The Enclosed Document Is Provided For Your Convenience.

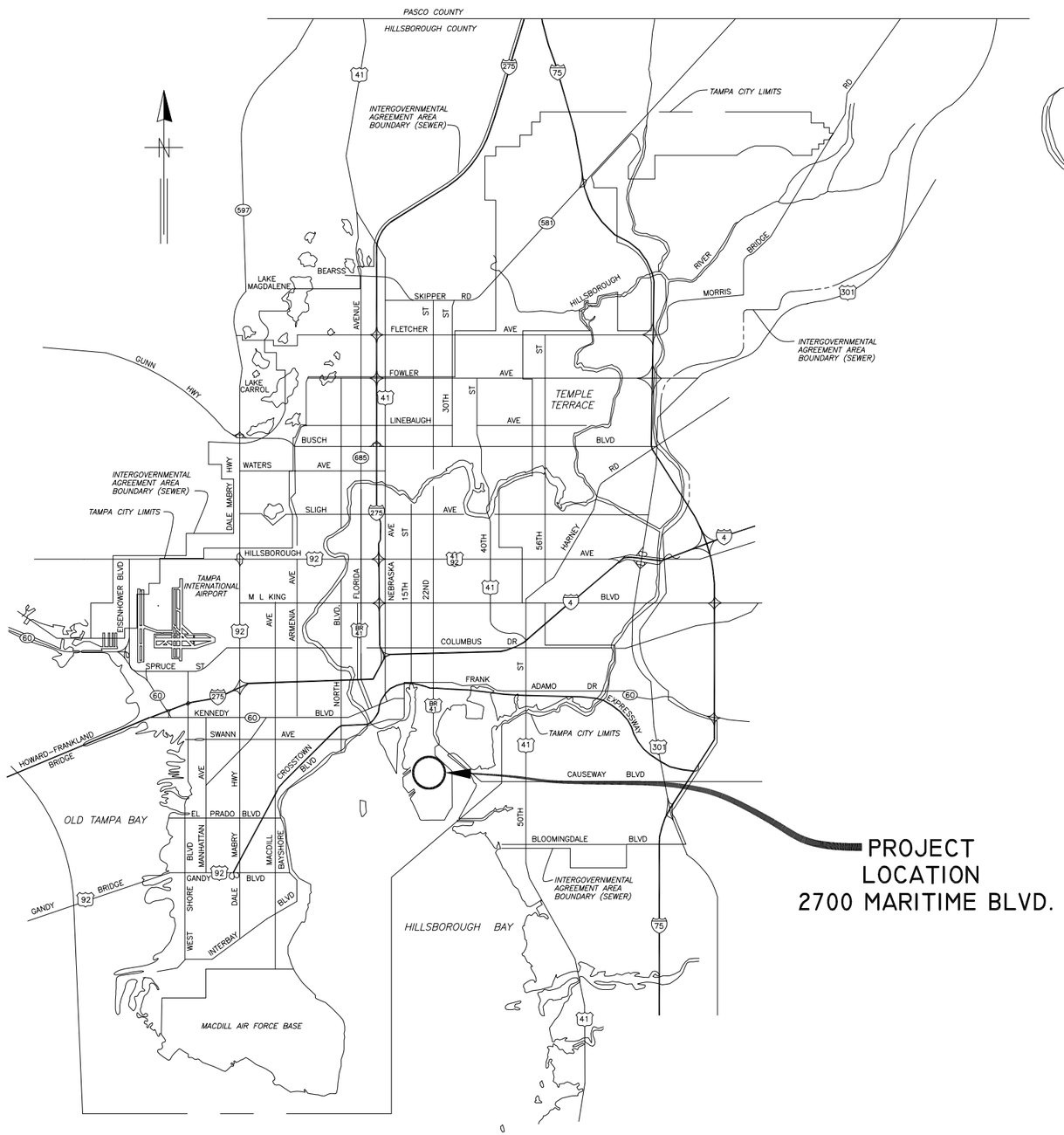
Please Email ALL Questions:

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

CITY OF TAMPA FLORIDA
MASCOTTE
ORGANIZED JULY 15 1887

WASTEWATER DEPARTMENT

PLANS FOR

HOWARD F. CURREN AWTP
HPO GEARBOX / MIXER UPGRADES
AND PIPING REPLACEMENT

CONTRACT No.
15-C-00021

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

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd,
Suite 870
Tampa, FL 33602
813.227.9180
Certificate of Authorization No. 8363

No.	DATE	REVISIONS
3		
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1		

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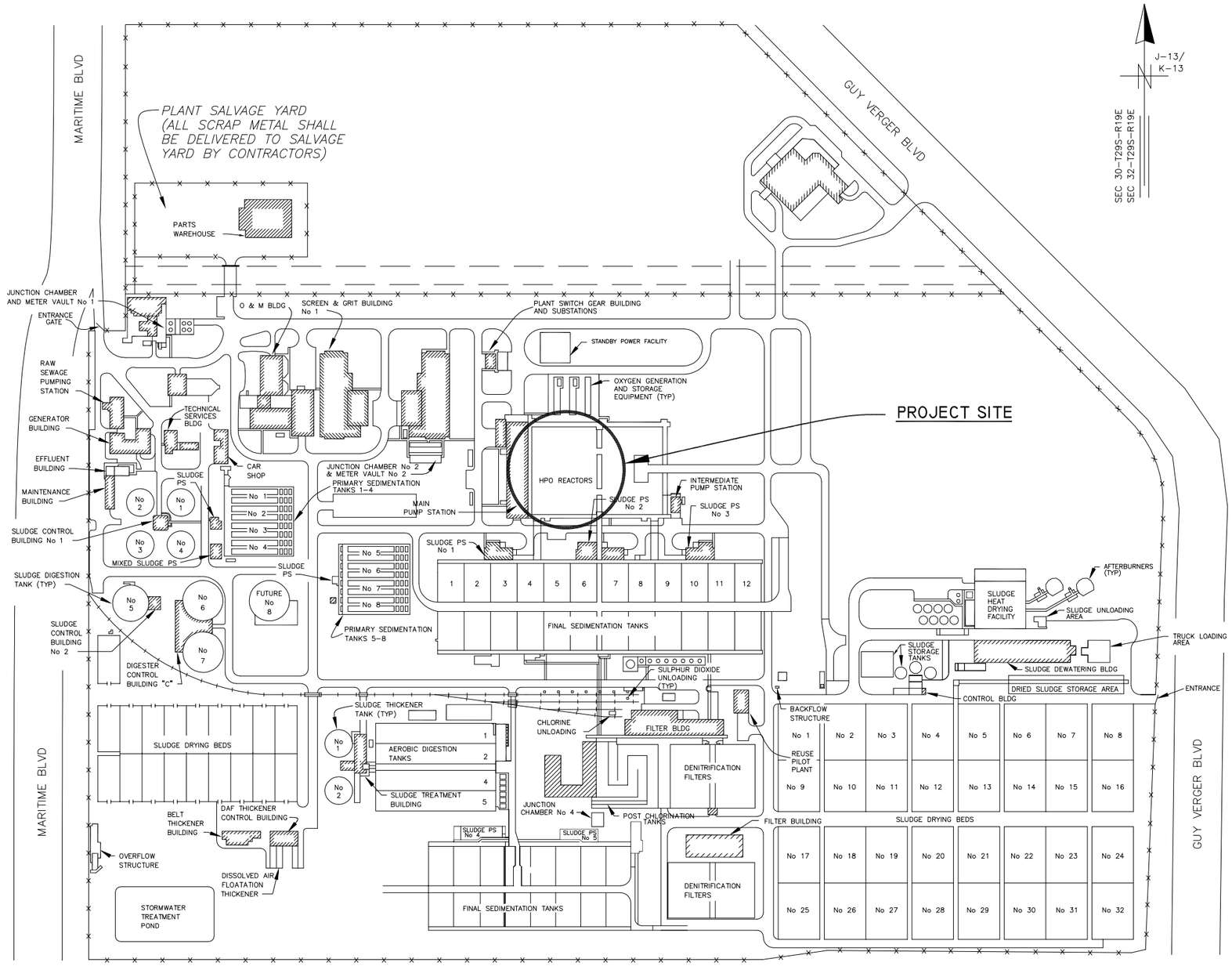
DRN: JHJ
CKD: JF
DATE: 5/2/16

CITY of TAMPA
WASTEWATER DEPARTMENT

HFC AWTP HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
COVER SHEET

1000417
SHEET
1



HFC AWTP LOCATION MAP

INDEX

JACINTO CARLOS FERRAS, P.E., #49454
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WASTEWATER DEPARTMENT

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CITY of TAMPA
WASTEWATER DEPARTMENT

HFC AWTP HPO GEARBOX / MIXER UPGRADES
AND PIPING REPLACEMENT
LOCATION MAP & INDEX

1000417
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GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE CONTRACT ADMINISTRATION DEPARTMENT, WASTEWATER PERSONNEL AND AWTP OPERATIONS. THE FUNCTION OF THE AWTP SHALL NOT BE COMPROMISED AT ANYTIME.

2. THE CONTRACTOR SHALL VERIFY QUANTITIES OF ALL NECESSARY PIPES, VALVES, REDUCERS, FITTINGS, SUPPORTS, AND ANY MISCELLANEOUS BRACKETS.

3. 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 CONTRACTORS EXPENSE.

4. SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER FOR ALL PROPOSED ITEMS. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (CLEARLY LEGIBLE). NO FAXED SHEET OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.

5. OSHA STANDARD SAFETY EQUIPMENT, SUCH AS SAFETY HARNESSES, GAS MONITORS, LOWER EXPLOSIVE LIMIT (LEL) DETECTORS, BREATHING APPARATUS, PERSONAL RETRIEVAL SYSTEMS, ETC. SHALL BE UTILIZED WHERE THE WORK DICTATES THEIR USE.

6. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION SAFETY.

7. THE CONTRACTOR'S WORK FORCE SHALL SECURE THEIR TOOLS, EQUIPMENT AND SUPPLIES DURING ALL PERIODS OF THEIR ABSENCE. IF REQUESTED, THE ENGINEER WITH AWTP PERSONNEL WILL DESIGNATE A CLOSE-BY LOCATION FOR THE CONTRACTOR'S TRAILER(S) AND / OR STORAGE BOX(ES).

8. 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 PERSONNEL AND THE PUBLIC.

9. ANY AREA DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION. THE COST OF ALL RESTORATION SHALL BE BORNE BY THE CONTRACTOR.

10. ANY PLANNED SERVICE INTERRUPTION TO THE NORMAL PLANT OPERATION SHALL BE MADE IN WRITING VIA THE ENGINEER IN SUFFICIENT ADVANCE NOTICE TO ALLOW THE AWTP PERSONNEL TO APPROVE/DISAPPROVE THE REQUEST A MINIMUM OF 2 WEEKS IN ADVANCE. INTERRUPTION SHALL KEPT TO THE MINIMUM DURATION AND FREQUENCY AS POSSIBLE.

11. EXISTING VALVES SHALL ONLY BE CLOSED OR OPENED BY AWTP PERSONNEL. LIKEWISE, ALL AWTP EQUIPMENT SHALL ONLY BE DE-ENERGIZED OR ENERGIZED BY AWTP PERSONNEL.

12. ALL MATERIALS USED IN THE CONSTRUCTION OF THIS PROJECT SHALL BE NEW AND UNUSED AND SHALL CONFIRM TO THE LATEST LOCAL JURISDICTION STANDARDS, UNLESS OTHERWISE NOTED.

13. ALL HARDWARE OUTSIDE OF THE MIXING CHANNEL, UNLESS OTHERWISE NOTED, SHALL BE CARBON STEEL.

14. THE PROPOSED DIMENSIONS, ELEVATIONS AND LAYOUTS ARE DERIVED FROM EARLIER PLAN SETS AND VISUAL OBSERVATIONS. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS, DETAILS AND SIZES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER OF SIGNIFICANT DISCREPANCIES FROM THE PLANS.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURES AND FACILITIES AND SHALL MAKE REPAIRS OR INSTALL NEW AT HIS OWN EXPENSE ANY DAMAGE CAUSED BY HIM, WITH NO COST TO THE CITY.

16. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE A REVIEW OF THE SITE TO DETERMINE EXISTING CONDITIONS. ANYTHING NOT SHOWN ON THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

17. THE PROPOSED RETURNED SLUDGE PIPING SHALL BE WELDED STEEL PIPE (SEE SPECIFICATIONS). ALL PIPE FITTINGS AND COUPLINGS DESIGNATED TO BE REPLACED SHALL BE REPLACED IN-KIND MATCHING ALL EXISTING DIMENSIONS. THE PIPE INTERIOR SHALL BE COATED WITH 60 MILS OF PERMITE GLASS EPOXY. THE EXTERIOR SHALL BE PAINTED PER SPECIFICATIONS.

18. ALL METAL SURFACES THAT COME IN CONTACT WITH CONCRETE SHALL RECEIVE 2-COATS OF COAL TAR EPOXY APPLIED TO THE METAL SURFACE IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATIONS.

19. AREAS OF THE CONCRETE FLOOR DISTURBED FROM THE REMOVAL OF THE EXISTING PIPE SUPPORTS PEDESTALS SHALL BE REFINISHED TO PROVIDE A SMOOTH CONCRETE SURFACE. CONTRACTOR SHALL SUBMIT PROPOSED METAL PIPE SUPPORT AND ANCHOR DETAILS FOR APPROVAL.

20. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL FEDERAL, STATE AND LOCAL GOVERNMENT REGULATIONS IN REGARDS TO WORKING IN CONFINED SPACES.

