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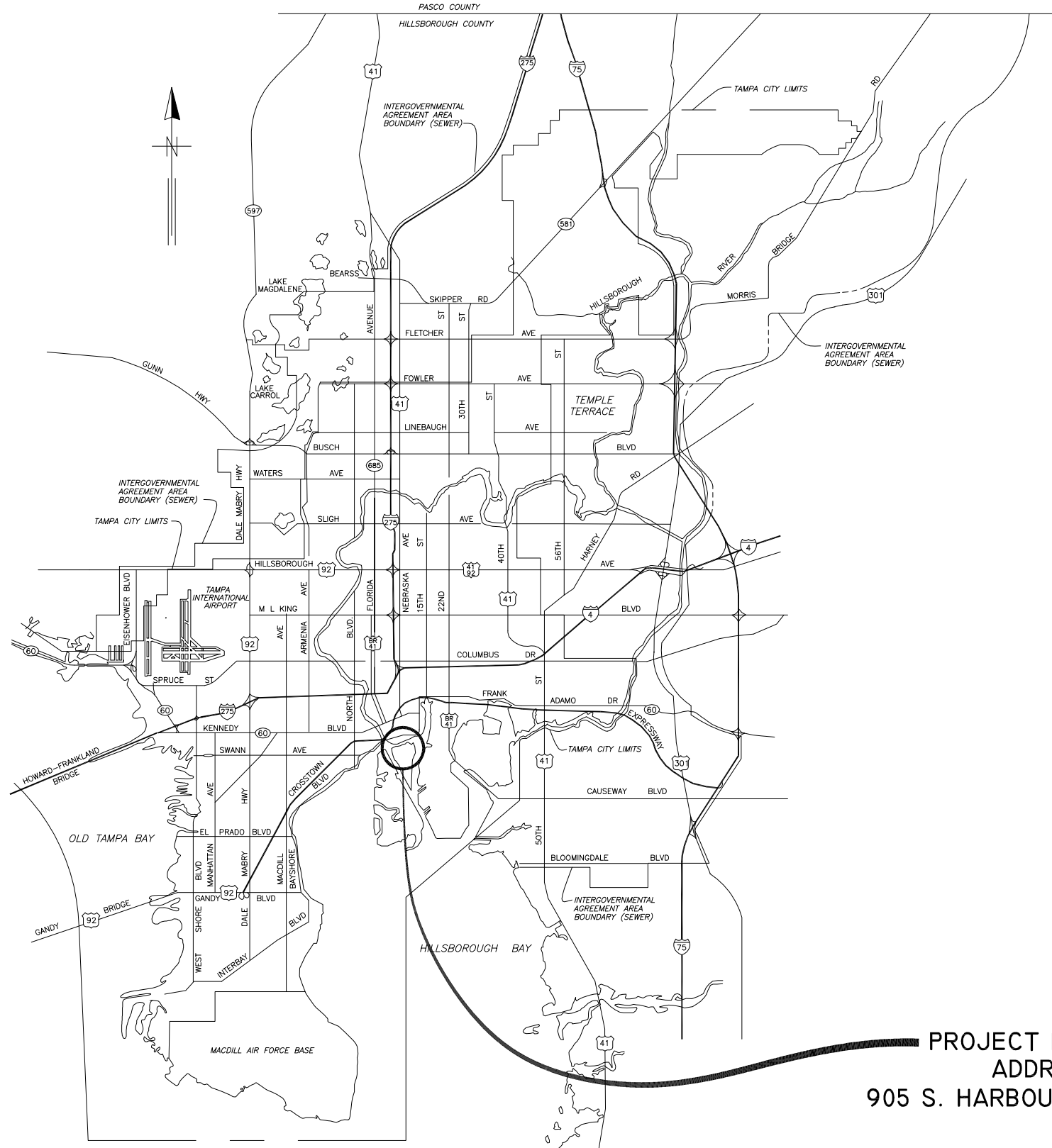
**Please Email ALL Questions:**

**[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

LOCATION MAP



CITY of TAMPA



WASTEWATER DEPARTMENT

PLANS FOR

HARBOUR ISLAND PS  
REHABILITATION

CONTRACT NO.

16-C-00021

PROJECT LOCATION  
ADDRESS:  
905 S. HARBOUR ISLAND BLVD.

User: as13 Drawing Name: K:\WasteWater Projects\Harbour Island PS\Design\Plans\Drafting\DWG\Harbour Island PS Rehabilitation.dwg  
Layout: Jul 21, 2016 - 1:47pm CTB - MONOCHROME.CTB

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	ROMAN D. KORCHAK, P.E. #42626 ELECTRICAL SECTION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT / LG	CITY of TAMPA WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION COVER SHEET	W.O. 1000511
		3			DRN: JHJ			SHEET
		2			CKD: JF			1
		1			DATE: 6/30/16			

### LEGEND

EX SEWERS	UP to 36" & SMALLER	36" & LARGER
EX FORCE MAIN		
EX SAN SEWER & MANHOLES		
EX STORM SEWER & MANHOLES		
PROP SEWERS		
PROP FORCE MAIN		
PROP SANITARY SEWER & MANHOLES		
PROP STORM SEWER & MANHOLES		

### OTHER FEATURES

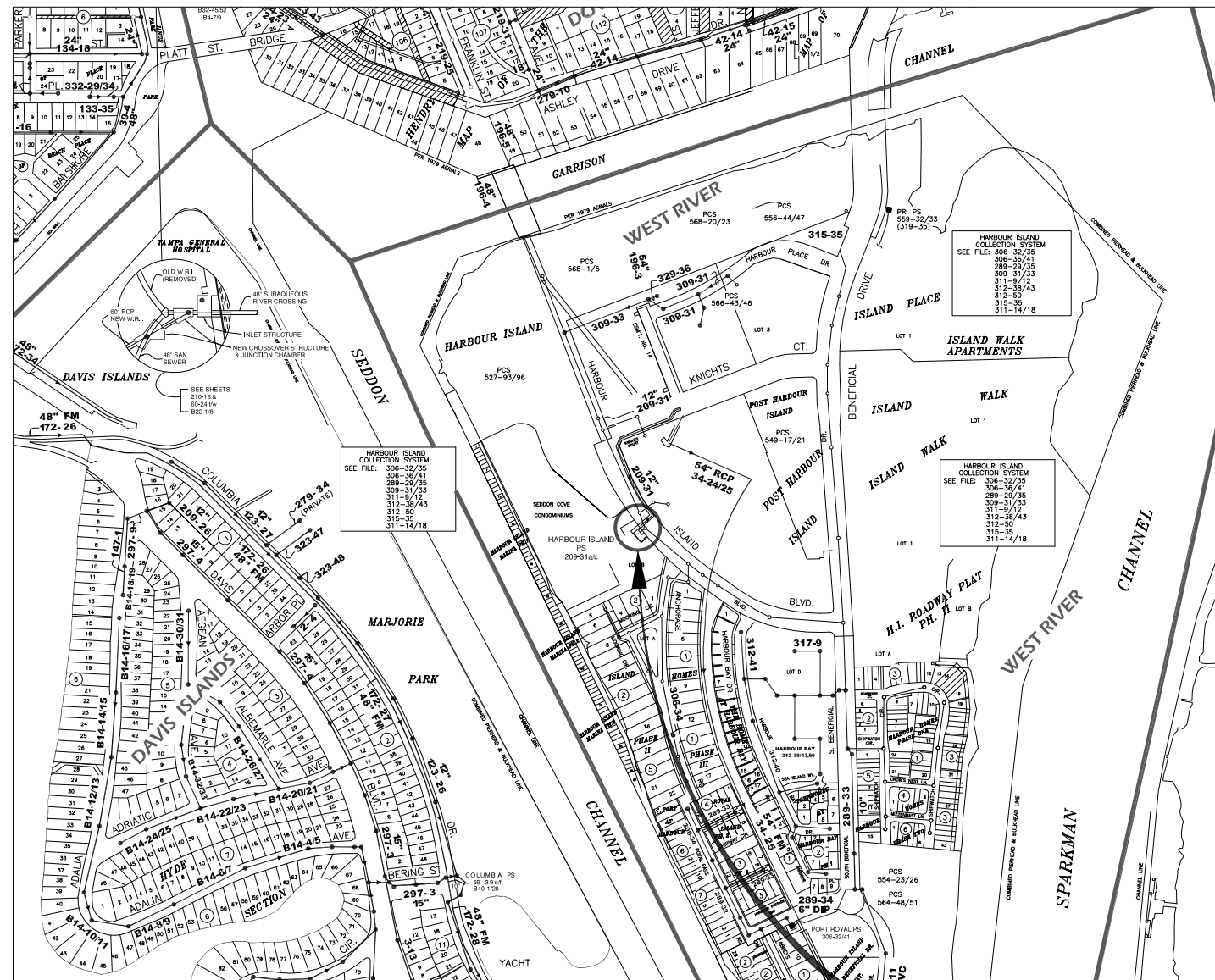
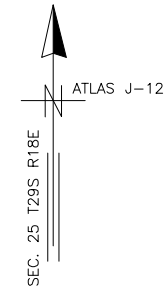
RIGHT of WAY LINE	
EDGE of PAVEMENT	
WATER LINE	
GAS LINE	
ELECTRICAL CABLE or DUCT	
TELEPHONE CABLE or DUCT	
TV CABLE	
VALVE, AIR RELEASE VALVE	
HYDRANT	
CATCH BASIN, GRATE	
POWER POLE	
TELEPHONE POLE	
GUY POLE	
GUY WIRE	
VALVE VAULT	
WATER METER	
ELECTRICAL MANHOLE or VAULT	
TELEPHONE MANHOLE or VAULT	
TRAFFIC BOX or VAULT	
BUILDING LIMIT	
PROPERTY OWNERSHIP	
FENCE	
CONIFER	
PALM	
OAK	
OTHER	
SHRUB	
HEDGE	
RAILROAD TRACKS	
IRON PIPE	
CONTROL POINT	
CONCRETE MONUMENT	
OPEN DITCHES	
EXISTING WYE	
PROPOSED WYE	
CLEAN OUT	

### ABBREVIATIONS

AIR RELEASE VALVE	ARV	MAINTENANCE OF TRAFFIC	MOT
APPROXIMATE LOCATION	AL	MANHOLE	MH or M
BENCH MARK	BM	PLUG VALVE	PV
BURIED TELEPHONE	BT	POINT of INTERSECTION	PI
CONCRETE PIPE	CP	POLYVINYL CHLORIDE PIPE	PVC
DIAMETER RATIO	DR	REINFORCED CONCRETE PIPE	RCP
DUCTILE IRON PIPE	DIP	RESTRAINED MECHANICAL JOINT	RMJ
EDGE of PAVEMENT	EOP	RIGHT of WAY	R/W
FIBER OPTIC CABLE	FOC	TOP of PIPE	TOP
FLORIDA DEPT. of TRANSPORTATION	FDOT	VERIFIED VERT. AND HORZ. LOCATION	Vvh
FORCE MAIN	FM	VITRIFIED CLAY PIPE	VCP
HIGH DENSITY POLYETHYLENE PIPE	HDPE	WASTEWATER	WW
EL INVERT ELEVATION	IE or INV		

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SHEET E20	ELECTRICAL DETAILS (SHT. 2 OF 3)
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LOCATION MAP  
N.T.S.

HARBOUR ISLAND PS  
905 S. HARBOUR ISLAND BLVD.

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JACINTO CARLOS FERRAS, P.E., #49454  
DESIGN DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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DES: VT  
DRN: JHJ  
CKD: JF  
DATE: 6/30/16

CITY of TAMPA  
WASTEWATER DEPARTMENT

HARBOUR ISLAND PS REHABILITATION  
LEGEND, INDEX, & LOCATION MAP

W.O. 1000511

SHEET

2

**DEMOLITION NOTES**

1. SALVAGEABLE MATERIAL, AS DETERMINED BY DEPARTMENT PERSONNEL, SHALL BE DELIVERED TO THE PARTS WAREHOUSE LOCATED ON THE TREATMENT PLANT SITE. NON-SALVAGEABLE MATERIALS ARE TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
2. THE CONSTRUCTION SITE SHALL BE MAINTAINED IN AS NEAT AND ORDERLY CONDITION AS POSSIBLE DURING CONSTRUCTION OPERATIONS. SITE SHALL BE SECURED WITH TEMPORARY FENCING AND STRUCTURES DURING HOURS WHEN CONTRACTOR IS NOT PRESENT TO ENSURE SAFETY OF CITY EMPLOYEES AND THE PUBLIC.
3. CONTRACTOR SHALL RESTORE ALL LANDSCAPING, SODDING, SPRINKLER SYSTEM PIPING AND PAVEMENT THAT MAY HAVE BEEN DAMAGED DURING CONSTRUCTION TO ITS ORIGINAL CONDITION OR BETTER. CONTRACTOR SHALL SOD ALL UNPAVED AREAS.

**GENERAL NOTES**

1. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE CONTRACT ADMINISTRATION DEPARTMENT, WASTEWATER PERSONNEL AND PUMPING STATION OPERATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHT-OF-WAY PERMITS FOR THE PUMPING STATION WORK.
3. DISTURBANCE TO ANY PROPERTY PUBLIC OR PRIVATE, WITHIN THE RIGHT-OF-WAY SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
4. THE CITY WILL OBTAIN ALL NECESSARY BUILDING PERMITS AND FDEP WASTEWATER PERMITS.
5. CONTRACTOR SHALL CALL SUNSHINE (1-800-432-4770) AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY.
6. NORMAL WORKING HOURS SHALL BE WEEKDAYS FROM 7:30 AM TO 4:00 PM UNLESS OTHERWISE APPROVED BY THE ENGINEER.
7. DURING THE REHABILITATION PROCESS, THE STRUCTURE SHALL BE ADEQUATELY VENTILATED AND HYDROGEN SULFIDE LEVELS SHALL BE CONTINUOUSLY MONITORED. THE CONTRACTOR MAY UTILIZED FORCED AIR. MONITORING EQUIPMENT SHALL BE CAPABLE OF ALERTING WORKERS TO THE PRESENCE OF HYDROGEN SULFIDE AT 10 PPM IN THE AIR, OR HYDROCARBONS AT 10 PERCENT OF THE LOWER EXPLOSIVE LIMIT.
8. PROPOSED (2) PUMP BASES SHALL BE 8-INCH DIAMETER DISCHARGE ELBOWS, COMPATIBLE TO EXISTING FLYGT 3201 PUMPS.
9. REMOVAL OF EXISTING PAVEMENT AND BASE MATERIAL SIDEWALK, CURB POLES, UNDERGROUND PIPES, STRUCTURES, FOUNDATIONS, AND OTHER MISCELLANEOUS ITEMS SHALL BE INCLUDED IN THE LUMP SUM PRICE AND NO SEPARATE PAYMENT WILL BE MADE.
10. AFTER WET WELL IS DEWATERED, THE CONTRACTOR SHALL CLEAN WET WELL OF ALL DEBRIS. DEBRIS MAY BE DELIVERED AND DISPOSED OF AT THE CITY OF TAMPA HOWARD F. CURREN AWTP, 2700 MARITIME BOULEVARD.
11. CONTRACTOR SHALL VERIFY QUANTITIES OF ALL NECESSARY PIPES, REDUCERS, FITTINGS, SUPPORTS, AND ANY MISCELLANEOUS BRACKETS.
12. DIMENSIONS SHOWN ARE NOT NECESSARILY ACCURATE TO THE DEGREE REQUIRED FOR FABRICATION. EXISTING DIMENSIONS AND VIEWS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT DIMENSIONS AND REFLECT THEM ON DETAILED SHOP DRAWINGS FOR APPROVAL BEFORE ANY FABRICATION.
13. SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE CITY FOR ALL PROPOSED ITEMS. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (CLEARLY LEGIBLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.
14. PUMP DISCHARGE PIPING IN WET WELL SHALL BE 10-INCH DIAMETER 316 STAINLESS STEEL (SCH40).
15. TESTING THE NEW DISCHARGE PIPES WILL BE ACCOMPLISHED BY OPERATING EACH PUMP FOR A MINIMUM 2 HOUR DURATION AND OBSERVING FOR ANY LEAKS. ANY MANUAL PUMP OPERATION OR SWITCHING PUMPS MUST BE PERFORMED BY CITY PERSONNEL.
16. ALL HARDWARE, UNLESS OTHERWISE NOTED, SHALL BE TYPE 316 STAINLESS STEEL.
17. PIPE SUPPORTS SHALL BE CONSTRUCTED AS SHOWN IN THE PIPE SUPPORT DETAIL.
18. ALL CEMENTITIOUS CONCRETE AND GROUT, UNLESS OTHERWISE NOTED, SHALL BE CLASS "B", 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS. ALL REINFORCING STEEL SHALL BE GRADE 60.

19. OSHA STANDARD SAFETY EQUIPMENT SUCH AS SAFETY HARNESSSES, GAS MONITORS, LOWER EXPLOSIVE LIMIT (LEL) DETECTORS, BREATHING APPARATUS, ETC. SHALL BE UTILIZED WHERE THE WORK DICTATES THEIR USE.
20. ALL EXISTING AND PROPOSED METAL PIPE, FITTINGS, VALVES, ETC. SHALL RECIEVE COATING SCHEDULE PER W-36 PAINTING SPECIFICATION
21. BACKFILL (NO CLAY OR CLAYEY MATERIAL) SHALL BE COMPACTED IN 12-INCH LAYERS (MAX.) TO 98% MAXIMUM DRY DENSITY OF MODIFIED PROCTOR IN CONFORMANCE WITH AASHTO T-180, METHOD A.
22. ALL STAINLESS STEEL PARTS TO BE WELDED SHALL BE THE LOW-CARBON VERSION OF THE GRADE OF STAINLESS STEEL THAT IS CALLED FOR, SUCH AS: T-316L OR T-304L.
23. CONTRACTOR SHALL PROVIDE A REDUCED PRESSURE BACKFLOW-PREVENTION DEVICE IN WATER SERVICE LINE, AS SHOWN IN DETAILS, AT A PLACE TO BE SPECIFIED DURING CONSTRUCTION. BACKFLOW PREVENTION DEVICE SHALL BE 1" WILKINS, MODEL #975 XL, OR EQUAL.
24. CONTRACTOR TO SUBMIT METHOD FOR 100% WATERTIGHT SEALING AT PIPE PENETRATIONS THROUGH STRUCTURES, PROPOSED LINK SEAL OR APPROVED EQUAL.
25. ALL CONCRETE PAVEMENT, UNLESS OTHERWISE NOTED, SHALL BE MINIMUM 6" THICK CONCRETE WITH 4x4 W6xW6 WWR. CONCRETE SHALL BE CONSTRUCTED ON COMPACTED SUB-BASE (MINIMUM 98% MODIFIED PROCTOR) WITH 1.5" DEEP CONTROL JOINTS SAW-CUT @ 15' MAX, WITHIN 12 HRS. OF CONCRETE PLACEMENT.
26. ELEVATION INFORMATION SHOWN ON THESE PLANS IS REFERENCED TO NGVD 1929 UNLESS OTHERWISE STATED.
27. CONTRACTOR SHALL PROTECT ALL TREES IN THE VICINITY OF THE PROPOSED CONSTRUCTION IN ACCORDANCE WITH CHAPTER 13 OF THE CITY OF TAMPA CODE. NO TREES SHALL BE PRUNED WITHOUT APPROVAL FROM THE CITY OF TAMPA PARKS AND RECREATION DEPARTMENT, NATURAL RESOURCES DIVISION, AND SHALL BE IN ACCORDANCE WITH CHAPTER 13 TECHNICAL MANUAL SPECIFICATIONS.
28. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 5TH EDITION 2014 AND CHAPTER 5 OF THE CITY OF TAMPA CODE.

**BYPASSING NOTES**

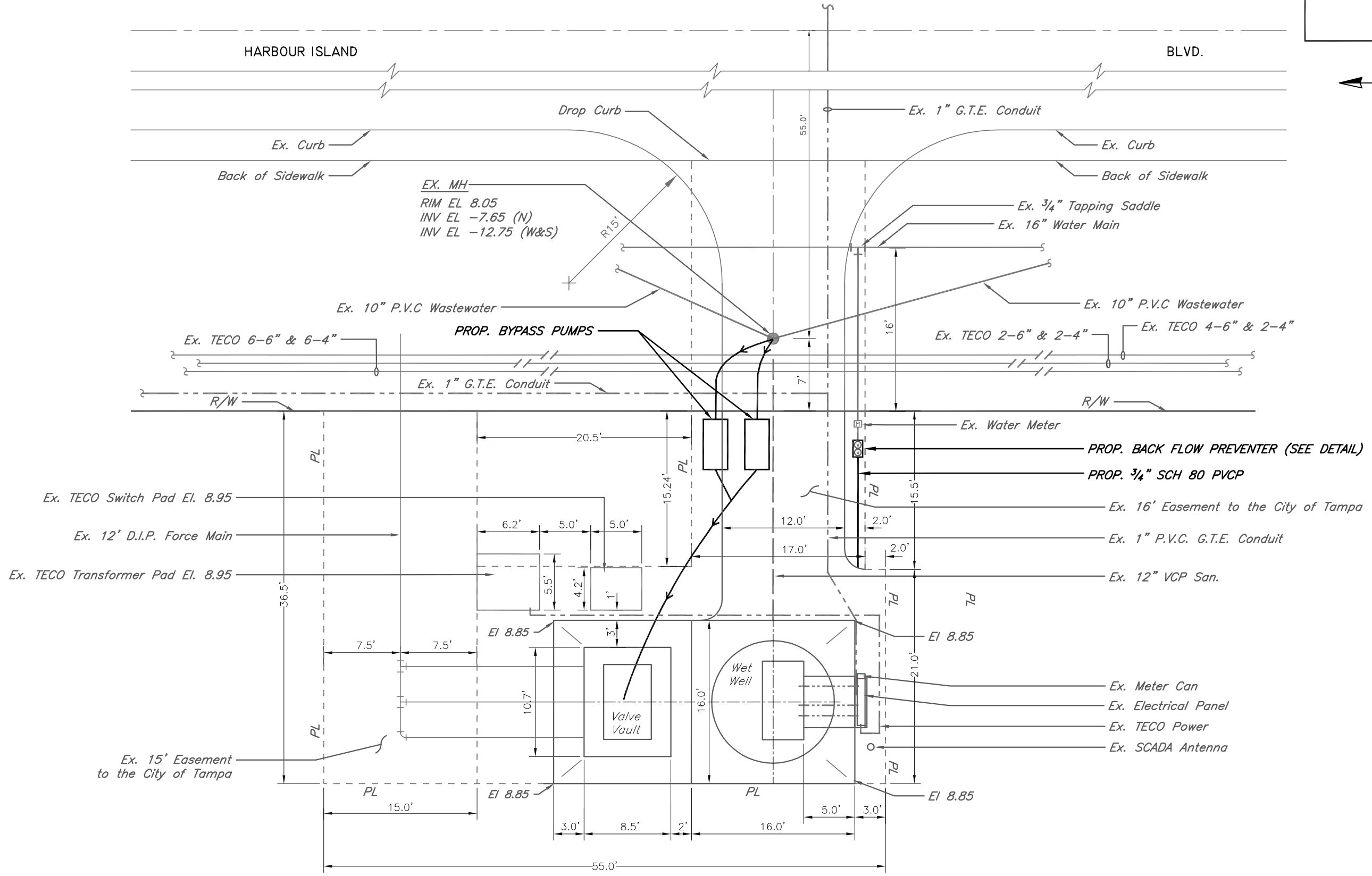
1. SEWER SERVICE TO CUSTOMERS SHALL NOT BE DISRUPTED DURING CONSTRUCTION. CONTRACTOR SHALL SUBMIT DETAILED PROPOSAL FOR PUMPING STRATEGY.
2. CONTRACTOR SHALL SUPPLY (2) SOUND ATTENUATED DIESEL BY-PASS PUMPS (1 PRIMARY & 1 BACKUP), EACH CAPABLE OF DELIVERING 1,500 GPM AT 58 FT. TDH PLUS ANY LOSSES PRODUCED IN THE TEMPORARY BY-PASS PIPING. THE PUMPS SHALL SUCTION FROM INLET MANHOLE AND DISCHARGE INTO THE EXISTING 10" BY-PASS VALVE. CONTRACTOR SHALL SUBMIT BY-PASS PUMPING PLAN TO THE ENGINEER FOR APPROVAL.

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JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION GENERAL NOTES	W.O. 1000511
	3			DRN: JHJ			SHEET
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	1			DATE: 6/30/16			



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EXISTING SITE PLAN  
 SCALE: 1" = 10'

JACINTO CARLOS FERRAS, P.E., #49454  
 DESIGN DIVISION HEAD  
 WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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DES: VT  
 DRN: JHJ  
 CKD: JF  
 DATE: 6/30/16

**CITY of TAMPA**  
 WASTEWATER DEPARTMENT

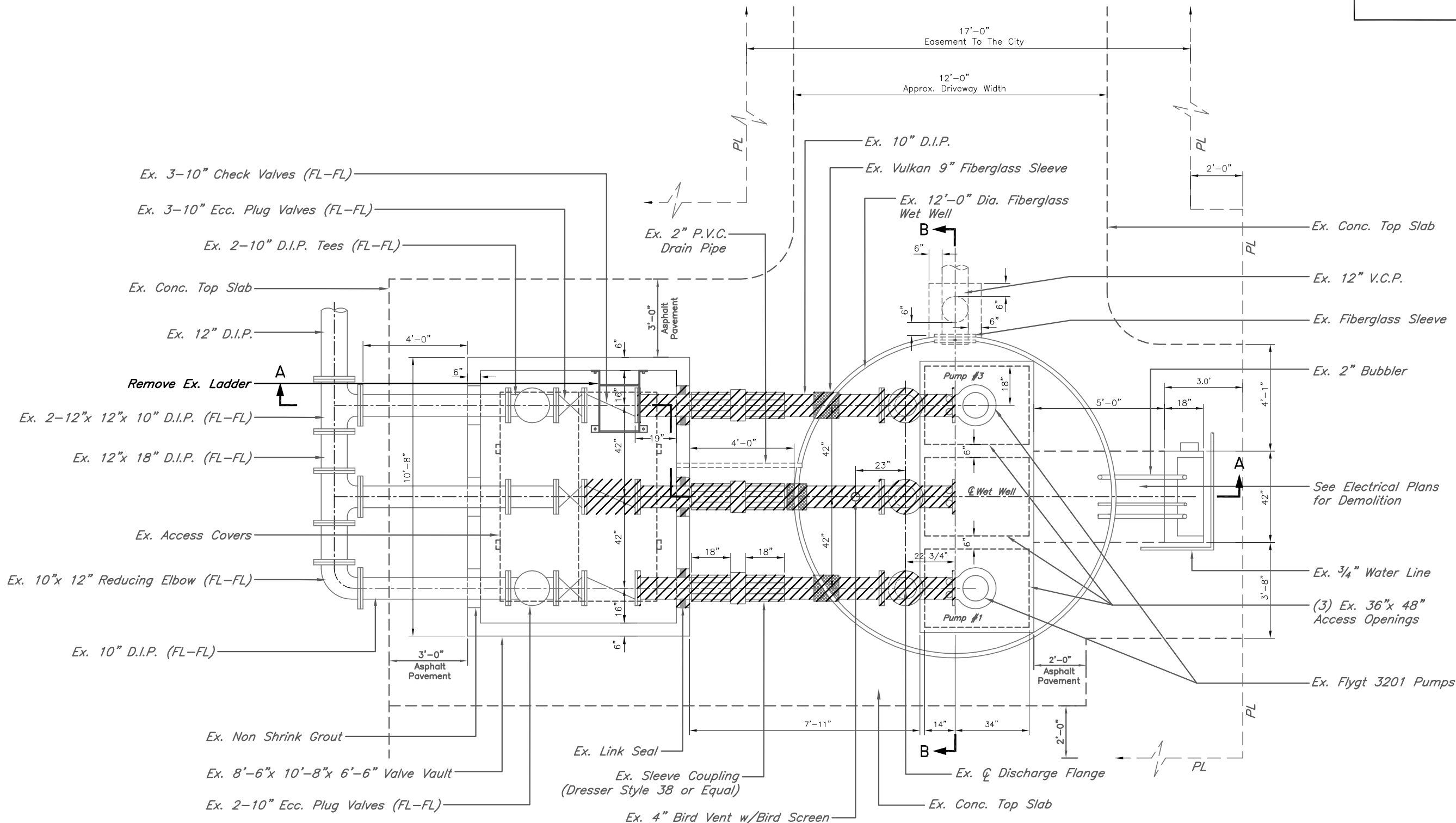
HARBOUR ISLAND PS REHABILITATION  
 EXISTING SITE PLAN / PROPOSED BYPASS PLAN

W.O. 1000511

SHEET

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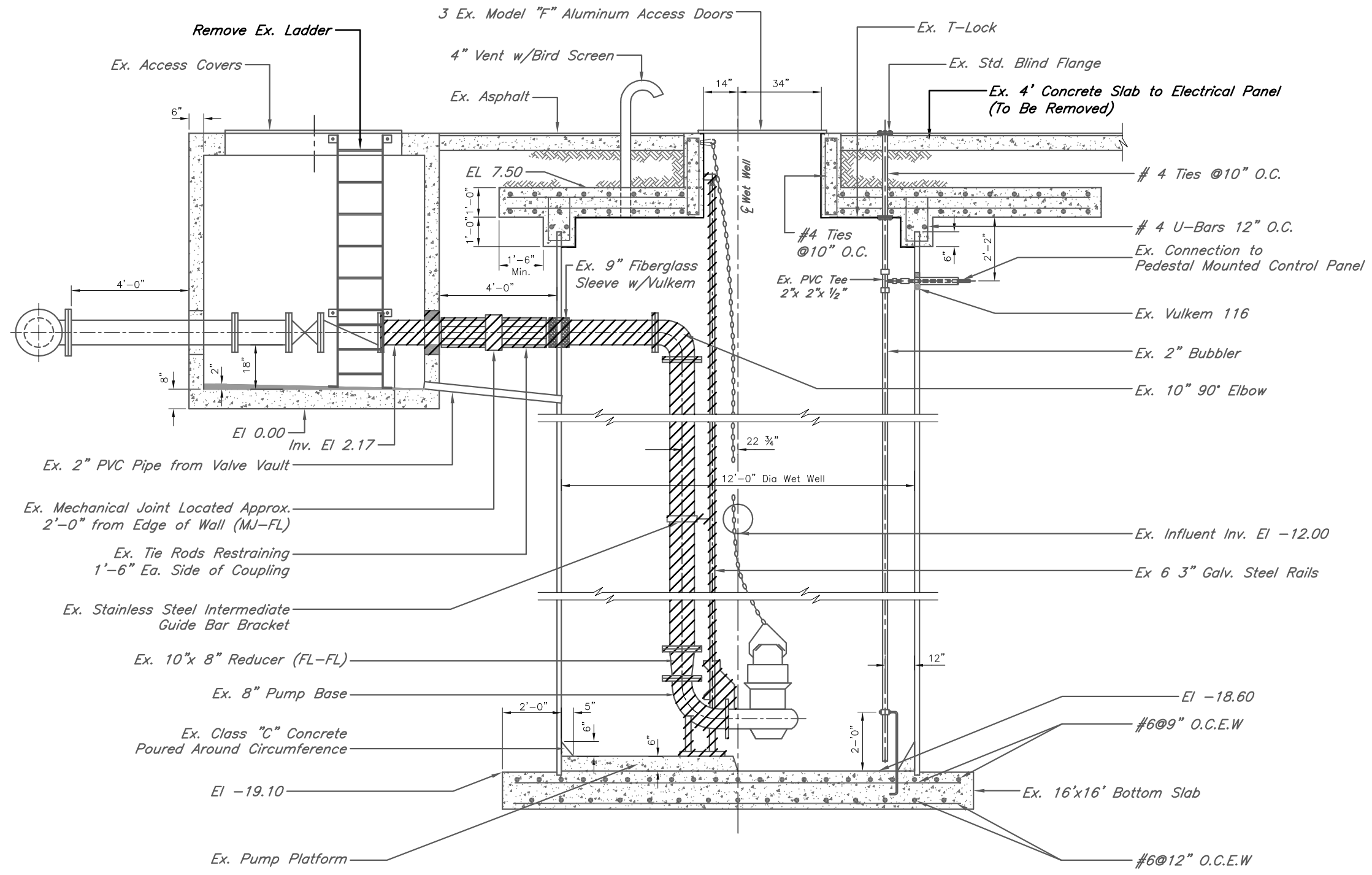
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HATCHED AREAS ON THIS SHEET INDICATE PIPING, FITTINGS AND VALVES TO BE REMOVED

