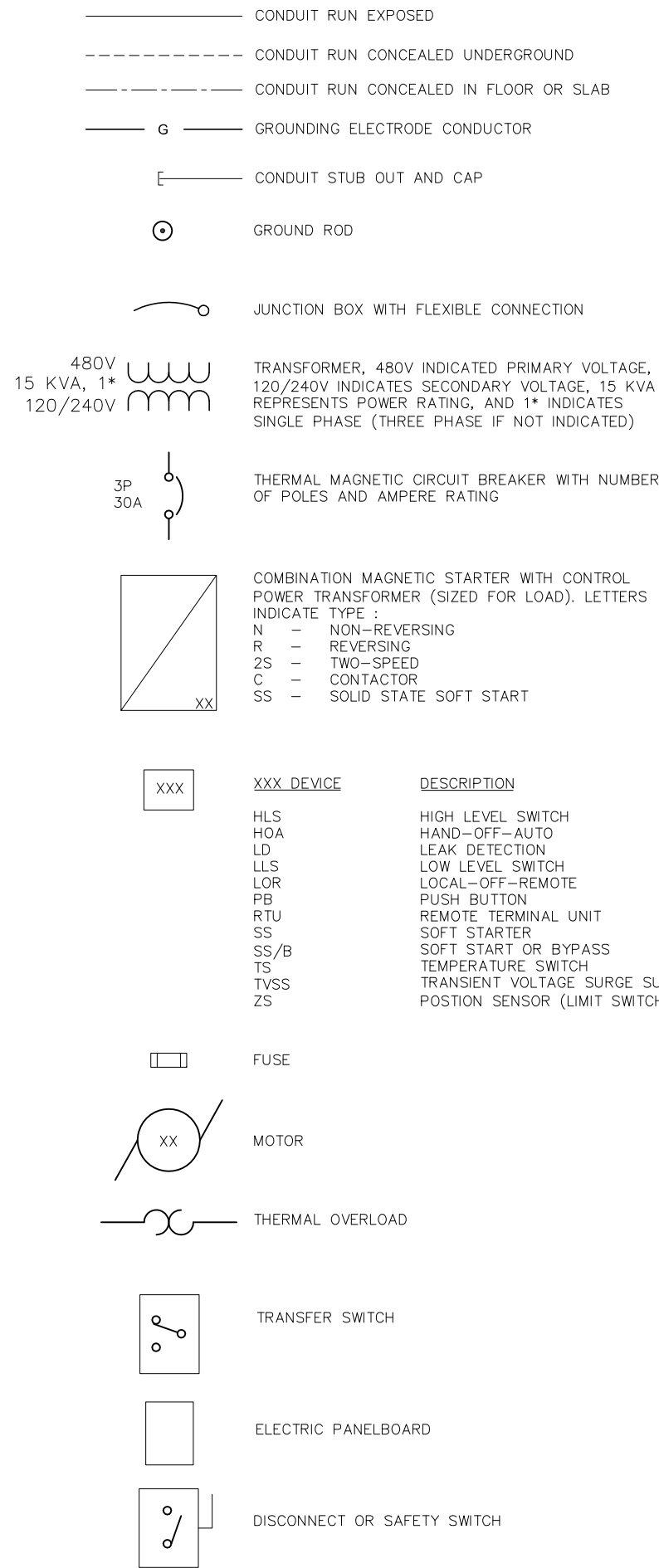
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF WATERMARK ENGINEERING GROUP, INC.  
 WATERMARK ENGINEERING GROUP, INC.  
 1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641  
 TEL: (813) 641-1200 FAX: (813) 641-2004  
 CERTIFICATE OF AUTHORIZATION 25860

**PUMP SYSTEM**  
**DETAILS**

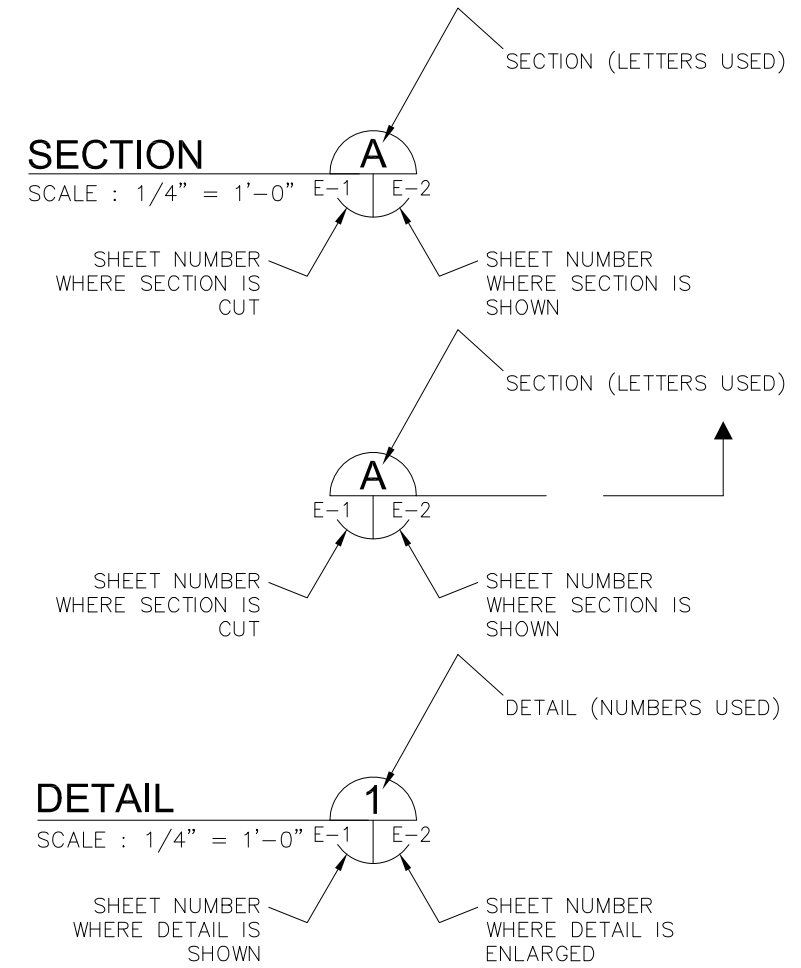
**HOWARD F. CURREN**  
**AWWTP METHANOL FEED**  
**PUMP REPLACEMENT**  
**2700 MARITIME BLVD**

**WATERMARK ENGINEERING**  
**GROUP, INC.**  
 1312 APOLLO BEACH BLVD, SUITE G, APOLLO BEACH, FL 33641  
 TEL: (813) 641-1200 FAX: (813) 641-2004  
 CERTIFICATE OF AUTHORIZATION 25860





**EXAMPLE OF SECTION CUT AND DETAIL**



**ABBREVIATIONS:**

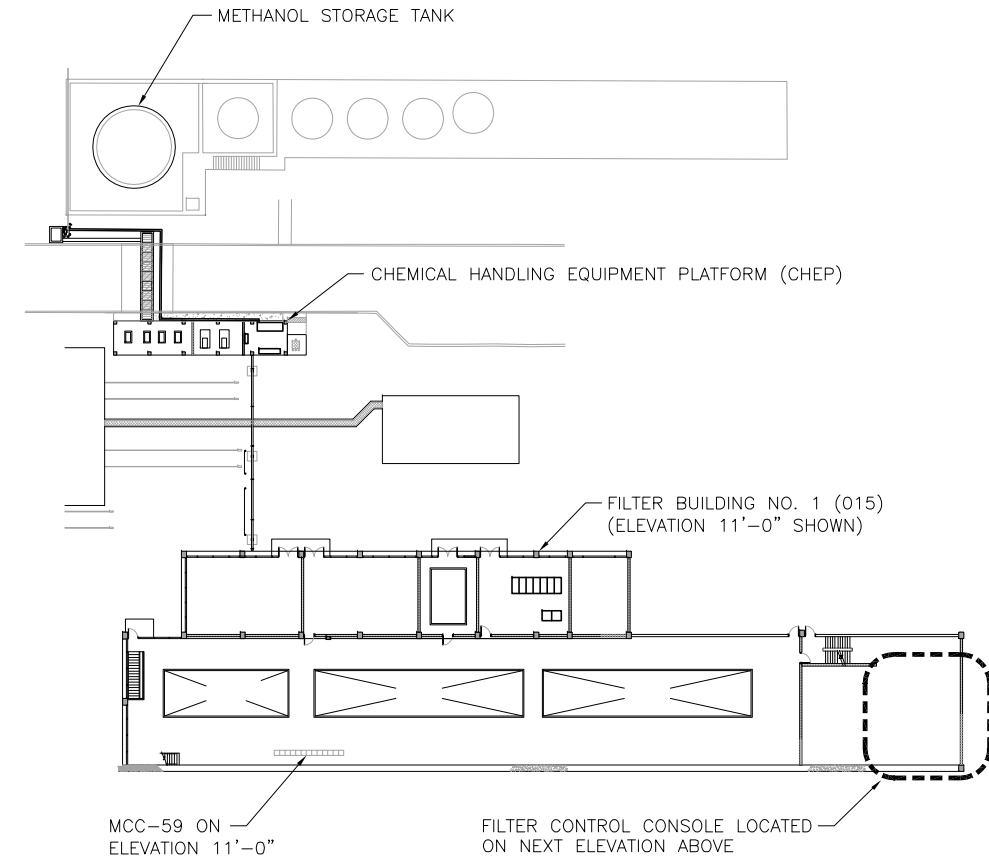
A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CHEP	CHEMICAL HANDLING EQUIPMENT PLATFORM
CU	COPPER
EX	EXISTING
ELEC	ELECTRICAL
EXP	EXPLOSION PROOF
FU	FUSE
GFI	GROUND FAULT INTERRUPTER
GND	GROUNDING CONDUCTOR
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
KI	KEY INTERLOCK
KVA	KILOVOLT AMPERES
KW	KILOWATTS
MAX	MAXIMUM
MIN	MINIMUM
N/A	NOT APPLICABLE
PH	PHASE
PB	PULL BOX
RECP	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTU	REMOTE TERMINAL UNIT
SPD	SURGE PROTECTION DEVICE
TYP	TYPICAL
V	VOLTS
WP	WEATHERPROOF

NO. OF SHEETS	DATE	DESCRIPTION	APPROVED BY	DATE
1				
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS.		TRICON ENGINEERING, P.C. 17102670		
<b>ELECTRICAL LEGEND</b>				
<b>HOWARD F. CURREN          AAWTP METHANOL FEED          PUMP REPLACEMENT          2700 MARITIME BLVD</b>				
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602 813-227-9190 FAX 813-227-9195 Certificate of Authorization No. 00008363				
<b>TRICON CONSULTING ENGINEERS</b>				
<b>E-1</b>				

**GENERAL ELECTRICAL NOTES :**

THE WORK CONSIST OF FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, AND TECHNICAL SUPERVISION TO INSTALL A NEW METHANOL PUMP CONTROL CABINET, A NEW MOTOR CONTROL CENTER, A NEW TRANSFER SWITCH, A NEW MINI POWER-ZONE AND VARIOUS CONDUIT AND CONDUCTORS AS INDICATED AND SHOWN. THE WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. CONTROL CONDUCTORS SHALL BE STRANDED COPPER, 14 AWG MINIMUM, WITH XHHW INSULATION, UNLESS OTHERWISE NOTED.
3. ALL WIRING SHALL BE IDENTIFIED WITH NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
4. FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
5. ALL NEW EQUIPMENT SHALL BE PERMANENTLY IDENTIFIED WITH A BLACK ON WHITE LAMACOID TAG ENGRAVED WITH MINIMUM 3/16 INCH LETTERING.
6. ALL CIRCUITS SHALL HAVE A GROUNDING CONDUCTOR ROUTED INSIDE EACH CONDUIT WITH POWER CONDUCTORS.
7. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS. NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNATED IN THE DRAWINGS.
8. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
9. CONDUITS SHALL BE RIGID HEAVY WALL ALUMINUM. FLEXIBLE CONDUITS SHALL BE NONMETALLIC LIQUID TIGHT. FLEXIBLE CONDUIT UTILIZED TO CONNECT TO MOTORS, JUNCTION BOXES, ETC. IN HAZARDOUS AREAS SHALL BE LISTED FOR USE IN CLASS 1, DIVISION 2 AREAS AND SHALL BE CORROSION RESISTANT STAINLESS STEEL.
10. THE PROJECT INCLUDES THE REMOVAL OF VARIOUS EXISTING CONDUCTORS AND THEIR REPLACEMENT. IF AN EXISTING CONDUCTOR TO BE REMOVED PASSES THROUGH AN EXISTING SEAL FITTING, THE SEAL FITTING SHALL BE REPACKED WITH NEW SEALING COMPOUND AFTER THE NEW CONDUCTORS HAVE BEEN INSTALLED.
11. THE PROJECT INCLUDES REUSING VARIOUS EXISTING CONDUITS. EXISTING CONDUITS MAY BE REUSED BY THE CONTRACTOR AFTER THE CONTRACTOR HAS CLEANED THE EXISTING CONDUIT USING A SWAB, AND RUN A PROPERLY SIZED RUBBER SLUG MANDREL THROUGH THEM TO PROVE INTEGRITY.
12. THE PROJECT INCLUDES REUSING VARIOUS CONDUCTORS. THE CONTRACTOR SHALL USE A MEGGER TO TEST THE INSULATION RESISTANCE OF THE INSTALLED CONDUCTORS (PHASE TO PHASE & PHASE TO GROUND - 1000V FOR ONE MINUTE) AND RECORD VALUES.
13. MAKE MODIFICATIONS TO THE EXISTING MOTOR CONTROL CENTER (MCC-59) AS SHOWN AND SPECIFIED. PROVIDE AND INSTALL A REDUNDANT FEEDER TO MCC-59B.
14. PROVIDE AND INSTALL MCC-59B AND ASSOCIATED HARDWARE AS SHOWN AND SPECIFIED.
15. PROVIDE AND INSTALL THE NEW TRANSFER SWITCH AND ASSOCIATED HARDWARE AS SHOWN AND SPECIFIED.
16. PROVIDE AND INSTALL THE NEW MINI POWER-ZONE AND ASSOCIATED HARDWARE AS SHOWN AND SPECIFIED.
17. PROVIDE AND INSTALL THE METHANOL PUMP CONTROL CABINET AND ASSOCIATED HARDWARE AS SHOWN AND SPECIFIED.
18. PROVIDE AND INSTALL MULTIMODE FIBER OPTIC CABLE FROM THE FILTER CONTROL BUILDING TO THE METHANOL PUMP CONTROL PANEL AS SHOWN AND SPECIFIED.
19. PROVIDE AND INSTALL THE METHANOL TRENCH SUMP PUMP CONTROL STATION AND ASSOCIATED HARDWARE AS SHOWN AND SPECIFIED.
20. RECONNECT EXISTING CONDUCTORS FROM THE FILTER BUILDING CONTROL CONSOLE TO THE NEW METHANOL PUMP CONTROL CABINET OR NEW MCC-59B AS INDICATED ON THESE DRAWINGS. THE CONTRACTOR SHALL PROVIDE NEW CONDUCTORS/CABLES IF REQUIRED. REFER TO THIS SHEET FOR OVERALL SITE PLAN.
21. PROVIDE AND INSTALL STAINLESS STEEL CHANNEL ERECTOR SYSTEMS TO MOUNT AND SUPPORT ENCLOSURES, BOXES, CONDUITS AND OTHER EQUIPMENT. ALL MOUNTING HARDWARE SHALL BE 316 SS.
22. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2008 NATIONAL ELECTRICAL CODE (NEC) AND CHAPTER 5 OF THE CITY OF TAMPA CODE.
23. ALL SITE AND ELECTRICAL WORK SHALL BE COORDINATED WITH CITY OF TAMPA STAFF TO ALLOW FOR UNINTERRUPTED METHANOL PUMPING DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RENTING/LEASING ALL EQUIPMENT AS NECESSARY TO ALLOW FOR UNINTERRUPTED SYSTEM OPERATION. THE CONTRACTOR SHALL BE ALLOWED TO UTILIZE (AFTER PROPER TESTING) THE NEW REDUNDANT FEEDER TO BE SUPPLIED FROM MCC-59 AS A TEMPORARY POWER SOURCE UNTIL THE NEW SYSTEM IS COMPLETE AND READY FOR OPERATION. AFTER SYSTEM ACCEPTANCE, THE NEW FEEDER SHALL BE CONNECTED TO THE NEW MCC-59B. THE 4-20mA STROKE CONTROL SIGNAL FOR THE METHANOL PUMPING SYSTEM ORIGINATES IN THE FILTER BUILDING CONTROL CONSOLE. IF NECESSARY, FOR TEMPORARY OPERATION, THE CONTRACTOR SHALL FIELD ROUTE A 2/C-#18 TWISTED SHIELDED CABLE IN A 1" ALUMINUM CONDUIT FROM THE FILTER BUILDING CONTROL CONSOLE TO THE TEMPORARY EQUIPMENT TO ALLOW FOR UNINTERRUPTED METHANOL PUMPING. THE CONTRACTOR SHALL SUBMIT A PLAN FOR REVIEW AND APPROVAL TO KEEP THE METHANOL PUMPS/CONTROLS OPERATIONAL DURING THE REMOVAL OF THE EXISTING MCC-59B, METHANOL PUMP CONTROL PANEL, AND OTHER ASSOCIATED ITEMS. THIS PLAN SHALL INCLUDE THE SEQUENCE OF WORK TO BE PERFORMED, A LIST OF ALL TEMPORARY EQUIPMENT TO BE SUPPLIED, THE TEMPORARY EQUIPMENT'S RATING AND SPECIFICATIONS, THE PROPOSED METHOD OF PUMP CONTROL AND THE PROPOSED METHOD OF MONITORING/ALARM.
24. AFTER COMPLETING THE EQUIPMENT INSTALLATION AND PROGRAMMING TASKS, THE SYSTEM SHALL BE TESTED TO SHOW FUNCTIONALITY. IF NECESSARY, THE METHANOL PUMP CONTROL PANEL'S PROGRAMMABLE LOGIC CONTROLLER PROGRAM PARAMETERS SHALL BE ADJUSTED TO ACHIEVE THE PROPER MOTOR OPERATING CHARACTERISTICS.
25. TEST AND START-UP REPORTS FOR THE METHANOL PUMP CONTROL PANEL SYSTEM SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE (O&M) MANUALS PROVIDED UNDER THIS CONTRACT. ALL SETTINGS, PASSWORDS, ETC. SHALL BE TABULATED AND INCLUDED IN THE O&M MANUAL.



**OVERALL SITE PLAN**

SCALE : 1" = 30'-0"

NO.	REV.	DATE	DESCRIPTION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

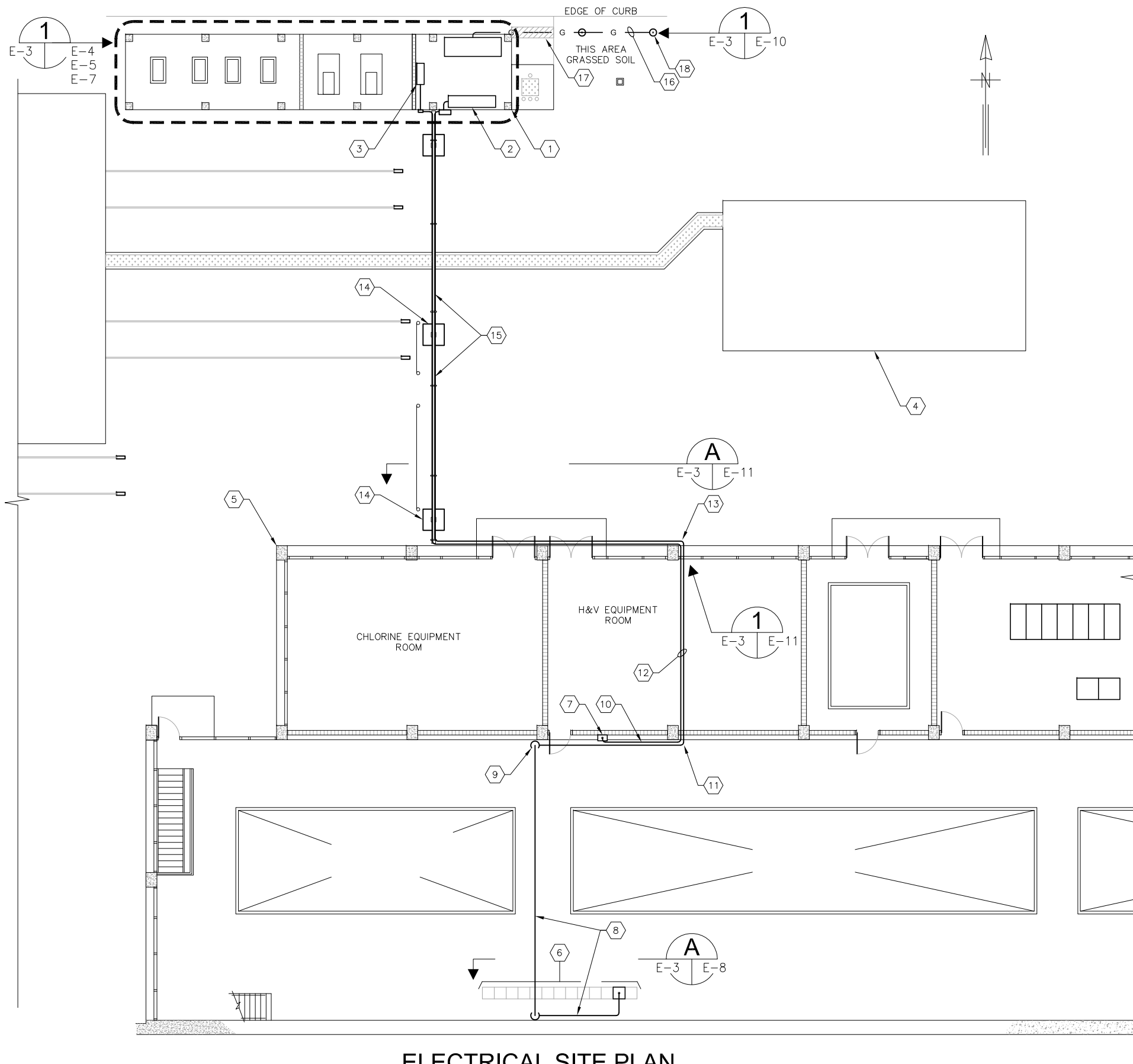
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM TRICON CONSULTING ENGINEERS. THESE PLANS INCLUDE DESIGN & CONSTRUCTION OF A REGISTERED PROFESSIONAL ENGINEER. TRICON ENGINEERING, P.E. (PUMP OPERATOR OF RECORD) 171302470

**ELECTRICAL NOTES AND OVERALL SITE PLAN**

**HOWARD F. CURREN  
AAWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD**

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363





**ELECTRICAL SITE PLAN  
 FILTER BUILDING NO.1 (015) :  
 PLAN EL 11'-0"**

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

**KEYED NOTES:**

- 1 EXISTING CHEMICAL HANDLING EQUIPMENT PLATFORM (CHEP). REFER TO SHEET E-4 FOR DEMOLITION PLAN. REFER TO SHEET E-7 FOR AREA CLASSIFICATION PLAN. REFER TO SHEET E-6 FOR NEW WORK REQUIRED.
- 2 CONTRACTOR TO REMOVE EXISTING MOTOR CONTROL CENTER. CONTRACTOR SHALL THEN PROVIDE AND INSTALL NEW MOTOR CONTROL CENTER DESIGNATED 'MCC-59B'. CONTRACTOR TO REUSE EXISTING CONDUIT FROM EXISTING FEEDER FROM MCC-59 TO NEW MCC-59B. CONTRACTOR SHALL MAKE MODIFICATIONS AS REQUIRED TO EXISTING FEEDER CONDUIT. CONTRACTOR TO REUSE EXISTING CONDUCTORS FROM EXISTING FEEDER FROM MCC-59 TO NEW MCC-59B UNLESS CONDUCTORS ARE ALUMINUM, OR IN POOR CONDITION. THE CONTRACTOR SHALL ALSO PROVIDE AND INSTALL AN ADDITIONAL FEEDER TO NEW MCC-59B (3-1/0 THWN CU + 1-#4 THWN CU GND IN 3" C.) FROM EXISTING MCC-59B.
- 3 CONTRACTOR TO PROVIDE AND INSTALL NEW METHANOL PUMP CONTROL PANEL. REFER TO DETAIL ON SHEET I-2.
- 4 EXISTING DECHLORINATION BUILDING. NO WORK REQUIRED.
- 5 EXISTING FILTER BUILDING NO. 1 (015).
- 6 EXISTING MOTOR CONTROL CENTER : MCC-59. CONTRACTOR TO PROVIDE AND INSTALL 3-1/0 THWN CU + 1-#4 THWN CU GND IN 3" C. TO NEW MCC-59B TO BE LOCATED AT CHEMICAL HANDLING EQUIPMENT PLATFORM. REFER TO SHEET E-8 FOR NEW MCC-59B DETAILS AND FOR NEW PROTECTIVE DEVICES TO BE INSTALLED WITHIN MCC-59.
- 7 EXISTING FIBER OPTIC CABINET. CONTRACTOR TO PROVIDE AND INSTALL NEW 6 COUNT, 62.5/125um, TIGHT BUFFER MULTIMODE FIBER OPTIC CABLE IN 1" C. TO NEW METHANOL PUMP CONTROL PANEL TO BE LOCATED AT CHEMICAL HANDLING EQUIPMENT PLATFORM. PROVIDE AND INSTALL NEW MULTIMODE MEDIA CONVERTER (ON DIN-RAIL) WITH ST CONNECTORS IN FIBER OPTIC CABINET FOR COMMUNICATION TO METHANOL PUMP CONTROL PANEL. MEDIA CONVERTER TO BE OMNITRON FLEXPPOINT 10/100 SERIES, MODEL NO. 4342-1. CONTRACTOR TO PROVIDE AND INSTALL DUPLICATE MEDIA CONVERTER IN METHANOL PUMP CONTROL PANEL. REFER ALSO TO SHEET I-2. CONTRACTOR SHALL ALSO REMOVE EXISTING 5-PORT NETGEAR ETHERNET SWITCH FROM FIBER OPTIC CABINET AND PROVIDE TO OWNER. CONTRACTOR SHALL PROVIDE AND INSTALL NEW 8-PORT ETHERNET SWITCH, NETGEAR GS108, IN EXISTING FIBER OPTIC CABINET.
- 8 NEW 3-1/0 THWN CU + 1-#4 THWN CU GND IN 3" C., INSTALL CONDUIT ON FILTER BUILDING WALL AND CONTINUE UP TO BUILDING CEILING (TO AVOID EXISTING CRANE).
- 9 CONTINUE 3-1/0 THWN CU + 1-#4 THWN CU GND IN 3" C., DOWN WALL FROM CEILING. INSTALL 90° AT 10'-0" ELEVATION AND TRAVERSE EAST.
- 10 INSTALL 1" C., WITH FIBER OPTIC CABLE ALONG WALL.
- 11 CONTRACTOR TO PENETRATE EXISTING BLOCK WALL WITH NEW RACEWAYS. CONDUITS TO CONTINUE NORTH TO LOUVER ON EXTERIOR WALL OF FILTER BUILDING NO. 1.
- 12 CONDUITS TO BE TRAPEZE HUNG FROM CEILING IN THIS AREA.
- 13 CONTRACTOR TO PENETRATE EXISTING LOUVER WALL WITH NEW RACEWAYS. CONDUITS TO TRAVERSE WEST TO EXISTING OVERHEAD I-BEAM.
- 14 EXISTING SUPPORT COLUMN.
- 15 NEW 3-1/0 THWN CU + 1-#4 THWN CU GND IN 3" C., AND FIBER OPTIC CABLE IN 1" C. INSTALLED ON EXISTING OVERHEAD I-BEAM. REFER TO DETAILS ON SHEET E-11.
- 16 CONTRACTOR TO PROVIDE AND INSTALL NEW #4 BARE COPPER GROUNDING ELECTRODE CONDUCTOR FOR NEW MINI POWER-ZONE. REFER TO SHEET E-10 FOR DETAILS.
- 17 CONTRACTOR TO TRENCH ASPHALT AND REPAIR AFTER INSTALLATION OF #4 GROUNDING ELECTRODE CONDUCTOR IN NOTE #16.
- 18 CONTRACTOR TO PROVIDE AND INSTALL GROUND ROD TEST WELL. TYPICAL OF TWO (2). REFER TO SHEET E-10 FOR DETAIL.

