

CONSTRUCTION PLANS FOR NWRP HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS

MANATEE COUNTY, FLORIDA

SEPTEMBER 2019

MANATEE COUNTY PROJECT #6091380/6091480/6091580

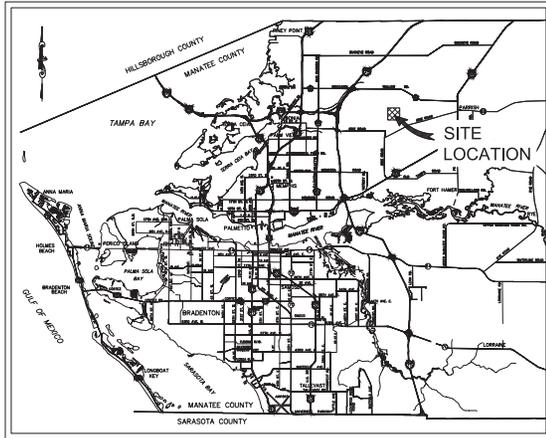


PROJECT TEAM:

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BRADENTON, FL 34208
CONTACT: TONY RUSSO, P.E.
941-708-7450 EXT. 7349

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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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NO.	REVISIONS	DATE	BY

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	KHA PROJECT NO. 148400021
W. WADE WOOD, P.E. FLORIDA LICENSE NUMBER: 69051	SHEET NUMBER G-1

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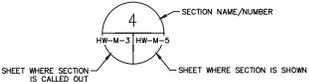
Table with columns: SECTION, SHEET NUMBER, SHEET TITLE. Includes sections for GENERAL, HEADWORKS, AX/AEROBIC BASINS, CLARIFIERS, CHLORINE CONTACT CHAMBERS, STANDARD DETAILS, GATE SCHEDULE, and STRUCTURAL.

Table with columns: ELECTRICAL, INSTRUMENTATION, and their corresponding symbols and descriptions like E-1 ELECTRICAL LEGEND AND ABBREVIATIONS, HW-E-1 HEADWORKS AREA ELECTRICAL SITE PLAN, etc.

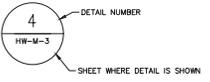
PIPE AND FITTING SYMBOLS

Table showing symbols for pipes and fittings. Columns include size (PIPE 2" AND LARGER, PIPE 2" AND SMALLER), existing symbols, and proposed symbols. Includes items like 90° ELBOW, TEE, REDUCER, VALVES, etc.

SECTION CALLOUT LEGEND



DETAIL CALLOUT LEGEND



GENERAL NOTES

- 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 WORK...
2. LOCATION, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, DAMS AND OTHER FACILITIES...
3. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION...

UTILITY NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE FOLLOWING JURISDICTIONAL BODIES AND UTILITY COMPANIES:
NORTH WATER RECLAMATION FACILITY
MANATEE COUNTY PUBLIC WORKS
TOWN OF PALM BEACH

RESTORATION AND MISCELLANEOUS NOTES

- 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 THE SAME OR BETTER TYPE AND QUANTITY OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.

ABBREVIATIONS

Table listing abbreviations and their full names: ARV AIR RELEASE VALVE, BW BUILT-UP, CCC CHLORINE CONTACT CHAMBER, etc.



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KHA PROJECT 145-00021
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



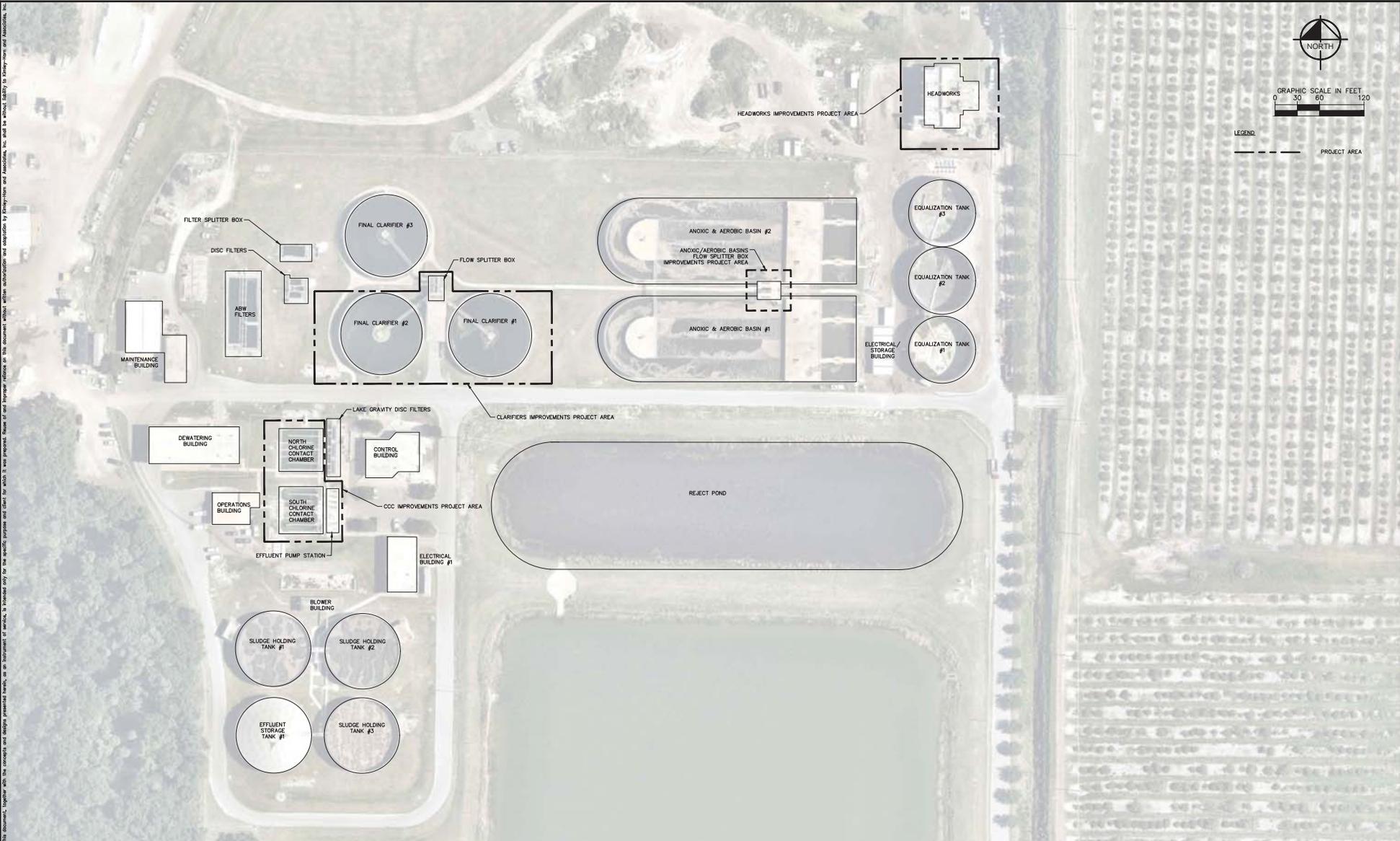
LICENSED PROFESSIONAL
Kevin E. Grogan
Professional Engineer
No. 12456
FL. 06/2014

DRAWING INDEX AND GENERAL NOTES

SHEET NUMBER G-2

Table with columns: No., REVISIONS, DATE, BY

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NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

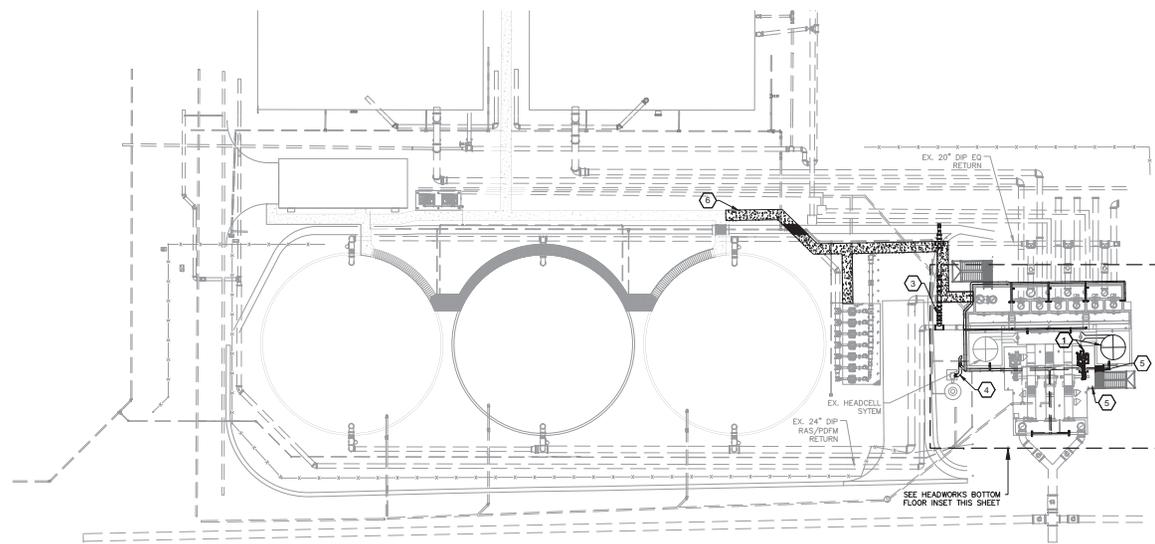
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FL DATE:

PROJECT LOCATION MAP

SHEET NUMBER	G-3
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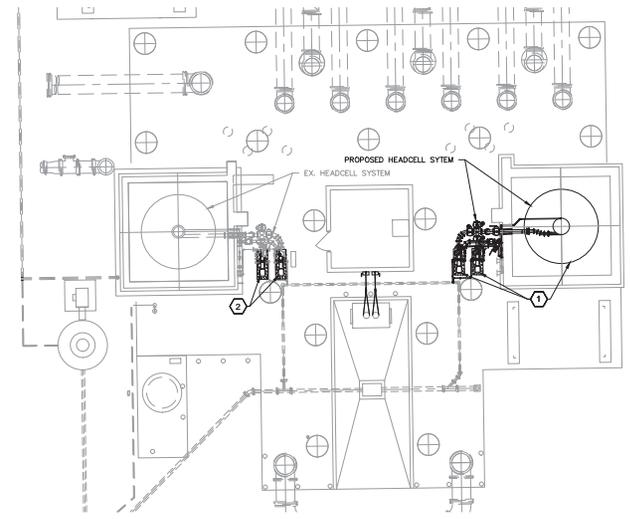
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SITE CONSTRUCTION
1" = 30'-0"

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/PDFM PUMPS TO INSTALL RAS/PDFM RETURN TIE-IN
- 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
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NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS

MANATEE COUNTY

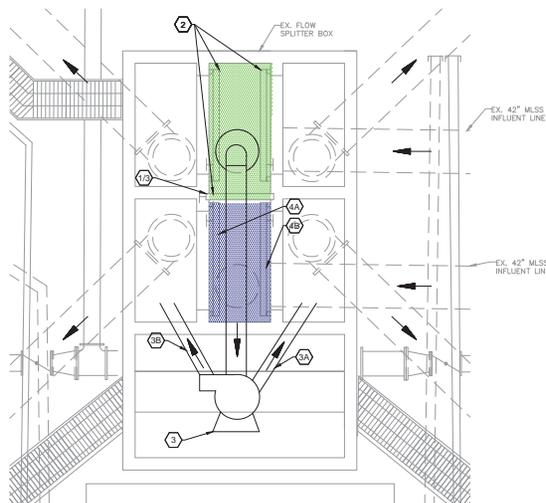
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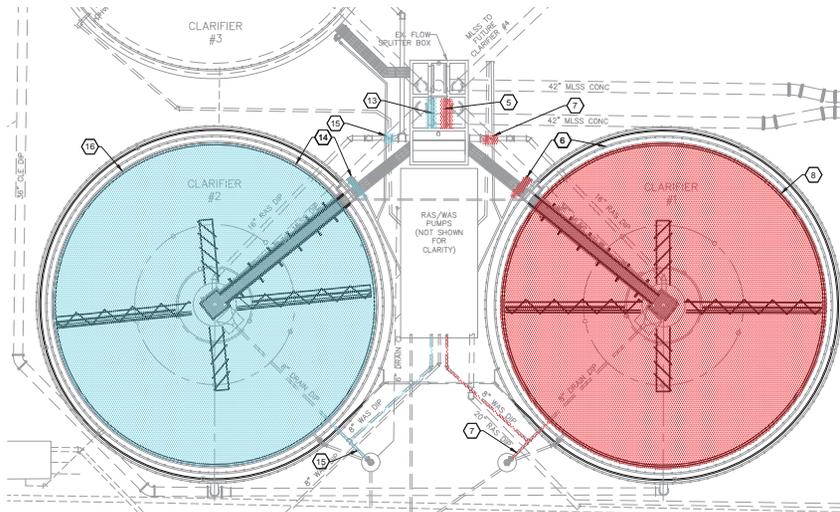
HEADWORKS PHASING PLAN

SHEET NUMBER
G-4

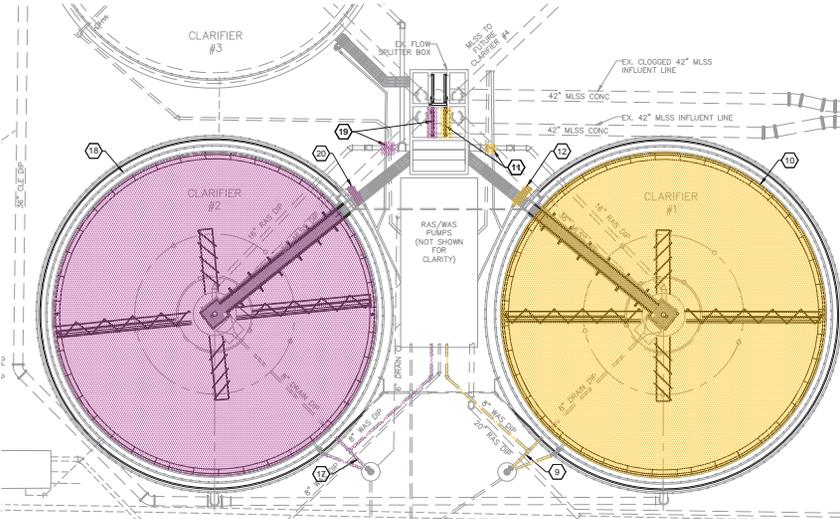
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FLOW SPLITTER BOX GATE MODIFICATIONS
1" = 5'-0"



CLARIFIER DEMOLITION
1" = 20'-0"



CLARIFIER MODIFICATIONS
1" = 20'-0"



- CONSTRUCTION SEQUENCING**
- PHASE I GATE REPLACEMENTS
- PHASE I GATE REPLACEMENTS SEQUENCING**
- 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 SEQUENCING**
- 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

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

MANATEE COUNTY

NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS

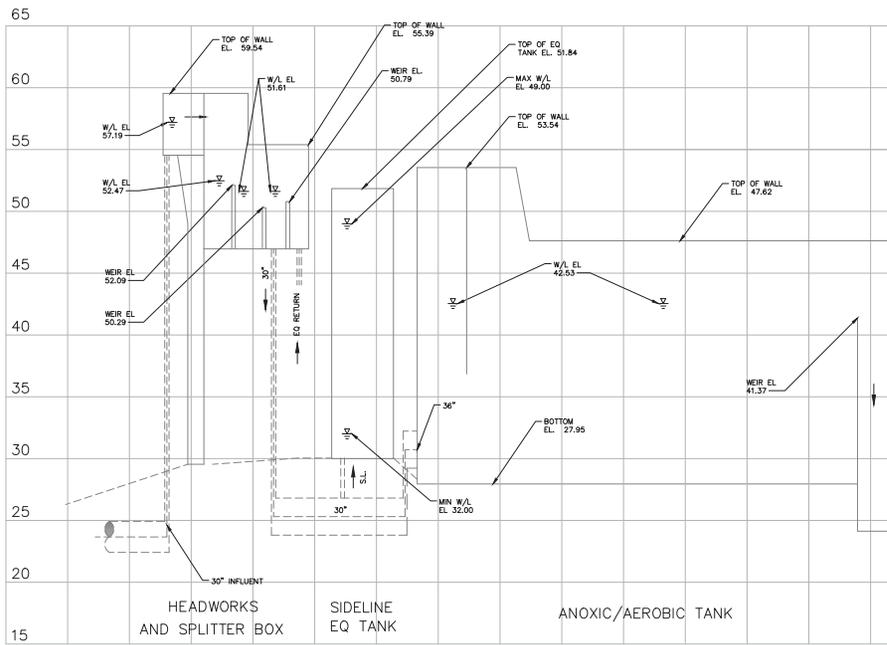
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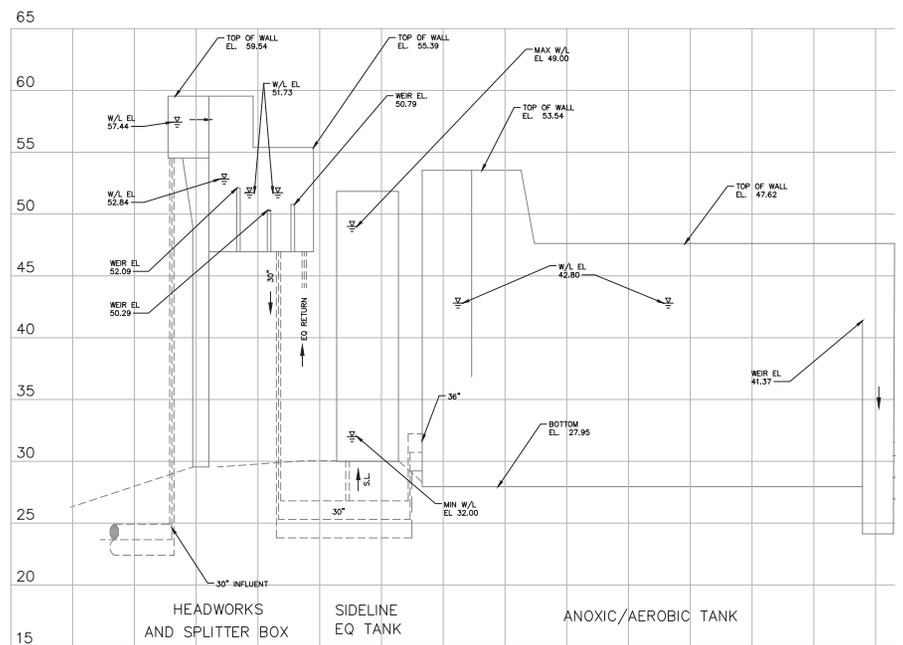
CLARIFIERS PHASING PLAN

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G-5

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HYDRAULIC PROFILE -- AVERAGE ANNUAL DAILY FLOW 8 MGD



HYDRAULIC PROFILE -- PEAK HOURLY FLOW 22 MGD

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

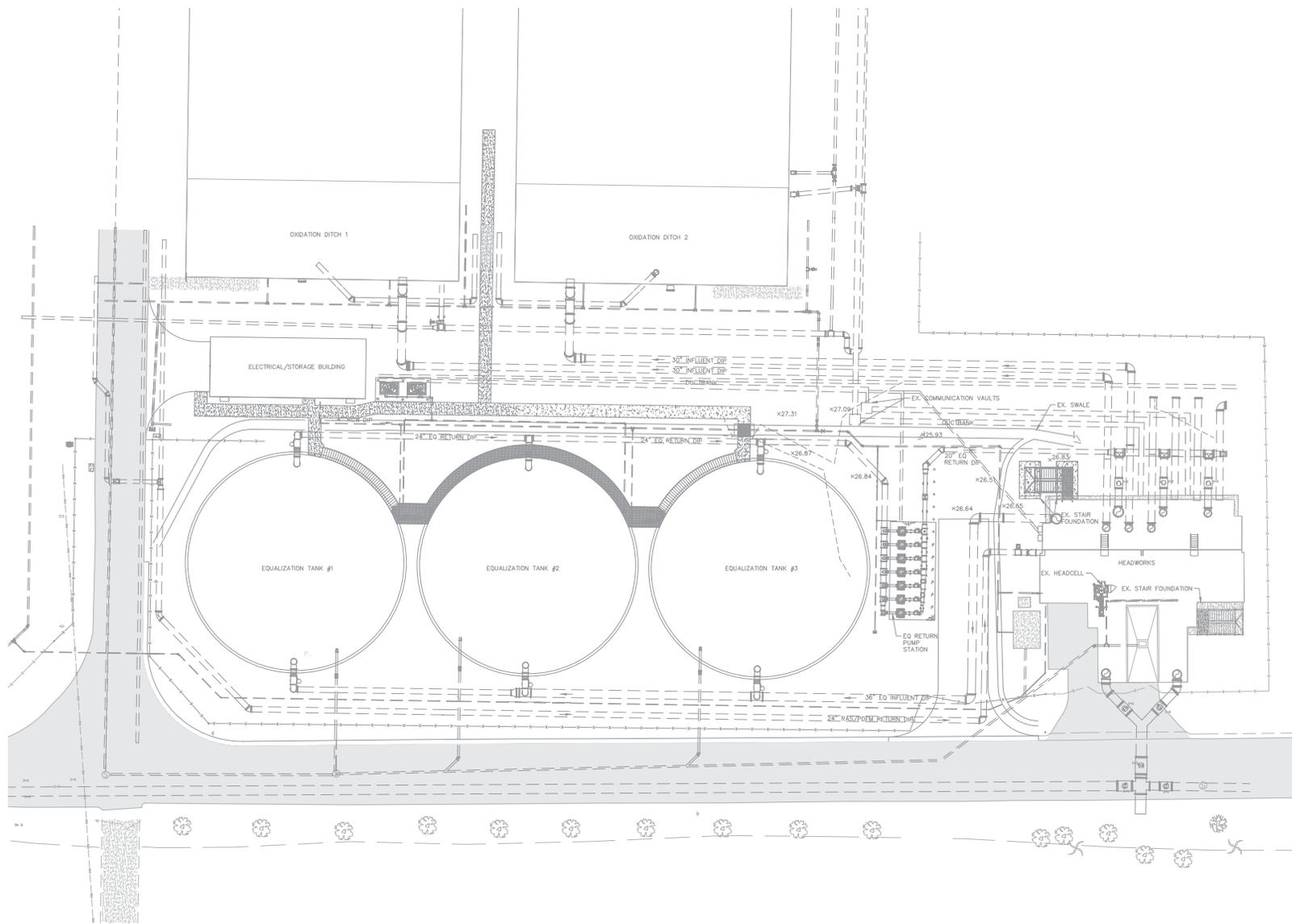
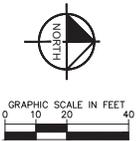
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 Kevin White
 Digitally signed by Kevin White
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 o=Kimley-Horn and Associates, Inc., ou=Kimley-Horn and Associates, Inc., c=US

HYDRAULIC PROFILE

SHEET NUMBER G-8

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

MANATEE COUNTY

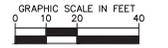
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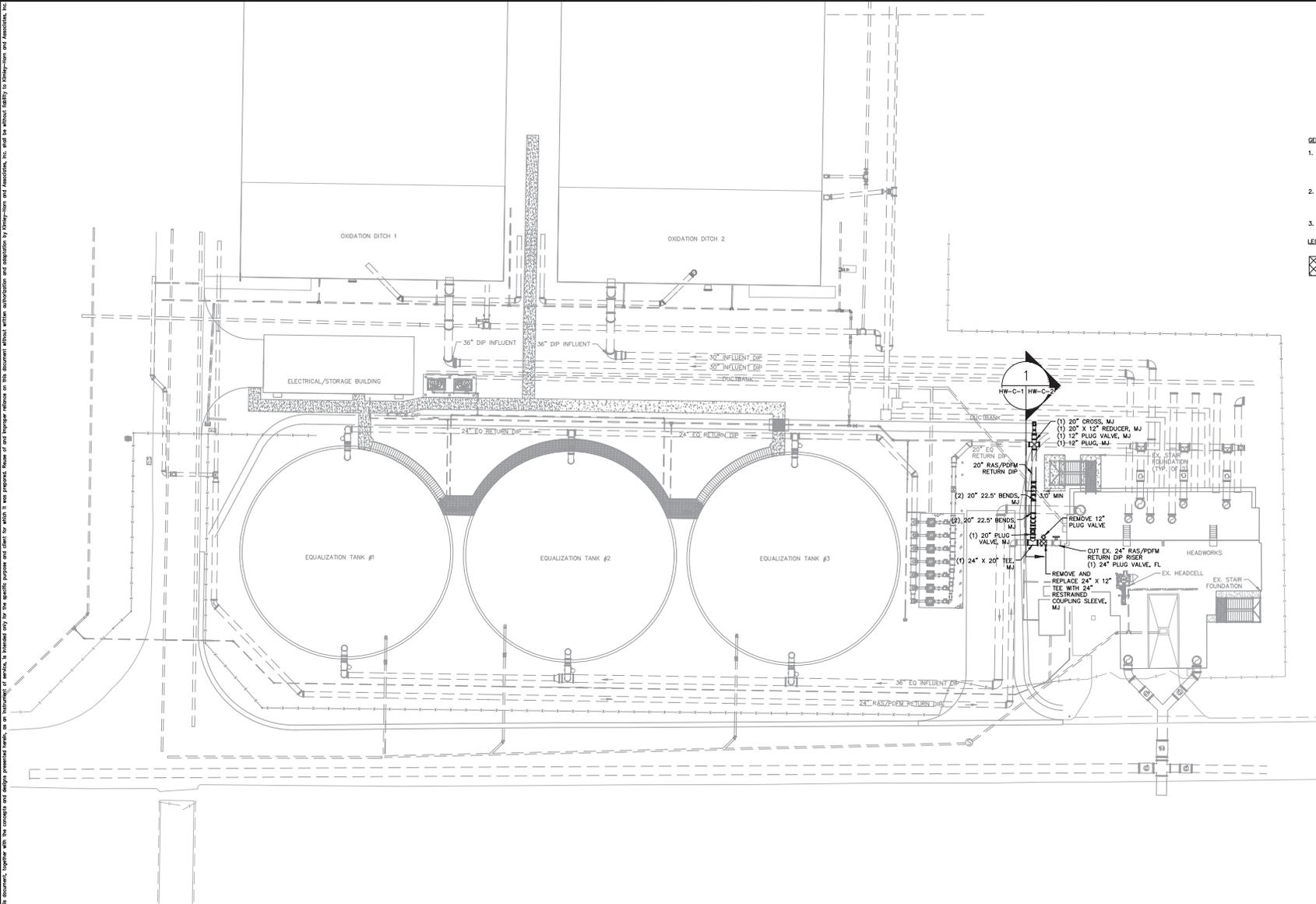
**OVERALL HEADWORKS
EXISTING SITE PLAN**

SHEET NUMBER
HW-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 DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A BYPASS PUMPING PLAN TO ENGINEER FOR REVIEW PRIOR TO INITIATING CONSTRUCTION.
 - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09922.
- LEGEND**
- DEMOLISH



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DATE 1/7/2019
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NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

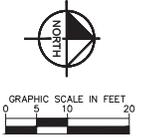
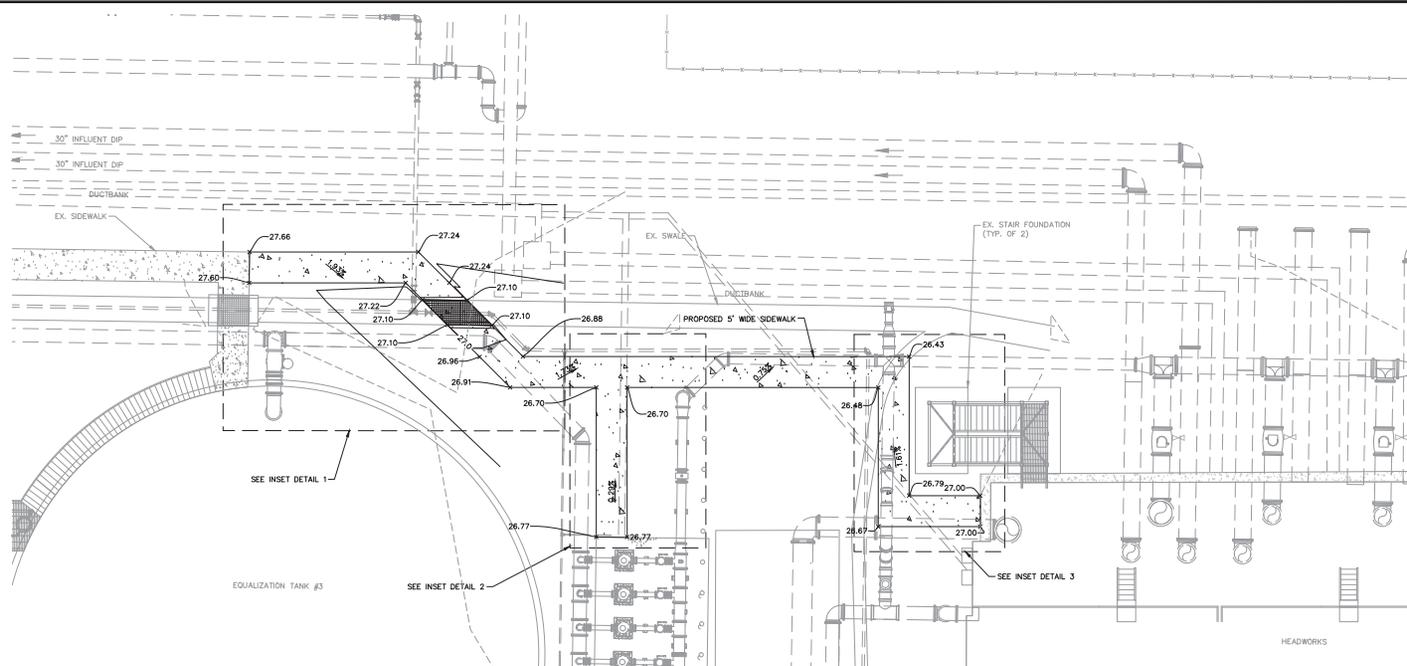
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HEADWORKS SITE PIPING PLAN

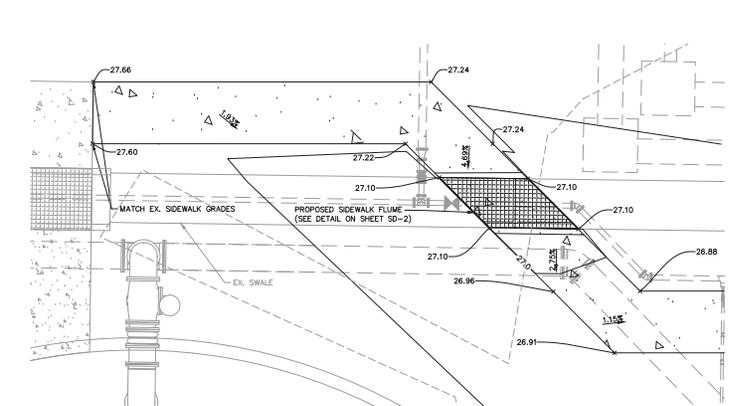
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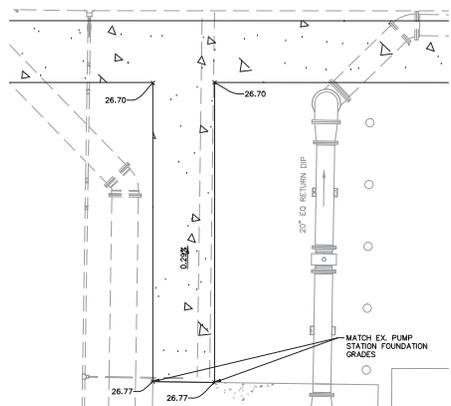


GENERAL NOTES
1. CONTRACTOR TO MATCH EDGE OF SIDEWALKS TO EX. GRADES USING 0:1 SLOPE AND MAINTAIN DRAINAGE PATTERN TO EX. SWALE

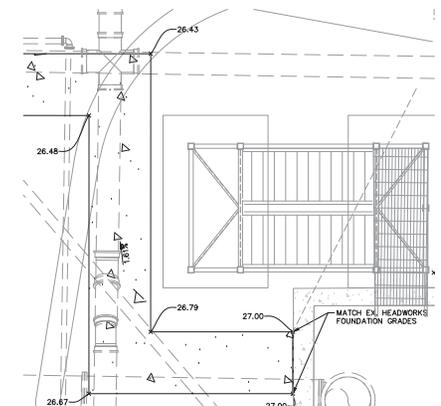
LEGEND
X 39.57 PROPOSED SPOT ELEVATION
- - - 37.5 EXISTING CONTOUR
— 37.5 PROPOSED CONTOUR
2.00% PROPOSED DRAINAGE SLOPE



INSET DETAIL 1
1" = 5'-0"



INSET DETAIL 2
1" = 5'-0"



INSET DETAIL 3
1" = 5'-0"

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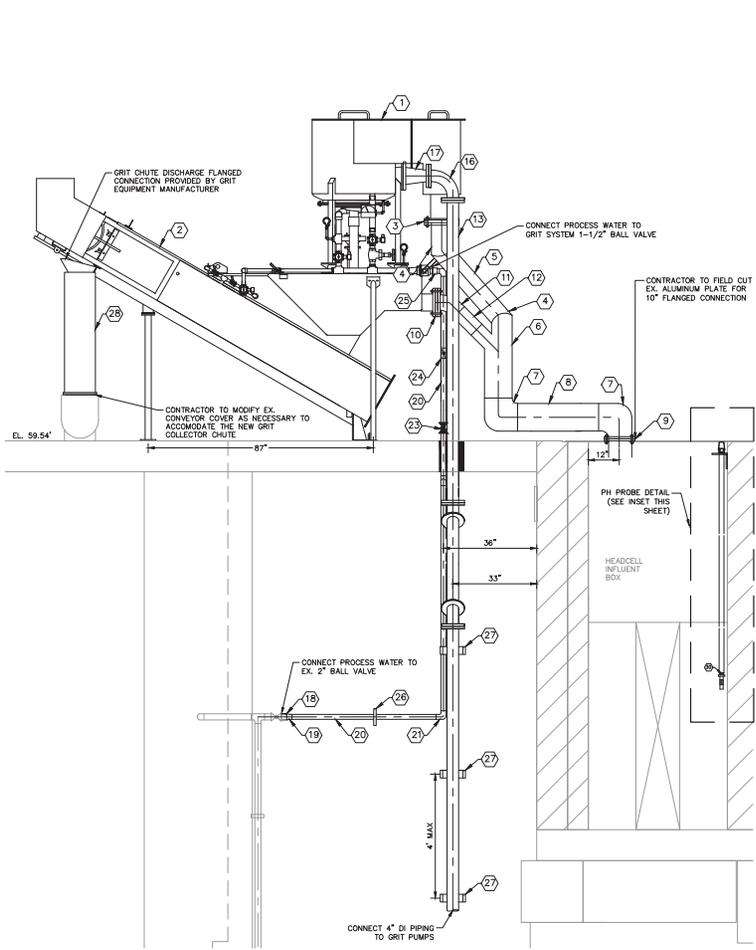
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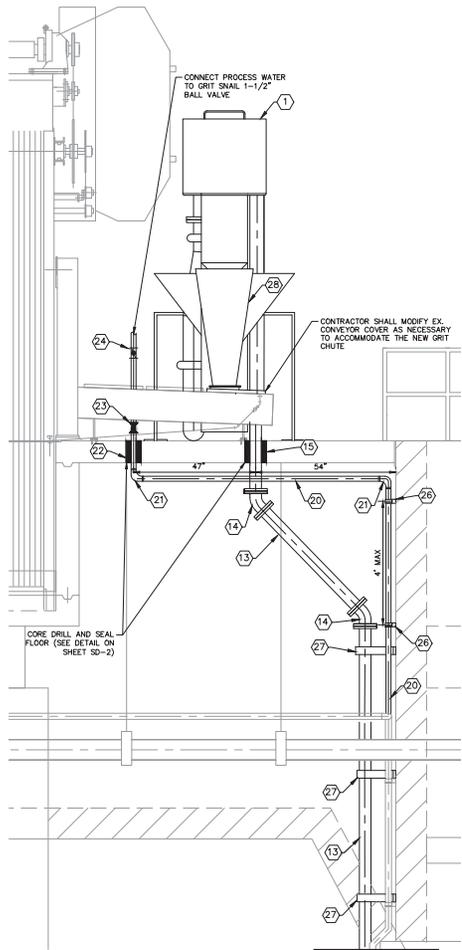
HEADWORKS SIDEWALK PLAN

SHEET NUMBER
HW-C-3

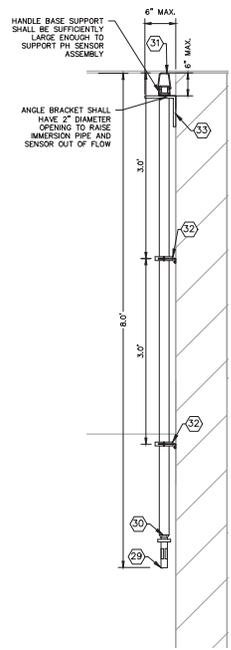
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SECTION 2
1/2" = 1'-0"
HW-M-1 HW-M-2



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 09952.
 - ALL CORE DRILLS SHALL BE LARGE ENOUGH FOR FLANGES TO PASS THROUGH.

