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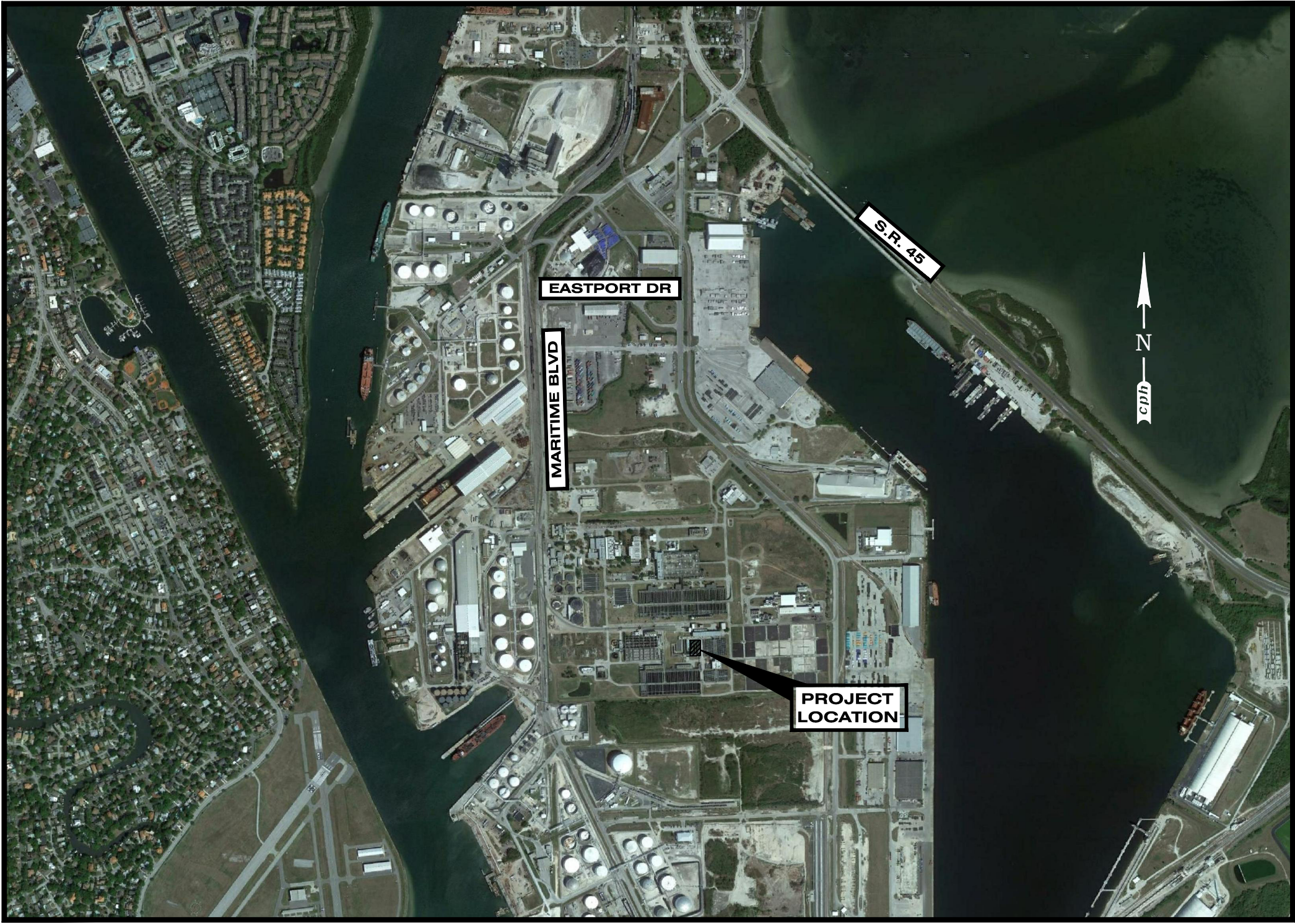
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City of Tampa  
Contract Administration Department  
306 E. Jackson St. #280A4N  
Tampa, FL 33602  
(813)274-8456

# HOWARD F. CURREN AWTP RECLAIMED WATER PUMPING IMPROVEMENTS

CITY OF TAMPA WATER DEPARTMENT  
TAMPA, FLORIDA  
CONTRACT 13-C-00055

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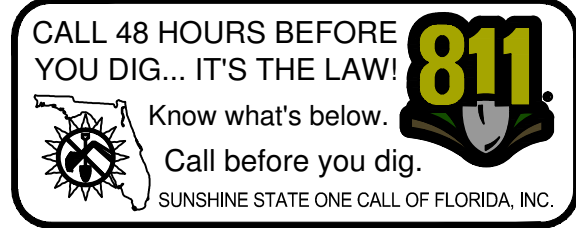
**VICINITY MAP**  
N.T.S.



PREPARED FOR:  
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**GENERAL PROJECT DATA**

- FOR IDENTIFICATION OF CONTRACTUAL AGREEMENTS, THE ENGINEER PLANS SHALL BE DATED AS OCTOBER 2013. ANY REVISIONS THEREAFTER WILL BE NOTED AND DATED ON THE AFFECTED DRAWING(S).
- CONTRACTOR WILL BE RESPONSIBLE TO OBTAIN, MAINTAIN AND PAY FOR ANY PASSES OR PERMITS AS REQUIRED FOR CITY OF TAMPA PORT AUTHORITY.
- ANY PUBLIC LAND CORNER, PROPERTY MONUMENTATION OR BENCH MARK WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
- THE CONTRACTOR SHALL CONTACT THE ENGINEER'S OFFICE IMMEDIATELY ON ANY CONFLICTS ARISING DURING CONSTRUCTION OF ANY IMPROVEMENTS SHOWN ON THESE DRAWINGS.
- ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL CONDITIONS OR BETTER.
- THE CONTRACTOR SHALL PROVIDE ALL DEWATERING NECESSARY TO EXCAVATIONS DRY.

**PROJECT DESCRIPTION**

- THE PROJECT CONSISTS OF REPLACING THE EXISTING PUMP NO. 1 WITH A PUMP OF SIMILAR SIZE TO PUMPS NO. 2 - NO. 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION OF EXISTING PUMP AND PIPE HEADER. ALL SALVAGEABLE MATERIALS SHALL BE HANDED OVER TO THE CITY. CONTRACTOR SHALL PERFORM PIPING MODIFICATIONS FOR INSTALLATION OF PROPOSED PUMP AS IDENTIFIED ON THE PLANS, INCLUDING VALVES, FITTINGS, FLOW METER, INSTRUMENTATION, ELECTRICAL, CONTROLS AND ALL REQUIRED APPURTENANCES TO PROVIDE A FULLY OPERATIONAL SYSTEM.
- PLANS USED FOR THIS PROJECT WERE BASED ON PREVIOUS AS-BUILTS FOR THE ORIGINAL CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXISTING SITE CONDITIONS.
- CONTRACTOR SHALL PROVIDE AND INSTALL AN 18-PULSE ADJUSTABLE FREQUENCY DRIVE (AFD), COMPLETE WITH THE NECESSARY POWER DISTRIBUTION AND CONTROLS, AS SHOWN IN THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS, TO OPERATE THE NEW RECLAIMED WATER PUMP. POWER DISTRIBUTION TO THE AFD SHALL INCLUDE, BUT NOT BE LIMITED TO, PROVIDING AND INSTALLING A NEW CIRCUIT BREAKER IN THE EXISTING SWITCHGEAR AND PROVIDING AND INSTALLING A NEW MOTOR CONTROL CENTER (MCC). THE MCC WILL BE INSTALLED WITH ALL THE NECESSARY CONDUIT AND WIRING TO PROVIDE POWER DISTRIBUTION TO THE NEW AFD AND THE THREE (3) EXISTING AFD'S, AS SHOWN IN THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.

**EXISTING UTILITY LOCATION**

- THE LOCATIONS OF ALL EXISTING UNDERGROUND PIPES AND CONDUITS SHOWN ON PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLANS OR LOCATED BY THE CONTRACTOR.
- THE PIPE LENGTHS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL PERFORM AN INDEPENDENT TAKE OFF AND SHALL BASE THE BID ON THAT TAKE OFF.

**AS-BUILTS**

- AS-BUILTS SHALL BE PROVIDED BY THE CONTRACTOR TO THE CITY OF TAMPA'S PROJECT REPRESENTATIVE TWO WEEKS PRIOR TO FINAL INSPECTION. ALL AS-BUILT DATA SHALL BE PROVIDED BY FLORIDA LICENSED SURVEYOR, SIGNED, SEALED, AND DATED BY THE RESPONSIBLE PARTY. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL AS-BUILT REQUIREMENTS.

**NOTICE OF APPLICABILITY**

- WHEREVER STATE, COUNTY, CITY OR LOCAL STANDARD SPECIFICATIONS DIFFER FROM THOSE CONTAINED HEREIN: THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY FOR CLARIFICATION TYPICALLY THE MORE STRINGENT SHALL GOVERN.

**TRAFFIC CONTROL**

- THE CONTRACTOR SHALL MAINTAIN UNINTERRUPTED VEHICLE ACCESS FOR PLANT OPERATIONS AND PLANT SUPPLIERS. THE CONTRACTOR SHALL COORDINATE WITH THE CITY AND SHALL SCHEDULE ALL WORK TO FACILITATE CONTINUOUS UNINTERRUPTED PLANT OPERATIONS.

**UTILITY GENERAL NOTES**

- THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE PROTECTION OF EXISTING FACILITIES CONSTRUCTION.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAINTAIN IN SERVICE ALL EXISTING PIPING ENCOUNTERED DURING CONSTRUCTION UNLESS OTHERWISE INDICATED IN THE DRAWINGS.
- TYPICAL DETAILS AND PROPOSED CONSTRUCTION AS SHOWN ILLUSTRATE THE ENGINEERS INTENT AND ARE NOT PRESENTED AS A SOLUTION TO ALL CONSTRUCTION PROBLEMS ENCOUNTERED IN THE FIELD.
- FOR THE CONSTRUCTION REQUIRED, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION, DEPTH, AND ALIGNMENT OF ALL EXISTING PIPES AND CONDUITS, TO BE CROSSED OR CONNECTED TO. IF THE CONTRACTOR DEEMS NECESSARY (A.) A CHANGE IN ALIGNMENT OR DEPTH, OR THE NEED FOR ADDITIONAL FITTINGS, BENDS OR COUPLINGS, WHICH REPRESENT A DEPARTURE FROM THE CONTRACT DRAWINGS, OR (B.) A NEED FOR RELOCATION OF EXISTING UTILITIES, THEN DETAILS OF SUCH DEPARTURES, RELOCATIONS, OR ADDITIONAL REASONS THEREFORE SHALL BE SUBMITTED WITH SHOP DRAWINGS. APPROVED DEPARTURES FOR THE CONTRACTORS CONVENIENCE SHALL BE MADE AT NO ADDITIONAL COST TO THE CITY.
- PROPOSED UTILITIES SHALL HAVE A 3'-0" MINIMUM DEPTH OF COVER UNLESS INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY CONSTRUCTION OPERATIONS, TO EXISTING UTILITIES THAT HAVE BEEN FIELD LOCATED BY THE OWNER.
- EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND SHALL NOT BE REMOVED UNTIL FINAL GRADING AND RESTORATION OF THE SITE HAS BEEN COMPLETED.

**OWNER/OPERATOR**

- THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE SYSTEM SHOWN ON THESE PLANS IS THE CITY OF TAMPA. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THE ENTITY.

**MATERIALS**

- MATERIALS SHALL BE NEW UNLESS OTHERWISE NOTED IN SPECIFICATIONS AND PLANS.

**SEQUENCE OF CONSTRUCTION**

- CONSTRUCTION OPERATIONS MUST ALLOW FOR THE CONTINUOUS OPERATION OF THE FACILITY. CONTRACTOR SHALL PREPARE A PROPOSED SEQUENCE OF CONSTRUCTION ACTIVITIES FOR REVIEW AND APPROVAL BY THE OWNER/OPERATOR PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITIES ON SITE.

**SEQUENCING**

- CONTRACTOR SHALL COORDINATE WITH THE CITY AT LEAST 72-HOURS IN ADVANCE TO BRING THE SYSTEM DOWN TO REMOVE PORTIONS OF THE PUMP HEADER ASSOCIATED WITH PUMP NO. 1 TO INSTALL THE 30"x16" REDUCER AND 16" BUTTERFLY VALVE. CONTRACTOR SHALL ONLY REMOVE PORTIONS OF HEADER THAT WILL ALLOW FOR MINIMAL DOWNTIME FOR INSTALLATION OF 30"x16" REDUCER AND 16" BUTTERFLY VALVE.
- CONTRACTOR SHALL DEMOLISH ALL REMAINING PORTIONS OF THE PUMP HEADER AND REMOVE EXISTING PUMP NO. 1, KEEPING THE EXISTING RECLAIMED PUMPS IN OPERATION.
- CONTRACTOR SHALL INSTALL PROPOSE PUMP NO. 1 AND TEST FOR A MINIMUM OF 48-HOURS OR UNTIL APPROVED BY CITY STAFF.