21. UNLESS OTHERWISE INDICATED, CHEMICAL ANCHORS SHALL BE HILTI HIT-HY 150 MAX ANCHORING SYSTEM WITH TYPE 316 STAINLESS STEEL THREADED RODS, OR EQUAL. HILTI ADHESIVE ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS

22. PRIOR TO TURNING OVER ANY WORK TO THE CITY, ALL PIPING AND VALVE SYSTEMS SHALL BE FREE OF LEAK. ALL ELECTRICAL AND INSTRUMENTATION SYSTEMS SHALL BE CHECKED AND FUNCTIONALITY CONFIRMED.

23. THE CONTRACTOR SHALL INSTALL NEW IMPELLER BLADES AND HUBS IF EXISTING BLADES AND HUBS ARE MISSING OR DAMAGED. THE CITY WILL FURNISH THE NEW IMPELLER BLADES OR HUBS FOR INSTALLATION. THE CONTRACTOR SHALL PROVIDE ALL STAINLESS STEEL HARDWARE TO MATCH EXISTING. EXACT QUANTITY OF IMPELLER BLADES TO BE REPLACED IS UNKNOWN BUT SHOULD NOT EXCEED A TOTAL OF 5.

24. THE EXISTING IMPELLER SHAFTS WILL BE REUSED AND CONNECTED TO THE GEARBOX ASSEMBLY. SHAFT ASSEMBLIES SHALL BE MODIFIED BY THE MIXER DRIVE MANUFACTURER AS REQUIRED TO INCLUDE A RIGID COUPLING LOCATED BELOW THE GEARBOX ASSEMBLY TO CONNECT THE EXISTING SHAFT TO THE GEARBOX OUTPUT SHAFT. SEE SPECIFICATION FOR ADDITIONAL IMPELLER SHAFT REQUIREMENTS.

25. THE CONTRACTOR SHALL REMOVE ALL DEBRIS FROM REACTOR #3. THE DEBRIS SHALL BE REMOVED FROM THE REACTORS AND TEMPORARILY PLACED IN DRYING BEDS DESIGNATED BY THE CITY. AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL COORDINATE TO HAVE THE CITY LOAD THE MATERIAL INTO TRUCKS FOR PROPER LANDFILL DISPOSAL. THE CITY WILL PAY THE CONTRACTOR BASED ON TONNAGE AS DETERMINED BY WEIGHT TICKETS AND THE CONTRACTOR'S UNIT COST BID PER TON ON DEBRIS REMOVED FROM THE DRYING BEDS. THE CITY ESTIMATES 900 TONS (500 CY) OF DEBRIS WILL NEED TO BE REMOVED.

26. CITY FORCES HAVE RECENTLY REPLACED THE EXISTING GEARBOX AND MOTOR FOR UR-MA-15 WITH A PHILADELPHIA MIXER GEARBOX AND MOTOR. THIS GEARBOX AND MOTOR ASSEMBLY WILL NOT HAVE TO BE REPLACED BUT WILL HAVE TO BE REMOVED AND REINSTALLED AS REQUIRED TO REPLACE THE STEEL PLATE SUPPORT AND PROVIDE ACCESS INSIDE THE REACTOR. THE OTHER GEARBOX AND MOTOR ASSEMBLIES FOR REACTOR #3 (3 TOTAL) SHALL BE FURNISHED BY PHILADELPHIA MIXER SINCE THIS EQUIPMENT IS STANDARDIZED FOR REACTOR #3 (SEE SPECIFICATIONS). REFER TO ELECTRICAL PLANS FOR NEW ELECTRICAL CONNECTIONS.

27. THE REPLACEMENT OF THE RETURN SLUDGE PIPING WILL REQUIRE TREATMENT PLANT STAFF TO DIVERT THE RETURN SLUDGE FLOW INTO THE MAIN PUMPING INFLUENT. IN ORDER TO MINIMIZE THE DURATION OF THIS DIVERSION, THE CONTRACTOR SHALL HAVE ALL EQUIPMENT AND MATERIALS INCLUDING PIPE, VALVES, FITTINGS, ETC. ON-SITE AND READY TO INSTALL BEFORE THE DIVERSION. THE CONTRACTOR SHALL PROVIDE A MINIMUM 2 WEEKS ADVANCE NOTICE PRIOR TO THE DIVERSION.

28. THE CONTRACTOR SHALL REPLACE 3 - 30" BUTTERFLY VALVES AT THE LOCATIONS SHOWN. THE PROPOSED BUTTERFLY VALVES SHALL BE A DEZURIK BAW FLANGED VALVE OR APPROVED EQUAL (SEE SPECIFICATIONS). THE CONTRACTOR SHALL REINSTALL THE EXISTING BECK ELECTRIC ACTUATORS ON TWO OF THE NEW BUTTERFLY VALVES. THE THIRD BUTTERFLY VALVE SHALL HAVE A NEW BECK ELECTRIC ACTUATOR INSTALLED MATCHING THE EXISTING BECK ACTUATORS. THE BECK ELECTRIC ACTUATOR IS A STANDARDIZED ITEM FOR THIS FACILITY AND NO "OR EQUAL" WILL BE CONSIDERED.

29. THE CONTRACTOR SHALL INSTALL 2-30" AND 1-24" KNIFE GATE AS SHOWN. KNIFE GATE VALVES SHOULD BE DEZURIK MODEL KGC, KGN OR APPROVED EQUAL.

30. THE CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING MIXER, UR-MA-15, AND STORE IT DURING THE STEEL SUPPORT PLATE REPLACEMENT AND THE DEBRIS REMOVAL/CONCRETE RESTORATION WORK INSIDE REACTOR. THE EXISTING MIXER SHALL BE STORED AND REINSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S (PHILADELPHIA MIXER) RECOMMENDATIONS. DEPENDING ON THE DURATION OF THE REMOVAL, THE EXISTING MOTORS MAY NEED TO BE TURNED ON A PERIODIC SCHEDULE.

31. CONCRETE COLUMNS AND REACTOR CEILING SURFACES WITHIN THE CONCRETE RESTORATION LIMITS ON SHEET 5 SHALL BE RESTORED AND COATED IN ACCORDANCE WITH CONCRETE RESTORATION DETAILS ON SHEET 8 AND SPECIFICATIONS. PAYMENT FOR ALL CONCRETE RESTORATION AND COATING SHALL BE BASED ON THE APPLICABLE UNIT COST PER SQUARE FEET ITEMS AND NOT INCLUDED IN THE LUMP SUM COST OF THE PROJECT.

32. ABB ELECTROMAGNETIC FLOW METER IS STANDARDIZED AT THIS FACILITY AND NO "OR EQUAL" ITEMS WILL BE CONSIDERED.

33. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 5TH EDITION, AND CHAPTER 5 OF THE CITY OF TAMPA CODE.

34. PLUG VALVES SHALL BE DEZURIK, 100% FULL PORT ECCENTRIC PLUG VALVES (PEF) OR APPROVED EQUAL.

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

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CITY of TAMPA
WASTEWATER DEPARTMENT

HFC AWTP HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
GENERAL NOTES

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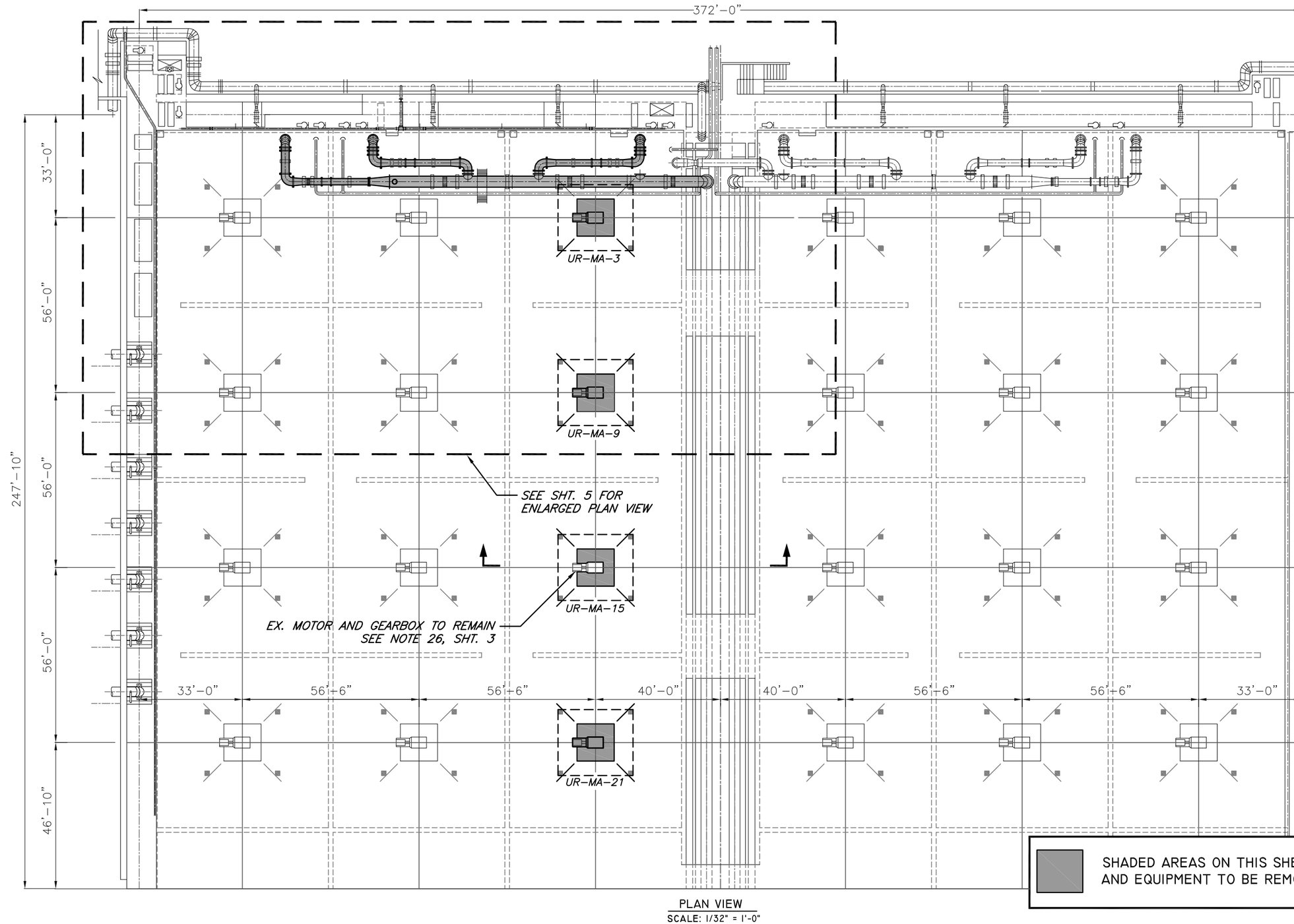
SHEET
3



SHADED AREAS ON THIS SHEET INDICATE PIPING AND EQUIPMENT TO BE REMOVED AND REPLACED

PLAN VIEW
SCALE: 1/32" = 1'-0"

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HFC AWTP HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT

PROPOSED PLAN

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SHEET
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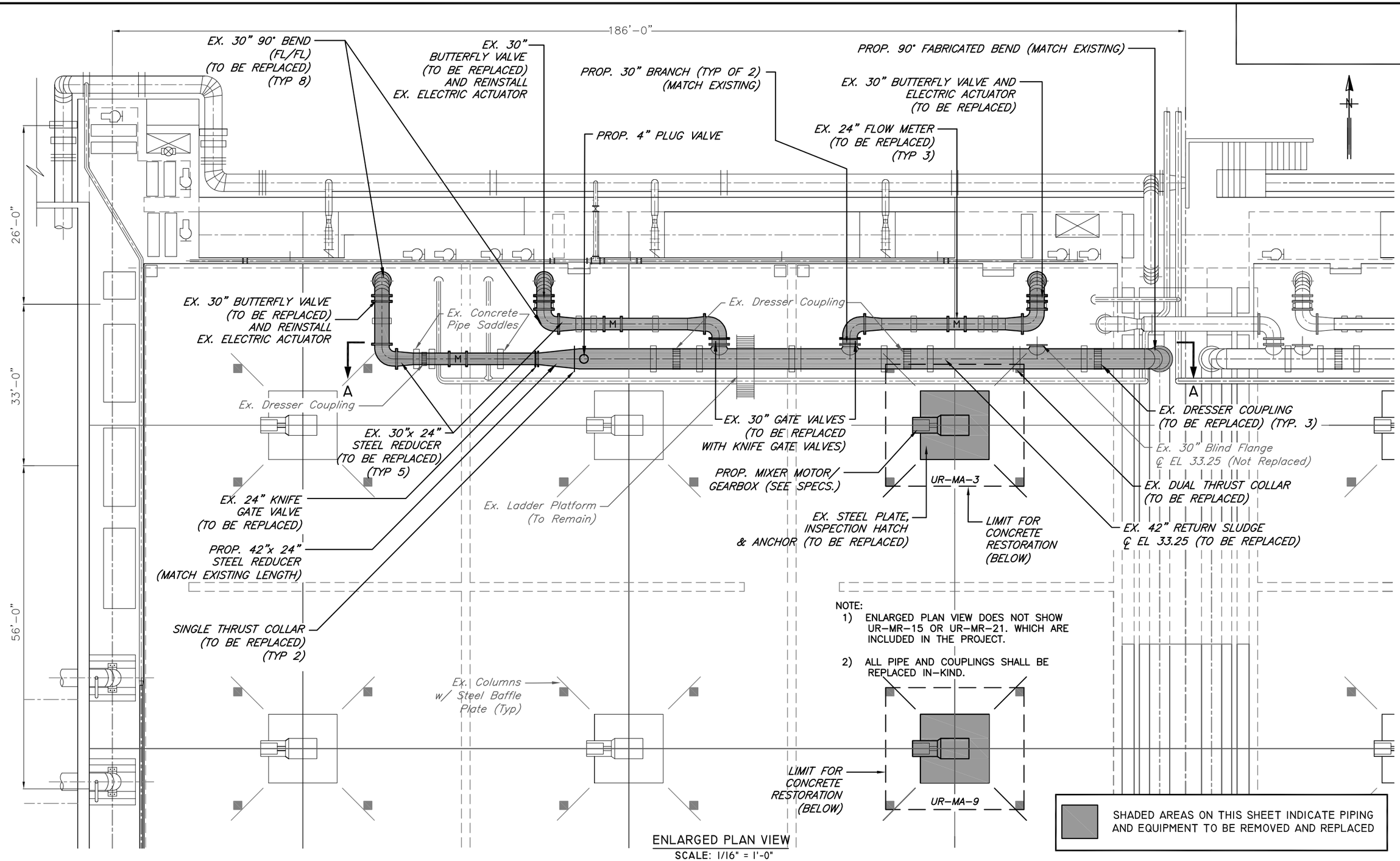