NO.	DATE	DESCRIPTION	BY	CHK	APP
1	JANUARY 31, 2014				

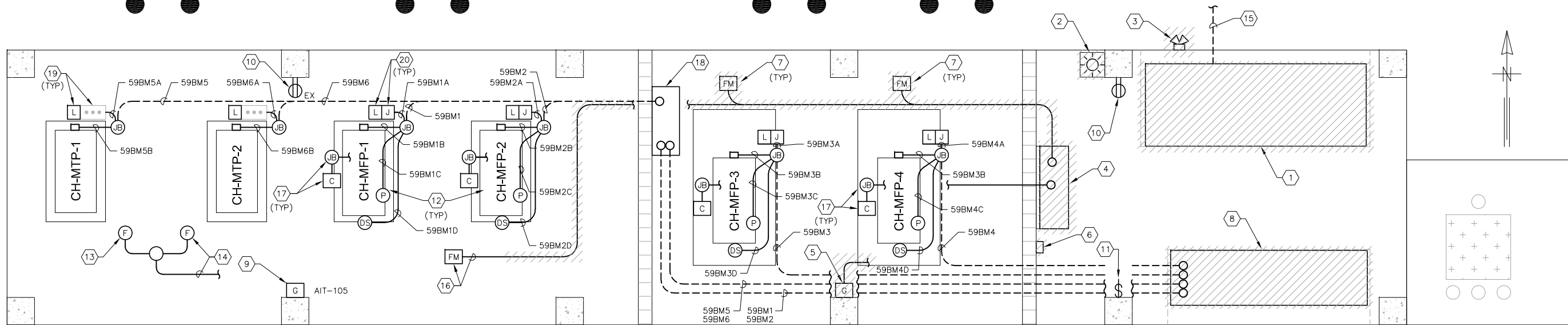
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. THESE PLANS INCLUDE DESIGN & CONSTRUCTION OF A REGISTERED PROFESSIONAL ENGINEER. TRICON ENGINEERING, P.E. PROJECT NUMBER OF RECORD 171502970

**ELECTRICAL  
 SITE PLAN**

**HOWARD F. CURREN  
 AAWTP METHANOL FEED  
 PUMP REPLACEMENT  
 2700 MARITIME BLVD**

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
 813.227.9190 FAX 813.227.9195  
 Certificate of Authorization No. 00008363





## CHEP DEMOLITION PLAN

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

1  
E-3 | E-4

### KEYED NOTES:

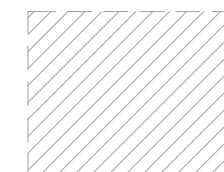
- 1 CONTRACTOR TO REMOVE EXISTING CHEMICAL HANDLING EQUIPMENT PLATFORM CONTROL CABINET (CHEP-CC). THE CONTRACTOR SHALL EXTEND THE FOLLOWING EXISTING CONDUITS TO THE NEW METHANOL PUMP CONTROL PANEL :  
METHANOL STORAGE TANK GAS ANALYZERS (REFER TO SHEET E-6 FOR LOCATIONS)  
GAS ANALYZER AI-104 (EAST PUMP PAD, REFER TO NOTE #5)  
FLOW SWITCHES FOR METHANOL CAR EMPTY ALARM (REFER TO NOTES #13 AND #14)  
THE CONTRACTOR SHALL INSTALL NEW CONDUCTORS TO MATCH EXISTING TO THE NEW METHANOL PUMP CONTROL PANEL. THE CONTRACTOR SHALL REMOVE ALL OTHER CONDUCTORS BACK TO THEIR ORIGIN AND CAP ALL CONDUITS.
- 2 CONTRACTOR SHALL REMOVE EXISTING ALARM LIGHT AND ASSOCIATED CONDUIT/CONDUCTORS.
- 3 CONTRACTOR SHALL REMOVE EXISTING ALARM HORN AND ASSOCIATED CONDUIT/CONDUCTORS.
- 4 CONTRACTOR SHALL REMOVE EXISTING METHANOL PUMP CONTROL PANEL.
- 5 CONTRACTOR SHALL REMOVE EXISTING GAS ANALYZER (AIT-104), CONDUIT, CONDUCTORS AND ASSOCIATED ELECTRONICS. REFER ALSO TO NOTE #6.
- 6 CONTRACTOR TO REMOVE EXISTING GAS ANALYZER ELECTRONICS AND ASSOCIATED CONDUIT/CONDUCTORS.
- 7 CONTRACTOR SHALL REMOVE EXISTING FLOW METER AND ASSOCIATED CONDUIT CONDUCTORS. FLOW METERS TO BE REUSED. REFER ALSO TO MECHANICAL DRAWINGS AND SHEET E-5 FOR NEW FLOW METER LOCATIONS.
- 8 CONTRACTOR SHALL REMOVE EXISTING MOTOR CONTROL CENTER 'MCC-59B'.
- 9 EXISTING GAS ANALYZER (AIT-105) TO REMAIN. CONTRACTOR TO MODIFY CONDUIT/CONDUCTORS AS REQUIRED TO TERMINATE CIRCUIT IN NEW METHANOL PUMP CONTROL PANEL.
- 10 EXISTING RECEPTACLE TO REMAIN. CONTRACTOR TO MODIFY CONDUIT/CONDUCTORS AS REQUIRED.
- 11 EXISTING SWITCH TO REMAIN. CONTRACTOR TO MODIFY CONDUIT/CONDUCTORS AS REQUIRED.
- 12 CONTRACTOR SHALL MODIFY EXISTING CONDUITS AS REQUIRED TO ACCOMMODATE NEW METHANOL FEED PUMPS NO. 1 AND NO. 2. NEW PUMPS SHALL BE ROTATED 180° FROM THEIR ORIGINAL ORIENTATION.
- 13 EXISTING FLOW SWITCH FOR CH-MTP-1. EXISTING CONDUCTORS CURRENTLY TERMINATE IN CHEP-CC. THE CONTRACTOR SHALL REWORK CONDUIT AND PROVIDE 2-#14, #14 GND IN ORDER TO TERMINATE FLOW SWITCH CIRCUIT IN NEW METHANOL PUMP CONTROL CABINET (CH-MTP-1 CONTROL).

- 14 EXISTING FLOW SWITCH FOR CH-MTP-2. EXISTING CONDUCTORS CURRENTLY TERMINATE IN CHEP-CC. THE CONTRACTOR SHALL REWORK CONDUIT AND PROVIDE 2-#14, #14 GND IN ORDER TO TERMINATE FLOW SWITCH CIRCUIT IN NEW METHANOL PUMP CONTROL CABINET (CH-MTP-2 CONTROL).
- 15 EXISTING DUCTBANK TO JUNCTION BOX ON EAST SIDE OF METHANOL STORAGE TANK DIKE WALL. (CONTRACTOR TO FIELD VERIFY). REFER ALSO TO SHEETS E-5 AND E-6. DUCTBANK SYSTEM WILL BE UTILIZED TO PROVIDE CONDUCTORS FOR:  
GAS ANALYZER AIT-101 (NORTH TANK WALL)  
GAS ANALYZER AIT-102 (WEST TANK WALL)  
GAS ANALYZER AIT-103 (TANK SUMP)  
CH-SP-1 PUMP POWER  
CH-SP-1 START/STOP CONTROL  
CH-SP-1 LUBE WATER SOLENOID  
CH-SP-1 LOW LUBE WATER PRESSURE INDICATION  
CH-SP-1 HIGH WATER INDICATION  
CH-SP-2 PUMP POWER  
CH-SP-2 START/STOP CONTROL  
CH-SP-2 FLOAT SIGNALS  
MISC 120V CIRCUITS (59BM13).
- 16 EXISTING FLOW METER TO BE RELOCATED. VERIFY NEW LOCATION WITH MECHANICAL DRAWINGS AND SHEET E-5.
- 17 EXISTING CONDUIT CONDUCTORS FOR EXISTING PUMP'S STROKE CONTROLLER. REFER TO MODIFICATIONS REQUIRED ON SHEET E-5.
- 18 EXISTING EXPLOSION PROOF JUNCTION BOX TO BE REUSED AS REQUIRED.
- 19 EXISTING CONTROL STATION TO REMAIN. PROVIDE NEW ON-OFF/LOCKOUT STATION. STATION TO BE PADLOCKABLE. PROVIDE AND INSTALL KILLARK XS SERIES, NEMA 7 TUMBLER SWITCH, OR EQUAL, AND ASSOCIATED DEVICE BOX. TYPICAL FOR BOTH TRANSFER PUMPS.
- 20 EXISTING CONTROL STATION TO BE REMOVED. PROVIDE NEW ON-OFF/LOCKOUT STATION. STATION TO BE PADLOCKABLE. PROVIDE AND INSTALL KILLARK XS SERIES, NEMA 7 TUMBLER SWITCH, OR EQUAL, AND ASSOCIATED DEVICE BOX. ALSO PROVIDE SIMILAR SWITCH FOR JOG OPERATION. REFER TO MOTOR SCHEMATIC WIRING DIAGRAMS FOR REQUIRED CONTACTS. TYPICAL FOR ALL FEED PUMPS.

### GENERAL NOTES :

1. EXISTING CONDUIT LOCATIONS SHOWN ARE APPROXIMATIONS ONLY AND ARE SOLELY INTENDED TO CONVEY THE SCOPE OF WORK. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDUIT LOCATIONS.
2. THE CONTRACTOR SHALL LOCATE AND PROTECT THE FOLLOWING CONDUCTORS DURING CONSTRUCTION :  
4-20mA FLOW SIGNAL FROM FLOW METER FIT-101 TO FILTER BUILDING CONTROL CONSOLE  
4-20mA FLOW SIGNAL FROM FLOW METER FIT-102 TO FILTER BUILDING CONTROL CONSOLE  
4-20mA FLOW SIGNAL FROM FLOW METER FIT-103 TO FILTER BUILDING CONTROL CONSOLE  
LOR INDICATION FOR CH-MFP-1 TO FILTER BUILDING CONTROL CONSOLE  
LOR INDICATION FOR CH-MFP-2 TO FILTER BUILDING CONTROL CONSOLE  
LOR INDICATION FOR CH-MFP-3 TO FILTER BUILDING CONTROL CONSOLE  
LOR INDICATION FOR CH-MFP-4 TO FILTER BUILDING CONTROL CONSOLE  
4-20mA STROKE CONTROL SIGNAL FROM FILTER BUILDING CONTROL CONSOLE  
THE CONTRACTOR SHALL MAKE PROVISIONS TO RECONNECT THE EXISTING CIRCUITS TO THE FILTER BUILDING CONTROL CONSOLE AFTER THE REPLACEMENT OF THE EXISTING MCC AND THE INSTALLATION OF THE NEW METHANOL PUMP CONTROL PANEL.  
EXACT LOCATION AND ROUTING OF THE CIRCUITS IS UNKNOWN. REFER TO SHEET E-2 FOR FILTER BUILDING CONTROL CONSOLE LOCATION.

### LEGEND :



HATCHED AREAS REPRESENT ITEMS TO BE DEMOLISHED AND REMOVED.

CHEP ELECTRICAL DEMOLITION PLAN

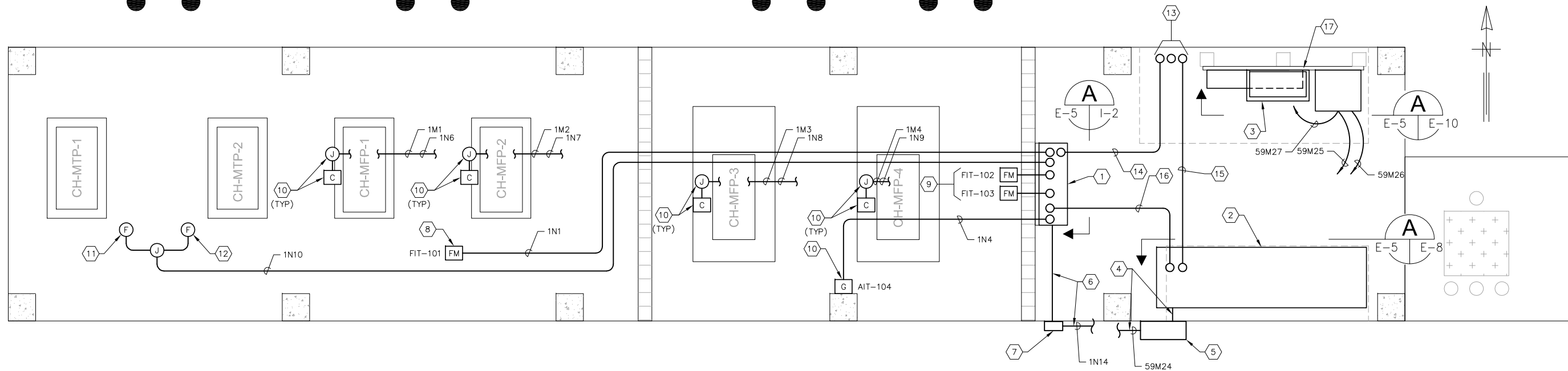
HOWARD F. CURREN  
AAWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813-227-9190 FAX 813-227-9195  
Certificate of Authorization No. 00008363

**TRICON**  
CONSULTING ENGINEERS

NO. 1	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	DATE
1	JANUARY 31, 2014	EAK	EAK	DEV	171502970

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. ANY UNAUTHORIZED USE MAY BE SUBJECT TO LEGAL ACTION.



## CHEP ELECTRICAL PLAN 1

SCALE : 1/2" = 1'-0" E-3 E-5

### KEYED NOTES:

- 1 CONTRACTOR TO PROVIDE AND INSTALL NEW METHANOL PUMP CONTROL PANEL. REFER TO DETAIL ON SHEET I-2.
- 2 CONTRACTOR TO PROVIDE AND INSTALL NEW MOTOR CONTROL CENTER 'MCC-59B'. REFER TO DETAIL ON SHEET E-8.
- 3 CONTRACTOR TO PROVIDE AND INSTALL 480V-120/208V, 3 $\phi$ , 15KVA MINI POWER-ZONE (PANEL 'LP-59B') WITH INTEGRAL 40A PRIMARY CIRCUIT BREAKER AND 60A SECONDARY CIRCUIT BREAKER IN NEMA 4X STAINLESS STEEL ENCLOSURE. CONTRACTOR TO PROVIDE AND INSTALL 60A, 480V, 3-POLE AUTOMATIC TRANSFER SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. AUTOMATIC TRANSFER SWITCH SHALL BE MANUAL SOURCE SELECT. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL A NEMA 4X STAINLESS STEEL WIREWAY BELOW MINI POWER-ZONE TO FACILITATE NEW CONDUIT/CONDUCTORS. REFER TO SHEET E-10 FOR DETAIL AND 'LP-59B' PANEL SCHEDULE.
- 4 CONTRACTOR TO PROVIDE AND INSTALL NEW 3-1/0 THWN CU + 1-#4 THWN CU GND IN 3" C. FROM FILTER BUILDING, REFER TO SHEET E-3 FOR CONTINUATION.
- 5 CONTRACTOR TO PROVIDE AND INSTALL NEW 20" X 20" X 8" NEMA 4X SS JUNCTION BOX ON 1-5/8" STAINLESS STEEL UNISTRUT FOR NEW MCC-59B FEEDER.
- 6 CONTRACTOR TO PROVIDE AND INSTALL FIBER OPTIC CABLE IN 1" C. FROM FILTER BUILDING REFER TO SHEET E-3 FOR CONTINUATION.
- 7 CONTRACTOR TO PROVIDE AND INSTALL NEW 8" X 8" X 6" NEMA 4X SS JUNCTION BOX ON 1-5/8" STAINLESS STEEL UNISTRUT FOR NEW FIBER OPTIC CABLE.
- 8 CONTRACTOR TO PROVIDE NEW CONDUIT AND CONDUCTORS AS REQUIRED TO TERMINATE EXISTING FLOW METER SIGNAL IN NEW METHANOL PUMP CONTROL PANEL.
- 9 NEW FLOW METERS FIT-102 AND FIT-103. PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS - 1N2 AND 1N3.
- 10 THE CONTRACTOR SHALL REUSE THE EXISTING 2 CONDUIT RACEWAY SYSTEM TO INSTALL NEW CONDUCTORS FOR THE PUMP MOTOR STROKE CONTROL SYSTEM. ONE CONDUIT SHALL BE USED TO INSTALL A 2/C-#18 TWISTED SHIELDED CABLE FOR THE 4-20mA STROKE CONTROL SIGNAL. THE REMAINING CONDUIT SHALL BE USED TO INSTALL 2-#12 + 1-#12 GND FOR PULSAMATIC 120V AC POWER. TYPICAL FOR EACH METHANOL FEED PUMP. CONTRACTOR SHALL REWORK CONDUIT AS NECESSARY TO ACCOMMODATE NEW METHANOL PUMP CONTROL PANEL.

- 11 EXISTING FLOW SWITCH FOR CH-MTP-1. EXISTING CONDUCTORS CURRENTLY TERMINATE IN CHEP-CC. THE CONTRACTOR SHALL REWORK CONDUIT AND PROVIDE 2-#14, #14 GND IN ORDER TO TERMINATE FLOW SWITCH CIRCUIT IN NEW METHANOL PUMP CONTROL CABINET (CH-MTP-1 CONTROL).
- 12 EXISTING FLOW SWITCH FOR CH-MTP-2. EXISTING CONDUCTORS CURRENTLY TERMINATE IN CHEP-CC. THE CONTRACTOR SHALL REWORK CONDUIT AND PROVIDE 2-#14, #14 GND IN ORDER TO TERMINATE FLOW SWITCH CIRCUIT IN NEW METHANOL PUMP CONTROL CABINET (CH-MTP-2 CONTROL).
- 13 STUB-UP LOCATION FOR EXISTING CONDUIT/CONDUCTORS EMERGING FROM METHANOL STORAGE TANK STORAGE AREA JUNCTION BOX. REFER ALSO TO SHEET E-6. STUB-UP LOCATIONS ARE APPROXIMATIONS ONLY. CONTRACTOR SHALL FIELD VERIFY EXACT STUB-UP LOCATIONS. CONTRACTOR SHALL ADJUST MINI POWER-ZONE RACK AS REQUIRED TO EXTEND NECESSARY CONDUITS TO METHANOL PUMP CONTROL PANEL OR MCC-59B AS REQUIRED.
- 14 CONTRACTOR TO EXTEND EXISTING CONDUITS AS REQUIRED TO PROVIDE A NEW RACEWAY TO THE METHANOL PUMP CONTROL PANEL FOR THE GAS ANALYZERS AND METHANOL STORAGE TANK PRESSURE TRANSMITTER LOCATED IN THE METHANOL STORAGE TANK AREA. CONTRACTOR TO PROVIDE NEW, 3/C-#18 TWISTED SHIELDED CABLE FOR EACH GAS ANALYZER (2N1, 2N2 AND 2N3) AND A 2/C-#18 TWISTED SHIELDED CABLE FOR THE PRESSURE TRANSMITTER (2N4).
- 15 CONTRACTOR TO EXTEND EXISTING CONDUITS AS REQUIRED TO PROVIDE A NEW RACEWAY TO MCC-59B FOR THE EXISTING METHANOL STORAGE TANK SUMP PUMP (CH-SP-1) AND THE NEW TRENCH SUMP PUMP (CH-SP-2). CIRCUITS 59BM7 AND 59BM8 RESPECTIVELY.
- 16 CONTRACTOR TO PROVIDE AND INSTALL NEW CONDUIT/CONDUCTORS FROM MCC-59B TO METHANOL PUMP CONTROL PANEL. 59BM9, 59BM10, 59BM11, 59BM12, 1N11, AND 1N12.
- 17 CONTRACTOR TO PROVIDE AND INSTALL #4 BARE COPPER GROUNDING ELECTRODE CONDUCTOR FOR MINI POWER-ZONE GROUNDING SYSTEM. CONNECT GROUNDING ELECTRODE CONDUCTOR TO - TWO (2) 3/4" X 10'-0" STAINLESS STEEL GROUND RODS. GROUND RODS TO BE SPACED A MINIMUM OF 10'-0" APART. INSTALL GROUNDING ELECTRODE CONDUCTOR IN 1" PVC ABOVEGROUND.
- 18 NEW GAS ANALYZER AIT-104. REFER TO SPECIFICATIONS.

### GENERAL NOTES :

1. EXISTING CONDUIT LOCATIONS SHOWN ARE APPROXIMATIONS ONLY AND ARE INTENDED TO CONVEY THE SCOPE OF WORK. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDUIT LOCATIONS.
  2. EXISTING CONDUITS FROM THE PUMP PAD MAY BE REUSED, BUT THE CONTRACTOR SHALL MODIFY EXISTING CONDUITS AS REQUIRED TO ACCOMMODATE THE NEW METHANOL PUMP CONTROL PANEL AND THE NEW MOTOR CONTROL CENTER (MCC-59B).
  3. EXISTING CIRCUITS FOR CHEMICAL HANDLING EQUIPMENT PLATFORM LIGHTING AND RECEPTACLES, AS WELL AS, AREA LIGHTING NOT SHOWN FOR CLARITY. REFER TO LP-59B PANEL SCHEDULE FOR EXISTING CIRCUITS TO BE KEPT IN SERVICE. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CIRCUITS.
  4. VARIOUS CONDUITS FROM THE METHANOL STORAGE TANK AREA STUB-UP WITHIN THE FOOTPRINT OF THE EXISTING CHEP-CC, WHICH IS TO BE REMOVED. THE CONTRACTOR SHALL DEMOLISH CONCRETE AS REQUIRED TO EXTEND THE EXISTING CONDUITS REQUIRED TO THE NEW METHANOL PUMP CONTROL PANEL AND THE NEW MCC. THE EXACT STUB-UP LOCATIONS FOR EACH CONDUIT ARE NOT KNOWN. THE CONTRACTOR SHALL LOCATE THE MINI POWER-ZONE RACK AS REQUIRED TO ALLOW FOR THE CONDUIT MODIFICATIONS. THE CONTRACTOR SHALL INSTALL JUNCTION BOXES OR PULL BOXES AS REQUIRED FOR A PROPER INSTALLATION.
  5. THE CONTRACTOR SHALL MAKE PROVISIONS TO RECONNECT THE FOLLOWING EXISTING CIRCUITS TO THE FILTER BUILDING CONTROL CONSOLE (VIA THE EXISTING MULTICONDUCTOR CABLE, REFER TO SHEET E-14) AFTER THE REPLACEMENT OF THE EXISTING MCC :
    - 4-20mA FLOW SIGNAL FROM FLOW METER FIT-101
    - 4-20mA FLOW SIGNAL FROM FLOW METER FIT-102
    - 4-20mA FLOW SIGNAL FROM FLOW METER FIT-103
- LOR INDICATION FOR CH-MFP-1  
LOR INDICATION FOR CH-MFP-2  
LOR INDICATION FOR CH-MFP-3  
LOR INDICATION FOR CH-MFP-4
- 4-20mA STROKE CONTROL SIGNAL FROM FILTER BUILDING CONTROL CONSOLE. REFER TO INSTRUMENTATION DRAWINGS AND SHEET I-7 FOR STROKE CONTROL SIGNAL WIRING DIAGRAM.

NO.	REV.	DESCRIPTION	DATE

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. ANY UNLAWFUL USE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO TRICON CONSULTING ENGINEERS.

