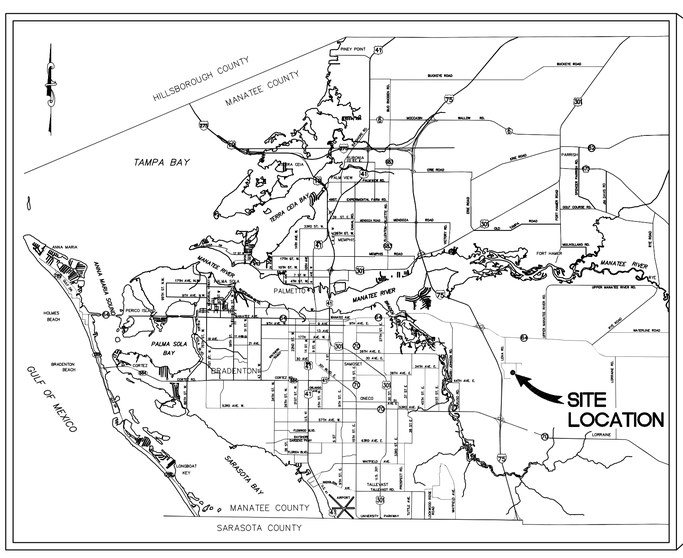
SEWRF HEADWORKS AND INTERNAL RECYCLE PUMP REHABILITATION

COUNTY PROJECTS #6083580 & #6083380

DECEMBER 2013

MANATEE COUNTY, FLORIDA



PROJECT VICINITY MAP

BID PACKAGE
NOT FOR CONSTRUCTION

PREPARED BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150,
TAMPA, FL 33602
PHONE (813) 620-1460
WWW.KIMLEY-HORN.COM CA 00000696

WAYNE E. WHITE, P.E.
No. 53232

DECEMBER 2013 | MANATEE COUNTY SEWRF | 148400001

BID PACKAGE

G-0.1 - COVER SHEET

DISCIPLINE	DRAWING	TITLE
GENERAL	G-0.1	COVER SHEET
	G-0.2	DRAWING INDEX AND GENERAL NOTES
	G-0.3	PROJECT LOCATION MAP
	G-0.4	YARD PIPING PLAN
	G-0.5	PHASING PLAN
DEMOLITION	D-2.1	HEADWORKS UPPER DEMOLITION PLAN
	D-2.2	HEADWORKS MIDDLE DEMOLITION PLAN
	D-2.3	HEADWORKS LOWER DEMOLITION PLAN
	D-2.4	DEMOLITION DETAILS
	D-2.5	DEMOLITION DETAILS (CONT.)
	D-2.6	DEMOLITION DETAILS (CONT.)
	D-2.7	LOWER HEADWORKS ELECTRICAL DEMOLITION PLAN
	D-2.8	ELECTRICAL DEMOLITION DETAILS
	D-3.1	INTERNAL RECYCLE DEMOLITION PLAN AND SECTIONS
STRUCTURAL	S-0.1	STRUCTURAL DETAILS
	S-0.2	STRUCTURAL DETAILS (CONT.)
	S-2.1	HEADWORKS UPPER STRUCTURAL PLAN
	S-3.1	ANOXIC AEROBIC BASINS NO1 AND NO2 PLAN
	S-3.2	ANOXIC AEROBIC NO1 DETAILS
	S-3.3	ANOXIC AEROBIC NO2 DETAILS
	S-3.4	INTERNAL RECYCLE PUMPS PLAN
MECHANICAL	M-0.1	MECHANICAL DETAILS
	M-0.2	MECHANICAL DETAILS (CONT.)
	M-2.1	HEADWORKS UPPER PLAN MODIFICATIONS
	M-2.2	HEADWORKS MODIFICATIONS DETAILS
	M-2.3	HEADWORKS MODIFICATIONS DETAILS (CONT.)
	M-3.1	INTERNAL RECYCLE PUMPS PLAN
	M-3.2	INTERNAL RECYCLE PUMPS SECTIONS
INSTRUMENTATION	I-1.1	INSTRUMENTATION AND CONTROLS LEGEND
	I-1.2	SCADA PANEL 2 ELEVATION
	I-1.3	FIBER OPTIC TOPOLOGY AND PLC CONFIGURATION
	I-1.4	INPUT/OUTPUT ASSIGNMENTS TO SCADA PANEL #2
	I-1.5	SCADA PANEL 2 MODIFICATIONS
	I-1.6	SCADA PANEL 2 MODIFICATIONS
ELECTRICAL	E-0.1	ELECTRICAL LEGEND
	E-0.2	ELECTRICAL SITE PLAN
	E-1.1	MCC/BLOWER BUILDING NO. 2 FLOOR PLAN
	E-1.2	MOTOR CONTROL CENTER ELEVATIONS
	E-1.3	MCC 1 & MCC 2 ONE-LINE DIAGRAMS
	E-1.4	MCC 1A AND MCC 2A ONE-LINE DIAGRAMS
	E-1.5	VFD CONTROL WIRING SCHEMATIC
	E-1.6	VFD CONTROL WIRING SCHEMATIC
	E-1.7	HEADWORKS EQUIPMENT DETAILS
	E-1.8	ELECTRICAL DETAILS
	E-1.9	ELECTRICAL DETAILS
	E-1.10	PANEL SCHEDULES
	E-2.1	HEADWORKS UPPER LEVEL ELECTRICAL PLAN
	E-2.2	LOWER HEADWORKS ELECTRICAL PLAN
	E-3.1	INTERNAL RECYCLE PUMPS PLAN

PROCESS AREA TABLE	
NUMERIC DESIGNATION	
0	SITE CIVIL AND MISCELLANEOUS
1	ELECTRICAL AND INSTRUMENTATION
2	HEADWORKS
3	ANOXIC/AEROBIC BASINS

DRAWING NUMBER DESIGNATION

G – 0 . 1

- G – INDICATES SHEET NUMBER OF PROCESS AREA OR STRUCTURE
- 0 – INDICATES PROCESS AREA OR STRUCTURE (EX. "0" REFERS TO SITE CIVIL AND MISCELLANEOUS) *NOT ALL PROCESS AREAS/ STRUCTURES ARE INCLUDED FOR EACH DISCIPLINE
- 1 – INDICATES DISCIPLINE (EX. "G" REFERS TO GENERAL)

PLAN 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. CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATION NECESSARY TO DETERMINE THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED.
2. LOCATION, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) AFFECTING HIS WORK.
3. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEERS CLARIFICATION BEFORE COMMENCING.
4. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, STORM DRAINS, SEWERS, UTILITIES, AND OTHER FACILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR ANY DAMAGES DUE TO HIS CONSTRUCTION.
5. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURERS' MAXIMUM RECOMMENDED DEFLECTION.
6. THERE ARE TO BE NO "SIZE ON SIZE TAPS" OR "SIZE ON SMALLER TAPS" ON THIS PROJECT.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE EXISTING DRAINAGE SYSTEM WITHIN THE LIMITS OF THE PROJECT AREA FOR THE DURATION OF THE PROJECT.
8. THE CONTRACTOR SHALL PROVIDE CERTIFIED RECORD DRAWINGS AS OUTLINED IN THE SPECIFICATIONS. RED-LINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APPLICATION SUBMITTED AND WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS. PAYMENT WILL NOT BE MADE TO CONTRACTOR WITHOUT APPROVED RED-LINE DRAWINGS. THE MOST CURRENT SET OF RED-LINE DRAWINGS SHALL ALSO BE BROUGHT TO EACH MONTHLY PROGRESS MEETING.
9. THE CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH A DETAILED CONSTRUCTION PHASING PLAN FOR APPROVAL, PRIOR TO BEGINNING CONSTRUCTION.
10. FIELD CONDITIONS MAY NECESSITATE ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED PIPELINES TO AVOID CONFLICTS. NO ADDITIONAL PAYMENT SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND THE OWNER'S ENGINEER.
11. THE CONTRACTOR SHALL INCLUDE IN HIS BID: BY-PASS PUMPING FACILITIES, PUMPS, FITTINGS, LABOR, ETC. AS NECESSARY, BASED ON METHOD AND SEQUENCE OF CONSTRUCTION TO COMPLETE ALL WORK WHILE MAINTAINING THE EXISTING WASTEWATER TREATMENT PLANT OPERATIONS AT ALL TIMES.
12. ALL PROPOSED WORK SHALL BE COORDINATED WITH WASTEWATER TREATMENT PLANT PERSONNEL AND MANATEE COUNTY UTILITIES DEPARTMENT AT LEAST TWO WEEKS IN ADVANCE OF PROPOSED CONSTRUCTION.
13. THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS TO THE ENGINEER FOR REVIEW OF ALL PIPE CONNECTIONS, TRANSITIONS, AND SPECIAL APPURTENANCES PRIOR TO FABRICATION OR DELIVERY TO THE JOB SITE.
14. CONNECTIONS TO EXISTING FACILITIES SHALL BE ACCOMPLISHED IN A NEAT WORKMANLIKE MANNER, WHEN FIELD CONDITIONS INDICATE ANY VARIANCE FROM DETAILED METHODS. THE CONTRACTOR SHALL PROVIDE COMPREHENSIVE AND DETAILED DRAWINGS FOR OWNER REVIEW AND APPROVAL PRIOR TO MAKING THE CONNECTIONS.
15. UNLESS OTHERWISE INDICATED OR APPROVED, ALL BELOW GROUND DUCTILE IRON PIPE SHALL HAVE PUSH-ON OR MECHANICAL JOINTS, AND ALL ABOVE GROUND DUCTILE IRON PIPE SHALL HAVE FLANGED JOINTS. ALL JOINTS SHALL BE FULLY RESTRAINED. CONTRACTOR TO FULLY RESTRAIN EXISTING PIPE AT TIE-IN LOCATIONS OF NEW PIPE.
16. ALL PIPELINES SHALL HAVE A MINIMUM COVER OF 36" BELOW EXISTING GRADE UNLESS OTHERWISE NOTED OR DIRECTED.
17. SANITARY SEWERS AND FORCEMAINS CROSSING OVER OR UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER OR FORCE MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN 10' BETWEEN ANY TWO JOINTS. AS AN ALTERNATIVE, THE SEWER OR FORCE MAIN MAY BE PLACED IN A WATERTIGHT CASING PIPE.
18. WATER SHALL NOT BE PERMITTED IN BUILDING EXCAVATIONS OR TRENCHES DURING CONSTRUCTION. DEWATERING IS REQUIRED TO A MINIMUM OF 18" BELOW BOTTOM OF EXCAVATION.
19. THE CONTRACTOR SHALL NOT ALLOW ANY DISCHARGE OF WASTEWATER TO LANDS AND/OR ADJACENT WATER BODIES OR STORM DRAINS. ANY LEAKAGE MUST BE CONTAINED AND REMOVED BY THE CONTRACTOR TO THE PLANT DRAIN PUMP STATION AT THE WASTEWATER TREATMENT PLANT.
20. ALL BELOW-GRADE FITTINGS 4-INCHES AND GREATER IN DIAMETER SHALL BE MECHANICAL JOINT DUCTILE IRON WITH FACTORY APPLIED, FUSION BONDED EPOXY COATINGS FOR THEIR INTERIOR AND EXTERIOR SURFACES.
21. ALL EXPOSED PIPING SHALL BE PAINTED WITH DESIGNATED COLORS ASSOCIATED WITH THEIR USAGE AS PROVIDED IN THE SPECIFICATIONS.
22. ALL NEW PIPELINES SHALL BE FLUSHED, PRESSURE TESTED, AND APPROVED PRIOR TO TIE-INS TO EXISTING FACILITIES. THE CONTRACTOR WILL BE ALLOWED TO USE TEMPORARY PLUGS FOR PRESSURE TESTING.
23. CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES AND DITCHES DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL BE REQUIRED TO INSTALL ALL EROSION, SEDIMENT, AND TURBIDITY CONTROL MEASURES PRIOR TO CONSTRUCTION OF ANY COMPONENTS ASSOCIATED WITH THE PROJECT. SEDIMENT CONTROL INCLUDES SILT DAMS, TRAPS, EROSION PROTECTION, AND ANY OTHER APPURTENANCES NEEDED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS.
24. CONTRACTOR SHALL PROVIDE PROTECTIVE MATTING, FUEL CONTAINMENT AND ALL OTHER MATERIALS, EQUIPMENT AND LABOR TO PROTECT THE STAGING AREA DURING CONSTRUCTION.
25. CONTRACTOR SHALL, PRIOR TO BEGINNING CONSTRUCTION, SUBMIT A "FUELING SPILL PREVENTION PLAN" THAT SHALL CLEARLY INDICATE HOW FUEL SPILLS WILL BE PREVENTED WHEN FUELING BOTH WITHIN AND OUTSIDE OF THE STAGING AREA.
26. THE CONTRACTOR SHALL COORDINATE THE STAGING AREA WITH THE OWNER. THERE WILL BE MULTIPLE PROJECTS UNDER CONSTRUCTION AT THE FACILITY AND IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A SECURE AREA FOR THE STORAGE AND STAGING OF EQUIPMENT, INCLUDING BUT NOT LIMITED TO FENCING, GATES, AND ANY ADDITIONAL ITEMS THAT MAY BE NECESSARY TO SECURE THE AREA.

SURVEY NOTES

1. THIS IS NOT A BOUNDARY SURVEY.
2. THIS SURVEY IS REFERENCED TO A PROJECTION OF THE FLORIDA STATE PLANE COORDINATE SYETEM(WEST ZONE AND 1983/2007 ADJUSTMENT).
3. THE FOLLOWING BENCHMARK WAS RECOVERED AND UTILIZED FOR THIS SURVEY: RAILROAD SPIKE IN THE NE SIDE OF A POWER POLE WITH A PK NAIL AND MANATEE COUNTY BM DISK ABOVE IT, 45' ± WEST OF SW CORNER PHASE 1 LENA LANDFILL (NGVD 1929 ELEVATION 38.871'). FOR CONVERSION TO NAVD 1988 ELEVATIONS, A VALUE OF (–.96') SHOULD BE APPLIED. THIS VALUE WAS DERIVED USING CORPSCON 6 AND IS APPROXIMATE.
4. SITE LIES WITHIN FLOOD ZONE "A" AND "X" AS SCALED FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP: COMMUNITY PANNEL UMBER 120153 0352 C DATED JULY 15,1992. SUBJECT TO FIELD VERIFICATION.
5. THIS SURVEY IS SUBJECT TO PERTINENT EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD, IF ANY.
6. CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR, LICENSED IN THE STATE OF FLORIDA TO PERFORM CONSTRUCTION STAKING IN ACCORDANCE WITH RULE 61G17-6.004(3) OF THE FLORIDA ADMINISTRATIVE CODE.
7. THE LOCATIONS AND ELEVATIONS OF ALL EXISTING FACILITIES SHOWN WITHIN THE LIMITS OF CONSTRUCTION ARE PROVIDED BY FORESIGHT SURVEYORS SPECIFICALLY FOR THIS PROJECT.

UTILITY NOTES

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

CALL 2 BUSINESS DAYS BEFORE YOU DIG
IT'S THE LAW!
DIAL 811
811 Know what's below. Call before you dig.
SUNSHINE STATE ONE CALL OF FLORIDA, INC.

SOUTHEAST WATER RECLAMATION FACILITY
DALTON COOK, CHIEF OPERATOR
LENA ROAD
BRADENTON, FL 34210
(941) 748-4978

FLORIDA POWER & LIGHT
RAY VANLANGHAM
125 12TH AVENUE EAST
BRADENTON, FLORIDA 34208
(941) 749-6443

MANATEE COUNTY PUBLIC WORKS
KENT BONTRAGER
1022 26TH AVENUE EAST
BRADENTON, FL 34208-3916
(941) 708-7450 EXT. 7331

2. ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE MANATEE COUNTY UTILITY STANDARDS.
3. ALL VALVE BOX COVERS SHALL BE PAINTED TO INDICATE THEIR TYPE OF SERVICE.
4. ALL TEST POINT TAPPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. THE CORPORATION STOP SHALL BE CAPPED AND REMAIN IN PLACE,
6. ADJUST EXISTING MANHOLE FRAMES AND COVERS TO MATCH FINAL GRADE.

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 PROVIDE AN ASPHALT PATCH FOR TRENCH AREAS CONSTRUCTED IN EXISTING ROADWAYS. ADJUST ALL CASTINGS TO MATCH NEW PAVEMENT SURFACE.
3. 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.
4. ALL EXISTING FENCES DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED AND REINSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER UNLESS SHOWN TO BE REMOVED ON CONSTRUCTION PLANS.
5. CONTRACTOR SHALL RESTORE ALL IRRIGATION SYSTEM COMPONENTS TO PRE-CONSTRUCTION CONDITIONS.
6. THE CONTRACTOR SHALL ADJUST EXISTING MANHOLE FRAMES AND COVERS TO MATCH FINAL GRADE.
7. ALL DISTURBED GRASSED AREAS SHALL BE RESTORED WITH THE SOD IN LIKE KIND UNLESS OTHERWISE DIRECTED BY OWNER. CONTRACTOR SHALL ROLL ALL SODDED AREAS.
8. CONCRETE SIDEWALKS ACROSS DRIVEWAYS SHALL BE RESTORED WITH 6 INCHES OF 3,000 PSI CONCRETE WITH W2.5 X W2.5, 6X6 WIRE MESH. PLACE ½ INCH EXPANSION JOINT BETWEEN BACK OF CURB AND NEW CONCRETE. AREA BENEATH RESTORATION SHALL BE MECHANICALLY TAMPED PRIOR TO PLACING CONCRETE.
9. CONCRETE SIDEWALKS OUTSIDE OF DRIVEWAYS SHALL BE RESTORED WITH 4 INCHES OF 3,000 PSI CONCRETE PER FDOT DESIGN STANDARDS, SECTIONS 522 & 310.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE: AS NOTED
DESIGNED BY: JWW
DRAWN BY: JRT
CHECKED BY: WEW