ENLARGED PLAN VIEW
SCALE: 1/16" = 1'-0"

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CITY of TAMPA
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HFC AWTP HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
ENLARGED PLAN VIEW

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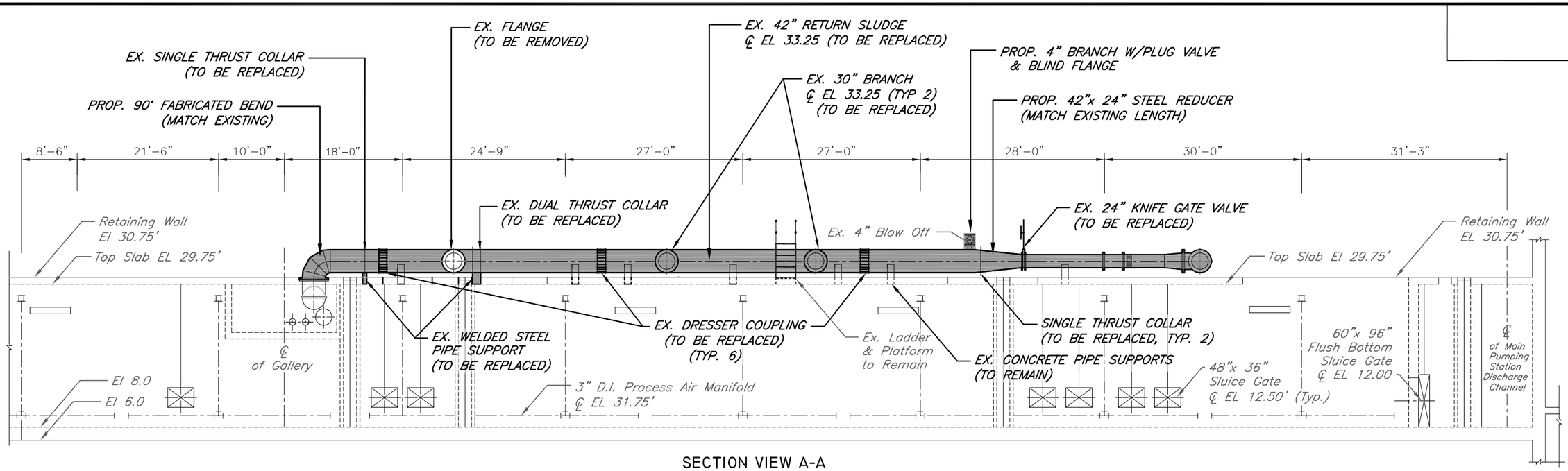
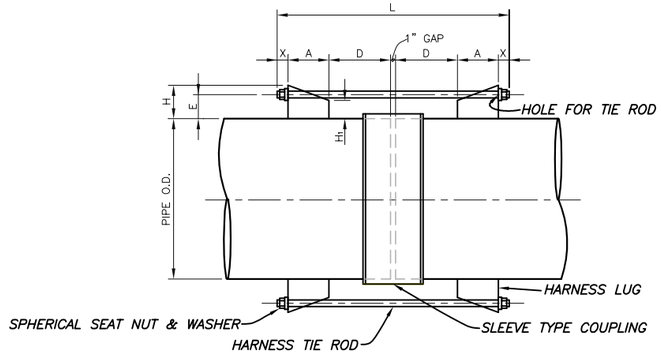


SECTION VIEW A-A

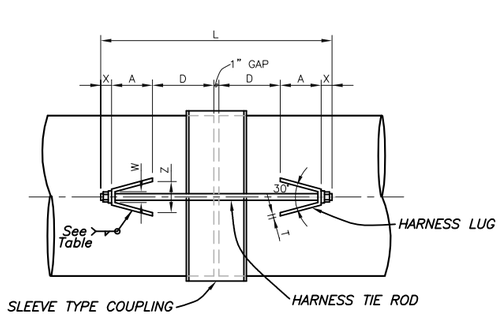
SCALE: 1/16" = 1'-0"

EAST VIEW FROM PLATFORM

WEST VIEW FROM PLATFORM



PLAN



SECTION

DRESSER COUPLING DETAIL

NOT TO SCALE

TYPE A HARNESSED SLEEVE TYPE COUPLING JOINT FOR STEEL PIPE – SCHEDULE																				
NOM. PIPE SIZE	WALL THICK-NESS	O.D. OF PIPE	MAX. PRESS. FOR HARNESS TIE ROD P.S.I.	MIDDLE RING		HARNESS TIE ROD				HARNESS LUG MINIMUM DIMENSION										COUPLING SERVICE
				LENGTH	THICKNESS	No.	DIA.	X	L	A	W	Z	T	E	H	Ht	D	HOLE	WELD	
42	0.500	43.00	40	10	3/8	2	1 1/2	2	45 1/2	8 3/4	3	7 1/2	1/2	3 7/8	5 1/2	2 1/2	11 1/2	1 5/8	3/8	SLUDGE

SHADED AREAS ON THIS SHEET INDICATE PIPING AND EQUIPMENT TO BE REMOVED AND REPLACED

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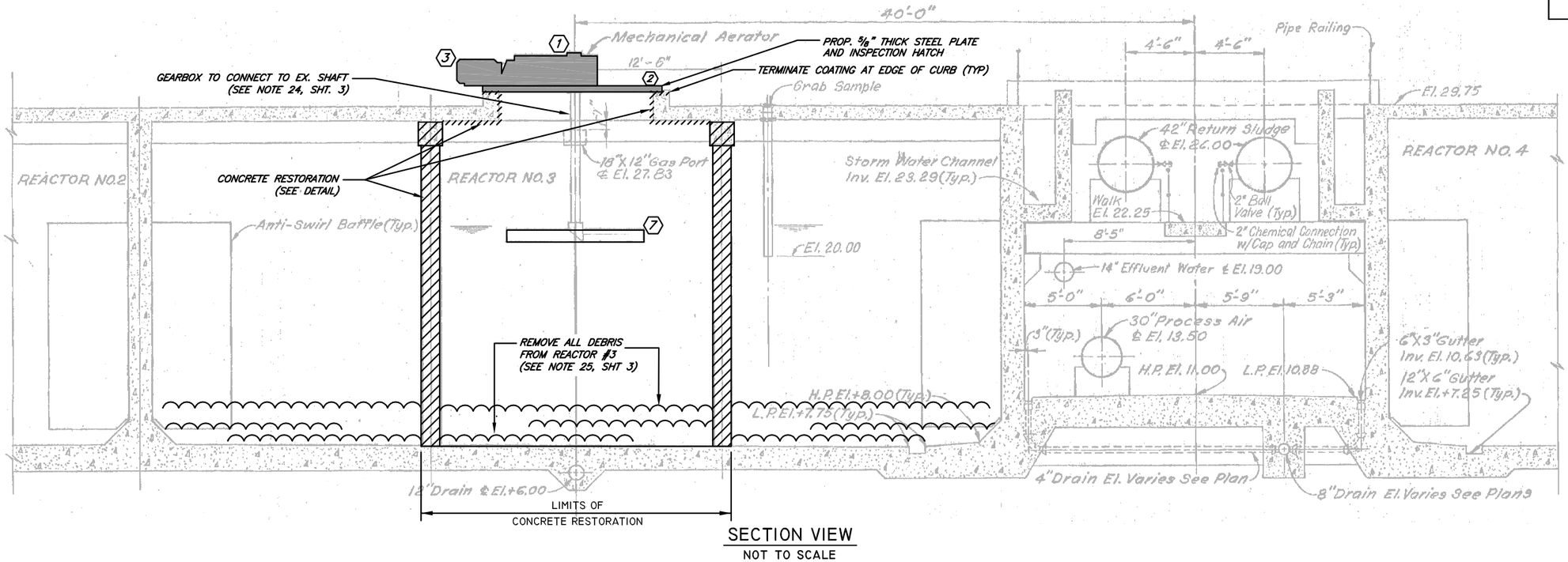
WASTEWATER DEPARTMENT

HFC AWTP HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT

PROPOSED SECTION VIEW

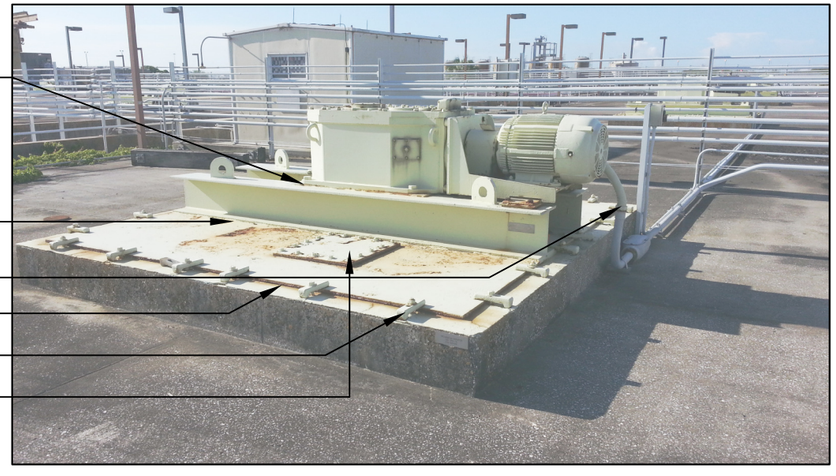
1000417

SHEET 6

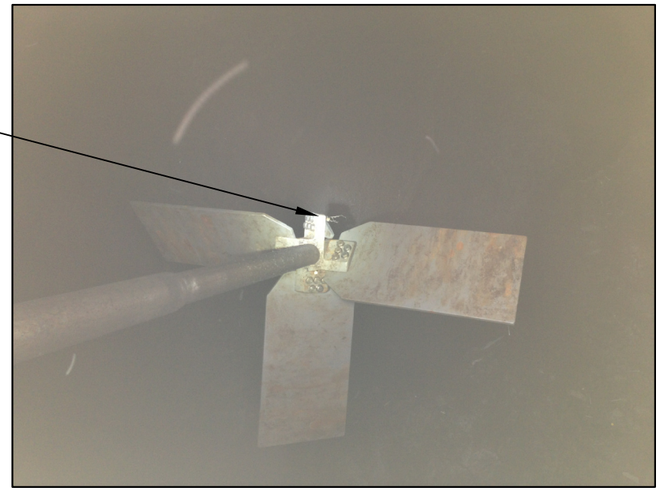


SECTION VIEW
NOT TO SCALE

1. THE MIXER DRIVE GEARBOX SHALL BE DESIGNED TO MOUNT ON THE EXISTING I-BEAM BASE STRUCTURE WITHOUT MODIFICATIONS TO THE I-BEAM STRUCTURE. MODIFICATIONS OF THE EXISTING I-BEAM STRUCTURE SHALL NOT BE ALLOWED. HOWEVER, DRILLING OF NEW MOUNTING HOLES IN THE I-BEAM STRUCTURE TO ACCEPT THE NEW MIXER DRIVE WILL BE ALLOWED IF THEY DO NOT COMPROMISE STRUCTURAL INTEGRITY.
2. PAINT EXISTING W12 x 72 BEAMS (2), HOLD DOWN CLIPS AND NEW STEEL PLATE. (SEE SPECS)
3. CONNECT NEW MOTOR TO EXISTING ELECTRICAL CONDUIT.
4. INSTALL AIR TIGHT SEAL GASKET BETWEEN PROPOSED STEEL PLATE AND CONCRETE.
5. REUSE EXISTING HOLD DOWN CLIPS
6. PROPOSED INSPECTION HATCH



7. CONTRACTOR SHALL INSTALL NEW IMPELLER BLADES AND HUBS IF EXISTING BLADES AND HUBS ARE MISSING OR DAMAGED. THE CITY WILL FURNISH THE NEW IMPELLER BLADES AND HUBS FOR INSTALLATION. CONTRACTOR SHALL PROVIDE ALL STAINLESS STEEL HARDWARE TO MATCH EXISTING. EXACT QUANTITY OF BLADES TO BE REPLACED IS UNKNOWN BUT SHOULD NOT EXCEED A TOTAL OF 5 IMPELLER BLADES.



SHADED AREAS ON THIS SHEET INDICATE PIPING AND EQUIPMENT TO BE REMOVED AND REPLACED

CONCRETE RESTORATION LIMITS

JACINTO CARLOS FERRAS, P.E., #49454
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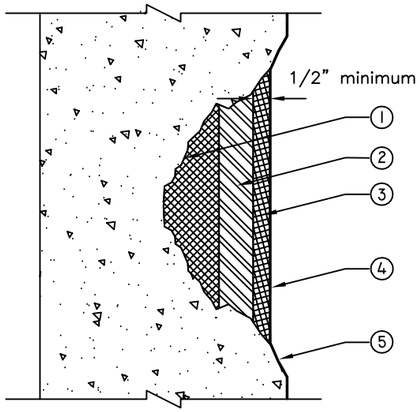
HFC AWTP HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
SECTION VIEW

1000417
SHEET 7



SECTION VIEW
N.T.S.