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

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT	<b>CITY of TAMPA</b> <b>WASTEWATER DEPARTMENT</b>	<b>HARBOUR ISLAND PS REHABILITATION</b> <b>DEMOLITION PLAN</b>	W.O. 1000511
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	2			CKD: JF			5
	1			DATE: 6/30/16			



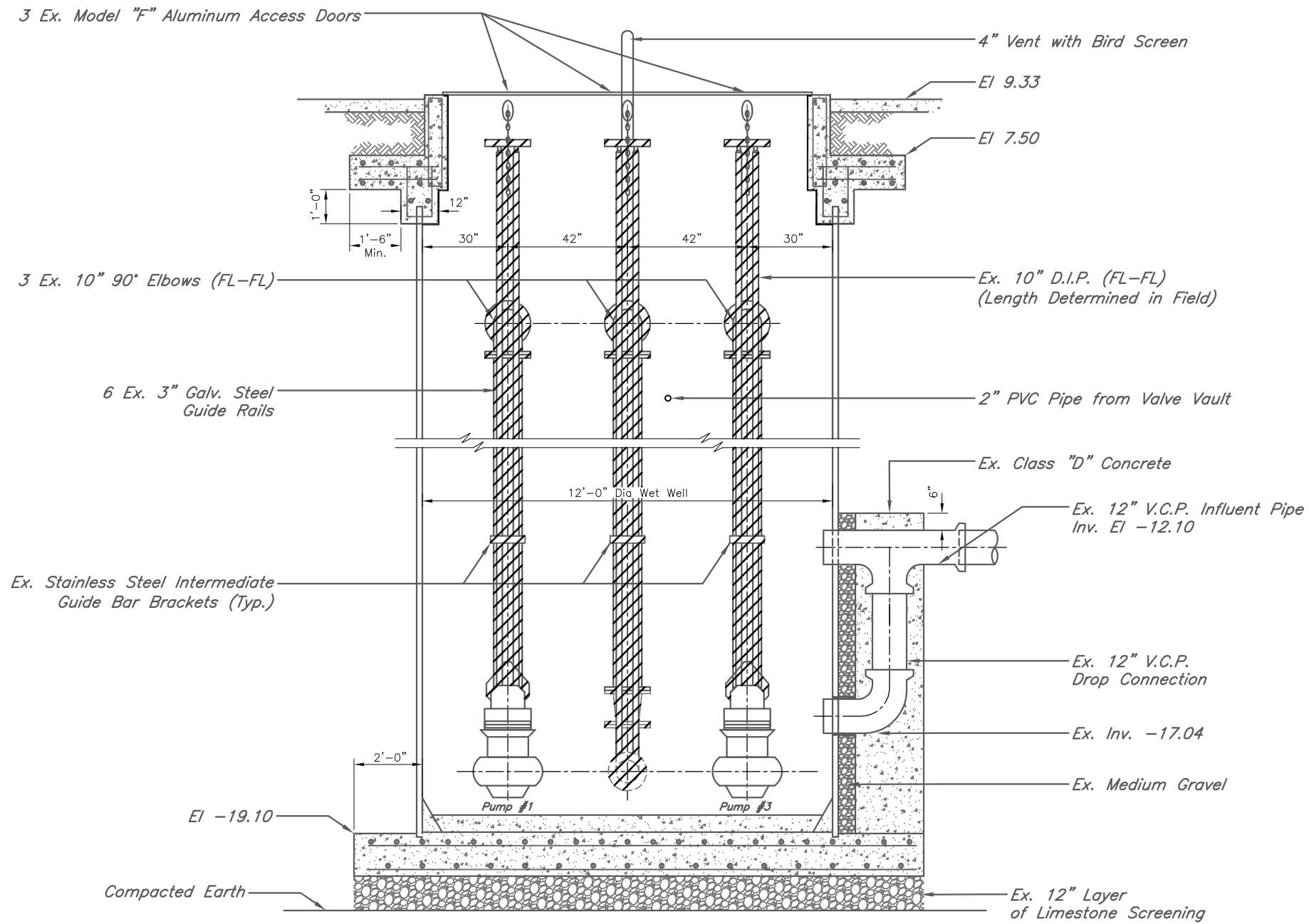
HATCHED AREAS ON THIS SHEET INDICATE PIPING, FITTINGS AND VALVES TO BE REMOVED

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

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JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT DRN: JHJ CKD: JF DATE: 6/30/16	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION DEMOLITION SECTION A-A	W.O. 1000511
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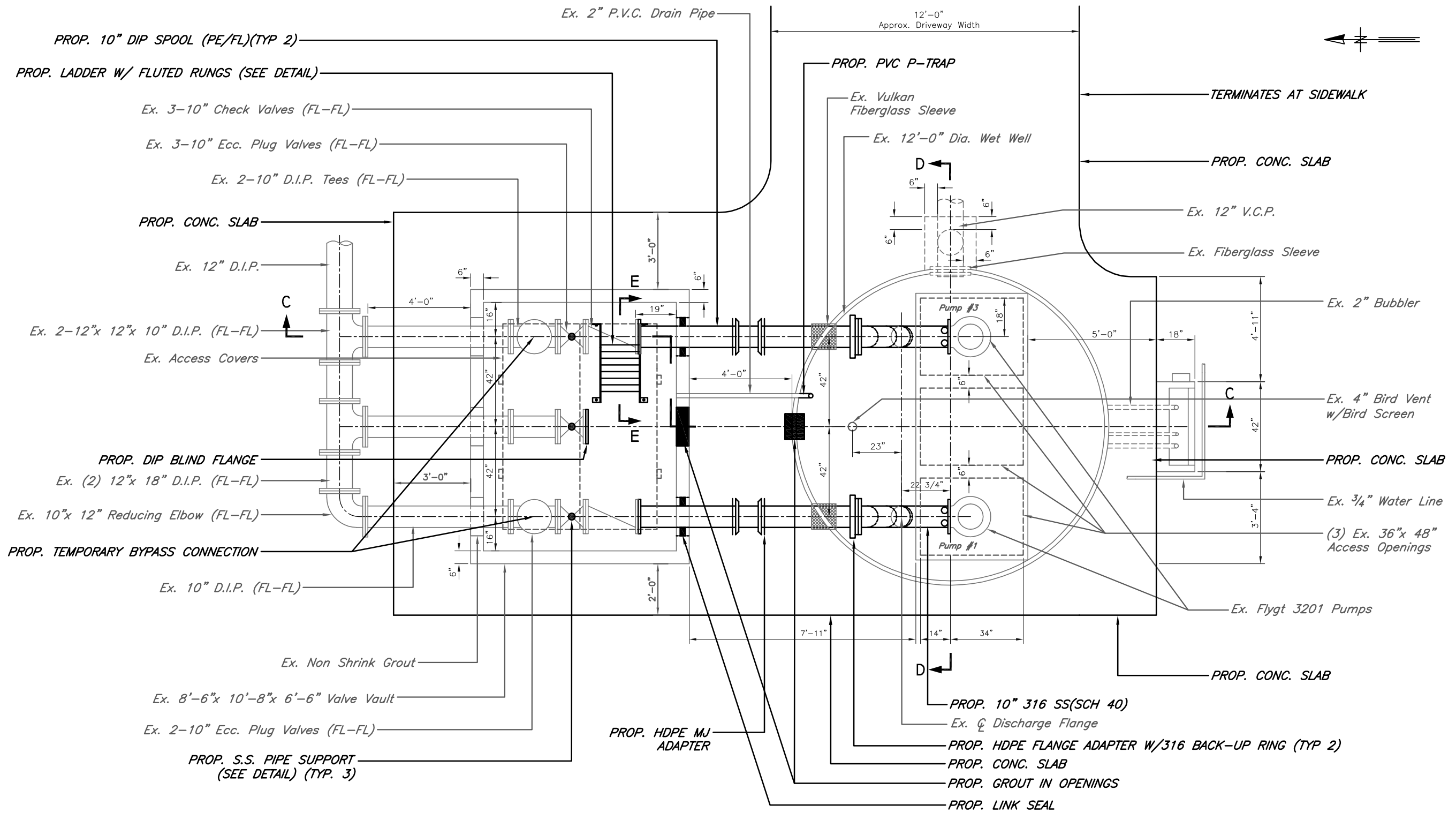


HATCHED AREAS ON THIS SHEET INDICATE PIPING, FITTINGS AND VALVES TO BE REMOVED

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

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION DEMOLITION SECTION B-B	W.O. 1000511
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Layout: Jul 21, 2016 - 4:05pm



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

JACINTO CARLOS FERRAS, P.E., #49454  
DESIGN DIVISION HEAD  
WASTEWATER DEPARTMENT

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DATE: 6/30/16

**CITY of TAMPA**  
WASTEWATER DEPARTMENT

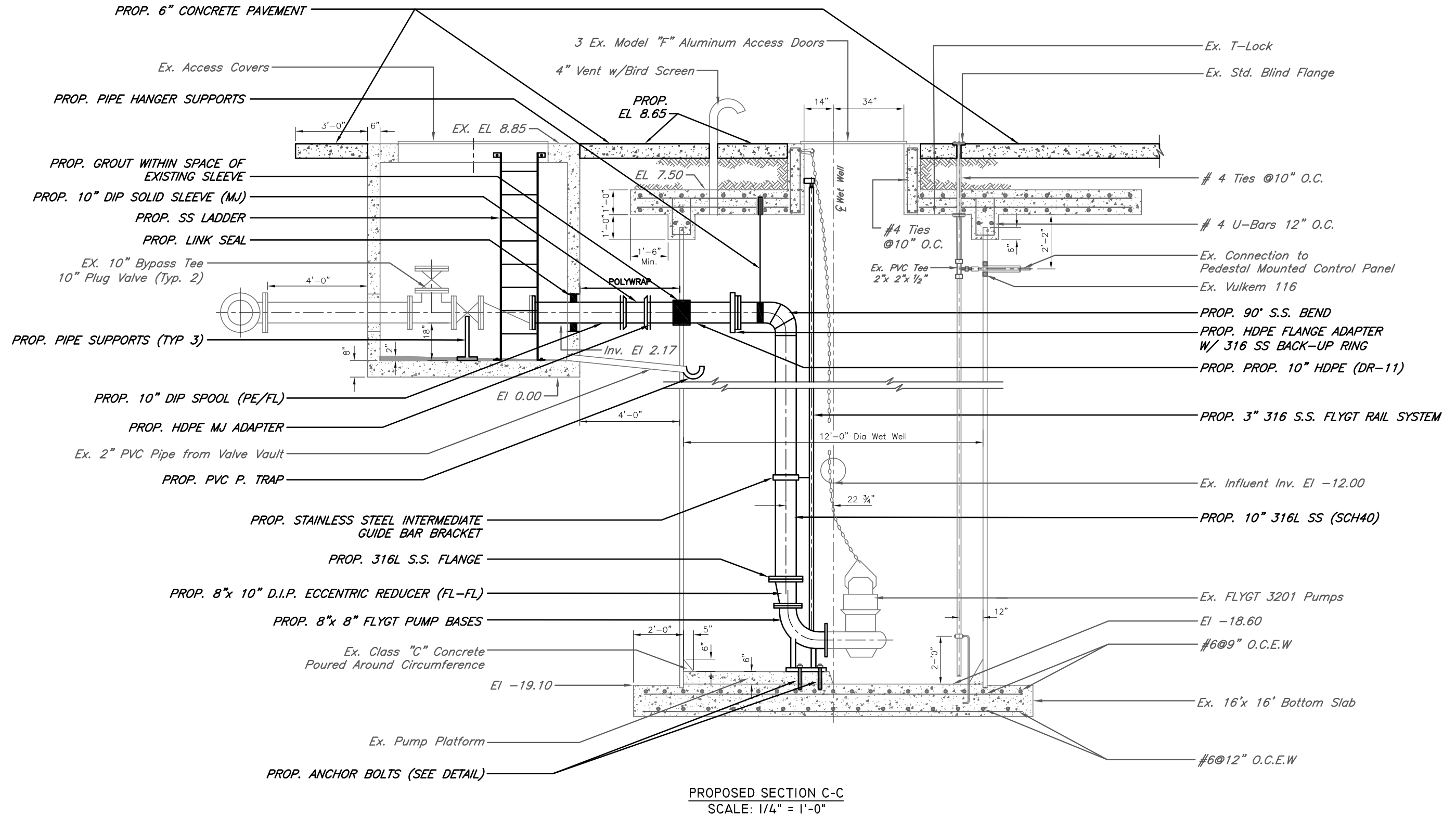
HARBOUR ISLAND PS REHABILITATION  
PROPOSED PLAN

W.O. 1000511

SHEET

**8**

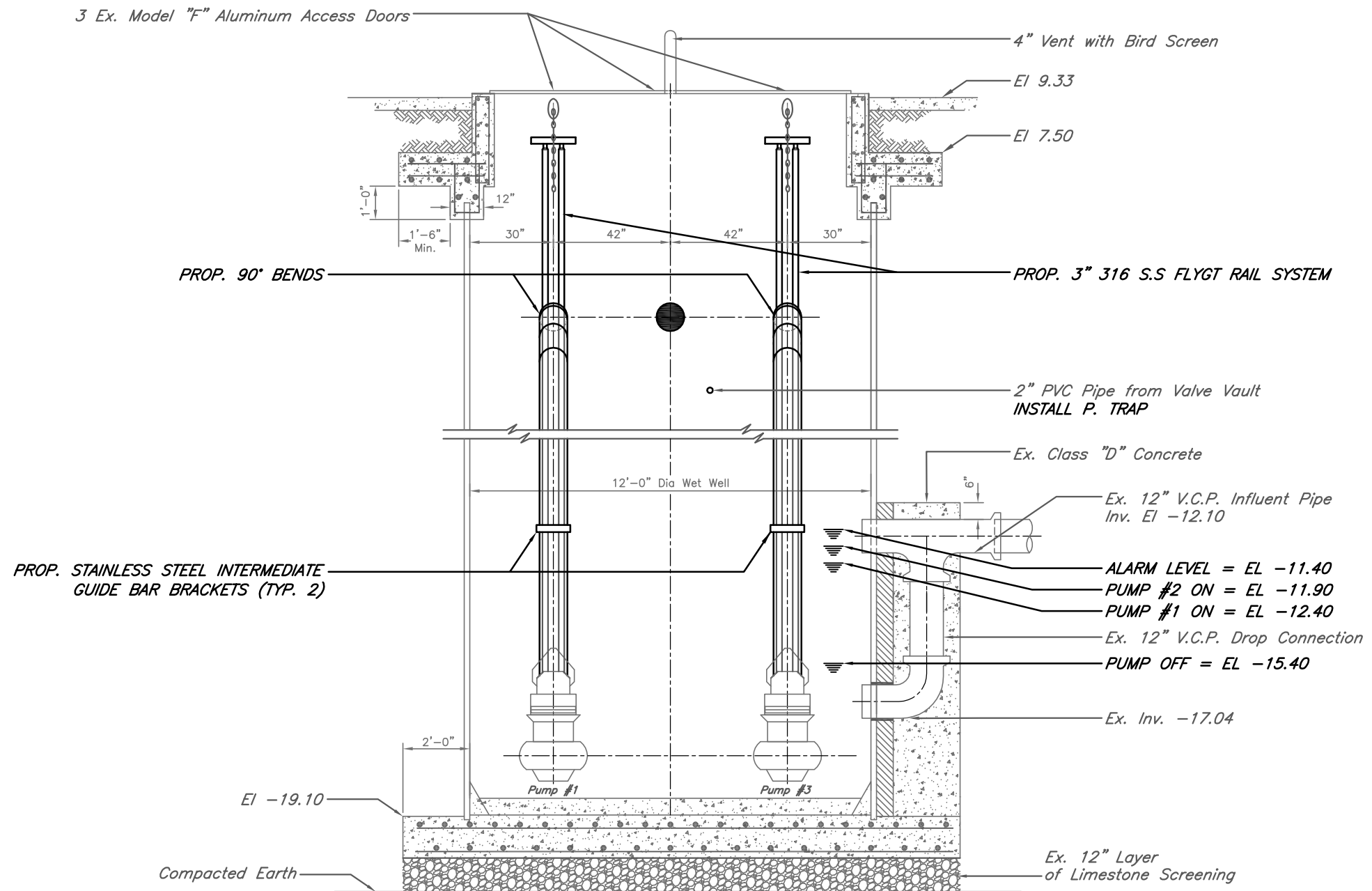
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Layout: Jul 25, 2016 - 8:27am



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

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT DRN: JHJ CKD: JF DATE: 6/30/16	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION PROPOSED SECTION C-C	W.O. 1000511
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PROPOSED SECTION D-D  
SCALE: 1/4" = 1'-0"

JACINTO CARLOS FERRAS, P.E., #49454  
DESIGN DIVISION HEAD  
WASTEWATER DEPARTMENT

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**CITY of TAMPA**  
WASTEWATER DEPARTMENT

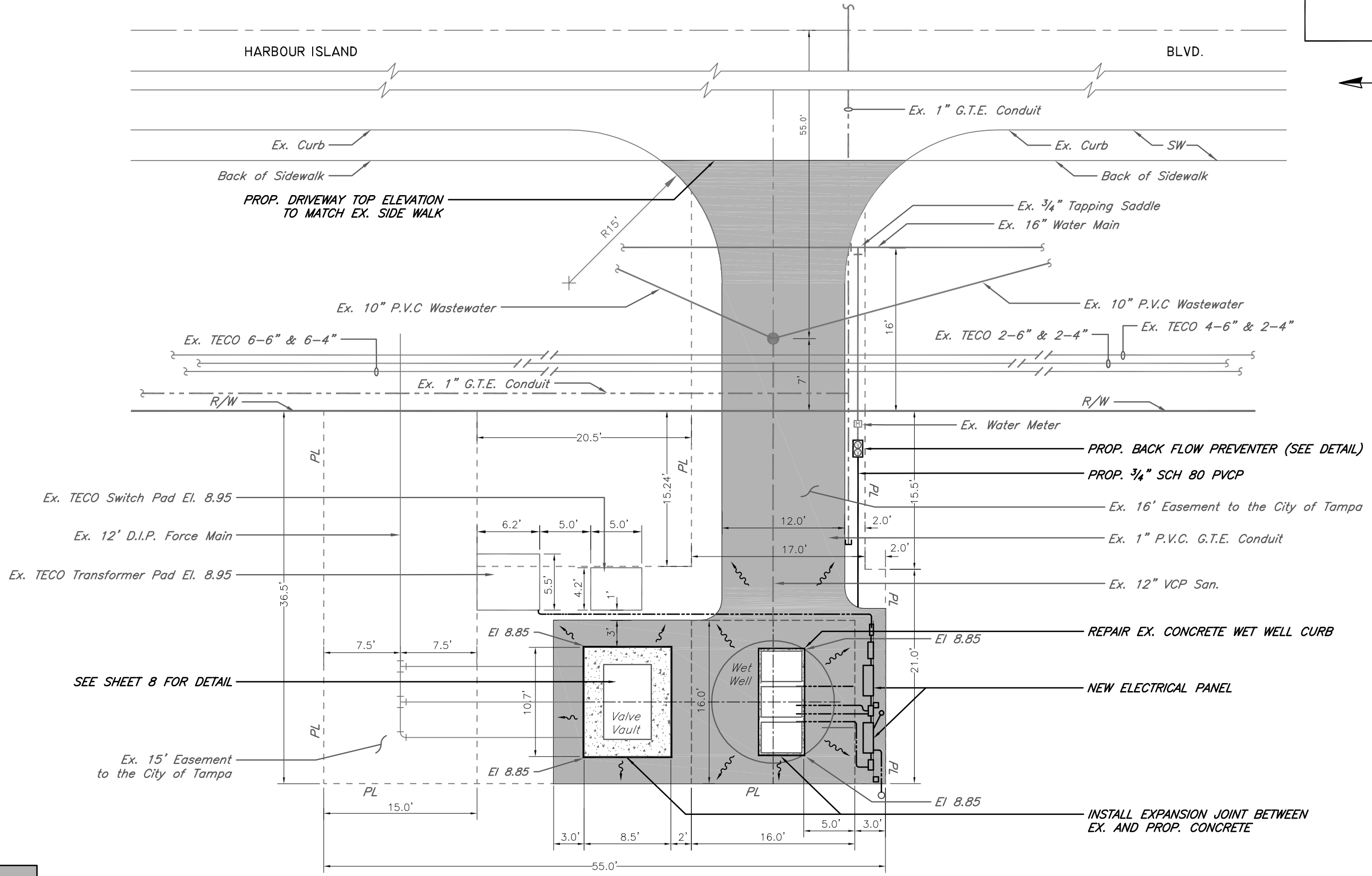
HARBOUR ISLAND PS REHABILITATION  
PROPOSED SECTION D-D

W.O. 1000511

SHEET

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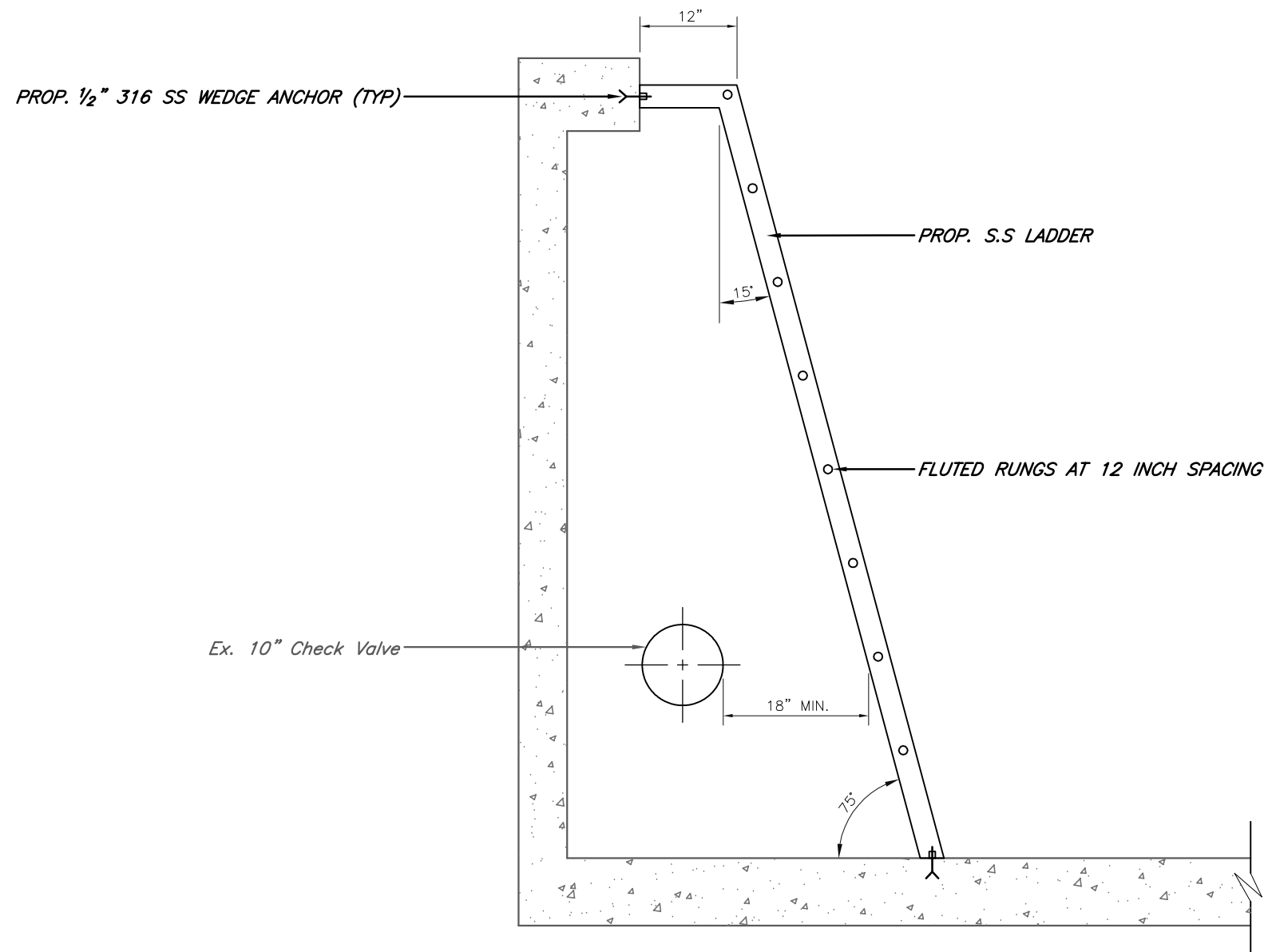
PROPOSED CONCRETE SLAB

EXISTING SITE PLAN  
SCALE: 1" = 10'

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT DRN: JHJ CKD: JF DATE: 6/30/16	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION PROPOSED CONCRETE PLAN	W.O. 1000511
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LADDER DETAIL - SECTION E-E  
N.T.S.

*NOTE: ALL ASPECTS OF LADDER DESIGN AND FABRICATION SHALL CONFORM TO LATEST OSHA STANDARDS.*

JACINTO CARLOS FERRAS, P.E., #49454  
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**CITY of TAMPA**  
WASTEWATER DEPARTMENT

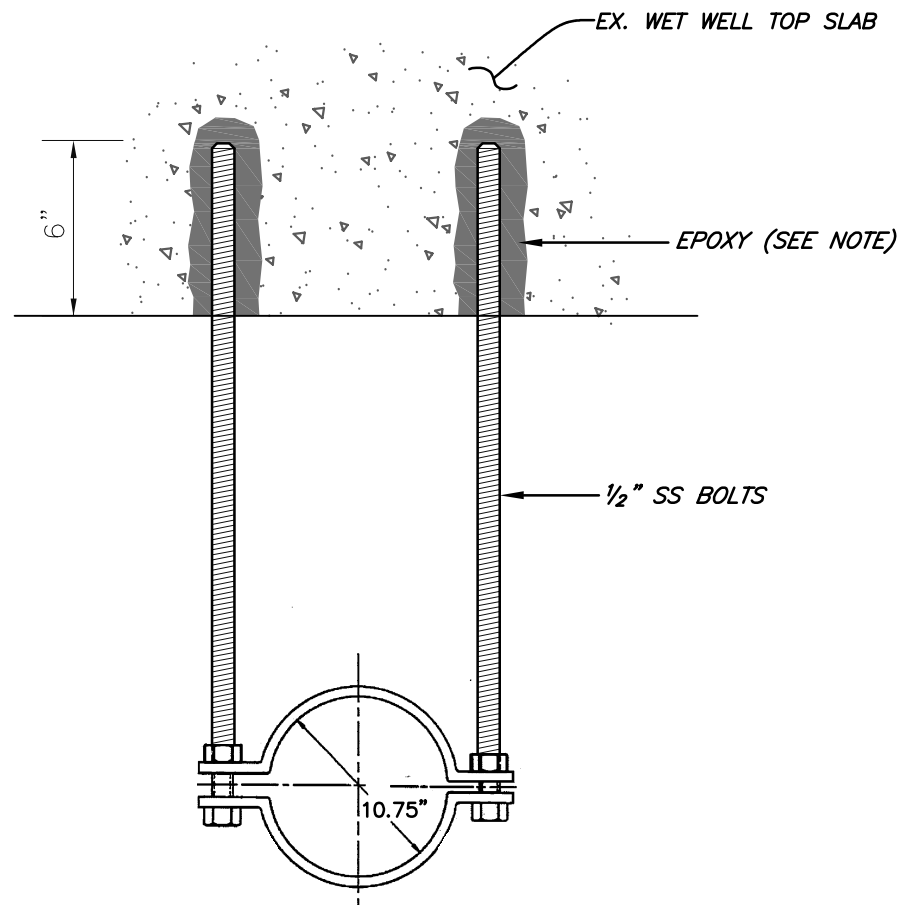
HARBOUR ISLAND PS REHABILITATION  
LADDER DETAIL - SECTION E-E

W.O. 1000511

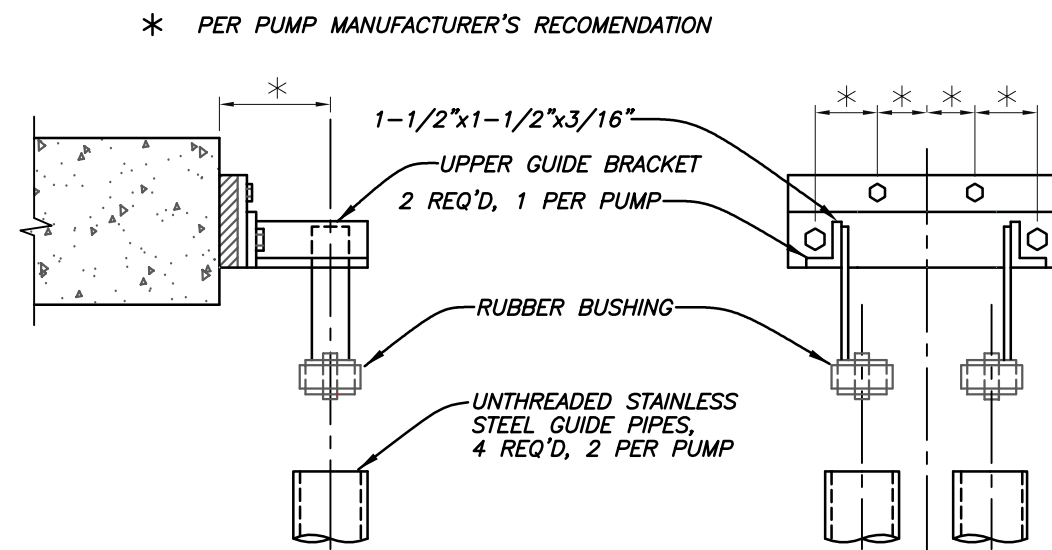
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Layout: Jul 21, 2016 - 4:05pm



**PIPE HANGER SUPPORT DETAIL**  
N.T.S.



**GUIDE BRACKET DETAIL**  
N.T.S.

**NOTE:** EPOXY SHALL BE SIMPSON STRONG-TIE SET-XP HIGH STRENGTH EPOXY ADHESIVE OR APPROVED EQUAL.

JACINTO CARLOS FERRAS, P.E., #49454  
DESIGN DIVISION HEAD  
WASTEWATER DEPARTMENT

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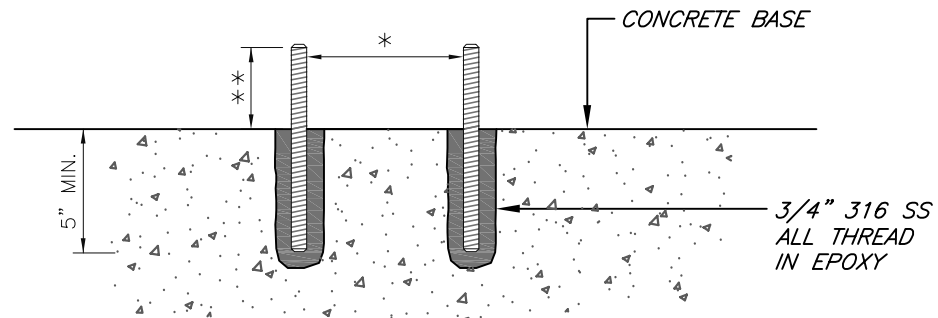
**CITY of TAMPA**  
WASTEWATER DEPARTMENT

HARBOUR ISLAND PS REHABILITATION  
DETAILS

W.O. 1000511

SHEET

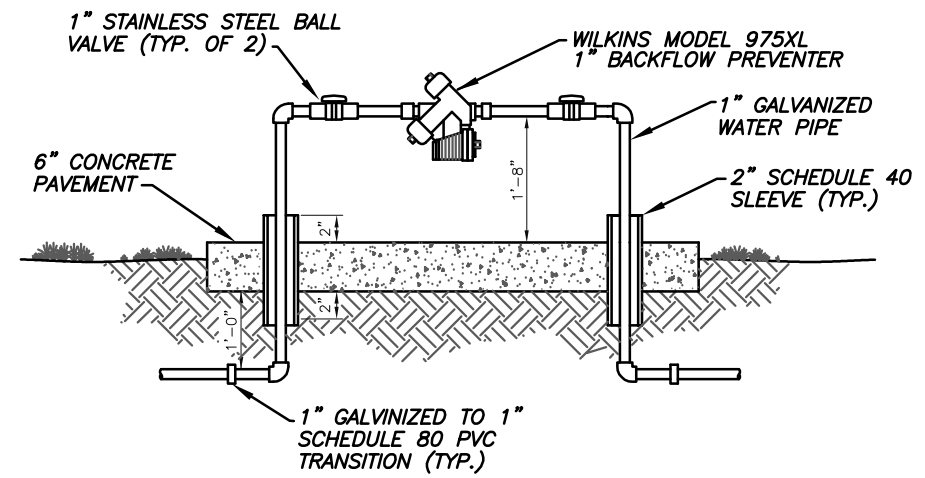
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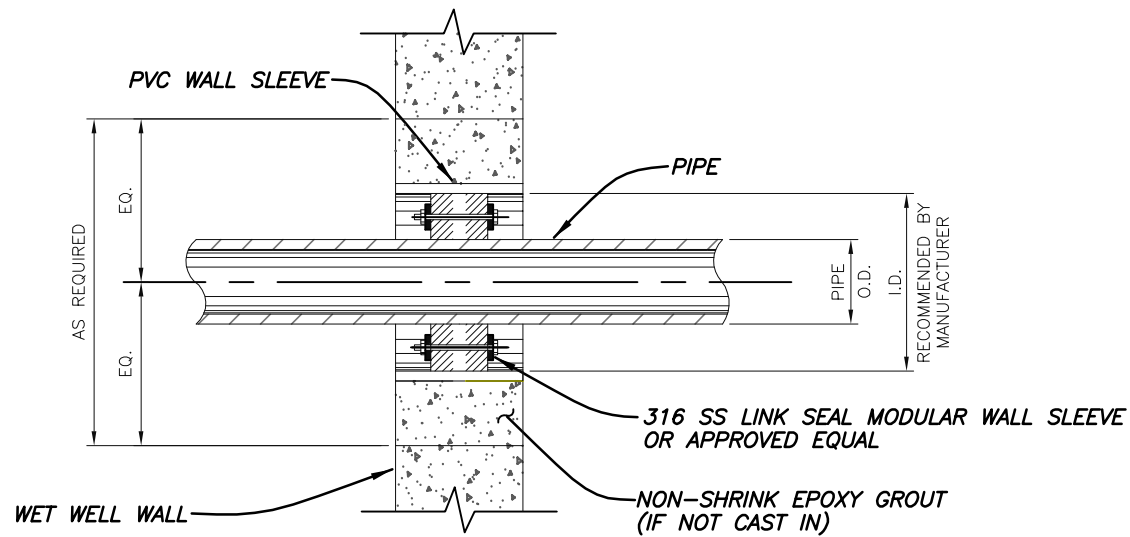
\* ALIGNMENT OF ANCHOR BOLTS SHALL BE AS RECOMMENDED BY PUMP MANUFACTURER.

