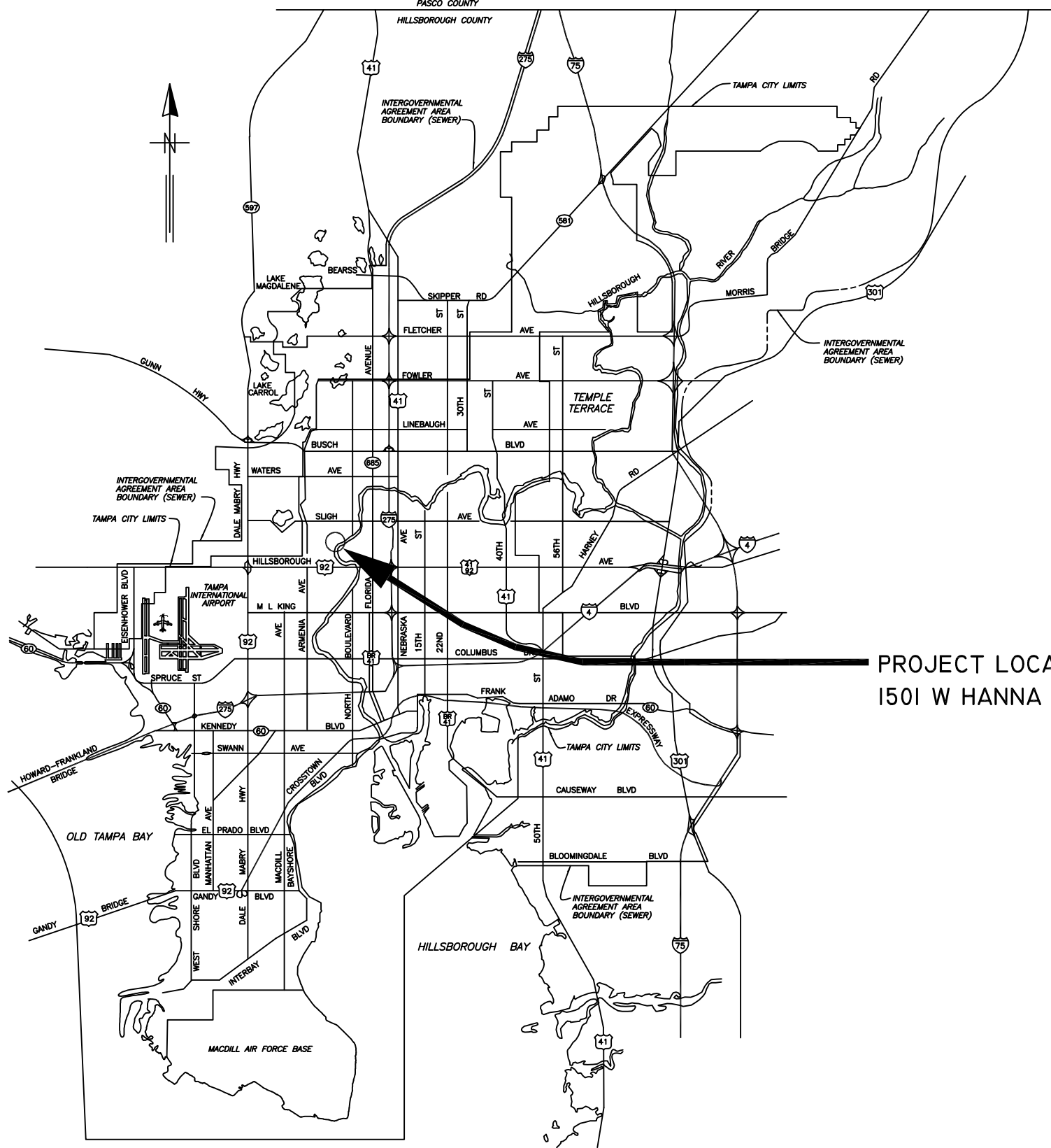


LOCATION MAP



PROJECT LOCATION
1501 W HANNA AVE.

CITY of TAMPA



WASTEWATER DEPARTMENT

PLANS FOR

HANNA PUMPING STATION
ODOR CONTROL REPLACEMENT

CONTRACT 18-C-00023

User: ss13 Drawing Name: K:\WasteWater Projects\Hanna PS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout: Nov 29, 2018 - 3:10pm CTB - MONOCHROME.CTB

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

ROMAN D KORCHAK, PE #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: VT/LRG
DRN: JHJ
CKD:
DATE: 11/29/18

CITY of TAMPA
WASTEWATER DEPARTMENT

HANNA PUMPING STATION
ODOR CONTROL REPLACEMENT
COVER SHEET

SHEET
1

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		
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		
CONCRETE MONUMENT		
OPEN DITCHES		
EXISTING WYE		
PROPOSED WYE		
CLEAN OUT		

ABBREVIATIONS

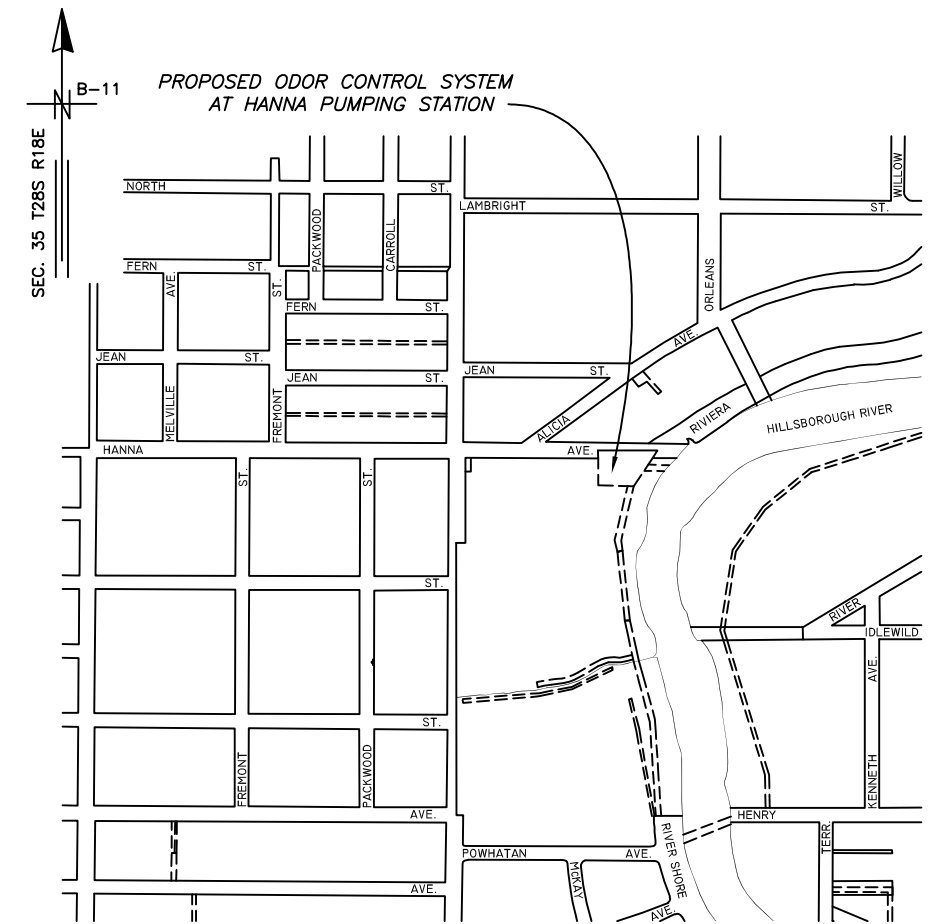
TOP of PIPE	TP	DUCTILE IRON PIPE	DIP
INVERT ELEVATION	IE or INV EL	REINFORCED CONCRETE PIPE	RCP
RIGHT of WAY	R/W	CONCRETE PIPE	CP
MANHOLE	MH or M	APPROXIMATE LOCATION	AL
POLYVINYL CHLORIDE PIPE	PVCP	BENCH MARK	BM
VITRIFIED CLAY PIPE	VCP	POINT of INTERSECTION	PI
ADVANCED DRAINAGE SYSTEM	ADS		

NOTES

1. THE SCOPE OF THIS PROJECT SHALL CONSIST OF REMOVING THE EXISTING ODOR CONTROL SYSTEM AND FURNISHING AND INSTALLING DUCTWORK, WATERLINE, WASTEWATER LINE, ELECTRICAL CONDUIT AND ALL APPURTENANCE NECESSARY TO INSTALL NEW ODOR CONTROL UNIT.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL FIELD MEASUREMENTS AND VERIFYING THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING PIPING, STRUCTURES AND OTHER FEATURES AFFECTING HIS WORK PRIOR TO SUBMITTAL OF SHOP DRAWINGS OR STARTING CONSTRUCTION.
3. PROPOSED PIPING AND FITTINGS SHALL BE CPVC (SCHEDULE 80) PIPE OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED.
4. ALL PIPING, FITTINGS AND VALVES SHALL BE PROPERLY SUPPORTED.
5. ALL AIR DUCTS SHALL BE FRP REINFORCED FOR 9" W.C. NEGATIVE STATIC PRESSURE.
6. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
7. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (EASILY READABLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.
8. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH CONTRACT ADMINISTRATION DEPARTMENT, WASTEWATER PERSONNEL AND PUMPING STATION OPERATIONS.
9. ALL EQUIPMENT, PIPING STRUCTURES, ETC. INDICATED FOR REMOVAL SHALL BE REMOVED AND EITHER DELIVERED TO THE HOWARD F. CURREN TREATMENT PLANT OR PROPERLY DISPOSED BY THE CONTRACTOR. IN GENERAL, ALL ITEMS CONSTRUCTED OF METAL OR ALUMINUM SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE DELIVERED TO THE TREATMENT PLANT.
10. ALL ELEVATIONS ARE BASED ON NGVD 29 DATUM UNLESS OTHERWISE NOTED.
11. ALL DUCTWORK SHALL BE CONSTRUCTED OF FIBERGLASS REINFORCED PLASTIC (FRP) WITH UV INHIBITOR. ALL GUY WIRES, FASTENERS, BOLTS, NUTS, WASHERS, ANCHORS, ETC. SHALL BE CONSTRUCTED OF 316 STAINLESS STEEL.
12. CONTRACTOR SHALL INSTALL A NEW 1-INCH CPVC (SCHEDULE 80) WATER LINE TO PROVIDE MAKE-UP WATER TO THE NEW ODOR CONTROL. THE NEW WATER LINE SHALL BE CONNECTED TO THE EXISTING 1-INCH WATER LINE ON THE EAST SIDE WALL OF PUMP STATION AND EXTEND TO THE PROPOSED ODOR CONTROL UNIT.
13. OSHA STANDARD SAFETY EQUIPMENT SUCH AS SAFETY HARNESES, GAS MONITORS, LOWER EXPLOSIVE LIMIT DETECTORS, BREATHING APPARATUS, ETC. SHALL BE UTILIZED WHERE THE WORK DICTATES THEIR USE. (SEE SPECIFICATION FOR ADDITIONAL SAFETY NOTES)
14. CONTRACTOR SHALL RESTORE ALL LANDSCAPING, SODDING, SPRINKLER SYSTEM PIPING AND PAVEMENT THAT MAY HAVE BEEN DAMAGED DURING CONSTRUCTION TO ITS ORIGINAL CONDITION OR BETTER.
15. NORMAL WORKING HOURS SHALL BE WEEKDAYS FROM 7AM TO 3PM UNLESS OTHERWISE APPROVED BY THE ENGINEER.
16. THE MECHANICAL AND ELECTRICAL DESIGN HAS BEEN BASED ON A BIOLOGICAL FILTER ODOR CONTROL SYSTEM AS MANUFACTURED BY EVOQUA WATER TECHNOLOGIES OR APPROVED EQUAL. THE COST OF ANY CHANGES AND MODIFICATIONS TO MECHANICAL, STRUCTURAL, ELECTRICAL FACILITIES NECESSARY TO ADAPT ALTERNATE EQUIPMENT TO THE LAYOUT AND DESIGN SHOWN SHALL BE BORNE BY THE CONTRACTOR. CLEARANCES SHOWN ON THE DRAWINGS SHALL BE MAINTAINED. ANY SUCH PROPOSED CHANGES OR MODIFICATIONS ARE SUBJECT TO REVIEW AND ACCEPTANCE OF THE CITY.
17. CONTRACTOR MUST PLAN AND COORDINATE WORK TO MINIMIZE THE TIME THE STATION IS WITHOUT AN ODOR CONTROL SYSTEM. (SEE SPECIFIC PROVISIONS SP-67). THE CONTRACTOR WILL NOT BE ALLOWED TO START DEMOLITION WORK UNTIL THE NEW ODOR CONTROL SYSTEM HAS BEEN COMPLETELY MANUFACTURED AND EITHER DELIVERED TO THE SITE OR THE CONTRACTORS WAREHOUSE. DURING THE TIME THE STATION IS WITHOUT AN ODOR SYSTEM, THE CONTRACTOR WILL COORDINATE WITH TREATMENT PLANT STAFF SO THAT UPSTREAM CHEMICAL FEED RATES CAN BE INCREASED TO PREVENT ODORS AT THE STATION. BEFORE STARTING CONSTRUCTION, THE CONTRACTOR MUST SUBMIT A DETAILED CONSTRUCTION SCHEDULE FOR REVIEW AND APPROVAL BY THE CITY.
18. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 6th ADDITION 2017, CHAPTER 5 OF THE CITY OF TAMPA CODE, AND THE NATIONAL ELECTRIC CODE 2014 EDITION.