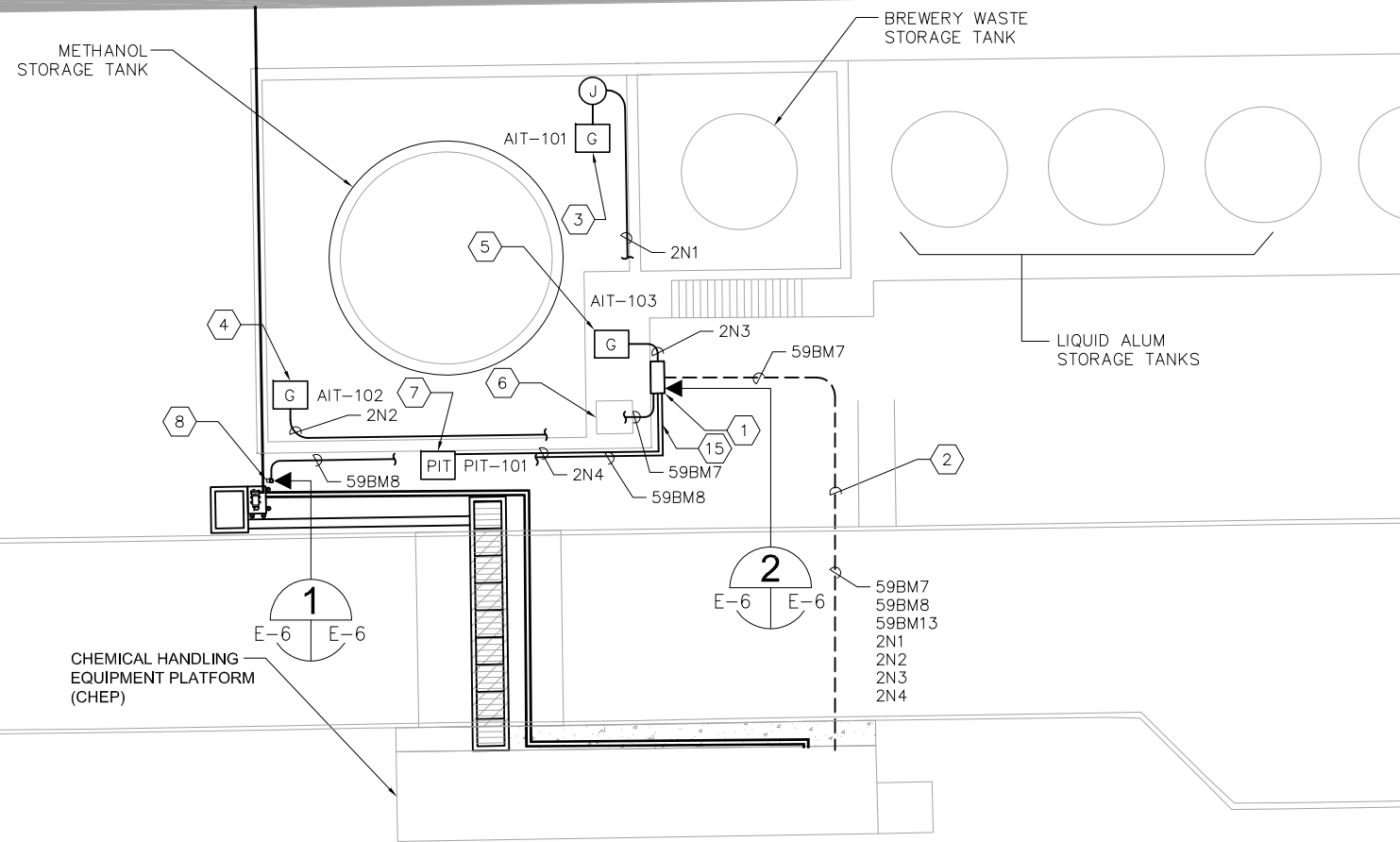
TRICON CONSULTING ENGINEERS  
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363

## CHEP ELECTRICAL PLAN

**HOWARD F. CURREN  
AWWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD**

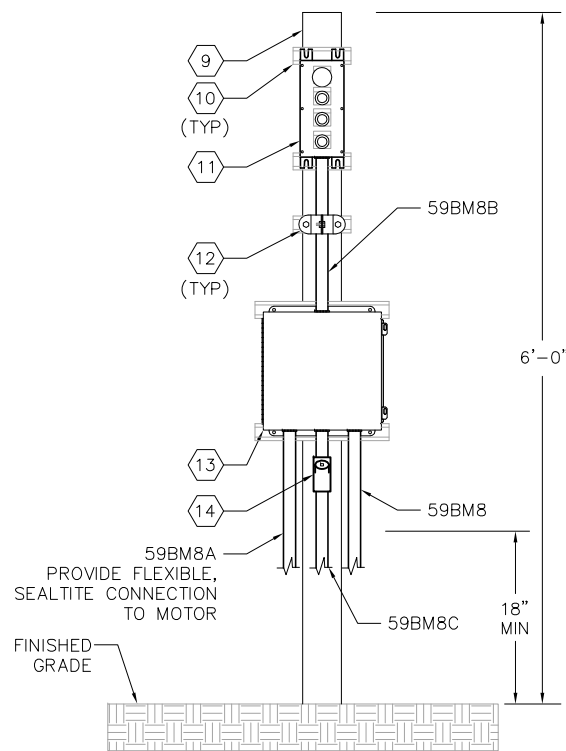
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363





### METHANOL STORAGE TANK SITE PLAN

SCALE : 1" = 10'-0"



### SUMP PUMP CONTROL STATION DETAIL

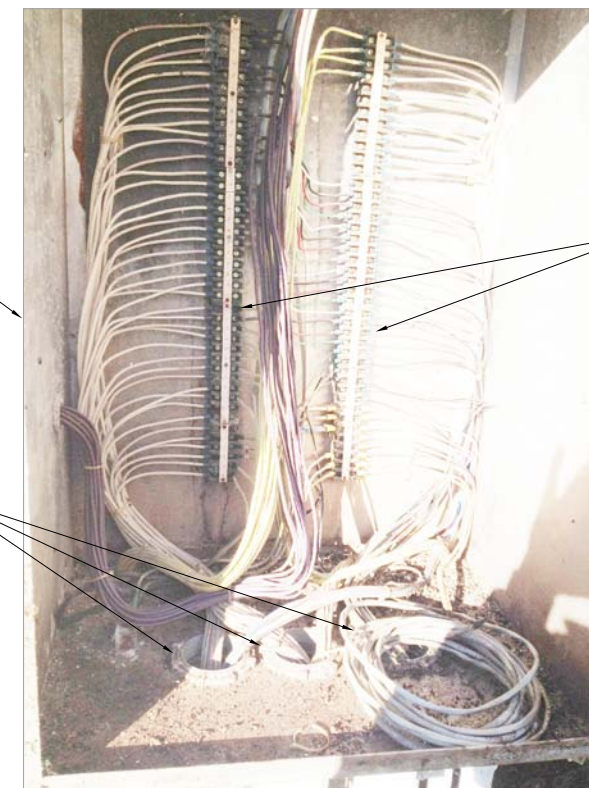
SCALE : N.T.S.

1  
E-6 | E-6

### KEYED NOTES:

- 1 EXISTING JUNCTION BOX. REFER TO DETAIL ON THIS SHEET.
- 2 EXISTING DUCTBANK BETWEEN EXISTING JUNCTION BOX AND EXISTING CHEMICAL HANDLING EQUIPMENT PLATFORM (CHEP). REFER TO JUNCTION BOX DETAIL NOTES FOR CONDUCTOR REMOVAL/INSTALLATION.
- 3 EXISTING METHANOL STORAGE TANK GAS ANALYZER AIT-101 (NORTH WALL).
- 4 EXISTING METHANOL STORAGE TANK GAS ANALYZER AIT-102. (WEST WALL).
- 5 EXISTING METHANOL STORAGE TANK GAS ANALYZER AIT-103. (SUMP).
- 6 EXISTING SUMP PUMP. REFER TO ONE-LINE DIAGRAM, MOTOR CONTROL WIRING SCHEMATICS AND SCHEDULES FOR EXISTING CONDUIT/CONDUCTORS.
- 7 EXISTING PRESSURE TRANSMITTER PIT-101 FOR METHANOL STORAGE TANK. PRESSURE TRANSMITTER UTILIZED TO DETERMINE STORAGE TANK LEVEL. CONTRACTOR SHALL INSTALL NEW 2/C-#18 TWISTED SHIELDED CABLE FROM PRESSURE TRANSMITTER TO NEW METHANOL PUMP CONTROL PANEL.
- 8 PROVIDE AND INSTALL NEW METHANOL TRENCH SUMP PUMP CONTROL STATION. REFER TO DETAIL ON THIS SHEET.
- 9 PROVIDE AND INSTALL NEW 4" X 4" SQUARE CONCRETE POST. INSTALL POST TO A MINIMUM DEPTH OF 3'-0".
- 10 PROVIDE AND INSTALL 1-5/8" X 1-5/8" 316 STAINLESS STEEL UNISTRUT. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL. UNISTRUT BOLTS SHALL BE INSTALLED THROUGH CONCRETE POST.
- 11 PROVIDE AND INSTALL NEW FOUR (4) OPERATOR CONTROL STATION WITH NEMA 4X OPERATORS. PROVIDE EMERGENCY STOP, PUSH-TWIST RELEASE RED MUSHROOM PUSHBUTTON (PADLOCKABLE CLOSED); MOMENTARY JOG (RED) PUSHBUTTON; MOMENTARY START (GREEN) PUSHBUTTON AND MOMENTARY STOP (RED) PUSHBUTTON. CONTROL STATION SHALL BE NEMA 4X STAINLESS STEEL. CONTROL STATION SHALL BE AS MANUFACTURED BY ALLEN BRADLEY OR SQUARE-D.
- 12 PROVIDE AND INSTALL STAINLESS STEEL CONDUIT CLAMPS AND HARDWARE.
- 13 PROVIDE AND INSTALL NEW 12" X 12" X 6" STAINLESS STEEL JUNCTION BOX, HOFFMAN A1212CHNFSS OR EQUAL.
- 14 PROVIDE AND INSTALL EYS SEAL FOR CONDUIT CONTAINING FLOAT SWITCH CABLES TO TRENCH SUMP.
- 15 INSTALL NEW CONDUIT FOR CH-SP-2 ALONG METHANOL STORAGE TANK DIKE WALL (TYPICAL).

EXISTING JUNCTION BOX



EXISTING TERMINAL STRIPS

EXISTING 3" CONDUITS FROM JUNCTION BOX TO CHEP-CC. CONTRACTOR SHALL REMOVE ALL EXISTING CONDUCTORS. CONTRACTOR SHALL IDENTIFY ALL EXISTING CONDUCTORS WHICH ARE NO LONGER REQUIRED. CONTRACTOR SHALL THEN INSTALL ALL NEW CONDUCTORS REQUIRED TO NEW METHANOL CONTROL PANEL AND NEW MCC-59B AS REQUIRED. 120V AC CIRCUITS SHALL BE INSTALLED IN SEPERATE CONDUIT FROM 4-20mA AND 24V DC CIRCUITS.

### JUNCTION BOX DETAIL

SCALE : N.T.S.

2  
E-6 | E-6

METHANOL STORAGE TANK SITE PLAN

HOWARD F. CURREN  
AAWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363

**TRICON**  
CONSULTING ENGINEERS

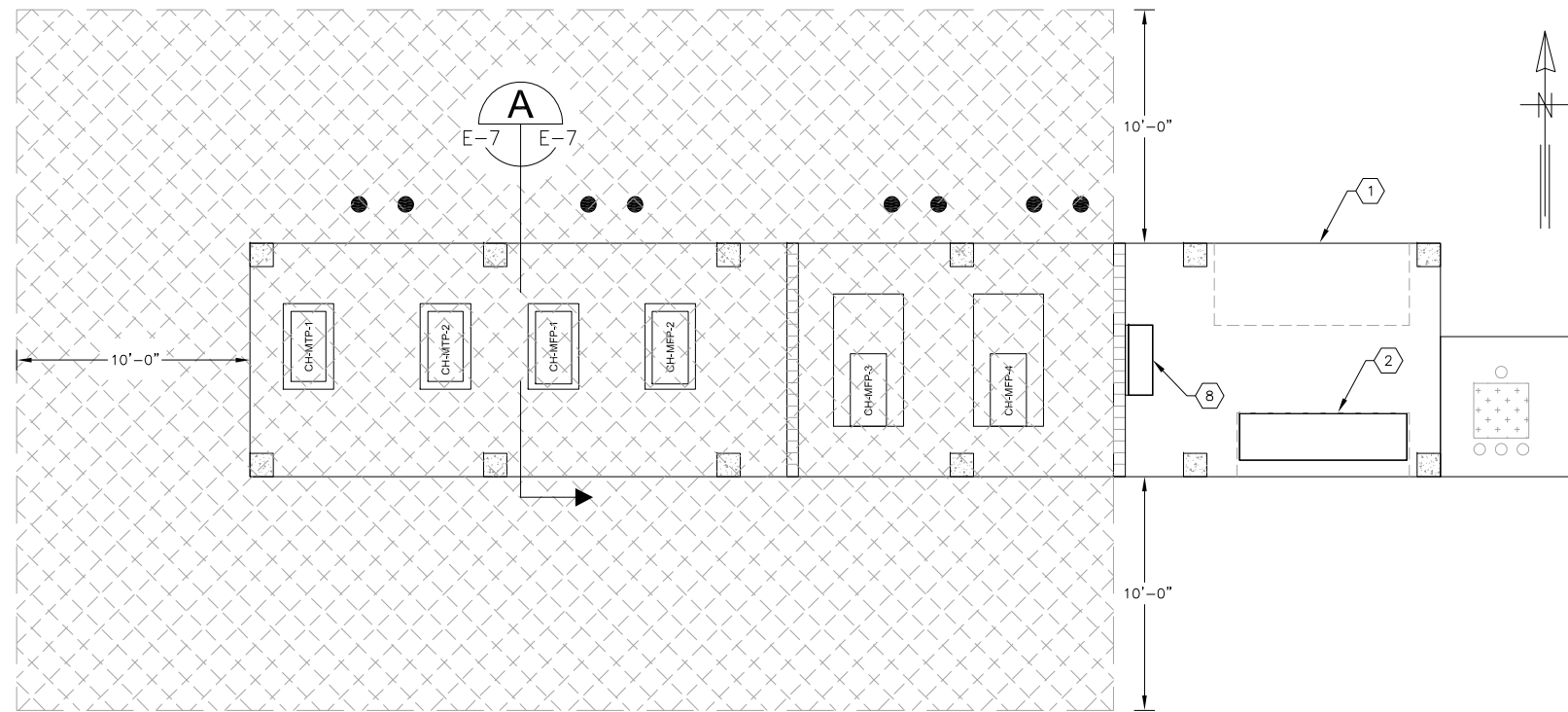
E-6

NO.	DATE	DESCRIPTION	BY	CHK	APP
1	JANUARY 31, 2014	ISSUED FOR PERMIT	DEV	DEV	DEV
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

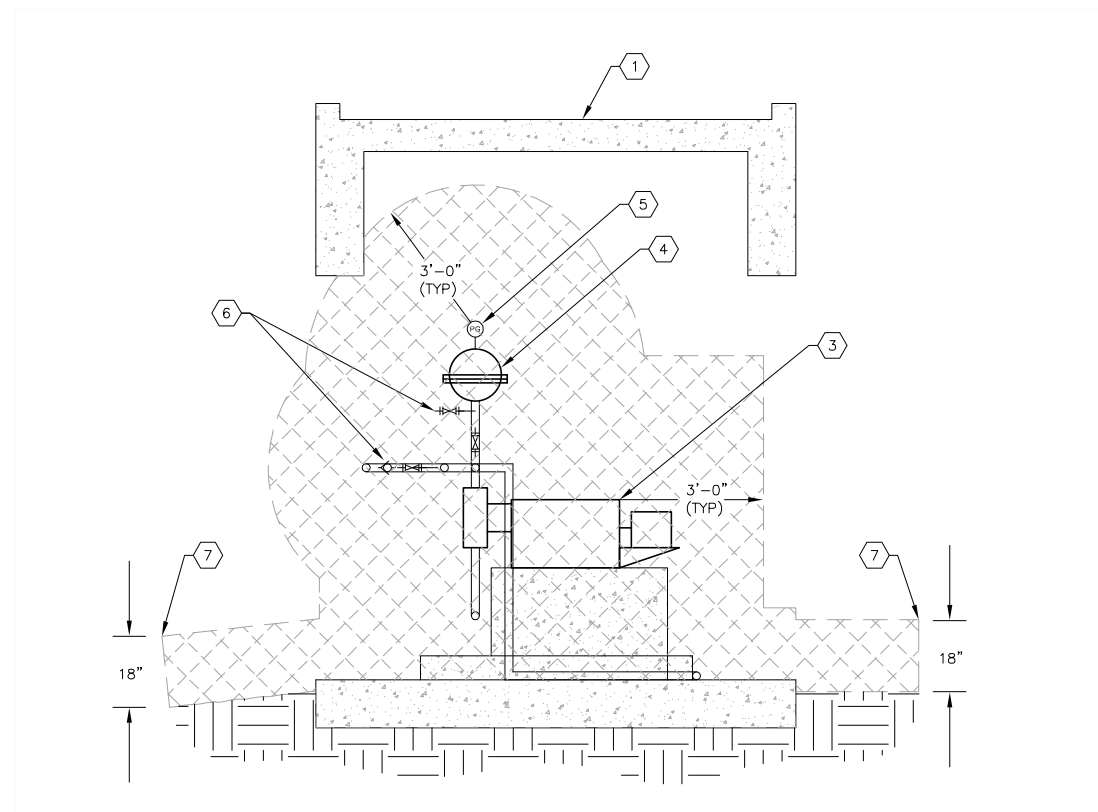
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. THESE PLANS INCLUDE DESIGN & CONSTRUCTION BY A REGISTERED PROFESSIONAL ENGINEER.

TRICON ENGINEERING, P.E. PROJECT ENGINEER OF RECORD  
171502970





**CHEP AREA CLASSIFICATION PLAN** 1  
 SCALE : 3/8" = 1'-0" E-3 | E-7



**TYPICAL PUMP MOTOR ELEVATION** A  
 SCALE : 1/2" = 1'-0" E-7 | E-7

**CLASSIFICATION NOTES:**

CLASSIFICATION CRITERIA :

THE CLASSIFICATION OF THE CHEMICAL HANDLING EQUIPMENT PLATFORM IS BASED ON NFPA 30 - FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE - 2012 EDITION.

APPLICATION :

THE CHEMICAL HANDLING EQUIPMENT PLATFORM SHALL CONFORM TO THE REQUIREMENTS OF NFPA CHAPTER 7 (ELECTRICAL SYSTEMS). THE FACILITY DELIVERS METHANOL VIA A PUMPING SYSTEM. THE PUMPING ENVIRONMENT SHALL BE CONSIDERED AN OUTDOOR APPLICATION, WITH ONE BARRIER WALL. PER TABLE 7.3.3 (ELECTRICAL AREA CLASSIFICATIONS) THE PUMPING EQUIPMENT, VALVES, PRESSURE GAUGES, FLOW METERS AND ALL OTHER MECHANICAL EQUIPMENT SHALL BE CONSIDERED WITHIN A CLASS I, DIVISION II AREA. THESE AREAS SHALL EXTEND FROM THE DEVICES AS FOLLOWS :

3 FEET FROM ANY SUCH DEVICES, EXTENDING IN ALL DIRECTIONS; ALSO, UP TO 18 INCHES ABOVE GRADE LEVEL WITHIN 10 FEET HORIZONTALLY FROM ANY EDGE OF SUCH DEVICES.

APPLICATION NOTES :

WHILE THE CLASSIFIED AREA DEFINED BY NFPA 30 IS DEPICTED ON THE DRAWINGS, THE AREA IMMEDIATELY SOUTH OF THE PUMP PAD HAS AN ELEVATION THAT IS RELATIVELY LEVEL. IT IS BELIEVED THAT THIS AREA HAS THE CAPABILITY OF RETAINING METHANOL IN THE EVENT OF A DISCHARGE. THEREFORE, THE NEW MOTOR CONTROL CENTER (MCC-59B) SHALL BE INSTALLED ON A NEW HOUSEKEEPING PAD THAT ELEVATES THE NEW MCC 18" ABOVE THE FINISHED GRADE OF THE SURROUNDING AREA.

**KEYED NOTES:**

- ① EXISTING CHEMICAL HANDLING EQUIPMENT PLATFORM (CHEP).
- ② NEW MOTOR CONTROL CENTER : MCC-59B.
- ③ METHANOL FEED OR TRANSFER PUMP (TYPICAL).
- ④ PULSATION DAMPENER (TYPICAL).
- ⑤ PRESSURE GAUGE (TYPICAL).
- ⑥ DRAIN, VALVES, FLOW METER, ETC. (TYPICAL).
- ⑦ CLASS I, DIVISION II BOUNDARY EXTENDS OUT 10'-0". REFER TO AREA CLASSIFICATION PLAN.
- ⑧ NEW METHANOL PUMP CONTROL PANEL.

**LEGEND :**

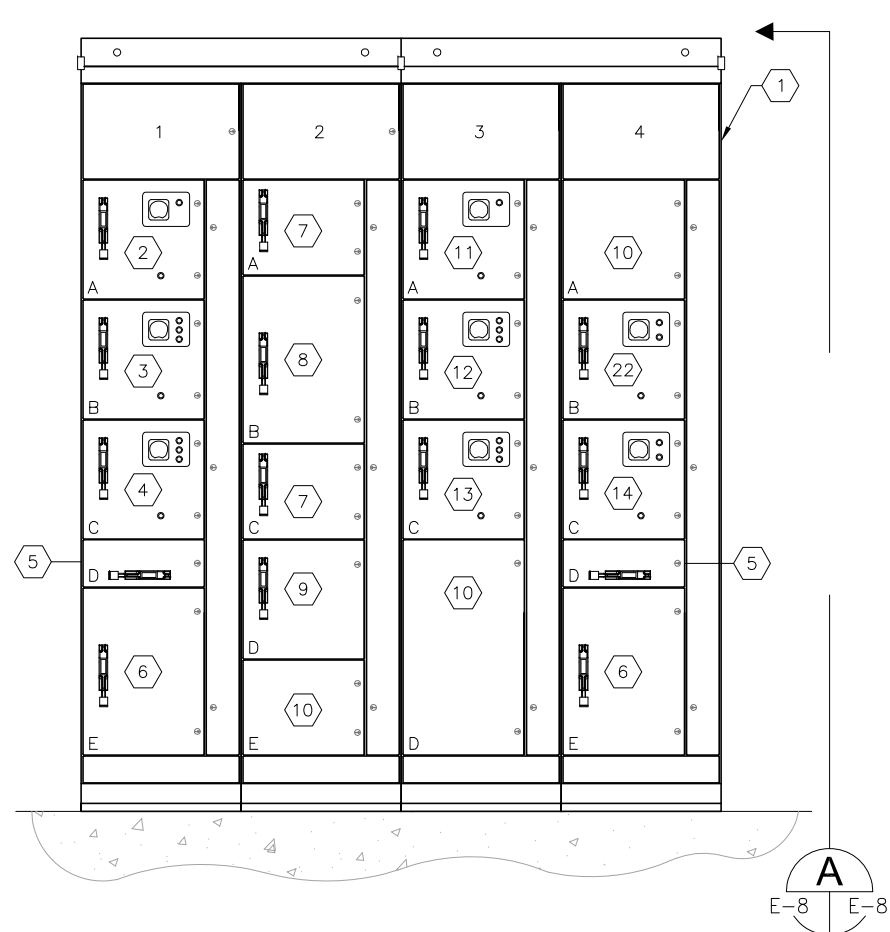


NO.	REV.	DATE	DESCRIPTION	APP. BY	APP. DATE
1					
DATE PLOTTED			DATE PRINTED	DATE CHECKED	DATE APPROVED
1/21/14			1/21/14	1/21/14	1/21/14
DRAWN BY			CHECKED BY	DATE	SCALE
EAK			DEV		
PROJECT NO.			PROJECT NAME	PROJECT LOCATION	PROJECT CLIENT
171502970					

CHEP AREA CLASSIFICATION PLAN  
 HOWARD F. CURREN  
 AWWTP METHANOL FEED PUMP REPLACEMENT  
 2700 MARITIME BLVD

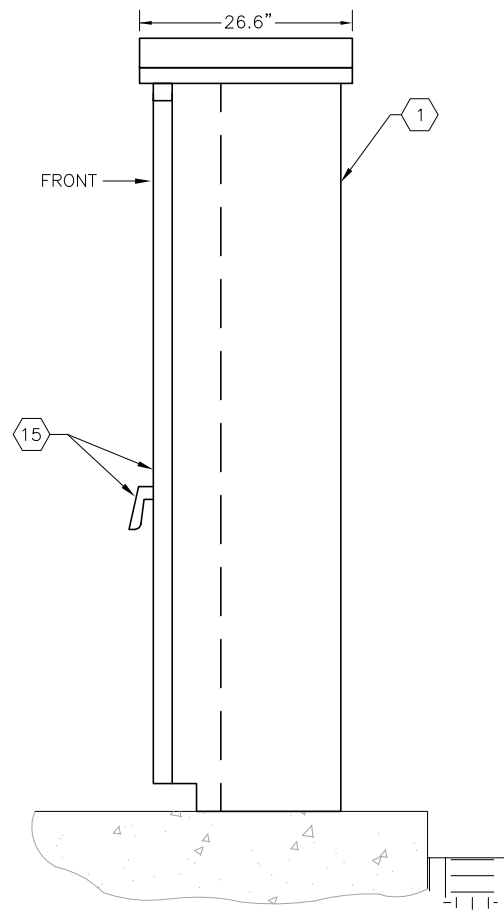
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
 813-227-9190 FAX 813-227-9195  
 Certificate of Authorization No. 00008363





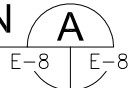
**MOTOR CONTROL CENTER  
MCC-59B FRONT ELEVATION**

SCALE : N.T.S.