\*\* CONTRACTOR SHALL PROVIDE A MINIMUM 1/2 INCH BOLT PROTRUSION ABOVE THE FINAL NUT LOCATION AFTER THE NUT IS TIGHTENED TO MANUFACTURE'S RECOMMENDATION.

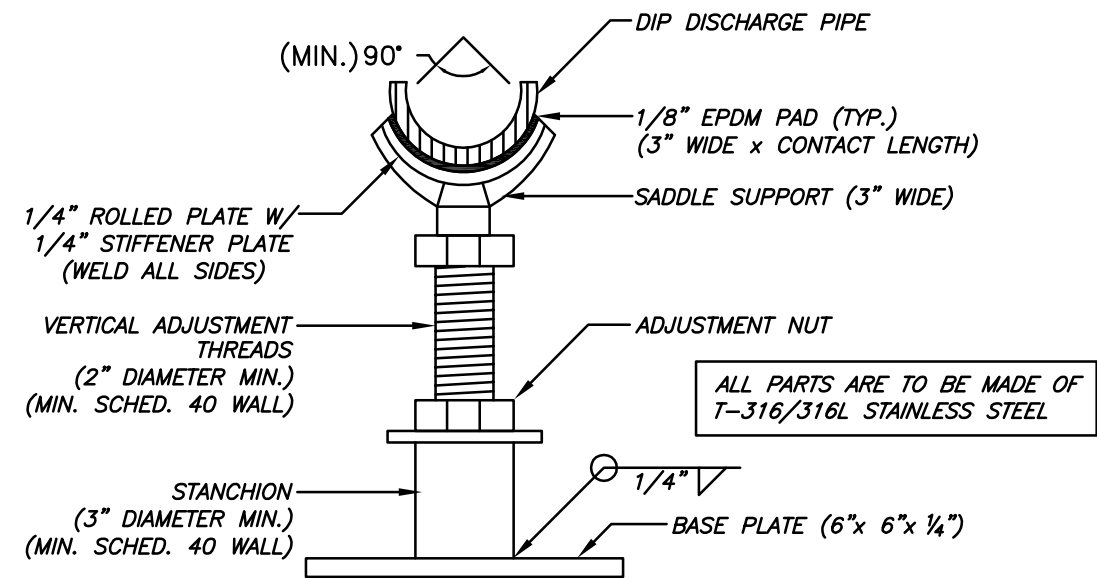
**ANCHOR BOLT DETAIL**  
N.T.S.



**BACKFLOW PREVENTER DETAIL**  
N.T.S.



**LINK SEAL DETAIL**  
N.T.S.



**SECTION VIEW - STAINLESS STEEL STANCHION SADDLE SUPPORT**  
N.T.S.

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Layout: Jul 21, 2016 - 4:05pm

JACINTO CARLOS FERRAS, P.E., #49454  
DESIGN DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: VT  
DRN: JHJ  
CKD: JF  
DATE: 6/30/16

**CITY of TAMPA**  
WASTEWATER DEPARTMENT

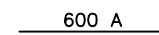
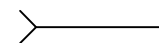
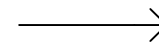
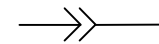

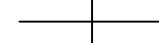
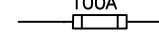
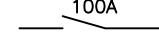
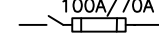
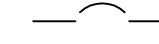
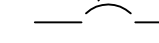
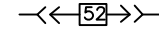
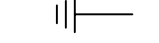
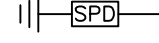
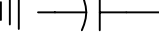



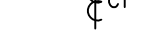
HARBOUR ISLAND PS REHABILITATION  
DETAILS





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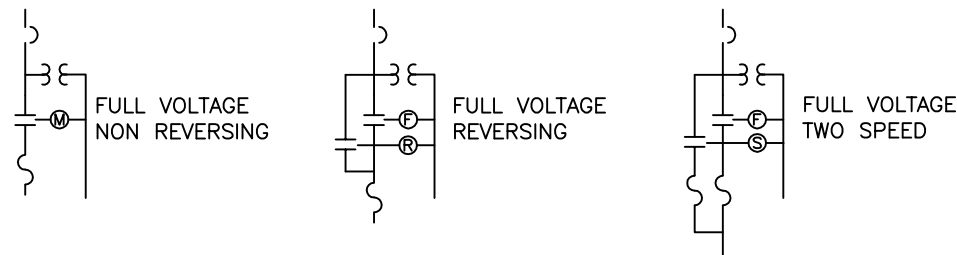
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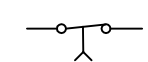
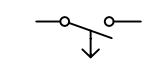
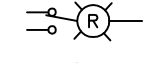
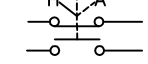
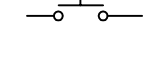
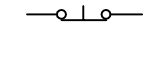
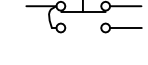

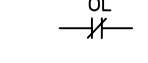
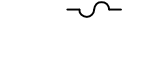
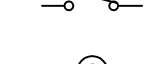
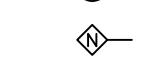
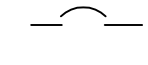

# ONE LINE DIAGRAM SYMBOLS

-  600 A BUS—RATING AS SHOWN
-  INCOMING LINE
-  OUTCOMING LINE
-  DISCONNECTING DEVICE
-  CONDUCTORS CONNECTED
-  CONDUCTORS NOT CONNECTED
-  100A FUSE—RATING AS SHOWN
-  100A SINGLE THROW DISCONNECT SWITCH—RATING AS SHOWN
-  100A/70A FUSED DISCONNECT SWITCH—100A SWITCH, 70A FUSE
-  100A LOW VOLTAGE AIR CIRCUIT BREAKER WITHOUT TRIP DEVICE 100A FRAME
-  225A/125A LOW VOLTAGE AIR CIRCUIT BREAKER WITH 225A FRAME AND 125A TRIP
-  52 MEDIUM VOLTAGE DRAWOUT TYPE AIR CIRCUIT BREAKER
-  GROUND CONNECTION
-  SPD LIGHTNING OR SURGE ARRESTOR
-  SURGE CAPACITOR
-  POWER TRANSFORMER WITH WINDING CONNECTIONS INDICATED
-  CPT CONTROL POWER TRANSFORMER
-  PT POTENTIAL TRANSFORMER
-  CT CURRENT TRANSFORMER


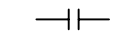
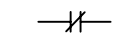
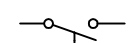
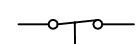
-  THERMAL OVERLOAD ELEMENT (OL)
-  5 SQUIRREL CAGE MOTOR (INDICATE HORSEPOWER)
-  G GENERATOR
-  R INDICATING LIGHT (R—RED, G—GREEN, A—AMBER, B—BLUE, W—WHITE)





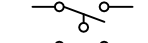
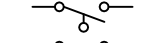
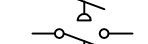
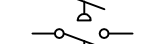
## COMBINATION STARTER WITH CONTROL TRANSFORMERS AND OVERLOAD RELAYS AND MOTOR CIRCUIT PROTECTOR



-  NORMALLY CLOSED CONTACT WITH TIME DELAY OPENING (ON-DELAY)
-  INSTANT CLOSE— TIME DELAY OPEN CONTACT (OFF DELAY)
-  INDICATING LIGHT— PUSH TO TEST (R—RED, G—GREEN, A—AMBER, B—BLUE, W—WHITE)
-  3-POSITION SELECTOR SWITCH (SHOWN IN "H" POS.)
-  NORMALLY OPEN PUSHBUTTON—MOMENTARY CONTACT
-  NORMALLY CLOSED PUSHBUTTON—MOMENTARY CONTACT
-  DOUBLE CIRCUIT PUSHBUTTON WITH SPRING RETURN TO NORMAL
-  TRANSFORMER
-  OL OVERLOAD RELAY CONTACT
-  THERMAL OVERLOAD ELEMENT (OL)
-  ON-OFF SWITCH
-  G GROUND BUS
-  N NEUTRAL BUS (INSULATED)
-  SINGLE-POLE CIRCUIT BREAKER

## SCHEMATIC AND WIRING DIAGRAM SYMBOLS

-  M OPERATING COIL
-  N.O. NORMALLY OPEN CONTACT (N.O.)
-  N.C. NORMALLY CLOSED CONTACT (N.C.)
-  ON-DELAY NORMALLY OPEN CONTACT WITH TIME DELAY CLOSING (ON-DELAY)
-  OFF DELAY INSTANT OPEN— TIME DELAY CLOSED CONTACT (OFF DELAY)
- M—MOTOR STARTER
- C—CONTACTOR
- F—FORWARD
- R—REVERSE
- AR—AUXILIARY RELAY
- CR—CONTROL RELAY
- TR—TIME DELAY RELAY

- |   |   |                 |
|---|---|-----------------|
|  |  |                 |
|  |  | LIMIT SWITCH    |
|  |  | FLOAT SWITCH    |
|  |  | PRESSURE SWITCH |
|   |   | FLOW SWITCH     |
|   |   | TEMPERATURE     |

**NOTE:** THE SYMBOLS SHOWN COMPRISE A GENERAL LEGEND TO FACILITATE THE USE OF PLANS. REFER TO THE PLANS AND SPECIFICATIONS FOR ITEMS REQUIRED.

User: ss13 Drawing Name: K:\Wastewater\Projects\Harbour Island PS\Design\Plans\Drafting\DWG\Harbour Island PS Rehabilitation.dwg Layout— Jun 22, 2016 — 11:01am

ROMAN D. KORCHAK, P.E., #42626 ELECTRICAL DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION ELECTRICAL SYMBOL LEGEND (SHT. 1 OF 2)	W.O. 0000
	3			DRN: JHJ			SHEET
	2			CKD:			EGI
	1			DATE: 6/30/16			

## POWER AND LIGHTING SYMBOLS

- EXPOSED CONDUIT RUN
- - - - - CONDUIT RUN CONCEALED IN FLOOR OR UNDERGROUND
- . - . - CONDUIT RUN CONCEALED IN WALLS, ABOVE SUSPENDED CEILING, OR IN ROOF SLAB
- /——— CONDUIT WITH HOT, NEUTRAL AND GROUND WIRES (LONG LINE IS NEUTRAL; LONG LINE WITH DOTS DENOTE GROUND)
- PNL-1  
1,3,5 HOMERUN TO LIGHTING PANELBOARD (PNL-1 INDICATES PANELBOARD AND 1, 3, 5 INDICATES 20A-1P CKTS. 1, 3 AND 5)
- ⌚ FLEXIBLE LIQUIDTIGHT CONDUIT
- CONDUIT-UP (OR TOWARDS VIEWER)
- CONDUIT-DOWN (OR AWAY FROM VIEWER)
- G — GROUNDING CONDUCTOR
- ⊙ GROUND ROD
- ⊗ LIGHTNING ROD
- CEILING MOUNTED INCANDESCENT OR MERCURY VAPOR FIXTURE. "A" INDICATES FIXTURE TYPE LISTED IN SCHEDULE
- ⊖ WALL MOUNTED LIGHTING FIXTURE
- ⊗ EXIT SIGN
- EMERGENCY INCANDESCENT OR MERCURY VAPOR LIGHTING FIXTURE
- ▭ FLUORESCENT FIXTURE
- ▬ EMERGENCY FLUORESCENT FIXTURE

- ⊖ POLE MOUNTED LIGHTING FIXTURE
- ⊖<sub>4</sub> DUPLEX RECEPTACLE- 20 A, 120 V, 3 WIRE (TO PNL- CIRCUIT No.4)
- ⊖<sub>30 A</sub> SINGLE RECEPTACLE - 2 POLE, 3 WIRE, 240V, RATING NOTED
- ⊖<sub>60 A</sub> 3 POLE, 4 WIRE, 240V WELDING OUTLET (60 A)
- ⊖ SINGLE POLE SWITCH
- ⊖<sub>2P</sub> TWO POLE SWITCH
- ⊖<sub>3</sub> THREE WAY SWITCH

- ⊙ OUTLET BOX WITH BLANK COVER
- ⊖ JB JUNCTION BOX
- ⊖ PB PULL BOX
- ⊖ TB TERMINAL BOX

### GENERAL SYMBOLS

- ⊖ START-STOP PUSHBUTTON
- ⊖ ON/OFF/L ON-OFF MAINTAINED CONTACT PUSHBUTTON WITH LOCK ATTACHMENT
- ⊖ S/L INDICATING LIGHT AND START-STOP PUSHBUTTON WITH LOCK ATTACHMENT ON STOP
- ⊖ RESUME STOP/L PUSH/PULL BUTTON WITH STOP LOCK. (PULL TO RESUME- PUSH TO STOP)
- ⊖ SELECTOR SWITCH ("HOA" INDICATES HAND, OFF, AND AUTO; "MOR" INDICATES MANUAL, OFF, AND REMOTE; ETC)
- ⊖ L ON-OFF SWITCH WITH LOCK ATTACHMENT ON OFF POSITION

- ⊖ FL FLOW SWITCH
- ⊖ LS LIMIT SWITCH
- ⊖ P PRESSURE SWITCH
- ⊖ S SOLENOID OPERATED VALVE
- ⊖ T TEMPERATURE SWITCH
- ⊖ F FLOAT SWITCH
- ⊖ L LEVEL TRANSMITTER (PRESSURE ANALOG TYPE)
- ⊖ LC LEVEL TRANSMITTER (FLOAT TYPE)
- ⊖ T TEMPERATURE TRANSMITTER
- ⊖ FT FLOW TRANSMITTER
- MH DESIGNATES MOUNTING HEIGHT
- WP DESIGNATES WATERPROOF EQUIPMENT
- XP DESIGNATES EXPLOSIONPROOF EQUIPMENT
- MOV DESIGNATES MOTOR OPERATED VALVE
- EX. DESIGNATES EXISTING EQUIPMENT
- PROP. DESIGNATES PROPOSED EQUIPMENT

User: ss13 Drawing Name: K:\Wastewater\Projects\Harbour Island PS\Design\Plans\Drafting\DWG\Harbour Island PS Rehabilitation.dwg Layout: Jun 22, 2016 11:01am

ROMAN D. KORCHAK, P.E., #42626 ELECTRICAL DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG DRN: JHJ CKD: DATE: 6/30/16	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION ELECTRICAL SYMBOL LEGEND (SHT. 2 OF 2)	W.O. 0000 SHEET <b>EG2</b>
	3						
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**GENERAL NOTES**

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. ALL CONDUCTORS SHALL BE STRANDED COPPER, #12 AWG MIN. W/XHHW-2 INSULATION, UNLESS OTHERWISE NOTED.
3. ALL WIRING SHALL BE IDENTIFIED W/NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
4. VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATING PRIOR TO CONNECTING.
5. FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
6. PLANS ARE DESIGNED IN ACCORDANCE WITH THE 5TH EDITION 2014 OF THE FLORIDA BUILDING CODE AND THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL ENSURE THAT ALL ELECTRICAL WORK PERFORMED SHALL ADHERE TO THE SAME ACCORDANCE AND ALL APPLICABLE LOCAL ORDINANCES.
7. ALL THREADED CONNECTIONS SHALL BE COATED W/ ALUMA-SHIELD ANTI-SIEZE COMPOUND MANUFACTURED BY THOMAS & BETTS (T & B) OR EQUAL.
8. ALL PANELS, DISCONNECTS, SWITCHES, AND EQUIPMENT COVERPLATES SHALL BE LABELED W/ NAMEPLATES. NAMEPLATES SHALL BE THREE-PLY PHENOLIC BLACK-WHITE-BLACK ENGRAVED THROUGH THE FIRST BLACK LAYER. LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGE OF NAMEPLATE SHALL BE BEVELED 45 DEG.
9. ALL CONDUIT SHALL BE SUPPORTED AT MAXIMUM 5'-0" INTERVALS.
10. ALL CIRCUITS SHALL HAVE A PROPERLY SIZED GROUNDING CONDUCTOR ROUTED INSIDE EACH CONDUIT W/ POWER CONDUCTORS.
11. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS, NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNED IN THE DRAWINGS.
12. NEATLY COIL ALL SPARE CONDUCTORS & TAPE W/ VINYL ELECTRICAL TAPE (SCOTCH 33+)
13. PROVIDE A MINIMUM OF 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE W/ ARTICLE 110 OF THE NEC.
14. ALL FASTENING HARDWARE (SCREW, BOLTS NUTS ETC.) SHALL BE 316-STAINLESS STEEL. FASTENING HARDWARE CONSTRUCTED OF FERROUS MATERIAL ARE NOT ACCEPTABLE.
15. EXPOSED CONDUITS SHALL BE NON-COATED RIGID ALUMINUM CONDUIT, UNLESS OTHERWISE NOTED (UON), INSTALL PVC COATED RIGID ALUMINUM CONDUIT TO THE WET WELL, UNLESS OTHERWISE NOTED (UON).
16. DIRECT BURIED AND CONCRETE ENCASED CONDUIT SHALL BE SCHEDULE 80 PVC, UNLESS OTHERWISE NOTED. TRANSITIONS FROM ABOVE-GRADE RIGID ALUMINUM CONDUIT TO NONMETALLIC CONDUIT SHALL BE ACCOMPLISHED WITH A THREADED ADAPTER. RIGID ALUMINUM CONDUIT INSTALLED ABOVE GRADE AND EXTENDING BELOW GRADE SHALL INCLUDE THE FIRST 90° ELBOW. ALL RIGID ALUMINUM CONDUITS EXTENDING BELOW GRADE SHALL BE COATED WITH TWO COATS OF ASPHALTUM-TYPE PAINT ALONG ITS ENTIRE LENGTH BELOW GRADE AND EXTENDING 6" ABOVE GRADE OR ABOVE THE TOP OF THE FINISHED SLAB.
17. ABOVE GRADE INDOOR, AND NON-WASHDOWN AREAS, RIGID ALUMINUM CONDUIT CONNECTIONS TO CONTROL BOXES, ETC. SHALL BE MADE WITH ALUMINUM DOUBLE LOCKNUTS AND BUSHINGS. TURN DOWN ON THREADS TO SOLIDLY CONNECT RACEWAY TO BOX OR ENCLOSURE.
18. ALUMINUM WATERTIGHT HUBS (MYERS HUBS) SHALL BE USED FOR CONNECTIONS TO CONTROL BOXES, ETC. MOUNTED OUTDOORS, BELOW GRADE, OR WASHDOWN AREAS.
19. A 316-STAINLESS STEEL CHANNEL ERECTOR SYSTEM SHALL BE USED TO SUPPORT ALL CONDUITS, BOXES ETC. USE 316 STAINLESS STEEL MOUNTING HARDWARE.
20. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY TO EXECUTE THE PROPOSED INSTALLATIONS.
21. 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.
22. PULL BOXES SHALL BE INSTALLED AS NECESSARY TO FACILITATE WIRE PULLS AND AVOID EXCESSIVE PULLING TENSION ON WIRING. IN NO CASE SHALL CONDUIT LENGTHS EXCEED 150' OR THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) WITHOUT A PULL BOX. PULL BOXES SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.
23. THE WET WELL CLASSIFICATION IS CLASS 1, DIVISION 1, GROUP D, (HAZARDOUS AREA) NEC CHAPTER 5 IS APPLICABLE FOR INTERFACING WET WELL AND THE CONTROL ENCLOSURE.
24. ALL ELECTRICAL WORK SHALL BE PERFORMED WITHIN 2011 NEC AND CITY OF TAMPA/ HILLSBOROUGH COUNTY CODES AND SHALL BE INSPECTED BY CITY OF TAMPA/ HILLSBOROUGH COUNTY ELECTRICAL INSPECTORS AS APPLICABLE.
25. ALL ELECTRICAL COMPONENTS SHALL BE UL LISTED AND AS SPECIFIED, OR AS APPROVED BY THE ENGINEER. THE PANEL BUILDER SHALL BE UL-508A CERTIFIED AND A UL LABEL SHALL BE ATTACHED TO THE INSIDE OF THE ENCLOSURE. THE DOUBLE THROW DISCONNECT MUST BE LABELED "SUITABLE FOR USE AS SERVICE EQUIPMENT."
26. THE ENCLOSURES SHALL BE NEMA 4X, THEY SHALL BE CONSTRUCTED OF MINIMUM 14 GAUGE 304SS, THEY SHALL HAVE RAL 9003 WHITE POWDER COAT AND THE CLOSING SURFACES SHALL HAVE ROLLED LIPS, PROVIDE HINGED DOORS WITH 3-POINT LATCHED AND LOCKABLE HANDLES.
27. ALL COMPONENTS TO BE MOUNTED ON PANEL USING TAPPED HOLES.
28. ALL WIRING SHALL BE COPPER, ALL CONTROL WIRING SHALL BE STRANDED XHHW-2 COPPER, MINIMUM AWG #14 AND SHALL HAVE SPADE LUG TERMINATIONS.
29. ALARM FLOAT SWITCH WILL BE SUPPLIED BY THE CITY, BUT INSTALLED BY CONTRACTOR.
30. DIMENSIONS, ITEMS, OR ELEVATIONS MARKED "\*" TO BE DETERMINED AFTER EQUIPMENT SELECTION.
31. ALL MECHANICAL CONNECTORS SHALL BE TORQUED PER NEC, UL OR MANUFACTURES SPECIFICATIONS.
32. INSTALL LAMINATED SCHEMATIC, LAMINATED DATA SHEET AND LAMINATED SOFT STARTER SETUP PARAMETERS ON BACK FACE OF THE DOOR INSIDE THE ENCLOSURE.
33. ENSURE THAT LINE CONNECTIONS TO METER SOCKET PROVIDE CORRECT MOTOR ROTATION.
34. CONDUCTORS WITHIN THE ENCLOSURE AND NOT ROUTED IN WIREWAYS, SHALL BE SECURED TO THE BACK PANEL WITH MECHANICAL FASTENERS, FASTENERS SECURED WITH ADHESIVE ARE NOT ACCEPTABLE.
35. ALL HINGED SURFACES SHALL BE GROUNDED WITH A BONDING JUMPER SECURED TO THE ENCLOSURE OR BACKPANEL.
36. THE PCSR SHALL BE MOTOROLA ACE 3600 PACKAGE AS DISTRIBUTED BY DCR ENGINEERING SERVICES INC. SCADAONE, LLC., OR REVERE CONTROL SYSTEMS. THE PUMPING STATION CONTRACTOR SHALL COORDINATE HIS EFFORTS WITH DCR, SCADAONE, OR REVERE CONTROL SYSTEMS TO ENSURE SYSTEM COMPATIBILITY. THE CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE DUPLEX CONTROL SYSTEM/SCADA PACKAGE, AS PROGRAMMED BY DCR, SCADAONE, OR REVERE CONTROLS - THE EXISTING PUMPING STATION DCR CONTROLS SHALL REVERT TO THE CITY AS A SPARE.
37. A WET WELL LEVEL DETECTION SYSTEM SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. THE OUTPUT SHALL BE A LINEAR 4-20ma SIGNAL WITH RANGE AND CALIBRATION SUITABLE FOR THIS APPLICATION. THE SYSTEM SHALL BE OF THE ULTRASONIC TYPE-PULSAR, INC. MODEL dB10 W/ BLACKBOX 130 TRANSMITTER. CITY INSTRUMENTATION PERSONNEL WILL ASSIST THE CONTRACTOR WITH SPECIFYING THE TRANSDUCER MOUNTING LOCATION AND CALIBRATION. THE dB10 TRANSDUCER SHALL BE MOUNTED USING A 2 1/2" x 1/4" S.S. BRACKET, SEE dB10 MOUNTING BRACKET DETAIL, SHEET E21.
38. PROVIDE 1/4" MINIMUM THICKNESS LEXAN SHIELDS OVER POWER DISTRIBUTION BLOCK AND OTHER EXPOSED CABLE TERMINATIONS.
39. XHHW-2 CONDUCTORS (3-#6 AWG + 1-#8 AWG GND. CU FOR EACH MOTOR) SHALL EXTEND FROM THE CONTROL PANEL TO ASSOCIATED HIGH VOLTAGE JUNCTION BOX. PROVIDE SEAL-OFF BETWEEN CONTROL PANEL AND JUNCTION BOX AS INDICATED. THE SHOWN SEAL-OFFS SHALL BE ALUMINUM BODY, CROUSE-HINDS, OR EQUIVALENT.
40. ALUMINUM CONDUIT SURFACE THAT IS A CONTACT WITH SOIL OR CONCRETE SHALL BE COATED WITH TWO COATS ASPALT VARNISH (FED. SPEC. TT-V-51) EXTENDING 4" BEYOND FINAL CONTACT POINT.
41. STAINLESS STEEL HANGERS TO SUPPORT THE EXCESS LENGTH OF MOTOR CABLES SHALL BE INSTALLED IN THE WET WELL. THESE HANGERS SHALL BE LOCATED IN A SEPARATE AREA FROM THE HANGERS SUPPORTING THE PUMP CHAINS.

**SCOPE OF WORK:**

1. THE SERVICE VOLTAGE TO THIS FACILITY SHALL REMAIN 277/480 VAC. 3-PHASE 4-WIRE, WYE.
2. REMOVE THE EXISTING METER SOCKET, LIGHTING ARRESTOR, TRANSFORMER, CONTROL PANEL, CONCRETE PEDESTAL AND ALL ASSOCIATED CONDUIT AND CONDUITS, AS SHOWN ON PLANS.
3. CAREFULLY REMOVE THE EXISTING DCR SCADA RTU CABINET MOUNTED IN THE EXISTING CONTROLS ENCLOSURE. DELIVER THIS RTU PACKAGE TO THE CITY FOR MAINTENANCE INVENTORY.
4. ANY SALVAGEABLE MATERIALS, AS DETERMINED BY THE ENGINEER, SHALL BE DELIVERED, BY THE CONTRACTOR, TO THE HOWARD F. CURREN AWTP. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL OTHER REMOVED EQUIPMENT.
5. PROVIDE AND INSTALL A NEW ELECTRICAL METER SOCKET, LIGHTING ARRESTOR AND GROUNDING AS SHOWN ON PLAN.
6. PREPARE THE SITE FOR THE INSTALLATION OF THE PROPOSED CONTROL EQUIPMENT.
7. PROVIDE AND INSTALL A NEW DUPLEX PUMP CONTROL PANEL. THE PUMP CONTROL PANEL SHALL CONTAIN CONTROL COMPONENTS, INDICATOR LIGHTS, AND SCADA RTU AS SHOWN ON THE PLANS AND DETAILED IN THE SPECIFICATIONS.
8. PROVIDE AND INSTALL A NEW DUPLEX MOTOR CONTROL PANEL. THE MOTOR CONTROL PANEL SHALL CONTAIN CIRCUIT BREAKERS, REDUCED VOLTAGE SOFT STARTERS AS SHOWN ON THE PLANS AND DETAILED IN THE SPECIFICATIONS.
9. PROVIDE AND INSTALL A NEMA 4X, SERVICE ENTRANCE RATED, FUSED DOUBLE THROW SWITCH, AS SHOWN ON PLANS.
10. REUSE EXISTING SCADA ANTENNA MAST AS INDICATED.
11. CALIBRATE AND ADJUST SETPOINTS FOR ALL SENSING DEVICES, ALARM DEVICES, AND TIMERS. CALIBRATION AND SETPOINTS SHALL BE PROVIDED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
12. FURNISH AND INSTALL NEMA 4X JUNCTION BOXES AS SHOWN ON THE PLANS.
13. PROVIDE FOR PROPER GROUNDING AS SHOWN, SPECIFIED AND REQUIRED.
14. PROVIDE AND INSTALL ALL NECESSARY CONDUITS AND CONDUCTORS AS SHOWN, SPECIFIED AND REQUIRED.
15. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRIC CODE AND CHAPTER 5 OF THE CITY OF TAMPA CODE.
16. REFER TO CIVIL/MECHANICAL SHEETS FOR BYPASS PUMPING REQUIREMENTS. IF ELECTRICALLY DRIVEN BYPASS PUMPS ARE UTILIZED, THE CONTRACTOR SHALL COORDINATE ALL TEMPORARY ELECTRICAL SERVICE REQUIREMENTS WITH TAMPA ELECTRIC COMPANY (TECO). ANY COSTS ASSOCIATED WITH TEMPORARY ELECTRIC POWER ARE TO BE INCLUDED IN THE LUMP SUM PRICE AND NO SEPERATE PAYMENT WILL BE MADE.