**RECLAIMED WATER INFRASTRUCTURE SYSTEMS**

**GENERAL**

- ALL DUCTILE IRON PIPE SHALL MEET THE REQUIREMENTS OF AWWA C151. COATINGS AND LININGS FOR DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE SUBSECTION HEADED "COATINGS AND LININGS," CONTAINED HEREIN.
- ALL NEW RECLAIMED WATER MAINS SHALL BE PRESSURE TESTED AND FLUSHED PER SPECIFICATIONS PRIOR TO CONNECTING INTO EXISTING MAIN LINE.
- ALL RECLAIMED WATER MAINS 4" AND LARGER SHALL BE DUCTILE IRON PIPE WHERE NOTED TO BE STEEL PIPE. ALL FLANGE CONNECTIONS BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
- THE EXISTING RECLAIMED WATER PUMP STATION SHALL REMAIN OPERATIONAL WITH MINIMAL DOWNTIME TO INSTALL THE NEW RECLAIMED WATER PUMP.

**FLANGED PIPE**

- FLANGED PIPE SHALL CONFORM TO THE REQUIREMENTS OF AWWA C115. FLANGES SHALL BE DUCTILE IRON AND SHALL HAVE LONG HUBS. THERE SHALL BE NO LEAKAGE THROUGH THE PIPE THREADS, AND THE FLANGES SHALL BE DESIGNED TO PREVENT CORROSION OF THE THREADS FROM OUTSIDE.

**FITTINGS**

- ALL DUCTILE IRON FITTINGS SHALL MEET THE REQUIREMENTS OF AWWA C110, AND HAVE A PRESSURE RATING OF 250 PSI, OR AS SPECIFIED, WHICHEVER IS LARGER. ALL HORIZONTAL BENDS, TEES, PLUGS, VERTICAL BENDS, ETC. RESTRAINED USING RESTRAINED JOINT PIPE OR A MECHANICAL RESTRAINT APPARATUS (I.E. MEG-A-LUG) APPROVED BY THE ENGINEERS WHERE SHOWN ON THE DRAWINGS.

**FLANGED JOINTS**

- FLANGED JOINTS SHALL MEET THE REQUIREMENTS OF ANSI SPECIFICATION B16.1. FLANGES, FLANGE FACING DRILLING, AND PROTECTING SHALL BE AS SPECIFIED FOR FLANGED PIPE. BOLTS AND NUTS FOR FLANGED JOINTS SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE STATED ON THE PLANS OR DIRECTED BY THE ENGINEER.
- EXCEPT WHERE OTHERWISE DIRECTED BY THE ENGINEER, GASKETS FOR FLANGED JOINTS SHALL BE OF THE FULL-FACE TYPE, MEETING THE REQUIREMENTS OF ANSI B16.21. GASKETS SHALL BE RUBBER WITH CLOTH INSERTION, AS MADE BY THE CRANE COMPANY, GARLOCK PACKING COMPANY, U.S. RUBBER COMPANY, OR EQUAL.

**COATINGS AND LININGS**

- UNLESS OTHERWISE SHOWN ON THE PLANS OR SPECIFIED, ALL DUCTILE IRON PIPE AND FITTINGS SHALL HAVE A CEMENT-MORTAR LINING MEETING THE REQUIREMENTS OF AWWA C151-8.2.
- THE WEIGHT AND CLASS DESIGNATION SHALL BE PAINTED CONSPICUOUSLY IN WHITE ON THE OUTSIDE OF EACH PIPE, FITTING, AND SPECIAL CASTING AFTER THE SHOP COAT HAS HARDENED.

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NO.	REVISIONS	DATE	BY

SCALE: AS SHOWN	DESIGNED BY: HWY	DRAWN BY: HWY	CHECKED BY: SNR
PROFESSIONAL ENGINEER:	ASHLEY M. MIELE, P.E. LICENSE NUMBER: 06476		
DATE:			

**Howard F. Current AWP  
Reclaimed Water Pump  
Station Improvements**

**GENERAL NOTES**

DATE	08/27/2013
PROJECT NUMBER	JA13-08AWC
SHEET NUMBER	<b>2</b>

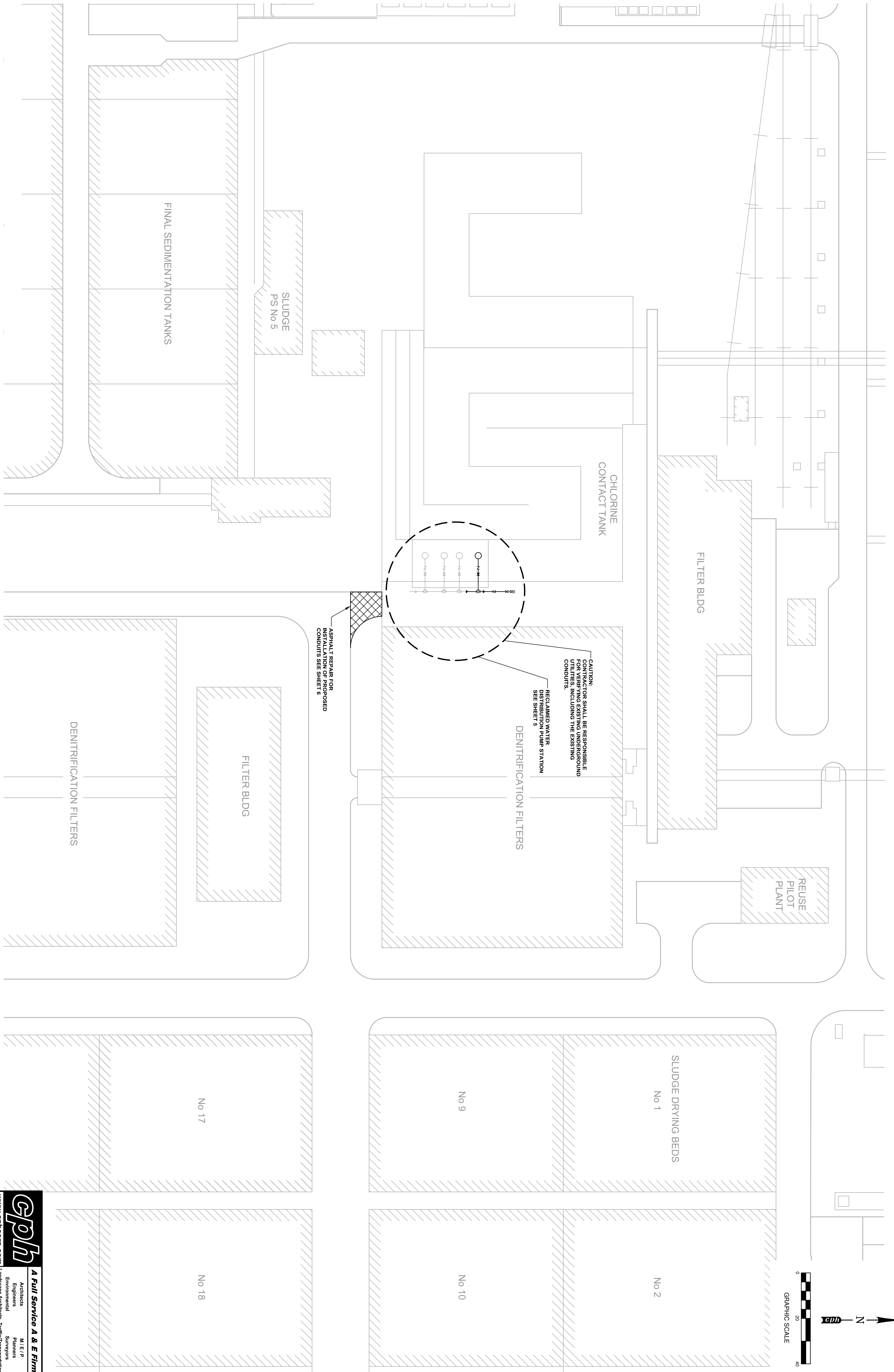


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**SITE PLAN**

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 Survey L.B. No. 7143  
 Landscape Lic. No. LC00007298

DATE 08/27/2013	PROJECT NUMBER JA13-08AWC	SHEET NUMBER 3	SITE PLAN	Howard F. Current AWTP Reclaimed Water Pump Station Improvements	SCALE: AS SHOWN	DESIGNED BY: WWW	DRAWN BY: GCM	CHECKED BY: SNR	PROFESSIONAL ENGINEER: ASHLEY M. MIELE, PE LICENSE NUMBER: 66476	DATE:	NO.	REVISIONS	DATE	BY
					<p>J &amp; A Associates                  Engineers and Managers, Inc.                  4900 Manatee Avenue West, Suite 203                  Bradenton, FL, 34209                  Phone 941-254-7901 Fax 941-254-7902                  © 2013 J&amp;A ASSOCIATES ENGINEERS AND MANAGERS, INC.</p>									







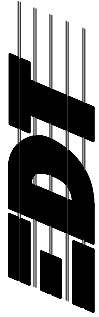
## ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FLUORESCENT FIXTURE - CEILING MNTD., F1 INDICATES FIXTURE TYPE.		CONDUIT IN SLAB OR BURIED
	FLUORESCENT FIXTURE - WALL MNTD., F2 INDICATES FIXTURE TYPE.		CONDUIT CONCEALED IN CLG. OR WALL
	FLUORESCENT STRIP FIXTURE, F3 INDICATES FIXTURE TYPE.		CONDUIT EXPOSED
	INCAND., LED OR HID FIXTURE - CEILING MNTD., F4 INDICATES FIXTURE TYPE.		TELEPHONE CONDUIT CONCEALED IN CLG. OR WALL
	INCAND., LED OR HID FIXTURE - WALL MNTD., F5 INDICATES FIXTURE TYPE.		TELEPHONE CONDUIT IN SLAB OR UNDERGROUND
	INCAND. EMERGENCY LIGHT, MNTD. 18" BELOW CLG., F6 INDICATES FIXTURE TYPE.		OVERHEAD PRIMARY FEEDER
	EXIT LIGHT - TOP MNTD., F7 INDICATES FIXTURE TYPE.		UNDERGROUND PRIMARY FEEDER
	EXIT LIGHT - BACK MNTD., F8 INDICATES FIXTURE TYPE.		CONDUIT CONCEALED IN CLG. OR WALL - UP
	SINGLE POLE SWITCH 20A, 120/277V, CTR. @ 50" AFF.		CONDUIT CONCEALED IN CLG. OR WALL - DOWN
	DOUBLE POLE SWITCH 20A, 120/277V, CTR. @ 50" AFF.		120V, 1 $\phi$ CIRCUIT HOMERUN TO 1-POLE BRKR.
	THREE-WAY SWITCH 20A, 120/277V, CTR. @ 50" AFF.		277V, 1 $\phi$ CIRCUIT HOMERUN TO 1-POLE BRKR.
	FOUR-WAY SWITCH 20A, 120/277V, CTR. @ 50" AFF.		240V OR 480V, 1 $\phi$ CIRCUIT HOMERUN TO 2-POLE BRKR.
	INCAND. ROTARY DIMMER, CTR. @ 50" AFF.		208V OR 480V, 3 $\phi$ CIRCUIT HOMERUN TO 3-POLE BRKR.
	KEY OPERATED SWITCH, CTR. @ 50" AFF.		BRANCH CIRCUIT PANELBOARD, TOP @ 6"-0" AFF.
	MANUAL MOTOR STARTER w/ THERMAL OVERLOAD ELEMENTS, CTR. @ 50" AFF.		MAIN DISTRIBUTION PANELBOARD OR SWITCHBOARD
	SWITCH WITH PILOT LIGHT 20A, 120/277V, CTR. @ 50" AFF.		HEAVY DUTY SAFETY SWITCH, 60A, 3-POLE, FUSED @ 40A, TOP @ 6"-0" AFF.
	20A, 125V, 3-WIRE DUPLEX GROUNDING RECEPT., CTR. @ 18" AFF.		COMBINATION DISCONNECT & MAGNETIC MOTOR STARTER
	20A, 125V, 3-WIRE GROUNDING DUPLEX RECEPT., CTR. @ 50" AFF OR 4" ABOVE COUNTER.		MOTOR, 100 HP, 460 VAC, 3 $\phi$
	20A, 125V, 3-WIRE SINGLE GROUNDING RECEPT., CTR. @ 18" AFF.		EMERGENCY GENERATOR, 2000 KVA.
	20A, 125V, 3-WIRE DUPLEX RECEPT. FED FROM DEDICATED CIRCUIT.		NEMA SIZED MOTOR STARTING CONTACTOR w/ 120 VAC COIL & MOTOR OVERLOAD ELEMENTS SIZED w/ MOTOR NAMEPLATE DATA.
	3-WIRE DUPLEX RECEPT., TOP SWITCHED 20A, 125V, 3-WIRE QUADRUPLX GROUNDING.		STEP-DOWN TRANSFORMER, RATING AS INDICATED ON DRAWINGS.
	20A, 125V, 3-WIRE, QUADRUPLX GROUNDING RECEPTACLE.		POWER COMPANY METER, RATING AS INDICATED ON DRAWINGS. CENTER METER 4"-6" ABOVE FINISHED GRADE.
	20A, 125V, 3-WIRE DUPLEX FLOOR MNTD. RECEPT.		KEYED NOTE SYMBOL, REFERENCE KEYED NOTE #3.
	50A, 250V, 3-WIRE RANGE RECEPT.		CIRCUIT BREAKER, 3P, 50A
	30A, 250V, 4-WIRE GROUNDING RECEPT.		PUSH BUTTON STATION
	SPECIAL PURPOSE RECEPT., RATING AS SHOWN.		UNION & SEALING FITTING, SIZED PER CONDUIT.
	15A, 250V, 3-WIRE GROUNDING, SINGLE RECEPTACLE.		LED PILOT LIGHT, PUSH TO TEST, x INDICATES COLOR, G=GREEN, R=RED, B=BLUE, A=AMBER
	20A, 125V, 3-WIRE QUADRUPLX GROUNDING RECEPTACLE, FLOOR MNTD.		LED PILOT LIGHT, x INDICATES COLOR, G=GREEN, R=RED, B=BLUE, A=AMBER
	OUTLET BOX w/ BLANK COVER. FLOOR MNTD.		ALARM STROBE
	JUNCTION BOX - SIZED PER NEC		AUDIBLE ALARM HORN
	EMERGENCY SHUTDOWN SWITCH 20A 120/277V, CTR. @ 72" AFF.		TERMINAL FOR CONNECTION TO FIELD DEVICE
	4" SQ. OUTLET BOX WITH BLANK COVER, CTR. @ 18" AFF.		PLC TERMINAL CONNECTION
	4" SQ. TELEPHONE WALL OUTLET, CTR. @ 18" AFF.		R2 - RELAY COIL
	TELEPHONE OUTLET, FLOOR MNTD.		R2 - RELAY CONTACT, NORMALLY OPEN
	4" SQ. TELEVISION OUTLET, CTR. @ 18" AFF.		R2 - RELAY CONTACT, NORMALLY CLOSED
	MAGNETIC MOTOR STARTER		SOLENOID VALVE
	HORSEPOWER RATED MANUAL STARTER		
	STEP-DOWN, DRY-TYPE TRANSFORMER		
	MOTOR OPERATED VALVE		
	WELD, BY EXOTHERMIC WELD PROCESS (CADWELD), CONNECTION POINT.		
	DOWN CONDUCTOR TO GROUND ROD		