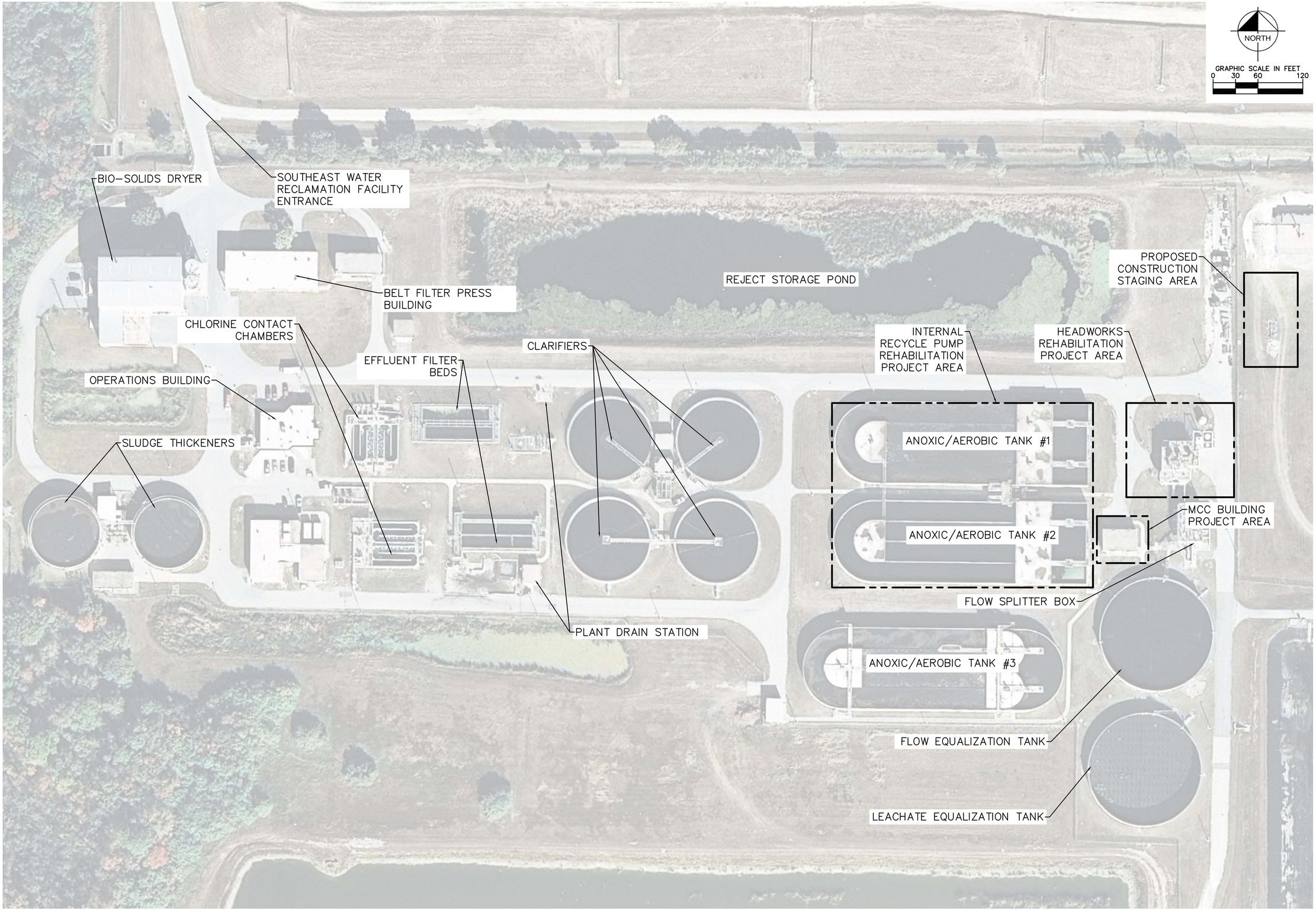
DRAWING INDEX AND GENERAL NOTES

MANATEE COUNTY SEWRF
FLORIDA
MANATEE COUNTY

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
G-0.2



No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE: AS NOTED
DESIGNED BY: JWW
DRAWN BY: JRT
CHECKED BY: WEW

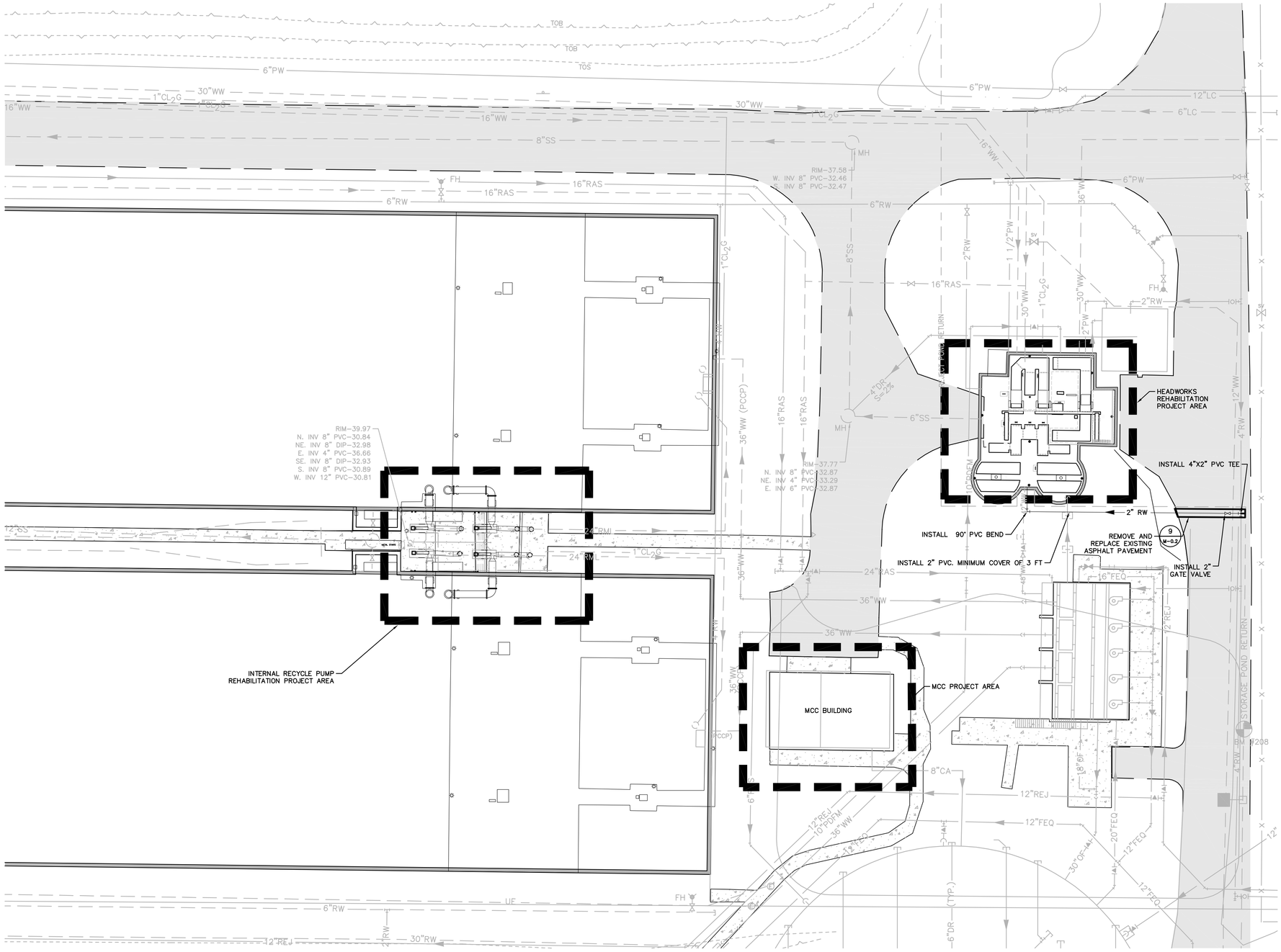
PROJECT LOCATION MAP

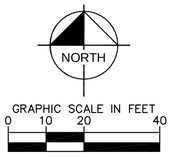
MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
G-0.3



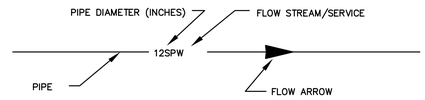


GRAPHIC SCALE IN FEET
0 10 20 40

SITE LEGEND

- STRUCTURE WALL
- ASPHALT
- SIDEWALK
- PIPELINE
- GATE VALVE
- PLUG VALVE
- MANHOLE (M.H.)
- BALL VALVE
- FIRE HYDRANT (F.H.)
- EDGE OF PAVEMENT
- PROPOSED VALVE
- TOP OF BANK
- TOP OF SLOPE
- CHAIN-LINK FENCE
- REDUCER
- ELECTRIC MANHOLE
- BENCHMARK

PIPE IDENTIFICATION



FLOW ABBREVIATIONS

CA	COMPRESSED AIR
CLS/CLS2	CHLORINE SOLUTION
DR	DRAIN
FEQ	FLOW EQUALIZATION
LC	LEACHATE COLLECTION
ML	MIXED LIQUOR
OF	OVERFLOW
PPCP	PRE-STRESSED CONCRETE PIPE
PDFM	PLANT DRAIN FORCE MAIN
PW	POTABLE WATER
RAS	RETURNED ACTIVATED SLUDGE
REJ	REJECT
RML	RECIRCULATED MIXED LIQUOR
RW	REUSE WATER
SS	SANITARY SEWER
UE	UNDERGROUND ELECTRIC
WW	WASTEWATER

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

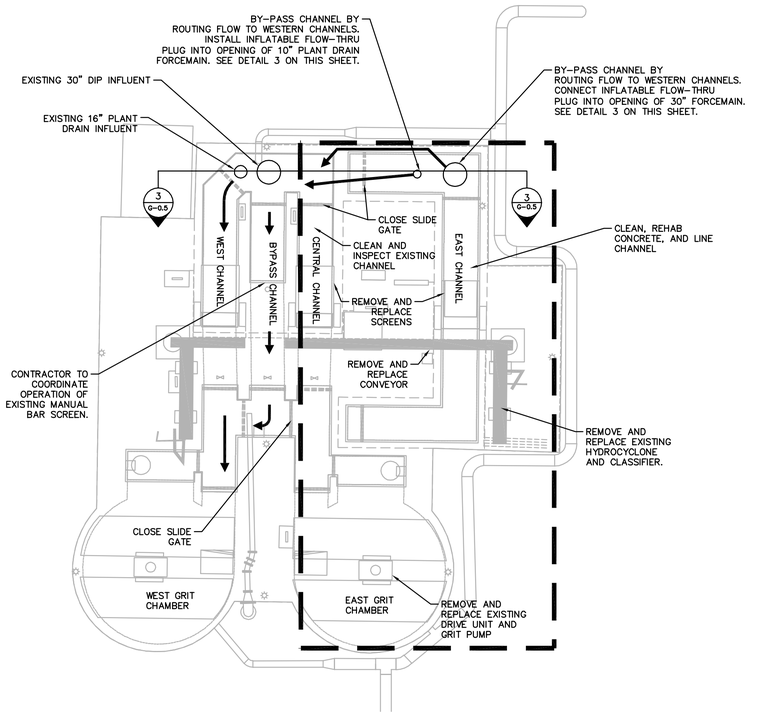
YARD PIPING PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

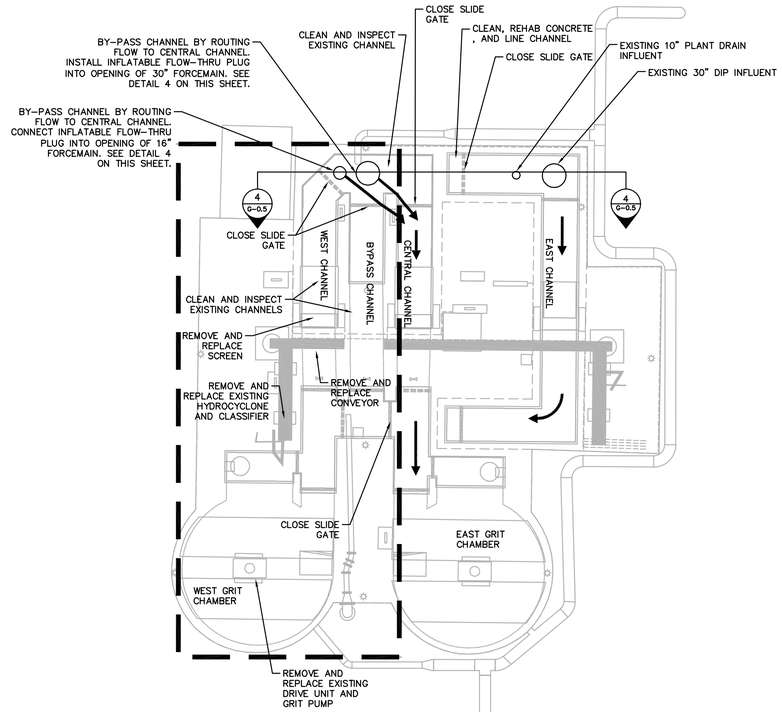
PROJECT NO.
148400001

SHEET NUMBER
G-0.4



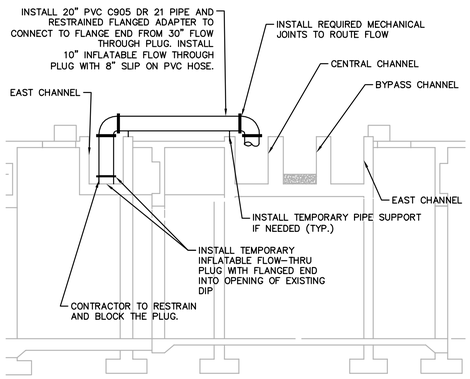
PHASING 1 PLAN
1/8"= 1'-0"
1 G-05

NORTH

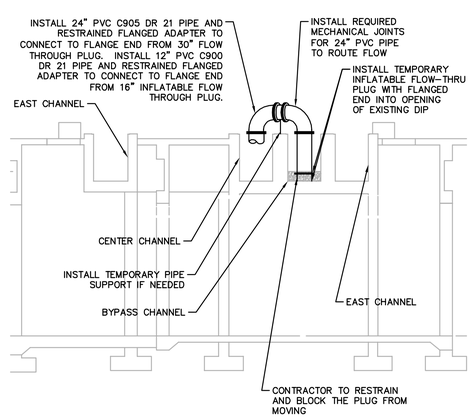


PHASING 2 PLAN
1/8"= 1'-0"
2 G-05

NORTH



DETAIL 3
N.T.S.
3 G-05



DETAIL 4
N.T.S.
4 G-05

PERMITTED DESIGN FLOW INFORMATION

MAX DAILY FLOW (MDF)	= 12.6 MGD
AVERAGE DAILY FLOW (ADF)	= 11 MGD
PEAK HOUR FLOW (PHF)	= 33 MGD
CHANNEL DESIGN CAPACITY	= 12 MGD
VORTEX CHAMBER CAPACITY	= 20 MGD

HYDRAULIC MODEL INFORMATION

PER CHANNEL FLOW	EST. WATER ELEVATION
16.5 MGD (25.6CFS)	58.84' PHF
11 MGD (17CFS)	58.12' MDF
6 MGD (9.3CFS)	57.37' ADF

TOP OF CHANNEL: 59.72'

GENERAL NOTE

1. COORDINATE PUMP STATION SHUTDOWN WITH MANATEE COUNTY L.S. OPERATOR FOR INSERTION OF INFLATABLE FLOW-THRU PLUG INTO EXISTING 10", 16", AND 30" DIP.

2. CONTRACTOR SHALL PREPARE A INFLATABLE PLUG MONITORING AND EMERGENCY ACTION PLAN IN THE EVENT OF FAILURE. THE PLAN SHALL BE APPROVED BY MANATEE COUNTY PRIOR TO BEGINNING WORK.

SEQUENCE OF OPERATION

PHASE 1:

THE INTENT OF THE PHASING 1 PLAN IS TO ISOLATE AND DRAIN THE EAST AND CENTRAL CHANNELS AND EAST GRIT CHAMBER FOR MODIFICATIONS. THE WEST CHANNEL AND WEST GRIT CHAMBER WILL REMAIN IN SERVICE DURING PHASE 1. THE BYPASS CHANNEL WILL BE USED DURING HIGH FLOWS AND EMERGENCIES.

1. CLOSE CENTRAL CHANNEL AND EAST CHANNEL SLIDE GATES PER PHASING 1 PLAN DETAIL.

2. INSTALL INFLATEABLE FLOW THROUGH PLUG AND BYPASS PIPING ON THE 10" PLANT DRAIN FORCEMAIN AND EAST 30" FORCEMAIN.

3. DRAIN CENTRAL AND EAST CHANNELS AND EAST GRIT CHAMBER THROUGH EAST GRIT CHAMBER DRAINING.

4. REMOVE BAR SCREENS, CONVEYOR, HYDROCYCLONE, CLASSIFIER, DRIVE UNIT, GRIT PUMP, AND ASSOCIATED PIPING AND ELECTRICAL EQUIPMENT.

5. CLEAN AND INSPECT CHANNELS.

6. REHAB CONCRETE OF CHANNELS AND LINE THE FAR EASTERN CHANNEL PER PLANS.

7. INSTALL NEW BAR SCREEN, CONVEYOR, HYDROCYCLONE, CLASSIFIER, DRIVE UNIT, GRIT PUMP, AND ASSOCIATED PIPING AND CONTROLS. TEST EQUIPMENT AND VERIFY ALL EQUIPMENT IS RUNNING PROPERLY.

8. REMOVE TEMPORARY PIPING AND OPEN SLIDE GATES.

PHASE 2:

THE INTENT OF PHASE 2 PLAN IS TO ISOLATE THE WEST AND BYPASS CHANNELS AND WEST GRIT CHAMBER FOR MODIFICATIONS. THE CENTRAL AND EAST CHANNELS WILL BE PLACED INTO SERVICE DURING PHASE 2.

1. CLOSE WEST, BYPASS, CENTRAL, AND EAST CHANNEL SLIDES GATES PER PHASING 2 PLAN DETAIL.

2. INSTALL INFLATEABLE FLOW THROUGH PLUG AND BYPASS PIPING ON THE 16" PLANT DRAIN AND WEST 30" FORCEMAIN.

3. DRAIN WEST AND BYPASS CHANNEL THROUGH WEST GRIT CHAMBER DRAIN.

4. REMOVE BAR SCREEN, CONVEYOR, HYDROCYCLONE, CLASSIFIER, DRIVE UNIT, GRIT PUMP, AND ASSOCIATED PIPING AND ELECTRICAL EQUIPMENT.

5. CLEAN AND INSPECT CHANNELS.

6. REHAB CONCRETE OF CHANNELS IF NEEDED.

7. INSTALL NEW BAR SCREEN, CONVEYOR, HYDROCYCLONE, CLASSIFIER, DRIVE UNIT, GRIT PUMP, AND ASSOCIATED PIPING AND CONTROLS. TEST EQUIPMENT AND VERIFY ALL EQUIPMENT IS RUNNING PROPERLY.

8. REMOVE TEMPORARY PIPING AND OPEN SLIDE GATES.

9. MAKE STRUCTURAL REPAIRS TO CONCRETE DECK PER PLANS.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

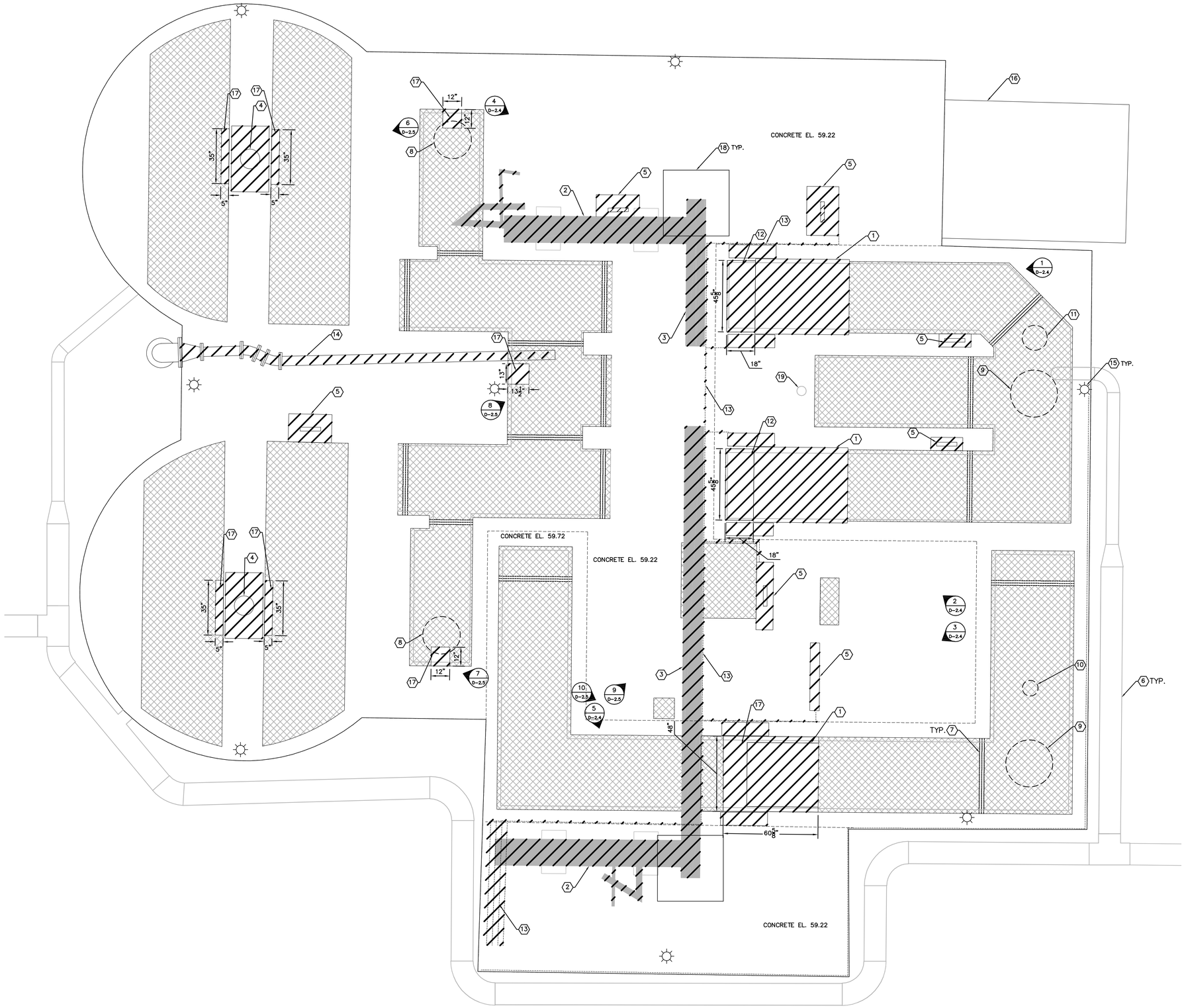
PHASING PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
G-0.5



NORTH

GRAPHIC SCALE IN FEET
12" 0 1' 2' 3' 4' 5'

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. PIPING AND CONDUIT REMOVAL SHALL INCLUDE ALL SUPPORTS AND HANGERS. TRIM HARDWARE FLUSH.
6. CONTRACTOR SHALL IDENTIFY LOCATIONS FOR REBAR REPAIR AS WORK PROGRESSES. LOCATIONS TO RECEIVE THIS REPAIR SHALL BE VERIFIED BY THE PROJECT ENGINEER.