INDEX

SHT. NO.	DESCRIPTION
1	COVER SHEET
2	LEGEND, NOTES, INDEX & PROJECT MAP
3	EXISTING SITE PLAN DEMOLITION
4	DEMOLITION PLANS AND SECTIONS
5	PROPOSED SITE PLAN
6	PROPOSED ODOR CONTROL UNIT PLAN & ELEVATION VIEWS
EG1	ELECTRICAL SYMBOL LEGEND (SHT. 1 OF 2)
EG2	ELECTRICAL SYMBOL LEGEND (SHT. 2 OF 2)
EG3	GENERAL NOTES AND SCOPE OF WORK
ES1	EXISTING ELECTRICAL SITE PLAN DEMOLITION
ES2	PROPOSED ELECTRICAL SITE PLAN
ES3	PROPOSED ELECTRICAL SITE PLAN VIEWS
ED	ELECTRICAL IDENTIFICATION
E1	CONTROL PANEL AND BILL OF MATERIALS
E2	ONE LINE DIAGRAM (SHT. 1 OF 2)
E3	ONE LINE DIAGRAM (SHT. 2 OF 2)
E4	EXISTING KEYED NOTES AND LOAD SUMMARY
E5	ELECTRICAL SCHEMATIC

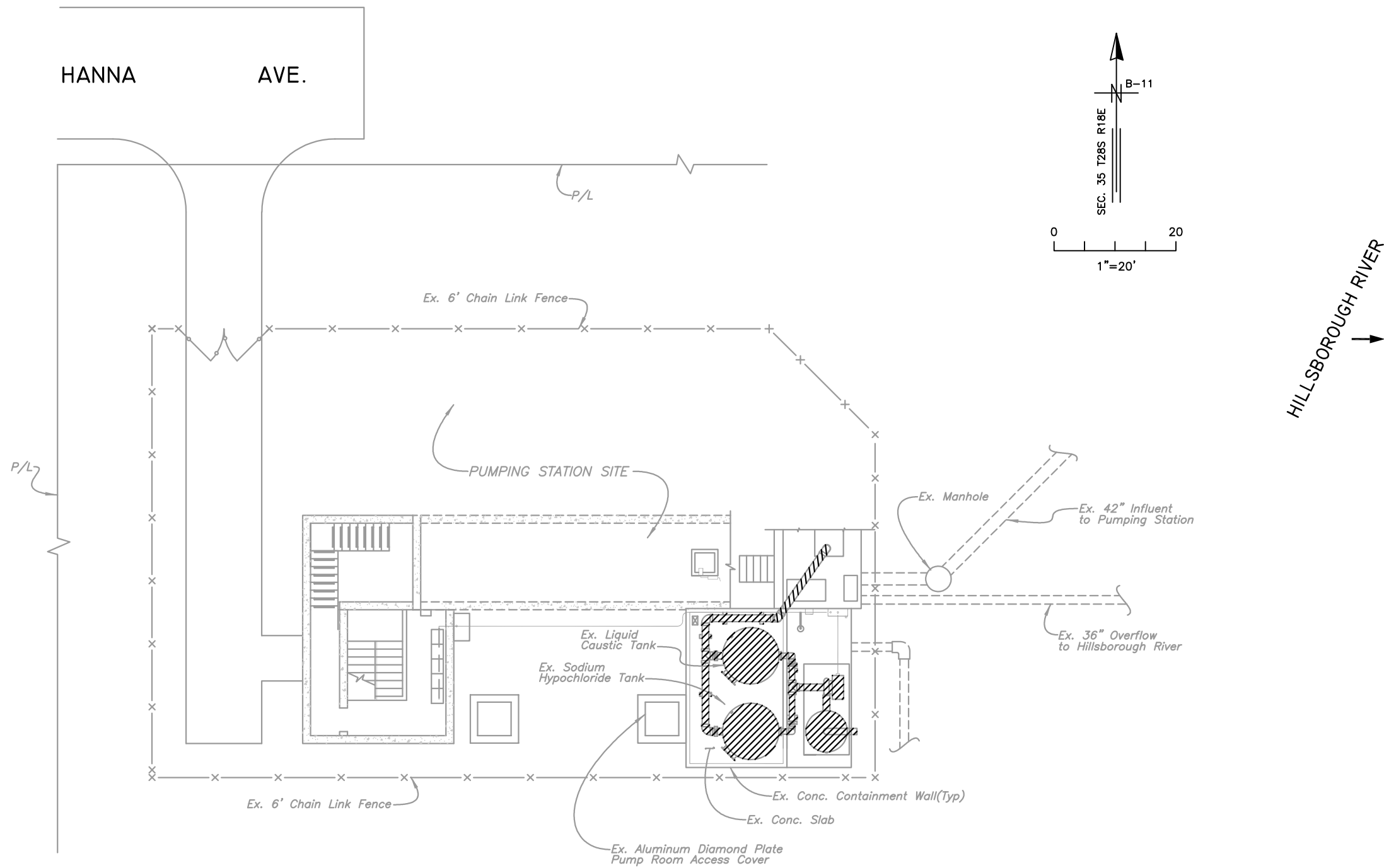


LOCATION MAP

User: ss13 Drawing Name: K:\WasteWater\Projects\Hanna PS Odor Control Replacement\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout: Jan 08, 2019 - 9:02am CTB - MONOCHROME.CTB TOSHIBA_UNL_COLOR (NORTH WING)

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: VT/LRG	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA PUMPING STATION ODOR CONTROL REPLACEMENT LEGEND, INDEX, NOTES & PROJECT MAP	SHEET 2
	3			DRN: JHJ			
	2			CKD:			
	1			DATE: 1/15/19			

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 Layout: Jan 08, 2019 - 9:02am CTB - THE TOSHIBA PUMP STATION CTECTB TOSHIBA_UNL_COLOR (NORTH WING)



EXISTING SITE PLAN
 SCALE: 1" = 20'



ALL EXISTING STRUCTURES, PIPING AND APPURTENANCES SHOWN AS HATCHED ARE TO BE DEMOLISHED AND REMOVED

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

No.	DATE	REVISIONS
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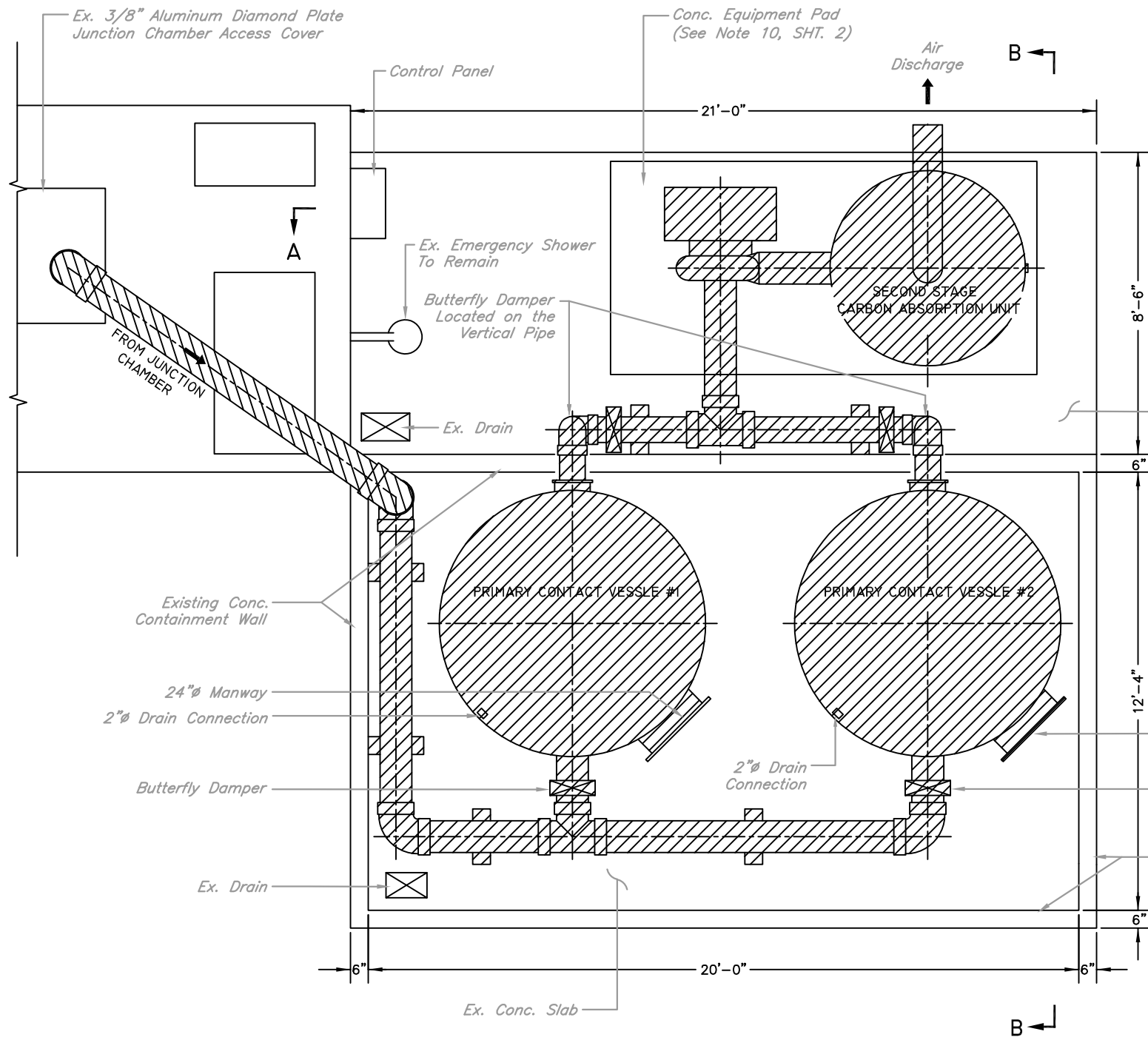
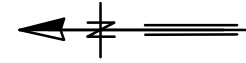
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 DRN: JHJ
 CKD:
 DATE: 1/15/19

CITY of TAMPA
WASTEWATER DEPARTMENT

HANNA PUMPING STATION
ODOR CONTROL REPLACEMENT
EXISTING SITE PLAN DEMOLITION

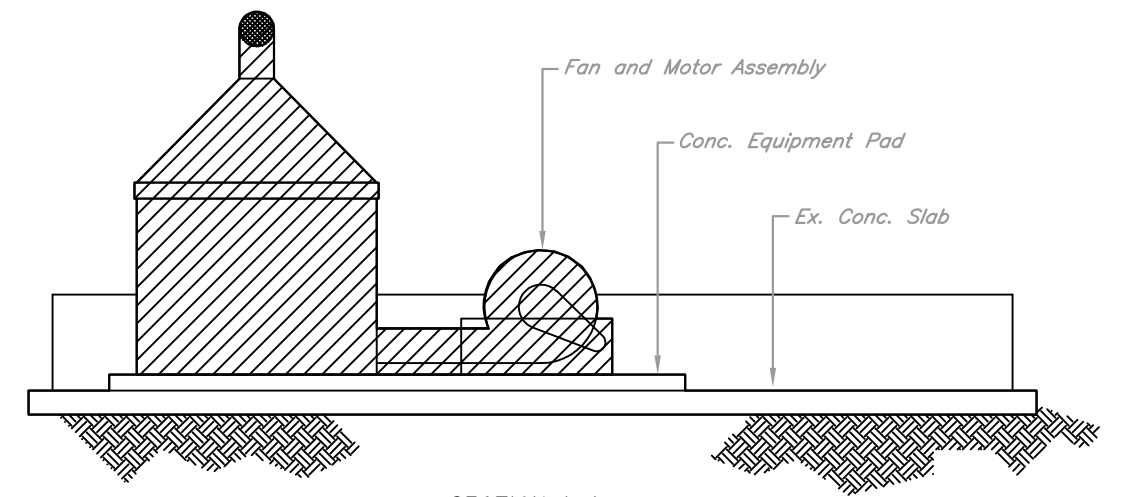
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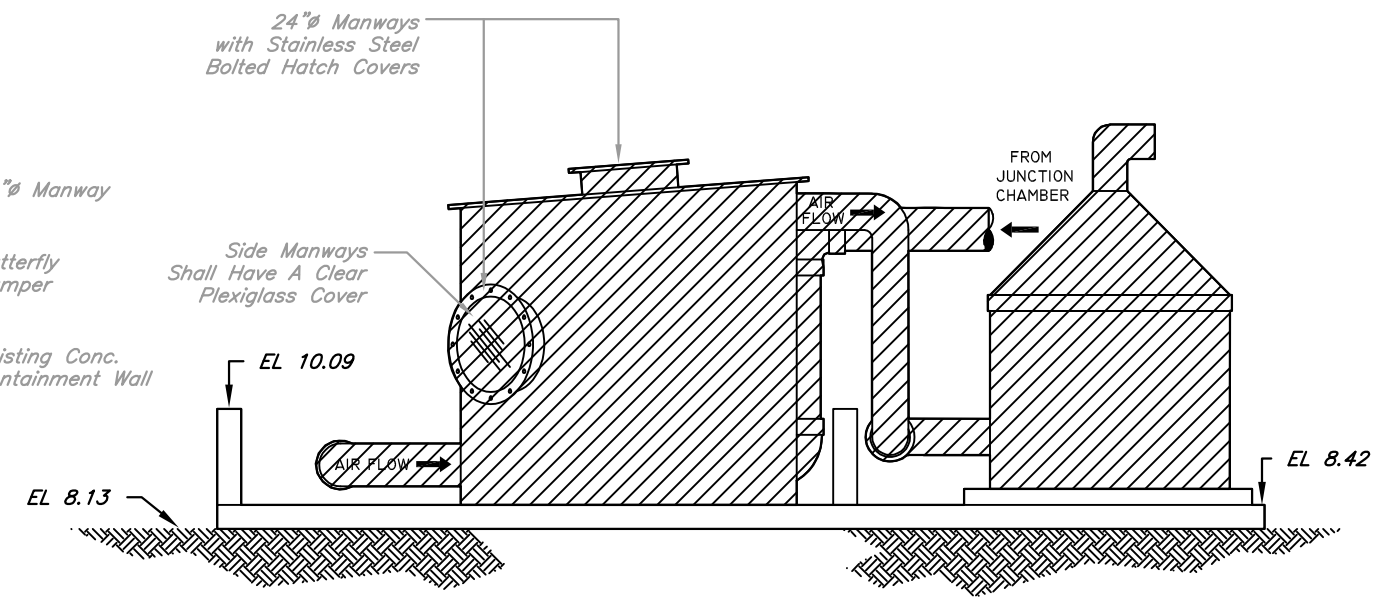


PLAN VIEW
N.T.S.

FAN AND MOTOR INFO:
1,000 C.F.M. @ 10" W.C. S.P.
5 H.P. 230-460/3/60 1,750 RPM MOTOR
FAN SPEED IS 2,454 RPM
FAN B.H.P. IS 3.98



SECTION A-A
N.T.S.



SECTION B-B
N.T.S.