## ABBREVIATIONS

$\emptyset$	PHASE	LA	LIGHTNING ARRESTER
3P	3 POLE	LPG	LIGHTING PANEL "G"
A	AMPERE	LTG	LIGHTING
ABV	ABOVE	MACH	MACHINE
AF	AMPERE FRAME	MCB	MAIN CIRCUIT BREAKER
AFD	ADJUSTABLE FREQUENCY DRIVE	MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL
AFG	ABOVE FINISHED GRADE	MFR.	MANUFACTURER
AIC	AMPERE INTERRUPTING CAPACITY	MGD	MILLION GALLONS PER DAY
AT	AMPERE TRIP	MIN.	MINIMUM
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUGS ONLY
AWG	AMERICAN WIRE GAUGE	MNT.	MOUNT
BLDG.	BUILDING	MNTD.	MOUNTED
BRKR.	BREAKER	MNTG.	MOUNTING
C.	CONDUIT	MSH	MOTOR SPACE HEATER
c/w	COMPLETE WITH	N.C.	NORMALLY CLOSED
CAB	CABINET	NEC	NATIONAL ELECTRICAL CODE
CAT. NO.	CATALOG NUMBER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CB	CIRCUIT BREAKER	NEUT.	NEUTRAL
CKT.	CIRCUIT	NF	NON-FUSED
CLG.	CEILING	N.O.	NORMALLY OPENED
CM	CENTIMETER	NO.	NUMBER
CO	CONDUIT ONLY	NTS	NOT TO SCALE
CO.	COMPANY	PB	PUSH BUTTON
COORD.	COORDINATE	PLC	PROGRAMMABLE LOGIC CONTROLLER
CT	CURRENT TRANSFORMER	PMR	PHASE MONITOR RELAY
CTR.	CENTER	PNL	PANEL
CTRD.	CENTERED	PPX	POWER PANEL "X"
DEG.	DEGREE	PT.	POINT
DIA.	DIAMETER	PVC	POLYVINYL CHLORIDE
DISC	DISCONNECT	PWR	POWER
DN	DOWN	RECEPT.	RECEPTACLE
DWG	DRAWING	REQ'D.	REQUIRED
EC	EMPTY CONDUIT	RTD	RESISTANCE TEMPERATURE DETECTOR
ELEC	ELECTRICAL, ELECTRIC	RTU	REMOTE TELEMETRY UNIT
ELEV	ELEVATOR	RVSSS	REDUCED VOLTAGE SOLID STATE STARTER
EM	EMERGENCY	RWHSP	RECLAIMED WATER HIGH SERVICE PUMP
EMT	ELECTRICAL METALLIC TUBING	SA	SURGE ARRESTER
EO	ELECTRICALLY OPERATED	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
EQUIP	EQUIPMENT	SPD	SURGE PROTECTIVE DEVICE
ESD	EMERGENCY SHUTDOWN	SS	STAINLESS STEEL
EX	EXISTING	SW	SWITCH
EXH	EXHAUST	SWBD	SWITCHBOARD
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	TELE	TELEPHONE
F	FUSE	THRU	THROUGH
FA	FIRE ALARM	TR	TRIP
FL	FLOOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
FLA	FULL LOAD AMPERES	TYP.	TYPICAL
FTS	FLOAT TEST SWITCH	UG	UNDERGROUND
FUT	FUTURE	U.O.N.	UNLESS OTHERWISE NOTED
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
GND.	GROUND	V	VOLT
HOA	HAND OFF AUTO	VAC	VOLTS ALTERNATING CURRENT
HP	HORSEPOWER	W	WIRE
HT	HEIGHT	w/	WITH
IG	ISOLATED GROUND	WP	WEATHERPROOF
JB, JBOX	JUNCTION BOX	XFMR	TRANSFORMER
KCMIL	1000 CIRCULAR MILS		
KVA	KILOVOLT AMPERES		
KW	KILOWATTS		

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Certificate of Authorization Number: 4795

**HOWARD F. CURREN**  
**AWTP RECLAIMED**  
**WATER IMPROVEMENTS**

DATE: 11/07/2013  
 PROJECT NUMBER: 31021JA  
 SHEET NUMBER: E-1

### LEGEND & ABBREVIATIONS

SCALE: \_\_\_\_\_  
 DESIGNED BY: STK  
 DRAWN BY: RMB  
 CHECKED BY: BET

NO.	REVISIONS	DATE	BY

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**GENERAL NOTES:**

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL AND SHALL RECEIVE SAID APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. ALL SHOP DRAWINGS SUBMITTED TO ENGINEER FOR APPROVAL SHALL BE ORIGINAL COPIES. COPIES OF SHOP DRAWINGS OR DATA SHEETS TRANSMITTED BY FACSIMILE (FAX) WILL NOT BE REVIEWED.
3. THE EXISTING RECLAIMED WATER PUMPS SHALL REMAIN IN SERVICE. THE DEMOLITION AND REMOVAL OF THE EXISTING EQUIPMENT SHALL BE ACCOMPLISHED AS NOT TO INTERRUPT RECLAIMED WATER SERVICE, WITHOUT PROPER NOTIFICATION AND COORDINATION.
4. SHIELD AND DRAIN WIRE FOR EACH ANALOG SIGNAL (4–20 mA) CABLE SHALL BE GROUNDED AT THE PLC ONLY. THE SHIELD AND DRAIN WIRE AT EACH FIELD DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ (2) LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).
5. ALL CONDUCTORS SHALL BE STRANDED COPPER, #12 AWG MIN. w/ THHN INSULATION, UNLESS OTHERWISE NOTED.
6. ALL CONTROL PANEL CONTROL WIRING SHALL BE THHN INSULATED, STRANDED COPPER #16 AWG MIN. UNLESS OTHERWISE NOTED.
7. ALL WIRING SHALL BE IDENTIFIED w/ NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS. MARKERS SHALL BE THOMAS & BETTS INSTA-CODE CLIP-ON MARKERS OR APPROVED EQUAL.
8. ALL CIRCUITS SHALL HAVE GROUNDING CONDUCTORS ROUTED INSIDE THE CONDUIT w/ POWER CONDUCTORS.
9. ALL POWER CONDUCTORS AND MOTOR WINDINGS SHALL BE TESTED WITH A 600 VOLT INSULATION RESISTANCE TESTER "MEGGER". INSULATION READINGS SHALL BE A MINIMUM OF 20 MEGOHMS TO GROUND (DO NOT TEST LOW-VOLTAGE CONTROLS). INSULATION READINGS THAT ARE LESS THAN 20 MEGOHMS SHALL REQUIRE THE REPLACEMENT OF THE CONDUCTOR OR MOTOR AS APPLICABLE.
10. NEATLY COIL & TAPE SPARE CONDUCTORS w/ VINYL ELECTRICAL TAPE (SCOTCH 33+) U.O.N.
11. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS. NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNATED IN THE DRAWINGS.
12. LIQUIDTIGHT FLEXIBLE NON-METALLIC CONDUIT CONNECTIONS TO EACH MOTOR SHALL NOT EXCEED A LENGTH OF 18".
13. ALL THREADED CONNECTIONS SHALL BE COATED w/ COPPER SHIELD ANTI-SEIZE COMPOUND MANUFACTURED BY THOMAS & BETTS (T & B).
14. ALL UNDERGROUND CONDUITS SHALL BE BURIED w/ A MINIMUM OF 24" COVER UNLESS OTHERWISE NOTED.
15. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.
16. PULL BOXES SHALL BE INSTALLED AS NECESSARY TO FACILITATE WIRE PULLS AND TO 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.
17. PROVIDE PVC SLEEVES FOR ALL METALLIC CONDUIT PENETRATIONS THROUGH CONCRETE. WHERE ALUMINUM SURFACES SUCH AS BOXES, CONDUIT OR STRUCTURAL SUPPORTS COME IN CONTACT WITH INCOMPATIBLE METALS, LIME, MORTAR, CONCRETE OR OTHER MASONRY MATERIALS, THE CONTACT AREA SHALL BE GIVEN ONE FIELD COAT OF KOPPERS METAL PASSIVATOR NO. 40 AND ONE COAT OF KOPPERS BITUMASTIC SUPER SERVICE BLACK OR TWO COATS OF ASPHALT VARNISH CONFORMING TO FED. SPEC. TT-V-51.
18. ALL CONDUIT TRENCHES SHALL BE DUG BY HAND TO AVOID DAMAGING UNDERGROUND PIPING AND UTILITIES.
19. ALL UNDERGROUND CONDUITS SHALL BE ENCASED IN STEEL REINFORCED CONCRETE. CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE w/ THE DUCT BANK DETAIL.
20. THE CONTRACTOR SHALL REPLACE ALL EXISTING PAVING, STABILIZED EARTH, CURBS, DRIVEWAYS, FENCES & OTHER IMPROVEMENTS WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
21. CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES & DITCHES DURING ALL PHASES OF CONSTRUCTION.
22. ALL CONDUIT SHALL BE SUPPORTED AT MAXIMUM 5'-0" INTERVALS.
23. ALL FASTENING AND MOUNTING HARDWARE SHALL BE 316 SS. CAD PLATED HARDWARE WILL NOT BE ACCEPTED.
24. ALL UNISTRUT SHALL BE 1 5/8" x 1 5/8" x 12 GA. 316 STAINLESS STEEL.
25. CONTRACTOR SHALL FIELD VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATINGS PRIOR TO CONNECTING.
26. CONTRACTOR SHALL FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
27. ALL PANELS, PANEL COMPONENTS, DISCONNECTS, SWITCHES & 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. EDGES OF NAMEPLATES SHALL BE BEVELED 45°. THE NAMEPLATES SHALL BE SECURED TO EQUIPMENT WITH STAINLESS STEEL SCREWS OR RIVETS. THE USE OF GLUE IS NOT PERMITTED.
28. ALL INSTALLED COMPONENTS SHALL BE LISTED BY UNDERWRITERS LABORATORY (UL), OR SIMILAR NATIONALLY RECOGNIZED TESTING LABORATORY.
29. ALL EQUIPMENT SHALL BE INSTALLED AT AN ELEVATION ABOVE THE FLOODPLAIN ESTABLISHED BY FEMA AND/OR LOCAL AUTHORITIES.
30. REFERENCE PLAN & SECTION DRAWINGS FOR EQUIPMENT LOCATIONS.
31. COORDINATE ALL INSTALLATIONS w/ ALL OTHER TRADES.
32. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS BETWEEN DRAWINGS & ACTUAL CONDITIONS ARE DISCOVERED.
33. ALL "AS BUILT" DRAWINGS PROVIDED BY THE CONTRACTOR SHALL BE SIGNED AND DATED WITH CHANGES CLEARLY NOTED IN RED. ADDITIONALLY, THE PRINTED NAME OF THE INDIVIDUAL SIGNING THE "AS BUILT" DRAWINGS ALONG WITH THAT PERSON'S COMPANY AFFILIATION SHALL BE INCLUDED. IF NO CHANGES WERE MADE DURING CONSTRUCTION, A NOTE DESIGNATING "NO CHANGES" SHALL BE INCLUDED ON THE "AS BUILT" DRAWINGS.
34. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.
35. PROVIDE A MINIMUM OF 3'-0" CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE w/ ARTICLE 110 OF THE NEC.
36. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE w/ THE LATEST EDITION OF THE NEC AND APPLICABLE LOCAL ORDINANCES.
37. ALL CONDUITS ROUTED IN CONCRETE SHALL BE INSTALLED WITH A SEPARATION BETWEEN CONDUITS OF NOT LESS THAN 3 DIAMETERS (CENTER-TO-CENTER) & IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE STANDARD NO. 318-89.
38. ALL CONDUIT EXPOSED ABOVE GRADE SHALL BE RIGID HEAVY WALL ALUMINUM, UNLESS OTHERWISE NOTED. CONDUITS EXTENDING BELOW GRADE SHALL BE RIGID HEAVY WALL ALUMINUM CONDUIT THROUGH AND INCLUDING THE FIRST 90 DEGREE ELBOW (OR EQUIVALENT SET OF FITTINGS) INSTALLED BELOW GRADE. ALL PVC CONDUIT SHALL BE SCHEDULE 80. CONNECTIONS TO PVC CONDUIT SHALL BE MADE w/ A RIGID ALUMINUM TO PVC CONDUIT ADAPTER.
39. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH CITY OF TAMPA CODE 5-111.6.1.5 CITY OF TAMPA CODE CHAPTER 5 ISSUED 10/01/2005.