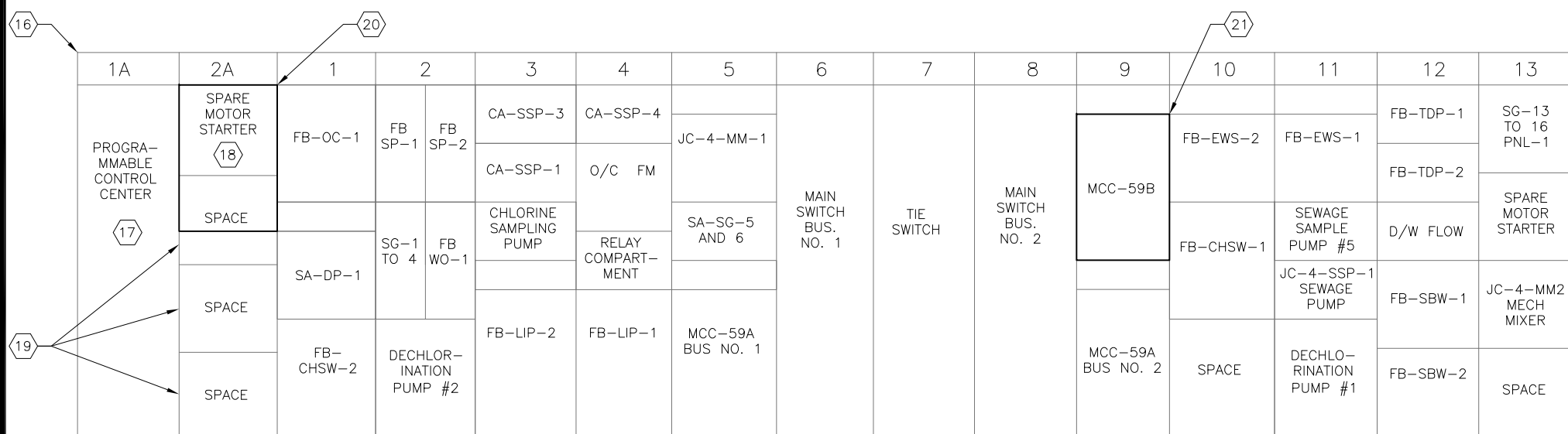
**MOTOR CONTROL CENTER  
MCC-59B EAST ELEVATION**

SCALE : N.T.S.



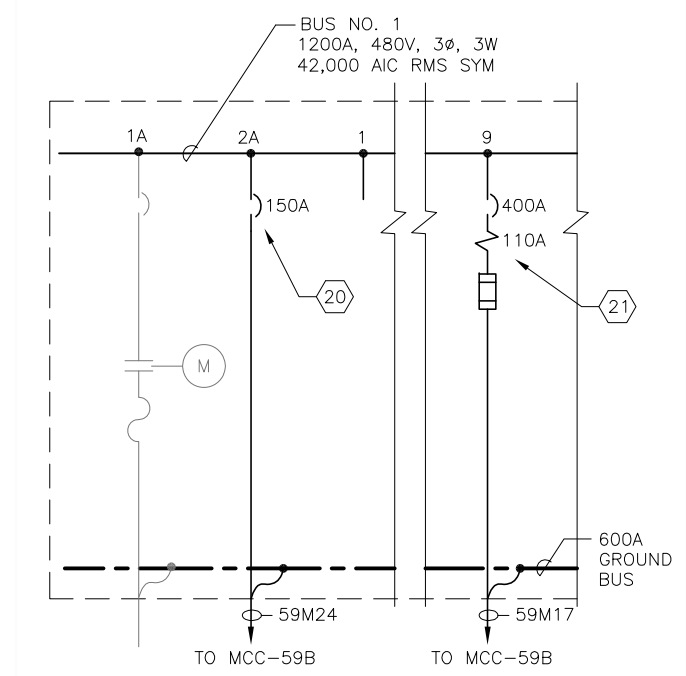
**KEYED NOTES:**

- 1 NEW MOTOR CONTROL CENTER MCC-59B IN NEMA 3R ENCLOSURE. REFER ALSO TO ONE-LINE DIAGRAM ON SHEET E-9.
- 2 STARTER FOR METHANOL TRANSFER PUMP CH-MTP-1.
- 3 STARTER FOR METHANOL FEED PUMP CH-MFP-1.
- 4 STARTER FOR METHANOL FEED PUMP CH-MFP-3.
- 5 SURGE PROTECTION DEVICE.
- 6 400A MAIN CIRCUIT BREAKER WITH KEY INTERLOCK.
- 7 30A CIRCUIT BREAKER FOR TRANSFER SWITCH.
- 8 400A BUS TIE BREAKER WITH KEY INTERLOCK.
- 9 15A CIRCUIT BREAKER AND TRANSFORMER FOR CUBICLE HEATERS.
- 10 SPACE.
- 11 STARTER FOR METHANOL TRANSFER PUMP CH-MTP-2.
- 12 STARTER FOR METHANOL FEED PUMP CH-MFP-2.
- 13 STARTER FOR METHANOL FEED PUMP CH-MFP-4.
- 14 STARTER FOR METHANOL STORAGE TANK SUMP PUMP CH-SP-1.
- 15 PROVIDE GASKETED RAIN TIGHT DOOR WITH LOCKING HANDLE.
- 16 EXISTING MCC-59. 480V, 3 $\phi$ , 3-WIRE, 1200 AMPERE, MANUFACTURED BY FEDERAL PACIFIC.
- 17 EXISTING PROGRAMMABLE CONTROL CENTER IN MOTOR CONTROL CENTER MCC-59. NO WORK REQUIRED.
- 18 EXISTING ABANDONED-IN-PLACE RWP MOTOR STARTER (SPARE).
- 19 EXISTING NON-POPULATED SPACES IN MCC-59.
- 20 PROPOSED MCC-59B FEEDER CIRCUIT BREAKER. EXISTING SPACE SHOWN SHALL BE UTILIZED TO INSTALL NEW FEEDER CIRCUIT BREAKER. THE CONTRACTOR SHALL PROVIDE A NEW CIRCUIT BREAKER (REFURBISHED CIRCUIT BREAKERS WILL NOT BE ACCEPTABLE). NEW CIRCUIT BREAKER SHALL BE 480V, 3-POLE, 400A FRAME WITH AN ADJUSTABLE 150A TRIP. CIRCUIT BREAKER SHALL BE COMPATIBLE WITH EXISTING FEDERAL PACIFIC MOTOR CONTROL CENTER. THE CIRCUIT BREAKER SHALL HAVE AN INTERRUPTING RATING OF 65 KA.
- 21 EXISTING CIRCUIT BREAKER WHICH FEEDS MCC-59B. 400A FRAME, FEDERAL PACIFIC 'FUSEMATIC' WITH 110A CURRENT LIMITING FUSES.
- 22 STARTER FOR METHANOL TRENCH SUMP PUMP CH-SP-2.



**MOTOR CONTROL CENTER MCC-59  
FRONT ELEVATION**

SCALE : N.T.S.



**MOTOR CONTROL CENTER MCC-59  
PARTIAL ONE-LINE DIAGRAM**

NO.	REV.	DATE	DESCRIPTION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. ANY UNAUTHORIZED USE MAY BE SUBJECT TO LEGAL ACTION.

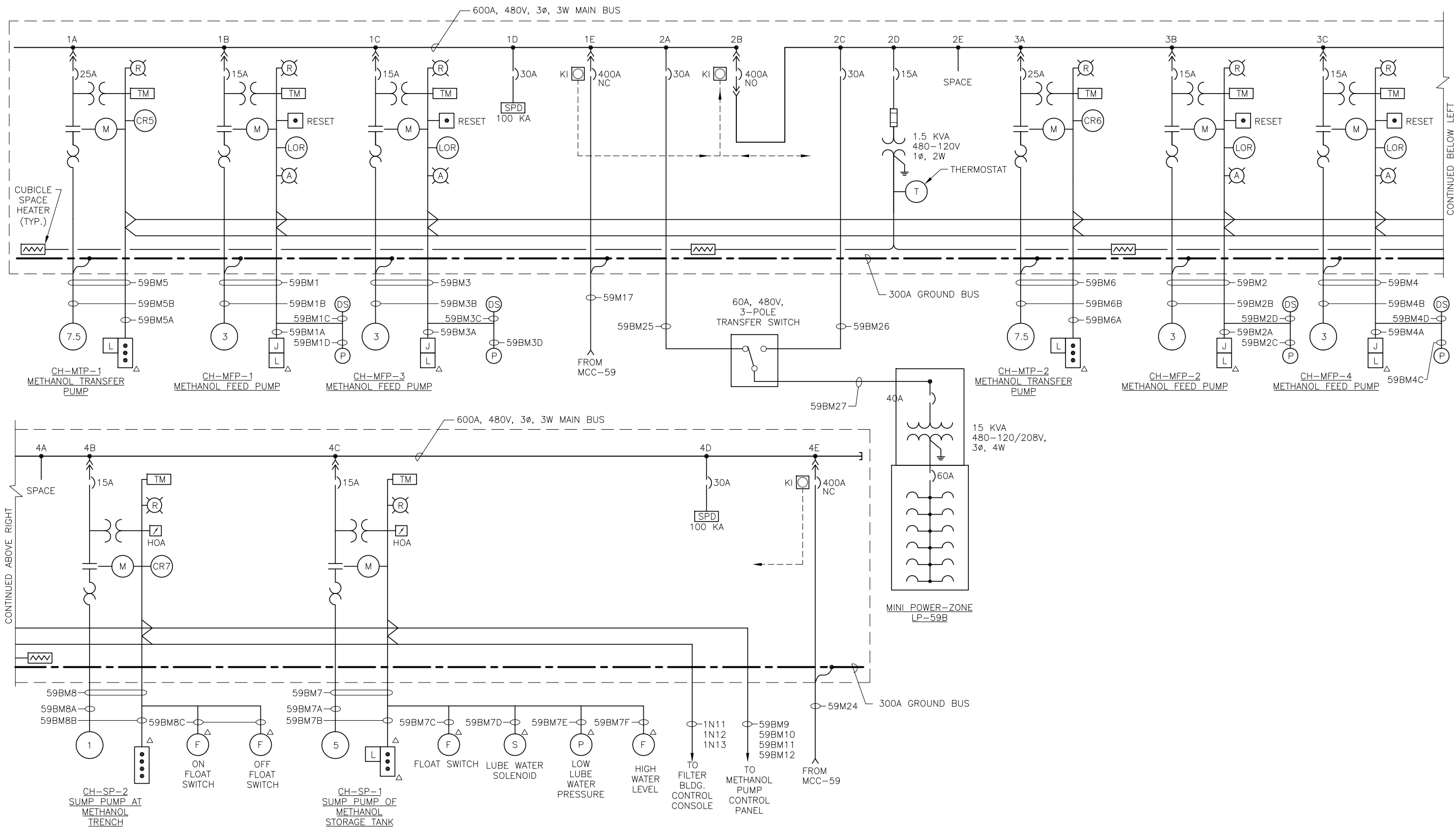
TRICON CONSULTING ENGINEERS  
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363

**MOTOR CONTROL  
CENTERS  
ELEVATIONS AND  
DETAILS**

**HOWARD F. CURREN  
AAWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD**

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363

**TRICON  
CONSULTING ENGINEERS**



**CHEP MOTOR CONTROL CENTER - MCC-59B**  
**ONE-LINE DIAGRAM**

NO.	DATE	DESCRIPTION	BY	CHKD	APP'D
1	JANUARY 31, 2014	NEW MCC-59B	EAK	DEV	DEV
2					
3					
4					
5					
6					
7					
8					
9					
10					

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. ANY UNAUTHORIZED REPRODUCTION IS PROHIBITED AND SUBJECT TO PROSECUTION.

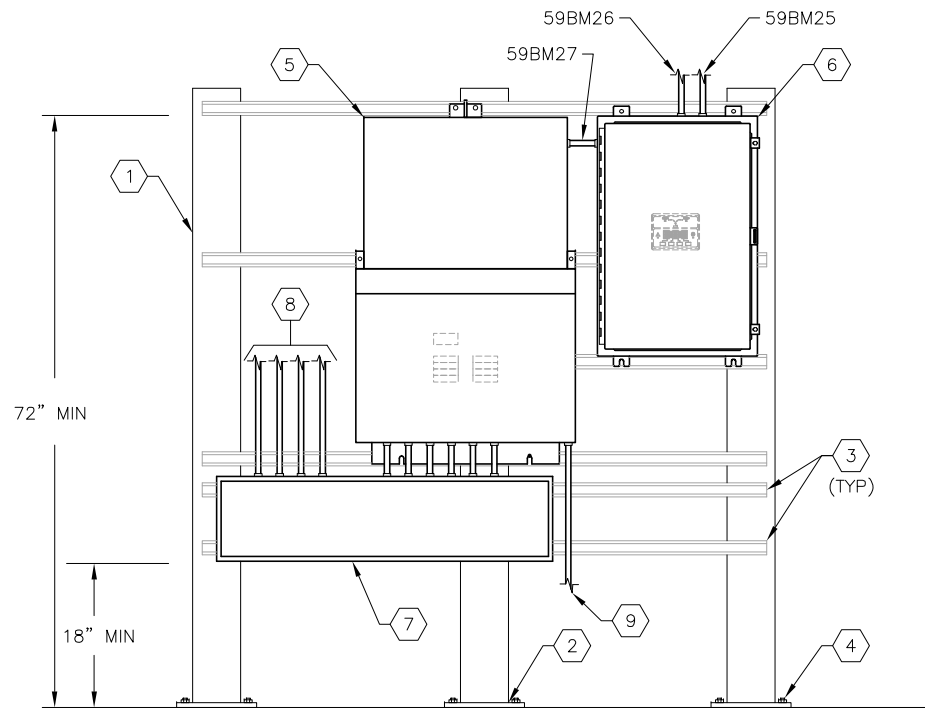
TRICON CONSULTING ENGINEERS  
 777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
 813.227.9190 FAX 813.227.9195  
 Certificate of Authorization No. 00008363

**NEW MCC-59B**  
**ONE-LINE DIAGRAM**

**HOWARD F. CURREN**  
**AWWTP METHANOL FEED**  
**PUMP REPLACEMENT**  
**2700 MARITIME BLVD**

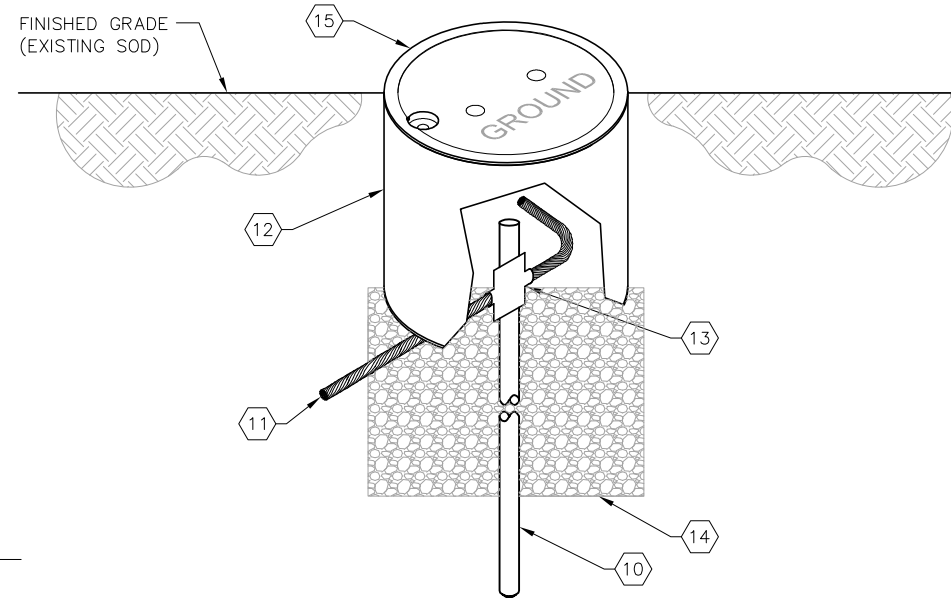
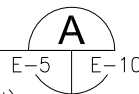
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
 813.227.9190 FAX 813.227.9195  
 Certificate of Authorization No. 00008363





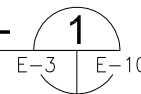
### MINI POWER-ZONE AND AUTOMATIC TRANSFER SWITCH ELEVATION

SCALE : N.T.S.  
(REFER TO SHEET E-5 FOR LOCATION)



### GROUND TEST WELL DETAIL

SCALE : N.T.S.



### KEYED NOTES:

- 1 PROVIDE AND INSTALL 4" SQUARE ALUMINUM POST WITH 1/2" WALL THICKNESS. WELD 1/4" CAP TO TOP OF EACH POST.
- 2 PROVIDE FULL FILLET WELD TO BASE PLATE (TYPICAL OF 3).
- 3 PROVIDE AND INSTALL 1-5/8" X 1-5/8" 316 STAINLESS STEEL UNISTRUT. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL. UNISTRUT BOLTS SHALL BE INSTALLED THROUGH POST.
- 4 PROVIDE AND INSTALL 10" X 10" X 3/4" ALUMINUM BASE PLATE. SECURE EACH BASE PLATE TO CONCRETE W/(4) STAINLESS STEEL 1/2" DIA. X 4" BOLTS & STAINLESS STEEL HEX NUTS WITH LOCKWASHER. DRILL CONCRETE & EMBED BOLTS AND ANCHORS IN EPOXY. COAT BOTTOM OF BASE PLATE WITH ASPHALT PAINT.
- 5 PROVIDE AND INSTALL 480V-120/208V, 3Ø, 15KVA MINI POWER-ZONE (PANEL 'LP-59B') WITH INTEGRAL 40A PRIMARY CIRCUIT BREAKER AND 60A SECONDARY CIRCUIT BREAKER IN NEMA 4X, STAINLESS STEEL ENCLOSURE. REFER TO THIS SHEET FOR PANEL SCHEDULE.
- 6 PROVIDE AND INSTALL 30A, 480V, 3-POLE AUTOMATIC TRANSFER SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. AUTOMATIC TRANSFER SWITCH SHALL BE POWER SEEKING TYPE.
- 7 PROVIDE AND INSTALL NEMA 4X STAINLESS STEEL WIREWAY (MIN 42" LENGTH, OTHER DIMENSIONS AS NECESSARY) TO ACCOMMODATE CONDUIT/CONDUCTOR INSTALLATION.
- 8 THE CONTRACTOR SHALL INSTALL NEW CONDUIT AND CONDUCTORS AS REQUIRED TO REFEED THE EXISTING CIRCUITS SERVICING THE CHEMICAL HANDLING EQUIPMENT PLATFORM'S LIGHTING AND RECEPTACLE CIRCUITS, AS WELL AS, THE AREA LIGHTING CIRCUITS FOR THE METHANOL STORAGE TANK AREA, BREWERY WASTE STORAGE TANK AREA, ETC.. REFER TO LP-59B PANEL SCHEDULE FOR EXISTING CIRCUITS TO BE KEPT IN SERVICE. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CIRCUITS. NEW CONDUIT/CONDUCTORS TO MATCH EXISTING.
- 9 CONTRACTOR TO PROVIDE AND INSTALL #4 BARE COPPER GROUNDING ELECTRODE CONDUCTOR FOR MINI POWER-ZONE GROUNDING SYSTEM. CONNECT GROUNDING ELECTRODE CONDUCTOR TO - TWO (2) 3/4" X 10'-0" STAINLESS STEEL GROUND RODS. GROUND RODS TO BE SPACED A MINIMUM OF 10'-0" APART. INSTALL GROUNDING ELECTRODE CONDUCTOR IN 1" SCH 80 PVC ABOVEGROUND.
- 10 NEW GROUND ROD, STAINLESS STEEL, 3/4" X 10'-0". TYPICAL OF TWO (2).
- 11 #4 BARE STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR.
- 12 PROVIDE AND INSTALL HARGER 362PS12CILS80, SCHEDULE 80 PVC GROUND TEST WELL. TYPICAL OF TWO (2)
- 13 EXOTHERMIC WELD.
- 14 PROVIDE 6" MINIMUM OF CRUSHED STONE.
- 15 GROUND TEST WELL CAST IRON COVER.

### PANEL SCHEDULE

PANEL 'LP-59B' ; SQUARE D CO. 120/208 VOLTS, 3Ø, 4W 60 AMP MAIN CIRCUIT BREAKER PROVIDE EQUIPMENT GROUND BAR ; SURFACE ENCLOSURE TOP AT 5'-6" AFF															
EQUIPMENT SERVED	CIRCUIT BREAKER			KVA/PHASE			CIRC. NO.	CIRC. NO.	KVA/PHASE			CIRCUIT BREAKER			EQUIPMENT SERVED
	POLE	AMPS	FRAME	A	B	C			A	B	C	POLE	AMPS	FRAME	
METHANOL PUMP CONTROL PANEL	1	20	QOB	0.5			1	2	0.2			1	20	QOB	EXISTING CONTROL CIRCUIT
METHANOL PUMP CONTROL PANEL	1	20	QOB		0.5		3	4		1.0		1	20	QOB	METHANOL STORAGE AREA LIGHTS
CHEP LIGHTS	1	20	QOB			0.4	5	6			1.0	1	20	QOB	BREWERY STORAGE AREA RECPTS
CHEP LIGHTS	1	20	QOB	0.4			7	8	1.0			1	20	QOB	ALUM STORAGE AREA RECEPES
EXISTING CONTROL CIRCUIT	1	20	QOB			0.2	9	10				--	--	--	SPACE
SPACE	--	--	--				11	12				--	--	--	SPACE
SPACE	--	--	--				13	14				--	--	--	SPACE
SPACE	--	--	--				15	16				--	--	--	SPACE
SPACE	--	--	--				17	18				--	--	--	SPACE
SPACE	--	--	--				19	20				--	--	--	SPACE
SPACE	--	--	--				21	22				--	--	--	SPACE
SPACE	--	--	--				23	24				--	--	--	SPACE
SUB-TOTAL KVA				0.9	0.7	0.4				1.2	1.0	1.0			
TOTAL CONNECTED LOAD = 5.2 KVA														TOTAL DEMAND LOAD = 5.2 KVA	
<b>NOTES:</b> (1) CIRCUITS 5, 7, 9, 2, 4, 6 AND 8 ARE EXISTING. CONTRACTOR SHALL FIELD VERIFY.															

### GENERAL NOTES :

1. VARIOUS CONDUITS FROM THE METHANOL STORAGE TANK AREA STUB-UP WITHIN THE FOOTPRINT OF THE EXISTING CHEP-CC, WHICH IS TO BE REMOVED. THE CONTRACTOR SHALL DEMOLISH CONCRETE AS REQUIRED TO EXTEND THE EXISTING CONDUITS REQUIRED TO THE NEW METHANOL PUMP CONTROL PANEL AND THE NEW MCC. THE EXACT STUB-UP LOCATIONS FOR EACH CONDUIT ARE NOT KNOWN. THE CONTRACTOR SHALL LOCATE THE MINI POWER-ZONE RACK AS REQUIRED TO ALLOW FOR THE CONDUIT MODIFICATIONS. THE CONTRACTOR SHALL INSTALL JUNCTION BOXES OR PULL BOXES AS REQUIRED FOR A PROPER INSTALLATION.

ELECTRICAL  
DETAILS

HOWARD F. CURREN  
AAWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD

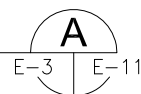
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363

**TRICON**  
CONSULTING ENGINEERS



### FILTER BUILDING WEST WALL ELEVATION

SCALE : N.T.S.