① REMOVE ALL LOOSE AND DETERIORATED CONCRETE TO STRUCTURALLY SOUND CONCRETE. PREPARE SURFACE AS INSTRUCTED BY COATING SYSTEM MATERIAL MANUFACTURER.

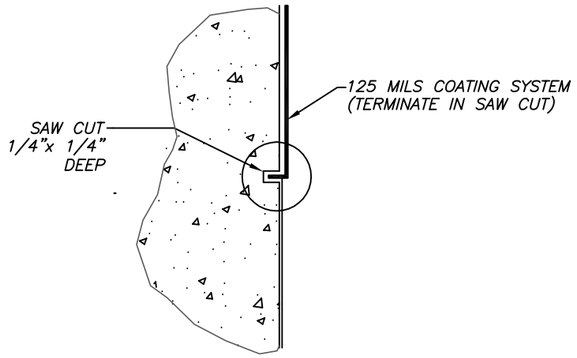
② EXPOSED REINFORCING STEEL SHALL BE CLEANED AND PREPARED THROUGHLY BY BLAST CLEANING AND COATED WITH CORROSION INHIBITOR.

③ FILL VOIDS OF DETERIORATED CONCRETE SECTIONS WITH REPAIR MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS. PAYMENT FOR CONCRETE REPAIR MATERIAL WILL BE PAID PER SQUARE FOOT(SF) AS OUTLINED ON BID RESPONSE SHEET.

④ SAW CUT COATING TERMINATION AND COAT PROPOSED 125 MILS MDFT COATING. (SEE SPECIFICATIONS).

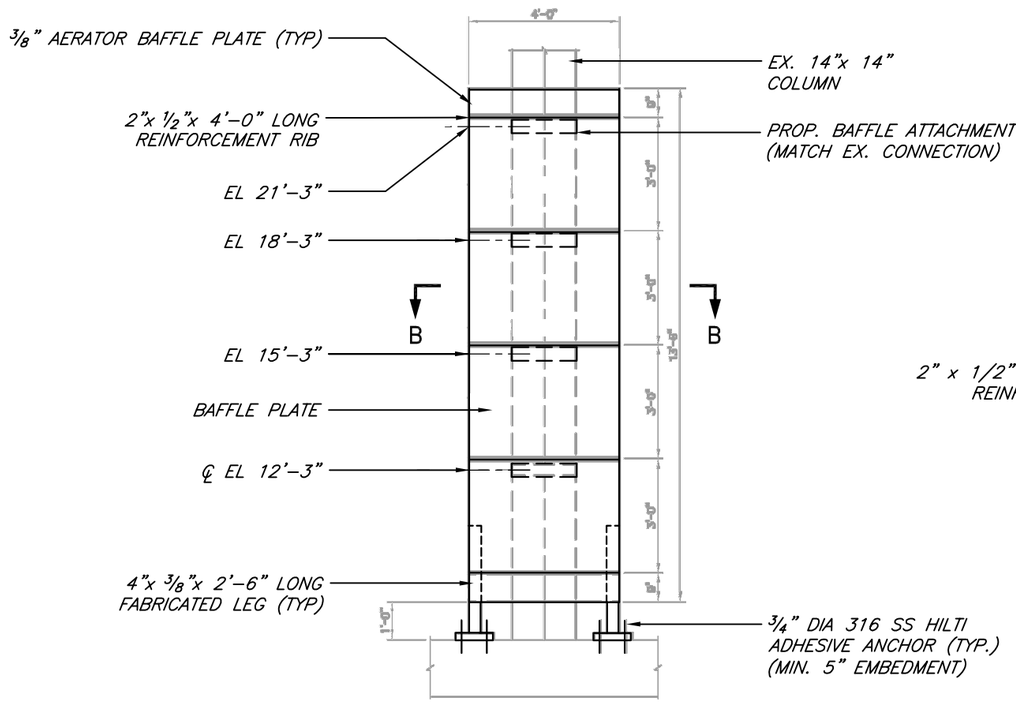
⑤ HYDROBLAST* UNLINED DETERIORATED CONCRETE TO STRUCTURALLY SOUND CONCRETE.

*CONTRACTOR MAY UTILIZE SAND BLASTING IN LIEU OF HYDROBLASTING, WITH 100% CONTAINMENT OF SAND, DEBRIS, AND AEROSOL DRIFT.

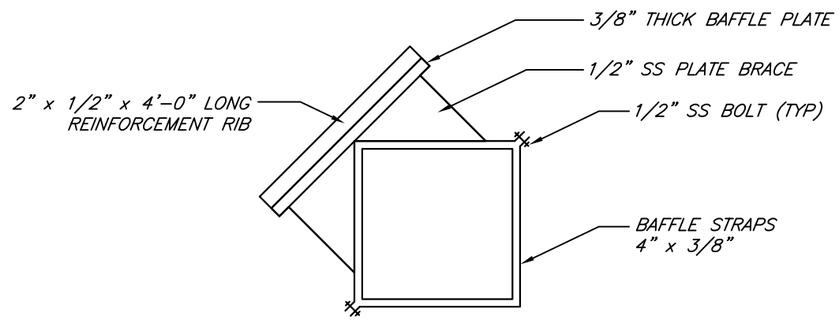


SECTION
N.T.S.

NOTE: COATING TERMINATION AS SHOWN, WILL BE INCLUDED IN THE COST OF THE COATING SYSTEM PER SQUARE FOOT(SF).



PROPOSED BAFFLE PLATE
SCALE: 1/4" = 1'-0"



SECTION B-B
COLUMN ANGLE BRACE DETAIL
N.T.S.

NOTE:

1. ALL NEW BAFFLE PLATE COMPONENTS SHALL BE 316L S.S.
2. UNLESS NOTED, ALL PROPOSED DIMENSIONS AND SIZES SHALL MATCH EXISTING.

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DETAILS

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SHEET
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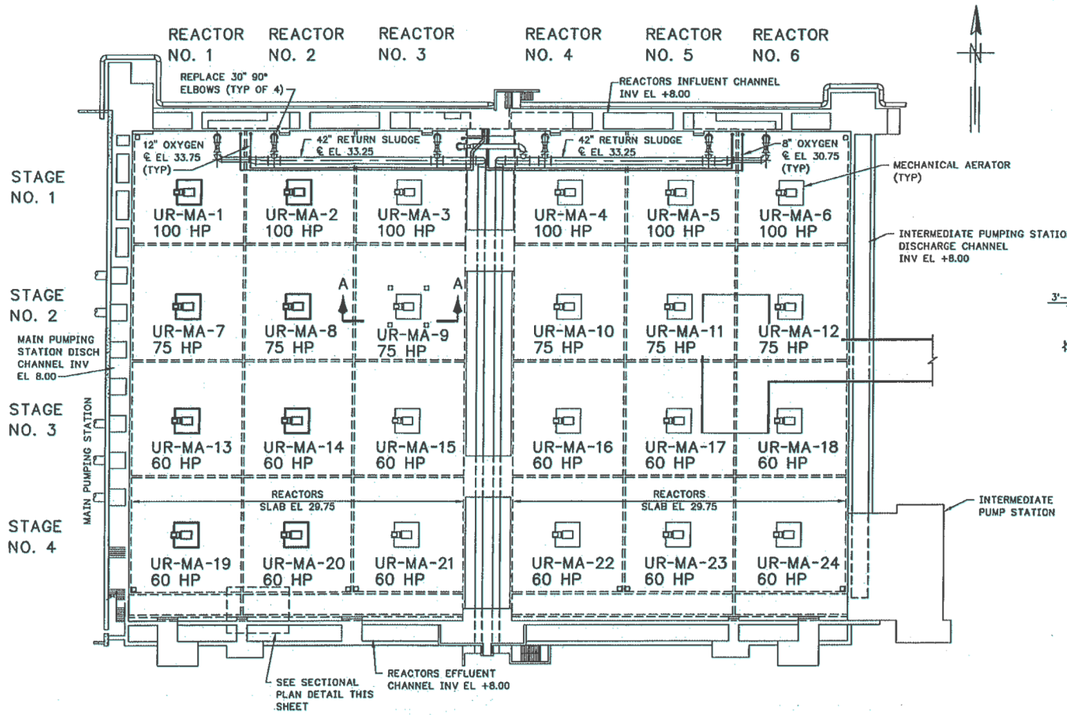
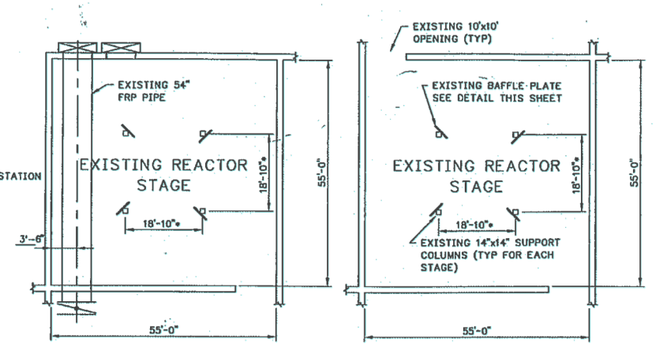


PLAN EXISTING HPO REACTORS
NOT TO SCALE

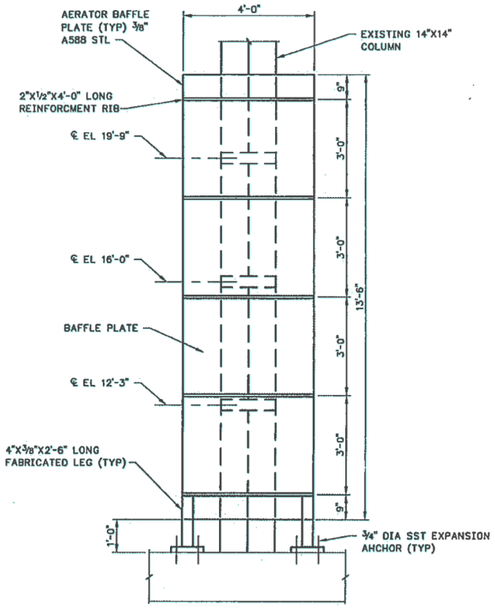


TYPICAL REACTOR STAGE 1 PLAN
NOT TO SCALE

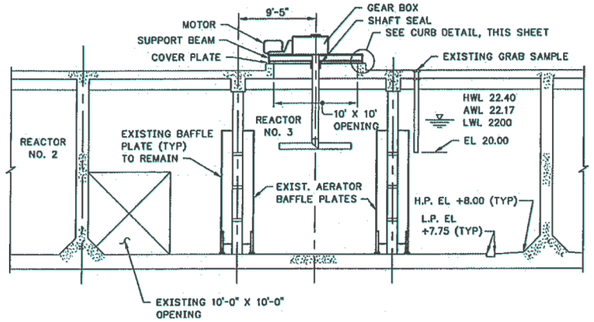
TYPICAL REACTOR STAGE 2-4 PLAN
NOT TO SCALE

NOTES:

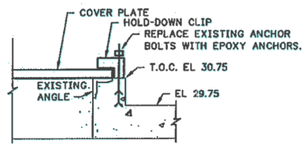
1. EXISTING 150-HP MECHANICAL AERATORS UR-MA-1 AND UR-MA-2 ARE TO BE REPLACED WITH 100-HP MECHANICAL AERATORS.
2. THE TOP SLAB OF THE REACTORS IS DESIGNED TO SUPPORT THE LOAD PRODUCED BY AN H-20 TRUCK.
3. ONLY ONE REACTOR MAY BE OUT OF SERVICE AT ANY GIVEN TIME. SEE SPECIFIC PROVISIONS.
4. RESURFACE AND REPAIR EXISTING CONCRETE CURBS. REMOVE AND REPLACE EXISTING HOLD-DOWN CLIPS. BURN OFF EXISTING BOLTS AND INSTALL CARBON STEEL EPOXY ANCHORS IN BETWEEN EACH EXISTING BOLT LOCATION.
5. EXISTING BAFFLE PLATES ARE SHOWN FOR INFORMATION ONLY AND ARE TO REMAIN.
6. SALVAGE ALL EXISTING SHAFTS, BLADES, GEARBOXES, AND MOTORS IN ACCORDANCE WITH THE SPECIFIC PROVISIONS. DISPOSE OF ALL EXISTING MECHANICAL AERATOR COVER PLATES AND SUPPORT BEAMS.
7. PRIOR TO BEGINNING ALL WORK, CHECK THE TOP OF CURB ELEVATIONS FOR ALL EIGHT AERATORS TO BE REPLACED AND ADVISE ENGINEER.
8. REMOVE DEBRIS FROM AERATOR NO. 1 AND 2 PRIOR TO INSTALLATION OF AERATORS. DEBRIS IS LIKELY TO BE SETTLEABLE SOLIDS AND GRIT SATURATED WITH WATER. DISPOSE OF ALL DEBRIS ON SITE AS DESCRIBED IN THE SPECIFICATIONS.



EXISTING BAFFLE PLATE
NOT TO SCALE

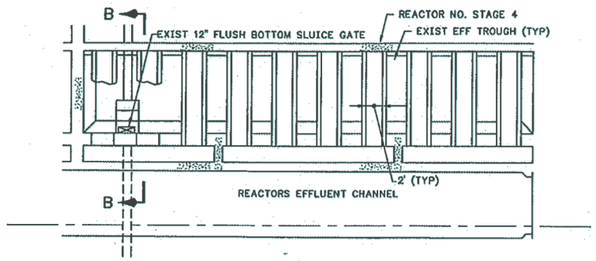


SECTION A
TYPICAL MECHANICAL AERATOR INSTALLATION
NOT TO SCALE



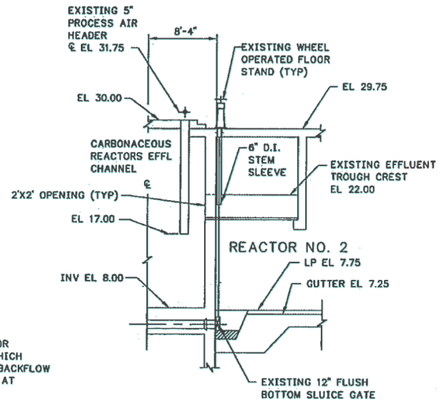
CURB DETAIL
NOT TO SCALE

THERE IS NO PROPOSED WORK SHOWN ON THIS SHEET.
IT IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.