KEY NOTES:

1. REMOVE EXISTING MECHANICAL BAR SCREEN UNIT AND ASSOCIATED ELECTRICAL EQUIPMENT
2. REMOVE EXISTING CYCLONE, GRIT CLASSIFIER, AND ASSOCIATED PIPING ABOVE DECK GRADE AND ELECTRICAL EQUIPMENT
3. REMOVE EXISTING CONVEYOR SYSTEM, AND ASSOCIATED PIPING AND ELECTRICAL EQUIPMENT
4. REMOVE EXISTING VORTEX GRIT REMOVAL SYSTEM EQUIPMENT, ASSOCIATED PIPING AND ELECTRICAL EQUIPMENT
5. REMOVE EXISTING ELECTRICAL AND CONTROL EQUIPMENT
6. EXISTING ODOR CONTROL PIPE TO REMAIN AND BE PROTECTED IN PLACE
7. EXISTING SLIDE GATE TO REMAIN IN PLACE
8. EXISTING 24" DISCHARGE PIPE TO REMAIN
9. EXISTING 30" FORCE MAIN INFLUENT PIPE TO REMAIN
10. EXISTING 10" PLANT DRAIN FORCE MAIN TO REMAIN
11. EXISTING 16" PLANT DRAIN FORCE MAIN TO REMAIN
12. REMOVE EXISTING GRATE TO ACCOMMODATE INSTALLATION OF PROPOSED IMPROVEMENTS
13. REMOVE EXISTING ELECTRICAL CONDUITS AND WIRES
14. REMOVE EXISTING REJECT POND INFLUENT PVC PIPE AND 12" X 6" DIP REDUCER
15. EXISTING LIGHT POLE TO REMAIN
16. EXISTING EXTERIOR STAIRCASE TO REMAIN
17. MODIFY EXISTING GRATE TO ACCOMMODATE INSTALLATION OF PROPOSED IMPROVEMENTS
18. EXISTING OPENING INTO EXISTING GARBAGE CHUTE TO REMAIN
19. EXISTING 6" DRAIN TO REMAIN

LEGEND

GRATE

DEMO

LIGHTPOLE

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

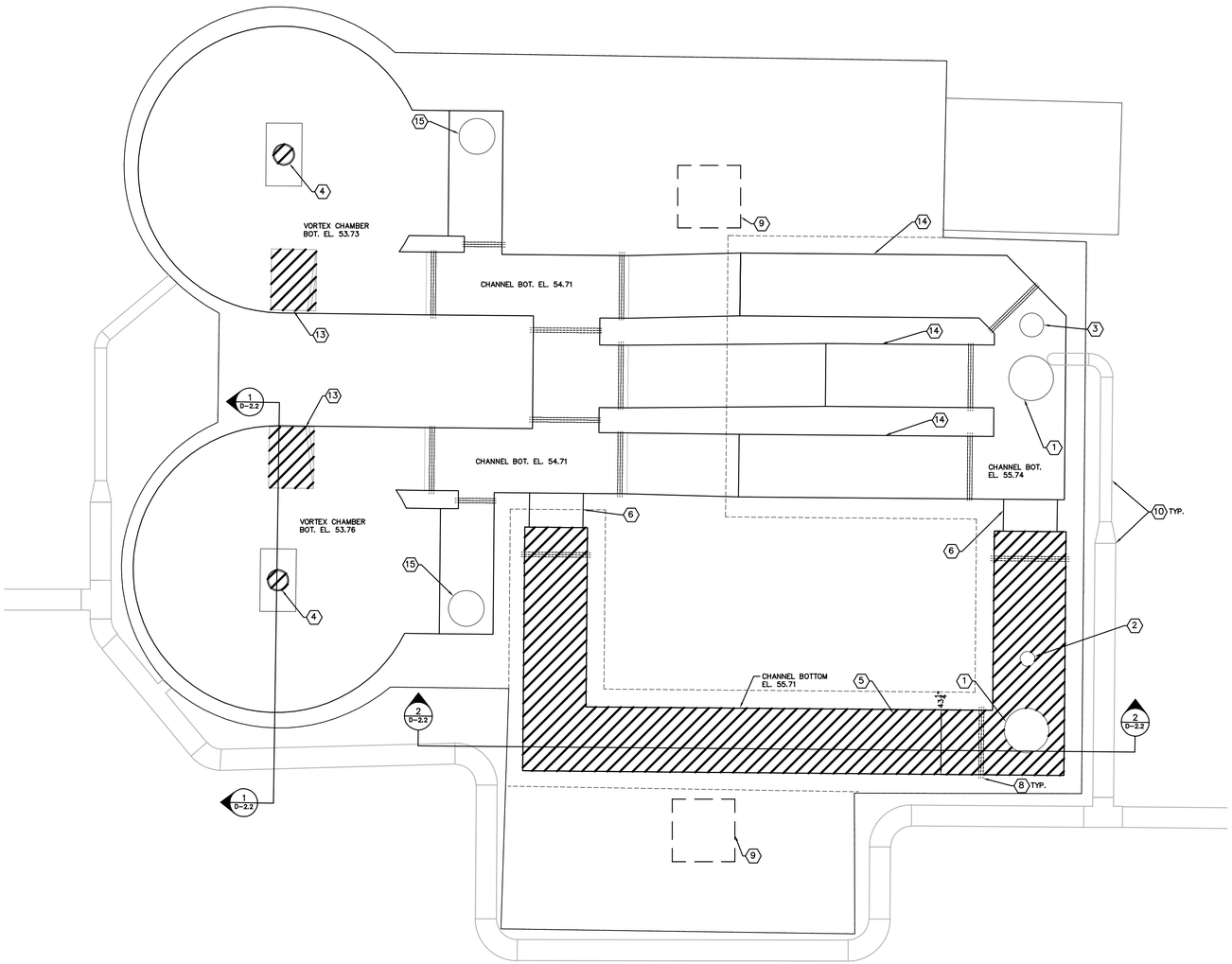
HEADWORKS UPPER DEMOLITION PLAN

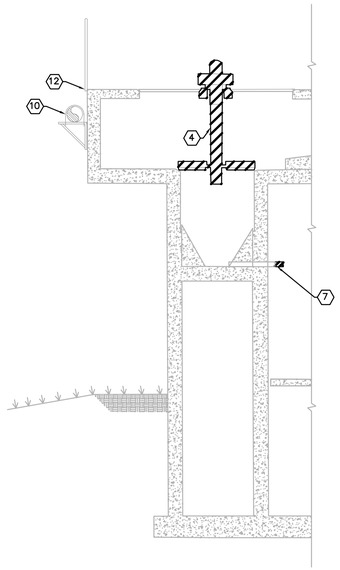
MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

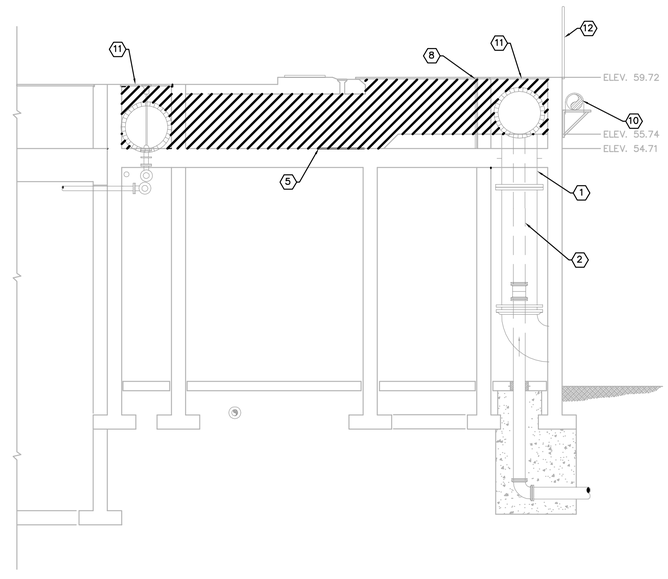
PROJECT NO.
148400001

SHEET NUMBER
D-2.1

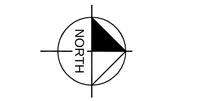




VORTEX REMOVAL SECTION
N.T.S.
1 D-2.2



CHANNEL EAST SECTION
N.T.S.
2 D-2.2



GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. PIPING AND CONDUIT REMOVAL SHALL INCLUDE ALL SUPPORTS AND HANGERS. TRIM HARDWARE FLUSH.
6. CONTRACTOR SHALL IDENTIFY LOCATIONS FOR REBAR REPAIR AS WORK PROGRESSES. LOCATIONS TO RECEIVE THIS REPAIR SHALL BE VERIFIED BY THE PROJECT ENGINEER.

KEY NOTES:

1. EXISTING 30" FORCEMAIN INFLUENT PIPE TO REMAIN
2. EXISTING 10" PLANT DRAIN FORCE MAIN TO REMAIN
3. EXISTING 16" PLANT DRAIN FORCE MAIN TO REMAIN
4. REMOVE EXISTING VORTEX GRIT REMOVAL SYSTEM EQUIPMENT, ASSOCIATED PIPING AND ELECTRICAL EQUIPMENT
5. REMOVE EXISTING LINER FROM CHANNEL FLOOR AND WALLS
6. EXISTING 36" PIPE CONNECTION TO REMAIN IN PLACE
7. MODIFY EXISTING GRIT SLURRY PIPE. SEE SHEET M-2.3 FOR DETAILS.
8. EXISTING SLIDE GATE TO REMAIN
9. EXISTING OPENING INTO EXISTING GARBAGE CHUTE TO REMAIN
10. EXISTING ODOR CONTROL PIPE TO REMAIN AND BE PROTECTED IN PLACE
11. SLIDE GATE SHOWN OPEN FOR CLARITY
12. EXISTING HANDRAIL TO REMAIN
13. REMOVE EXISTING INLET BAFFLE
14. EXISTING PVC LINER TO REMAIN
15. EXISTING 24" DISCHARGE PIPE TO REMAIN

LEGEND

DEMO

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE	DESIGNED	DRAWN	CHECKED
AS NOTED	JWW	JRT	WEW

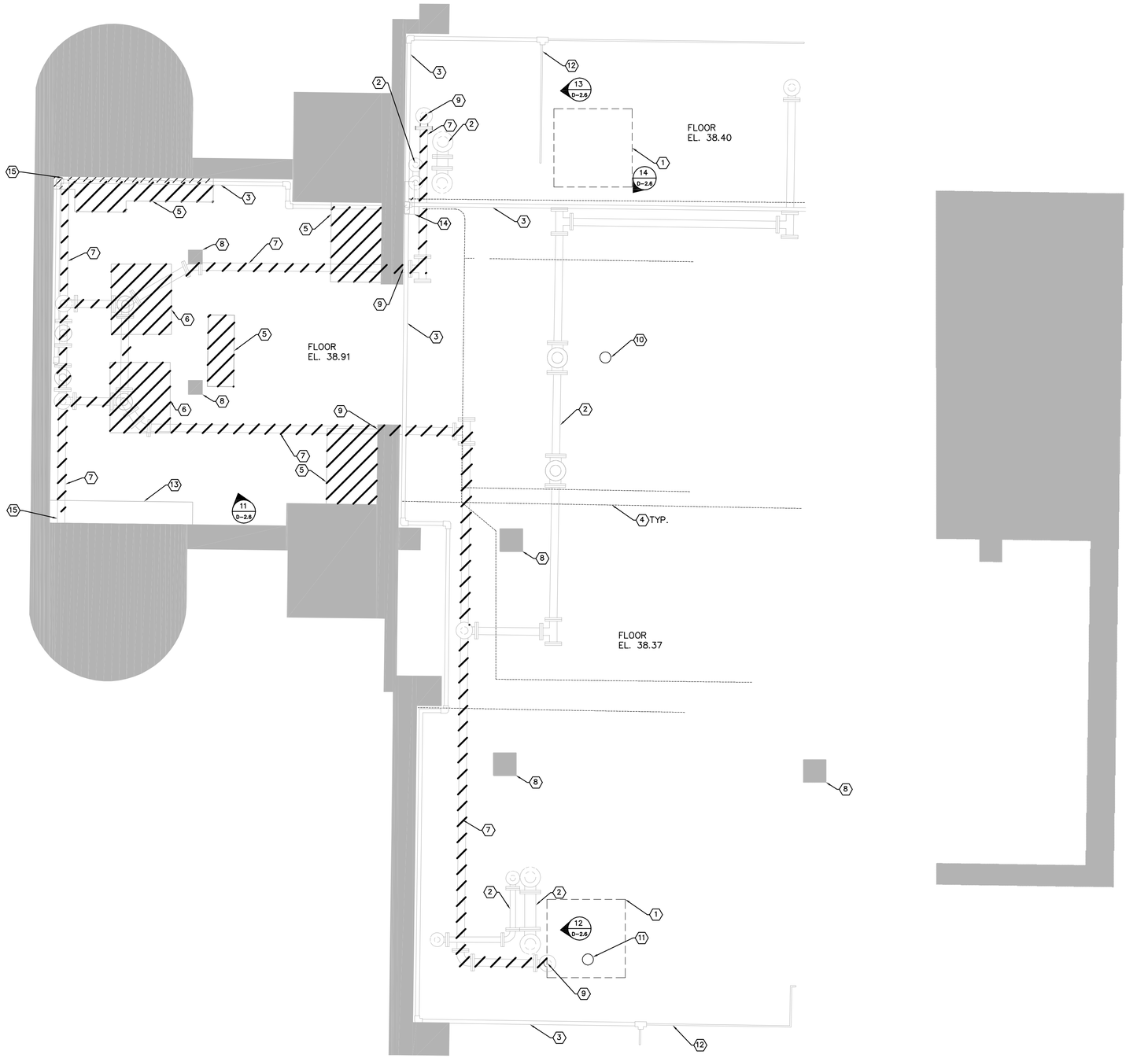
HEADWORKS MIDDLE DEMOLITION PLAN

MANATEE COUNTY SEWRF
FLORIDA
MANATEE COUNTY

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
D-2.2



NORTH

GRAPHIC SCALE IN FEET
12" 0 1' 2' 3' 4' 5'

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. PIPING AND CONDUIT REMOVAL SHALL INCLUDE ALL SUPPORTS AND HANGERS.
6. CONTRACTOR SHALL IDENTIFY LOCATIONS FOR REBAR REPAIR WORK PROGRESSES. LOCATIONS TO RECEIVE THIS REPAIR SHALL BE VERIFIED BY THE PROJECT ENGINEER.

KEY NOTES:

(1) EXISTING OPENING FOR EXISTING GARBAGE CHUTE
(2) EXISTING DRAIN PIPE TO REMAIN IN PLACE
(3) EXISTING 2" RECLAIMED WATER PIPE TO REMAIN IN PLACE
(4) EXISTING ELECTRICAL CONDUIT TO REMAIN
(5) REMOVE EXISTING ELECTRICAL EQUIPMENT PER SHEET D-2.7
(6) REMOVE EXISTING GRIT PUMPING EQUIPMENT, AND ASSOCIATED PIPING AND FITTINGS.
(7) REMOVE EXISTING GRIT SLURRY PIPING, AND ASSOCIATED FITTINGS
(8) EXISTING CONCRETE SUPPORT COLUMNS TO REMAIN AND BE PROTECTED IN PLACE
(9) REMOVE EXISTING PIPE PENETRATION AND REPAIR PER DETAIL 1 ON SHEET S-0.1
(10) EXISTING 6" FLOOR DRAIN PIPE TO REMAIN
(11) EXISTING CLEANOUT TO REMAIN
(12) EXISTING 3/4" RECLAIMED WATER PIPE TO REMAIN IN PLACE
(13) EXISTING ELECTRICAL EQUIPMENT TO REMAIN. SEE SHEET D-2.7
(14) EXISTING CONTROL PANEL TO REMAIN
(15) MODIFY EXISTING GRIT SLURRY PIPE. SEE SHEET M-2.3 FOR DETAILS

LEGEND

DEMO

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

HEADWORKS LOWER DEMOLITION PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

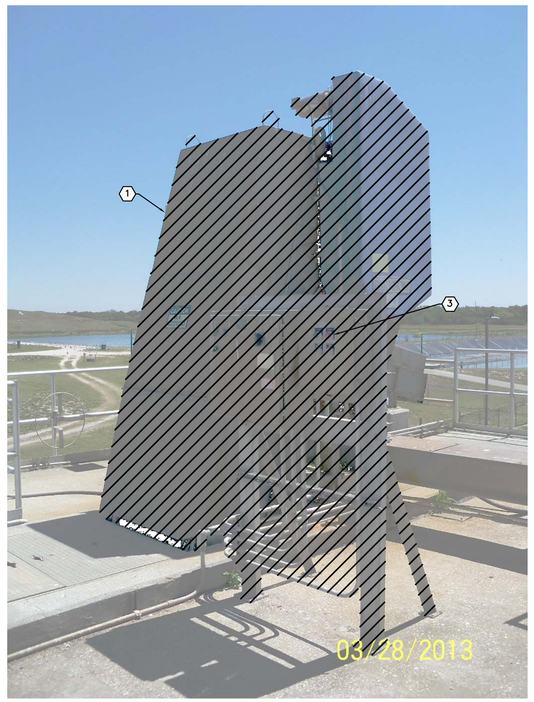
DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
D-2.3

BAR SCREEN UNIT NO. 1 DETAIL (1 / D-2.4)
N.T.S.

BAR SCREEN UNIT NO. 2 DETAIL (2 / D-2.4)
N.T.S.



BAR SCREEN UNIT NO. 3 DETAIL (3 / D-2.4)
N.T.S.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

(1) REMOVE EXISTING BAR SCREEN UNIT AND ASSOCIATED ELECTRICAL EQUIPMENT

(2) REMOVE EXISTING CYCLONE, GRIT CLASSIFIER, PIPING ABOVE DECK GRADE, AND ASSOCIATED ELECTRICAL EQUIPMENT

(3) REMOVE EXISTING ELECTRICAL AND CONTROL EQUIPMENT

LEGEND

DEMO

CYCLONE CLASSIFIER UNIT NO. 1 DETAIL (4 / D-2.4)
N.T.S.

CYCLONE CLASSIFIER UNIT NO. 2 DETAIL (5 / D-2.4)
N.T.S.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

DEMOLITION DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
D-2.4

GRIT PUMP UNIT NO. 1 DETAIL (6 / D-2.5)
N.T.S.

GRIT PUMP UNIT NO. 2 DETAIL (7 / D-2.5)
N.T.S.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

(1) REMOVE EXISTING CONVEYOR SYSTEM, ASSOCIATED PIPING, AND ELECTRICAL EQUIPMENT

(2) REMOVE EXISTING VORTEX GRIT REMOVAL SYSTEM EQUIPMENT, ASSOCIATED PIPING AND ELECTRICAL EQUIPMENT

(3) REMOVE EXISTING REJECT POND INFLUENT PIPE

LEGEND

DEMO

CONVEYOR UNIT NO. 1 DETAIL (8 / D-2.5)
N.T.S.

CONVEYOR UNIT NO. 2 DETAIL 1 (9 / D-2.5)
N.T.S.

CONVEYOR NO. 2 DETAIL 2 (10 / D-2.5)
N.T.S.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE: AS NOTED
DESIGNED BY: JWW
DRAWN BY: JRT
CHECKED BY: WEW

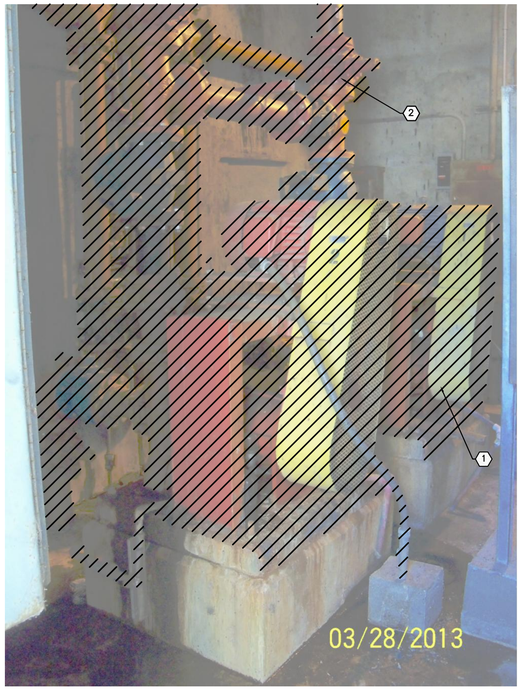
DEMOLITION DETAILS (CONT.)