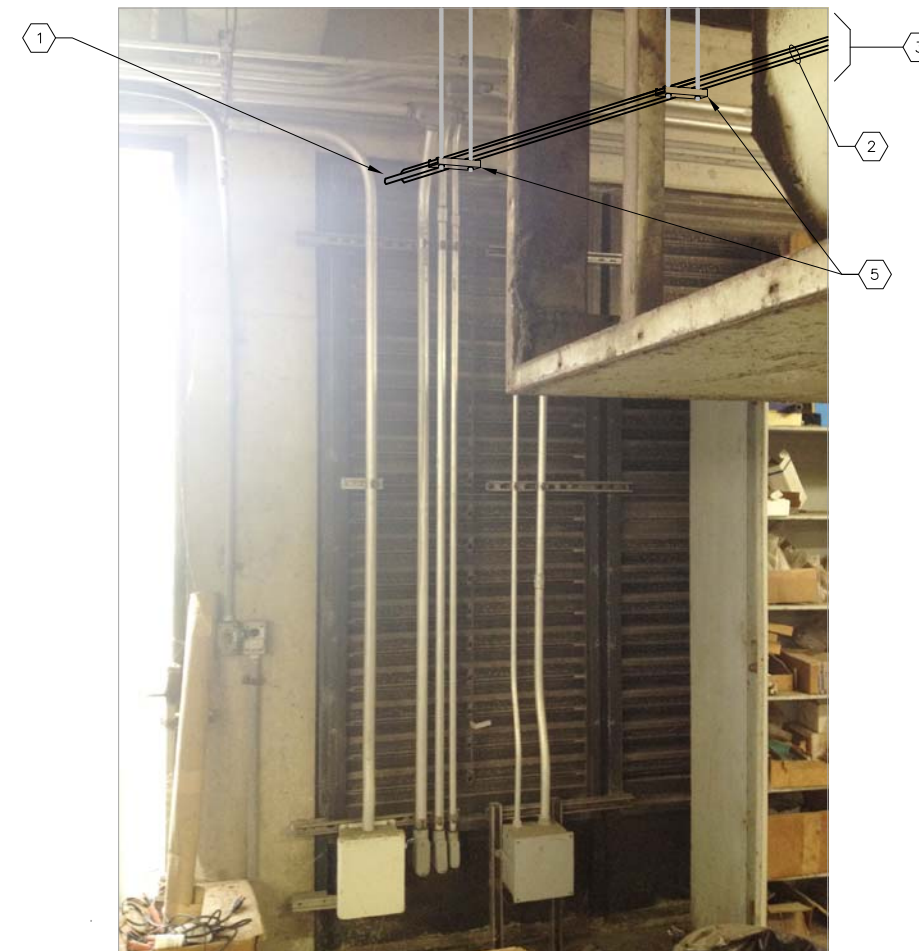


#### KEYED NOTES:

- ① CONTRACTOR TO PENETRATE EXISTING LOUVER WALL WITH 1" C. (FIBER) AND 3" C. (NEW MCC-59B FEEDER).
- ② NEW 3-1/0 THWN CU + 1-#4 THWN CU GND IN 3" C. (MCC-59B FEEDER), AND NEW FIBER OPTIC CABLE IN 1" C.
- ③ FOR CONTINUATION REFER TO SHEET E-3.
- ④ PROVIDE AND INSTALL 1-5/8" STAINLESS STEEL UNISTRUT WITH STAINLESS STEEL CONDUIT STRAPS (TYPICAL).
- ⑤ PROVIDE AND INSTALL 1-5/8" STAINLESS STEEL UNISTRUT WITH STAINLESS STEEL CONDUIT STRAPS (TYPICAL). TRAPEZE HANG WITH 3/8" THREADED ROD FROM CEILING. THREADED ROD SHALL BE 316 STAINLESS STEEL.
- ⑥ PROVIDE AND INSTALL 20" X 20" X 8" NEMA 4X SS JUNCTION BOX ON 1-5/8" STAINLESS STEEL UNISTRUT FOR POWER FEEDER.
- ⑦ PROVIDE AND INSTALL 8" X 8" X 6" NEMA 4X SS JUNCTION BOX ON 1-5/8" STAINLESS STEEL UNISTRUT FOR FIBER.

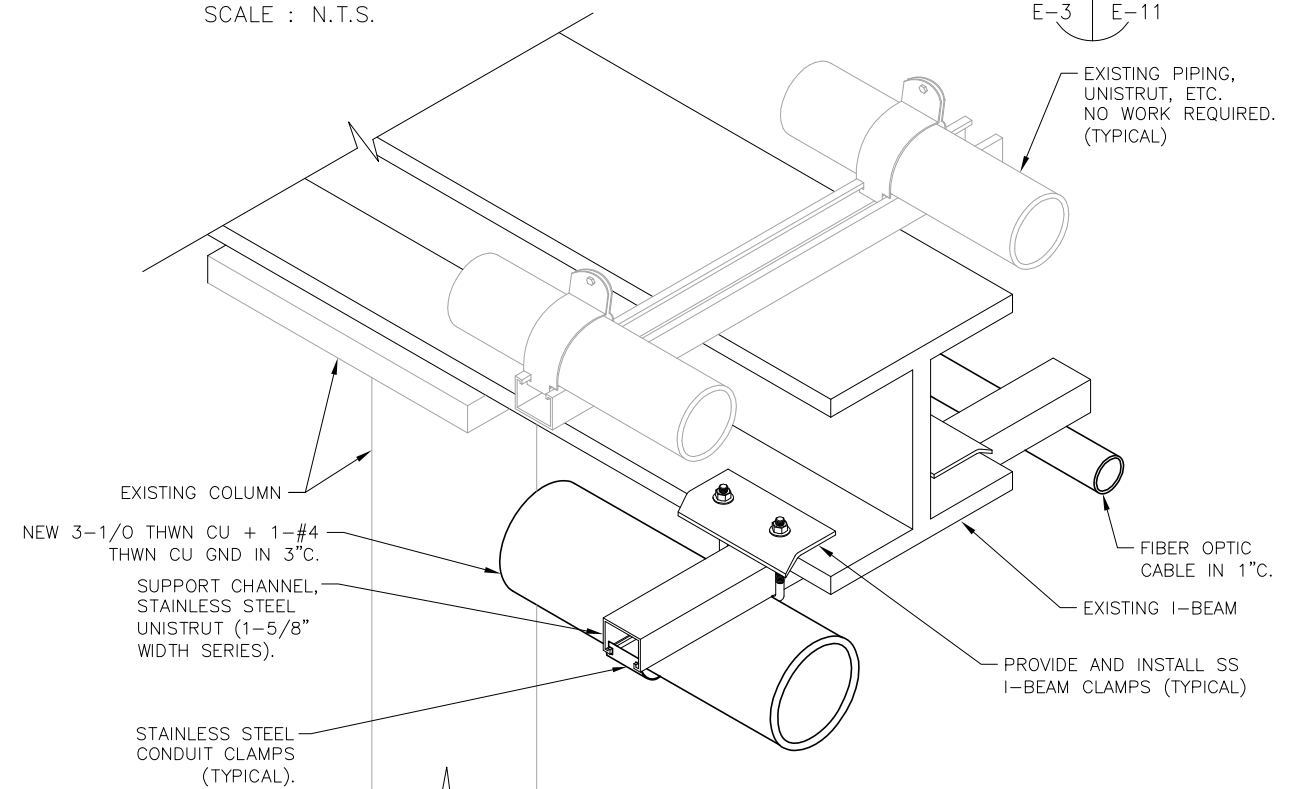
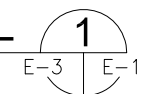
#### GENERAL NOTES :

1. THE NEW 3" CONDUIT FOR MCC-59B FEEDER IS TO BE FIELD ROUTED. THE CONDUIT INSTALLATION FOR THE MCC-59B FEEDER SHALL MEET THE REQUIREMENTS OF THE NEC IN THAT THERE SHALL BE NO MORE THAN 360° OF BENDS INSTALLED BETWEEN PULL POINTS. THE CONTRACTOR MAY INSTALL CONDUIT BODIES AS NECESSARY, WITH THE EXCEPTION OF WHERE JUNCTION BOXES ARE INDICATED.
2. THE NEW 1" CONDUIT FOR THE FIBER OPTIC CABLE IS TO BE FIELD ROUTED. NO CONDUIT BODIES SHALL BE ALLOWED IN THE CONDUIT RUN. ALL ELBOWS SHALL BE 12 INCH RADIUS MINIMUM. JUNCTION BOXES SHALL BE INSTALLED AS/WHERE INDICATED.



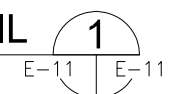
### H&V EQUIPMENT ROOM INTERIOR DETAIL

SCALE : N.T.S.



### CONDUIT INSTALLATION DETAIL

SCALE : N.T.S.



NO. 1	DATE	DESCRIPTION	BY	CHKD	APP'D
1	JANUARY 31, 2014				
2					
3					
4					
5					
6					
7					

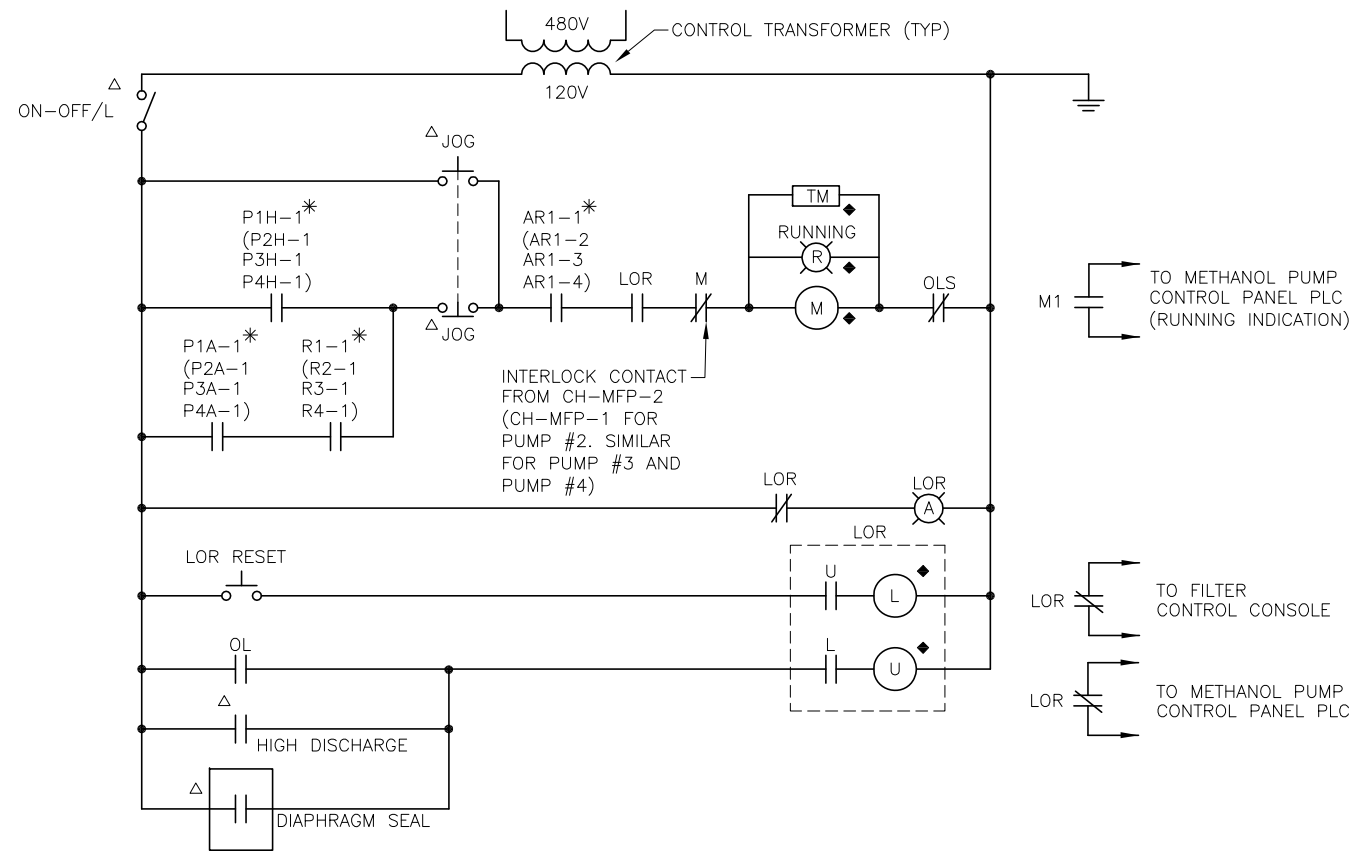
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM TRICON CONSULTING ENGINEERS. THESE PLANS INCLUDE DESIGN & CONSTRUCTION OF A REGISTERED PROFESSIONAL ENGINEER. TRICON ENGINEERING, P.E. 171502970

## ELECTRICAL DETAILS

HOWARD F. CURREN  
AWWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363

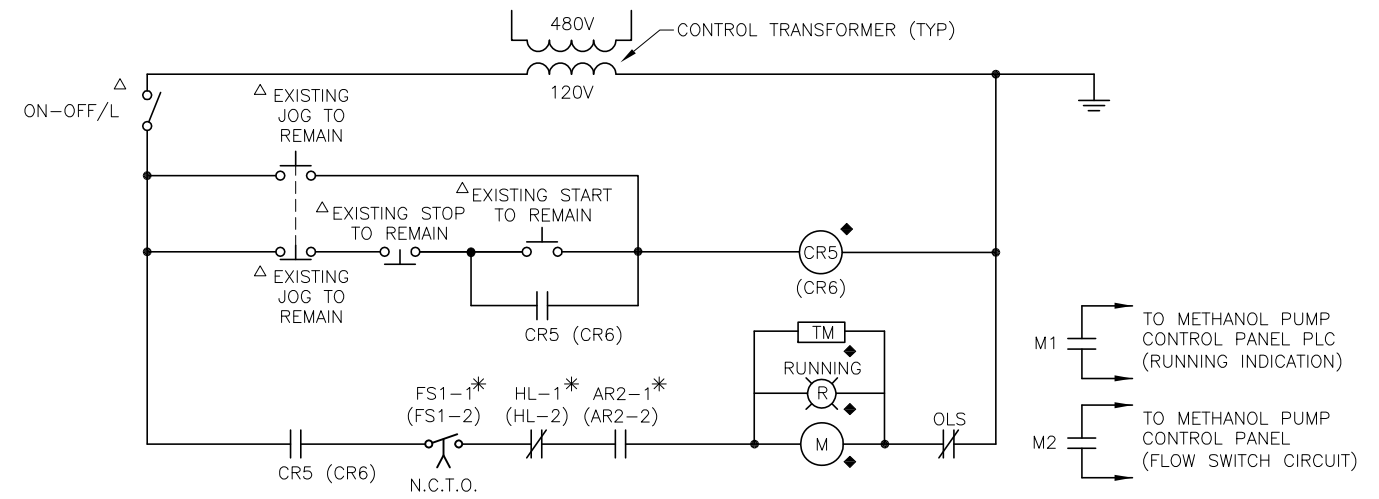




### METHANOL FEED PUMP CH-MFP-1

TYPICAL FOR CH-MFP-2, CH-MFP-3 AND CH-MFP-4

- △ INDICATES A REMOTE DEVICE NEAR THE MOTOR
- \* CONTACT OR DEVICE LOCATED IN/ON METHANOL PUMP CONTROL PANEL
- ◆ INDICATES DEVICE LOCATED ON MCC-59B



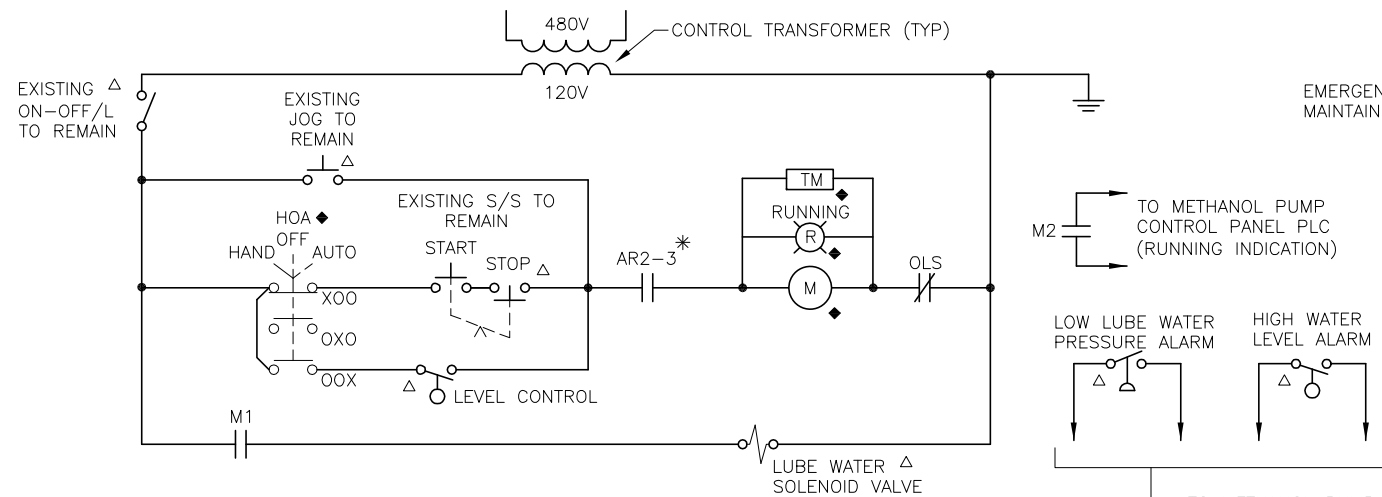
### METHANOL TRANSFER PUMP CH-MTP-1

TYPICAL FOR CH-MTP-2

- △ INDICATES A REMOTE DEVICE NEAR THE MOTOR
- \* CONTACT OR DEVICE LOCATED IN/ON METHANOL PUMP CONTROL PANEL
- ◆ INDICATES DEVICE LOCATED ON MCC-59B

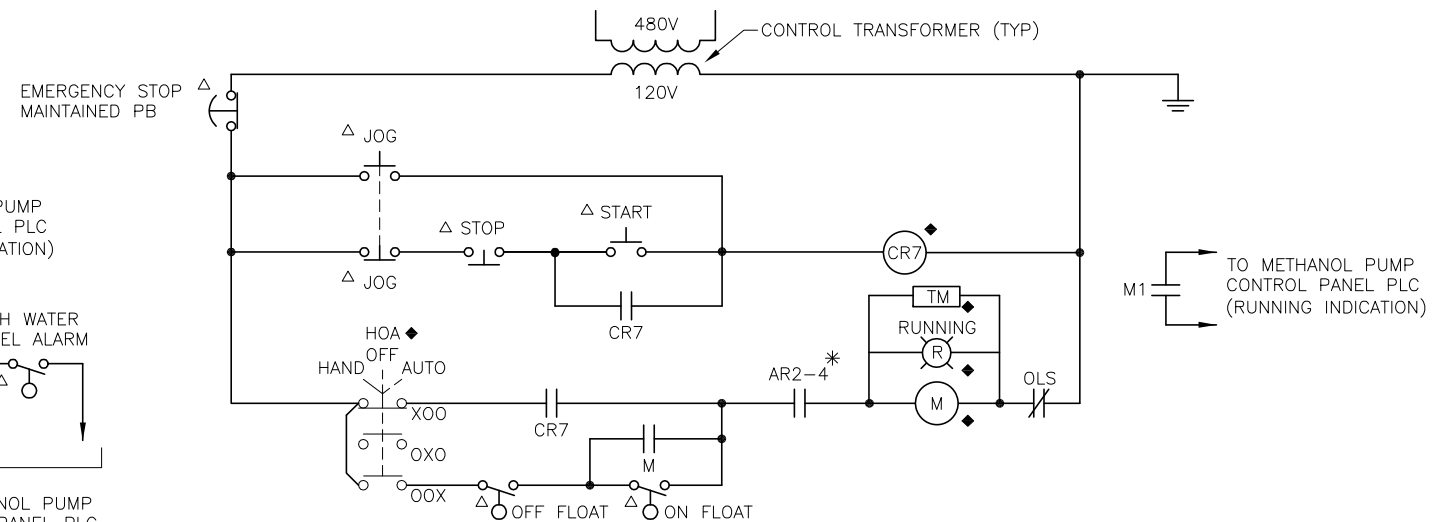
#### GENERAL NOTES :

1. THE MOTOR SCHEMATIC WIRING DIAGRAMS ARE BASED ON RECORD DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY THE CONTROL DEVICES SHOWN WITH THE EXISTING DEVICES LOCATED AT EACH PUMP. DEVICES NOTED AS 'EXISTING' ON THE MOTOR SCHEMATIC WIRING DIAGRAMS ARE INTENDED TO BE REUSED. ALL OTHER DEVICES SHOWN ARE TO BE NEW AND SUPPLIED/INSTALLED BY THE CONTRACTOR.



### SUMP PUMP AT METHANOL STORAGE TANK CH-SP-1

- △ INDICATES A REMOTE DEVICE NEAR THE MOTOR
- \* CONTACT LOCATED IN METHANOL PUMP CONTROL PANEL
- ◆ INDICATES DEVICE LOCATED ON MCC-59B



### SUMP PUMP AT METHANOL TRENCH CH-SP-2

- △ INDICATES A REMOTE DEVICE NEAR THE MOTOR
- \* CONTACT LOCATED IN METHANOL PUMP CONTROL PANEL
- ◆ INDICATES DEVICE LOCATED ON MCC-59B

NO.	REV.	DATE	DESCRIPTION
1	1	JANUARY 31, 2014	ISSUED FOR CONSTRUCTION
2	1		REVISED BY: DEV
3	1		APPROVED BY: DEV
4	1		DESIGNED BY: DEV
5	1		CHECKED BY: DEV
6	1		PROJECT NO. 17102670

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. ANY UNLAWFUL USE MAY BE PROSECUTED AND PENALTIES ENFORCED.

TRICON ENGINEERING, P.E. (FLORIDA LICENSE NO. 17102670)

MOTOR SCHEMATIC WIRING DIAGRAMS

HOWARD F. CURREN  
AWWTP METHANOL FEED PUMP REPLACEMENT  
2700 MARITIME BLVD

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363

**TRICON**  
CONSULTING ENGINEERS

CONDUIT AND CABLE SCHEDULE					
CONDUIT No.	SIZE	NUMBER OF CONDUCTORS/SIZE	FROM	TO	REMARKS
59BM1	1"	3-#12 & 8-#14, #12 GND	JB AT CH-MFP-1	MCC-59B (VIA JB ON WALL)	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM1A	3/4"	4-#14, #14 GND	JB AT CH-MFP-1	CH-MFP-1 JOG:ON-OFF/L STATIONS	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM1B	3/4"	3-#12, #12 GND	JB AT CH-MFP-1	CH-MFP-1 MOTOR	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM1C	3/4"	2-#14, #14 GND	JB AT CH-MFP-1	CH-MFP-1 PRESSURE SWITCH	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM1D	3/4"	2-#14, #14 GND	JB AT CH-MFP-1	CH-MFP-1 DIAPHRAGM SEAL	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM2	1"	3-#12 & 8-#14, #12 GND	JB AT CH-MFP-2	MCC-59B (VIA JB ON WALL)	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM2A	3/4"	4-#14, #14 GND	JB AT CH-MFP-2	CH-MFP-2 JOG:ON-OFF/L STATIONS	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM2B	3/4"	3-#12, #12 GND	JB AT CH-MFP-2	CH-MFP-2 MOTOR	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM2C	3/4"	2-#14, #14 GND	JB AT CH-MFP-2	CH-MFP-2 PRESSURE SWITCH	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM2D	3/4"	2-#14, #14 GND	JB AT CH-MFP-2	CH-MFP-2 DIAPHRAGM SEAL	PROVIDE NEW CONDUIT/CONDUCTORS AS REQUIRED (PUMP ROTATED).
59BM3	1"	3-#12 & 8-#14, #12 GND	JB AT CH-MFP-3	MCC-59B	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM3A	3/4"	4-#14, #14 GND	JB AT CH-MFP-3	CH-MFP-3 JOG:ON-OFF/L STATIONS	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM3B	3/4"	3-#12, #12 GND	JB AT CH-MFP-3	CH-MFP-3 MOTOR	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM3C	3/4"	2-#14, #14 GND	JB AT CH-MFP-3	CH-MFP-3 PRESSURE SWITCH	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM3D	3/4"	2-#14, #14 GND	JB AT CH-MFP-3	CH-MFP-3 DIAPHRAGM SEAL	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM4	1"	3-#12 & 8-#14, #12 GND	JB AT CH-MFP-4	MCC-59B	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM4A	3/4"	4-#14, #14 GND	JB AT CH-MFP-4	CH-MFP-4 JOG:ON-OFF/L STATIONS	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM4B	3/4"	3-#12, #12 GND	JB AT CH-MFP-4	CH-MFP-4 MOTOR	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM4C	3/4"	2-#14, #14 GND	JB AT CH-MFP-4	CH-MFP-4 PRESSURE SWITCH	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM4D	3/4"	2-#14, #14 GND	JB AT CH-MFP-4	CH-MFP-4 DIAPHRAGM SEAL	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM5	1"	3-#12 & 4-#14, #12 GND	JB AT CH-MTP-1	MCC-59B (VIA JB ON WALL)	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM5A	3/4"	4-#14, #14 GND	JB AT CH-MTP-1	CH-MTP-1 CONTROL STATION	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM5B	3/4"	3-#12, #12 GND	JB AT CH-MTP-1	CH-MTP-1 MOTOR	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM6	1"	3-#12 & 4-#14, #12 GND	JB AT CH-MTP-2	MCC-59B (VIA JB ON WALL)	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM6A	3/4"	4-#14, #14 GND	JB AT CH-MTP-2	CH-MTP-2 CONTROL STATION	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM6B	3/4"	3-#12, #12 GND	JB AT CH-MTP-2	CH-MTP-2 MOTOR	EXISTING CONDUIT AND CONDUCTORS TO BE REUSED.
59BM7	1"	3-#12 & 12-#14, #12 GND	MCC-59B	JUNCTION BOX AT STORAGE TANK	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM7A	3/4"	3-#12, #12 GND	MCC-59B	CH-SP-1 MOTOR	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM7B	3/4"	4-#14, #14 GND	MCC-59B	CH-SP-1 START/STOP STATION	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM7C	3/4"	2-#14, #14 GND	MCC-59B	CH-SP-1 FLOAT SWITCH	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM7D	3/4"	2-#14, #14 GND	MCC-59B	CH-SP-1 LUBE WATER SOLENOID	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM7E	3/4"	2-#14, #14 GND	MCC-59B	CH-SP-1 LOW PRESSURE SWITCH	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM7F	3/4"	2-#14, #14 GND	MCC-59B	CH-SP-1 HIGH WATER FLOAT SWITCH	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM8	1"	3-#12 & 8-#14, #12 GND	MCC-59B	JB AT PUMP (VIA JB AT TANK)	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM8A	3/4"	3-#12, #12 GND	MCC-59B	CH-SP-2 MOTOR	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM8B	3/4"	4-#14, #14 GND	MCC-59B	CH-SP-2 START/STOP STATION	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59BM8C	3/4"	4-#14, #14 GND	MCC-59B	CH-SP-2 FLOAT SWITCHES	NEW CONDUIT AND CONDUCTORS. (UTILIZE EXISTING DUCTBANK).
59M17	3"	3-#1/0, #4 GND	MCC-59	MCC-59B	EXISTING CONDUIT AND CONDUCTORS. CONDUCTORS MAY BE REUSED UNLESS CONDUCTORS ARE ALUMINUM OR IN POOR CONDITION, IN WHICH CASE REPLACE.
59M24	3"	3-#1/0, #4 GND	MCC-59	MCC-59B	NEW CONDUIT AND CONDUCTORS TO BE PROVIDED.
59BM25	1"	3-#8, #12 GND	MCC-59B	ATS	NEW CONDUIT AND CONDUCTORS TO BE PROVIDED.
59BM26	1"	3-#8, #12 GND	MCC-59B	ATS	NEW CONDUIT AND CONDUCTORS TO BE PROVIDED.
59BM27	1"	3-#8, #12 GND	ATS	MINI POWER-ZONE	NEW CONDUIT AND CONDUCTORS TO BE PROVIDED.