ALL STRUCTURES PIPING AND APPURTENANCES SHOWN AS HATCHED ARE TO BE DEMOLISHED AND REMOVED

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

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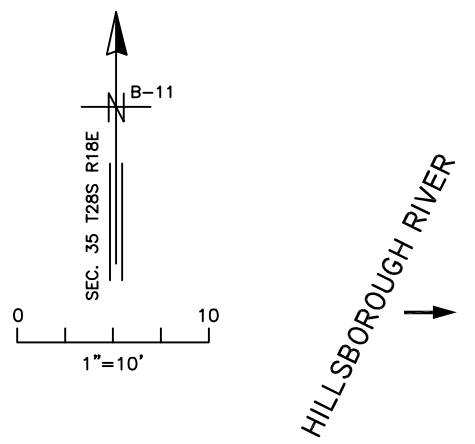
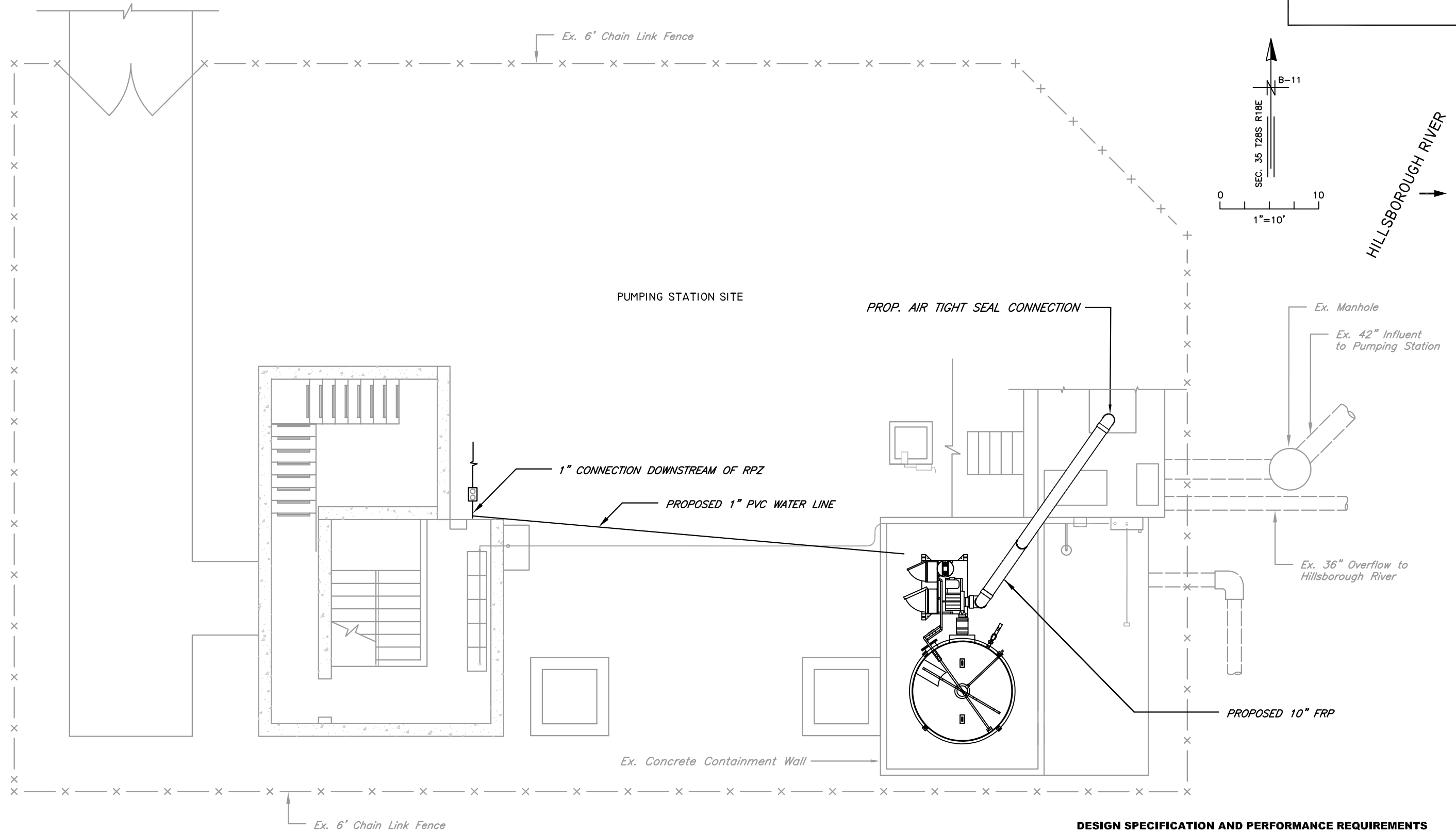
DES: VT
DRN: JHJ
CKD:
DATE: 11/29/18

CITY of TAMPA
WASTEWATER DEPARTMENT

HANNA AVE. PUMPING STATION
ODOR CONTROL REPLACEMENT
DEMOLITION PLANS & SECTIONS

SHEET
4

User: ss13 Drawing Name: K:\WasteWater\Projects\Hanna PS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg
 Layout: Jan 08, 2019 - 9:02am CTB - THE TOSHIBA PUMP STATION CTB.ctb TOSHIBA_UNL_COLOR (NORTH WING)



PROPOSED SITE PLAN
SCALE: 1" = 10'

DESIGN SPECIFICATION AND PERFORMANCE REQUIREMENTS

DESIGN AIR FLOW RATE, CFM	1,100
AVERAGE INLET H ₂ S CONCENTRATION, PPV(V)	100
PEAK INLET H ₂ S CONCENTRATION, PPM(V)	300

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

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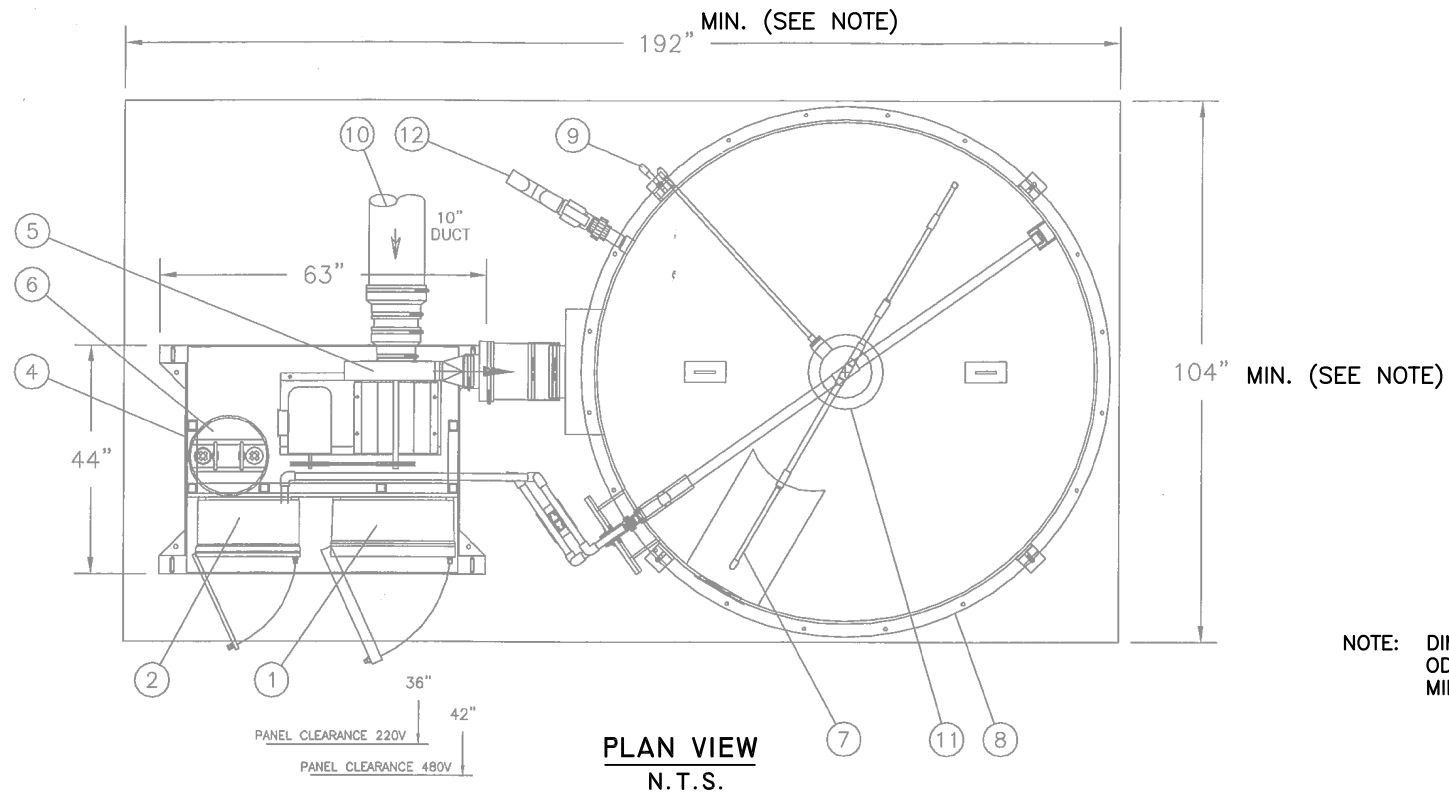
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 CKD:
 DATE: 1/15/19

CITY of TAMPA
WASTEWATER DEPARTMENT

HANNA PUMPING STATION
ODOR CONTROL REPLACEMENT
PROPOSED SITE PLAN

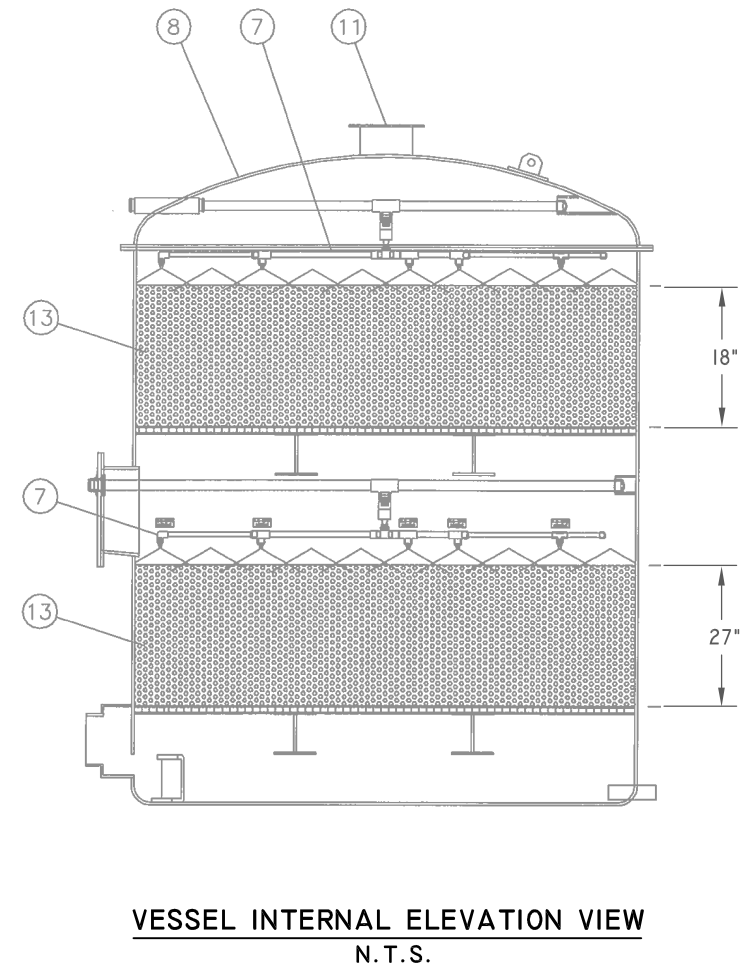
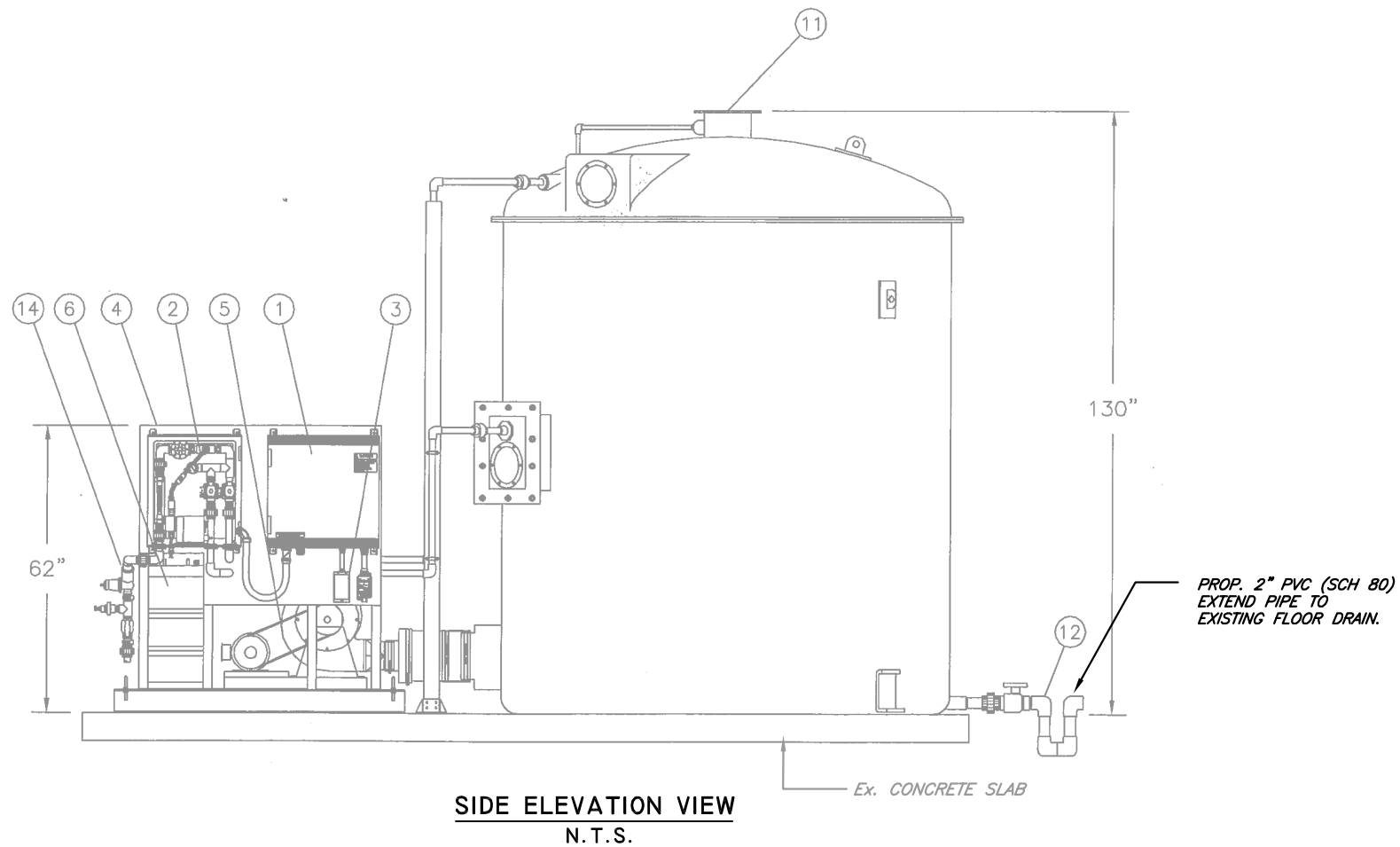
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 Layout: Nov 29, 2018 - 4:28pm CTB - THE TOSHIBA PUMP STATION CTB.TB TOSHIBA_UNL_COLOR (NORTH WING)



- NOMENCLATURE
- | | |
|------------------------|--|
| ① CONTROL PANEL | ⑦ CIRCULAR ACTIVE NOZZLE PIPING |
| ② WATER NUTRIENT PANEL | ⑧ WHISPER 96 VESSEL (8FT. DIAMETER TANK) |
| ③ DISCONNECT SWITCH | ⑨ SAMPLE/PRESSURE PORTS |
| ④ ALUMINUM SKID | ⑩ FOUL AIR INPUT DUCT |
| ⑤ SYSTEM BLOWER | ⑪ AIR OUTPUT PORT |
| ⑥ NUTRIENT TANK | ⑫ VESSEL DRAIN |
| | ⑬ MEDIA BED |
| | ⑭ WATER INPUT PIPING |

NOTE: DIMENSIONS SHOWN ARE THE MINIMUM SLAB DIMENSIONS REQUIRED FOR SPECIFIED ODOR CONTROL SYSTEM. ODOR CONTROL SYSTEM TO BE INSTALLED ON EX. SLAB. EXISTING SLAB DIMENSIONS EXCEED THE MINIMUM DIMENSIONS SHOWN ON THIS SHEET.