- KEY NOTES**
- EUTEK 32" SLURRY CUP, CW FLOW
 - EUTEK GRIT SNAIL, MODEL GS260, 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
 - 6" HDPE DIPS DR 17 FLANGE ADAPTER, BW W/ 316 SS BACKUP RING AND HARDWARE
 - 6" HDPE DIPS DR 17 45° BEND, BW
 - 6" 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

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

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MANATEE COUNTY

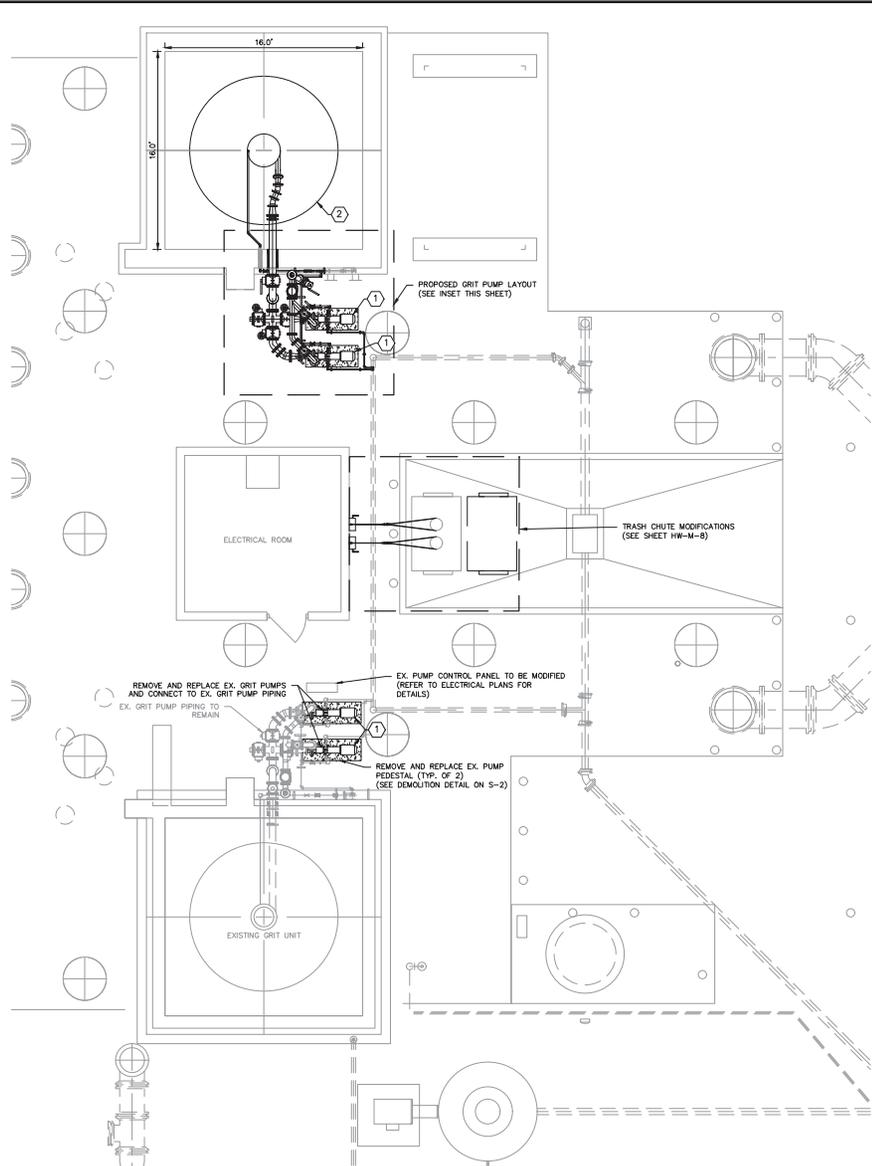
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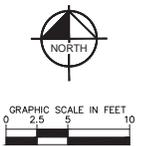
HEADWORKS EQUIPMENT MECHANICAL SECTIONS

SHEET NUMBER
HW-M-2

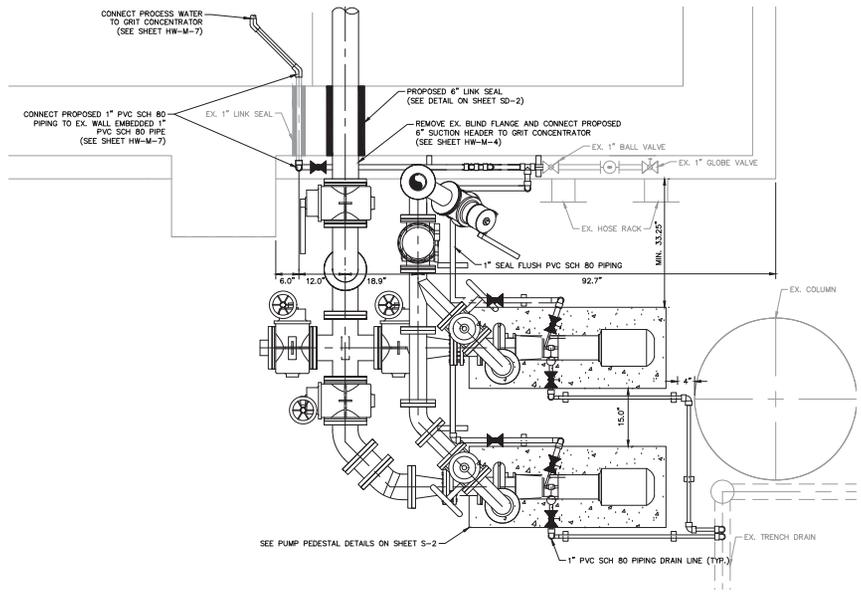
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EX. SITE LAYOUT 1
N.T.S.
HW-M-3



- 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 09802
- KEY NOTES**
- HAYWARD GORDON GRIT PUMP, MODEL XR3(8) TORUS RECESSED IMPELLER, 6 IN IMP, 300 GPM @ 31 FT, 10HP, 60HZ
 - EUTEX HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY



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

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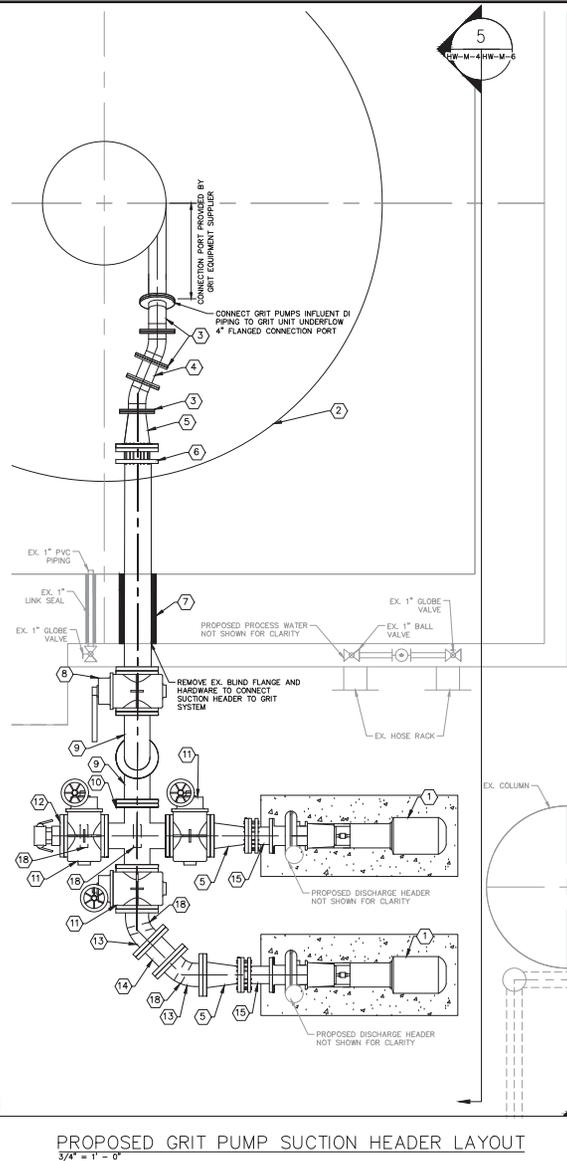
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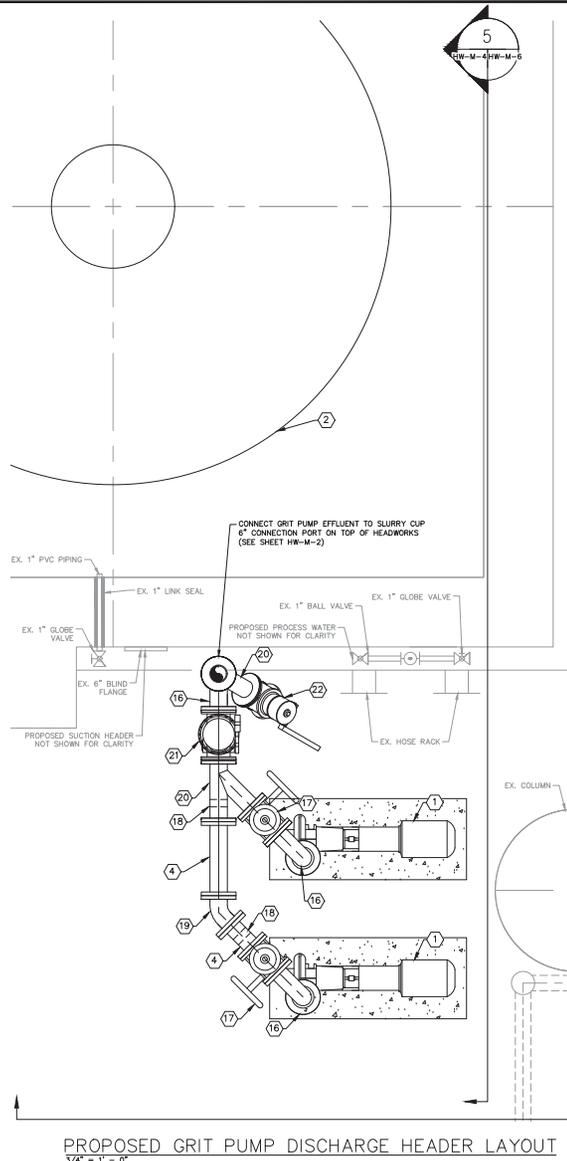
HEADWORKS IMPROVEMENTS
BOTTOM LAYOUT PLAN

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"



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 - 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, 15HP, 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" FLUG VALVE W/ 1" LEVER, FL (SUPPORT USING PIPE COLUMN SUPPORT, SEE DETAIL ON SHEET SD-2)

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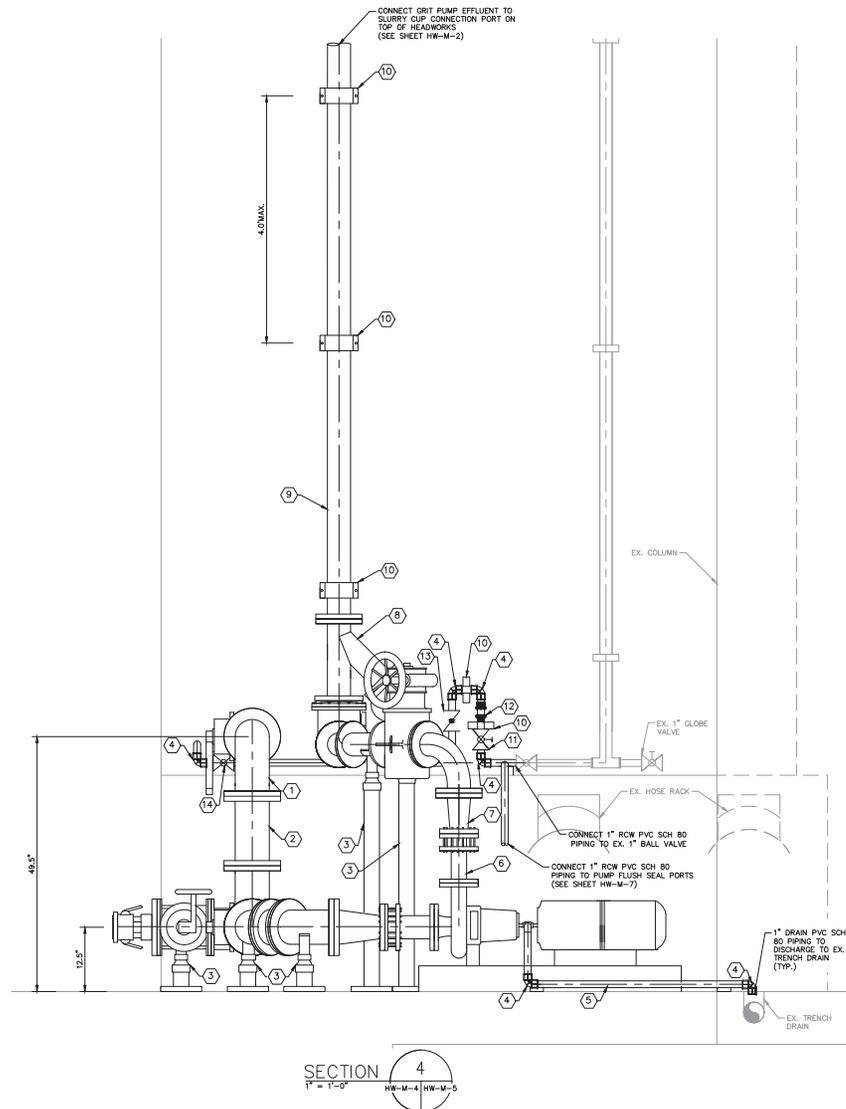
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HEADWORKS GRIT PUMP MECHANICAL PLAN

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-420N 8-40 GPM, PROVIDED BY GRIT EQUIPMENT MANUFACTURER
 - 1" PVC SCH 80 CHECK VALVE
 - 1" BRONZE BALL VALVE, PROVIDED BY GRIT EQUIPMENT MANUFACTURER

SECTION 4
1" = 1'-0"
HW-M-4 HW-M-5

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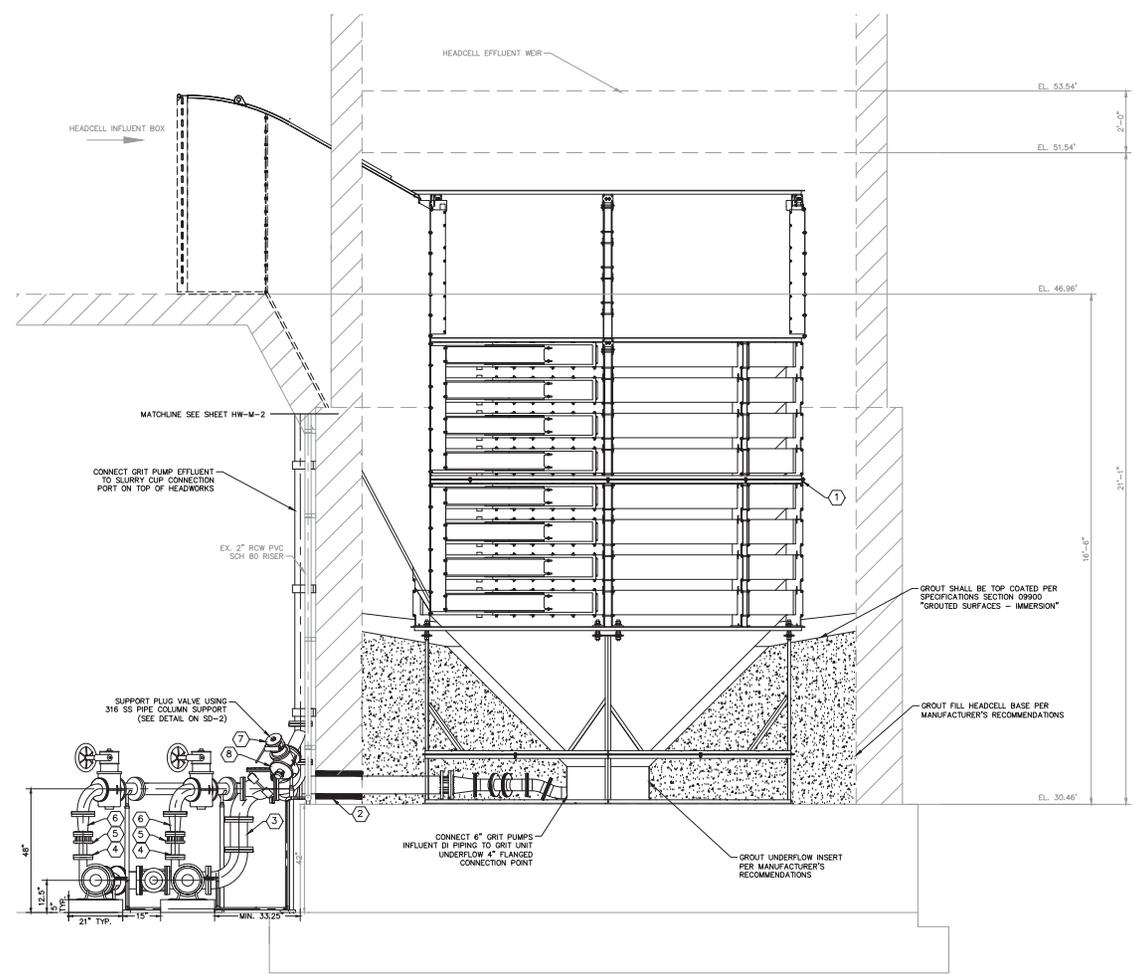
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HEADWORKS GRIT PUMP MECHANICAL SECTION

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 - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902
- KEY NOTES**
- EUTEX HEADCELL GRIT CONCENTRATOR, 12" DIA, 8 TRAY
 - LINK SEAL FOR 6" DI PIPE (SEE DETAIL ON SHEET SD-2)
 - 6" DI PIPE, FL
 - 3" DI PIPE, FL X PE
 - 3" DI FLANGED COUPLING ADAPTER
 - 4" X 3" DI REDUCER, FL
 - 4" PLUG VALVE W/ 1" LEVER, FL
 - 4" DI BLIND FLANGE W/ 2" 316 SS CAMLOK ADAPTER & CAP

SECTION 5
1/2" = 1'-0" HW-M-4 HW-M-6

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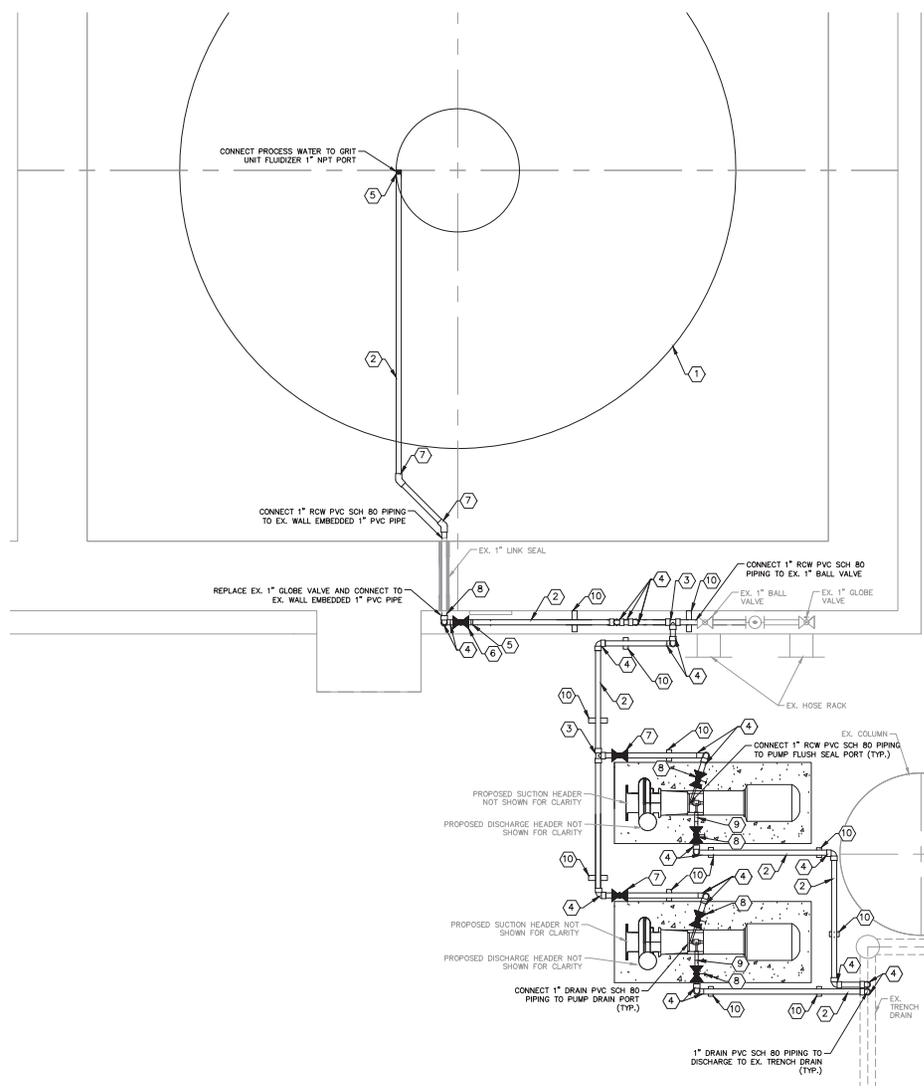
KEG

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HEADWORKS GRIT PUMP MECHANICAL SECTION

SHEET NUMBER
HW-M-6

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 - ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902
 - PVC FITTINGS SHOWN ON CONTRACT DRAWINGS ARE NOT TO TRUE SCALE FOR CLARITY.

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

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

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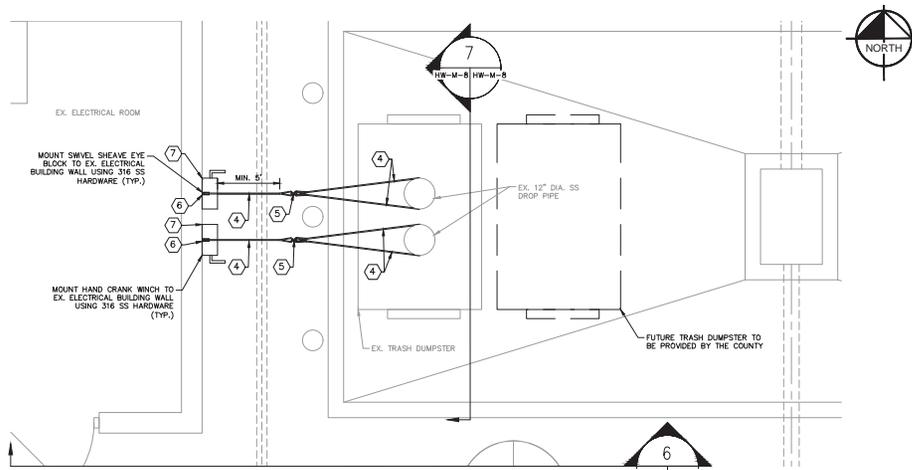
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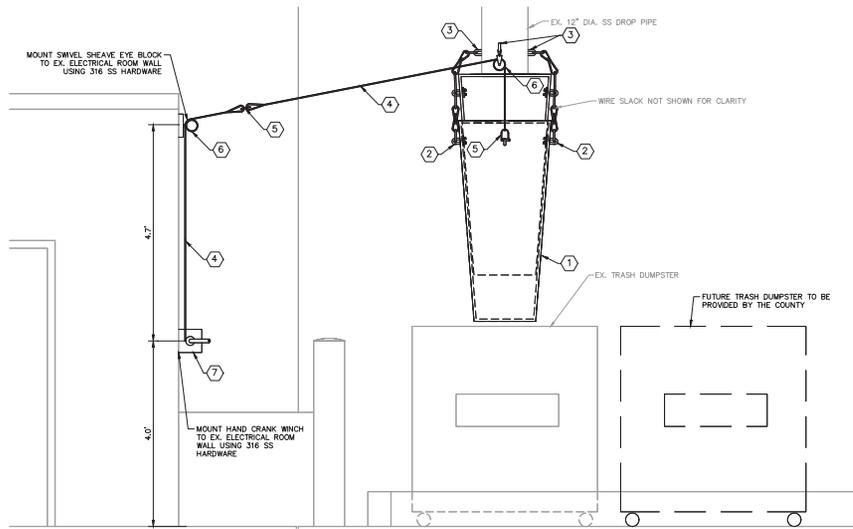
HEADWORKS RECLAIMED WATER PIPING PLAN

SHEET NUMBER HW-M-7

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



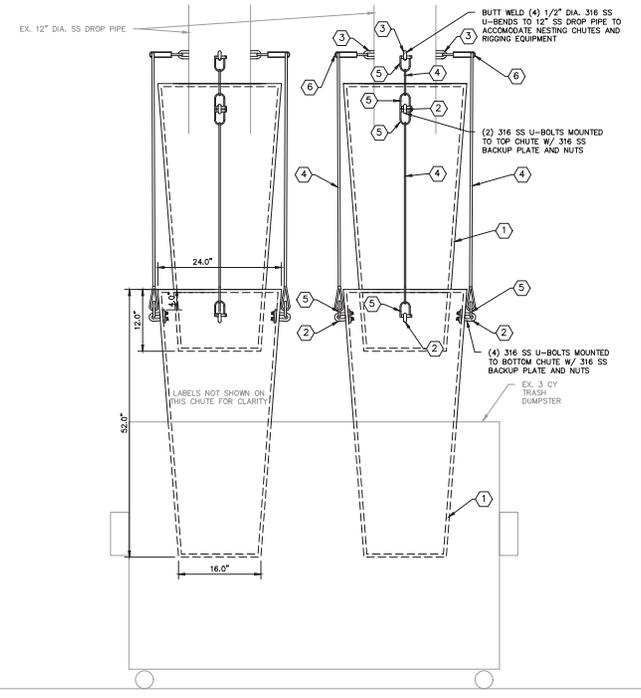
SECTION 6
3/4" = 1'-0"

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, 5000 LB ULTIMATE
- ⑦ 316 SS WINCH M4042P8SS, 1000 LB WORKING LOAD LIMIT, FOR 5/16" DIA. CABLE X 30' LONG, MANUFACTURED BY THERN OR APPROVED EQUAL

GENERAL NOTES

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- 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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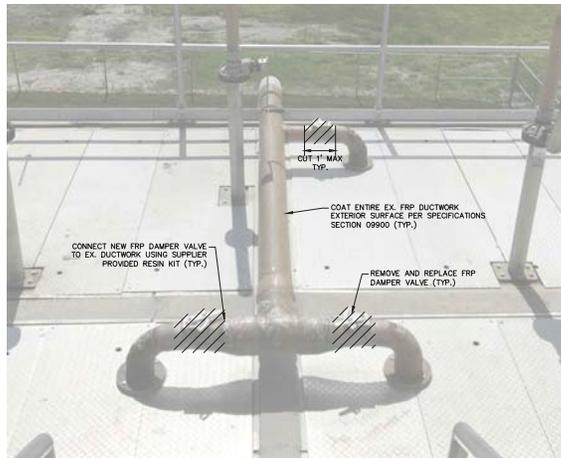
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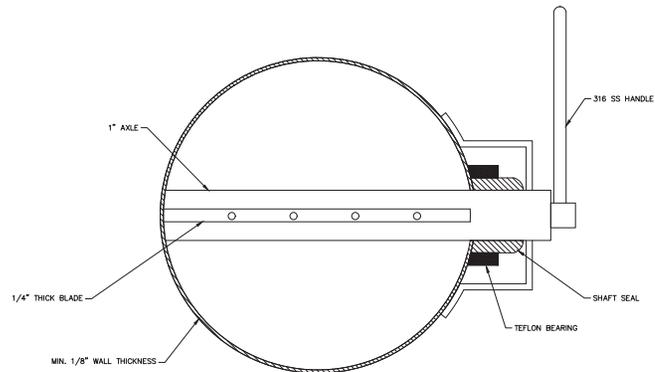
HEADWORKS TRASH CHUTE MODIFICATION

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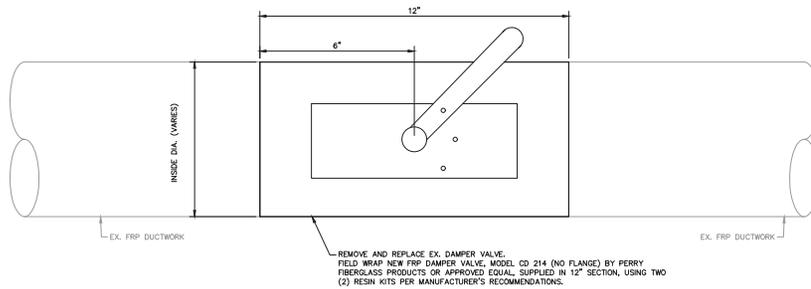
TYPICAL FRP DAMPER VALVE REPLACEMENT DETAIL 1
RT.S. HW-M-9



FRP DAMPER VALVE DETAIL 2
10" = 1'-0" HW-M-9

GENERAL NOTES

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



FRP DAMPER VALVE INSTALLATION DETAIL 3
5" = 1'-0" HW-M-9

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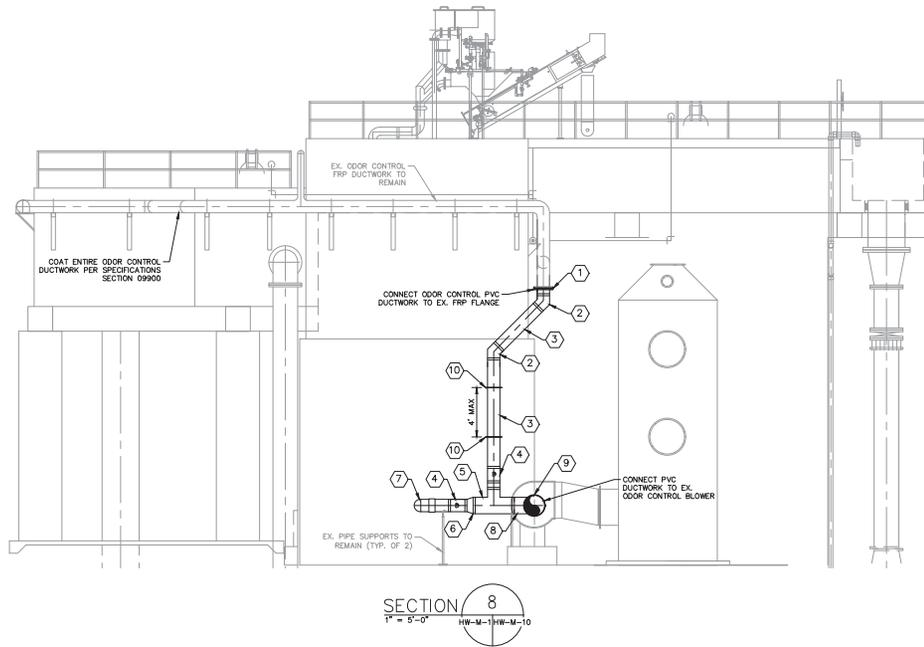
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HEADWORKS ODOR CONTROL DUCTWORK DETAILS

SHEET NUMBER	HW-M-9
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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 FINISHED PER SPECIFICATIONS SECTION 05100.
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" PVC FLANGE ADAPTER
- 2 REMOVE AND REPLACE 12" PVC 45° BEND
- 3 REMOVE AND REPLACE 12" PVC DUCT
- 4 REMOVE AND REPLACE 12" PVC DAMPER
- 5 REMOVE AND REPLACE 16"x12" PVC TEE
- 6 REMOVE AND REPLACE 16" X 12" PVC REDUCER
- 7 REMOVE AND REPLACE 12" PVC 90° BEND
- 8 REMOVE AND REPLACE 16" PVC DUCT
- 9 REMOVE AND REPLACE 16" X 16" RUBBER COUPLING W/ 3/8 SS STRAPS
- 10 PIPE STRAP SUPPORT (SEE DETAIL ON SHEET 30-1)

HEADWORKS ODOR CONTROL DEMOLITION 1
N.T.S. HW-M-10

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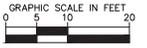
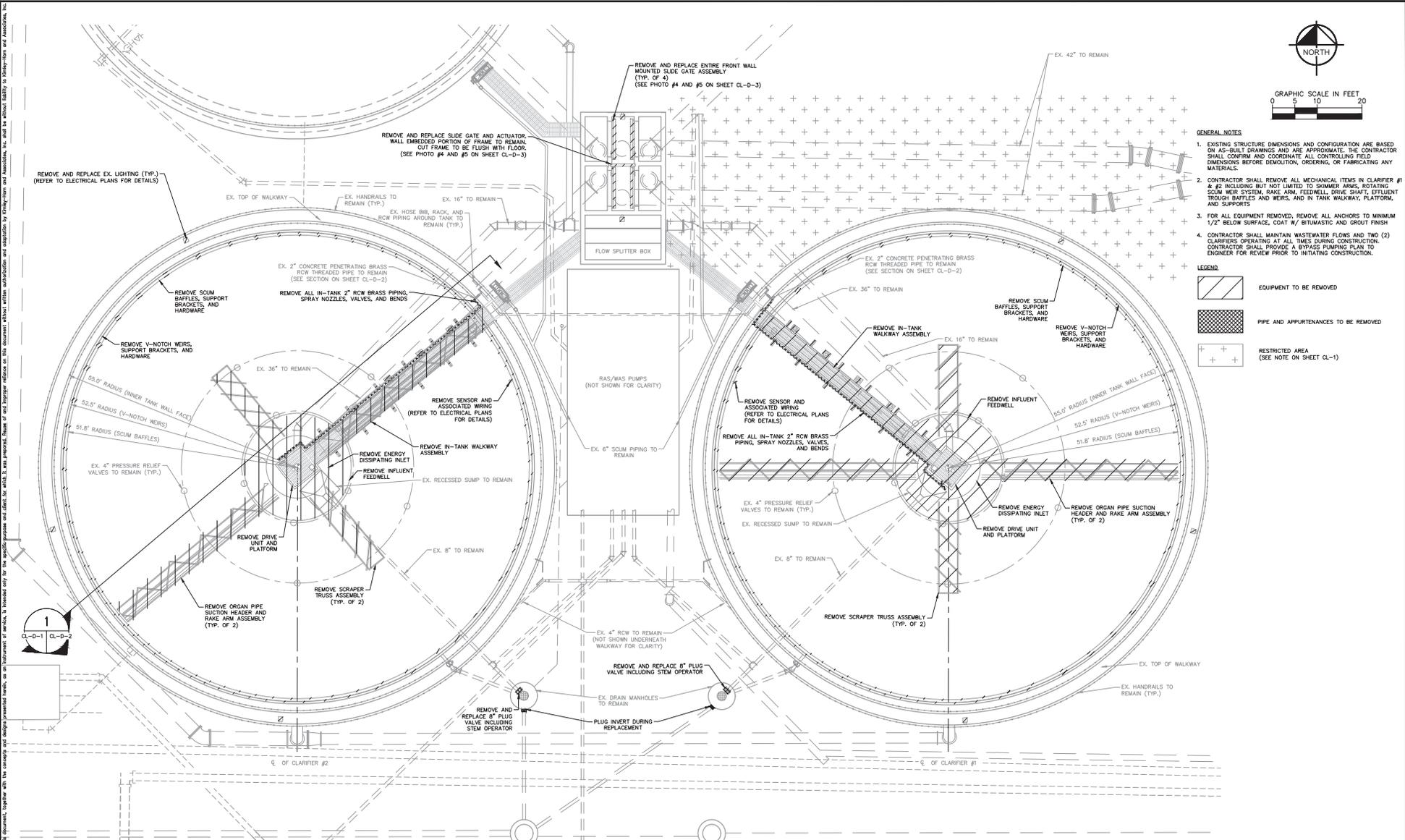
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HEADWORKS ODOR CONTROL DUCTWORK DETAILS

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 - 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.

- LEGEND**
- EQUIPMENT TO BE REMOVED
 - PIPE AND APPURTENANCES TO BE REMOVED
 - RESTRICTED AREA (SEE NOTE ON SHEET CL-1)

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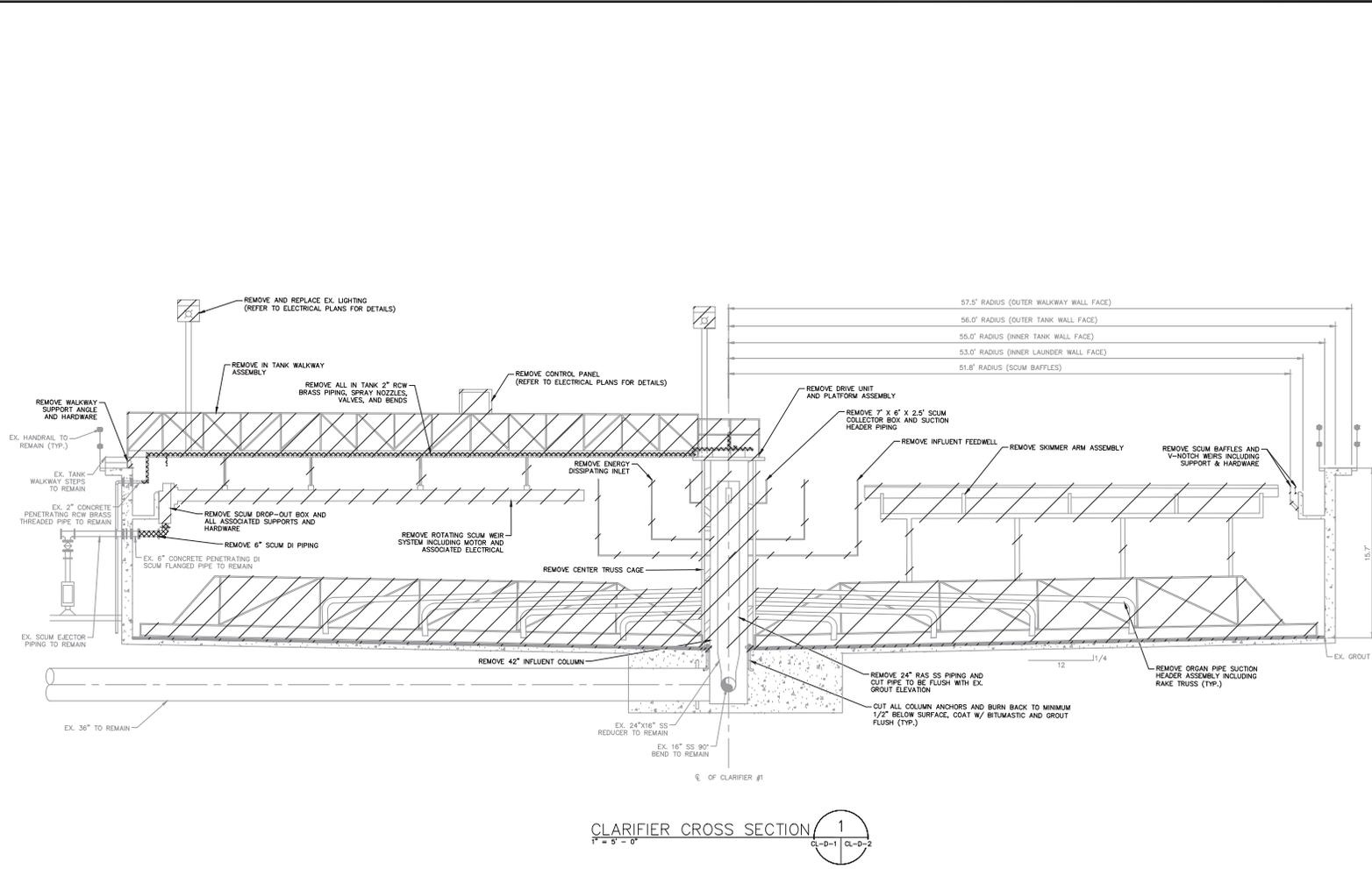
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**CLARIFIERS 1 AND 2
DEMOLITION PLAN**

SHEET NUMBER
CL-D-1

This document, together with the concepts and design presented herein, is an instrument of service, in testimony of service, in witness whereof the undersigned has hereunto set his hand and signature on this 1st day of September, 2019, at St. Petersburg, Florida.



- 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 TMD (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

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

No.	REVISIONS	DATE	BY

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

NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

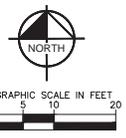
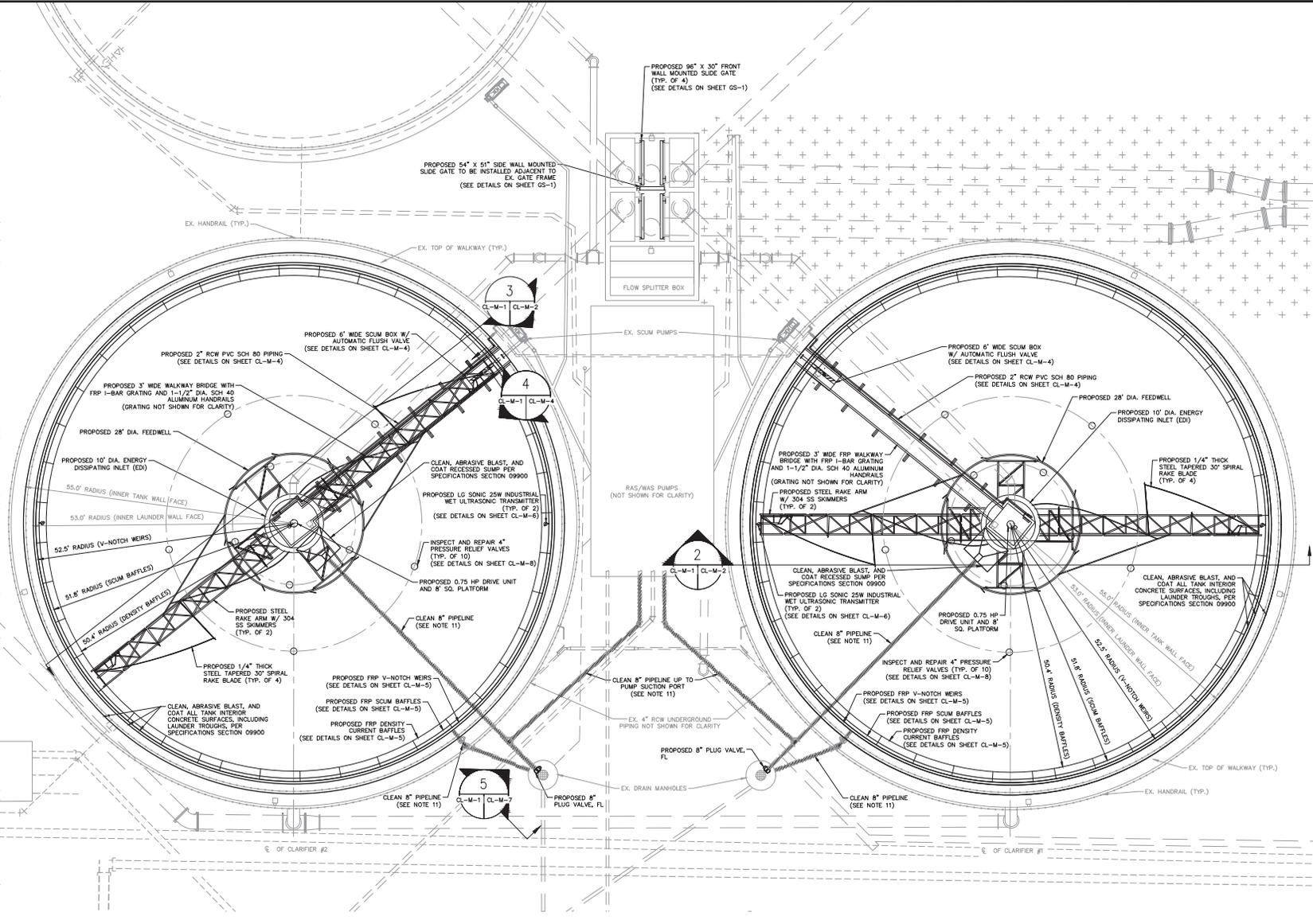
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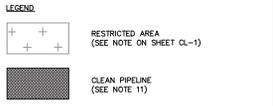
CLARIFIERS 1 AND 2 DEMOLITION SECTION

SHEET NUMBER
CL-D-2

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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 ORDERING OR FABRICATING ANY MATERIALS.
 - 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 FURNISH ALL CLARIFIER EQUIPMENT PER SPECIFICATIONS SECTION 11200
 - THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR ALL CLARIFIER EQUIPMENT INSTALLATIONS
 - THE SPIRAL BLADES SHALL BE INSTALLED TO OBTAIN THE MANUFACTURER'S RECOMMENDED CLEARANCE BETWEEN THE SQUEEGEE AND GROUT.
 - 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 PAINTED 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 SHALL MATCH PROPOSED WER INVERT ELEVATION TO EX. WER INVERT ELEVATION AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
 - CONTRACTOR SHALL SURVEY EX. V-NOTCH WER INVERT ELEVATION AND PROVIDE ELEVATION TO OWNER/ENGINEER PRIOR TO DEMOLITION. CONTRACTOR SHALL MATCH PROPOSED WER INVERT ELEVATION TO EX. WER INVERT ELEVATION AFTER WRITTEN APPROVAL FROM OWNER/ENGINEER.
 - CONTRACTOR SHALL HYDRO-JET CLEAN PIPELINES TO REMOVE ALL DERRIS AND BUILD-UP. PIPELINES SHALL BE CCTV'D AND THE VIDEO SHALL BE PROVIDED TO THE OWNER/ENGINEER FOR APPROVAL.