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NO.	REVISIONS	DATE	BY

PROFESSIONAL ENGINEER:	BOB E. HALLMAN, PE REGISTRATION NO. 20761
DATE:	
DESIGNED BY:	STK
DRAWN BY:	RWB
CHECKED BY:	BEH

**GENERAL NOTES**

ENGINEER OF RECORD:  
 BOB E. HALLMAN, P.E.  
 FLORIDA REGISTRATION NO. 20761



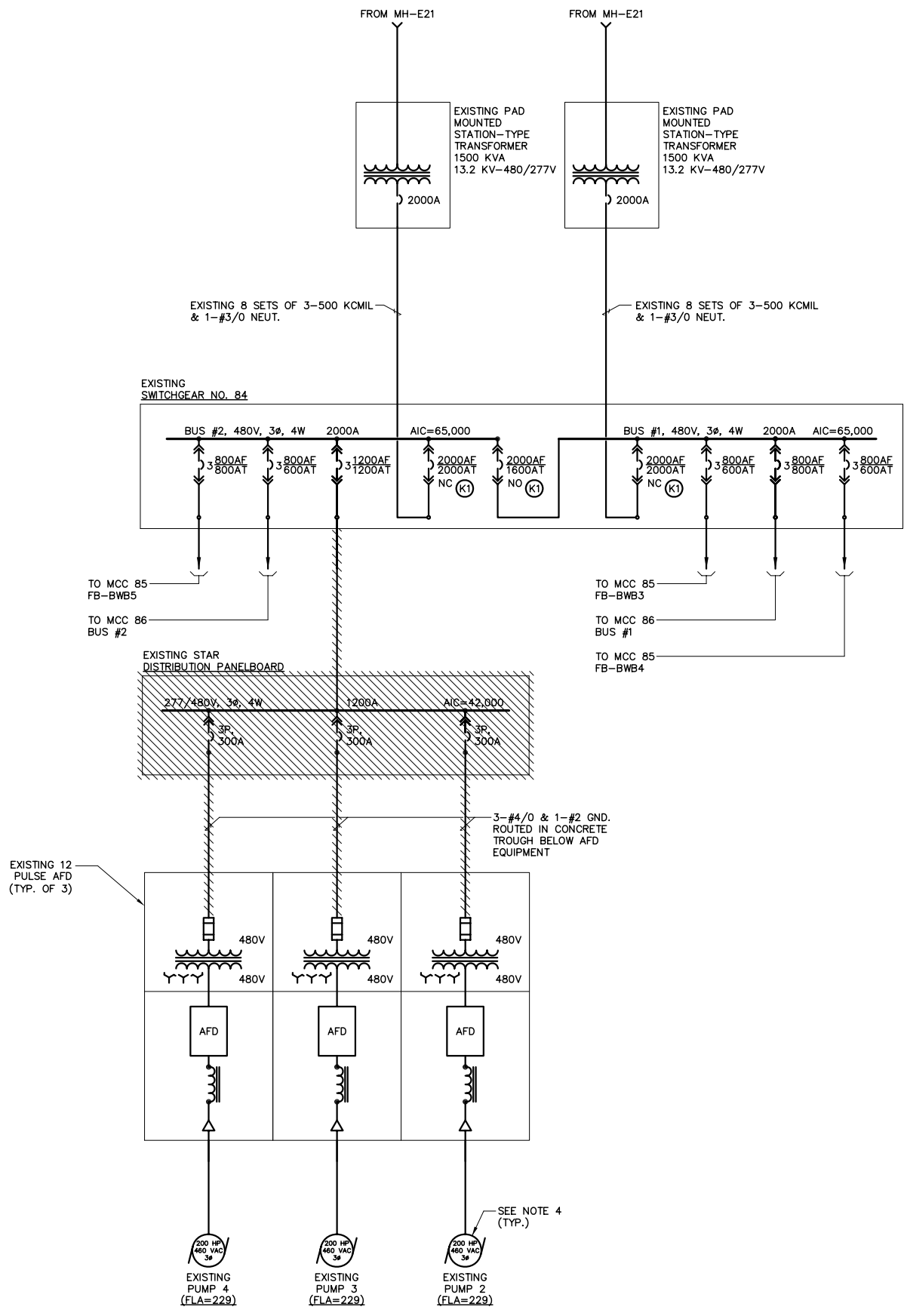
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 813-282-9184  
 engineering@edt1.com  
 Certificate of Authorization Number: 4795

**HOWARD F CURREN  
 AWWP RECLAIMED  
 WATER IMPROVEMENTS**

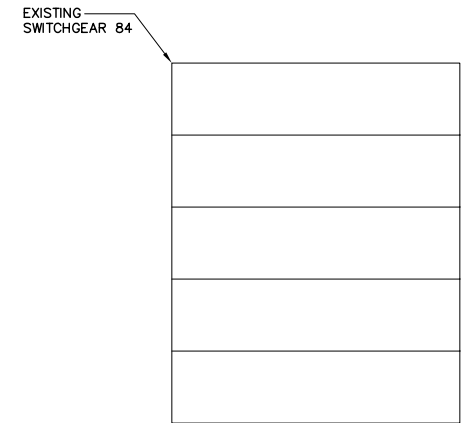
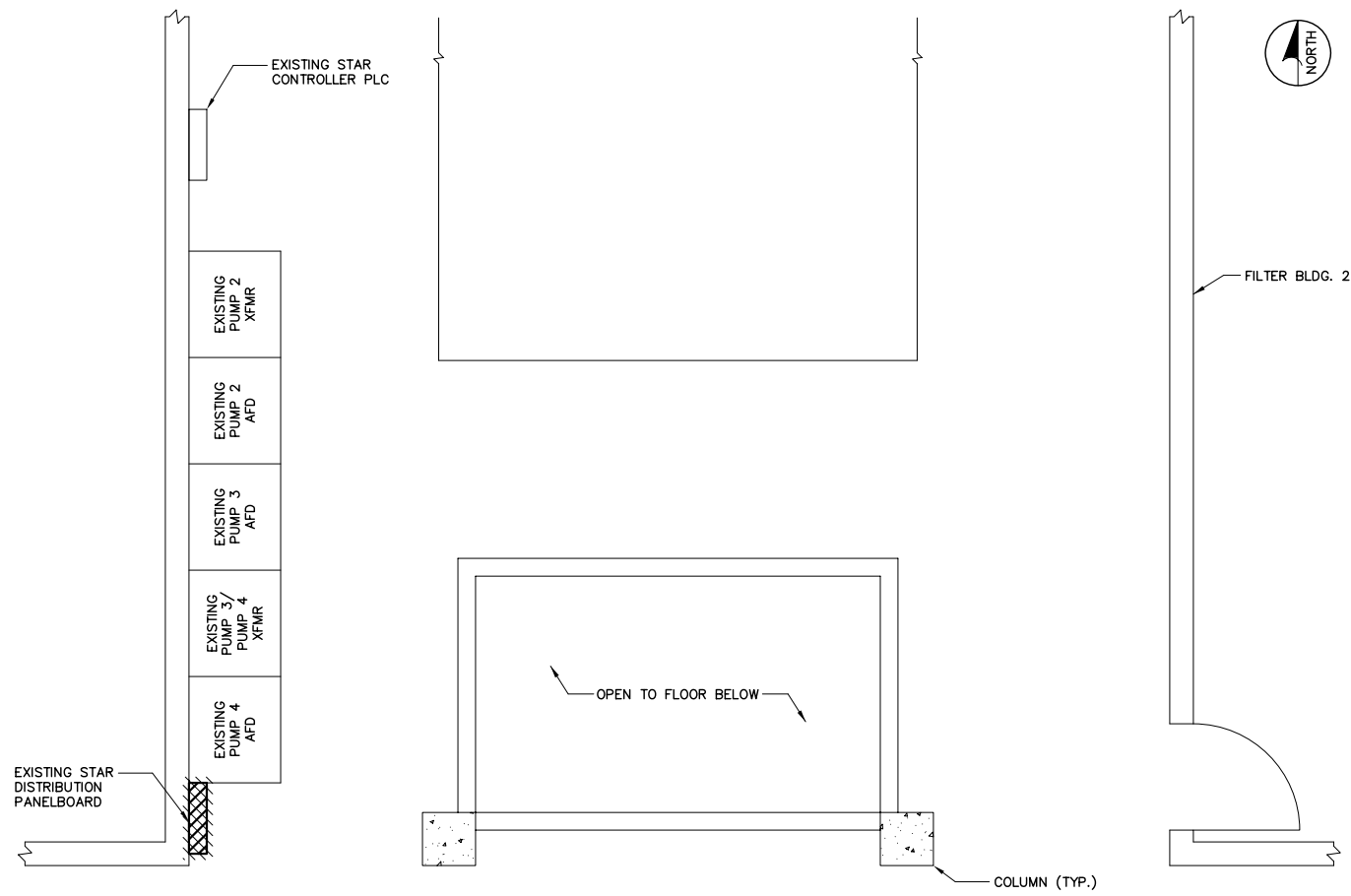
DATE  
 11/07/2013

PROJECT NUMBER  
 31021JA

SHEET NUMBER  
**E-2**



**EXISTING ELECTRICAL ONE-LINE DIAGRAM**



- NOTES:**
- DENOTES EXISTING EQUIPMENT TO BE REMOVED. ITEM SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY, UNLESS OTHERWISE NOTED, REMOVE ALL ASSOCIATED CONDUIT & WIRING CONNECTED TO EQUIPMENT TO BE REMOVED, INCLUDING ABANDONED CONDUIT & WIRING.
  - 1. ALL EQUIPMENT, CONDUIT & WIRING INCLUDED ON THIS DRAWING ARE EXISTING. CONTRACTOR SHALL VISIT THE SITE & FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS BEFORE SUBMITTING A BID OR COMMENCING CONSTRUCTION.
  - 2. COORDINATE ALL DEMOLITION ACTIVITIES WITH OWNER AND ALL TRADES.
  - 3. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
  - 4. THE EXISTING RECLAIMED WATER PUMPS SHALL REMAIN IN SERVICE. THE DEMOLITION AND REMOVAL OF THE EXISTING EQUIPMENT SHALL BE ACCOMPLISHED AS NOT TO INTERRUPT RECLAIMED WATER SERVICE, WITHOUT PROPER NOTIFICATION AND COORDINATION.

**ELECTRICAL DEMOLITION PLAN**

(PARTIAL PLAN VIEW OF FILTER BLDG. 2)

ENGINEER OF RECORD:  
BOB E. HALLMAN, P.E.  
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HOWARD F CURREN  
AWTP RECLAIMED  
WATER IMPROVEMENTS

DATE 11/07/2013  
PROJECT NUMBER 31021JA  
SHEET NUMBER

NO.	REVISIONS	DATE	BY

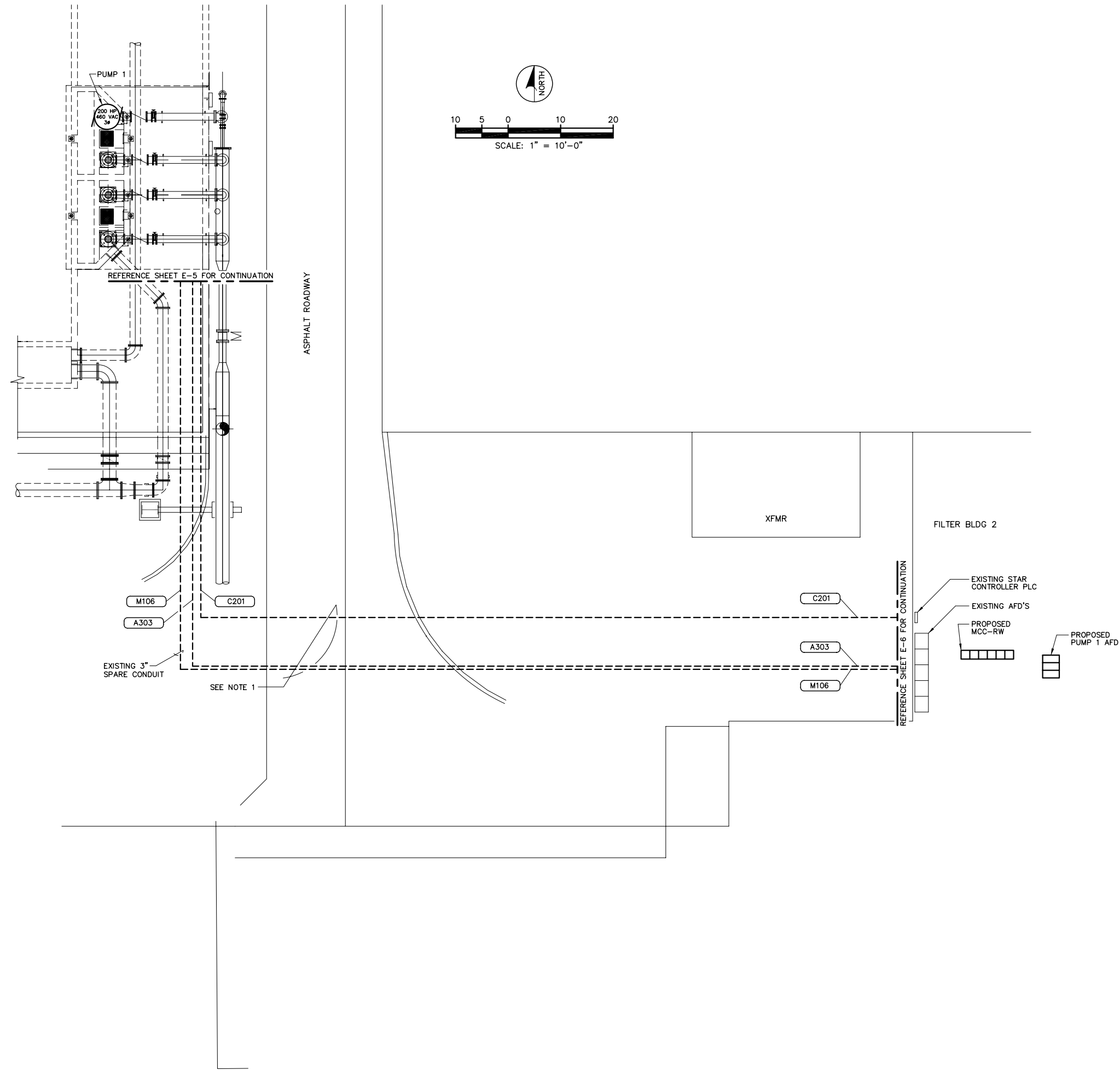
SCALE:   
DESIGNED BY: STK   
DRAWN BY: RWB   
CHECKED BY: BET

PROFESSIONAL ENGINEER: BOB E. HALLMAN, PE  
REGISTRATION NO. 20761

DATE:  