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

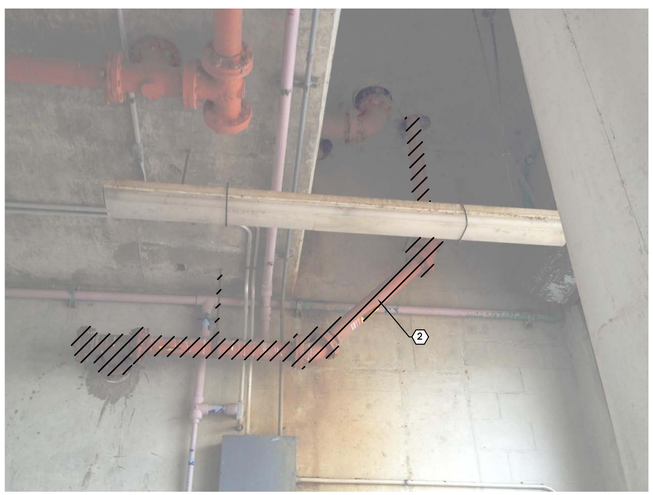
PROJECT NO.
148400001

SHEET NUMBER
D-2.5

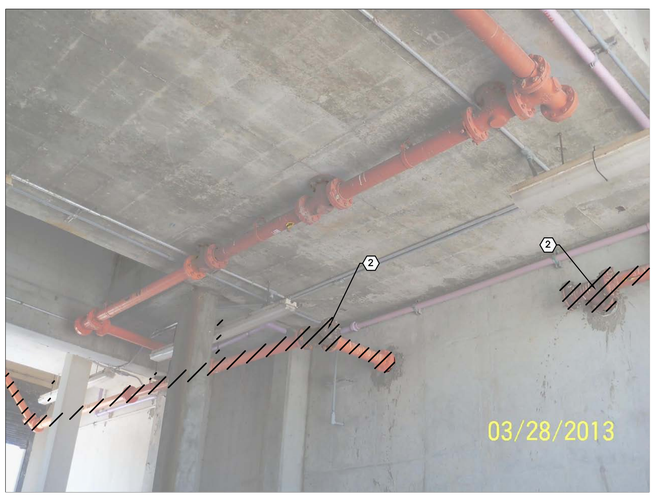


GRIT PUMP UNIT NO. 1 & 2 DETAIL (11 / D-2.6)
N.T.S.

GRIT PIPE REMOVAL DETAIL 1 (12 / D-2.6)
N.T.S.



GRIT PIPE REMOVAL DETAIL 2 (13 / D-2.6)
N.T.S.



GRIT PIPE REMOVAL DETAIL 3 (14 / D-2.6)
N.T.S.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

(1) REMOVE EXISTING GRIT PUMPING EQUIPMENT, AND ASSOCIATED PIPING AND FITTINGS.

(2) REMOVE EXISTING GRIT CONVEYANCE PIPING AND ASSOCIATED FITTINGS.

LEGEND

DEMO

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

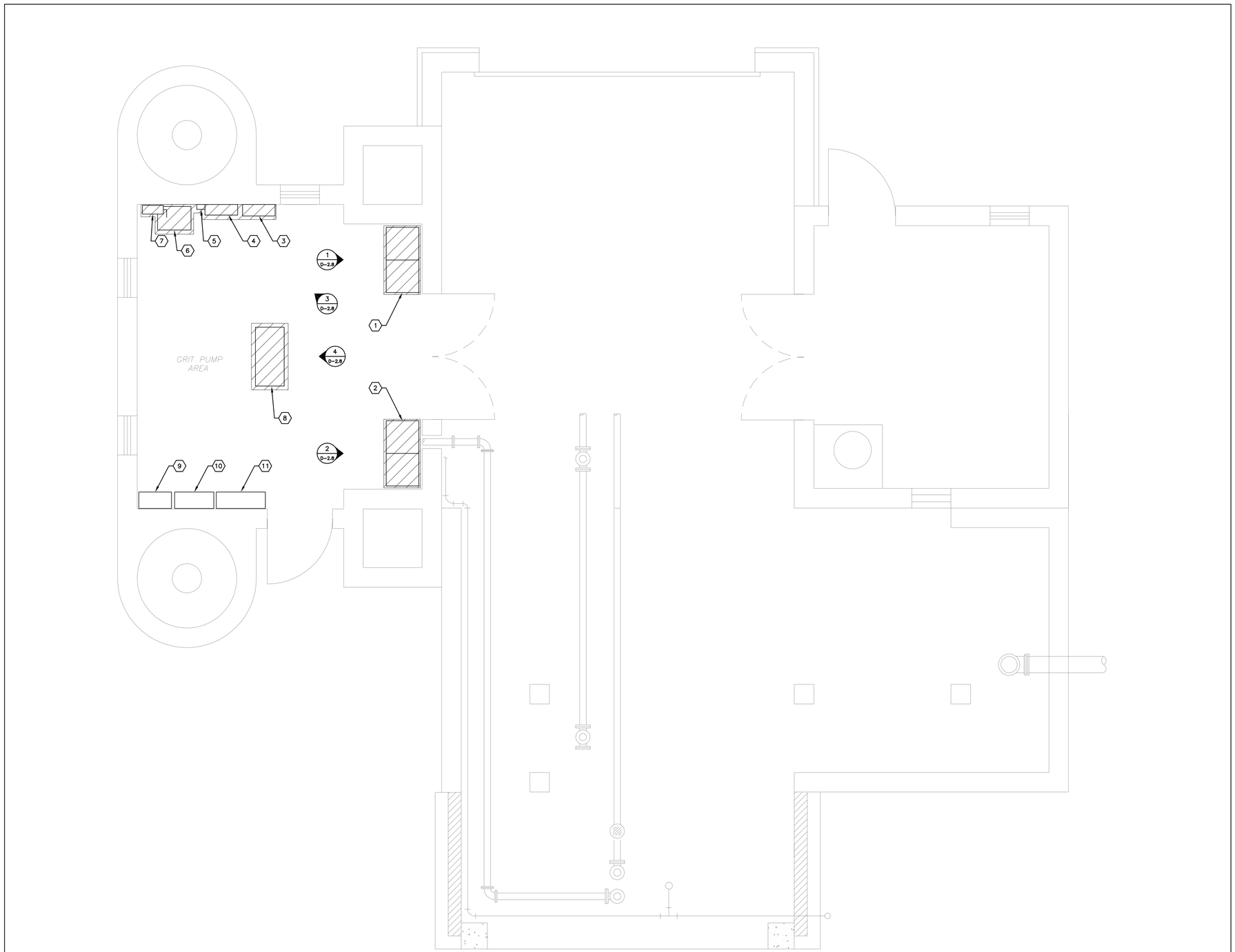
DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

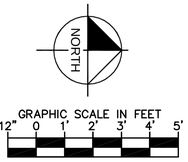
SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

DEMOLITION DETAILS (CONT.)

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE DECEMBER 2013
PROJECT NO. 148400001
SHEET NUMBER D-2.6





GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. REFER TO SHEET E-2.2 FOR NEW EQUIPMENT, RACEWAYS, WIREWAYS, CONDUIT AND CONDUCTORS TO BE INSTALLED IN LOWER HEADWORKS.
6. REFER TO SHEET D-2.8 FOR DEMOLITION DETAILS.

KEY NOTES:

(1) EXISTING MOTOR CONTROL CENTER : MCC-1A TO BE REMOVED.
(2) EXISTING MOTOR CONTROL CENTER : MCC-2A TO BE REMOVED.
(3) EXISTING LIGHTING CONTROL PANEL 'PC/TC-2' TO BE REMOVED.
(4) EXISTING 120/208V PANELBOARD 'LHW' TO BE REMOVED.
(5) EXISTING SURGE PROTECTION DEVICE TO BE REMOVED.
(6) EXISTING 480-120/208V, 30 KVA TRANSFORMER TO BE REMOVED.
(7) EXISTING MANUAL TRANSFER SWITCH FOR PANELBOARD 'LHW' TO BE REMOVED.
(8) EXISTING GRIT PUMP CONTROL PANEL TO BE REMOVED.
(9) EXISTING JUNCTION BOX 'P/I-2' TO REMAIN.
(10) EXISTING JUNCTION BOX 'I2' TO REMAIN.
(11) EXISTING JUNCTION BOX 'C2' TO REMAIN.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	TDT	EAK	DEV

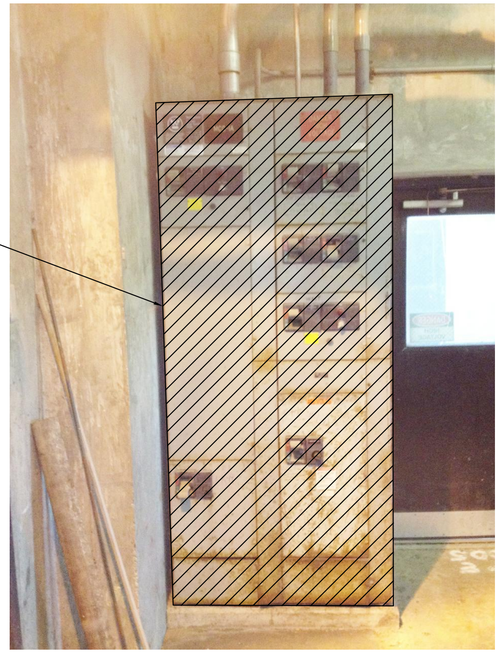
LOWER HEADWORKS ELECTRICAL DEMOLITION PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

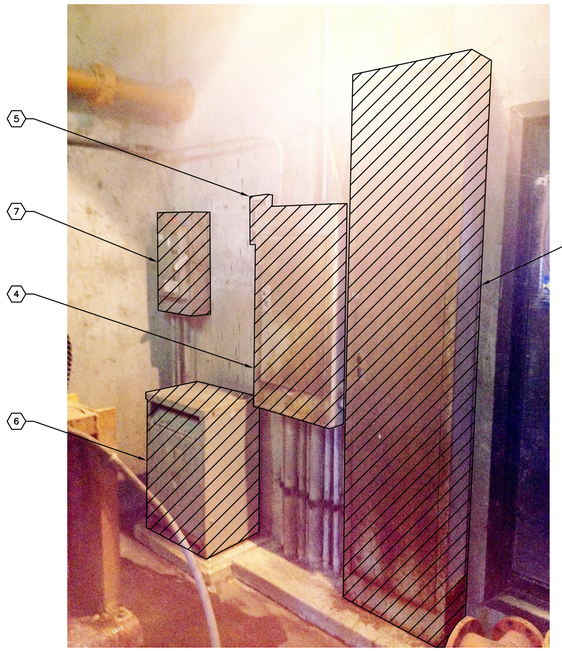
PROJECT NO.
148400001

SHEET NUMBER
D-2.7



MCC-1A DETAIL 1/D-2.8
N.T.S.

MCC-2A DETAIL 2/D-2.8
N.T.S.



PANELS/TRANSFORMER DETAIL 3/D-2.8
N.T.S.

GRIT PUMP CONTROL CABINET 4/D-2.8
N.T.S.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. REFER TO UPPER DEMOLITION PLAN SHEET D-2.1 FOR OTHER ELECTRICAL EQUIPMENT TO BE REMOVED.

KEY NOTES:

1. EXISTING MOTOR CONTROL CENTER : MCC-1A TO BE REMOVED.
2. EXISTING MOTOR CONTROL CENTER : MCC-2A TO BE REMOVED.
3. EXISTING LIGHTING CONTROL PANEL 'PC/TC-2' TO BE REMOVED.
4. EXISTING 120/208V PANELBOARD 'LHW' TO BE REMOVED.
5. EXISTING SURGE PROTECTION DEVICE TO BE REMOVED.
6. EXISTING 480-120/208V, 30 KVA TRANSFORMER TO BE REMOVED.
7. EXISTING MANUAL TRANSFER SWITCH FOR PANELBOARD 'LHW' TO BE REMOVED.
8. EXISTING GRIT PUMP CONTROL PANEL TO BE REMOVED.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

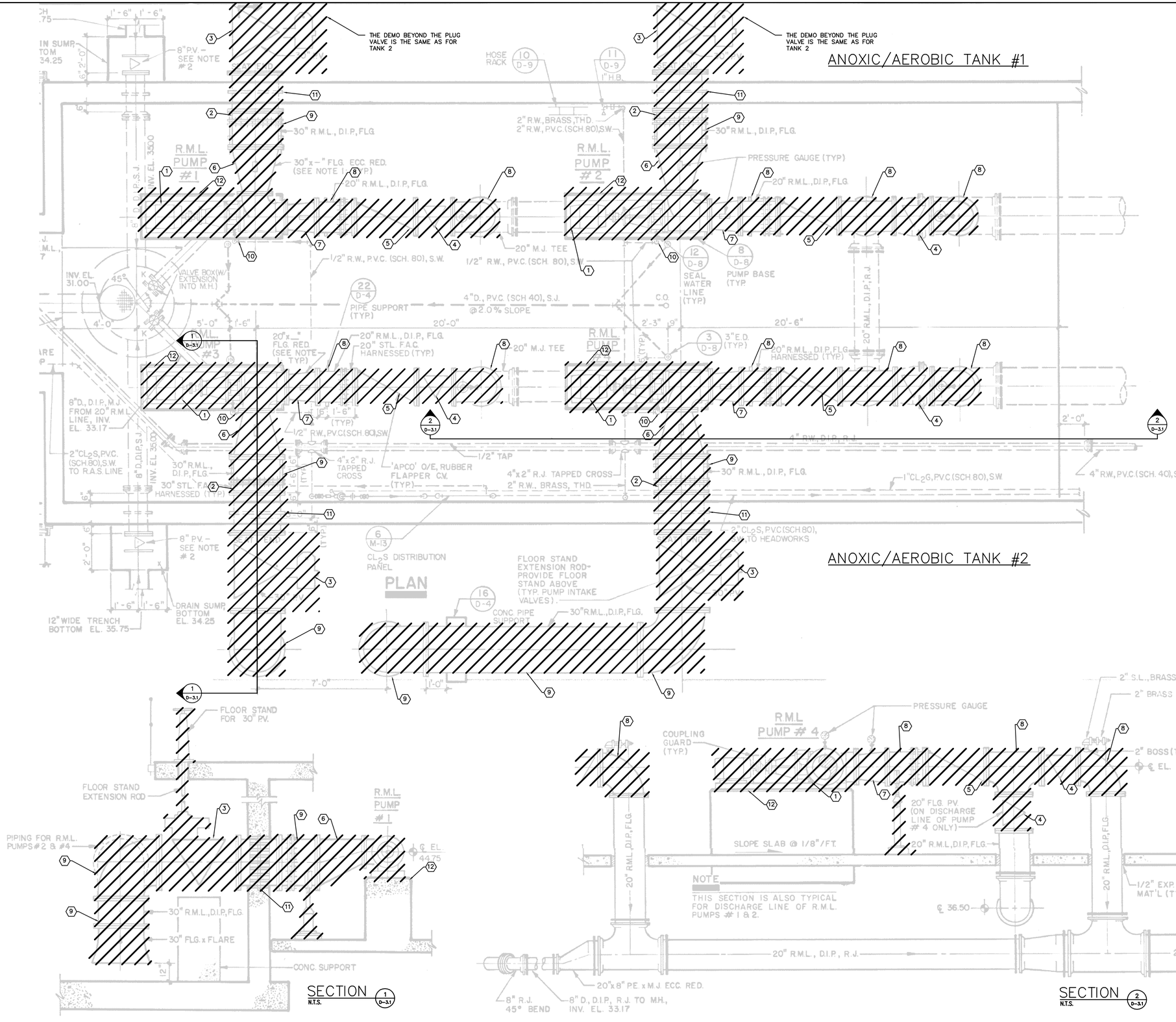
ELECTRICAL DEMOLITION DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
D-2.8



BACKGROUND IMAGE FROM RECORD DRAWINGS DATED 12/19/89 FOR "WASTEWATER FACILITIES IMPROVEMENTS"; MANATEE COUNTY PUBLIC UTILITIES DEPARTMENT; SOUTHEAST SUBREGIONAL WASTEWATER TREATMENT FACILITY.

NORTH

GRAPHIC SCALE IN FEET
12" 0 1' 2' 3' 4' 5'

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

1. REMOVE PUMP, MOTOR, STEEL BASE, AND ASSOCIATED ELECTRICAL EQUIPMENT
2. REMOVE 30" BUTTERFLY VALVE
3. REMOVE 30" PLUG VALVE, OPERATING STEM EXTENSION, STEM GUIDES AND FLOOR STAND
4. REMOVE 20" PLUG VALVE
5. REMOVE 20" CHECK VALVE
6. REMOVE 30" X 16" ECCENTRIC REDUCER
7. REMOVE 20" X 16" REDUCER
8. REMOVE 20" DIP SPOOL PIECE AND ASSOCIATED FITTINGS AND SUPPORTS
9. REMOVE 30" DIP SPOOL PIECE AND ASSOCIATED FITTINGS AND SUPPORTS
10. REMOVE EXISTING SEAL WATER ASSEMBLY
11. REMOVE EXISTING LINK SEAL PIPE PENETRATION TO REMAIN
12. SAWCUT EXISTING PUMP PAD AND REMOVE CONCRETE TO PREPARE FOR RESURFACING AND REMOVE EXISTING BOLTS. SEE SHEET S-3.4 FOR DETAILS

LEGEND

DEMO

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 000000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	JWW	JRT	WEW

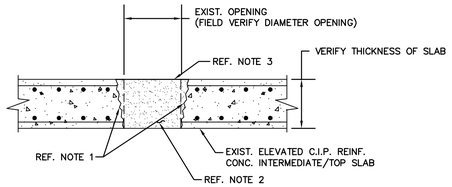
INTERNAL RECYCLE DEMOLITION PLAN AND SECTIONS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

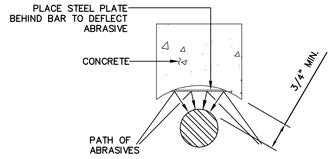
PROJECT NO.
148400001

SHEET NUMBER
D-3.1

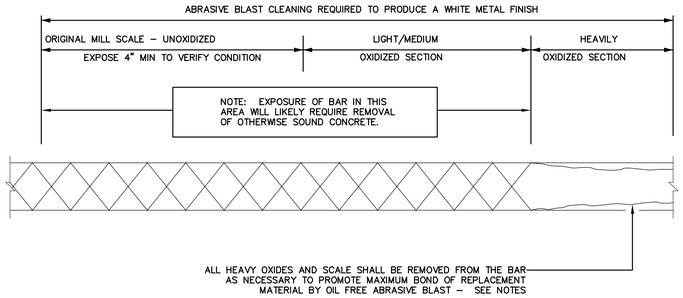


NOTES:
1. ALL AROUND THE EXISTING OPENING CHIP & ROUGHEN SURFACE TO EXPOSE AGGREGATE. APPLY TO ALL EDGES OF THE EXPOSED SURFACE SIKA ARMATEC 110 EPOCEM.
2. FILL EXISTING OPENING W/ SIKIGROUT 328 & INSTALL PER SIKA'S "PRODUCT EXTENSION" RECOMMENDATIONS. COORDINATE W/ SIKA'S TECHNICAL REPRESENTATIVE & SERVICE DEPARTMENT AS REQUIRED.
3. ROUGHEN THE TOP SURFACE TO MATCH EXISTING SLAB & PROVIDE SLIP RESISTANT FINISH.