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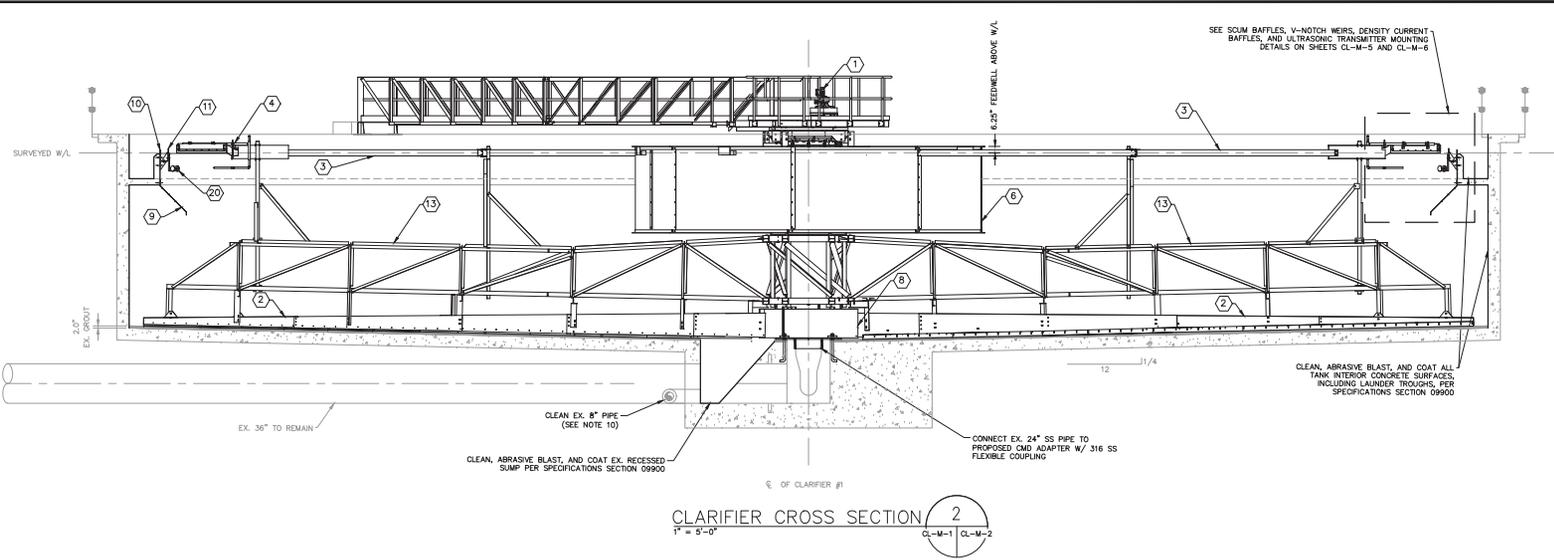
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CLARIFIERS 1 AND 2 IMPROVEMENTS PLAN

SHEET NUMBER
CL-M-1

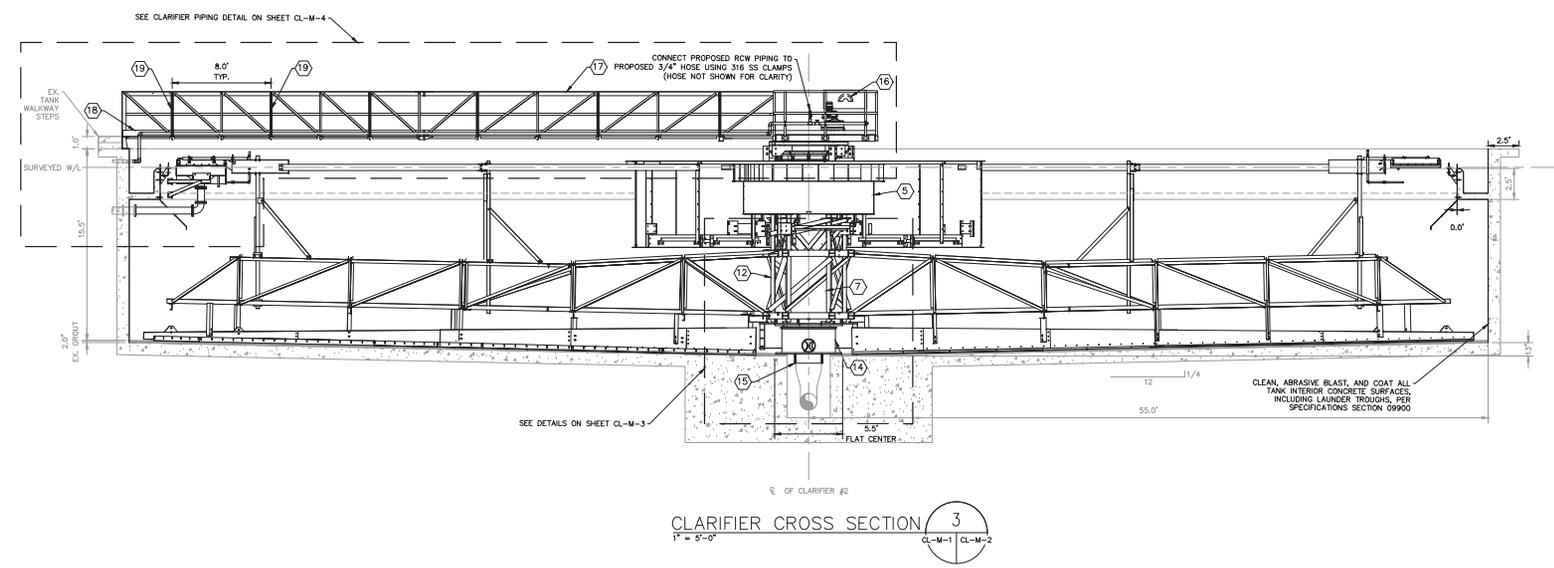
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CLARIFIER CROSS SECTION 2
1" = 5'-0"

- 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 ORDERING OR FABRICATING ANY MATERIALS.
 - 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 SOLESSEES (SEE DETAILS ON SHEET CL-M-3)
 - 304 SS SURFACE SOLUM SKIMMER BLADE
 - SOLUM SKIMMING DEVICE
 - 10'-0" ENERGY DISSIPATING INLET (EDI)
 - 28"-0" DIA. FEEDWELL W/ (4) EQ. SPACED PORTS
 - 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 SOLUM BAFFLES W/ SLOTTED HOLES FOR ADJUSTMENTS (SEE DETAILS ON SHEET CL-M-5)
 - MIN. 4'-0" SQ. CAGE
 - 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)



CLARIFIER CROSS SECTION 3
1" = 5'-0"

No.	REVISIONS	DATE	BY

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SCALE AS SHOWN
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DRAWN BY KEG
CHECKED BY WEW

NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

Licensed Professional

DATE:

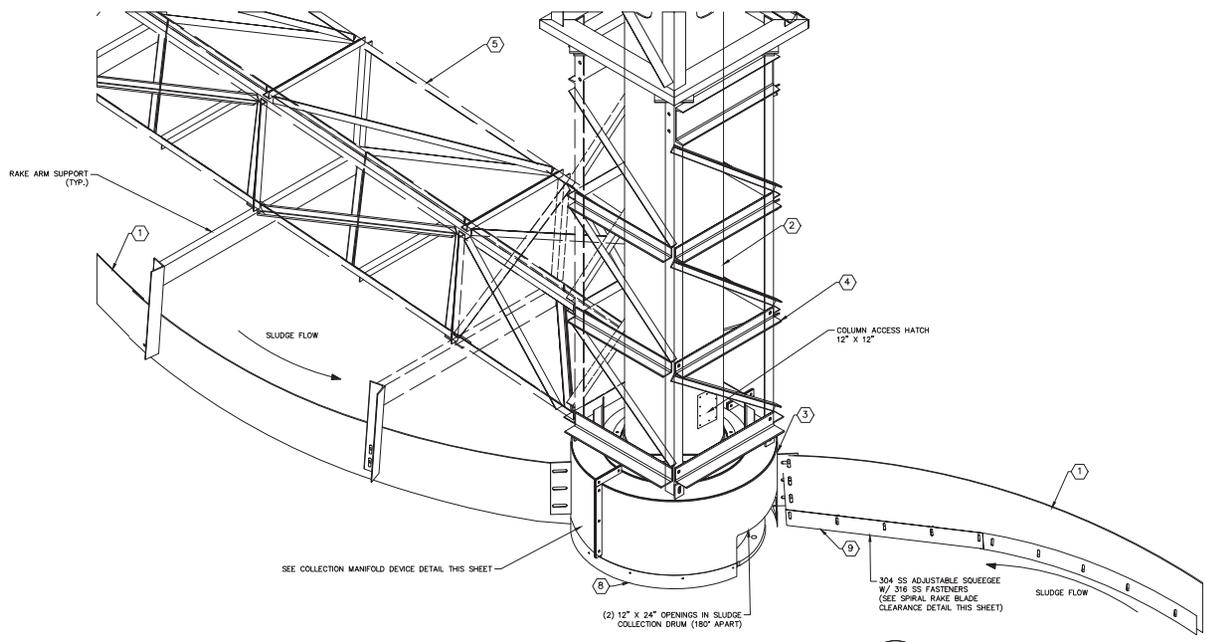
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CLARIFIERS 1 AND 2 EQUIPMENT SECTIONS

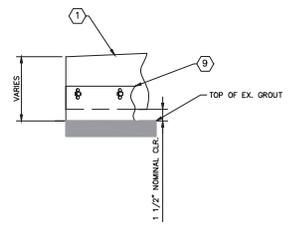
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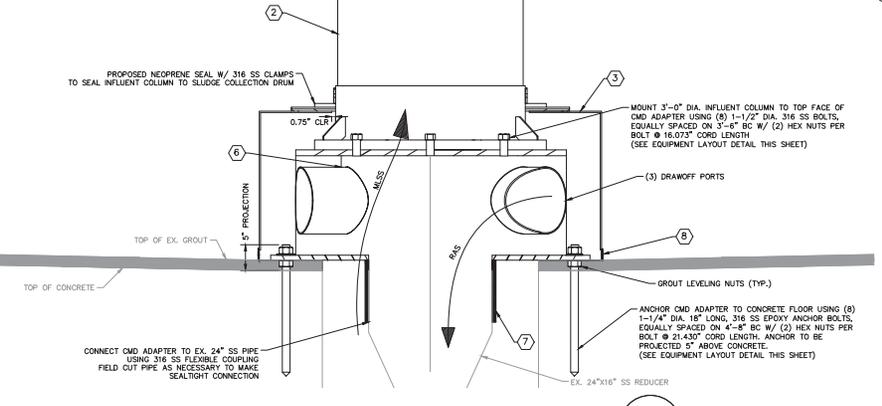


SLUDGE COLLECTION EQUIPMENT ISOMETRIC DETAIL
N.T.S. 1 CL-M-3

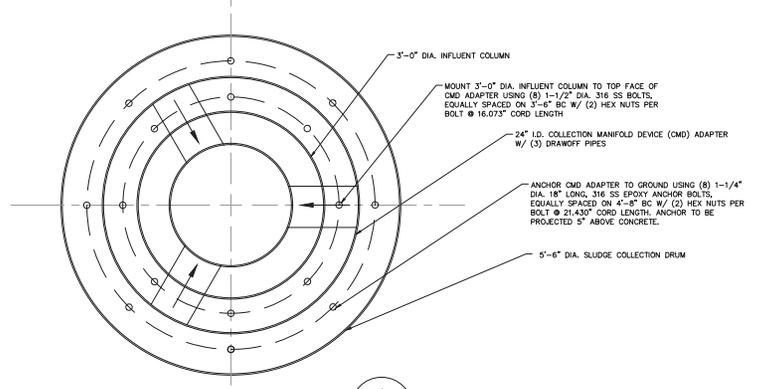
- GENERAL NOTES
1. ISOMETRIC DRAWING IS SHOWN FOR GENERAL GUIDANCE. CONTRACTOR TO USE SCALED DRAWINGS FOR DIMENSION LAYOUTS.
- KEY NOTES
- 1 1/4" THICK STEEL TAPERED 30° SPIRAL RAKE BLADE
 - 2 3"-Ø DIA. INFLUENT COLUMN W/ (4) EQ. SPACED PORTS
 - 3 5"-Ø DIA. SLUDGE COLLECTION DRUM
 - 4 MIN. 4"-Ø SQ. CAGE
 - 5 MIN. 3"-10" SQ. RAKE ARM
 - 6 24" I.D. COLLECTION MANIFOLD DEVICE (CMD) ADAPTER
 - 7 24" 316 SS FLEXIBLE COUPLING
 - 8 304 SS SEALANT STRIP W/ 316 SS SELF TAPPING FASTENERS
 - 9 304 SS ADJUSTABLE SQUEEGES W/ 316 SS FASTENERS



SPIRAL RAKE BLADE CLEARANCE DETAIL 2 CL-M-3
1-1/2" = 1'-0"



COLLECTION MANIFOLD DEVICE DETAIL 3 CL-M-3
1" = 1'-0"



EQUIPMENT LAYOUT DETAIL 4 CL-M-3
1" = 1'-0"

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MANATEE COUNTY

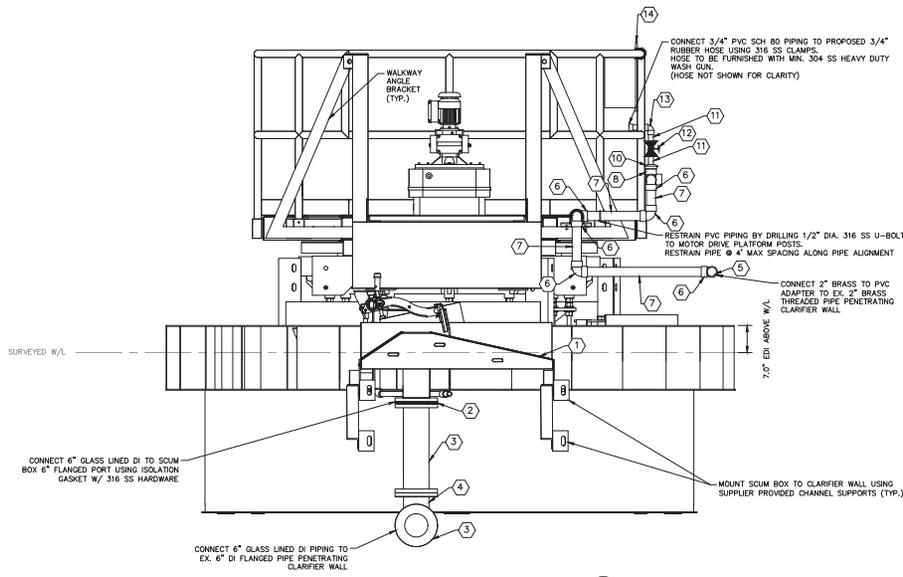
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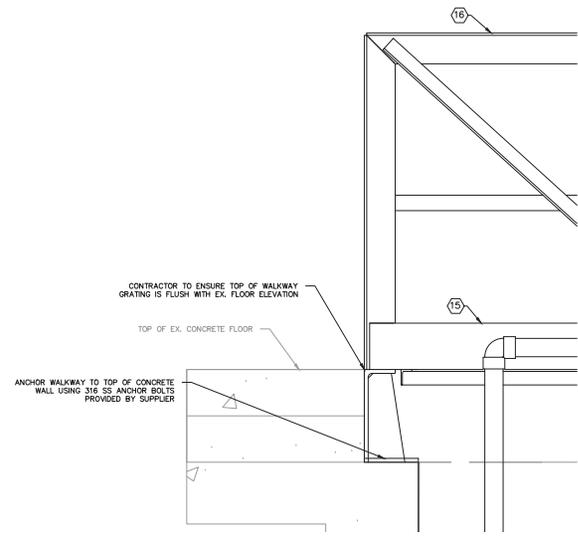
CLARIFIERS 1 AND 2
EQUIPMENT DETAILS

SHEET NUMBER
CL-M-3

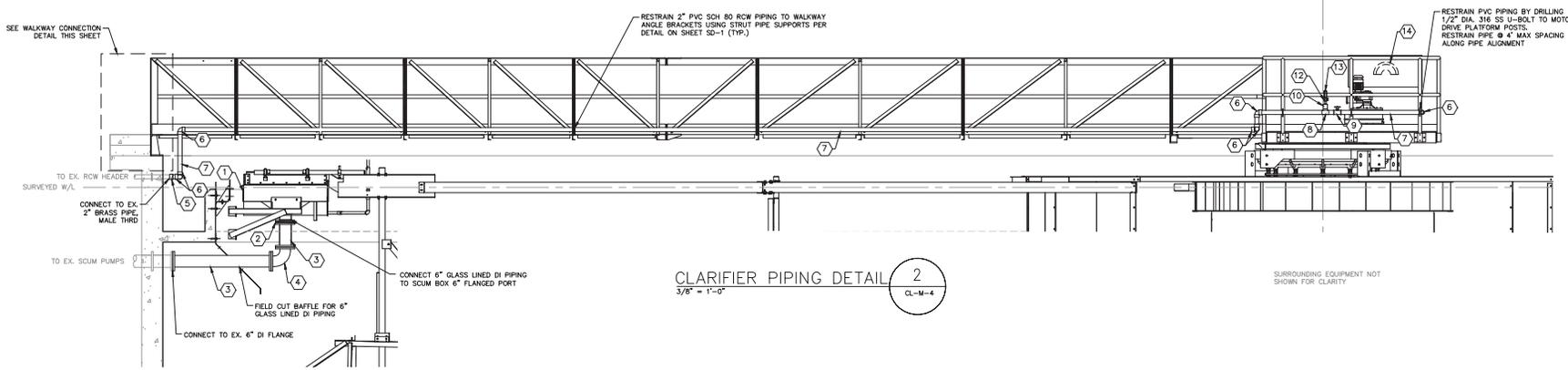
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WALKWAY CROSS SECTION 4
1" = 5'-0"
CL-M-1 CL-M-4



WALKWAY CONNECTION DETAIL 1
3/8" = 1'-0"
CL-M-4



CLARIFIER PIPING DETAIL 2
3/8" = 1'-0"
CL-M-4

- GENERAL NOTES**
- CLARIFIER #1 & #2 SHALL BE INTEGRATED WITH FACILITY SEADA 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" ISOLATION GASKET KIT
 - 6" GLASS LINED DI PIPE, FL
 - 6" GLASS LINED DI 90° BEND, FL
 - 2" BRASS TO PVC SCH 80 TRANSITION ADAPTER, FEMALE THRD X SPIGOT
 - 2" PVC SCH 80 90° BEND, FEMALE SOCKET
 - 2" PVC SCH 80 PIPE, SPIGOT
 - 2" PVC SCH 80 TEE, FEMALE SOCKET
 - PVC GLOBE VALVE, FEMALE SOCKET
 - 2" X 3/4" PVC SCH 80 REDUCING COUPLING, SPIGOT X FEMALE SOCKET
 - 3/4" PVC SCH 80 PIPE, SPIGOT
 - 3/4" PVC GLOBE VALVE, FEMALE SOCKET
 - 3/4" PVC SCH 80 90° BEND, FEMALE SOCKET
 - GUARDRAIL MOUNTED HOSE RACK (SEE DETAIL ON SHEET SD-2)
 - EXTRUDED ALUMINUM TOEBOARD, ANODIZED FINISH, 0.7 MIL ANODIZED
 - 1-1/2" DIA. SCH 40 ALUMINUM HANDRAIL

No.	REVISIONS	DATE	BY

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MANATEE COUNTY

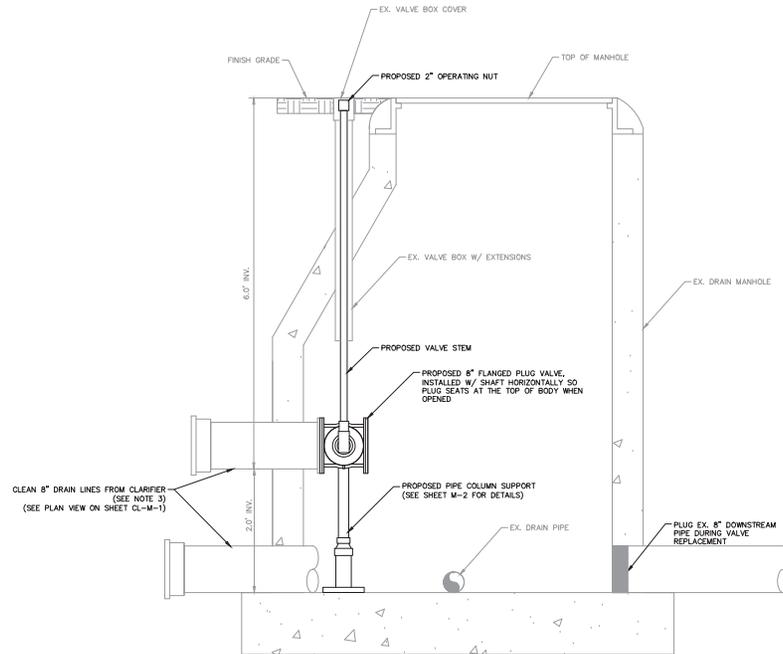
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CLARIFIERS 1 AND 2 PIPING DETAILS

SHEET NUMBER
CL-M-4

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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 CLARIFIERS #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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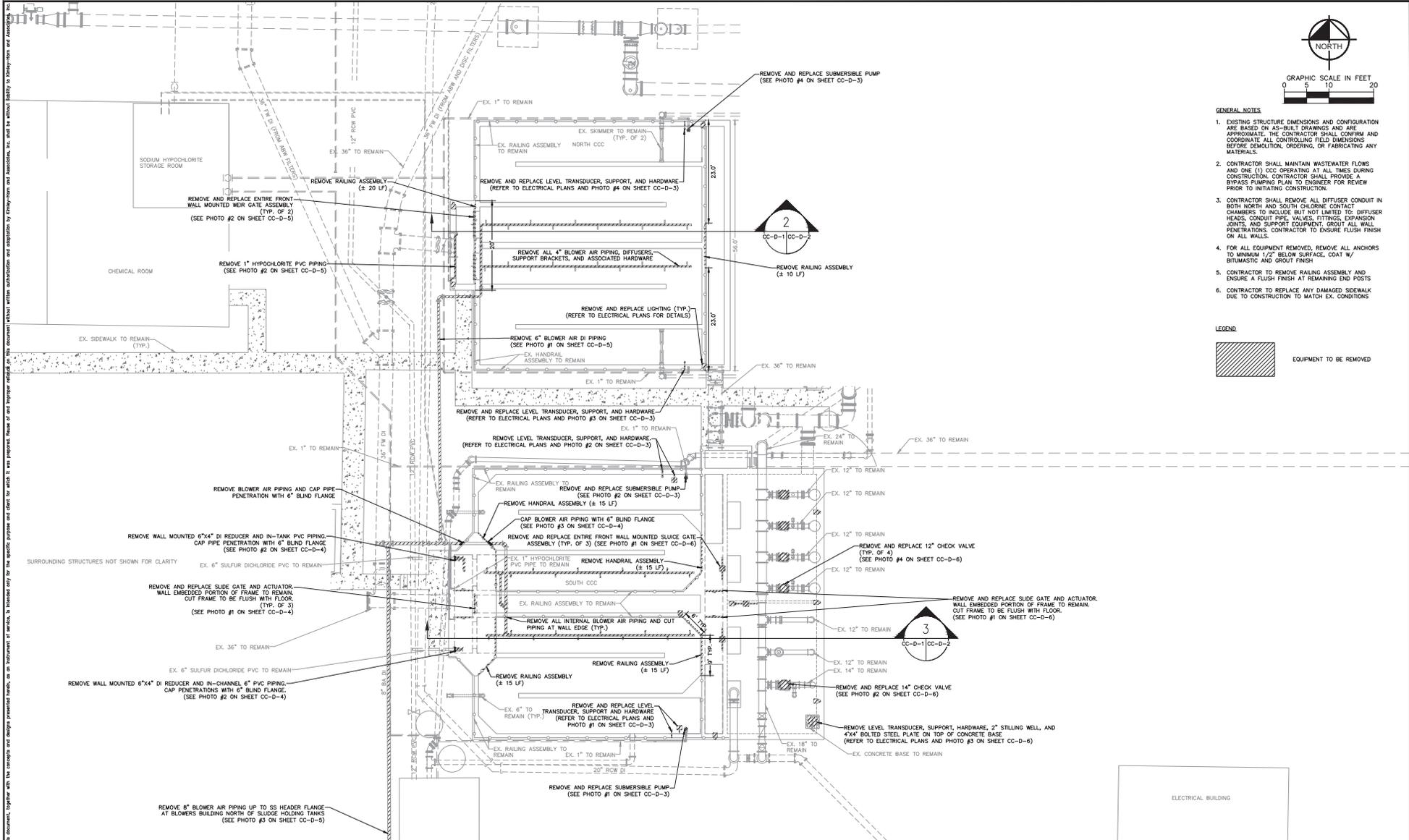
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CLARIFIERS 1 AND 2 DRAIN MANHOLE SECTION

SHEET NUMBER CL-M-7



- 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) C/C OPERATING 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, EXPANSION JOINTS, AND SUPPORT EQUIPMENT. GROUT ALL WALL PENETRATIONS. CONTRACTOR TO ENSURE FLUSH FINISH ON ALL WALLS.
 - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
 - CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.
 - CONTRACTOR TO REPLACE ANY DAMAGED SIDEWALK DUE TO CONSTRUCTION TO MATCH EX. CONDITIONS.



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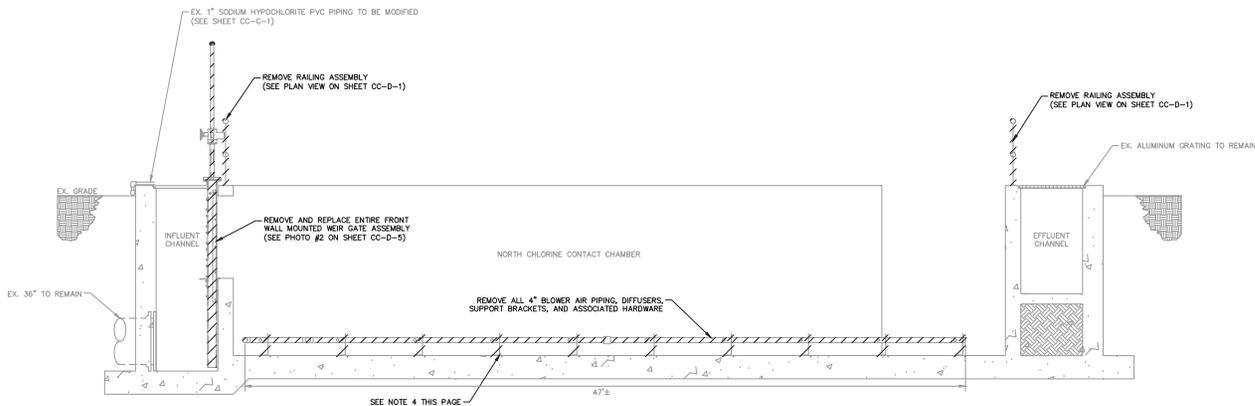
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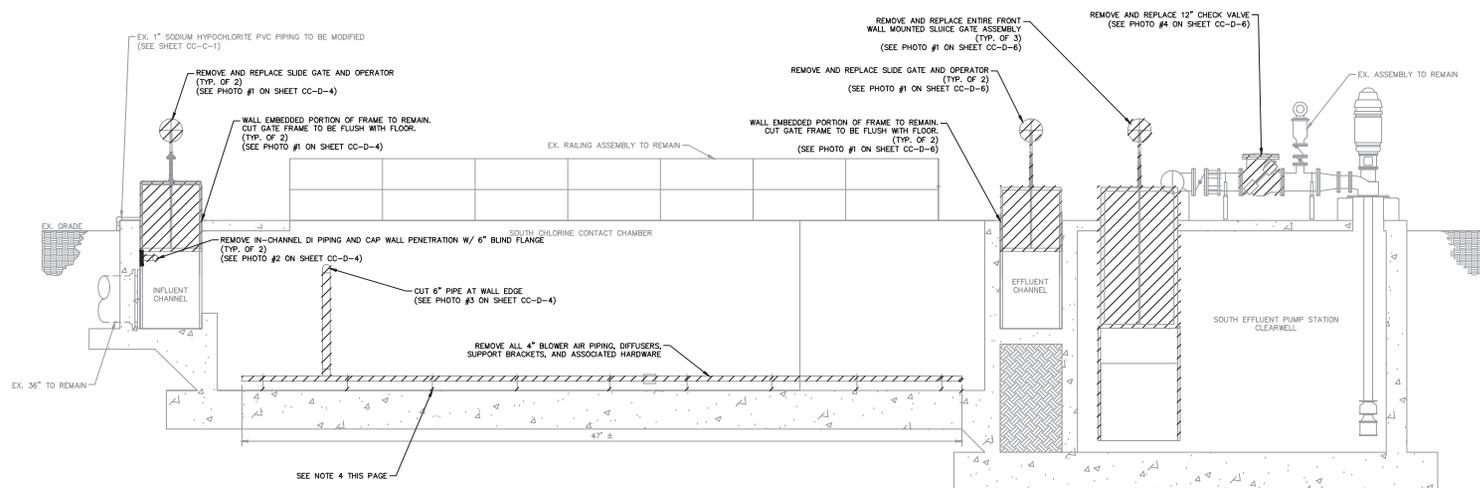
CCC DEMOLITION PLAN

SHEET NUMBER
CC-D-1

This document, together with the concepts and design presented herein, is an instrument of service, in testimony of service, in witness whereof the undersigned has hereunto set his hand and the seal of his office, this 4th day of September, 2019, at St. Petersburg, Florida.



NORTH CHLORINE CONTACT CHAMBER SECTION 2
1/4" = 1'-0"



SOUTH CHLORINE CONTACT CHAMBER SECTION 3
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 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.



No.	REVISIONS	DATE	BY

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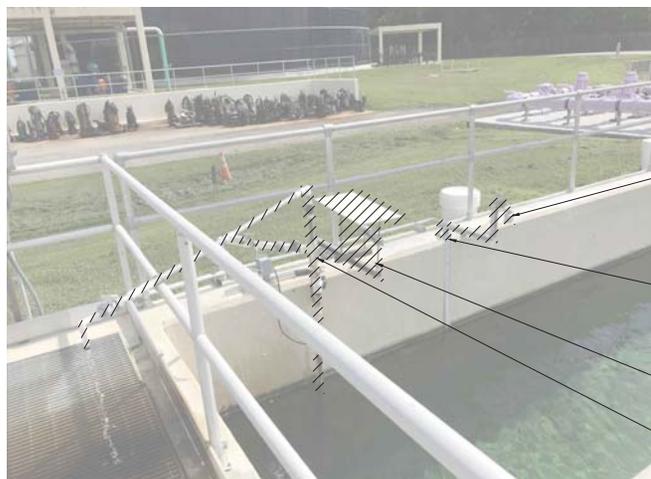
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REMOVE RAILING ASSEMBLY
CONTRACTOR TO ENSURE A FLUSH FINISH AT REMAINING END POSTS

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) 1
N.T.S. CC-D-3



GENERAL NOTES

- 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.
- FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
- CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

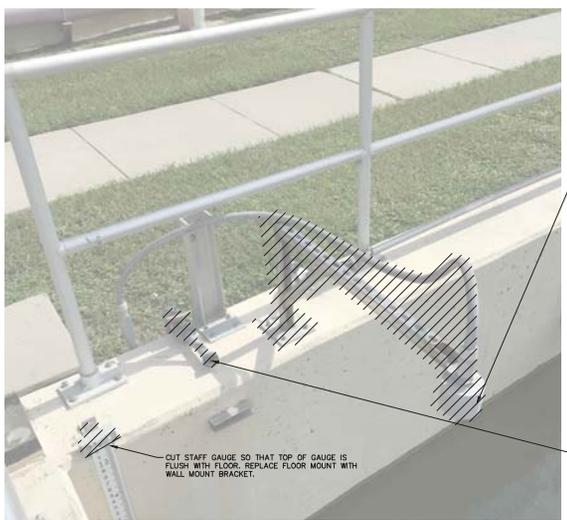
LEGEND:

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) 2
N.T.S. 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

REMOVE AND REPLACE ABOVEGROUND 1" PVC PIPING

EX. NORTH CCC TRANSDUCER (SOUTH TRAIN) 3
N.T.S. 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) 4
N.T.S. CC-D-5

No.	REVISIONS	DATE	BY

Kimley-Horn

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KHA PROJECT	14S400021
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:

CCC NORTH & SOUTH DEMOLITION DETAILS

SHEET NUMBER	CC-D-3
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REMOVE AND REPLACE SLIDE GATE AND ACTUATOR (TYP. OF 3)

WALL EMBEDDED PORTION OF FRAME TO REMAIN. CUT FRAME TO BE FLUSH WITH FLOOR. (TYP. OF 3)

REPLACE 1" PVC SCH 80 BEND WITH TEE AND INSTALL 1" SODIUM HYPOCHLORITE CPVC SCH 80 PIPING FOR PROPOSED SUBMERSIBLE MIXER CONNECTION (SEE SHEET CC-M-5)

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



REMOVE 6"X4" DI REDUCER AND ASSOCIATED PIPING. CAP WALL PENETRATION WITH 6" BLIND FLANGE.

- GENERAL NOTES**
- 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.
 - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE. COAT W/ BITUMASTIC AND GROUT FINISH.
 - CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

LEGEND

EQUIPMENT TO BE REMOVED

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



REMOVE RAILING ASSEMBLY

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



REMOVE SLIDE GATE AND OPERATOR. WALL EMBEDDED PORTION OF FRAME TO REMAIN. CUT FRAME TO BE FLUSH WITH FLOOR. (TYP. OF 3)

REMOVE RAILING ASSEMBLY (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

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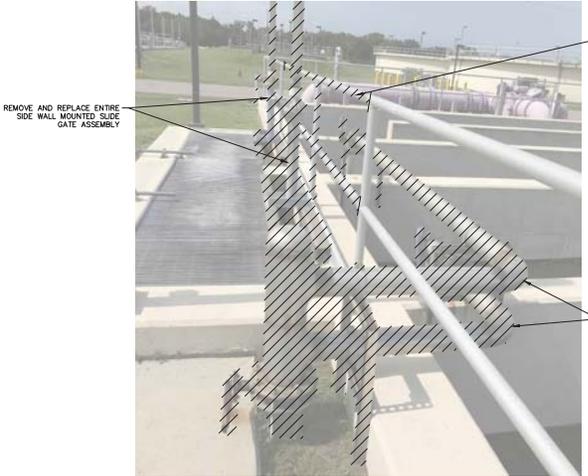
DATE:

CCC SOUTH DEMOLITION DETAILS

CC-D-4

SHEET NUMBER	CC-D-4
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REMOVE AND REPLACE ENTIRE SIDE WALL MOUNTED SLIDE GATE ASSEMBLY

REMOVE RAILING ASSEMBLY

REMOVE ALL BLOWER AIR PIPING AND SUPPORTS

REMOVE AND REPLACE ENTIRE SIDE WALL MOUNTED SLIDE GATE ASSEMBLY (TYP. OF 2)

EX. NORTH CCC INFLUENT CHAMBER 1
N.T.S. CC-D-5



REMOVE 1" HYPOCHLORITE PVC PIPING UP TO 90° BEND AND INSTALL CPVC SCH 80 PIPING FOR PROPOSED SUBMERSIBLE MIXER CONNECTION (SEE SHEET CC-M-5)

INSTALL 1" CPVC SCH 80 BALL VALVE AND 90° BEND TO DISCHARGE TO INFLUENT BOX (SEE SHEET CC-M-5)

REMOVE AND REPLACE ENTIRE FRONT WALL MOUNTED SLIDE GATE (TYP. OF 2)

EX. NORTH CCC INFLUENT CHAMBER 2
N.T.S. CC-D-5

- GENERAL NOTES**
- 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.
 - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE, COAT W/ BITUMASTIC AND GROUT FINISH.
 - CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.

LEGEND:
 EQUIPMENT TO BE REMOVED



CAP BLOWER AIR HEADER WITH 8" 316 SS BLIND FLANGE

REMOVE BLOWER AIR PIPING DIFFUSING TO NORTH AND SOUTH CCC

EX. BLOWER BUILDING 3
N.T.S. CC-D-5

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NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

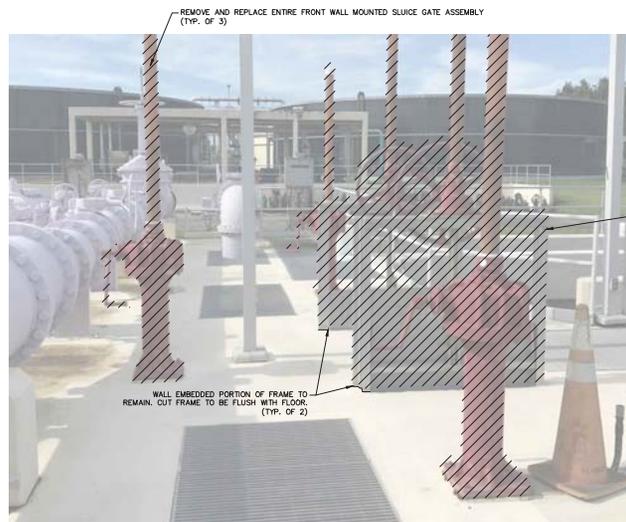
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CCC NORTH DEMOLITION DETAILS

SHEET NUMBER CC-D-5

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REMOVE AND REPLACE ENTIRE FRONT WALL MOUNTED SLUICE GATE ASSEMBLY (TYP. OF 3)

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

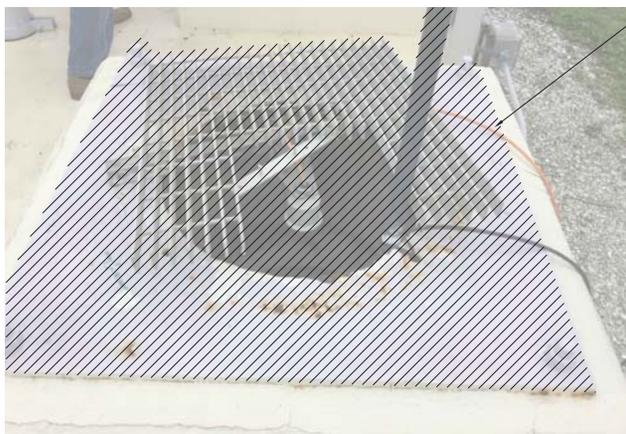
WALL EMBEDDED PORTION OF FRAME TO REMAIN. CUT FRAME TO BE FLUSH WITH FLOOR (TYP. OF 2)

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



REMOVE AND REPLACE 14" CHECK VALVE

EX. 14" CHECK VALVE ASSEMBLY 2
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. EFFLUENT PUMP STATION LEVEL TRANSDUCER 3
N.T.S. CC-D-6



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

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

- GENERAL NOTES**
- 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.
 - FOR ALL EQUIPMENT REMOVED, REMOVE ALL ANCHORS TO MINIMUM 1/2" BELOW SURFACE. COAT W/ BITUMASTIC AND GROUT FINISH.
 - CONTRACTOR TO REMOVE RAILING ASSEMBLY AND ENSURE A FLUSH FINISH AT REMAINING END POSTS.