CONTINUED ON SHEET E-14

### CONDUIT AND CABLE SCHEDULE LEGEND

(59) (M) (123A) - TYPICAL CONDUIT AND CABLE RUN NUMBER  
 - INDICATES SPECIFIC CONDUIT AND CABLE RUN NUMBER FROM SOURCE DISTRIBUTION CENTER  
 - CODE LETTER INDICATING SOURCE DISTRIBUTION CENTER TYPE AND OR WIRING SYSTEM  
 - INDICATES SOURCE DISTRIBUTION CENTER NUMBER

EXAMPLE ; 59M24 - INDICATES CONDUIT AND CABLE RUN NUMBER 24 OF A WIRING SYSTEM FROM MOTOR CONTROL CENTER NO. 59

**CODE LETTER WIRING SYSTEM AND/OR SOURCE**

M	CONTROL, POWER AND INSTRUMENTATION FROM AND TO MOTOR CONTROL CENTERS, PUMP CONTROL PANELS AND 480V SWITCHGEAR
H	13.2 KV FEEDERS
C	CONTROL, METERING AND PROTECTIVE RELAYING WIRING FROM AND TO 13.2 KV AND 4.16 KV SWITCHGEAR AND STANDBY GENERATION SYSTEMS
N	ALARM, DATA LOGGING, SCADA AND INSTRUMENTATION SYSTEM WIRING
T	4.16 KV AND 480V FEEDERS FROM POWER TRANSFORMERS

**AREA NO. AREA SERVED**

1	CHEMICAL HANDLING EQUIPMENT PLATFORM - PUMP PAD AREA
2	METHANOL STORAGE TANK AREA

### GENERAL NOTES :

- IT IS INTENDED THAT VARIOUS CONDUITS AND CONDUCTORS BE REUSED. HOWEVER, EXISTING FIELD CONDITIONS MAY DICTATE THAT NEW CONDUIT OR CONDUCTORS BE INSTALLED. FOR THOSE CONDUITS AND CONDUCTORS NOTED TO BE REUSED, THE CONTRACTOR SHALL PERFORM THE CONDUIT CLEANING AND CONDUCTOR MEGGERING AS INDICATED WITHIN THESE CONTRACT DOCUMENTS.

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF TRICON CONSULTING ENGINEERS.

CONDUIT AND CABLE SCHEDULE

HOWARD F. CURREN  
 AAWTP METHANOL FEED  
 PUMP REPLACEMENT  
 2700 MARITIME BLVD

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
 813.227.9190 FAX 813.227.9195  
 Certificate of Authorization No. 00008363

**TRICON**  
 CONSULTING ENGINEERS

E-13

DATE: JANUARY 31, 2014  
 DRAWN BY: DEV  
 CHECKED BY: DEV  
 APPROVED BY: DEV  
 PROJECT NO.: 171502970

CONDUIT AND CABLE SCHEDULE (CONTINUED)					
CONDUIT No.	SIZE	NUMBER OF CONDUCTORS/SIZE	FROM	TO	REMARKS
59BM9	1-1/4"	20-#14, #14 GND	MCC-59B	METHANOL PUMP CONTROL PANEL	NEW CONDUIT/CONDUCTORS. CONDUCTORS FOR CH-MFP-1 AND CH-MFP-2 M1 CONTACTS, LOR'S, AR1'S, P1H, RUN CONTACTS .
59BM10	1-1/4"	20-#14, #14 GND	MCC-59B	METHANOL PUMP CONTROL PANEL	NEW CONDUIT/CONDUCTORS. CONDUCTORS FOR CH-MFP-3 AND CH-MFP-4 M1 CONTACTS, LOR'S, AR1'S, P1H, RUN CONTACTS .
59BM11	1"	12-#14, #14 GND	MCC-59B	METHANOL PUMP CONTROL PANEL	NEW CONDUIT/CONDUCTORS. CONDUCTORS FOR CH-MTP-1 AND CH-MTP-2 M1 CONTACTS, AR2'S CONTACTS.
59BM12	1"	12-#14, #14 GND	MCC-59B	METHANOL PUMP CONTROL PANEL	NEW CONDUIT/CONDUCTORS. CONDUCTORS FOR CH-SP-1 AND CH-SP-2 M1 CONTACTS, AR2'S, LUBE, HIGH WATER CONTACTS .
59BM13	1"	8-#12, #12 GND	MCC-59B	JB AT METHANOL STORAGE TANK	120V CIRCUITS FOR METHANOL STORAGE AREA, BREWERY STORAGE AREA AND ALUM STORAGE AREA. CONTRACTOR TO FIELD VERIFY.
1M1	3/4"	2-#12, #12 GND	CH-MFP-1	METHANOL PUMP CONTROL PANEL	MODIFY CONDUIT AND PROVIDE NEW CONDUCTORS. CH-MFP-1 PULSAMATIC 120V AC FEED.
1M2	3/4"	2-#12, #12 GND	CH-MFP-2	METHANOL PUMP CONTROL PANEL	MODIFY CONDUIT AND PROVIDE NEW CONDUCTORS. CH-MFP-2 PULSAMATIC 120V AC FEED.
1M3	3/4"	2-#12, #12 GND	CH-MFP-3	METHANOL PUMP CONTROL PANEL	MODIFY CONDUIT AND PROVIDE NEW CONDUCTORS. CH-MFP-3 PULSAMATIC 120V AC FEED.
1M4	3/4"	2-#12, #12 GND	CH-MFP-4	METHANOL PUMP CONTROL PANEL	MODIFY CONDUIT AND PROVIDE NEW CONDUCTORS. CH-MFP-4 PULSAMATIC 120V AC FEED.
1N1	3/4"	2/C-#18, TWISTED SHIELDED	FIT-101	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED. PROVIDE NEW CONDUCTORS. FIT-101 4-20mA SIGNAL.
1N2	3/4"	2/C-#18, TWISTED SHIELDED	FIT-102	METHANOL PUMP CONTROL PANEL	NEW CONDUIT AND CONDUCTORS TO BE PROVIDED. FIT-102 4-20mA SIGNAL.
1N3	3/4"	2/C-#18, TWISTED SHIELDED	FIT-103	METHANOL PUMP CONTROL PANEL	NEW CONDUIT AND CONDUCTORS TO BE PROVIDED. FIT-103 4-20mA SIGNAL.
1N4	3/4"	3/C-#18, TWISTED SHIELDED	AIT-104	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. AIT-104 4-20mA SIGNAL AND 24V DC POWER.
1N5	3/4"	3/C-#8, TWISTED SHIELDED	AIT-105	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. AIT-105 4-20mA SIGNAL AND 24V DC POWER.
1N6	3/4"	2/C-#18, TWISTED SHIELDED	CH-MFP-1	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. CH-MFP-1 4-20mA STROKE CONTROL SIGNAL.
1N7	3/4"	2/C-#18, TWISTED SHIELDED	CH-MFP-2	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. CH-MFP-2 4-20mA STROKE CONTROL SIGNAL.
1N8	3/4"	2/C-#18, TWISTED SHIELDED	CH-MFP-3	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. CH-MFP-3 4-20mA STROKE CONTROL SIGNAL.
1N9	3/4"	2/C-#18, TWISTED SHIELDED	CH-MFP-4	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. CH-MFP-4 4-20mA STROKE CONTROL SIGNAL.
1N10	3/4"	4-#14, #14 GND	FLOW SWITCHES	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS.
1N11	1"	2/C-#18, TWISTED SHIELDED	METHANOL PUMP CONTROL PANEL	FILTER BUILDING CONTROL CONSOLE	4-20mA STROKE CONTROL SIGNAL FROM FILTER BUILDING CONTROL CONSOLE. NEW CONDUIT AND CONDCUTORS FROM METHANOL PUMP CONTROL PANEL TO MCC - EXISTING TO REMAIN TO FILTER BUILDING CONTROL CONSOLE (VIA EXISTING MULTICONDUCTOR CABLE, IF POSSIBLE).
1N12	1-1/4"	THREE (3) : 2/C-#18, TW SH	METHANOL PUMP CONTROL PANEL	FILTER BUILDING CONTROL CONSOLE	4-20mA FLOW METER SIGNALS TO FILTER BUILDING CONTROL CONSOLE. NEW CONDUIT AND CONDCUTORS FROM METHANOL PUMP CONTROL PANEL TO MCC - EXISTING TO REMAIN TO FILTER BUILDING CONTROL CONSOLE (VIA EXISTING MULTICONDUCTOR CABLE, IF POSSIBLE).
1N13	3/4"	8-#12, #12 GND	METHANOL PUMP CONTROL PANEL	FILTER BUILDING CONTROL CONSOLE	LOR INDICATION FOR CH-MFP-1, CH-MFP-2, CH-MFP-3 AND CH- MFP-4 FROM MCC-59B TO FILTER BUILDING CONTROL CONSOLE. - EXISTING CONDUIT AND CONDUCTORS TO REMAIN (VIA EXISTING MULTICONDUCTOR CABLE, IF POSSIBLE).
1N14	1"	6C MM FIBER	FILTER BUILDING FIBER CABINET	METHANOL PUMP CONTROL PANEL	NEW CONDUIT AND FIBER CABLE TO BE PROVIDED.
2N1	3/4"	3/C-#16, TWISTED SHIELDED	AIT-101	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS.
2N2	3/4"	3/C-#16, TWISTED SHIELDED	AIT-102	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS.
2N3	3/4"	3/C-#16, TWISTED SHIELDED	AIT-103	METHANOL PUMP CONTROL PANEL	EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS.
2N4	3/4"	2/C-#18, TWISTED SHIELDED	PIT-101	METHANOL PUMP CONTROL PANEL	PROVIDE NEW CONDUIT/CONDUCTORS.

NO.	DATE	DESCRIPTION	APPROVED BY
1	JANUARY 31, 2014		DEV

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. ANY UNLAWFUL REPRODUCTION IS PROHIBITED.

TRICON ENGINEERING, P.C. 171502970

CONDUIT AND CABLE SCHEDULE

HOWARD F. CURREN  
AAWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813-227-9190 FAX 813-227-9195  
Certificate of Authorization No. 00008363





FUNCTION SYMBOL SCHEDULE

IDENTIFICATION LETTERS					
	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		PROGRAMMER		
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING		GLASS VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTOR	MOMENTARY			MIDDLE, INTERMEDIATE
N	VIBRATION		IGNITOR	ISOLATOR	
O	OPERATION	OFFSET	ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY, EVENT	INTEGRATE, TOTALIZE	INTEGRATE		
R	RADIATION		RECORD, PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE	TREND	MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VISCOSITY	VACUUM		VALVE, DAMPER, LOUVER, GATE	
W	WEIGHT, FORCE, TORQUE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y				RELAY, COMPUTE, CONVERT	
Z	POSITION			FINAL CONTROL ELEMENT	UNCLASSIFIED

LINE DESIGNATIONS

INSTRUMENTATION SIGNAL — — — —  
 ELECTRICAL POWER — — — —  
 DATA LINK —D—D—  
 RADIO LINK —R—R—  
 FIBER OPTIC DATA —F—F—

MISCELLANEOUS NOTATIONS

S/D = SHUTDOWN  
 O/R = OVERRIDE  
 MCS = MASTER CONTROL STATION  
 VFD = VARIABLE FREQUENCY DRIVE  
 PCC = PROCESS CONTROL CABINET  
 LCP = LOCAL CONTROL PANEL  
 ES = ELECTRICAL SUPPLY (120VAC)

CONTROLLER NOTATION

PV = PROCESS VARIABLE INPUT  
 SP = SET POINT INPUT  
 C = CONTROL OUTPUT

EQUIPMENT NOTATION

B = BLOWER OR FAN  
 E = ENGINE  
 G = GENERATOR  
 F = FILTER  
 GS = GRINDER/SCREEN  
 K = COMPRESSOR  
 H = HOIST  
 ME = MECHANICAL EQUIPMENT  
 MX = MIXER  
 P = PUMP  
 T = TANK OR SUMP

INPUT/OUTPUT NOTATIONS

AI = ANALOG INPUT  
 AO = ANALOG OUTPUT  
 DI = DISCRETE INPUT  
 DO = DISCRETE OUTPUT

HAND SWITCH NOTATION

HOA = HAND-OFF-AUTO  
 S/S = START/STOP  
 SEL = SELECTOR  
 O/C = OPEN/CLOSE  
 O/O = ON/OFF  
 LOS = LOCKOUT-START  
 LOR = LOCAL-OFF-REMOTE  
 OAC = OPEN-AUTO CLOSE  
 CAO = CLOSED-AUTO OPEN

VALVE DESIGNATIONS

MOV = MOTOR OPERATED VALVE

GENERAL ABBREVIATIONS

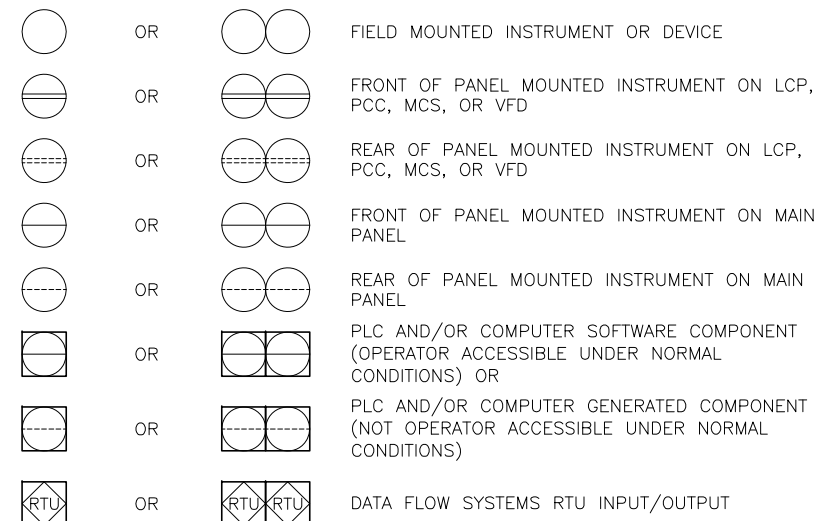
SCADA = SUPERVISORY CONTROL AND DATA ACQUISITION.  
 PLC = PROGRAMMABLE LOGIC CONTROL  
 SA = SURGE SUPPRESSOR DEVICE



BASIC SYMBOLS

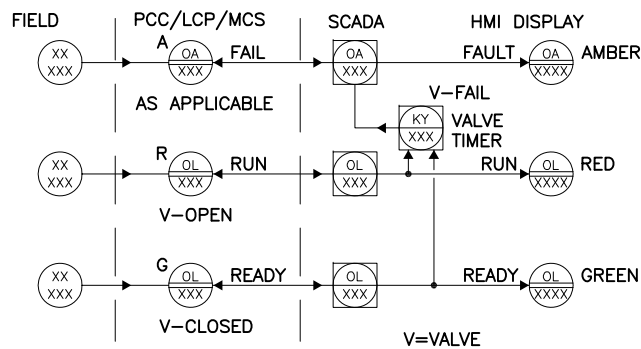
SINGLE FUNCTION

MULTIPLE FUNCTION



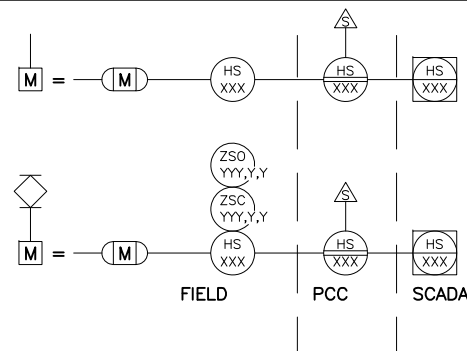
= STATUS

THIS SYMBOL INDICATES THE FOLLOWING INSTRUMENTATION  
 (NOTE : VALVE FAULT IS PLC GENERATED)



TYPICAL FOR

(IF NOT OTHERWISE ILLUSTRATED ON DRAWINGS)



NO.	DATE	DESCRIPTION	BY	CHKD	APP'D
1	JANUARY 31, 2014				

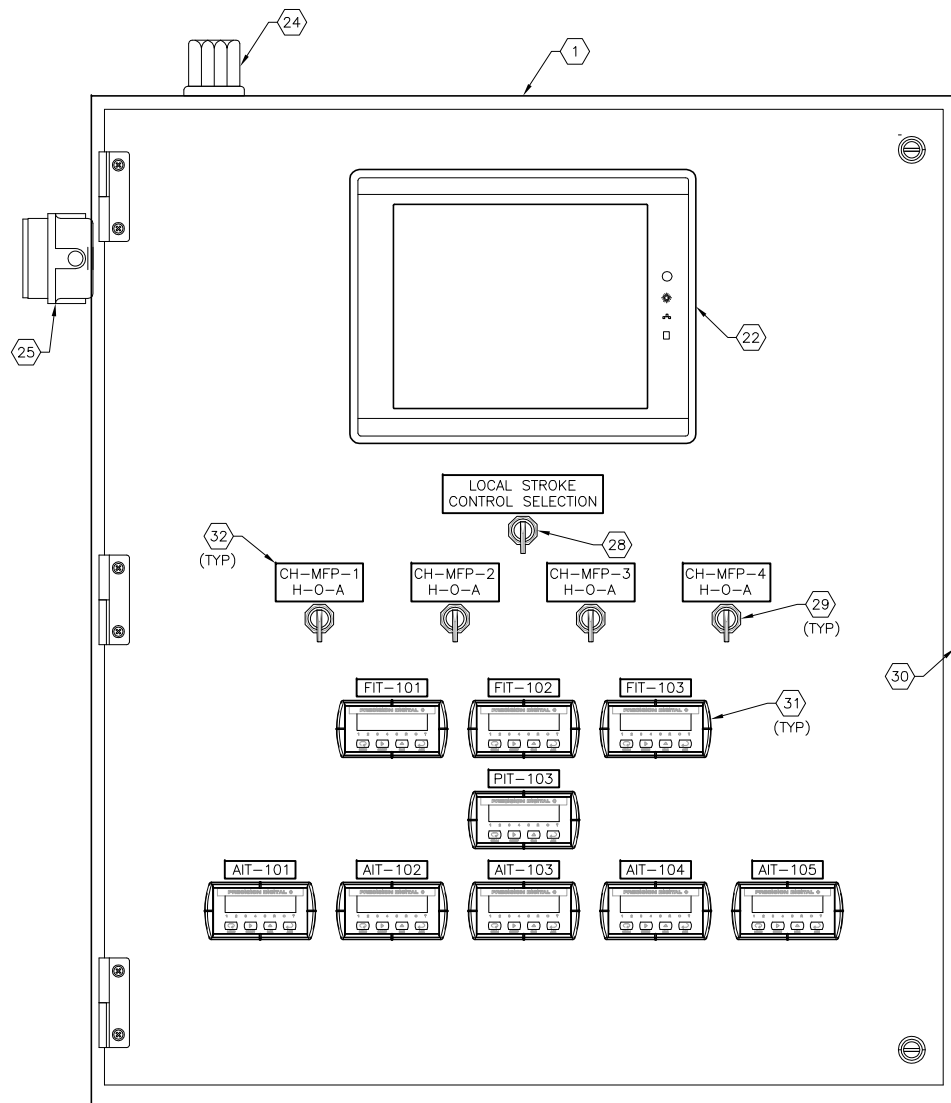
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM TRICON CONSULTING ENGINEERS  
 TRICON ENGINEERING, P.E. 17102670

INSTRUMENTATION AND CONTROL LEGEND

HOWARD F. CURREN  
 AWWTP METHANOL FEED  
 PUMP REPLACEMENT  
 2700 MARITIME BLVD

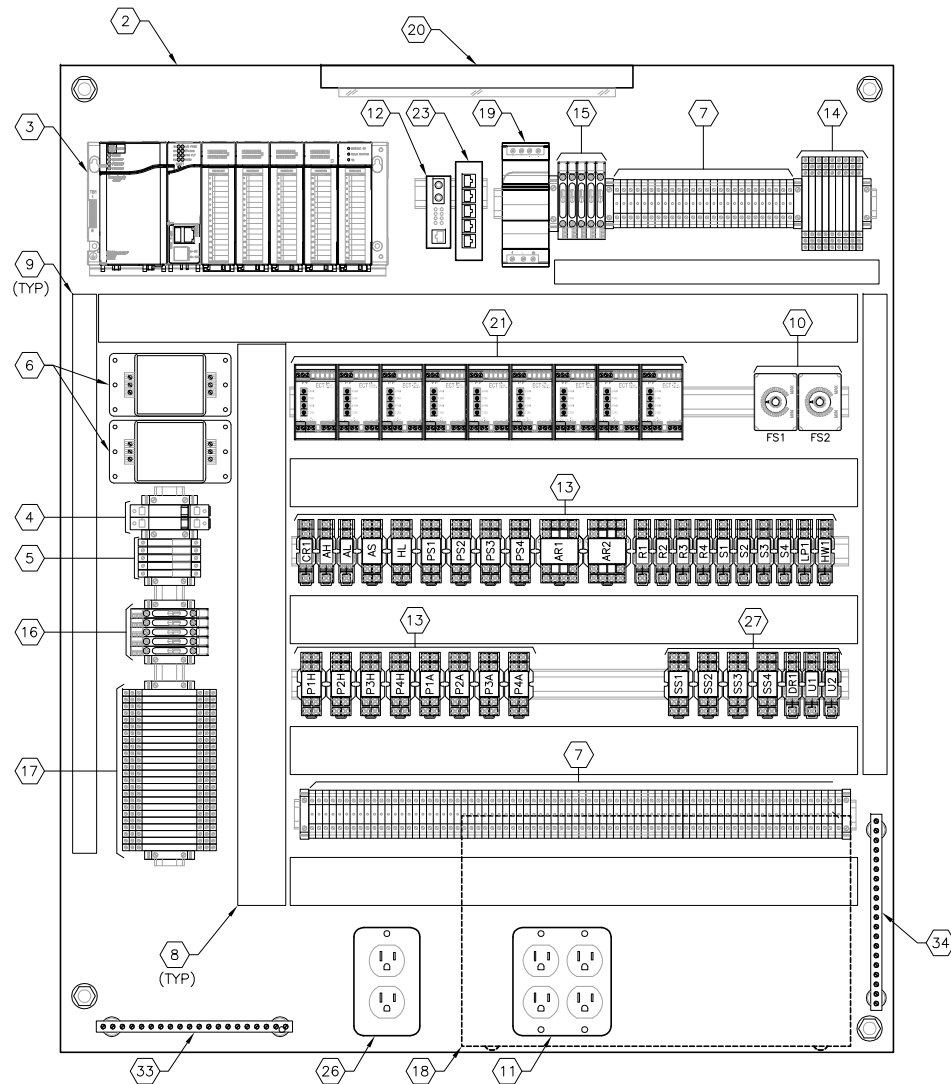
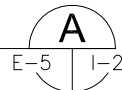
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
 813.227.9190 FAX 813.227.9195  
 Certificate of Authorization No. 00008363





### METHANOL PUMP CONTROL PANEL ENCLOSURE DEADFRONT ELEVATION

SCALE : N.T.S.



### METHANOL PUMP CONTROL PANEL INTERIOR ELEVATION

SCALE : N.T.S.



