

CONSTRUCTION PLANS

FOR

NWRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS

MANATEE COUNTY, FLORIDA

SEPTEMBER 2019

MANATEE COUNTY PROJECT #6091380/6091480/6091580

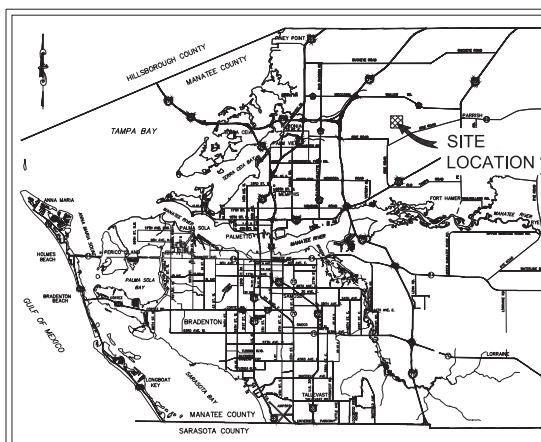


PROJECT TEAM:

OWNER:
MANATEE COUNTY
1022 26TH AVE. E.
BRADENTON, FL 34208
CONTACT: TONY RUSSO, P.E.
941-708-7450 EXT. 7349

ENGINEER:
KIMLEY-HORN AND ASSOCIATES, INC.
100 2ND AVENUE SOUTH SUITE 105-N
ST. PETERSBURG, FL
CONTACT: W. WADE WOOD, P.E.
727-547-3999

ELECTRICAL:
TRICON ENGINEERING
777 S. HARBOUR ISLAND BLVD. SUITE 870
TAMPA, FL 33602
CONTACT: TIMOTHY THOMAS, P.E.
813-227-9190



PROJECT VICINITY MAP
N.T.S.

CONSTRUCTION PLANS

PREPARED BY
Kimley-Horn

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ST. PETERSBURG, FL 33731
WWW.KIMLEY-HORN.COM CA 00000086



THE SITE CONSTRUCTION STAKEOUT SHALL BE PERFORMED UNDER THE DIRECTION OF A FLORIDA REGISTERED SURVEYOR. AUTOCAD FILES WILL BE FURNISHED TO AID IN THE SITE CONSTRUCTION STAKEOUT. ANY DISCREPANCIES FOUND BETWEEN AUTOCAD FILES AND SITE CONSTRUCTION PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR CLARIFICATION PRIOR TO THAT STAKEOUT.

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W. WADE WOOD, P.E. FLORIDA LICENSE NUMBER: 69051	DATE:	

ELECTRICAL	E-1	ELECTRICAL LEGEND AND ABBREVIATIONS
	E-2	WMPF ELECTRICAL SITE PLAN
	E-3	LIGHTING FIXTURE SCHEDULE AND ELECTRICAL DETAILS
	E-4	CONDUIT AND CABLE SCHEDULES
	HW-E-1	HEADWORKS AREA ELECTRICAL SITE PLAN
	HW-E-2	HEADWORKS UPPER LEVEL ELECTRICAL PLAN
	HW-E-3	HEADWORKS LOWER LEVEL ELECTRICAL PLAN
	HW-E-4	HEADWORKS LIGHTING PLANS
	HW-E-5	TRIP CIRUIT PANE CONTROL PANEL DETAILS AND WIRING DIAGRAM
	HW-E-6	ELECTRICAL AND STORAGE BUILDING ELECTRICAL MODIFICATIONS
INSTRUMENTATION	CL-E-1	EXISTING HEADWORKS DUCTWARK DETAIL
	CL-E-2	TYPICAL CLARIFIER CONTROL PANEL DETAILS
	CL-E-3	TYPICAL CLARIFIER CONTROL PANEL WIRING DIAGRAM
	CC-E-1	CCC ELECTRICAL SITE PLAN
	CC-E-2	ELECTRICAL BUILDING NO. 1 FLOOR PLAN
	CC-E-3	MOTOR WIRING DIAGRAMS
	HW-I-1	EXIST. PLC CONTROL, CABINET DETAILS AND NEW HEADWORKS I O LISTING
	HW-I-2	NEW HEADWORKS I O LISTING
	HW-I-3	NEW HEADWORKS I O LISTING
	CC-I-1	PLC CONTROL PANEL SP-2-1 I O LISTINGS
	CC-I-1	PLC CONTROL PANEL SP-4-1 I O LISTINGS

PIPE 3" AND LARGER	EXISTING	PROPOSED
90° ELBOW		
90° ELBOW ROTATED UP		
90° ELBOW ROTATED DOWN		
TEE		
REDUCER		
NUT ACTUATED PLUG VALVE		
LEVER ACTUATED PLUG VALVE		
HANDWHEEL ACTUATED PLUG VALVE		
LEVER & WEIGHT CHECK VALVE		
AIR CUSHIONED CHECK VALVE		
NUT ACTUATED BUTTERFLY VALVE		
FLANGED		
MECHANICAL JOINT		
PIPE CAP		
<u>PIPE 2" AND SMALLER</u>		
CHECK VALVE		
BALL VALVE		
GLOBE VALVE		
PIPE CAP		

1. THESE PLANS ARE SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE EXISTING CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF THE PROJECT. THE CONTRACTOR, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATION NECESSARY TO DETERMINE THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED.

2. LOCATION, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN ON THESE PLANS. THE CONTRACTOR, AT THE TIME OF PREPARATION OF THESE PLANS BUT NOT PURPORT TO CORRECT OR CONSIDER THE ACCURACY OF THE INFORMATION FOR CONSTRUCTION, THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) AFFECTING HIS WORK.

3. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCY, HE SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE PROCEEDING.

4. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, STORM DRAINS, SEWERS, UTILITIES, AND OTHER FACILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR ANY DAMAGES DUE TO HIS CONSTRUCTION.

5. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURER'S MAXIMUM RECOMMENDED DEFLECTION.

6. SEDIMENT CONTROL, INCLUDING SILT DAMS, TRAPS, EROSION PROTECTION, AND ANY OTHER APPURTENANCES NEEDED BUT NOT NECESSARILY SHOWN ON THESE PLANS.

7. CONTRACTOR SHALL PROVIDE PROTECTIVE MATING, FUEL CONTAINMENT AND ALL OTHER MATERIALS, EQUIPMENT AND LABOR TO PROTECT THE STAGING AREA DURING CONSTRUCTION.

8. CONTRACTOR SHALL, PRIOR TO BEGINNING CONSTRUCTION, SUBMIT A FUEL MANAGEMENT PLAN TO THE PROJECT MANAGER. THE PLAN SHALL SHOW HOW FUEL SPILLS WILL BE PREVENTED WHEN FUELING BOTH WITHIN AND OUTSIDE THE STAGING AREA.

9. THE CONTRACTOR SHALL COORDINATE THE STAGING AREA WITH THE OWNER. THERE MAY BE MULTIPLE PROJECTS UNDER CONSTRUCTION AT A LOCATION AND IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A SECURE STAGING AREA FOR THE STORAGE AND STAGING OF EQUIPMENT. ACCESS SHALL BE LIMITED TO FENCING, GATES, AND ANY ADDITIONAL TIES THAT MAY BE REQUIRED TO SECURE THE AREA.

10. CONTRACTOR SHALL MAINTAIN PROCESS FLOWS IN ACCORDANCE WITH EPA REGULATORY RULES WHILE PERFORMING WORK AT THE PLANT. TEMPORARY MODIFICATIONS TO PROCESS SHALL BE SUBMITTED TO AND APPROVED BY THE DOWNER.

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE FOLLOWING JURISDICTIONAL BODIES AND UTILITY COMPANIES:

- NORTH WATER RECLAMATION FACILITY**
 DANIELS MILLS
 8500 89TH STREET EAST
 PALMETTO, FL 34221
 941-792-8811 EXT. 8056

MANATEE COUNTY PUBLIC WORKS
 TONY RUSSO, P.E.
 1922 26TH AVENUE EAST
 BRADENTON, FL 34208-3916

CALL 2 BUSINESS DAYS BEFORE YOU DIG IT'S THE LAW! DIAL 811

Know what's below. Call before you dig.

SUNSHINE STATE ONE CALL OF FLORIDA, INC.

2. ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE MANATEE COUNTY UTILITY STANDARDS, UNLESS OTHERWISE SPECIFIED.

3. ALL VALVE BOX COVERS SHALL BE PAINTED TO INDICATE THEIR TYPE OF SERVICE.

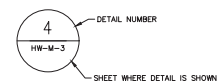
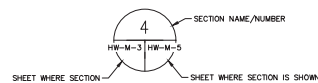
4. ALL TEST POINT TAPPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. THE CORPORATION STOP SHALL BE CAPPED AND REMAIN IN PLACE.

1. ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL

1. ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL REPLACE ALL EXISTING PAVING, STABILIZED EARTH CURBS, SIDEWALKS, FENCES, LANDSCAPING, AND OTHER IMPROVEMENTS WITH EQUIVOCALLY BETTER TYPE AND QUANTITY OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
3. ALL EXISTING FENCES DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED OR REINSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER UNLESS SHOWN TO BE REMOVED ON CONSTRUCTION PLANS.
4. CONTRACTOR SHALL RESTORE ALL IRRIGATION SYSTEM COMPONENTS TO PRE-CONSTRUCTION CONDITIONS.
5. ALL DISTURBED GRADED AREAS SHALL BE RESTORED WITH SOIL IN LINE WITH EXISTING GRAD. OTHERWISE DIRECTED BY OWNER, CONTRACTOR SHALL ROLL ALL SLOPED AREAS.
6. CONCRETE SIDEWALKS OUTSIDE OF DRIVEWAYS SHALL BE RESTORED WITH 4 INCHES OF 3,000 PSI CONCRETE PER FOOT DESIGN STANDARDS, SECTIONS 501-503.

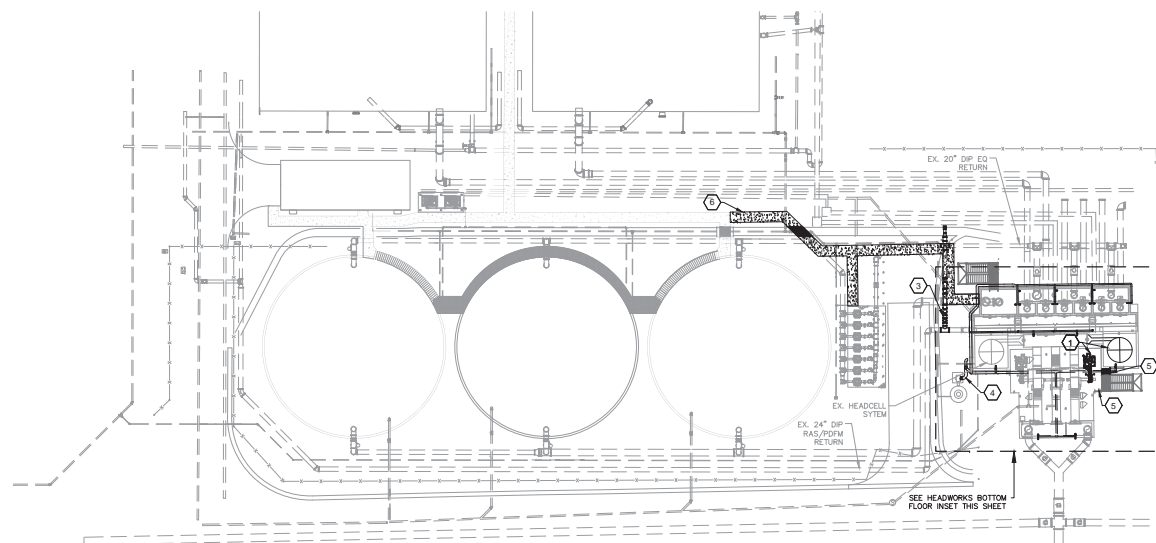
ARV	AIR RELEASE VALVE
BT	BUTT-WELD
BCC	CHLORINE CHARGED CHAMBER
C	CENTERLINE
D	DIAMETER
DIA	DIAMETER
DIP	DIET IRON PIPE
EFF	EFFLUENT
ELEC	ELECTRICAL
EX	EXISTING
FMB	FINISHED HED MACHINE BOLT
FL	FLANGED
FMB	FIBERGLASS REINFORCED PLASTIC
FOOT	FOOT ORFT
FW	FILTERED WATER
FMB	FINISHED HED MACHINE BOLT
INV	INVERT
N	MANHOLE
MJ	MECHANICAL JOINT
NPT	NATIONAL PIPE THREAD
PCPM	PLANT DRAIN FORCE MAIN
PE	PLAIN END
PC	POLYVINYLCHLORIDE
PW	POTABLE WATER
RW	RAW WATER
RCW	RECLAIM WATER
SCH	SCHEDULE
SS	STAINLESS STEEL
SW	SOLVENT WELDED
STL	STEEL
SH	SIDE WALL HEIGHT
THRD	THREADED
TR	TRICAL
UPE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
VERT.	VERTICAL

DETAIL CALLOUT LEGEND

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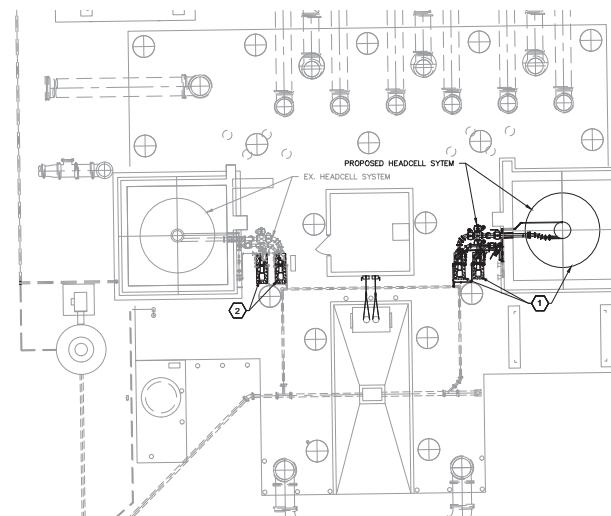
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SITE CONSTRUCTION
1" = 30'-0"

CONSTRUCTION SEQUENCING

1. INSTALL PROPOSED HEADCELL SYSTEM INCLUDING PUMPS & PERFORM EQUIPMENT TESTING
2. REPLACE EX. HEADCELL SYSTEM PUMPS
3. COORDINATE WITH COUNTY TO CLOSE APPROPRIATE VALVES AND SHUT OFF RAS/PDPM PUMPS TO INSTALL RAS/PDPM RETURN
4. COORDINATE WITH EVOQUA TO INSTALL/REHABILITATE ODOR CONTROL DUCTWORK
5. INSTALL LIGHTING AND STAIRCASE EXTENSION
6. INSTALL SIDEWALK




HEADWORKS BOTTOM FLOOR CONSTRUCTION
1" = 10'-0"


ADDENDUM 6	2/22/2017	WW
No.	REVISIONS	DATE BY

Kimley»Horn

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KHA PROJECT	148400021
DATE	1/7/2019
SCALE	AS SHOWN
DESIGNED BY	WWW
DRAWN BY	KEG
CHECKED BY	NEW

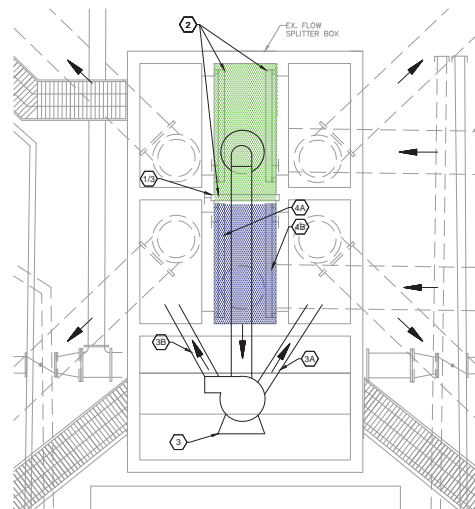

**NORTH WRF HEADWORKS, CLARIFIERS,
AND CCC IMPROVEMENTS**
MANATEE COUNTY

LICENSED PROFESSIONAL

FL DATE:

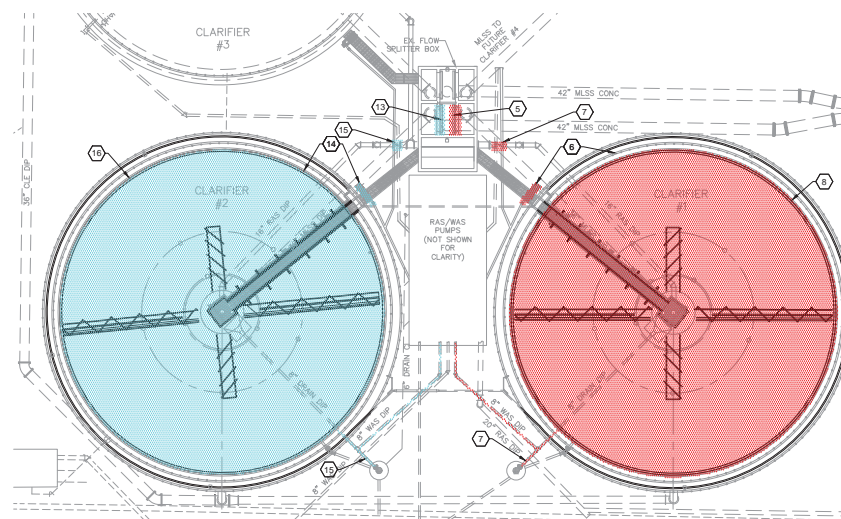
HEADWORKS PHASING PLAN

SHEET NUMBER
G-4

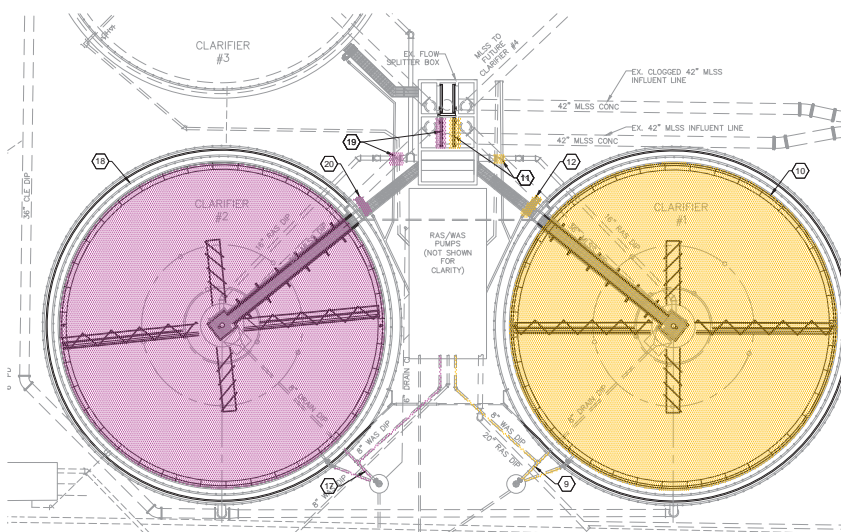
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FLOW SPLITTER BOX GATE MODIFICATIONS
1" = 5'-0"



CLARIFIER DEMOLITION
1" = 20'-0"



CLARIFIER MODIFICATIONS
1" = 20'-0"

CONSTRUCTION SEQUENCING

PHASE I GATE REPLACEMENTS

PHASE I GATE REPLACEMENTS

- ① COORDINATE WITH COUNTY TO CLOSE GATE TRANSFERRING ALL FLOWS TO CLARIFIER #1 AND #2
- ② PERFORM PHASE I GATE REPLACEMENTS

PHASE II GATE REPLACEMENTS

PHASE II GATE REPLACEMENTS

- ③ COORDINATE WITH COUNTY TO CLOSE GATE TRANSFERRING FLOWS TO CLARIFIER #3 AND INSTALL BYPASS PUMP SYSTEM TO TRANSFER FLOWS TO CLARIFIER #1 OR #2
- ④ CLOSE CLARIFIER #1 GATE AND PUMP FLOWS TO CLARIFIER #1
- ⑤ REPLACE CLARIFIER #2 GATE
- ⑥ CLOSE CLARIFIER #2 GATE AND PUMP FLOWS TO CLARIFIER #2
- ⑦ REPLACE CLARIFIER #1 GATE

PHASE III DEMOLITION

PHASE III DEMOLITION SEQUENCING

- ⑧ COORDINATE WITH COUNTY TO CLOSE CLARIFIER #1 GATE TRANSFERRING ALL FLOWS TO CLARIFIER #2 AND #3
- ⑨ SHUT OFF CLARIFIER #1 EQUIPMENT AND SCUM PUMP
- ⑩ CLOSE EX. CLARIFIER #1 16" RAS LINE VALVE AND DRAIN CLARIFIER
- ⑪ PERFORM PHASE III EQUIPMENT DEMOLITION

PHASE III MODIFICATIONS

PHASE III MODIFICATIONS SEQUENCING

- ⑫ HYDROJET CLARIFIER #1 8" DRAIN LINES
- ⑬ PERFORM PHASE III MODIFICATIONS & EQUIPMENT TESTING
- ⑭ OPEN CLARIFIER #1 GATE AND 16" RAS LINE VALVE
- ⑮ TURN ON CLARIFIER #1 EQUIPMENT AND SCUM PUMP

PHASE IV DEMOLITION

PHASE IV DEMOLITION SEQUENCING

- ⑯ COORDINATE WITH COUNTY TO CLOSE CLARIFIER #2 GATE TRANSFERRING ALL FLOWS TO CLARIFIER #1 AND #3
- ⑰ SHUT OFF CLARIFIER #2 EQUIPMENT AND SCUM PUMP
- ⑱ CLOSE EX. CLARIFIER #2 16" RAS LINE VALVE AND DRAIN CLARIFIER
- ⑲ PERFORM PHASE IV EQUIPMENT DEMOLITION

PHASE IV MODIFICATIONS

PHASE IV MODIFICATIONS SEQUENCING

- ⑳ HYDROJET CLARIFIER #2 8" DRAIN LINES
- ㉑ PERFORM PHASE IV MODIFICATIONS & EQUIPMENT TESTING
- ㉒ OPEN CLARIFIER #2 GATE & 16" RAS LINE VALVE
- ㉓ TURN ON CLARIFIER #2 EQUIPMENT AND SCUM PUMP



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KHA PROJECT 148400021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW

NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL

FL DATE:

CLARIFIERS PHASING PLAN

SHEET NUMBER **G-5**




- 18 REMOVE BYPASS SYSTEM AND COORDINATE WITH COUNTY TO CLOSE APPROPRIATE GATES AND VALVES & DRAIN SOUTH EFFLUENT PUMP STATION
- 19 SHUT OFF PUMP AND CLOSE ASSOCIATED VALVE TO ISOLATE SOUTH EFFLUENT PUMP STATION
- 20 REHABILITATE SOUTH EFFLUENT PUMP STATION AND REPLACE ASSOCIATED CHECK VALVE
- 21 REHABILITATE SOUTH EFFLUENT CHANNEL, AND REPLACE GATES
- 22 COORDINATE WITH COUNTY TO OPEN APPROPRIATE GATES AND VALVES & TURN ON PUMP TO RESTORE FLOWS TO SOUTH EFFLUENT PUMP STATION
- 23 ISOLATE NORTH EFFLUENT PUMP STATION (REFER TO STEP 11)
- 24 REMOVE ALL STOP LOGS & COORDINATE WITH COUNTY TO RESTORE NORMAL OPERATIONAL FLOWS TO BOTH CCC'S AND EFFLUENT PUMP STATIONS



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**NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS**

MANATEE COUNTY

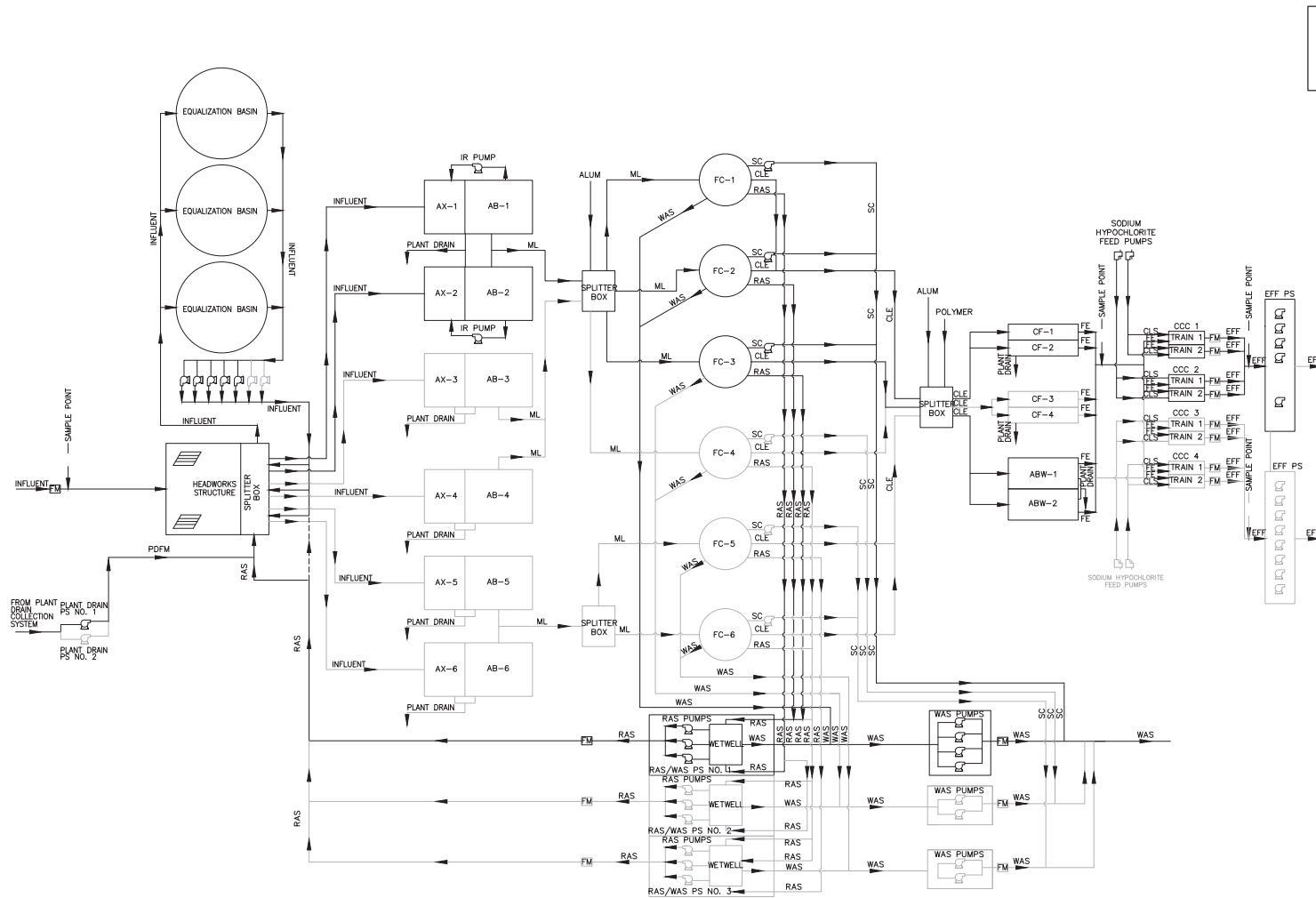


CCC PHASING PLAN

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G-6

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LEGEND:	
EXISTING PROCESS	—————
FUTURE PROCESS	—————
PROPOSED	-----

PROCESS FLOW DIAGRAM

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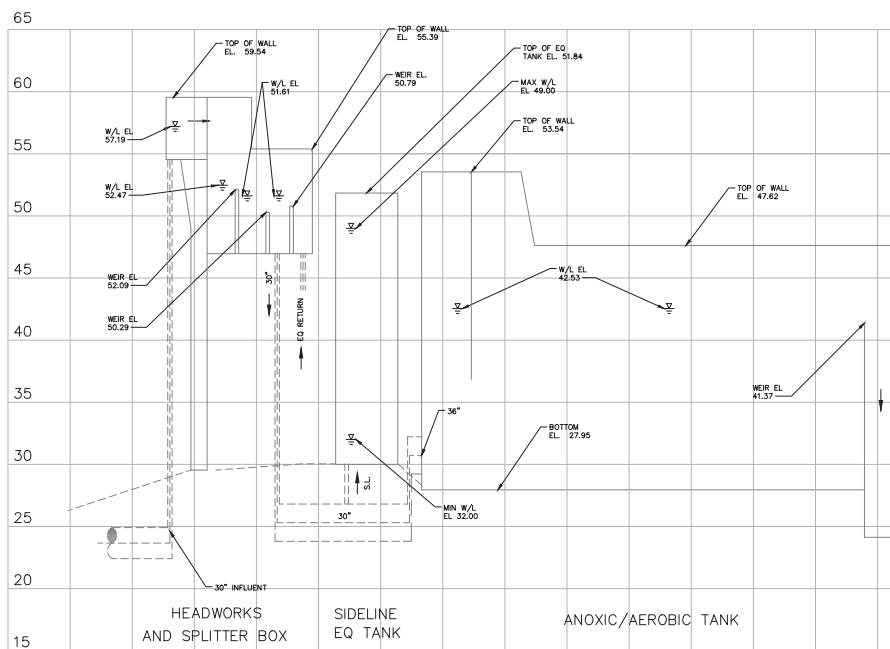
FL DATE:

PROCESS FLOW DIAGRAM

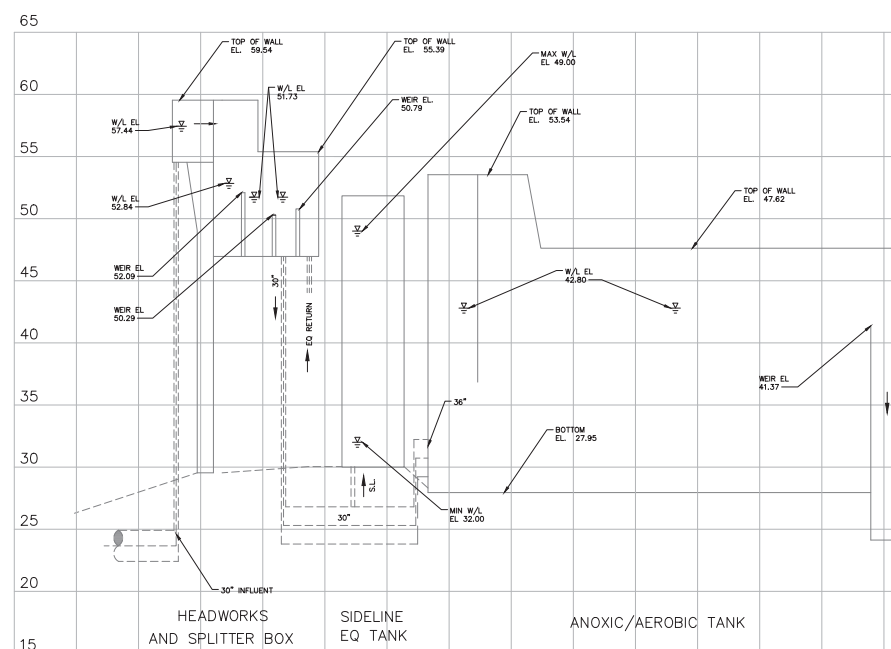
G-7

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HYDRAULIC PROFILE — AVERAGE ANNUAL DAILY FLOW 8 MGD





HYDRAULIC PROFILE — PEAK HOURLY FLOW 22 MGD

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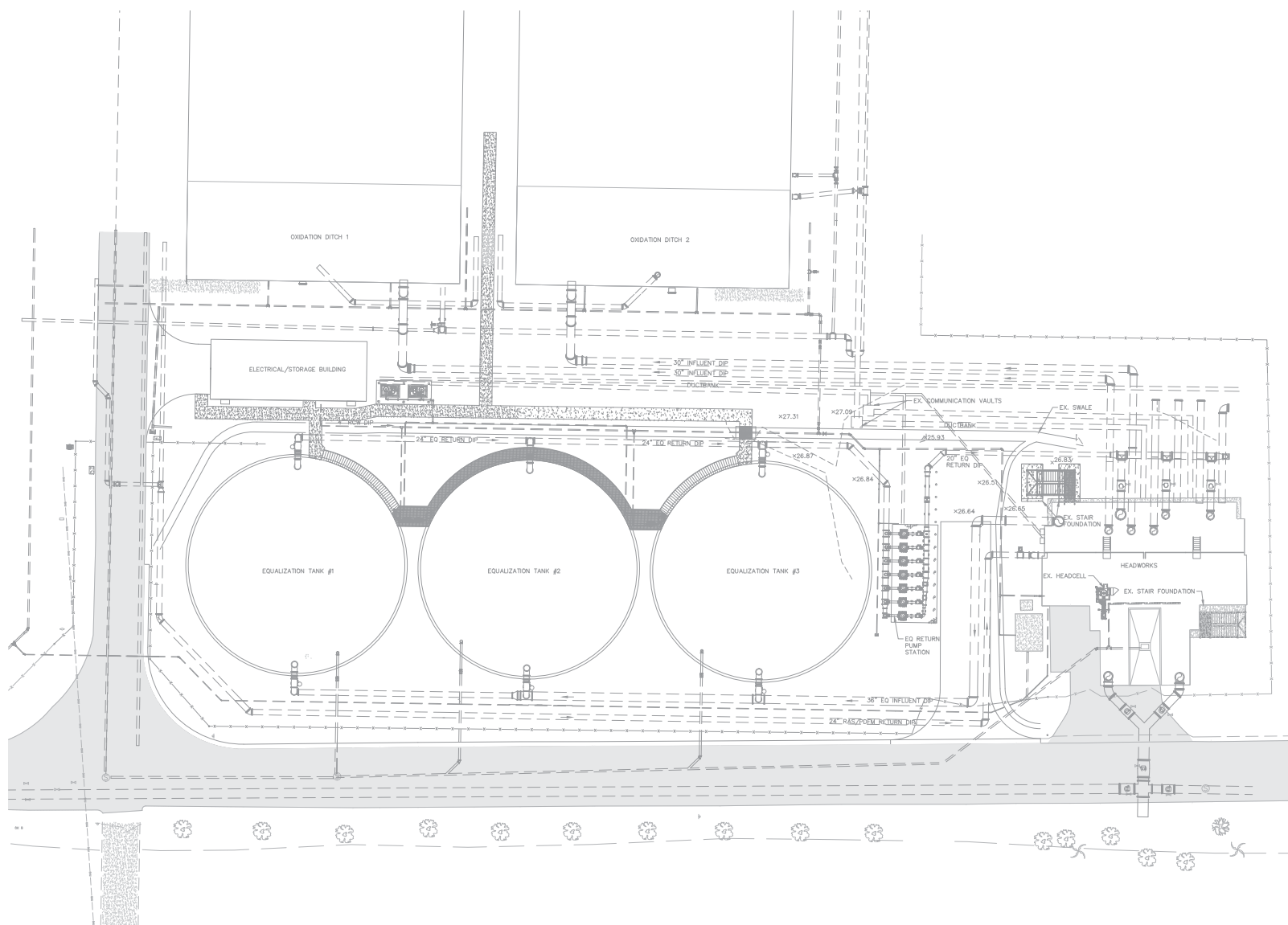
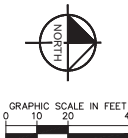
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HYDRAULIC PROFILE
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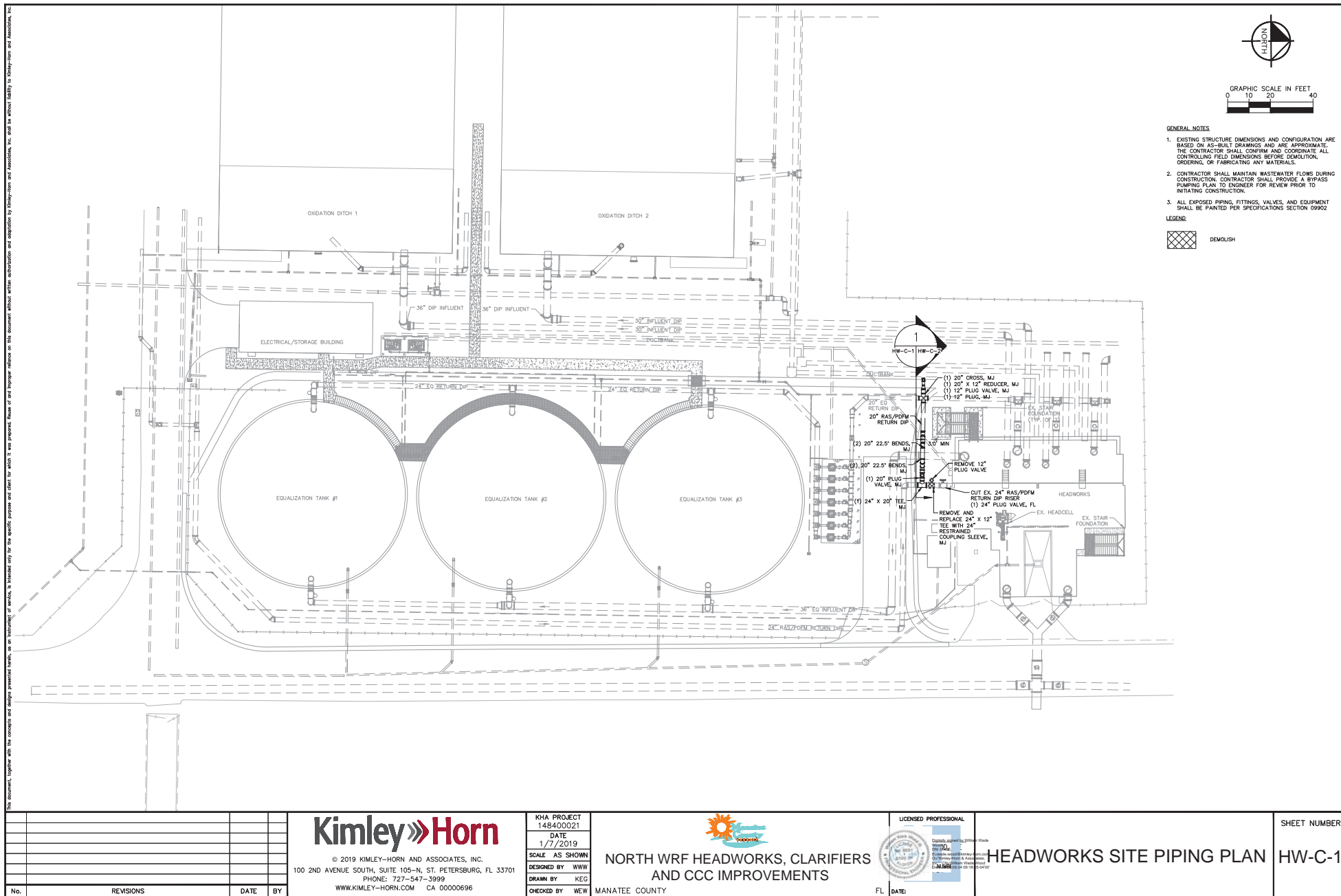


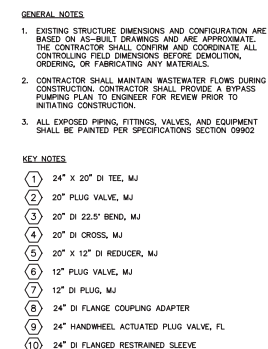
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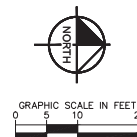
OVERALL HEADWORKS
EXISTING SITE PLAN

SHEET NUMBER

HW-1



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1. CONTRACTOR TO MATCH EDGE OF SIDEWALKS TO EX. GRADES
USING 6:1 SLOPE AND MAINTAIN DRAINAGE PATTERN TO EX.
SWALE

X 39.57 PROPOSED SPOT ELEVATION
 --- 37.5 --- EXISTING CONTOUR
 --- 37.5 --- PROPOSED CONTOUR
 2.00% PROPOSED DRAINAGE SLOPE



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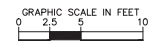
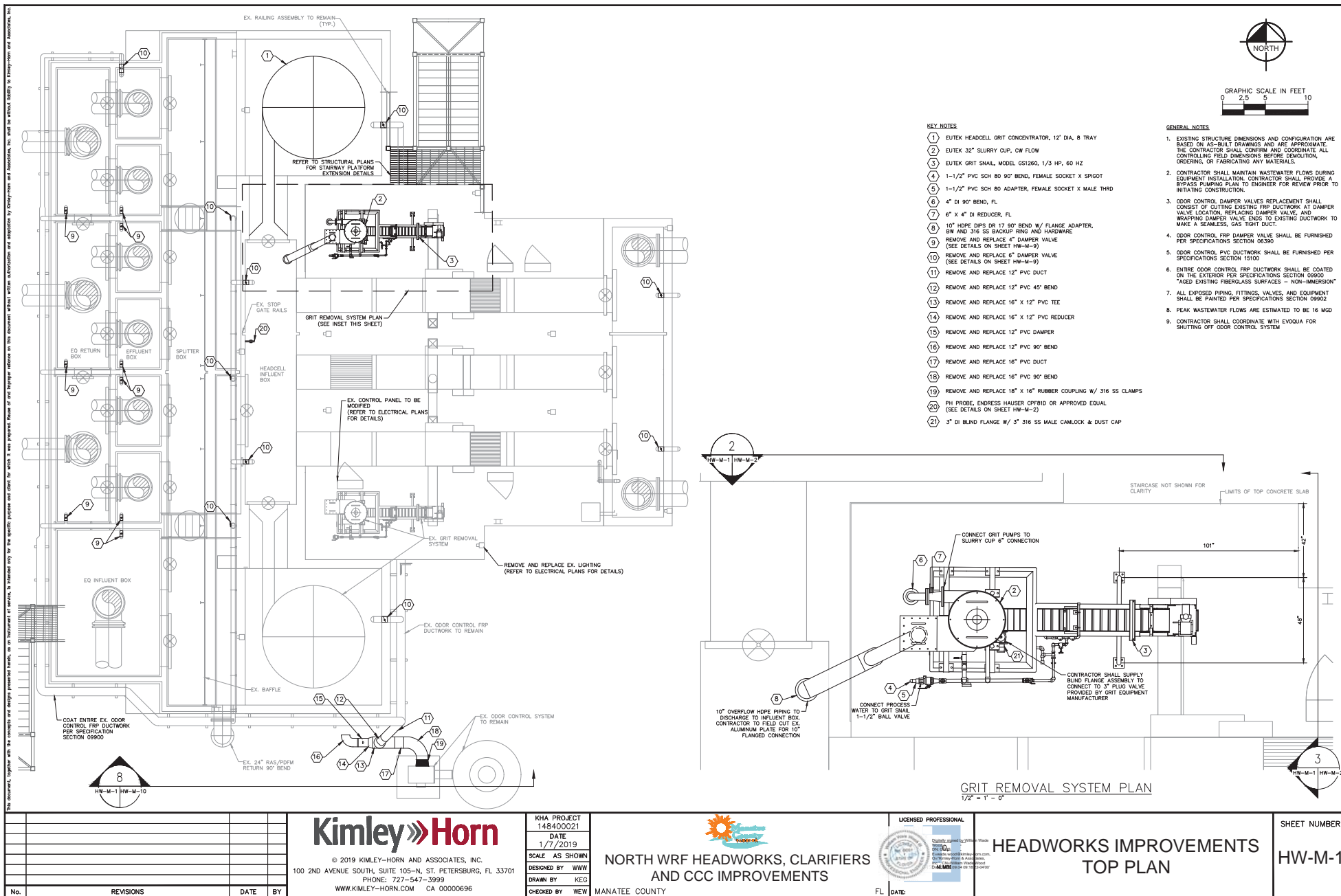
MANATEE COUNTY



FL DATE:

	SHEET NUMBER
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HW-C-3



KEY NOTES

- 1 EUTEX HEADCELL GRIT CONCENTRATOR, 12' DIA, 8 TRAY
- 2 EUTEX 32" SLURRY CUP, CW FLOW
- 3 EUTEX GRIT SNAIL, MODEL GS1260, 1/3 HP, 60 HZ
- 4 1-1/2" PVC SCH 80 90° BEND, FEMALE SOCKET X SPIGOT
- 5 1-1/2" PVC SCH 80 ADAPTER, FEMALE SOCKET X MALE THRD
- 6 4" DI 90° BEND, FL
- 7 6" x 4" DI REDUCER, FL
- 8 10" HDPE DIPS OR 12 90° BEND W/ FLANGE ADAPTER, BW AND 316 SS BACKUP RING AND HARDWARE
- 9 REMOVE AND REPLACE 4" DAMPER VALVE (SEE DETAILS ON SHEET HW-M-9)
- 10 REMOVE AND REPLACE 6" DAMPER VALVE (SEE DETAILS ON SHEET HW-M-9)
- 11 REMOVE AND REPLACE 12" PVC DUCT
- 12 REMOVE AND REPLACE 12" PVC 45° BEND
- 13 REMOVE AND REPLACE 16" X 12" PVC TEE
- 14 REMOVE AND REPLACE 16" X 12" PVC REDUCER
- 15 REMOVE AND REPLACE 12" PVC DAMPER
- 16 REMOVE AND REPLACE 12" PVC 90° BEND
- 17 REMOVE AND REPLACE 16" PVC DUCT
- 18 REMOVE AND REPLACE 16" PVC 90° BEND
- 19 REMOVE AND REPLACE 18" X 16" RUBBER COUPLING W/ 316 SS CLAMPS
- 20 PH PROBE, ENDRESS HAUSER CPE810 OR APPROVED EQUAL (SEE DETAILS ON SHEET HW-M-2)
- 21 3" DI BLIND FLANGE W/ 3" 316 SS MALE CAMLOCK & DUST CAP

GENERAL NOTES

1. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
2. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS DURING EQUIPMENT INSTALLATION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
3. ODOR CONTROL DAMPER VALVES REPLACEMENT SHALL CONSIST OF CUTTING EXISTING FRP DUCTWORK AT DAMPER VALVE LOCATION, REPLACING DAMPER VALVE, AND WRAPPING DAMPER VALVE ENDS TO EXISTING DUCTWORK TO MAKE A SEAMLESS, GAS TIGHT DUCT.
4. ODOR CONTROL FRP DAMPER VALVE SHALL BE FURNISHED PER SPECIFICATIONS SECTION 06300
5. ODOR CONTROL PVC DUCTWORK SHALL BE FURNISHED PER SPECIFICATIONS SECTION 15100
6. ENTIRE ODOR CONTROL FRP DUCTWORK SHALL BE COATED ON THE EXTERIOR PER SPECIFICATIONS SECTION 09900 "AGED EXISTING FIBERGLASS SURFACES - NON-IMMERSION"
7. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902
8. PEAK WASTEWATER FLOWS ARE ESTIMATED TO BE 16 MGD
9. CONTRACTOR SHALL COORDINATE WITH EVOQUA FOR SHUTTING OFF ODOR CONTROL SYSTEM

No.	REVISIONS	DATE	BY

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KHA PROJECT 148400021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

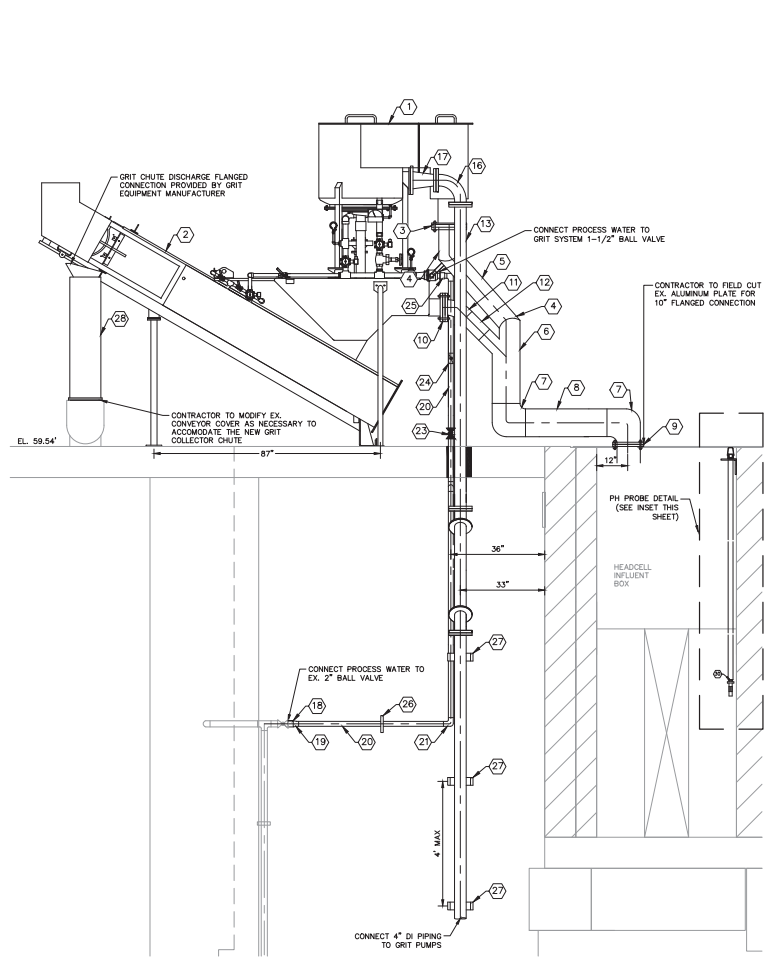
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FL DATE:

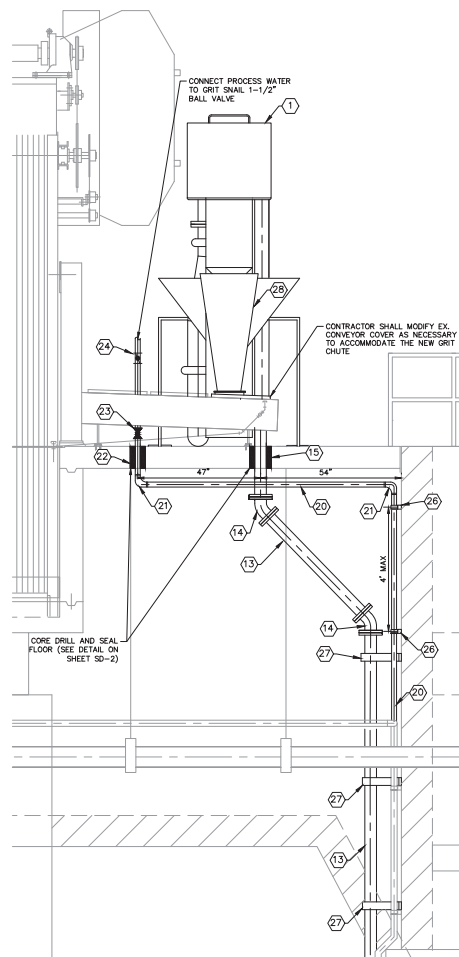
**HEADWORKS IMPROVEMENTS
TOP PLAN**

SHEET NUMBER
HW-M-1

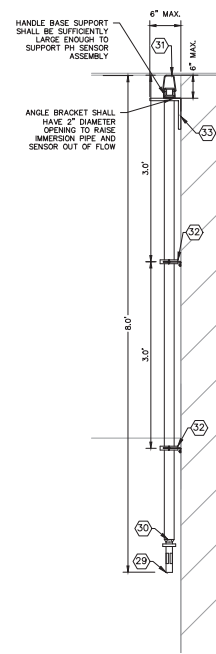
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SECTION 2
1/2" = 1'-0" HW-M-1 HW-M-2



SECTION 3
1/2" = 1'-0" HW-M-1 HW-M-2



PH PROBE DETAIL
1" = 1'-0"

GENERAL NOTES

- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902.
- ALL CORE DRILLS SHALL BE LARGE ENOUGH FOR FLANGES TO PASS THROUGH.