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

NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

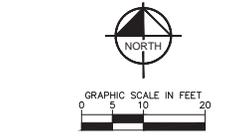
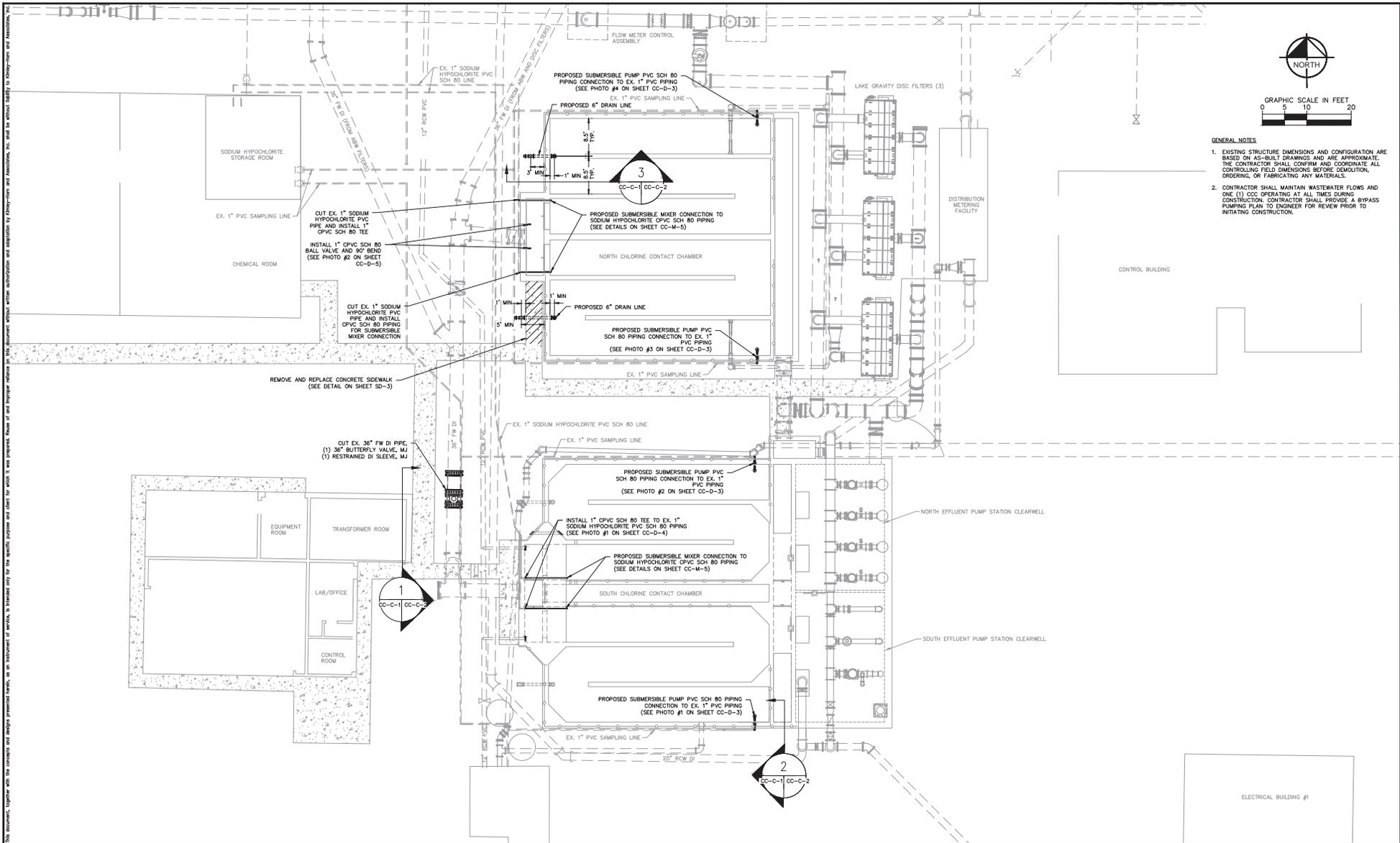
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DATE:

EFFLUENT PUMP STATION DEMOLITION DETAILS

SHEET NUMBER
CC-D-6



- 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.

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145400021

DATE
1/7/2019

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DESIGNED BY WWW

DRAWN BY KEG

CHECKED BY WEW

MANATEE COUNTY

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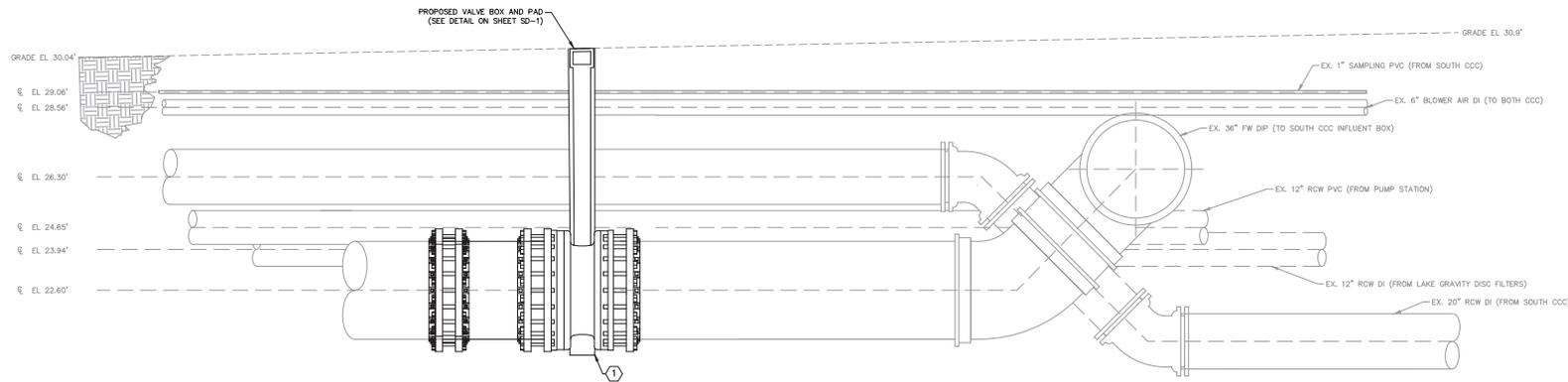
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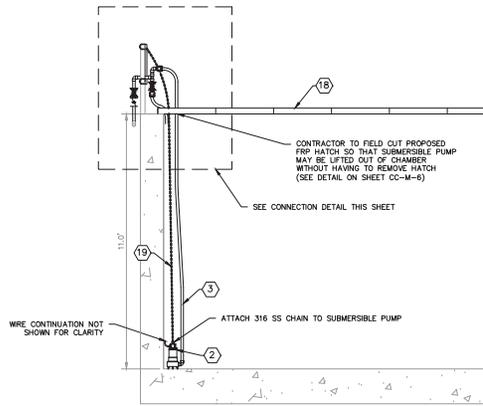
CCC SITE PIPING PLAN

SHEET NUMBER
CC-C-1

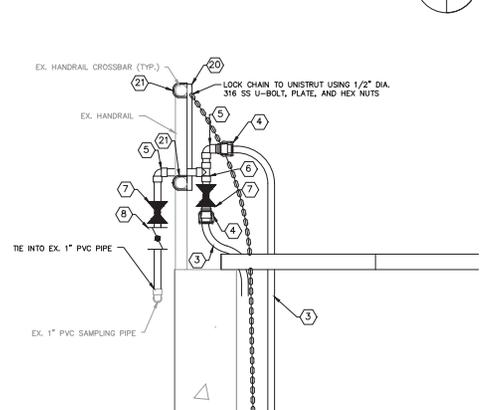
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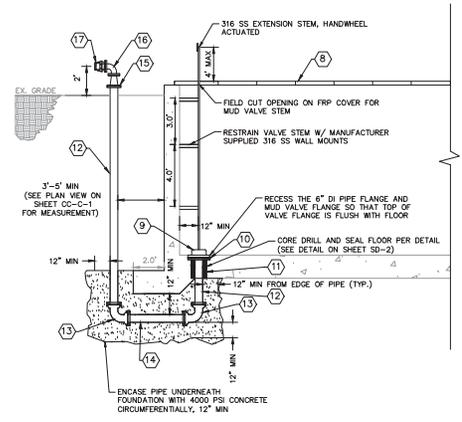
BUTTERFLY VALVE TIE-IN CROSS SECTION
1/2" = 1'-0"



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, M/J
 - DAYTON SUBMERSIBLE SUMP PUMP, PROPLENE MODEL 3YU68, 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, M/J
 - 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.

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

MANATEE COUNTY

KIMLEY-HORN

NORTH WRF HEADWORKS, CLARIFIERS
AND CCC IMPROVEMENTS

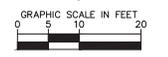
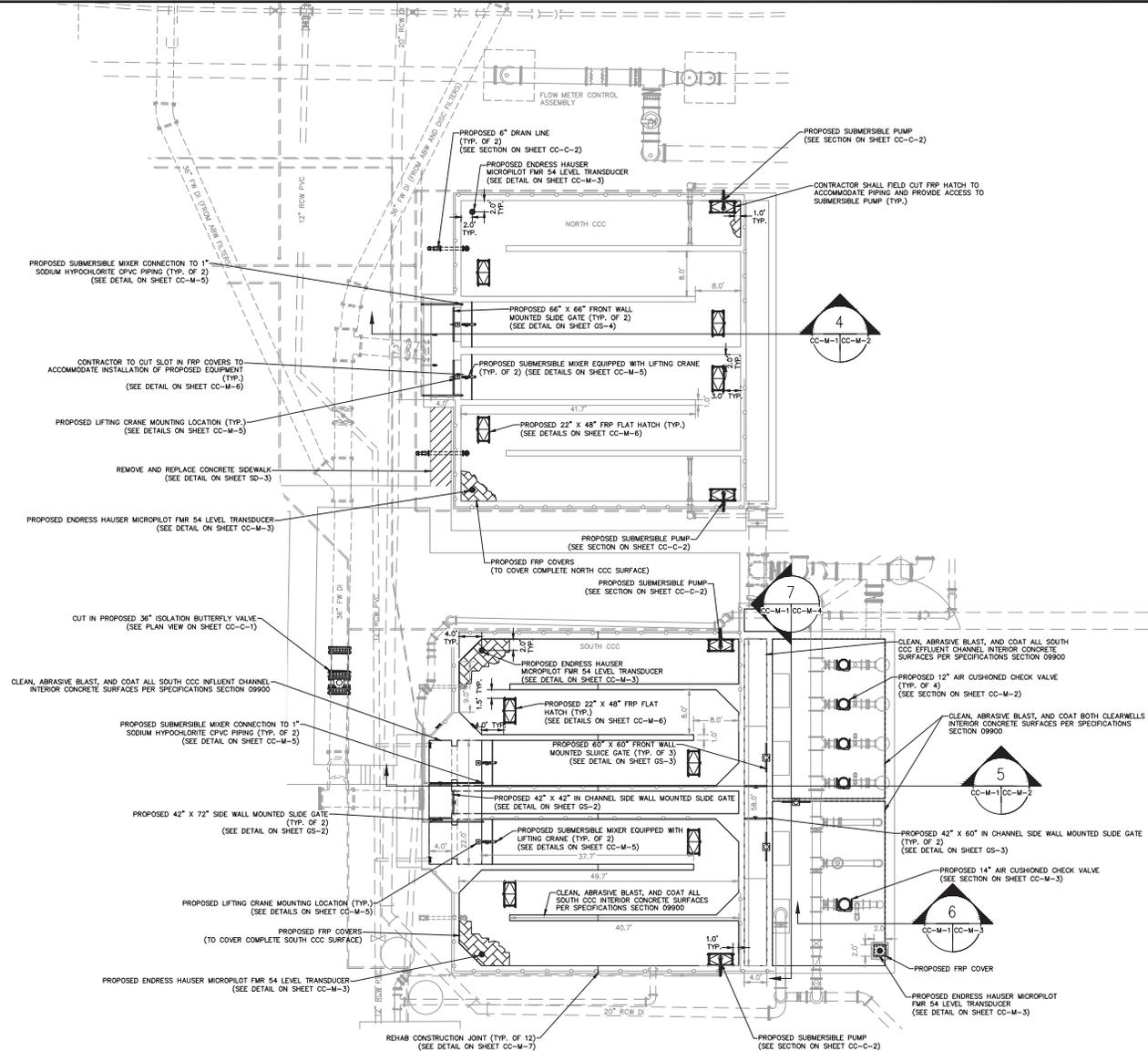
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DATE:

CCC SITE PIPING SECTION

SHEET NUMBER
CC-C-2

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2. 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.
3. SUBMERSIBLE MIXERS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS PER SPECIFICATIONS SECTION 11500.
4. 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 - IMMERSION"
5. CONTRACTOR TO MODIFY FRP COVERS FOR ALL EQUIPMENT INSTALLATION AS NECESSARY.
6. ALL EXPOSED PIPING, FITTINGS, VALVES, AND EQUIPMENT SHALL BE PAINTED PER SPECIFICATIONS SECTION 09902.

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CHECKED BY NEW

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AND CCC IMPROVEMENTS**

MANATEE COUNTY

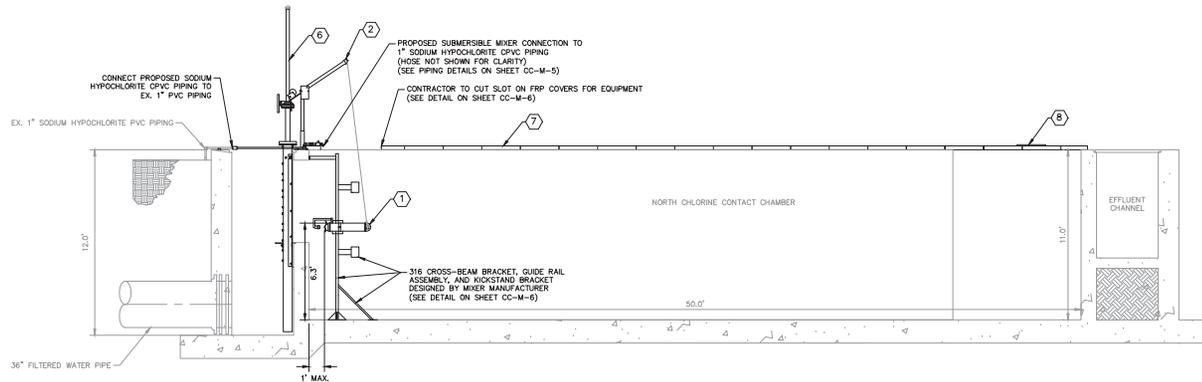
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**CCC NORTH & SOUTH
IMPROVEMENTS PLAN**

SHEET NUMBER
CC-M-1

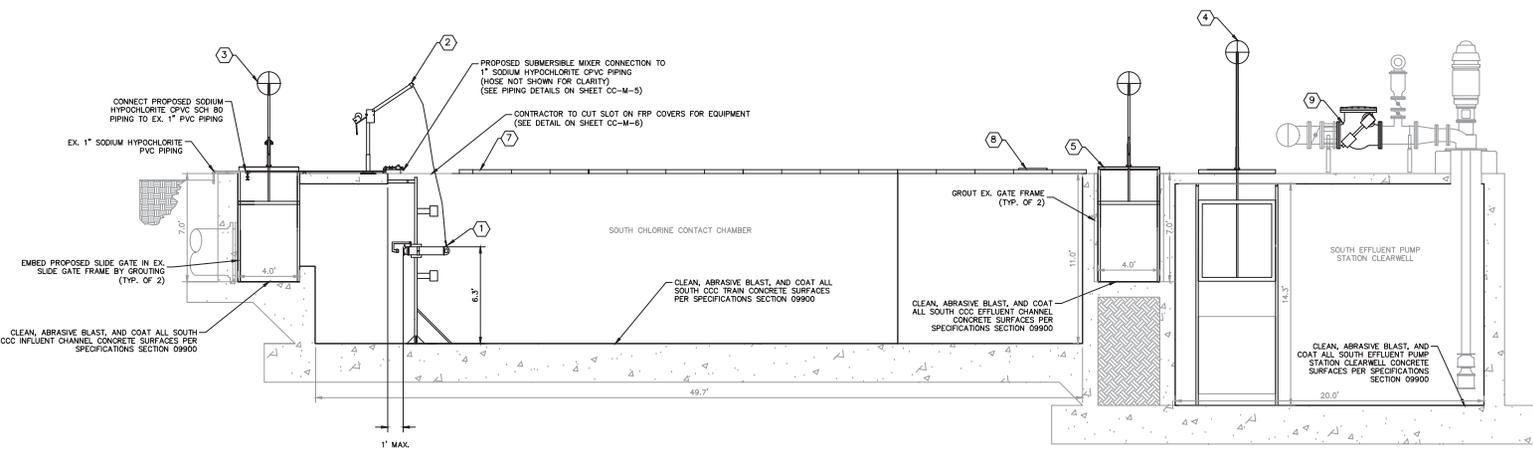
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NORTH CHLORINE CONTACT CHAMBER SECTION 4
1/4" = 1'-0" CC-M-1 CC-M-2

- GENERAL NOTES**
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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 - IMMERSION".
 - 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.

- 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 SFFSM1, 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)
 - 30" X 48" FRP FLAT HATCH (SEE DETAILS ON SHEET CC-M-6)
 - DEZURK 12" AIR CUSHIONED SIDE MOUNTED CYLINDER (LEVER & WEIGHT) SMING CHECK VALVE MODEL CVS 250A, FL



SOUTH CHLORINE CONTACT CHAMBER SECTION 5
1/4" = 1'-0" CC-M-1 CC-M-2

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CHECKED BY WEW

NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL

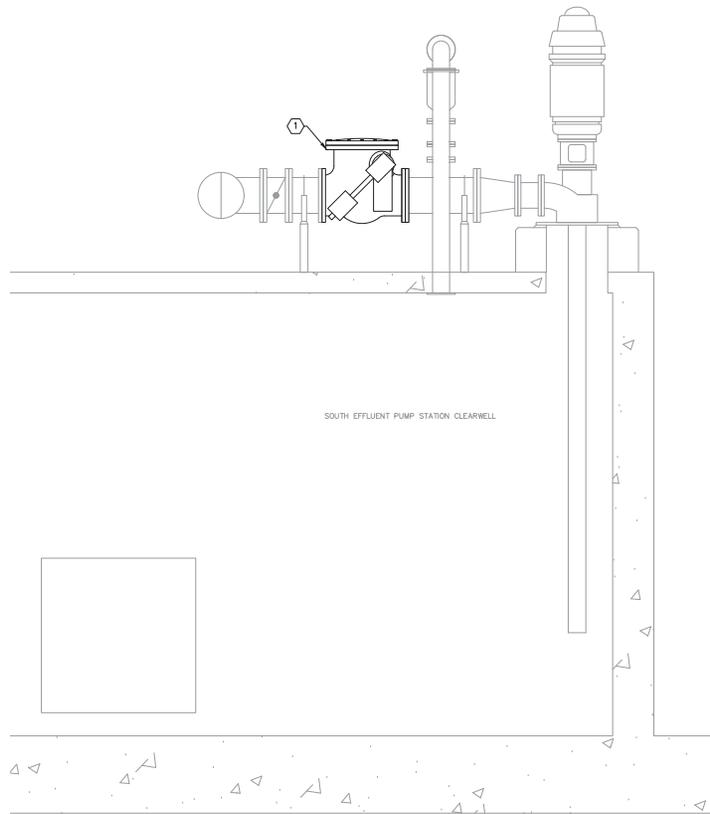
KEG

FL DATE:

CCC NORTH & SOUTH IMPROVEMENTS SECTION

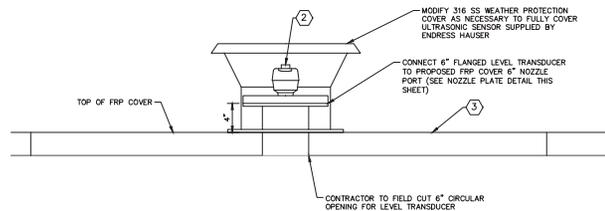
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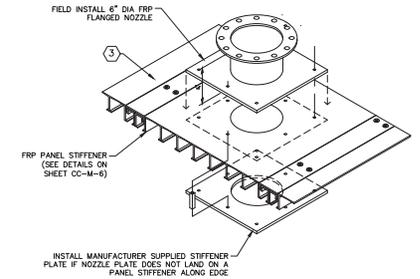
EFFLUENT PUMP STATION SECTION
1/2" = 1'-0"

6
CC-M-1/CC-M-3



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

1
CC-M-3



NOZZLE PLATE MOUNTING DETAIL
1" = 1'-0"

2
CC-M-3

GENERAL NOTES

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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.
- 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

KEY NOTES

- SEZURIK 14" AIR CUSHIONED SIDE MOUNTED CYLINDER (LEVER & WEIGHT) SWING CHECK VALVE MODEL CYS 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)

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
 Digitally signed by: William W. White
 DN: cn=William W. White, email=wwwhite@kimley-horn.com, ou=Kimley-Horn and Associates, Inc., ou=Professional Engineers, c=US
 FL DATE:

**CCC NORTH & SOUTH
IMPROVEMENTS SECTION**

SHEET NUMBER
CC-M-3

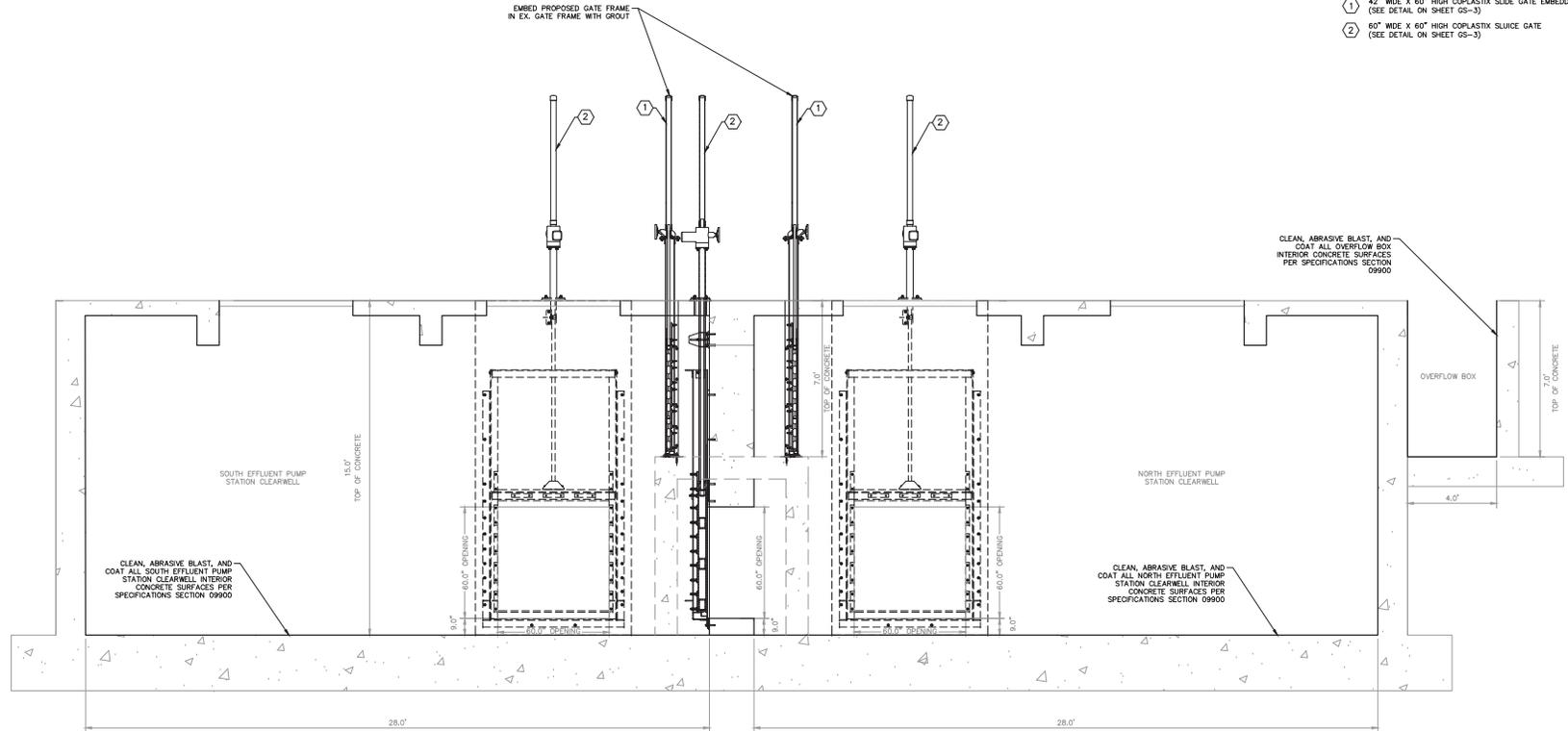
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GENERAL NOTES

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 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.
3. CLEAN, ABRASIVE BLAST, AND COAT ALL INTERIOR CONCRETE SURFACES IN SOUTH CCC, INCLUDING INFLUENT AND EFFLUENT CHANNELS, EFFLUENT PUMP STATION CLEARWELLS, AND OVERFLOW BOX PER SPECIFICATIONS SECTION 09900 "CONCRETE SURFACES - IMMERSION"

KEY NOTES

- ① 42" WIDE X 60" HIGH COPLASTIC SLIDE GATE EMBEDDED IN EX. GATE FRAME (SEE DETAIL ON SHEET 05-3)
- ② 60" WIDE X 60" HIGH COPLASTIC SLUICE GATE (SEE DETAIL ON SHEET 05-3)



EFFLUENT PUMP STATION SECTION 7
1/2" = 1'-0"

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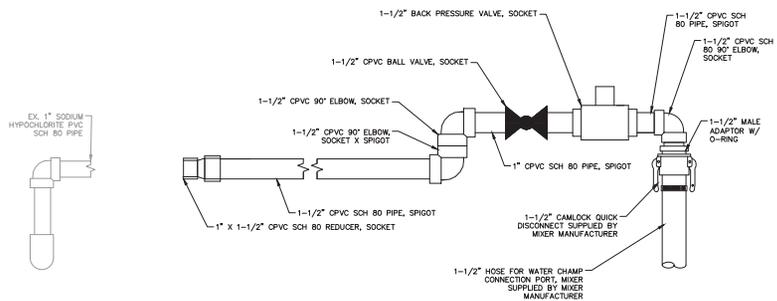
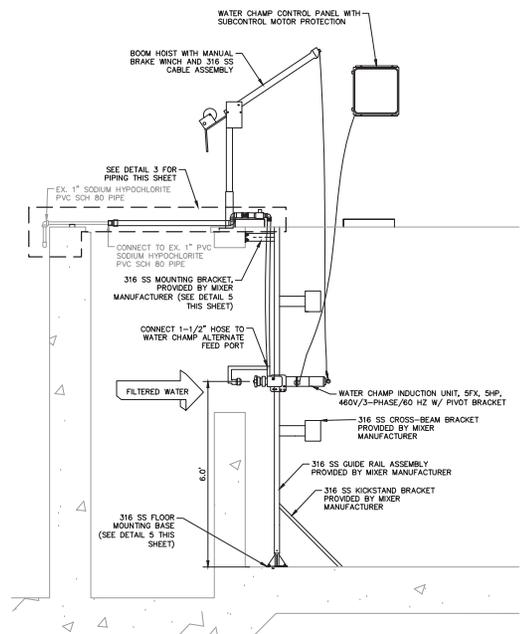
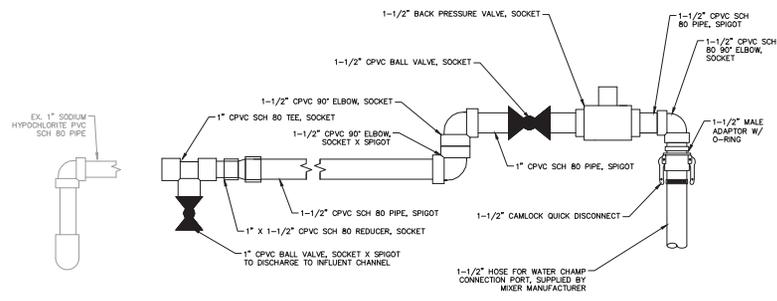
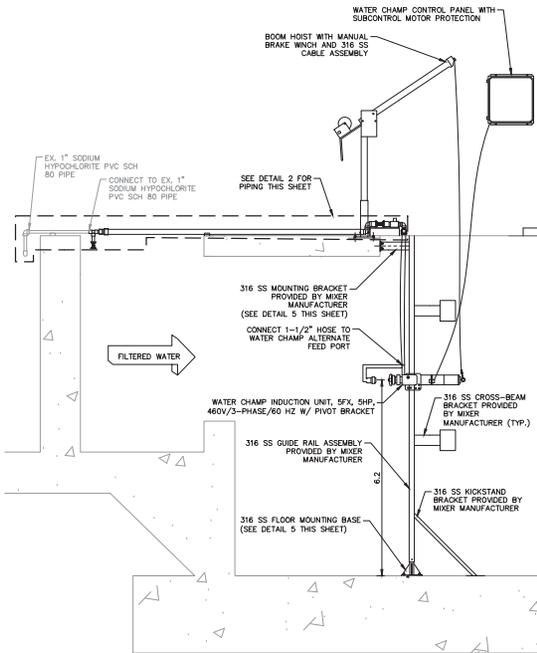
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EFFLUENT PUMP STATION IMPROVEMENTS SECTION

SHEET NUMBER	CC-M-4
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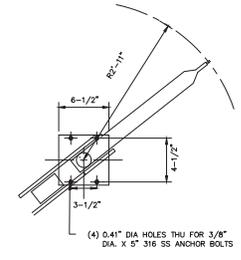
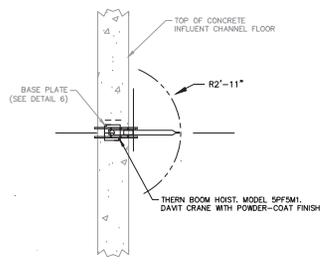
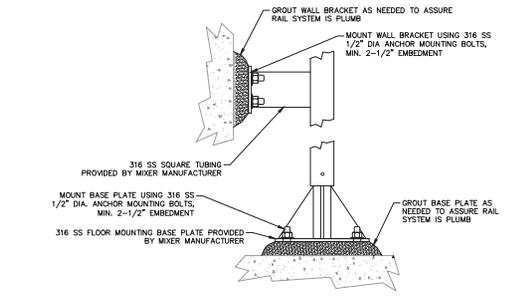
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SOUTH CCC SUBMERSIBLE MIXER DETAIL 1
SCALE: 1/2" = 1'-0"

NORTH CCC SODIUM HYPOCHLORITE CONNECTION DETAIL 3
SCALE: 1" = 1'-0"

NORTH CCC SUBMERSIBLE MIXER DETAIL 4
SCALE: 1/2" = 1'-0"



SUBMERSIBLE MIXER MOUNTING DETAIL 5
N.T.S.

DAVIT CRANE LAYOUT DETAIL 6
SCALE: 1/2" = 1'-0"

DAVID CRANE BASE PLATE DETAIL 7
SCALE: 1/2" = 1'-0"

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NORTH WRF HEADWORKS, CLARIFIERS AND CCC IMPROVEMENTS

MANATEE COUNTY

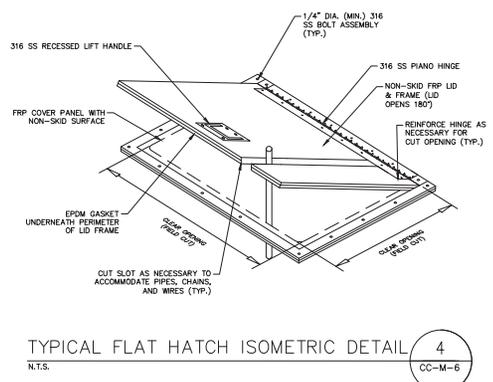
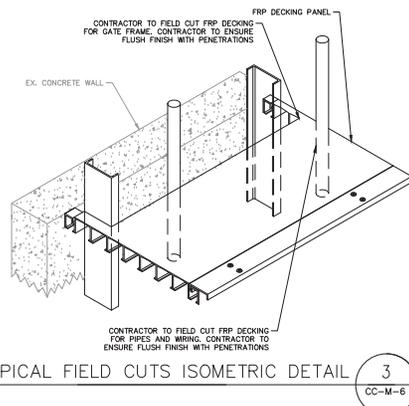
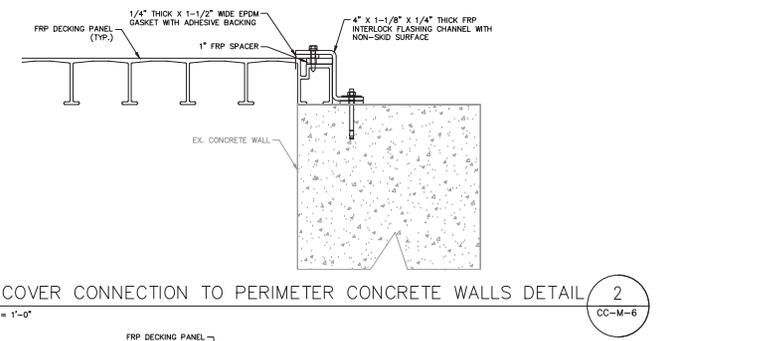
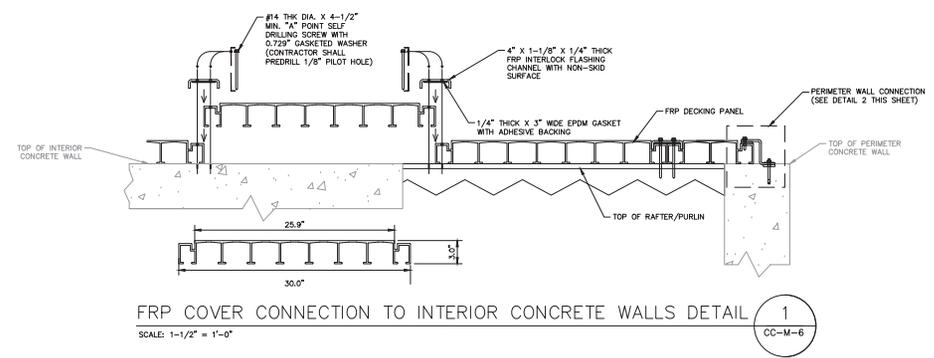
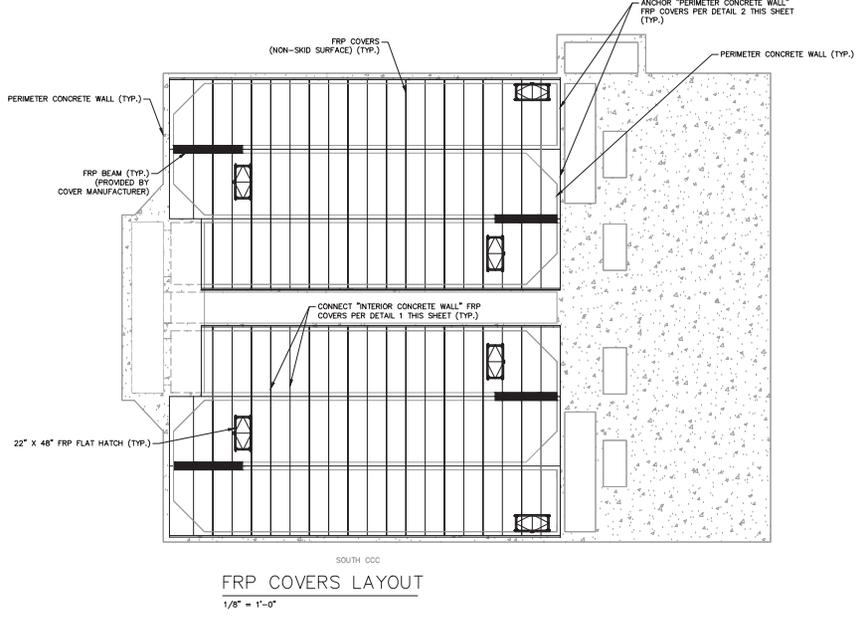
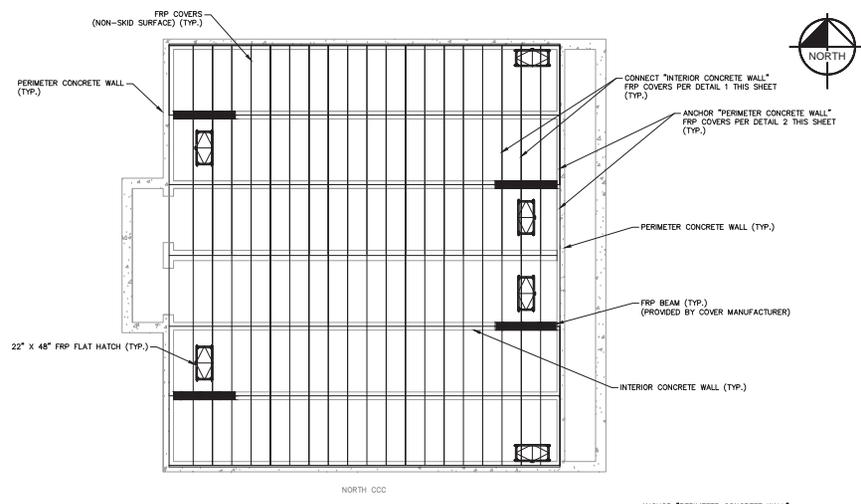
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CCC NORTH & SOUTH IMPROVEMENTS DETAILS

SHEET NUMBER
CC-M-5

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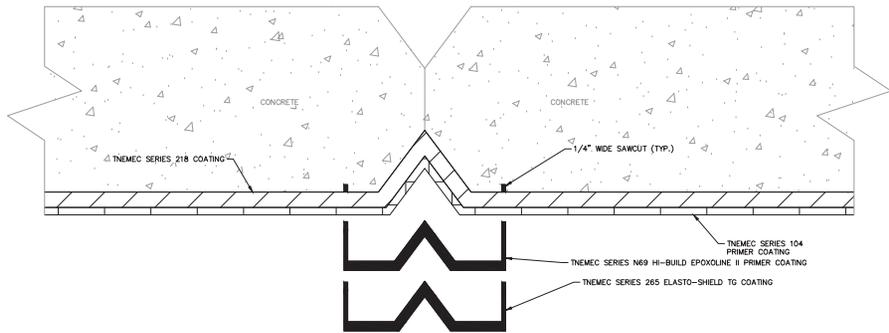
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FRP COVER DETAILS

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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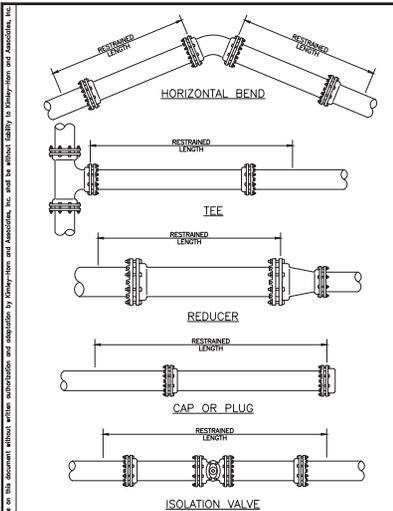
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FL DATE:

CCC SOUTH COATING IMPROVEMENTS

SHEET NUMBER
CC-M-7



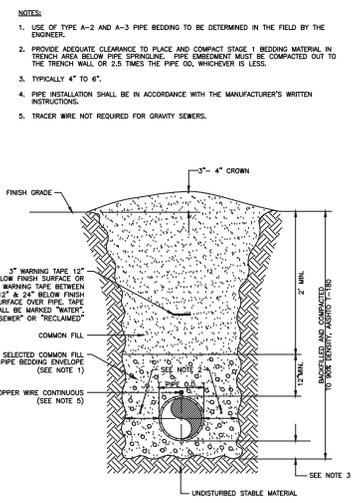
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS	TEES										REDUCERS	PLUGS & VALVES	
		SIZE		SIZE		SIZE		SIZE		SIZE				
36	142	59	28	28	28	28	28	28	28	28	28	28	28	453
30	124	51	25	25	25	25	25	25	25	25	25	25	25	391
24	106	44	21	21	21	21	21	21	21	21	21	21	21	327
20	92	38	18	18	18	18	18	18	18	18	18	18	18	280
16	77	32	15	15	15	15	15	15	15	15	15	15	15	231
12	61	25	12	12	12	12	12	12	12	12	12	12	12	181
10	52	22	10	10	10	10	10	10	10	10	10	10	10	153
8	44	18	9	9	9	9	9	9	9	9	9	9	9	128
6	34	14	7	7	7	7	7	7	7	7	7	7	7	98
4	24	10	5	5	5	5	5	5	5	5	5	5	5	69

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS	TEES										REDUCERS	PLUGS & VALVES	
		SIZE		SIZE		SIZE		SIZE		SIZE				
36	100	42	20	20	20	20	20	20	20	20	20	20	20	188
30	88	37	18	18	18	18	18	18	18	18	18	18	18	162
24	75	31	15	15	15	15	15	15	15	15	15	15	15	135
20	65	27	13	13	13	13	13	13	13	13	13	13	13	116
16	54	22	11	11	11	11	11	11	11	11	11	11	11	96
12	43	18	8	8	8	8	8	8	8	8	8	8	8	75
10	37	15	7	7	7	7	7	7	7	7	7	7	7	63
8	30	13	6	6	6	6	6	6	6	6	6	6	6	53
6	24	10	5	5	5	5	5	5	5	5	5	5	5	41
4	17	7	3	3	3	3	3	3	3	3	3	3	3	29

NOTE:
1. SEE RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 8 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.
2. FOR VERTICAL BENDS, SEE ADDITIONAL RESTRAIN LENGTHS DETAIL FOR DIP THIS PAGE



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2	05/10/11	DATE OF APPROVAL

ADDITIONAL RESTRAIN LENGTHS DETAIL FOR DIP

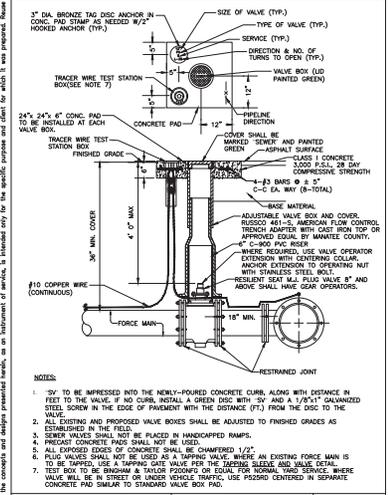
- (SOURCES: EBAA IRON RESTRAIN LENGTH CALCULATION PROGRAM FOR DI PIPE, RELEASE 7.1.2)
- NOTE:
1. THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
SOIL TYPE-4
TEST PRESSURE-200 PSI
TRENCH TYPE-3
SAFETY FACTOR-1.5
MINIMUM PIPE LENGTH ALONG TEE RUN-3'
DEPTH OF BURY-3' VERTICAL OFFSET-3'
2. THE RESTRAINED PIPE LENGTHS APPLY TO POLYWRAPPED DI PIPE.
3. ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
4. RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF FITTINGS.
5. RESTRAINED JOINTS SHALL EXTEND ONE JOINT BEYOND MIN. LENGTH REQUIRED.