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ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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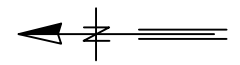
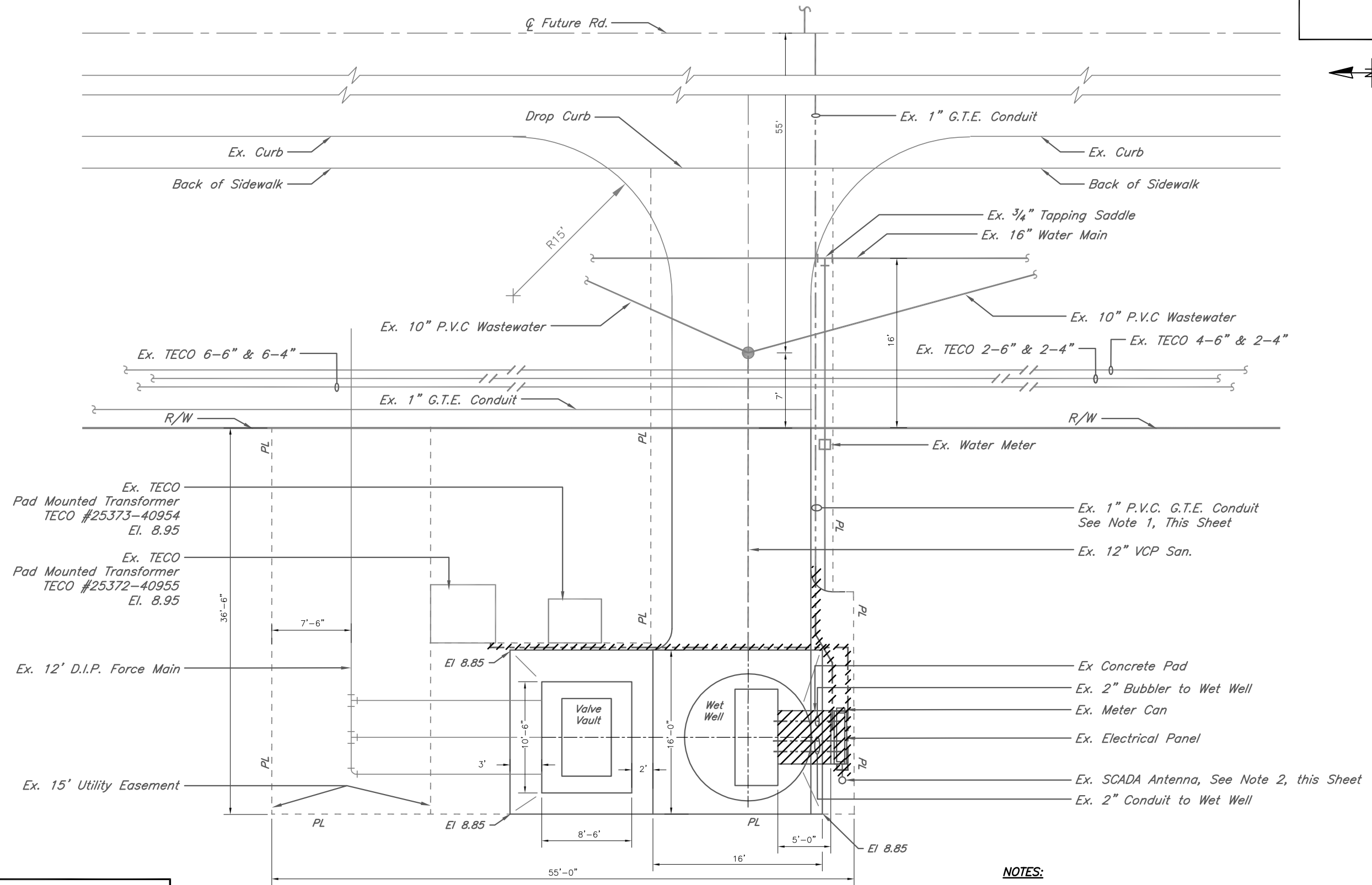
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CKD:  
DATE: 6/30/16

**CITY of TAMPA**  
**WASTEWATER DEPARTMENT**

**HARBOUR ISLAND PUMPING REHABILITATION**  
**GENERAL NOTES & SCOPE OF WORK**

W.O. 0000  
SHEET  
**EG3**

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HATCHED AREAS INDICATE ITEMS TO BE REMOVED

EXISTING SITE PLAN  
SCALE: 1" = 10'

**NOTES:**

1. REMOVE EXISTING 1" PVC GTE CONDUIT AS SHOWN AND CAP OFF.
2. RELOCATE EXISTING SCADA ANTENNA, SEE SHT. ES2.

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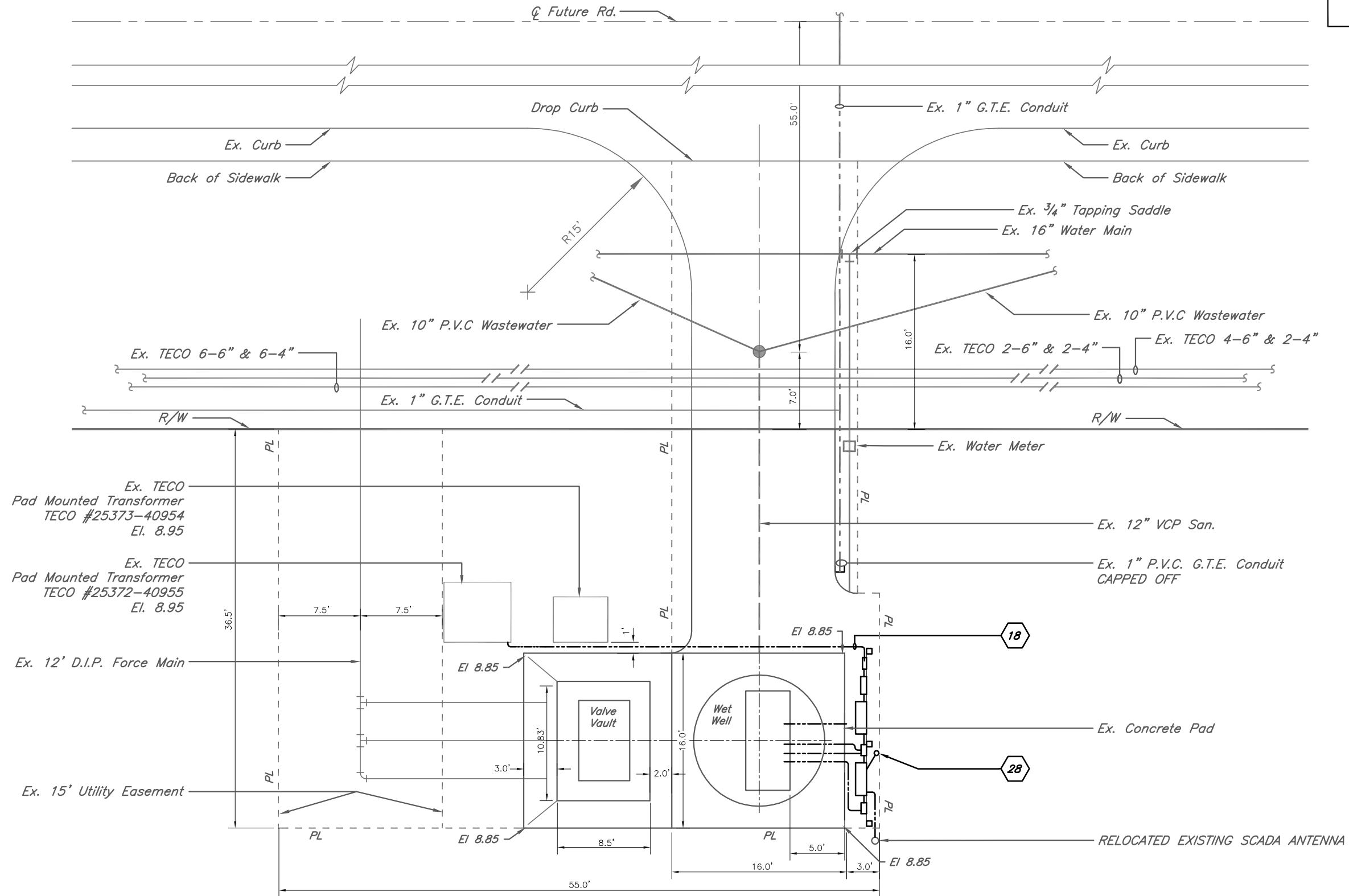
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**CITY of TAMPA**  
WASTEWATER DEPARTMENT

HARBOUR ISLAND PS REHABILITATION  
EXISTING ELECTRICAL DEMOLITION SITE PLAN

W.O. 0000  
SHEET  
**ESI**



PROPOSED SITE PLAN  
SCALE: 1" = 10'

NOTE: SEE KEYED NOTES ON SHEET E6.

ROMAN KORCHAK, P.E., #42626  
ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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DES: LRG  
DRN: JHJ  
CKD:  
DATE: 6/30/16

**CITY of TAMPA**  
WASTEWATER DEPARTMENT

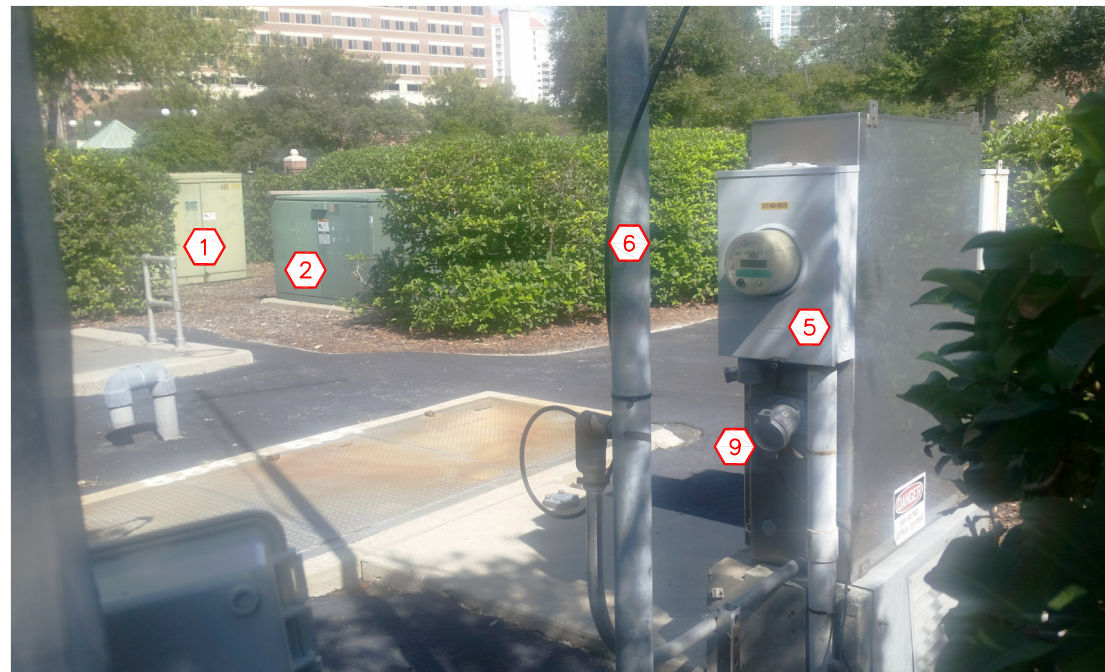
HARBOUR ISLAND PS REHABILITATION  
PROPOSED ELECTRICAL SITE PLAN

W.O. 0000  
SHEET  
**ES2**

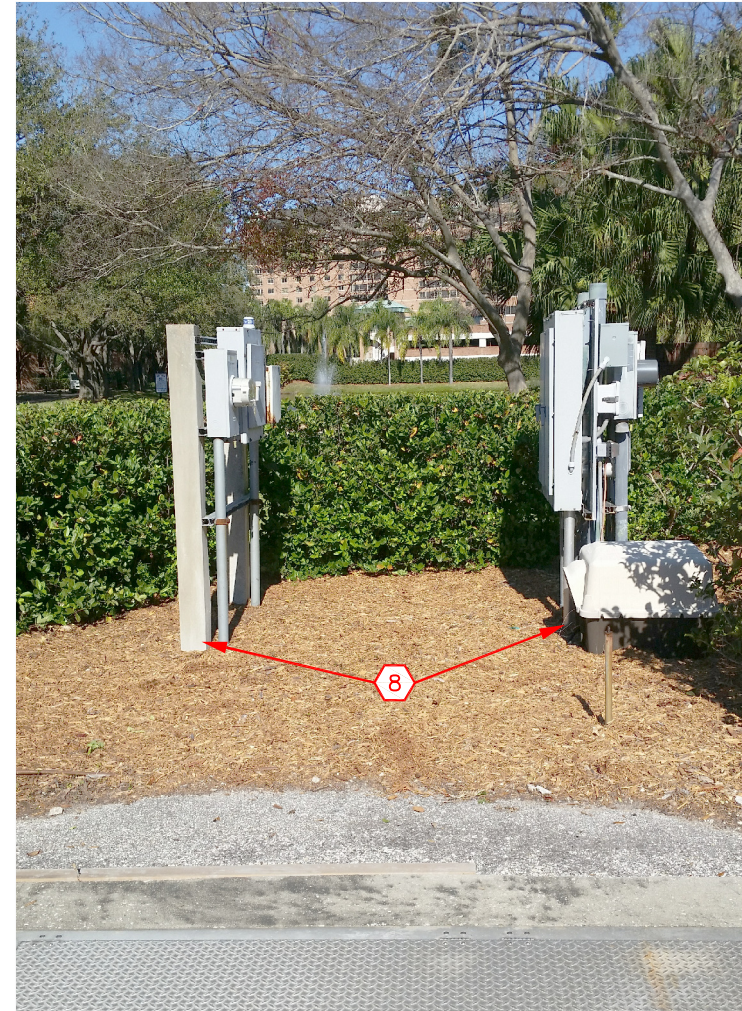




EX. CONTROL PANEL  
SOUTH VIEW



EX. TRANSFORMERS  
NORTHEAST VIEW



EX. EQUIPMENT  
NORTHWEST VIEW

KEYED NOTES:

- ① EXISTING TECO PAD MOUNTED TRANSFORMER 25372-40955 (NO WORK REQUIRED).
- ② EXISTING TECO PAD MOUNTED TRANSFORMER 25372-40954 (NO WORK REQUIRED).
- ③ EXISTING CONTROL PANEL (TO BE REMOVED).
- ④ EXISTING TRANSFORMER (TO BE REMOVED).
- ⑤ EXISTING TECO METER (TO BE REMOVED).
- ⑥ EXISTING SCADA ANTENNA (TO BE REUSED AND RELOCATED).
- ⑦ EQUIPMENT BY OTHERS (NO WORK REQUIRED).
- ⑧ EQUIPMENT BY OTHERS (NO WORK REQUIRED).
- ⑨ EXISTING EMERGENCY CONNECTOR (TO BE REMOVED).

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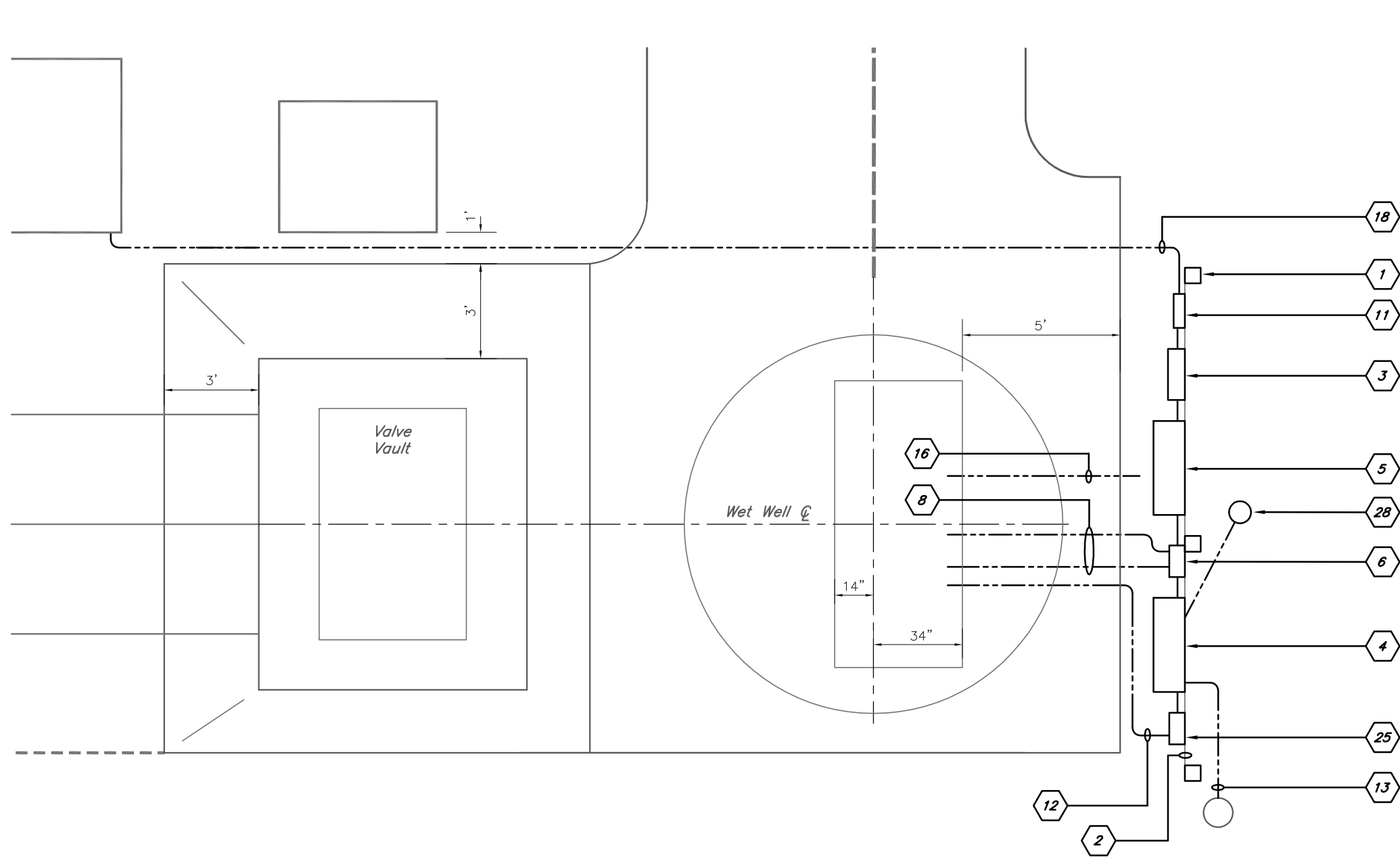
**CITY of TAMPA**  
WASTEWATER DEPARTMENT

HARBOUR ISLAND PS REHABILITATION  
ELECTRICAL DEMOLITION EQUIPMENT IDENTIFICATION

W.O. 0000  
SHEET  
**EDI**



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**PROPOSED ELECTRICAL PLAN VIEW**  
N.T.S.

**NOTE:** SEE KEYED NOTES ON SHEET E6.

ROMAN KORCHAK, P.E., #42626  
ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

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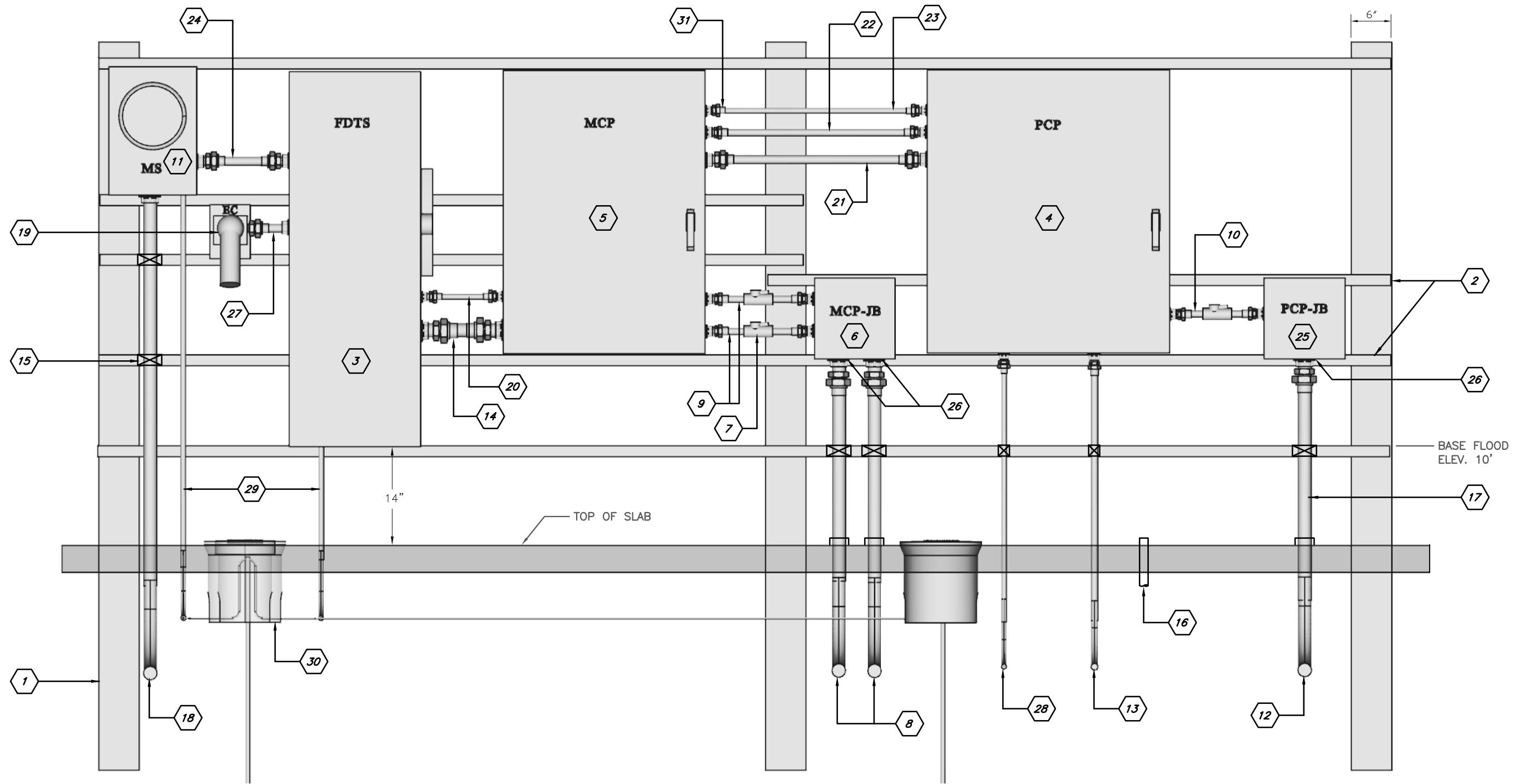
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**CITY of TAMPA**  
WASTEWATER DEPARTMENT

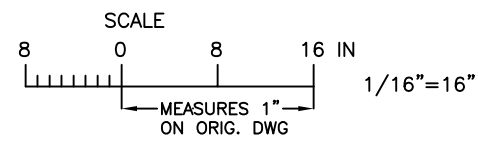
HARBOUR ISLAND PS REHABILITATION  
PROPOSED ELECTRICAL PLAN VIEW

W.O. 0000  
SHEET  
**EI**

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ELECTRICAL EQUIPMENT LINE UP FRONT-VIEW



**NOTE:** SEE KEYED NOTES ON SHEET E6.

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 WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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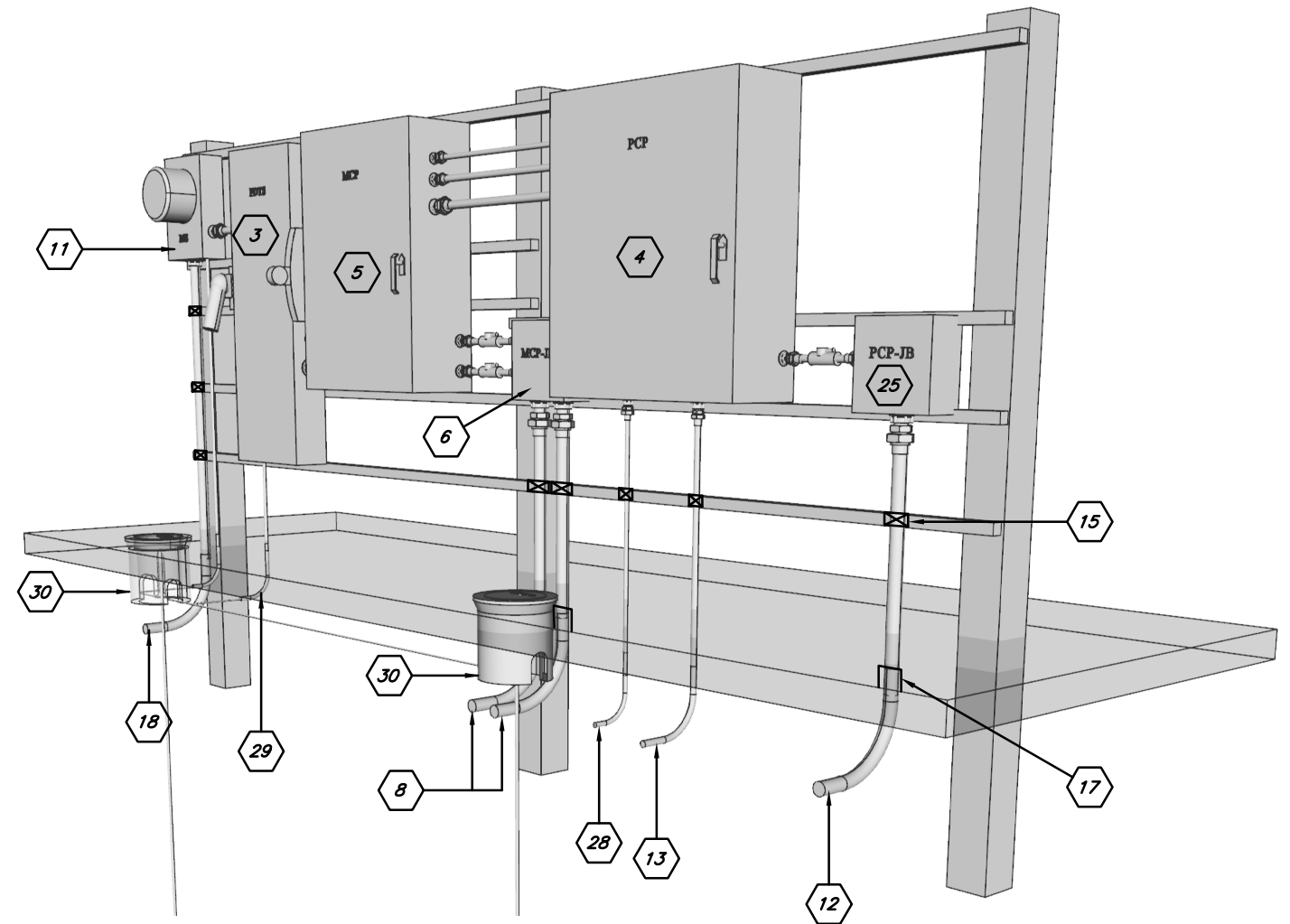
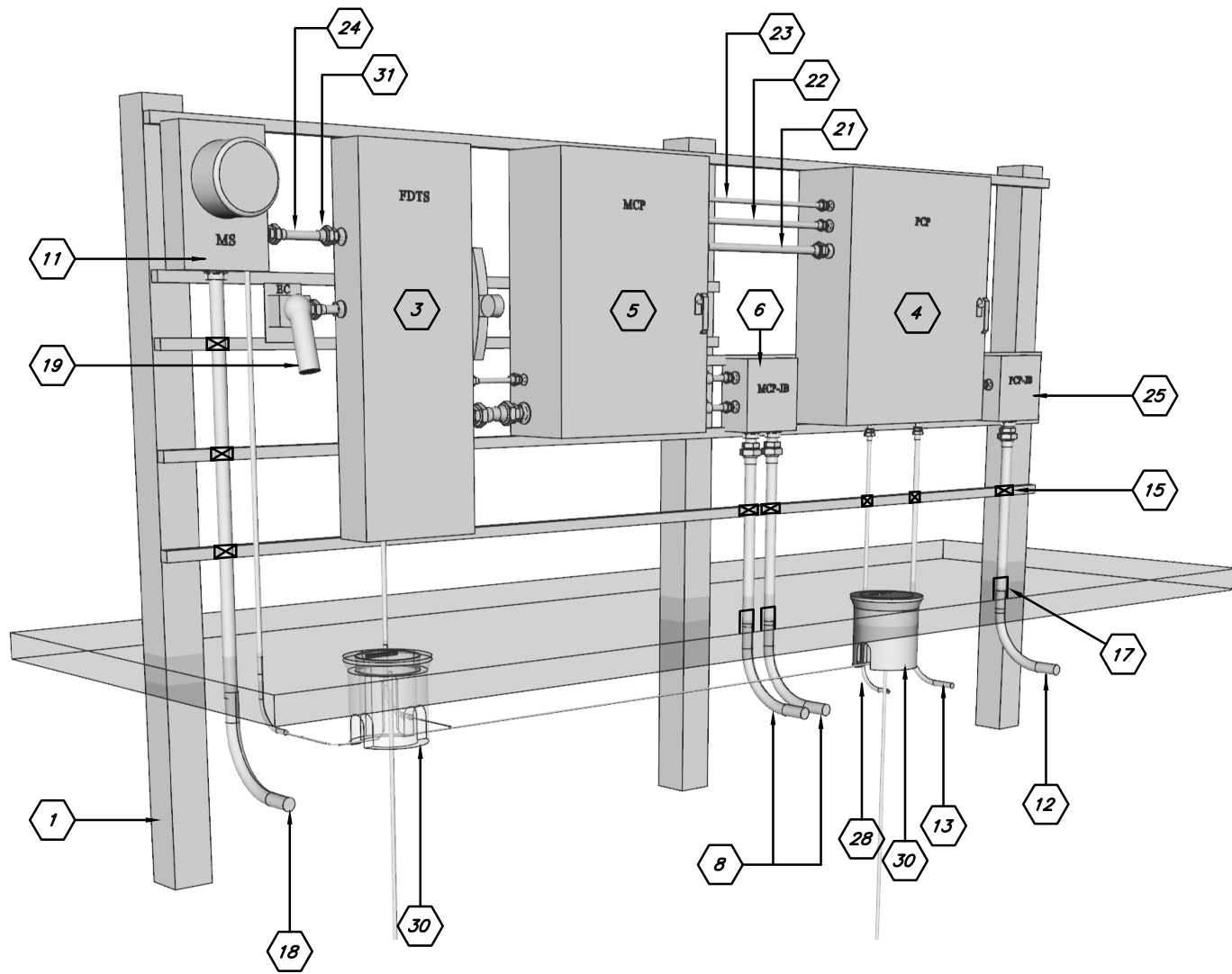
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HARBOUR ISLAND PS REHABILITATION  
 ELECTRICAL EQUIPMENT LINE UP FRONT-VIEW

W.O. 0000  
 SHEET  
**E2**

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 Layout: Jun 22, 2016 - 2:34pm