KEY NOTES

- EUTEK 32" SLURRY CUP, CW FLOW
- EUTEK GRIT SNAIL, MODEL GS1260, 1/3 HP, 60HZ
- 8" HDPE DIPS DR 17 FLANGE ADAPTER, BW W/ 316 SS BACKUP RING AND HARDWARE
- 8" HDPE DIPS DR 17 45° BEND, BW
- 8" HDPE DIPS DR 17 PIPE, BW
- 6"x8"x10" HDPE DIPS DR 17 WYE, BW
- 10" HDPE DIPS DR 17 90° BEND, BW
- 10" HDPE DIPS DR 17 PIPE, BW
- 10" HDPE DIPS DR 17 FLANGE ADAPTER, BW W/ 316 SS BACKUP RING AND HARDWARE
- 8" HDPE DIPS DR 17 FLANGE ADAPTER, BW W/ 316 SS BACKUP RING AND HARDWARE
- 8" HDPE DIPS DR 17 45° BEND, BW
- 8" HDPE DIPS DR 17 PIPE, BW
- 4" DI PIPE, FL
- 4" DI 45° LONG RADIUS BEND, FL
- LINK SEAL FOR 4" DI PIPE (SEE DETAIL ON SHEET SD-2)
- 4" DI 90° LONG RADIUS BEND, FL
- 6"x4" DI REDUCER, FL
- 2" PVC SCH 80 PIPE, SPIGOT
- 2"x1-1/2" PVC SCH 80 REDUCER, FEMALE SOCKET
- 1-1/2" PVC SCH 80 PIPE, SPIGOT
- 1-1/2" PVC SCH 80 90° BEND, FEMALE SOCKET
- LINK SEAL FOR 1-1/2" PVC SCH 80 PIPE (SEE DETAIL ON SHEET SD-2)
- 1-1/2" BALL VALVE
- 1-1/2" CHECK VALVE
- 1-1/2" PVC SCH 80 ADAPTER, FEMALE SOCKET X MALE THRD
- STRUT PIPE SUPPORT (SEE DETAIL ON SHEET SD-1)
- PIPE STRAP SUPPORT (SEE DETAIL ON SHEET SD-1)
- 316 SS COLLECTOR CHUTE, BY GRIT SYSTEM MANUFACTURER
- PH PROBE, ENDRESS HAUSER OFFRID OR APPROVED EQUAL (REFER TO ELECTRICAL PLANS FOR DETAILS)
- 1-1/2" 316 SS IMMERSION PIPE WITH PROBE CONNECTION, ENDRESS HAUSER MODEL CYA112 ASSEMBLY OR APPROVED EQUAL
- 316 SS HANDLE ASSEMBLY, PROVIDED BY ENDRESS HAUSER OR APPROVED EQUAL
- 1-1/2" 316 SS CLEVIS HANGER W/ 316 SS HARDWARE AND THREADED ROD, MODEL #115X BY EMPIRE INDUSTRIES OR APPROVED EQUAL
- 316 SS 90° ANGLE BRACKET, 3/4" THICK, 6" LENGTH WITH 2" DIAMETER OPENING

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DATE 1/7/2019
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DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW

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MANATEE COUNTY

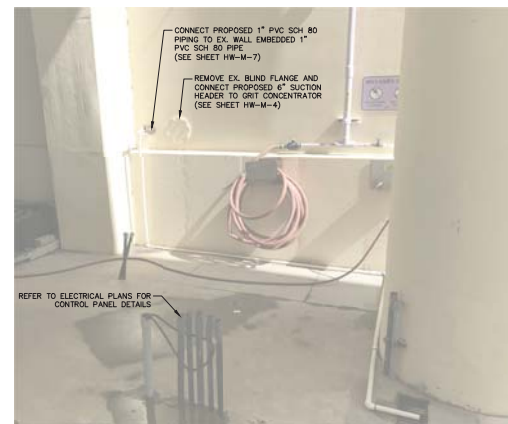
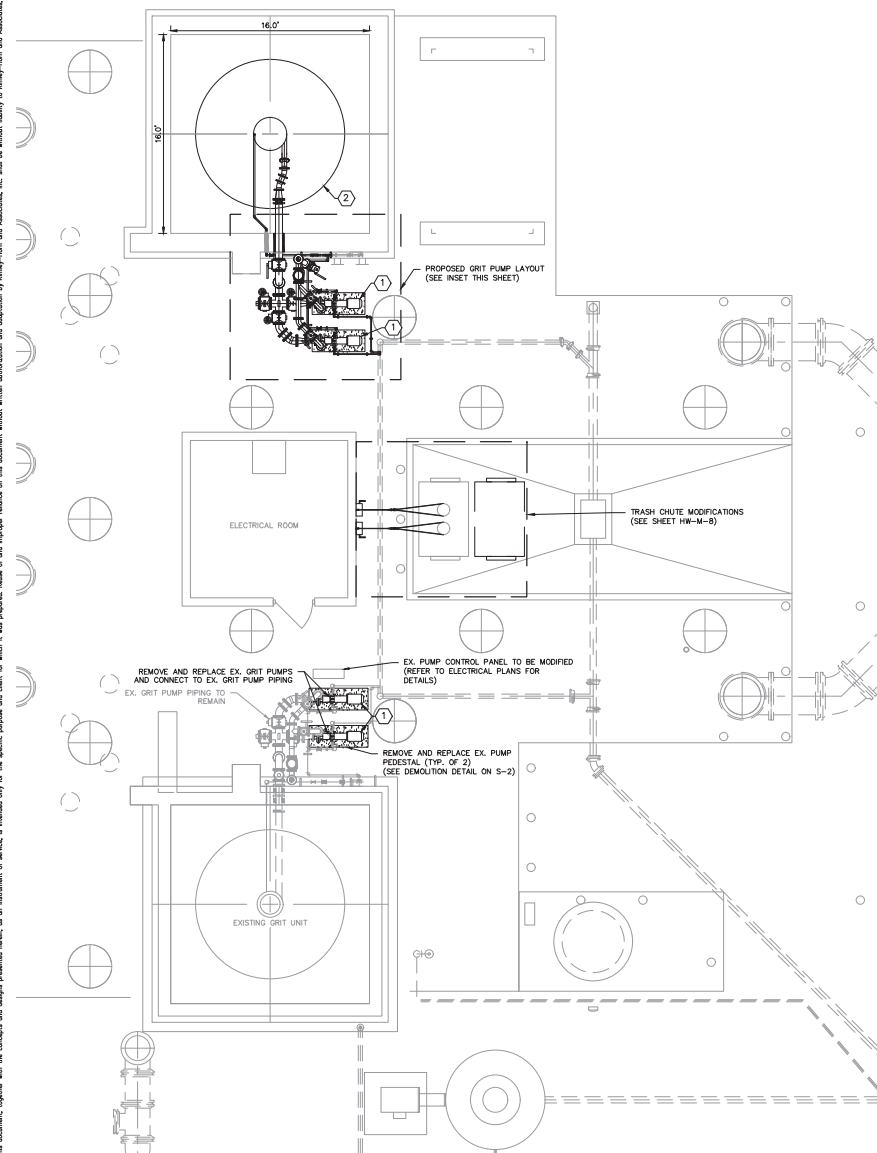
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Florida Professional Engineer
No. 12345
Exp. 12/31/2024
P.E. NAME

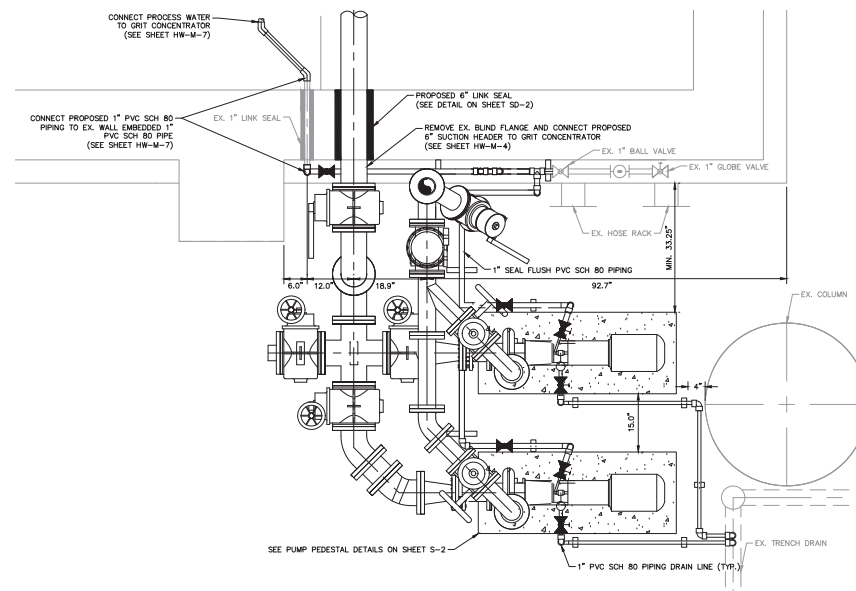
HEADWORKS EQUIPMENT MECHANICAL SECTIONS

SHEET NUMBER
HW-M-2

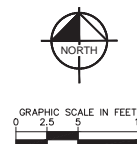
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EX. SITE LAYOUT 1
N.T.S. HW-M-3



PROPOSED GRIT PUMP LAYOUT
3/4" = 1' = 0"



GENERAL NOTES

- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

KEY NOTES


- HAYWARD GORDON GRIT PUMP, MODEL XR3(B) TORUS RECESSED IMPELLER, 6 IN IMP, 300 GPM @ 31 FT, 10HP, 60HZ
- EUTEX HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY

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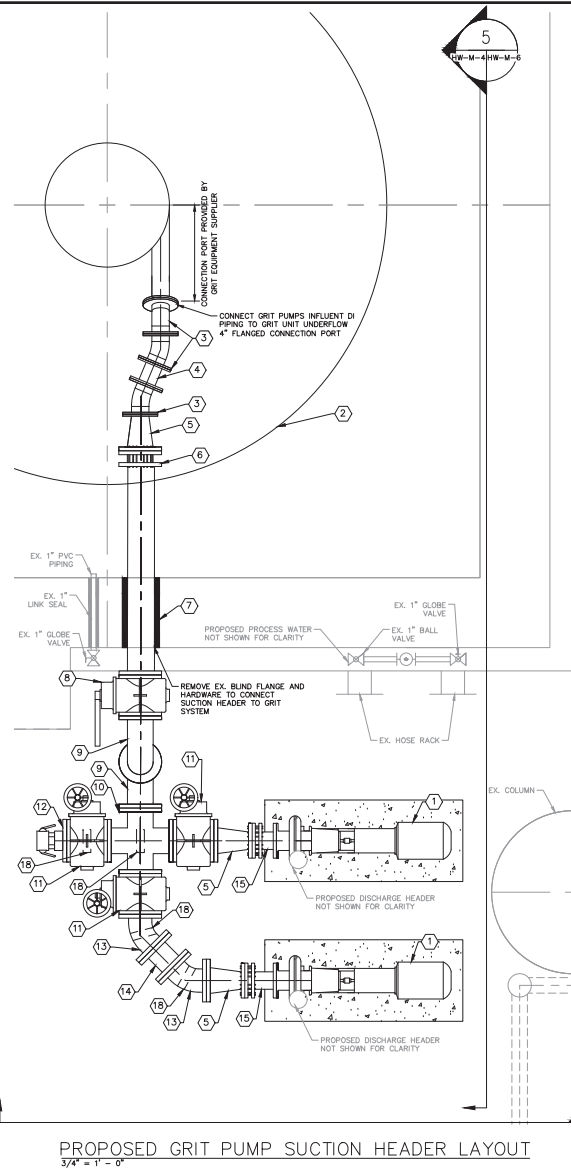


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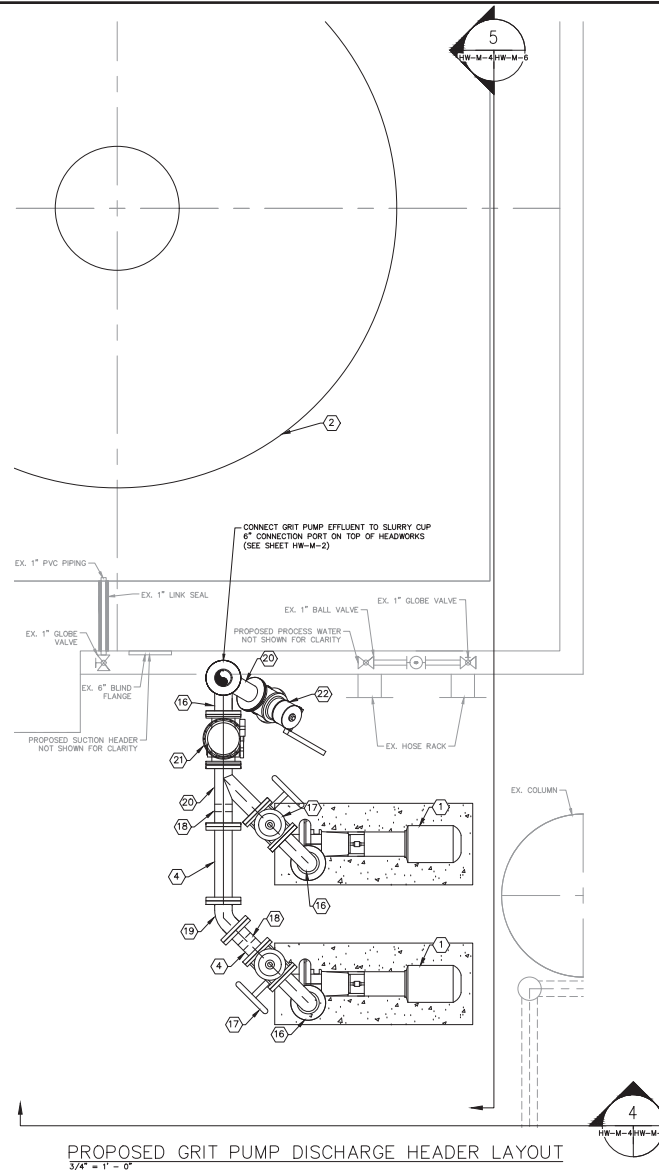
**HEADWORKS IMPROVEMENTS
BOTTOM LAYOUT PLAN**

SHEET NUMBER
HW-M-3

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PROPOSED GRIT PUMP SUCTION HEADER LAYOUT
3/4" = 1' - 0"



PROPOSED GRIT PUMP DISCHARGE HEADER LAYOUT
3/4" = 1' - 0"



GENERAL NOTES

- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

KEY NOTES

- HAYWARD GORDON GRIT PUMP, MODEL XR3(8) TORUS RECESSED IMPELLER, 6 IN IMP, 300 GPM @ 29 FT, 10HP, 60HZ
- EUTEK HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY
- 4" DI 22.5° BEND, FL
- 4" DI PIPE, FL
- 6" X 4" DI REDUCER, FL
- 6" DI PIPE, FL X PE W/ FLANGED COUPLING ADAPTER
- LINK SEAL FOR 6" DI PIPE (SEE DETAIL ON SHEET SD-2)
- 6" NUT ACTUATED PLUG VALVE W/ 1" LEVER, FL
- 6" DI 90° LONG RADIUS BEND, FL
- 6" DI CROSS, FL
- 6" HANDWHEEL ACTUATED PLUG VALVE, FL
- 6" DI BLIND FLANGE W/ 4" 316 SS CAMLOCK ADAPTER & CAP
- 6" DI 45° BEND, FL
- 6" DI PIPE, FL
- 4" DI PIPE, FL X PE W/ FLANGED COUPLING ADAPTER
- 4" DI 90° LONG RADIUS BEND, FL
- 4" HANDWHEEL ACTUATED PLUG VALVE, FL
- PIPE COLUMN SUPPORT (SEE DETAIL ON SHEET SD-2)
- 4" DI 45° LONG RADIUS BEND, FL
- 4" DI WYE, FL
- 4" SWING & LEVER CHECK VALVE, FL
- 4" PLUG VALVE W/ 1" LEVER, FL (SUPPORT USING PIPE COLUMN SUPPORT, SEE DETAIL ON SHEET SD-2)

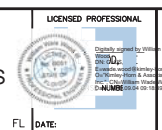
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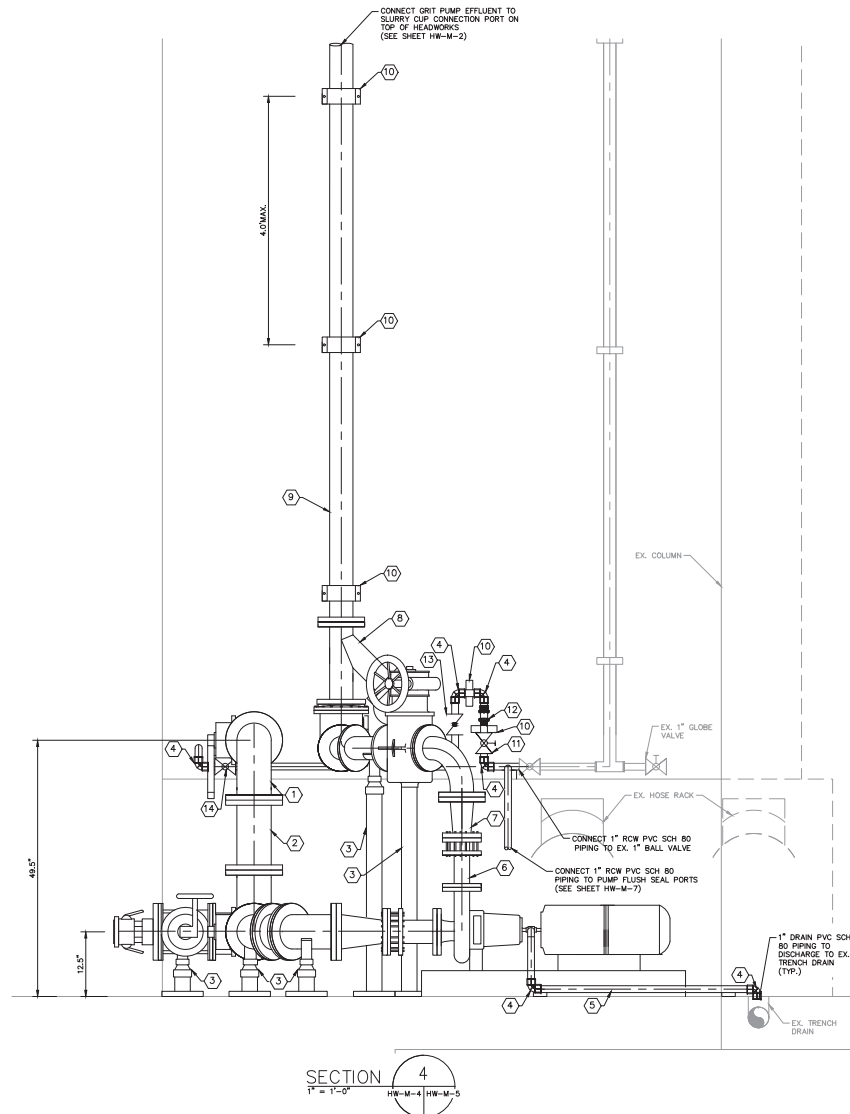
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HEADWORKS GRIT PUMP
MECHANICAL PLAN

SHEET NUMBER

HW-M-4

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- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

KEY NOTES

- 6" DI 90 LONG RADIUS BEND, FL
- 6" DI PIPE, FL
- PIPE COLUMN SUPPORT (SEE DETAIL ON SHEET SD-2)
- 1" PVC SCH 80 90° BEND, FEMALE SOCKET
- 1" PVC SCH 80 PIPE, SPIGOT
- 3" DI PIPE, FL X PE W/ FLANGED COUPLING ADAPTER
- 4" X 3" DI REDUCER, FL
- 4" DI WYE, FL W/ 4" PLUG VALVE (W/ 1" LEVER), FL
- 4" DI PIPE, FL
- PIPE STRAP SUPPORT (SEE DETAIL ON SHEET SD-1)
- 1" BRONZE GLOBE VALVE, PROVIDED BY GRIT EQUIPMENT MANUFACTURER
- FLOW METER, MODEL F-420H 8-40 GPM, PROVIDED BY GRIT EQUIPMENT MANUFACTURER
- 1" PVC SCH 80 CHECK VALVE
- 1" BRONZE BALL VALVE, PROVIDED BY GRIT EQUIPMENT MANUFACTURER

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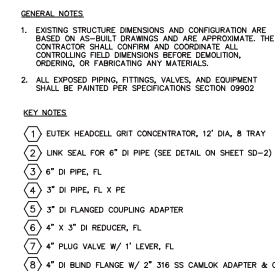
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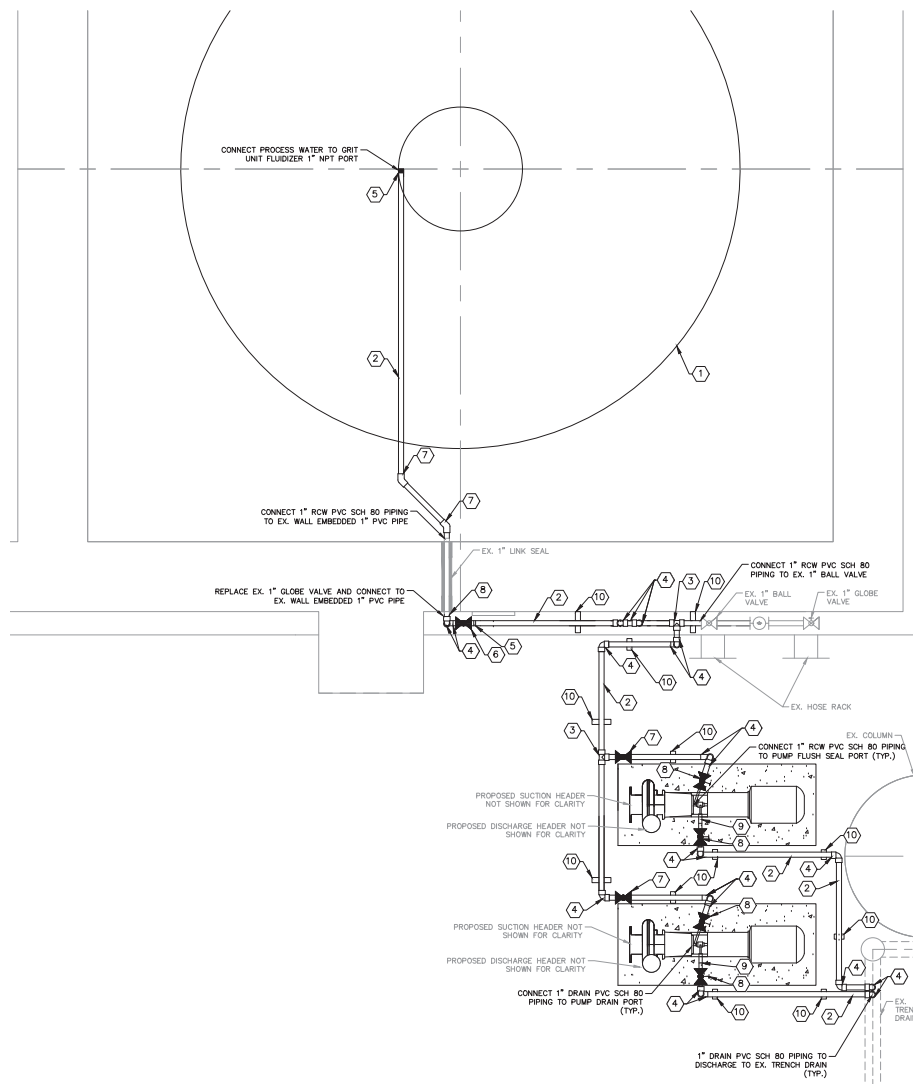
LICENSED PROFESSIONAL
 ENGINEER
 STATE OF FLORIDA
 EXPIRATION DATE 12/31/2020
 F.L. DATE:

**HEADWORKS GRIT PUMP
 MECHANICAL SECTION**

SHEET NUMBER
HW-M-5

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PROPOSED RECLAIMED WATER PIPING LAYOUT
3/4" = 1' - 0"



GENERAL NOTES

1. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
2. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902
3. PVC FITTINGS SHOWN ON CONTRACT DRAWINGS ARE NOT TO TRUE SCALE FOR CLARITY

KEY NOTES


1. EUTEX HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY
2. 1" PVC SCH 80 PIPE, SPIGOT
3. 1" PVC SCH 80 TEE, FEMALE SOCKET
4. 1" PVC SCH 80 90° BEND, FEMALE SOCKET
5. 1" PVC ADAPTER, FEMALE SOCKET X MALE THRD
6. 1" BRASS BALL VALVE, SUPPLIED BY GRIT EQUIPMENT MANUFACTURER
7. 1" PVC BALL VALVE, FEMALE SOCKET
8. 1" PVC GLOBE VALVE, FEMALE SOCKET
9. 1/4" NPT, 0-60 PSI PRESSURE GAUGE (SEE DETAIL ON SHEET SD-2)
10. STRUT PIPE SUPPORT (SEE DETAIL ON SHEET SD-1)

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MANATEE COUNTY

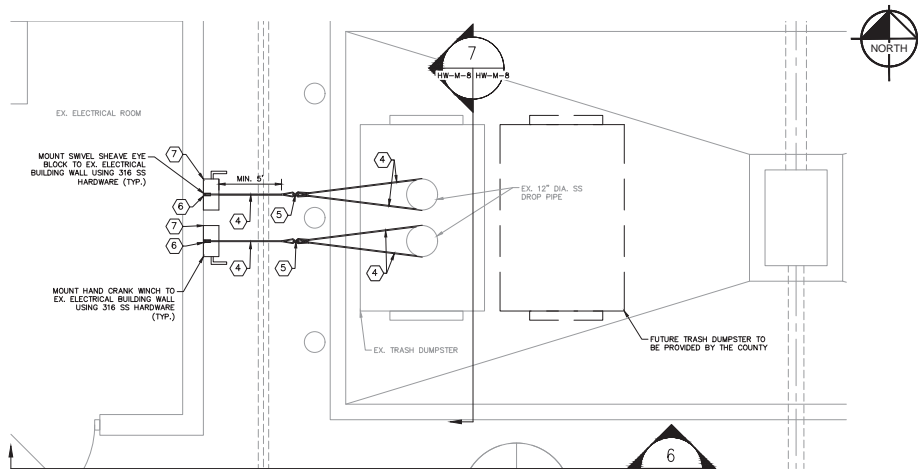


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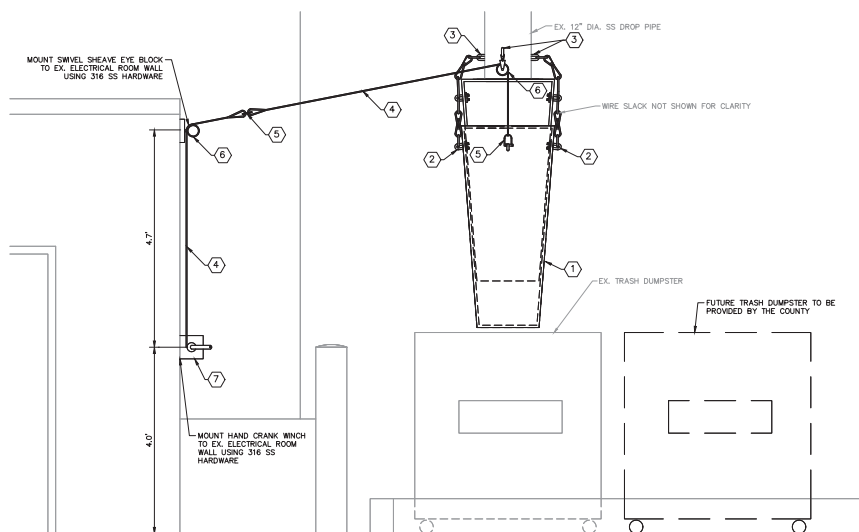
HEADWORKS RECLAIMED
WATER PIPING PLAN

SHEET NUMBER
HW-M-7

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BOTTOM FLOOR TRASH CHUTE AREA PLAN
1/2" = 1'-0"



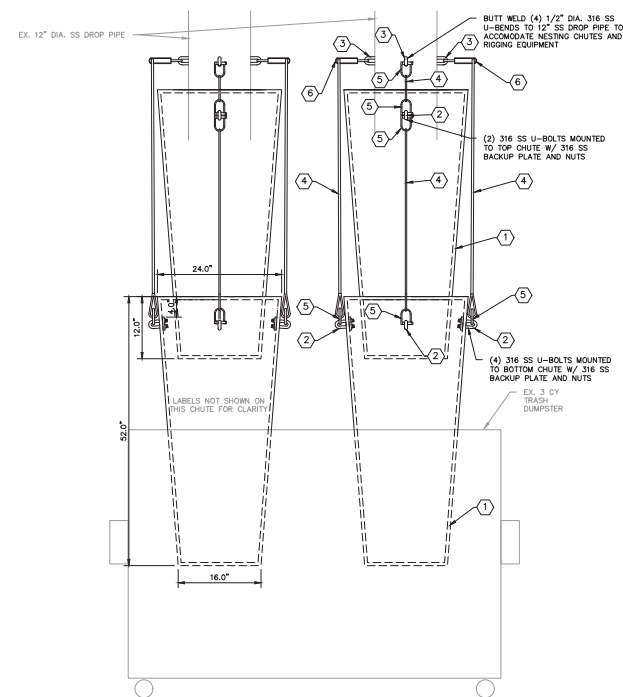
SECTION 6
3/4" = 1'-0"

KEY NOTES

- 1 BLUE ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE NESTING CHUTE, 24" OD, 1/4" WALL THICKNESS, MANUFACTURED BY SUPERCUTE OR APPROVED EQUAL
- 2 1/2" DIA. 316 SS U-BOLT
- 3 1/2" DIA. 316 SS U-BEND
- 4 5/16" DIA. 316 SS WIRE W/ LOOPED ENDS
- 5 3/16" DIA. 316 SS SCREW PIN ANCHOR SHACKLE, 1/4" DIA. PIN
- 6 316 SS SWIVEL SHEAVE EYE BLOCK, FOR 5/16" DIA. CABLE, 1400 LB WORKING LOAD LIMIT, 5500 LB ULTIMATE
- 7 316 SS WINCH M4042PSS, 1000 LB WORKING LOAD LIMIT, FOR 5/16" DIA. CABLE X 30' LONG, MANUFACTURED BY THERN OR APPROVED EQUAL

GENERAL NOTES

1. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
2. CONTRACTOR TO INSTALL FULLY FUNCTIONING RETRACTABLE NESTING CHUTE MECHANISM USING RIGGING SYSTEM AS INTENDED IN CONTRACT DRAWINGS.
3. RIGGING SYSTEM SHALL BE INSTALLED SO THAT THE LOWEST HANGING NESTING CHUTE CAN BE FULLY RETRACTED ABOVE THE TRASH DUMPSTER UNDERNEATH AND EXTENDED INTO THE ADJACENT TRASH DUMPSTER PROVIDED BY THE COUNTY



SECTION 7
1" = 1'-0"

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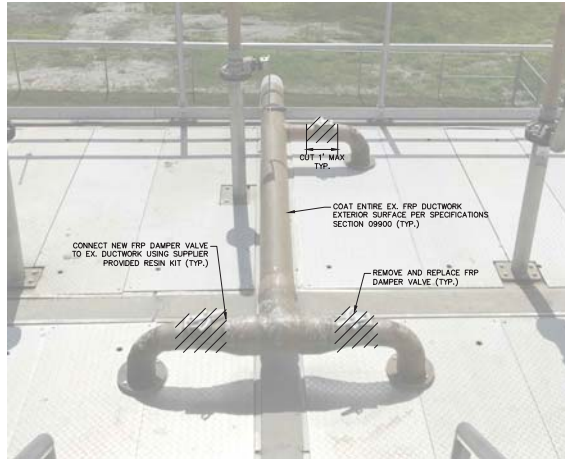
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MANATEE COUNTY

LICENSED PROFESSIONAL
Seal of the State of Florida
Professional Engineer
No. 11111
Exp. 12/31/2020

**HEADWORKS TRASH CHUTE
MODIFICATION**

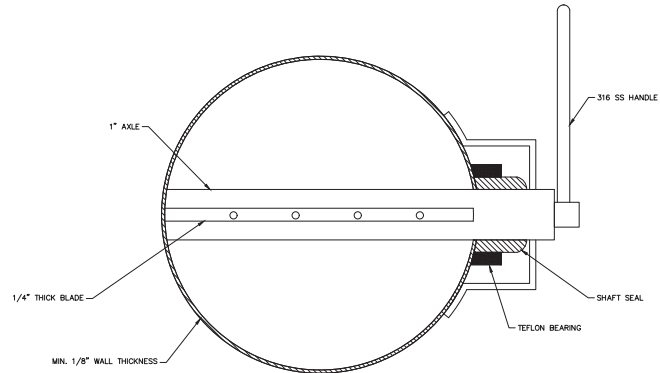
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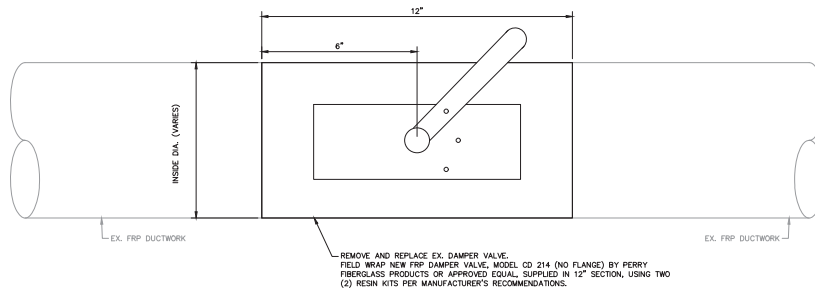
TYPICAL FRP DAMPER VALVE REPLACEMENT DETAIL
RTS

1
HW-M-9



FRP DAMPER VALVE DETAIL
10\"/>

2
HW-M-9



FRP DAMPER VALVE INSTALLATION DETAIL
5\"/>

3
HW-M-9

GENERAL NOTES

1. FRP DAMPER VALVE SHALL BE MODEL CD 214 (NO FLANGE), AS MANUFACTURED BY PERRY FIBERGLASS PRODUCTS OR EQUAL, PER SPECIFICATIONS SECTION 06390
2. VALVE SHALL BE MOUNTED IN A 12\"/>
3. MATERIAL SHALL BE VINYL ESTER RESIN WITH A 100 MIL CORROSION LINER, INTERPLASTIC CORVE, 8400 SERIES OR REDHOLD DION 9303
4. DUCT EXTERIOR FINISH SHALL HAVE RELATIVELY SMOOTH SURFACE FREE OF EXPOSED FIBERS AND SHALL CONTAIN A UV INHIBITING AGENT IN THE GEL COAT
5. EACH NEW 12\"/>
6. ENTIRE ODOR CONTROL FRP DUCTWORK SHALL BE COATED ON THE EXTERIOR PER SPECIFICATIONS SECTION 09900 \"AGED EXISTING FIBERGLASS SURFACES - NON-IMMERSION\"

No.	REVISIONS	DATE	BY

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DATE	1/7/2019
SCALE	AS SHOWN
DESIGNED BY	WWW
DRAWN BY	KEG
CHECKED BY	WEW

**NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

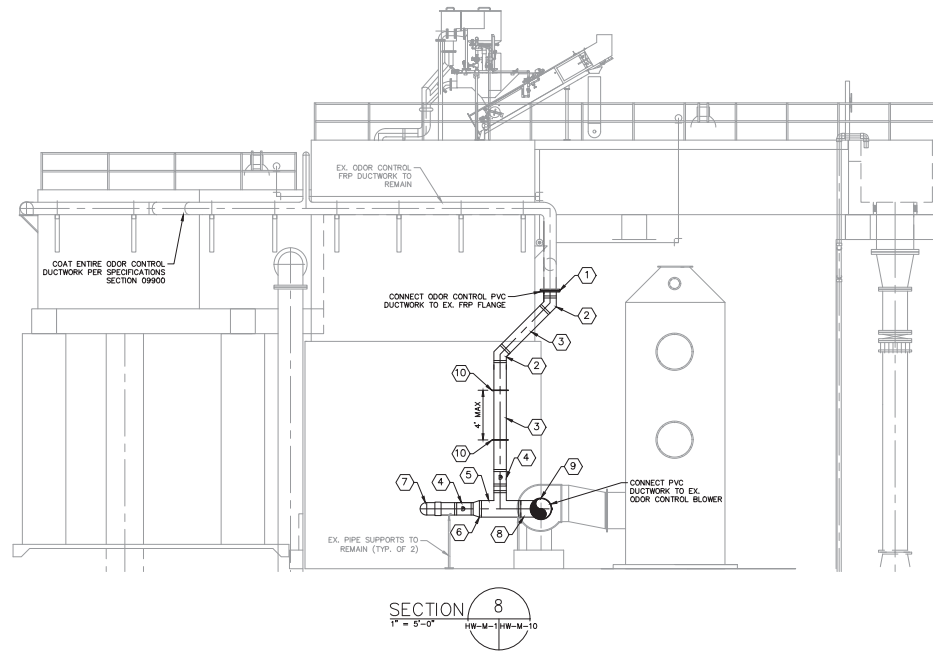
Kevin J. Williams
P.E.
12509

FL DATE:

**HEADWORKS ODOR CONTROL
DUCTWORK DETAILS**

SHEET NUMBER
HW-M-9

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GENERAL NOTES:

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2. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
3. CONTRACTOR SHALL COORDINATE ODOR CONTROL DUCTWORK INSTALLATION WITH EVOQUA TO ENSURE PROPER AIR BALANCE.
4. ALL ODOR CONTROL PVC DUCTWORK TO BE INSTALLED USING EXISTING ANGLE BRACKETS, HANGERS, AND PIPE SUPPORTS UNLESS OTHERWISE SHOWN.
5. ALL ODOR CONTROL PVC DUCTWORK SHALL BE FURNISHED PER SPECIFICATIONS SECTION 051010.
6. ENTIRE ODOR CONTROL FRP DUCTWORK SHALL BE COATED ON THE EXTERIOR PER SPECIFICATIONS SECTION 09900. *AGED EXISTING FIBERGLASS SURFACES - NON-IMMERSION*.

KEY NOTES:

1. REMOVE AND REPLACE 12\"/>

HEADWORKS ODOR CONTROL DEMOLITION
N.T.S.




No.	REVISIONS	DATE	BY

Kimley»Horn

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PHONE: 727-547-3999
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KHA PROJECT 148400021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW


**NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

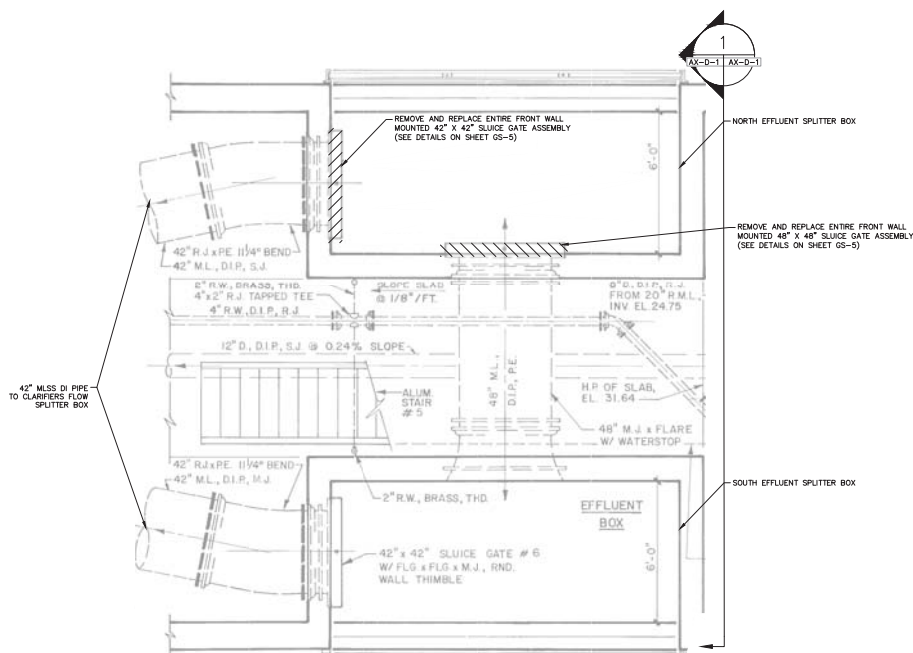


FL DATE:

**HEADWORKS ODOR CONTROL
DUCTWORK DETAILS**

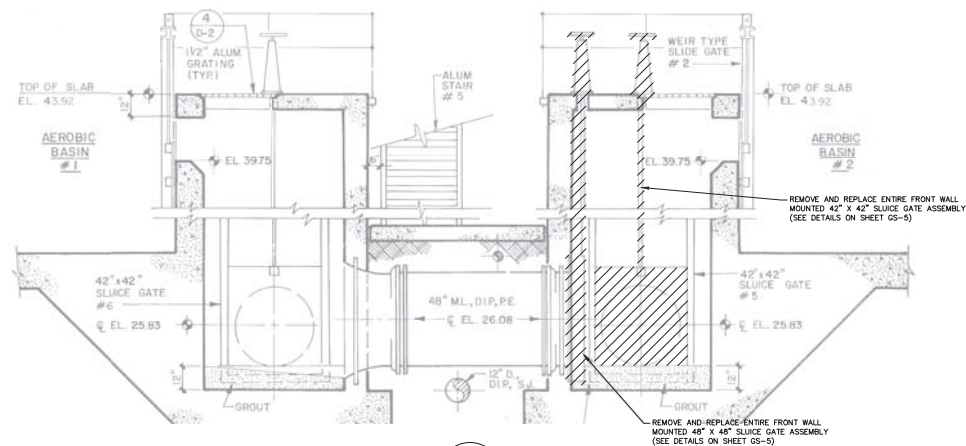
SHEET NUMBER
HW-M-10

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FLOW SPLITTER BOX GATE MODIFICATIONS
1/4" = 1'-0"

1
AX-D-1



SECTION 1
1" = 0'-0" AX-D-1

GENERAL NOTES

1. THE EXISTING INFORMATION SHOWN ON THIS DRAWING IS FOR REFERENCE PURPOSE ONLY AND HAS BEEN TAKEN FROM THE FACILITY RECORD DRAWINGS.
2. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
3. FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE. COAT W/ BITUMASTIC AND GROUT FINISH.
4. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) ANOXIC/ASERATION BASIN OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.

LEGEND

 EQUIPMENT TO BE REMOVED




No.	REVISIONS	DATE	BY

Kimley-Horn

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WWW.KIMLEY-HORN.COM CA 0000696

KHA PROJECT 145400021
DATE 1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW


**NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS**

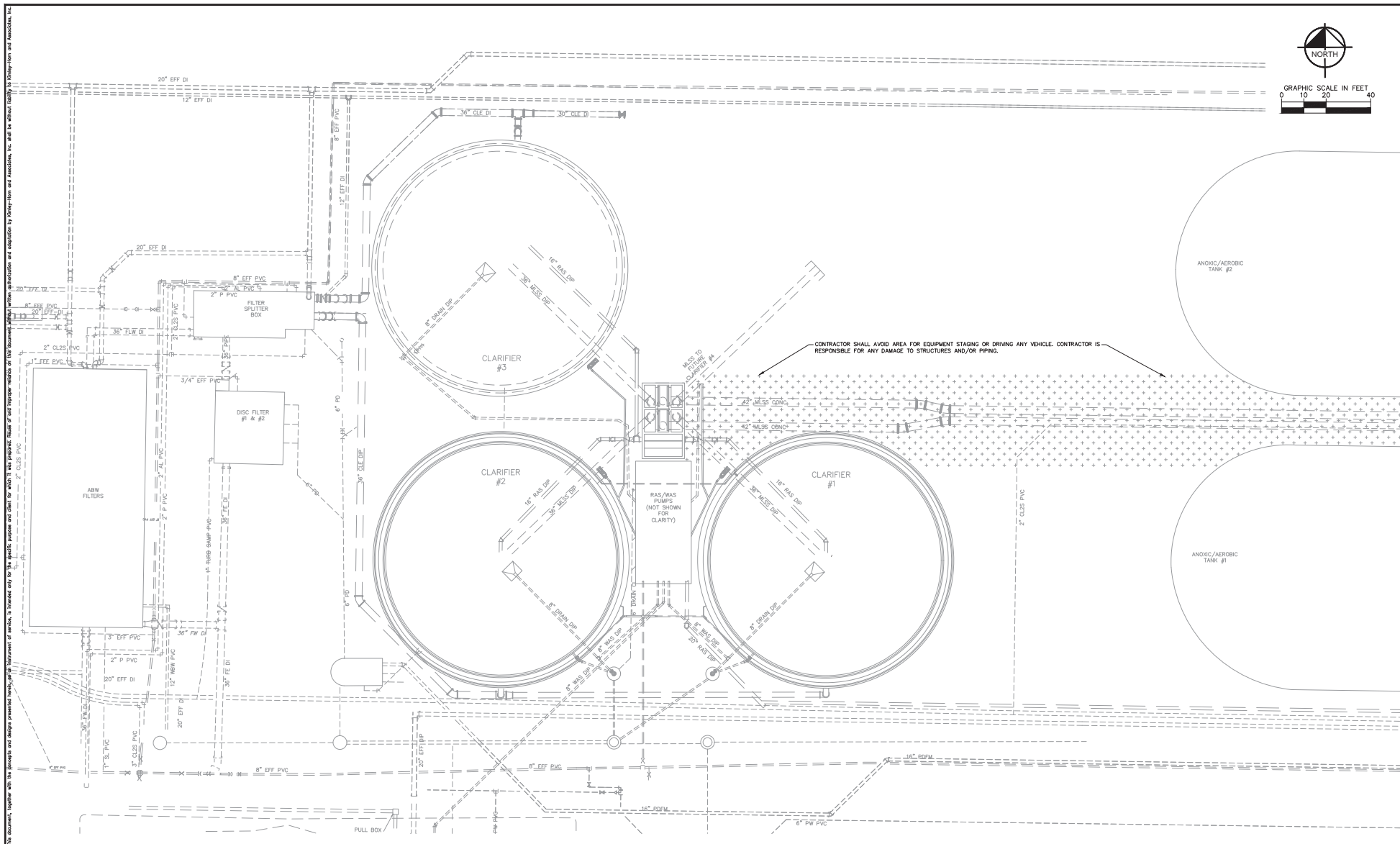
MANATEE COUNTY

LICENSED PROFESSIONAL


FL DATE: _____

**ANOXIC & AEROBIC BASIN
FLOW SPLITTER BOX GATE
MODIFICATION**

SHEET NUMBER
AX-D-1

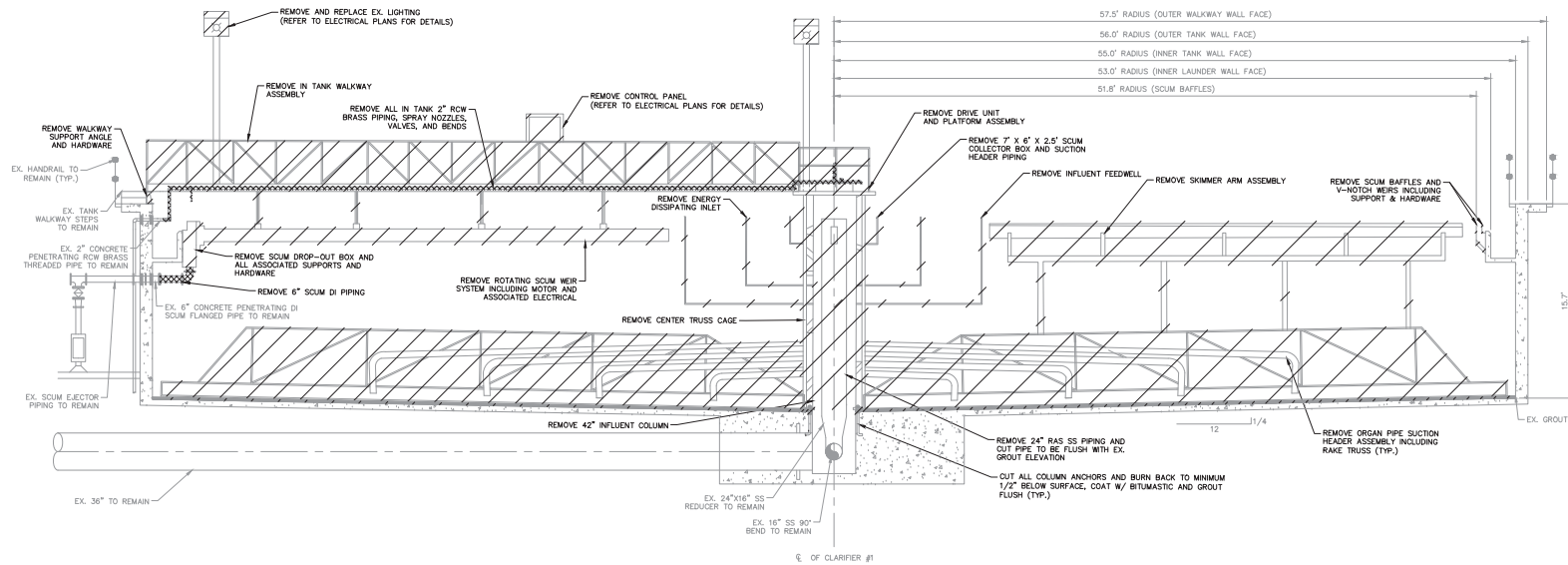


						KHA PROJECT 148400021				LICENSED PROFESSIONAL 		SHEET NUMBER	
				© 2019 KIMLEY-HORN AND ASSOCIATES, INC. 100 2ND AVENUE SOUTH, SUITE 105-N, ST. PETERSBURG, FL 33701 PHONE: 727-547-3999 WWW.KIMLEY-HORN.COM CA 00000696		DATE 1/7/2019		NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS		OVERALL CLARIFIERS EXISTING SITE PLAN		CL-1	
SCALE AS SHOWN				DESIGNED BY WWW		DRAWN BY KEG		MANATEE COUNTY		FL DATE:			
CHECKED BY WEW													
No. REVISIONS DATE BY													



CL-D-1

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CLARIFIER CROSS SECTION 1
1" = 5' - 0"

GENERAL NOTES

- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
- CONTRACTOR SHALL REMOVE ALL MECHANICAL ITEMS IN CLARIFIER #1 & #2 INCLUDING BUT NOT LIMITED TO SKIMMER ARMS, ROTATING SCUM WEIR SYSTEM, RAKE ARM, FEEDWELL, DRIVE SHAFT, EFFLUENT TROUGH BAFFLES AND WEIRS, AND IN TANK WALKWAY, PLATFORM, AND SUPPORTS
- FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH
- CONTRACTOR SHALL MAINTAIN WASTEWATER FLOW AND TWO (2) CLARIFIERS OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
- SECTION VIEW OF CLARIFIER #1 IS A MIRROR IMAGE OF CLARIFIER #2
- CONTRACTOR SHALL SURVEY EX. CLARIFIER WATER LEVEL ELEVATION DURING NORMAL OPERATING CONDITIONS AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR TO USE ELEVATION AS BASELINE FOR EQUIPMENT INSTALLATION AS SHOWN IN CONTRACT DRAWINGS AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
- CONTRACTOR SHALL SURVEY EX. V-NOTCH WEIR INVERT ELEVATION AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR SHALL MATCH PROPOSED WEIR INVERT ELEVATION TO EX. WEIR INVERT ELEVATION AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.