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	503	
	LOWER BEND	77	109	143	171	201	257	311	363	435	503	
45° VERT. OFFSET	UPPER BEND	32	45	59	71	83	107	129	151	180	209	
	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	32	
11.25° 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	

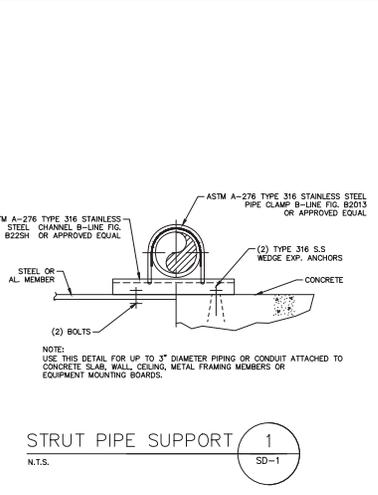
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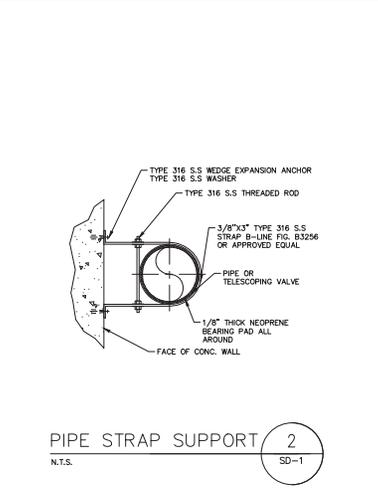
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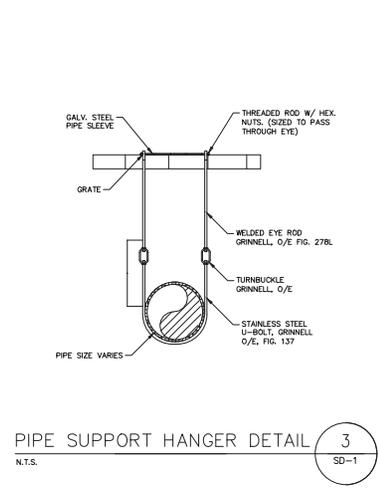
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STRUT PIPE SUPPORT 1
N.T.S.



PIPE STRAP SUPPORT 2
N.T.S.



PIPE SUPPORT HANGER DETAIL 3
N.T.S.

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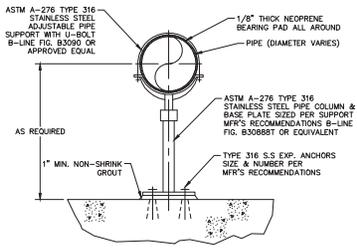
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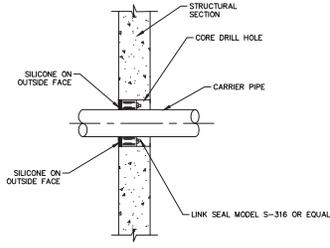
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SHEET NUMBER
SD-1

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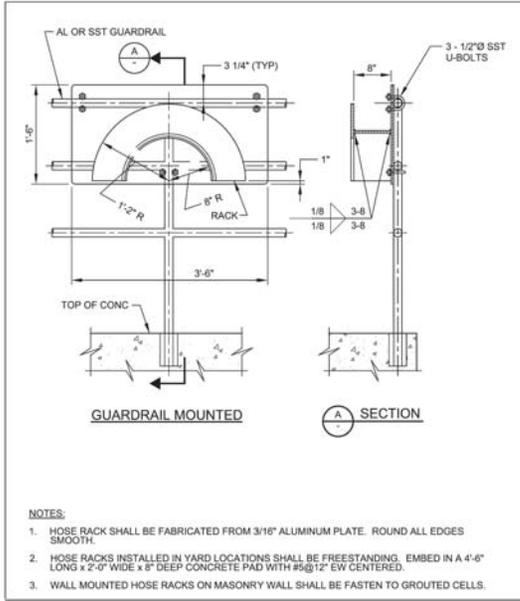


PIPE COLUMN SUPPORT 1
N.T.S. SD-2



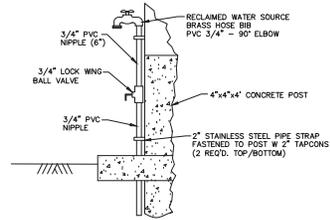
PIPE PENETRATION DETAIL 3
N.T.S. SD-2

NOTE:
 1. INSTALL SEALS FROM DRY SIDE OF PENETRATION. WET SIDE FIELD 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.

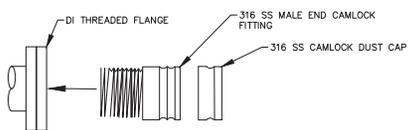


HOSE RACK DETAIL 4
N.T.S. SD-2

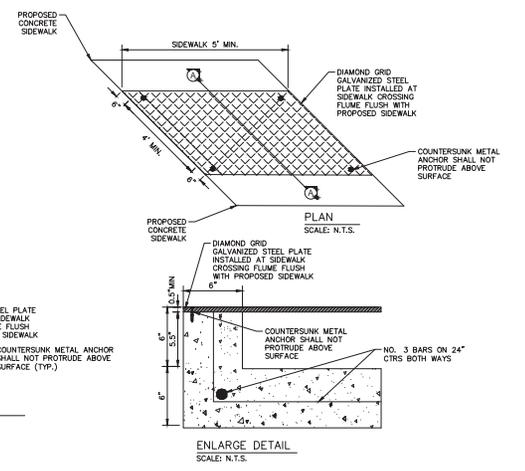
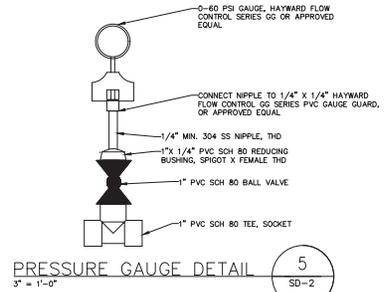
NOTES:
 1. HOSE RACK SHALL BE FABRICATED FROM 3/16" ALUMINUM PLATE. ROUND ALL EDGES SMOOTH.
 2. HOSE RACKS INSTALLED IN YARD LOCATIONS SHALL BE FREESTANDING. EMBED IN A 4'-6" LONG x 2'-0" WIDE x 8" DEEP CONCRETE PAD WITH #5@12" EW CENTERED.
 3. WALL MOUNTED HOSE RACKS ON MASONRY WALL SHALL BE FASTEN TO GROUTED CELLS.



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



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



BASED ON 100 P.S.I. LIVE LOAD AND MAX DEAD & LIVE LOAD DEFLECTION OF L/240

PLATE THICKNESS SHALL BE BRASS BOLTS. BOLTS SHALL FLUSH WITH TOP OF PLATE AND SPACED A MAXIMUM OF 12" ON CENTERS.

1/2" DIA. SELF-DRILLING ANCHORS SHALL BE USED AND SPACED THE SAME. SURFACE OF PLATE SHALL BE A NON-SOD MATERIAL.

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

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

No.	REVISIONS	DATE	BY

Kimley-Horn

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 DRAWN BY KEG
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MANATEE COUNTY

LICENSED PROFESSIONAL

FL DATE:

STANDARD DETAILS

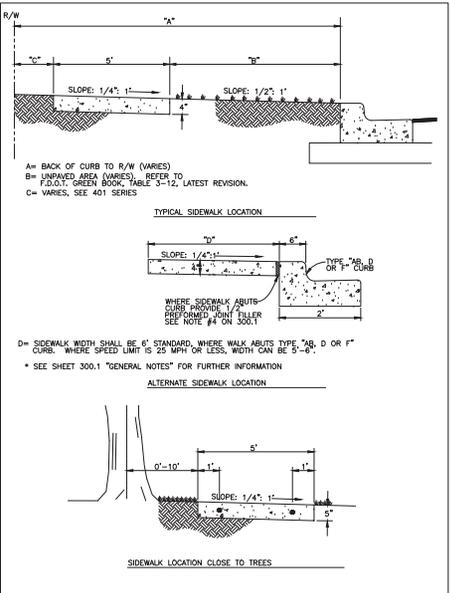
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GENERAL NOTES

- SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 PSI CONCRETE. WHERE SIDEWALK ADJACENT TO DRIVEWAY, THE MINIMUM SHALL BE 6" OF CLASS 1 CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH.
 - SEE SHEETS #101.2 & 101.3.
- 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.
- 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".
- 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 LOW FLOORS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.
- CONTRACTION JOINTS:
 - OPEN TYPE JOINTS
 - OPEN TYPE CONSTRUCTION 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.
- SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.
- HANDICAP RAMP SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND SECTIONS 301.0, 301.1 AND 301.2.
- ALL SIDEWALKS ON R/W WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 6" 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 510, SHEETS 1 & 2.



MANATEE COUNTY TRANSPORTATION DEPARTMENT		SIDEWALKS GENERAL NOTES	301.0
REV#	DATE		
	6/12/07		
	DATE OF BLDG. APPROVAL		

MANATEE COUNTY TRANSPORTATION DEPARTMENT		SIDEWALK REQUIREMENTS	301.1
REV#	DATE		
	6/12/07		
	DATE OF BLDG. APPROVAL		

No.	REVISIONS	DATE	BY

Kimley»Horn

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

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

MANATEE COUNTY

FL DATE:

LICENSED PROFESSIONAL

Digitally signed by [Signature]

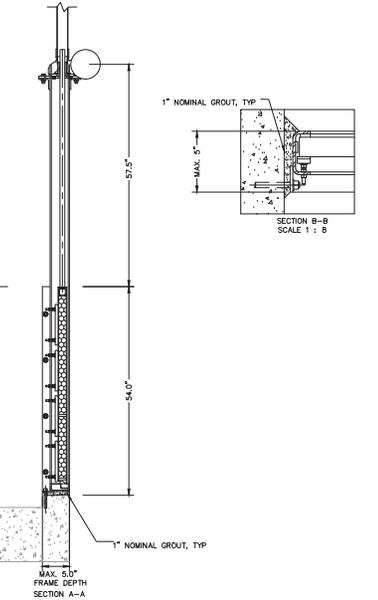
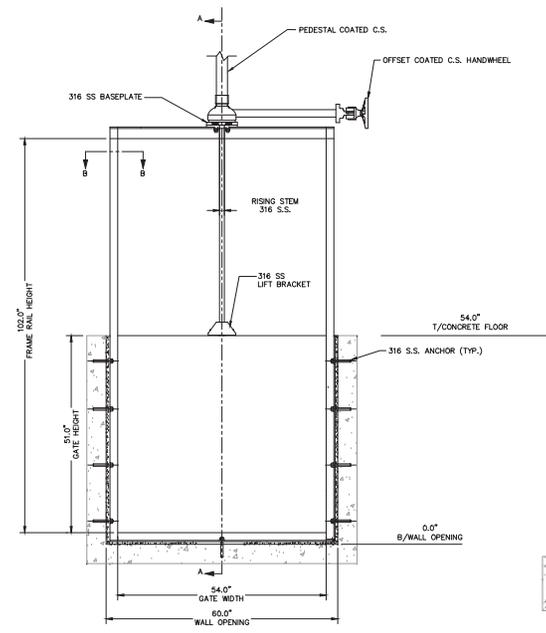
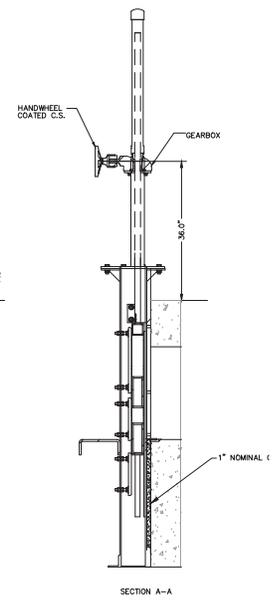
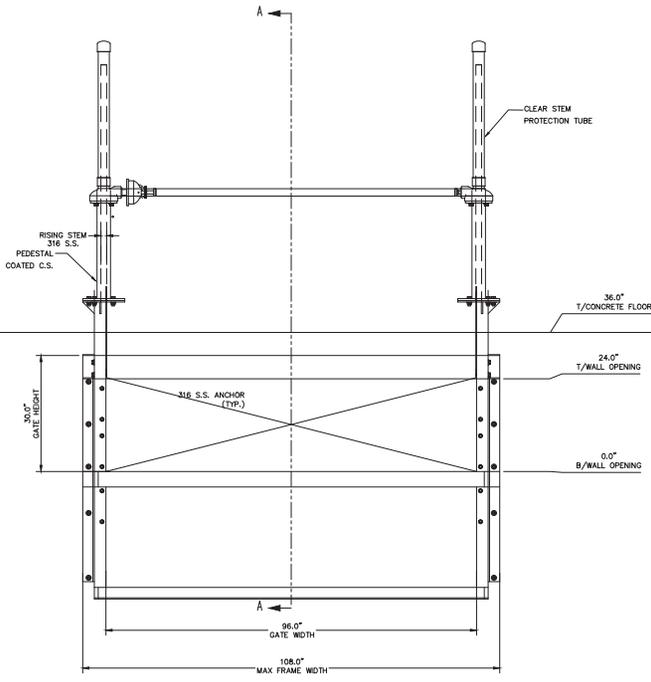
STANDARD DETAILS

SHEET NUMBER
SD-3

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GATE SCHEDULE							
PROJECT AREA	LOCATION	TYPE	SIZE	QUANTITY	NUMBER LABEL	HEAD PRESSURE	FRAME MATERIAL
CLARIFIER	FLOW SPLITTER BOX	FRONT WALL MOUNTED WEIR GATE	96" X 36"	FOUR (4)	#1-#4	DOOR DEPTH	316 LSS
		SIDE WALL MOUNTED SLIDE GATE	54" X 51"	ONE (1)	#5	DOOR DEPTH	316 LSS
SOUTH CCC	INFLUENT BOX	SIDE WALL MOUNTED SLIDE GATE	42" X 72"	TWO (2)	#6 AND #7	DOOR DEPTH	ZINC-SPRAYED CARBON STEEL
	INFLUENT BYPASS CHANNEL	SIDE WALL MOUNTED SLIDE GATE	42" X 42"	ONE (1)	#8	DOOR DEPTH	ZINC-SPRAYED CARBON STEEL
EFFLUENT PUMP STATION	EFFLUENT CHANNEL	SIDE WALL MOUNTED SLIDE GATE	42" X 60"	TWO (2)	#9 AND #10	DOOR DEPTH	ZINC-SPRAYED CARBON STEEL
	CLEARWELL	FRONT WALL MOUNTED SLUICE GATE	60" X 60"	THREE (3)	#11-#13	13'-0"	ZINC-SPRAYED CARBON STEEL
NORTH CCC	INFLUENT BOX	SIDE WALL MOUNTED SLIDE GATE	66" X 66"	TWO (2)	#14 AND #15	DOOR DEPTH	ZINC-SPRAYED CARBON STEEL
	INFLUENT BOX	FRONT WALL MOUNTED SLUICE GATE	42" X 42"	ONE (1)	#16	18'-0"	316 LSS
AEROBIC/ANOXIC BASINS	FLOW SPLITTER BOX	FRONT WALL MOUNTED SLUICE GATE	48" X 48"	ONE (1)	#17	18'-0"	316 LSS

- 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



96" X 30" WEIR GATE - #1, #2, #3, #4 1
3/4" = 1'-0" GS-1

54" X 51" SLIDE GATE - #5 2
3/4" = 1'-0" GS-1

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:

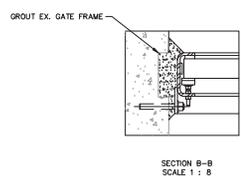
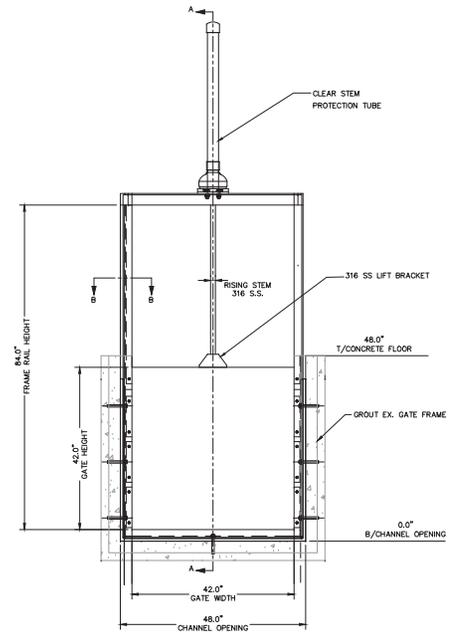
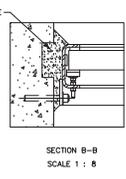
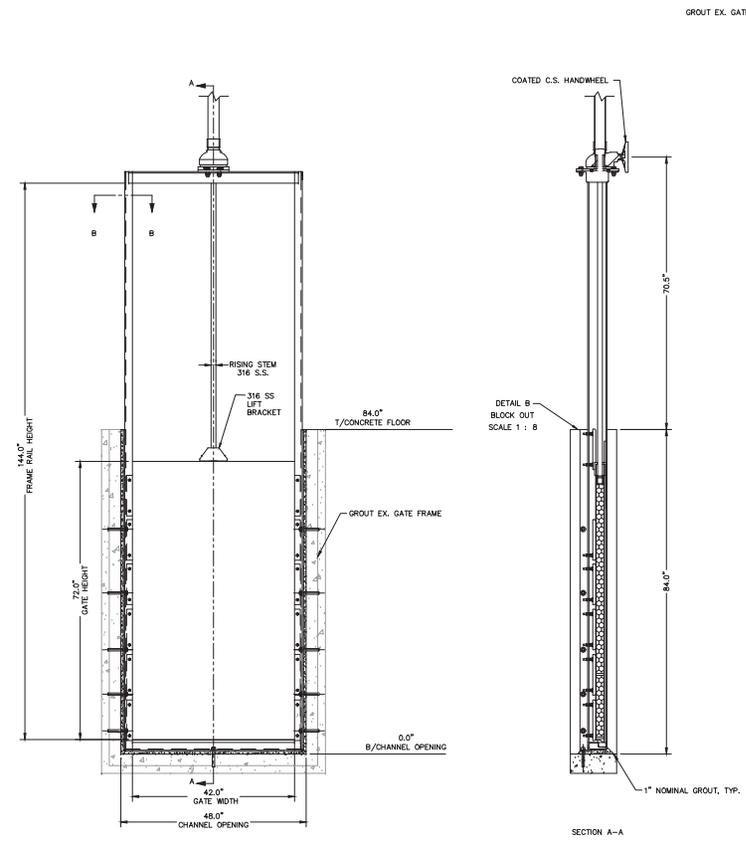
GATE SCHEDULE

GS-1

SHEET NUMBER	GS-1
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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 C603



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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AND CCC IMPROVEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL
Digitally signed by William White
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c=US, ou=Kimley-Horn and Associates, o=Kimley-Horn and Associates, ou=Professional Engineers, email=white@kimley-horn.com

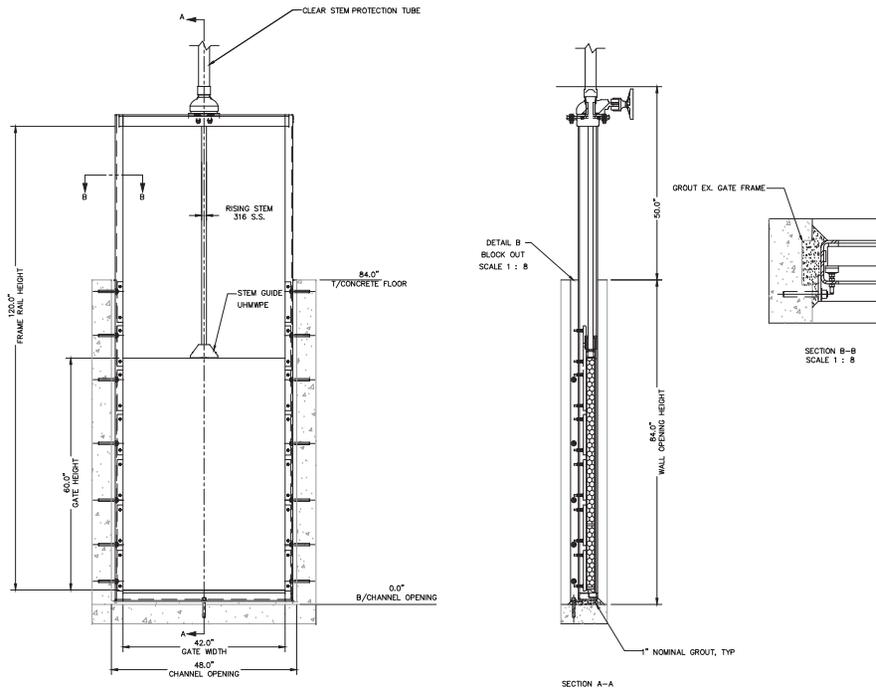
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GATE SCHEDULE

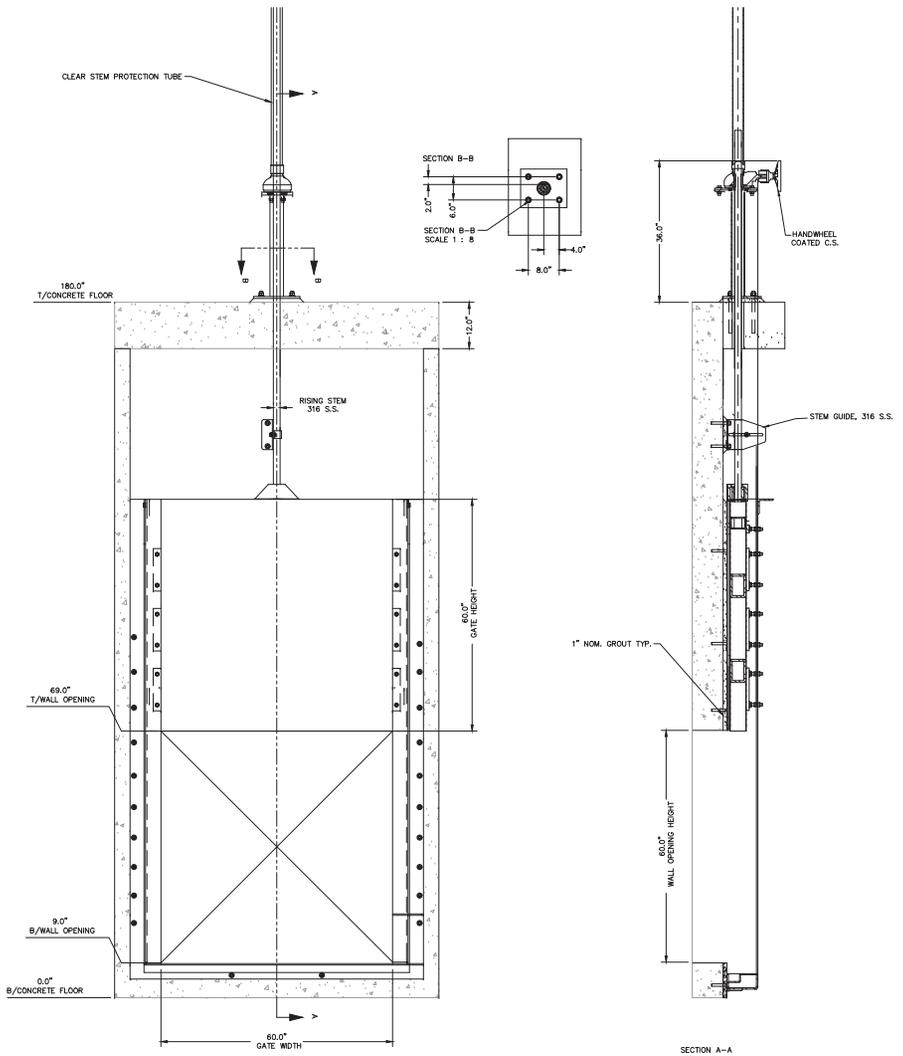
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GS-2

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- 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 ANNA C563



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



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

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

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AND CCC IMPROVEMENTS

MANATEE COUNTY

FL DATE:

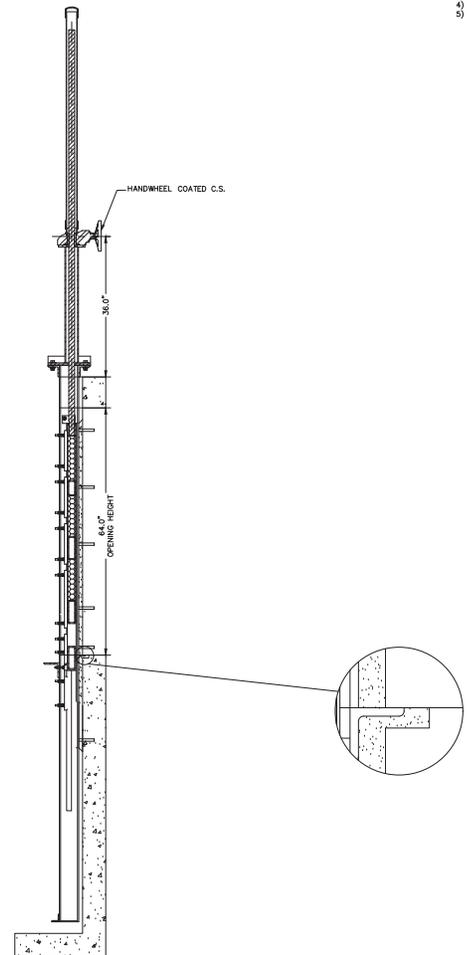
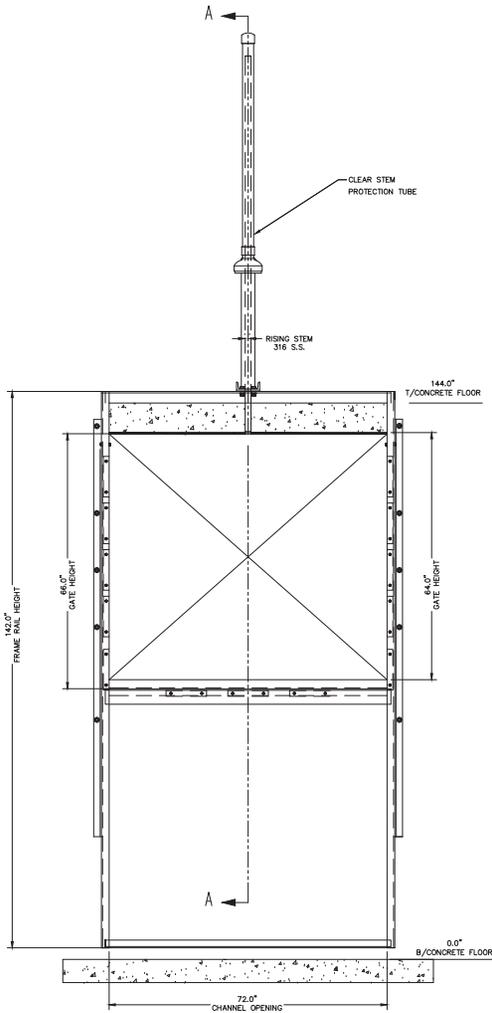
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GATE SCHEDULE

SHEET NUMBER GS-3

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- 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 C263

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

No.	REVISIONS	DATE	BY

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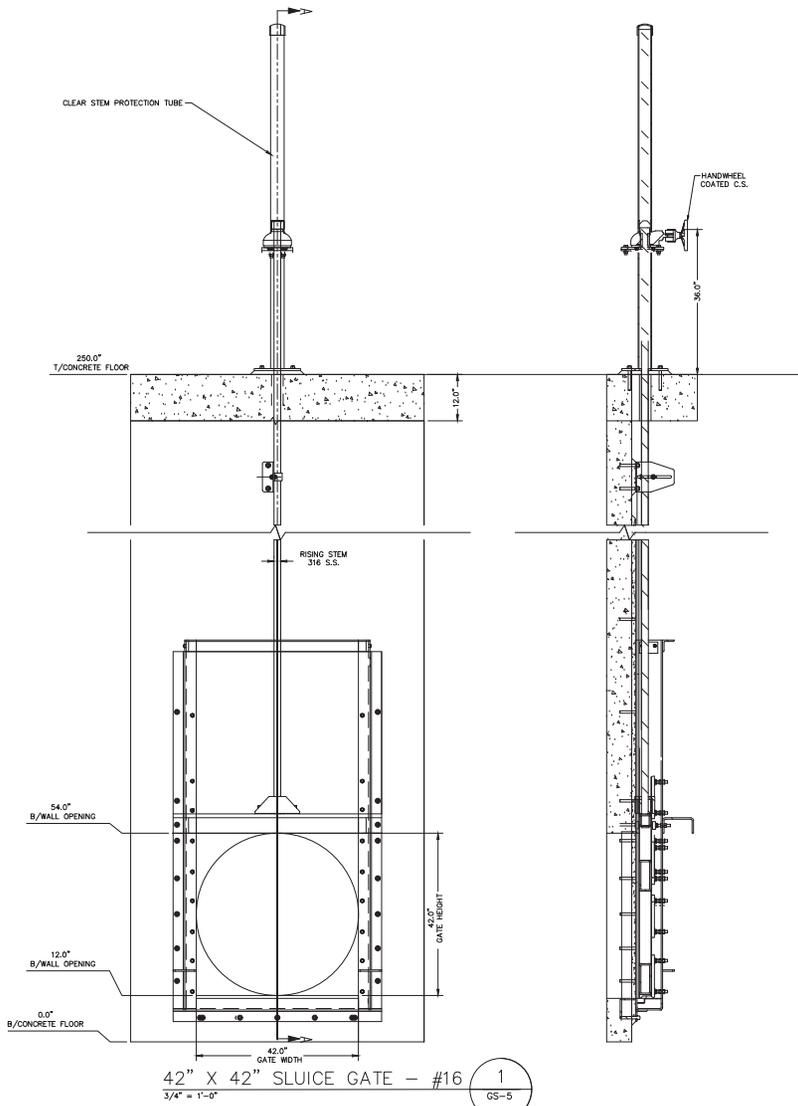
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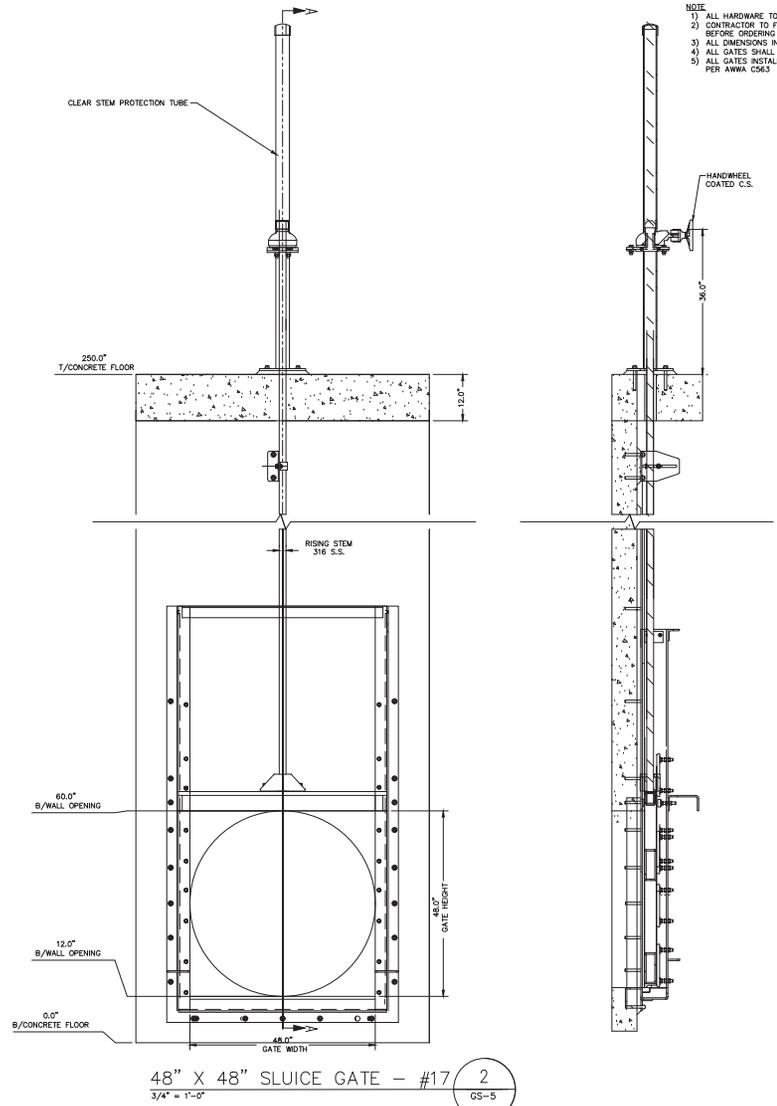
GATE SCHEDULE

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GS-4

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42" X 42" SLUICE GATE - #16 1
3/4" = 1'-0" GS-5



48" X 48" SLUICE GATE - #17 2
3/4" = 1'-0" GS-5

- 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

No.	REVISIONS	DATE	BY

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

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AND CCC IMPROVEMENTS

MANATEE COUNTY

FL DATE:

LICENSED PROFESSIONAL

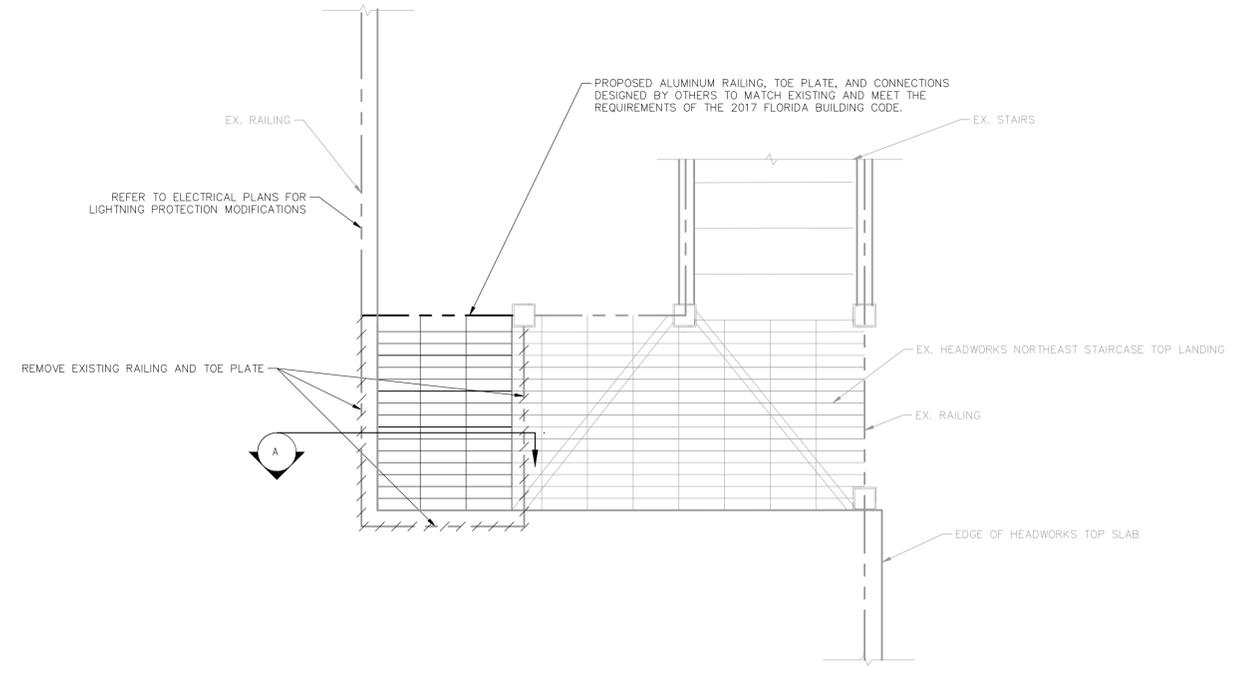
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Signature: Date: 09/04/2019 10:00:00 AM Eastern Daylight Time

GATE SCHEDULE

SHEET NUMBER
GS-5

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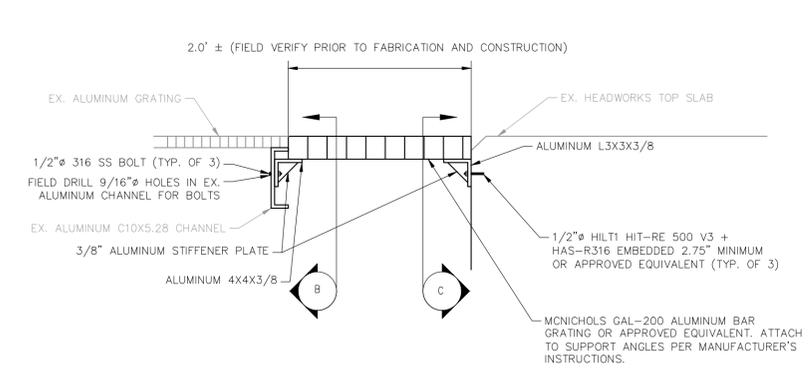
- NOTES:**
1. STRUCTURAL ALUMINUM:
 - (A) STRUCTURAL ALUMINUM SHALL BE 6061-T6 ALLOY, UNLESS OTHERWISE NOTED.
 - (B) ALUMINUM WORK SHALL BE IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION'S SPECIFICATIONS FOR ALUMINUM STRUCTURES, LATEST EDITION.
 - (C) FASTENERS: UNLESS NOTED OTHERWISE, ALL FASTENERS SHALL BE 316 STAINLESS STEEL MEETING THE REQUIREMENTS OF ASTM A193.
 - (D) ALL WELDING SHALL CONFORMS WITH AWS D1.2, LATEST STRUCTURAL WELDING CODE - ALUMINUM.
 - (E) ALL FILLET WELDS SHALL HAVE A MINIMUM SIZE OF 1/4" WITH 5356 FILLER ALLOY UNLESS OTHERWISE NOTED.
 - (F) 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

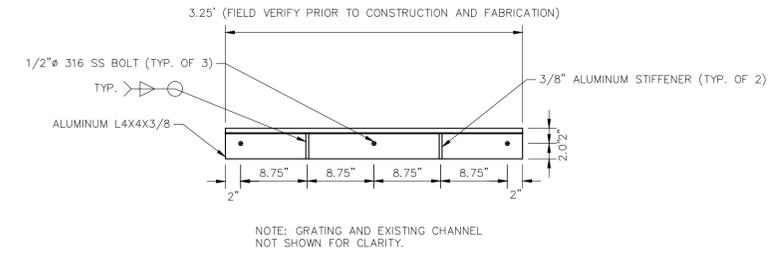
DEAD LOAD (GRATING):	5 PSF
LIVE LOADS:	
A. WALKWAY	100 PSF
WIND LOAD:	
BASIC WIND SPEED	150 MPH
EXPOSURE	B
RISK CATEGORY	II

STAIRWAY PLATFORM EXTENSION PLAN 1
1/2" = 1' - 0"



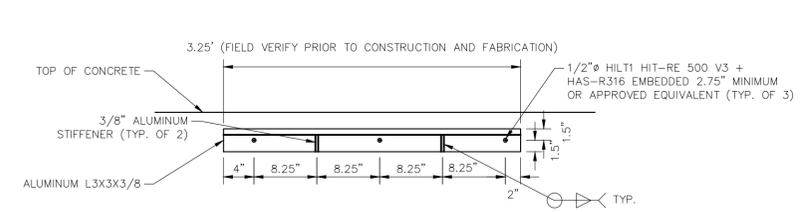
NOTE: SUPPORT ANGLES SHALL BE LOCATED SUCH THAT THE TOP ELEVATION OF THE PROPOSED GRATING MATCHES THE TOP ELEVATION OF THE ADJACENT CONCRETE AND TOP ELEVATION OF EXISTING ALUMINUM GRATING.