**EXISTING ELECTRICAL ONE-LINE DIAGRAM/ DEMOLITION PLAN**

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**NOTES:**

1. THE CONTRACTOR SHALL FILL TRENCHES AND COMPACT SOIL TO MATCH THE EXISTING GRADE AFTER THE INSTALLATION OF THE CONDUIT IS COMPLETE. IN AREAS WHERE THE CONDUIT IS ROUTED UNDER AN ASPHALT OR CONCRETE PAVED SURFACE THE CONTRACTOR SHALL RESTORE THE SURFACE TO THE ORIGINAL SURFACE CONDITION & MATCH THE ELEVATION OF THE ADJOINING SURFACES.
2. THE CONTRACTOR SHALL REFERENCE THE EXISTING AS-BUILT DRAWINGS FOR PIPING AND UTILITIES IN THIS AREA. THE CITY WILL PROVIDE COPIES OF EXISTING AS-BUILT DRAWINGS UPON WRITTEN REQUEST BY THE CONTRACTOR.

ENGINEER OF RECORD:  
BOB E. HALLMAN, P.E.  
FLORIDA REGISTRATION NO. 20761



Certificate of Authorization Number: 4795

**HOWARD F CURREN**  
**AWTP RECLAIMED**  
**WATER IMPROVEMENTS**

DATE  
11/07/2013  
PROJECT NUMBER  
31021JA  
SHEET NUMBER

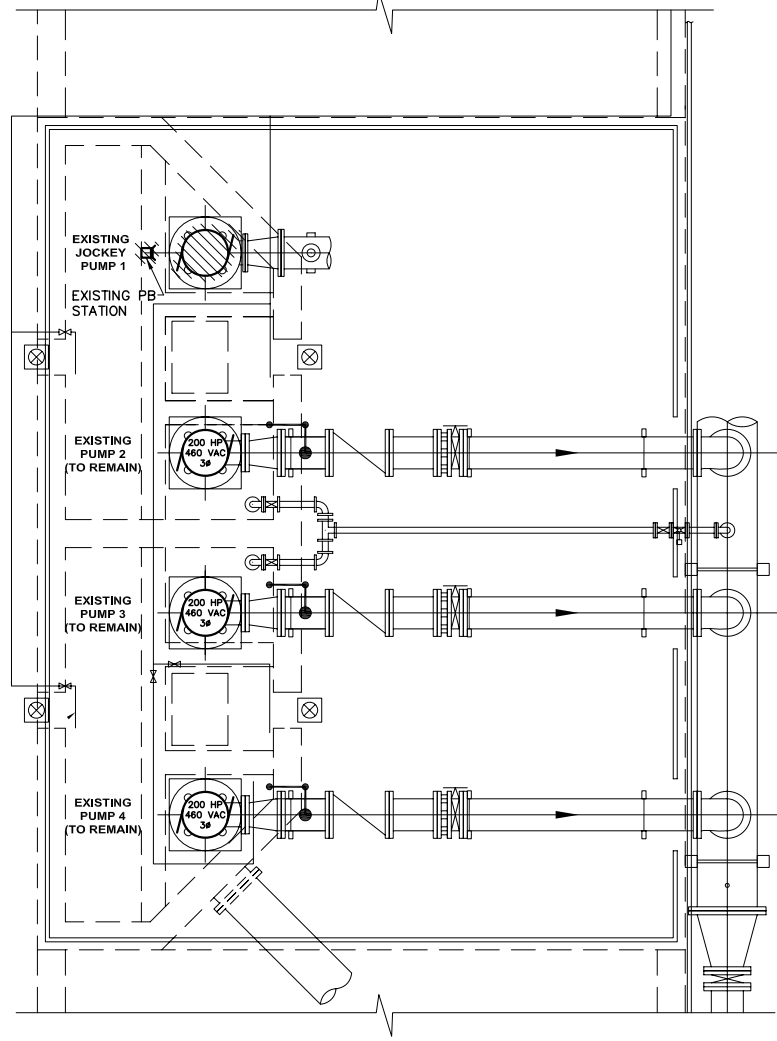
**E-4**

**ELECTRICAL SITE PLAN**

SCALE:	PROFESSIONAL ENGINEER:
DESIGNED BY: STK	BOB E. HALLMAN, PE REGISTRATION NO. 20761
DRAWN BY: RWB	DATE:
CHECKED BY: BET	

NO.	REVISIONS	DATE	BY

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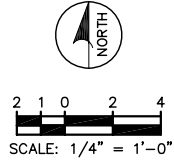


**NOTES:**

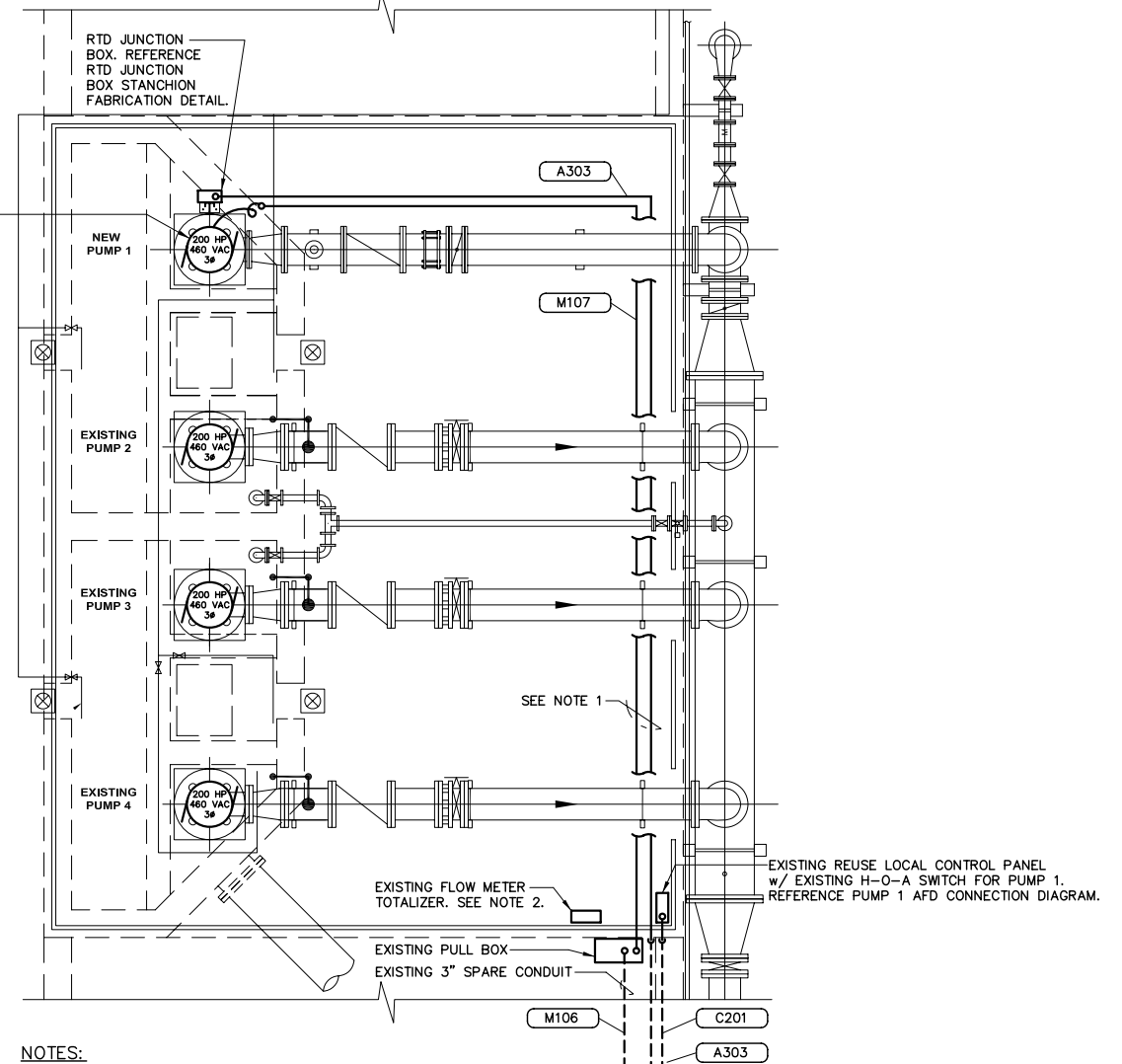
- DENOTES EXISTING EQUIPMENT TO BE REMOVED. ITEM SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY. UNLESS OTHERWISE NOTED, REMOVE ALL ASSOCIATED CONDUIT & WIRING CONNECTED TO EQUIPMENT TO BE REMOVED, INCLUDING ABANDONED CONDUIT & WIRING.

1. ALL EQUIPMENT, CONDUIT & WIRING INCLUDED ON THIS DRAWING ARE EXISTING. CONTRACTOR SHALL VISIT THE SITE & FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS BEFORE SUBMITTING A BID OR COMMENCING CONSTRUCTION.
2. COORDINATE ALL DEMOLITION ACTIVITIES WITH OWNER AND ALL TRADES.
3. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
4. THE CONTRACTOR SHALL REFERENCE THE EXISTING AS-BUILT DRAWINGS FOR PIPING AND UTILITIES IN THIS AREA. THE CITY WILL PROVIDE COPIES OF EXISTING AS-BUILT DRAWINGS UPON WRITTEN REQUEST BY THE CONTRACTOR.

**PUMP AREA  
DEMOLITION PLAN**



THE MOTOR SHALL BE PROVIDED WITH A PHENOLIC WARNING LABEL. THE LABEL SHALL BE A THREE PLY PHENOLIC RED-WHITE-RED ENGRAVED THROUGH THE FIRST RED LAYER. THE LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGES OF LABEL SHALL BE BEVELED 45 DEG. LABEL SHALL READ AS FOLLOWS:  
 \*WARNING - ELECTRICAL SHOCK HAZARD. MOTOR IS EQUIPPED WITH SPACE HEATERS. SPACE HEATER REMAINS ENERGIZED WHEN MOTOR IS OFF\*.



**NOTES:**

1. ROUTE CONDUIT ON TOP SURFACE OF EXISTING CONCRETE SLAB. ROUTE CONDUIT ALONG PATH OF PIPING TO MINIMIZE TRIPPING HAZARD. REFERENCE CONCRETE SLAB CONDUIT SECURING DETAIL.
2. REMOVE THE EXISTING FLOW METER TOTALIZER. DISCONNECT THE EXISTING WIRING IN THE EXISTING FLOW METER. REPLACE THE EXISTING FLOW METER w/ AN ABB WATER MASTER FLOW METER. UTILIZE THE EXISTING WIRING & CONNECT TO NEW FLOW METER IN ACCORDANCE w/ MANUFACTURER'S RECOMMENDATIONS. REFERENCE MAGNETIC FLOW METER CONNECTION DETAIL.