LEGEND

- EQUIPMENT TO BE REMOVED
- PIPE AND APPURTENANCES TO BE REMOVED

No.	REVISIONS	DATE	BY

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KHA PROJECT
145400021
DATE
1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW

NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS

MANATEE COUNTY



CLARIFIERS 1 AND 2
DEMOLITION SECTION

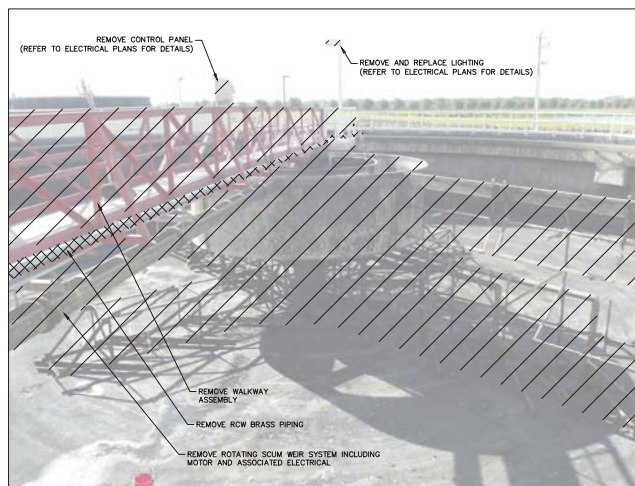
SHEET NUMBER

CL-D-2

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EX. CLARIFIER MECHANISM 1
N.T.S. CL-D-3



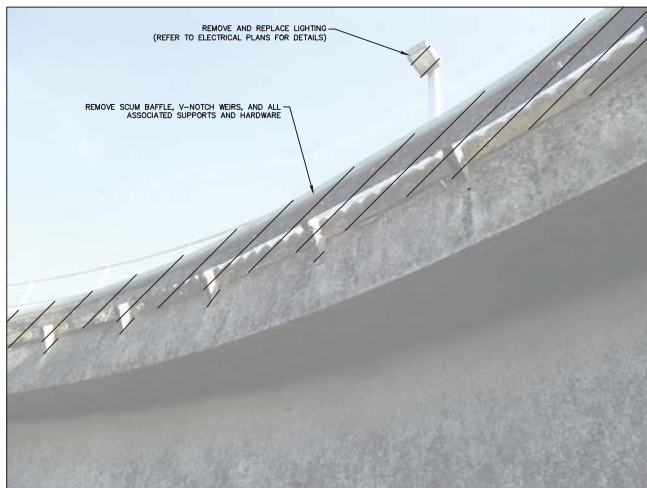
EX. CLARIFIER MECHANISM 2
N.T.S. CL-D-3

GENERAL NOTES

- CONTRACTOR SHALL REMOVE ALL MECHANICAL ITEMS IN CLARIFIER #1 & #2 INCLUDING BUT NOT LIMITED TO SKIMMER ARMS, ROTATING SCUM WEIR SYSTEM, RAKE ARM, FEEDWELL, DRIVE SHAFT, EFFLUENT TROUGH Baffles AND WEIRS, AND IN TANK WALKWAY, PLATFORM, AND SUPPORTS.
- FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH
- CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND TWO (2) CLARIFIERS OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
- CONTRACTOR SHALL SURVEY EX. CLARIFIER WATER LEVEL ELEVATION DURING NORMAL OPERATING CONDITIONS AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR TO USE ELEVATION AS BASELINE FOR EQUIPMENT INSTALLATION AS SHOWN IN CONTRACT DRAWINGS AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
- CONTRACTOR SHALL SURVEY EX. V-NOTCH WEIR INVERT ELEVATION AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR SHALL MATCH PROPOSED WEIR INVERT ELEVATION TO EX. WEIR INVERT ELEVATION AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.

LEGEND

- EQUIPMENT TO BE REMOVED
- PIPE AND APPURTENANCES TO BE REMOVED



EX. SCUM Baffle AND WEIRS 3
N.T.S. CL-D-3



EX. FLOW SPLITTER BOX 4
N.T.S. CL-D-3



EX. FLOW SPLITTER BOX 5
N.T.S. CL-D-3

No.	REVISIONS	DATE	BY

Kimley»Horn

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655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 0000696

KHA PROJECT
145400021
DATE
7/14/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW

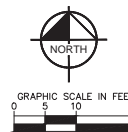
**NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS**
MANATEE COUNTY

LICENSED PROFESSIONAL

FL DATE:

**CLARIFIERS 1 AND 2
DEMOLITION DETAILS**

SHEET NUMBER
CL-D-3



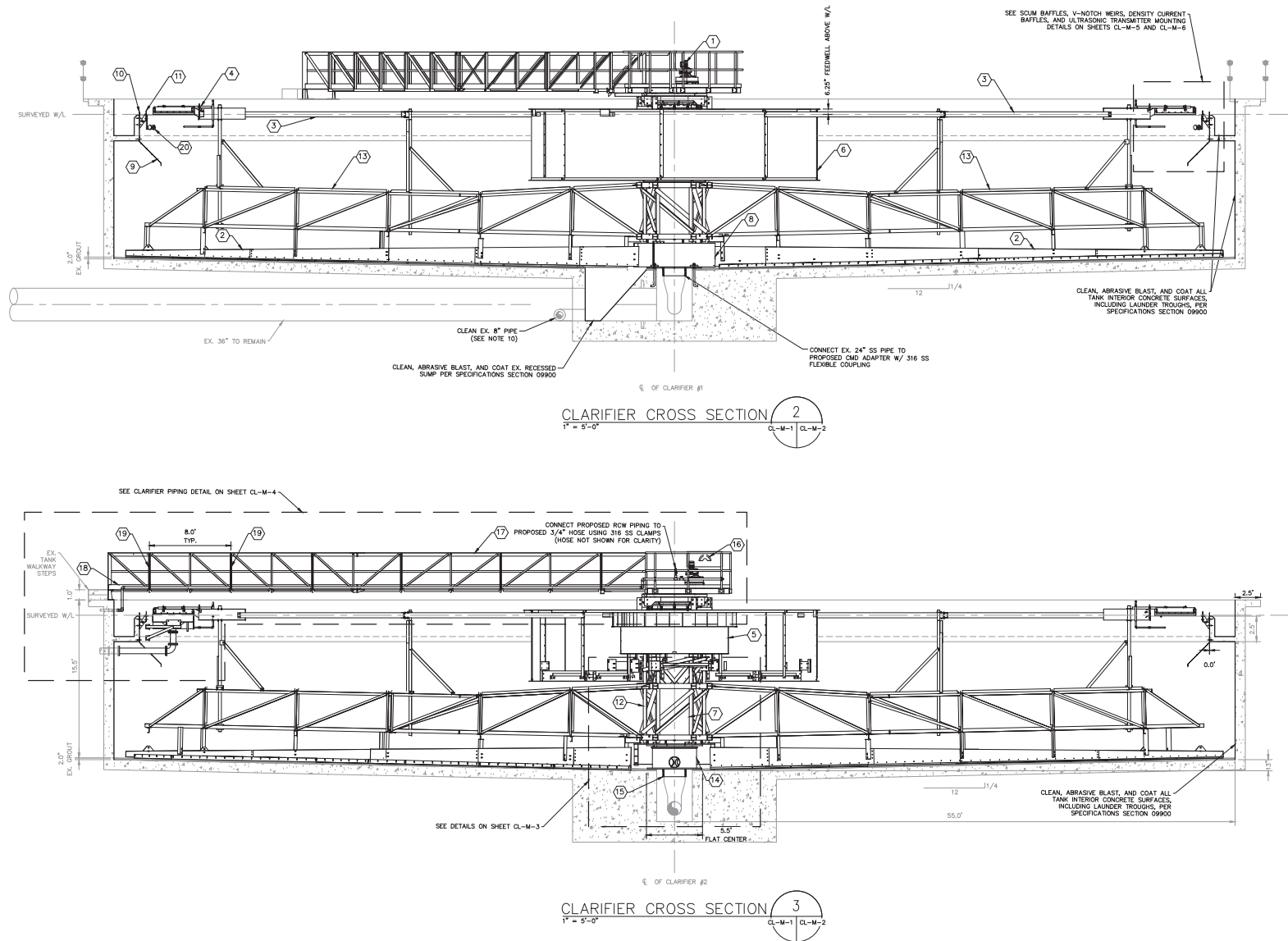
1. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LOCATIONS. ALL CONTROLLING FLOOR DIMENSIONS BEFORE ORDERING OR CONSTRUCTION OF ANY MATERIALS.
2. CLARIFIER #1 & #2 SHALL BE INTEGRATED WITH FACILITY SCADA SYSTEM.
3. THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY PLANNING AND ZONING DEPARTMENT FOR PERMITS AND EQUIPMENT SUPPLIER FOR A FULLY FUNCTIONAL AND COMPLETE CLARIFIER INCLUDING MANHOLE TO COORDINATE WITH EXISTING.
4. THE CONTRACTOR SHALL FURNISH ALL CLARIFIER EQUIPMENT PER SPECIFICATIONS SECTION 11200.
5. THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS.
6. THE SPIRAL BLADES SHALL BE INSTALLED TO OBTAIN THE MANUFACTURER'S RECOMMENDED CLEARANCE BETWEEN THE BLADE AND DUCT.
7. CLEAN, ABRASIVE BLAST, AND COAT ALL TANK INTERIOR CONCRETE SURFACES, INCLUDING LAUNDRER DROUGHS AND CONCREDE PIPING PER SPECIFICATIONS SECTION 11000 "CONCRETE SURFACES - IMMERSION".
8. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 99000.
9. CONTRACTOR SHALL PROVIDE EX. CLARIFIER WATER LEVEL ELEVATION DURING NORMAL OPERATING CONDITIONS AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR SHALL PROVIDE EX. LAUNDRER WATER LEVEL INVERT ELEVATION TO EX. W. INVERT ELEVATION FOR EQUIPMENT INSTALLATION AS SHOWN IN CONTRACT DRAWINGS AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
10. CONTRACTOR SHALL SURVEY EX. W-INOTCH W. INVERT ELEVATION AND PROVIDE TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR SHALL MATCH EX. LAUNDRER WATER LEVEL INVERT ELEVATION TO EX. W. INVERT ELEVATION AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
11. CONTRACTOR SHALL REMOVE ALL PIPELINES TO REMAIN. ALL DERRIS AND BUILD-UP, PIPELINE SHALL BE C/TVD) AND THE VIDEO SHALL BE PROVIDED TO THE OWNER/ENGINEER FOR REVIEW.

RESTRICTED AREA
(SEE NOTE ON SHEET CL-1)

CLEAN PIPELINE
(SEE NOTE 11)

[illegible]

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GENERAL NOTES

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- CLARIFIER #1 & #2 SHALL BE INTEGRATED WITH FACILITY SCADA SYSTEM.
- THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY PERSONNEL, ENGINEER, AND CLARIFIER EQUIPMENT SUPPLIER FOR A FULLY FUNCTIONAL AND COMPLETE CLARIFIER INCLUDING WALKWAY CONNECTION.
- THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS.
- SECTION VIEWS ARE MIRROR-IMAGES OF CLARIFIER #1 AND #2.
- CLEAN, ABRASIVE BLAST, AND COAT ALL TANK INTERIOR CONCRETE SURFACES, INCLUDING LAUNDER TROUGHS AND RECESSED SUMP, PER SPECIFICATIONS SECTION 09900 "CONCRETE SURFACES - IMMERSION".
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE COATED PER SPECIFICATIONS SECTION 09902.
- CONTRACTOR SHALL SURVEY EX. CLARIFIER WATER LEVEL ELEVATION DURING NORMAL OPERATING CONDITIONS AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR TO USE ELEVATION AS BASELINE FOR EQUIPMENT INSTALLATION AS SHOWN IN CONTRACT DRAWINGS AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
- CONTRACTOR SHALL SURVEY EX. V-NOTCH WEIR INVERT ELEVATION AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR SHALL MATCH PROPOSED WEIR INVERT ELEVATION TO EX. WEIR INVERT ELEVATION AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
- CONTRACTOR SHALL HYDRO JET CLEAN PIPELINES TO REMOVE ALL DEBRIS AND BUILD-UP. PIPELINES SHALL BE CCTV'D AND THE VIDEO SHALL BE PROVIDED TO THE OWNER/ENGINEER FOR APPROVAL.

KEY NOTES

- DRIVE UNIT, 3/4 HP, 460V, 3PH, 60HZ
- 1/4" THICK STEEL TAPERED 30" SPIRAL RAKE BLADE W/ 304 SS COSSERGES (SEE DETAILS ON SHEET CL-M-3)
- 304 SS SURFACE SOLID SKIMMER BLADE
- SOLID SKIMMING DEVICE
- 10'-0" ENERGY DISSIPATING INLET (EDI)
- 28'-0" DIA. FEEDWELL W/ (8) SOLID SKIMMER BLADES
- 3'-0" DIA. INFLUENT COLUMN W/ (4) EQ. SPACED PORTS
- 5'-6" DIA. SLUDGE COLLECTION DRUM (SEE DETAIL ON SHEET CL-M-3)
- FRP DENSITY CURRENT BAFFLES (SEE DETAILS ON SHEET CL-M-6)
- FRP V-NOTCH WEIRS W/ SLOTTED HOLES FOR ADJUSTMENTS (SEE DETAILS ON SHEET CL-M-5)
- FRP SOLID BAFFLES W/ SLOTTED HOLES FOR ADJUSTMENTS (SEE DETAILS ON SHEET CL-M-5)
- MIN. 4'-0" SQ. CASE
- MIN. 3'-10" SQ. RAKE ARM
- 24" I.D. COLLECTION MANIFOLD DEVICE (CMD) ADAPTER (SEE DETAILS ON SHEET CL-M-3)
- 24" 316 SS FLEXIBLE COUPLING
- GUARDRAIL MOUNTED HOSE RACK (SEE DETAIL ON SHEET SD-2)
- 1-1/2" DIA. SCH 40 ALUMINUM HANDRAIL
- EXTRUDED ALUMINUM TOEBOARD, ANODIZED FINISH, 0.7 MIL THICKNESS
- STUB OUT ANGLE BRACKETS
- INDUSTRIAL WET ULTRASONIC TRANSMITTER, 25W, MANUFACTURED BY LG SONIC (ROTATED 45°) OR APPROVED EQUAL (SEE DETAILS ON SHEET CL-M-6)

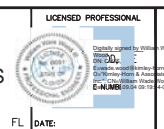
No.	REVISIONS	DATE	BY

Kimley-Horn
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 PHONE: 727-547-3999
 WWW.KIMLEY-HORN.COM CA 0000696

KHA PROJECT
 145400021
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 CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS
 AND CCC IMPROVEMENTS**

MANATEE COUNTY

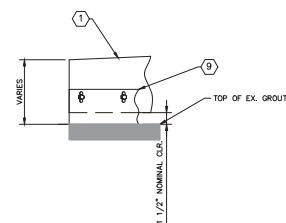


FL DATE:

**CLARIFIERS 1 AND 2
 EQUIPMENT SECTIONS**

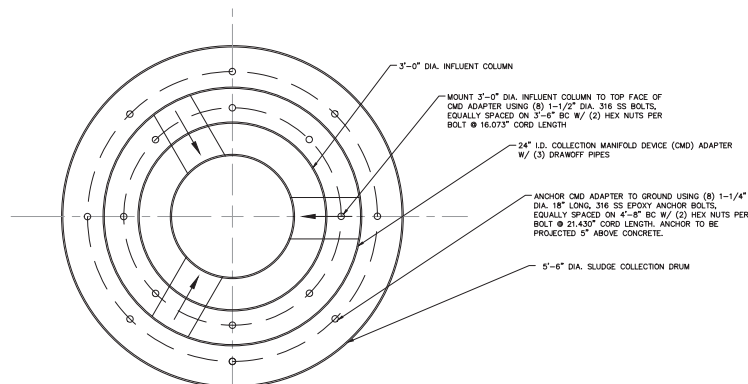
SHEET NUMBER

CL-M-2



1
CL-M-3

2
CL-M-3

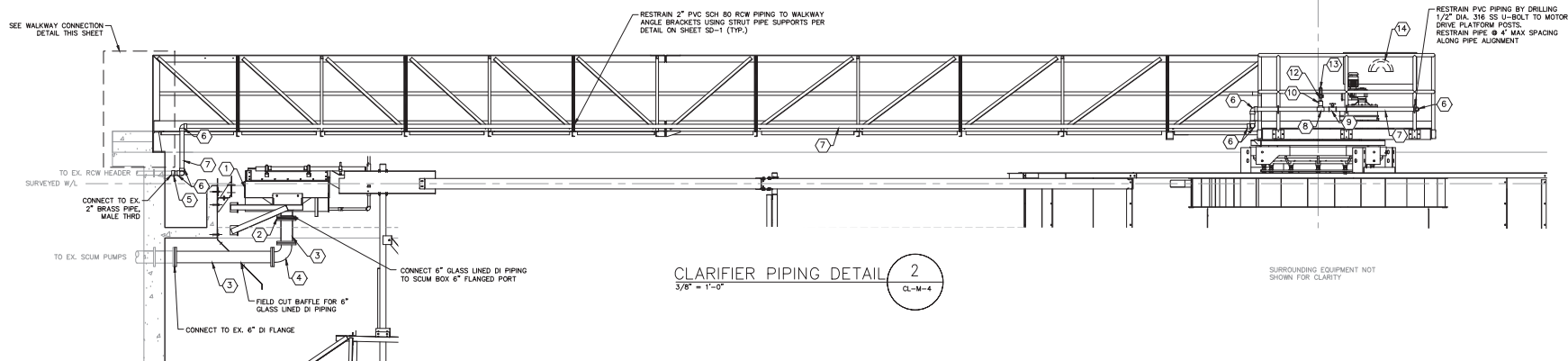
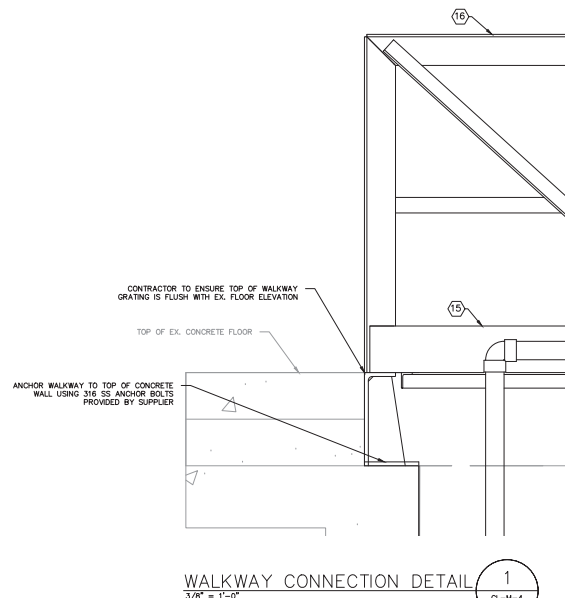
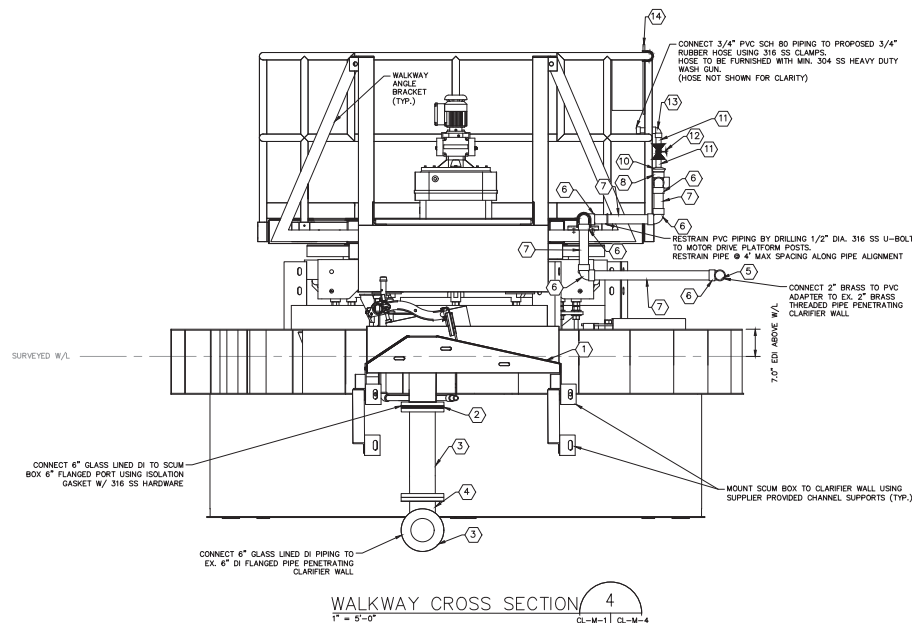


$4-3$

SHEET NUMBER

CL-M-3

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GENERAL NOTES

- CLARIFIER #1 & #2 SHALL BE INTEGRATED WITH FACILITY SCADA SYSTEM
- THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY PERSONNEL, ENGINEER, AND CLARIFIER EQUIPMENT SUPPLIER FOR A FULLY FUNCTIONAL AND COMPLETE CLARIFIER INCLUDING WALKWAY CONNECTION
- THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

KEY NOTES

- SCUM BOX W/ AUTOMATIC FLUSH VALVE
- 6\"/>

No.	REVISIONS	DATE	BY

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 PHONE: 727-547-3999
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KHA PROJECT
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 DATE
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 CHECKED BY WEW

**NORTH WRF HEADWORKS, CLARIFIERS
 AND CCC IMPROVEMENTS**
 MANATEE COUNTY

LICENSED PROFESSIONAL
 Florida Professional Engineer
 License No. 12500
 Date of Birth: 01/15/1968
 Date of License: 01/15/2019
 Date of Expiration: 01/15/2024
 Date of Renewal: 01/15/2024
 Date of Reinstatement: 01/15/2024
 Date of Revocation: 01/15/2024
 Date of Suspension: 01/15/2024
 Date of Termination: 01/15/2024
 Date of Withdrawal: 01/15/2024
 Date of Revocation: 01/15/2024
 Date of Suspension: 01/15/2024
 Date of Termination: 01/15/2024
 Date of Withdrawal: 01/15/2024

**CLARIFIERS 1 AND 2 PIPING
 DETAILS**

SHEET NUMBER
CL-M-4

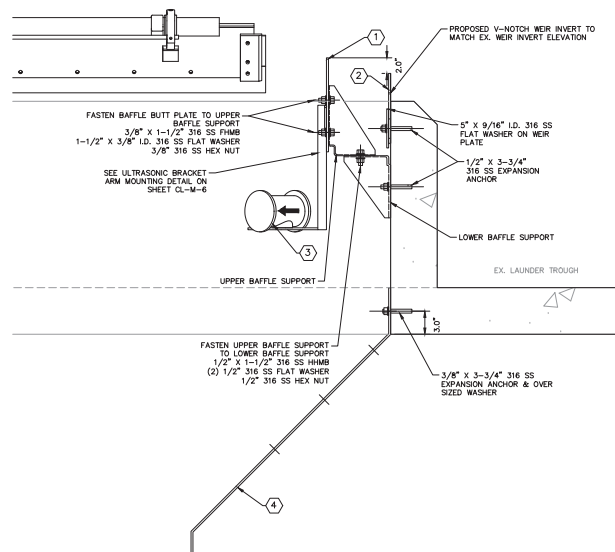
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GENERAL NOTES

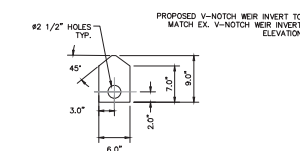
1. THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS
2. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 06020
3. ALL BRACKETS AND HARDWARE SHALL BE 316 SS
4. FRP WEIRS AND SCUM BAFFLES SHALL BE FURNISHED PER SPECIFICATIONS SECTION 06810
5. FRP DENSITY CURRENT BAFFLES SHALL BE FURNISHED PER SPECIFICATIONS SECTION 06810
6. ULTRASONIC TRANSMITTERS SHALL BE FURNISHED PER SPECIFICATIONS SECTION 16700

KEY NOTES

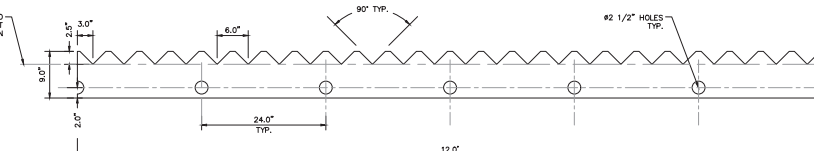
1. FRP SCUM BAFFLES, W/ SLOTTED HOLES FOR ADJUSTMENTS (SEE DETAILS THIS SHEET)
2. FRP V-NOTCH WEIRS, W/ SLOTTED HOLES FOR ADJUSTMENTS (SEE DETAILS THIS SHEET)
3. INDUSTRIAL WET ULTRASONIC TRANSMITTER, 25W, MANUFACTURED BY LG SONIC OR APPROVED EQUAL (SEE DETAILS ON SHEET CL-M-6)
4. FRP DENSITY CURRENT BAFFLES (SEE DETAILS ON SHEET CL-M-6)



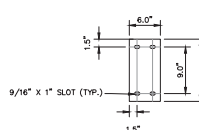
ACCESSORIES MOUNTING LAYOUT DETAIL 1
1'-1/2" = 1'-0"



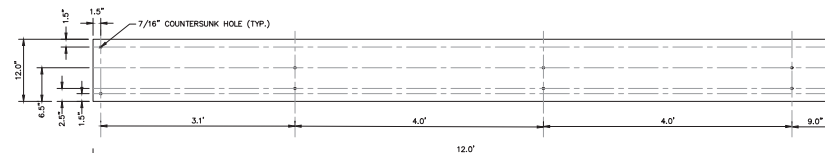
FRP WEIR BUTT PLATE DETAIL 2
1" = 1'-0"



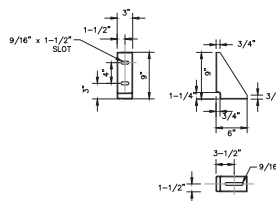
FRP V-NOTCH WEIR PLATE DETAIL 3
1" = 1'-0"



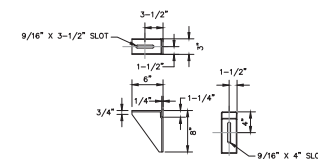
FRP SCUM BAFFLE BUTT PLATE DETAIL 4
1" = 1'-0"



FRP SCUM BAFFLE PLATE DETAIL 5
1" = 1'-0"



FRP SCUM UPPER BAFFLE SUPPORT DETAIL 6
1" = 1'-0"



FRP SCUM LOWER BAFFLE SUPPORT DETAIL 7
1" = 1'-0"

No.	REVISIONS	DATE	BY

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KHA PROJECT
148400021
DATE
1/7/2019
SCALE AS SHOWN
DESIGNED BY WWW
DRAWN BY KEG
CHECKED BY WEW

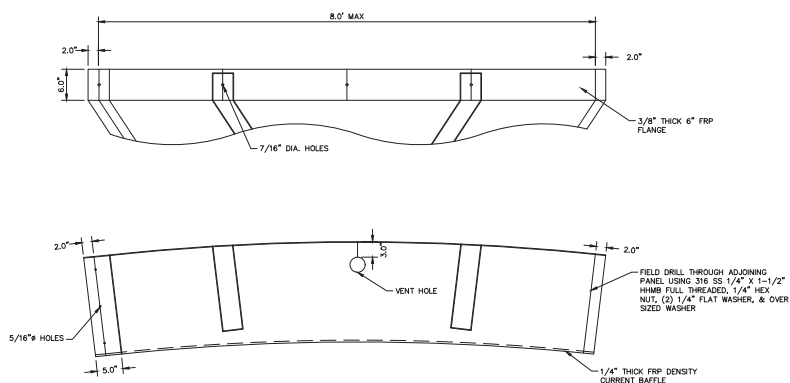
**NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS**
MANATEE COUNTY

LICENSED PROFESSIONAL
Seal of the State of Florida
Professional Engineer
No. 12345
Exp. 12/31/2020

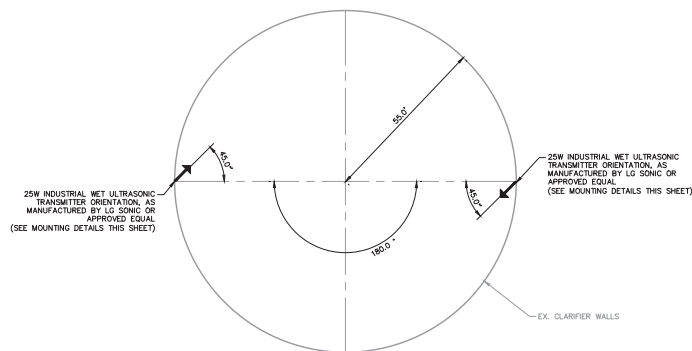
**CLARIFIERS 1 AND 2
ACCESSORIES MOUNTING
DETAILS**

SHEET NUMBER
CL-M-5

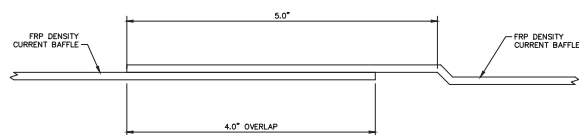
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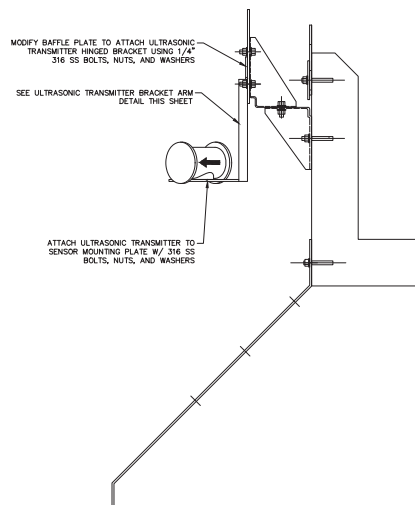
FRP DENSITY CURRENT BAFFLE DETAIL 1
1" = 1'-0"



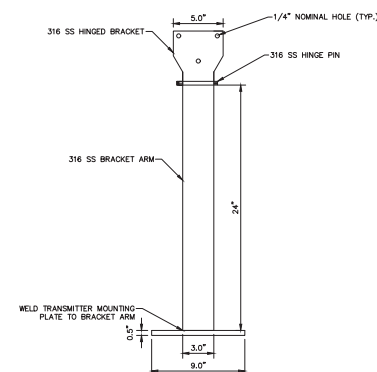
WET ULTRASONIC TRANSMITTERS LAYOUT DETAIL 3
1" = 20'-0"



FRP DENSITY CURRENT BAFFLE JOINT DETAIL 2
1" = 1"



WET ULTRASONIC TRANSMITTER MOUNTING DETAIL 4
1-1/2" = 1'-0"



WET ULTRASONIC TRANSMITTER BRACKET ARM DETAIL 5
3" = 1'-0"

GENERAL NOTES

1. THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS.
2. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902.
3. CONTRACTOR TO MODIFY BRACKET ARM AND BAFFLE AS NECESSARY SO THE WET ULTRASONIC TRANSMITTER INSTALLATION DOES NOT INTERFERE WITH CLARIFIER ROTATING EQUIPMENT.
4. ALL BRACKETS AND HARDWARE SHALL BE 316 SS.
5. FRP WERS AND SCUM BAFFLES SHALL BE SUPPLIED PER SPECIFICATIONS SECTION 06910.
6. FRP DENSITY CURRENT BAFFLES SHALL BE SUPPLIED PER SPECIFICATIONS SECTION 06920.
7. ULTRASONIC TRANSMITTERS SHALL BE SUPPLIED PER SPECIFICATIONS SECTION 16700.

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NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL

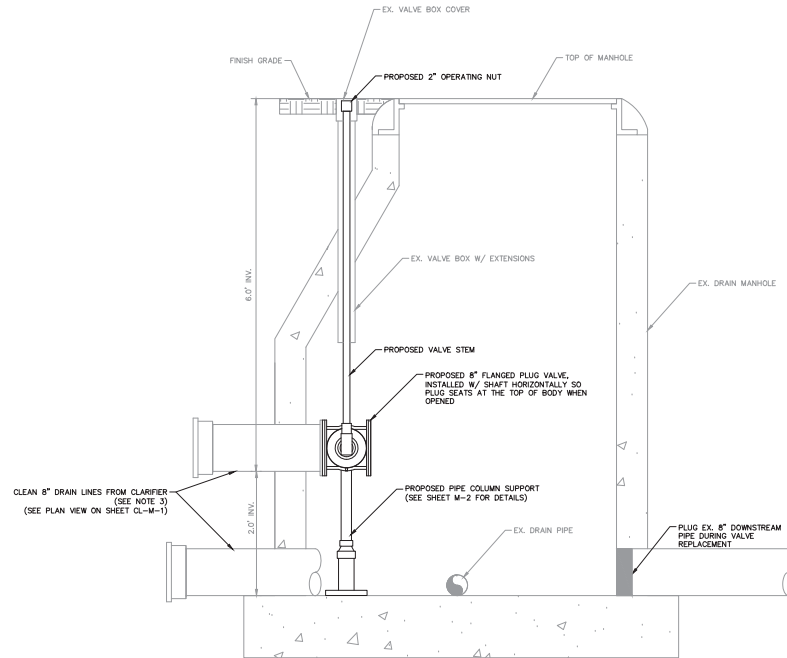
Florida Professional Engineer
E-11111
1/1/2019

**CLARIFIERS 1 AND 2
ACCESSORIES MOUNTING
DETAILS**

SHEET NUMBER

CL-M-6


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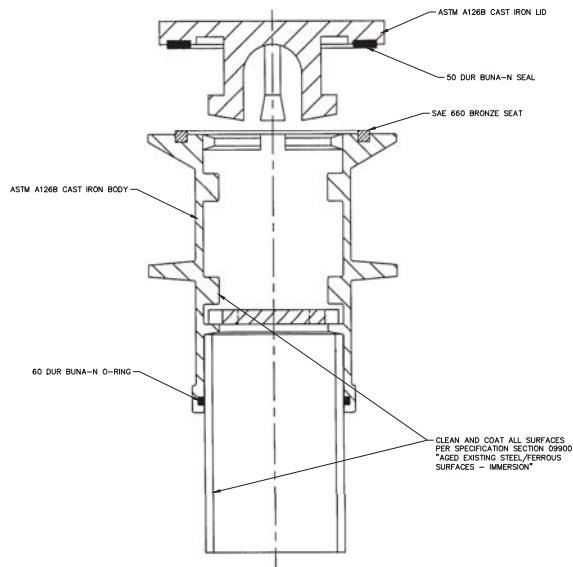
DRAIN MANHOLE SECTION 5
1" = 1'-0" CL-M-1 CL-M-7

GENERAL NOTES

1. THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS.
2. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902.
3. CONTRACTOR SHALL HYDRO JET CLEAN PIPELINES TO REMOVE ALL DEBRIS AND BUILD-UP. PIPELINES SHALL BE CCTV'D AND THE VIDEO SHALL BE PROVIDED TO THE OWNER/ENGINEER FOR APPROVAL.
4. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND TWO (2) CLARIFIERS OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
5. PIPELINE CLEANING AND VALVE INSTALLATION FOR CLARIFIER #1 AND #2 DRAIN MANHOLES SHALL BE COORDINATED WITH COUNTY AND ENGINEER TO ENSURE LEACHATE DELIVERY TO RECEIVING MANHOLE IS NOT IMPAIRED.
6. DRAIN MANHOLE SECTION REPRESENTS BOTH CLARIFIER #1 AND #2 DRAIN MANHOLES.

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PRESSURE RELIEF VALVE REPAIR DETAIL 1
6" = 1'-0" CL-M-8

- GENERAL NOTES
1. REMOVE ANY DEBRIS/SLUDGE/OILS FROM VALVE INTERIOR SURFACES
 2. PRESSURE WASH/ABRASIVE BLAST/VACUUM, AS NECESSARY, ALL INTERIOR SURFACES OF PRESSURE RELIEF VALVES TO COMPLETELY REMOVE TUBERCULATION BUILD-UP



PRESSURE RELIEF VALVE BODY REPAIR DETAIL 2
N.T.S. CL-M-8



PRESSURE RELIEF VALVE LID DETAIL 3
N.T.S. CL-M-8

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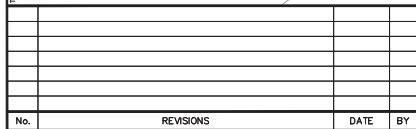
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CLARIFIERS 1 AND 2
PRESSURE RELIEF VALVE
DETAILS

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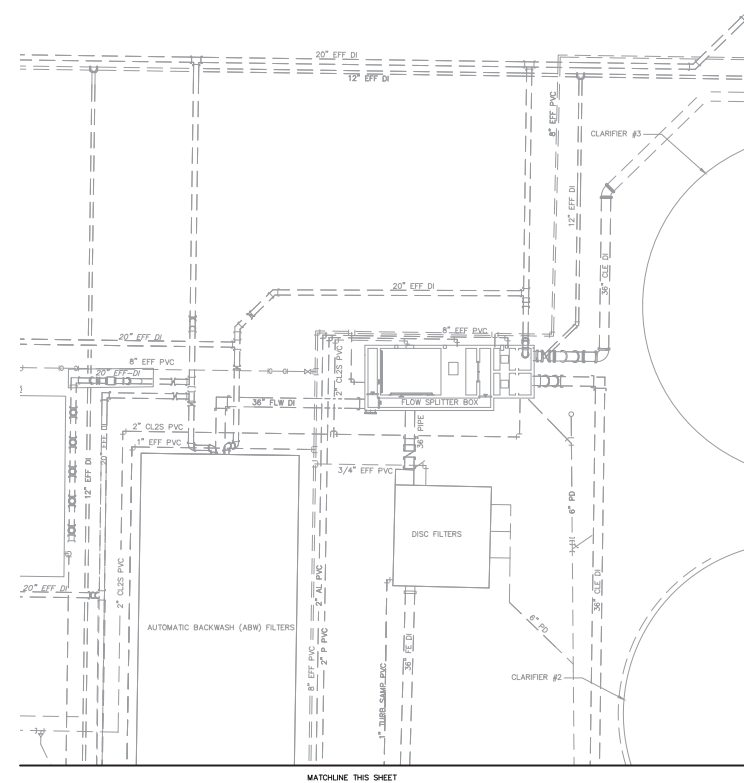
NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS

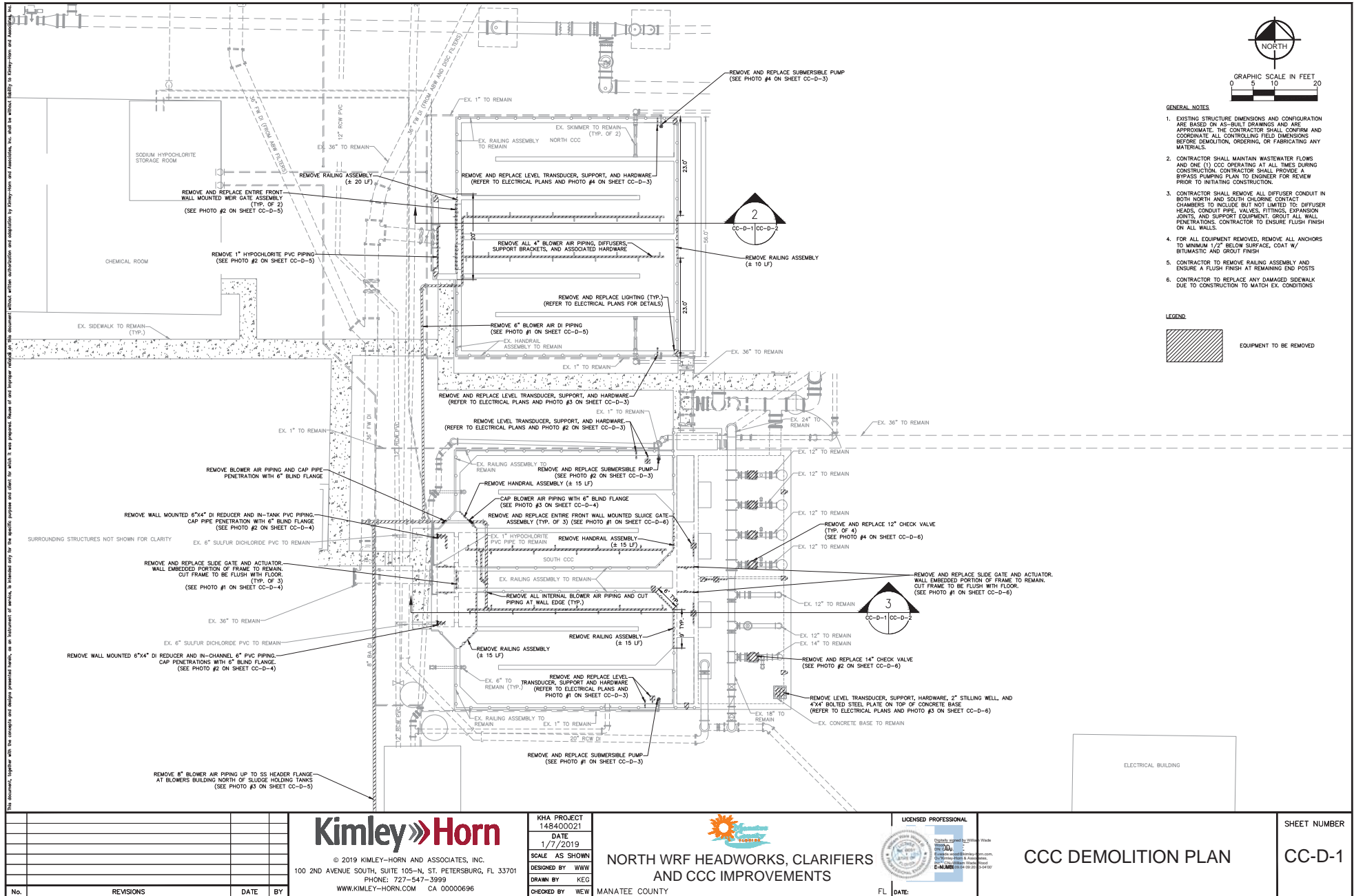
MANATEE COUNTY



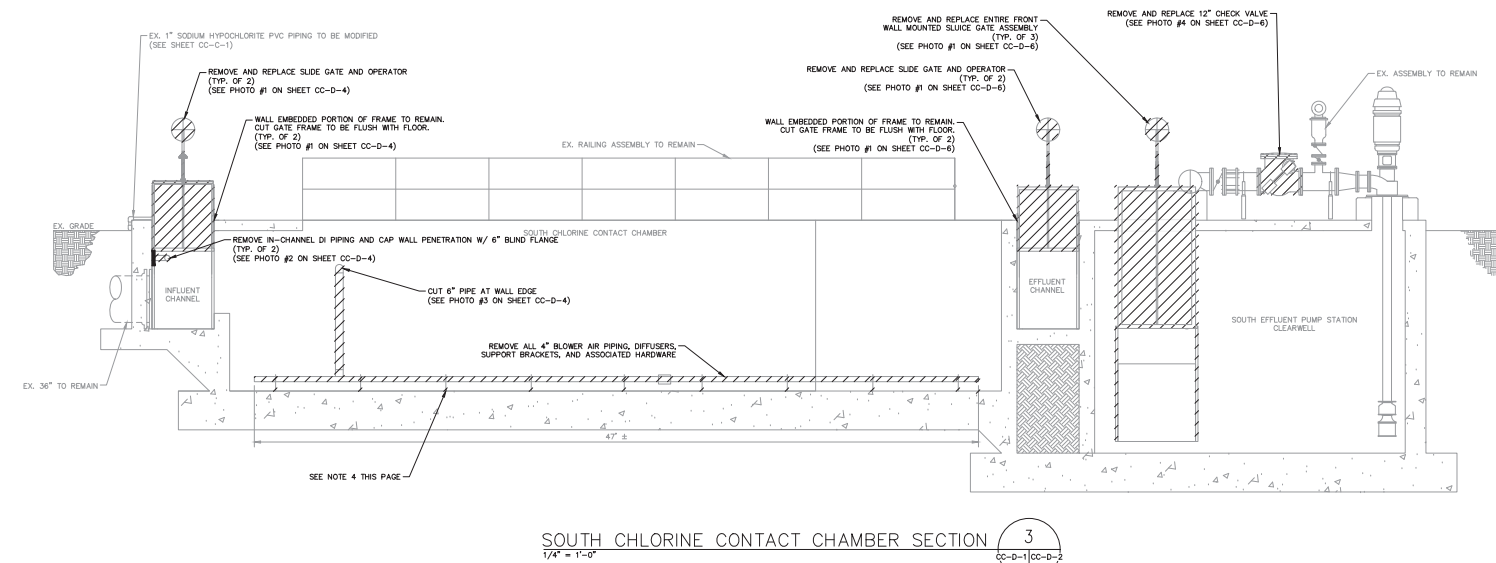
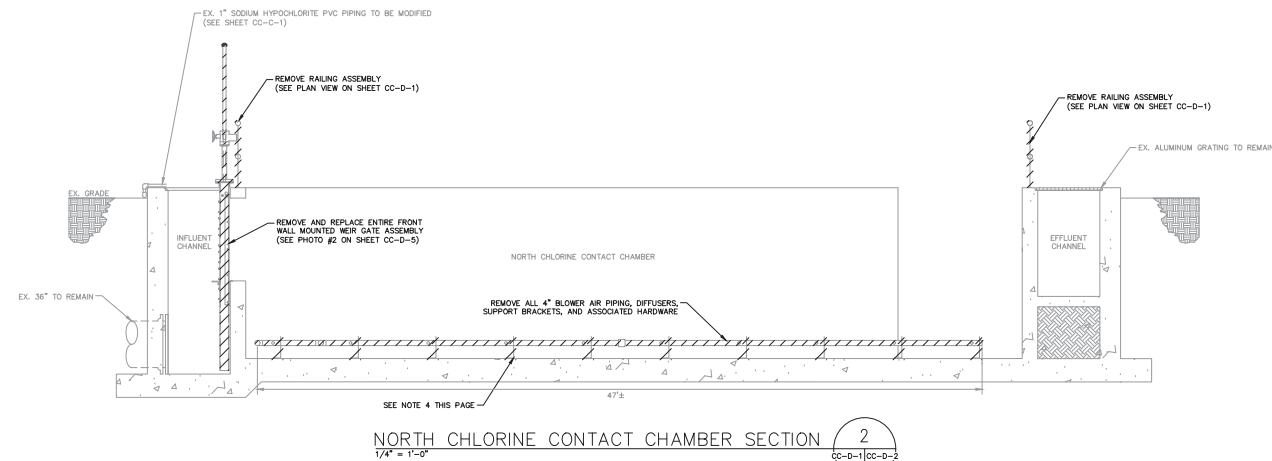
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CC-1





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GENERAL NOTES

- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
- CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC IN OPERATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
- CONTRACTOR SHALL REMOVE ALL DIFFUSER CONDUIT IN BOTH NORTH AND SOUTH CHLORINE CONTACT CHAMBERS TO INCLUDE BUT NOT LIMITED TO: DIFFUSER HEADS, CONDUIT PIPE, VALVES, FITTINGS, AND SUPPORT EQUIPMENT.
- FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.

LEGEND



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KHA PROJECT
 145400021
 DATE
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 SCALE AS SHOWN
 DESIGNED BY WWW
 DRAWN BY KEG
 CHECKED BY WEW

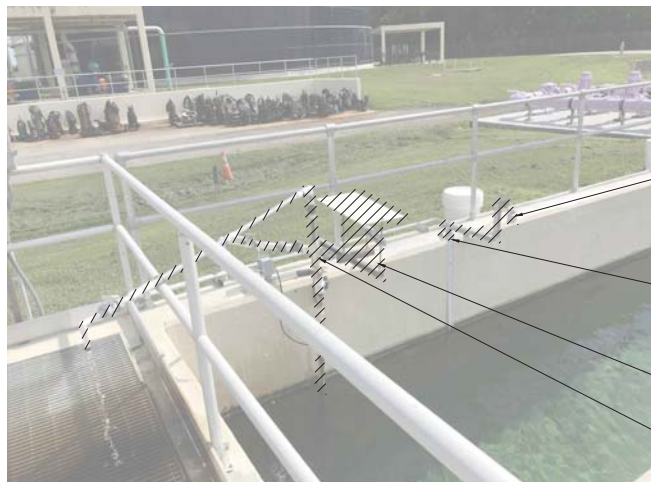
**NORTH WRF HEADWORKS, CLARIFIERS
 AND CCC IMPROVEMENTS**
 MANATEE COUNTY

LICENSED PROFESSIONAL

 E-N-Williams
 FL DATE:

CCC DEMOLITION SECTION
 SHEET NUMBER
CC-D-2

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- REMOVE RAILING ASSEMBLY
- CONTRACTOR TO ENSURE A FLUSH FINISH AT REMAINING END POSTS
- REMOVE AND REPLACE LEVEL TRANSDUCER, SUPPORT, HARDWARE, AND WIRING (REFER TO ELECTRICAL PLANS FOR DETAILS)
- CUT STAFF GAUGE SO THAT TOP OF GAUGE IS FLUSH WITH FLOOR. REPLACE FLOOR MOUNT WITH WALL MOUNT BRACKET.
- REMOVE LEVEL TRANSDUCER SUPPORT AND HARDWARE
- REMOVE AND REPLACE SUBMERSIBLE PUMP AND ABOVEGROUND 1" PVC PIPING

EX. SOUTH CCC TRANSDUCER AND PUMP ASSEMBLY (SOUTH TRAIN)

N.T.S.

1
CC-D-3



- GENERAL NOTES**
1. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC IN OPERATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
 2. FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
 3. CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

LEGEND

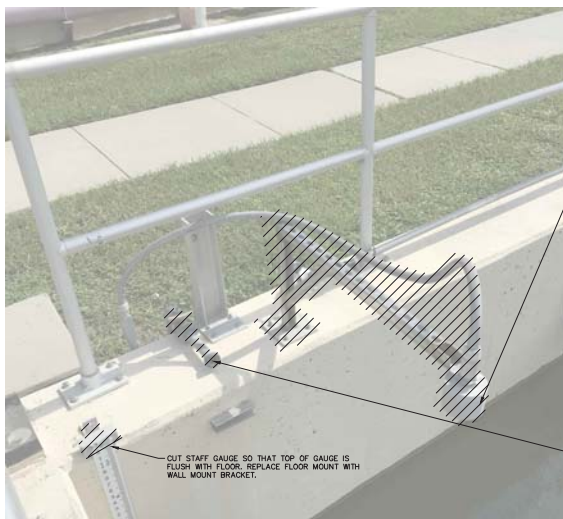
EQUIPMENT TO BE REMOVED

- REMOVE AND REPLACE LEVEL TRANSDUCER, SUPPORT, HARDWARE, AND WIRING (REFER TO ELECTRICAL PLANS FOR DETAILS)
- REMOVE AND REPLACE SUBMERSIBLE PUMP AND ABOVEGROUND 1" PVC PIPING

EX. SOUTH CCC TRANSDUCER AND PUMP ASSEMBLY (NORTH TRAIN)

N.T.S.

2
CC-D-3

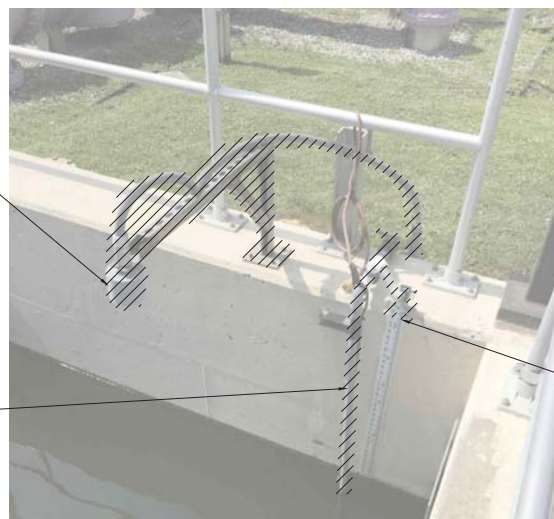


- REMOVE AND REPLACE LEVEL TRANSDUCER, SUPPORTS, HARDWARE, AND WIRING (REFER TO ELECTRICAL PLANS FOR DETAILS)
- REMOVE AND REPLACE SUBMERSIBLE PUMP AND ABOVEGROUND 1" PVC PIPING
- CUT STAFF GAUGE SO THAT TOP OF GAUGE IS FLUSH WITH FLOOR. REPLACE FLOOR MOUNT WITH WALL MOUNT BRACKET.