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

No.	DATE	REVISIONS
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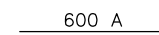
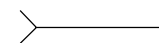



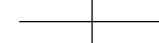
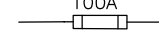
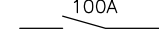
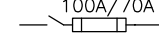
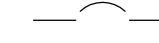
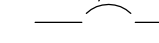
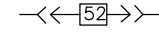
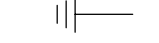

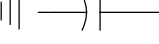



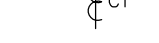
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 DATE: 11/29/18





CITY of TAMPA
 WASTEWATER DEPARTMENT

HANNA AVE. PUMPING STATION
 ODOR CONTROL REPLACEMENT
 PROPOSED ODOR CONTROL UNIT PLAN & ELEVATION VIEWS

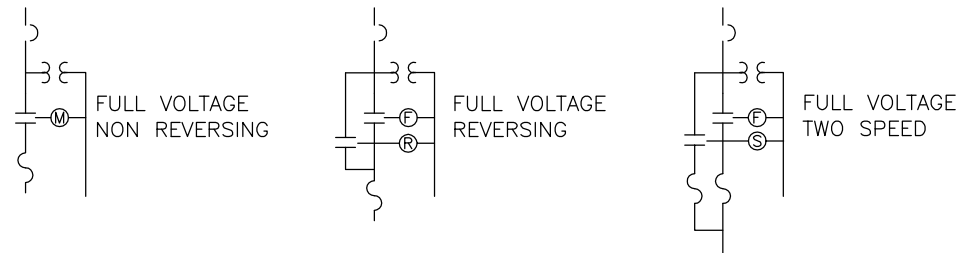
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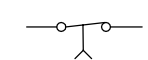
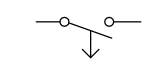
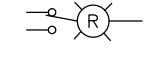
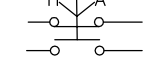
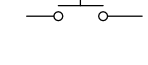
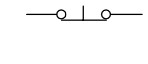
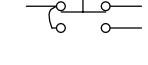

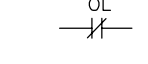
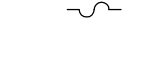
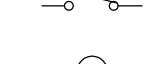
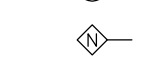
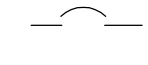

ONE LINE DIAGRAM SYMBOLS

-  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
-  $\llcorner 52 \lrcorner$ 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

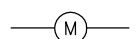
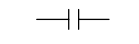
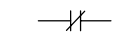
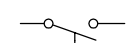
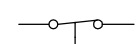
-  THERMAL OVERLOAD ELEMENT (OL)
-  SQUIRREL CAGE MOTOR (INDICATE HORSEPOWER)
-  GENERATOR
-  INDICATING LIGHT (R—RED, G—GREEN, A—AMBER, B—BLUE, W—WHITE)



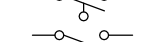
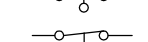
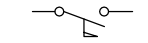
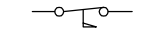
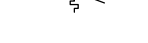
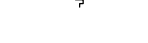
COMBINATION STARTER WITH CONTROL TRANSFORMERS AND OVERLOAD RELAYS AND MOTOR CIRCUIT PROTECTOR



-  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
-  GROUND BUS
-  NEUTRAL BUS (INSULATED)
-  SINGLE-POLE CIRCUIT BREAKER

SCHEMATIC AND WIRING DIAGRAM SYMBOLS

-  OPERATING COIL
-  NORMALLY OPEN CONTACT (N.O.)
-  NORMALLY CLOSED CONTACT (N.C.)
-  NORMALLY OPEN CONTACT WITH TIME DELAY CLOSING (ON-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

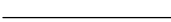


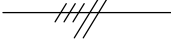
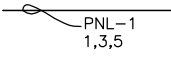

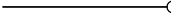
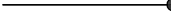
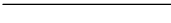






- | | | |
|---|---|-----------------|
| NORMALLY OPEN N.O. | NORMALLY CLOSED N.C. | LIMIT SWITCH |
|  |  | FLOAT SWITCH |
|  |  | PRESSURE SWITCH |
|  |  | FLOW SWITCH |
|  |  | TEMPERATURE |





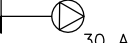








NOTE: THE SYMBOLS SHOWN COMPRISE A GENERAL LEGEND TO FACILITATE THE USE OF PLANS. REFER TO THE PLANS AND SPECIFICATIONS FOR ITEMS REQUIRED.

User: ss13 Drawing Name: X:\Wastewater Projects\Hanna FS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout— Jan 02, 2018 — 2:52pm

ROMAN D. KORCHAK, P.E., #42626 ELECTRICAL DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG DRN: JHJ CKD: DATE: 1/9/18	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA PUMPING STATION ODOR CONTROL REPLACEMENT ELECTRICAL SYMBOL LEGEND (SHT. 1 OF 2)	W.O. 0000 SHEET EGI
	3						
	2						
	1						

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)
-  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)
-  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
-  DUPLEX RECEPTACLE- 20 A, 120 V, 3 WIRE (TO PNL- CIRCUIT No.4)
-  SINGLE RECEPTACLE - 2 POLE, 3 WIRE, 240V, RATING NOTED
-  3 POLE, 4 WIRE, 240V WELDING OUTLET (60 A)
-  SINGLE POLE SWITCH
-  TWO POLE SWITCH
-  THREE WAY SWITCH
-  OUTLET BOX WITH BLANK COVER
-  JUNCTION BOX
-  PULL BOX
-  TERMINAL BOX

ABBREVIATIONS

- CB CIRCUIT BREAKERS
- M MOTOR STARTER
- FLA FULL LOAD AMPS
- R CONTROL RELAY
- OL MOTOR THERMAL OVERLOAD
- TB TERMINAL BLOCK
- T TERMINAL (MOTOR STARTER)
- SW SELECTOR SWITCH
- FU FUSE
- TD TIME DELAY RELAY
- SV SOLENOID VALVE
- RT RECYCLE TIMER
- DB DISTRIBUTION BLOCK
- MCP MOTOR CIRCUIT PROTECTOR

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ROMAN D. KORCHAK, P.E., #42626 ELECTRICAL DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA PUMPING STATION ODOR CONTROL REPLACEMENT ELECTRICAL SYMBOL LEGEND (SHT. 2 OF 2)	DRN: JHJ	W.O. 0000
	3			CKD:			SHEET	
	2			DATE: 1/9/18			EG2	
	1							

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 6TH EDITION 2017 OF THE FLORIDA BUILDING CODE AND THE 2014 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., UNLESS OTHERWISE NOTED.
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 (SCREWS, 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. ALL ELECTRICAL WORK SHALL BE PERFORMED WITHIN 2014 NEC AND CITY OF TAMPA/HILLSBOROUGH COUNTY CODES AND SHALL BE INSPECTED BY CITY OF TAMPA/HILLSBOROUGH COUNTY ELECTRICAL INSPECTORS AS APPLICABLE.
24. 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.
25. ALL COMPONENTS TO BE MOUNTED ON PANEL USING TAPPED HOLES.
26. ALL WIRING SHALL BE COPPER, ALL CONTROL WIRING SHALL BE STRANDED XHHW-2 COPPER, MINIMUM AWG #14 AND SHALL HAVE SPADE LUG TERMINATIONS.
27. ALL MECHANICAL CONNECTORS SHALL BE TORQUED PER NEC, UL OR MANUFACTURES SPECIFICATIONS.
28. INSTALL LAMINATED SCHEMATIC, LAMINATED DATA SHEET AND LAMINATED VFD SETUP PARAMETERS ON BACK FACE OF THE DOOR INSIDE THE ENCLOSURE.
29. 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.
30. ALL HINGED SURFACES SHALL BE GROUNDED WITH A BONDING JUMPER SECURED TO THE ENCLOSURE OR BACKPANEL.
31. PROVIDE 1/4" MINIMUM THICKNESS LEXAN SHIELDS OVER POWER DISTRIBUTION BLOCK AND OTHER EXPOSED CABLE TERMINATIONS.
32. 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.

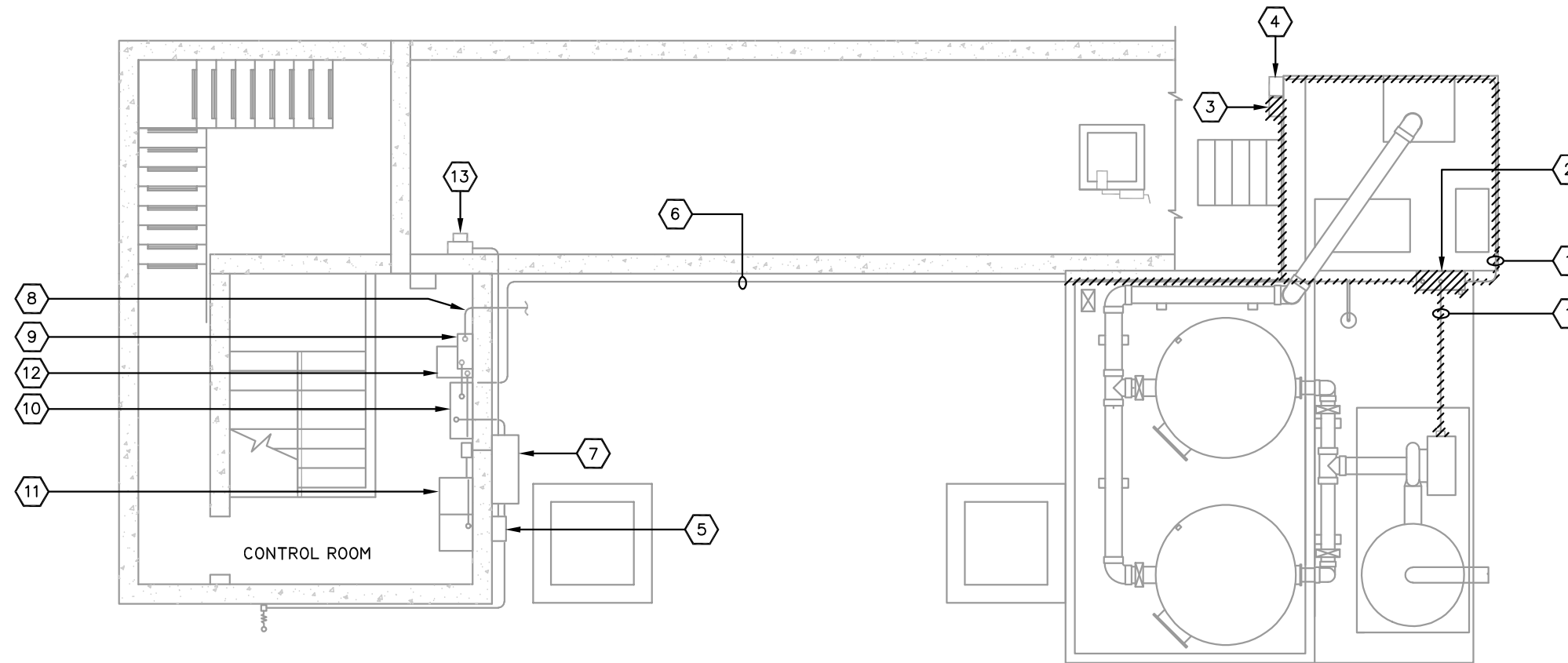
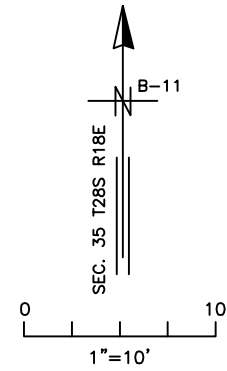
SCOPE OF WORK:

1. REMOVE EXISTING 3-POLE, 50 AMP CIRCUIT BREAKER IN THE EXISTING MOTOR CONTROL CENTER, CUBICLE B6 AND DELIVER AS A SPARE TO THE HOWARD F. CURREN TREATMENT PLANT.
2. REMOVE THE EXISTING ODOR CONTROL PANEL, DISCONNECT SWITCH, AND ALL ASSOCIATED CONDUIT AND CONDUCTORS FROM THE EXISTING CONTROL PANEL TO THE EXISTING DISCONNECT SWITCH. DELIVER THE DISCONNECT SWITCH AS A SPARE TO THE HOWARD F. CURREN TREATMENT PLANT.
3. REMOVE ALL CONDUCTORS AND REUSE THE EXISTING 1" CONDUIT FROM THE EXISTING ODOR CONTROL PANEL TO THE MOTOR CONTROL CENTER, CUBICLE SECTION B6.
4. INTERCEPT AND EXTEND THE 1" CONDUIT AS NEEDED TO THE NEW ODOR CONTROL ELECTRICAL PANEL, AS SHOWN, SPECIFIED, AND REQUIRED.
5. PROVIDE AND INSTALL A 15 AMP CIRCUIT BREAKER FOR MOTOR CONTROL CENTER CUBICLE B6. CIRCUIT BREAKER SHALL BE OF THE SAME MANUFACTURER AND MODEL WITH EQUAL TO OR GREATER AIC RATING OF THE CIRCUIT BREAKER BEING REMOVED.
6. PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTORS FOR CONTROL ALARM AND STATUS SIGNAL TO EXISTING SCADA RTU. CONDUIT AND CONDUCTORS SHALL EXTEND FROM EXISTING SCADA RTU IN PUMP CONTROL PANEL TO PROPOSED ODOR CONTROL CABINET. CONTRACTOR SHALL CLEARLY MARK CONDUCTORS FOR FINAL CONNECTION BY CITY INSTRUMENTATION AND CONTROL CODE.
7. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 5th EDITION 2017, THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) SERIES 70/NATIONAL ELECTRICAL CODE (NEC) 2014 EDITION, AND CHAPTER 5 OF THE CITY OF TAMPA CODE.