SECTIONAL PLAN DETAIL
NOT TO SCALE

NOTE:
THIS DETAIL SHOWS REACTOR EFFLUENT WEIR TROUGHS WHICH MAY BE SECURED AGAINST BACKFLOW DURING HIGH FLOW EVENTS AT CONTRACTOR'S DISCRETION.



SECTION B
NOT TO SCALE

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT DRN: JHJ CKD: JF DATE: 5/2/16	CITY of TAMPA WASTEWATER DEPARTMENT	HFC AWTP HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT AERATOR PLANS, SECTIONS AND DETAILS	1000417 SHEET 9
	3						
	2						
	1						

GENERAL NOTES :

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATING PRIOR TO CONNECTING.
3. FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
4. ALL MOTORS AND EQUIPMENT COVERPLATES SHALL BE LABELED WITH 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.
5. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY TO EXECUTE THE PROPOSED INSTALLATIONS.
6. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
7. ALL EXISTING CONDUIT AND CONDUCTORS TO BE REUSED UNLESS OTHERWISE NOTED.
8. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 5TH EDITION 2014 , THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) SERIES 70/NATIONAL ELECTRICAL CODE (NEC) 2011 EDITION AND CHAPTER 5 OF THE CITY OF TAMPA CODE.

SCOPE OF WORK:

1. UR-MA-3: EXISTING 100HP MIXER MOTOR TO BE REMOVED AND REPLACED. THE CONTRACTOR SHALL PROVIDE AND INSTALL A NEW ALUMINUM CORE LIQUID-TIGHT FLEXIBLE CONDUIT CONNECTION TO THE NEW MOTOR. EXISTING RIGID CONDUIT AND CONDUCTORS MAY BE REUSED IN ORDER TO CONNECT THE NEW MOTOR.
2. UR-MA-9: EXISTING 75HP MIXER MOTOR TO BE REMOVED AND REPLACED. THE CONTRACTOR SHALL PROVIDE AND INSTALL A NEW ALUMINUM CORE LIQUID-TIGHT FLEXIBLE CONDUIT CONNECTION TO THE NEW MOTOR. EXISTING RIGID CONDUIT AND CONDUCTORS MAY BE REUSED IN ORDER TO CONNECT THE NEW MOTOR.
3. UR-MA-21: EXISTING 60HP MIXER MOTOR TO BE REMOVED AND REPLACED. THE CONTRACTOR SHALL PROVIDE AND INSTALL A NEW ALUMINUM CORE LIQUID-TIGHT FLEXIBLE CONDUIT CONNECTION TO THE NEW MOTOR. EXISTING RIGID CONDUIT AND CONDUCTORS MAY BE REUSED IN ORDER TO CONNECT THE NEW MOTOR.
4. THE EXISTING MOTOR AND GEARBOX FOR UR-MA-15 SHALL BE REUSED. CONTRACTOR TO PROVIDE AND INSTALL NEW O/L HEATERS FOR UR-MA-15 IF REQUIRED.
5. CONTRACTOR SHALL REMOVE FOUR (4) EXISTING LOCAL PUSH BUTTON STATIONS AS INDICATED ON THE PLANS. THE CONTRACTOR SHALL THEN PROVIDE AND INSTALL FOUR (4) NEW LOCAL PUSH BUTTON STATIONS. THE CONTRACTOR SHALL REUSE THE EXISTING CONDUIT/CONDUCTORS TO CONNECT THE NEW LOCAL PUSH BUTTON STATIONS.
6. AN EXISTING LIMITORQUE ACTUATOR SHALL BE REPLACED WITH A NEW BECK ACTUATOR. THE CONTRACTOR SHALL REUSE THE EXISTING 480V POWER AND 4-20MA CONDUIT/CONDUCTORS TO CONNECT THE NEW BECK ACTUATOR.
7. TWO (2) EXISTING BUTTERFLY VALVES SHALL BE REPLACED. THE EXISTING BECK ACTUATORS SHALL BE REUSED. THE CONTRACTOR SHALL REUSE THE EXISTING 480V POWER AND 4-20MA CONDUIT/CONDUCTORS TO RECONNECT THE EXISTING BECK ACTUATORS.
8. THREE (3) EXISTING FLOW METERS WILL BE REPLACED. THE CONTRACTOR SHALL REUSE THE EXISTING 120V POWER AND 4-20MA CONDUIT/CONDUCTORS TO RECONNECT THE NEW FLOW METER TRANSMITTER. A NEW FLOW METER SENSOR CABLE WILL BE PROVIDED BY THE FLOW METER MANUFACTURER. THE NEW FLOW METER SENSOR CABLE SHALL BE INSTALLED BY THE CONTRACTOR.

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No.	DATE	REVISIONS
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2		
1		

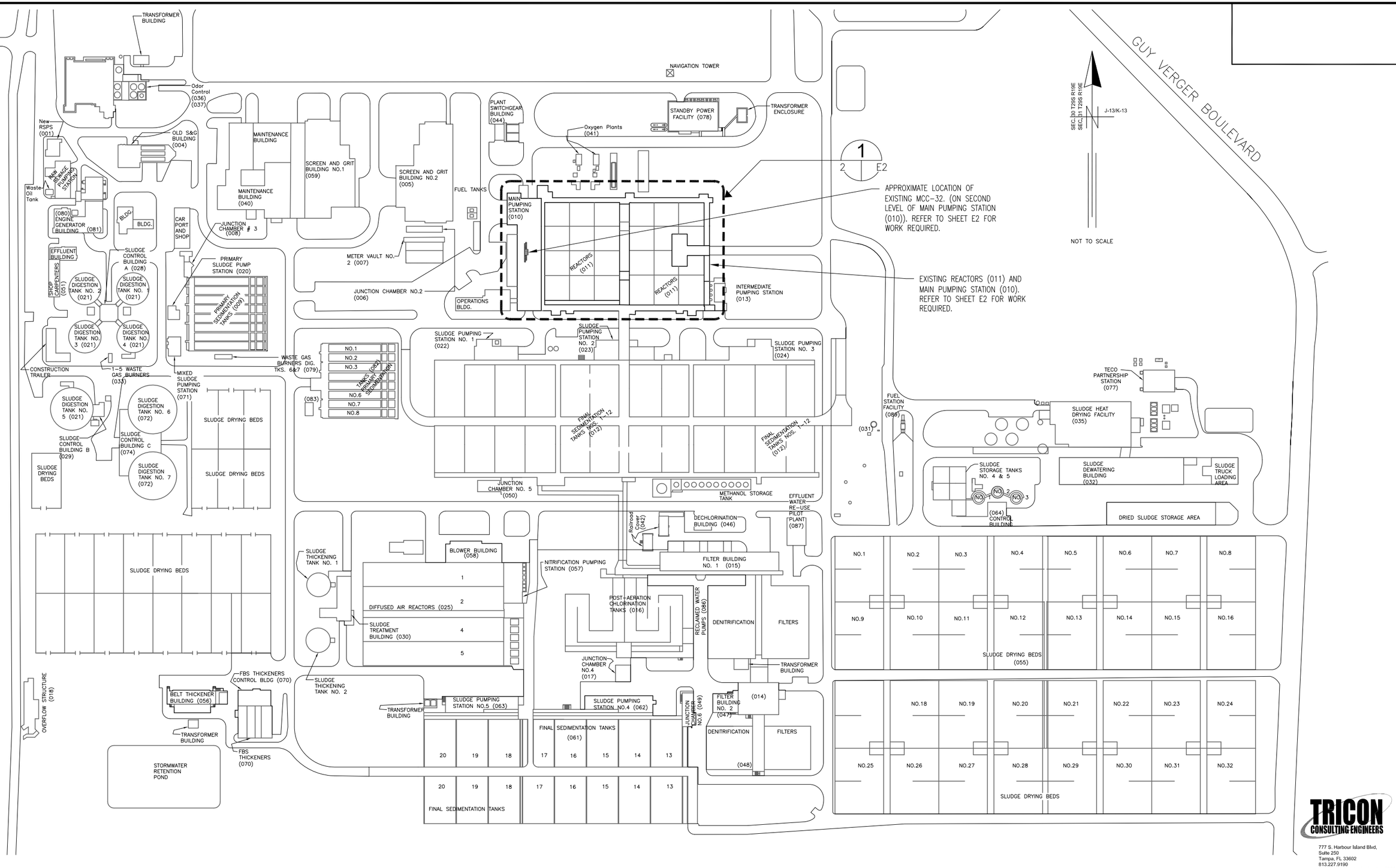
TIMOTHY THOMAS, P.E. #47079

DES: TDT
DRN: JLH
CKD: TDT
DATE: 5-5-16

CITY of TAMPA
WASTEWATER DEPARTMENT

HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
GENERAL NOTES

1000417
SHEET
EGI



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HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
HOWARD F. CURREN SITE PLAN

1000417

SHEET
EG2

CONDUIT RUN EXPOSED

CONDUIT RUN CONCEALED UNDERGROUND

CONDUIT RUN CONCEALED IN FLOOR OR SLAB

G — G — GROUNDING ELECTRODE CONDUCTOR

CONDUIT STUB OUT AND CAP

GROUND ROD

JUNCTION BOX

JUNCTION BOX WITH FLEXIBLE CONNECTION

480V
15 KVA, 1*
120/240V

TRANSFORMER, 480V INDICATED PRIMARY VOLTAGE, 120/240V INDICATES SECONDARY VOLTAGE, 15 KVA REPRESENTS POWER RATING, AND 1* INDICATES SINGLE PHASE (THREE PHASE IF NOT INDICATED)

3P
30A

THERMAL MAGNETIC CIRCUIT BREAKER WITH NUMBER OF POLES AND AMPERE RATING

XX

COMBINATION MAGNETIC STARTER WITH CONTROL POWER TRANSFORMER (SIZED FOR LOAD). LETTERS INDICATE TYPE :
N – NON–REVERSING
R – REVERSING
2S – TWO–SPEED
C – CONTACTOR
SS – SOLID STATE SOFT START

XXX

XXX DEVICE	DESCRIPTION
HLS	HIGH LEVEL SWITCH
HOA	HAND–OFF–AUTO
LD	LEAK DETECTION
LLS	LOW LEVEL SWITCH
LOR	LOCAL–OFF–REMOTE
PB	PUSH BUTTON
RTU	REMOTE TERMINAL UNIT
SS	SOFT STARTER
SS/B	SOFT START OR BYPASS
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
ZS	POSTION SENSOR (LIMIT SWITCH)

FUSE

XX MOTOR

THERMAL OVERLOAD

UTILITY METER

TRANSFER SWITCH

ELECTRIC PANELBOARD

DISCONNECT OR SAFETY SWITCH

FLOAT SWITCH. OPENS ON LOW LEVEL.

FLOAT SWITCH. CLOSES ON LOW LEVEL.

NORMALLY OPEN (N.O.) CONTACT

NORMALLY CLOSED (N.C.) CONTACT

GROUND CONNECTION

R INDICATING PILOT LIGHT LETTER INDICATES COLOR OF LENS

DISCONNECT OR TOGGLE SWITCH

NORMALLY OPEN MOMENTARY CIRCUIT CLOSING PUSH–BUTTON SWITCH. SPRING OPEN. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC

NORMALLY CLOSED MOMENTARY CIRCUIT OPENING PUSH–BUTTON SWITCH. SPRING CLOSE. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC

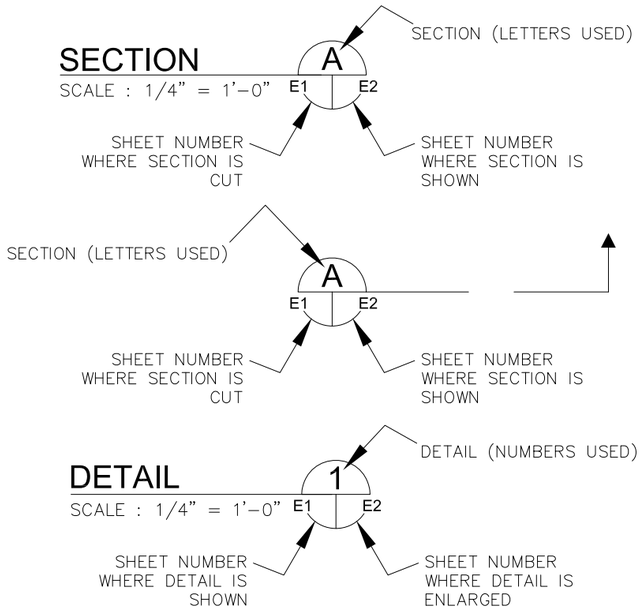
LIMIT SWITCH NORMALLY CLOSED CONTACT. CONTACT OPENS WHEN ACTUATED

TORQUE SWITCH NORMALLY CLOSED CONTACT. CONTACT OPENS WHEN ACTUATED

PUMP THERMAL SENSOR

H MECHANICAL HEAT DETECTOR

EXAMPLE OF SECTION CUT AND DETAIL



ABBREVIATIONS:

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

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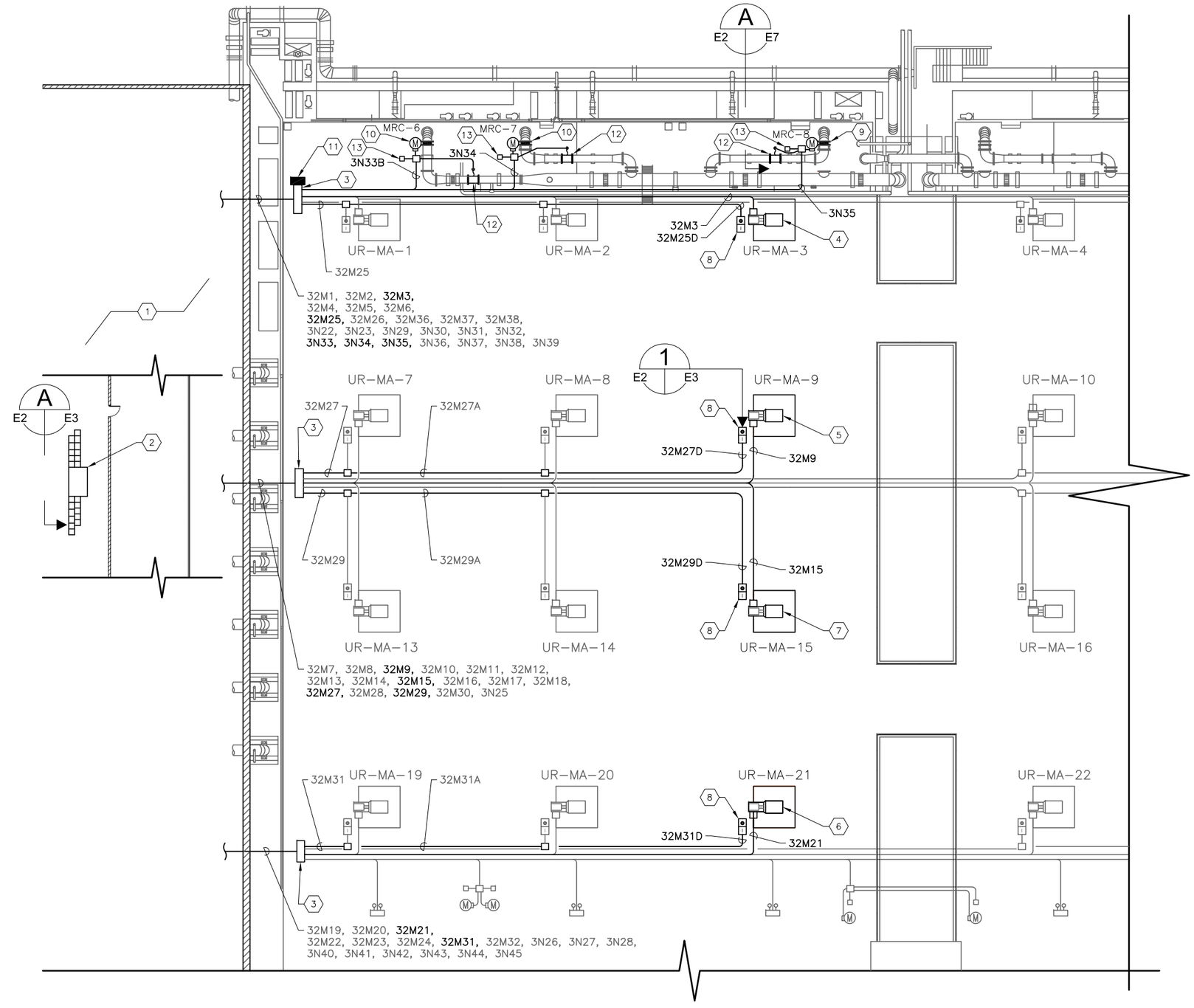
CITY of TAMPA
WASTEWATER DEPARTMENT

HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
ELECTRICAL LEGEND AND ABBREVIATIONS

1000417
SHEET
E1



POWER PLAN 1
SCALE : N.T.S. 2 E2

KEYED NOTES:

1. EXISTING MAIN PUMPING STATION (010).
2. APPROXIMATE LOCATION OF EXISTING MCC-32. (ON SECOND LEVEL OF MAIN PUMPING STATION (010)). REFER TO SHEET E-3 FOR MCC-32 PARTIAL ELEVATION.
3. EXISTING NEMA 4 PULLBOX (TYPICAL).
4. UR-MA-3: REMOVE AND REPLACE EXISTING 100HP MIXER MOTOR. PROVIDE NEW ALUMINUM CORE LIQUID-TIGHT FLEXIBLE CONDUIT CONNECTION TO NEW MOTOR. EXISTING RIGID CONDUIT AND CONDUCTORS MAY BE REUSED.
5. UR-MA-9: REMOVE AND REPLACE EXISTING 75HP MIXER MOTOR. PROVIDE NEW ALUMINUM CORE LIQUID-TIGHT FLEXIBLE CONDUIT CONNECTION TO NEW MOTOR. EXISTING RIGID CONDUIT AND CONDUCTORS MAY BE REUSED.
6. UR-MA-21: REMOVE AND REPLACE EXISTING 60HP MIXER MOTOR. PROVIDE NEW ALUMINUM CORE LIQUID-TIGHT FLEXIBLE CONDUIT CONNECTION TO NEW MOTOR. EXISTING RIGID CONDUIT AND CONDUCTORS MAY BE REUSED.
7. EXISTING MOTOR AND GEARBOX FOR UR-MA-15 TO BE REUSED. CONTRACTOR TO PROVIDE AND INSTALL NEW O/L HEATERS FOR UR-MA-15 IF REQUIRED.
8. CONTRACTOR TO REMOVE EXISTING LOCAL PUSH BUTTON STATION AND REPLACE WITH NEW LOCAL PUSH BUTTON STATION. REFER TO SHEET E3 FOR DETAIL. TYPICAL FOR FOUR (4) LOCATIONS NOTED.
9. EXISTING LIMITORQUE ACTUATOR TO BE REPLACED WITH NEW BECK ACTUATOR. CONTRACTOR SHALL REUSE EXISTING 480V POWER AND 4-20mA CONDUIT/CONDUCTORS. REFER TO SHEET E6 FOR TYPICAL VALVE ACTUATOR WIRING DIAGRAM.
10. EXISTING BUTTERFLY VALVE TO BE REPLACED. EXISTING BECK ACTUATOR SHALL BE REUSED. CONTRACTOR SHALL REUSE EXISTING 480V POWER AND 4-20mA CONDUIT/CONDUCTORS. REFER TO SHEET E6 FOR TYPICAL VALVE ACTUATOR WIRING DIAGRAM.
11. EXISTING 480V, 3ø DISTRIBUTION PANEL. PANEL PROVIDES 480V POWER TO EXISTING ACTUATORS MRC-6, MRC-7 AND MRC-8.
12. EXISTING FLOW METER SENSOR TO BE REPLACED. REFER TO SHEET E7 FOR ELEVATION OF TYPICAL INSTALLATION. REFER TO DETAIL ON SHEET E8 FOR NEW WORK REQUIRED.
13. EXISTING FLOW METER TRANSMITTER TO BE REPLACED. REFER TO SHEET E7 FOR ELEVATION OF TYPICAL INSTALLATION. REFER TO DETAIL ON SHEET E8 FOR NEW WORK REQUIRED.

GENERAL NOTES:

1. ALL ITEMS ON THIS SHEET ARE EXISTING.
2. EXTENT OF CURRENT WORK IS SHOWN IN BOLD LINEWEIGHT.

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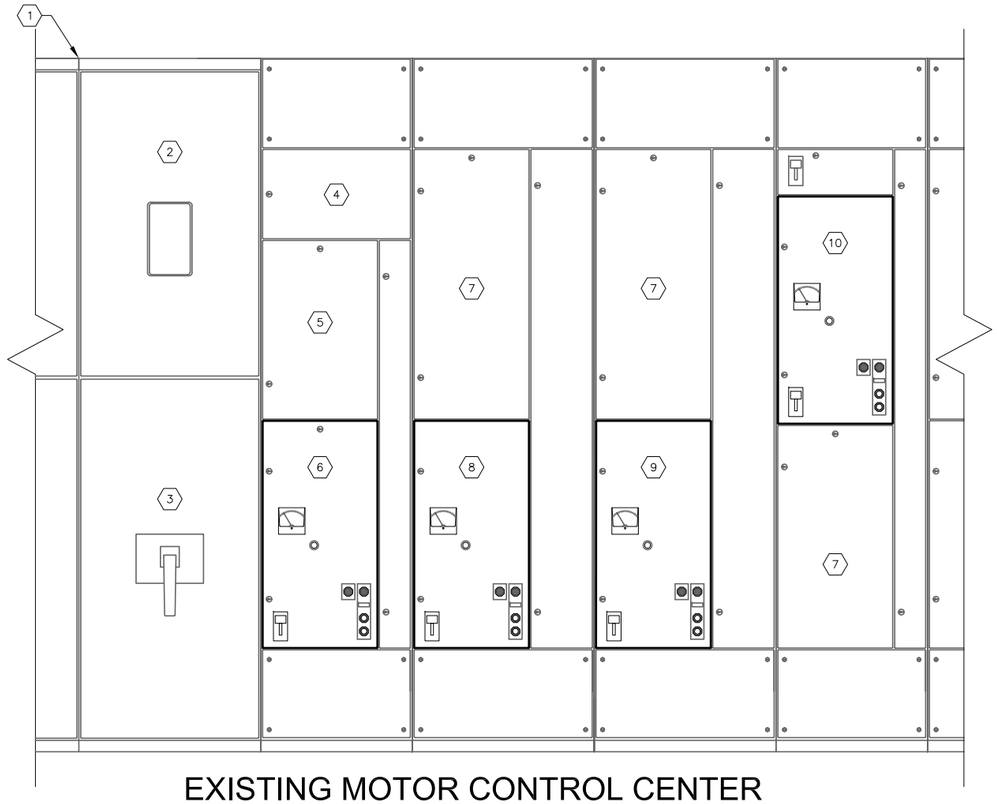
HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
POWER PLAN

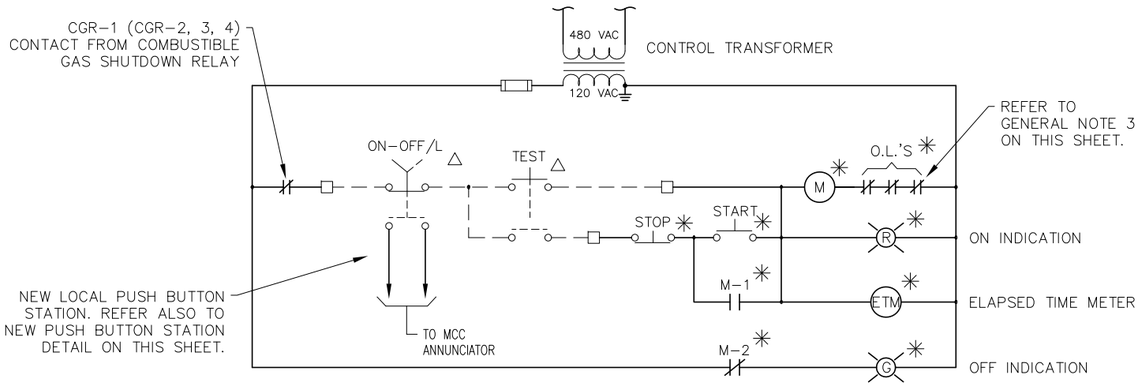
1000417
SHEET
E2



EXISTING MOTOR CONTROL CENTER MCC-32 PARTIAL FRONT ELEVATION

SCALE : N.T.S.

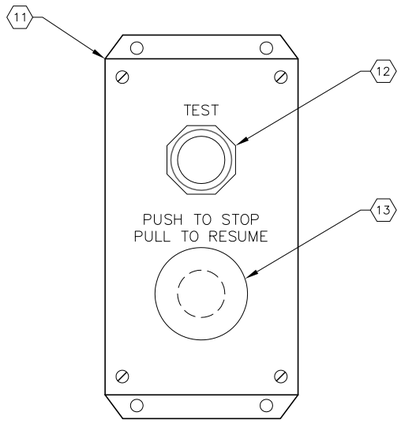
A — E2 / E3



MECHANICAL AERATORS UR-MA-1 TO 24 COMBINATION STARTERS IN MCC

LEGEND

△ INDICATES A REMOTE DEVICE NEAR THE MOTOR
✳ INDICATES DEVICE LOCATED IN OR ON MCC-32
□ INDICATES TERMINAL BLOCK IN MCC-32
– – – INDICATES FIELD WIRING



NEW LOCAL PUSH BUTTON STATION DETAIL

SCALE : N.T.S.

1 — E2 / E3

KEYED NOTES:

1. EXISTING MOTOR CONTROL CENTER (MCC-32). EXISTING MCC-32 IS GENERAL ELECTRIC 8000 LINE.
2. EXISTING BUS 'B' MONITORING CUBICLE. (NO WORK REQUIRED).
3. EXISTING BUS 'B' MAIN CIRCUIT BREAKER. (NO WORK REQUIRED).
4. EXISTING INCOMING POWER. (NO WORK REQUIRED).
5. EXISTING RELAY SECTION. (NO WORK REQUIRED).
6. MCC CUBICLE FOR THE OPERATION OF THE 60 HP MIXER MOTOR UR-MA-15. REFER ALSO TO TYPICAL MECHANICAL AERATOR CONTROL SCHEMATIC ON THIS SHEET.
7. EXISTING SPACE. (NO WORK REQUIRED).
8. MCC CUBICLE FOR THE OPERATION OF THE 100 HP MIXER MOTOR UR-MA-3. REFER ALSO TO TYPICAL MECHANICAL AERATOR CONTROL SCHEMATIC ON THIS SHEET.
9. MCC CUBICLE FOR THE OPERATION OF THE 75 HP MIXER MOTOR UR-MA-9. REFER ALSO TO TYPICAL MECHANICAL AERATOR CONTROL SCHEMATIC ON THIS SHEET.
10. MCC CUBICLE FOR THE OPERATION OF THE 60 HP MIXER MOTOR UR-MA-21. REFER ALSO TO TYPICAL MECHANICAL AERATOR CONTROL SCHEMATIC ON THIS SHEET.
11. CONTRACTOR TO PROVIDE AND INSTALL NEW LOCAL PUSH BUTTON STATION ENCLOSURE. ENCLOSURE SHALL BE NEMA 4X STAINLESS STEEL, SQUARE-D CAT# 9001KYSS2.
12. CONTRACTOR TO PROVIDE AND INSTALL MOMENTARY TEST PUSH BUTTON. PUSH BUTTON SHALL HAVE EXTENDED GUARD, 30MM, NEMA 4X, WITH BLACK HEAD AND LEGEND PLATE. SQUARE-D CAT# 9001SKR3BH13.
13. CONTRACTOR TO PROVIDE AND INSTALL 2-POSITION MAINTAINED EMERGENCY STOP OPERATOR. OPERATOR SHALL BE 30MM, NEMA 4X, WITH RED MUSHROOM HEAD AND LEGEND PLATE. SQUARE-D CAT# 9001SKR9RH13. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL STOP LOCK PADLOCK ATTACHMENT. SQUARE-D CAT# 9001-K62.