SLAB PENETRATION REPAIR
N.T.S. (1 / S-0.1)

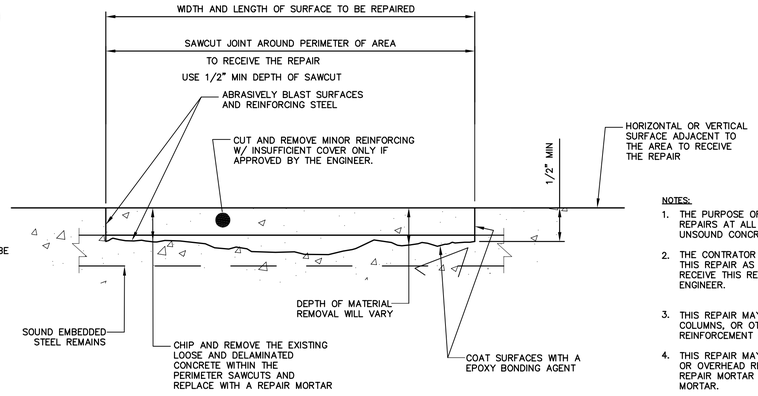


REINFORCING STEEL CLEANING REPAIR
N.T.S. (2 / S-0.1)



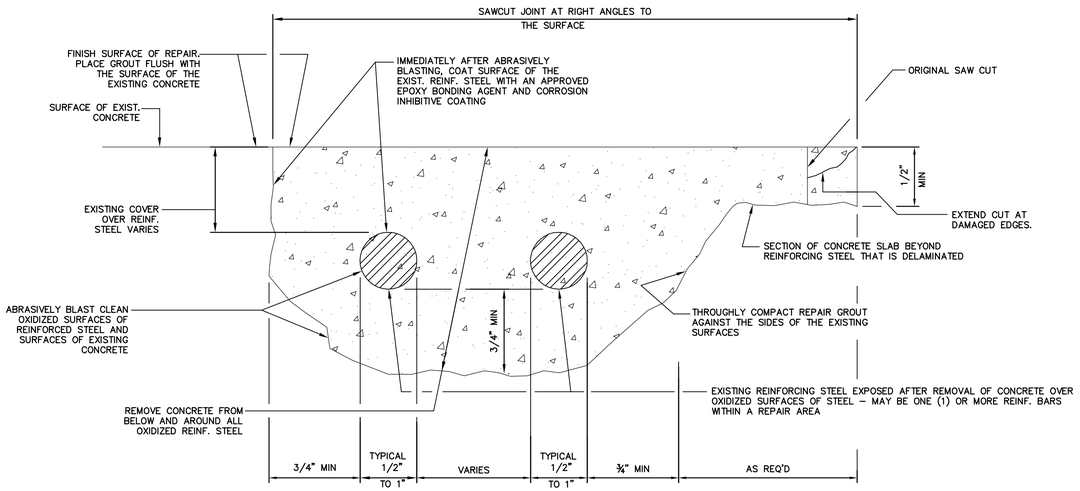
LONGITUDINAL REINFORCEMENT SECTION – REINFORCING STEEL CLEANING
N.T.S. (3 / S-0.1)

NOTES:
1. THE PURPOSE OF THIS REPAIR IS TO REMOVE LOOSE AND DELAMINATED SECTIONS OF CONCRETE WITH SIGNIFICANT EXPOSED AND CORRODED REINFORCING STEEL.
2. THE CONTRACTOR SHALL IDENTIFY LOCATIONS FOR THIS REPAIR AS REPAIR WORK PROGRESSES. LOCATIONS TO RECEIVE THIS REPAIR SHALL BE VERIFIED BY THE PROJECT ENGINEER.
3. IF SPECIAL CONDITIONS ARE FOUND AFFECTING THE COMPLETION OF THE REPAIR, NOTIFY THE ENGINEER FOR EXAMINATION PRIOR TO COMPLETION OF THE REPAIR.
4. TEMPORARY SHORING SHALL BE PROVIDED BEFORE BEGINNING CONCRETE REMOVAL WHERE STRUCTURAL INTEGRITY IS COMPROMISED.
5. THIS REPAIR MAY BE USED FOR HORIZONTAL, VERTICAL OR OVERHEAD REPAIRS. WHERE NECESSARY USE NON-SAG OVERHEAD REPAIR MORTAR OR FORM AND CAST A FLOWABLE REPAIR MORTAR.
6. WHERE SIGNIFICANT AMOUNTS OF MATERIAL HAVE BEEN LOST FROM THE STEEL DUE TO CORROSION, THE ENGINEER WILL DETERMINE IF ADDITIONAL REPAIR OR REINFORCEMENT IS REQUIRED.
7. WHERE THERE IS A CRACK OR CONTROL JOINT THRU AN AREA TO BE REPAIRED, ROUT THE CRACK OR CONTROL JOINT SUFFICIENTLY TO INSERT A PLASTIC STRIP THAT WILL MARK THE PATH. REPAIR AND TROWEL EACH SIDE OF THE JOINT SEPARATELY. AFTER THE REPAIR MORTAR HAS CURED, ROUT AND SEAL IN ACCORDANCE WITH CORRESPONDING REPAIR TYPE.



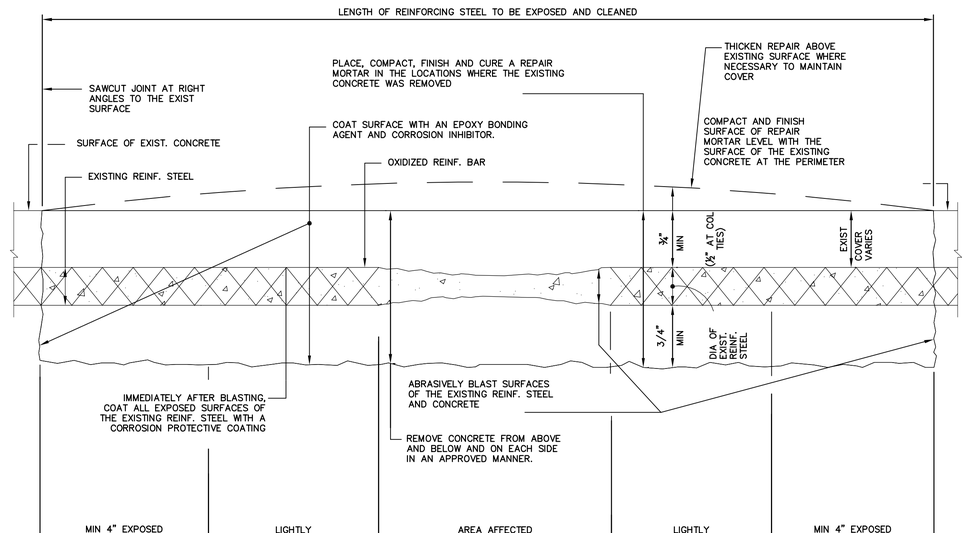
NOTES:
1. THE PURPOSE OF THIS REPAIR IS TO MAKE SURFACE REPAIRS AT ALL LOOSE, DELAMINATED OR OTHER UNSOUND CONCRETE.
2. THE CONTRATOR SHALL IDENTIFY ADDITIONAL LOCATIONS FOR THIS REPAIR AS REPAIR WORK PROGRESSES. LOCATIONS TO RECEIVE THIS REPAIR SHALL BE VERIFIED BY THE PROJECT ENGINEER.
3. THIS REPAIR MAY BE USED ON SLABS, CURBS, WALLS, COLUMNS, OR OTHER SPALLS THAT HAVE MINOR EXPOSED REINFORCEMENT AND CORROSION IS NOT SIGNIFICANT.
4. THIS REPAIR MAY BE USED FOR HORIZONTAL, VERTICAL, OR OVERHEAD REPAIRS. WHERE NECESSARY USE NON-SAG REPAIR MORTAR OR FORM AND CAST A FLOWABLE REPAIR MORTAR.
5. WHERE THERE IS A CRACK OR CONTROL JOINT THRU AN AREA TO BE REPAIRED, ROUT THE CRACK OR CONTROL JOINT SUFFICIENTLY TO INSERT A PLASTIC STRIP THAT WILL MARK THE PATH. REPAIR AND TROWEL EACH SIDE OF THE JOINT SEPARATELY. AFTER THE REPAIR MORTAR HAS CURED, ROUT AND SEAL IN ACCORDANCE WITH CORRESPONDING REPAIR TYPE.
6. IN MANY CASES THERE MAY BE NO REINFORCING STEEL VISIBLE.

SHALLOW SPALL REPAIR
N.T.S. (4 / S-0.1)



CONCRETE CROSS-SECTION THROUGH CORRODED REINFORCEMENT
N.T.S. (5A / S-0.1)

DEEP SPALL REPAIR
N.T.S. (5 / S-0.1)



CONCRETE CROSS-SECTION – ALONG CORRODED REINFORCEMENT
N.T.S. (5B / S-0.1)

No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: SETH E. SCHMID, P.E.
FLORIDA REGISTRATION NUMBER: 54640
DATE:

SCALE: AS NOTED
DESIGNED BY: JWW
DRAWN BY: JRT
CHECKED BY: WEW

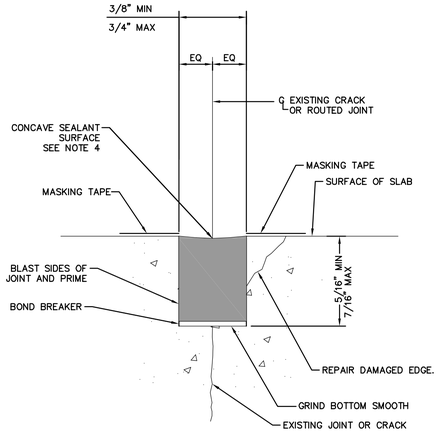
STRUCTURAL DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

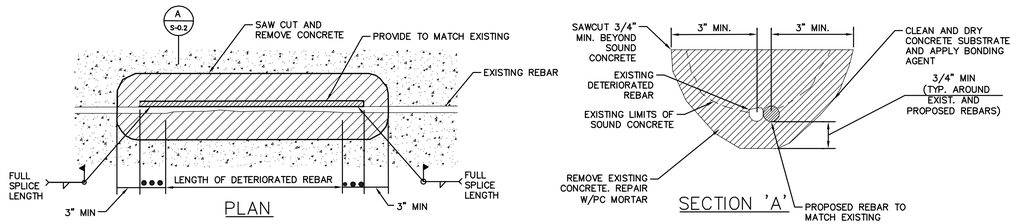
SHEET NUMBER
S-0.1



ROUT AND SEAL (7 / S-02)
N.T.S.

NOTES:

1. THE PURPOSE OF THIS REPAIR IS TO INSTALL SEALANT IN JOINTS AND ROUTED CRACKS IN THE CONCRETE SLAB.
2. THE CONTRACTOR SHALL IDENTIFY CRACKS AND JOINTS TO RECEIVE THIS REPAIR. THE CONTRACTOR SHALL HAVE THE ENGINEER VERIFY THE CRACKS AND JOINTS IDENTIFIED.
3. NON-SAG SEALANT SHALL BE USED IN JOINTS THAT ARE SLOPED. SELF-LEVELING SEALANT SHALL BE USED IN JOINTS THAT ARE FLAT. SUBMIT SEALANT SPECIFICATIONS TO ENGINEER FOR APPROVAL.
4. THE SURFACE OF THE SEALANT AT THE EDGE OF THE EXISTING CONCRETE ON EITHER SIDE OF THE JOINT SHALL BE BETWEEN 1/16 AND 1/8 INCH BELOW THE TOP OF CONCRETE SLAB. SEALANT THAT EXTENDS ABOVE THE SLAB SHALL BE CUT DOWN FLUSH WITH TOP OF SLAB.



●●●=TYP. ACI REINF. LAP LENGTH=ld
=21.4" FOR #3
=28.5" FOR #4
=35.6" FOR #5
=42.7" FOR #6
ETC.

EXPOSED REBAR REPAIR (8 / S-02)
N.T.S.

REPLACE SEALANT IN OPEN JOINT (9 / S-02)
N.T.S.

NOTES:

1. THE PURPOSE OF THIS REPAIR IS TO REMOVE AND REPLACE THE EXISTING SEALANT IN OPEN CONSTRUCTION JOINTS AND CONTROL JOINTS.
2. THE CONTRACTOR SHALL IDENTIFY JOINTS TO RECEIVE THIS REPAIR. THE CONTRACTOR SHALL HAVE THE ENGINEER VERIFY THE JOINTS IDENTIFIED.
3. CONTINUOUS FOAM BACKER RODS SHALL BE INSTALLED PRIOR TO INSTALLATION OF JOINT SEALANT.
4. NON-SAG SEALANT SHALL BE USED IN JOINTS THAT ARE SLOPED. SELF-LEVELING SEALANT SHALL BE USED IN JOINTS THAT ARE FLAT. SUBMIT SEALANT SPECIFICATIONS TO ENGINEER FOR APPROVAL.
5. THE SURFACE OF SEALANT AT THE EDGE OF THE EXISTING CONCRETE ON EITHER SIDE OF THE JOINT SHALL BE BETWEEN 1/16 AND 1/8 INCH BELOW THE TOP OF CONCRETE SLAB. SEALANT THAT EXTENDS ABOVE THE SLAB SHALL BE CUT DOWN FLUSH WITH TOP OF SLAB.
6. TYPICAL SEALANT WIDTH TO DEPTH RATIO SHALL BE 2:1, BUT DEPTH SHALL BE NO LESS THAN 1/4" AND NO MORE THAN 3/8"

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: SETH E. SCHMID, P.E.
FLORIDA REGISTRATION NUMBER: 54640
SCALE: AS NOTED
DESIGNED BY: JWW
DRAWN BY: JRT
CHECKED BY: WEW
DATE:

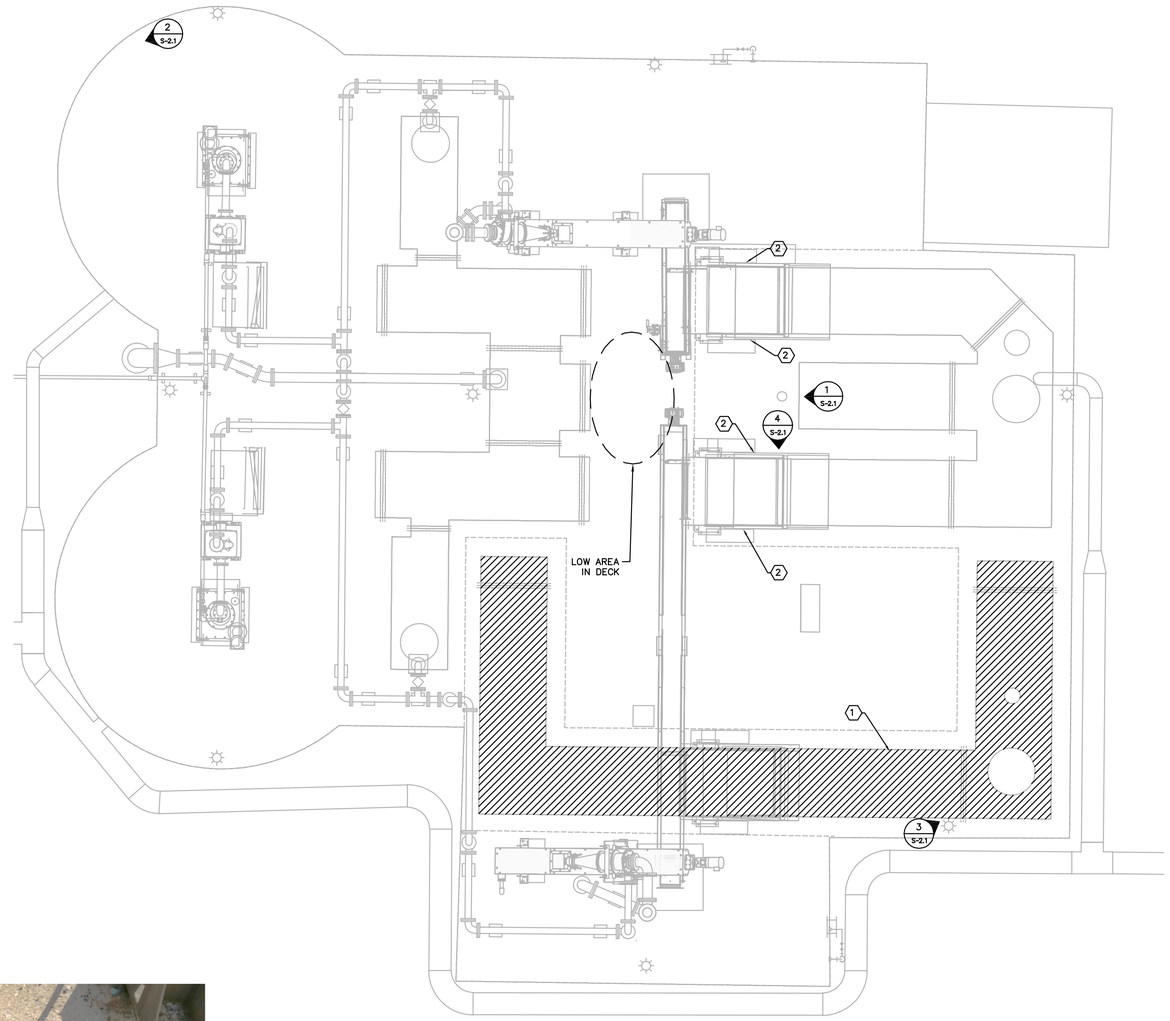
STRUCTURAL DETAILS (CONT.)

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
S-0.2



NORTH

GRAPHIC SCALE IN FEET
12" 0 1' 2' 3' 4' 5' 6' 7' 8'

GENERAL NOTES:

1. GRATES ARE NOT SHOWN FOR CLARITY

HEADWORKS DECK REHABILITATION:

1. ABRASIVELY BLAST CLEAN EXPOSED HORIZONTAL AND VERTICAL SURFACES OF EXISTING CONCRETE DECK. PROTECT EXISTING EQUIPMENT AND ATTACHMENTS ON DECK FROM DAMAGE. FOR SPALLED AND SPALLING AREAS ADJACENT TO HATCH FRAMES, REMOVE CRACKED AND LOOSE CONCRETE DOWN TO SOUND CONCRETE.
2. ROUT AND SEAL CRACKS IN CONCRETE GREATER THAN 1/8" WIDE PER DETAIL 7 ON SHEET S-0.2.
3. REPAIR DETERIORATED CONCRETE ALONG EDGES OF CHANNELS UNDER BAR SCREENS PER RECOMMENDATIONS THIS SHEET.
4. FILL EXISTING PLUGGED DECK DRAIN BETWEEN BAR SCREENS PER DETAIL 1 ON THIS SHEET.
5. PRIME EXPOSED CONCRETE DECK SURFACES PER DECK COATING MANUFACTURER'S RECOMMENDATIONS.
6. APPLY SAUEREISEN EPOXY HI-BUILD FILLER COMPOUND NO. 209HB (OR APPROVED EQUIVALENT) PER MANUFACTURER'S INSTRUCTIONS TO HORIZONTAL AND VERTICAL DECK SURFACES FILLING IN ALL CRACKS, VOIDS, AND UNEVEN AREAS TO PRODUCE A SMOOTH, LEVEL DECK SURFACE.
7. FOLLOW MANUFACTURER'S REQUIREMENTS FOR FILLING SPALLED AREAS WITH EPOXY HI-BUILD FILLER COMPOUND.
8. USE EPOXY HI-BUILD FILLER COMPOUND TO LEVEL AND ELIMINATE LOW SPOT IN DECK INDICATED ON PLAN THIS SHEET.
9. APPLY SAUEREISEN CONOGLAZE NO. 201 CHEMICALLY-RESISTANT EPOXY TOP COAT (OR APPROVED EQUIVALENT) TO THE HORIZONTAL AND VERTICAL DECK SURFACES PER THE MANUFACTURER'S INSTRUCTIONS. BROADCAST SAND OVER THE WALKING SURFACE WHILE THE TOP COAT IS STILL WET.
10. APPLY SAUEREISEN CLEAR CONOTHANE GLAZE NO. 310 UV PROTECTION TO THE HORIZONTAL AND VERTICAL DECK SURFACES PER THE MANUFACTURER'S RECOMMENDATIONS.

(1) CHANNEL REHABILITATION

1. ALL EXPOSED CONCRETE SURFACES WITHIN THE CHANNEL SHALL BE ABRASIVELY BLAST OR MECHANICALLY CLEANED TO COMPLETELY REMOVE THE EXISTING CHANNEL COATING TO CLEAN, SOUND CONCRETE.
2. COORDINATE WITH THE PROJECT ENGINEER TO IDENTIFY AREAS FOR REPAIR WITHIN THE CHANNEL.
3. REMOVE REMAINING DAMAGED, DETERIORATING, OR DELAMINATED CONCRETE. CLEAN AND REPAIR CONCRETE AND EXPOSED, CORRODED REINFORCEMENT PER DETAILS ON SHEET S-0.1.
4. APPLY MASTIC PRIMER TO EXPOSED CONCRETE SURFACE TO RECEIVE PLASTIC LINER.
5. APPLY EPOXY MASTIC TO EXPOSED CONCRETE SURFACES TO RECEIVE PLASTIC LINER PER MANUFACTURER'S INSTRUCTIONS.
6. APPLY AMERON ARROW-LOCK PLASTIC SHEET LINER (OR APPROVED EQUIVALENT) TO ALL INTERIOR SURFACES OF CHANNEL PER MANUFACTURER'S INSTRUCTIONS. CONNECT LINER TO EXISTING T-LOCK LINER PER MANUFACTURER'S INSTRUCTIONS TO CREATE A WATERPROOF SEAL AT THE JOINT.
7. VISUALLY INSPECT ALL AREAS OF THE LINING AND JOINTS FOR CRACKS, CUTS, TEARS, PUNCTURES, AND DELAMINATION. ALL REPAIRS SHALL BE USING METHODS APPROVED BY THE LINING MANUFACTURER.

REPAIR DEPRESSION (1 / S-2.1)
N.T.S.

1. ABRASIVELY BLAST CLEAN SURFACE OF EXISTING CONCRETE.
2. PRIME CONCRETE WITH SIKA ARMATEC 110 EPOCEM OR APPROVED EQUAL.
3. FILL DEPRESSION WITH SIKATOP 122 PLUS REPAIR MORTAR (OR APPROVED EQUIVALENT) PER MANUFACTURER'S INSTRUCTIONS. FINISH MORTAR LEVEL WITH TOP OF DECK.

REPAIR EXPOSED REINFORCEMENT (2 / S-2.1)
N.T.S.