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ROMAN D. KORCHAK, P.E., #42626 ELECTRICAL DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA PUMPING STATION ODOR CONTROL REPLACEMENT GENERAL NOTES & SCOPE OF WORK	SHEET
	3			DRN: JHJ			EG3
	2			CKD:			
	1			DATE: 11/27/18			

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 Layout: Nov 27, 2018 - 2:49pm CTB - THE TOSHIBA PUMP STATION CTB.ctb TOSHIBA_UNL_COLOR (NORTH WING)



EXISTING ELECTRICAL SITE PLAN DEMO
 SCALE: 1" = 10'

KEYED NOTES:

- 1 CONDUIT AND CONDUCTORS TO EXISTING ODOR CONTROL PANEL, TO BE REMOVED.
- 2 ODOR CONTROL PANEL, TO BE REMOVED, SEE GENERAL NOTE 1.
- 3 DISCONNECT SWITCH, TO BE REMOVED, SEE NOTE 1.
- 4 JUNCTION BOX, TO REMAIN.
- 5 SURGE PROTECTION DEVICE TYPE 1, NO WORK REQUIRED.
- 6 1" SCH. 80 PVC CONDUIT AND CONDUCTORS, SEE GENERAL NOTE 2.
- 7 TRANSFER SWITCH, NO WORK REQUIRED.
- 8 CONDUIT TO 120/240V-1PHASE LOADS, NO WORK REQUIRED, SEE GENERAL NOTE 3.
- 9 LIGHTING PANEL, NO WORK REQUIRED, SEE SHEET ED AND GENERAL NOTE 3.
- 10 PUMP CONTROLLER SCADA AND RADIO SYSTEM, SEE SCOPE OF WORK, NOTE 5, SHEET EG3.
- 11 MOTOR CONTROL CENTER, SEE SCOPE OF WORK, NOTE 1, SHEET EG.
- 12 TRANSFORMER, NO WORK REQUIRED.
- 13 TECO METER, NO WORK REQUIRED.

GENERAL NOTES:

- 1. EQUIPMENT TO BE SALVAGED AND DELIVERED TO THE CITY AS A SPARE. REMOVE ALL ASSOCIATED CONDUIT AND CONDUCTORS.
- 2. REMOVE ALL CONDUCTORS AND REUSE CONDUIT.
- 3. ENSURE THE ODOR CONTROL LIGHT AND OUTLET REMAINS IN SERVICE. SEE LIGHTING PANEL LOADS ON SHEET ES3.

ALL STRUCTURES SHOWN AS HATCHED ARE TO BE DEMOLISHED AND REMOVED

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

No.	DATE	REVISIONS
3		
2		
1		

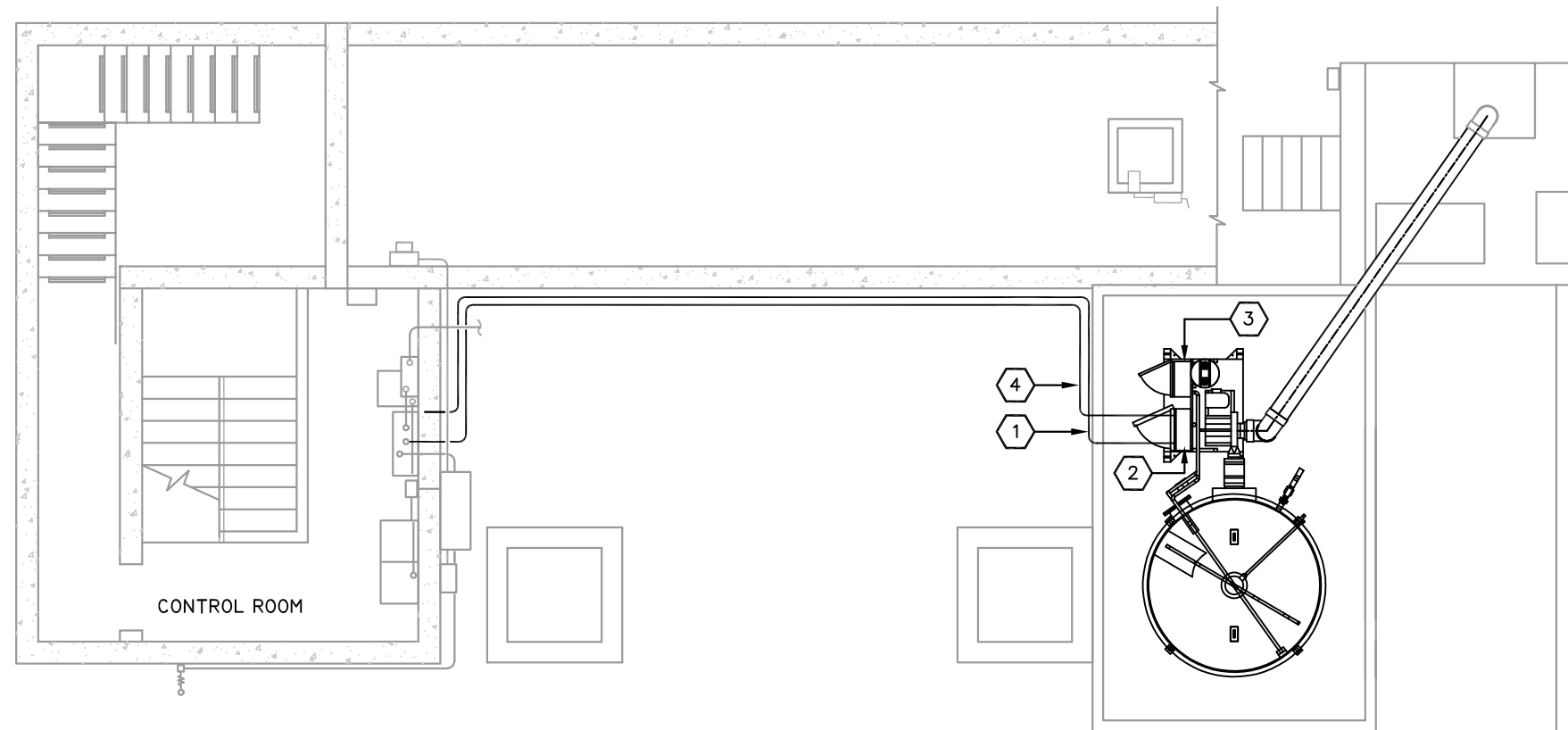
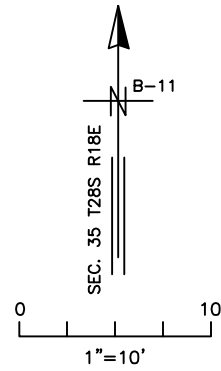
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 DRN: JHJ
 CKD:
 DATE: 11/27/18

CITY of TAMPA
WASTEWATER DEPARTMENT

HANNA PUMPING STATION
ODOR CONTROL REPLACEMENT
EXISTING ELECTRICAL SITE PLAN DEMO

SHEET
ESI

User: ss13 Drawing Name: K:\WasteWater\Projects\Hanna FS Odor Control Replacement\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout: Nov 29, 2018 - 3:10pm CTB - THE TOSHIBA PUMP STATION CTB.TB TOSHIBA_UNL_COLOR

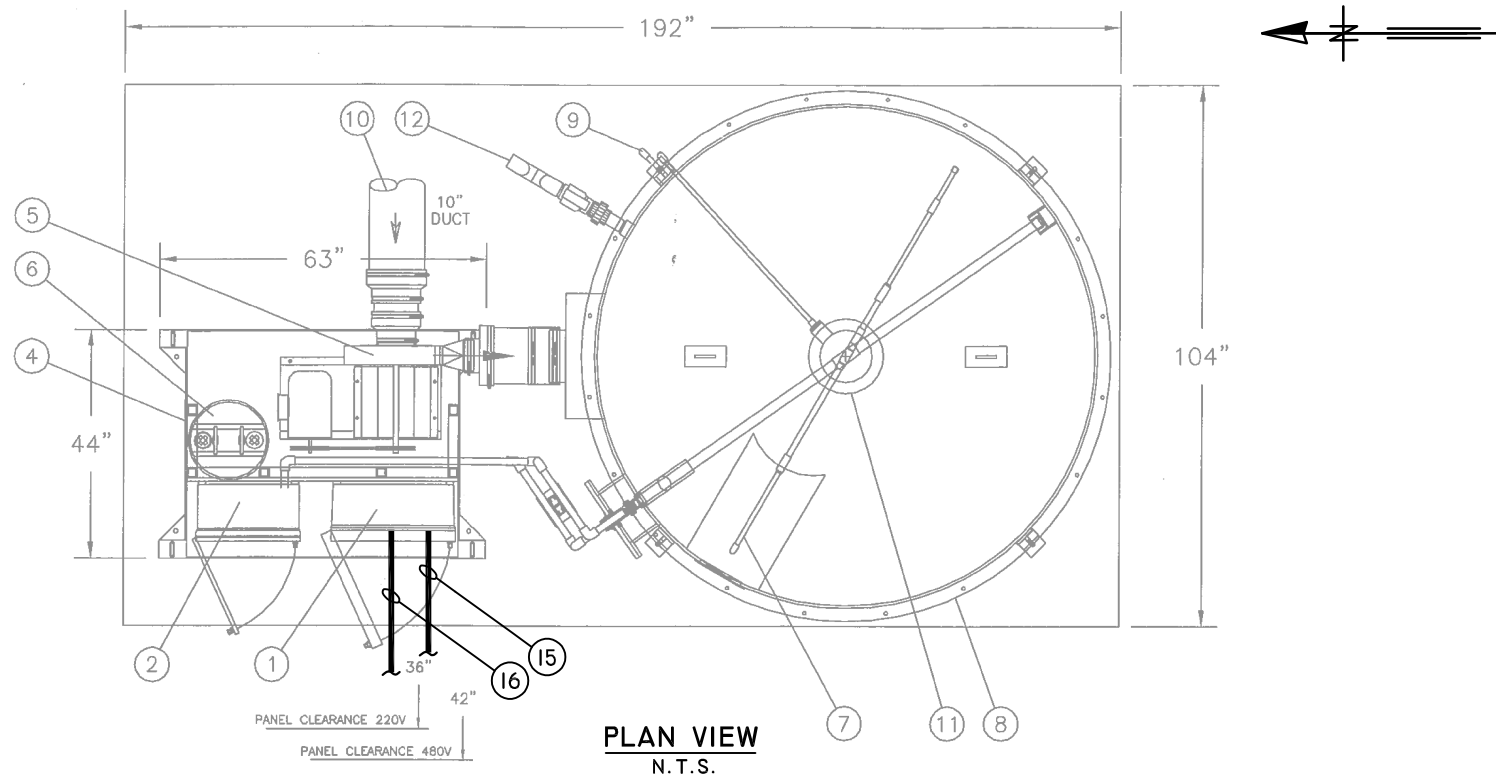


KEYED NOTES:

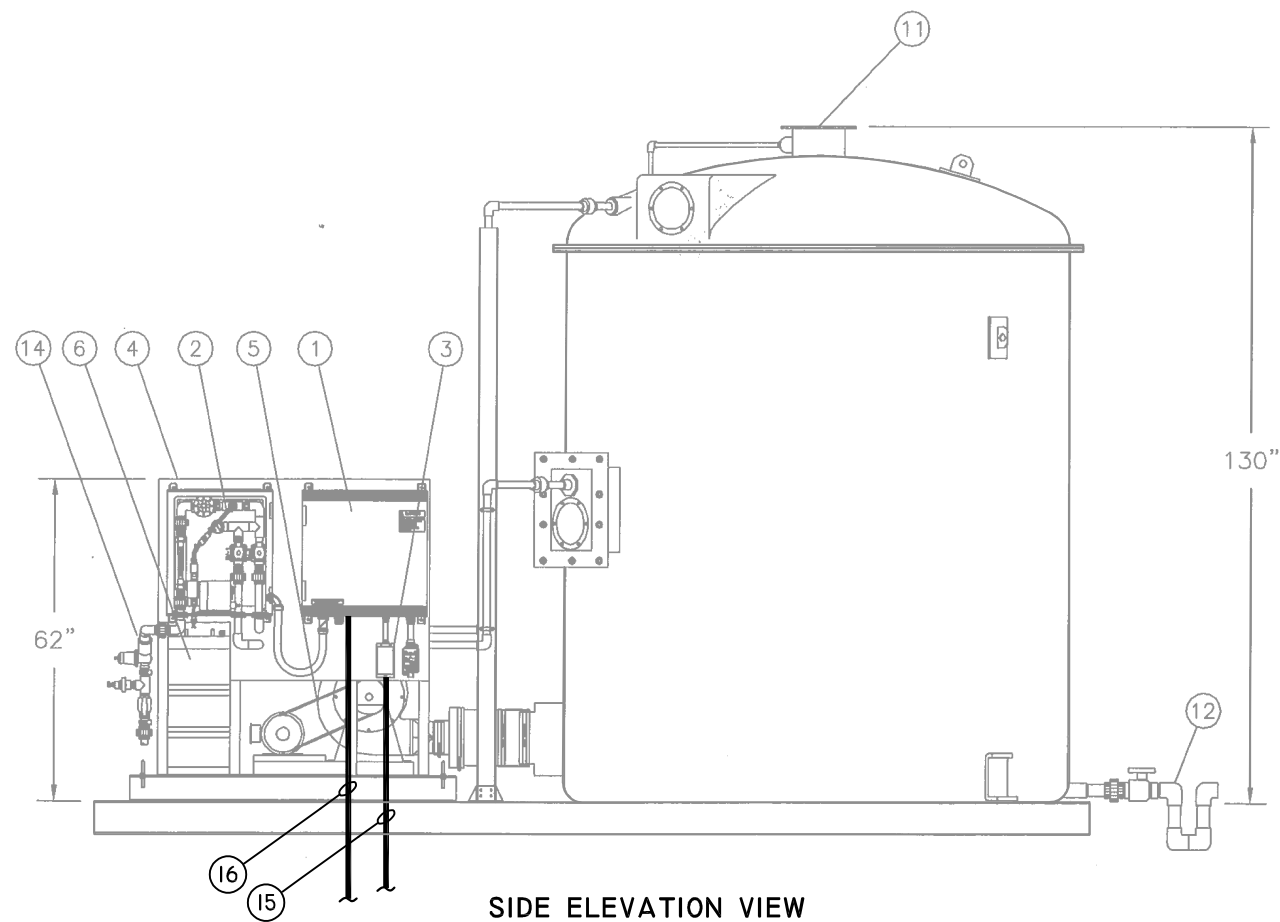
- ① EXISTING 1" CONDUIT. INTERCEPT AND EXTEND TO PROPOSED ODOR CONTROL DISCONNECT SWITCH, SEE SHEET ES3.
- ② PROPOSED ODOR CONTROL PANEL, SEE SHEET ES3.
- ③ PROPOSED WATER NUTRIENT PANEL, SEE SHEET ES3.
- ④ PROPOSED 1" CONDUIT WITH (12)-#12 XHHW-2 + (1) + 12 XHHW-2 CU GND CONDUCTORS (INCLUDES SPARES FOR FUTURE USE), SEE SHEET ES3.