EX. NORTH CCC TRANSDUCER (SOUTH TRAIN)

N.T.S.

3
CC-D-5



- CUT STAFF GAUGE SO THAT TOP OF GAUGE IS FLUSH WITH FLOOR. REPLACE FLOOR MOUNT WITH WALL MOUNT BRACKET.

EX. NORTH CCC TRANSDUCER AND PUMP ASSEMBLY (NORTH TRAIN)

N.T.S.

4
CC-D-5

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DRAWN BY KEG
CHECKED BY WEW

NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL

FL DATE:

CCC NORTH & SOUTH DEMOLITION DETAILS

SHEET NUMBER
CC-D-3

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EX. SOUTH CCC INFLUENT CHAMBER 1
N.T.S. CC-D-4



EX. SOUTH CCC INFLUENT CHAMBER 2
N.T.S. CC-D-4

- GENERAL NOTES**
1. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC IN OPERATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
 2. FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
 3. CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.



EX. SOUTH CCC BLOWER AIR PIPE PENETRATION 3
N.T.S. CC-D-4

REMOVE AND REPLACE LIGHTING
(REFER TO ELECTRICAL PLANS FOR DETAILS)

REMOVE AND CAP BLOWER AIR PIPING WITH
6" BLIND FLANGE

CUT BLOWER AIR PIPING AT WALL EDGE
(TYP.)



EX. SOUTH CCC INFLUENT CHAMBER RAILING 4
N.T.S. CC-D-4

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**NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

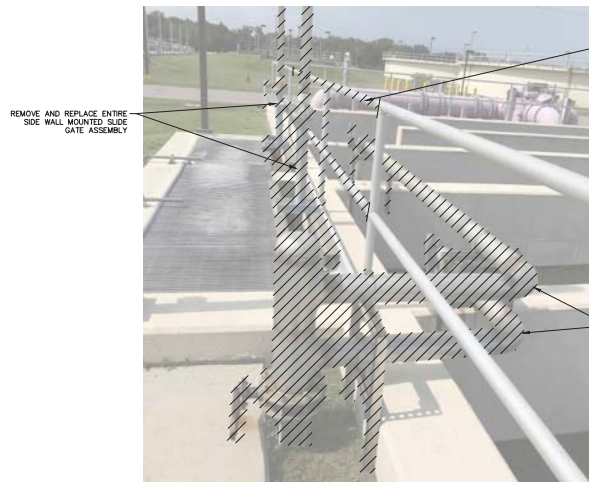


FL DATE:

**CCC SOUTH DEMOLITION
DETAILS**

SHEET NUMBER
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EX. NORTH CCC INFLUENT CHAMBER 1
N.T.S.



EX. NORTH CCC INFLUENT CHAMBER 2
N.T.S.

GENERAL NOTES

1. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC IN OPERATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
2. FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
3. CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

LEGEND



EQUIPMENT TO BE REMOVED




EX. BLOWER BUILDING 3
N.T.S.

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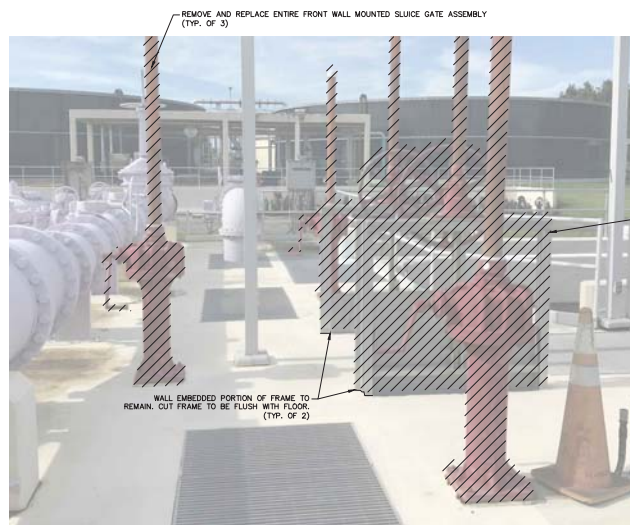


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FL DATE:

CCC NORTH DEMOLITION
DETAILS

SHEET NUMBER
CC-D-5

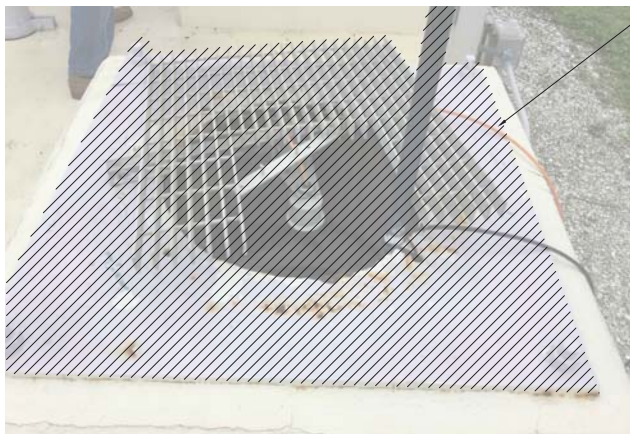
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EX. EFFLUENT PUMP STATION GATE ASSEMBLY 1
N.T.S. CC-D-6

REMOVE AND REPLACE
SLIDE GATE AND ACTUATOR
(TYP. OF 2)

WALL EMBEDDED PORTION OF FRAME TO
REMAIN. CUT FRAME TO BE FLUSH WITH FLOOR.
(TYP. OF 2)



EX. EFFLUENT PUMP STATION LEVEL TRANSDUCER 3
N.T.S. CC-D-6

REMOVE AND REPLACE LEVEL TRANSDUCER,
STILLING WELL, SUPPORTS, HARDWARE,
WIRING, AND 4"x4" STEEL PLATE
(REFER TO ELECTRICAL PLANS FOR
DETAILS)



EX. 14" CHECK VALVE ASSEMBLY 2
N.T.S. CC-D-6

REMOVE AND REPLACE 14" CHECK VALVE



EX. 12" CHECK VALVE ASSEMBLY 4
N.T.S. CC-D-6

REMOVE AND REPLACE 12" CHECK VALVE
(TYP. OF 4)

GENERAL NOTES

1. CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC IN OPERATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
2. FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
3. CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

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EQUIPMENT TO BE REMOVED

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MANATEE COUNTY



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FL DATE:

**EFFLUENT PUMP STATION
DEMOLITION DETAILS**

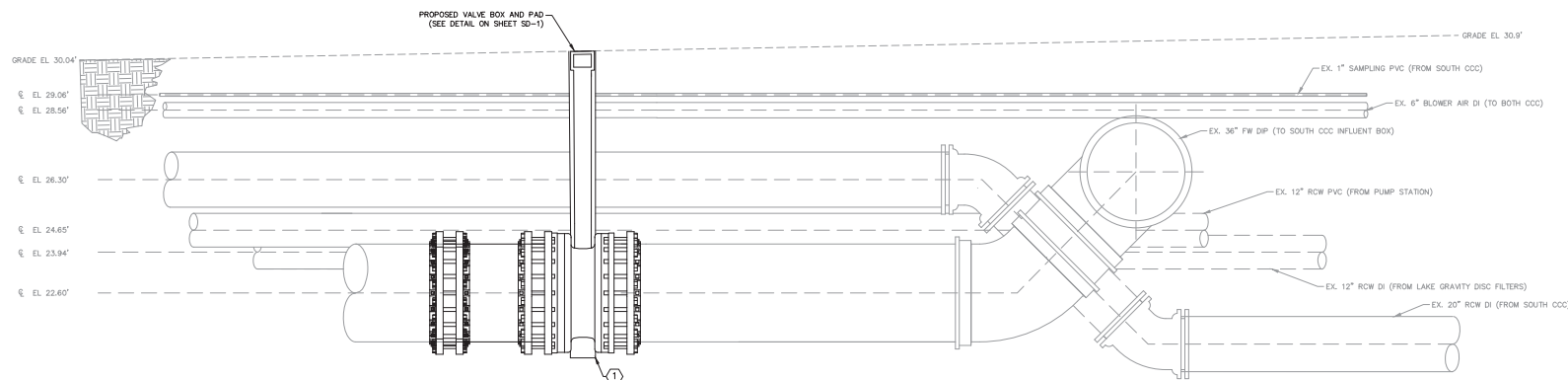
SHEET NUMBER
CC-D-6



1. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
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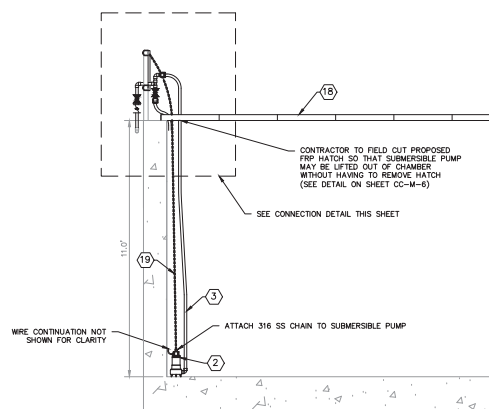
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				SCALE AS SHOWN DESIGNED BY WWW DRAWN BY KEG CHECKED BY WEW		MANATEE COUNTY		LICENSED PROFESSIONAL DAVID A. WILLIAMS FL 00000696 DATE: 08/08/2018		DATE:			
No. REVISIONS DATE BY													

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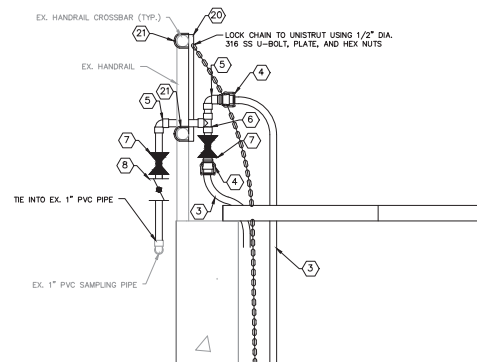
BUTTERFLY VALVE TIE-IN CROSS SECTION

1/2" = 1'-0"



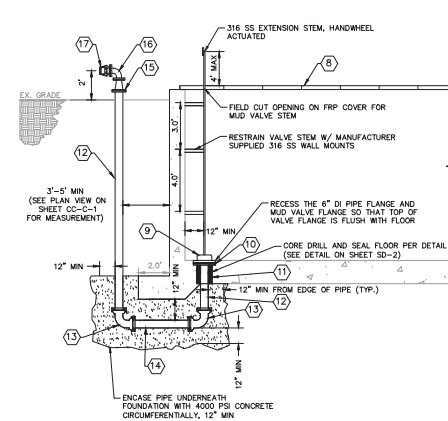
TYPICAL SUBMERSIBLE PUMP INSTALLATION SECTION

1/2" = 1'-0"



TYPICAL SUBMERSIBLE PUMP CONNECTION DETAIL

1" = 1'-0"



MUD VALVE DRAIN PIPING SECTION

1/4" = 1'-0"



GENERAL NOTES

- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
- CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
- CONTRACTOR TO MODIFY FRP COVERS FOR ALL EQUIPMENT INSTALLATION AS NECESSARY.
- SECTION VIEW OF MUD VALVE DRAIN PIPING REPRESENTS TYPICAL INSTALLATION FOR BOTH MUD VALVE INSTALLATIONS IN NORTH CCC.
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

KEY NOTES

- 36" NUT ACTUATED BUTTERFLY VALVE WITH DI RESTRAINED SLEEVE, MJ
- DAYTON SUBMERSIBLE SUMP PUMP, PROPYLENE MODEL 3196R, OR APPROVED EQUAL, 1/2 HP, 120 VAC, 3.3 A
- 1" PTFE FLEX HOSE, MIN. 15' LENGTH
- 316 SS CAMLOCK
- 1" PVC SCH 80 90° BEND, FEMALE SOCKET
- 1" PVC SCH 80 TEE, FEMALE SOCKET
- 1" PVC BALL VALVE
- 1" PVC CHECK VALVE
- 6" 316 SS MUD VALVE, TROY MODEL MV-X, OR APPROVED EQUAL, W/ 316 SS EXTENSION STEM, COUPLER, GUIDES, AND HANDWHEEL, OPERATOR
- 6" ISOLATION GASKET KIT
- LINK SEAL FOR 6" DI PIPE (SEE DETAIL ON SHEET SD-2)
- 6" DI PIPE, FL X PE
- 6" DI 90° BEND, MJ
- 6" DI PIPE, PE
- 6" X 4" DI REDUCER, FL
- 4" DI 90° BEND, FL
- 4" DI BLIND FLANGE W/ 316 SS CAMLOCK W/ CAP AND CHAIN
- FRP COVER (SEE DETAILS ON SHEET CC-M-6)
- 1/2" DIA. 316 SS CHAIN, MIN. 15' LENGTH
- 1-1/2" 316 SS UNISTRUT
- 1-1/2" 316 SS STRUT CLAMP, WESTRUT MODEL W-6134 OR APPROVED EQUAL

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KHA PROJECT
 145400021
 DATE
 1/7/2019
 SCALE AS SHOWN
 DESIGNED BY WWW
 DRAWN BY KEG
 CHECKED BY WEW

NORTH WRF HEADWORKS, CLARIFIERS
 AND CCC IMPROVEMENTS
 MANATEE COUNTY

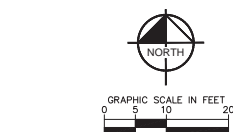
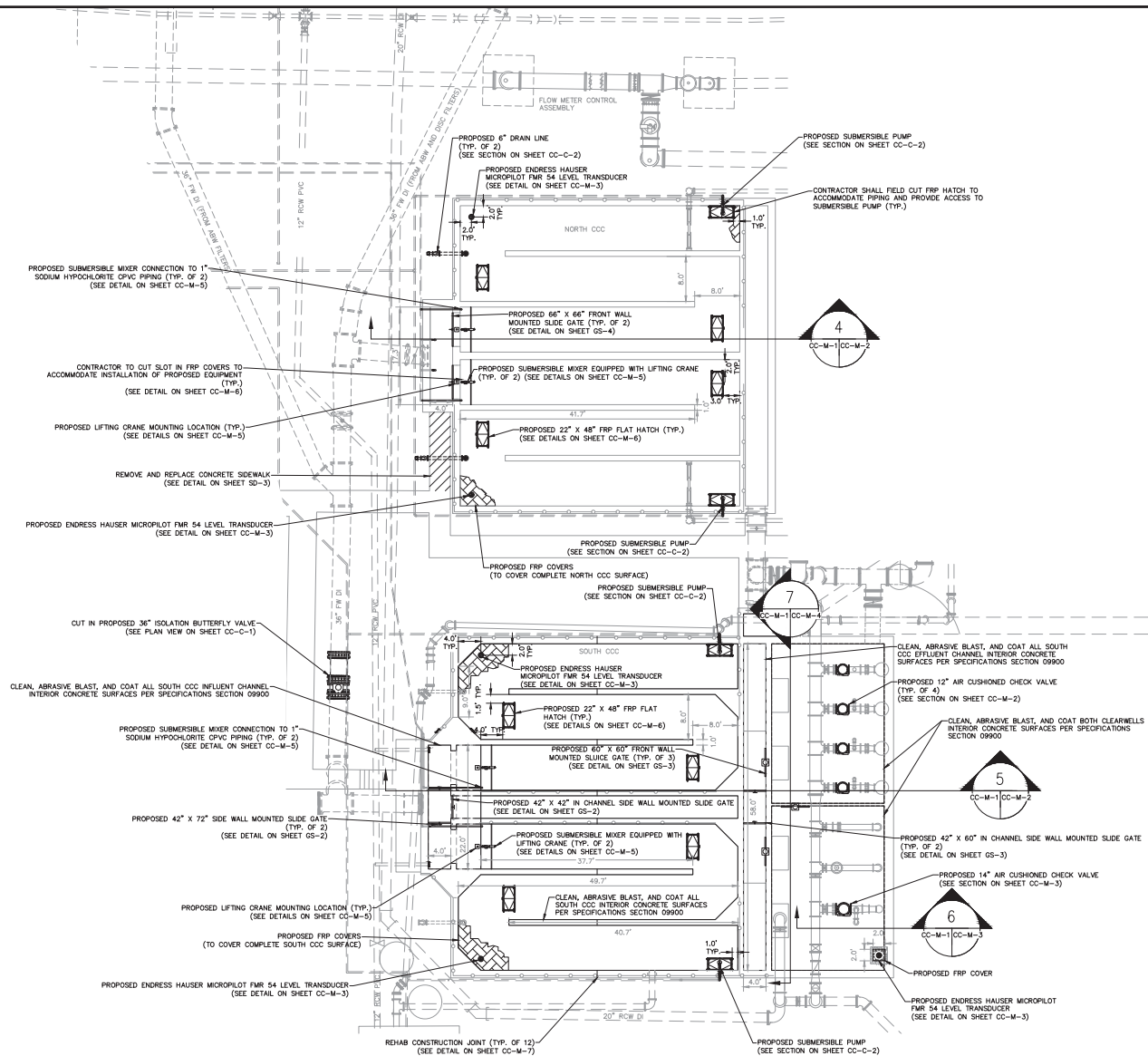


CCC SITE PIPING SECTION

SHEET NUMBER

CC-C-2

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- CONTRACTOR SHALL MAINTAIN WASTEWATER FLOWS AND ONE (1) CCC OPERATING AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
- SUBMERSIBLE MIXERS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS PER SPECIFICATIONS SECTION 11500.
- CLEAN, ABRASIVE BLAST, AND COAT ALL INTERIOR CONCRETE SURFACES IN SOUTH CCC, INCLUDING INFLUENT AND EFFLUENT CHANNELS, AND EFFLUENT PUMP STATION CLEARWELLS PER SPECIFICATIONS SECTION 09900 "CONCRETE SURFACES - IMPROVEMENTS".
- CONTRACTOR TO MODIFY FRP COVERS FOR ALL EQUIPMENT INSTALLATION AS NECESSARY.
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902.

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MANATEE COUNTY

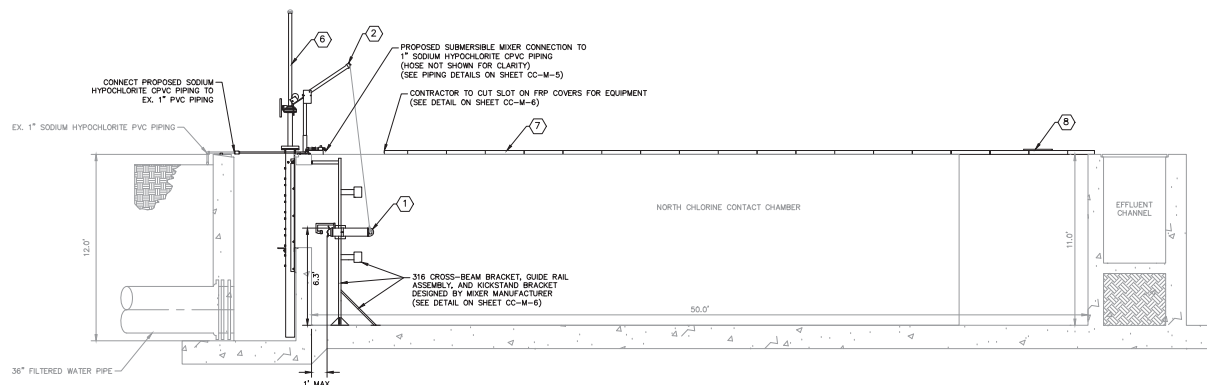


CCC NORTH & SOUTH IMPROVEMENTS PLAN

SHEET NUMBER

CC-M-1

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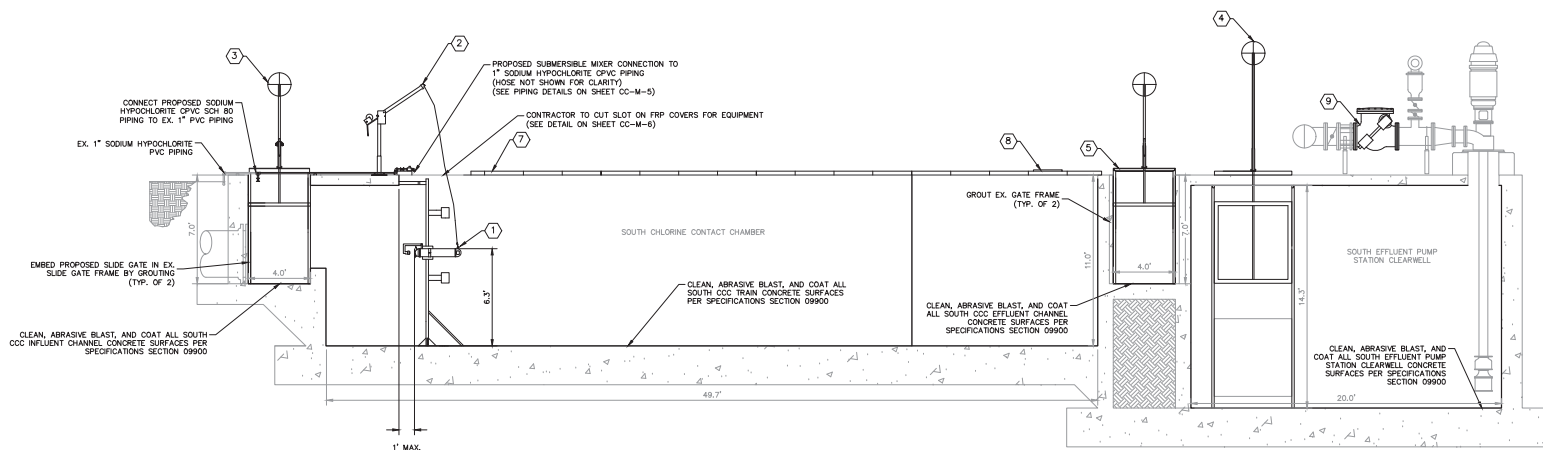
NORTH CHLORINE CONTACT CHAMBER SECTION 4
1/4" = 1'-0"

GENERAL NOTES

- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.
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- SUBMERSIBLE MIXERS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS PER SPECIFICATIONS SECTION 11300.
- CLEAN, ABRASIVE BLAST, AND COAT ALL INTERIOR CONCRETE SURFACES IN SOUTH CCC, INCLUDING INFLUENT AND EFFLUENT CHANNELS, AND EFFLUENT PUMP STATION CLEARWELLS PER SPECIFICATION SECTION 09900 "CONCRETE SURFACES - IMMERSED".
- CONTRACTOR TO MODIFY FRP COVERS FOR ALL EQUIPMENT INSTALLATION AS NECESSARY.
- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09002.

KEY NOTES

- EVOQUA WATER CHAMP SUBMERSIBLE MIXER, MODEL SPX, 316 SS 6" FRANKLIN MOTOR, OR APPROVED EQUAL, 5 HP, 60 HZ (SEE SHEET CC-M-5 FOR DETAILS)
- DAVIT CRANE, THERM MODEL SPF5M1, OR APPROVED EQUAL, 316 SS 5/32" DIA. LIFT CABLE X 25 FT (SEE SHEET CC-M-5 FOR DETAILS)
- 42" WIDE X 72" HIGH COPLASTIX SLIDE GATE (SEE DETAIL ON SHEET OS-2)
- 60" WIDE X 60" HIGH COPLASTIX SLUICE GATE (SEE DETAIL ON SHEET OS-3)
- 42" WIDE X 60" HIGH COPLASTIX SLIDE GATE (SEE DETAIL ON SHEET OS-3)
- 66" WIDE X 66" HIGH COPLASTIX SLIDE GATE (SEE DETAIL ON SHEET OS-4)
- FRP COVERS (SEE DETAILS ON SHEET CC-M-6)
- 32" X 48" FRP FLAT HATCH (SEE DETAILS ON SHEET CC-M-6)
- DEZURIK 12" AIR CUSHIONED SIDE MOUNTED CYLINDER (LEVER & WEIGHT) SNING CHECK VALVE MODEL CVS 250A, FL



SOUTH CHLORINE CONTACT CHAMBER SECTION 5
1/4" = 1'-0"

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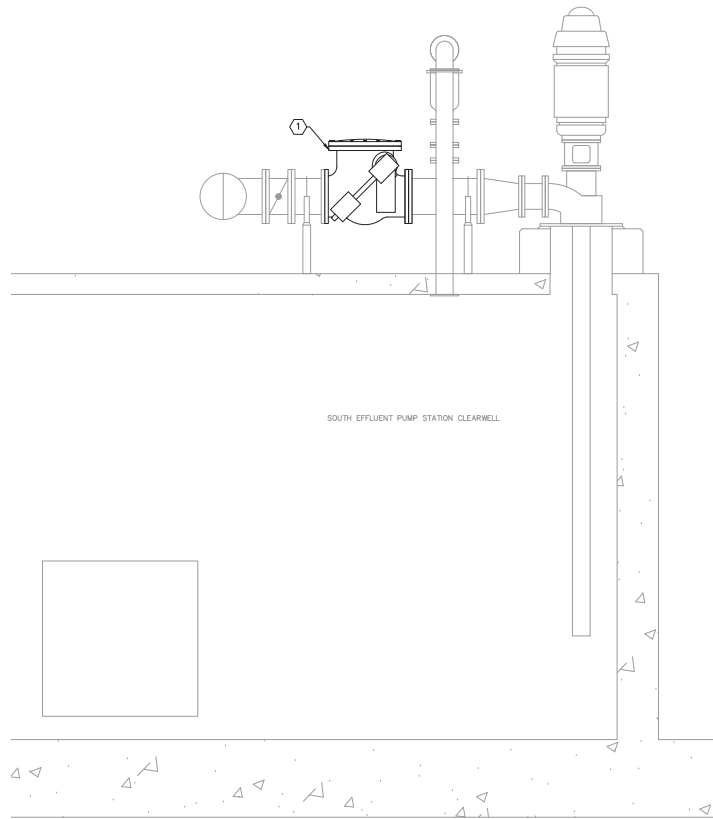
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AND CCC IMPROVEMENTS**
MANATEE COUNTY

LICENSED PROFESSIONAL
FL DATE:

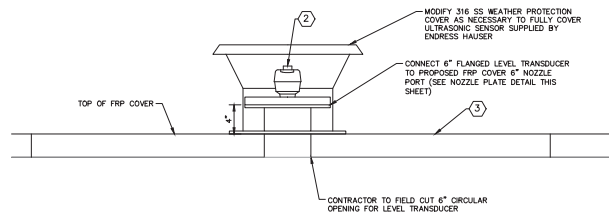
**CCC NORTH & SOUTH
IMPROVEMENTS SECTION**

SHEET NUMBER
CC-M-2

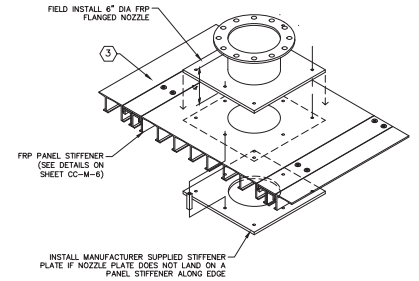
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EFFLUENT PUMP STATION SECTION 6
1/2" = 1'-0" CC-M-1 CC-M-3



LEVEL TRANSDUCER MOUNTING DETAIL 1
1-1/2" = 1'-0" CC-M-3



NOZZLE PLATE MOUNTING DETAIL 2
1" = 1'-0" CC-M-3

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- ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902

KEY NOTES

- DEZURIK 14" AIR CUSHIONED SIDE MOUNTED CYLINDER (LEVER & WEIGHT) SWING CHECK VALVE MODEL CVS 250A, FL
- ENDRESS HAUSER MICROPILOT FMR 54 W/ HORN, 6" ANTENNA, LEVEL TRANSDUCER W/ 316 SS WEATHER PROTECTION COVER
- FRP COVER (SEE DETAILS ON SHEET CC-M-6)

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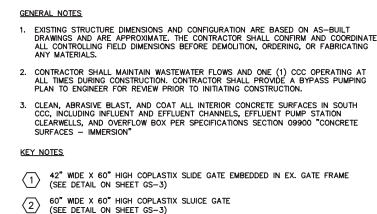
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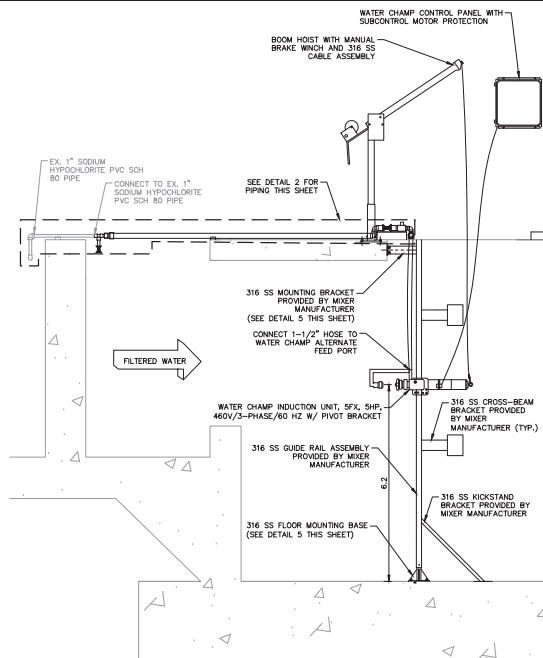
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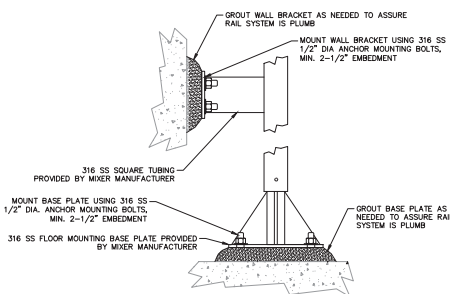
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CC-M-3

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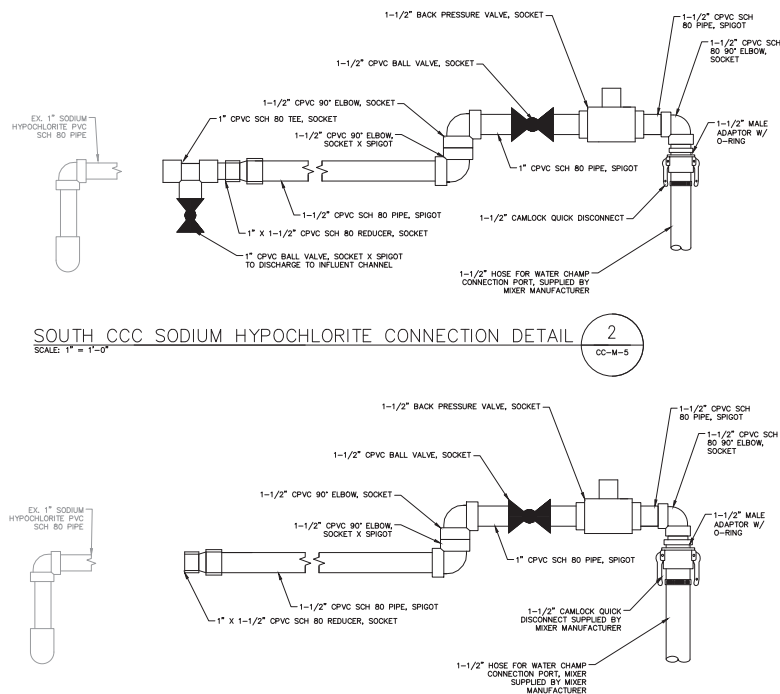
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SOUTH CCC SUBMERSIBLE MIXER DETAIL
SCALE: 1/2" = 1'-0"



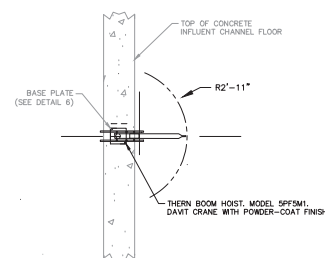
SUBMERSIBLE MIXER MOUNTING DETAIL
SCALE: 1/2" = 1'-0"



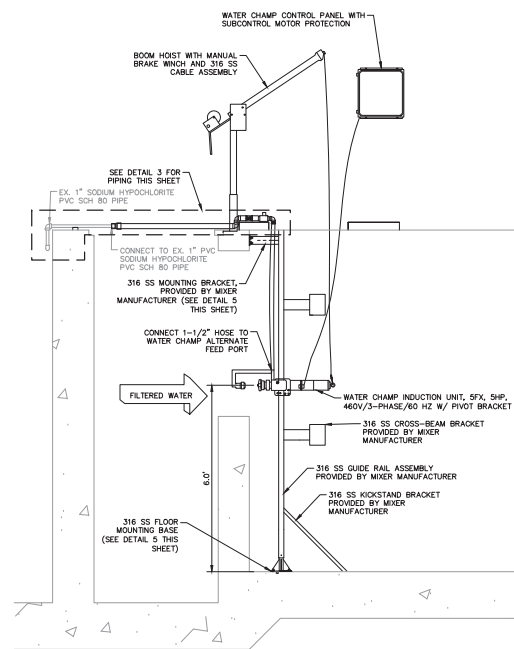
SOUTH CCC SODIUM HYPOCHLORITE CONNECTION DETAIL
SCALE: 1" = 1'-0"



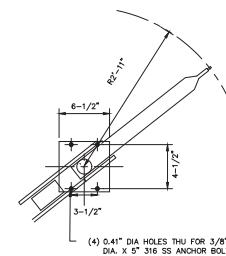
NORTH CCC SODIUM HYPOCHLORITE CONNECTION DETAIL
SCALE: 1" = 1'-0"



DAVIT CRANE LAYOUT DETAIL
SCALE: 1/2" = 1'-0"



NORTH CCC SUBMERSIBLE MIXER DETAIL
SCALE: 1/2" = 1'-0"



DAVID CRANE BASE PLATE DETAIL
SCALE: 1/2" = 1'-0"

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DATE	1/7/2019
SCALE	AS SHOWN
DESIGNED BY	WWW
DRAWN BY	KEG
CHECKED BY	WEW

NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

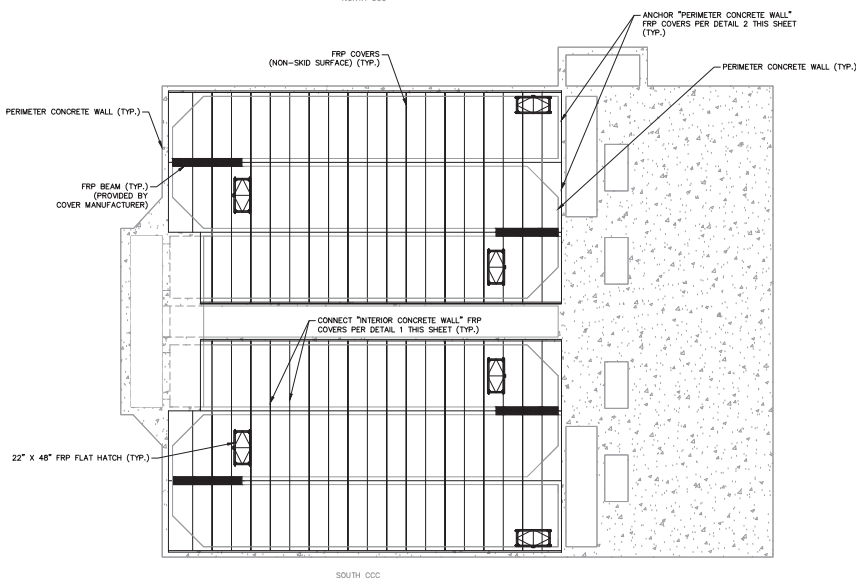
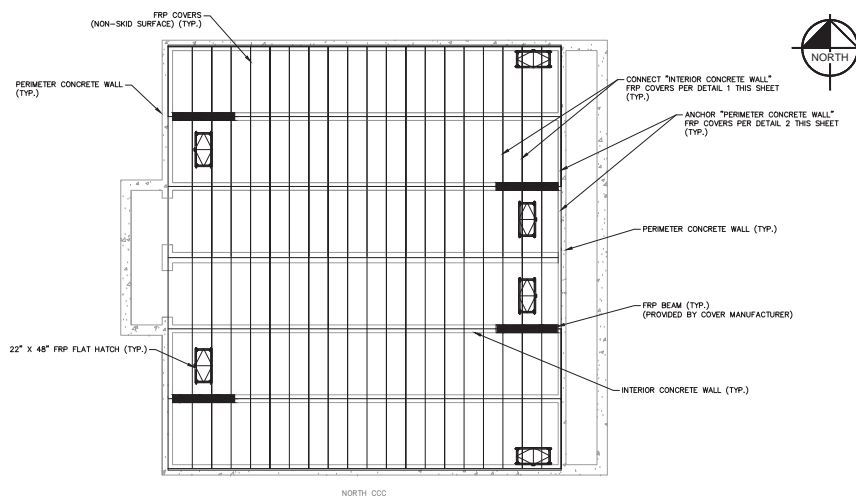
LICENSED PROFESSIONAL

Seal of the State of Florida, Professional Engineer, License No. 12543, Name: [Name], State: FL.

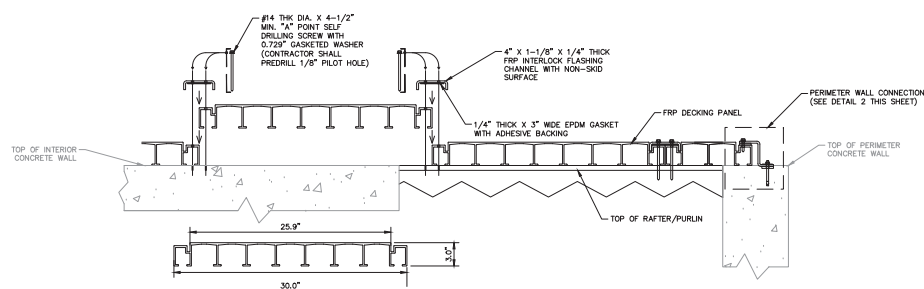
CCC NORTH & SOUTH IMPROVEMENTS DETAILS

SHEET NUMBER
CC-M-5

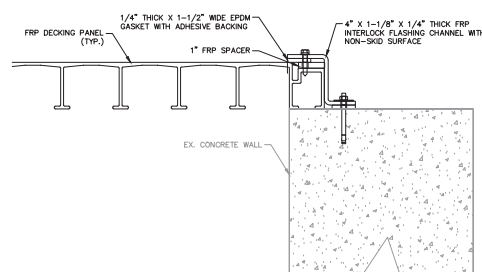
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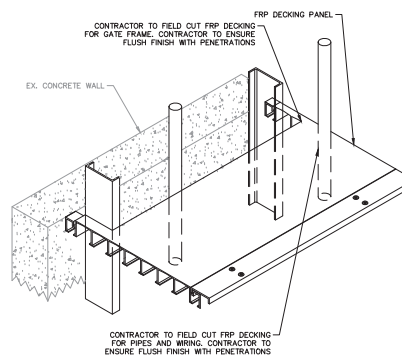
FRP COVERS LAYOUT
1/8" = 1'-0"



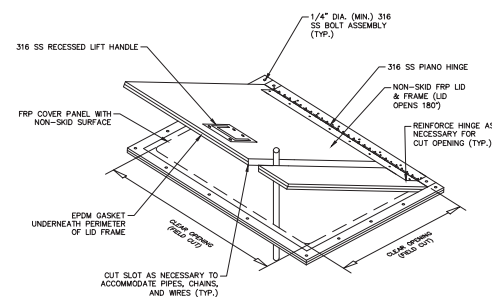
FRP COVER CONNECTION TO INTERIOR CONCRETE WALLS DETAIL 1
SCALE: 1-1/2" = 1'-0"



FRP COVER CONNECTION TO PERIMETER CONCRETE WALLS DETAIL 2
SCALE: 3\"/>



TYPICAL FIELD CUTS ISOMETRIC DETAIL 3
N.T.S.



TYPICAL FLAT HATCH ISOMETRIC DETAIL 4
N.T.S.

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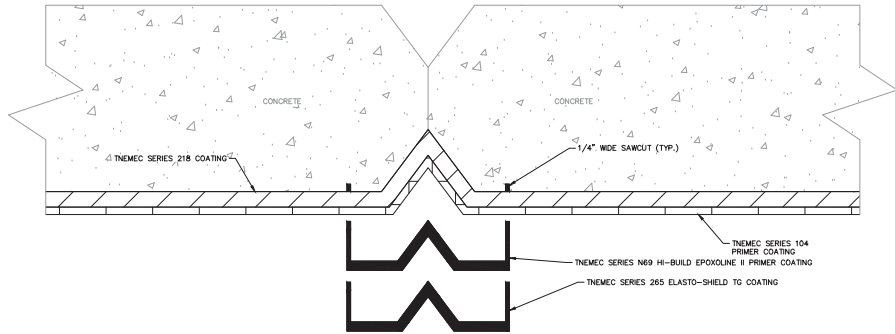
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FRP COVER DETAILS
SHEET NUMBER
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NOTE:
SURFACE PREPARATION AND COATING SHALL BE PERFORMED PER SPECIFICATIONS SECTION 09900 "CONCRETE SURFACES - ELASTO-SHIELD CRACK REPAIRS"

REHAB CONSTRUCTION JOINT DETAIL

SCALE: 3" = 1'-0"

1
CC-M-7



EX. SOUTH CCC CONSTRUCTION JOINTS

N.T.S.

2
CC-M-7

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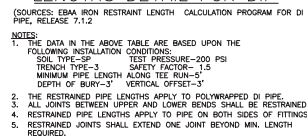
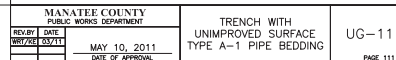
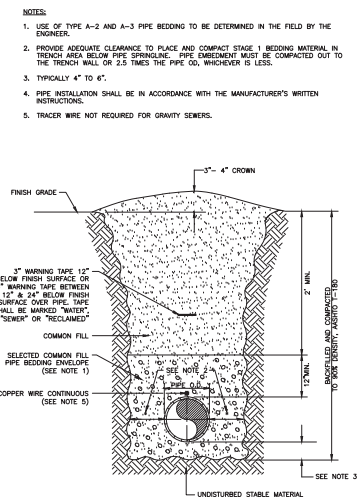
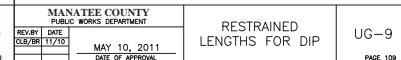
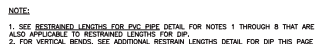
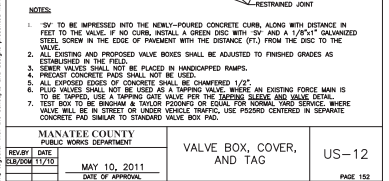
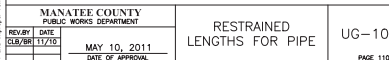
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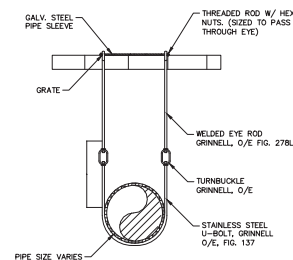
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**CCC SOUTH COATING
IMPROVEMENTS**

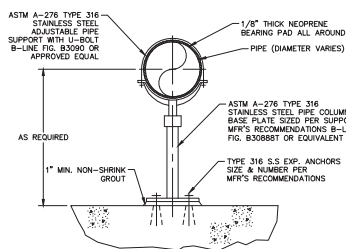
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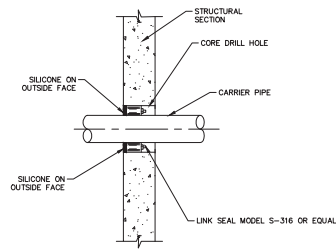
FITTING TYPE		PIPE SIZE									
		4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° VERT. OFFSET	UPPER BEND	77	109	143	171	201	257	311	363	435	500
	LOWER BEND	77	109	143	171	201	257	311	363	435	500
45° VERT. OFFSET	UPPER BEND	32	45	59	71	83	107	129	151	180	200
	LOWER BEND	12	16	21	24	28	36	43	49	58	66
22.5° VERT. OFFSET	UPPER BEND	16	22	29	34	40	52	62	73	87	100
	LOWER BEND	6	8	10	12	14	17	21	24	28	33
1.25" VERT. OFFSET	UPPER BEND	8	11	14	17	20	26	28	31	36	43
	LOWER BEND	3	4	5	6	7	9	10	11	12	14



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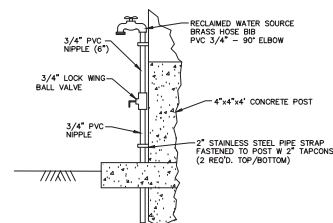


PIPE COLUMN SUPPORT 1
SD-2
N.T.S.

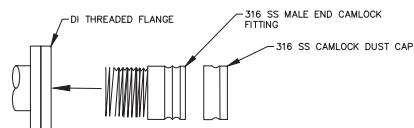


NOTE:
1. INSTALL SEALS FROM DRY SIDE OF PENETRATION. WET SIDE FILL WITH WATERPROOF NON-SHRINK GROUT.
2. ALL SEAL ELEMENTS SHALL BE EPDM
3. ALL BOLTS AND NUTS SHALL BE 316 SS
4. COORDINATE WALL PENETRATION DIAMETER WITH PENETRATION SEAL MANUFACTURER AND PIPE O.D.

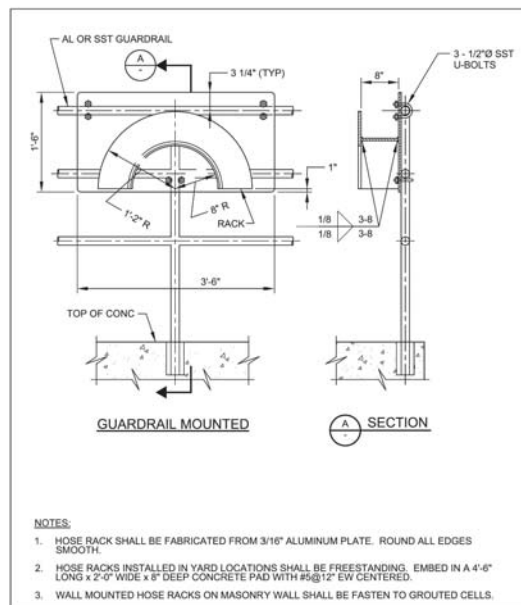
PIPE PENETRATION DETAIL 3
SD-2
N.T.S.



HOSE BIB DETAIL 2
SD-2
N.T.S.

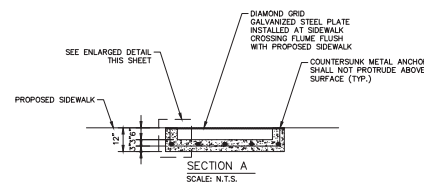


CAMLOCK CONNECTION DETAIL 3
SD-2
N.T.S.



NOTES:
1. HOSE RACK SHALL BE FABRICATED FROM 3/16\"/>

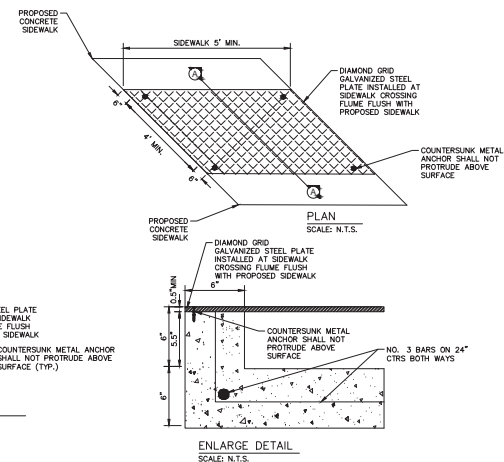
HOSE RACK DETAIL 4
SD-2
N.T.S.



SPAN FEET	PLATE THICKNESS INCHES
4	1/2"
6	5/8"
8	3/4"
10	7/8"

BASED ON 100 P.S.I. LIVE LOAD AND MAX DEAD & LIVE LOAD DEFLECTION OF L/240
PLATE THICKNESS SHALL FLUSH WITH TOP OF PLATE AND SPACED A MAXIMUM OF 12\"/>

SIDEWALK FLUME DETAIL 6
SD-2
N.T.S.



SCALE: N.T.S.

ENLARGE DETAIL
SCALE: N.T.S.

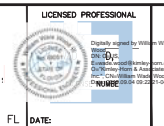
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KHA PROJECT
149400021
DATE
1/7/2019
SCALE AS SHOWN
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KEG
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CHECKED BY NEW

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MANATEE COUNTY



STANDARD DETAILS

SHEET NUMBER

SD-2

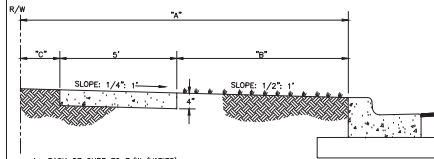
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GENERAL NOTES

1. SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 PSI CONCRETE. WHERE SIDEWALK ADJACENT TO A DRIVEWAY, THE MINIMUM SHALL BE 6" OF CLASS 1 CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH.
* SEE SHEETS #101.2 & 101.3.
2. ALL SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY LAND DEVELOPMENT CODE, SECTION 722. A MINIMUM (5) FOOT WIDE SIDEWALK SHALL BE INSTALLED ALONG THE NORTH AND WEST SIDES OF ALL NEW LOCAL STREETS WHICH ARE CONSTRUCTED IN CONJUNCTION WITH A NEW RESIDENTIAL DEVELOPMENT. A SIDEWALK A MINIMUM OF (5) FEET IN WIDTH SHALL BE INSTALLED ON BOTH SIDES OF ALL THOROUGHFARES. REFER TO F.D.O.T. ROADWAY AND TRAFFIC STANDARDS, LATEST REVISION FOR CURB CUT RAMP SPECIFICATIONS.
3. THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/4" UNDER A TEN FOOT STRAIGHTEDGE, NOR MORE THAN 1/8" ON A FIVE-FOOT TRAVERSE SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2".
4. EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALKS AND THE CURB OR DRIVEWAY OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2" MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR AASHTO M213. FOR LONG JOINTS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.
5. CONTRACTION JOINTS:
OPEN TYPE JOINTS
OPEN TYPE CONTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND THE SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE FINISHED WITH A TOOL HAVING A 1/2" RADIUS.
SAWED JOINTS
A SLOT APPROXIMATELY 3/16" WIDE AND NOT LESS THAN 1" DEEP AT 10' CENTERS SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.
6. SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.
7. HANDICAP RAMPS SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND SECTIONS 301.0, 301.1 AND 301.2.
8. ALL SIDEWALKS ON R/W WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 4" IN DIAMETER AT MATURITY SHALL BE 5" THICK AND CONTAIN 2-#3 REBAR CENTERED VERTICALLY AND SPACED 3' ON CENTER. PALMS ARE NOT CONSIDERED TREES.

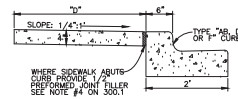
*NOTE: FOR COMPLETE SIDEWALK DETAILS, SEE F.D.O.T. DESIGN STANDARDS, 2006 EDITION, INDEX 304, SHEETS 1 THROUGH 6 AND INDEX 310, SHEETS 1 & 2.

MANATEE COUNTY TRANSPORTATION DEPARTMENT		SIDEWALKS GENERAL NOTES	301.0
REV#	DATE		
	6/12/07		
	DATE OF B.O.C.E.C. APPROVAL		



A= BACK OF CURB TO R/W (VARIES)
B= UNPAVED AREA (VARIES) - REFER TO F.D.O.T. GREEN BOOK, TABLE 3-12, LATEST REVISION.
C= VARIES, SEE 401 SERIES

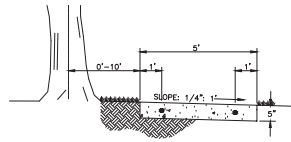
TYPICAL SIDEWALK LOCATION



D= SIDEWALK WIDTH SHALL BE 6' STANDARD, WHERE WALK ADJUTS TYPE "AB, D OR F" CURB. WHERE SPEED LIMIT IS 25 MPH OR LESS, WIDTH CAN BE 5'-6'.