1. SEE SHALLOW SPALL REPAIR DETAIL 4 SHEET S-0.1

TYPICAL CHANNEL WALLS (3 / S-2.1)
N.T.S.

(2) REPAIR CHANNEL EDGE CONCRETE UNDER BAR SCREENS (4 / S-2.1)
N.T.S.

1. ABRASIVELY BLAST CLEAN SURFACE OF EXISTING CONCRETE.
2. CAST A FLOWABLE REPAIR MORTAR AGAINST THE BACKSIDE OF THE EXISTING PVC LINER. FINISH MORTAR LEVEL WITH TOP OF CURB.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: SETH E. SCHMID, P.E.
FLORIDA REGISTRATION NUMBER: 54640

SCALE: AS NOTED
DESIGNED BY: JWW
DRAWN BY: JRT
CHECKED BY: WEW
DATE:

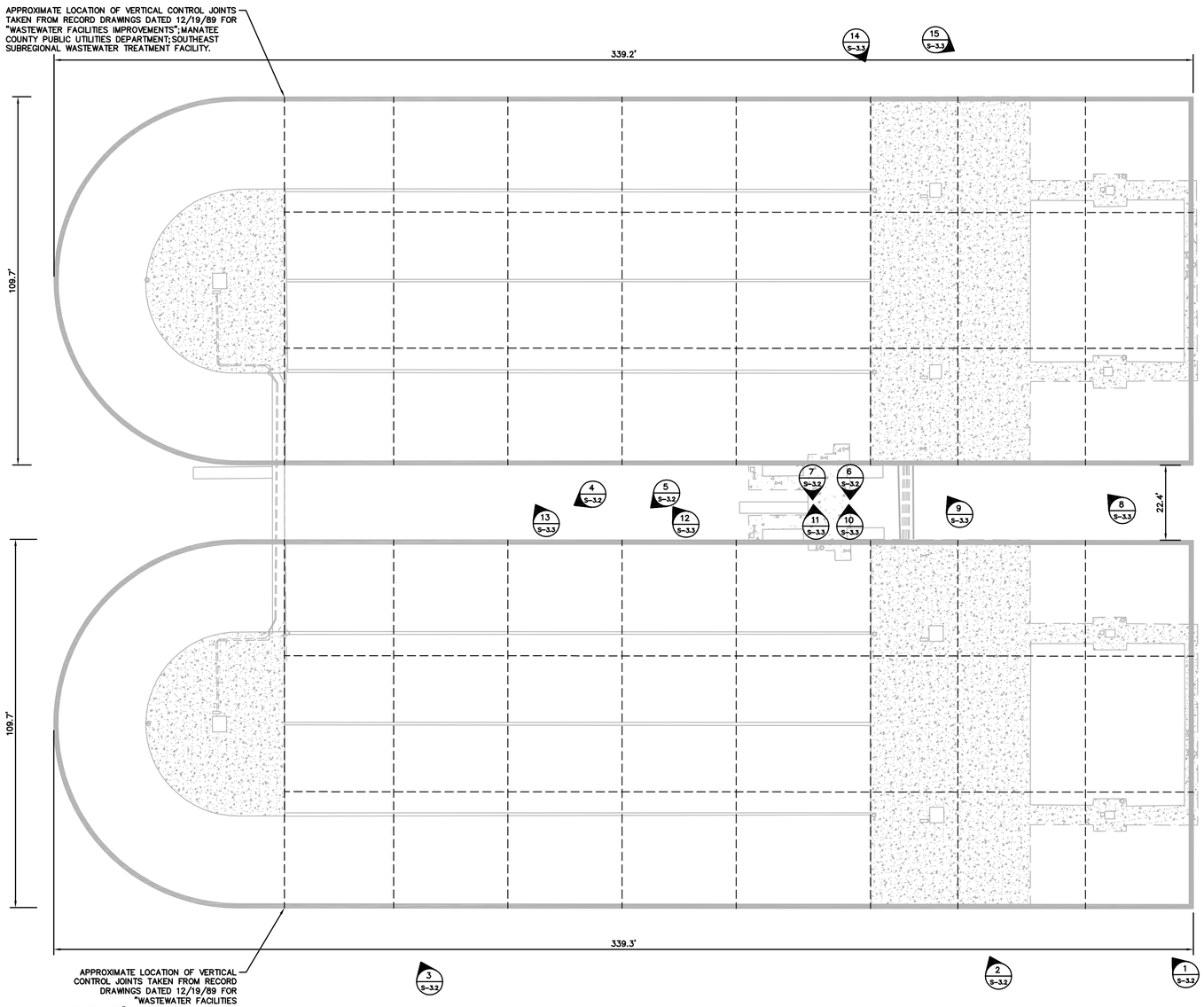
HEADWORKS UPPER STRUCTURAL PLAN

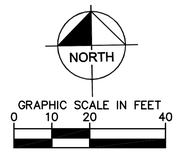
MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
S-2.1





GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

LEAKING VERTICAL JOINTS IN TANK WALLS

1. OBSERVATIONS DOCUMENTED ON THIS SHEET ARE BASED ON A VISUAL REVIEW OF THE EXTERIOR TANK WALLS ON MARCH 15, 2013. THE INTERIOR SURFACE OF THE TANK WAS INACCESSIBLE AT THIS TIME AND WILL NOT BE ACCESSIBLE UNTIL SUCH TIME THAT THE TANKS CAN BE EMPTIED AND CLEANED. THEREFORE, THE FOLLOWING RECOMMENDATIONS FOR REPAIRING THE OBSERVED LEAKING JOINTS ARE ONLY FOR BIDDING PURPOSES AND MAY BE REVISED WHEN FURTHER INVESTIGATION OF THE TANK WALLS IS POSSIBLE.
2. CLEAN LEAKING/ WET JOINTS. REMOVE MOLD, MILDEW, AND VEGETATION.
3. INJECT APPROVED HYDROPHILIC POLYURETHANE FOAM GROUT INTO LEAKING/WET JOINTS PER MANUFACTURER'S INSTRUCTIONS.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: SETH E. SCHMID, P.E.
FLORIDA REGISTRATION NUMBER: 54640
DATE:

SCALE	AS NOTED
DESIGNED BY	JWW
DRAWN BY	JRT
CHECKED BY	WEW

ANOXIC AEROBIC BASINS NO1 AND NO2 PLAN

MANATEE COUNTY SEWRF
FLORIDA
MANATEE COUNTY

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
S-3.1

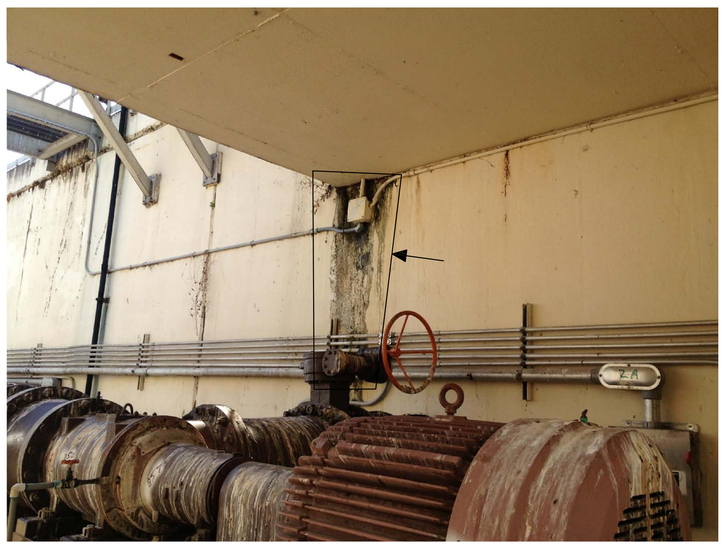
VISUAL ASSESSMENT 1 S-3.2
N.T.S.

VISUAL ASSESSMENT 2 S-3.2
N.T.S.

VISUAL ASSESSMENT 3 S-3.2
N.T.S.

VISUAL ASSESSMENT 4 S-3.2
N.T.S.

VISUAL ASSESSMENT 5 S-3.2
N.T.S.



VISUAL ASSESSMENT 6 S-3.2
N.T.S.

VISUAL ASSESSMENT 7 S-3.2
N.T.S.

No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: SETH E. SCHMID, P.E.
FLORIDA REGISTRATION NUMBER: 54640
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

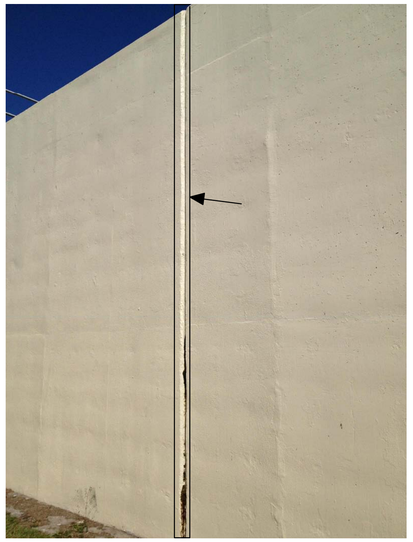
ANOXIC AEROBIC NO1 DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

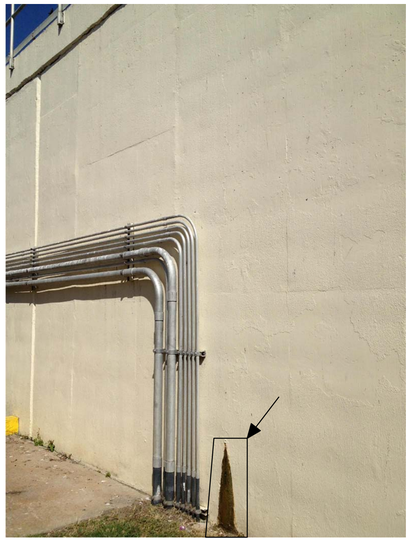
DATE
DECEMBER 2013

PROJECT NO.
148400001

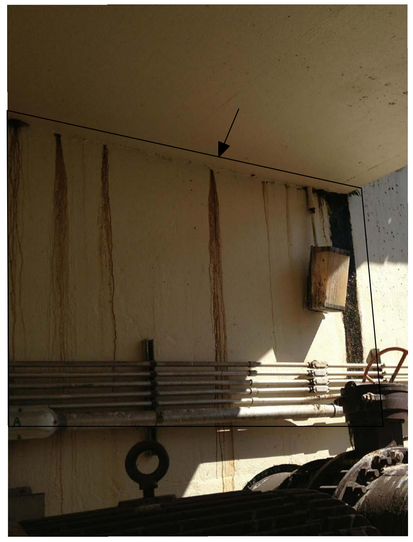
SHEET NUMBER
S-3.2



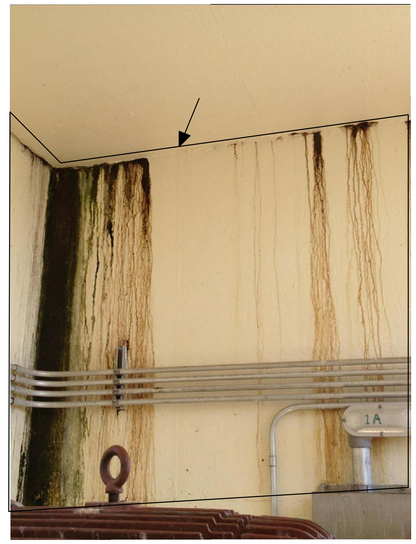
VISUAL ASSESSMENT 8 S-3.3
N.T.S.



VISUAL ASSESSMENT 9 S-3.3
N.T.S.



VISUAL ASSESSMENT 10 S-3.3
N.T.S.



VISUAL ASSESSMENT 11 S-3.3
N.T.S.

VISUAL ASSESSMENT 12 S-3.3
N.T.S.

VISUAL ASSESSMENT 13 S-3.3
N.T.S.

VISUAL ASSESSMENT 14 S-3.3
N.T.S.

VISUAL ASSESSMENT 15 S-3.3
N.T.S.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: SETH E. SCHMID, P.E.
FLORIDA REGISTRATION NUMBER: 54640

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	JWW	JRT	WEW

DATE:

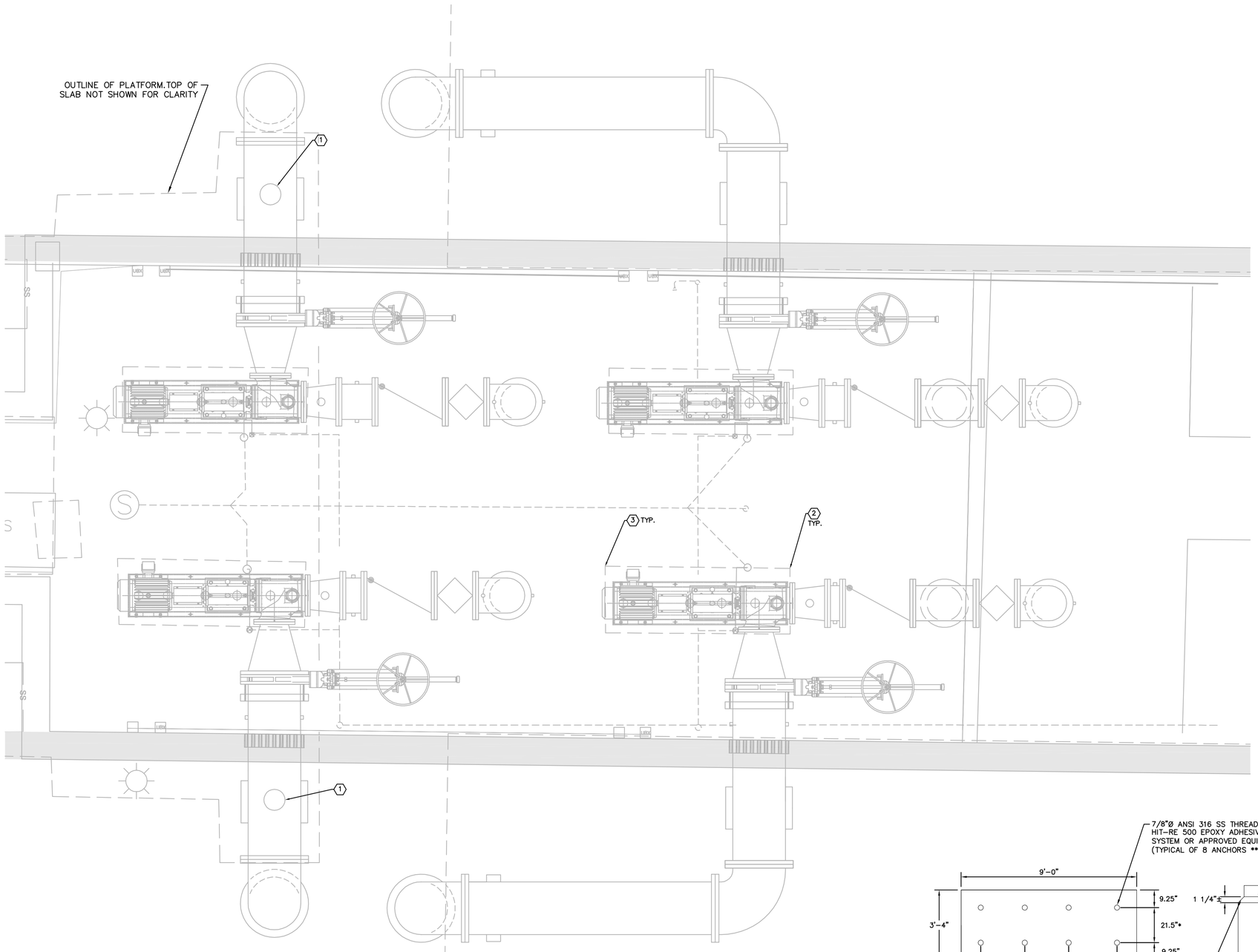
ANOXIC AEROBIC NO2 DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
S-3.3



NORTH

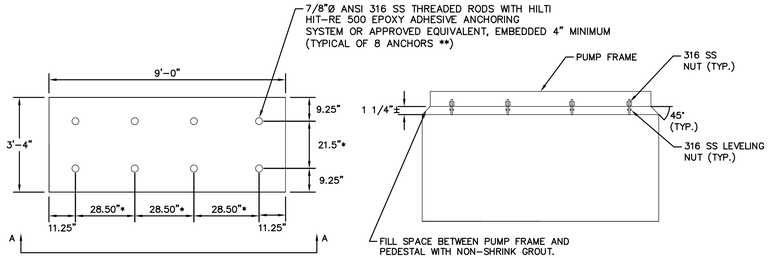
GRAPHIC SCALE IN FEET
12" 0 1' 2' 3' 4' 5'

KEY NOTES:

1. REPAIR EXISTING CONCRETE SLAB PENETRATION PER DETAIL 1 ON SHEET S-0.1

2. 1. REMOVE EXISTING PUMP AND BASE FRAME FROM EXISTING PEDESTAL.
   2. CUT BACK EXISTING ANCHOR BOLTS 1.5" BELOW TOP SURFACE OF PUMP PEDESTAL.
   3. WATER BLAST CLEAN TOP SURFACE OF CONCRETE PEDESTAL.
   4. PATCH CONCRETE PEDESTALS AT CUT BACK ANCHOR BOLTS WITH NON-SHRINK GROUT. FINISH LEVEL WITH TOP SURFACE OF PUMP PEDESTALS.
   5. INSTALL ANCHORS PER DETAIL 1 ON THIS SHEET

3. 1. CLEAN JOINT BETWEEN CONCRETE SLAB AND BASE OF CONCRETE PUMP PEDESTALS. REMOVE DIRT, DEBRIS, AND DETERIORATING EXPANSION JOINT MATERIAL.
   2. REPLACE SEALANT IN OPEN JOINTS PER DETAIL 9 ON S-0.2.



PLAN

* VERIFY SPACING WITH PUMP MANUFACTURER PRIOR TO CONSTRUCTION.
** VERIFY ANCHORS WITH PUMP MANUFACTURER PRIOR TO CONSTRUCTION.

SECTION A-A

NOTE: PUMP NOT SHOWN FOR CLARITY

PUMP ANCHOR BOLT PLAN (1 / S-3.4)
N.T.S.

No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: SETH E. SCHMID, P.E.
FLORIDA REGISTRATION NUMBER: 54640
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

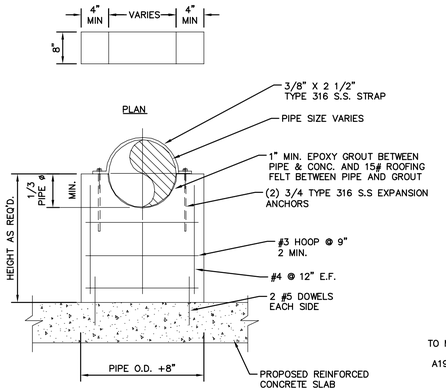
INTERNAL RECYCLE PUMPS PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

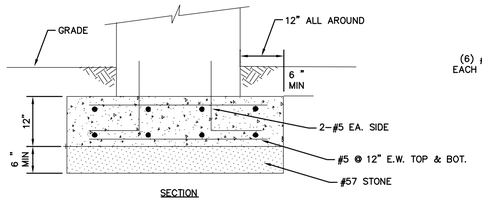
DATE
DECEMBER 2013

PROJECT NO.
148400001

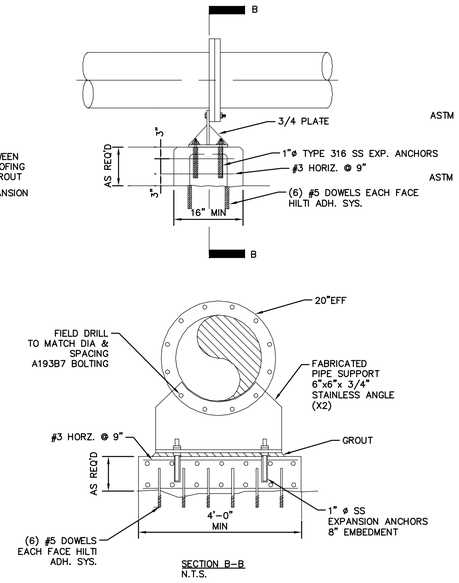
SHEET NUMBER
S-3.4



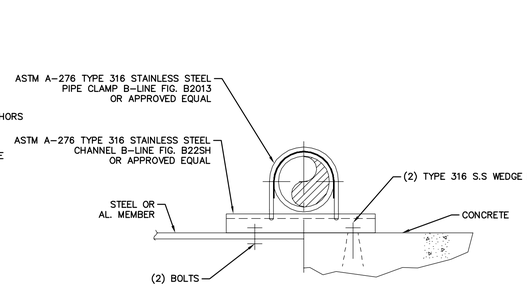
NOTE 1:
IF PIPE SUPPORT BASE IS EXISTING GROUND OR ASPHALT PAVEMENT, ADD CONCRETE BASE AS SHOWN BELOW.