PROPOSED ELECTRICAL SITE PLAN
SCALE: 1" = 10'

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA PUMPING STATION ODOR CONTROL REPLACEMENT PROPOSED ELECTRICAL SITE PLAN	SHEET
	3			DRN: JHJ			ES2
	2			CKD:			
	1			DATE: 1/9/18			



PLAN VIEW
N.T.S.



SIDE ELEVATION VIEW
N.T.S.

KEYED ITEMS:

- ① CONTROL PANEL
- ② WATER NUTRIENT PANEL
- ③ DISCONNECT SWITCH
- ④ ALUMINUM SKID
- ⑤ SYSTEM BLOWER
- ⑥ NUTRIENT TANK
- ⑦ CIRCULAR ACTIVE NOZZLE PIPING
- ⑧ WHISPER 96 VESSEL
- ⑨ SAMPLE/PRESSURE PORTS
- ⑩ FOUL AIR INPUT DUCT
- ⑪ AIR OUTPUT PORT
- ⑫ VESSEL DRAIN
- ⑬ MEDIA BED
- ⑭ WATER INPUT PIPING
- ⑮ CONDUIT TO EXISTING MCC. FOR CONTINUATION, SEE SHEET ES2.
- ⑯ CONDUIT TO EXISTING SCADA RTU IN PUMP CONTROL PANEL. FOR CONTINUATION, SEE SHEET ES2.

NOTE:

1. ENSURE THAT THE ELECTRICAL EQUIPMENT IS MOUNTED ABOVE EL. 10', OR THAT THE TOP OF THE CONTAINMENT WALL IS ABOVE EL. 10'.

User: ss13 Drawing Name: K:\WasteWater\Projects\Hanna PS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout: Nov 29, 2018 - 3:10pm CTB - THE TOSHIBA PUMP STATION CTB.TB TOSHIBA_UNL_COLOR (NORTH WING)

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

No.	DATE	REVISIONS
3		
2		
1		

DES: LRG
DRN: JHJ
CKD:
DATE: 11/28/18

CITY of TAMPA
WASTEWATER DEPARTMENT

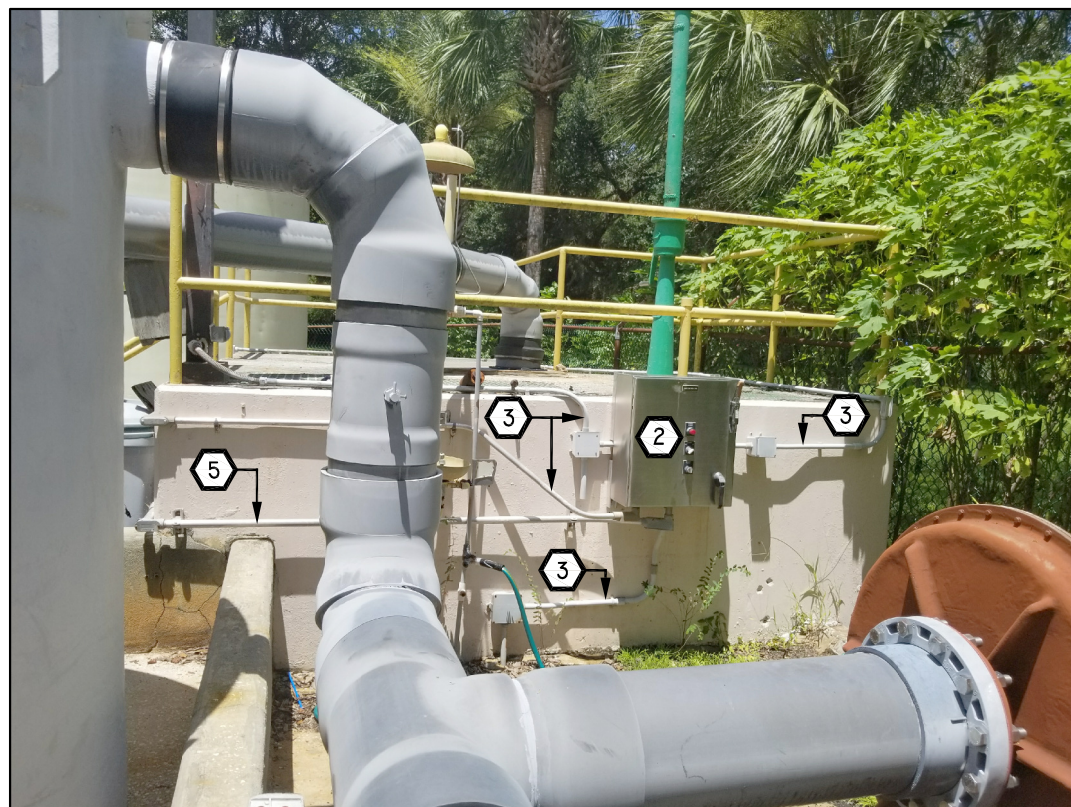
HANNA AVE. PUMPING STATION
ODOR CONTROL REPLACEMENT
PROPOSED ELECTRICAL SITE PLAN VIEWS

SHEET
ES3

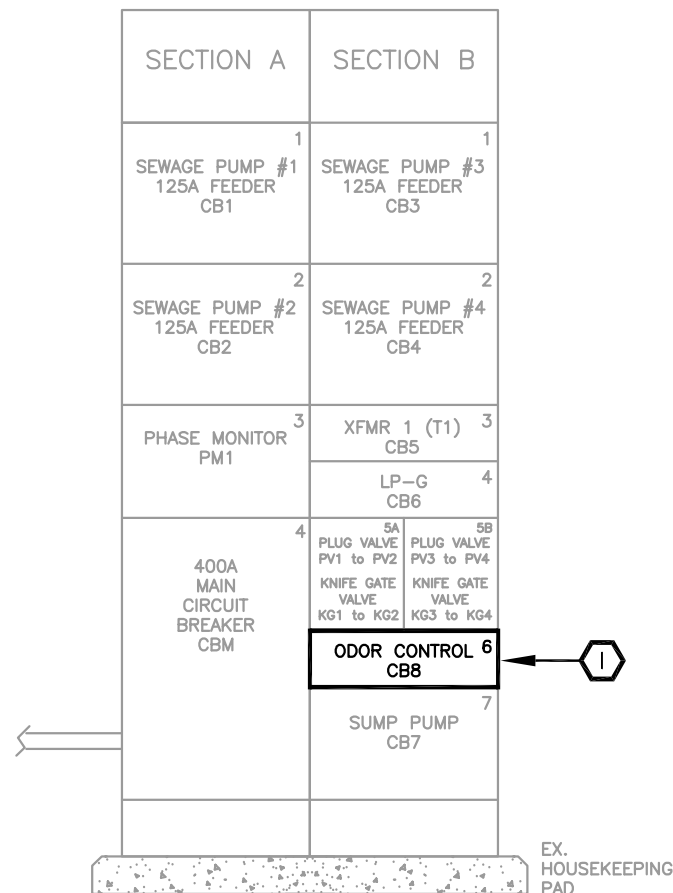
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FRONT VIEW
N.T.S.



SIDE VIEW
N.T.S.



**EXISTING SIEMENS TIASTAR
MOTOR CONTROL CENTER (MCC)**

KEYED NOTES:

- ① EXISTING ODOR CONTROL, CB8, CUBICLE SECTION B6 (TO BE REMOVED), SEE SHEET EG3, SCOPE OF WORK, NOTE 1 AND NOTE 5.
- ② EXISTING ODOR CONTROL PANEL (TO BE REMOVED).
- ③ EXISTING CONDUIT AND CONDUCTORS (TO BE REMOVED).
- ④ EXISTING DISCONNECT SWITCH (TO BE REMOVED), SEE SHEET EG3, SCOPE OF WORK NOTE 2.
- ⑤ EXISTING CONDUIT TO MCC, SEE SHEET EG3, SCOPE OF WORK NOTE 3.
- ⑥ EXISTING JUNCTION BOX (TO REMAIN).

PANELBOARD "LP-1" SCHEDULE

MAIN: 80A M.C.B.
A/C RATING: 22K RMS. AMPS. SYMM.
LOCATION: CONTROL ROOM
VOLTAGE: VOLTAGE: 120/240V, 1PH, 3W

UNIT NO.	DESCRIPTION	POLE	BREAKER	
			AMPS	TYPE
1	SCREEN ROOM LIGHT	1	20	HBL
2	MOTOR ELECT. ROOM LIGHT	1	20	HBL
3	PUMP / DRY ROOM LIGHTS	1	20	HBL
4	GFCI RECEPTACLE	1	20	HBL
5	ODOR CONTROL LIGHT	1	20	HBL
6	FAN DRY ROOM	1	20	HBL
7	ODOR CONTROL OUTLET	1	20	HBL
8	FAN DRY ROOM	1	20	HBL
9	WET WELL FAN	1	20	HBL
10	DCR CONTROL PANEL	1	20	HBL
11-30	SPACE			

NOTES:

PANEL BOARD SCHEDULE IS FOR INFORMATIONAL PURPOSES ONLY. ENSURE ELECTRICAL LOADS TO EXISTING ODOR CONTROL LIGHT AND ODOR CONTROL OUTLET ARE RECONNECTED, IF DISCONNECTION IS REQUIRED DURING CONSTRUCTION.

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

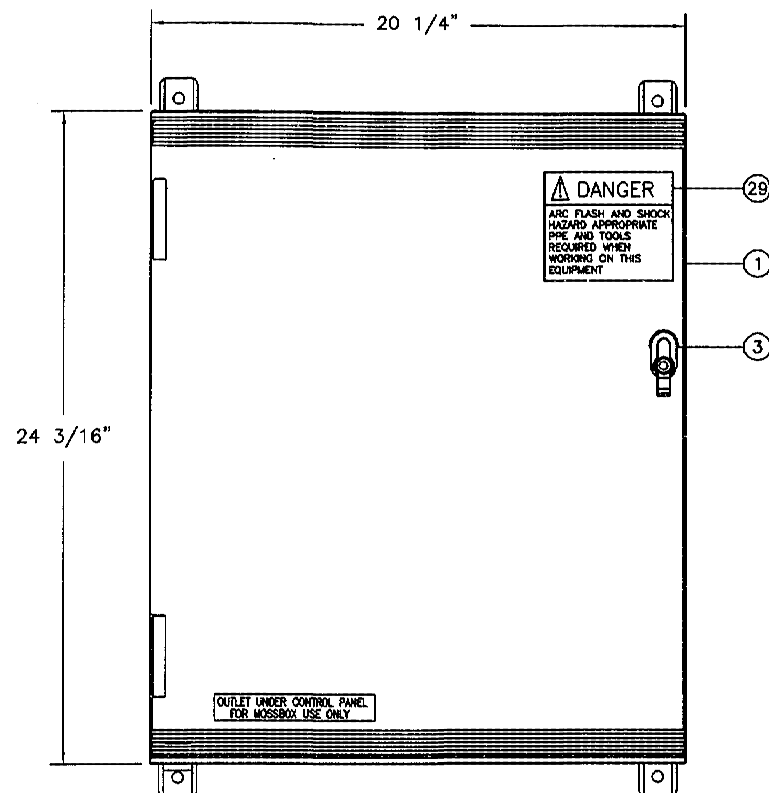
No.	DATE	REVISIONS
3		
2		
1		

DES: LRG
DRN: JHJ
CKD:
DATE: 11/28/18

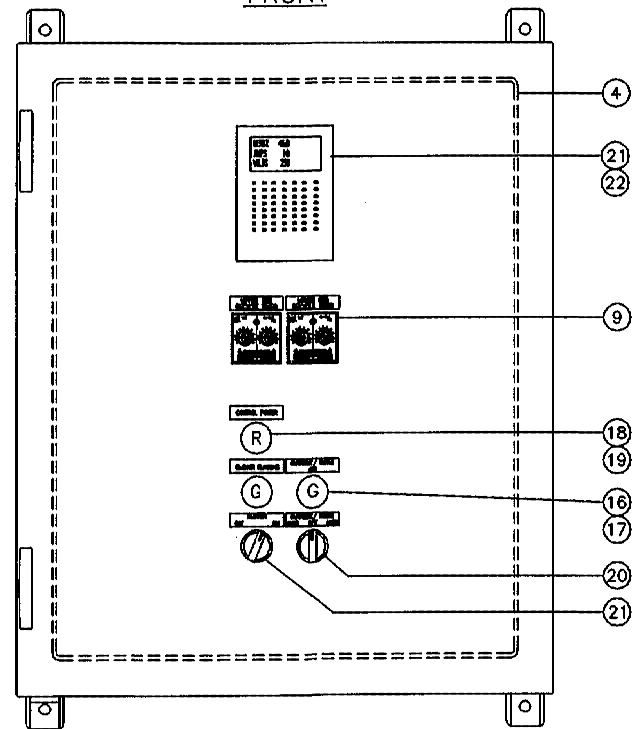
CITY of TAMPA
WASTEWATER DEPARTMENT

**HANNA AVE. PUMPING STATION
ODOR CONTROL REPLACEMENT
ELECTRICAL IDENTIFICATION**

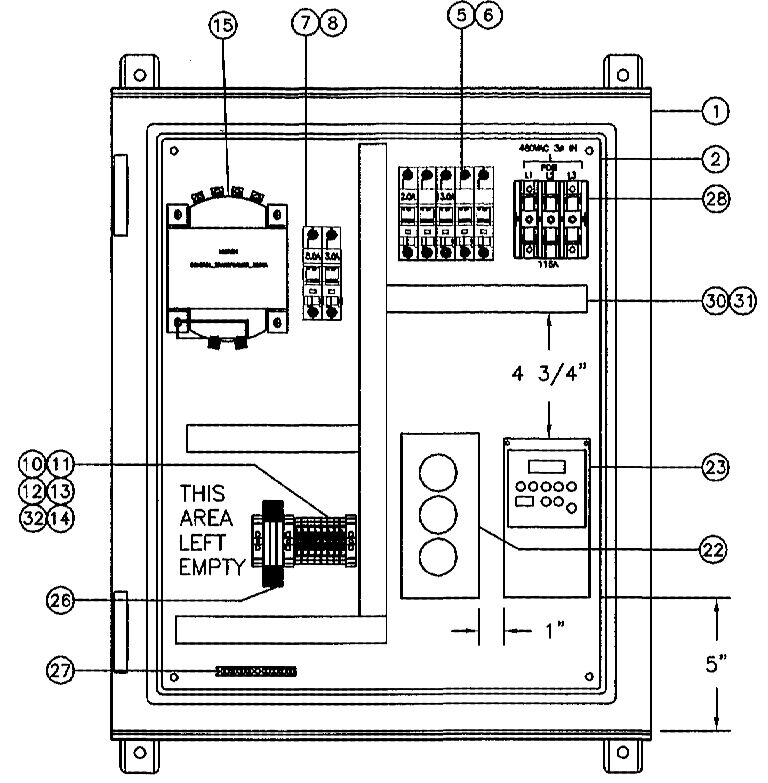
SHEET
ED



FRONT



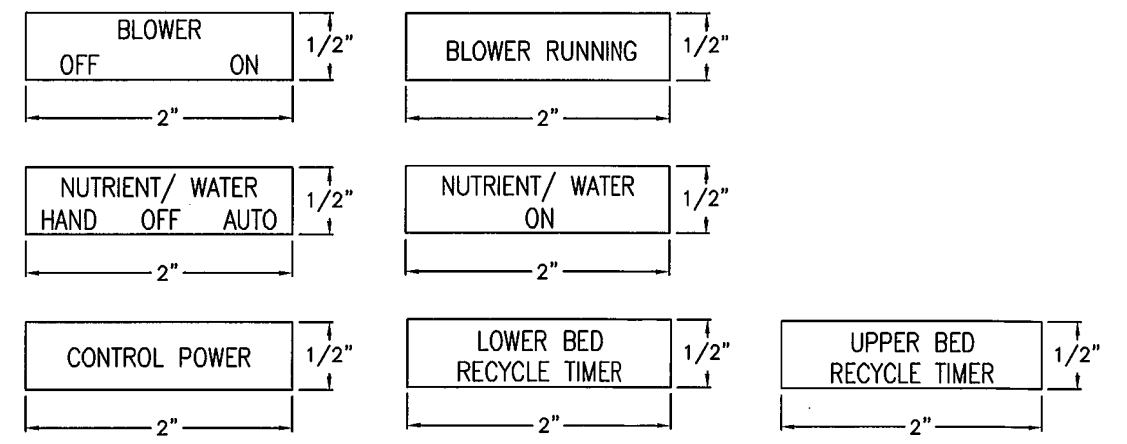
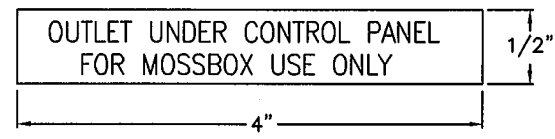
INNER SWING-OUT DOOR