**NOTE:** SEE KEYED NOTES ON SHEET E6.

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 WASTEWATER DEPARTMENT

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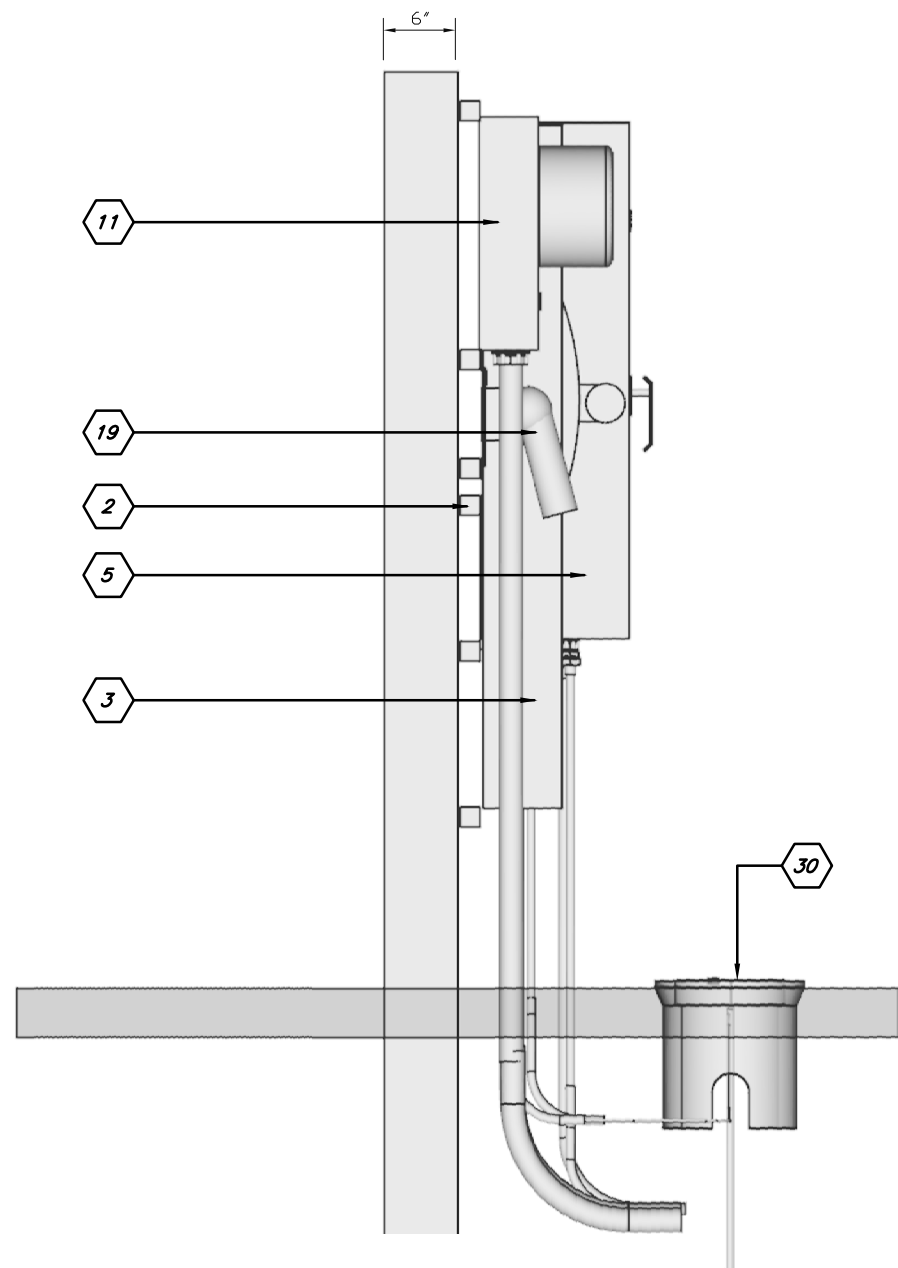
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**CITY of TAMPA**  
**WASTEWATER DEPARTMENT**

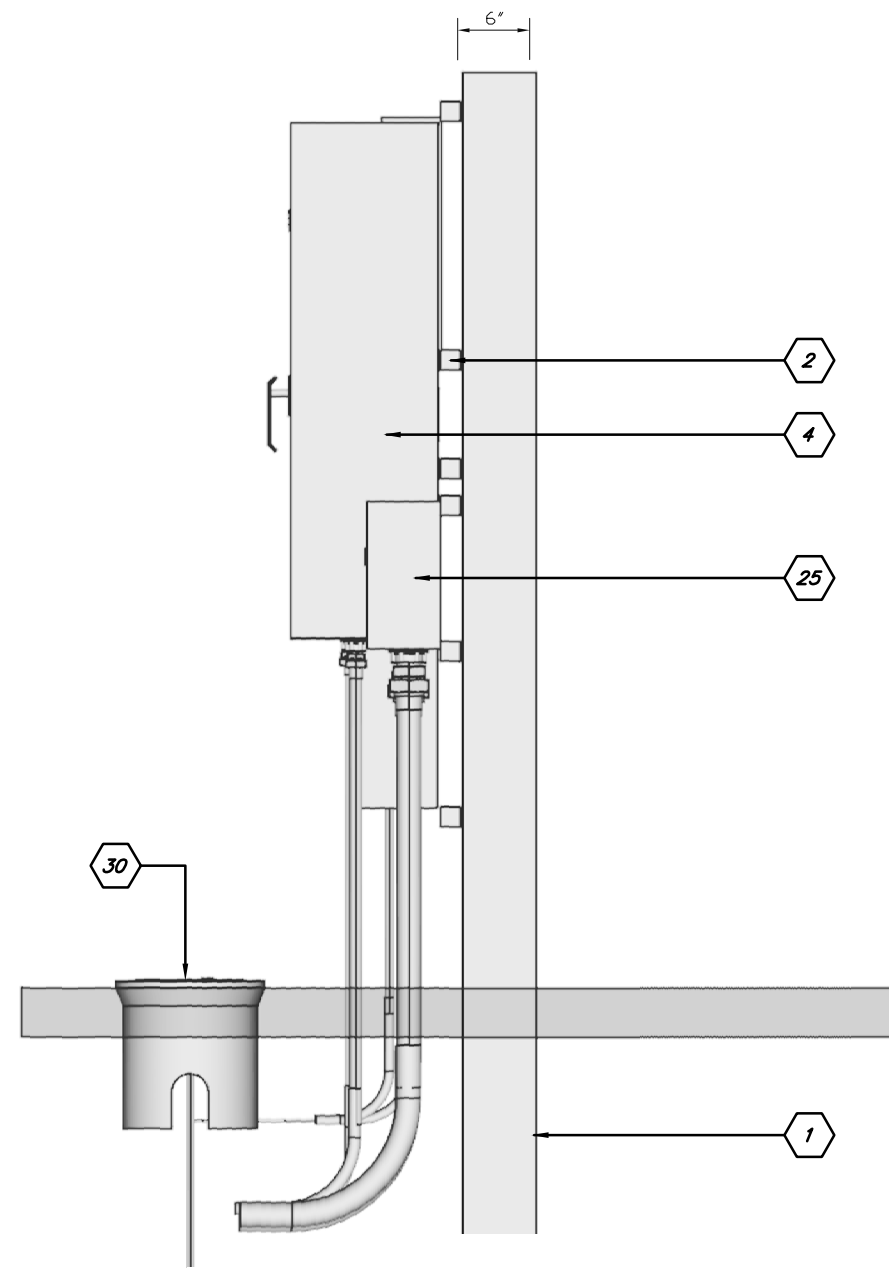
HARBOUR ISLAND PS REHABILITATION  
 ELECTRICAL EQUIPMENT LINE UP  
 PERSPECTIVE PROJECTIONS

W.O. 0000  
 SHEET  
**E3**

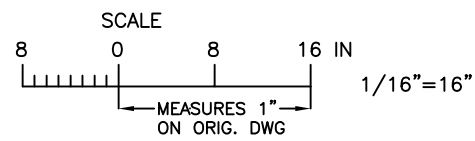
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LEFT SIDE VIEW



RIGHT SIDE VIEW



**NOTE:** SEE KEYED NOTES ON SHEET E6.

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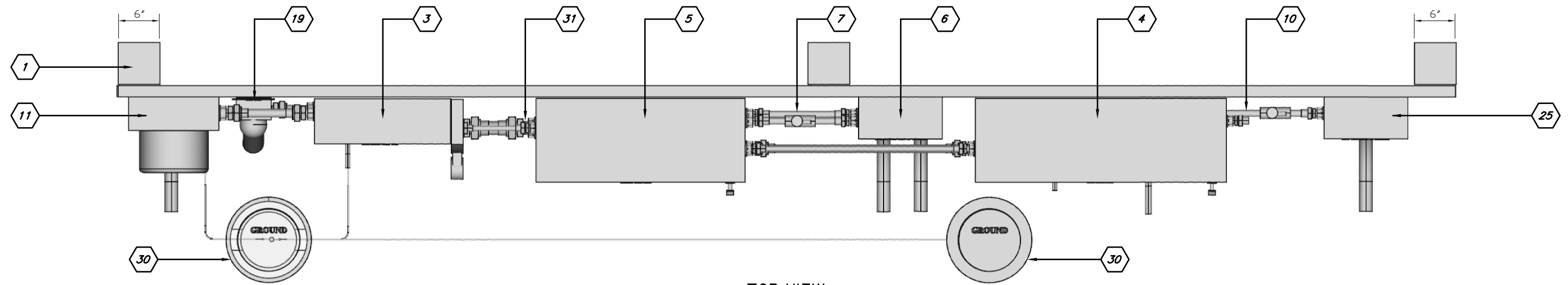
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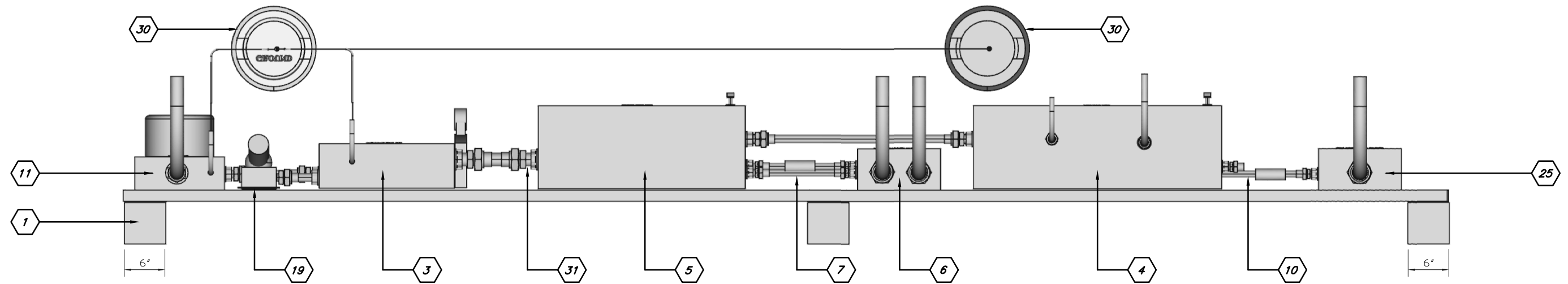
HARBOUR ISLAND PS REHABILITATION  
ELECTRICAL EQUIPMENT LINE UP  
SIDE VIEWS

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SHEET  
**E4**

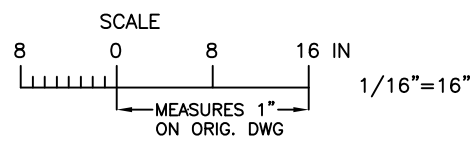
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 Layout: Jun 22, 2016 - 1:47pm



TOP VIEW



BOTTOM VIEW



**NOTE:** SEE KEYED NOTES ON SHEET E6.

ROMAN KORCHAK, P.E., #42626  
 ELECTRICAL DIVISION HEAD  
 WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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 DRN: RDK/JHJ  
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 DATE: 6/30/16

**CITY of TAMPA**  
**WASTEWATER DEPARTMENT**

HARBOUR ISLAND PS REHABILITATION  
 ELECTRICAL EQUIPMENT LINE UP  
 TOP & BOTTOM VIEWS

W.O. 0000  
 SHEET  
**E5**

**KEYED NOTES:**

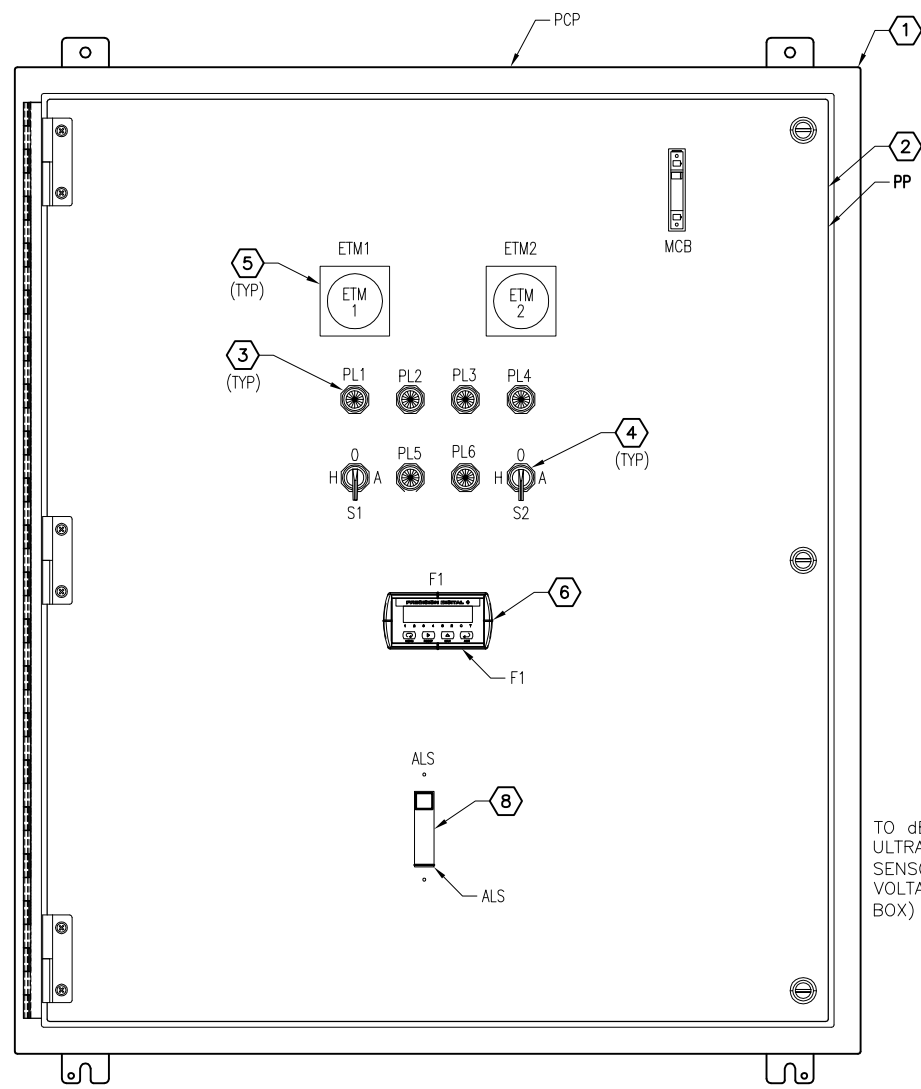
- ① PROVIDE AND INSTALL THREE (3) 6" X 6" X 9' REINFORCED SQUARE CONCRETE POSTS.
- ② PROVIDE AND INSTALL 1-5/8" x 1-5/8" STAINLESS STEEL UNISTRUT WITH STAINLESS STEEL HARDWARE. NOTE: INSTALL ALL BOLTS FOR UNISTRUT COMPLETELY THROUGH CONCRETE POSTS.
- ③ PROVIDE AND INSTALL HEAVY DUTY, DOUBLE THROW, FUSIBLE SWITCH, 3-POLE, 600 VAC, 200 AMP IN NEMA 4X TYPE ENCLOSURE, 600 VOLT, DUAL-ELEMENT, TIME-DELAY CLASS RK5 FUSES; SWITCH--EATON DT364FWK, DT200NK-200A DT NEUTRAL KIT, DS200GK-200A DT GROUND LUG KIT, DS46FK- "R" FUSE 200A DT ADAPTER KIT.
- ④ PROVIDE AND INSTALL PUMP CONTROL CABINET. REFER TO DETAIL ON SHEET E7.
- ⑤ PROVIDE AND INSTALL MOTOR CONTROL CABINET. REFER TO DETAIL ON SHEET E8.
- ⑥ PUMP MOTOR CONNECTIONS J.B.-USED AS A DEMARCATION BOX TO PROVIDE ISOLATION BETWEEN THE WET WELL AND PUMP CONTROLS. PROVIDE AND INSTALL A 12"x12"x6" NEMA 4X, STAINLESS STEEL JUNCTION BOX WITH HINGED DOOR, WIEGMANN #BN4121206CHSS. INSTALL A STAINLESS STEEL LOUVER PLATE KIT (4.75"x 4.5") ON SIDE OF BOX TO PROVIDE NATURAL ASPERATION, WIEGMANN #WAVK0304SSA. TERMINATIONS SHALL BE MADE USING SPLIT BOLTS. CAREFULLY TAPE CONNECTIONS TO PROVIDE A 600V INSULATION LEVEL (TYPICAL FOR EACH CONDUCTOR) SEE SHEET E19 FOR JB DETAILS.
- ⑦ PROVIDE AND INSTALL CROUSE-HINDS EYS TYPE SEALS W/CHICO COMPOUNDS.
- ⑧ REUSE EXISTING SUBMERSIBLE PUMP POWER CABLES. INTERCEPT AND EXTEND EXISTING 2" CONDUITS TO WETWELL TO INSTALL, SEE GENERAL NOTE 16, SHEET EG3.
- ⑨ PROVIDE AND INSTALL (3)-#6 XHHW-2 CU + (1)-#8 XHHW-2 CU GND + (2)-#12 XHHW-2 CU (LEAK/TEMP) IN 1" CONDUIT FOR SUBMERSIBLE PUMP POWER.
- ⑩ PROVIDE AND INSTALL (3)-#14 XHHW-2 CU + (1)-#14 XHHW-2 CU GND + (1)-3/C-#18 TWISTED SHIELDED CABLE IN 1" CONDUIT FOR FLOAT AND WET WELL LEVEL TRANSMITTER.
- ⑪ PROVIDE AND INSTALL METER SOCKET IN ALUMINUM ENCLOSURE.
- ⑫ MANUFACTURER SUPPLIED CABLES FOR FLOAT SWITCH AND WET WELL LEVEL TRANSMITTER INSTALL IN 2" CONDUIT TO WET WELL FROM JUNCTION BOX. CORE DRILL WET WELL AS NEEDED TO INSTALL, PATCH SEAL WITH APPROVED PRODUCT.
- ⑬ PROVIDE AND INSTALL 1" CONDUIT FOR ANTENNA COAXIAL CABLE REFER TO SHEET E1 FOR CONTINUATION.
- ⑭ PROVIDE AND INSTALL (3)-#2/0 THWN CU, (1)-#4 THWN NEU, AND (1)-#4 THWN CU GND. IN 2" CONDUIT.
- ⑮ PROVIDE AND INSTALL ALUMINUM CONDUIT STRAPS (TYPICAL).
- ⑯ EXISTING 2" CONDUIT TO WETWELL FOR BUBBLER. VERIFY LOCATION.
- ⑰ FOR UNDERGROUND RACEWAYS TO WETWELL THE CONTRACTOR SHALL UTILIZE PVC COATED ALUMINUM.
- ⑱ PROVIDE AND INSTALL (3)-#2/0 AWG + (1)-#4 NEU. IN 2" CONDUIT TO EXISTING TECO PAD MOUNTED TRANSFORMER. SEE SHEET ES2 FOR CONTINUATION.
- ⑲ PROVIDE AND INSTALL AN EMERGENCY CONNECTOR.
- ⑳ PROVIDE AND INSTALL (3)-#12 XHHW-2 CU + (1)# 12 XHHW-2 CU GND. IN 3/4" C.
- ㉑ PROVIDE AND INSTALL (26)-#12 XHHW-2 CU + (1)# 12 XHHW-2 CU GND. IN 1-1/4" C. FOR 120VAC CONTROL SIGNALS. REFER TO MCP TO PCP INTERCONNECTIONS WIRING DIAGRAM ON SHEET E9.
- ㉒ PROVIDE AND INSTALL (15)-#14 XHHW-2 CU + (1)-#14 XHHW-2 CU GND. IN 1" C. FOR 24V DC CONTROL SIGNALS, REFER TO MCP TO PCP INTERCONNECTION WIRING DIAGRAM ON SHEET E14.
- ㉓ PROVIDE AND INSTALL (1)-#12 XHHW-2 CU NUE. + (1)#12 XHHW-2 CU GND. IN 3/4" CONDUIT FROM MOTOR CONTROLS PANEL TO PUMP CONTROL PANEL FOR 120V POWER CIRCUIT.
- ㉔ PROVIDE AND INSTALL (3)-#2/0 THWN CU + (1)-#4 THWN NEU. IN 2" CONDUIT.
- ㉕ INSTRUMENTATION AND CONTROLS J.B.-USED AS DEMARCATION BOX TO PROVIDE ISOLATION BETWEEN THE WET WELL AND PUMP CONTROLS. PROVIDE AND INSTALL A 12"x12"x6" NEMA 4X, STAINLESS STEEL JUNCTION BOX WITH HINGED DOOR, WIEGMANN #BN4121206CHSS. INSTALL A STAINLESS STEEL LOUVER PLATE KIT (4.75"x4.5") ON SIDE OF BOX TO PROVIDE NATURAL ASPERATION, WIEGMANN #WAVK0304SSA. TERMINATIONS SHALL BE MADE WITH UNDERGROUND WIRE CONNECTORS - IDEAL MODEL #60 - (TYPICAL FOR EACH CONDUCTOR). SEE SHEET E19 FOR JB DETAILS.
- ㉖ PROVIDE DUCT SEALING COMPOUND IN ALL CONDUITS EXTENDING TO THE WET WELL.
- ㉗ PROVIDE AND INSTALL (3)-#3 XHHW-2 CU + (1)-#4 XHHW-2 CU NEU + (1)-#6 XHHW-2 CU GND IN 1-1/4" CONDUIT FOR EMERGENCY CONNECTOR.
- ㉘ PROVIDE AND INSTALL A 3/4" CONDUIT TO PROPOSED AREA LIGHT, (AL), SEE SHT. E21 FOR DETAILS.
- ㉙ PROVIDE AND INSTALL A 3/4" SCHEDULE 80 PVC CONDUIT FOR #4 AWG GROUNDING CONDUCTOR.
- ㉚ PROPOSED GROUNDING CONDUCTOR. APPROVED GROUND CLAMPS SHALL BE ATTACHED TO TWO APPROVED GROUNDING RODS (MINIMUM SPACING 6'-0") GROUNDING CONDUCTOR SHALL BE AWG #4 MIN. BARE STRANDED COPPER, SEE SHEET E20 FOR DETAILS.
- ㉛ PROVIDE AND INSTALL WATER-TIGHT / DUST-TIGHT (TYP.) MYERS HUB AND UNION (TYP.).

FOR USE WITH SHEETS E1 THRU E5

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ROMAN D. KORCHAK, P.E., #42626 ELECTRICAL DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG DRN: JHJ CKD: DATE: 6/30/16	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	HARBOUR ISLAND PS REHABILITATION KEYED NOTES	W.O. 0000 SHEET <b>E6</b>
	3						
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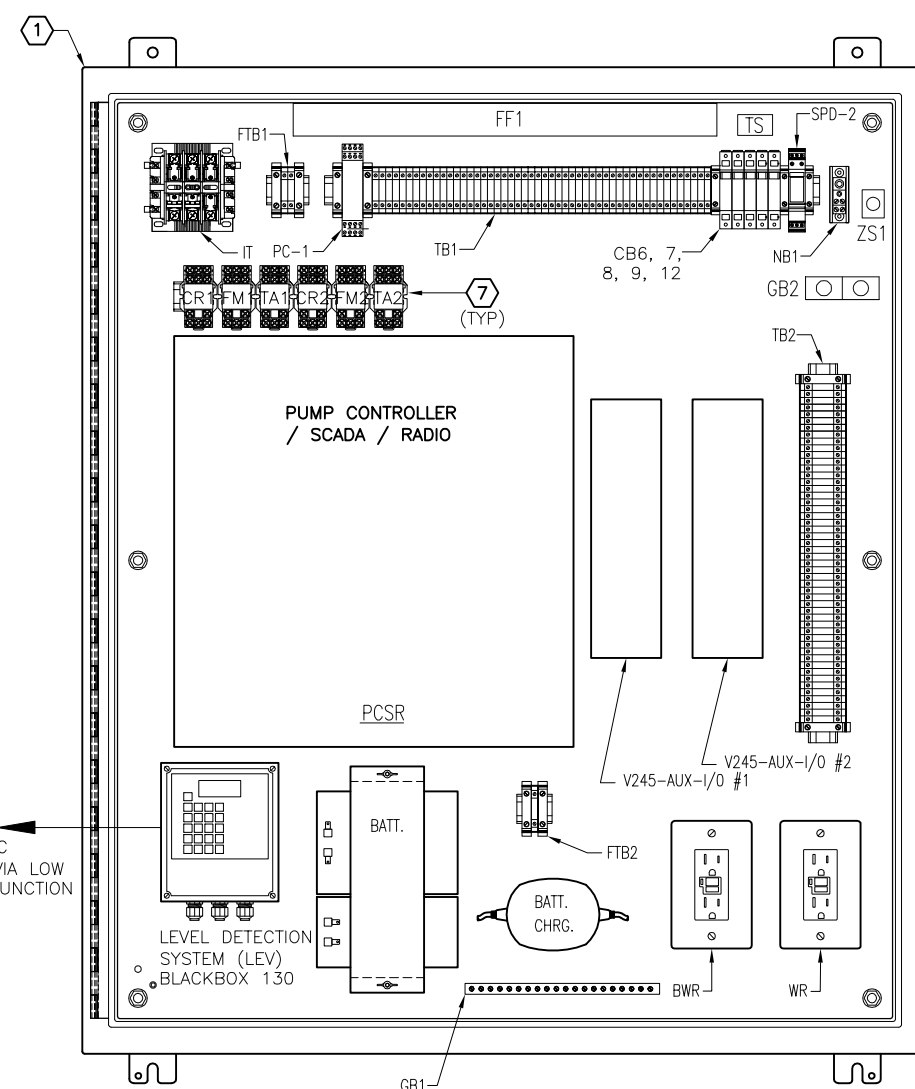
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**PUMP CONTROL PANEL DETAILS**

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

NOTE: FRONT ENCLOSURE DOOR NOT SHOWN FOR CLARITY



**PANEL INTERIOR**

**LEGEND PLATE SCHEDULE**

SYMBOL	DEVICE	LEGEND
ETM1	ELAPSED TIME METER	PUMP NO. 1 HOURS
ETM2	ELAPSED TIME METER	PUMP NO. 2 HOURS
PL1	YELLOW PILOT LIGHT	PUMP NO. 1 ON
PL2	RED ILLUMINATED PUSH BUTTON	PUMP NO. 1 TEMP. ALARM
PL3	RED ILLUMINATED PUSH BUTTON	PUMP NO. 2 TEMP. ALARM
PL4	YELLOW PILOT LIGHT	PUMP NO. 2 ON
PL5	RED PILOT LIGHT	PUMP NO. 1 SEAL LEAK ALARM
PL6	RED PILOT LIGHT	PUMP NO. 2 SEAL LEAK ALARM
S1	3 POSITION SWITCH	PUMP NO. 1 HAND-OFF-AUTO
S2	3 POSITION SWITCH	PUMP NO. 2 HAND-OFF-AUTO
MCB	PUMP CONTROL PANEL MAIN CIRCUIT BREAKER	MAIN CIRCUIT BREAKER
F1	DIGITAL PROCESS METER	WET WELL LEVEL
ALS	TOGGLE SWITCH	AREA LIGHT SWITCH

**KEYED NOTES:**

- ① PUMP CONTROL CABINET. 42" X 36 X 12" NEMA 4X SS, PAINTED WHITE.
- ② PROVIDE AND INSTALL ALUMINUM DEADFRONT DOOR WITH STOP KIT.
- ③ PROVIDE AND INSTALL NEW PILOT LIGHT. REFER ALSO TO PARTS SCHEDULE ON SHEET E17.
- ④ PROVIDE AND INSTALL NEW SELECTOR SWITCH. REFER ALSO TO PARTS SCHEDULE ON SHEET E17.
- ⑤ PROVIDE AND INSTALL NEW ELAPSED TIME METER. REFER ALSO TO PARTS SCHEDULE ON SHEET E17.
- ⑥ PROVIDE AND INSTALL PRECISION DIGITAL PROCESS METER, MODEL PD765-6X3-00 WITH 4-20mA OUTPUT. REFER ALSO TO PARTS SCHEDULE ON SHEET E18.
- ⑦ PROVIDE AND INSTALL ALUMINUM DIN RAIL WHERE REQUIRED.
- ⑧ PROVIDE AND INSTALL NEW SINGLE-POLE 120/277V, 20A LIGHT SWITCH TO CONTROL AREA LIGHT. REFER ALSO TO PARTS SCHEDULE ON SHEET E18.