### KEYED NOTES:

- 1 PROVIDE AND INSTALL 42" X 36" X 12", NEMA 4X, STAINLESS STEEL ENCLOSURE WITH STEEL BACK PANEL AND 3-POINT LATCHING DOOR. PROVIDE WITH DOOR STOP KIT. HOFFMAN CATALOG #A42H3612SSLP3PT.
- 2 METHANOL PUMP CONTROL PANEL STEEL BACK PANEL
- 3 PROVIDE AND INSTALL PLC RACK. PLC RACK TO CONSIST OF : ONE (1) - GE RX3i CPU : IC695CPE305-ABAG; THREE (3) A/C INPUT MODULES: GE IC694MDL250; ONE (1) A/C RELAY MODULE: GE IC694MDL916; ONE (1) ANALOG INPUT MODULE: GE IC694ALG616; ONE (1) 120V POWER SUPPLY: GE IC695PSA040; ONE (1) 7-SLOT BASEPLATE: GE IC695CHS007.
- 4 PROVIDE AND INSTALL 120V CIRCUIT BREAKERS. 15 AMPERE SQUARE-D QOU115 AND 10 AMPERE SQUARE-D QOU110 AS REQUIRED.
- 5 PROVIDE AND INSTALL 120V, THERMAL CIRCUIT BREAKERS. REFER TO REMOTE I/O RACK WIRING DIAGRAM FOR QUANTITY/SIZE. ALL THERMAL CIRCUIT BREAKERS SHALL BE PHOENIX CONTACT TCP TYPE.
- 6 PROVIDE AND INSTALL 120V SURGE PROTECTION DEVICES. EDCO HSP121BT-1RU.
- 7 PROVIDE AND INSTALL DIN-RAIL MOUNTED TERMINAL BLOCKS, ALLEN-BRADLEY 1492-W10. ALL DIN-RAIL SHALL BE ALUMINUM.
- 8 PROVIDE AND INSTALL 2"X2" PANDUIT (OR EQUAL) WIRING SYSTEM WITH COVERS (TYPICAL).
- 9 PROVIDE AND INSTALL 1"X2" PANDUIT (OR EQUAL) WIRING SYSTEM WITH COVERS (TYPICAL).
- 10 PROVIDE AND INSTALL SQUARE-D 9050 JCK SERIES (OR EQUAL) DPDT TIME DELAY RELAYS WITH 24V DC COILS. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED.
- 11 PROVIDE AND INSTALL GFI RECEPTACLES, HUBBELL, GFR5352IA OR EQUAL FOR UPS. RECEPTACLES TO BE USED FOR CONTROL, MEDIA CONVERTER AND ETHERNET SWITCH 120V POWER IN CASE OF UPS FAILURE. (LOCATED BEHIND UPS).
- 12 PROVIDE AND INSTALL MULTIMODE MEDIA CONVERTER WITH ST CONNECTORS FOR COMMUNICATION TO FIBER CABINET IN FILTER BUILDING NO. 1. MEDIA CONVERTER TO BE OMNITRON FLEXPPOINT 10/100 SERIES, MODEL NO. 4342-1. CONTRACTOR TO PROVIDE AND INSTALL DUPLICATE MEDIA CONVERTER IN FILTER BUILDING NO. 1 FIBER CABINET. REFER ALSO TO SHEET E-3.
- 13 PROVIDE AND INSTALL SQUARE-D 8501 R SERIES (OR EQUAL) RELAYS WITH 120V COILS. POLE QUANTITIES VARY. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH TYPE OF RELAY PROVIDED.
- 14 PROVIDE AND INSTALL ANALOG SURGE PROTECTION DEVICES AS REQUIRED. MTL CATALOG # SD32.
- 15 PROVIDE AND INSTALL FUSE TERMINAL BLOCKS FOR DC POWER. PHOENIX CONTACT UK 5-HESI.
- 16 PROVIDE AND INSTALL FUSE TERMINAL BLOCKS FOR AC POWER. PHOENIX CONTACT UK 5-HESI.
- 17 PROVIDE AND INSTALL 120V DIGITAL SURGE PROTECTION DEVICES AS REQUIRED. MTL CATALOG # SD150X.
- 18 PROVIDE AND INSTALL 700VA UPS. POWERWARE PW9120-700 WITH AS/400 RELAY INTERFACE CARD, OR EQUAL.
- 19 PROVIDE AND INSTALL 120W, 24V DC POWER SUPPLY. MEAN WELL MODEL SDR-120-24 OR EQUAL.
- 20 PROVIDE AND INSTALL 120V, 8W, CABINET LIGHT. PRESCOLITE UCS12-1-08-PH-120-WSW WITH INTEGRAL SWITCH. PROVIDE F8T5/CW LAMP AND BRACKET TO MOUNT FIXTURE TO BACKPANEL.
- 21 PROVIDE AND INSTALL 4-20mA SIGNAL ISOLATOR/CONVERTER. MOORE INDUSTRIES ECT/4-20mA/2X4-20mA/117AC/DIN, OR EQUAL. IF INSTRUMENT REQUIRES LOOP POWER, CONTRACTOR SHALL INSTALL ECT/4-20mA/2X4-20mA/117AC/TX/DIN, OR EQUAL.
- 22 PROVIDE AND INSTALL OPERATOR INTERFACE TERMINAL (OIT). MAPLE SYSTEMS HMI5150X.
- 23 PROVIDE AND INSTALL 5-PORT ETHERNET SWITCH. HIRSCHMANN 5TX.
- 24 PROVIDE AND INSTALL RED ALARM LIGHT, 120V, FEDERAL SIGNAL MODEL #131DST. MOUNT LIGHT ON PANEL EXTERIOR.
- 25 PROVIDE AND INSTALL ALARM HORN, WP, FEDERAL SIGNAL MODEL #350WB IN RED WP BACK BOX. HORN TO BE ON PANEL EXTERIOR.

-- KEYED NOTES CONTINUED AT LEFT --

### KEYED NOTES CONTINUED :

- 26 PROVIDE AND INSTALL DUPLEX GFI SERVICE RECEPTACLE, HUBBELL, GFR5352IA OR EQUAL.
- 27 PROVIDE AND INSTALL SQUARE-D 8501 R SERIES (OR EQUAL) RELAYS WITH 24V DC COILS. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED.
- 28 PROVIDE AND INSTALL 5-POSITION, MAINTAINED, PUMP SELECTOR SWITCH. SQUARE-D CLASS 9001, KS88FB WITH CONTACTS AS REQUIRED.
- 29 PROVIDE AND INSTALL 3-POSITION, MAINTAINED, PUMP HAND/OFF/AUTO SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.
- 30 PROVIDE AND INSTALL MOMENTARY PUSHBUTTON, ALARM SILENCE. SQUARE-D CLASS 9001, KR1RH13. PUSHBUTTON TO BE MOUNTED ON THE EXTERIOR OF THE METHANOL PUMP CONTROL PANEL.
- 31 PROVIDE AND INSTALL PRECISION DIGITAL PROCESS METER, MODEL PD765-7X2-00 OR PD765-7X3-00 AS REQUIRED.
- 32 PROVIDE AND INSTALL LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS.
- 33 PROVIDE AND INSTALL NICKEL-PLATED COPPER EQUIPMENT BUSBAR.
- 34 PROVIDE AND INSTALL NICKEL-PLATED COPPER BUSBAR FOR ANALOG CABLE SHIELD TERMINATIONS.

NO.	REV.	DATE	DESCRIPTION
1		JANUARY 31, 2014	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF TRICON CONSULTING ENGINEERS. THESE PLANS INCLUDE DESIGN & CONSTRUCTION OF A REGISTERED PROFESSIONAL ENGINEER.

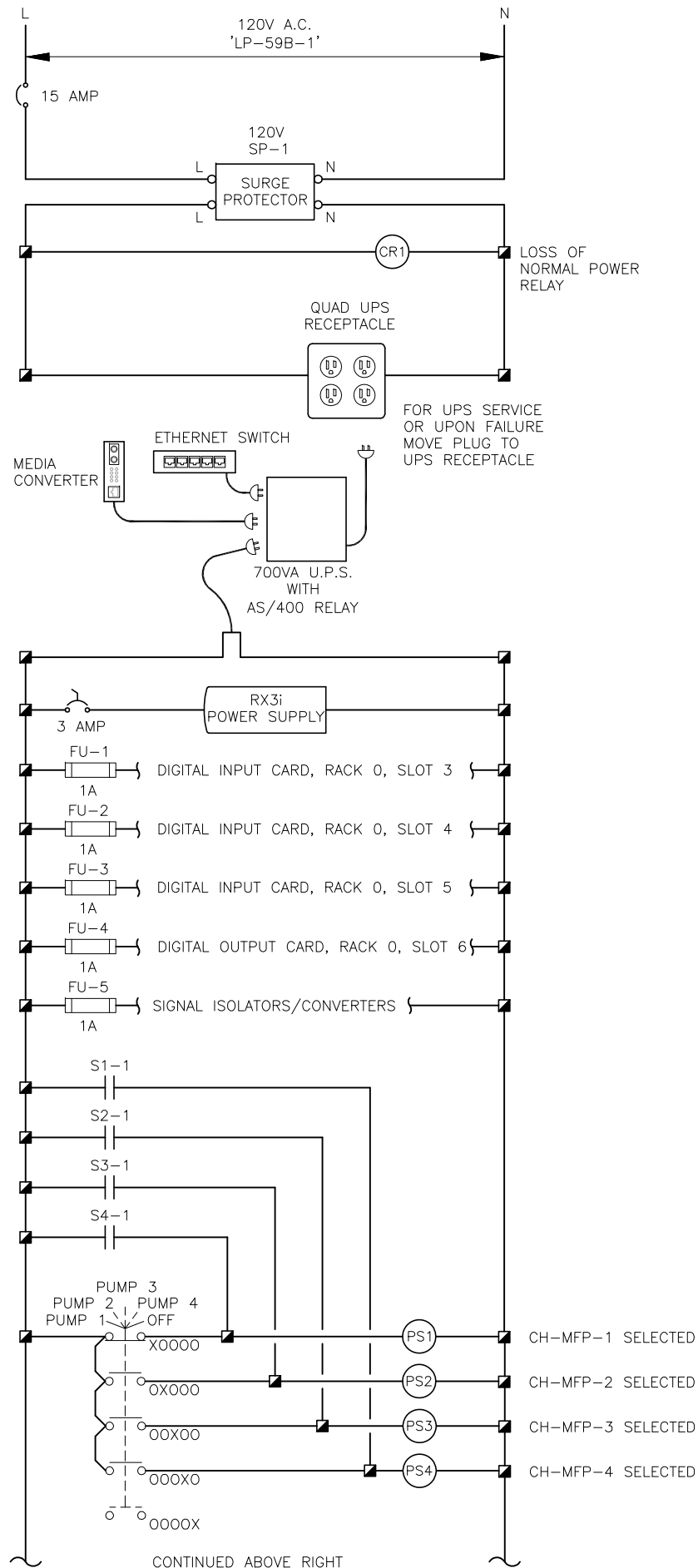
TRICON ENGINEERS, P.C. 17102670

### METHANOL PUMP CONTROL PANEL DETAILS

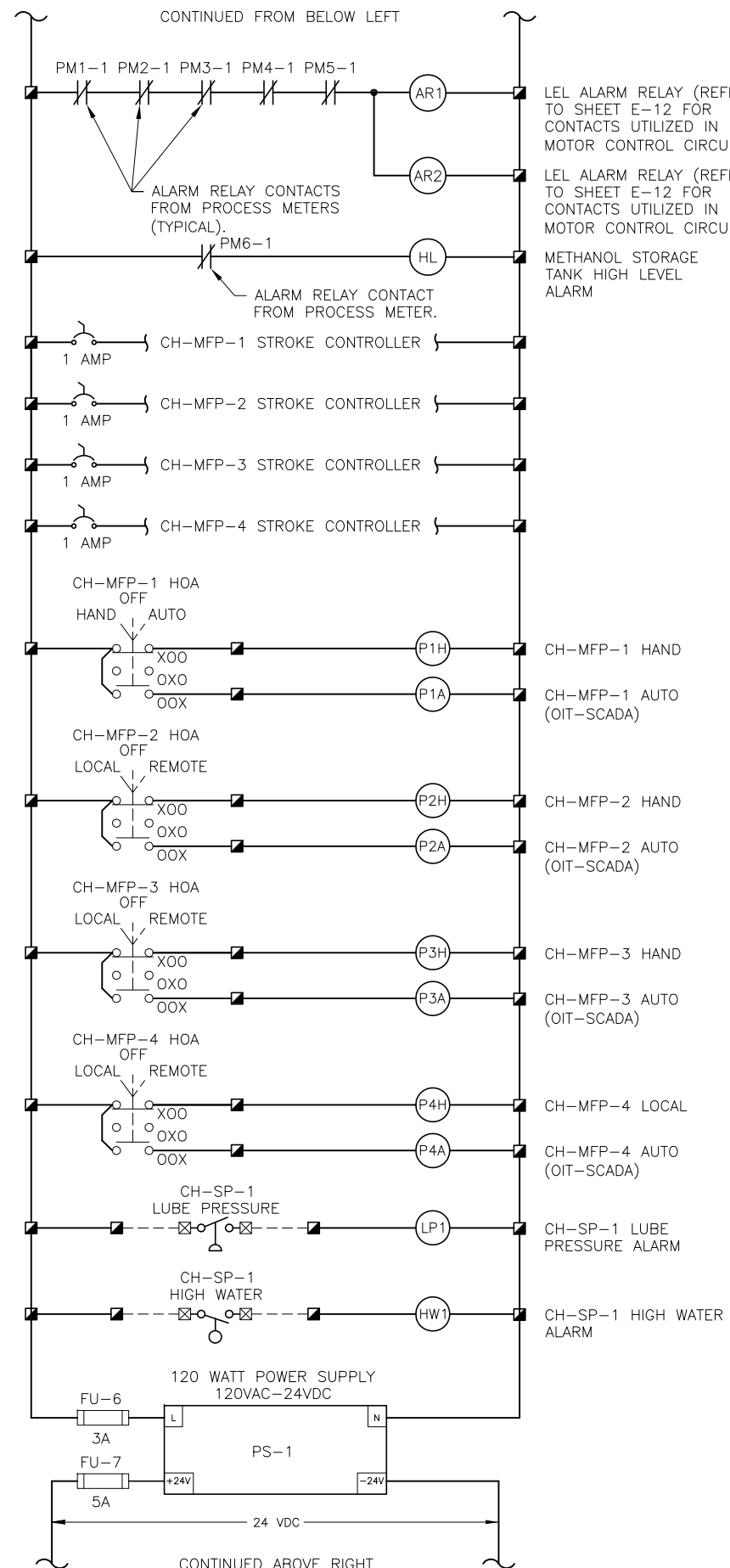
HOWARD F. CURREN  
 AWWTP METHANOL FEED  
 PUMP REPLACEMENT  
 2700 MARITIME BLVD

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
 813.227.9190 FAX 813.227.9195  
 Certificate of Authorization No. 00008363

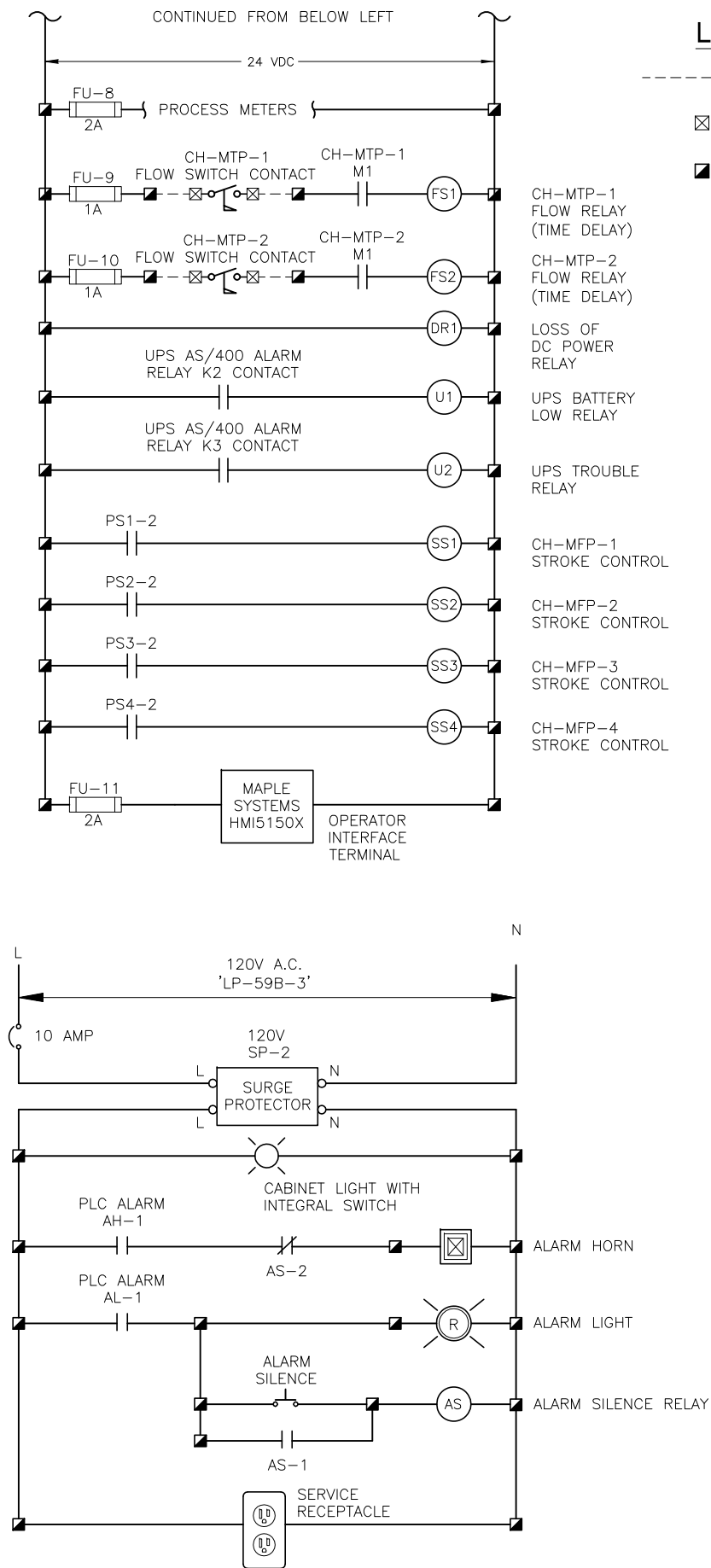




CONTINUED ABOVE RIGHT



CONTINUED ABOVE RIGHT

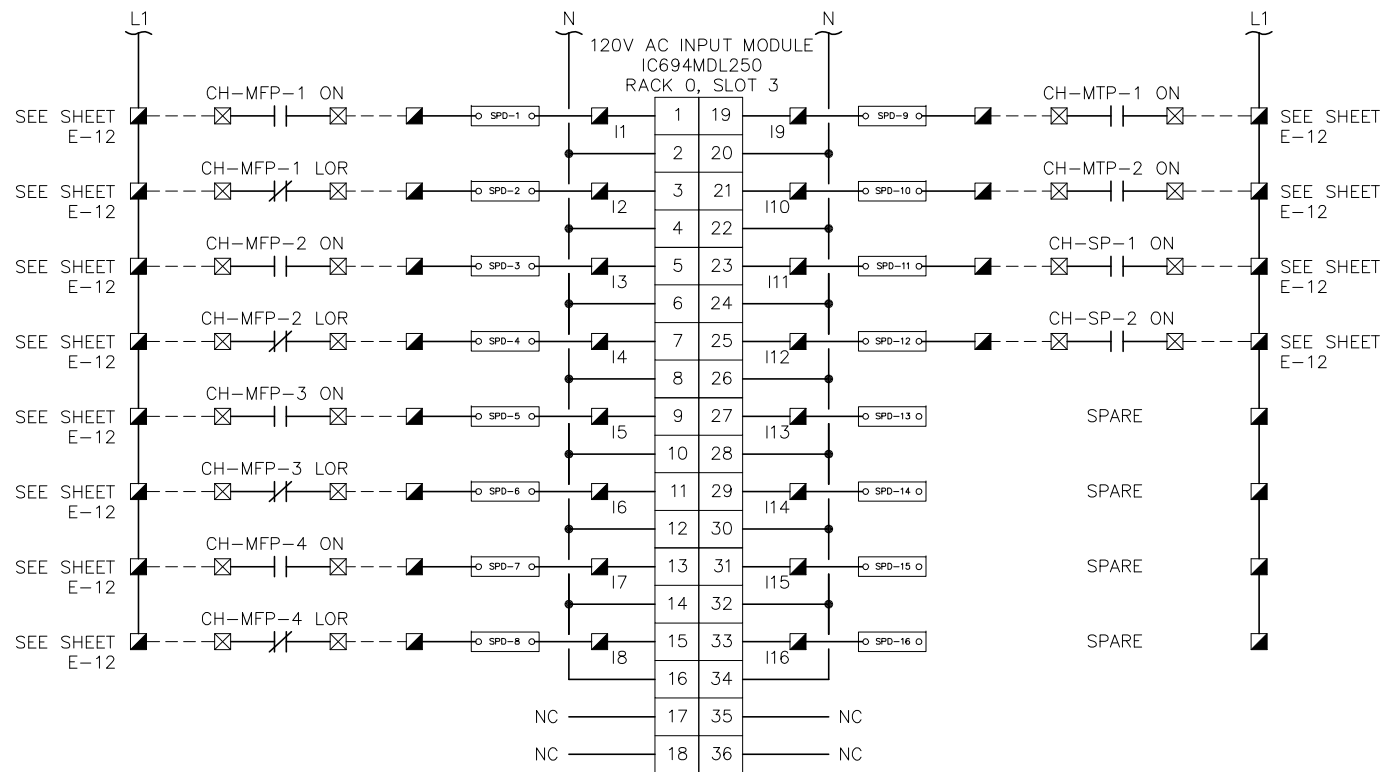


**LEGEND**

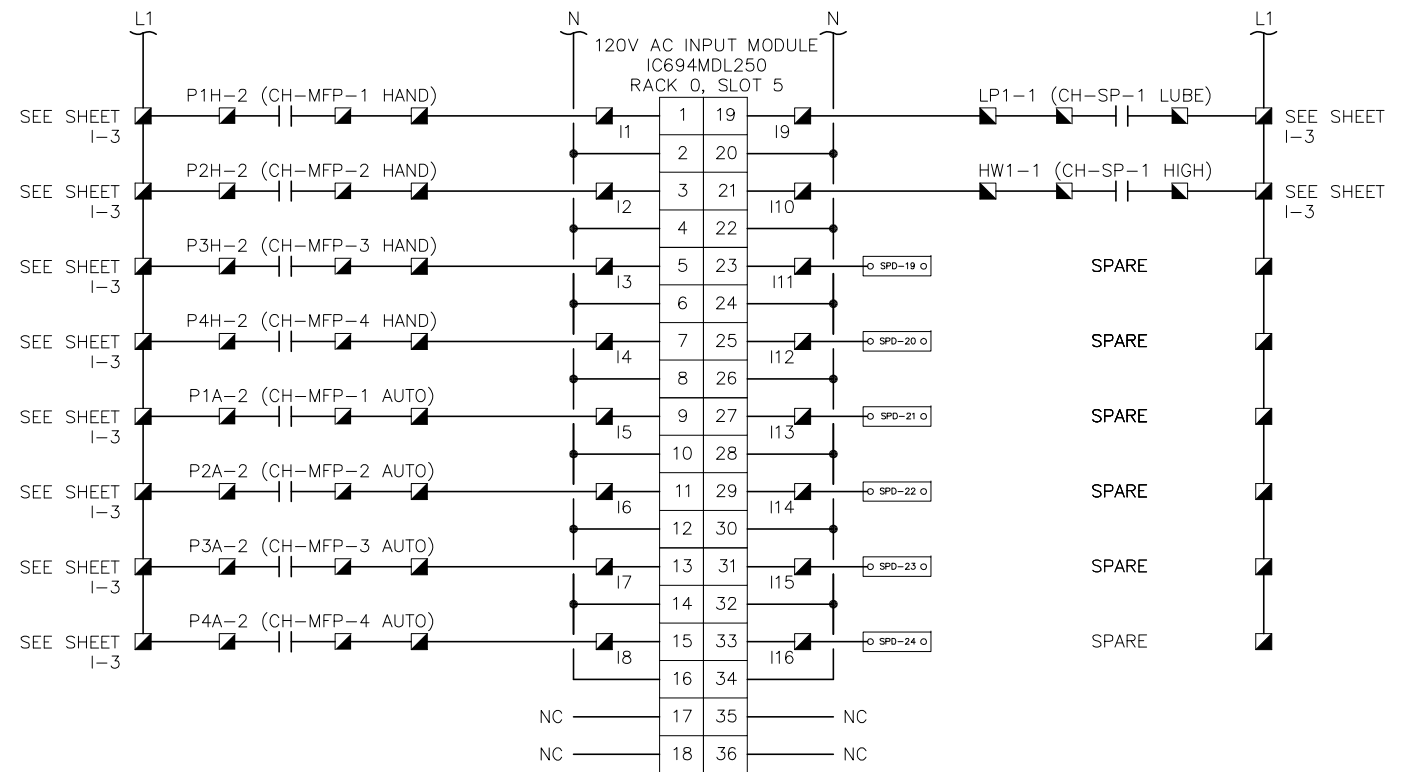
- DENOTES FIELD WIRING
- ☒ DENOTES TERMINAL ON FIELD DEVICE
- DENOTES TERMINAL IN METHANOL PUMP CONTROL PANEL

METHANOL PUMP CONTROL PANEL WIRING DIAGRAM

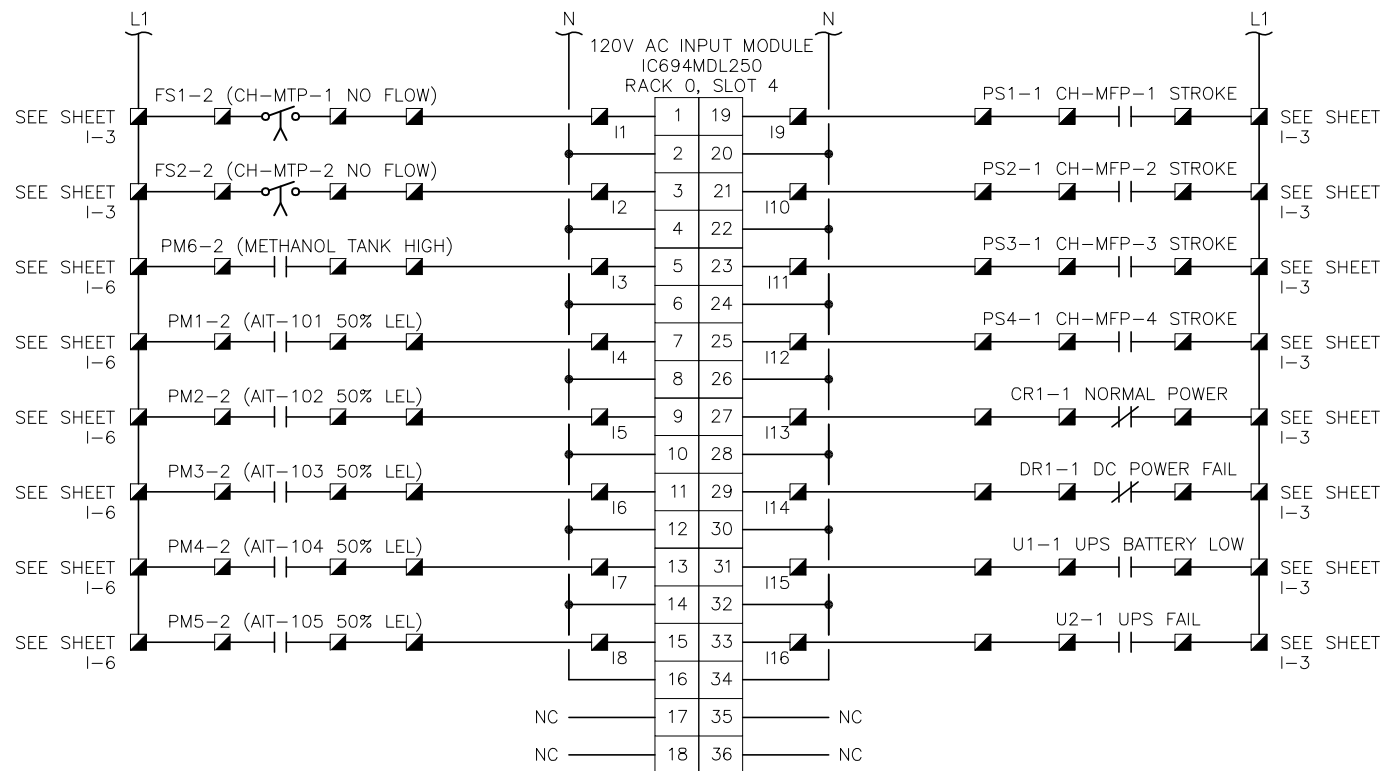
NO. OF SHEETS	1	DATE	JANUARY 31, 2014
NO. OF PAGES	1	DESIGNED BY	EAK
PROJECT NO.	171502970	CHECKED BY	DEV
<p>THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM TRICON CONSULTING ENGINEERS</p> <p>FOR MORE INFORMATION CONTACT TRICON CONSULTING ENGINEERS</p>			
<p><b>METHANOL PUMP CONTROL PANEL WIRING DIAGRAM</b></p>			
<p><b>HOWARD F. CURREN AWWTP METHANOL FEED PUMP REPLACEMENT 2700 MARITIME BLVD</b></p>			
<p>777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602 813.227.9190 FAX 813.227.9195 Certificate of Authorization No. 00008363</p>			
<p><b>TRICON CONSULTING ENGINEERS</b></p>			
<p>I-3</p>			