FRONT-DOOR REMOVED

NOTE:
 PANEL BUILDER TO REMOVE CLEAR PLASTIC COVER ON RECYCLE TIMER (ITEM 9), BEFORE INSTALLING ON SWING OUT DOOR.

BILL OF MATERIAL				UNIT	QTY
1	HOFFMAN	BOX CONTROL ULTRX_4X 24X20X10	HOFFMAN U-U605025	EA	1
2	HOFFMAN	BACKPLATE 24X20 STEEL	HOFFMAN A-24P20	EA	1
3	HOFFMAN	BOX CONTROL ACCY HANDLE	HOFFMAN U-UHPL	EA	1
4	HOFFMAN	BOX CONTROL ACCY SWING-OUT	HOFFMAN U-U6050SP	EA	1
5	AUTOMATION D	BREAKER 13AMP 3 POLE	FAZ-D13-3-NA	EA	1
6	AUTOMATION D	BREAKER 2AMP 2 POLE	FAZ-D2-2-NA	EA	1
7	AUTOMATION D	BREAKER 5AMP 1 POLE	FAZ-C5-1-NA-SP	EA	1
8	AUTOMATION D	BREAKER 3AMP 1 POLE	FAZ-C3-1-NA-SP	EA	1
9	AA ELECTRIC	RELAY TIMER RECYCLE DPDT	ATC MODEL 422AR100-S5TX	EA	2
10	AA ELECTRIC	WAGO TERMINAL BLOCKS 24AMP 800V SINGLE TIER #2002-1201		EA	8
11	AA ELECTRIC	WAGO TERMINAL END COVER #2002-1291		EA	1
12	AA ELECTRIC	WAGO TERMINAL BLOCK MARKERS #793-5501 OR EQUAL		ASNEEDED	
13	ALLEN BRADLY	TERMINAL END ANCHORS #1492-EAJ35 OR EQUAL		ASNEEDED	
14	AA ELECTRIC	WAGO TERMINAL BLOCK JUMPERS 12WAY #2002-482		ASNEEDED	
15	ALLEN BRADL	TRANSFORMER CTRL 480/120 350VA 1497-F-BASX-0-N OR EQUAL		EA	1
16	ALLEN BRADL	LIGHT LED GREEN MODULE	800F-N5G	EA	2
17	ALLEN BRADL	GREEN LIGHT DIFFUSER	800FP-N3	EA	2
18	ALLEN BRADL	LIGHT LED RED MODULE	800F-N5R	EA	1
19	ALLEN BRADL	RED LIGHT DIFFUSER	800FP-N4	EA	1
20	ALLEN BRADL	3 POSITION SWITCH 22MM	800FP-SM32PX20(2 NO CONTACTS)	EA	1
21	ALLEN BRADL	2 POSITION SWITCH 22MM	800FP-SM22PX20(2 NO CONTACTS)	EA	1
22	ALLEN BRADL	VFD ACCY LINE REACTOR	AB 1321-3R8-C	EA	1
23	ALLEN BRADL	DRIVE VARIABLE FREQ 3HP 480V	3P POWER FLEX 4 22A-D6PON104	EA	1
24	ALLEN BRADL	VFD HIM MODULE	VFD HIM 22-HIM-A3	EA	1
25	ALLEN BRADL	VFD HIM MODULE BEZEL	VFD HIM BEZEL 22-HIM-B1	EA	1
26	PHOENIX CONT	RELAY PHOENIX CONTROL 1PDT	120VAC #2966197 (STD)	EA	3
27	SQUARE D	BAR GROUNDING KIT	SQD PK9GTA	EA	1
28	SQUARE D	3 POLE DISTRIBUTION BLOCK	SQD 9080-LBA361104	EA	1
29	GRAINGER	ARC FLASH LABEL GRAINGER PART NUMBER 5RB54		EA	1
30	STOCK	RACEWAY WIRE DUCT 1X2	T&B#T1X2HDW 6-FOOT LG.	EA	1
31	STOCK	RACEWAY WIRE COVER 1-INCH	T&B#T1CW 6-FOOT LG.	EA	1
32	AUTOMATION D	35MM DIN RAIL OR EQUAL		ASNEEDED	

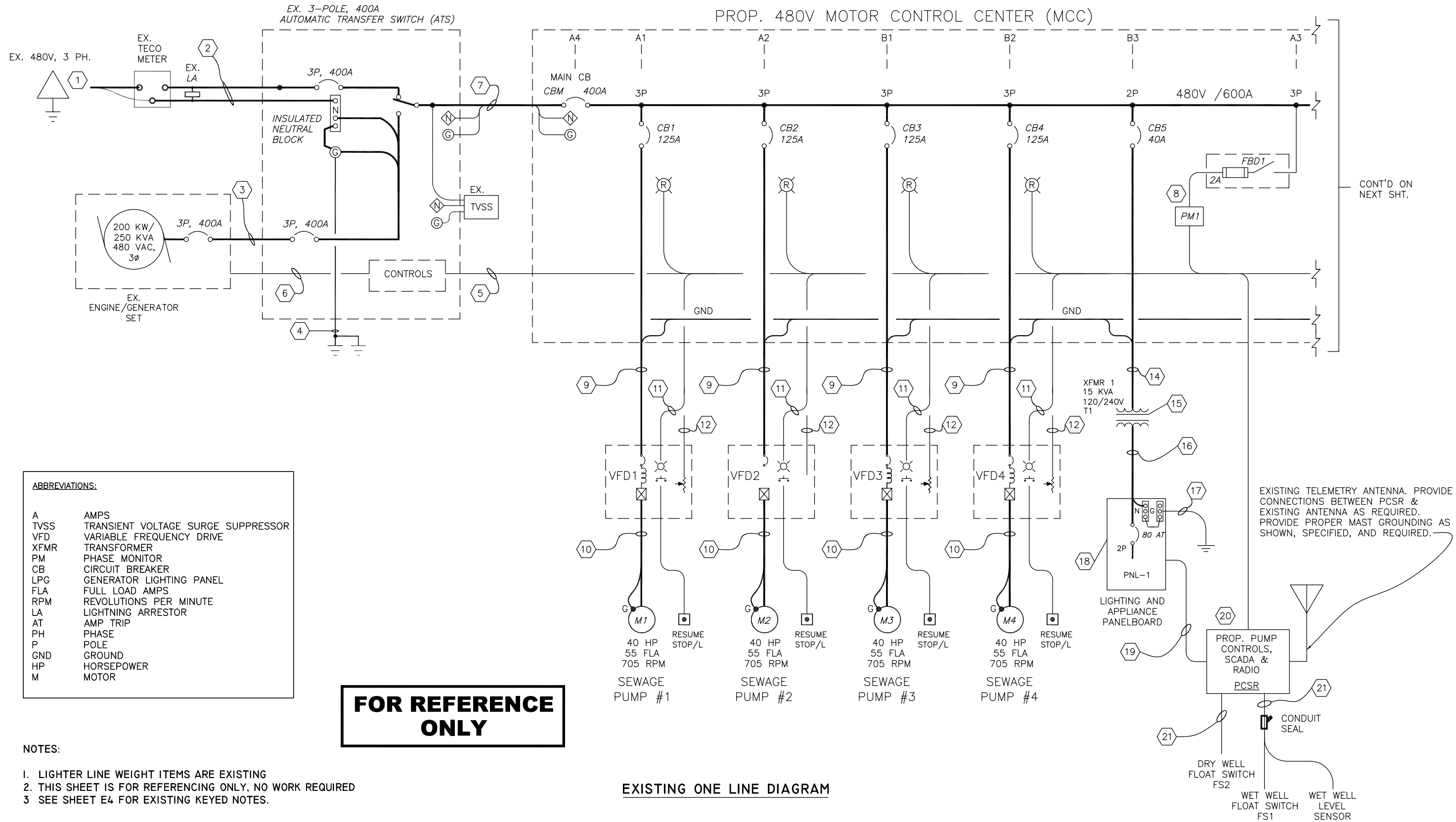


LABEL DETAIL
 SCALE: NTS

User: ss13 Drawing Name: K:\Wastewater Projects\Hanna FS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout: Jan 08, 2018 - 4:18pm CTB - THE TOSHIBA PUMP STATION CTB.CTB TOSHIBA_UNL_COLOR (NORTH WING)

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA AVE. PUMPING STATION ODOR CONTROL REPLACEMENT CONTROL PANEL / BILL OF MATERIALS	SHEET
	3			DRN: JHJ			EI
	2			CKD:			
	1			DATE: 1/9/18			

User: ss13 Drawing Name: K:\Wastewater Projects\Hanna PS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout: Jan 09, 2018 - 3:00pm CTB - THE TOSHIBA PUMP STATION CTB.CTB TOSHIBA_UNL_COLOR (NORTH WING)



ABBREVIATIONS:

A	AMPS
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
PM	PHASE MONITOR
CB	CIRCUIT BREAKER
LPG	GENERATOR LIGHTING PANEL
FLA	FULL LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
LA	LIGHTNING ARRESTOR
AT	AMP TRIP
PH	PHASE
P	POLE
GND	GROUND
HP	HORSEPOWER
M	MOTOR

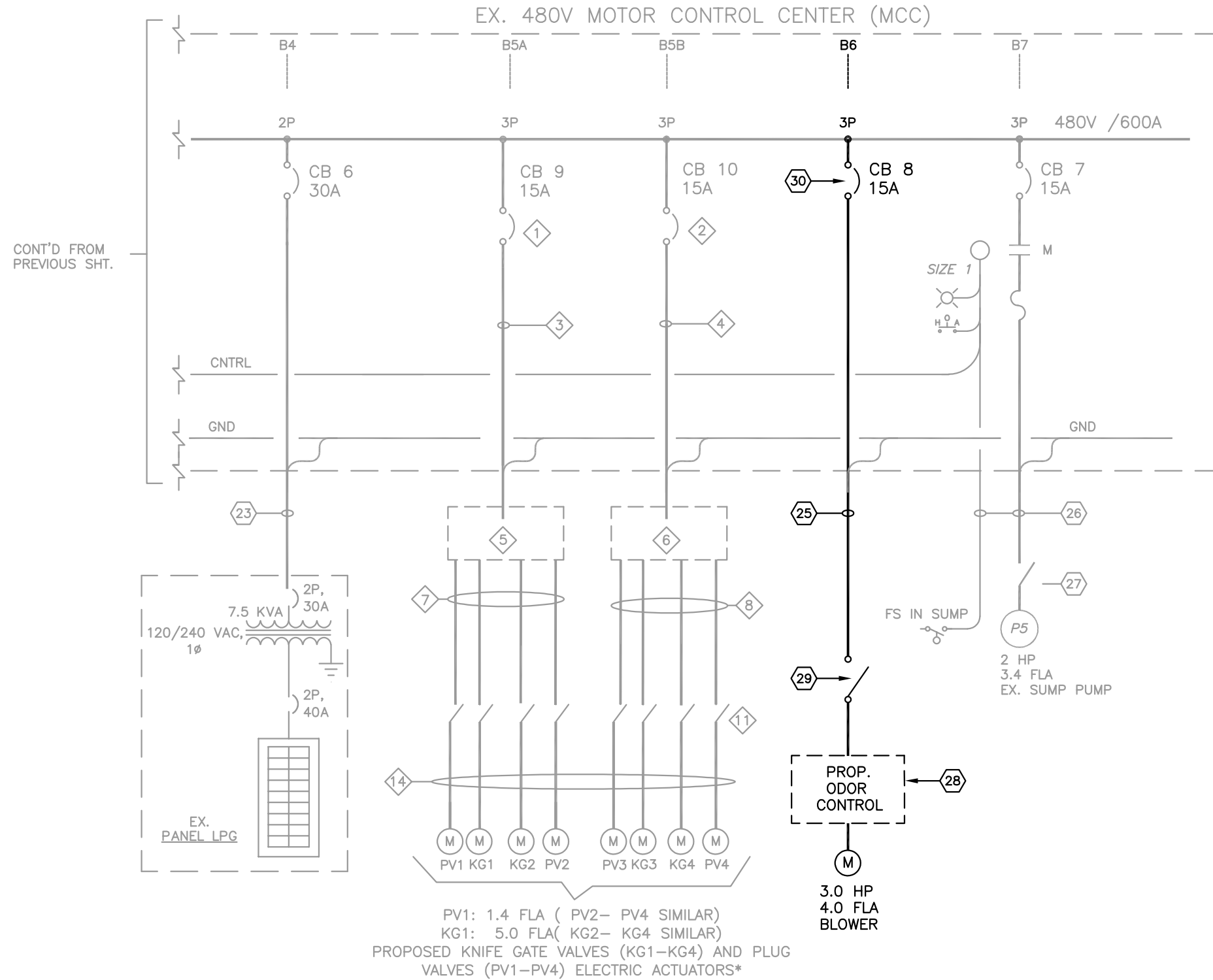
- NOTES:**
1. LIGHTER LINE WEIGHT ITEMS ARE EXISTING
 2. THIS SHEET IS FOR REFERENCING ONLY, NO WORK REQUIRED
 3. SEE SHEET E4 FOR EXISTING KEYED NOTES.