**PUMP AREA  
CONDUIT ROUTING PLAN**

ENGINEER OF RECORD:  
 BOB E. HALLMAN, P.E.  
 FLORIDA REGISTRATION NO. 20761



Certificate of Authorization Number: 4795

**HOWARD F. CURREN  
 A/WTP RECLAIMED  
 WATER IMPROVEMENTS**

DATE: 11/07/2013  
 PROJECT NUMBER: 31021JA  
 SHEET NUMBER:

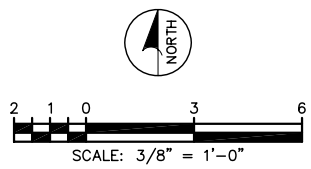
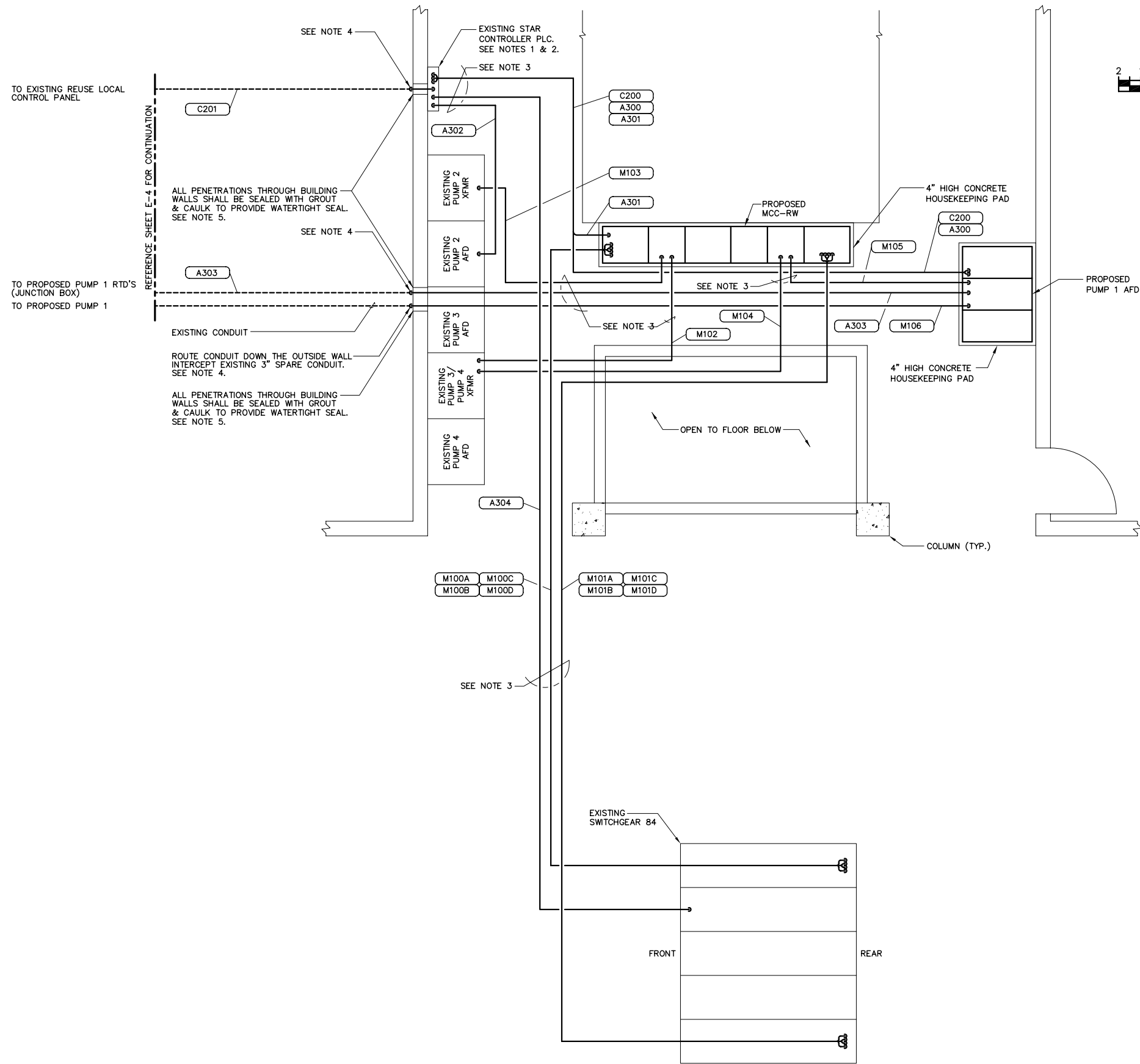
**E-5**

**PUMP AREA  
 DEMOLITION/CONDUIT  
 ROUTING PLANS**

SCALE:	DESIGNED BY: STK	PROFESSIONAL ENGINEER:
DRAWN BY: RWB	BOB E. HALLMAN, PE REGISTRATION NO. 20761	DATE:
CHECKED BY: BET		

NO.	REVISIONS	DATE	BY

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SEE NOTE 4

TO EXISTING REUSE LOCAL CONTROL PANEL

TO PROPOSED PUMP 1 RTD'S (JUNCTION BOX)

TO PROPOSED PUMP 1

REFERENCE SHEET E-4 FOR CONTINUATION

ALL PENETRATIONS THROUGH BUILDING WALLS SHALL BE SEALED WITH GROUT & CAULK TO PROVIDE WATERTIGHT SEAL. SEE NOTE 5.

SEE NOTE 4

EXISTING CONDUIT

ROUTE CONDUIT DOWN THE OUTSIDE WALL INTERCEPT EXISTING 3\"/>

- NOTES:**
1. PROVIDE ALL CONDUIT & CONDUCTORS ROUTED TO THE EXISTING STAR CONTROLLER PLC. CITY WILL BE RESPONSIBLE FOR TERMINATIONS & CONNECTIONS OF ALL WIRING ROUTED TO THE EXISTING STAR CONTROLLER PLC.
  2. CITY WILL BE RESPONSIBLE FOR THE PROGRAM MODIFICATIONS REQUIRED IN THE EXISTING STAR CONTROLLER PLC AND THE HOST COMPUTER/HMI.
  3. ROUTE CONDUIT OVERHEAD. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
  4. ROUTE CONDUIT DOWN THE OUTSIDE WALL, SECURE CONDUIT TO OUTSIDE WALL w/ 316 SS UNISTRUT 316 SS CONDUIT STRAPS.
  5. PROVIDE PVC SLEEVES FOR ALL METALLIC CONDUIT PENETRATIONS THROUGH CONCRETE. WHERE ALUMINUM SURFACES SUCH AS BOXES, CONDUIT OR STRUCTURAL SUPPORTS COME IN CONTACT WITH INCOMPATIBLE METALS, LIME, MORTAR, CONCRETE OR OTHER MASONRY MATERIALS, THE CONTACT AREA SHALL BE GIVEN ONE FIELD COAT OF KOPPERS METAL PASSIVATOR NO. 40 AND ONE COAT OF KOPPERS BITUMASTIC SUPER SERVICE BLACK OR TWO COATS OF ASPHALT VARNISH CONFORMING TO FED. SPEC. TT-V-51.

**FILTER BLDG. 2**  
**ELECTRICAL EQUIPMENT LAYOUT**  
 (PARTIAL PLAN VIEW OF FILTER BLDG. 2)

ENGINEER OF RECORD:  
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Certificate of Authorization Number: 4795

**HOWARD F CURREN**  
**AWTP RECLAIMED**  
**WATER IMPROVEMENTS**

DATE: 11/07/2013  
 PROJECT NUMBER: 31021JA  
 SHEET NUMBER: E-6

**FILTER BLDG. 2**  
**ELECTRICAL**  
**EQUIPMENT LAYOUT**

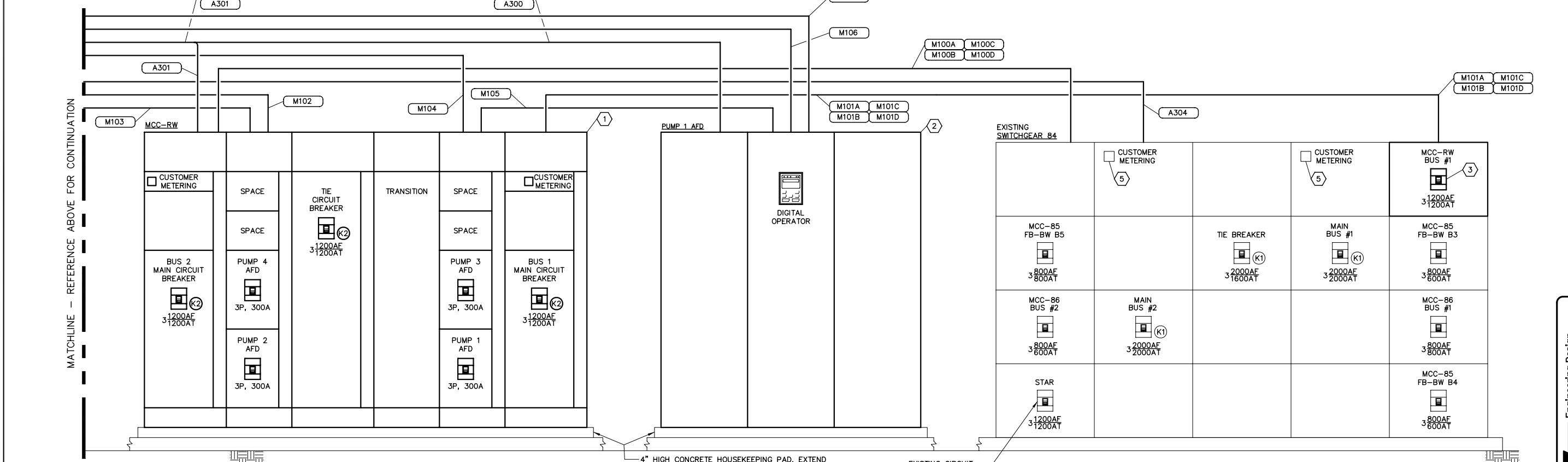
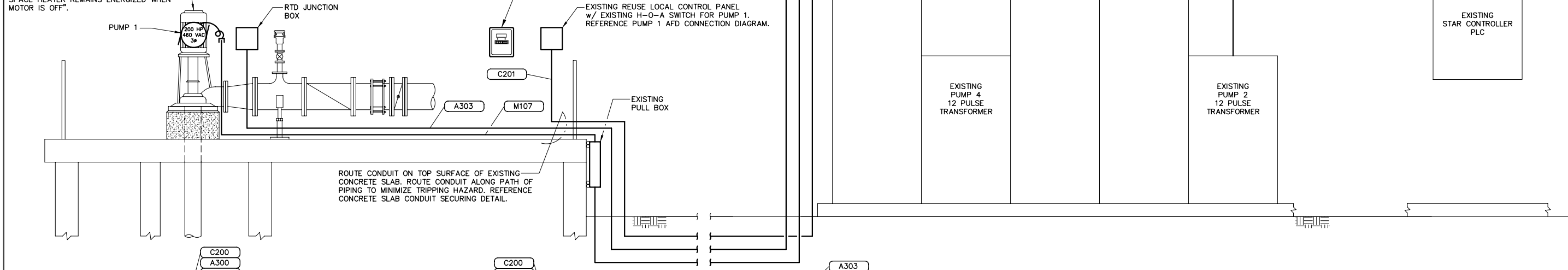
SCALE:	DESIGNED BY: STK	PROFESSIONAL ENGINEER:
DRAWN BY: RWB	BOB E. HALLMAN, PE REGISTRATION NO. 20761	DATE:
CHECKED BY: BET		

NO.	REVISIONS	DATE	BY

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THE MOTOR SHALL BE PROVIDED WITH A PHENOLIC WARNING LABEL. THE LABEL SHALL BE A THREE PLY PHENOLIC RED-WHITE-RED ENGRAVED THROUGH THE FIRST RED LAYER. THE LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGES OF LABEL SHALL BE BEVELED 45 DEG. LABEL SHALL READ AS FOLLOWS:  
 "WARNING - ELECTRICAL SHOCK HAZARD. MOTOR IS EQUIPPED WITH SPACE HEATERS. SPACE HEATER REMAINS ENERGIZED WHEN MOTOR IS OFF".



**KEYED NOTES:**

- 1 MOTOR CONTROL CENTER (MCC-RW) w/ 1200AF/1200AT 100% RATED MAIN CIRCUIT BREAKERS, TIE CIRCUIT BREAKER, KIRK KEY INTERLOCKS AND DISTRIBUTION SECTIONS. REFERENCE SPECIFICATIONS.
- 2 ADJUSTABLE FREQUENCY DRIVE (AFD): 240A OUTPUT, 200 HP, 18 PULSE AFD w/ OUTPUT REACTOR, CIRCUIT BREAKER, MOUNTED IN A NEMA 1 FREE STANDING ENCLOSURE. YASKAWA, REFERENCE SPECIFICATIONS.
- 3 PROVIDE AND INSTALL A 3 POLE, 1200AF/1200AT INSULATED CASE, ELECTRICALLY OPERATED CIRCUIT BREAKER IN THE EXISTING CUTLER-HAMMER SWITCHGEAR 84. COORDINATE CONNECTION REQUIREMENTS w/ SWITCHGEAR MANUFACTURER. REFERENCE SPECIFICATIONS.
- 4 PROVIDE AND INSTALL A YASKAWA CM086 INTERFACE CARD IN EACH EXISTING AFD. COORDINATE CONNECTION REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
- 5 COORDINATE RS-485/MODBUS CONNECTIONS TO EXISTING POWER METERS WITH EQUIPMENT MANUFACTURER. PROVIDE ADDITIONAL HARDWARE AS REQUIRED.