PIPE SUPPORT TYPE 1 (1 / M-0.1)
N.T.S.

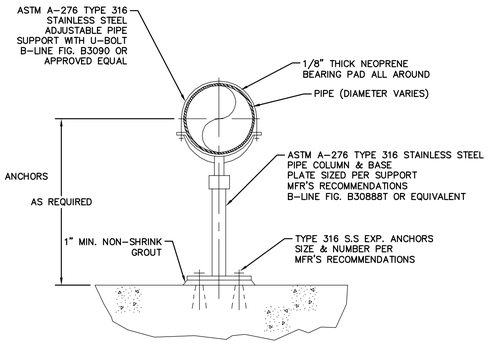


PIPE SUPPORT TYPE 2 (2 / M-0.1)

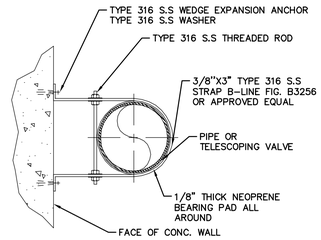


NOTE:
USE THIS DETAIL FOR UP TO 2" DIAMETER PIPING OR CONDUIT ATTACHED TO CONCRETE SLAB, WALL, CEILING, METAL FRAMING MEMBERS OR EQUIPMENT MOUNTING BOARDS.

STRUT PIPE SUPPORT (3 / M-0.1)
N.T.S.

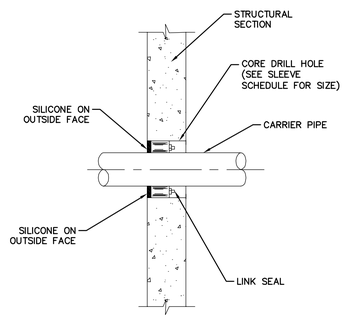


PIPE COLUMN SUPPORT (4 / M-0.1)
N.T.S.

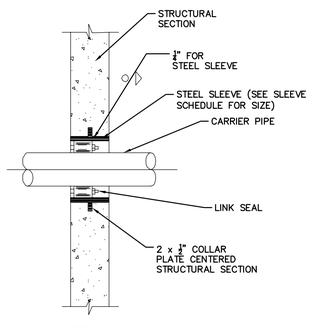


PIPE STRAP SUPPORT (5 / M-0.1)
N.T.S.

SLEEVE SCHEDULE				
CARRIER PIPE			STEEL SLEEVE INSIDE DIAMATER (INCHES)	CORE DRILLED HOLE INSIDE DIAMETER (INCHES)
NOMINAL DIAMETER INCHES	MATERIAL	OUTSIDE DIAMETER INCHES		
1/2	SCH. 80 PVC	.84	2.07	2
3/4	SCH. 80 PVC	1.05	2.07	3.0
1	SCH. 80 PVC	1.315	2.47	2.5
1 1/2	SCH. 80 PVC	1.90	4.03	4
2	SCH. 80 PVC	2.38	4.03	4
3	SCH. 80 PVC	3.5	5.05	5
4	SCH. 80 PVC	4.5	6.07	6
6	D.I.	6.90	10.02	10
8	D.I.	9.05	12.00	12
10	D.I.	11.10	13.25	14
12	D.I.	13.20	15.25	16
16	D.I.	17.40	19.25	20
18	D.I.	19.50	23.25	24
24	D.I.	25.80	29.25	30
36	D.I.	38.30	43.25	43
42	D.I.	44.50	47.25	48
8	HDPE	9.050	12.00	12



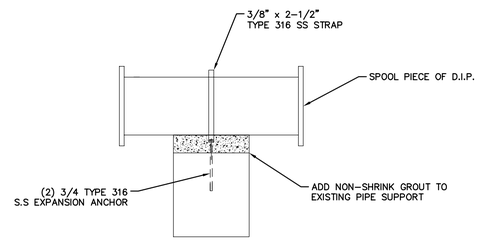
TYPE 1



TYPE 2

NOTE:
INSTALL SEALS FROM DRY SIDE OF PENETRATION. WET SIDE FILLED WITH WATERPROOF NON-SHRINK GROUT.

PIPE SUPPORT TYPE 6 (6 / M-0.1)
N.T.S.



MODIFY PIPE SUPPORT (7 / M-0.1)
N.T.S.

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

NO.	REVISIONS	DATE	BY

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

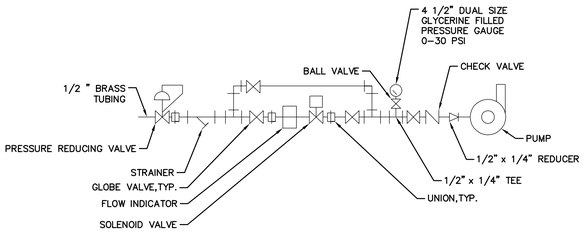
MECHANICAL DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

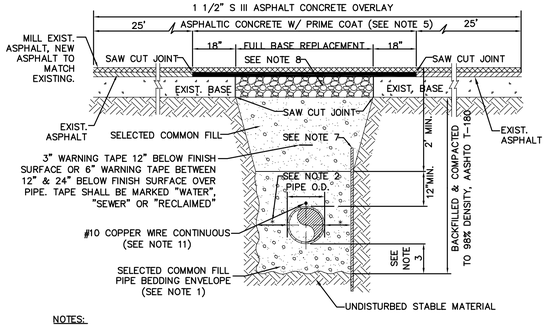
DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
M-0.1



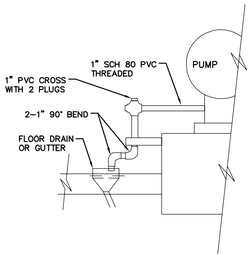
SEAL WATER DETAIL (8 / M-0.2)
N.T.S.



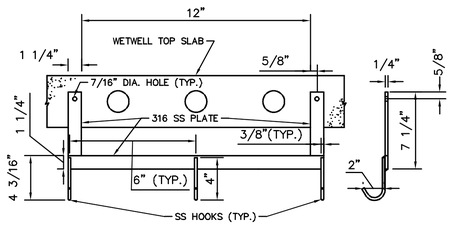
NOTES:

1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
3. TYPICALLY 4" TO 6".
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. ASPHALTIC CONCRETE STRUCTURE COURSE WITH PRIME COAT SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF 1 1/2 INCH, WHICHEVER IS GREATER.
6. MILL 25' BACK FROM TRENCH SAW CUT. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE. BUTT JOINT TO EXIST ASPHALT. FINAL OVERLAY LIMITS ARE FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT. FINAL OVERLAY TO MATCH EXISTING WITH NO DISCERNABLE "BUMP" AT JOINT. MILLING LIMITS THAT IMPACT INTERSECTION SHALL BE ADDRESSED ON A CASE BY CASE BASIS AND APPROVED BY MANATEE COUNTY.
7. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
8. BASE SHALL BE 10" MINIMUM THICKNESS CRUSHED CONCRETE.
9. TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
10. RESTORE SIGNAGE & MARKING WITH THERMOPLASTIC PER FDOT STANDARDS, LATEST EDITION.
11. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
12. NOTES 5. THRU 10. ARE MINIMUM REQUIREMENTS FOR A TRENCH IN A ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.

TRENCH WITH SURFACE ASPHALT PIPE BEDDING (9 / M-0.2)
N.T.S.



PUMP DRAIN DETAIL (10 / M-0.2)
N.T.S.



FLOAT HOLDER DETAIL (11 / M-0.2)
N.T.S.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

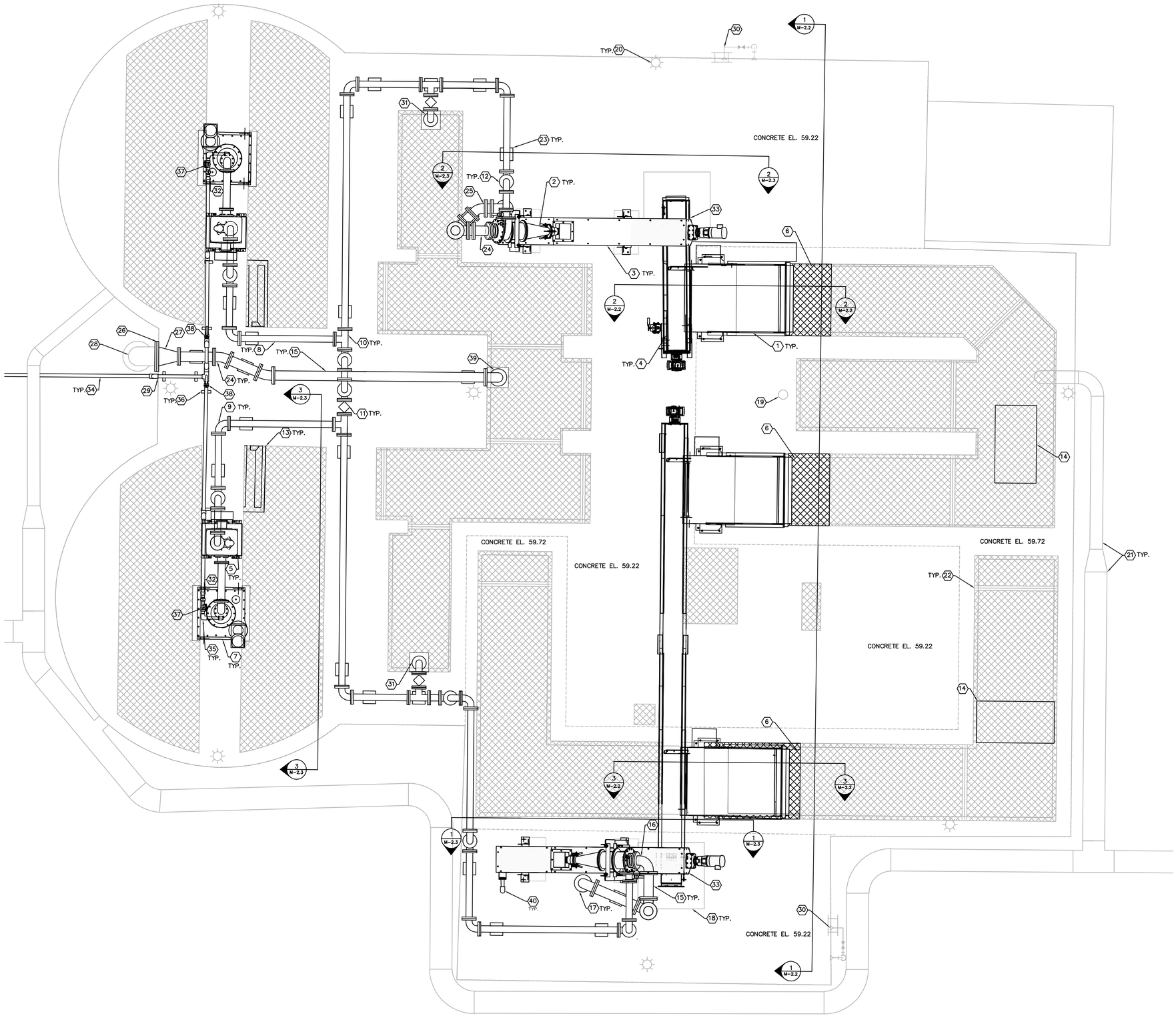
MECHANICAL DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
M-0.2



NORTH

GRAPHIC SCALE IN FEET
12" 0 1' 2' 3' 4' 5'

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. LOCATION AND POSITION OF GRIT CLASSIFIER, CONVEYOR, MECHANICAL BAR SCREEN, CYCLONE, GRIT PUMP, AND VORTEX UNIT DEPENDS UPON EQUIPMENT FURNISHED TO MAINTAIN MINIMUM SPACING REQUIREMENTS. ADJUST PIPE AND FITTINGS ACCORDINGLY TO ALIGN EQUIPMENT.

KEY NOTES:

1. INSTALL MECHANICAL BAR SCREEN (TYP. OF 3)
2. INSTALL CYCLONE UNIT (TYP. OF 2)
3. INSTALL GRIT CLASSIFIER (TYP. OF 2)
4. INSTALL CONVEYOR UNIT (TYP. OF 2)
5. INSTALL GRIT PUMP (TYP. OF 2)
6. INSTALL STAINLESS STEEL GRATE. SIZE GRATE DIMENSIONS IN ACCORDANCE WITH PROPOSED EQUIPMENT
7. INSTALL VORTEX UNIT (TYP. OF 2)
8. INSTALL 4" DUCTILE IRON PIPE (LENGTH MAY VARY)
9. INSTALL 4" DIP 90° HORIZONTAL BEND
10. INSTALL 4" DIP TEE
11. INSTALL 4" PLUG VALVE
12. INSTALL 4" DIP 90° VERTICAL BEND
13. INSTALL INLET BAFFLE PER SHEET M-2.3 (TYP. OF 2)
14. TEMPORARILY RELOCATE COMPOSITE SAMPLER DURING CONSTRUCTION OF PROPOSED IMPROVEMENTS. COORDINATE WITH OWNER PRIOR TO RELOCATION
15. INSTALL 6" DUCTILE IRON PIPE (LENGTH MAY VARY)
16. INSTALL 6" DIP 90° HORIZONTAL BEND
17. INSTALL 6" DIP 90° VERTICAL BEND
18. EXISTING OPENING INTO EXISTING GARBAGE CHUTE
19. EXISTING 6" DRAIN
20. EXISTING LIGHT POLE
21. EXISTING ODOR CONTROL PIPE
22. EXISTING SLIDE GATE
23. INSTALL PIPE COLUMN SUPPORT PER DETAIL 4 ON SHEET M-0.1
24. INSTALL 6" DIP 22.5° BEND
25. INSTALL 6" DIP 45° BEND
26. CONNECT INTO 12" REJECT POND BACKWATER INFLUENT PIPE
27. INSTALL 12" X 6" DIP REDUCER
28. EXISTING 12" DIP 90° BEND TO REMAIN
29. INSTALL 2" PVC PIPE ALONG SIDE STRUCTURE WALL. INSTALL 2" B-LINE PIPE SUPPORT DETAIL 3 ON SHEET M-01. SUPPORTS TO BE SPACED WITHIN 6FT OF EACH OTHER
30. EXISTING RECLAIMED WATER HOSE ASSEMBLY
31. INSTALL 4" DIP 90° VERTICAL BEND AND 2 LF OF 4" DIP
32. INSTALL 2" X 1.5" PVC REDUCER
33. CONTRACTOR SHALL COORDINATE AND VERIFY THE ACTUAL DIMENSIONS REQUIRED TO CONSTRUCT THE CONVEYOR ASSEMBLY WITH THE PROPOSED MECHANICAL BARSCREEN, AND CLASSIFIER DIMENSIONS AND ELEVATIONS WITH MANUFACTURER. MANUFACTURER SHOULD PROVIDE OPENINGS AND REQUIRED CONNECTIONS FOR THE CHUTE, GRIT CLASSIFIER, AND BAR SCREEN DISCHARGE
34. INSTALL 2" PVC PIPE
35. INSTALL 1.5" PVC 90° BEND
36. INSTALL STRUT PIPE SUPPORT PER DETAIL 3 ON SHEET M-0.1
37. INSTALL 1.5" PRESSURE REDUCER
38. INSTALL 2" BALL VALVE
39. INSTALL 6" DIP 90° VERTICAL BEND AND 2LF OF 6" DIP
40. INSTALL 2" PVC 90° BEND

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

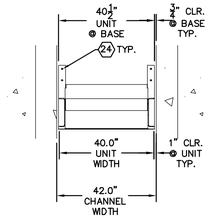
HEADWORKS UPPER PLAN MODIFICATIONS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

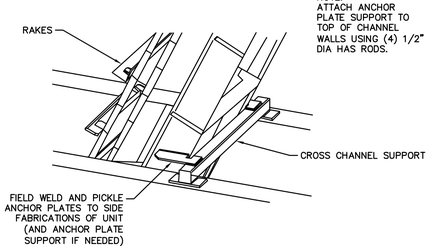
DATE
DECEMBER 2013

PROJECT NO.
148400001

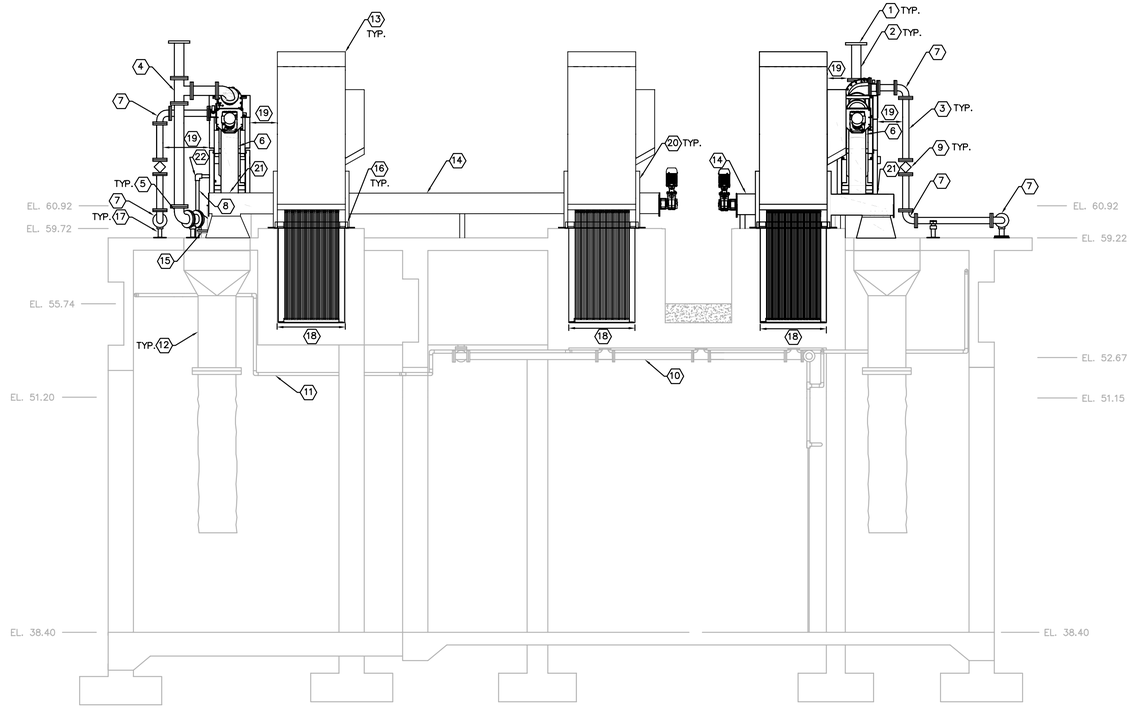
SHEET NUMBER
M-2.1



MOUNTING DETAIL 4/M-2.2
N.T.S.



CROSS CHANNEL SUPPORT DETAIL 5/M-2.2
N.T.S.



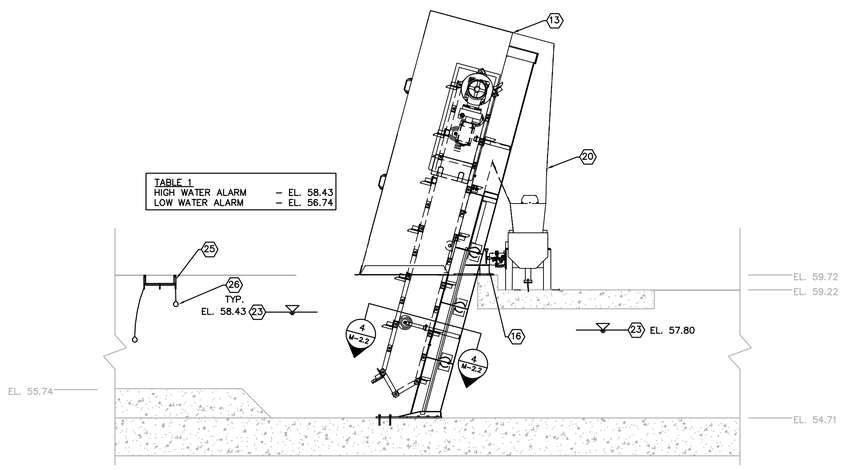
BAR SCREEN SECTION DETAIL 1 1/M-2.2
1/4"=1'-0"

GENERAL NOTES:

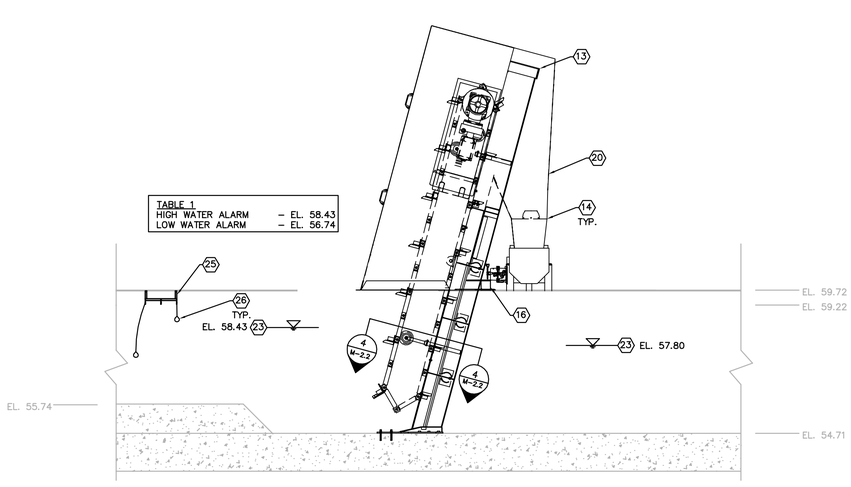
1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. LOCATION AND POSITION OF GRIT CLASSIFIER, CONVEYOR, MECHANICAL BAR SCREEN, CYCLONE, GRIT PUMP, AND VORTEX UNIT DEPENDS UPON EQUIPMENT FURNISHED TO MAINTAIN MINIMUM SPACING REQUIREMENTS. ADJUST PIPE AND FITTINGS ACCORDINGLY TO ALIGN EQUIPMENT.