* SEE SHEET 300.1 "GENERAL NOTES" FOR FURTHER INFORMATION

ALTERNATE SIDEWALK LOCATION



SIDEWALK LOCATION CLOSE TO TREES

MANATEE COUNTY TRANSPORTATION DEPARTMENT		SIDEWALK REQUIREMENTS	301.1
REV#	DATE		
	6/12/07		
	DATE OF B.O.C.E.C. APPROVAL		

No.	REVISIONS	DATE	BY




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MANATEE COUNTY



FL DATE:



STANDARD DETAILS

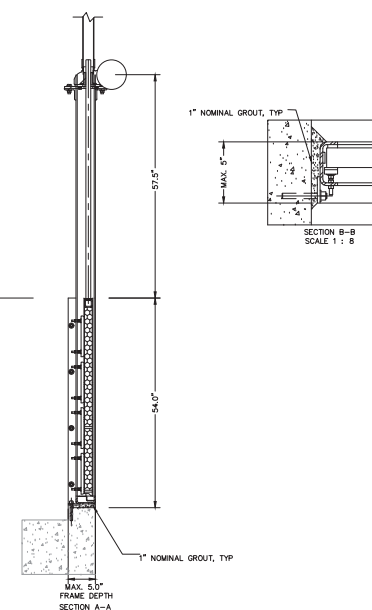


FL DATE:

SHEET NUMBER
SD-3

NOTE

- 1) ALL HARDWARE TO BE 316 SS
- 2) CONTRACTOR TO FIELD VERIFY ALL MEASUREMENTS BEFORE ORDERING MATERIALS
- 3) ALL DIMENSIONS IN INCHES
- 4) ALL GATES SHALL BE HANDWHEEL ACTUATED
- 5) ALL GATES INSTALLATIONS SHALL PASS LEAKAGE TEST PER AWWA C563

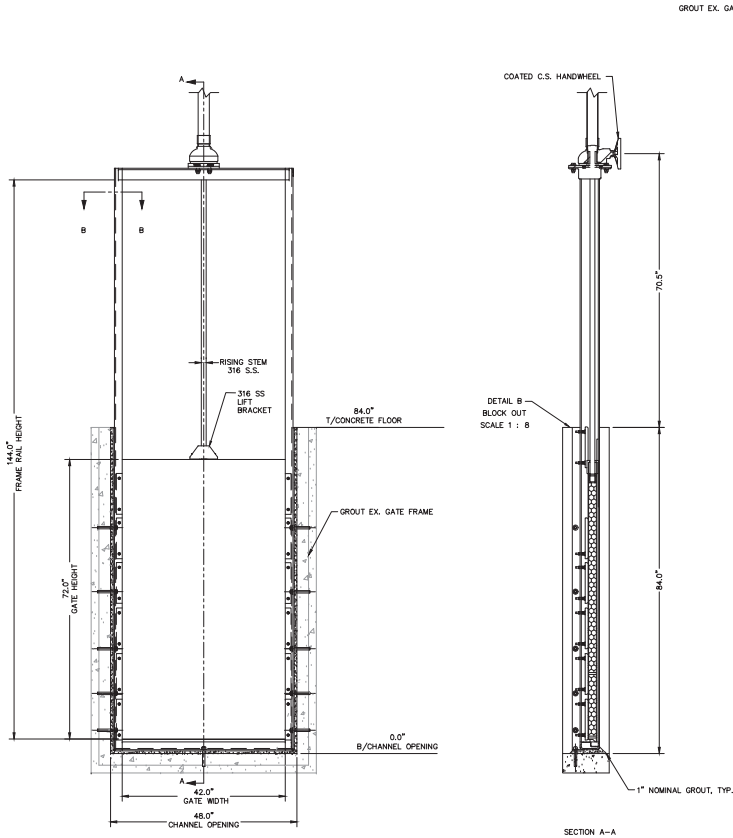


54" X 51" SLIDE GATE - #5 2
 $\frac{3}{4}" = 1'-0"$ GS-1

SHEET NUMBER
GS-1

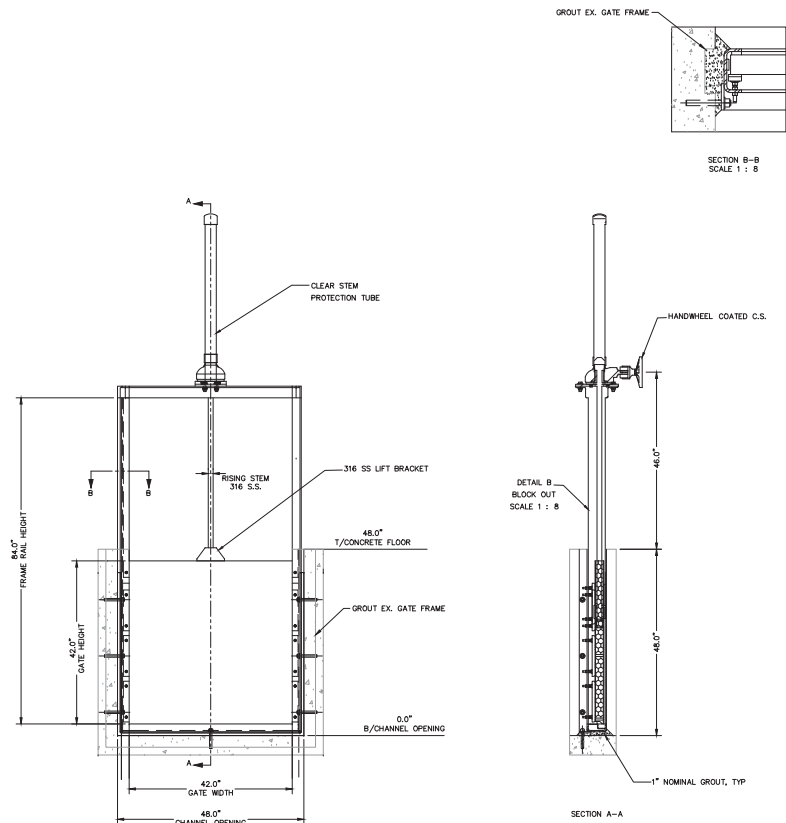
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- NOTE
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 - 3) ALL DIMENSIONS IN INCHES
 - 4) ALL GATES SHALL BE HANDWHEEL ACTUATED
 - 5) ALL GATES INSTALLATIONS SHALL PASS LEAKAGE TEST PER AWWA C503



42" X 72" SLIDE GATE - #6 & #7
3/4" = 1'-0"

1
GS-2



42" X 42" SLIDE GATE - #8
3/4" = 1'-0"

2
GS-2

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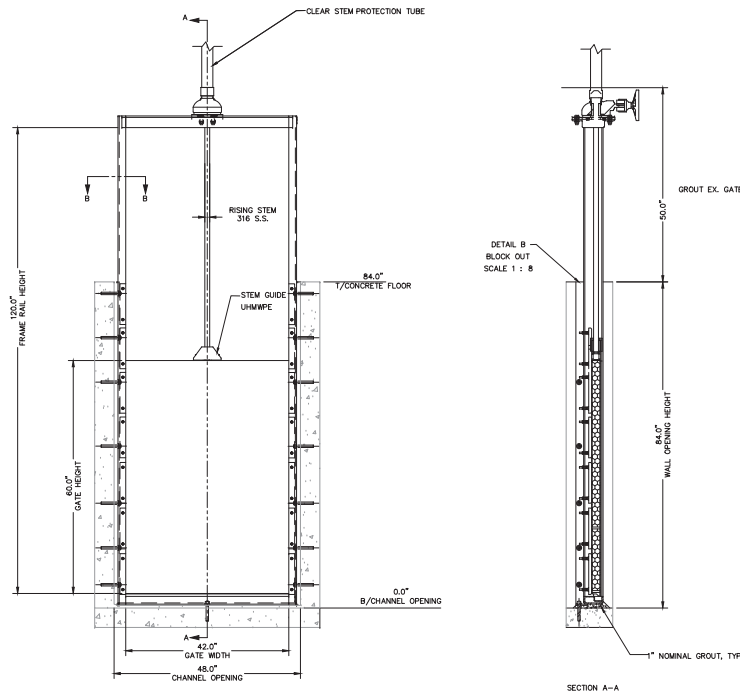
GATE SCHEDULE

GS-2

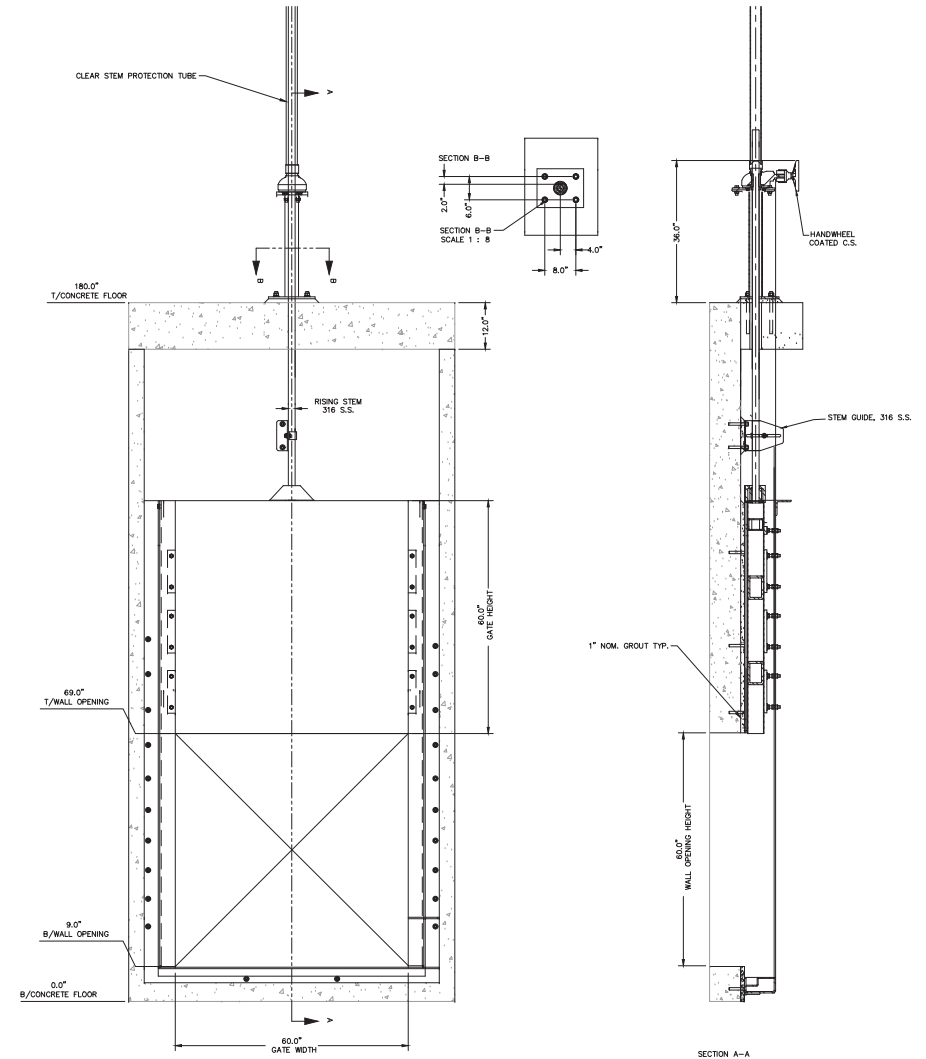
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GS-2

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 - 4) ALL GATES SHALL BE HANDWHEEL ACTUATED
 - 5) ALL GATES INSTALLATIONS SHALL PASS LEAKAGE TEST PER AWWA C563



42" X 60" SLIDE GATE - #9 & #10 1
3/4" = 1'-0"



60" X 60" SLUICE GATE - #11, #12, #13 2
3/4" = 1'-0"

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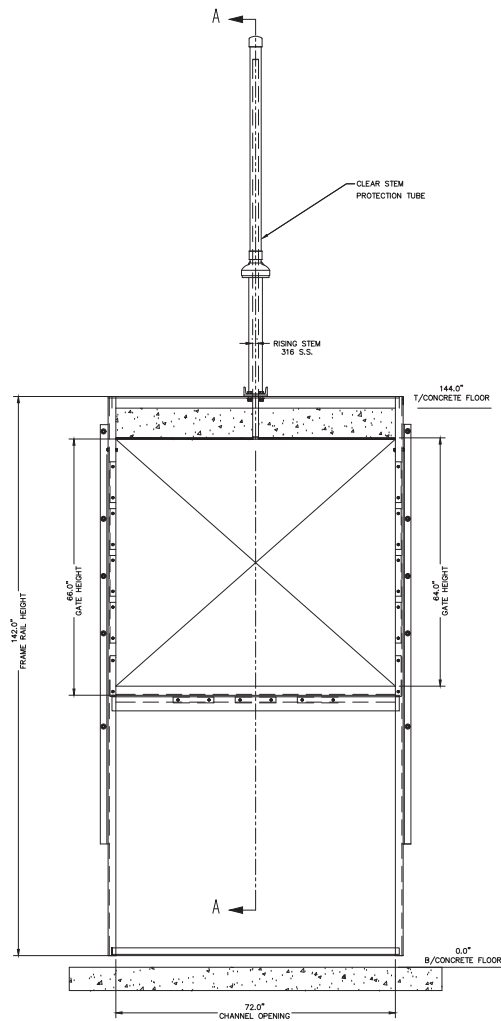
LICENSED PROFESSIONAL

Digitally signed by **William Wade**
DN: cn=William Wade, o=Kimley-Horn and Associates, Inc., email=wwade@kimley-horn.com, c=US

GATE SCHEDULE

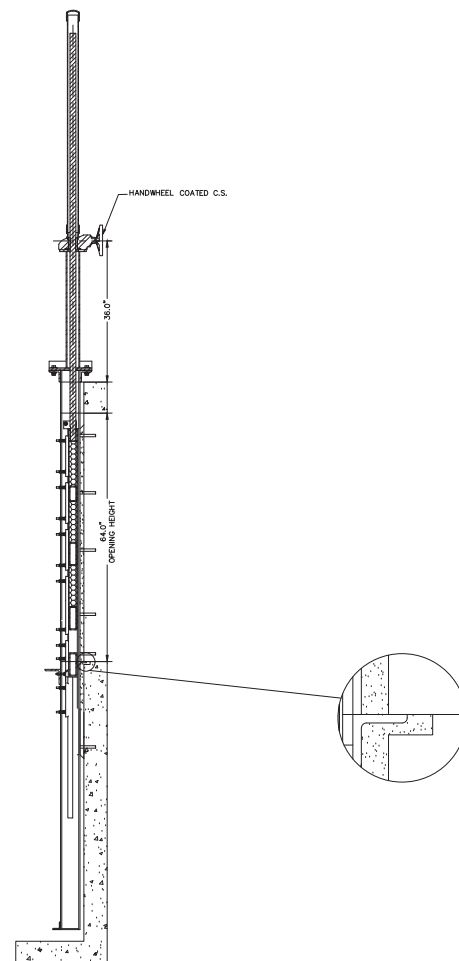
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GS-3

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66" X 66" SLIDE GATE - #14 & #15
3/4" = 1'-0"

1
GS-4



- NOTE
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 - 5) ALL GATES INSTALLATIONS SHALL PASS LEAKAGE TEST PER AWWA C563

No.	REVISIONS	DATE	BY

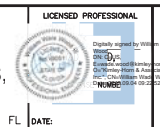
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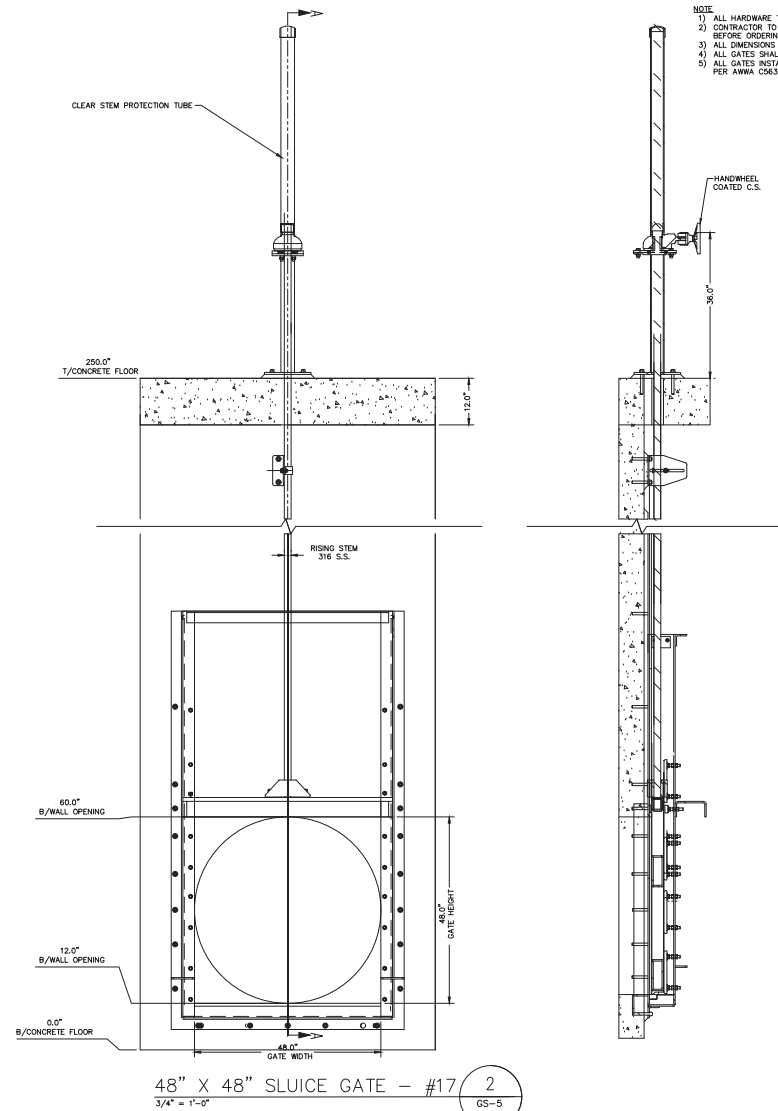
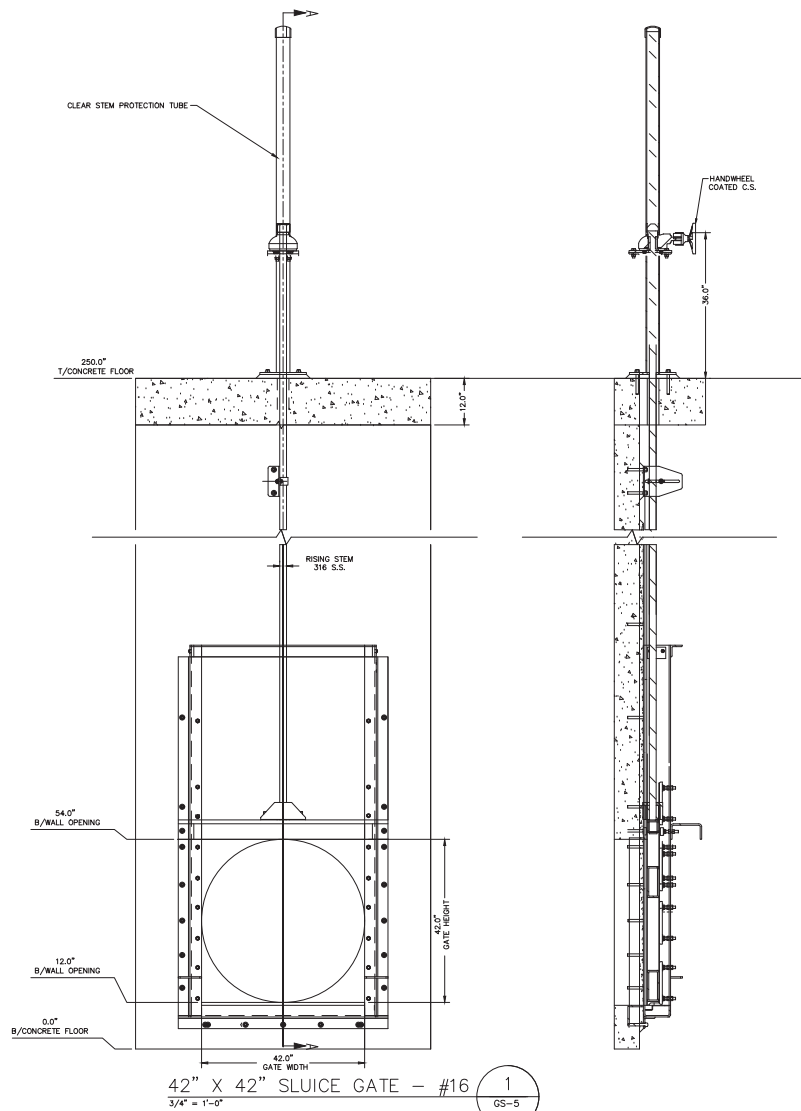


GATE SCHEDULE

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GS-4

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- NOTE
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 - 3) ALL DIMENSIONS IN INCHES
 - 4) ALL GATES SHALL BE HANDWHEEL ACTUATED
 - 5) ALL GATES INSTALLATIONS SHALL PASS LEAKAGE TEST PER AWWA C563

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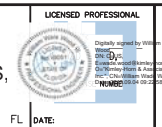
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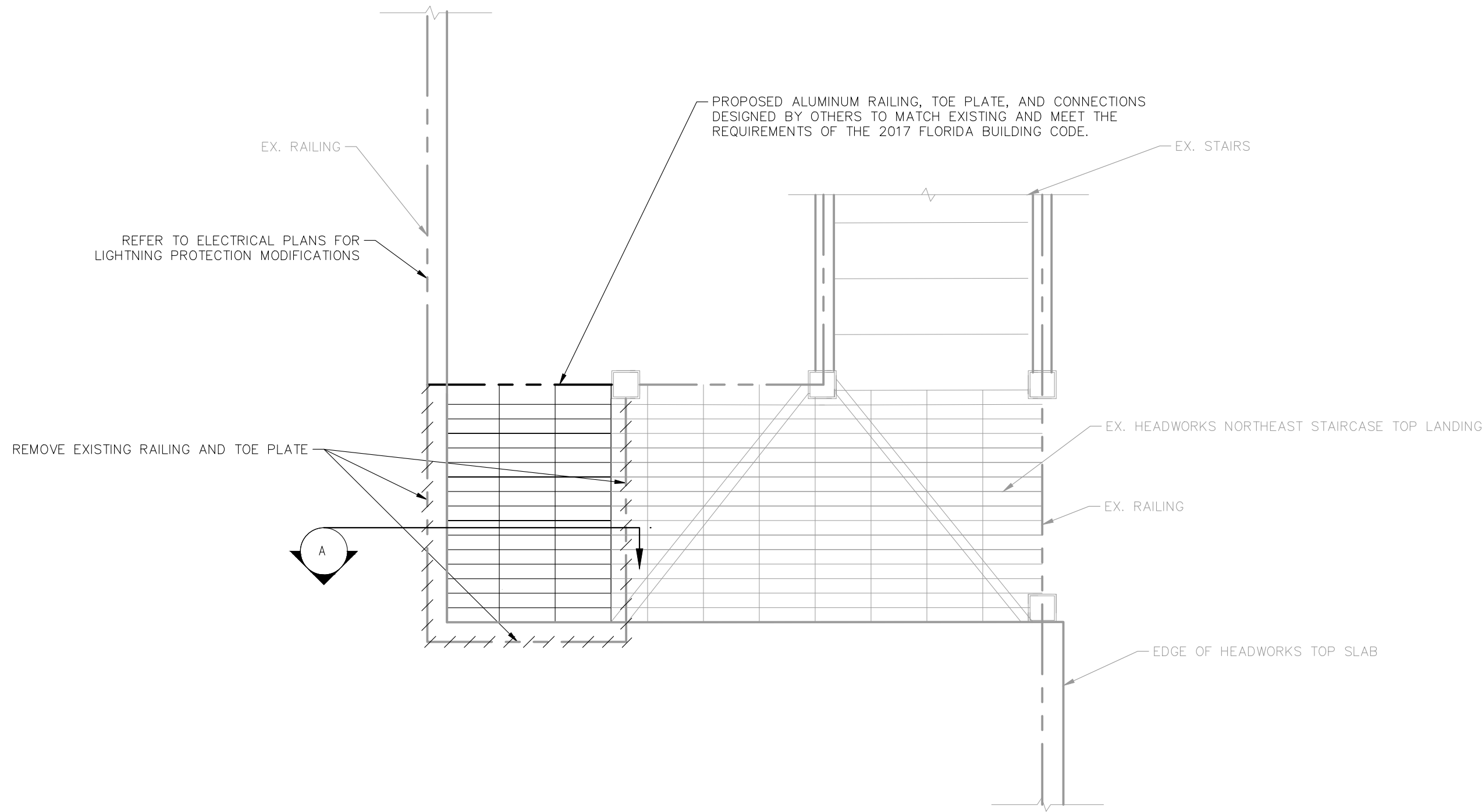


GATE SCHEDULE

SHEET NUMBER

GS-5

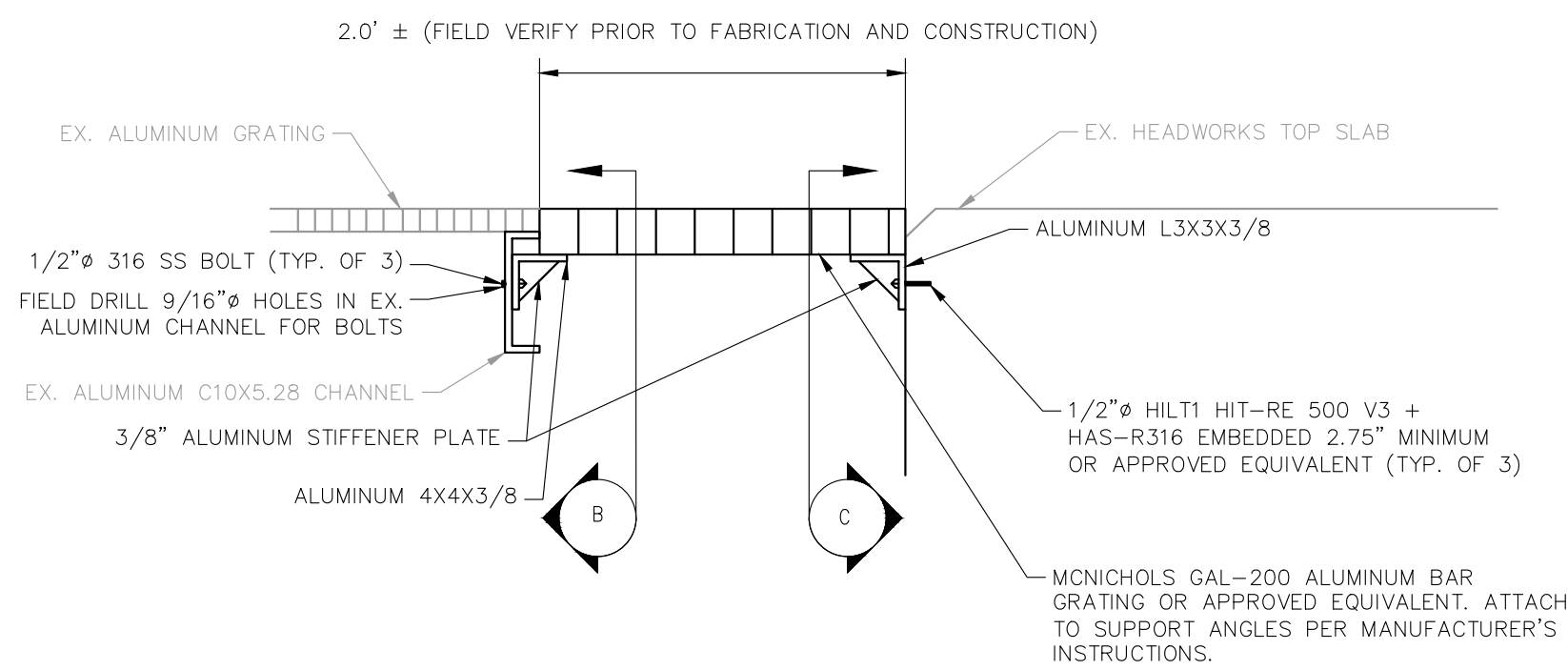
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STAIRWAY PLATFORM EXTENSION PLAN

1/2" = 1' - 0"

1
S-1

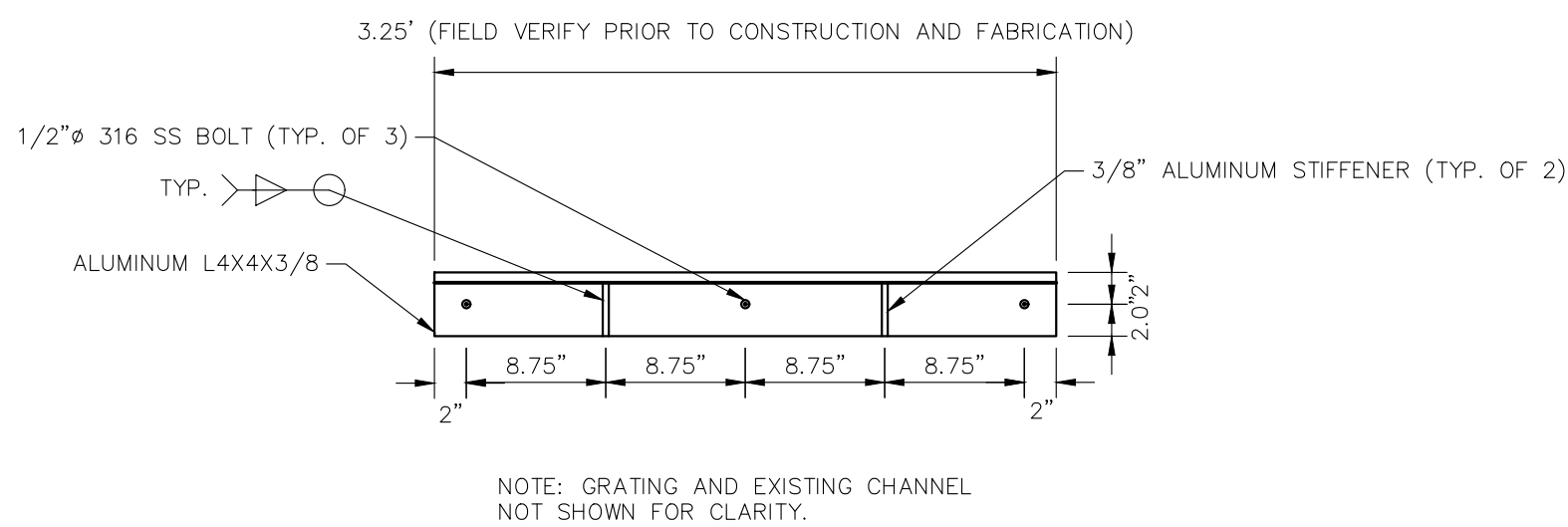


NOTE: SUPPORT ANGLES SHALL BE LOCATED SUCH THAT THE TOP ELEVATION OF THE PROPOSED GRATING MATCHES THE TOP ELEVATION OF THE ADJACENT CONCRETE AND TOP ELEVATION OF EXISTING ALUMINUM GRATING.

STAIRWAY PLATFORM EXTENSION SECTION A

1" = 1' - 0"

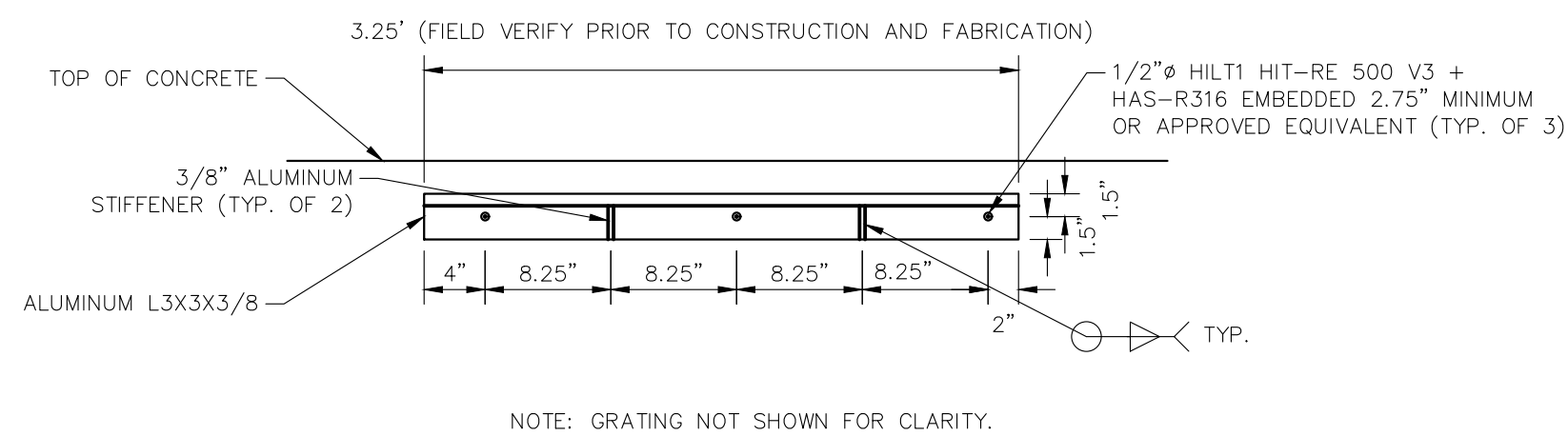
2
S-1



STAIRWAY PLATFORM EXTENSION SECTION B

1" = 1' - 0"

3
S-1



STAIRWAY PLATFORM EXTENSION SECTION C

1" = 1' - 0"

4
S-1

NOTES:

- STRUCTURAL ALUMINUM:
 - STRUCTURAL ALUMINUM SHALL BE 6061-T6 ALLOY, UNLESS OTHERWISE NOTED.
 - ALUMINUM WORK SHALL BE IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION'S SPECIFICATIONS FOR ALUMINUM STRUCTURES, LATEST EDITION.
 - FASTENERS: UNLESS NOTED OTHERWISE, ALL FASTENERS SHALL BE 316 STAINLESS STEEL MEETING THE REQUIREMENTS OF ASTM A193.
 - ALL WELDING SHALL CONFORMS WITH AWS D1.2, LATEST STRUCTURAL WELDING CODE - ALUMINUM.
 - ALL FILLET WELDS SHALL HAVE A MINIMUM SIZE OF 1/4" WITH 5356 FILLER ALLOY UNLESS OTHERWISE NOTED.
 - WHERE THE CONTACT OF DISSIMILAR MATERIALS MAY CAUSE ELECTROLYSIS OR WHERE ALUMINUM WILL COME IN CONTACT WITH CONCRETE, MORTAR, GROUT, OR PLASTER, THE CONTACT SURFACE OF THE ALUMINUM SHALL BE COATED WITH ONE HEAVY COAT OF BITUMINOUS PAINT.

DESIGN CRITERIA:

CODE:
2017 FLORIDA BUILDING CODE WITH SUPPLEMENTS
DEAD LOAD (GRATING): 5 PSF
LIVE LOADS:
A. WALKWAY 100 PSF

WIND LOAD:
BASIC WIND SPEED 150 MPH
EXPOSURE B
RISK CATEGORY II

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MANATEE COUNTY	SETH E. SCHMID, P.E. FL LICENSE NUMBER 54640

FL DATE:	STAIRWAY PLATFORM EXTENSION DETAILS
----------	--

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- CONDUIT RUN EXPOSED
- - - - - CONDUIT OR DUCTBANK RUN CONCEALED UNDERGROUND
- ——— CONDUIT RUN CONCEALED IN FLOOR, SLAB OR WALL
- • — • — • — 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

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	POSITION SENSOR (LIMIT SWITCH)

FUSE

MOTOR

THERMAL OVERLOAD

UTILITY METER

TRANSFER SWITCH

ELECTRIC PANELBOARD

DISCONNECT OR SAFETY SWITCH

FIELD WIRING

FLOAT SWITCH. OPENS ON LOW LEVEL.

FLOAT SWITCH. CLOSSES ON LOW LEVEL.

NORMALLY OPEN (N.O.) CONTACT

NORMALLY CLOSED (N.C.) CONTACT

FUSE

GROUND CONNECTION

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

FAN THERMOSTAT

EXAMPLE OF SECTION CUT AND DETAIL

SECTION

SCALE : 1/4" = 1'-0"

SHEET NUMBER
WHERE SECTION IS
CUT

SECTION (LETTERS USED)

SHEET NUMBER
WHERE SECTION IS
SHOWN

SHEET NUMBER
WHERE SECTION IS
CUT

SECTION (LETTERS USED)

SHEET NUMBER
WHERE SECTION IS
SHOWN

DETAIL

SCALE : 1/4" = 1'-0"

SHEET NUMBER
WHERE DETAIL IS
SHOWN

DETAIL (NUMBERS USED)

SHEET NUMBER
WHERE DETAIL IS
ENLARGED

ABBREVIATIONS:

A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
DFS	DATA FLOW SYSTEMS
DIA	DIAMETER
EX	EXISTING
ELEC	ELECTRICAL
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
PLC	PROGRAMMABLE LOGIC CONTROLLER
RECP	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTU	REMOTE TERMINAL UNIT
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
TYP	TYPICAL
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFMR	TRANSFORMER

TRICON
ENGINEERING
771 S. Harbor Island Blvd. STE 300, TAMPA, FL 33602
813.227.9190 FAX 813.227.9195
Certificate of Authorization No. 00031028

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148400021

DATE
AUGUST 2019

SCALE AS SHOWN

DESIGNED BY TDT

DRAWN BY JLH

CHECKED BY TDT



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AND CCC IMPROVEMENTS**

MANATEE COUNTY

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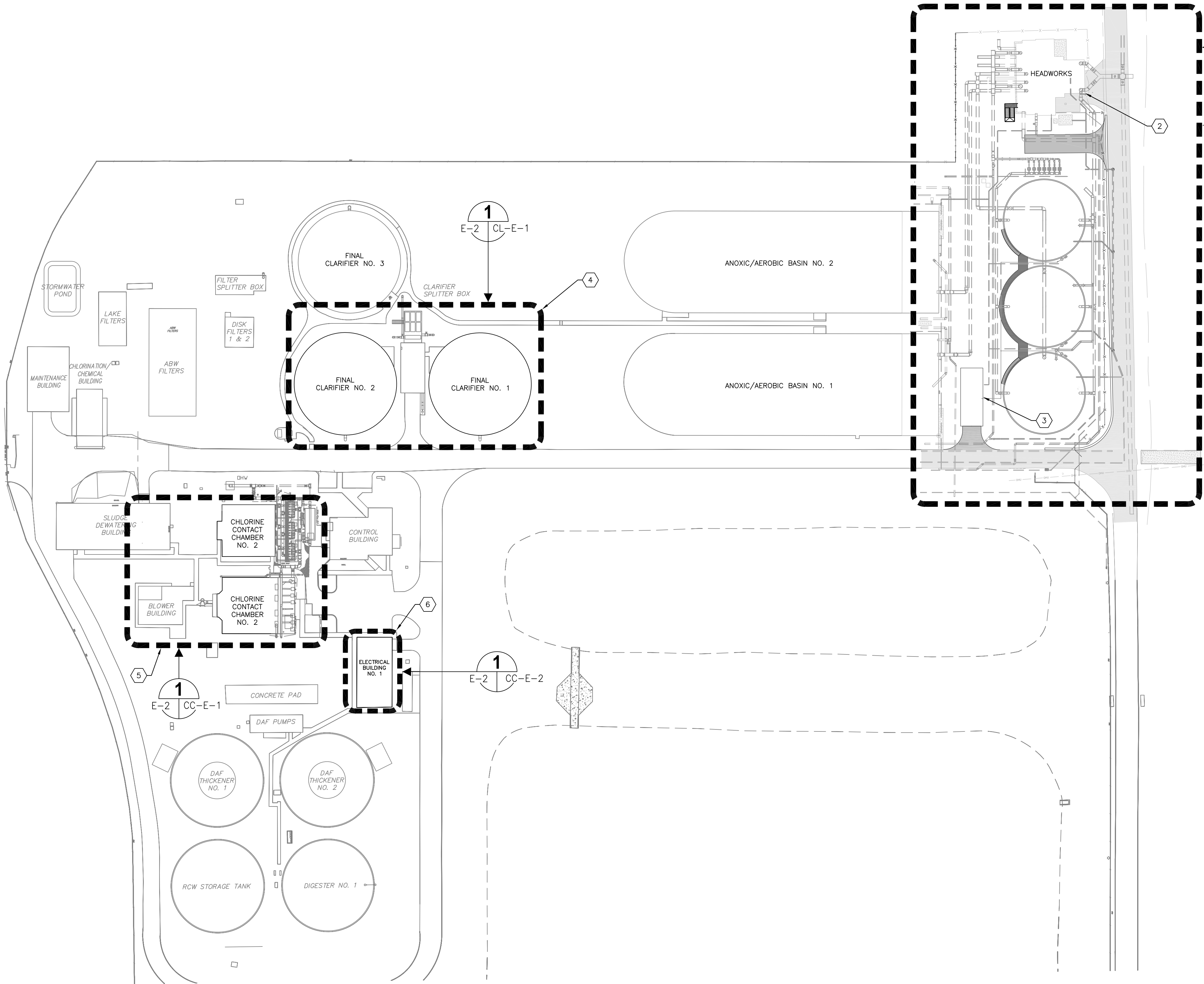
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**ELECTRICAL LEGEND
AND ABBREVIATIONS**

SHEET NUMBER

E-1

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- KEYED NOTES:
- 1 REFER TO SHEET HW-E-1 FOR WORK REQUIRED IN THE HEADWORKS AREA OF THE NWRf.
 - 2 EXISTING HEADWORK STRUCTURE.
 - 3 EXISTING ELECTRICAL AND STORAGE BUILDING.
 - 4 EXISTING CLARIFIER NO. 1 AND CLARIFIER NO. 2. REFER TO SHEET CL-E-1 FOR WORK REQUIRED AT CLARIFIER NO. 1 AND CLARIFIER NO. 2.
 - 5 EXISTING CHLORINE CONTACT CHAMBER AREA. REFER TO SHEET CC-E-1 FOR WORK REQUIRED AT NORTH AND SOUTH CHLORINE CONTACT CHAMBERS.
 - 6 EXISTING ELECTRICAL BUILDING NO. 1 REFER TO SHEET CC-E-2 FOR WORK REQUIRED IN ELECTRICAL BUILDING NO. 1.

- GENERAL NOTES:
- 1. THE EXISTING INFORMATION SHOWN ON THIS DRAWING IS FOR REFERENCE PURPOSE ONLY AND HAS BEEN TAKEN FROM THE FACILITY RECORD DRAWINGS.
 - 2. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.



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KHA PROJECT	148400021
DATE	AUGUST 2019
SCALE	AS SHOWN
DESIGNED BY	TDT
DRAWN BY	JLH
CHECKED BY	TDT

NORTH WRF HEADWORKS, CLARIFIERS,
AND CCC IMPROVEMENTS

MANATEE COUNTY

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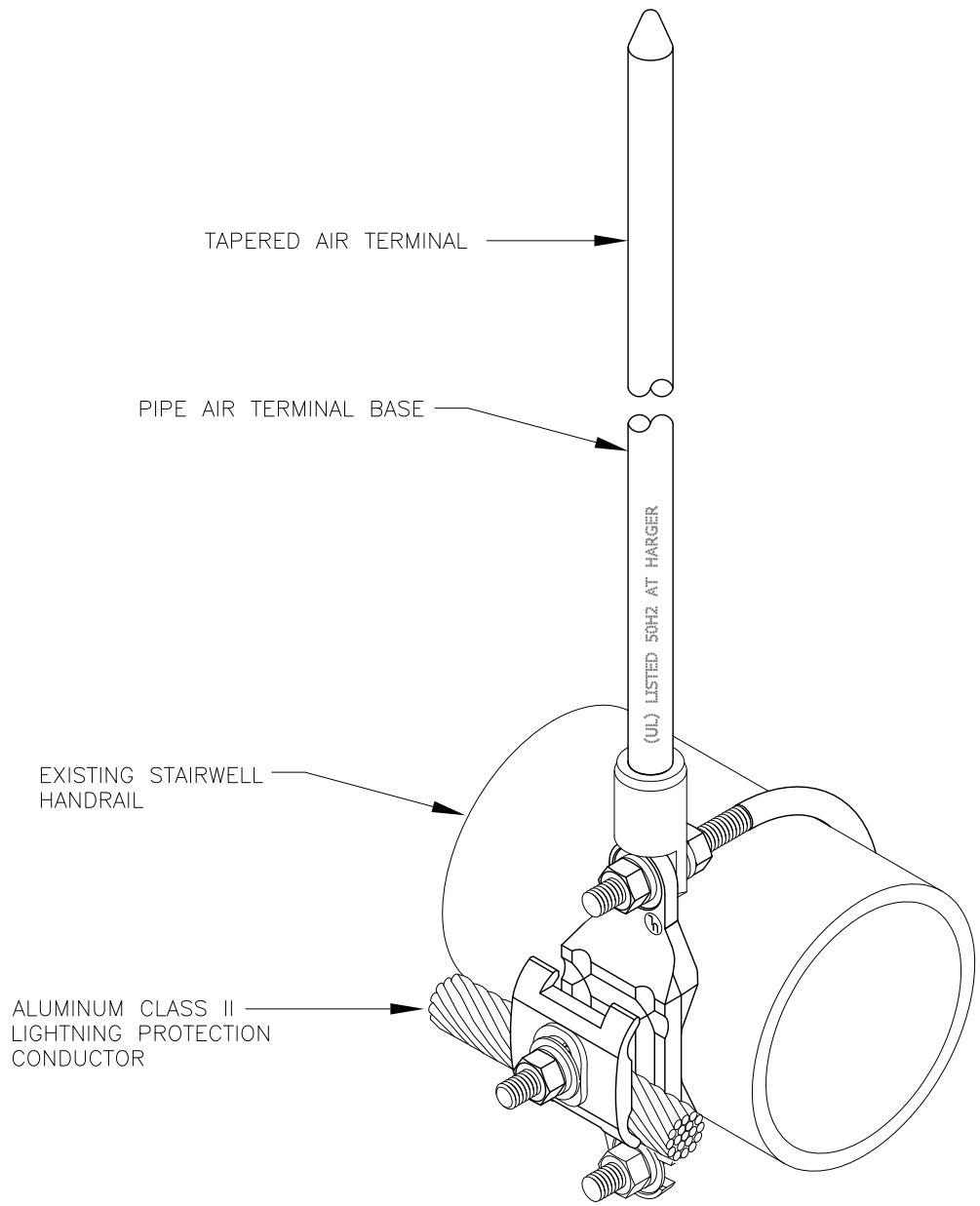
NWRF ELECTRICAL SITE PLAN

SHEET NUMBER

E-2

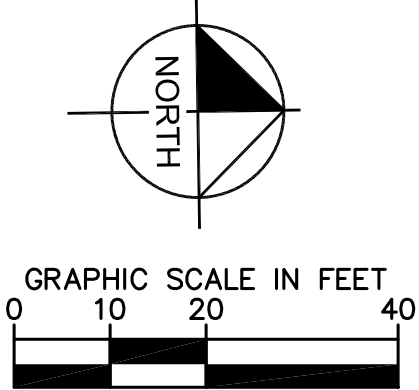
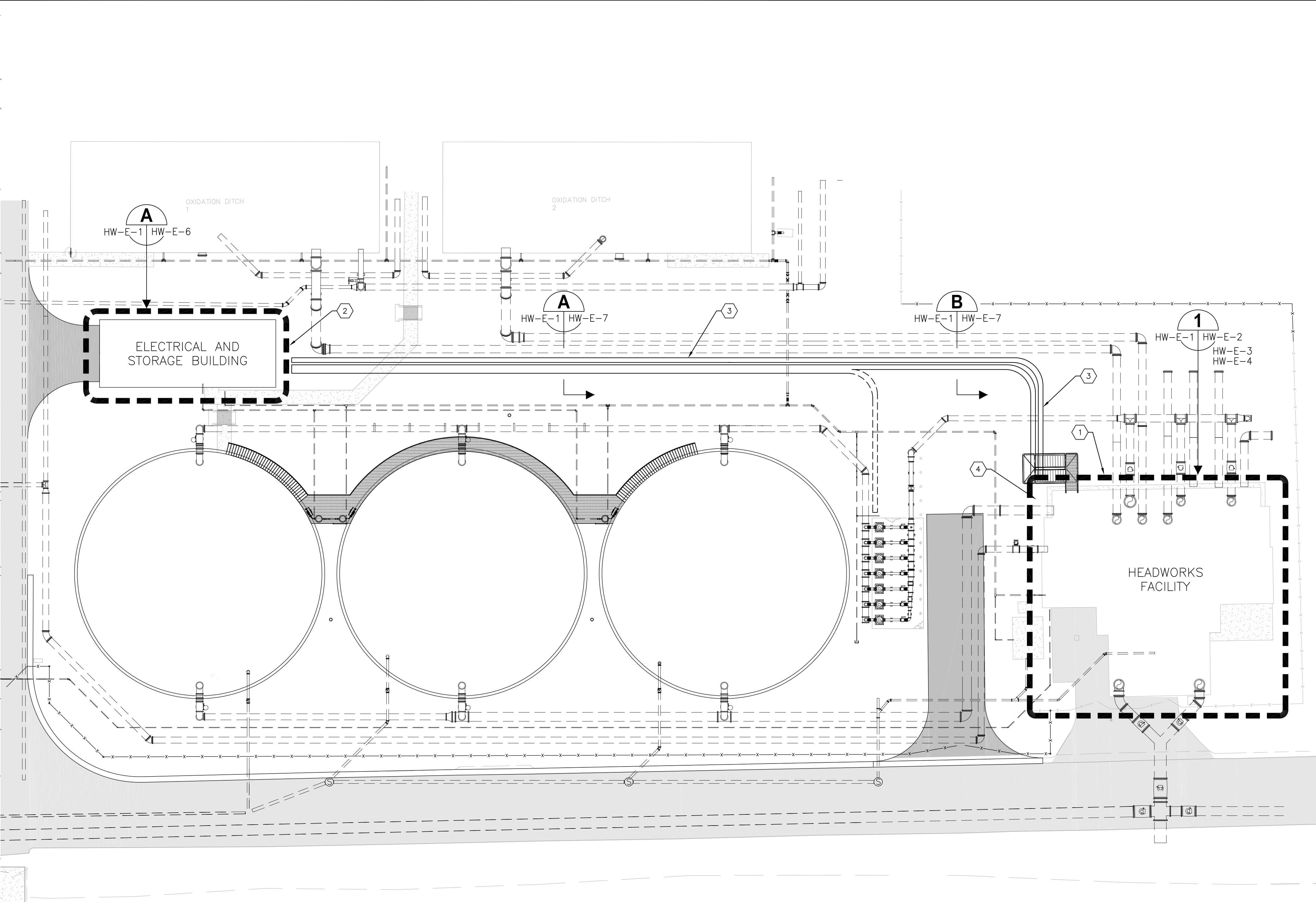
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LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	CATALOG NUMBER	LAMP(S)	VOLTS	MOUNTING	REMARKS
A	LITHONIA	KAD LED 20C 530 40K R3 SPUMBAK04	(1) 35W LED DRIVER	MV	POLE – 4" ARM	LED AREA LIGHT WITH SQUARE POLE UNIVERSAL MOUNTING ADAPTER. TYPE III DISTRIBUTION.
B	LITHONIA	KAD LED 20C 530 40K R4 SPUMBAK04	(1) 35W LED DRIVER	MV	POLE – 4" ARM	LED AREA LIGHT WITH SQUARE POLE UNIVERSAL MOUNTING ADAPTER. TYPE IV DISTRIBUTION.
C	LITHONIA	KAD LED 20C 530 40K R5 SPUMBAK04	(1) 35W LED DRIVER	MV	POLE – 4" ARM	LED AREA LIGHT WITH SQUARE POLE UNIVERSAL MOUNTING ADAPTER. TYPE V DISTRIBUTION.
D	LITHONIA	TWR1 LED ALO 40K MVOLT DDBTXD	9W-51W ADJUSTABLE	MV	WALL	WALL MOUNTED LED AREA LIGHT FOR HEADWORKS AREA.
E	LITHONIA	DSXF2 LED P1 40K WRF MVOLT YKC62 DBLXD	(1) 54W LED DRIVER	MV	POLE – YOKE	LED AREA LIGHT AT CCC AREA.
F	LITHONIA	QTE LED P1 40K MV 120 YK DDB	(1) 24W LED DRIVER	MV	POLE – YOKE	LED AREA LIGHT. YOKE MOUNTED.