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ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

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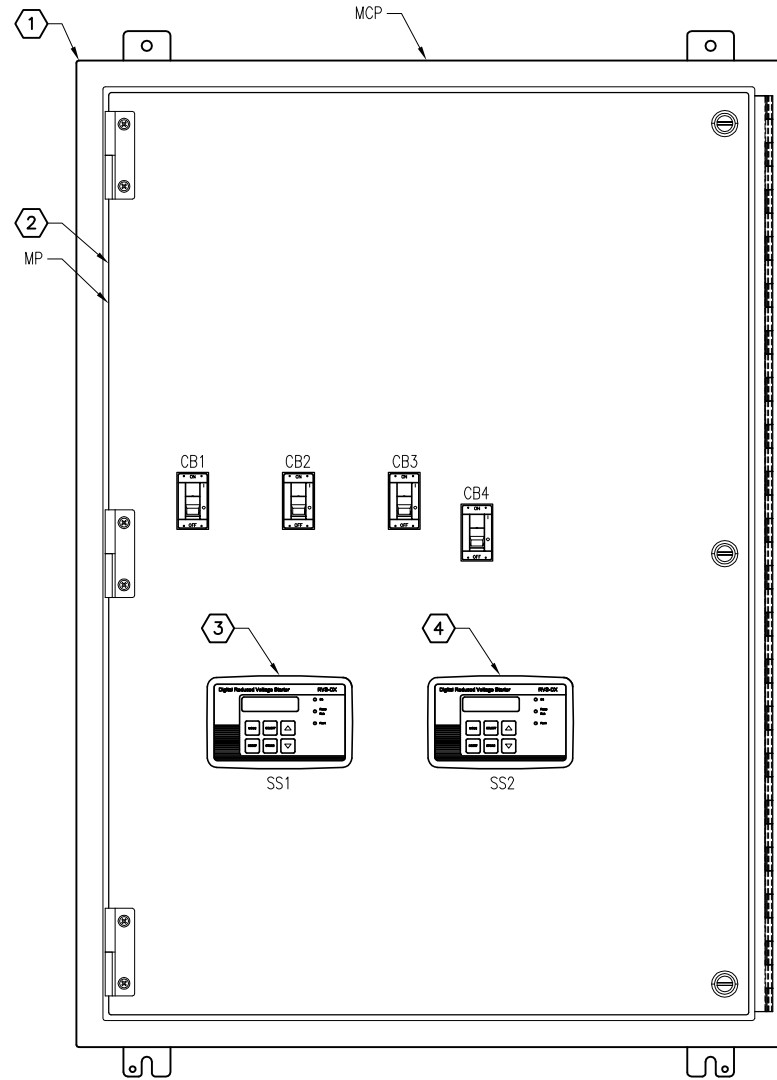
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HARBOUR ISLAND PS REHABILITATION  
PUMP CONTROL PANEL DETAILS

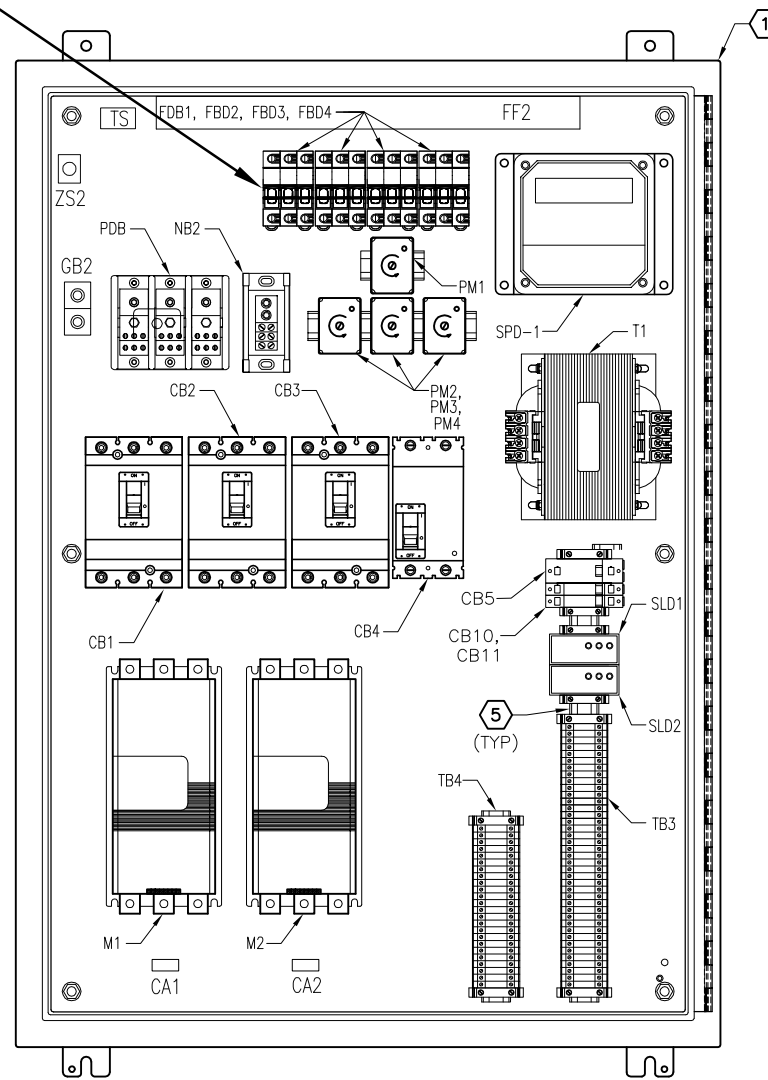
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**E7**



PROVIDE WARNING LABEL ABOVE FBD1.  
 LABEL TO READ:  
 "WARNING - OPENING FUSED DOUBLE  
 THROW SWITCH DOES NOT  
 DE-ENERGIZE VOLTAGE TO  
 THIS DISCONNECT"



MOTOR CONTROL PANEL  
 DETAILS



PANEL INTERIOR  
 DETAILS

LEGEND PLATE SCHEDULE

SYMBOL	DEVICE	LEGEND
CB1	CIRCUIT BREAKER	PUMP NO. 1 CIRCUIT BREAKER
CB2	CIRCUIT BREAKER	PUMP NO. 2 CIRCUIT BREAKER
CB3	CIRCUIT BREAKER	SPARE CIRCUIT BREAKER
CB4	CIRCUIT BREAKER	TRANSFORMER 'T1' 480V FEEDER
SS1	SOFTSTARTER KEYPAD	SOFTSTARTER NO. 1 KEYPAD
SS2	SOFTSTARTER KEYPAD	SOFTSTARTER NO. 2 KEYPAD

KEYED NOTES:

- ① MOTOR CONTROL CABINET. 42" X 30 X 12" NEMA 4X SS, POWDER COAT WHITE.
- ② PROVIDE AND INSTALL ALUMINUM DEADFRONT DOOR WITH STOP KIT.
- ③ PROVIDE AND INSTALL NEW KEYPAD FOR SOFTSTARTER #1. REFER ALSO TO PARTS SCHEDULE ON SHEET E17.
- ④ PROVIDE AND INSTALL NEW KEYPAD FOR SOFTSTARTER #2. REFER ALSO TO PARTS SCHEDULE ON SHEET E17.
- ⑤ PROVIDE AND INSTALL ALUMINUM DIN RAIL WHERE REQUIRED.

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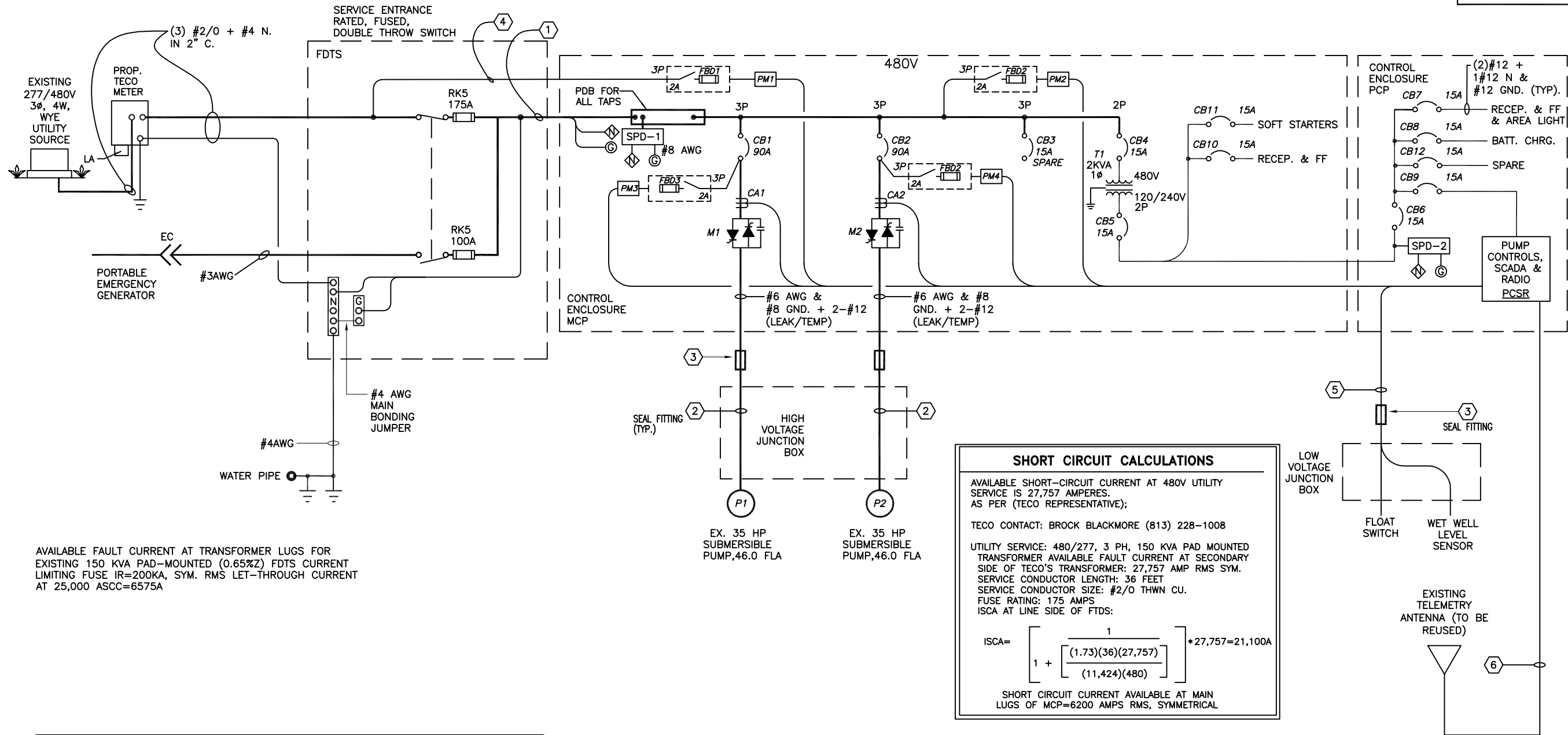
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 DRN: JHJ  
 CKD:  
 DATE: 6/30/16

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HARBOUR ISLAND PS REHABILITATION  
 MOTOR CONTROL PANEL DETAILS

W.O. 0000  
 SHEET  
**E8**

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AVAILABLE FAULT CURRENT AT TRANSFORMER LUGS FOR EXISTING 150 KVA PAD-MOUNTED (0.65%Z) FDTs CURRENT LIMITING FUSE IR=200KA, SYM. RMS LET-THROUGH CURRENT AT 25,000 ASCC=6575A

**SHORT CIRCUIT CALCULATIONS**

AVAILABLE SHORT-CIRCUIT CURRENT AT 480V UTILITY SERVICE IS 27,757 AMPERES, AS PER (TECO REPRESENTATIVE);

TECO CONTACT: BROCK BLACKMORE (813) 228-1008

UTILITY SERVICE: 480/277, 3 PH, 150 KVA PAD MOUNTED TRANSFORMER AVAILABLE FAULT CURRENT AT SECONDARY SIDE OF TECO'S TRANSFORMER: 27,757 AMP RMS SYM. SERVICE CONDUCTOR LENGTH: 36 FEET SERVICE CONDUCTOR SIZE: #2/0 THWN CU. FUSE RATING: 175 AMPS ISCA AT LINE SIDE OF FDTs:

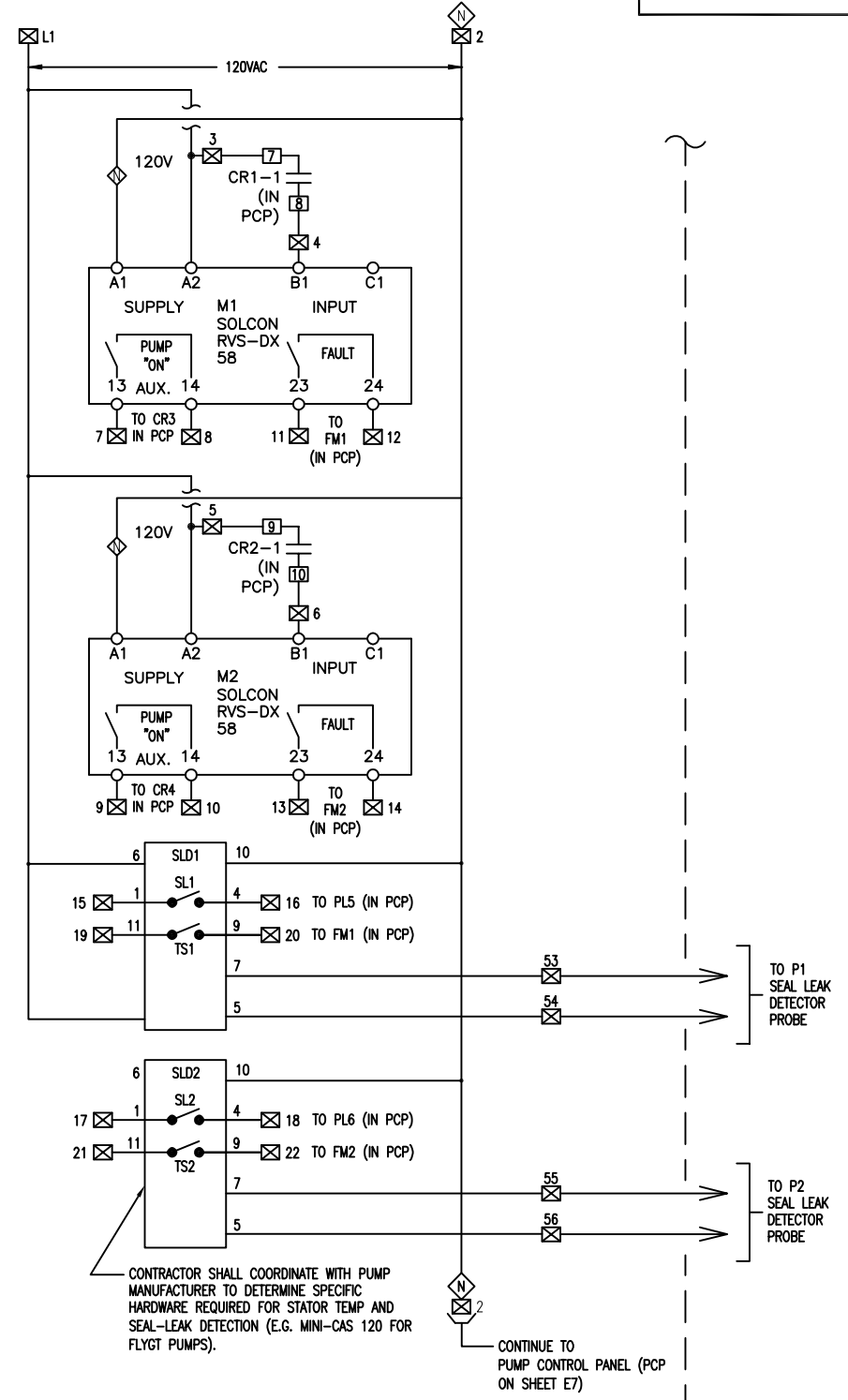
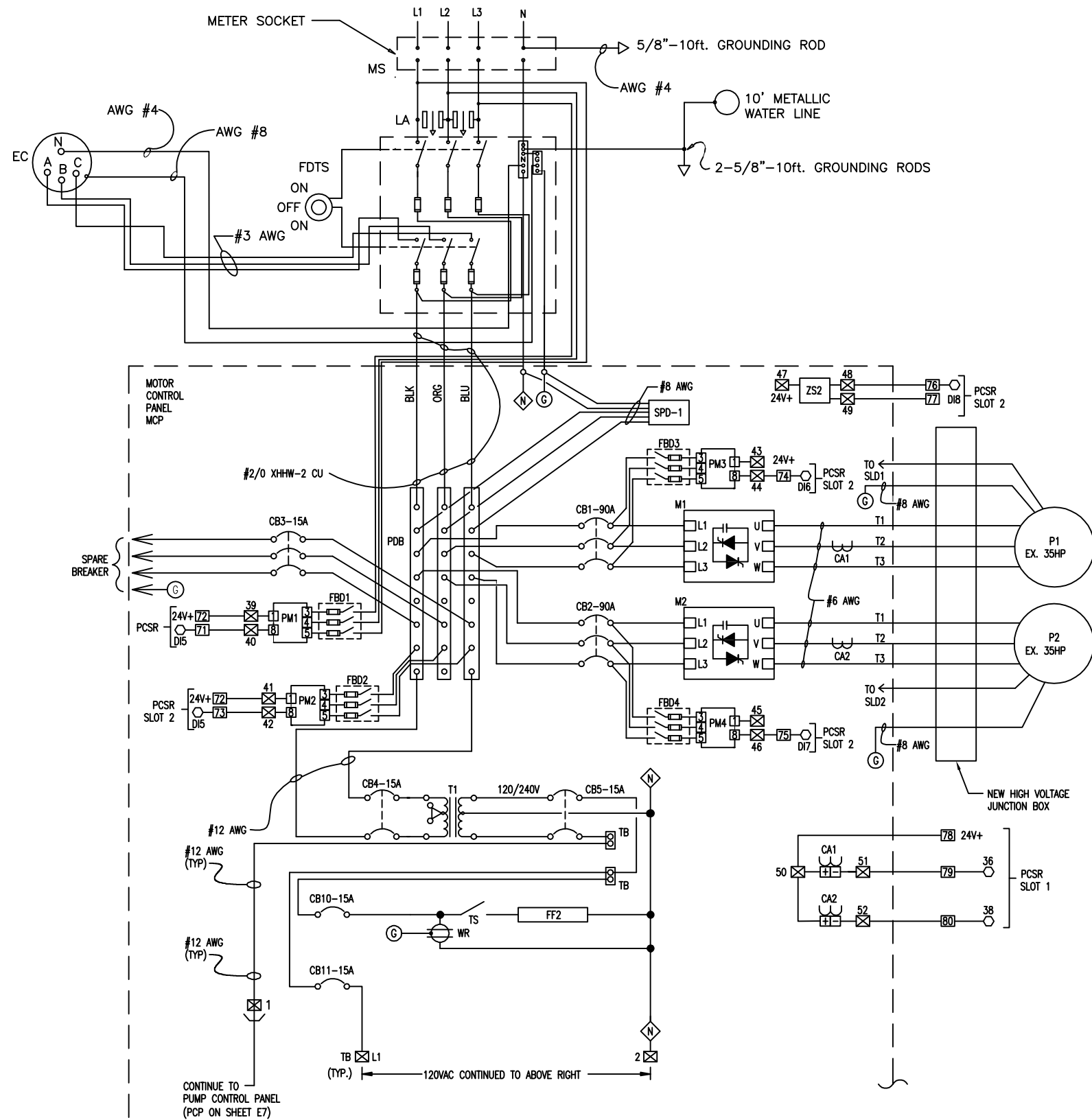
$$ISCA = \left[ 1 + \frac{1}{\frac{(1.73)(36)(27,757)}{(11,424)(480)}} \right] * 27,757 = 21,100A$$

SHORT CIRCUIT CURRENT AVAILABLE AT MAIN LUGS OF MCP=6200 AMPS RMS, SYMMETRICAL

ELECTRICAL SERVICE LOAD SUMMARY					
480 VAC, 3Ø, 4W					
LOAD	CONNECTED	DEMAND	APPROX. PHASE CURRENTS		
			L1	L2	L3
EX. PUMP #1	38.2 KVA	38.2 KVA	46.0 A	46.0 A	46.0 A
EX. PUMP #2	38.2 KVA	38.2 KVA	46.0 A	46.0 A	46.0 A
PUMP CONTROL PANEL	2.0 KVA	2.0 KVA	0.0 A	4.0 A	4.0 A
<b>TOTAL</b>	<b>78.4 KVA</b>	<b>78.4 KVA</b>	<b>92.0 A</b>	<b>96.0 A</b>	<b>96.0 A</b>

- ONE LINE DIAGRAM NOTES:**
- ① PROVIDE AND INSTALL 3-#2/0 + 1-#4 NEUTRAL + 1-#4 GND IN 2" CONDUIT, REFER TO DETAILS ON SHEET E2.
  - ② EXISTING SUBMERSIBLE PUMP POWER CABLE IN EXISTING 2" CONDUIT.
  - ③ PROVIDE SEAL FITTING, REFER TO DETAIL ON SHEET E2.
  - ④ REFER TO NOTES ON SHEET E6 FOR PHASE MONITORING SIGNALS REQUIRED FROM NEW FUSED DOUBLE THROW DISCONNECT SWITCH TO PUMP CONTROL PANEL.
  - ⑤ PROVIDE 2" CONDUIT FROM NEW PUMP CONTROL CABINET TO WET WELL FOR FLOAT SWITCH AND LEVEL SENSOR CABLES. REFER TO DETAILS ON SHEET E2.
  - ⑥ PROVIDE 1" CONDUIT FROM NEW PUMP CONTROL CABINET TO EXISTING TELEMETRY ANTENNA MAST FOR NEW COAX CABLE, REFER TO DETAIL ON SHEET E21.

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- TERMINALS ON ACE I/O MODULE (GENERAL)
- TERMINALS IN PUMP CONTROL PANEL
- ⊠ TERMINALS IN MOTOR CONTROL PANEL

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ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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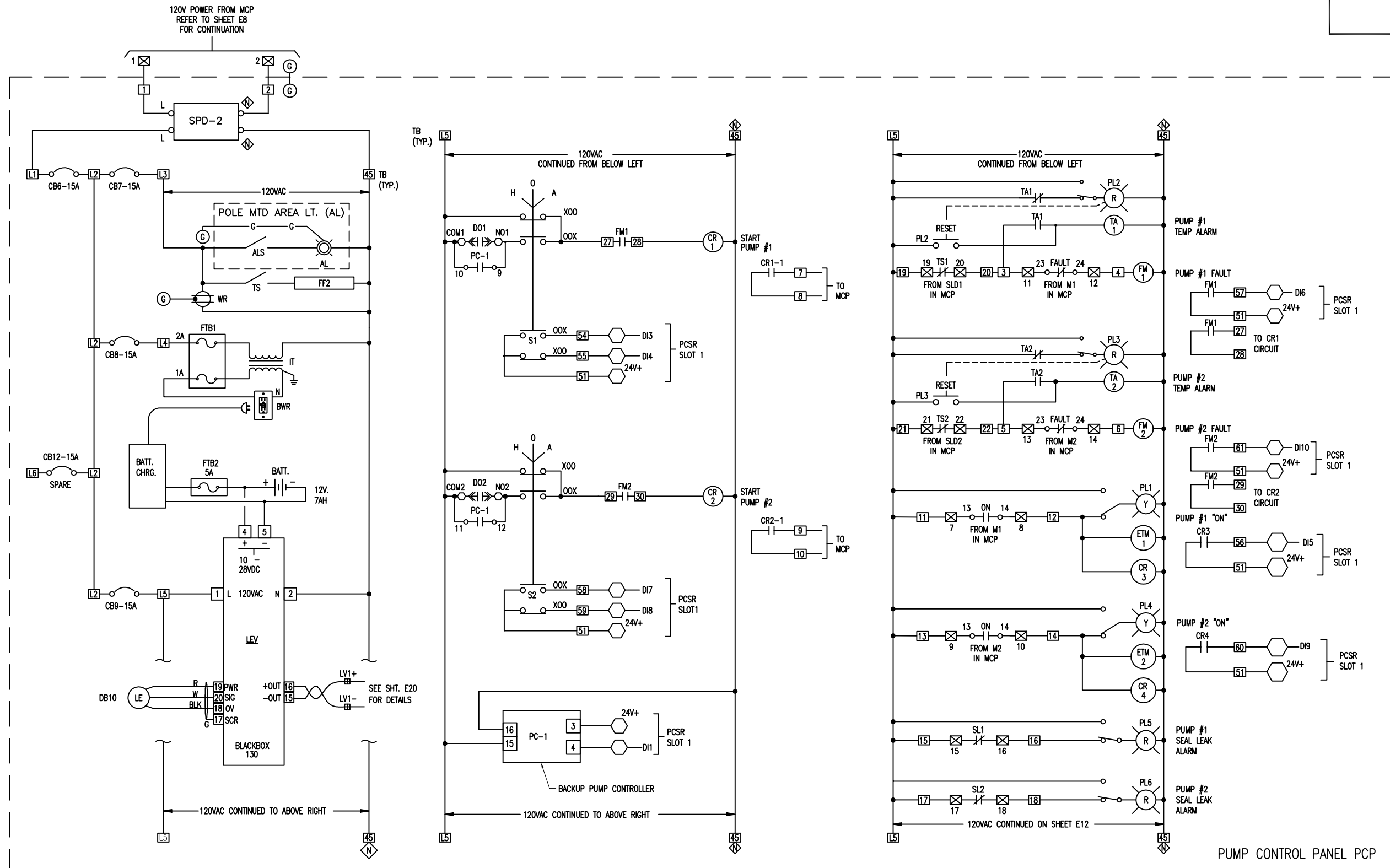
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CKD:  
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HARBOUR ISLAND PS REHABILITATION  
ELECTRICAL SCHEMATIC (1 OF 4)  
MOTOR CONTROL PANEL

W.O. 0000  
SHEET  
**E10**

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○ TERMINALS ON ACE I/O MODULE (GENERAL)  
 □ TERMINALS IN PUMP CONTROL PANEL (PCP)  
 ⊗ TERMINALS IN MOTOR CONTROL PANEL (MCP)

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 WASTEWATER DEPARTMENT

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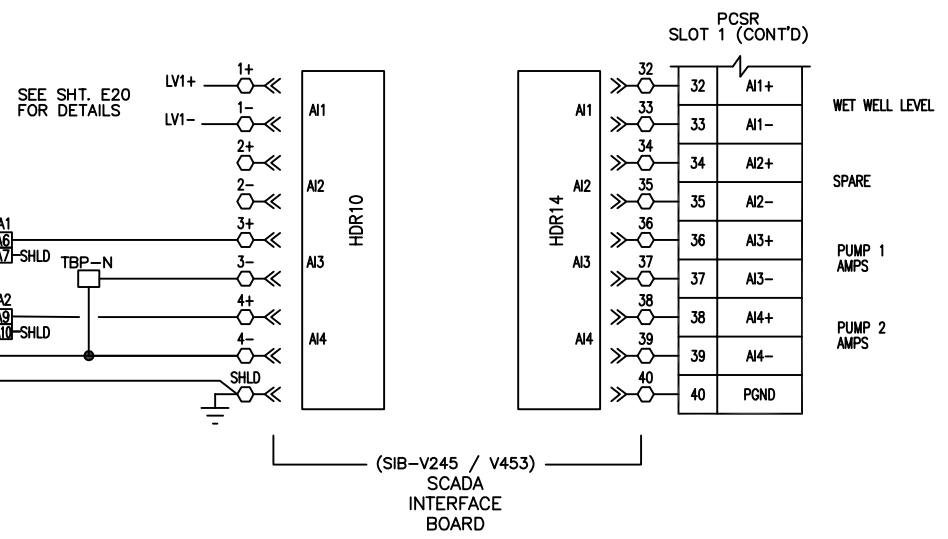
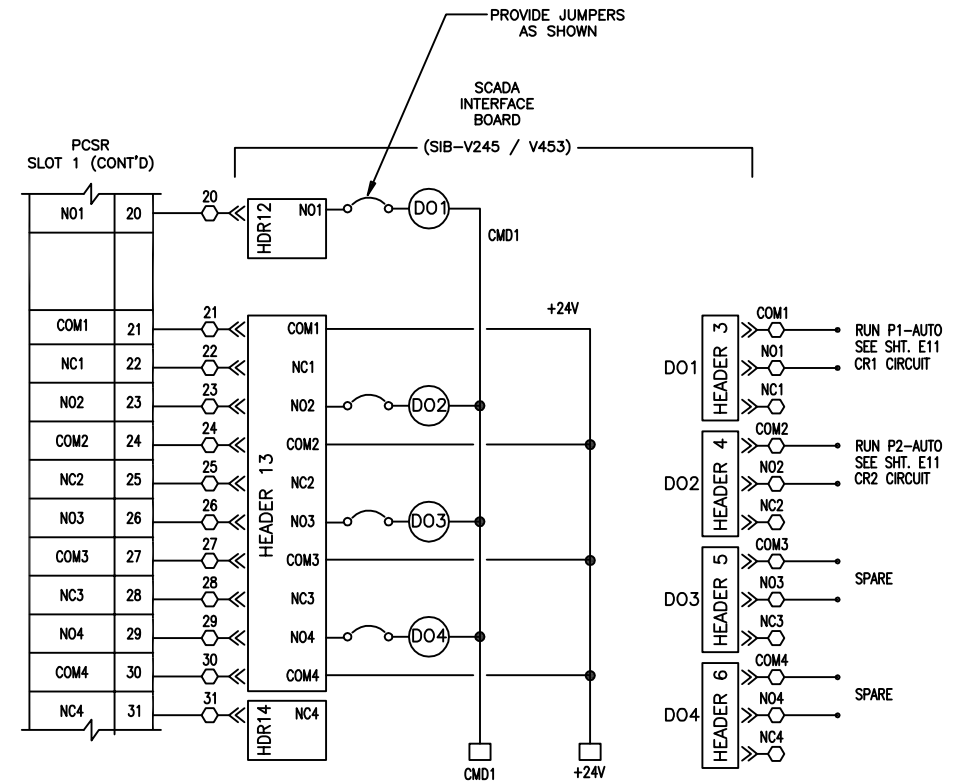
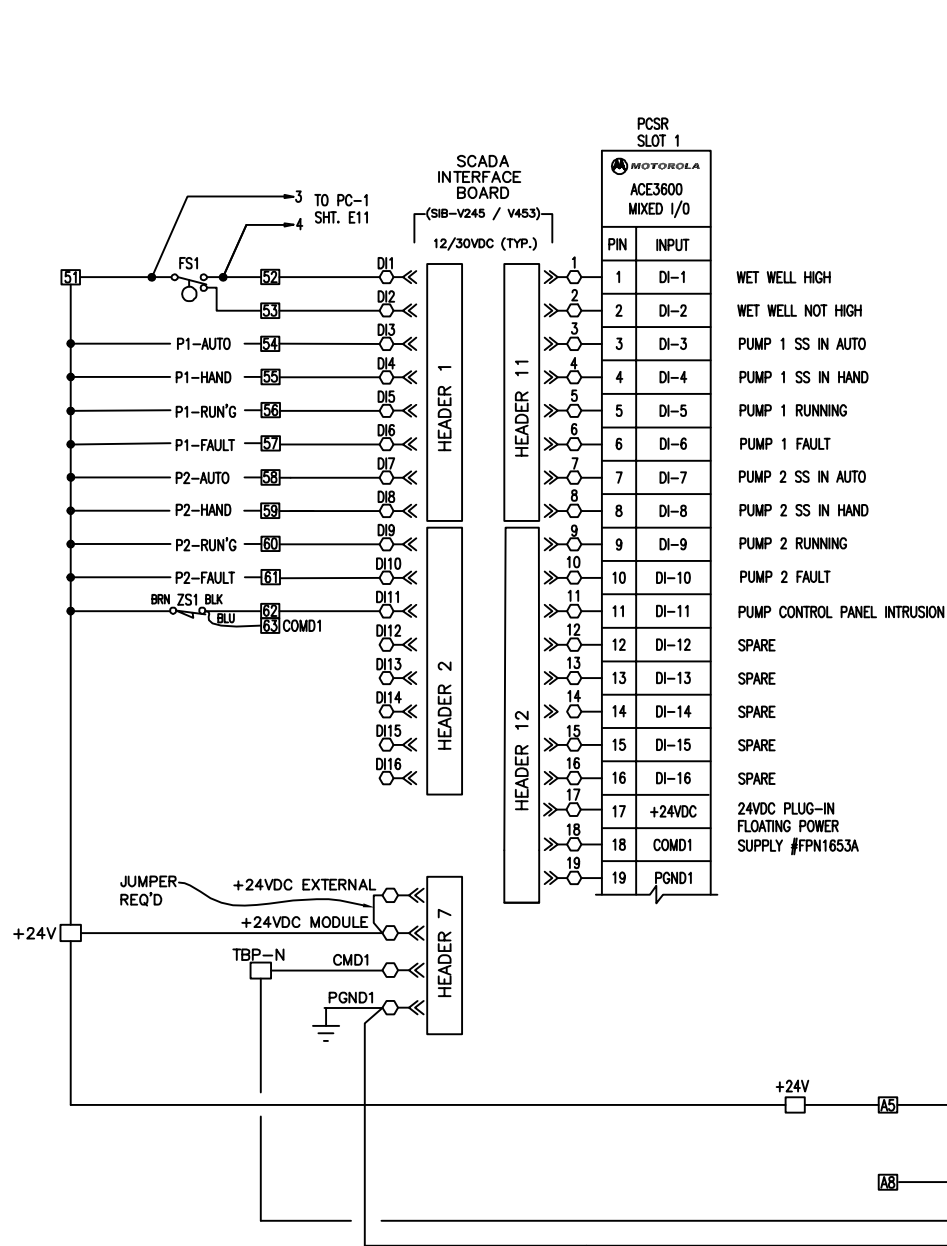
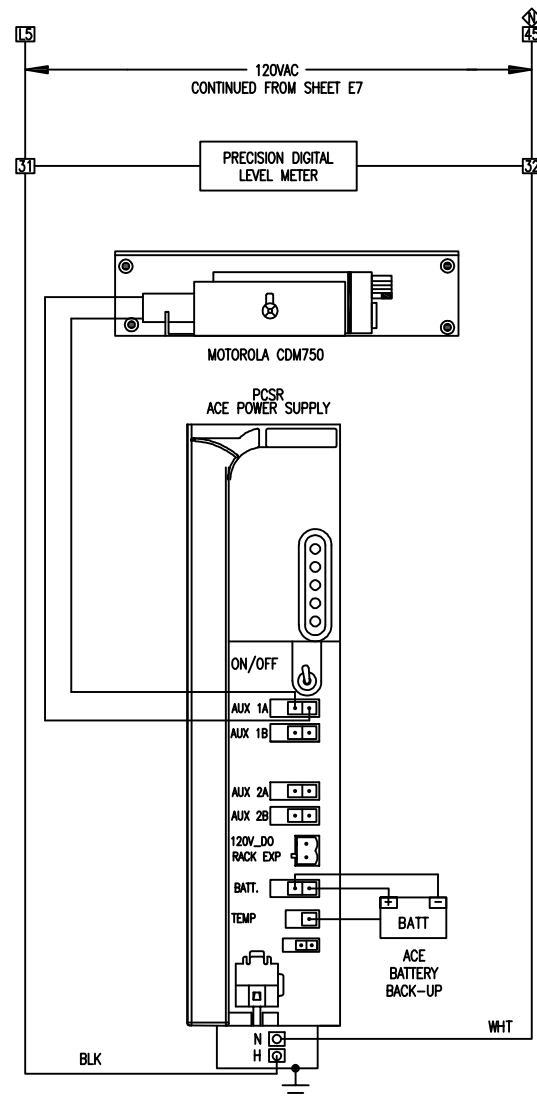
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 CKD:  
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**WASTEWATER DEPARTMENT**