GENERAL NOTES:

1. ALL ITEMS ON THIS SHEET ARE EXISTING.
2. MCC CUBICLES SHOWN IN BOLD LINEWEIGHT CONTROL THE OPERATION OF THE MIXER MOTORS RELEVANT TO THIS CONTRACT AND SHALL BE REUSED.
3. PROVIDE MOTOR STARTER OVERLOAD THERMAL UNITS SIZED TO NEW MOTOR NAMEPLATES.
4. REFER TO SHEET E4 FOR MCC-32 ONE LINE DIAGRAM.

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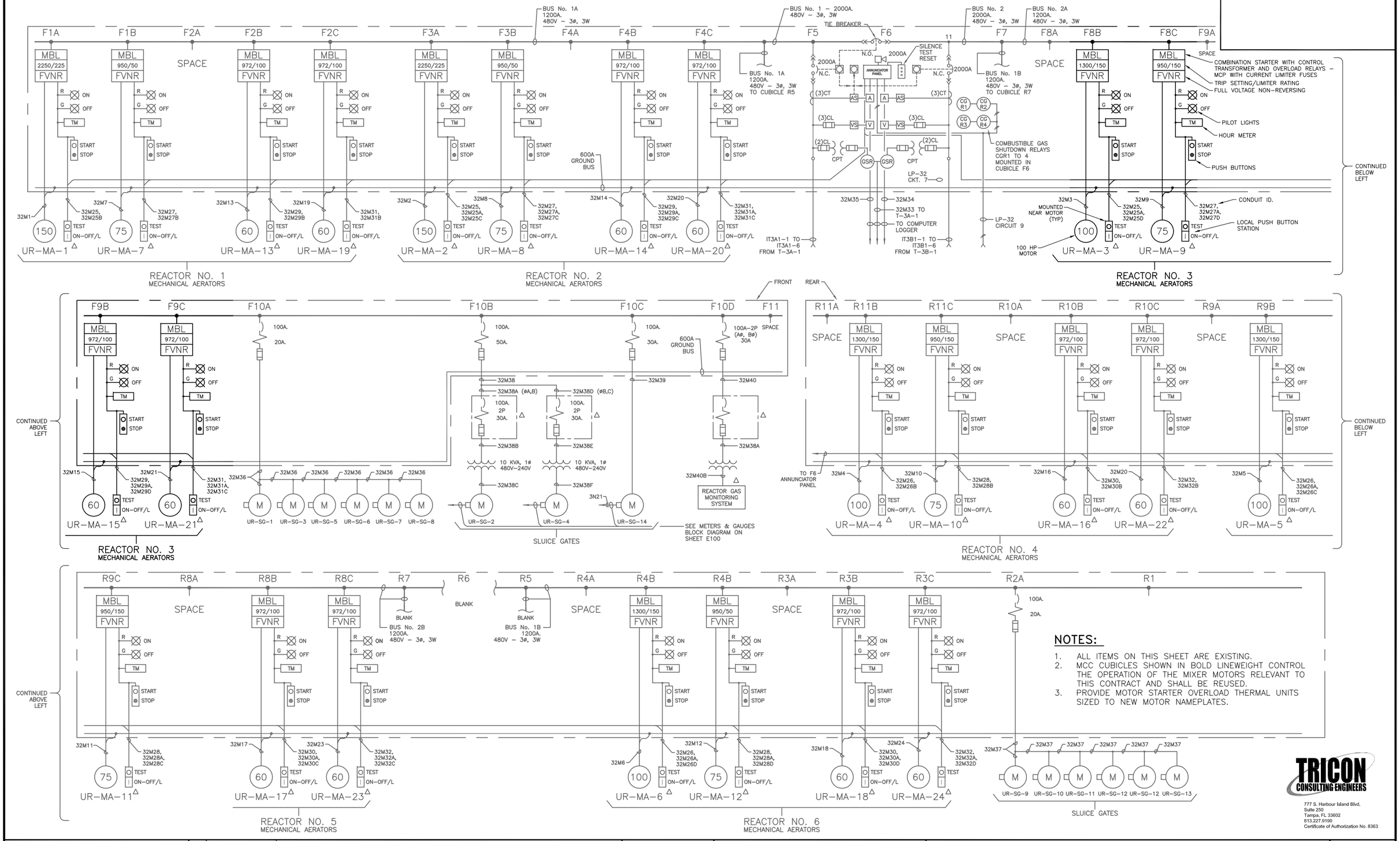
CITY of TAMPA
WASTEWATER DEPARTMENT

HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
EXISTING MCC-32 PARTIAL ONE LINE DIAGRAM

1000417
SHEET
E3



NOTES:

1. ALL ITEMS ON THIS SHEET ARE EXISTING.
2. MCC CUBICLES SHOWN IN BOLD LINEWEIGHT CONTROL THE OPERATION OF THE MIXER MOTORS RELEVANT TO THIS CONTRACT AND SHALL BE REUSED.
3. PROVIDE MOTOR STARTER OVERLOAD THERMAL UNITS SIZED TO NEW MOTOR NAMEPLATES.

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HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT

EXISTING MCC-32 PARTIAL ONE LINE DIAGRAM

1000417

SHEET E4

CONDUIT AND CABLE SCHEDULE

NUMBER	SIZE	NUMBER OF CONDUCTORS	FROM	TO
32M1	3	3–#250MCM, 1#1G	MCC–32	MOTOR UR–MA–1
32M2	3	3–#250MCM, 1#1G	MCC–32	MOTOR UR–MA–2
32M3	**2–1/2**	**3–#3/0, 1#4G**	**MCC–32**	**MOTOR UR–MA–3**
32M4	2–1/2	3–#3/0, 1#4G	MCC–32	MOTOR UR–MA–4
32M5	2–1/2	3–#3/0, 1#4G	MCC–32	MOTOR UR–MA–5
32M6	2–1/2	3–#3/0, 1#4G	MCC–32	MOTOR UR–MA–6
32M7	2	3–#1/0, 1#4G	MCC–32	MOTOR UR–MA–7
32M8	2	3–#1/0, 1#4G	MCC–32	MOTOR UR–MA–8
32M9	**2**	**3–#1/0, 1#4G**	**MCC–32**	**MOTOR UR–MA–9**
32M10	2	3–#1/0, 1#4G	MCC–32	MOTOR UR–MA–10
32M11	2	3–#1/0, 1#4G	MCC–32	MOTOR UR–MA–11
32M12	2	3–#1/0, 1#4G	MCC–32	MOTOR UR–MA–12
32M13	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–13
32M14	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–14
32M15	**2**	**3–#1, 1#4G**	**MCC–32**	**MOTOR UR–MA–15**
32M16	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–16
32M17	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–17
32M18	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–18
32M19	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–19
32M20	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–20
32M21	**2**	**3–#1, 1#4G**	**MCC–32**	**MOTOR UR–MA–21**
32M22	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–22
32M23	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–23
32M24	2	3–#1, 1#4G	MCC–32	MOTOR UR–MA–24

CONDUIT AND CABLE SCHEDULE

NUMBER	SIZE	NUMBER OF CONDUCTORS	FROM	TO
32M25	1–1/4	18#14	MCC–32	J.B. AT MOTOR UR–MA–1
32M25A	1–1/4	12#14	J.B. AT MOTOR UR–MA–1	J.B. AT MOTOR UR–MA–2
32M25B	3/4	6#14	J.B. AT MOTOR UR–MA–1	UR–MA–1 PUSH BUTTON STATION
32M25C	3/4	6#14	J.B. AT MOTOR UR–MA–2	UR–MA–2 PUSH BUTTON STATION
32M25D	**3/4**	**6#14**	**J.B. AT MOTOR UR–MA–2**	**UR–MA–3 PUSH BUTTON STATION**
32M26	1–1/4	18#14	MCC–32	J.B. AT MOTOR UR–MA–4
32M26A	1–1/4	12#14	J.B. AT MOTOR UR–MA–4	J.B. AT MOTOR UR–MA–5
32M26B	3/4	6#14	J.B. AT MOTOR UR–MA–4	UR–MA–4 PUSH BUTTON STATION
32M26C	3/4	6#14	J.B. AT MOTOR UR–MA–5	UR–MA–5 PUSH BUTTON STATION
32M26D	3/4	6#14	J.B. AT MOTOR UR–MA–5	UR–MA–6 PUSH BUTTON STATION
32M27	1–1/4	18#14	MCC–32	J.B. AT MOTOR UR–MA–7
32M27A	1–1/4	12#14	J.B. AT MOTOR UR–MA–7	J.B. AT MOTOR UR–MA–8
32M27B	3/4	6#14	J.B. AT MOTOR UR–MA–7	UR–MA–7 PUSH BUTTON STATION
32M27C	3/4	6#14	J.B. AT MOTOR UR–MA–8	UR–MA–8 PUSH BUTTON STATION
32M27D	**3/4**	**6#14**	**J.B. AT MOTOR UR–MA–8**	**UR–MA–9 PUSH BUTTON STATION**
32M28	1–1/4	18#14	MCC–32	J.B. AT MOTOR UR–MA–10
32M28A	1–1/4	12#14	J.B. AT MOTOR UR–MA–10	J.B. AT MOTOR UR–MA–11
32M28B	3/4	6#14	J.B. AT MOTOR UR–MA–10	UR–MA–10 PUSH BUTTON STATION
32M28C	3/4	6#14	J.B. AT MOTOR UR–MA–11	UR–MA–11 PUSH BUTTON STATION
32M28D	3/4	6#14	J.B. AT MOTOR UR–MA–11	UR–MA–12 PUSH BUTTON STATION
32M29	1–1/4	18#14	MCC–32	J.B. AT MOTOR UR–MA–13
32M29A	1–1/4	12#14	J.B. AT MOTOR UR–MA–13	J.B. AT MOTOR UR–MA–14
32M29B	3/4	6#14	J.B. AT MOTOR UR–MA–13	UR–MA–13 PUSH BUTTON STATION
32M29C	3/4	6#14	J.B. AT MOTOR UR–MA–14	UR–MA–14 PUSH BUTTON STATION
32M29D	**3/4**	**6#14**	**J.B. AT MOTOR UR–MA–14**	**UR–MA–15 PUSH BUTTON STATION**
32M30	1–1/4	18#14	MCC–32	J.B. AT MOTOR UR–MA–16
32M30A	1–1/4	12#14	J.B. AT MOTOR UR–MA–16	J.B. AT MOTOR UR–MA–17
32M30B	3/4	6#14	J.B. AT MOTOR UR–MA–16	UR–MA–16 PUSH BUTTON STATION
32M30C	3/4	6#14	J.B. AT MOTOR UR–MA–17	UR–MA–17 PUSH BUTTON STATION
32M30D	3/4	6#14	J.B. AT MOTOR UR–MA–17	UR–MA–18 PUSH BUTTON STATION
32M31	1–1/4	18#14	MCC–32	J.B. AT MOTOR UR–MA–19
32M31A	1–1/4	12#14	J.B. AT MOTOR UR–MA–19	J.B. AT MOTOR UR–MA–20
32M31B	3/4	6#14	J.B. AT MOTOR UR–MA–19	UR–MA–19 PUSH BUTTON STATION
32M31C	3/4	6#14	J.B. AT MOTOR UR–MA–20	UR–MA–20 PUSH BUTTON STATION
32M31D	**3/4**	**6#14**	**J.B. AT MOTOR UR–MA–20**	**UR–MA–21 PUSH BUTTON STATION**

GENERAL NOTES:

1. THIS DRAWING IS PROVIDED FOR REFERENCE ONLY. ALL ITEMS ARE EXISTING.
2. CONDUITS AND CONDUCTORS SHOWN IN BOLD LINEWEIGHT SHALL BE RECONNECTED TO THE NEW EQUIPMENT, AS REQUIRED.