**ELECTRICAL RISER DIAGRAM**

MATCHLINE - REFERENCE ABOVE FOR CONTINUATION

MATCHLINE - REFERENCE BELOW FOR CONTINUATION

**ELECTRICAL RISER DIAGRAM**

**HOWARD F. CURREN  
AWTP RECLAIMED  
WATER IMPROVEMENTS**

DATE: 11/07/2013  
PROJECT NUMBER: 31021JA  
SHEET NUMBER: E-8

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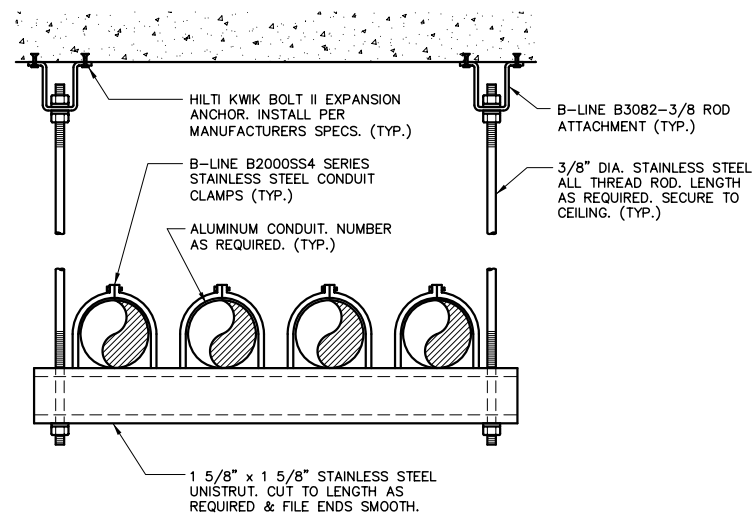
PROFESSIONAL ENGINEER: BOB E. HALLMAN, P.E. REGISTRATION NO. 20761 DATE:      SCALE:      DESIGNED BY: STK      DRAWN BY: RWB      CHECKED BY: BET

ENGINEER OF RECORD:  
BOB E. HALLMAN, P.E.  
FLORIDA REGISTRATION NO. 20761

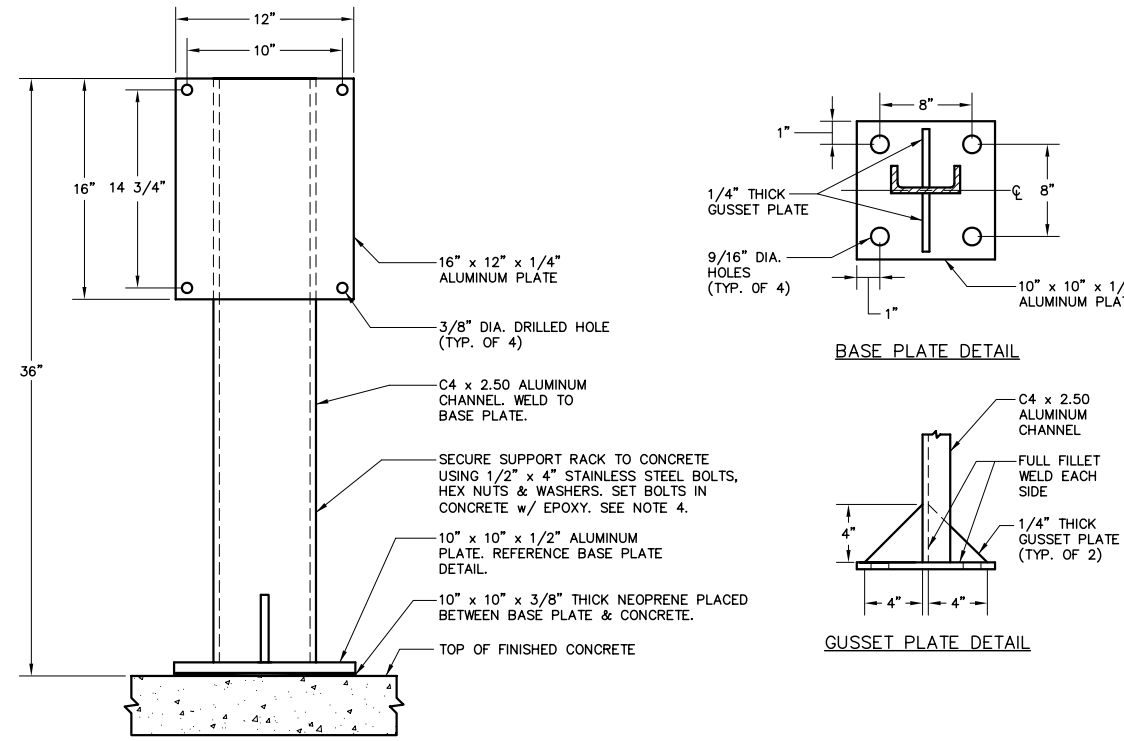
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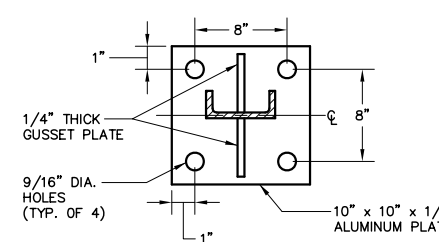




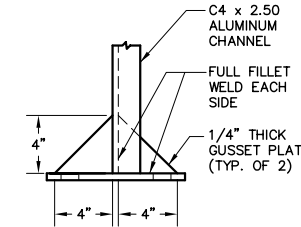
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(FOR USE IN FILTER BUILDING #2)



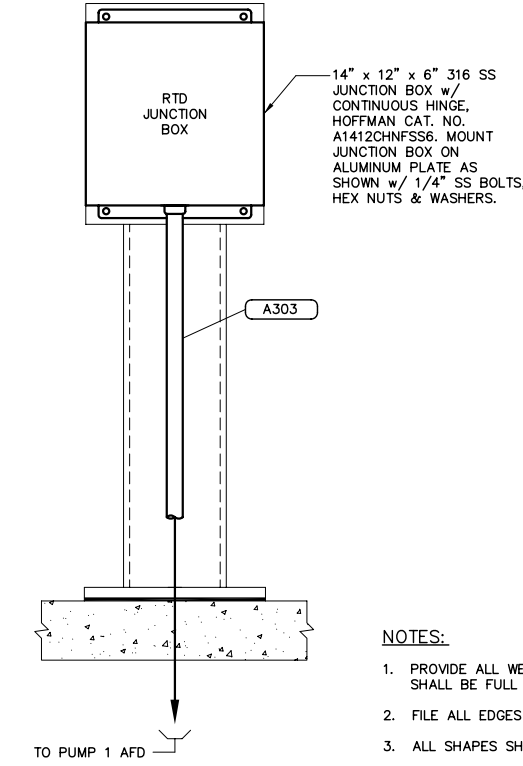
**2 RTD JUNCTION BOX STANCHION FABRICATION DETAIL**



**BASE PLATE DETAIL**

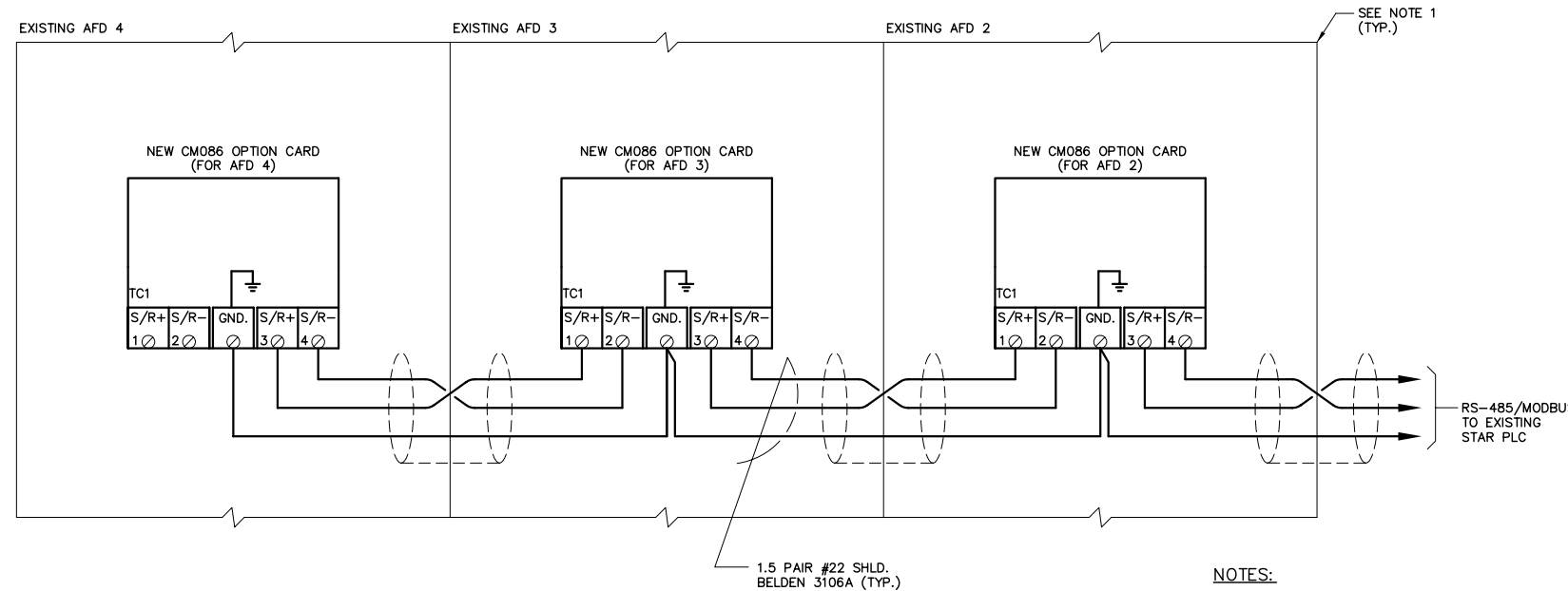


**GUSSET PLATE DETAIL**

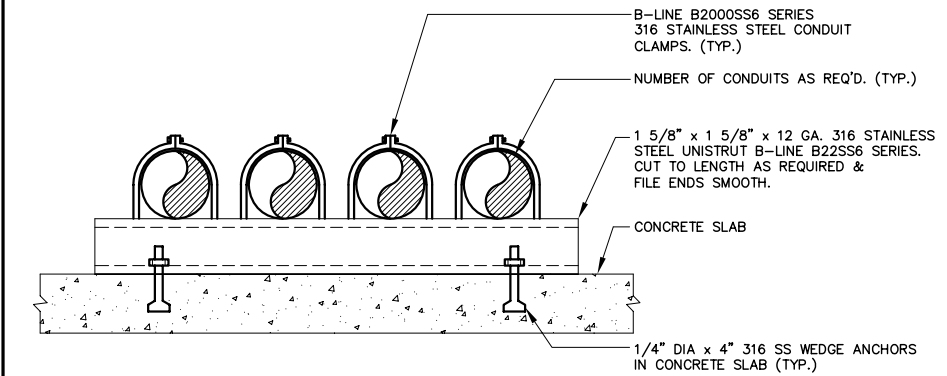


**NOTES:**

1. PROVIDE ALL WELDED CONSTRUCTION. ALL WELDS SHALL BE FULL FILLET WELDS.
2. FILE ALL EDGES & CORNERS SMOOTH.
3. ALL SHAPES SHALL BE COPPER FREE ALUMINUM.
4. PROVIDE 1/4" NEOPRENE INSULATION BETWEEN BASE PLATE AND CONCRETE.



**4 EXISTING AFD RS-485/MODBUS INTERCONNECTION DETAIL**



**NOTES:**

1. CONDUITS SHALL BE SUPPORTED AT MAXIMUM 5'-0" INTERVALS.
2. CONDUITS SHALL BE ROUTED ALONG PIPING WHERE POSSIBLE TO MINIMIZE POTENTIAL TRIPPING HAZARD.

**6 CONCRETE SLAB CONDUIT SECURING DETAIL**

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FLORIDA REGISTRATION NO. 20761



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Certificate of Authorization Number: 4795