FOR REFERENCE ONLY

EXISTING ONE LINE DIAGRAM

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>DATE</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> </tr> </tbody> </table>	No.	DATE	REVISIONS	3			2			1			DES: LRG DRN: JHJ CKD: DATE: 1/9/18	<p style="font-size: 1.2em; font-weight: bold;">CITY of TAMPA</p> WASTEWATER DEPARTMENT	<p style="font-weight: bold;">HANNA AVE. PUMPING STATION ODOR CONTROL REPLACEMENT ONE LINE DIAGRAM (SHT. 1 OF 2)</p>	SHEET <p style="font-size: 1.5em; font-weight: bold;">E2</p>
No.	DATE	REVISIONS															
3																	
2																	
1																	

User: ss13 Drawing Name: K:\Wastewater Projects\Hanna PS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout: Nov 29, 2018 - 8:55am CTB - THE TOSHIBA PUMP STATION CTB.CTB TOSHIBA_UNL.COLOR (NORTH WING)



- NOTES:
1. LIGHTER LINE WEIGHT ITEMS ARE EXISTING.
 2. MAKE MODIFICATIONS TO MCC AS SHOWN.
 3. SEE SHEET E4, FOR KEYED NOTES.

* ALL MOTOR OPERATED VALVE LOADS ARE INTERMITTENT (NON-CONTINUOUS). ONLY ONE MOTOR KNIFE GATE AND PLUG VALVE ACTUATOR PER CIRCUIT WILL BE UTILIZED AT ANY GIVEN TIME. PROPOSED 15 AMPERE CIRCUIT BREAKERS WILL ACCOMMODATE ALL ASSOCIATED MOTOR OPERATED VALVE LOADS.

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA AVE. PUMPING STATION ODOR CONTROL REPLACEMENT ONE LINE DIAGRAM (SHT. 2 OF 2)	
	3			DRN: JHJ			SHEET
	2			CKD:			E3
	1			DATE: 11/29/18			

EXISTING KEYED NOTES:

- ① EXISTING (EX.) 480V/240V, 3-PHASE, 4W, DELTA UTILITY POWER-- HIGH LEG IS 416V TO GND AND SHALL BE MARKED WITH ORANGE TAPE.
- ② EX. (3)-500 KCMIL, & (1)-#1/0 NEU. IN 3" C.
- ③ EX. (3)-500 KCMIL, (1)-#1/0 NEU. & (1)-#2 GND IN 3" C.
- ④ 1/0 AWG TO (2) S.S. 5/8"x10' GROUNDING RODS (6 FT. MINIMUM SPACING)
- ⑤ PROVIDE AND INSTALL NEW 1" CONDUIT AND (8)-#14 AWG & (1)-#12 GND. TO EXTEND EX. ATS & GENERATOR STATUS SIGNALS TO PROP. PCSR.
- ⑥ EX. (2)-#12 AWG (GENERATOR ON/OFF CONTROL), (4)-#12 AWG (STATUS) & (1)-#12 GND. IN 1" C.
- ⑦ (3)-500 KCMIL, (1)-#1/0 NEU. & (1)-#2 GND IN 3" C.
- ⑧ 3-PHASE POWER MONITOR RELAY W/ 480VAC LINE INPUT-- ALARM ON PHASE LOSS, UNDERVOLTAGE, OR WRONG ROTATION. EIGHT PIN PLUG-IN W/ DIN RAIL SOCKET. MOTOR CONTROLS CORP. MODEL PM-440-118A. FUSE BLOCK DISCONNCT (FBD)-- ALLEN BRADLEY 1492-FB3C30-L W/ BUSSMANN KTK-R-2 FUSES.
- ⑨ (3)-#1 AWG, & (1)-#6 GND IN 1-1/4" C.
- ⑩ (3)-#3 AWG, & (1)-#6 GND IN 1-1/4" C.
- ⑪ (12)-#14 AWG, & (1)-#12 GND IN 3/4" C.
- ⑫ (4)-2/C #16 SHLD, & (1)-#12 GND IN 3/4" C.

- ⑬ (2)-#14 AWG & (1) #12 GND IN 3/4" C. TO TWO POSITION--MAINTAINED PULL / MAINTAINED PUSH, NEMA 4X OPERATOR STATION--SQUARE D 9001SKR9R W/ LEGEND PLATE: "PULL TO RESUME-- PUSH TO STOP" AND PADLOCK ATTACHMENT K62.
- ⑭ (1)-#6 AWG, (1)-#6 NEU. & (1)-#8 GND IN 1"C.
- ⑮ NEW SINGLE PHASE, 480-120/240 V, 60HZ, 15KVA EPOXY ENCAPSULATED TRANSFORMER W/ WALL MOUNTING BRACKETS-- REX MANUFACTURING MODEL #SC15HK/EP OR EQUAL. ENCLOSURE RATED NEMA 3R/ 4.
- ⑯ (2)-#4 AWG, (1)-#4 NEU., (1)-#8 B.C. IN 1"C.
- ⑰ (1)-#6 AWG, TO APPROVED GROUNDING ELECTRODE.
- ⑱ NEW SINGLE PHASE, 3-WIRE, 240VAC, 20 CIRCUIT PANELBOARD W/ 80A MAIN CIRCUIT BREAKER-- SQUARE D MODEL NQOD20M100CU IN NQB526 ENCLOSURE. PROVIDE CIRCUIT BREAKERS PER PANELBOARD SCHEDULE.
- ⑲ (1)-#12 AWG, (1)-#12 NEU. & (1)-#12 GND IN 3/4"C.
- ⑳ "PCSR" IS THE PROPOSED PUMP CONTROL / SCADA / RADIO PANEL (SEE SHTS. E10-E15).
- ㉑ (3) #14 AWG, (1) #12 GND 3/4"C.
- ㉒ (4)-3/C #16 SHLD (ULTRASONIC TRANSDUCER CABLE), (3)-#14 AWG & (1)-#12 GND GND IN 3/4" C.

- ㉓ (2)-#10 AWG & 1-#10 GND IN 3/4" C.
- ㉔ RESERVED.
- ㉕ (3)-#10 AWG & (1)-#10 GND. IN 1"C.
- ㉖ (5)-#12 AWG & (1)-#12 GND. IN 3/4"C.
- ㉗ NEW NEMA 4X, 30 AMP., NON-FUSED DISCONNECT
- ㉘ THE PROPOSED ODOR CONTROL PACKAGED UNIT REPLACES THE EXISTING ODOR CONTROLS WHICH UTILIZED A 5.0 HP MOTOR.
- ㉙ PROPOSED DISCONNECT
- ㉚ REMOVE EXISTING 3-POLE AMP CIRCUIT BREAKER AND PROVIDE AND INSTALL 15 AMP CIRCUIT BREAKER OF SAME MANUFACTURER AND MODEL, WITH EQUAL TO OR GREATER AIC RATING.

NOTES:

- 1. ALL EXISTING ITEMS ARE SHOWN WITH A LIGHTER LINE WEIGHT.
- 2. BOLD LINE WEIGHTS ARE PROPOSED ITEMS.
- 3. KEYED NOTES ARE TO BE USED WITH SHEETS E2 AND E3.

LOAD SUMMARY

480 VAC, 3φ, 4W

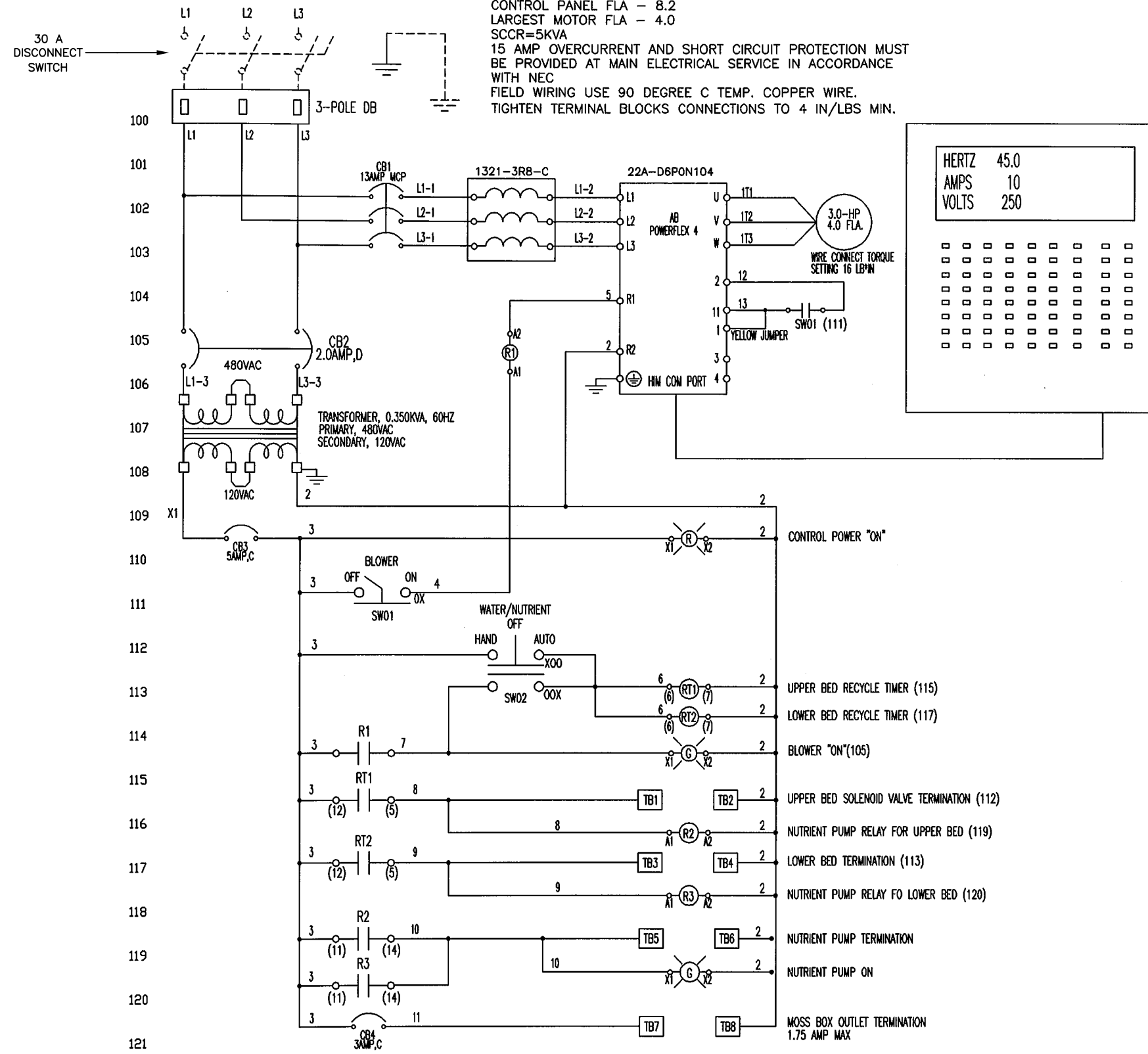
LOAD	CONNECTED	DEMAND
PUMP #1	45.7 KVA	45.7 KVA
PUMP #2	45.7 KVA	45.7 KVA
PUMP #3	45.7 KVA	45.7 KVA
PUMP #4	45.7 KVA	—
ELEC. ACTUATORS	21.3 KVA	10.6 KVA
PROP. ODOR CONTROL	5.0 KVA	5.0 KVA
LP1	15.0 KVA	15.0 KVA
LPG	7.5 KVA	7.5 KVA
TOTAL	231.6 KVA	175.2 KVA

User: ss13 Drawing Name: K:\Wastewater Projects\Hanna PS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout - Nov 29, 2018 - 3:10pm CTB - THE TOSHIBA PUMP STATION CTB.CTB TOSHIBA_UNL.COLOR (NORTH WING)

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG DRN: JHJ CKD: DATE: 11/29/18	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA AVE. PUMPING STATION ODOR CONTROL REPLACEMENT EXISTING KEYED NOTES & LOAD SUMMARY	SHEET
	3						E4
	2						
	1						

CONTINUES TO MCC, SEE SHEET E3

ATTACH ONLY MAX. RMS 480VAC 60HZ. 3Ø PHASE POWER
 CONTROL PANEL FLA - 8.2
 LARGEST MOTOR FLA - 4.0
 SCCR=5KVA
 15 AMP OVERCURRENT AND SHORT CIRCUIT PROTECTION MUST
 BE PROVIDED AT MAIN ELECTRICAL SERVICE IN ACCORDANCE
 WITH NEC
 FIELD WIRING USE 90 DEGREE C TEMP. COPPER WIRE.
 TIGHTEN TERMINAL BLOCK CONNECTIONS TO 4 IN/LBS MIN.



HERTZ	45.0
AMPS	10
VOLTS	250

VFD SETTINGS & PARAMETERS	
PARAMETERS	
P-33	MOTOR NAME PLATE FLA
P-36	3
P-37	0
P-38	5
A-55	0
A-91	START WITH A SETTING OF 10 IF MOTOR SQUEALS RAISE TILL IT STOPS SET THIS AS LOW A POSSIBLE SO MOTOR DOES NOT SQUEAL
A-92	9
A-93	120
A-94	1
A-96	1
HIM MODULE PARAMETERS	
P11	2

FIELD TERMINALS							
TB1	TB2	TB3	TB4	TB5	TB6	TB7	TB8
8	2	9	2	10	2	11	2
UPPER BED SOLENOID VALVE TERMINATION	UPPER BED SOLENOID VALVE TERMINATION	UPPER BED SOLENOID VALVE TERMINATION	UPPER BED SOLENOID VALVE TERMINATION	NUTRIENT PUMP POWER TERMINATION	NUTRIENT PUMP POWER TERMINATION	MOSS BOX OUTLET POWER TERMINATION	MOSS BOX OUTLET POWER TERMINATION

ELECTRICAL SCHEMATIC
 N.T.S.

User: ss13 Drawing Name: K:\WasteWater\Projects\Hanna PS Odor Control Replacement\Drafting\DWG\Hanna Ave Odor Control Unit Replacement.dwg Layout: Nov 29, 2018 - 11:25amCTB - THE TOSHIBA PUMP STATION CTBCTB TOSHIBA_UNL_COLOR (NORTH WING)

JACINTO CARLOS FERRAS, P.E., #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG	CITY of TAMPA WASTEWATER DEPARTMENT	HANNA AVE. PUMPING STATION ODOR CONTROL REPLACEMENT ELECTRICAL SCHEMATIC	SHEET E5
	3			DRN: JHJ			
	2			CKD:			
	1			DATE: 11/29/18			