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TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
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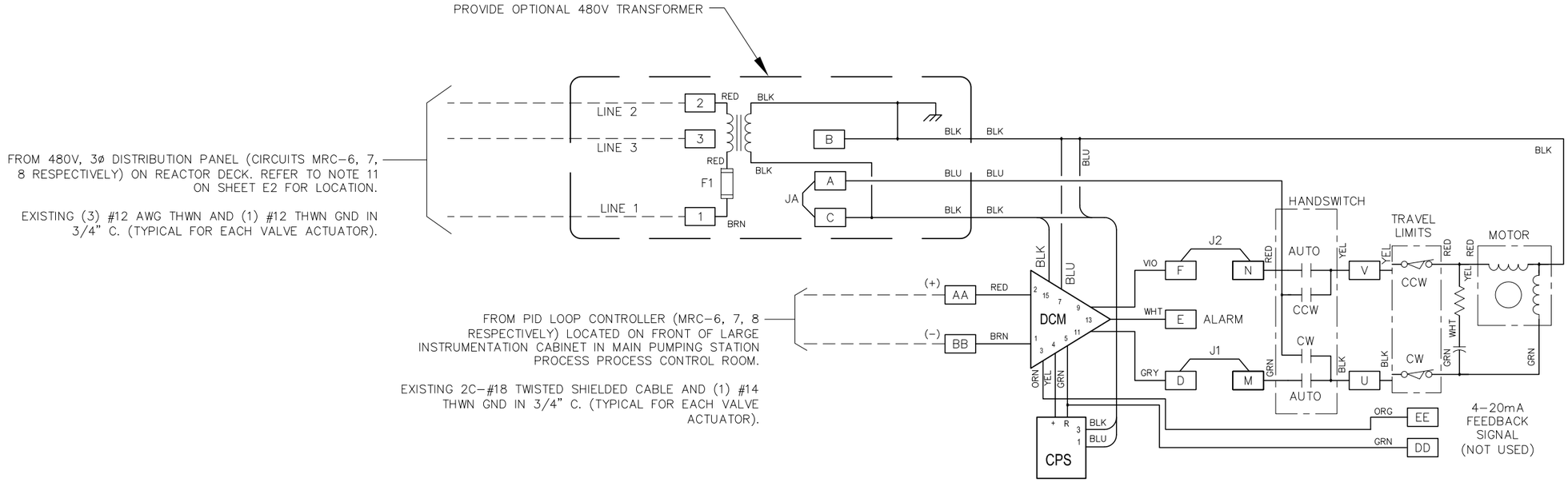
DES: TDT
DRN: JLH
CKD: TDT
DATE: 5-5-16

CITY of TAMPA
WASTEWATER DEPARTMENT

HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
EXISTING CONDUIT AND CABLE SCHEDULE

1000417
SHEET
E5



TYPICAL VALVE ACTUATOR WIRING CONNECTIONS

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HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
TYPICAL VALVE ACTUATOR WIRING CONNECTIONS

1000417
SHEET E6

TYPICAL EXISTING FLOW METER INSTALLATION (A, E2 / E7)

SCALE : N.T.S.

KEYED NOTES:

1. EXISTING POLE STANCHION TO REMAIN.
2. EXISTING TRANSMITTER, MOUNTING PLATE AND FLEXIBLE CONDUIT TO JUNCTION BOX TO BE REMOVED AND REPLACED WITH NEW. REFER TO DETAIL ON SHEET E8 FOR WORK REQUIRED
3. EXISTING VALVE ACTUATOR. REFER TO SHEET E2 FOR WORK REQUIRED. REFER TO SHEET E6 FOR TYPICAL VALVE ACTUATOR WIRING CONNECTIONS.
4. EXISTING JUNCTION BOX TO REMAIN.
5. EXISTING CONDUIT AND CONDUCTORS TO REMAIN. CONDUIT CONTAINS 120V POWER CIRCUIT (TO BE REUSED FOR FLOW METER) AND 2/C–#18 TWISTED SHIELDED CABLE (TO BE REUSED FOR FLOW METER 4–20mA TRANSMITTER SIGNAL) ALONG WITH OTHER CONDUCTORS. DESIGNATIONS 3N33B, 3N34 AND 3N35. REFER TO SHEET E2 FOR REFERENCE.
6. EXISTING CONDUIT WITH 2/C–#18 TWISTED SHIELDED CABLE TO ASSOCIATED VALVE ACTUATOR FOR VALVE CONTROL SIGNAL. REFER TO SHEET E2 FOR WORK REQUIRED. REFER TO SHEET E6 FOR TYPICAL VALVE ACTUATOR WIRING CONNECTIONS.
7. EXISTING FLOW METER SENSOR TO BE REMOVED AND REPLACED WITH NEW.
8. CONTRACTOR SHALL REUSE EXISTING CONDUIT FROM EXISTING JUNCTION BOX TO FLOW METER SENSOR.
9. CONTRACTOR SHALL PROVIDE AND INSTALL NEW NON–METALLIC FLEXIBLE CONDUIT TO THE FLOW METER SENSOR. REFER TO SHEET E2 FOR VARIOUS FLOW METER SENSOR LOCATIONS.

GENERAL NOTES:

1. EXACT LOCATIONS FOR JUNCTION BOXES/FLOW METER TRANSMITTERS, CONDUIT ROUTING, ETC. VARY PER LOCATION.

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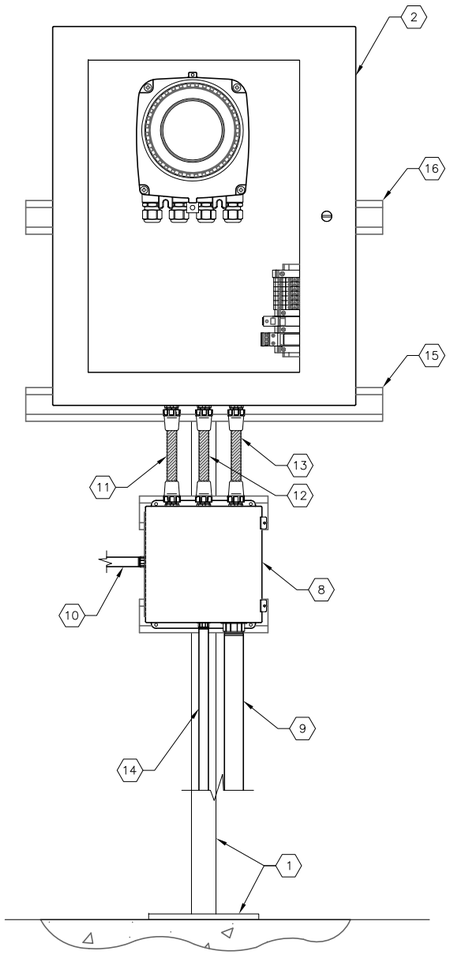
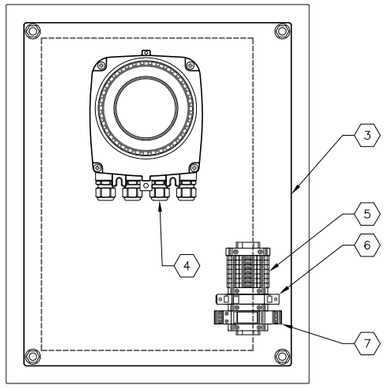
HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
FLOW METER INSTALLATION - EXISTING CONDITIONS

1000417
SHEET
E7





ENCLOSURE INTERIOR
(SHOWN WITHOUT DOOR)

KEYED NOTES:

1. EXISTING POLE STANCHION TO REMAIN.
2. REMOTE TRANSMITTER CABINET. 20" X 16" X 8" NEMA 4X STAINLESS STEEL WITH STAINLESS STEEL STOP KIT AND WINDOW. HOFFMAN CSD201608SS6.
3. HOFFMAN CP2016G BACKPLATE.
4. PROVIDE AND INSTALL ABB WATER MASTER REMOTE TRANSMITTER.
5. PROVIDE AND INSTALL TERMINAL BLOCKS WITH ALUMINUM DIN RAIL. PHOENIX CONTACT UK5N.
6. PROVIDE AND INSTALL SINGLE-POLE CIRCUIT BREAKER. 120V, 15A. SQUARE D QOU-115.
7. PROVIDE AND INSTALL INCOMING 120V POWER SURGE PROTECTION DEVICES. PHOENIX CONTACT #2858357.
8. EXISTING JUNCTION BOX TO REMAIN.
9. EXISTING CONDUIT AND CONDUCTORS TO REMAIN. CONDUIT CONTAINS 120V POWER CIRCUIT (TO BE REUSED FOR FLOW METER) AND 2/C-#18 TWISTED SHIELDED CABLE (TO BE REUSED FOR FLOW METER 4-20mA TRANSMITTER SIGNAL) ALONG WITH OTHER CONDUCTORS. DESIGNATIONS 3N33B, 3N34 AND 3N35. REFER TO SHEET E2 FOR REFERENCE.
10. EXISTING CONDUIT WITH 2/C-#18 TWISTED SHIELDED CABLE TO ASSOCIATED VALVE ACTUATOR FOR VALVE CONTROL SIGNAL. REFER TO SHEET E2 FOR WORK REQUIRED. REFER TO SHEET E6 FOR TYPICAL VALVE ACTUATOR WIRING CONNECTIONS.
11. PROVIDE AND INSTALL NEW 3/4" NON-METALLIC FLEXIBLE CONDUIT. CONTRACTOR SHALL REUSE EXISTING CONDUCTORS FOR TRANSMITTER 120V POWER. REFER ALSO TO NOTE #9 ABOVE.
12. PROVIDE AND INSTALL NEW 3/4" NON-METALLIC FLEXIBLE CONDUIT. CONTRACTOR SHALL REUSE EXISTING 2/C-#18 TWISTED SHIELDED CABLE FOR FLOW METER 4-20mA TRANSMITTER SIGNAL. REFER ALSO TO NOTE #9 ABOVE.
13. CONTRACTOR SHALL PROVIDE AND INSTALL 3/4" CONDUIT FOR MANUFACTURER SUPPLIED SENSOR CABLE (CONTRACTOR TO VERIFY CONDUIT SIZE REQUIREMENTS WITH MANUFACTURER).
14. CONTRACTOR SHALL REUSE EXISTING CONDUIT FROM EXISTING JUNCTION BOX TO FLOW METER SENSOR. CONTRACTOR SHALL PROVIDE AND INSTALL NEW NON-METALLIC FLEXIBLE CONDUIT TO THE FLOW METER SENSOR. REFER TO SHEET E2 FOR VARIOUS FLOW METER SENSOR LOCATIONS.
15. PROVIDE AND INSTALL 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT WITH STAINLESS STEEL HARDWARE.
16. PROVIDE AND INSTALL 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT WITH STAINLESS STEEL HARDWARE. NOTE: MAXIMUM INSTALLATION HEIGHT WILL BE BASED ON EXISTING POLE STANCHION DIMENSION.

TYPICAL FLOW METER TRANSMITTER DETAIL

SCALE : N.T.S.

1 E7 E8

GENERAL NOTES:

1. REFER TO SHEET E9 FOR FLOW METER WIRING SCHEMATIC.

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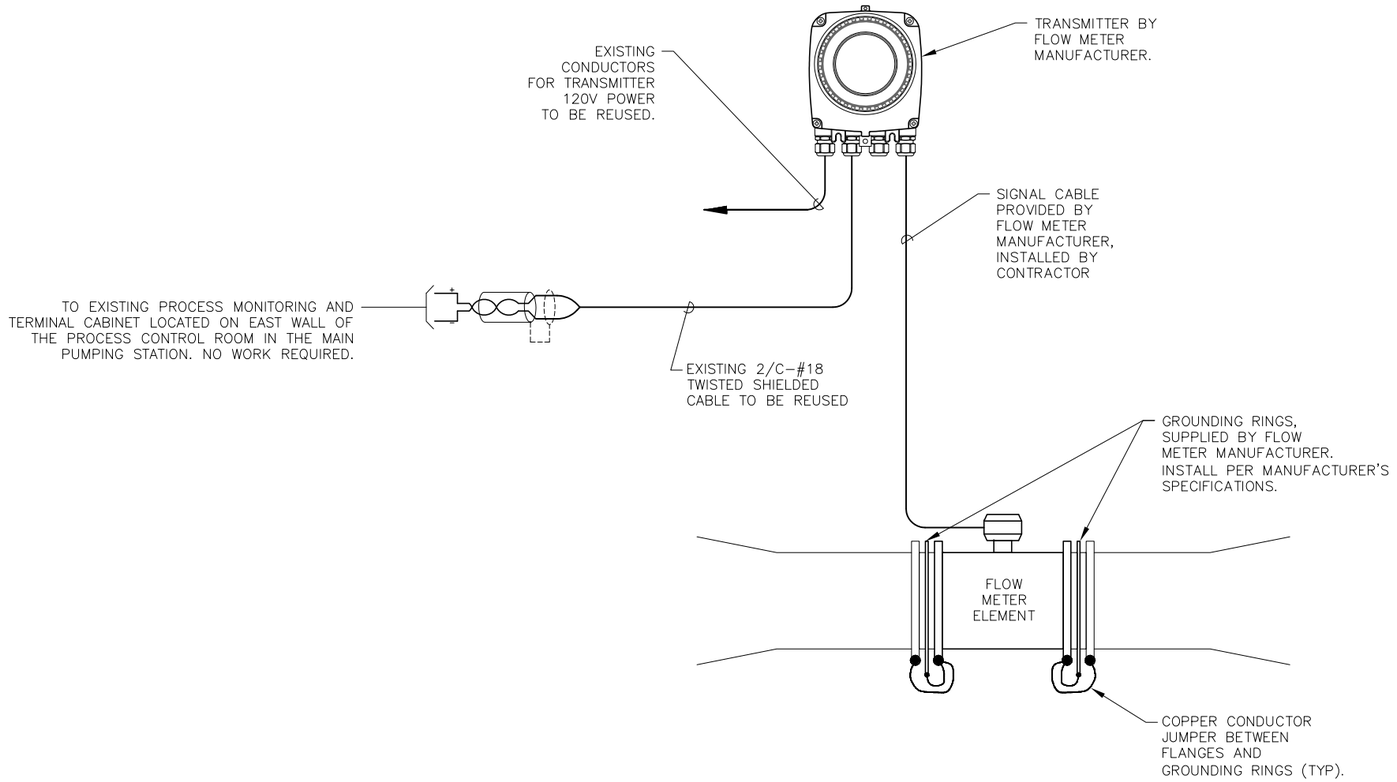
WASTEWATER DEPARTMENT

HPO GEARBOX / MIXER UPGRADES AND PIPING REPLACEMENT
FLOW METER INSTALLATION DETAILS

1000417
SHEET
E8



FLOW METER WIRING SCHEMATIC

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FLOW METER WIRING SCHEMATIC

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E9