**HOWARD F CURREN**  
**AWTP RECLAIMED**  
**WATER IMPROVEMENTS**

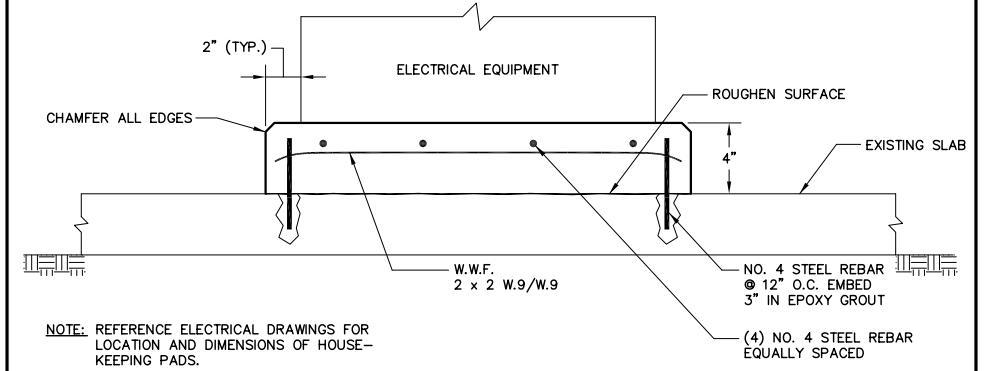
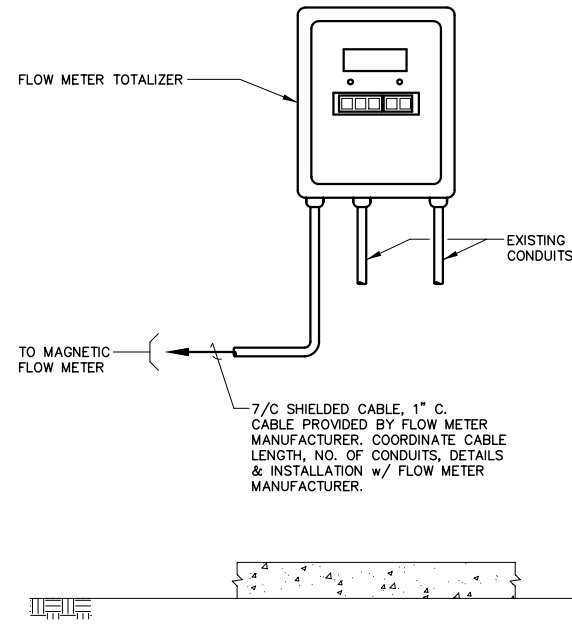
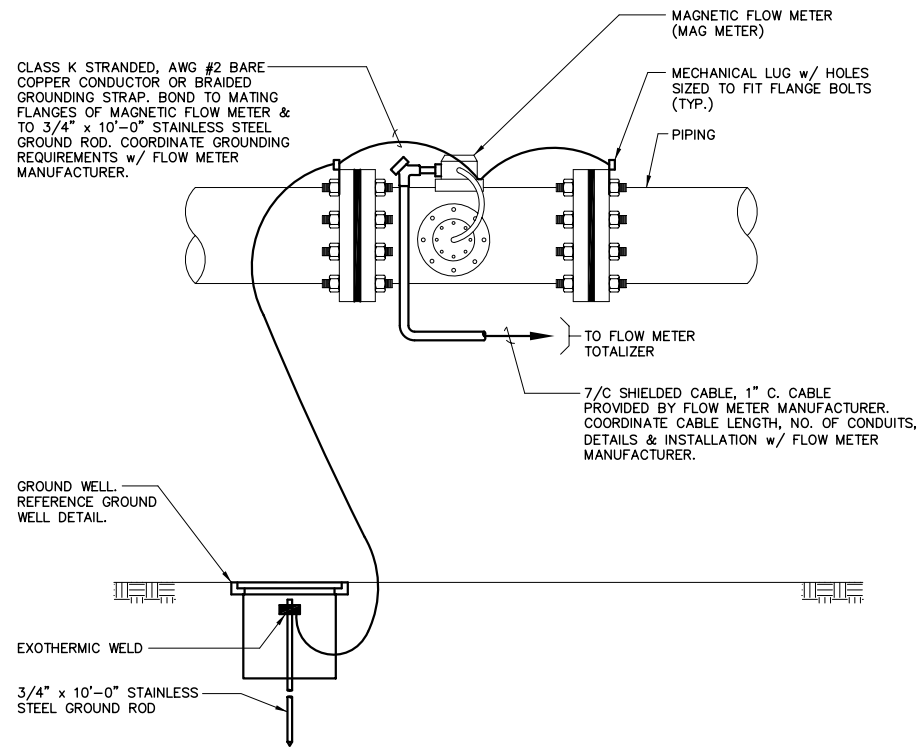
DATE: 11/07/2013  
PROJECT NUMBER: 31021JA  
SHEET NUMBER: E-10

**ELECTRICAL DETAILS**

SCALE:	DESIGNED BY:	PROFESSIONAL ENGINEER:
STK	BOB E. HALLMAN, PE	BOB E. HALLMAN, PE
RWB	REGISTRATION NO. 20761	REGISTRATION NO. 20761
BET	DATE:	DATE:

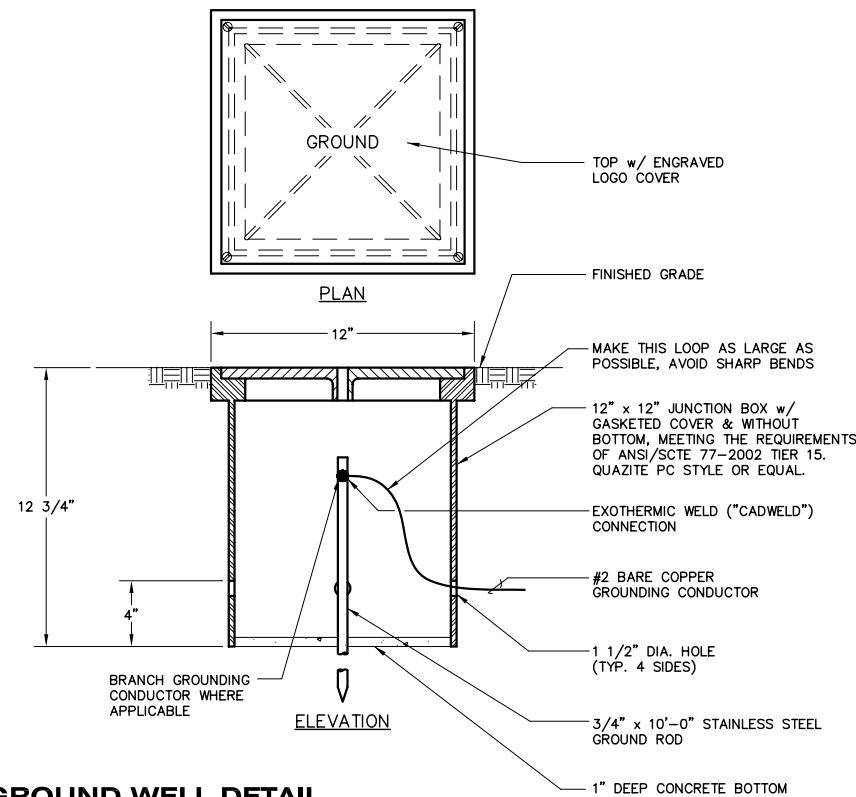
NO.	REVISIONS	DATE	BY

J & A Associates  
Engineers and Managers, Inc.  
4900 Manatee Avenue West, Suite 203  
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**1 MAGNETIC FLOW METER CONNECTION DETAIL**

**3 HOUSEKEEPING PAD DETAIL**



**5**

**6**

**4 GROUND WELL DETAIL**

ENGINEER OF RECORD:  
BOB E. HALLMAN, P.E.  
FLORIDA REGISTRATION NO. 20761



Certificate of Authorization Number: 4795

**HOWARD F CURREN  
AWTP RECLAIMED  
WATER IMPROVEMENTS**

DATE  
11/07/2013  
PROJECT NUMBER  
31021JA  
SHEET NUMBER

**E-11**

**ELECTRICAL DETAILS**

SCALE:  
DESIGNED BY:  
STK  
DRAWN BY:  
RWB  
CHECKED BY:  
BET

PROFESSIONAL ENGINEER:  
BOB E. HALLMAN, PE  
REGISTRATION NO. 20761  
DATE:

NO.	REVISIONS	DATE	BY

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CONDUIT NO.	SECONDARY RUN OR CIRCUIT NO.	FROM	TO	COND. SIZE	NO. SEALS	NO. WIRES	WIRE SIZE	WIRE MARKING		PURPOSE OF CIRCUIT	REMARKS
								COLOR	WIRE NO.		
M100A		EXISTING SWITCHGEAR 84 (BUS #2)	PROPOSED MCC-RW (BUS #2)	3"	-	3	350 KCMIL			PROPOSED MCC-RW BUS #2 POWER	
						1	#4/0 GND.				
M100B		EXISTING SWITCHGEAR 84 (BUS #2)	PROPOSED MCC-RW (BUS #2)	3"	-	3	350 KCMIL			PROPOSED MCC-RW BUS #2 POWER	
						1	#4/0 GND.				
M100C		EXISTING SWITCHGEAR 84 (BUS #2)	PROPOSED MCC-RW (BUS #2)	3"	-	3	350 KCMIL			PROPOSED MCC-RW BUS #2 POWER	
						1	#4/0 GND.				
M100D		EXISTING SWITCHGEAR 84 (BUS #2)	PROPOSED MCC-RW (BUS #2)	3"	-	3	350 KCMIL			PROPOSED MCC-RW BUS #2 POWER	
						1	#4/0 GND.				
M101A		EXISTING SWITCHGEAR 84 (BUS #1)	PROPOSED MCC-RW (BUS #1)	3"	-	3	350 KCMIL			PROPOSED MCC-RW BUS #1 POWER	
						1	#4/0 GND.				
M101B		EXISTING SWITCHGEAR 84 (BUS #1)	PROPOSED MCC-RW (BUS #1)	3"	-	3	350 KCMIL			PROPOSED MCC-RW BUS #1 POWER	
						1	#4/0 GND.				
M101C		EXISTING SWITCHGEAR 84 (BUS #1)	PROPOSED MCC-RW (BUS #1)	3"	-	3	350 KCMIL			PROPOSED MCC-RW BUS #1 POWER	
						1	#4/0 GND.				
M101D		EXISTING SWITCHGEAR 84 (BUS #1)	PROPOSED MCC-RW (BUS #1)	3"	-	3	350 KCMIL			PROPOSED MCC-RW BUS #1 POWER	
						1	#4/0 GND.				
M102		PROPOSED MCC-RW (BUS #2)	EXISTING PUMP 4 AFD	3"	-	3	350 KCMIL			EXISTING PUMP 4 AFD POWER	
						1	#3 GND.				
M103		PROPOSED MCC-RW (BUS #2)	EXISTING PUMP 2 AFD	3"	-	3	350 KCMIL			EXISTING PUMP 2 AFD POWER	
						1	#3 GND.				
M104		PROPOSED MCC-RW (BUS #1)	EXISTING PUMP 3 AFD	3"	-	3	350 KCMIL			EXISTING PUMP 3 AFD POWER	
						1	#3 GND.				
M105		PROPOSED MCC-RW (BUS #1)	PROPOSED PUMP 1 AFD	3"	-	3	350 KCMIL			PROPOSED PUMP 1 AFD POWER	
						1	#3 GND.				
M106		PROPOSED PUMP 1 AFD	EXISTING PULL BOX	3"	-	3	350 KCMIL			PROPOSED PUMP 1 POWER	EXISTING 3" CONDUIT
						2	#10			MOTOR SPACE HEATER POWER	
						1	#3 GND.				
M107		EXISTING PULL BOX	PROPOSED PUMP 1	3"	-	3	350 KCMIL			PROPOSED PUMP 1 POWER	PROVIDE LIQUIDTIGHT FLEXIBLE NON-METALLIC CONDUIT CONNECTION TO MOTOR
						2	#10			MOTOR SPACE HEATER POWER	
						1	#3 GND.				
C200		EXISTING STAR CONTROLLER PLC	PROPOSED PUMP 1 AFD	1 1/4"	-	10	#12			PROPOSED PUMP 1 AFD CONTROL/STATUS	SEE NOTE 3
						4	#12 SPARE				
						1	#12 GND.				
C201		EXISTING STAR CONTROLLER PLC	EXISTING REUSE LOCAL CONTROL PANEL	3/4"	-	5	#12			PROPOSED PUMP 1 AFD CONTROL/STATUS	SEE NOTE 3
						2	#12 SPARE				
						1	#12 GND.				
A300		EXISTING STAR CONTROLLER PLC	PROPOSED PUMP 1 AFD	1"	-	2	2/C #16 SHLD.			AFD SPEED INPUT/OUTPUT	BELDEN 8719. SEE NOTE 3.
						1	1.5 PR #22 SHLD.			RS-485/MODBUS	BELDEN 3106A. SEE NOTE 3.
A301		EXISTING STAR CONTROLLER PLC	PROPOSED MCC-RW (BUS #2)	3/4"	-	2	1.5 PR #22 SHLD.			BUS 1 & BUS 2 POWER METER RS-485/MODBUS	BELDEN 3106A. SEE NOTE 3.
A302		EXISTING STAR CONTROLLER PLC	EXISTING PUMP 2 AFD	3/4"	-	1	1.5 PR #22 SHLD.			AFD 2, AFD 3 & AFD 4 RS-485/MODBUS	BELDEN 3106A. SEE NOTE 3.
A303		PROPOSED PUMP 1 AFD	PROPOSED PUMP 1 RTD JUNCTION BOX	1 1/2"	-	8	3/C #16 SHLD.			PUMP 1 RTD'S	BELDEN 8618. SEE NOTE 1.
A304		EXISTING STAR CONTROLLER PLC	EXISTING SWITCHGEAR 84	3/4"	-	2	1.5 PR #22 SHLD.			EXISTING POWER METER RS-485/MODBUS	BELDEN 3106A. SEE NOTE 3 & 4.

**NOTES:**

- COORDINATE PUMP RTD CONNECTIONS & JUNCTION BOX INSTALLATION w/ PUMP SUPPLIER.
- THE SHIELD & DRAIN WIRES FOR SHIELDED CABLES SHALL BE GROUNDED AT THE EXISTING STAR CONTROLLER PLC ONLY. THE SHIELD & DRAIN WIRE AT THE END DEVICE SHALL BE NEATLY TRIMMED AND TAPED WITH 2 LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).
- PROVIDE ALL CONDUIT & CONDUCTORS ROUTED TO THE EXISTING STAR CONTROLLER PLC. CITY WILL BE RESPONSIBLE FOR TERMINATION & CONNECTIONS IN THE EXISTING STAR CONTROLLER PLC. PROGRAMMING THE EXISTING STAR CONTROLLER PLC AND PROGRAMMING THE HOST COMPUTER/HMI AS REQUIRED.
- COORDINATE RS-485/MODBUS CONNECTIONS TO EXISTING POWER METERS WITH EQUIPMENT MANUFACTURER. PROVIDE ADDITIONAL HARDWARE AS REQUIRED.

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**HOWARD F CURREN**  
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**WATER IMPROVEMENTS**

DATE  
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SHEET NUMBER  
**E-12**

SCALE:	DESIGNED BY:	PROFESSIONAL ENGINEER:
STK	RWB	BOB E. HALLMAN, PE
REVISIONS:	DATE:	REGISTRATION NO. 20761
NO.	DATE	DATE:
BY	DATE	DATE:

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**CONDUIT SCHEDULE**