HEADWORKS HANDRAIL AIR TERMINAL DETAIL 1
SCALE: NOT TO SCALE HW-E-2 E-3

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- KEYED NOTES:**
- 1. EXISTING HEADWORKS FACILITY. REFER TO SHEETS HW-E-2, HW-E-3 AND HW-E-4.
 - 2. EXISTING ELECTRICAL AND STORAGE BUILDING. REFER TO SHEET HW-E-6.
 - 3. EXISTING DUCTBANK. REFER TO SHEET HW-E-7 FOR DUCTBANK SECTIONS
 - 4. REFER TO SHEET HW-E-3 FOR LOCATION OF JUNCTION BOXES USED AT DUCTBANK TERMINATIONS.
- GENERAL NOTES:**
- 1. THE EXISTING INFORMATION SHOWN ON THIS DRAWING IS FOR REFERENCE PURPOSES ONLY AND HAS BEEN TAKEN FROM THE FACILITY RECORD DRAWINGS.
 - 2. DUCTBANK ROUTING, CONDUIT SIZES AND QUANTITIES SHOWN ARE FROM THE BEST RECORD DRAWING INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION.
 - 3. EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.


HEADWORKS AREA ELECTRICAL SITE PLAN 1
E-2 HW-E-1

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NORTH WRF HEADWORKS, CLARIFIERS,
AND CCC IMPROVEMENTS

MANATEE COUNTY

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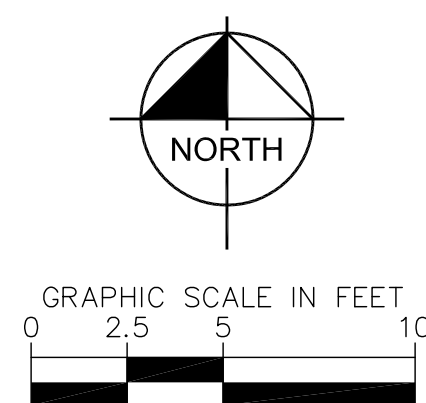
HEADWORKS AREA
ELECTRICAL SITE PLAN

SHEET NUMBER

HW-E-1

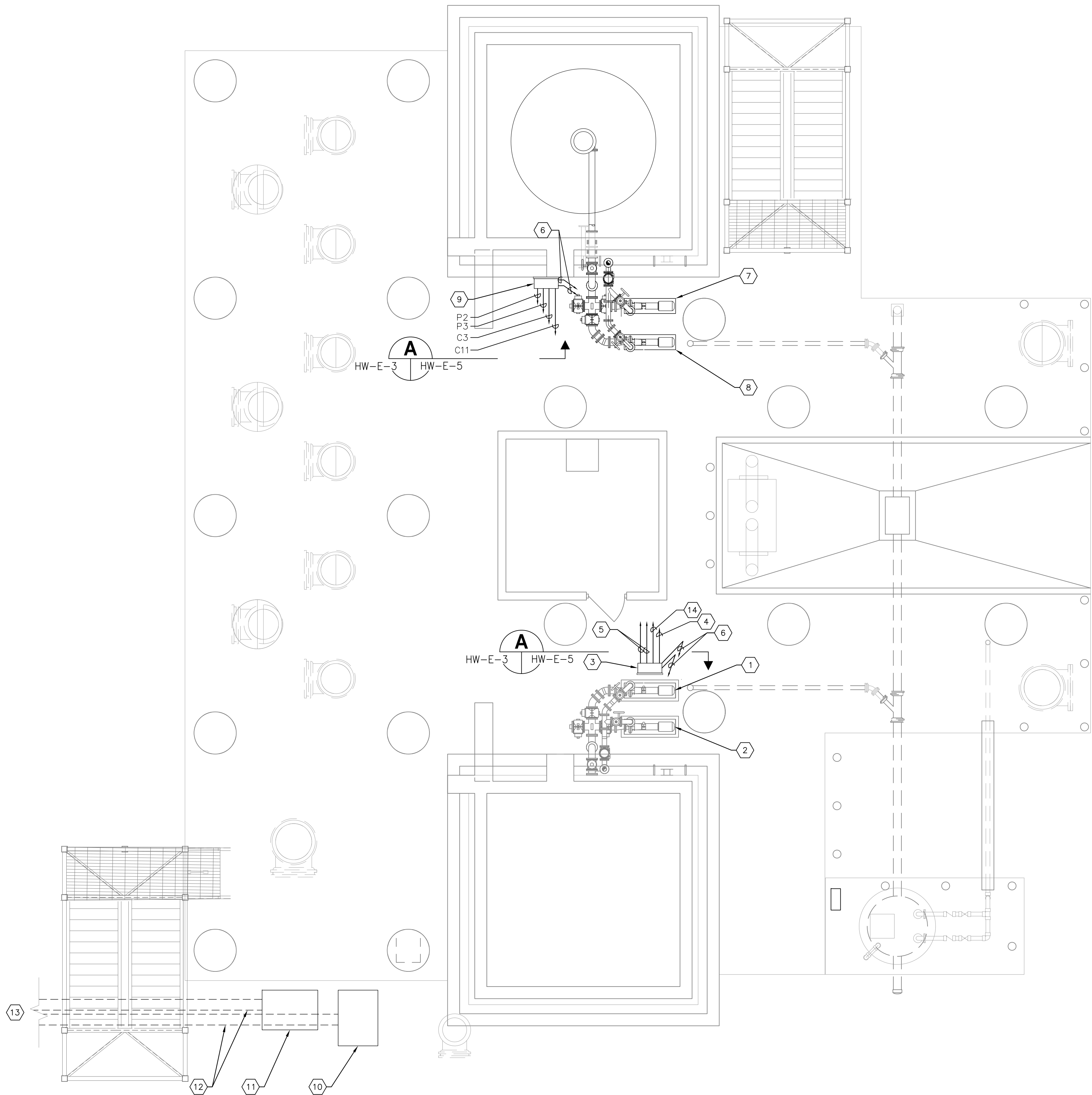


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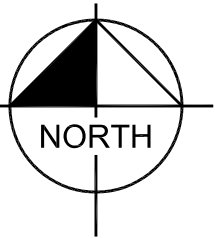


KEYED NOTES:

- EXISTING GRIT PUMP TO BE REPLACED WITH PROPOSED GRIT PUMP NO. 1.
- EXISTING GRIT PUMP TO BE REPLACED WITH PROPOSED GRIT PUMP NO. 2.
- CONTRACTOR SHALL REMOVE THE TWO (2) EXISTING COMBINATION STARTERS CURRENTLY IN USE. CONTRACTOR SHALL THEN PROVIDE AND INSTALL NEW GRIT PUMP CONTROL PANEL. REFER TO SHEET HW-E-5 FOR DETAILS. INSTALL GRIT PUMP CONTROL PANEL EXISTING STARTER STANCHION UTILIZING 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT.
- CONTRACTOR SHALL PROVIDE NEW CONTROL CONDUCTORS AND CONDUIT TO MATCH EXISTING FROM NEW GRIT PUMP CONTROL PANEL TO EXISTING GRIT SNAIL #1 CONTROL PANEL (REFER TO KEYED NOTE #8 ON SHEET HW-E-2 FOR EXISTING GRIT SNAIL CONTROL PANEL LOCATION) FOR GRIT PUMP RUN COMMAND. CONTRACTOR MAY REUSE ANY EXISTING CONDUIT AFTER CLEANING CONDUIT WITH MANDREL.
- CONTRACTOR SHALL REUSE EXISTING FEEDER CONDUCTORS FOR GRIT PUMPS #1 AND #2 (FEED FROM PNL-1B AND PNL-2B RESPECTIVELY.) CONTRACTOR SHALL REMOVE SLACK FROM JUNCTION BOXES IF REQUIRED TO OBTAIN DESIRED LENGTH. SPLICING OF CONDUCTORS SHALL BE VIA FINGER SAFE POWER DISTRIBUTION BLOCKS UPON WRITTEN APPROVAL BY ENGINEER.
- CONTRACTOR SHALL PROVIDE AND INSTALL 3-#12 + 2-#12 (SPACE HEATER) + 1-#12 GND IN 3/4" CONDUIT FROM NEW GRIT PUMP CONTROL PANEL TO NEW GRIT PUMP MOTOR. PROVIDE FLEXIBLE, NON-METALLIC, WEATHERPROOF CONDUIT CONNECTION TO MOTOR. TYPICAL.
- PROPOSED GRIT PUMP NO. 3.
- PROPOSED GRIT PUMP NO. 4.
- PROVIDE AND INSTALL NEW GRIT PUMP CONTROL PANEL. REFER TO SHEET HW-E-5 FOR DETAILS. INSTALL GRIT PUMP CONTROL PANEL ON WALL UTILIZING 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT.
- EXISTING JUNCTION BOX FOR CONTROL CONDUCTORS.
- EXISTING JUNCTION BOX FOR POWER CONDUCTORS.
- EXISTING DUCTBANK.
- REFER TO SHEET HW-E-1 FOR DUCTBANK CONTINUATION. REFER TO SHEET HW-E-7 FOR DUCTBANK SECTIONS.
- CONTRACTOR SHALL REUSE EXISTING CONDUCTORS AND CONDUIT UTILIZED TO PROVIDE I/O FROM GRIT PUMP CONTROL PANEL TO PLC CONTROL CABINET 'SP-11'.

GENERAL NOTES:

- FOR LOWER LEVEL LIGHTING PLAN REFER TO SHEET HW-E-4.
- THE EXISTING INFORMATION SHOWN ON THIS DRAWING IS FOR REFERENCE PURPOSES ONLY AND HAS BEEN TAKEN FROM THE FACILITY RECORD DRAWINGS.
- EXISTING STRUCTURE DIMENSIONS AND CONFIGURATION ARE BASED ON AS-BUILT DRAWINGS AND ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM AND COORDINATE ALL CONTROLLING FIELD DIMENSIONS BEFORE DEMOLITION, ORDERING, OR FABRICATING ANY MATERIALS.



GRAPHIC SCALE IN FEET
0 2.5 5 10

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DESIGNED BY TDT
DRAWN BY JLH
CHECKED BY TDT



NORTH WRF HEADWORKS, CLARIFIERS,
AND CCC IMPROVEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL

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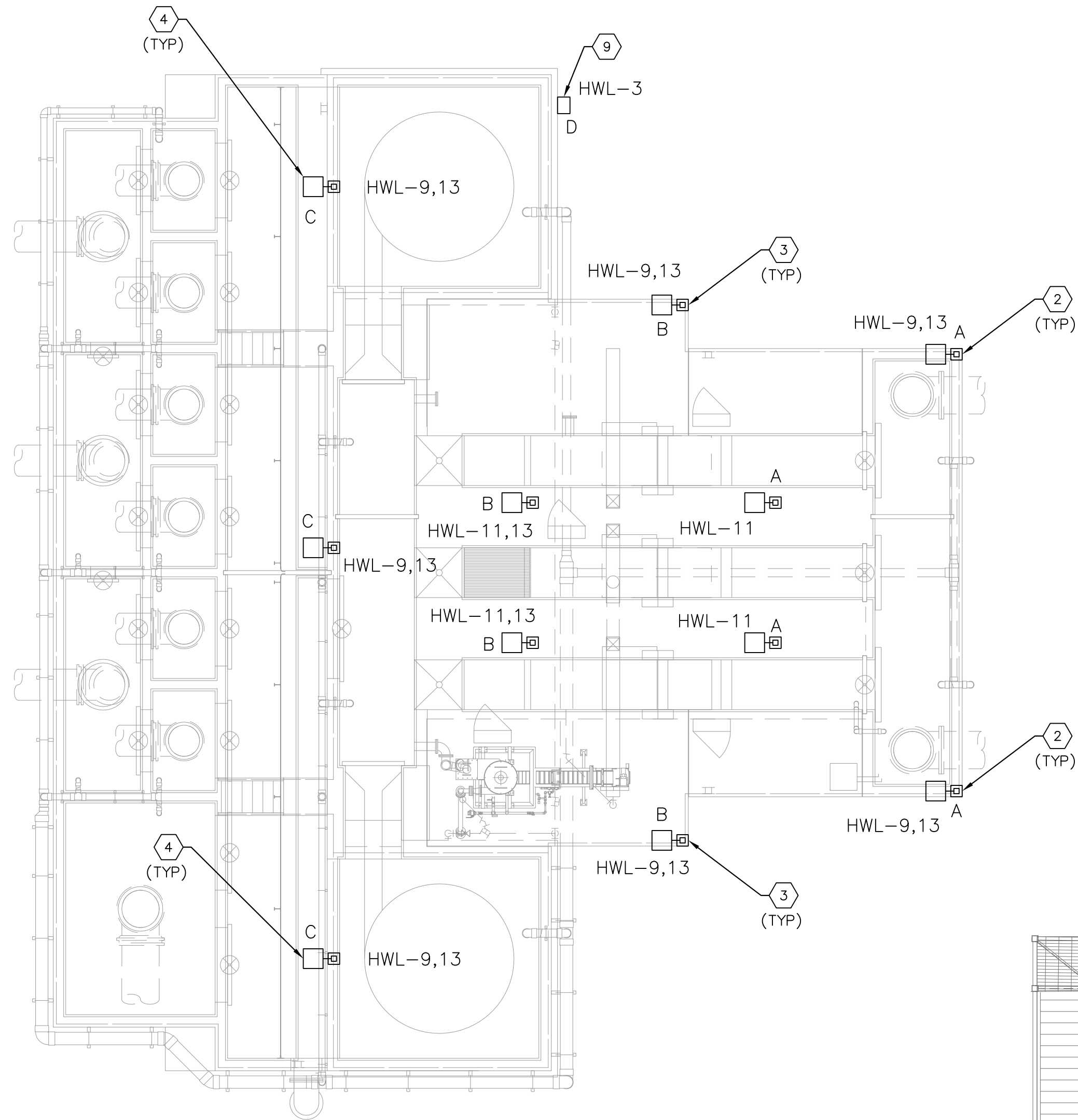
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HEADWORK LOWER LEVEL
ELECTRICAL PLAN

SHEET NUMBER

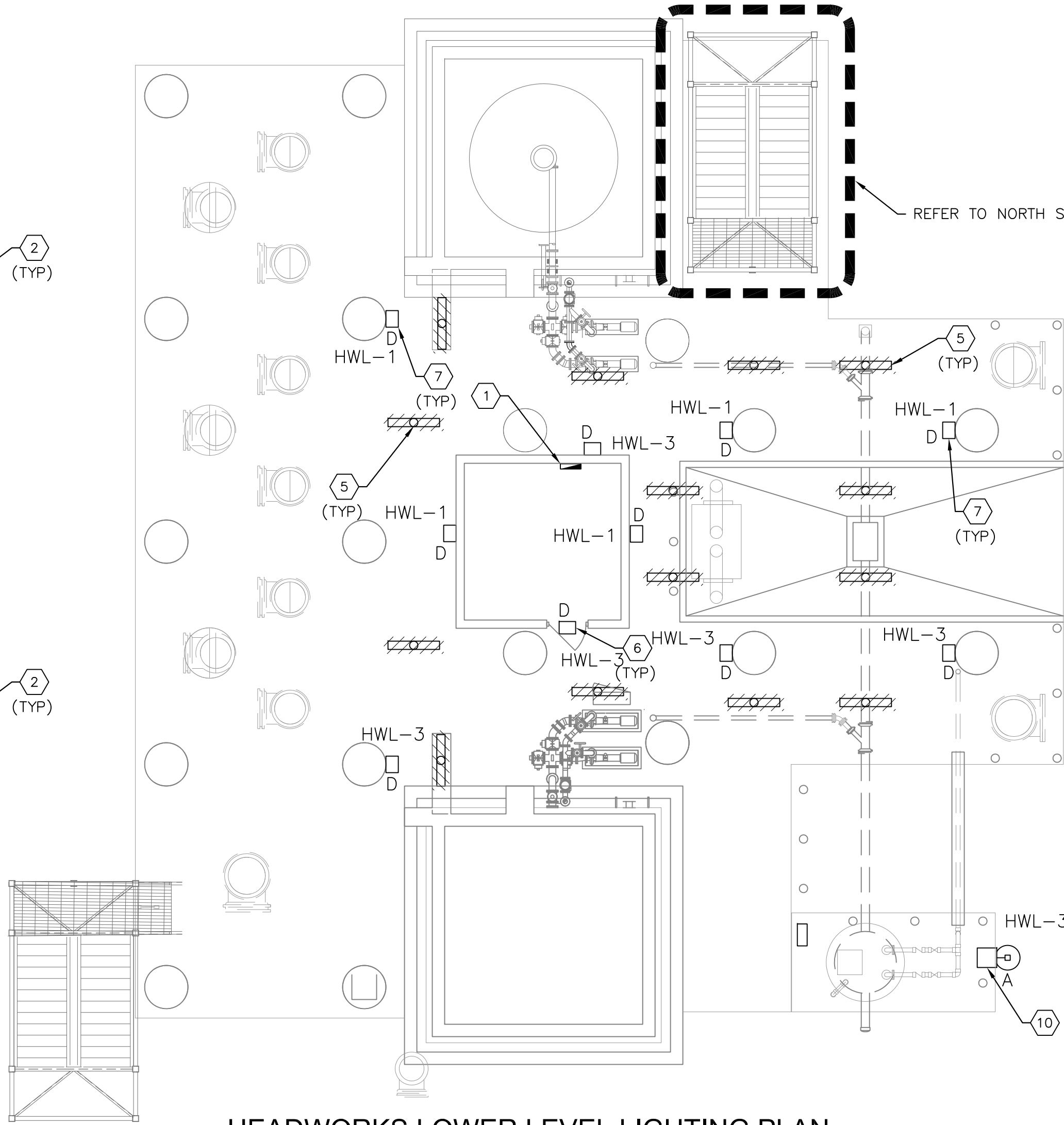
HW-E-3

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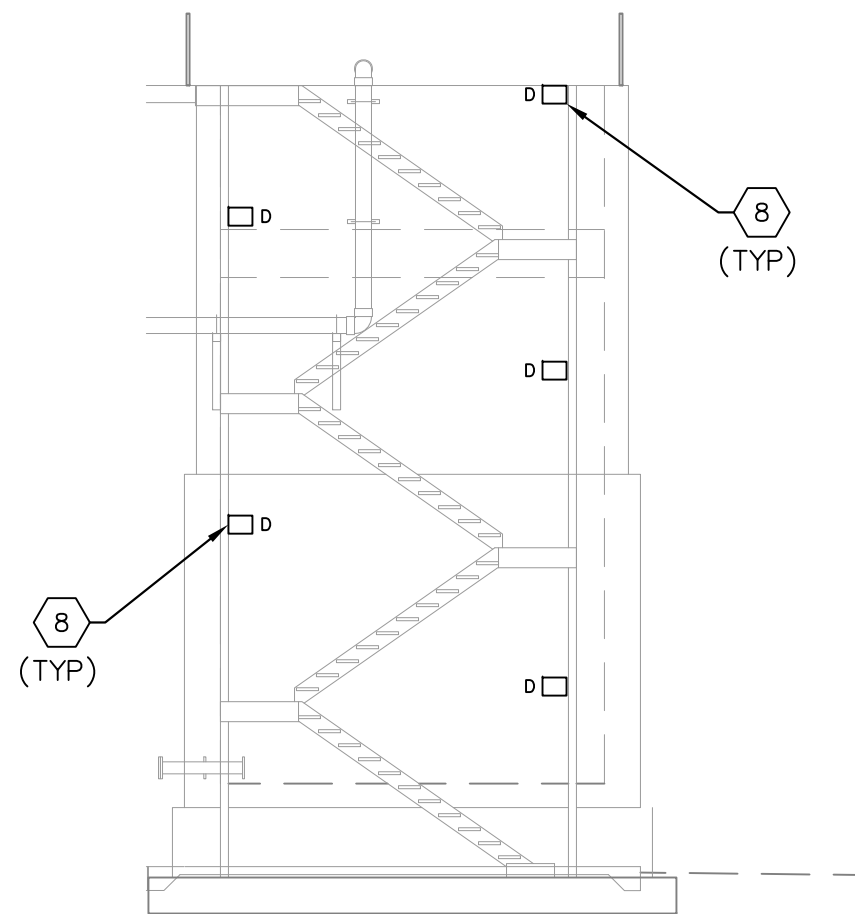
HEADWORKS UPPER LEVEL LIGHTING PLAN

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



HEADWORKS LOWER LEVEL LIGHTING PLAN

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



HEADWORKS NORTH STAIRWELL LIGHTING

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

KEYED NOTES:

- LOCATION OF EXISTING 120/208V PANELBOARD 'HWL'. PROVIDE AND INSTALL ONE (1) SINGLE-POLE 20A CIRCUIT BREAKER FOR pH TRANSMITTER.
- EXISTING UPPER LEVEL LIGHT FIXTURE TO BE REPLACED WITH FIXTURE TYPE 'A'. FIXTURE POLE TO REMAIN. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER. EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD SHOWN. REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE. REFER TO KEYED NOTE #1 FOR PANELBOARD 'HWL' LOCATION.
- EXISTING UPPER LEVEL LIGHT FIXTURE TO BE REPLACED WITH FIXTURE TYPE 'B'. FIXTURE POLE TO REMAIN. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER. EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD SHOWN. REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE. REFER TO KEYED NOTE #1 FOR PANELBOARD 'HWL' LOCATION.
- EXISTING UPPER LEVEL LIGHT FIXTURE TO BE REPLACED WITH FIXTURE TYPE 'C'. FIXTURE POLE TO REMAIN. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER. EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD SHOWN. REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE. REFER TO KEYED NOTE #1 FOR PANELBOARD 'HWL' LOCATION.
- EXISTING LOWER LEVEL LIGHT FIXTURE TO BE REMOVED.
- EXISTING WALL MOUNTED LIGHT FIXTURE (MOUNTED ON ELECTRICAL ROOM) TO BE REPLACED WITH FIXTURE TYPE 'D'. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER. EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD SHOWN. REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE. REFER TO KEYED NOTE #1 FOR PANELBOARD 'HWL' LOCATION.
- NEW LOWER LEVEL LIGHT FIXTURE FIXTURE TYPE 'D'. CONTRACTOR MAY REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURES REMOVED IN KEYED NOTE #5 AS POSSIBLE. EXTEND/MODIFY/PROVIDE NEW CONDUIT AND CONDUCTORS AS REQUIRED FOR NEW FIXTURES. EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD SHOWN. REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE. REFER TO KEYED NOTE #1 FOR PANELBOARD 'HWL' LOCATION. MOUNT AT HEIGHT OF 10'-0" AFF.
- EXISTING STAIRWELL LIGHT FIXTURE TO BE REPLACED WITH FIXTURE TYPE 'D'. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER. EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD SHOWN. REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE. REFER TO KEYED NOTE #1 FOR PANELBOARD 'HWL' LOCATION.
- EXISTING STAIRWELL LIGHT FIXTURE TO BE REPLACED WITH FIXTURE TYPE 'D'. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER. EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD SHOWN. REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE. FIXTURE IS MOUNTED ON EAST WALL OF HEADWORKS AT THE UPPER LEVEL. REFER TO KEYED NOTE #1 FOR PANELBOARD 'HWL' LOCATION.
- EXISTING LIGHT FIXTURE TO BE REPLACED WITH FIXTURE TYPE 'A'. FIXTURE POLE TO REMAIN. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER. EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD SHOWN. REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE. REFER TO KEYED NOTE #1 FOR PANELBOARD 'HWL' LOCATION.

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SCALE AS SHOWN
DESIGNED BY TDT
DRAWN BY JLH
CHECKED BY TDT

Manatee County
FLORIDA

**NORTH WRF HEADWORKS, CLARIFIERS,
AND CCC IMPROVEMENTS**

MANATEE COUNTY

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HEADWORKS LIGHTING PLANS

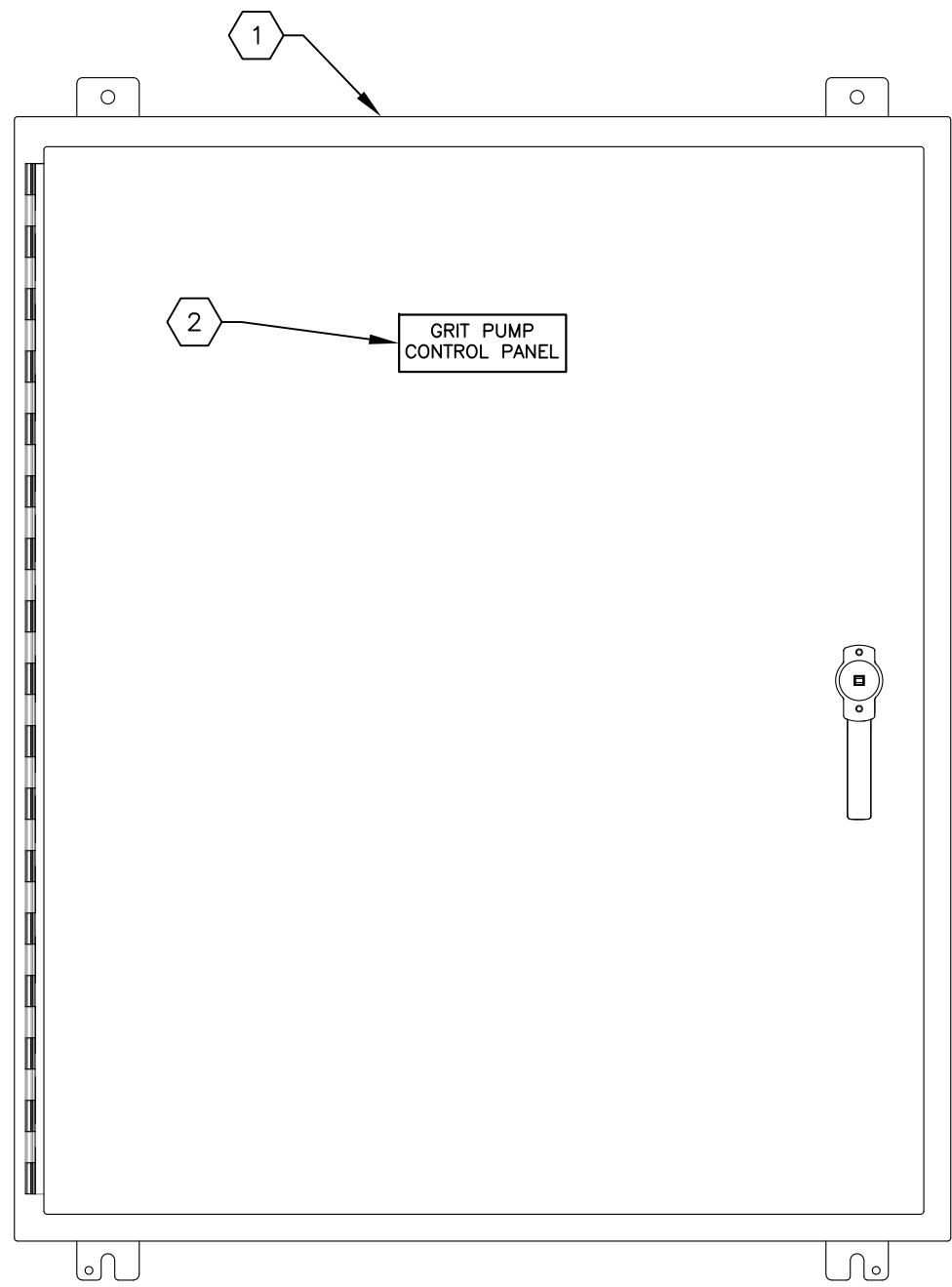
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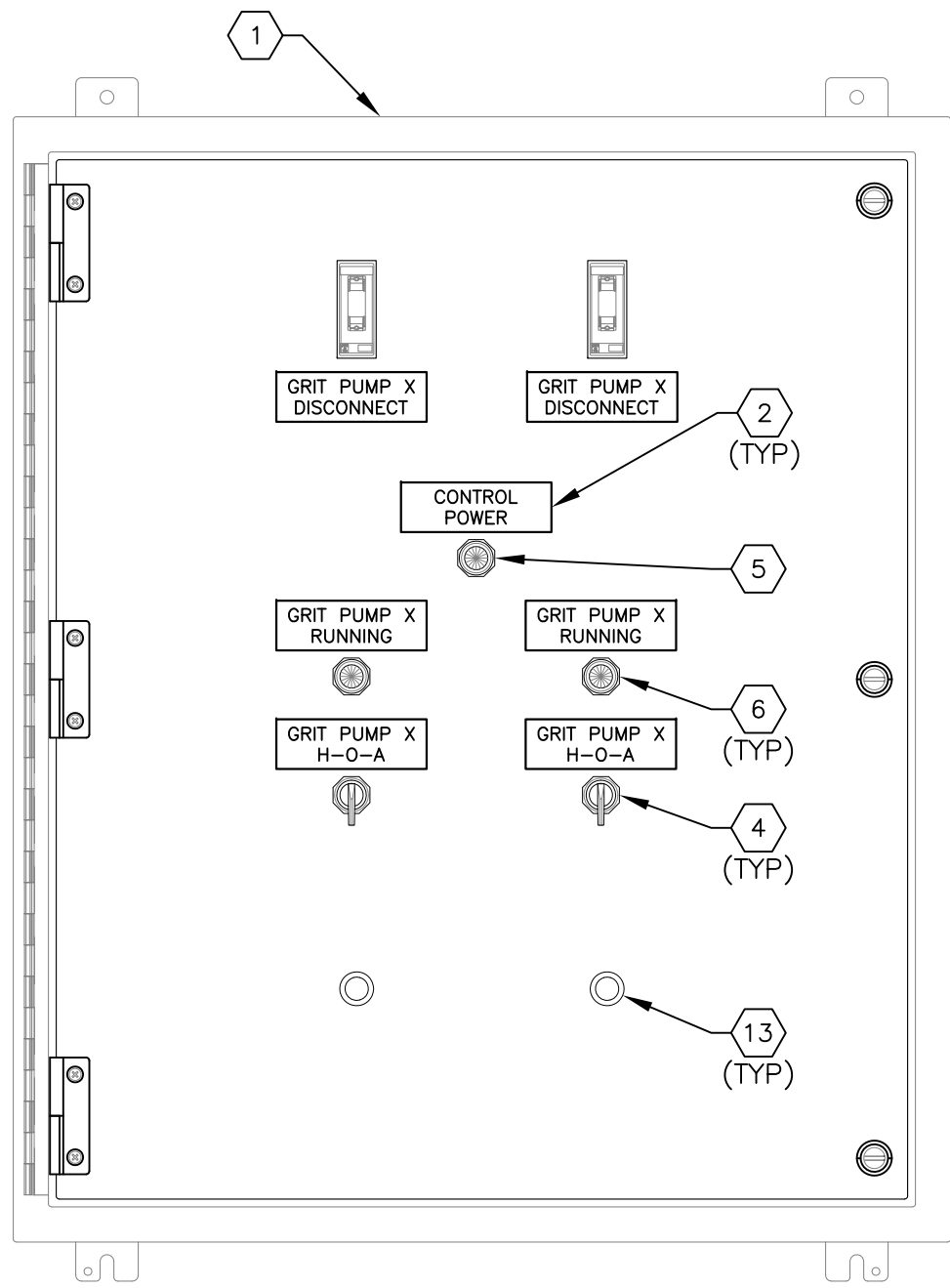


TYPICAL GRIT PUMP
CONTROL PANEL EXTERIOR

SCALE: NOT TO SCALE

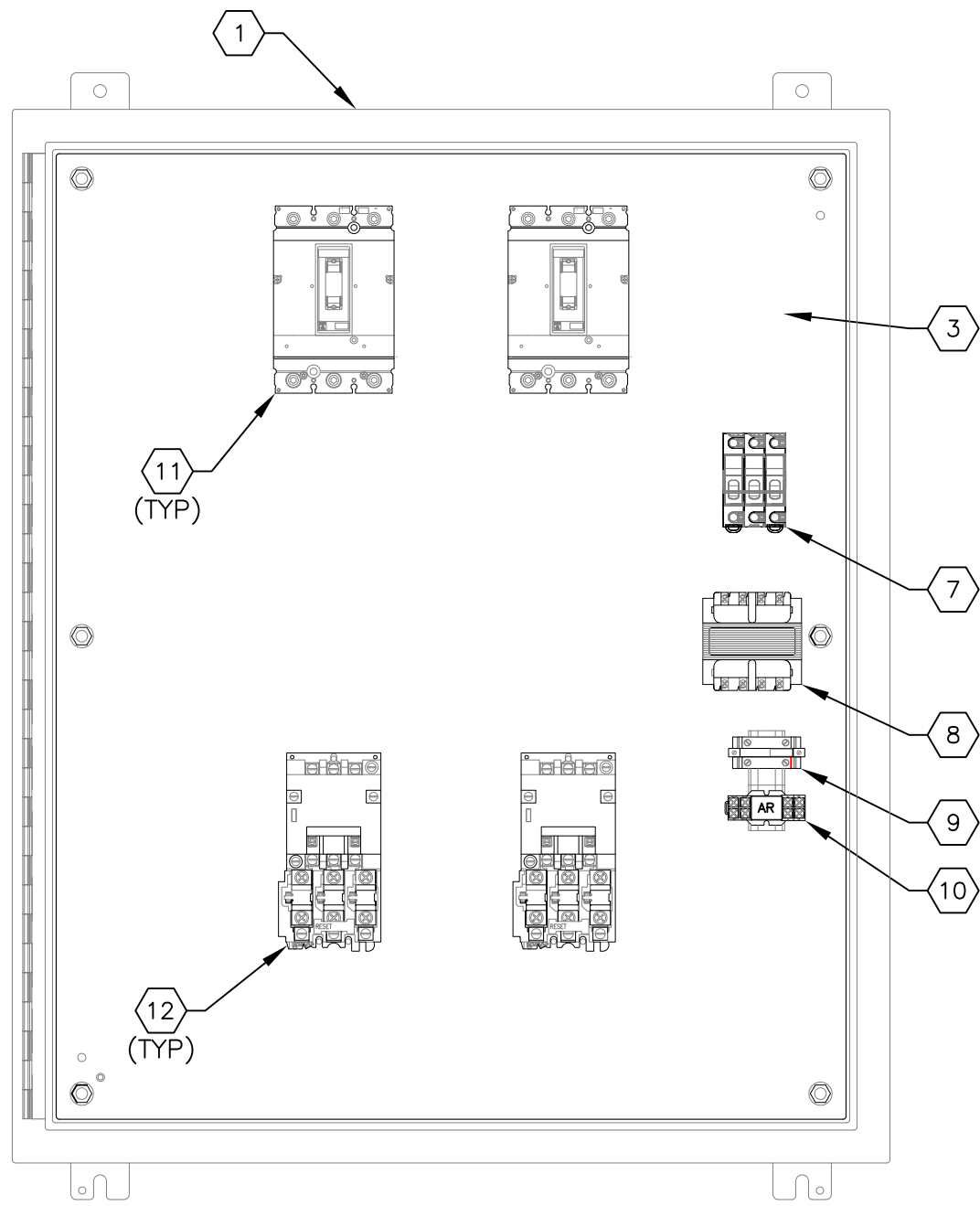
HW-E-3

HW-E-5



TYPICAL GRIT PUMP
CONTROL PANEL DEADFRONT

SCALE: NOT TO SCALE



TYPICAL GRIT PUMP
CONTROL PANEL INTERIOR

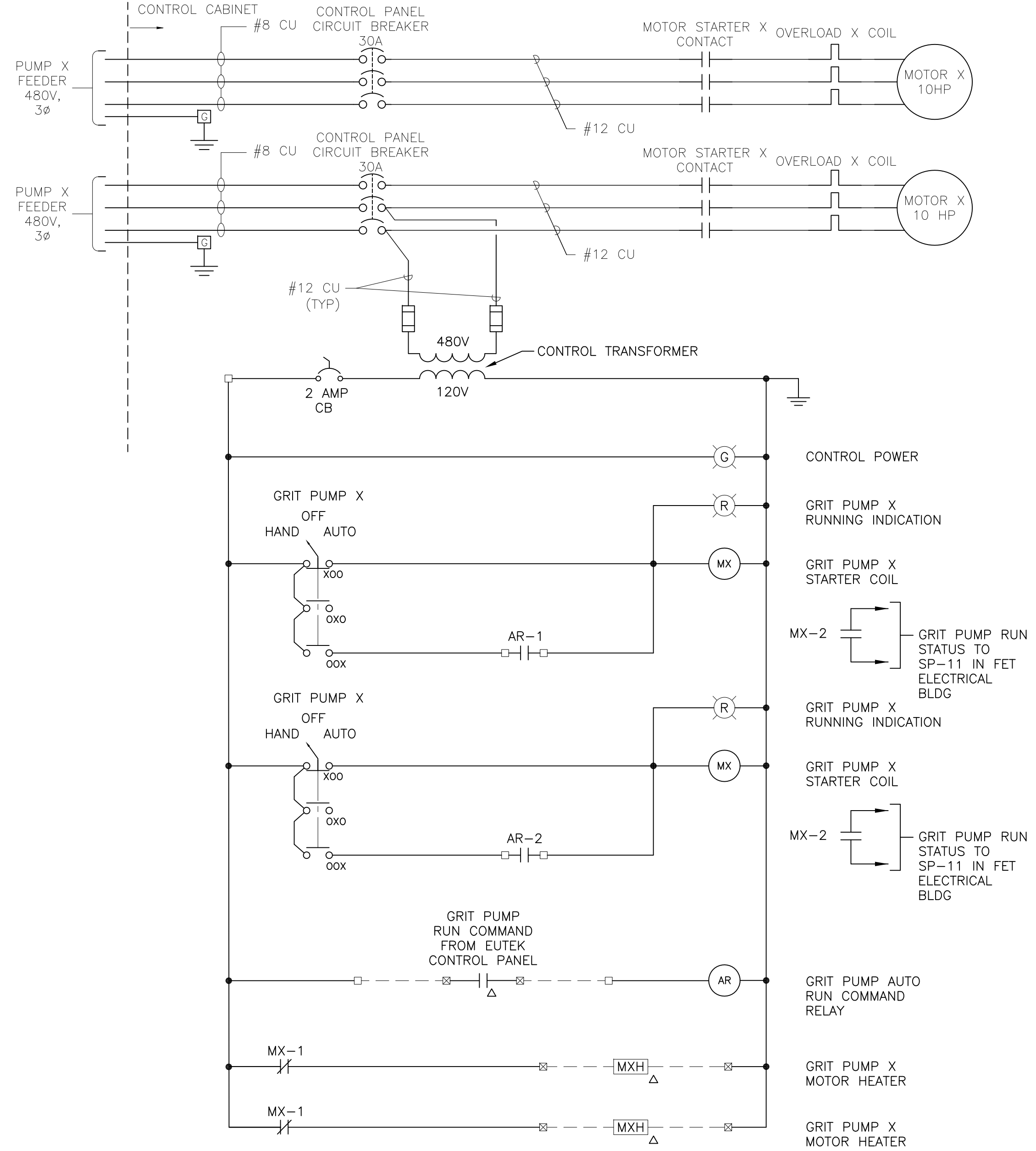
SCALE: NOT TO SCALE

KEYED NOTES:

- | | |
|---|--|
| <p>1 PROVIDE AND INSTALL 36" X 30" X 16", NEMA 4X, 304 STAINLESS STEEL ENCLOSURE, POWDER COATED WHITE WITH ALUMINUM BACK PANEL, SWING-OUT ALUMINUM DEADFRONT PANEL AND 3-POINT LATCHING SYSTEM. PROVIDE WITH DOOR STOP KIT.</p> | <p>7 PROVIDE AND INSTALL FUSE DISTRIBUTION BLOCK, ALLEN BRADLEY 1492-FB3C30-L (UTILIZE 2 PHASES ONLY). FUSE AT 1 AMPERE WITH BUSSMANN KTK-R-2.</p> |
| <p>2 PROVIDE AND INSTALL EQUIPMENT NAMEPLATE CONSISTING OF 2-MIL. WHITE POLYESTER, R143, 50# SCK ADHESIVE MATERIAL WITH BLACK ENGRAVED LETTERING. TYPICAL FOR ALL NAMEPLATES.</p> | <p>8 PROVIDE AND INSTALL 240X480V-120V, 200VA CONTROL POWER TRANSFORMER. SQUARE-D 9070T200D.</p> |
| <p>3 PROVIDE AND INSTALL NEW ALUMINUM BACKPANEL.</p> | <p>9 PROVIDE AND INSTALL 120V, THERMAL CIRCUIT BREAKER. THERMAL CIRCUIT BREAKER SHALL BE PHOENIX CONTACT TCP TYPE, 2 AMPERES.</p> |
| <p>4 PROVIDE AND INSTALL 3-POSITION, MAINTAINED, PUMP HAND/OFF/AUTO SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.</p> | <p>10 PROVIDE AND INSTALL SQUARE-D 8501 R SERIES (OR EQUAL) RELAY WITH 120V COIL. DPDT. PROVIDE RELAY BASE AND HOLD DOWN SPRING FOR RELAY.</p> |
| <p>5 PROVIDE AND INSTALL NEMA 4X, 30mm, LED PILOT LIGHT WITH GREEN LENS. ALLEN BRADLEY #800H-QRH2G.</p> | <p>11 PROVIDE 600V, 30A, 3-POLE CIRCUIT BREAKER. SQUARE-D HDL36030.</p> |
| <p>6 PROVIDE AND INSTALL NEMA 4X, 30mm, LED PILOT LIGHT WITH RED LENS. ALLEN BRADLEY #800H-QRH2R.</p> | <p>12 PROVIDE AND INSTALL 600V, NEMA SIZE 1, 3-POLE MOTOR STARTER WITH 120V AC COIL. SQUARE-D SCO3V02.</p> |
| | <p>13 PROVIDE AND INSTALL THRU-DOOR MOTOR STARTER RESET PUSHBUTTON.</p> |

GENERAL NOTES :

- PROVIDE AND INSTALL ALL ASSOCIATED END BARRIERS, DIN-RAIL, GROUNDING LUGS AND ACCESSORIES AS REQUIRED.
- PROVIDE AND INSTALL #12 COPPER BONDING CONDUCTOR (WITH GREEN INSULATION) BETWEEN ENCLOSURE GROUND LUG, ENCLOSURE DOOR AND DEAF-FRONT DOOR.
- PROVIDE AND INSTALL CORROSION INHIBITOR, HOFFMAN # AHC110E.



TYPICAL GRIT PUMP
CONTROL PANEL
WIRING DIAGRAM

LEGEND

- ☐ DENOTES TERMINAL IN NEW GRIT PUMP CONTROL PANEL
- DENOTES NEW FIELD WIRING
- ☒ DENOTES TERMINAL ON FIELD DEVICE
- ☐ DENOTES DEVICE LOCATED OUTSIDE OF GRIT PUMP CONTROL PANEL



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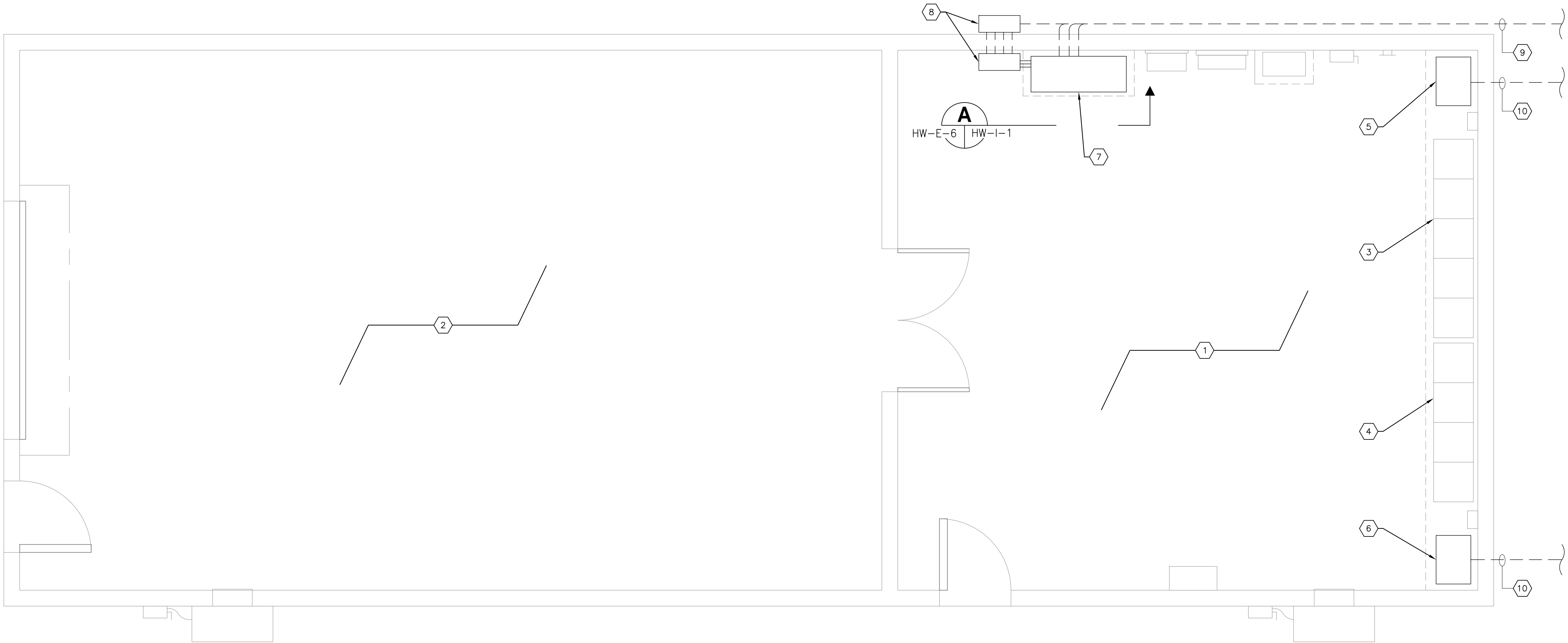
TYPICAL GRIT PUMP CONTROL
PANEL DETAILS
AND WIRING DIAGRAM

SHEET NUMBER

HW-E-5

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ELECTRICAL AND STORAGE BUILDING EXISTING CONDITIONS PLAN
SCALE : 3/8" = 1'-0"

KEYED NOTES:

- 1. EXISTING ELECTRICAL ROOM IN ELECTRICAL AND STORAGE BUILDING.
- 2. EXISTING STORAGE ROOM IN ELECTRICAL AND STORAGE BUILDING.
- 3. EXISTING MOTOR CONTROL CENTER MCC-1B. NO WORK REQUIRED.
- 4. EXISTING MOTOR CONTROL CENTER MCC-2B. NO WORK REQUIRED.
- 5. EXISTING 480V, 200A, 3Ø, 3-WIRE PANELBOARD 'PNL-1B'. CONTRACTOR TO PROVIDE AND INSTALL NEW 600V, 30A, 3-POLE CIRCUIT BREAKER IN PANELBOARD FOR NEW GRIT PUMP #3 480V FEEDER. PROVIDE NEW CONDUCTORS VIA EXISTING DUCTBANK. REFER SHEET HW-E-7 FOR DUCTBANK DETAILS.
- 6. EXISTING 480V, 200A, 3Ø, 3-WIRE PANELBOARD 'PNL-2B'. CONTRACTOR TO PROVIDE AND INSTALL NEW 600V, 30A, 3-POLE CIRCUIT BREAKER IN PANELBOARD FOR NEW GRIT SNAIL CONTROL PANEL #2 480V FEEDER. CONTRACTOR TO PROVIDE AND INSTALL NEW 600V, 30A, 3-POLE CIRCUIT BREAKER IN PANELBOARD FOR NEW GRIT PUMP #4 480V FEEDER. PROVIDE NEW CONDUCTORS VIA EXISTING DUCTBANK. REFER SHEET HW-E-7 FOR DUCTBANK DETAILS.
- 7. EXISTING EQUALIZATION TANK PLC CONTROL CABINET 'SP-11'. CONTRACTOR INTEGRATE NEW GRIT SYSTEM EQUIPMENT INTO EXISTING NWRF SCADA SYSTEM. PROVIDE NEW CONDUCTORS VIA EXISTING DUCTBANK. REFER SHEET HW-E-7 FOR DUCTBANK DETAILS. REFER TO SHEET HW-I-1 FOR PLC CONTROL CABINET ELEVATION AND DETAILS.
- 8. EXISTING JUNCTION BOXES SERVING AS RACEWAY FOR PLC CONTROL CABINET 'SP-11'. CONTRACTOR TO FIELD VERIFY QUANTITY AND SIZES.
- 9. EXISTING DUCTBANK TO EXISTING JUNCTION BOX FOR CONTROL CONDUCTORS. REFER TO KEYED NOTE #10 ON SHEET HW-E-3 FOR LOCATION OF JUNCTION BOX FOR CONTROL CONDUCTORS.
- 10. EXISTING DUCTBANK TO EXISTING JUNCTION BOX FOR POWER CONDUCTORS. REFER TO KEYED NOTE #11 ON SHEET HW-E-3 FOR LOCATION OF JUNCTION BOX FOR POWER CONDUCTORS.