STAIRWAY PLATFORM EXTENSION SECTION A 2
1" = 1' - 0"



NOTE: GRATING AND EXISTING CHANNEL NOT SHOWN FOR CLARITY.

STAIRWAY PLATFORM EXTENSION SECTION B 3
1" = 1' - 0"



NOTE: GRATING NOT SHOWN FOR CLARITY.

STAIRWAY PLATFORM EXTENSION SECTION C 4
1" = 1' - 0"

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KHA PROJECT	148400021
DATE	12/11/2018
SCALE	AS SHOWN
DESIGNED BY	LT
DRAWN BY	KEG
CHECKED BY	SES

NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS

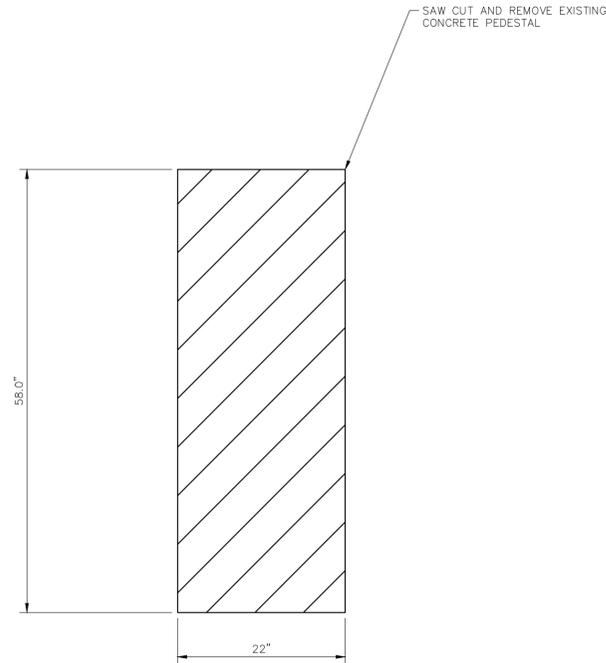
MANATEE COUNTY

LICENSED PROFESSIONAL	SETH E. SCHMID, P.E.
FL LICENSE NUMBER	54640

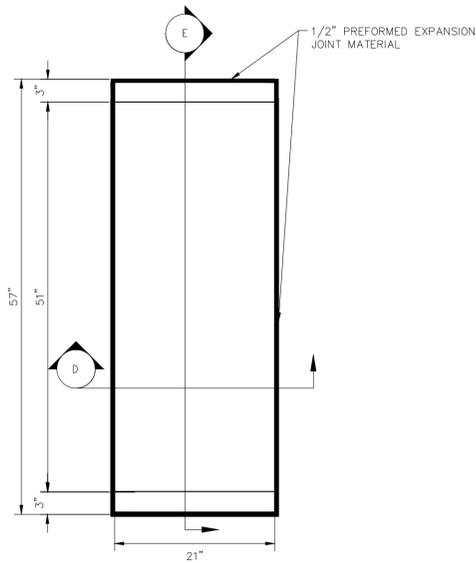
STAIRWAY PLATFORM EXTENSION DETAILS

SHEET NUMBER	S-1
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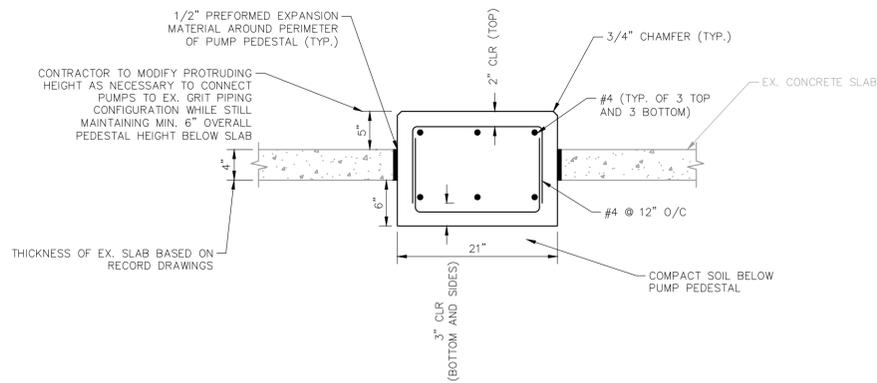
PUMP PEDESTAL DEMOLITION PLAN 1
1" = 1' - 0"
S-2



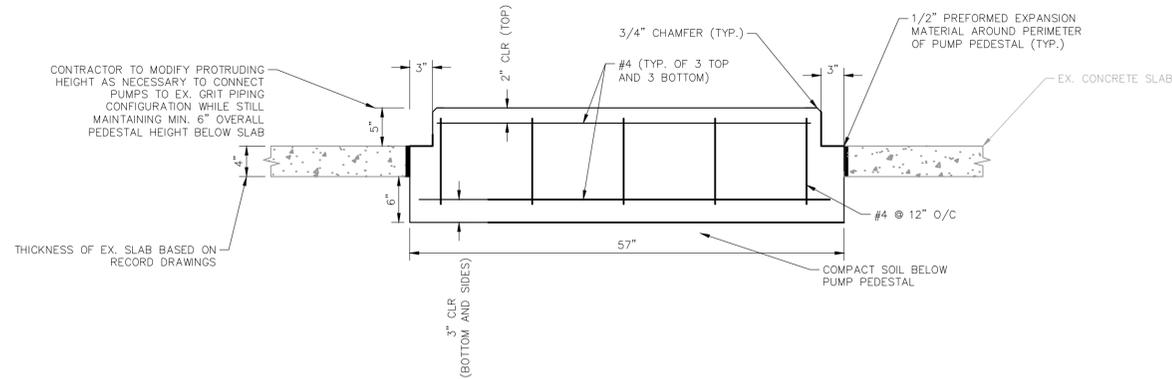
PUMP PEDESTAL PLAN 2
1" = 1' - 0"
S-2

NOTES:

- (A) PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITY LINES FROM ALL DAMAGE. CONTRACTOR SHALL PROTECT THE WORK, ADJACENT PROPERTY, AND THE PUBLIC. CONTRACTOR IS SOLELY RESPONSIBLE FOR DAMAGE OR INJURY DUE TO HIS ACT OR NEGLIGENCE.
- (B) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY AND CONSTRUCTION PROCEDURES.
- (C) PRIOR TO CONSTRUCTION, FIELD VERIFY ALL DIMENSIONS IN THE DRAWINGS AND DETAILS AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
- (D) REFER TO THE ENGINEER FOR INSTRUCTION FOR ANY DIMENSION NOT GIVEN ON DRAWINGS. SCALING OF DRAWINGS SHALL NOT BE USED TO OBTAIN OR VERIFY ANY DIMENSION SHOWN ON THE DRAWINGS.
- 1. CONCRETE:
 - (A) ALL CONCRETE MATERIALS, PLACING AND HANDLING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318 AND ACI 301.
 - (B) ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI (UNLESS OTHERWISE NOTED).
 - (C) PROVIDE 3" CONCRETE COVER OVER REINFORCING BARS EXCEPT AS OTHERWISE NOTED.
 - (D) FORM TIES AND REINFORCING BAR SUPPORTS SHALL BE OF NON-CORROSIVE MATERIAL INCLUDING, BUT NOT LIMITED TO, FIBERGLASS, PLASTIC, AND/OR PRECAST CONCRETE MEETING THESE SPECIFICATIONS.
 - (E) CONCRETE FINISHES:
 - 1. FORMED SURFACE-SMOOTH FORM FINISH PER ACI 301.
 - 2. BROOM FINISH FOR SLAB ON GRADE
 - (F) ALL GROUT SHALL BE NON-SHRINK, NON-METALLIC.
 - (G) CONCRETE SHALL BE CURED IMMEDIATELY AFTER FINISHING OPERATIONS IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS:
 - 1. APPLY A LIQUID MEMBRANE CHEMICAL CURING COMPOUND IN ACCORDANCE WITH ASTM C-309.
 - 2. WET CURE IN ACCORDANCE WITH ACI 301.
 - (H) ALL CONCRETE CONSTRUCTION SHALL BE DONE IN THE DRY.
 - (I) PROVIDE 3/4" CHAMFER ON ALL EXPOSED EDGES UNLESS OTHERWISE NOTED.
 - (J) CONCRETE SHALL BE IN ACCORDANCE WITH ASTM C94:
 - 1. TYPE II PORTLAND CEMENT - ASTM C150
 - 2. AGGREGATES (3/4" MAX.) - ASTM C33
 - 3. USE OF CALCIUM CHLORIDE IS NOT PERMITTED
 - 4. AIR ENTRAINING (4% MAX.) - ASTM C260
 - 5. WATER REDUCING - ASTM C494
 - 6. WATER - CLEAN AND POTABLE
 - 7. MAXIMUM WATER CEMENT RATIO FOR 4,000 PSI, 28-DAY COMPRESSIVE STRENGTH = 0.45
 - (K) REQUIRED SLUMP: 2" TO 4"
 - (L) CONTRACTOR IS RESPONSIBLE FOR THE PROPER DESIGN AND CONSTRUCTION OF ALL FORMWORK AND SHORING. DESIGN SHALL BE PERFORMED BY A LICENSED FLORIDA PROFESSIONAL ENGINEER.
 - (M) CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF BATCH TIME
 - (N) ALL CONCRETE SHALL BE CONSOLIDATED IN PLACE USING INTERNAL VIBRATORS
 - (O) SUBMITTALS:
 - 1. SUBMIT PROPOSED CONCRETE MIX DESIGN PRIOR TO CONSTRUCTION
- 2. REINFORCEMENT:
 - (A) REINFORCING STEEL SHALL BE A.S.T.M. A-615 WITH SUPPLEMENT, GRADE 60: MINIMUM WORKING STRESS - 24,000 PSI.
 - (B) ALL REINFORCEMENT SHALL BE UNCOATED (BLACK).
 - (C) ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCING BARS ARE TO CENTERLINE OF BARS EXCEPT WHERE THE CLEAR DIMENSION IS SHOWN TO FACE OF CONCRETE.
 - (D) ACI STANDARD HOOKS SHALL BE USED UNLESS OTHERWISE NOTED.
 - (E) ALL LAP AND SPLICE LENGTHS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318 AND CRSI STANDARD PRACTICES, EXCEPT AS OTHERWISE NOTED.
- 3. FOUNDATIONS:
 - (A) NOTIFY THE ENGINEER IMMEDIATELY OF ANY EXISTING FOUNDATION CONDITIONS OR DETAILS THAT ARE IN CONFLICT WITH THOSE INDICATED AND SHOWN IN THE DRAWINGS.
 - (B) ASSUMED SOIL BEARING PRESSURE = 2,000 PSF. CONTRACTOR'S TESTING LABORATORY SHALL CONFIRM SOIL PREPARATION PROCEDURES AND SPECIFY COMPACTION REQUIREMENTS NECESSARY TO OBTAIN THE DESIGN SOIL BEARING PRESSURE.



PUMP PEDESTAL SECTION D 3
1" = 1' - 0"
S-2



PUMP PEDESTAL SECTION E 4
1" = 1' - 0"
S-2

No.	REVISIONS	DATE	BY

Kimley»Horn

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KHA PROJECT 148400021
DATE 12/11/2018
SCALE AS SHOWN
DESIGNED BY LT
DRAWN BY KEG
CHECKED BY SES

Manatee County Florida

NORTH WRF HEADWORKS, CLARIFIERS, AND CCC IMPROVEMENTS

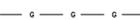
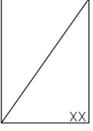
MANATEE COUNTY FL

LICENSED PROFESSIONAL
SETH E. SCHMID, P.E.
FL LICENSE NUMBER 54640
DATE:

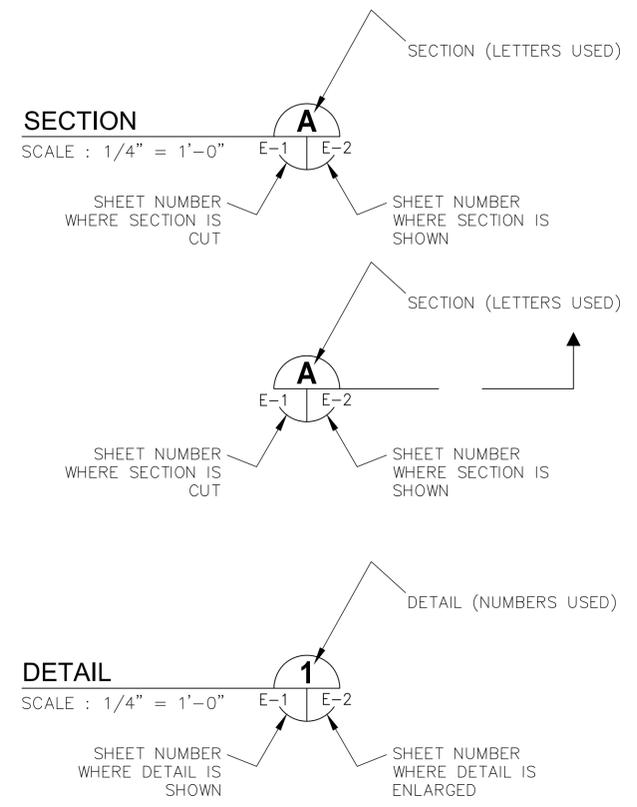
PUMP PEDESTAL DETAILS

SHEET NUMBER
S-2

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	CONDUIT RUN EXPOSED		TRANSFER SWITCH																																							
	CONDUIT OR DUCTBANK RUN CONCEALED UNDERGROUND		ELECTRIC PANELBOARD																																							
	CONDUIT RUN CONCEALED IN FLOOR, SLAB OR WALL		DISCONNECT OR SAFETY SWITCH																																							
	GROUNDING ELECTRODE CONDUCTOR		FIELD WIRING																																							
	CONDUIT STUB OUT AND CAP		FLOAT SWITCH. OPENS ON LOW LEVEL.																																							
	GROUND ROD		FLOAT SWITCH. CLOSES ON LOW LEVEL.																																							
	JUNCTION BOX		NORMALLY OPEN (N.O.) CONTACT																																							
	JUNCTION BOX WITH FLEXIBLE CONNECTION		NORMALLY CLOSED (N.C.) CONTACT																																							
	TRANSFORMER, 480V INDICATED PRIMARY VOLTAGE, 15 KVA, 1* 120/240V INDICATES SECONDARY VOLTAGE, 15 KVA REPRESENTS POWER RATING, AND 1* INDICATES SINGLE PHASE (THREE PHASE IF NOT INDICATED)		FUSE																																							
	THERMAL MAGNETIC CIRCUIT BREAKER WITH NUMBER OF POLES AND AMPERE RATING		GROUND CONNECTION																																							
	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		INDICATING PILOT LIGHT LETTER INDICATES COLOR OF LENS																																							
<table border="1" data-bbox="372 1068 932 1300"> <thead> <tr> <th>XXX</th> <th>XXX DEVICE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td>HLS</td><td>HIGH LEVEL SWITCH</td><td>HIGH LEVEL SWITCH</td></tr> <tr><td>HOA</td><td>HAND-OFF-AUTO</td><td>HAND-OFF-AUTO</td></tr> <tr><td>LD</td><td>LEAK DETECTION</td><td>LEAK DETECTION</td></tr> <tr><td>LLS</td><td>LOW LEVEL SWITCH</td><td>LOW LEVEL SWITCH</td></tr> <tr><td>LOR</td><td>LOCAL-OFF-REMOTE</td><td>LOCAL-OFF-REMOTE</td></tr> <tr><td>PB</td><td>PUSH BUTTON</td><td>PUSH BUTTON</td></tr> <tr><td>RTU</td><td>REMOTE TERMINAL UNIT</td><td>REMOTE TERMINAL UNIT</td></tr> <tr><td>SS</td><td>SOFT STARTER</td><td>SOFT STARTER</td></tr> <tr><td>SS/B</td><td>SOFT START OR BYPASS</td><td>SOFT START OR BYPASS</td></tr> <tr><td>TS</td><td>TEMPERATURE SWITCH</td><td>TEMPERATURE SWITCH</td></tr> <tr><td>TVSS</td><td>TRANSIENT VOLTAGE SURGE SUPPRESSOR</td><td>TRANSIENT VOLTAGE SURGE SUPPRESSOR</td></tr> <tr><td>ZS</td><td>POSITION SENSOR (LIMIT SWITCH)</td><td>POSITION SENSOR (LIMIT SWITCH)</td></tr> </tbody> </table>	XXX	XXX DEVICE	DESCRIPTION	HLS	HIGH LEVEL SWITCH	HIGH LEVEL SWITCH	HOA	HAND-OFF-AUTO	HAND-OFF-AUTO	LD	LEAK DETECTION	LEAK DETECTION	LLS	LOW LEVEL SWITCH	LOW LEVEL SWITCH	LOR	LOCAL-OFF-REMOTE	LOCAL-OFF-REMOTE	PB	PUSH BUTTON	PUSH BUTTON	RTU	REMOTE TERMINAL UNIT	REMOTE TERMINAL UNIT	SS	SOFT STARTER	SOFT STARTER	SS/B	SOFT START OR BYPASS	SOFT START OR BYPASS	TS	TEMPERATURE SWITCH	TEMPERATURE SWITCH	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR	TRANSIENT VOLTAGE SURGE SUPPRESSOR	ZS	POSITION SENSOR (LIMIT SWITCH)	POSITION SENSOR (LIMIT SWITCH)			DISCONNECT OR TOGGLE SWITCH
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	FUSE		NORMALLY OPEN MOMENTARY CIRCUIT CLOSING PUSH-BUTTON SWITCH SPRING OPEN. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC																																							
	MOTOR		NORMALLY CLOSED MOMENTARY CIRCUIT OPENING PUSH-BUTTON SWITCH SPRING CLOSE. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC																																							
	THERMAL OVERLOAD		LIMIT SWITCH NORMALLY CLOSED CONTACT CONTACT OPENS WHEN ACTUATED																																							
	UTILITY METER		TORQUE SWITCH NORMALLY CLOSED CONTACT CONTACT OPENS WHEN ACTUATED																																							
			PUMP THERMAL SENSOR																																							
			FAN THERMOSTAT																																							

EXAMPLE OF SECTION CUT AND DETAIL



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



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

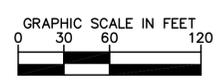
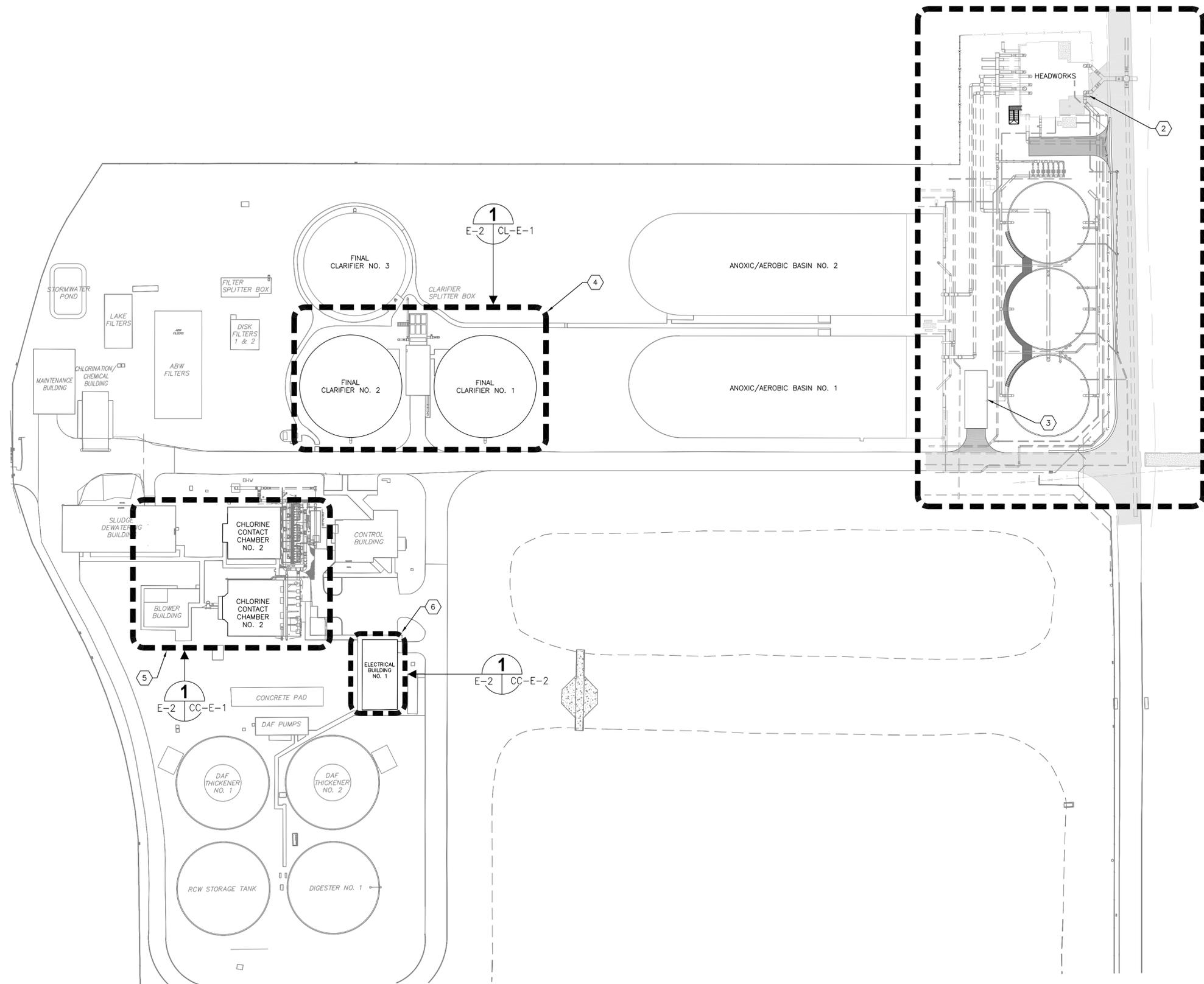
MANATEE COUNTY FL

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

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 NWRP.
 - 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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**NORTH WRF HEADWORKS, CLARIFIERS,
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 MANATEE COUNTY

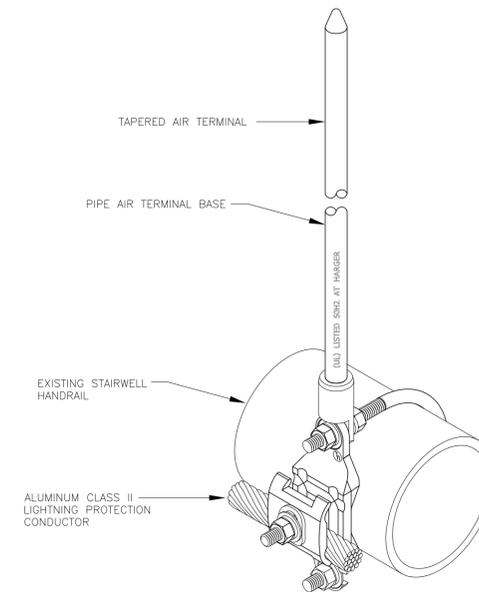
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NWRP ELECTRICAL SITE PLAN

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 SPUMBAKO4	(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 SPUMBAKO4	(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 SPUMBAKO4	(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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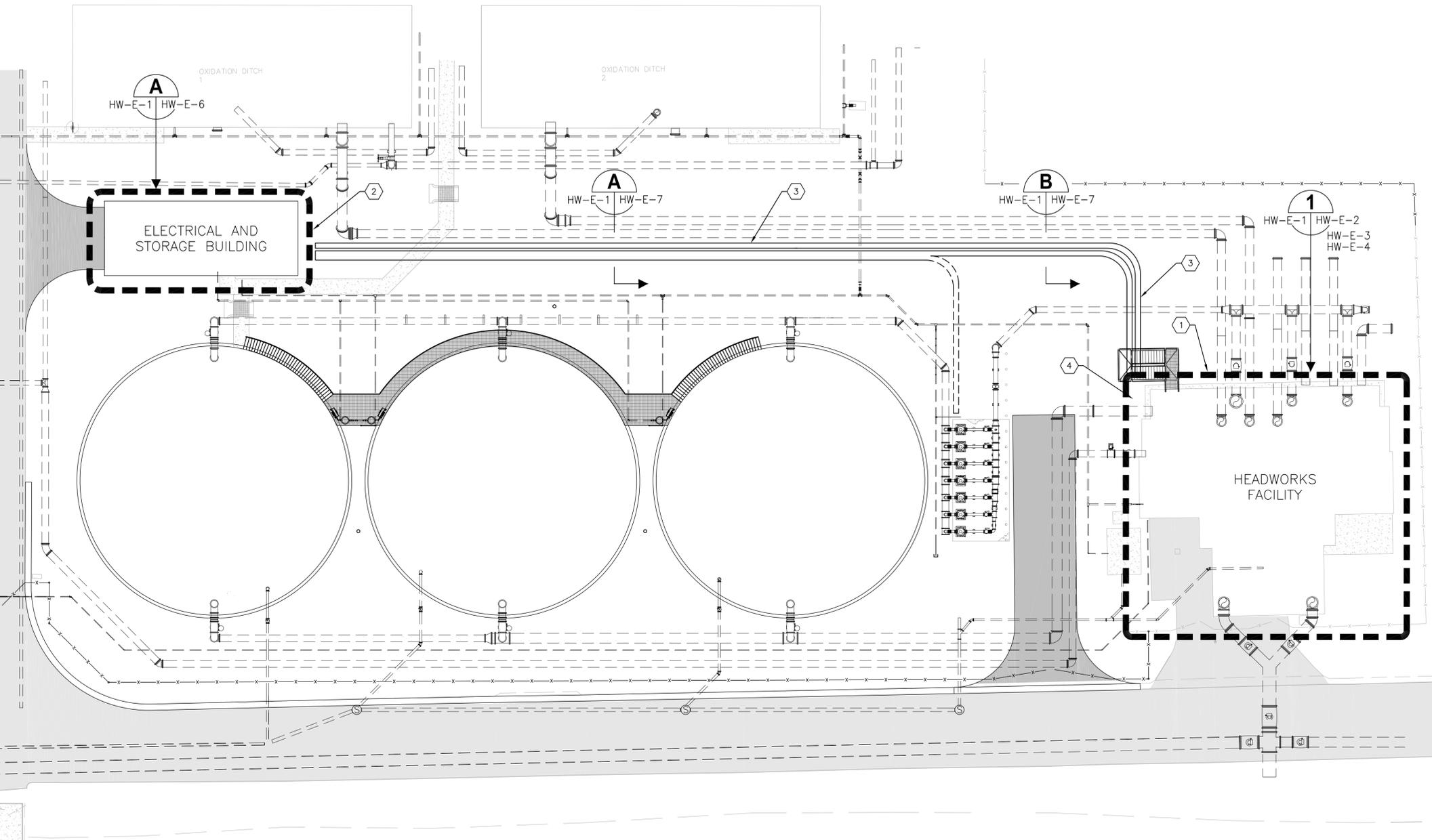
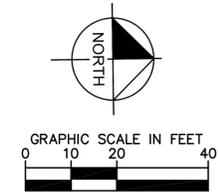
MANATEE COUNTY FL

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DATE:	

LIGHTING FIXTURE SCHEDULE AND ELECTRICAL DETAILS

SHEET NUMBER	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,
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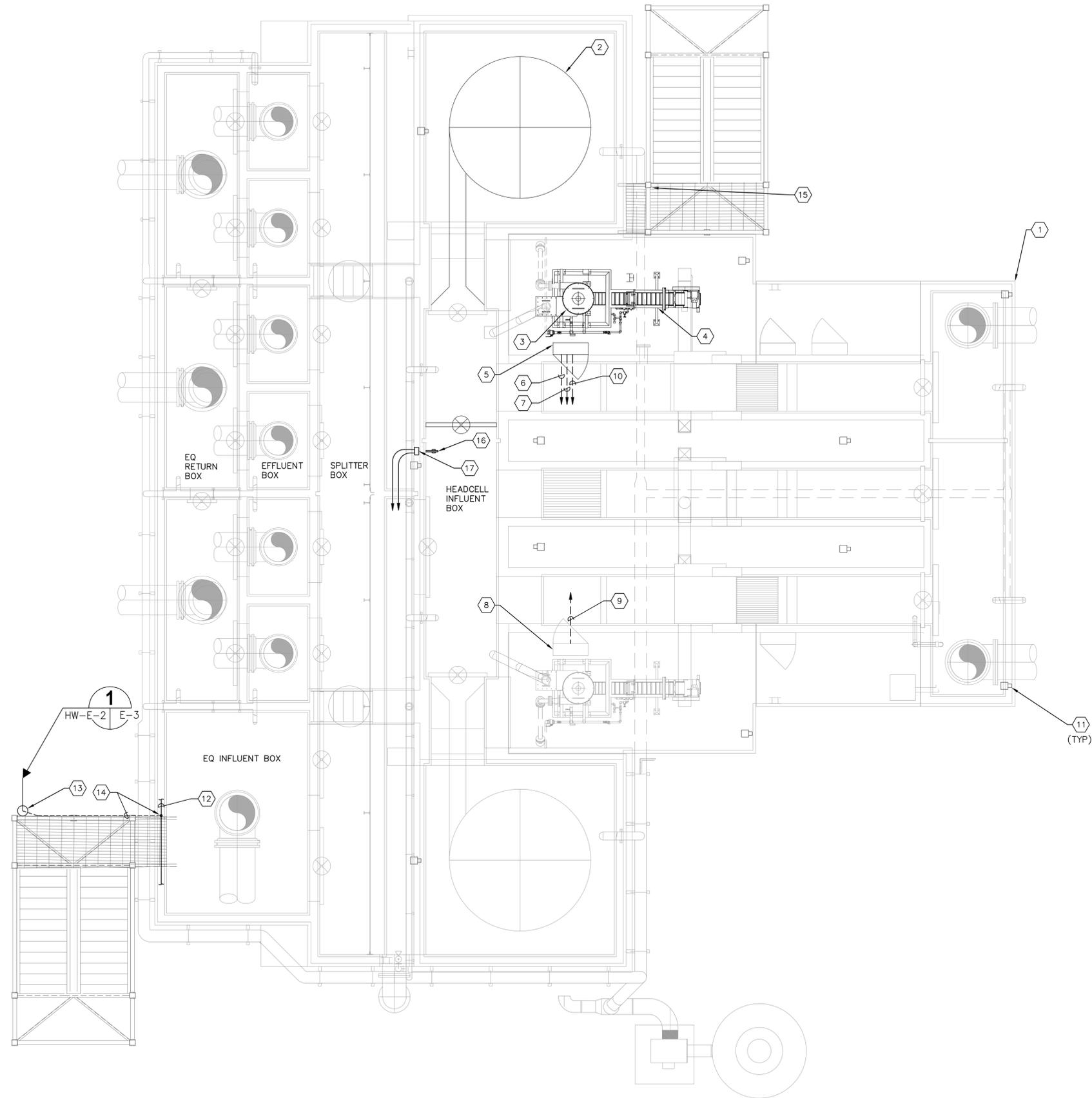
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**HEADWORKS AREA
ELECTRICAL SITE PLAN**

SHEET NUMBER	HW-E-1
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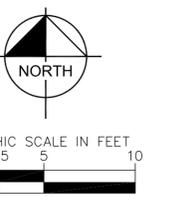


KEYED NOTES:

- ① EXISTING UPPER LEVEL OF HEADWORKS.
- ② PROPOSED HEADCELL GRIT CONCENTRATOR. REFER ALSO TO MECHANICAL PLANS.
- ③ PROPOSED 32" SLURRY CUP. REFER ALSO TO MECHANICAL PLANS.
- ④ PROPOSED GRIT SNAIL. REFER ALSO TO MECHANICAL PLANS.
- ⑤ PROPOSED GRIT SNAIL #2 CONTROL PANEL.
- ⑥ CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 1". (P1) FOR NEW GRIT SNAIL #2 CONTROL PANEL POWER. CONTRACTOR SHALL FIELD ROUTE NEW CONDUIT AS REQUIRED FROM HEADWORKS UPPER LEVEL TO EXISTING POWER JUNCTION BOX ON LOWER LEVEL OF HEADWORKS. REFER TO SHEET HW-E-3 FOR POWER JUNCTION BOX LOCATION.
- ⑦ CONTRACTOR TO PROVIDE AND INSTALL 30-#12 + 1-#12 GND IN 1-1/4". (C1) FOR NEW GRIT SNAIL #2 CONTROL PANEL I/O. CONTRACTOR SHALL FIELD ROUTE NEW CONDUIT AS REQUIRED FROM HEADWORKS UPPER LEVEL TO EXISTING CONTROL JUNCTION BOX ON LOWER LEVEL OF HEADWORKS. REFER TO SHEET HW-E-3 FOR CONTROL JUNCTION BOX LOCATION.
- ⑧ EXISTING GRIT SNAIL #1 CONTROL PANEL. CONTRACTOR SHALL BE REQUIRED TO MODIFY EXISTING CONTROL PANEL SO THAT DRY CONTACTS SHALL BE PROVIDED FOR: VFD STATUS, ELEVATOR STATUS AND CONVEYOR STATUS.
- ⑨ CONTRACTOR TO PROVIDE AND INSTALL 6-#12 + 1-#12 GND IN 3/4". (C2) FOR EXISTING GRIT SNAIL #1 CONTROL PANEL I/O. CONTRACTOR SHALL FIELD ROUTE NEW CONDUIT AS REQUIRED FROM HEADWORKS UPPER LEVEL TO EXISTING CONTROL JUNCTION BOX ON LOWER LEVEL OF HEADWORKS. REFER TO SHEET HW-E-3 FOR CONTROL JUNCTION BOX LOCATION.
- ⑩ CONTRACTOR TO PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4". (C3) FROM NEW GRIT SNAIL #2 CONTROL PANEL TO NEW GRIT PUMP CONTROL PANEL (REFER ALSO TO SHEET HW-E-3). CONTRACTOR SHALL FIELD ROUTE NEW CONDUIT AS REQUIRED.
- ⑪ EXISTING LIGHTING FIXTURE TO BE REPLACED (TYPICAL). REFER TO SHEET HW-E-4 FOR UPPER LEVEL LIGHTING PLAN.
- ⑫ EXISTING LIGHTNING PROTECTION CONDUCTOR INSTALLED BELOW LANDING OF STAIRWELL.
- ⑬ CONTRACTOR TO PROVIDE AND INSTALL NEW LIGHTNING PROTECTION AIR TERMINAL ON STAIRWELL HANDRAIL. REFER TO DETAIL ON SHEET E-3.
- ⑭ CONTRACTOR TO PROVIDE AND INSTALL ALUMINUM CLASS II LIGHTNING PROTECTION CONDUCTOR. CONNECT TO EXISTING CONDUCTOR WITH MECHANICAL MEANS.
- ⑮ CONTRACTOR TO REWORK EXISTING LIGHTNING PROTECTION CONDUCTORS AS REQUIRED (REFER TO MECHANICAL DRAWINGS FOR MODIFICATIONS). REVISED LIGHTNING PROTECTION CONDUCTORS SHALL NOT BE ALLOWED TO BE A TRIP HAZARD.
- ⑯ CONTRACTOR TO PROVIDE AND INSTALL NEW pH METER. REFER TO SHEET HW-M-1 AND HW-M-2 FOR DETAILS.
- ⑰ CONTRACTOR TO PROVIDE AND INSTALL pH METER TRANSMITTER. REFER TO DETAIL 1 ON SHEET HW-E-7.