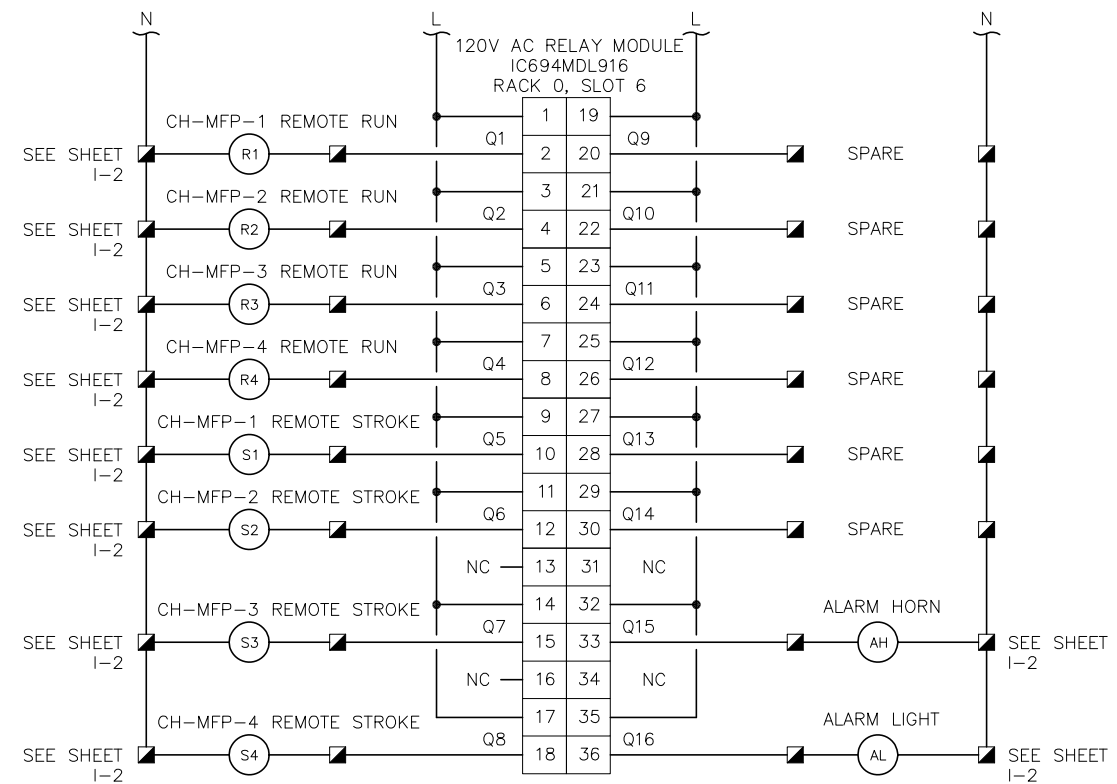
PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 3



PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 5



PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 4



PLC RELAY OUTPUT CARD WIRING DIAGRAM - SLOT 6

NO.	REV.	DATE	DESCRIPTION
1	1	JANUARY 31, 2014	REVISED BY: DEV
2	1		APPROVED BY: DEV
3	1		CREATED BY: DEV

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF TRICON CONSULTING ENGINEERS. THE USER SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PROPERTY OR PERSONS CAUSED BY THE USE OF THESE PLANS.

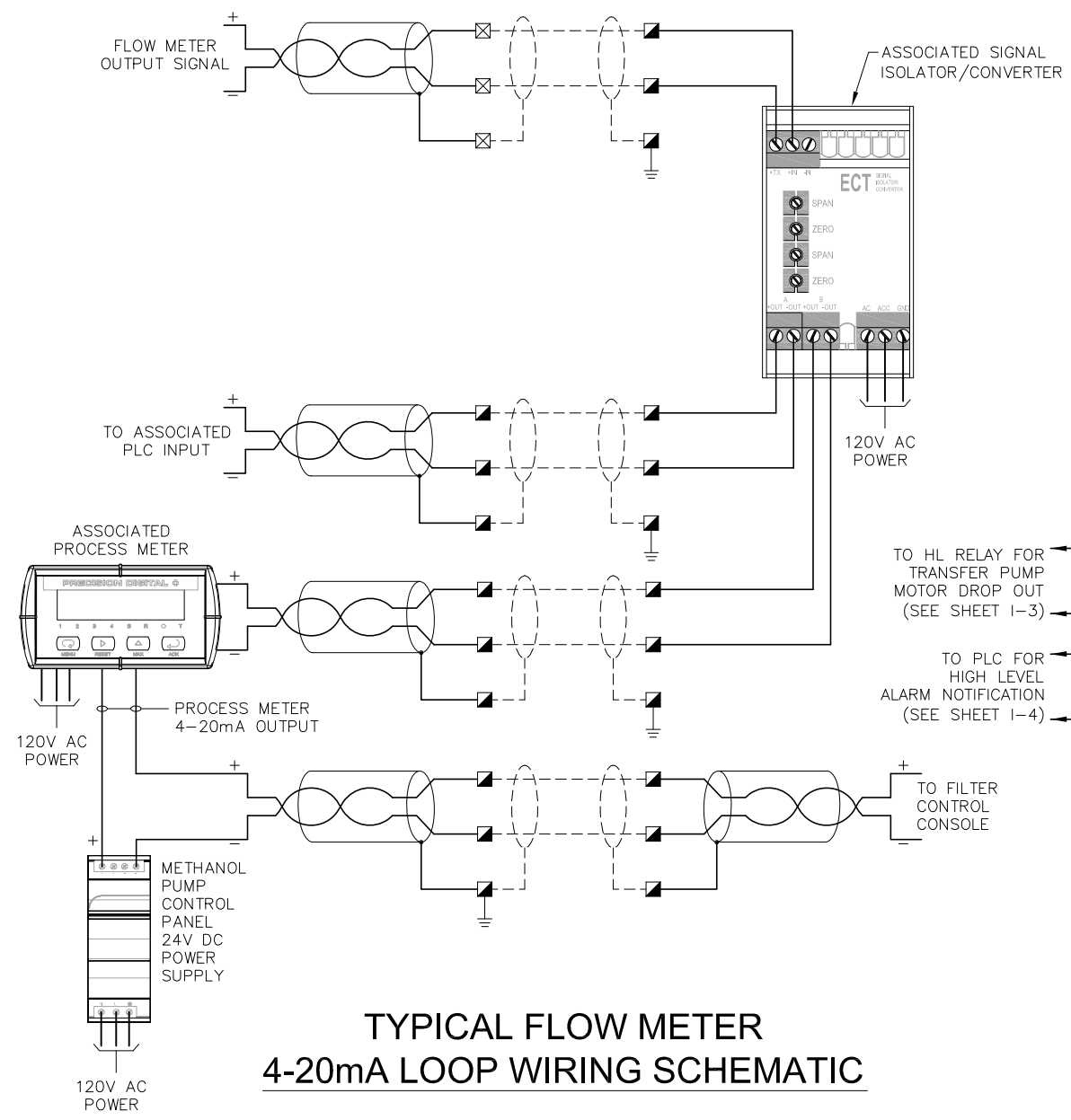
METHANOL PUMP CONTROL PANEL DISCRETE I/O WIRING DIAGRAMS

HOWARD F. CURREN  
AWWTP METHANOL FEED PUMP REPLACEMENT  
2700 MARITIME BLVD

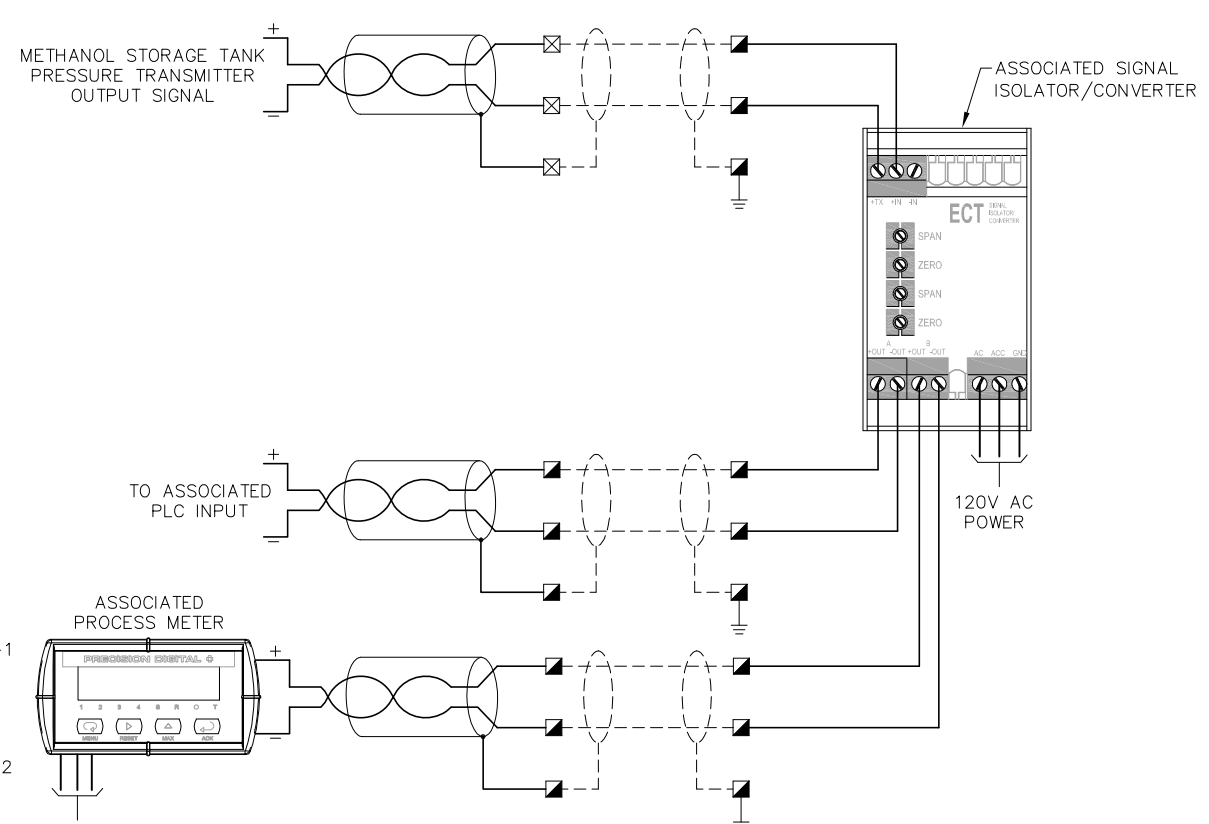
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363



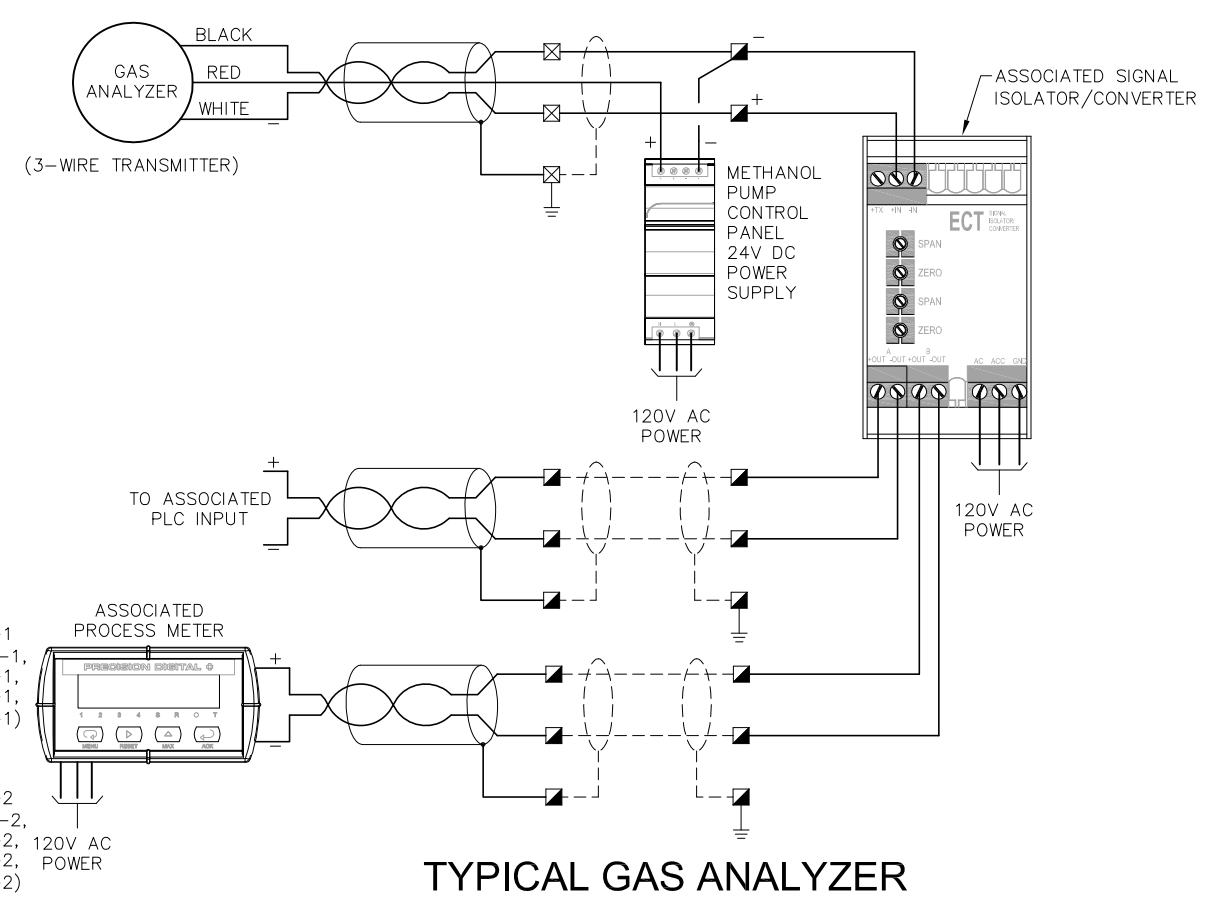




**TYPICAL FLOW METER  
4-20mA LOOP WIRING SCHEMATIC**



**METHANOL STORAGE TANK LEVEL  
4-20mA LOOP WIRING SCHEMATIC**



**TYPICAL GAS ANALYZER  
4-20mA LOOP WIRING SCHEMATIC**

**GENERAL NOTES :**

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. CONTRACTOR SHALL VERIFY INPUT AND OUTPUT IMPEDANCES OF ALL EQUIPMENT SUPPLIED AND SHALL VERIFY EQUIPMENT IS CAPABLE OF DRIVING 4-20mA CURRENT INTO ASSOCIATED LOADS.
3. CONTRACTOR SHALL VERIFY POWER SUPPLY SPECIFIED IS SUFFICIENT FOR EQUIPMENT SUPPLIED.
4. CONTRACTOR SHALL FIELD VERIFY WHETHER 2-WIRE TRANSMITTERS REQUIRE LOOP POWER BE SUPPLIED BY 4-20mA ISOLATORS/CONVERTERS.

NO.	REV.	DATE	DESCRIPTION
1	01	JANUARY 31, 2014	ISSUED FOR EAC
2	02		APPROVED BY DEV
3	03		DESIGNED BY DEV
4	04		CHECKED BY DEV
5	05		APPROVED BY DEV
6	06		DESIGNED BY DEV
7	07		CHECKED BY DEV
8	08		APPROVED BY DEV
9	09		DESIGNED BY DEV
10	10		CHECKED BY DEV
11	11		APPROVED BY DEV
12	12		DESIGNED BY DEV
13	13		CHECKED BY DEV
14	14		APPROVED BY DEV
15	15		DESIGNED BY DEV
16	16		CHECKED BY DEV
17	17		APPROVED BY DEV
18	18		DESIGNED BY DEV
19	19		CHECKED BY DEV
20	20		APPROVED BY DEV

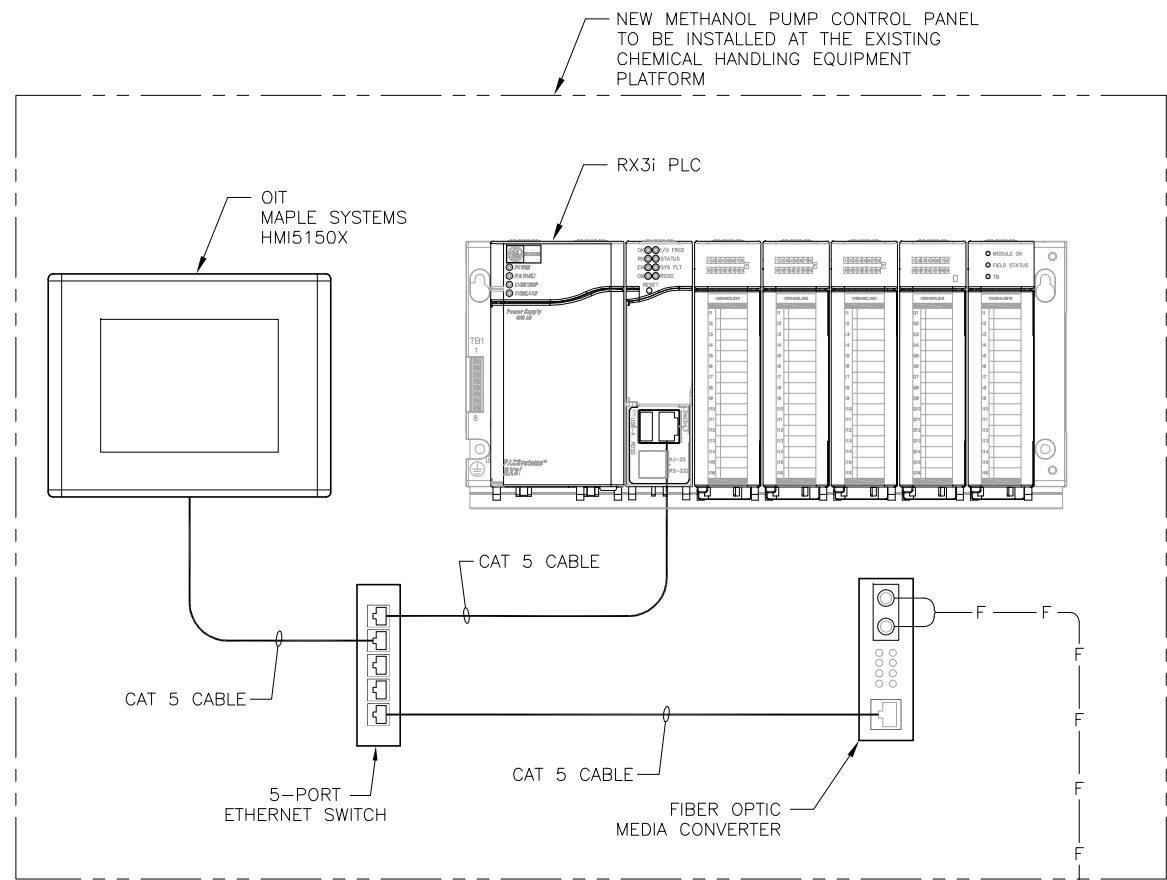
THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM TRICON CONSULTING ENGINEERS. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THESE PLANS IS PROHIBITED AND SUBJECT TO PROSECUTION.

**METHANOL PUMP  
CONTROL PANEL  
4-20mA LOOP  
SCHEMATICS**

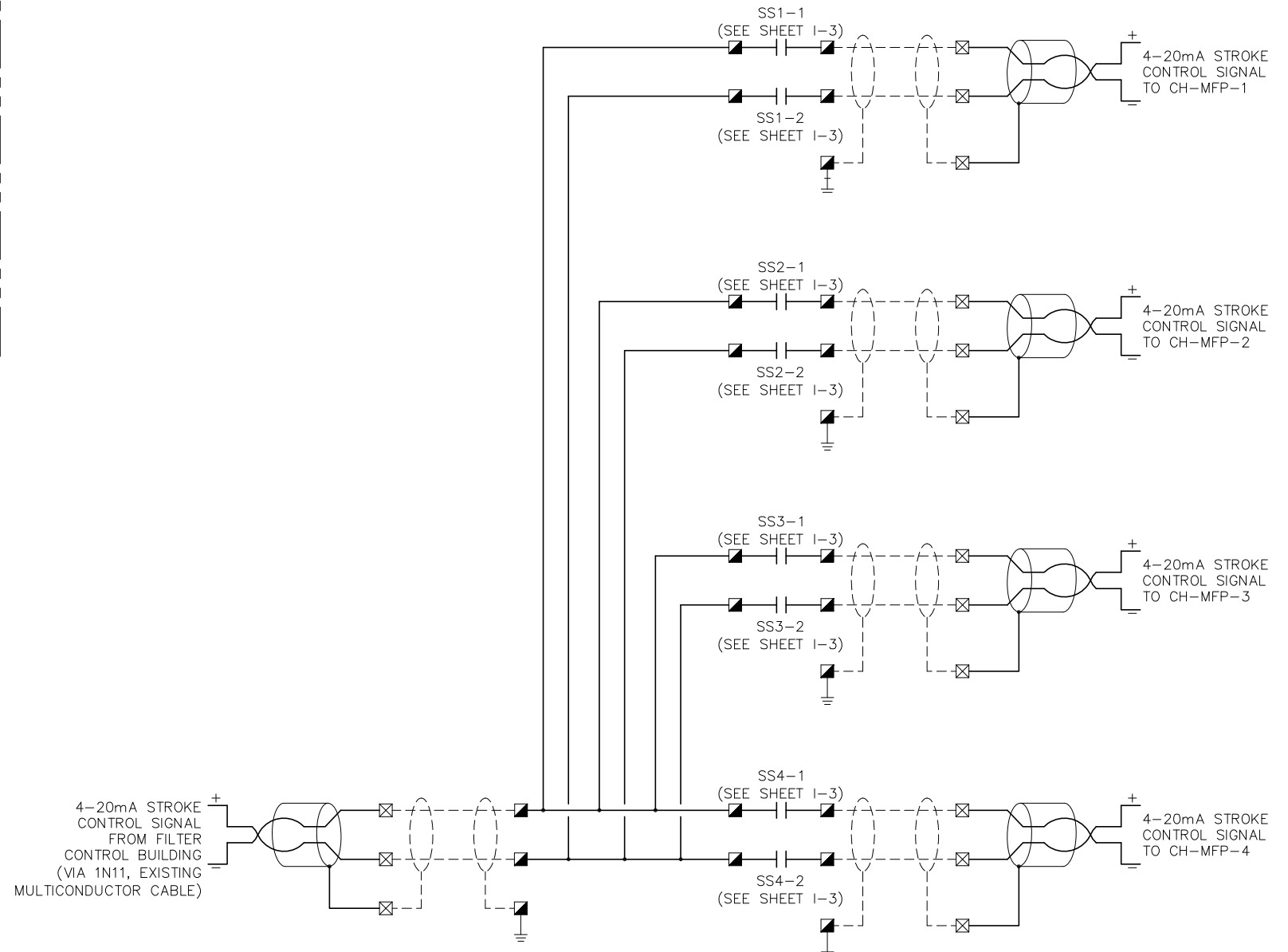
**HOWARD F. CURREN  
AWWTP METHANOL FEED  
PUMP REPLACEMENT  
2700 MARITIME BLVD**

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
813.227.9190 FAX 813.227.9195  
Certificate of Authorization No. 00008363





COMMUNICATION RISER DIAGRAM



STROKE CONTROL SIGNAL WIRING DIAGRAM

NO.	REV.	DATE	DESCRIPTION	APP. BY	APP. DATE
1	0				
2	1	JANUARY 31, 2014			

THESE PLANS MAY NOT BE COPIED OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM TRICON CONSULTING ENGINEERS

TRICON CONSULTING ENGINEERS

METHANOL PUMP CONTROL PANEL COMMUNICATIONS RISER DIAGRAM

HOWARD F. CURREN  
 AWWTP METHANOL FEED PUMP REPLACEMENT  
 2700 MARITIME BLVD

777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602  
 813.227.9190 FAX 813.227.9195  
 Certificate of Authorization No. 00008363