**HARBOUR ISLAND PS REHABILITATION**  
**ELECTRICAL SCHEMATIC (2 OF 4)**  
**PUMP CONTROL PANEL**

W.O. 0000  
 SHEET  
**E11**

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- TERMINALS ON ACE I/O MODULE (GENERAL)
- TERMINALS IN PUMP CONTROL PANEL
- ⊗ TERMINALS IN MOTOR CONTROL PANEL

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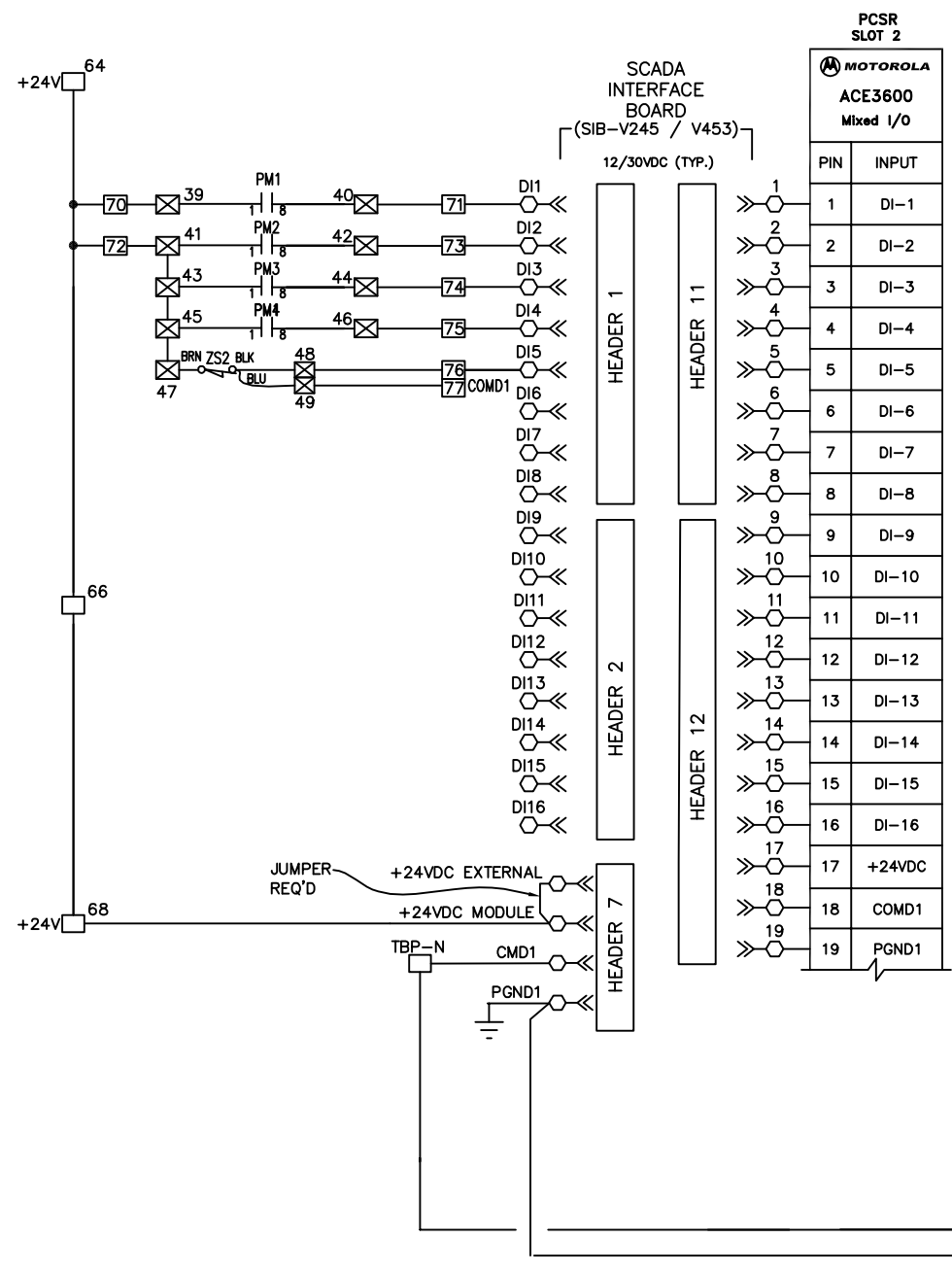
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HARBOUR ISLAND PS REHABILITATION  
ELECTRICAL SCHEMATIC (3 OF 4)  
PUMP CONTROL PANEL

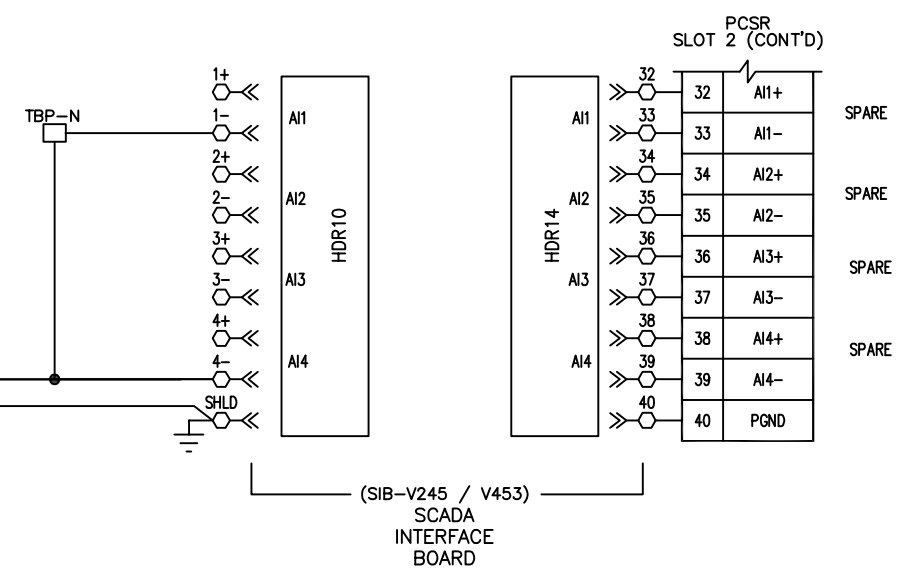
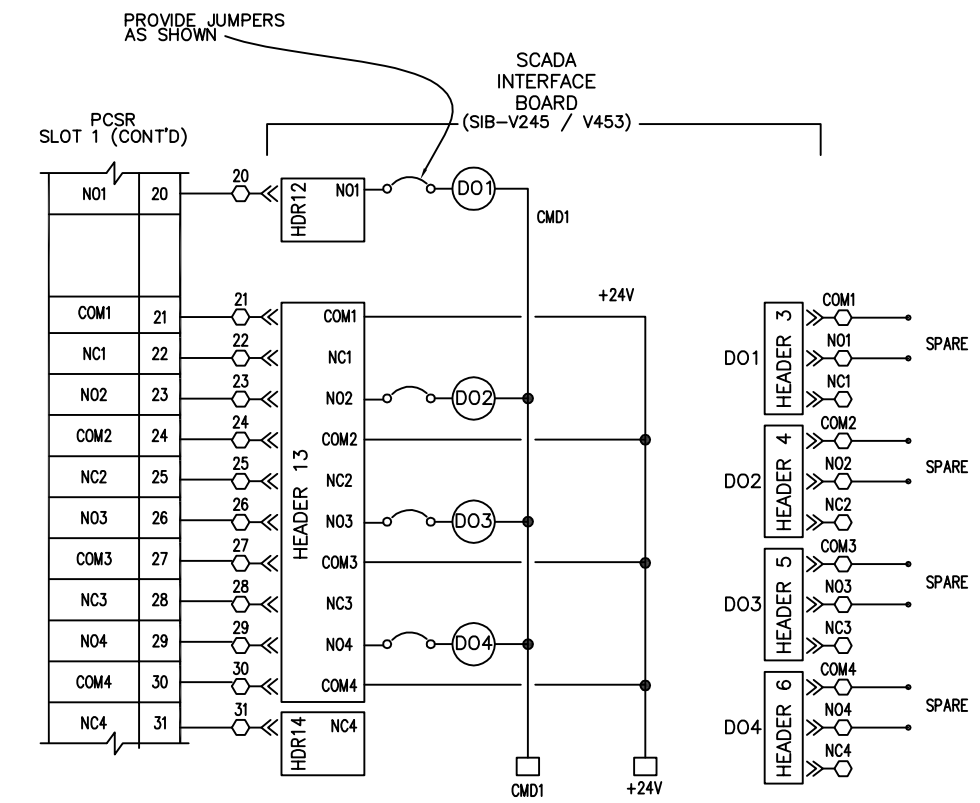
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**E12**



- | PIN | INPUT  |
|-----|--------|
| 1   | DI-1   |
| 2   | DI-2   |
| 3   | DI-3   |
| 4   | DI-4   |
| 5   | DI-5   |
| 6   | DI-6   |
| 7   | DI-7   |
| 8   | DI-8   |
| 9   | DI-9   |
| 10  | DI-10  |
| 11  | DI-11  |
| 12  | DI-12  |
| 13  | DI-13  |
| 14  | DI-14  |
| 15  | DI-15  |
| 16  | DI-16  |
| 17  | +24VDC |
| 18  | COMD1  |
| 19  | PGND1  |
- UTILITY POWER AVAILABLE (PM1) TO PCSR
  - MOTOR CONTROL PANEL PHASE LOSS (PM2) TO PCSR
  - PUMP 1 MCP STATUS (PM3) TO PCSR
  - PUMP 2 MCP STATUS (PM4) TO PCSR
  - MOTOR CONTROL PANEL INTRUSION TO PCSR
  - SPARE
  - SPARE
  - SPARE
  - SPARE
  - SPARE
  - SPARE
  - SPARE
  - SPARE
  - SPARE
  - SPARE
  - SPARE
  - 24VDC PLUG-IN FLOATING POWER SUPPLY #FPN1653A

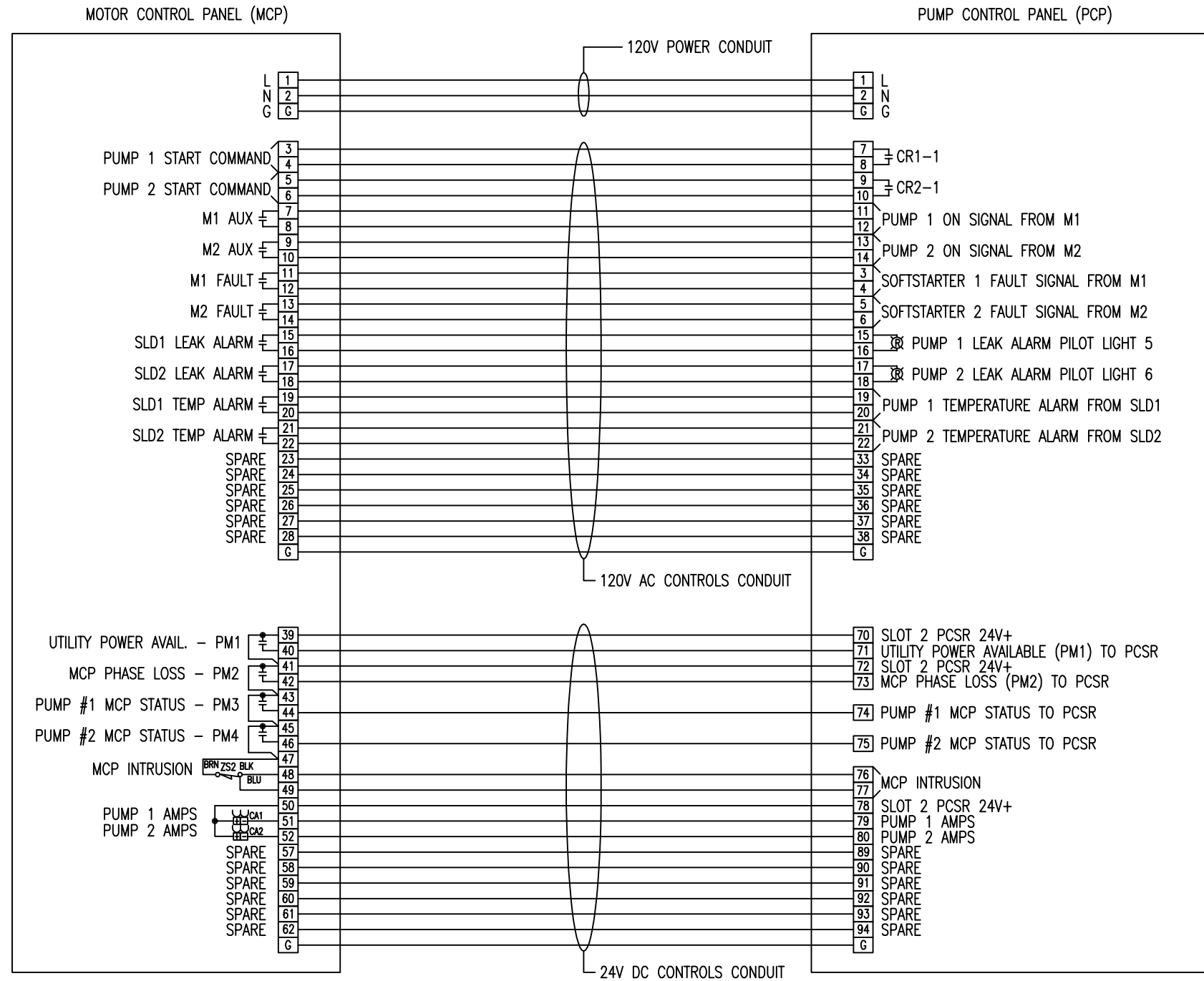


○ TERMINALS ON ACE I/O MODULE (GENERAL)  
 □ TERMINALS IN PUMP CONTROL PANEL (PCP)  
 ⊗ TERMINALS IN MOTOR CONTROL PANEL (MCP)

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HARBOUR ISLAND PS REHABILITATION  
 MCP TO PCP INTERCONNECTION WIRING DIAGRAM

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**E14**

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TB1 (□) (120V AC) MOUNTED ON PUMP CONTROL PANEL (PCP)	
TERM.	DESCRIPTION
1	120V FROM MOTOR CONTROL PANEL
2	NEUTRAL FROM MOTOR CONTROL PANEL
3	SOFTSTARTER NO. 1 FAULT FROM M1
4	SOFTSTARTER NO. 1 FAULT FROM M1
5	SOFTSTARTER NO. 2 FAULT FROM M2
6	SOFTSTARTER NO. 2 FAULT FROM M2
7	PUMP 1 START COMMAND TO M1 (IN MCP)
8	PUMP 1 START COMMAND TO M1 (IN MCP)
9	PUMP 2 START COMMAND TO M2 (IN MCP)
10	PUMP 2 START COMMAND TO M2 (IN MCP)
11	P1 "ON" SIGNAL FROM M1 (IN MCP)
12	P1 "ON" SIGNAL FROM M1 (IN MCP)
13	P2 "ON" SIGNAL FROM M2 (IN MCP)
14	P2 "ON" SIGNAL FROM M2 (IN MCP)
15	PUMP 1 LEAK ALARM FROM MCP
16	PUMP 1 LEAK ALARM FROM MCP
17	PUMP 2 LEAK ALARM FROM MCP
18	PUMP 2 LEAK ALARM FROM MCP
19	PUMP 1 TEMPERATURE ALARM FROM MCP
20	PUMP 1 TEMPERATURE ALARM FROM MCP
21	PUMP 2 TEMPERATURE ALARM FROM MCP
22	PUMP 2 TEMPERATURE ALARM FROM MCP
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	PUMP 1 FAULT RELAY CONTACT
28	PUMP 1 FAULT RELAY CONTACT
29	PUMP 2 FAULT RELAY CONTACT
30	PUMP 2 FAULT RELAY CONTACT
31-34	SPARE

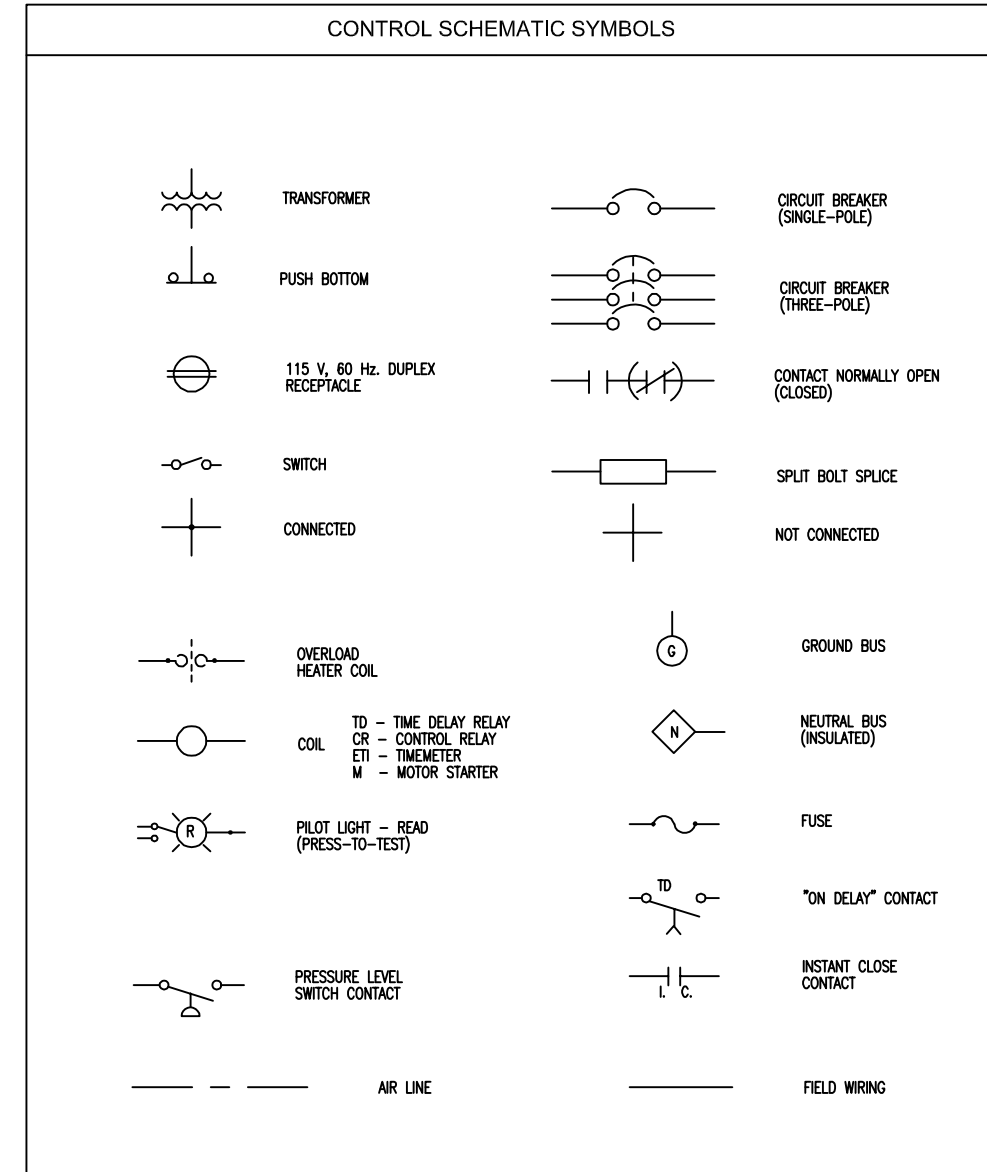
TB1 CONTINUED

45	SPD-2 NEUTRAL OUT
L1	SPD-2 120V LINE OUT
L2	MAIN BREAKER CB6 OUT
L3	CB7 OUT
L4	CB8 OUT
L5	CB9 OUT
L6	SPARE CB12 BREAKER

TB2 (□) (24V DC) MOUNTED ON PUMP CONTROL PANEL (PCP)	
TERM.	DESCRIPTION
51	SLOT 1 PCSR 24V+
52	WET WELL HIGH
53	WET WELL NOT HIGH
54	PUMP 1 "AUTO" TO PCSR
55	PUMP 1 "HAND" TO PCSR
56	PUMP 1 "ON" TO PCSR
57	PUMP 1 "FAULT" TO PCSR
58	PUMP 2 "AUTO" TO PCSR
59	PUMP 2 "HAND" TO PCSR
60	PUMP 2 "ON" TO PCSR
61	PUMP 2 "FAULT" TO PCSR
62	PUMP CONTROL PANEL INTRUSION
63	
64	SLOT 2 PCSR 24V+
65	SPARE
66	SLOT 2 PCSR 24V+
67	SPARE
68	SLOT 2 PCSR 24V+
69	SPARE
70	SLOT 2 PCSR 24V+
71	UTIL. POWER AVAILABLE (PM1) TO PCSR
72	SLOT 2 PCSR 24V+
73	MOTOR CONTROL PANEL PHASE LOSS (PM2) TO PCSR
74	PUMP #1 MCP STATUS (PM3) TO PCSR
75	PUMP #2 MCP STATUS (PM4) TO PCSR
76	MOTOR CONTROL PANEL INTRUSION
77	
78	SLOT 1 PCSR 24V+
79	PUMP 1 AMPS
80	PUMP 2 AMPS

TB2 CONTINUED

89-100 SPARES	
	TERMINAL POINT MOUNTED ON PCP (INTERFACE TO PCSR)
	TERMINAL POINT ON PCSR
	TERMINAL POINT IN PUMP CONTROL PANEL (PCP)
	TERMINAL POINT IN MOTOR CONTROL PANEL (MCP)



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HARBOUR ISLAND PS REHABILITATION  
ELECTRICAL SCHEMATIC LEGEND (SHT. 1 OF 2)

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**E15**



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TB3 (☒) (120V AC) MOUNTED ON MOTOR CONTROL PANEL (MCP)	
TERM.	DESCRIPTION
1	120V TO PUMP CONTROL PANEL
2	NEUTRAL (CONTINUED TO PUMP CONTROL PANEL)
3	PUMP 1 START COMMAND FROM CR1-1 (IN PCP)
4	PUMP 1 START COMMAND FROM CR1-1 (IN PCP)
5	PUMP 2 START COMMAND FROM CR2-1 (IN PCP)
6	PUMP 2 START COMMAND FROM CR2-1 (IN PCP)
7	PUMP 1 'ON' SIGNAL TO CR3 (IN PCP)
8	PUMP 1 'ON' SIGNAL TO CR3 (IN PCP)
9	PUMP 2 'ON' SIGNAL TO CR4 (IN PCP)
10	PUMP 2 'ON' SIGNAL TO CR4 (IN PCP)
11	SOFTSTART 1 FAULT SIGNAL TO PCP
12	SOFTSTART 1 FAULT SIGNAL TO PCP
13	SOFTSTART 2 FAULT SIGNAL TO PCP
14	SOFTSTART 2 FAULT SIGNAL TO PCP
15	PUMP 1 LEAK DETECTED TO PILOT LIGHT 5 (IN PCP)
16	PUMP 1 LEAK DETECTED TO PILOT LIGHT 5 (IN PCP)
17	PUMP 2 LEAK DETECTED TO PILOT LIGHT 6 (IN PCP)
18	PUMP 2 LEAK DETECTED TO PILOT LIGHT 6 (IN PCP)
19	PUMP 1 TEMPERATURE ALARM TO FM1 (IN PCP)
20	PUMP 1 TEMPERATURE ALARM TO FM1 (IN PCP)
21	PUMP 2 TEMPERATURE ALARM TO FM2 (IN PCP)
22	PUMP 2 TEMPERATURE ALARM TO FM2 (IN PCP)
23-37	SPARE
L1	CB11 OUT MOTOR CONTROL PANEL POWER

TB4 (☒) (24V DC) MOUNTED ON MOTOR CONTROL PANEL (MCP)	
TERM.	DESCRIPTION
39	SLOT 2 PCSR 24V+
40	UTILITY POWER AVAILABLE (PM1) TO PCSR
41	SLOT 2 PCSR 24V+
42	MOTOR CONTROL PANEL PHASE LOSS (PM2) TO PCSR
43	SLOT 2 PCSR 24V+
44	PUMP #1 MCP STATUS PHASE LOSS (PM3) TO PCSR
45	SLOT 2 PCSR 24V+
46	PUMP #2 MCP STATUS PHASE LOSS (PM4) TO PCSR
47	SLOT 2 PCSR 24V+
48	} MOTOR CONTROL PANEL INTRUSION
49	
50	SLOT 2 PCSR 24V+
51	PUMP 1 AMPS
52	PUMP 2 AMPS
53	PUMP 1 SEAL LEAK DETECTOR PROBE
54	PUMP 1 SEAL LEAK DETECTOR PROBE
55	PUMP 1 SEAL LEAK DETECTOR PROBE
56	PUMP 1 SEAL LEAK DETECTOR PROBE
57-66	SPARE
X-Y	<input checked="" type="checkbox"/> TERMINAL POINT MOUNTED ON PCP (INTERFACE TO PCSR) <input type="checkbox"/> TERMINAL POINT ON PCSR <input type="checkbox"/> TERMINAL POINT IN PUMP CONTROL PANEL (PCP) <input checked="" type="checkbox"/> TERMINAL POINT IN MOTOR CONTROL PANEL (MCP)

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 ELECTRICAL DIVISION HEAD  
 WASTEWATER DEPARTMENT

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**WASTEWATER DEPARTMENT**

HARBOUR ISLAND PS REHABILITATION  
 ELECTRICAL SCHEMATIC LEGEND (SHT. 2 OF 2)

W.O. 0000  
 SHEET  
**E16**

## PARTS SCHEDULE

SYMBOL	NAME	PART				REMARKS
		MAKE	TYPE	MODEL OR CAT. #	RATING	
CB 1	CIRCUIT BREAKER	SQUARE D	THREE POLE	HDL 36090	480 V, 90A	18 KAIC @ 480VAC
CB 2	CIRCUIT BREAKER	SQUARE D	THREE POLE	HDL 36090	480 V, 90A	
CB 3	CIRCUIT BREAKER	SQUARE D	THREE POLE	HDL 36015	480 V, 15A	
CB 4	CIRCUIT BREAKER	SQUARE D	TWO POLE	HDL26015	480 V, 15A	
CB 5	CIRCUIT BREAKER	SQUARE D	TWO POLE	QOU-215	240 V, 15A	
CB 6, 7, 8, 9, 10, 11, 12	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-115	120 V, 15A	
M1, 2	MOTOR STARTER	SOLCON	RVSS	RVS-DX 72-480-115-8-U-S	72 A	PROVIDE REMOTE KEYPAD
T1	TRANSFORMER	SQUARE D	OPEN TYPE	9070T2000D31	480V PRI, 120/240 V SEC.	2KVA
CA1, CA2	CIRCUIT SENSOR	ENERCORP INSTRUMENTS	4-20 mA OUTPUT	SC200-2	0 - 100A	ADJUSTABLE RANGE
PL1, PL4	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT - 38LYA9	120 V, LED TYPE	YELLOW LENS & PRESS TEST
PL2, PL3	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT - 38LRR9	120 V, LED TYPE	RED LENS & PRESS TEST
PL5, PL6	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT - 38LRR9	120 V, LED TYPE	RED LENS & PRESS TEST
S1, S2	HOA SWITCH ASSEMBLY	SQUARE D	OIL-TIGHT CLASS 9001	SKS - 43B H2	10A @ 120V	
ETM1, ETM2	ELAPSED TIME METER	CRAMER	ROUND BEZEL, NON RESET	635E&S	120 V	W.W. GRANGER CAT. NO. 6X144
ZS1, ZS2	CONTROL PNL INTRUSION SENSOR	OMRON	CYLINDRICAL, SHORT BARREL	E2F-X5F1 (GRAINGER-1EA77)	12-24VDC, 3-WIRE PNP	W/ TELEMECANIQUE MTG. BRACKET (GRAINGER - 5B233)
FF1, FF2 & TS	LED LIGHTING FIXTURE	HOFFMAN	LED	LEDA1S35	120 V, 5W	W/TOGGLE SWITCH-TS
WR	WALL RECEPTACLE	HUBBELL	DUPLEX W/GFI	GF5262	120V AC, 15A GFI	W/ALUMINUM OUTLET BOX AND COVER
SPD-1	SURGE PROTECTIVE DEVICE TYPE 1	ADVANCED PROTECTION TECHNOLOGIES	MOTOR CONTROL PANEL SPD	TE04XDS104X	277/480 V, 3φ, 4W	
TB1, TB2, TB3, TB4	TERMINALS	PHOENIX CONTACT		UK5N TERMINALS	30 A W/ ALUM. DIN RAIL	50 CONTACTS (MIN)
ITS	INSULATED TERMINAL STRIP	ALLEN-BRADLEY	STYLE AA	1492-15-T	600 V AC NEUTRAL BLOCK	4 CONTACTS (MIN) W/ SHORTING BARS
MCP	MOTOR CONTROL PANEL ENCLOSURE	HOFFMAN	NEMA 4X, 3P LATCH, 42"x30"x12"	42"x30"x12" SS	304 SS, POWDER COATED WHITE	3P LATCH W/STOP KIT. EXTERNAL FINISH DURABLE RAL 9003 WHITE POWER COAT.
MP	ENCLOSURE PANEL	HOFFMAN	39" X 27", STEEL	A42P30	STEEL, 12 GAUGE	
GB1	GROUND BAR SYSTEM	PANDUIT	12 PORT WITH MAIN LUG	UGB2/0-414-12		COPPER CONSTRUCTION
GB2	GROUNDING BLOCK	ILSCO	AS REQUIRED	AS REQUIRED		
IT	ISOLATION TRANSFORMER	SQUARE D	120V/120V ISOLATION	9070 T100D23		
TA1, TA2, CR1, CR2	CONTROL RELAY	POTTER & BRUMFIELD	8 PIN PLUG-IN	KRPA-11AG-120	120V AC COIL, 10A CONTACTS	DPDT W/ SOCKET AND HOLD DOWN SPRING
FM1, FM2, CR3, CR4	CONTROL RELAY	POTTER & BRUMFIELD	8 PIN PLUG-IN	KRPA-14AG-120	120V AC COIL, 10A CONTACTS	3PDT W/ SOCKET AND HOLD DOWN SPRING
LEV	WET WELL LEVEL SENSOR	PULSAR, INC.	ULTRASONIC	dB10 TRANSDUCER W/ BLACKBOX 130 TRANSMITTER PART #: 130-110-300-00P-KP-TROP	1 TD 32.8 FT RANGE 115VAC/24VDC POWERED W/ 4-20MA AND (2) RELAY OUT W/ KEY PAD, DISPLAY, AND TROPICALIZATION	CITY FORCES WILL PROVIDE ASSISTANCE WITH MOUNTING AND CALIBRATION

PARTS SCHEDULE IS CONTINUED ON SHEET E18

**NOTES:**

1. ALARM FLOAT SWITCH WILL BE SUPPLIED BY WWD AND INSTALLED BY CONTRACTOR.
2. DIMENSIONS, ITEMS, OR ELEVATIONS MARKED "\*" SHALL BE DETERMINED AFTER EQUIPMENT SELECTION.