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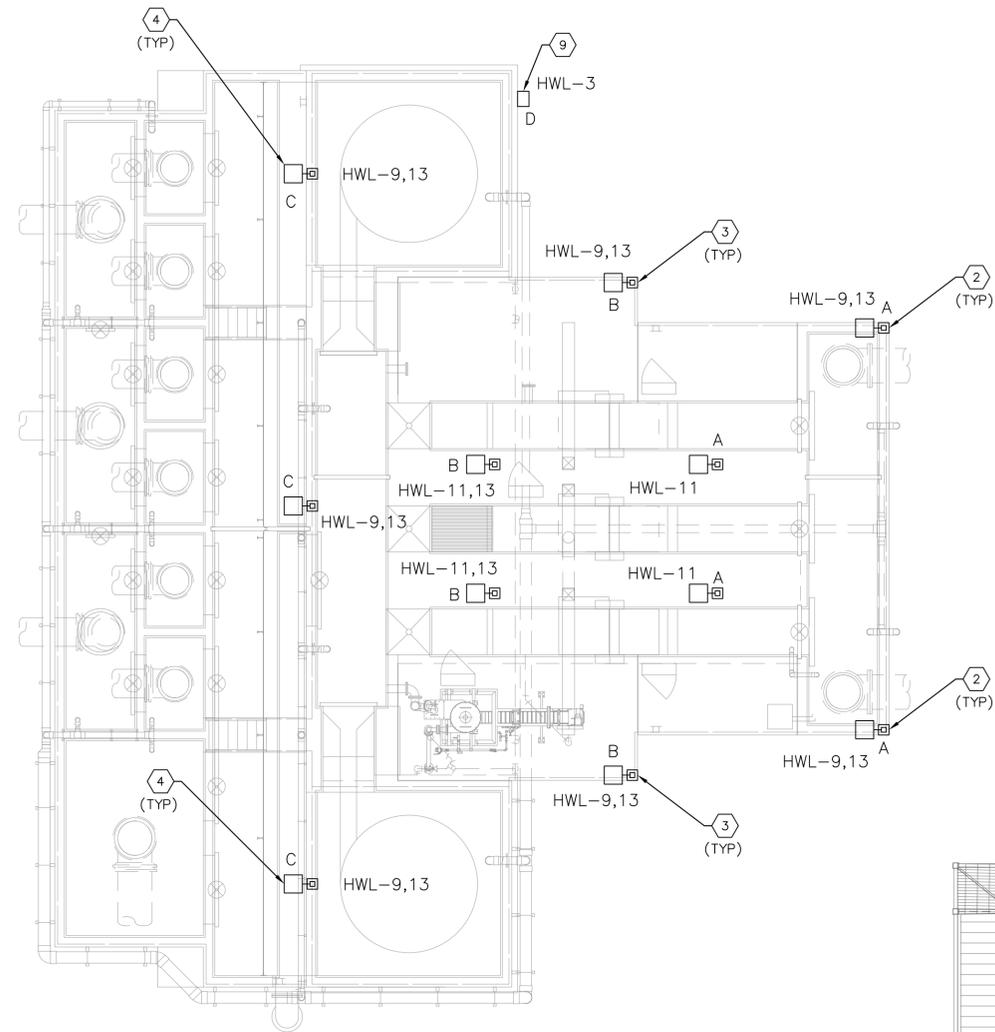
**HEADWORKS UPPER LEVEL
ELECTRICAL PLAN**

SHEET NUMBER

HW-E-2

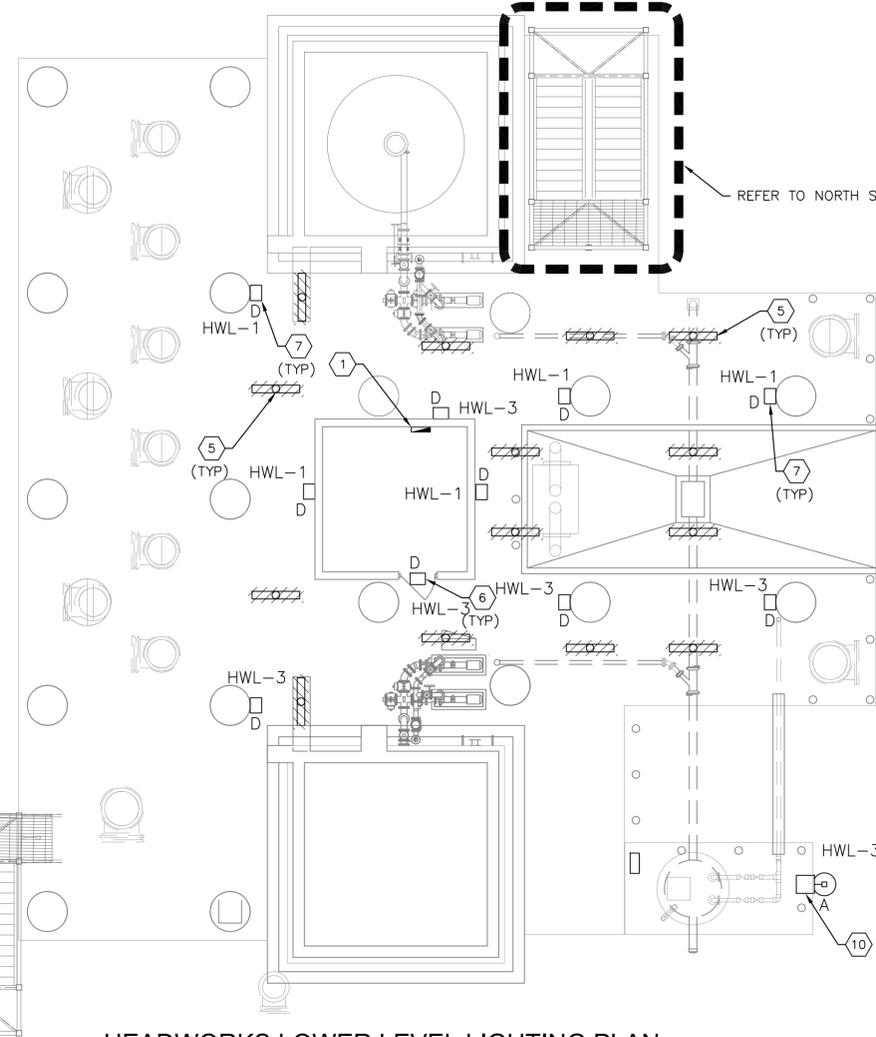


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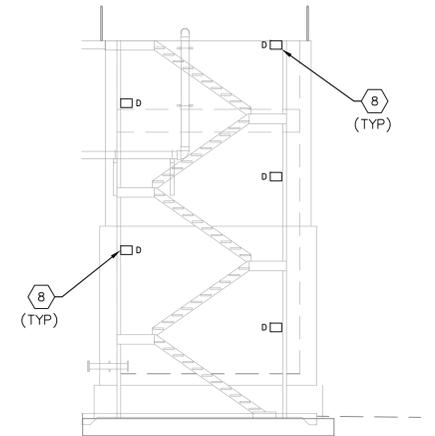
HEADWORKS UPPER LEVEL LIGHTING PLAN

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:

- 1 LOCATION OF EXISTING 120/208V PANELBOARD 'HWL'. PROVIDE AND INSTALL ONE (1) SINGLE-POLE 20A CIRCUIT BREAKER FOR pH TRANSMITTER.
- 2 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.
- 3 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.
- 4 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.
- 5 EXISTING LOWER LEVEL LIGHT FIXTURE TO BE REMOVED.
- 6 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.
- 7 NEW LOWER LEVEL LIGHT 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.
- 8 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.
- 9 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.
- 10 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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**NORTH WRF HEADWORKS, CLARIFIERS,
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 MANATEE COUNTY

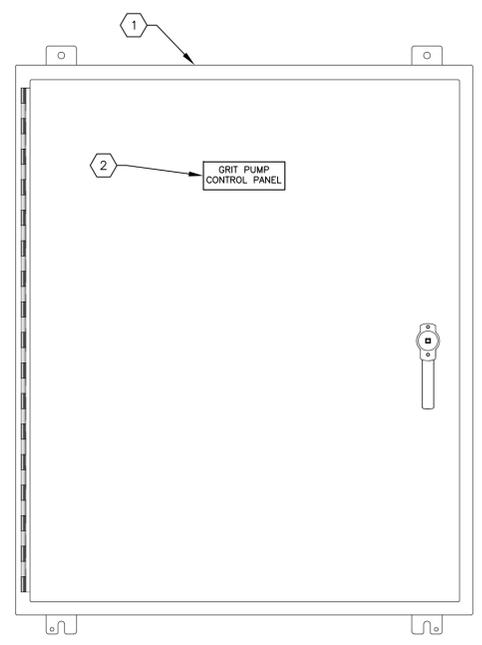
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HEADWORKS LIGHTING PLANS

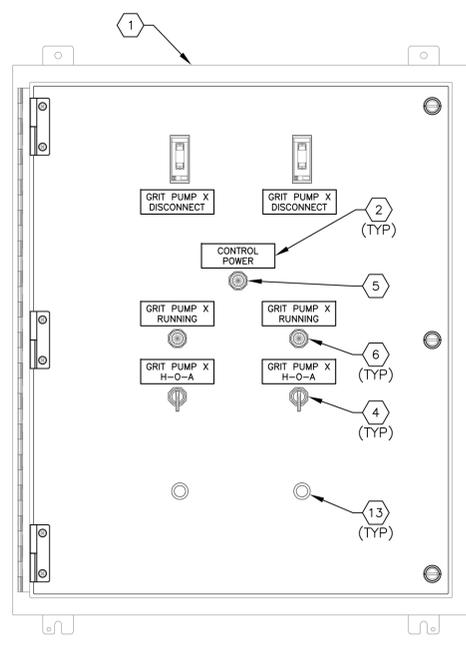
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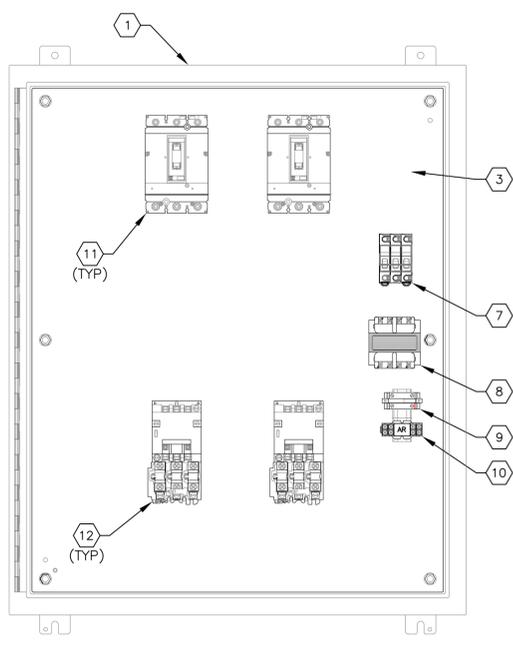
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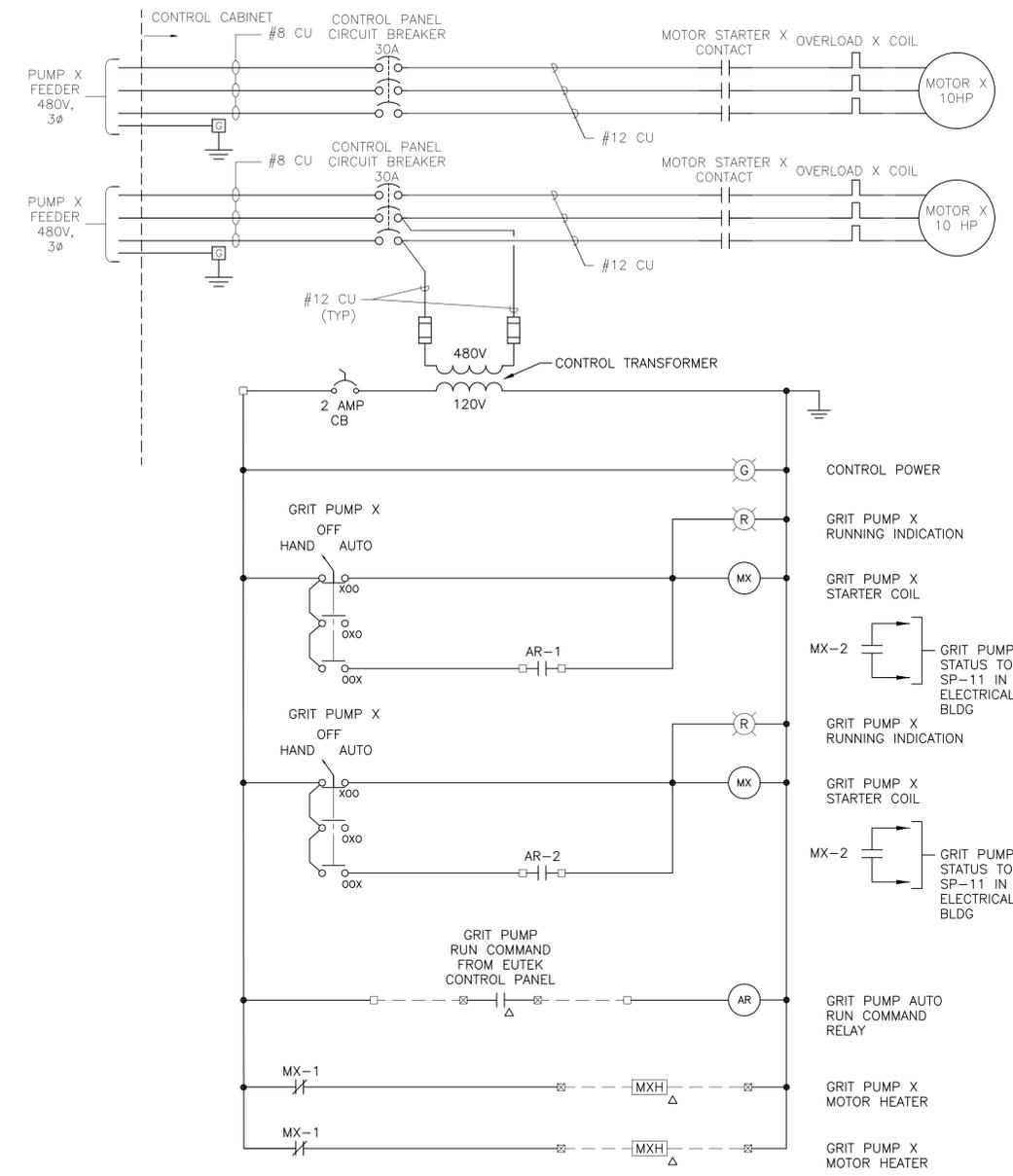
TYPICAL GRIT PUMP CONTROL PANEL EXTERIOR
SCALE: NOT TO SCALE HW-E-3 HW-E-5



TYPICAL GRIT PUMP CONTROL PANEL DEADFRONT
SCALE: NOT TO SCALE



TYPICAL GRIT PUMP CONTROL PANEL INTERIOR
SCALE: NOT TO SCALE



TYPICAL GRIT PUMP CONTROL PANEL WIRING DIAGRAM

- KEYED NOTES:**
- 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.
 - 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.
 - 3 PROVIDE AND INSTALL NEW ALUMINUM BACKPANEL.
 - 4 PROVIDE AND INSTALL 3-POSITION, MAINTAINED, PUMP HAND/OFF/AUTO SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.
 - 5 PROVIDE AND INSTALL NEMA 4X, 30mm, LED PILOT LIGHT WITH GREEN LENS. ALLEN BRADLEY #800H-QRH2G.
 - 6 PROVIDE AND INSTALL NEMA 4X, 30mm, LED PILOT LIGHT WITH RED LENS. ALLEN BRADLEY #800H-QRH2R.
 - 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.
 - 8 PROVIDE AND INSTALL 240X480V-120V, 200VA CONTROL POWER TRANSFORMER. SQUARE-D 9070T200D.
 - 9 PROVIDE AND INSTALL 120V, THERMAL CIRCUIT BREAKER. THERMAL CIRCUIT BREAKER SHALL BE PHOENIX CONTACT TCP TYPE, 2 AMPERES.
 - 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.
 - 11 PROVIDE 600V, 30A, 3-POLE CIRCUIT BREAKER. SQUARE-D HDL36030.
 - 12 PROVIDE AND INSTALL 600V, NEMA SIZE 1, 3-POLE MOTOR STARTER WITH 120V AC COIL. SQUARE-D SCO3V02.
 - 13 PROVIDE AND INSTALL THRU-DOOR MOTOR STARTER RESET PUSHBUTTON.

- 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 # AHCI10E.

- 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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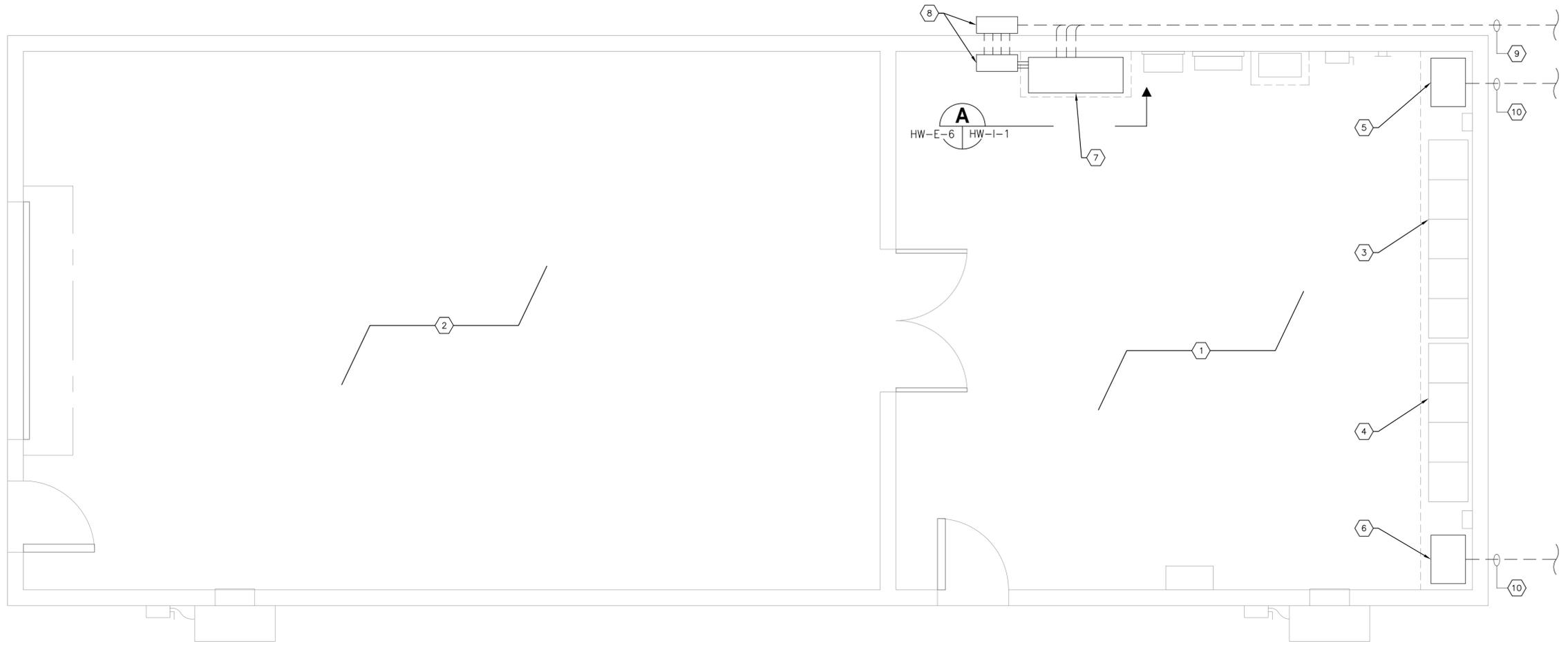
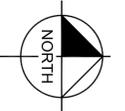
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MANATEE COUNTY

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FL DATE:

TYPICAL GRIT PUMP CONTROL PANEL DETAILS AND WIRING DIAGRAM

SHEET NUMBER
HW-E-5



ELECTRICAL AND STORAGE BUILDING EXISTING CONDITIONS PLAN 1
 SCALE : 3/8" = 1'-0" HW-E-1 | HW-E-6

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 NWRFC 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.

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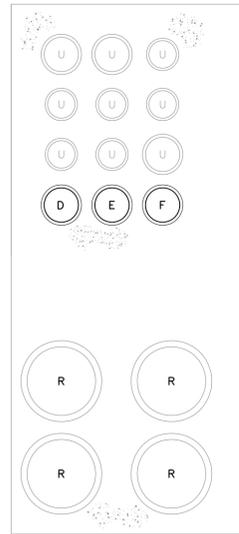
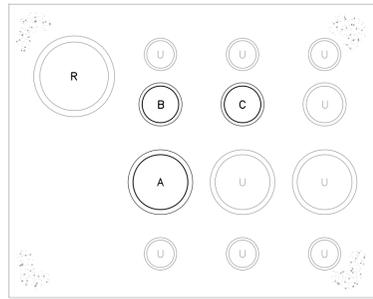
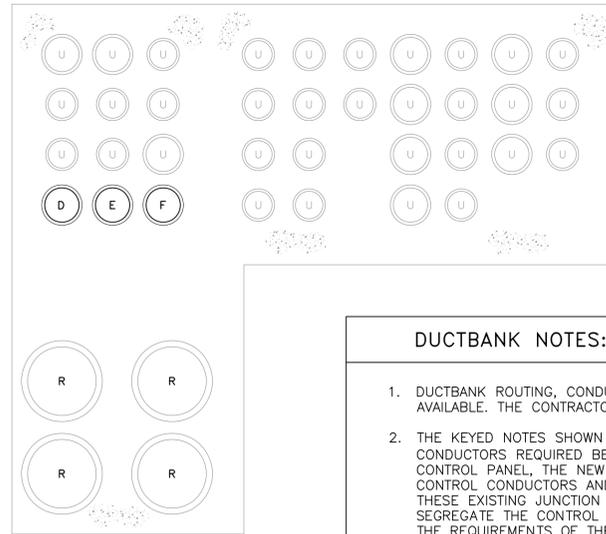
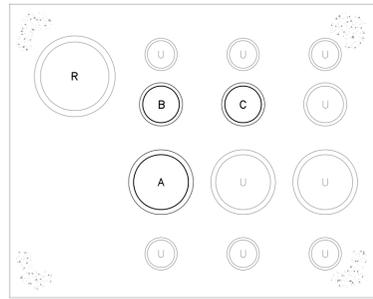
ELECTRICAL AND STORAGE
BUILDING
ELECTRICAL MODIFICATIONS

SHEET NUMBER
HW-E-6



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DUCTBANK NOTES:

- DUCTBANK ROUTING, CONDUIT SIZES AND QUANTITIES SHOWN ARE FROM THE BEST RECORD DRAWING INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION.
- 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.

EXISTING DUCTBANK SECTION 'A' **A**
SCALE: NOT TO SCALE HW-E-1 HW-E-7

DUCTBANK SECTION 'B' **B**
SCALE: NOT TO SCALE HW-E-1 HW-E-7

DUCTBANK LEGEND

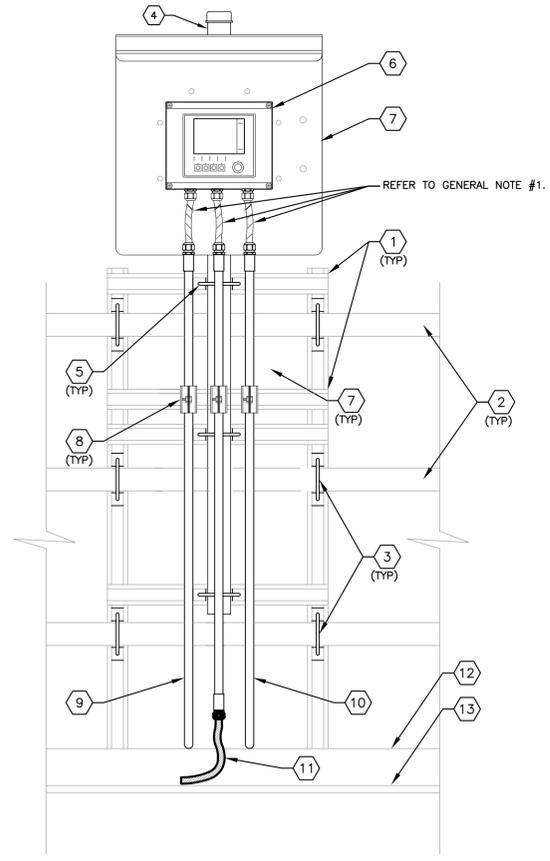
R	RESERVED FOR FUTURE USE.
U	CURRENTLY IN USE.
A	1-1/4" SPARE CONDUIT TO BE UTILIZED FOR NEW GRIT SNAIL #2 CONTROL PANEL I/O: C1.
B	1" SPARE CONDUIT TO BE UTILIZED FOR I/O REQUIRED FOR C2 AND C11.
C	1" SPARE CONDUIT TO BE UTILIZED FOR NEW pH METER 4-20mA SIGNAL: C10.
D	1" SPARE CONDUIT TO BE UTILIZED FOR NEW GRIT SNAIL #2 CONTROL PANEL POWER CONDUCTORS: P1.
E	1" SPARE CONDUIT TO BE UTILIZED FOR NEW GRIT PUMP #3 POWER CONDUCTORS: P2.
F	1" SPARE CONDUIT TO BE UTILIZED FOR NEW GRIT PUMP #4 POWER CONDUCTORS: P3.

GENERAL NOTES:

- CONNECTIONS TO pH TRANSMITTER SHOWN AS WEATERPROOF, NON-METALLIC, FLEXIBLE CONDUIT. CONTRACTOR SHALL THE CONTRACTOR SHALL COORDINATE/CONFIRM APPROPRIATE CONNECTIONS TO pH TRANSMITTER WITH MANUFACTURER. ALL CONNECTIONS PROVIDED SHALL BE WATERTIGHT AND UV RESISTANT.

pH METER DETAIL KEYED NOTES:

1	PROVIDE AND INSTALL 1-5/8" STAINLESS STEEL UNISTRUT (OR EQUAL).
2	EXISTING HANDRAIL.
3	PROVIDE AND INSTALL U-BOLTS TO FASTEN SUPPORT CHANNEL TO RAILING.
4	PROVIDE AND INSTALL 2" DIAMETER (COORDINATE DIAMETER DIMENSION WITH pH METER SUPPLIER) ROUND ALUMINUM PIPE. PROVIDE CAP FOR PIPE.
5	PROVIDE AND INSTALL U-BOLTS TO FASTEN 2" PIPE.
6	PROVIDE AND INSTALL ENDRESS HAUSER pH TRANSMITTER.
7	PROVIDE AND INSTALL ENDRESS HAUSER TRANSMITTER PROTECTIVE COVER AND POST MOUNTING KIT.
8	PROVIDE AND INSTALL STAINLESS STEEL CONDUIT CLAMPS.
9	PROVIDE AND INSTALL 2/C-#16 TWISTED SHIELDED CABLE (BELDEN 8719) 1" CONDUIT FROM pH TRANSMITTER TO EXISTING PLC CONTROL CABINET 'SP-11' (IN EXISTING ELECTRICAL AND STORAGE BUILDING. REFER TO SHEET HW-E-6 FOR SP-11 LOCATION). CONTRACTOR SHALL FIELD ROUTE CONDUITS DOWN TO EXISTING JUNCTION BOX FOR CONTROL CONDUCTORS. (REFER TO SHEET HW-E-3, KEYED NOTE #10 FOR JUNCTION BOX LOCATION). C10
10	PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM pH TRANSMITTER TO EXISTING PANELBOARD 'HWL'. CONTRACTOR SHALL FIELD ROUTE CONDUIT DOWN TO EXISTING PANELBOARD 'HWL'. (REFER TO SHEET HW-E-4, KEYED NOTE #1 FOR 'HWL' LOCATION AND CIRCUIT BREAKER INSTALLATION). P12
11	PROVIDE AND INSTALL MANUFACTURER pH SENSOR CABLE IN 3/4" C. TO FIELD SENSORS.
12	EXISTING KICKPLATE. NO WORK REQUIRED.
13	EXISTING GRATING FOR HEADCELL INFLUENT BOX.



pH METER DETAIL **1**
SCALE: NOT TO SCALE HW-E-2 HW-E-7



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FLORIDA

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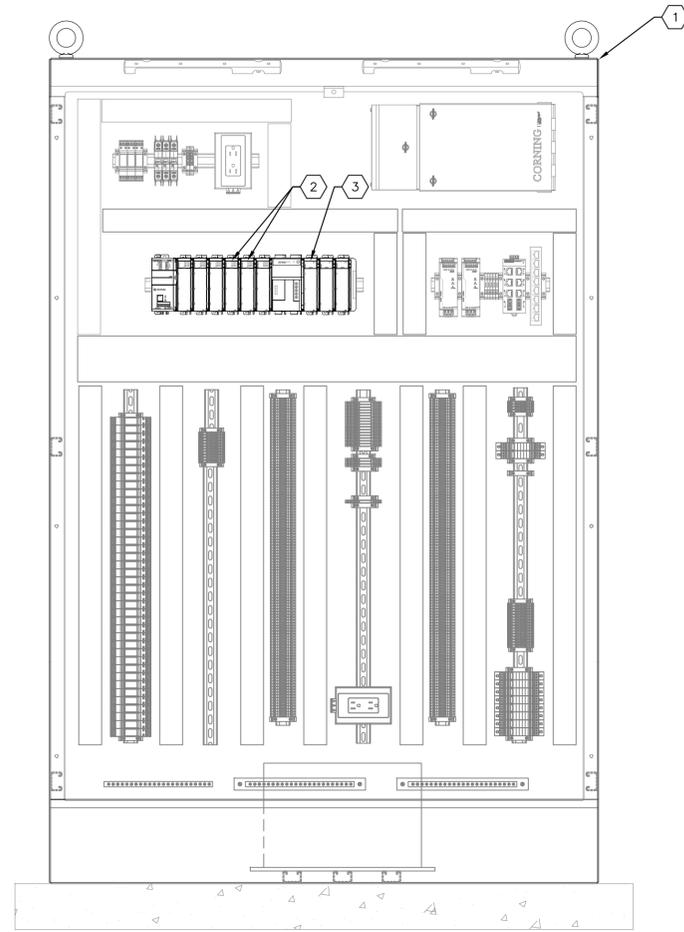
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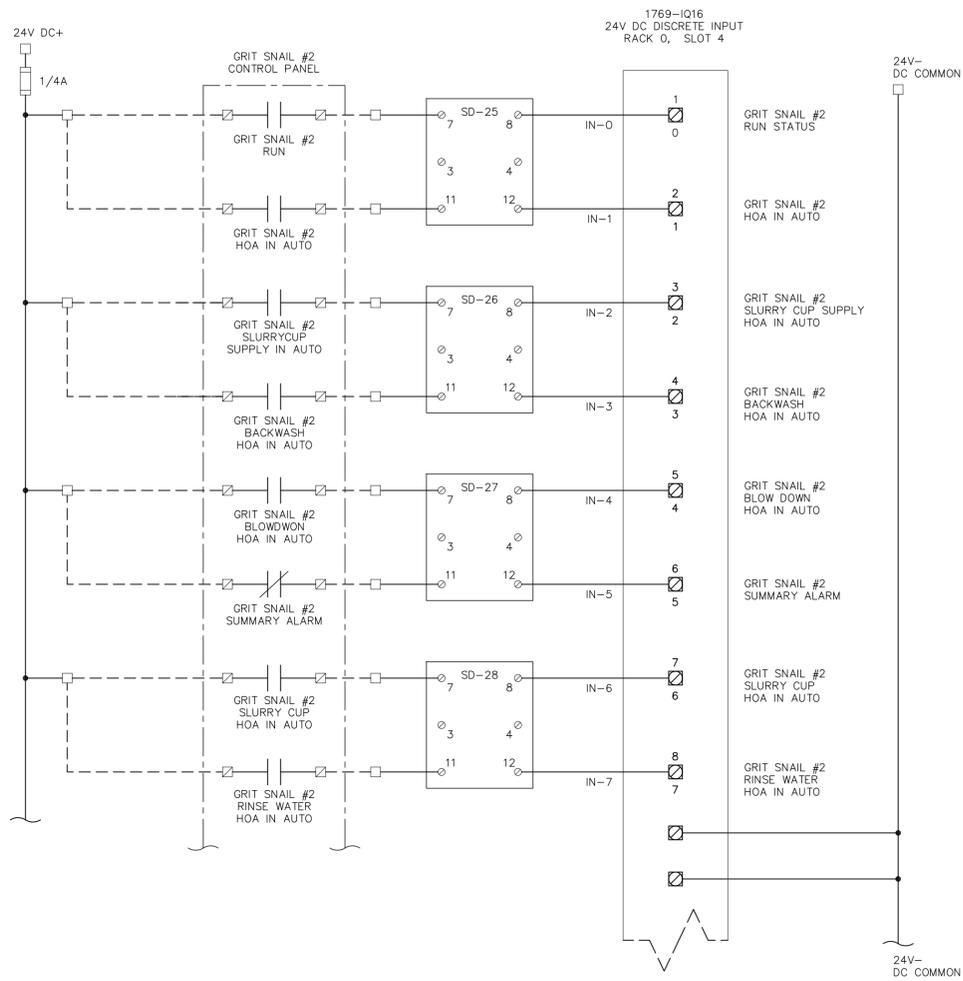
**EXISTING HEADWORKS
DUCTBANK DETAIL**

SHEET NUMBER HW-E-7

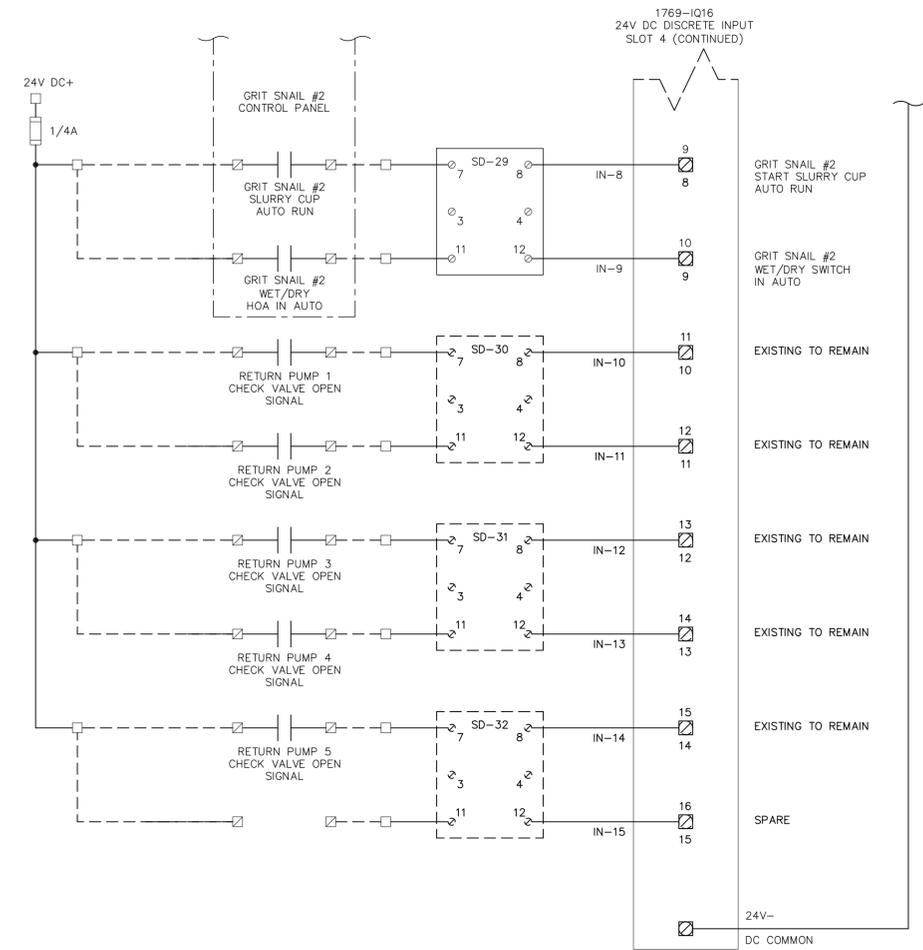
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PLC CONTROL CABINET 'SP-11' ELEVATION
SCALE: NOT TO SCALE
HW-E-5 | HW-I-1



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-PA4 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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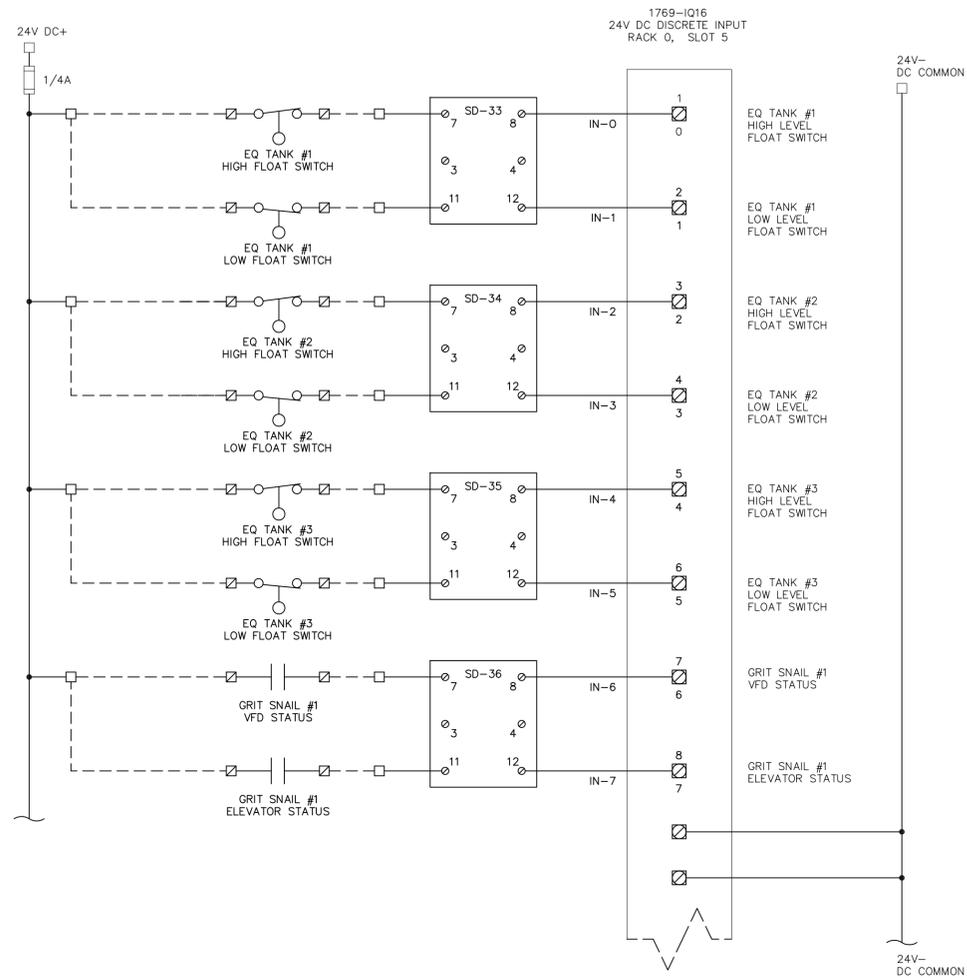
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**EXISTING PLC CONTROL
CABINET DETAILS AND NEW
HEADWORKS I/O LISTING**

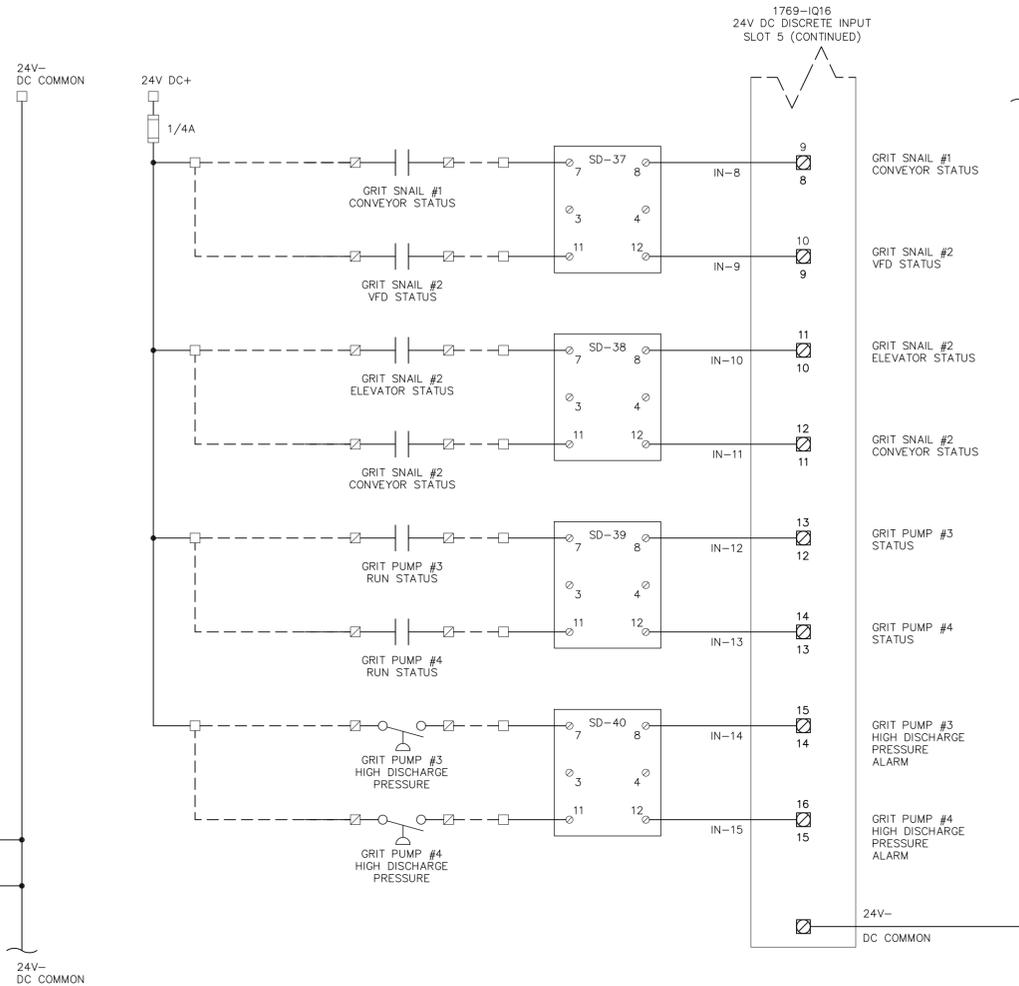
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HW-I-1