DUCTBANK NOTES:

- 1. DUCTBANK ROUTING, CONDUIT SIZES AND QUANTITIES SHOWN ARE FROM THE BEST RECORD DRAWING INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION.
- 2. THE KEYED NOTES SHOWN ON SHEETS HW-E-2 AND HW-E-3 ARE INTENDED TO DEPICT THE CONDUIT AND CONDUCTORS REQUIRED BETWEEN THE NEW GRIT SNAIL #2 CONTROL PANEL, THE EXISTING GRIT SNAIL #1 CONTROL PANEL, THE NEW GRIT PUMP CONTROL PANELS AND THE ASSOCIATED JUNCTION BOXES FOR CONTROL CONDUCTORS AND POWER CONDUCTORS. THERE ARE NUMEROUS SPARE CONDUITS AVAILABLE FROM THESE EXISTING JUNCTION BOXES TO THE EXISTING ELECTRICAL AND STORAGE BUILDING. THE CONTRACTOR MAY SEGREGATE THE CONTROL CONDUCTORS INTO SMALLER CONDUITS IF REQUIRED. ALL CONDUIT FILLS SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

No.	REVISIONS	DATE	BY

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KHA PROJECT 148400021
DATE AUGUST 2019
SCALE AS SHOWN
DESIGNED BY TDT
DRAWN BY JLH
CHECKED BY TDT

Manatee
County
FLORIDA

NORTH WRF HEADWORKS, CLARIFIERS,
AND CCC IMPROVEMENTS

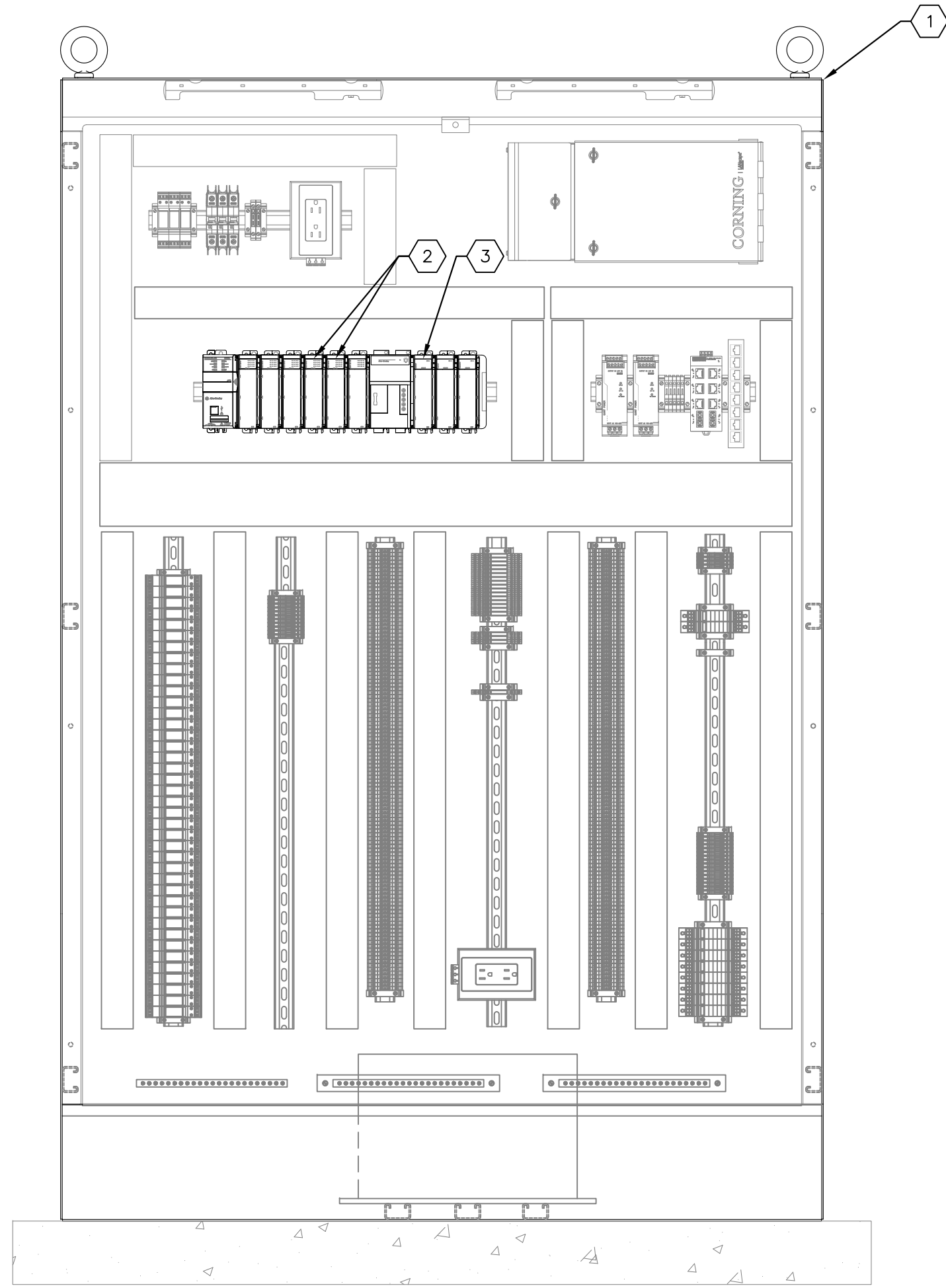
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FL LICENSE NUMBER 47079
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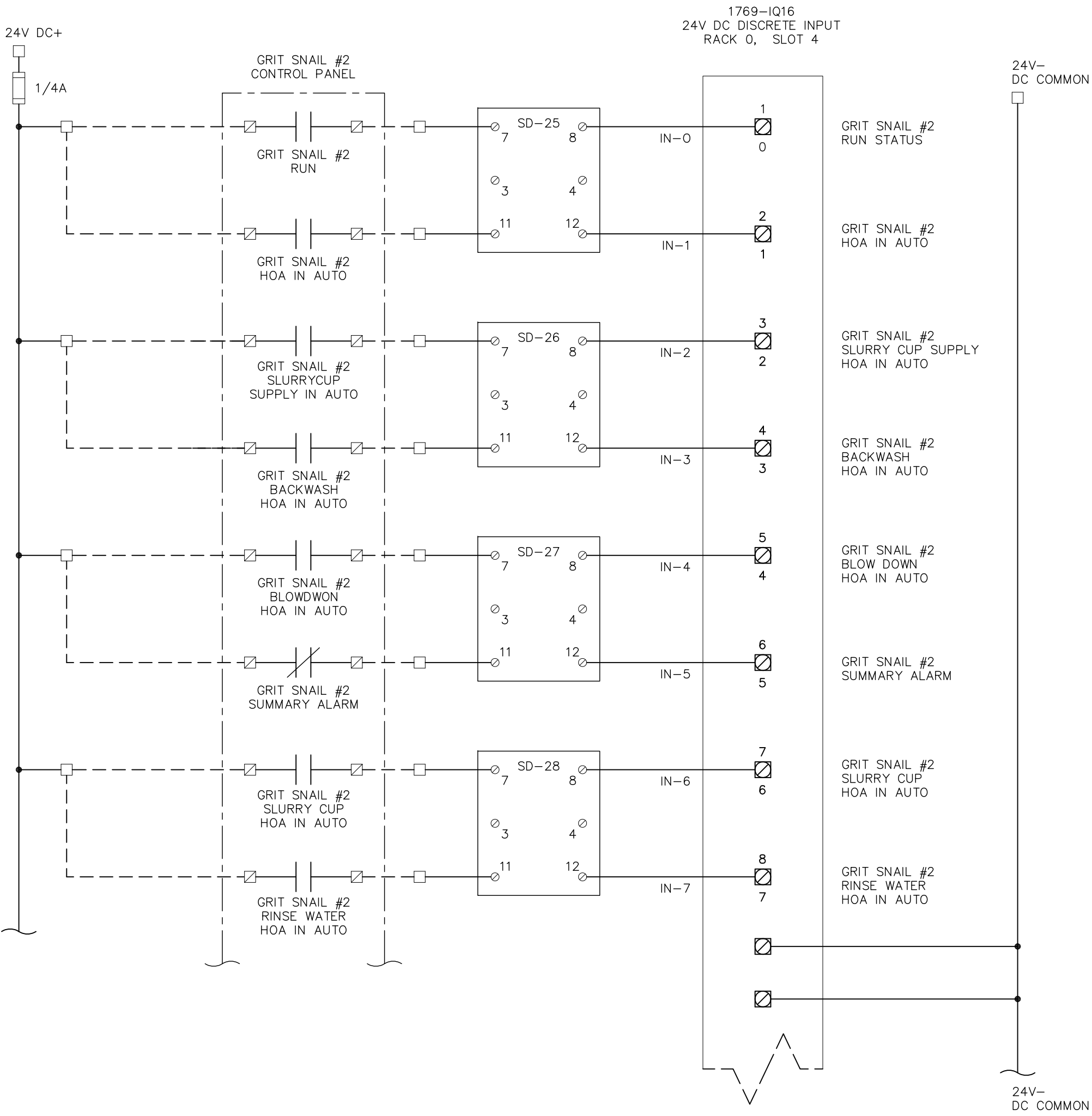
ELECTRICAL AND STORAGE
BUILDING
ELECTRICAL MODIFICATIONS

SHEET NUMBER
HW-E-6

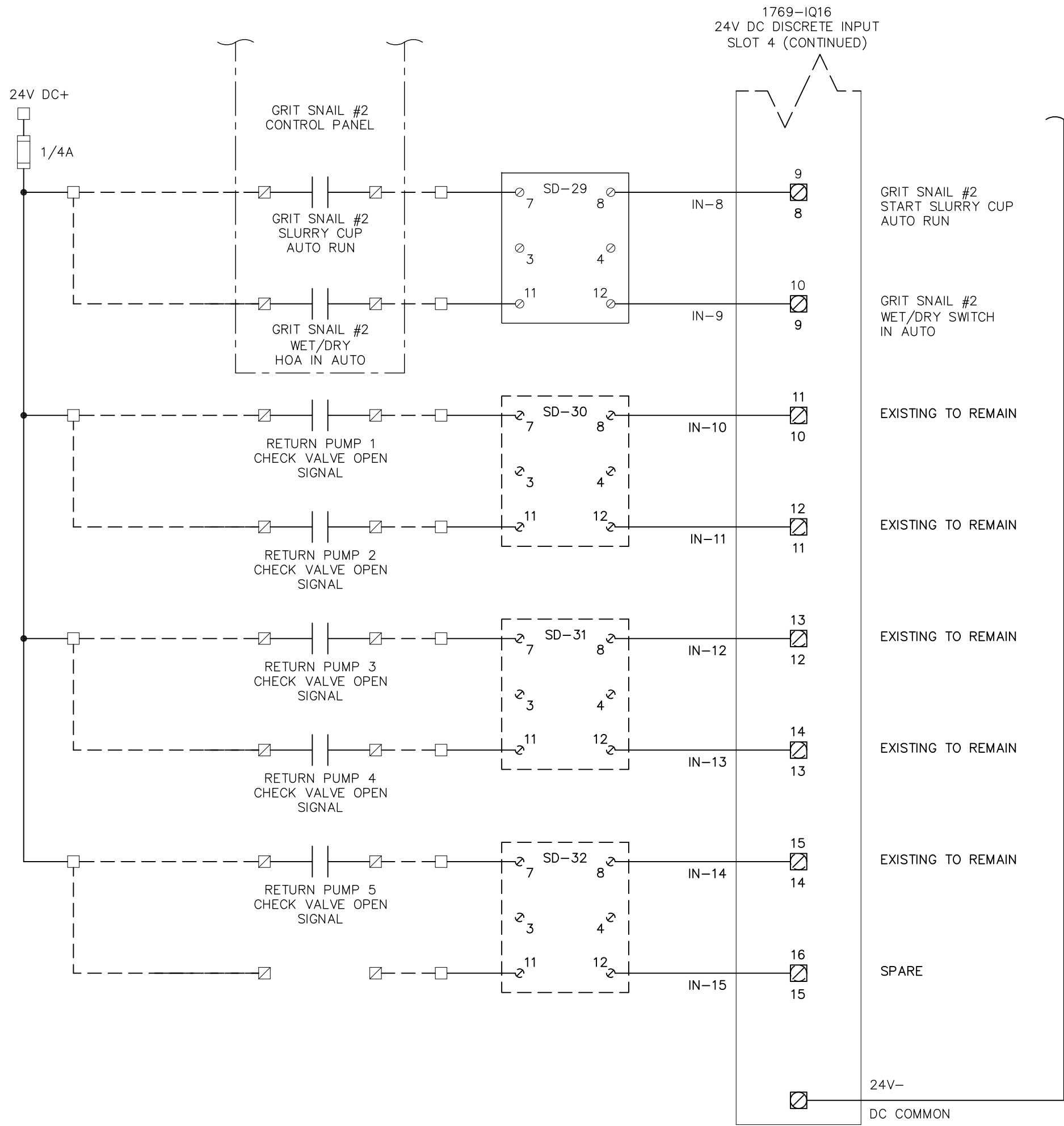
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PLC CONTROL CABINET 'SP-11' ELEVATION
SCALE: NOT TO SCALE
HW-E-5 | HW-I-1



SP-11 DISCRETE INPUT MODULE - RACK 0 : SLOT 4 WIRING DIAGRAM



SP-11 DISCRETE INPUT MODULE - RACK 0 : SLOT 4 WIRING DIAGRAM

KEYED NOTES:

- 1 EXISTING PLC CONTROL CABINET 'SP-11'.
- 2 EXISTING ALLEN BRADLEY COMPACTLOGIX SYSTEM CONSISTING OF 1769-L33ER PROCESSOR, 1769-P44 POWER SUPPLY, 1769-IQ16 24V DC DISCRETE INPUT MODULES, 1769-OB16 24V DC SOURCE OUTPUT MODULE, 1769-IF8 ANALOG INPUT MODULES, 1769-OF4CI ANALOG OUTPUT MODULE AND 1769-ECR RIGHT END CAP. CONTRACTOR SHALL CONNECT NEW GRIT SYSTEM I/O TO EXISTING 24V DC DISCRETE INPUT MODULES IN SLOT 4 AND SLOT 5. REFER ALSO TO SLOT 4, 24V DC DISCRETE INPUT MODULE WIRING DIAGRAM AT RIGHT AND SLOT 5, 24V DC DISCRETE INPUT MODULE WIRING DIAGRAM ON SHEET HW-I-2.
- 3 CONTRACTOR SHALL CONNECT NEW pH METER 4-20mA SIGNAL TO EXISTING ANALOG INPUT MODULE IN SLOT 7. REFER ALSO TO SLOT 4, ANALOG INPUT MODULE WIRING DIAGRAM ON SHEET HW-I-3.

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AND CCC IMPROVEMENTS

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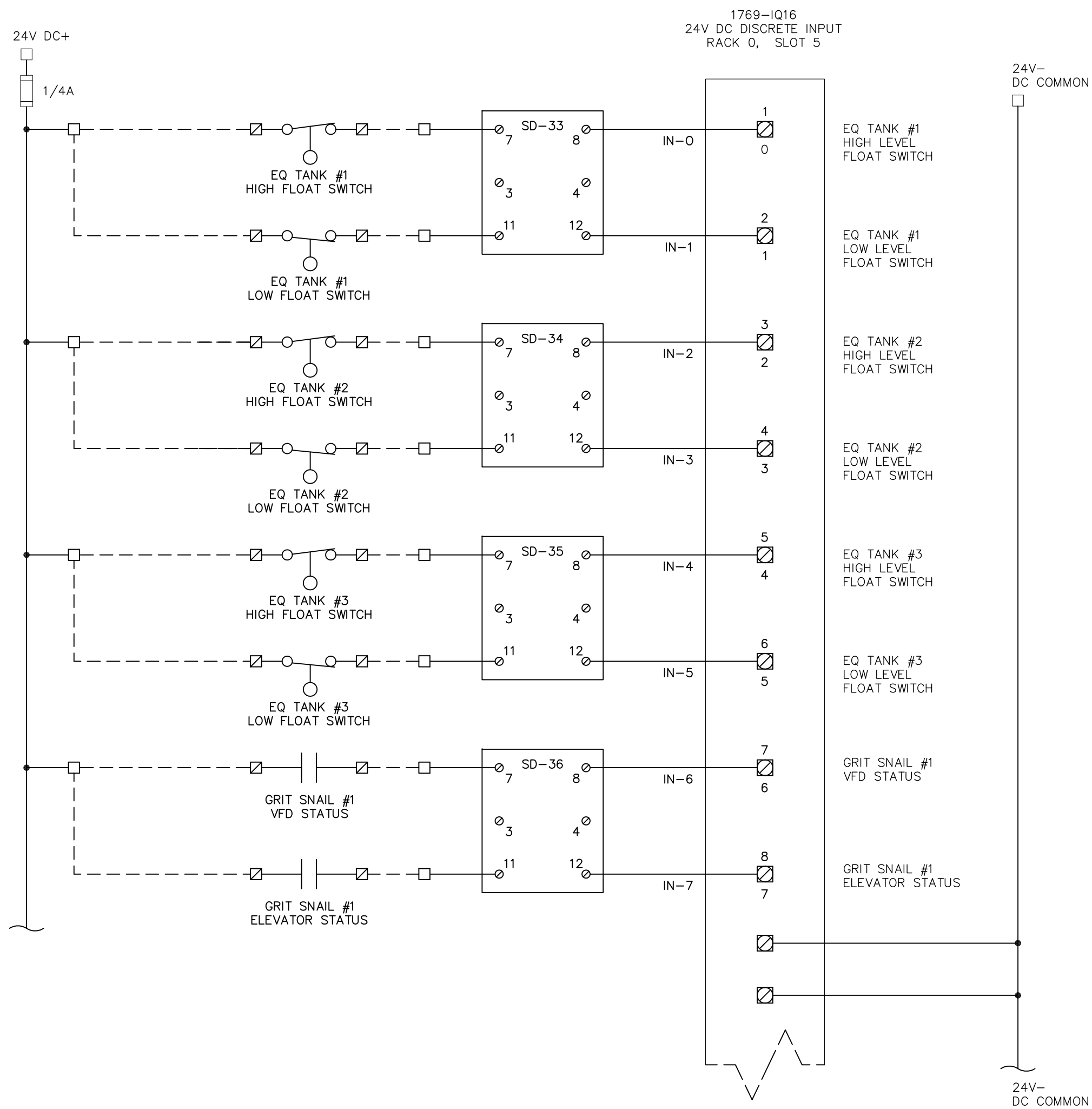
EXISTING PLC CONTROL
CABINET DETAILS AND NEW
HEADWORKS I/O LISTING

SHEET NUMBER

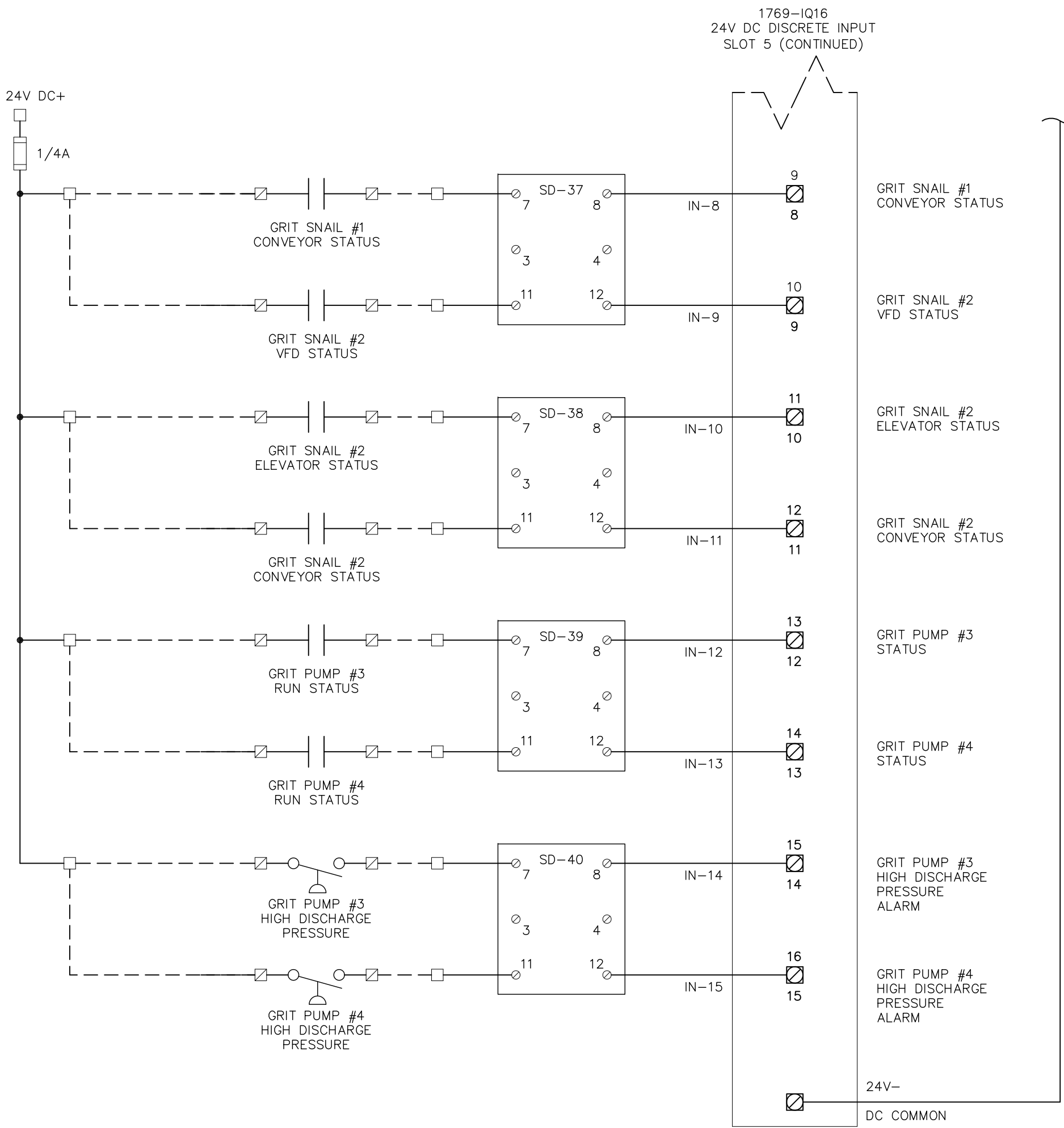
HW-I-1



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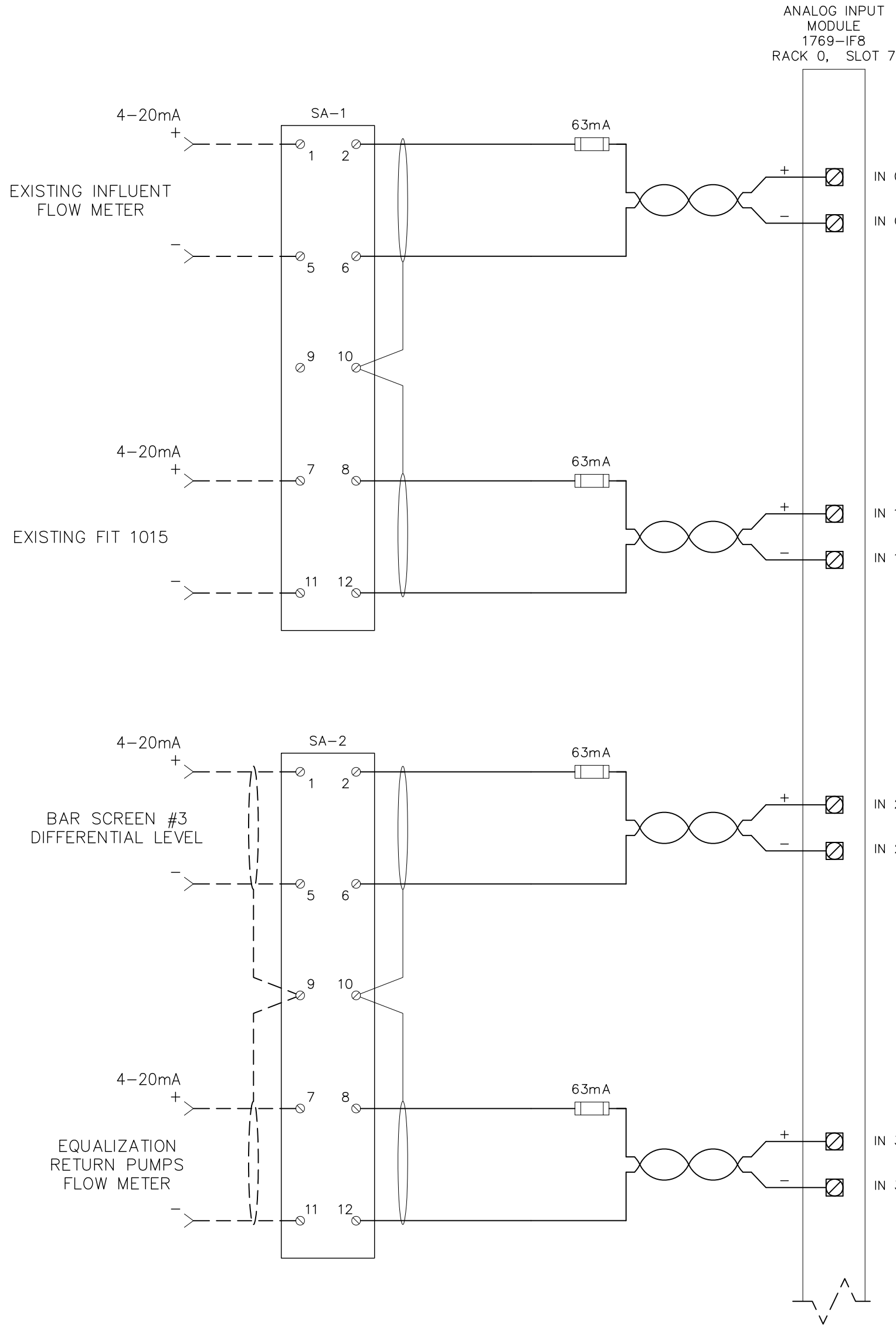
SP-11 DISCRETE INPUT MODULE - RACK 0 : SLOT 5 WIRING DIAGRAM



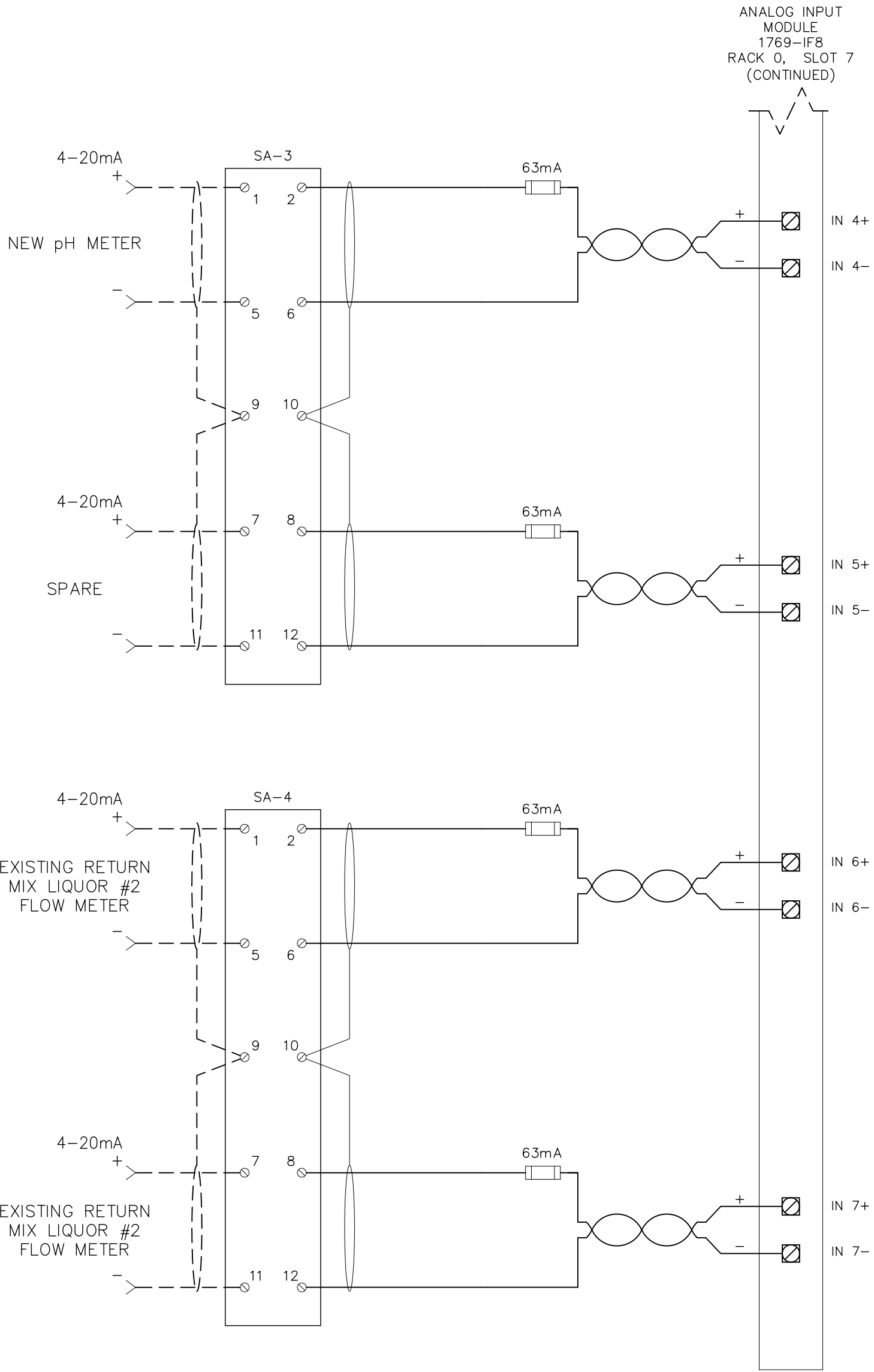
SP-11 DISCRETE INPUT MODULE - RACK 0 : SLOT 5 WIRING DIAGRAM

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SP-11 ANALOG INPUT MODULE - RACK 0 : SLOT 7 WIRING DIAGRAM



SP-11 ANALOG INPUT MODULE - RACK 0 : SLOT 7 WIRING DIAGRAM

LEGEND

- ☐ DENOTES TERMINAL IN 'SP-11'
- DENOTES NEW FIELD WIRING
- ☒ DENOTES TERMINAL ON DEVICE



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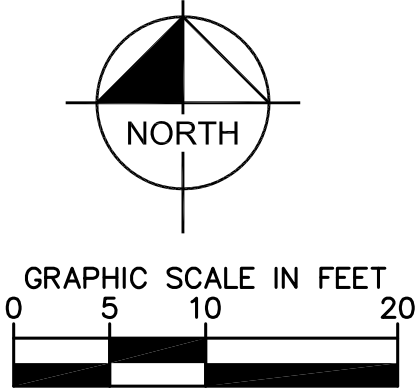
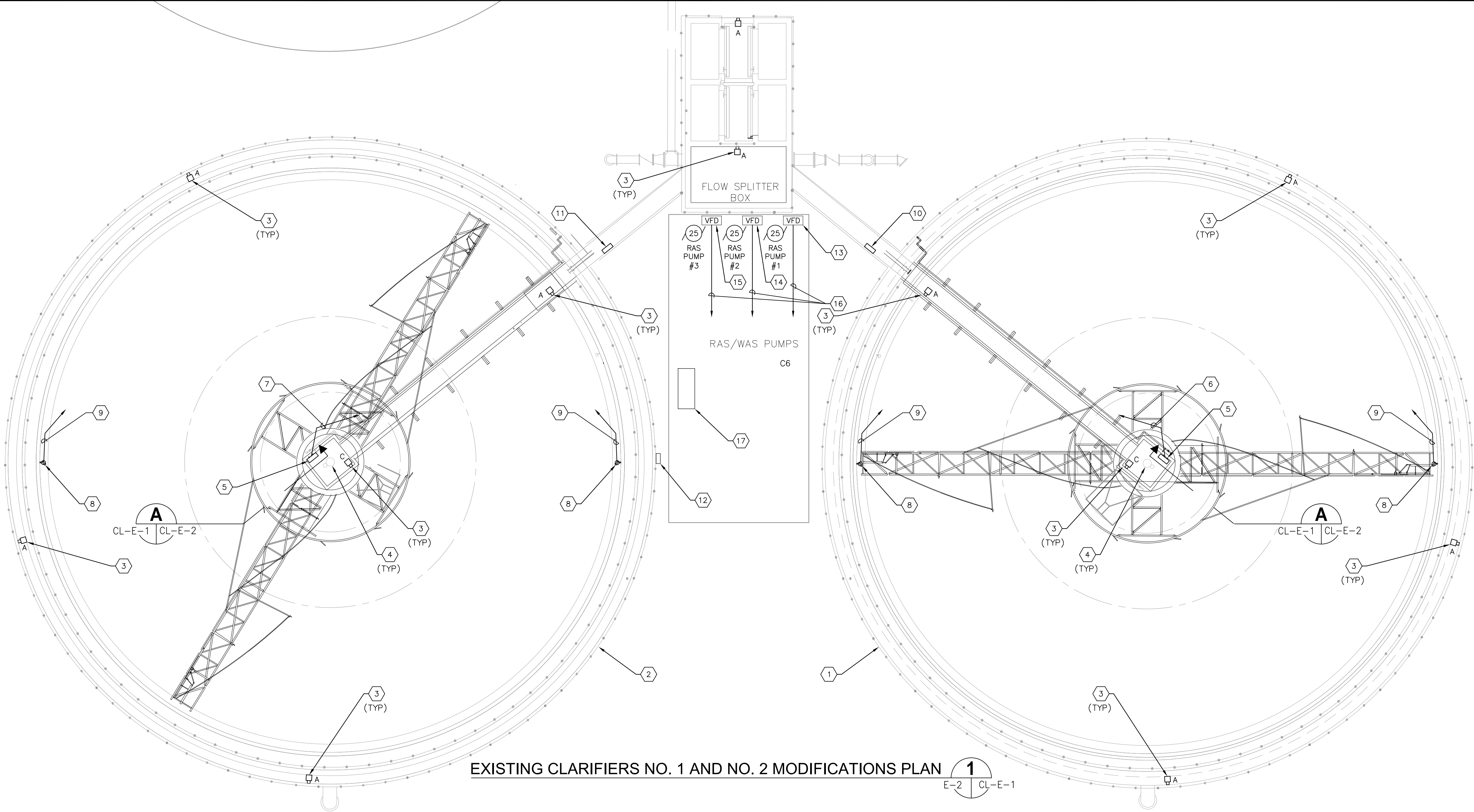
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NEW HEADWORKS
I/O LISTING

SHEET NUMBER

HW-I-3

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GENERAL NOTE:
THE CONTRACTOR SHALL UTILIZE STAINLESS STEEL UNITRUT, STAINLESS STEEL U-BOLTS, ETC. TO MOUNT CLARIFIER CONTROL PANELS, ULTRASONIC CONTROL BOXES, ETC. TO EXISTING HANDRAILS.

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KEYED NOTES:

- 1 EXISTING CLARIFIER NO. 1.

2 EXISTING CLARIFIER NO. 2.

3 EXISTING CLARIFIER LIGHT FIXTURE TO BE REPLACED. FIXTURE POLE TO REMAIN. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER (EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD). REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE.

4 PROPOSED 0.75 HP CLARIFIER DRIVE UNIT.

5 PROPOSED CLARIFIER CONTROL PANEL. REFER TO SHEET CL-E-3 FOR DETAILS. CONTRACTOR SHALL REUSE EXISTING 480V FEEDER FOR CLARIFIER CONTROL PANEL POWER. PROVIDE NEW 3-#12 + 1- #12 GND IN 3/4" C. FROM LOAD SIDE OF EXISTING DISCONNECT.

6 PROVIDE AND INSTALL 22-#14 + 1-#14 GND IN 1" CONDUIT FOR CLARIFIER #1 CONTROL PANEL I/O (COUNT INCLUDES SPARES) TO EXISTING PLC CONTROL PANEL SP-2. C4
- 7 PROVIDE AND INSTALL 22-#14 + 1-#14 GND IN 1" CONDUIT FOR CLARIFIER #2 CONTROL PANEL I/O (COUNT INCLUDES SPARES) TO EXISTING PLC CONTROL PANEL SP-2. C5

8 PROPOSED 25W INDUSTRIAL WET ULTRASONIC TRANSMITTER. REFER TO MECHANICAL PLANS FOR MOUNTING DETAILS.

9 PROVIDE AND INSTALL MANUFACTURER CABLE FROM ULTRASONIC TRANSMITTER TO ULTRASONIC CONTROL BOX IN 1" CONDUIT. CONFIRM CONDUIT SIZE WITH MANUFACTURER.

10 PROVIDE AND INSTALL ULTRASONIC CONTROL BOX. PROVIDE 2-#12 + 1-#12 GND IN 3/4" CONDUIT TO EXISTING PANELBOARD 'LFC'. CONTRACTOR SHALL UTILIZE EXISTING 20A CIRCUIT BREAKER #15 FOR CLARIFIER #1 ULTRASONIC CONTROL BOX. COORDINATE ALL CONNECTIONS WITH MANUFACTURER, BUT IN ALL CASES CONNECTIONS SHALL BE WATERPROOF.
- 11 PROVIDE AND INSTALL ULTRASONIC CONTROL BOX. PROVIDE 2-#12 + 1-#12 GND IN 3/4" CONDUIT TO EXISTING PANELBOARD 'LFC'. CONTRACTOR SHALL UTILIZE EXISTING 20A CIRCUIT BREAKER #17 FOR CLARIFIER #2 ULTRASONIC CONTROL BOX. COORDINATE ALL CONNECTIONS WITH MANUFACTURER, BUT IN ALL CASES CONNECTIONS SHALL BE WATERPROOF.

12 APPROXIMATE LOCATION OF EXISTING PANELBOARD 'LFC'.

13 EXISTING VFD FOR RAS PUMP #1. CONTRACTOR TO PROVIDE AND INSTALL NEW DERAGGER II UNIT IN VFD. REFER ALSO TO SPECIFICATIONS.

14 EXISTING VFD FOR RAS PUMP #2. CONTRACTOR TO PROVIDE AND INSTALL NEW DERAGGER II UNIT IN VFD. REFER ALSO TO SPECIFICATIONS.

15 EXISTING VFD FOR RAS PUMP #3. CONTRACTOR TO PROVIDE AND INSTALL NEW DERAGGER II UNIT IN VFD. REFER ALSO TO SPECIFICATIONS.
- 16 PROVIDE AND INSTALL CAT 6 SHIELDED ETHERNET CABLE IN 1" CONDUIT TO PLC 'SP-2'. CONTRACTOR SHALL VERIFY DERAGGER II POWER REQUIREMENTS WITH MANUFACTURER. IF 120V AC CONTROL POWER IS REQUIRED, CONTRACTOR SHALL PROVIDE AND INSTALL INDIVIDUAL (3 TOTAL) RUNS OF 2-#12 + 1-#12 GROUND IN 3/4" CONDUIT FROM ASSOCIATED VFD TO PANELBOARD 'LFC' FOR DERAGGER POWER. CONTRACTOR SHALL UTILIZE EXISTING 20A SPARE CIRCUIT BREAKERS.

17 APPROXIMATE LOCATION OF EXISTING PLC CONTROL PANEL 'SP-2'. REFER TO NOTES ON MODIFICATIONS REQUIRED FOR CLARIFIER I/O ADDITIONS, EXISTING ALLEN BRADLEY SLC SYSTEM, DERAGGER II ETHERNET REQUIREMENTS, ETC. ON SHEET CL-I-1.

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DRAWN BY JLH
CHECKED BY TDT


**NORTH WRF HEADWORKS, CLARIFIERS,
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MANATEE COUNTY

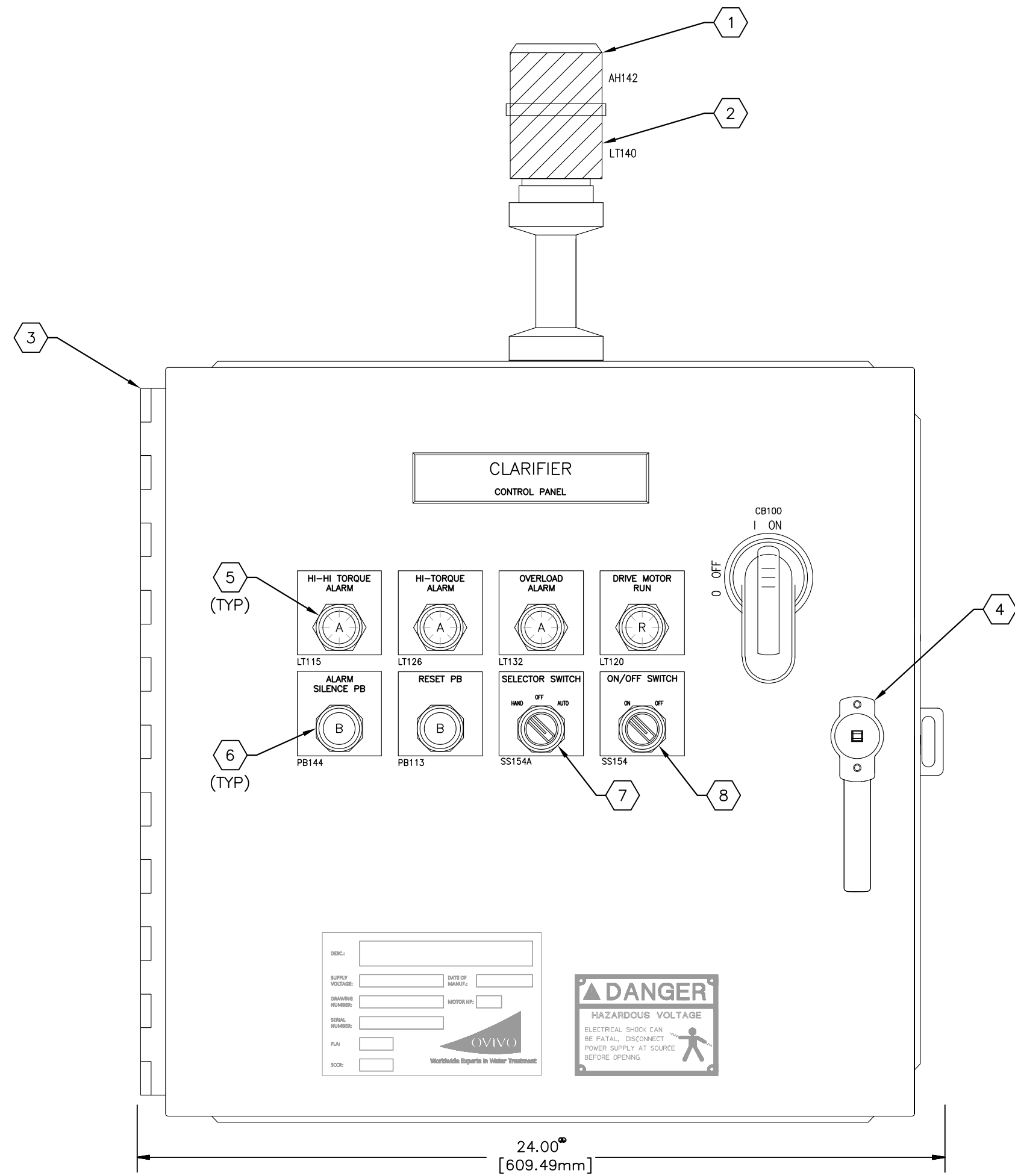
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FL LICENSE NUMBER 47079
FL DATE:

**CLARIFIER NO. 1 & NO. 2
ELECTRICAL PLAN**

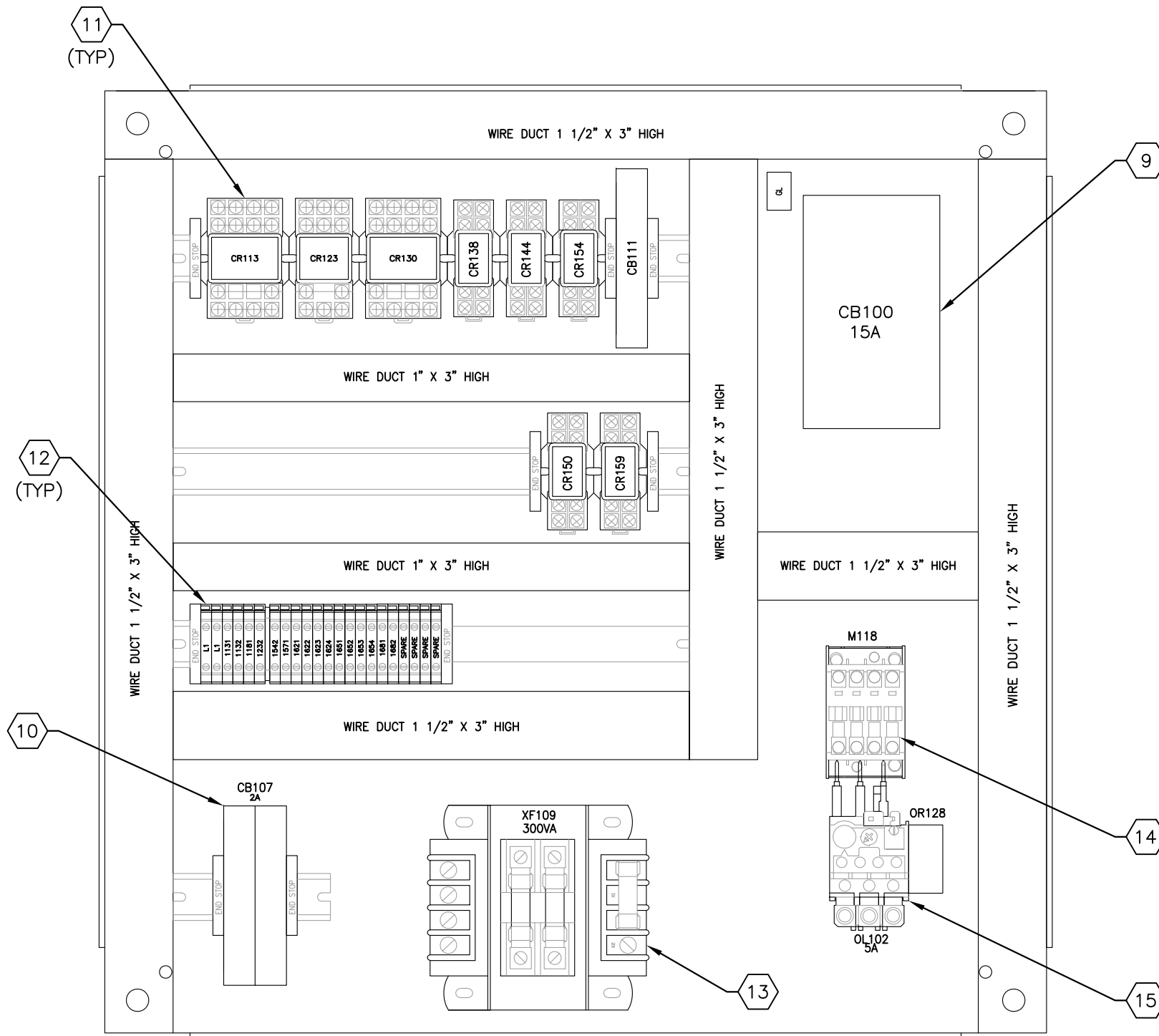
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CL-E-1

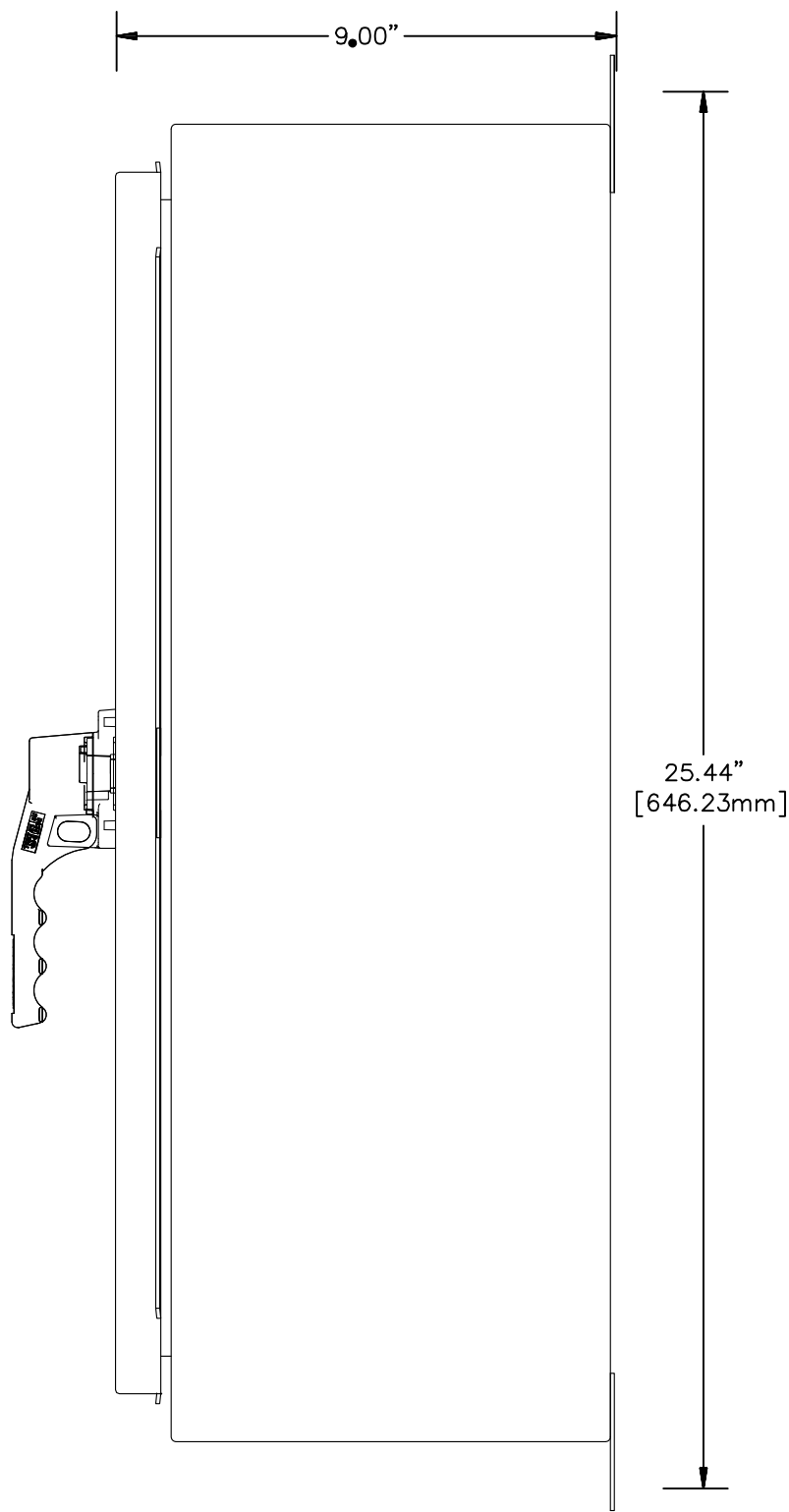
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TYPICAL CLARIFIER CONTROL PANEL
EXTERIOR ELEVATION
SCALE: NOT TO SCALE



TYPICAL CLARIFIER CONTROL PANEL
INTERIOR ELEVATION
SCALE: NOT TO SCALE



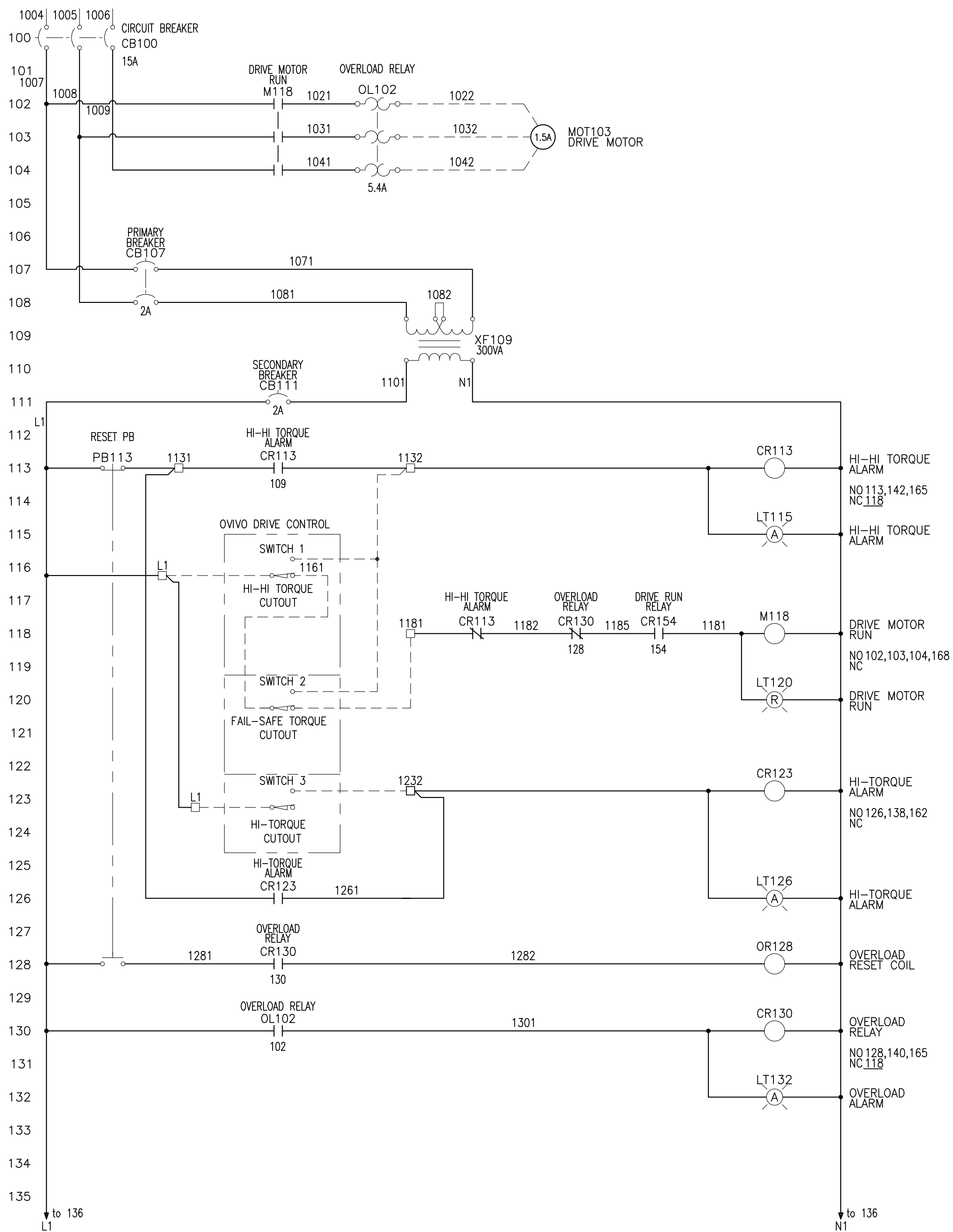
TYPICAL CLARIFIER CONTROL PANEL
SIDE ELEVATION
SCALE: NOT TO SCALE

KEYED NOTES:

- | | | | |
|---|---|----|--|
| 1 | PULSING ALARM HORN. | 9 | 600V, 15A, 3-POLE 15 AMPERE CIRCUIT BREAKER. |
| 2 | FLASHING RED LIGHT. | 10 | 2-POLE MINITURE MOLDED CASE CIRCUIT BREAKER. |
| 3 | CONTINUOUS PIANO HINGE. | 11 | CONTROL RELAY WITH PUSH-TO-TEST BUTTON, PILOT LIGHT AND REALY BASE (TYP). POLE VARY. |
| 4 | METAL PADLOCKING HANDLE. | 12 | TERMINAL BLOCK (TYP). |
| 5 | NEMA 4X PILOT LIGHT (TYP). | 13 | 480-120V CONTROL POWER TRANSFORMER. |
| 6 | NEMA 4X MOMENTARY PUSHBUTTON (TYP). | 14 | A-LINE CONTACTOR, AC OPERATED WITH AUXILIARY CONTACT. |
| 7 | NEMA 4X MAINTAINED, 3-POSITION SELECTOR SWITCH. | 15 | OVERLOAD COIL. |
| 8 | NEMA 4X MAINTAINED, 2-POSITION SELECTOR SWITCH. | | |

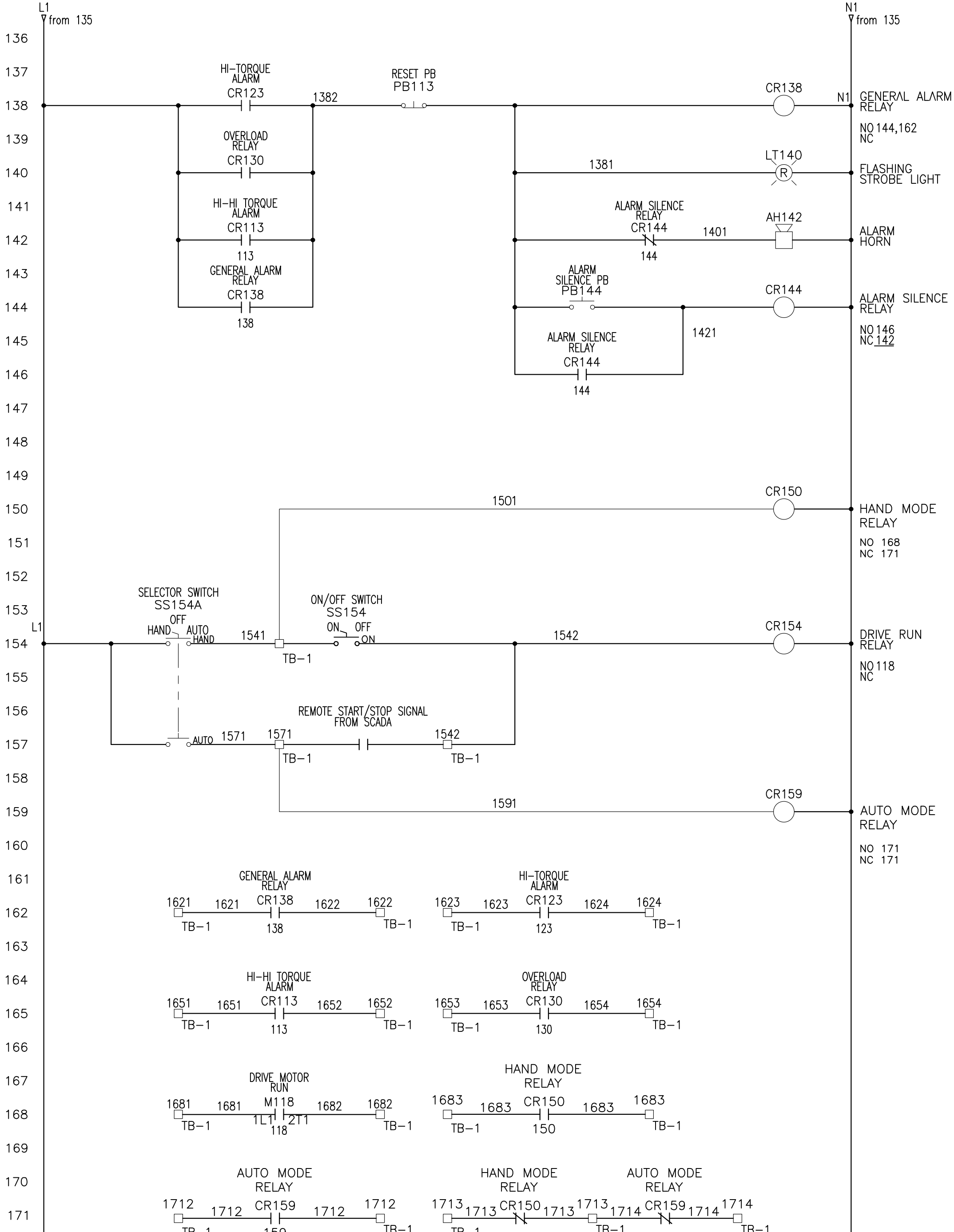
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WIRING LEGEND:

- FIELD WIRING (NOT BY OVIVO)
———— INTERNAL WIRING (BY OVIVO)



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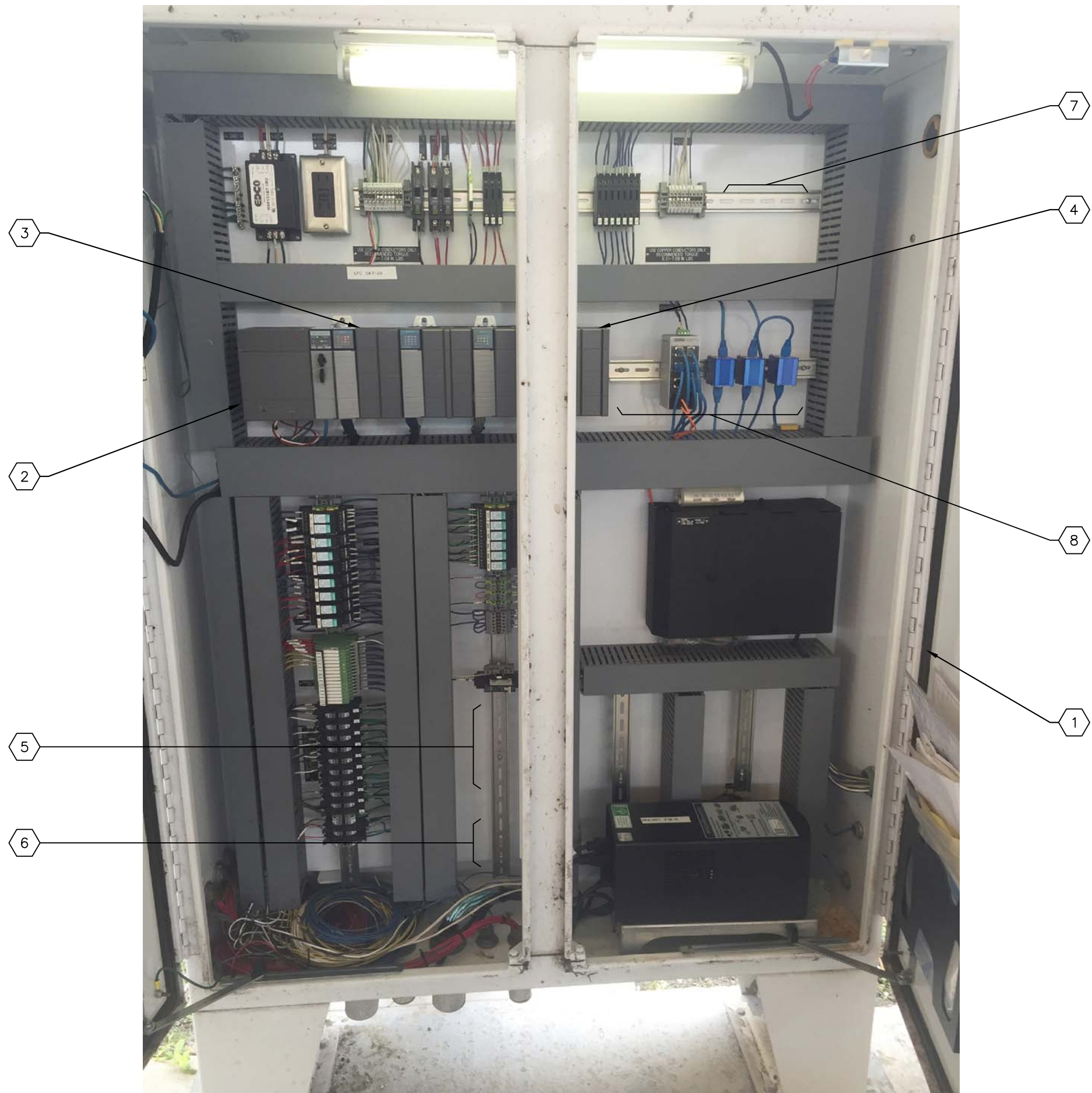
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TYPICAL CLARIFIER
CONTROL PANEL
WIRING DIAGRAM

SHEET NUMBER
CL-E-3

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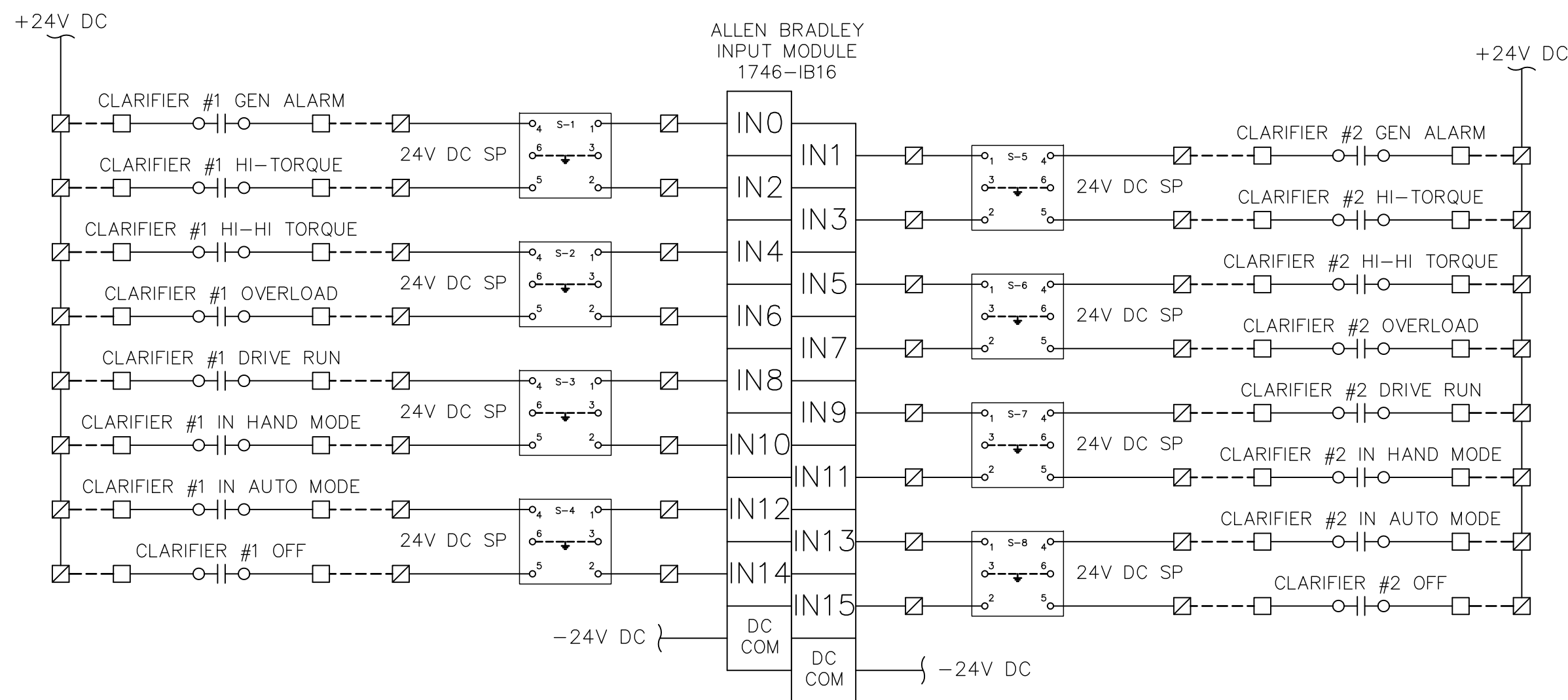


KEYED NOTES:

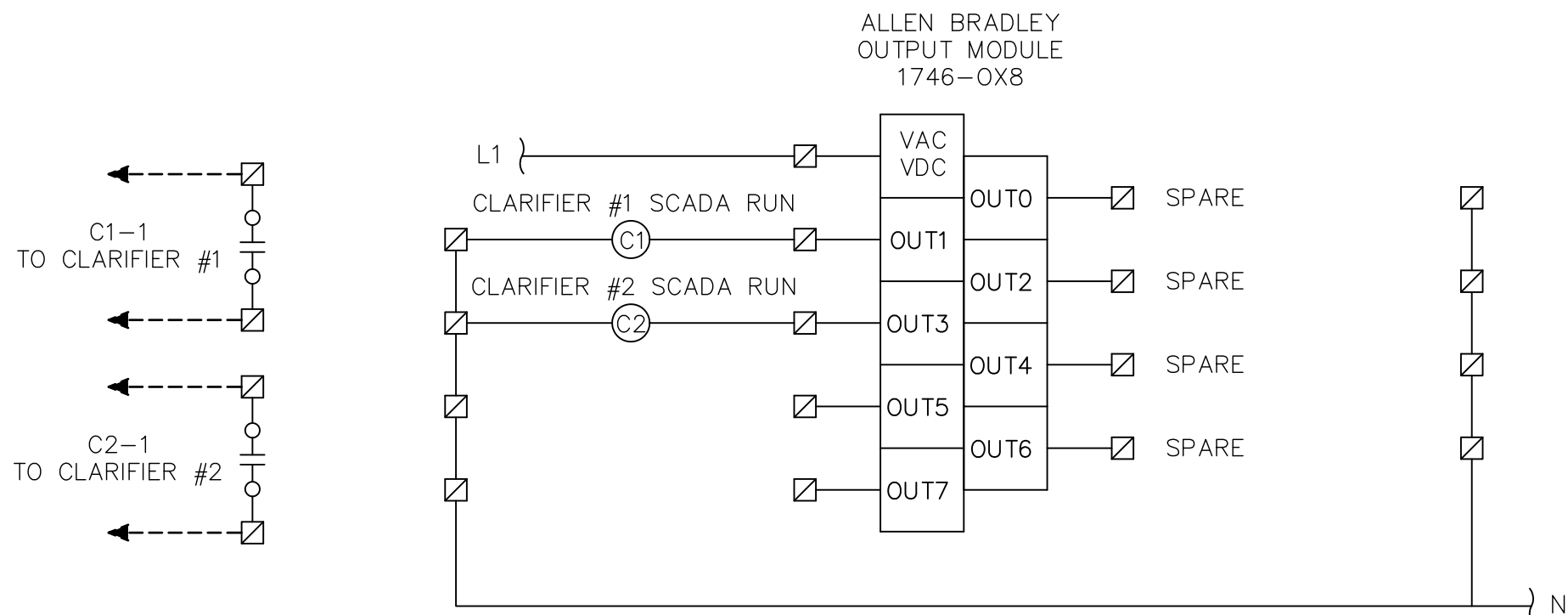
1. INTERIOR VIEW OF EXISTING PLC CABINET 'SP-2'.
2. EXISTING ALLEN BRADLEY SLC RACK.
3. CONTRACTOR TO PROVIDE AND INSTALL ALLEN BRADLEY 24V DC DISCRETE INPUT MODULE (1746-IB16) IN SPARE SLOT INDICATED. REFER TO WIRING DIAGRAM ON THIS SHEET FOR REQUIRED INPUTS.
4. CONTRACTOR TO PROVIDE AND INSTALL ALLEN BRADLEY OUTPUT MODULE (1746-0X8) IN SPARE SLOT INDICATED. REFER TO WIRING DIAGRAM ON THIS SHEET FOR REQUIRED OUTPUTS.
5. CONTRACTOR TO UTILIZE EXISTING DIN-RAIL SPACE TO PROVIDE AND INSTALL 24V DC SURGE PROTECTION DEVICES FOR NEW INPUTS. SURGE PROTECTION DEVICES SHALL BE PHOENIX CONTACT 2838228.
6. CONTRACTOR TO UTILIZE EXISTING DIN-RAIL SPACE TO PROVIDE AND INSTALL OUTPUT INTERPOSING RELAYS. RELAYS TO BE SQUARE-D CLASS 8501, TYPE R WITH 120V DC COILS.
7. CONTRACTOR TO UTILIZE EXISTING DIN-RAIL SPACE TO PROVIDE AND INSTALL NEW 24V DC POWER SUPPLY WITH 1A OUTPUT. PHOENIX CONTACT 2938840. CONTRACTOR TO PROVIDE AND INSTALL APPROPRIATE INPUT AND OUTPUT FUSING. NEW 24V DC POWER SUPPLY TO BE UTILIZED TO POWER NEW ALLEN BRADLEY STRATIX ETHERNET SWITCH IN KEYED NOTE #8.
8. CONTRACTOR TO REORGANIZE EXISTING DIN-RAIL SPACE TO PROVIDE AND INSTALL NEW ALLEN BRADLEY STRATIX ETHERNET SWITCH. ETHERNET SWITCH TO BE 5-PORT, ALLEN BRADLEY 1783-USST FOR ETHERNET CONNECTION OF DERAGGER II EQUIPMENT. CONTRACTOR TO PROVIDE AND INSTALL THREE (3) ETHERNET SURGE PROTECTION DEVICES, CITEL M78-CAT6S.

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE ALL ANCILLARY DEVICES OR COMPONENTS REQUIRED INCLUDING FUSES, TERMINAL BLOCKS, END CAPS, CONDUCTORS, ETC. TO ACCOMMODATE THE INTENDED I/O AND ETHERNET CONNECTIONS.



PLC - DISCRETE INPUT CARD WIRING DIAGRAM



PLC - DISCRETE OUTPUT CARD WIRING DIAGRAM

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PLC CONTROL PANEL SP-2
I/O LISTINGS

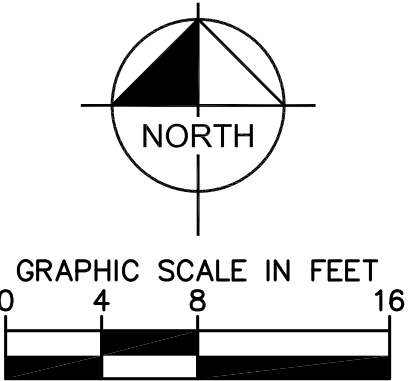
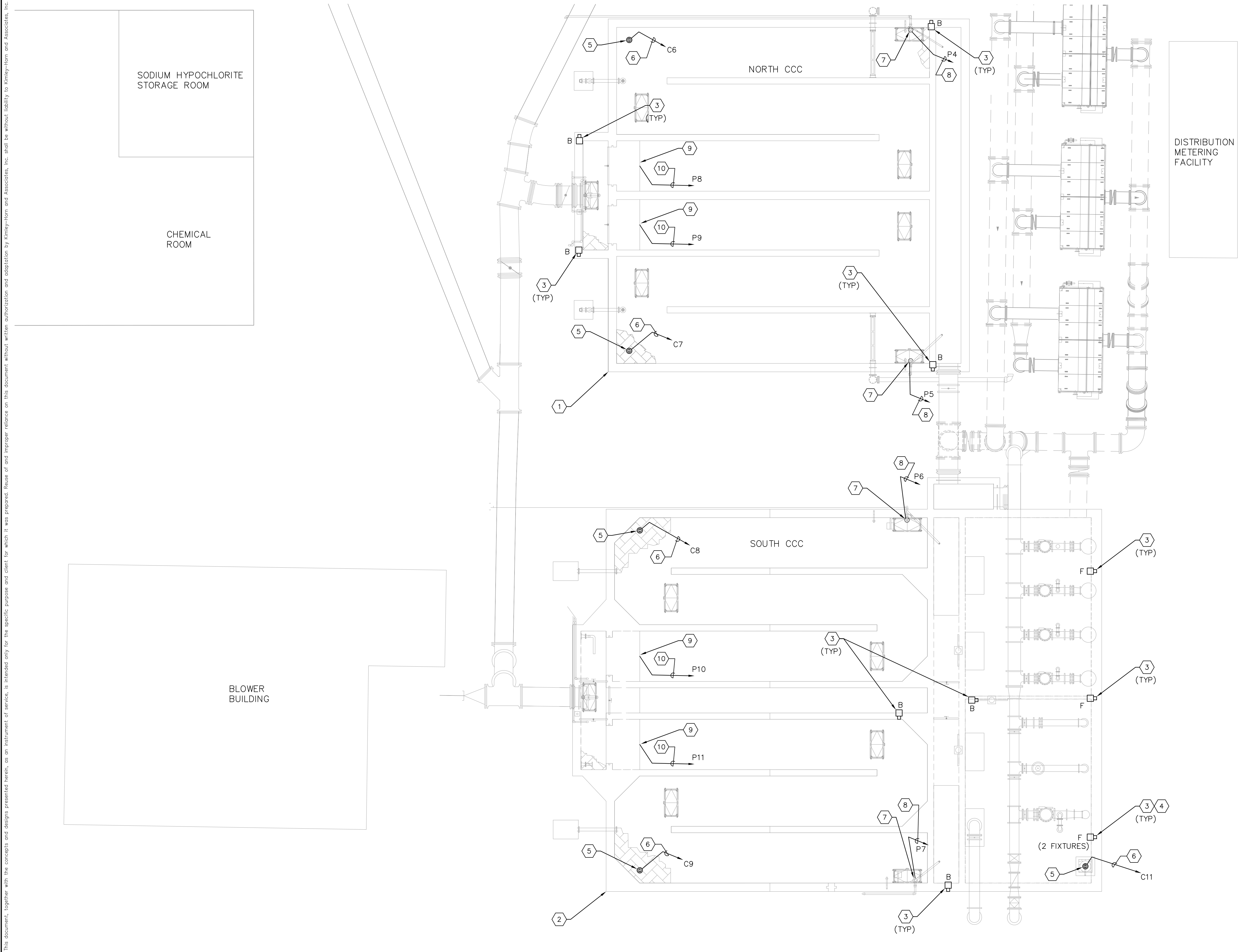
SHEET NUMBER

CL-I-1

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KEYED NOTES:

- EXISTING NORTH CHLORINE CONTACT CHAMBER.
- EXISTING SOUTH CHLORINE CONTACT CHAMBER.
- EXISTING CCC LIGHT FIXTURE TO BE REPLACED. FIXTURE POLE TO REMAIN. CONTRACTOR TO REUSE EXISTING CONDUCTORS AND CONDUIT FOR FIXTURE POWER. (EXISTING CIRCUIT(S) FROM EXISTING PANELBOARD). REFER TO SHEET E-3 FOR LIGHTING FIXTURE SCHEDULE.
- PROVIDE AND INSTALL AND ADDITIONAL FIXTURE TYPE 'F' ON SIDE OF EXISTING POLE TO MATCH EXISTING CONFIGURATION.
- PROVIDE AND INSTALL NEW LEVEL TRANSDUCER. REFER TO MECHANICAL PLANS FOR SUPPORT DETAILS.
- PROVIDE AND INSTALL 2/C-#16 TWISTED SHIELDED CONDUCTOR IN 1" CONDUIT FROM ULTRASONIC TRANSMITTER TO EXISTING PLC CONTROL PANEL SP-4 IN ELECTRICAL BUILDING #1. REFER TO SHEET CC-E-2 FOR WORK REQUIRED IN ELECTRICAL BUILDING #1.
- PROVIDE AND INSTALL ELECTRICAL CONNECTIONS TO NEW SUBMERSIBLE PUMP.
- PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT TO ELECTRICAL PANELBOARD 'LE-A' IN ELECTRICAL BUILDING #1. REFER TO SHEET CC-E-2 FOR WORK REQUIRED IN ELECTRICAL BUILDING #1.
- PROVIDE AND INSTALL MIXER CONTROL PANEL ON STAINLESS STEEL STANCHION.
- PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4" CONDUIT TO 'MCC-3' IN ELECTRICAL BUILDING #1. REFER TO SHEET CC-E-2 FOR WORK REQUIRED IN ELECTRICAL BUILDING #1.



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**Manatee
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FLORIDA**

**NORTH WRF HEADWORKS, CLARIFIERS,
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MANATEE COUNTY

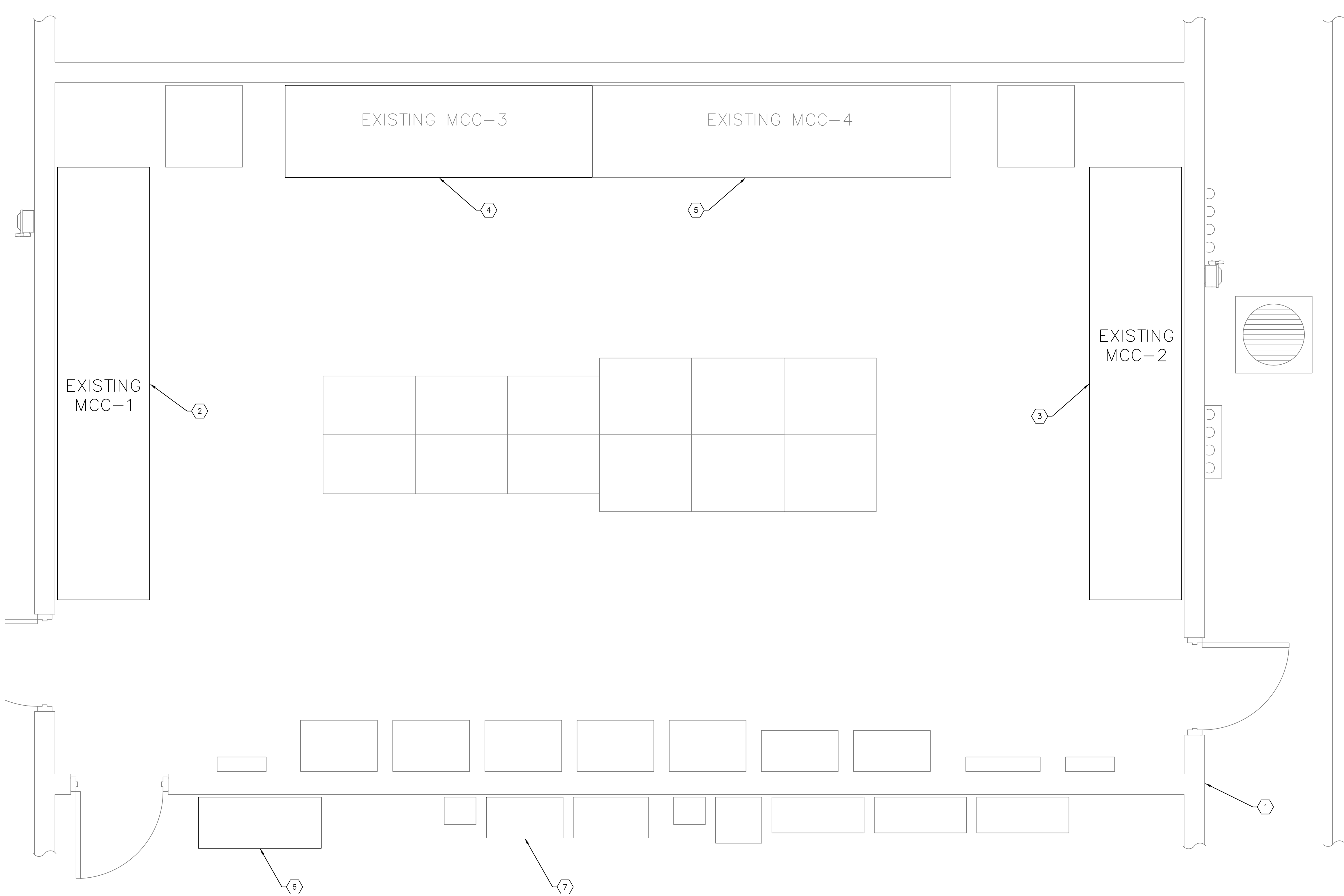
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FL LICENSE NUMBER 47079
FL DATE:

CCC ELECTRICAL SITE PLAN

SHEET NUMBER

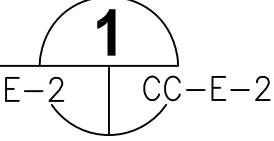
CC-E-1



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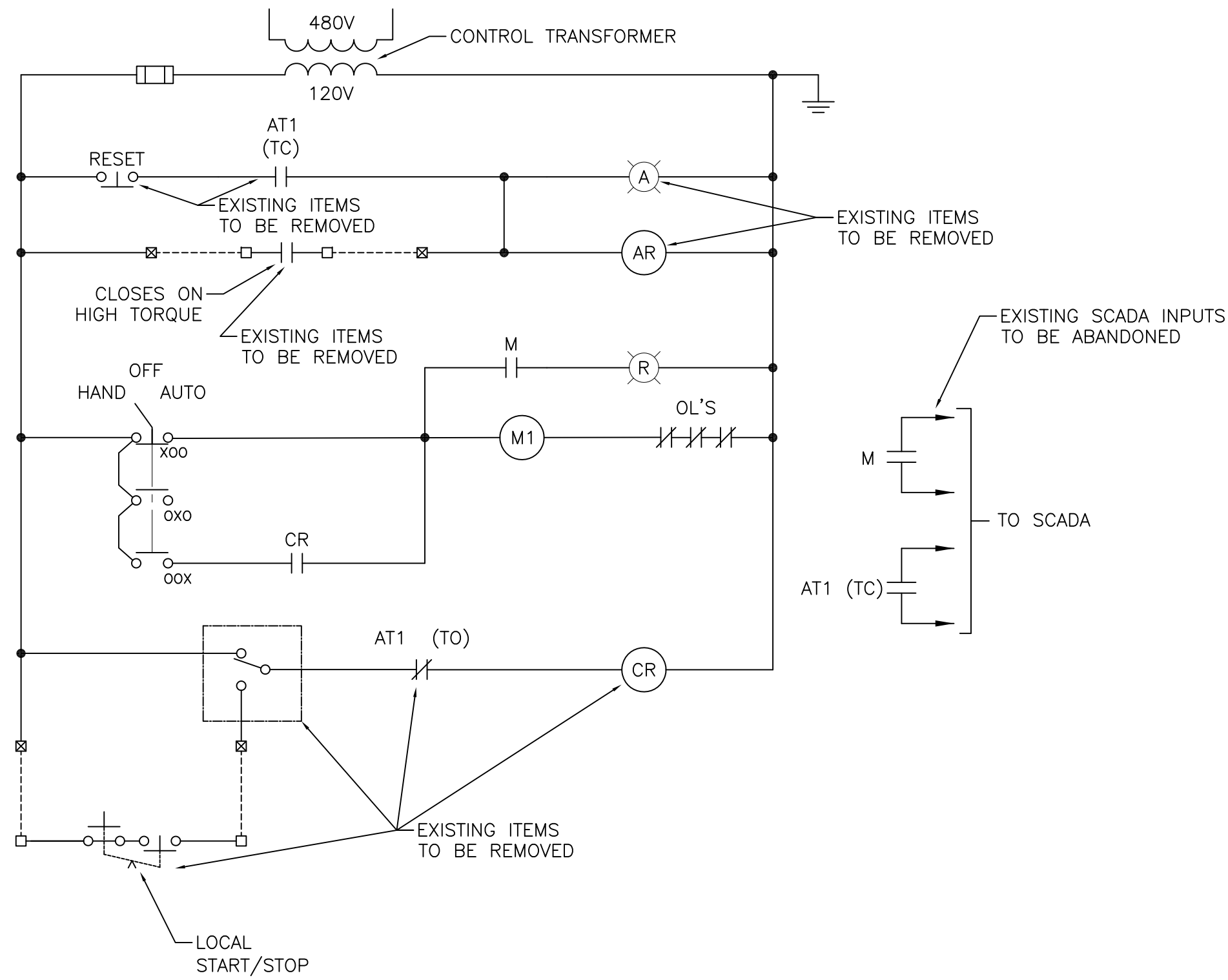
- KEYED NOTES:
- 1 EXISTING ELECTRICAL BUILDING No. 1.
 - 2 EXISTING MOTOR CONTROL CENTER 'MCC-1'. REFER TO SHEET CC-E-3 FOR MODIFICATIONS REQUIRED FOR CLARIFIER #1 STARTER.
 - 3 EXISTING MOTOR CONTROL CENTER 'MCC-2'. REFER TO SHEET CC-E-3 FOR MODIFICATIONS REQUIRED FOR CLARIFIER #2 STARTER.
 - 4 EXISTING MOTOR CONTROL CENTER 'MCC-3'. CONTRACTOR SHALL PROVIDE AND INSTALL FOUR (4) 600V, 15A, 3-POLE CIRCUIT BREAKERS FOR SUBMERSIBLE MIXER 480V FEEDERS. CURRENTLY THERE ARE MULTIPLE CIRCUIT BREAKERS MARK AS SPARE WITHIN 'MCC- 3'. CIRCUIT BREAKERS TO BE SQUARE-D TYPE AND SHALL MATCH EXISTING IN AIC RATING. CONTRACTOR SHALL PROVIDE MODIFICATIONS AS REQUIRED TO INSURE PROPER OPERATION OF THE THROUGH-DOOR CIRCUIT BREAKER OPERATOR. ANY BUCKET UTILIZED WHICH CURRENTLY HAS PUSHBUTTON, SELECTOR SWITCHES, PILOT LIGHTS, ETC. SHALL HAVE SUCH DEVICES REMOVED AND ALL HOLES CREATED BY DEVICE REMOVAL COVED BY 1/4" ALUMINUM. COORDINATE WITH MANATEE COUNTY FOR ANY PREFERRED LOCATIONS TO BE UTILIZED.
 - 5 EXISTING MOTOR CONTROL CENTER 'MCC-4'. NO WORK REQUIRED.
 - 6 APPROXIMATE LOCATION OF EXISTING PLC CONTROL PANEL 'SP-4'. EXISTING ALLEN BRADLEY SLC SYSTEM. CONTRACTOR SHALL PROVIDE AND INSTALL ALLEN BRADLEY ANALOG INPUT MODULE (1746-1746-NI8) AND ALLEN BRADLEY OUTPUT MODULE (1746-0X8). CONTRACTOR SHALL PROVIDE SURGE PROTECTION DEVICES (TO MATCH EXISTING), INTERPOSING RELAYS AND ALL ANCILLARY DEVICES/COMPONENTS AS REQUIRED FOR PROPER OPERATION. REFER TO SHEET CC-I-1 FOR NEW I/O REQUIRED FOR SP-4.
 - 7 APPROXIMATE LOCATION OF EXISTING PANELBOARD 'LE-A'. CONTRACTOR SHALL PROVIDE AND INSTALL FOUR (4) 120V, 15A, SINGLE-POLE CIRCUIT BREAKERS FOR SUBMERSIBLE PUMP 120V POWER. SQUARE-D TYPE QOB 115.

ELECTRICAL BUILDING #1 MODIFICATIONS PLAN
SCALE : 1/2" = 1'-0"

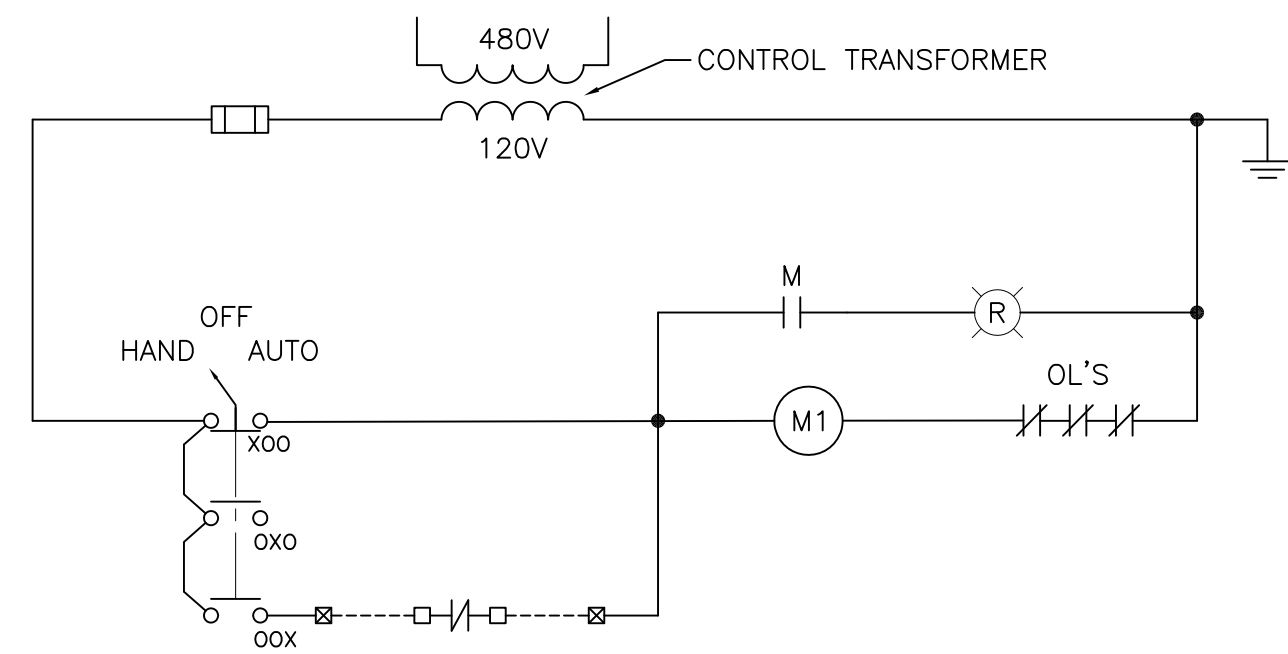


				<div><p>© 2018 KIMLEY-HORN AND ASSOCIATES, INC. 655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602 PHONE: 813-620-1460 WWW.KIMLEY-HORN.COM CA 00000696</p></div>	<div><div>KHA PROJECT 148400021</div><div>DATE AUGUST 2019</div><div>SCALE AS SHOWN</div><div>DESIGNED BY TDT</div><div>DRAWN BY JLH</div><div>CHECKED BY TDT</div></div>	<div><p>NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS</p><p>MANATEE COUNTY</p></div>	<div><div>LICENSED PROFESSIONAL</div><div>TIMOTHY THOMAS, P.E.</div><div>FL LICENSE NUMBER 47079</div></div>	<div>ELECTRICAL BUILDING No. 1 FLOOR PLAN</div>	<div>SHEET NUMBER CC-E-2</div>
No.	REVISIONS	DATE	BY			FL	DATE:		

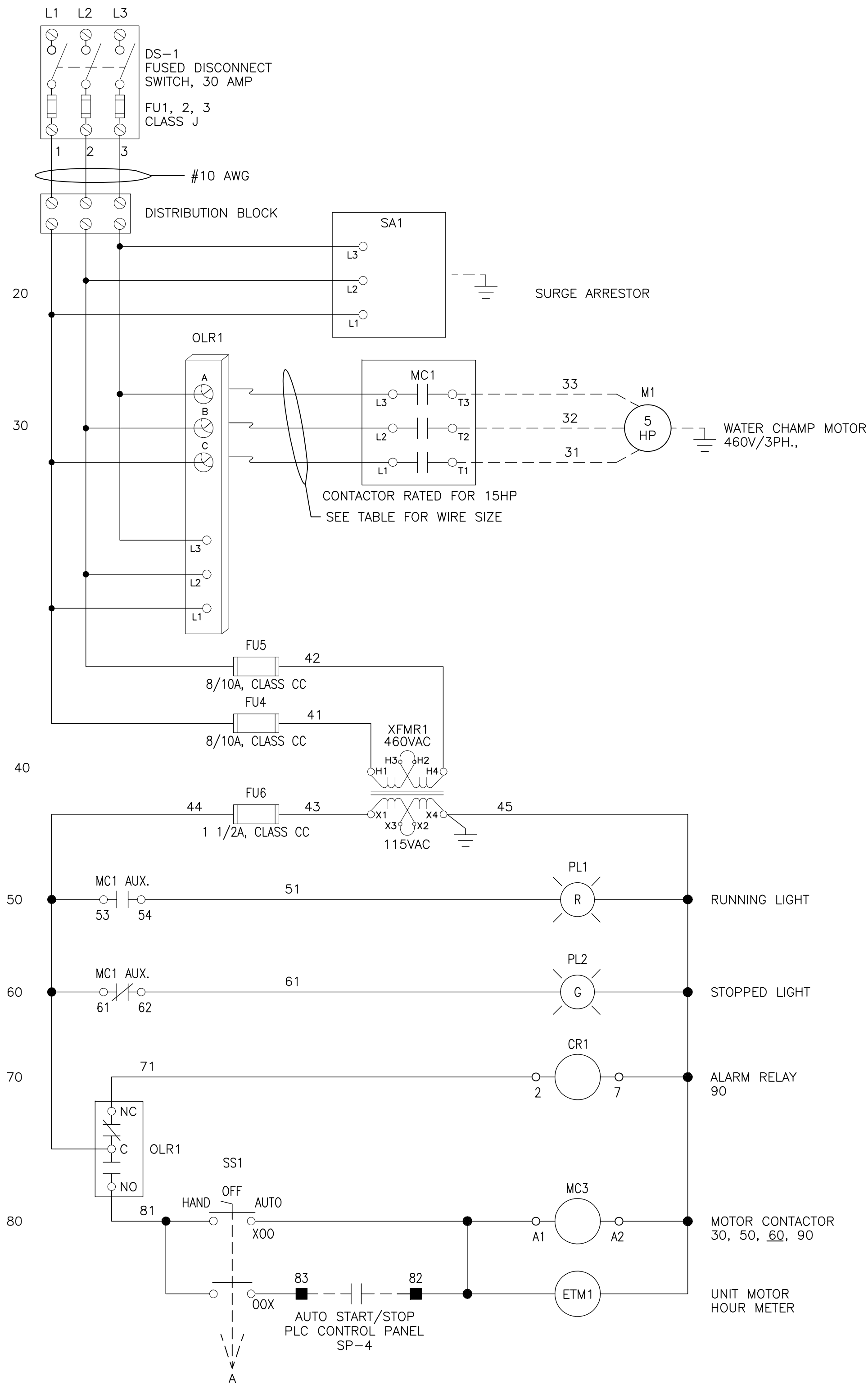
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TYPICAL EXISTING CLARIFIER MOTOR WIRING DIAGRAM



TYPICAL PROPOSED CLARIFIER MOTOR WIRING DIAGRAM



TYPICAL MIXER MOTOR WIRING DIAGRAM

No.	REVISIONS	DATE	BY

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KHA PROJECT	148400021
DATE	AUGUST 2019
SCALE	AS SHOWN
DESIGNED BY	TDT
DRAWN BY	JLH
CHECKED BY	TDT


**NORTH WRF HEADWORKS, CLARIFIERS,
AND CCC IMPROVEMENTS**
MANATEE COUNTY

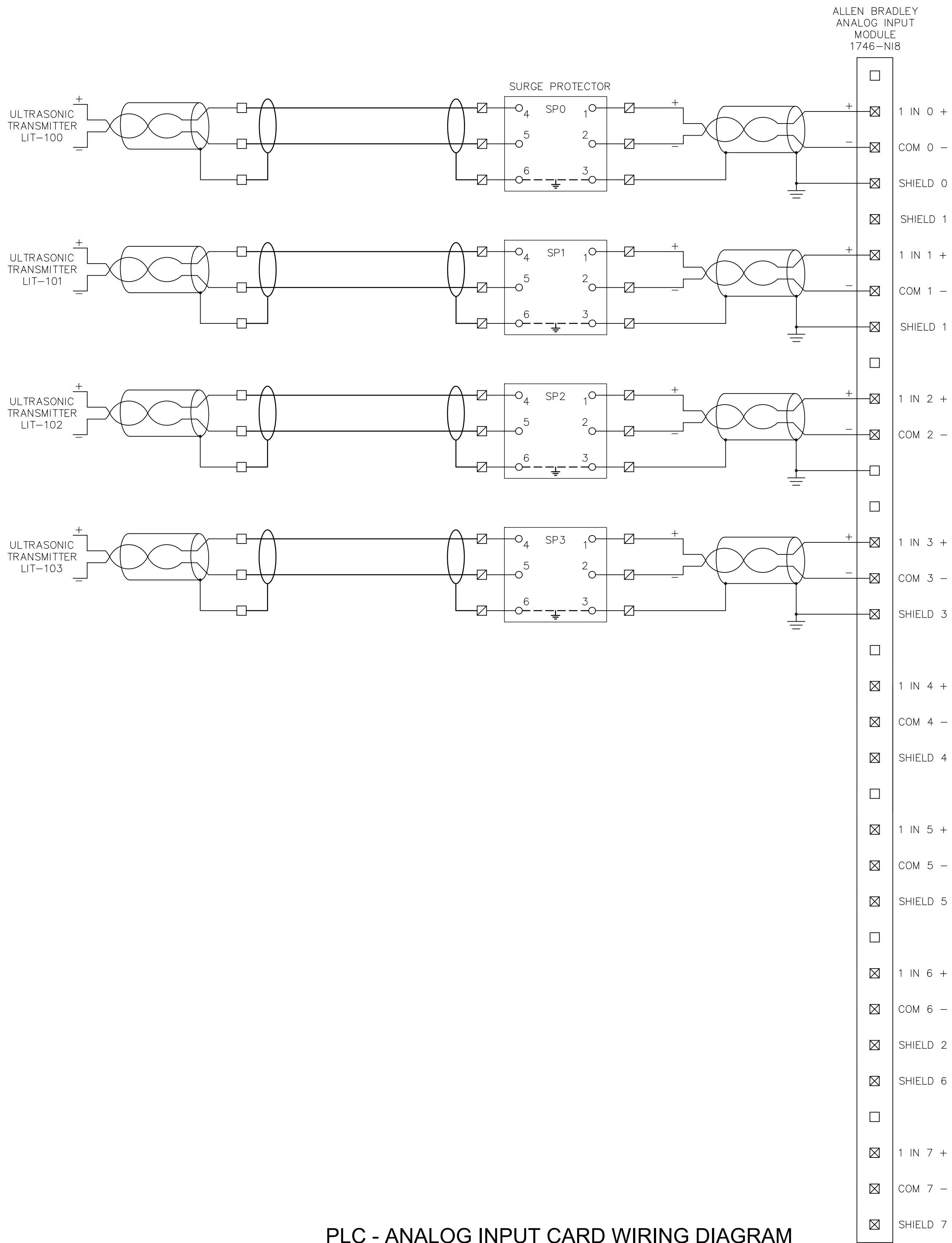
LICENSED PROFESSIONAL
TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER
47079
DATE:

MOTOR WIRING DIAGRAMS

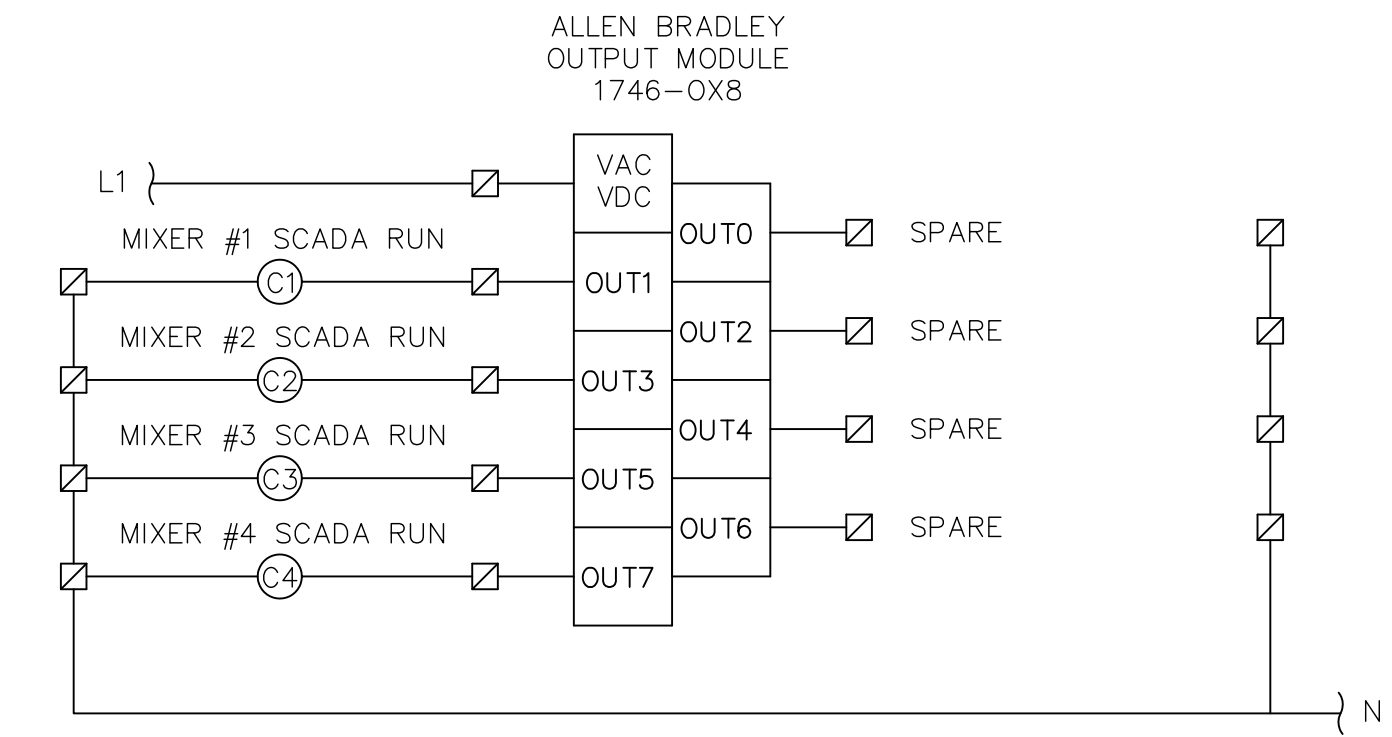
SHEET NUMBER

CC-E-3

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PLC - ANALOG INPUT CARD WIRING DIAGRAM



PLC - DISCRETE OUTPUT CARD WIRING DIAGRAM

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	DATE AUGUST 2019
	SCALE AS SHOWN
	DESIGNED BY TDT
	DRAWN BY JLH
	CHECKED BY TDT

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	FL DATE:

PLC CONTROL PANEL SP-4 I/O LISTINGS	SHEET NUMBER CC-I-1