User: ss13 Drawing Name: K:\WasteWater Projects\Harbour Island PS\Design\Plans\Drafting\DWG\Harbour Island PS Rehabilitation.dwg Layout: Jul 08, 2016 - 9:34am

ROMAN D. KORCHAK, P.E., #42626  
ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: LRG  
DRN: JHJ  
CKD:  
DATE: 6/30/16

**CITY of TAMPA**  
WASTEWATER DEPARTMENT

HARBOUR ISLAND PS REHABILITATION  
PARTS SCHEDULE (SHT. 1 OF 2)

W.O. 0000  
SHEET  
**E17**

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### PARTS SCHEDULE (CONTINUED)

SYMBOL	NAME	PART				REMARKS
		MAKE	TYPE	MODEL OR CAT. #	RATING	
PCSR	PLC BASED PUMP CONTROLLER, SCADA, AND RADIO SYSTEM	MOTOROLA CORP.	DUPLX PUMP CONTROLLER BASED ON ACE 3600 PROGRAM CONTROLLER	ACE 3600 W/ UHF RADIO CDM 750, 403-512 MHz PART #: F7564	1-AC POWER SUPPLY 85-264V W/ BAT CHARGER PAR #: V261	COORDINATE EFFORT W/ SCADA INTEGRATOR
	SLOTS 1 & 2	MOTOROLA CORP.	2-MIXED I/O AUXILIARY INTERFACE WILKERSON BOARD PART #: SIB V245/ V453	1-40 WIRE CABLE W/TB HOLDER 3M PART #: V358	1- ACE CPU3640 PART #: V446	1- 10.0 Ah BATTERY PART #: V328
	1-3 I/O SLOT FRAM PART #: V103	1-20 PIN TB HOLDER KIT PART #: V158	1- 14x 14 METAL CHASSIS PART #: V214	2-ACE MIXED I/O MODULE-16DI, 4DO(EE), (4)±20mA ANALOG IN PART #: V245 W/ 24VDC PLUG-IN, FLOATING POWER SUPPLY # FPN1653A	1-40 PIN TB HOLDER KIT PART #: V153	
	10.0 Ah BATT.					
PM1, PM2, PM3, PM4	3-PHASE POWER MONITOR	ATC DIVERSIFIED ELECTRONICS	8 PIN PLUG-IN	SUA-440-ASA	440 VAC	W/ OPTIONAL 5-SEC RELEASE AND DIN RAIL SOCKET
PDB	PWR DIST. BLOCK	ILSCO	THREE POLE	PDB-16-2/0-3	600 V, 175 AMP	W/ LEXAN COVER
FBD1, 2, 3, 4	FUSE BLOCK / DISCONNECT	ALLEN BRADLEY	THREE PHASE- HIGH INTER. CAP.	1492-FB3C30-L	600 VAC, 200KAIC	W/ BUSSMANN KTK-R-2 FAST ACTING, REJECTION FUSES
BATT.	BATTERY	POWERSONIC	ABSORBENT GLASS MAT (AGM)	PS-1270 F2	12 VOLT, 7.0 AH	W/ 0.25" x 0.032" TABS
BATT. CHR.G.	BATTERY CHARGER	DELTRAN CORP.	BATTERY TENDER	WATERPROOF 800	120VOLT, 800 mADC	QUALIFICATION, BULK, & FLOAT CHARGING
PC-1	BACKUP PUMP CONTROLLER	WILKERSON	DUPLX LIFT STATION	DR1920	10 AMP CONTACTS	DIN RAIL MOUNTING
FL	FLOAT SWITCH	ANCHOR SCIENTIFIC	SPDT	S20NONC	10 A @ 120 V	PROVIDED BY THE CITY INSTALLED BY CONTRACTOR
FTB1, 2	FUSED TERMINAL BLOCKS	PHOENIX CONTACT		UK 5-HESI	PROVIDE 1, 2, & 5A FUSES	PROVIDE COOPER BUSSMAN GDB SERIES FUSES
SLD1, SLD2	PUMP MONITORING UNIT	XYLEM		MINI-CAS 120	10A AT 240V AC	
BWR	BATTERY WALL RECEPTACLE	HUBBELL	DUPLX W/GFI	GF5262	120V AC, 15A GFI	W/ALUMINUM OUTLET BOX AND COVER
PCP	PUMP CONTROL PANEL ENCLOSURE	HOFFMAN	NEMA 4X, 3P LATCH, 42"x36"x12"	42"x36"x12" SS	304 SS, POWDER COATED WHITE	3P LATCH W/STOP KIT. EXTERNAL FINISH DURABLE RAL 9003 WHITE POWER COAT.
PP	ENCLOSURE PANEL	HOFFMAN	39" X 33", STEEL	A42P36	STEEL, 12 GAUGE	
NB1, 2	NEUTRAL DISTRIBUTION BLOCK	BUSSMAN	SINGLE POLE	16220-1	600V, 175A	
F1	PROCESS METER	PRECISION DIGITAL	4 DIGIT, 1.2" DISPLAY	PD765-6X3-00		PROVIDE 4-20mA OUTPUT
ALS	AREA LIGHT SWITCH	HUBBELL	SINGLE-POLE	HBL1221	277V, 20A	
SPD-2	SURGE PROTECTION DEVICE TYPE 3	PHOENIX CONTACT	3 CONDUCTOR SYSTEM (L, N, G)	2856812	120V, 25A	
FDTS	FUSED DOUBLE THROW DISCONNECT SWITCH	EATON	SERVICE ENTRANCE RATED, HEAVY DUTY	DT364FWK	DT200 NK NEUTRAL KIT DS200 GK GROUND KIT	TIME DELAY CLASS RK5 FUSES (3) EDISON ECSR175 (3) EDISON ECSR100 (PROVIDE (3) SPARES FOR EA.)
MS	METER SOCKET	MILBANK	7 TERMINAL	UAP9701-X-QG-HSP	600 VAC, 200 AMP	ALUMINUM CONSTRUCTION
EC	EMERGENCY CONNECTOR	CROUSE & HINDS	ARKTITE	AREA10415-S22 W/ BACK BOX, ANGLE ADAPTER, 1-1/2 HUB AND SPRING COVER	600V 100 AMP	
LA	LIGHTNING ARRESTER	GENERAL ELECTRIC	TRANQUELL	9L15ECC001	650V	

**NOTES:**

1. ALARM FLOAT SWITCH WILL BE SUPPLIED BY WWD AND INSTALLED BY CONTRACTOR.
2. DIMENSIONS, ITEMS, OR ELEVATIONS MARKED "\*" SHALL BE DETERMINED AFTER EQUIPMENT SELECTION.

ROMAN D. KORCHAK, P.E., #42626  
ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: LRG  
DRN: JHJ  
CKD:  
DATE: 6/30/16

**CITY of TAMPA**  
WASTEWATER DEPARTMENT

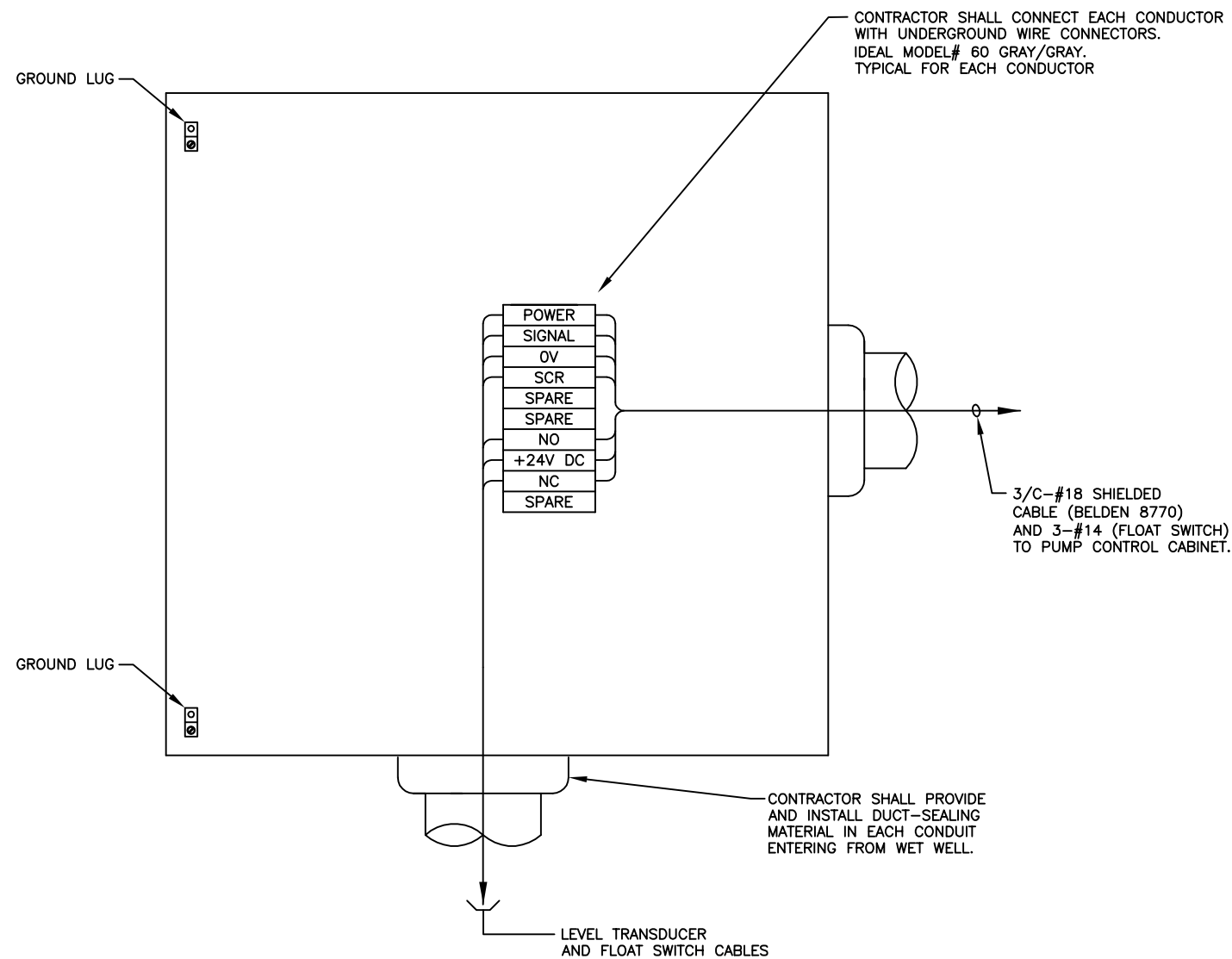
HARBOUR ISLAND PS REHABILITATION  
PARTS SCHEDULE (SHT. 2 OF 2)

W.O. 0000

SHEET

E18

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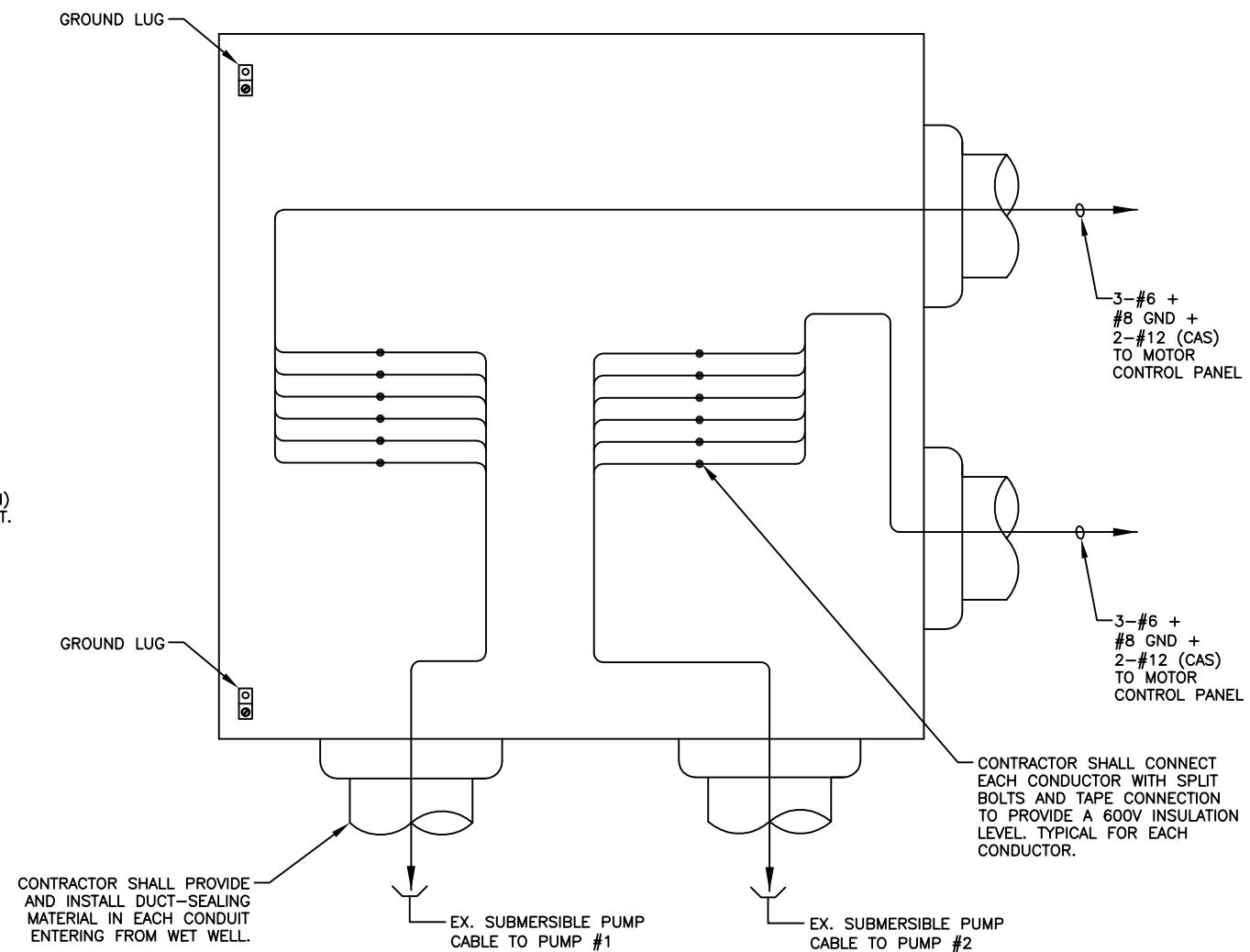


**NOTES:**

1. COVER NOT SHOWN FOR CLARITY
2. BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.

**INSTRUMENTATION AND CONTROLS JUNCTION BOX DETAIL**

N.T.S.



**NOTES:**

1. COVER NOT SHOWN FOR CLARITY
2. BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.

**PUMP MOTOR CONNECTIONS JUNCTION BOX DETAIL**

N.T.S.

ROMAN D. KORCHAK, P.E., #42626  
ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
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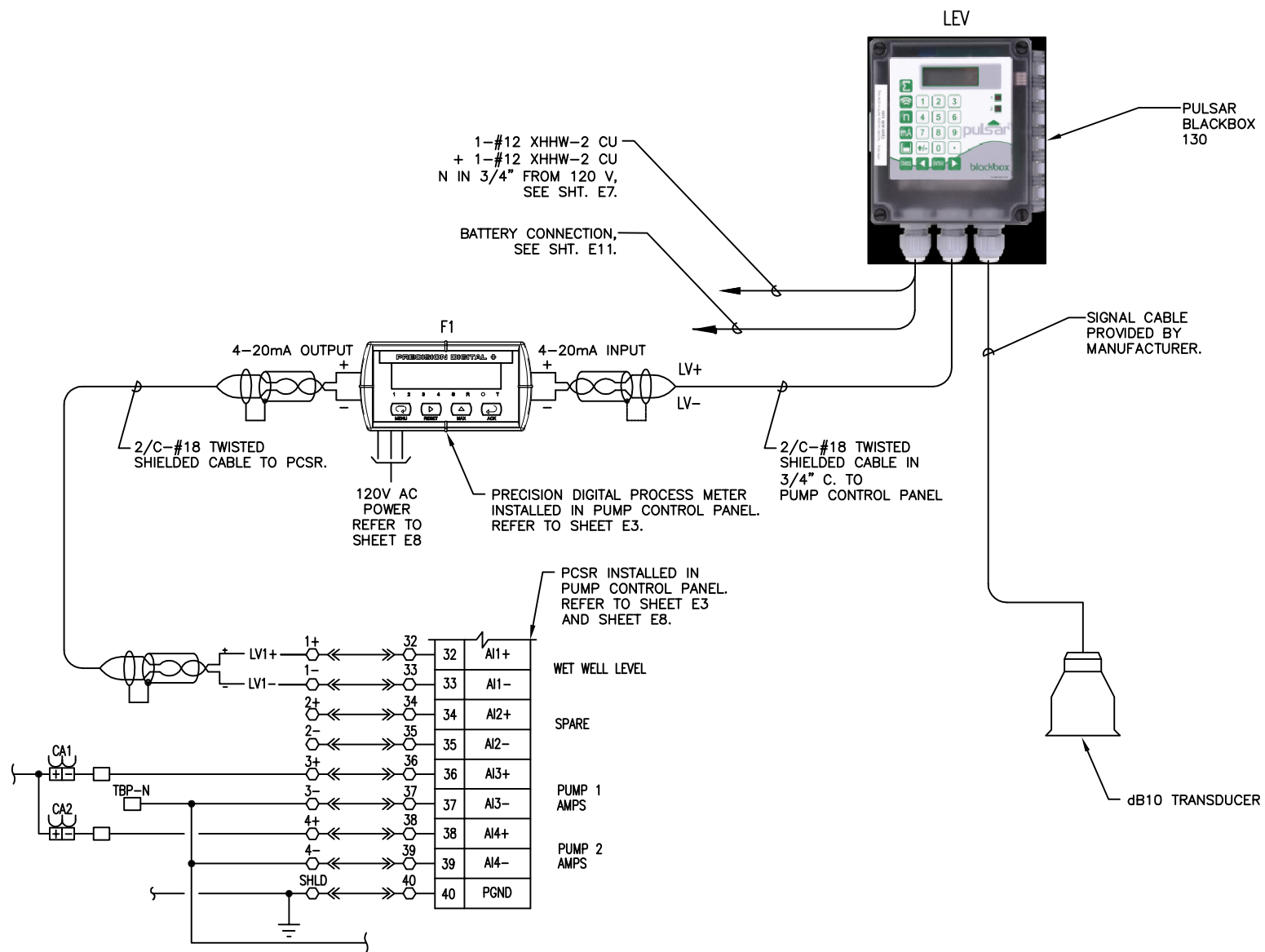
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DRN: JHJ  
CKD:  
DATE: 6/30/16

**CITY of TAMPA**  
WASTEWATER DEPARTMENT

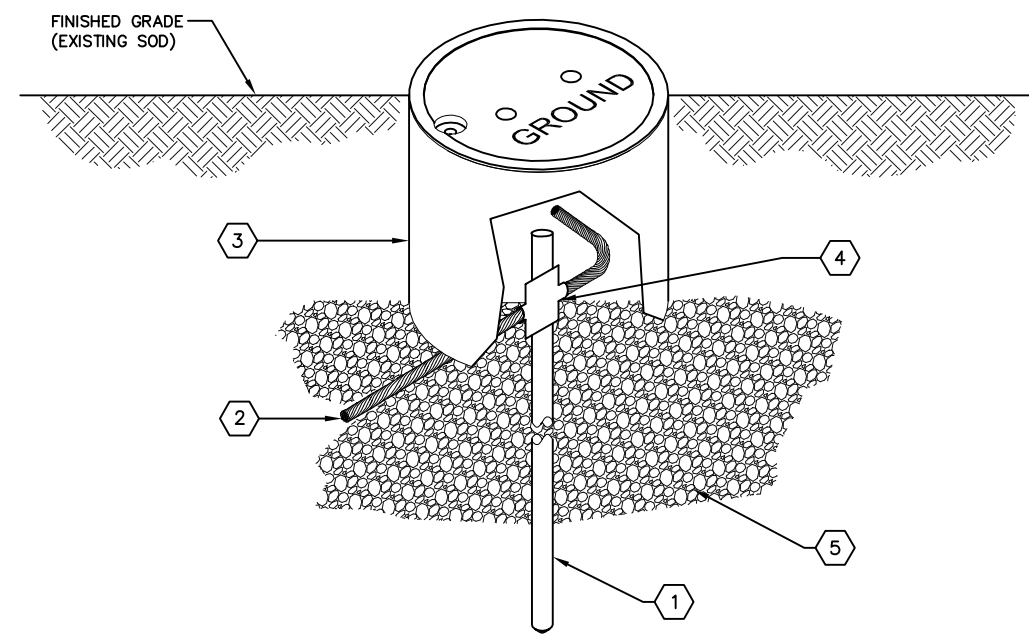
HARBOUR ISLAND PS REHABILITATION  
ELECTRICAL DETAILS  
(SHT. 1 OF 3)

W.O. 0000  
SHEET  
**E19**

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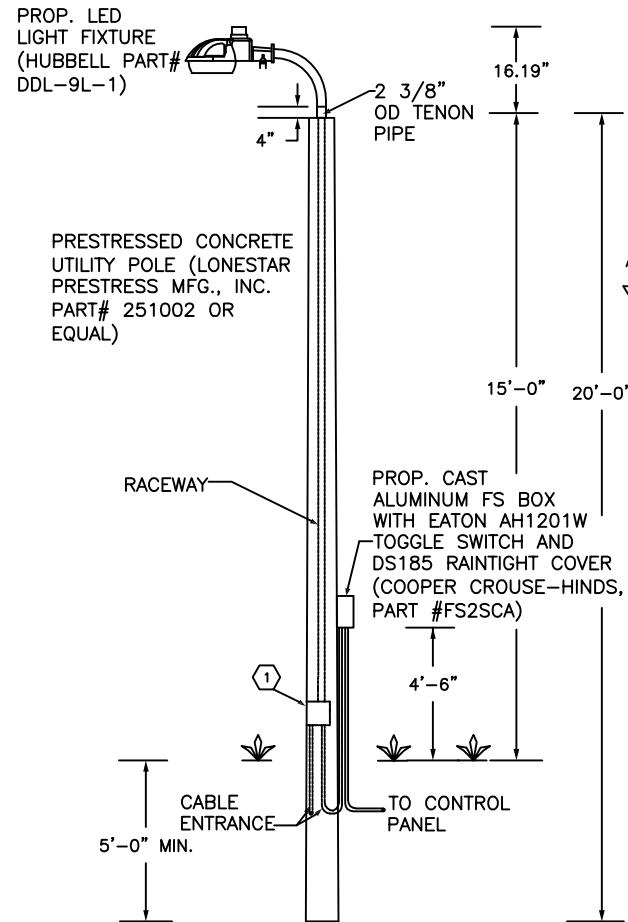
**LEVEL TRANSDUCER WIRING SCHEMATIC**  
ALL WIRING TO BE VERIFIED/CONFIRMED WITH  
MANUFACTURER PRIOR TO INSTALLATION



- GROUND TEST WELL DETAIL KEYED NOTES:**
- ① NEW GROUND ROD, STAINLESS STEEL, 5/8" X 10'-0" (TYP).
  - ② #4 BARE STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR (TYP).
  - ③ PROVIDE AND INSTALL OLDCASTLE PRECAST ENCLOSURE SOLUTIONS #F08 BOX WITH #F08C CAST IRON LID MARKED "GROUND".
  - ④ EXOTHERMIC WELD.
  - ⑤ PROVIDE 6" MINIMUM OF CRUSHED STONE.

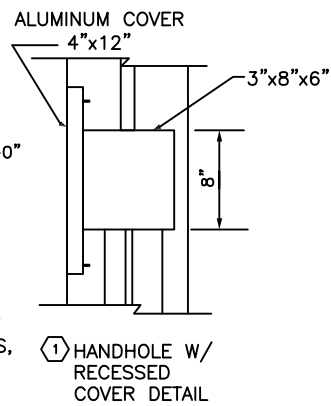
**GROUNDING TEST WELL DETAIL**  
SCALE: N.T.S.

ROMAN D. KORCHAK, P.E., #42626 ELECTRICAL DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG DRN: JHJ CKD: DATE: 6/30/16	<b>CITY of TAMPA</b> <b>WASTEWATER DEPARTMENT</b>	HARBOUR ISLAND PS REHABILITATION ELECTRICAL DETAILS (SHT. 2 OF 3)	W.O. 0000
	3						SHEET
	2						<b>E20</b>
	1						



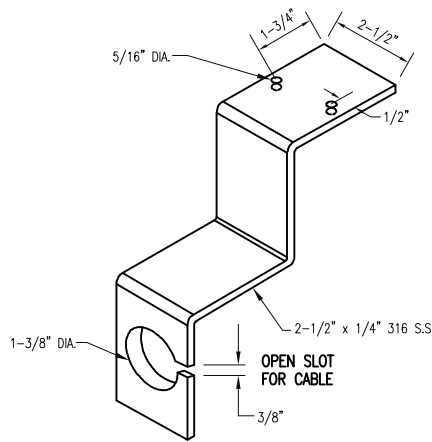
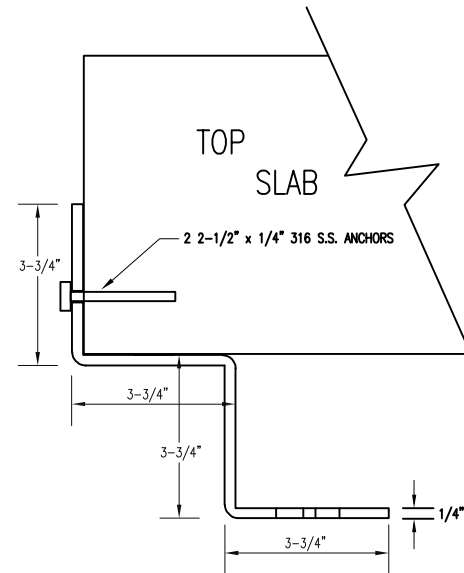
**AREA LIGHT (AL) DETAIL**

SCALE: N.T.S.



**NOTES:**

1. OVERALL 20'-0" POLE HEIGHT
2. MIN. 5'-0" POLE BURIAL
3. COORDINATE LOCATION OF THE AREA LIGHT WITH PLANT PERSONNEL
4. USE STAINLESS STEEL PIPE STRAPS SPACED 2'-0" APART TO MOUNT CONDUIT

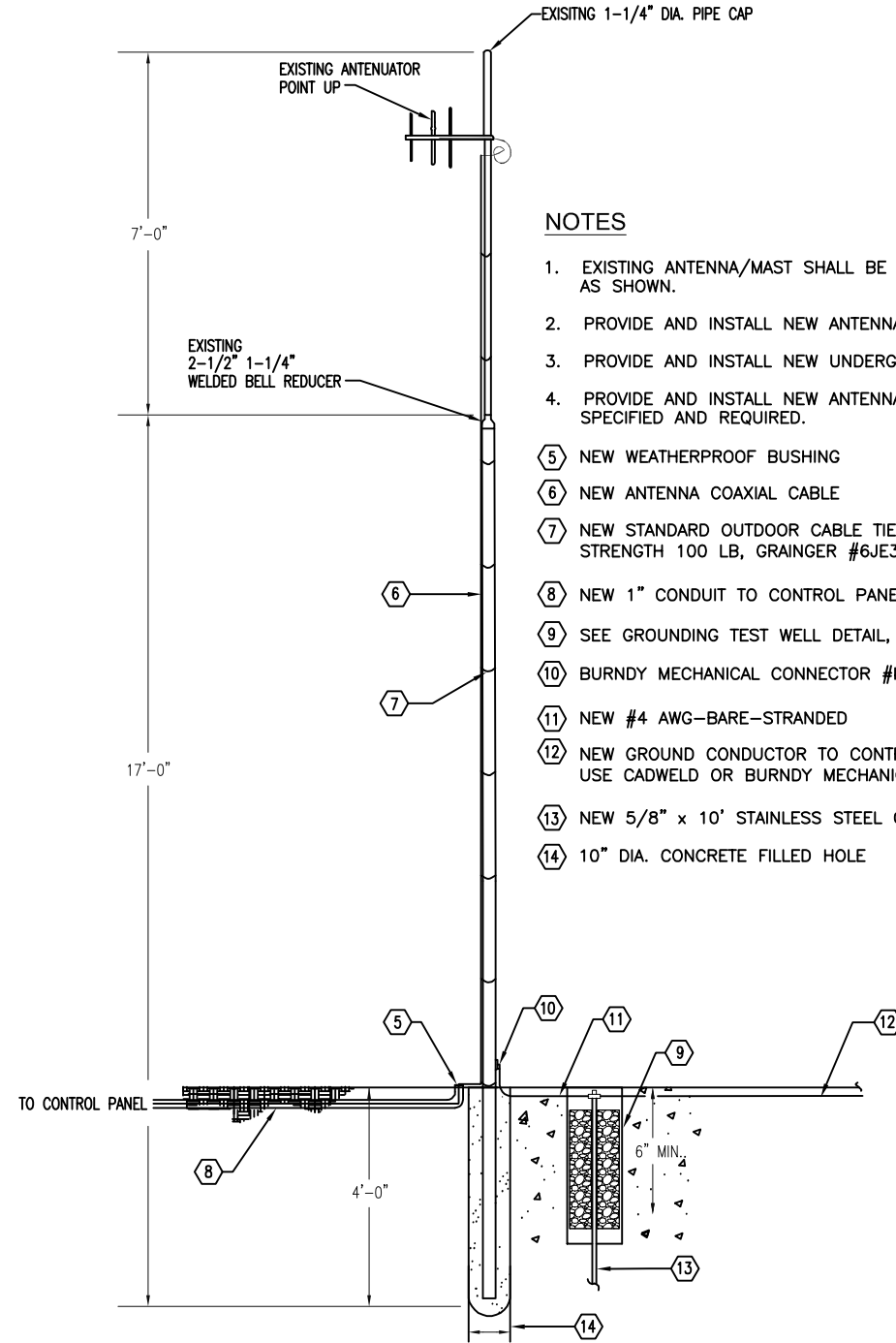


**NOTE:**

ROUND OVER ALL EDGES, RADIUS ALL CORNERS

**DB10 OR PULSAR MOUNTING BRACKET DETAIL**

SCALE: N.T.S.



**NOTES**

1. EXISTING ANTENNA/MAST SHALL BE CAREFULLY REMOVED AND RELOCATED, AS SHOWN.
2. PROVIDE AND INSTALL NEW ANTENNA COAX CABLE, AS REQUIRED.
3. PROVIDE AND INSTALL NEW UNDERGROUND CONDUIT, AS REQUIRED.
4. PROVIDE AND INSTALL NEW ANTENNA GROUNDING SYSTEM, AS SHOWN, SPECIFIED AND REQUIRED.
5. NEW WEATHERPROOF BUSHING
6. NEW ANTENNA COAXIAL CABLE
7. NEW STANDARD OUTDOOR CABLE TIES, 304 STAINLESS STEEL, TENSILE STRENGTH 100 LB, GRAINGER #6JE35
8. NEW 1" CONDUIT TO CONTROL PANEL
9. SEE GROUNDING TEST WELL DETAIL, SHEET E20
10. BURNDY MECHANICAL CONNECTOR #KA25-4-1/0
11. NEW #4 AWG-BARE-STRANDED
12. NEW GROUND CONDUCTOR TO CONTROL PANEL GROUNDING SYSTEM, USE CADWELD OR BURNDY MECHANICAL CONNECTOR #VT2525
13. NEW 5/8" x 10' STAINLESS STEEL GROUND ROD
14. 10" DIA. CONCRETE FILLED HOLE

**ANTENNA DETAIL**

SCALE: N.T.S.

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ROMAN D. KORCHAK, P.E., #42626  
ELECTRICAL DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
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DES: LRG  
DRN: JHJ  
CKD:  
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**CITY of TAMPA**  
WASTEWATER DEPARTMENT

HARBOUR ISLAND PS REHABILITATION  
ELECTRICAL DETAILS  
(SHT. 3 OF 3)

W.O. 0000  
SHEET  
**E21**