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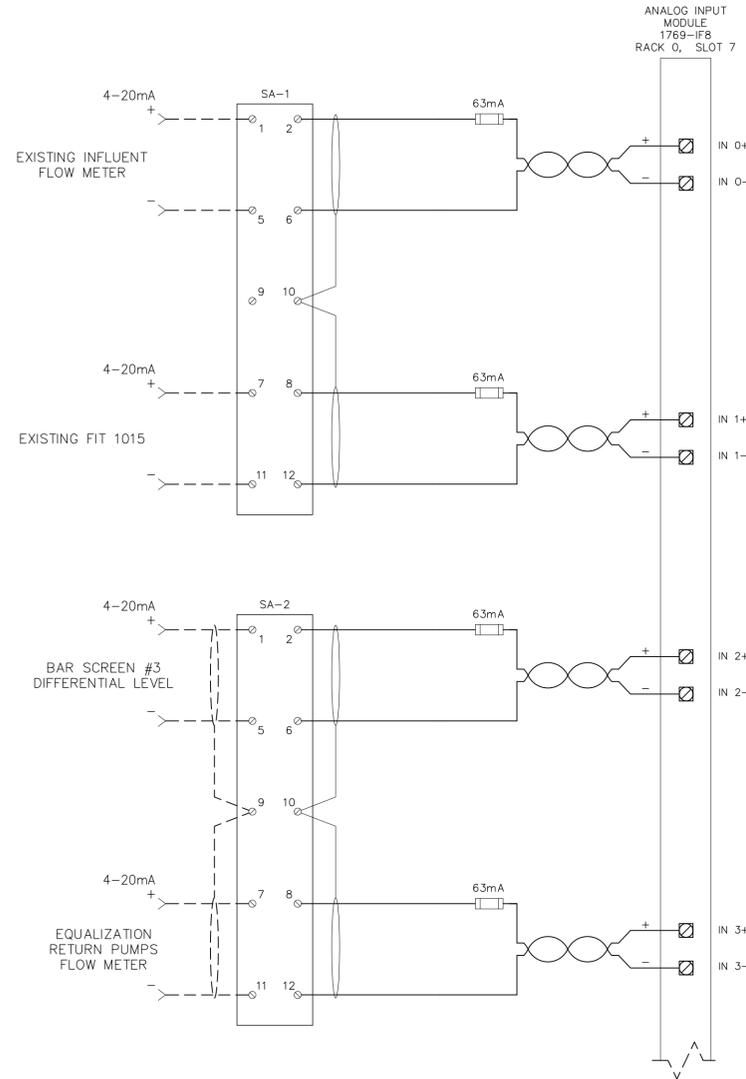
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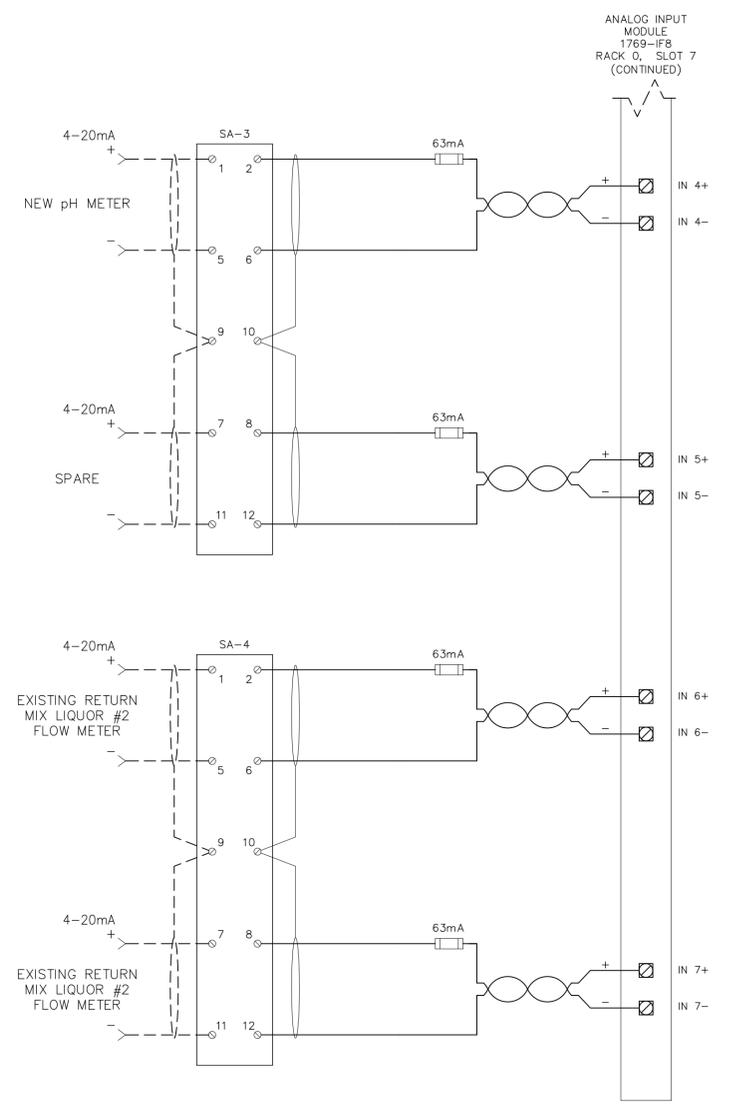
**NEW HEADWORKS
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SP-11 ANALOG INPUT MODULE - RACK 0 : SLOT 7 WIRING DIAGRAM



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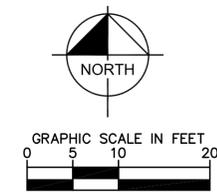
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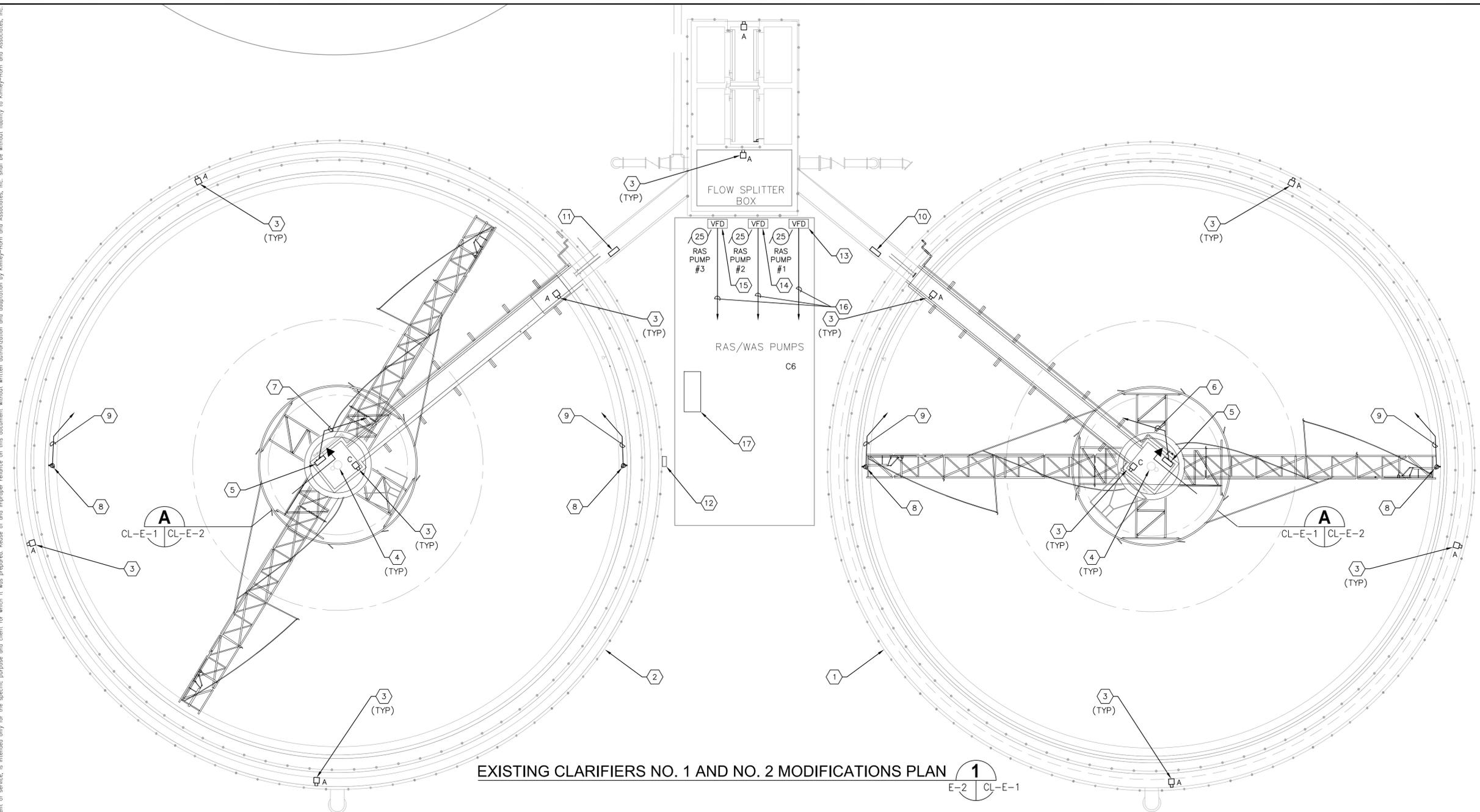
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**NEW HEADWORKS
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GENERAL NOTE:
THE CONTRACTOR SHALL UTILIZE STAINLESS STEEL UNISTRUT, STAINLESS STEEL U-BOLTS, ETC. TO MOUNT CLARIFIER CONTROL PANELS, ULTRASONIC CONTROL BOXES, ETC. TO EXISTING HANDRAILS.



EXISTING CLARIFIERS NO. 1 AND NO. 2 MODIFICATIONS PLAN 1
E-2 | CL-E-1



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" CONDUIT 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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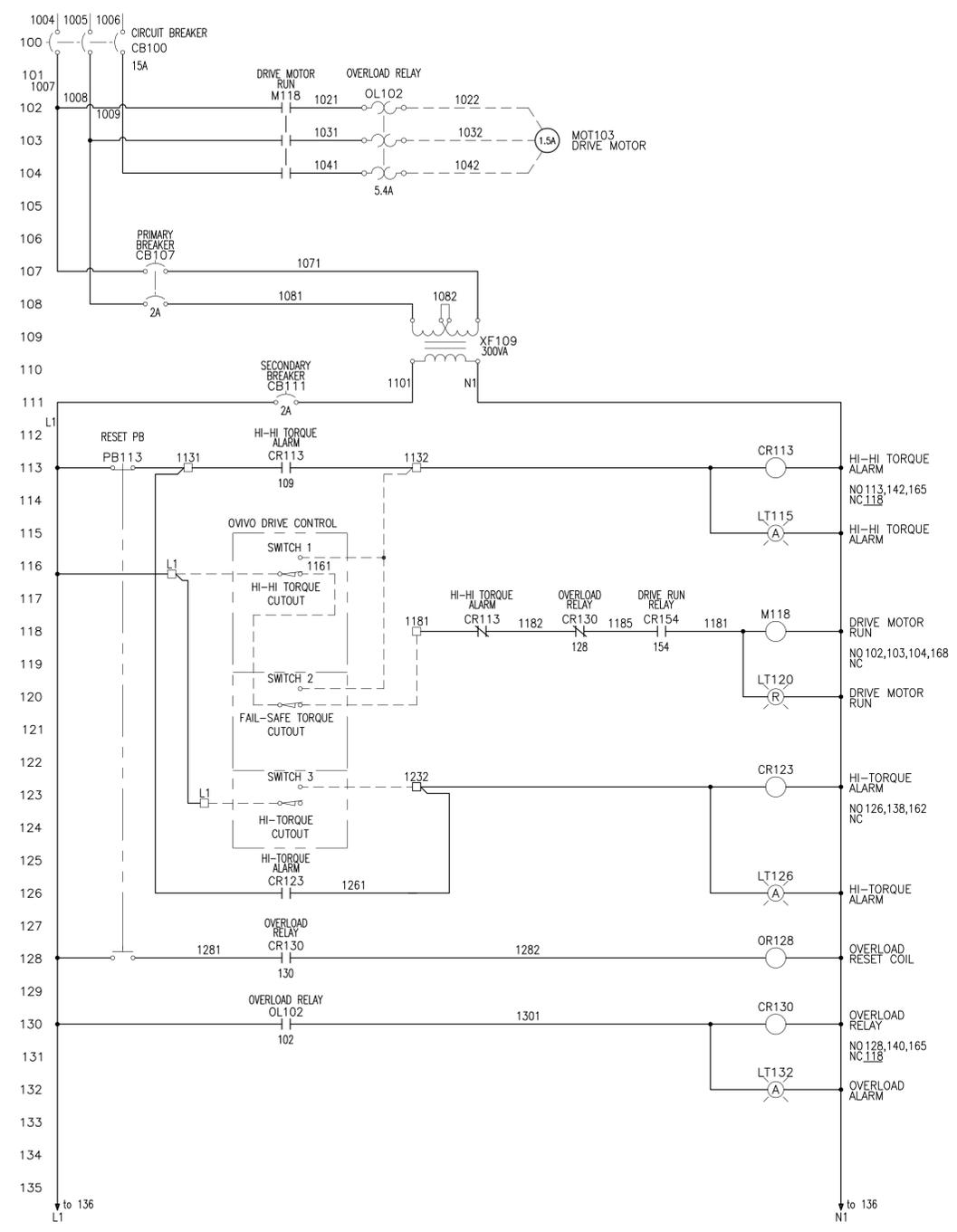
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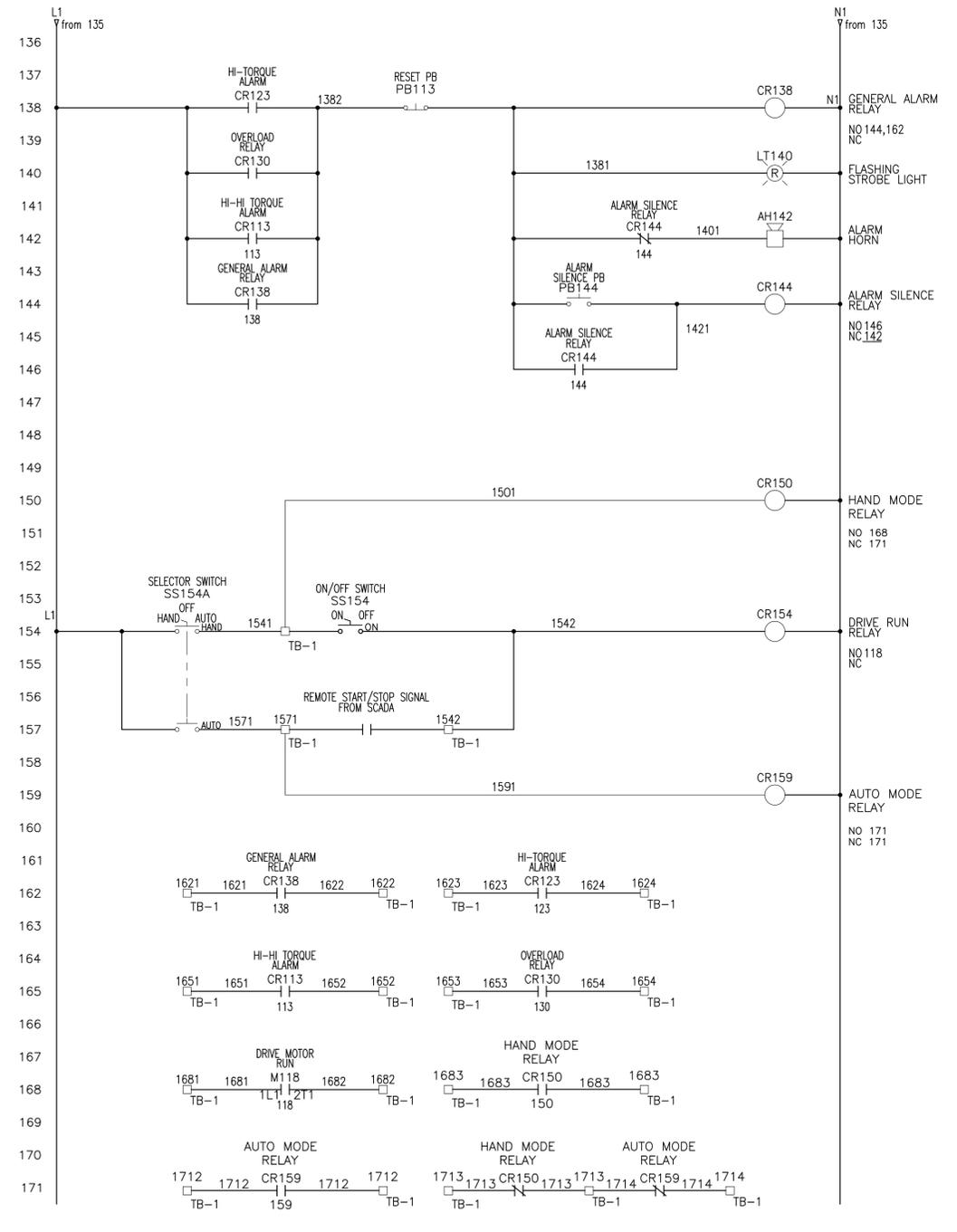
CLARIFIER NO. 1 & NO. 2
 ELECTRICAL PLAN

SHEET NUMBER CL-E-1

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WIRING LEGEND:
 - - - - - FIELD WIRING (NOT BY OVIVO)
 _____ INTERNAL WIRING (BY OVIVO)



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MANATEE COUNTY

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**TYPICAL CLARIFIER
 CONTROL PANEL
 WIRING DIAGRAM**

SHEET NUMBER
CL-E-3

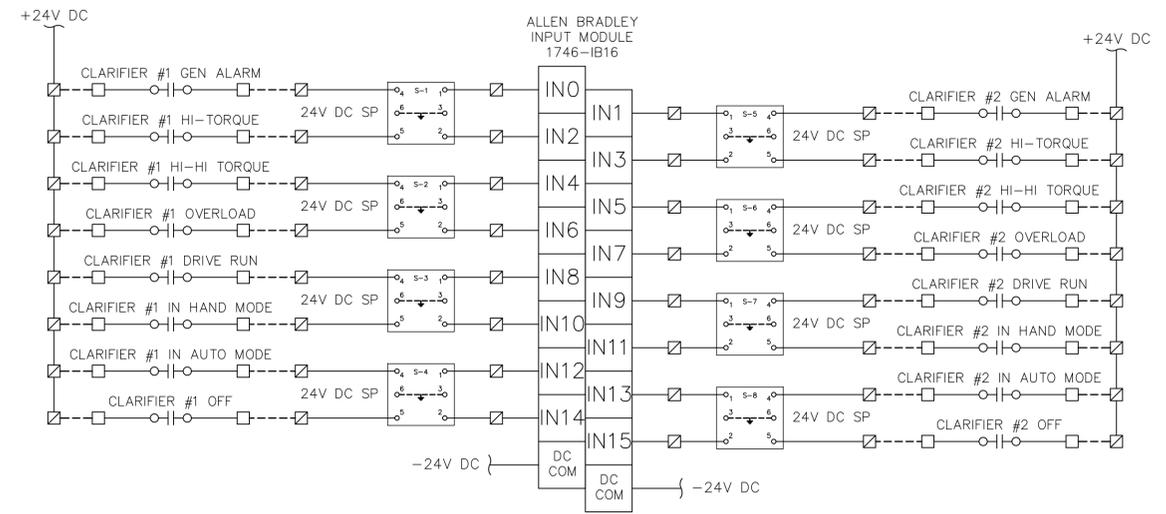


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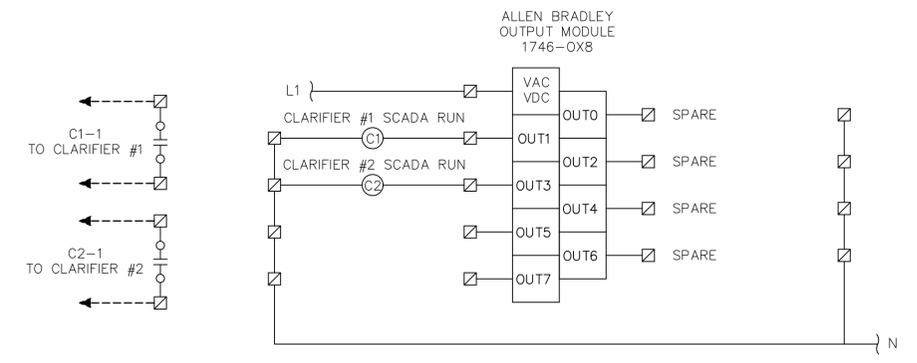


- KEYED NOTES:**
- 1 INTERIOR VIEW OF EXISTING PLC CABINET 'SP-2'.
 - 2 EXISTING ALLEN BRADLEY SLC RACK.
 - 3 CONTRACTOR TO PROVIDE AND INSTALL ALLEN BRADLEY 24V DC DISCRETE INPUT MODULE (1746-IB16) IN SPARE SLOT INDICATED. REFER TO WIRING DIAGRAM ON THIS SHEET FOR REQUIRED INPUTS.
 - 4 CONTRACTOR TO 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-US5T 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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Manatee County
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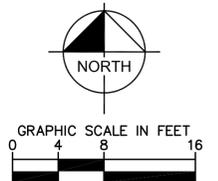
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**PLC CONTROL PANEL SP-2
I/O LISTINGS**

SHEET NUMBER
CL-I-1



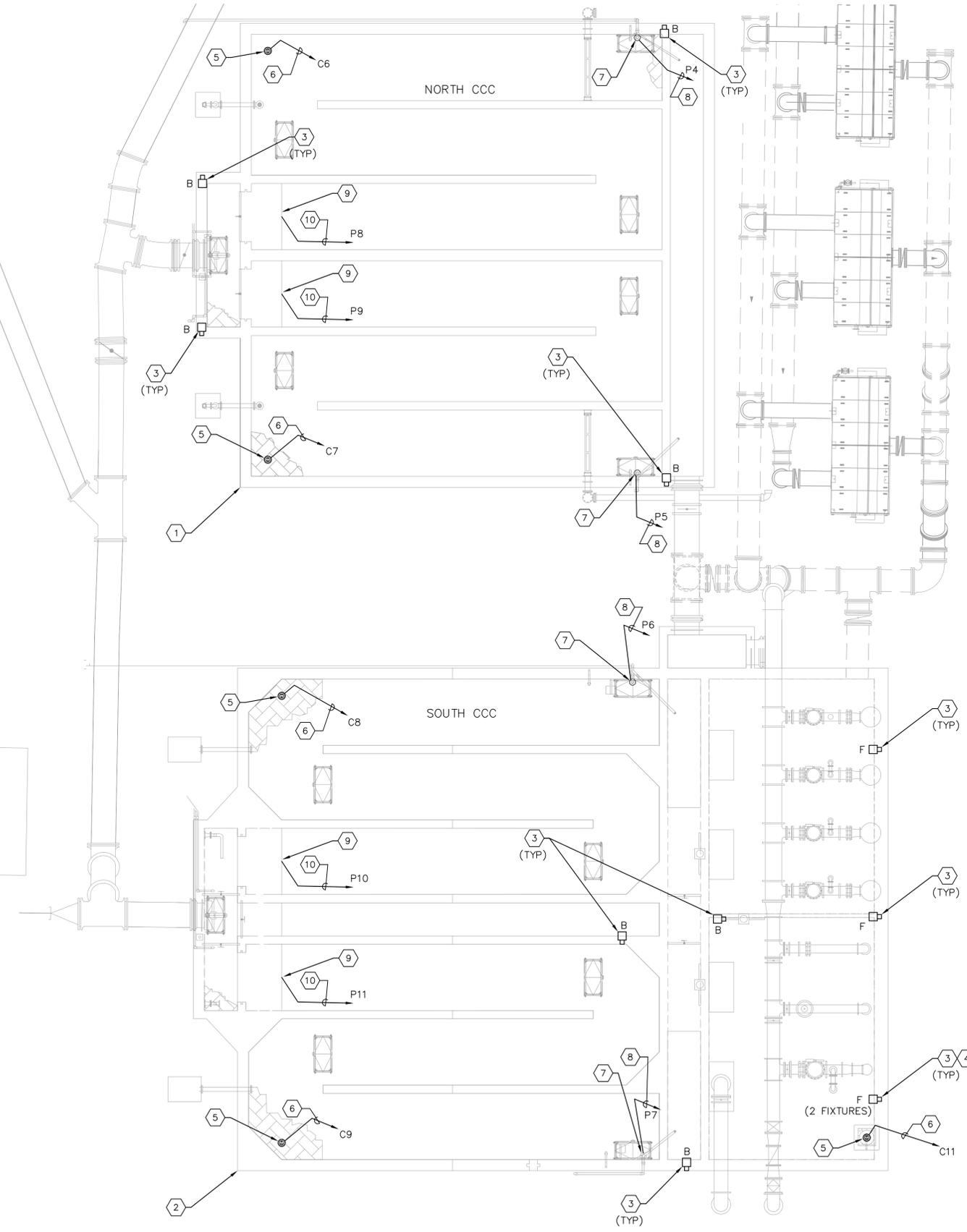
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SODIUM HYPOCHLORITE STORAGE ROOM

CHEMICAL ROOM

BLOWER BUILDING



DISTRIBUTION METERING FACILITY

- KEYED NOTES:**
- 1 EXISTING NORTH CHLORINE CONTACT CHAMBER.
 - 2 EXISTING SOUTH CHLORINE CONTACT CHAMBER.
 - 3 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.
 - 4 PROVIDE AND INSTALL AN ADDITIONAL FIXTURE TYPE 'F' ON SIDE OF EXISTING POLE TO MATCH EXISTING CONFIGURATION.
 - 5 PROVIDE AND INSTALL NEW LEVEL TRANSDUCER. REFER TO MECHANICAL PLANS FOR SUPPORT DETAILS.
 - 6 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.
 - 7 PROVIDE AND INSTALL ELECTRICAL CONNECTIONS TO NEW SUBMERSIBLE PUMP.
 - 8 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.
 - 9 PROVIDE AND INSTALL MIXER CONTROL PANEL ON STAINLESS STEEL STANCHION.
 - 10 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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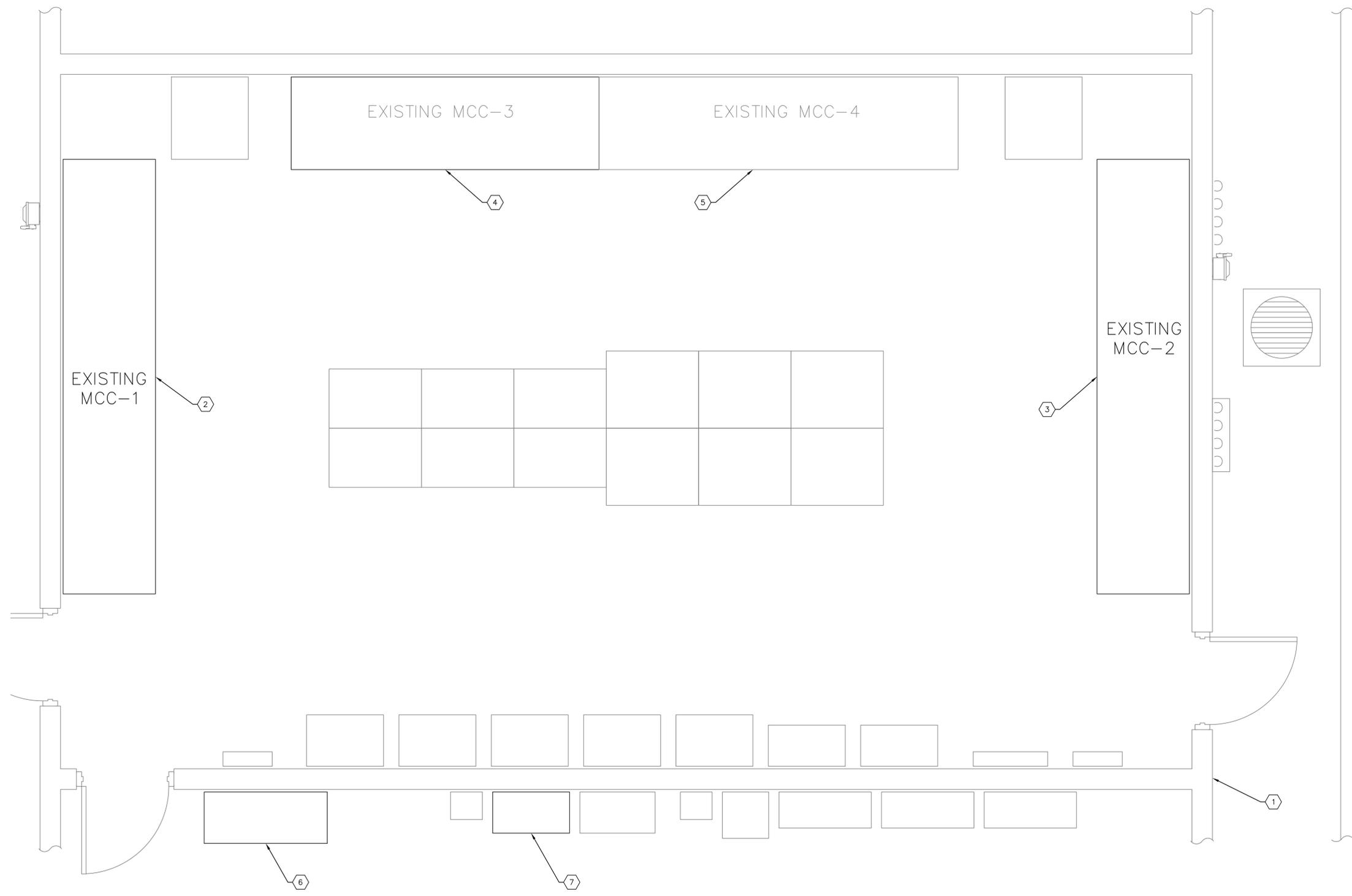
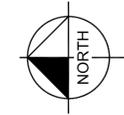
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CCC ELECTRICAL SITE PLAN

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 COVERED 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 1
 SCALE : 1/2" = 1'-0" E-2 | CC-E-2



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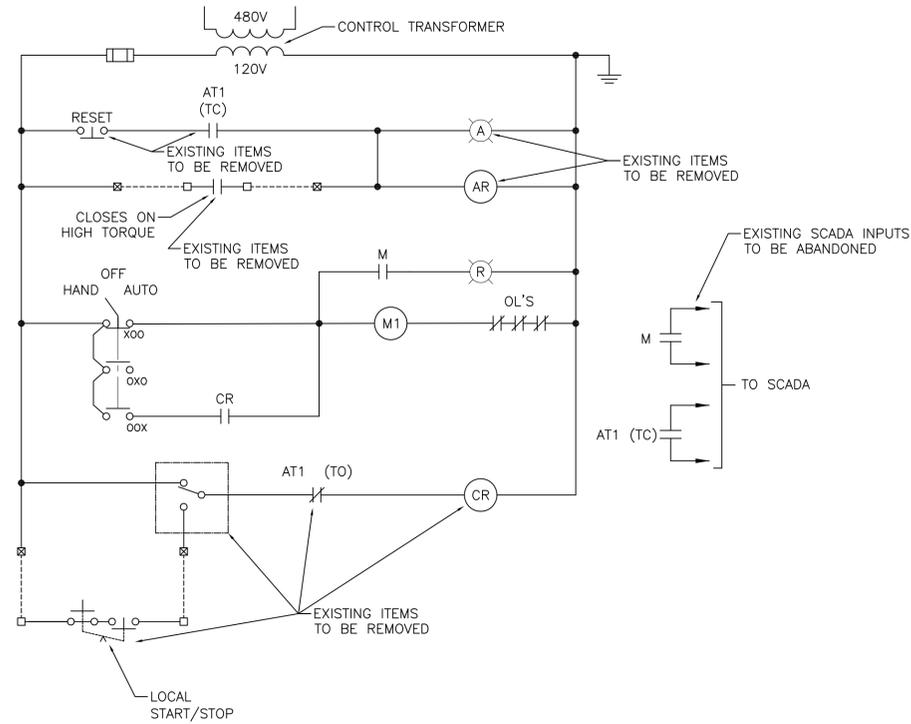
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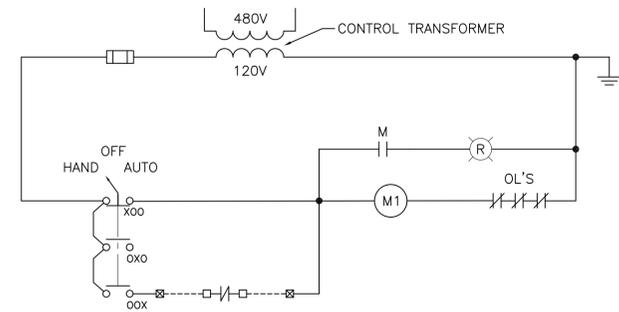
**ELECTRICAL BUILDING No. 1
 FLOOR PLAN**

SHEET NUMBER
CC-E-2

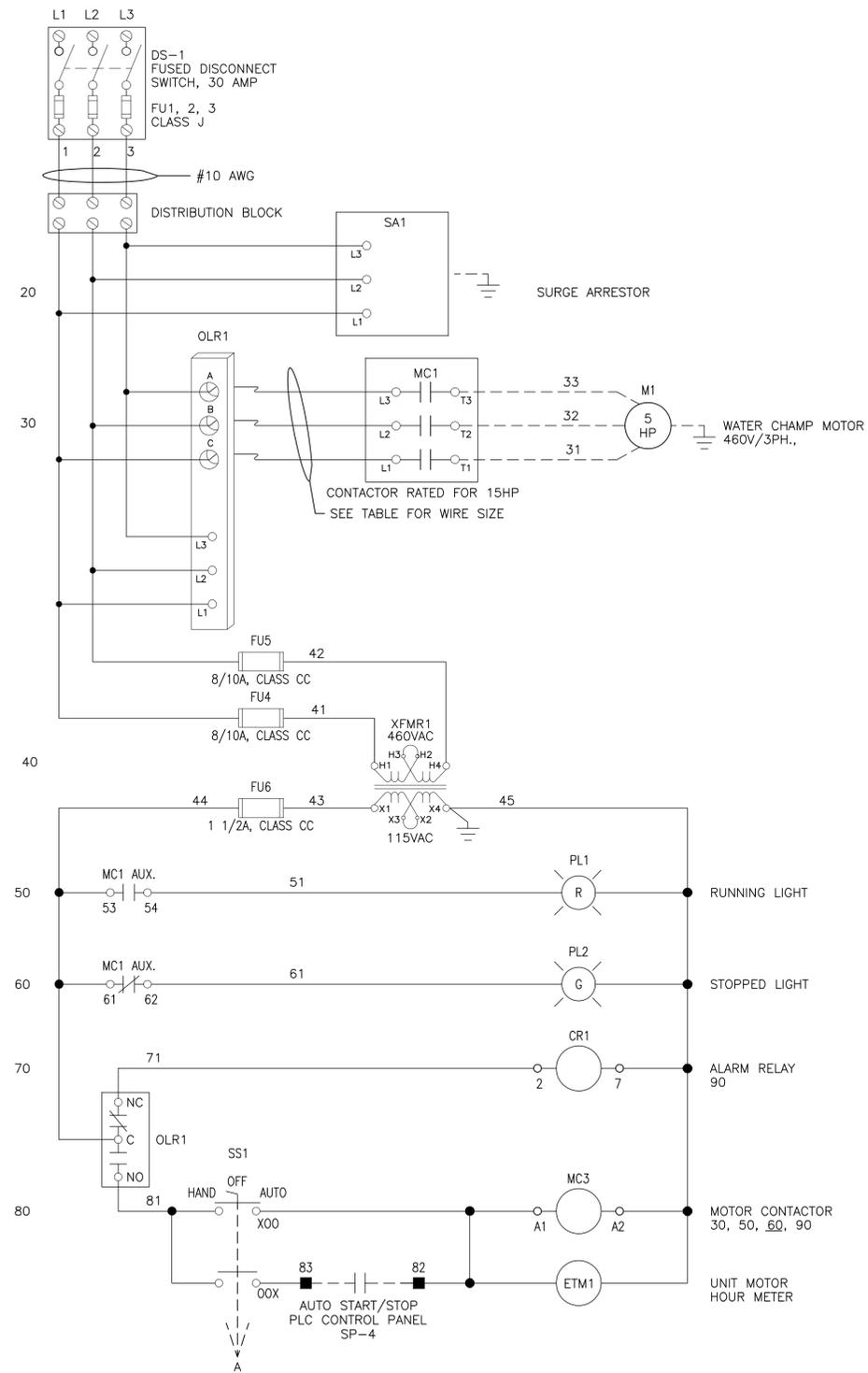
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TYPICAL EXISTING CLARIFIER MOTOR WIRING DIAGRAM



TYPICAL PROPOSED CLARIFIER MOTOR WIRING DIAGRAM



TYPICAL MIXER MOTOR WIRING DIAGRAM



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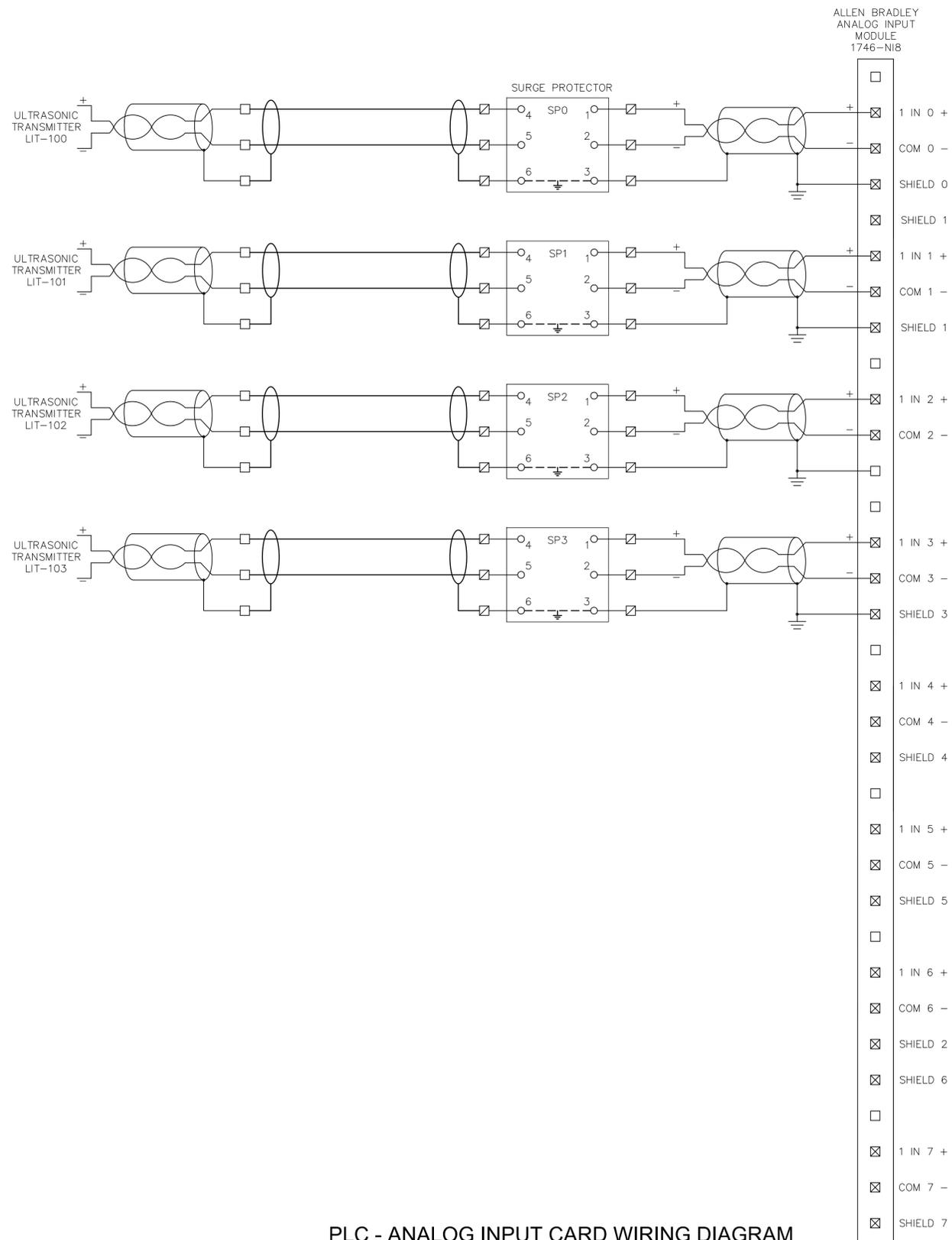

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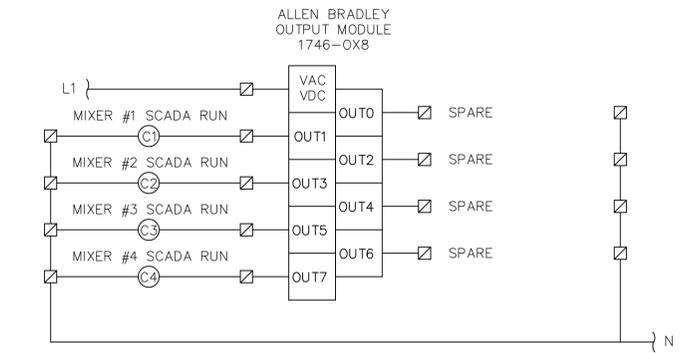
MOTOR WIRING DIAGRAMS

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CC-E-3

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PLC - ANALOG INPUT CARD WIRING DIAGRAM



PLC - DISCRETE OUTPUT CARD WIRING DIAGRAM

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**PLC CONTROL PANEL SP-4
 I/O LISTINGS**

SHEET NUMBER
CC-I-1