KEY NOTES:

(1) INSTALL 6" CYCLONE VENT
(2) INSTALL 6" DUCTILE IRON PIPE (LENGTH MAY VARY)
(3) INSTALL 4" DUCTILE IRON PIPE (LENGTH MAY VARY)
(4) INSTALL 6" DIP TEE
(5) INSTALL 6" DIP 90° BEND
(6) INSTALL 10" X 8" STAINLESS STEEL CHUTE WITH ACCESS DOOR. INSIDE TO BE SMOOTH AND FREE OF SURFACE DEFECTS. MOUNT PER MANUFACTURER'S RECOMMENDATION
(7) INSTALL 4" DIP 90° BEND
(8) INSTALL 2" PVC PIPE (LENGTH MAY VARY)
(9) INSTALL 4" PLUG VALVE
(10) EXISTING 4" DIP DRAIN PIPE TO REMAIN IN PLACE
(11) EXISTING 2" PVC RECLAIMED WATER PIPE TO REMAIN IN PLACE
(12) EXISTING GARBAGE CHUTE TO REMAIN IN PLACE
(13) INSTALL MECHANICAL BAR SCREEN (TYP. OF 3)
(14) INSTALL CONVEYOR SYSTEM (TYP. OF 2)
(15) CONNECT INTO EXISTING 6" DRAIN PIPE
(16) INSTALL CROSS CHANNEL SUPPORT FOR BAR SCREEN PER DETAIL 5 ON THIS SHEET. ATTACH SUPPORT TO TOP OF CHANNEL WALLS USING FOUR (4) 1/2" DIA ANCHORING RODS
(17) INSTALL PIPE COLUMN SUPPORT
(18) EXISTING ± 3.5' CHANNEL. MECHANICAL BAR SCREEN SHALL BE INSTALLED TO FIT CHANNEL DIMENSIONS
(19) DIMENSION TO BE BASED ON SELECTED MANUFACTURER
(20) CONNECT MECHANICAL SCREEN FLANGED DROP CHUTE TO PROPOSED CONVEYOR PORT
(21) CONTRACTOR SHALL COORDINATE AND VERIFY THE ACTUAL DIMENSIONS REQUIRED TO CONSTRUCT THE CONVEYOR ASSEMBLY WITH THE EXISTING MECHANICAL SCREEN AND NEW CLASSIFIER DIMENSIONS AND ELEVATIONS WITH MANUFACTURER. MANUFACTURER SHOULD PROVIDE OPENINGS AND REQUIRED CONNECTIONS FOR THE CHUTE, GRIT CLASSIFIER, AND BAR SCREEN DISCHARGE
(22) INSTALL 2" PVC 90° BEND
(23) DESIGN HIGH WATER LEVEL AT MAX FLOW
(24) ATTACH UNIT TO CHANNEL FLOOR AT TOE OF UNIT USING (4) 1/2" DIA X 4-1/2"LG. EMBED ANCHORING RODS W/ HILTI RE-500 SD ADHE-SIVE SYSTEM
(25) INSTALL MECHANICAL FLOAT HOLDER. SEE DETAIL 11 ON SHEET M-0.2
(26) INSTALL 2 MECHANICAL FLOATS IN FRONT OF EACH MECHANICAL BAR SCREEN. SEE DETAIL 2 AND 3 ON THIS SHEET



BAR SCREEN SIDE DETAIL 2 2/M-2.2
N.T.S.



BAR SCREEN SIDE DETAIL 3 3/M-2.2
N.T.S.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	JWW	JRT	WEW

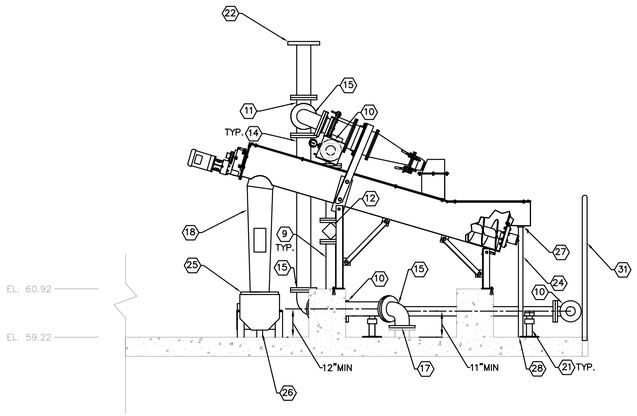
HEADWORKS MODIFICATIONS DETAILS

MANATEE COUNTY SEWRF
FLORIDA
MANATEE COUNTY

DATE
DECEMBER 2013

PROJECT NO.
148400001

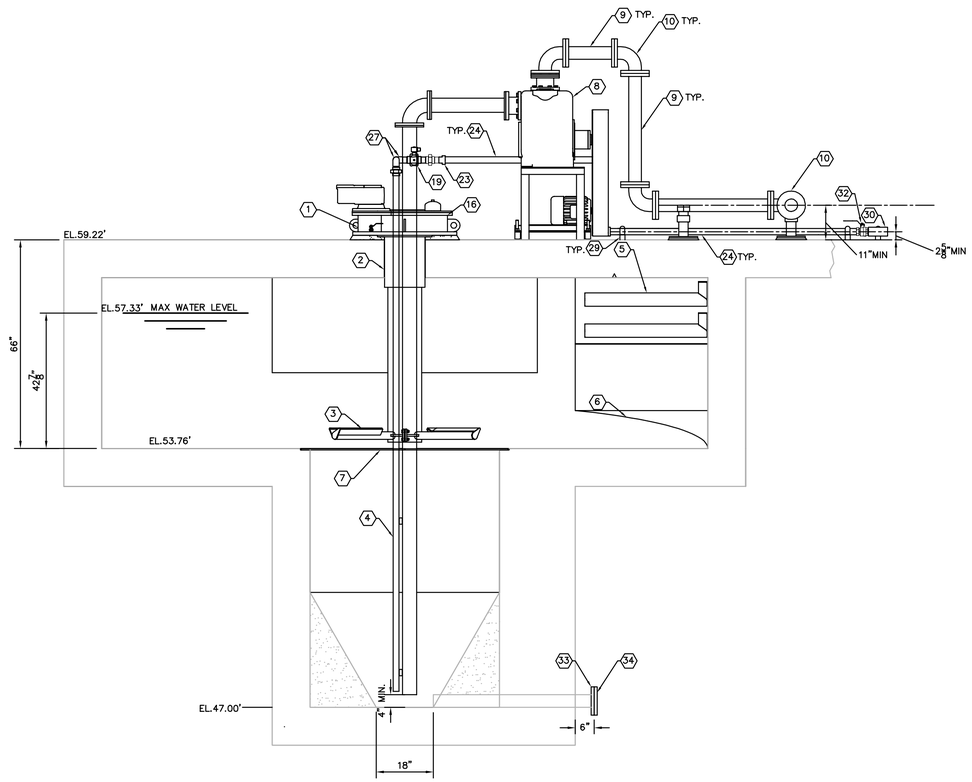
SHEET NUMBER
M-2.2



GRIT CYCLONE/CLASSIFIR DETAIL 1

3/8"=1'-0"

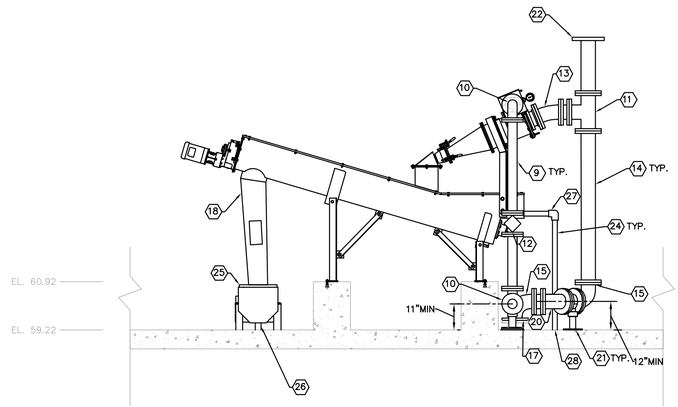
1 M-2.3



GRIT VORTEX UNIT/PUMP DETAIL 3

1/2"=1'-0"

3 M-2.3



GRIT CYCLONE/CLASSIFIER DETAIL 2

3/8"=1'-0"

2 M-2.3

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. LOCATION AND POSITION OF GRIT CLASSIFIER, CONVEYOR, MECHANICAL BAR SCREEN, CYCLONE, GRIT PUMP, AND VORTEX UNIT DEPENDS UPON EQUIPMENT FURNISHED TO MAINTAIN MINIMUM SPACING REQUIREMENTS. ADJUST PIPE AND FITTINGS ACCORDINGLY TO ALIGN EQUIPMENT.

KEY NOTES:

1. INSTALL 2HP DRIVE ASSEMBLY
2. INSTALL AIR BELL
3. INSTALL FOUR ROTATING PADDLES
4. INSTALL REUSE WATER FLUIDIZING LINE
5. INSTALL INLET BAFFLE
6. INSTALL INLET RAMP
7. INSTALL TWO-PIECE STEEL FLOOR PLATE. THE PLATES ARE SUPPORTED ON THE FLOOR OF THE MAIN GRIT COLLECTION CHAMBER ALONG THE EDGE OF THE ENTRANCE TO THE LOWER GRIT COLLECTION AREA. THE PLATES ARE HELD IN PLACE WITH SMALL ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS
8. INSTALL GRIT PUMP
9. INSTALL 4" DUCTILE IRON PIPE (LENGTH MAY VARY)
10. INSTALL 4" DIP 90° BEND
11. INSTALL 6" DIP TEE
12. INSTALL 4" PLUG VALVE
13. INSTALL 6" DIP 22.5° BEND
14. INSTALL 6" DUCTILE IRON PIPE (LENGTH MAY VARY)
15. INSTALL 6" DIP 90° BEND
16. INSTALL VORTEX UNIT
17. CONNECT INTO EXISTING 6" DRAIN PIPE
18. INSTALL 10" X 8" STAINLESS STEEL CHUTE WITH ACCESS DOOR. INSIDE TO BE SMOOTH AND FREE OF SURFACE DEFECTS. MOUNT PER MANUFACTURER'S RECOMMENDATION
19. INSTALL 1.5" PRESSURE REDUCER
20. INSTALL 6" DIP 45° BEND
21. INSTALL PIPE COLUMN SUPPORT PER DETAIL 4 ON SHEET M-0.1
22. INSTALL 6" CYCLONE VENT
23. INSTALL 2"-1.5" PVC REDUCER
24. INSTALL 2" PVC PIPE
25. CONTRACTOR SHALL COORDINATE AND VERIFY THE ACTUAL DIMENSIONS REQUIRED TO CONSTRUCT THE CONVEYOR ASSEMBLY WITH THE EXISTING MECHANICAL SCREEN AND NEW CLASSIFIER DIMENSIONS AND ELEVATIONS WITH MANUFACTURER. MANUFACTURER SHOULD PROVIDE OPENINGS AND REQUIRED CONNECTIONS FOR THE CHUTE, GRIT CLASSIFIER, AND BAR SCREEN DISCHARGE
26. CONNECT CONVEYOR DROP CHUTE TO EXISTING DROP CHUTE OPENING TO MATCH EXISTING
27. INSTALL 1.5" PVC 90° BEND
28. CONNECT INTO EXISTING 2" DRAIN PIPE
29. INSTALL 2" STRUT PIPE SUPPORT PER DETAIL 3 ON SHEET M-0.1
30. INSTALL 2" PVC TEE
31. EXISTING HANDRAIL TO REMAIN
32. INSTALL 2" PVC BALL VALVE
33. CUT EXISTING 4" GRIT SLURRY PIPE AND INSTALL RESTRAINED FLANGED ADAPTER
34. INSTALL BLIND FLANGE ATTACHED TO RESTRAINED FLANGE ADAPTER

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

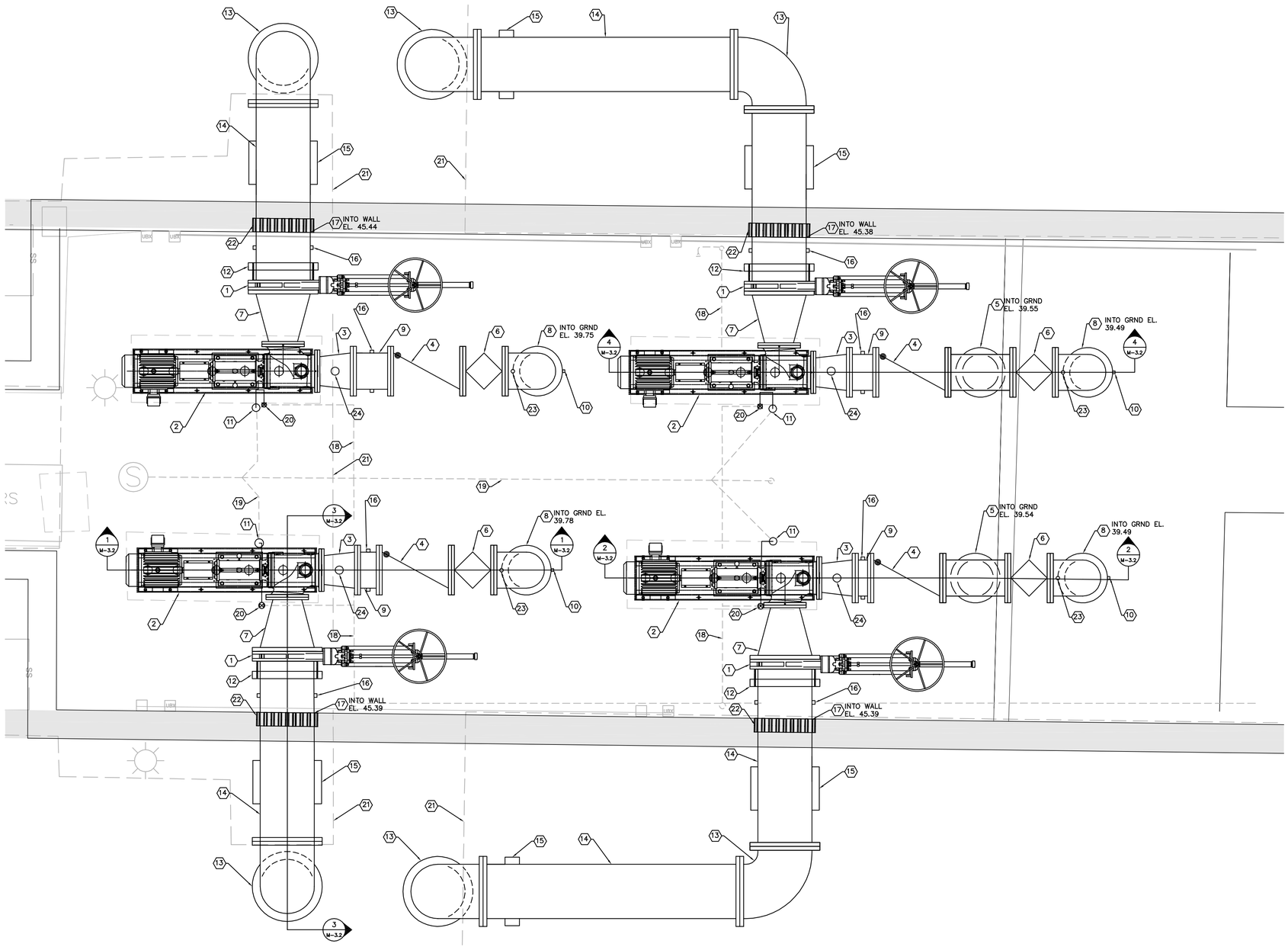
HEADWORKS MODIFICATIONS DETAILS (CONT.)

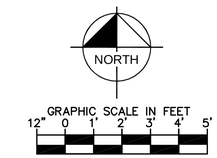
MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
M-2.3





GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND ORDERING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. CONTRACTOR TO CLEAN AND INSPECT DRAIN LINES.

KEY NOTES:

(1) INSTALL 30" KNIFE-GATE VALVE
(2) INSTALL AXIAL PROPELLER PUMP, MOTOR, AND ACCESSORIES
(3) INSTALL 20"x16" REDUCER
(4) INSTALL 20" RUBBER FLAPPER CHECK VALVE
(5) INSTALL 20" TEE
(6) INSTALL 20" PLUG VALVE
(7) INSTALL 30"x16" ECCENTRIC REDUCER
(8) INSTALL 20" 90° BEND
(9) INSTALL 20" DIP SPOOL PIECE (LENGTH MAY VARY)
(10) INSTALL DOPPLER FLOW METER
(11) INSTALL 1" PVC DRAIN PIPE TO CONNECT TO EXISTING FLOOR DRAIN PER DETAIL 10 ON SHEET M-0.2
(12) INSTALL 30" RESTRAINED FLANGE ADAPTER TO CONNECT PLAIN END TO FLANGED END OF FITTING
(13) INSTALL 30" 90° BEND
(14) INSTALL 30" DIP SPOOL PIECE (LENGTH MAY VARY)
(15) MODIFY CONCRETE SUPPORTS PER DETAIL 7 ON SHEET M-0.1
(16) INSTALL PIPE COLUMN SUPPORT PER DETAIL 4 ON SHEET M-0.1
(17) EXISTING 30" PENETRATION TO REMAIN
(18) APPROXIMATE LOCATION OF EXISTING 2" PVC(SCH80) WATER PIPE
(19) APPROXIMATE LOCATION OF EXISTING 3" PVC(SCH40) DRAIN PIPE
(20) REPLACE ABOVE GRADE PORTIONS OF SEAL WATER ASSEMBLY PER DETAIL 8 ON SHEET M-0.2
(21) OUTLINE OF PLATFORM. TOP OF SLAB NOT SHOWN FOR CLARITY
(22) INSTALL LINK SEAL PER DETAIL 6 ON SHEET M-0.1
(23) INSTALL 2" SAMPLING COCK
(24) INSTALL PRESSURE GAUGE

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

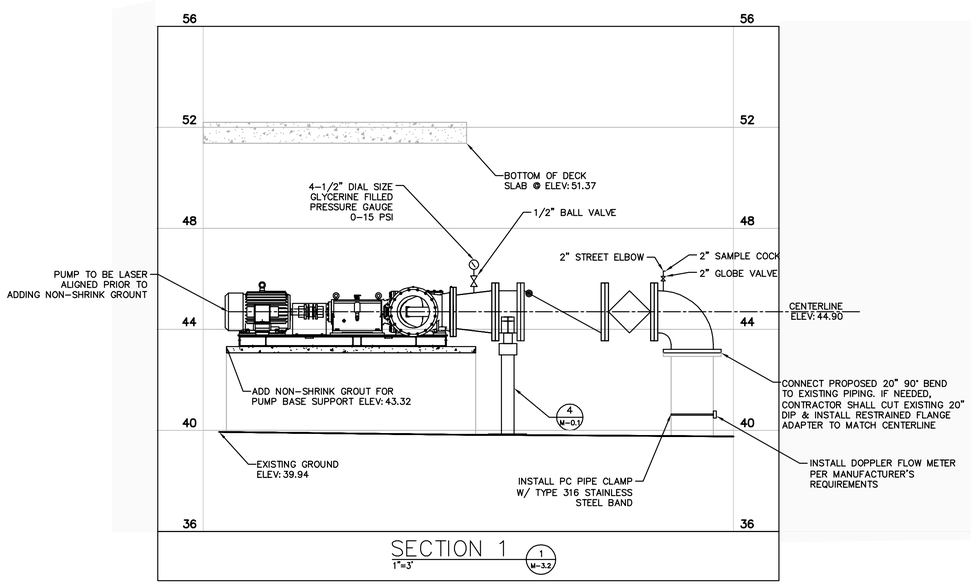
INTERNAL RECYCLE PUMPS PLAN

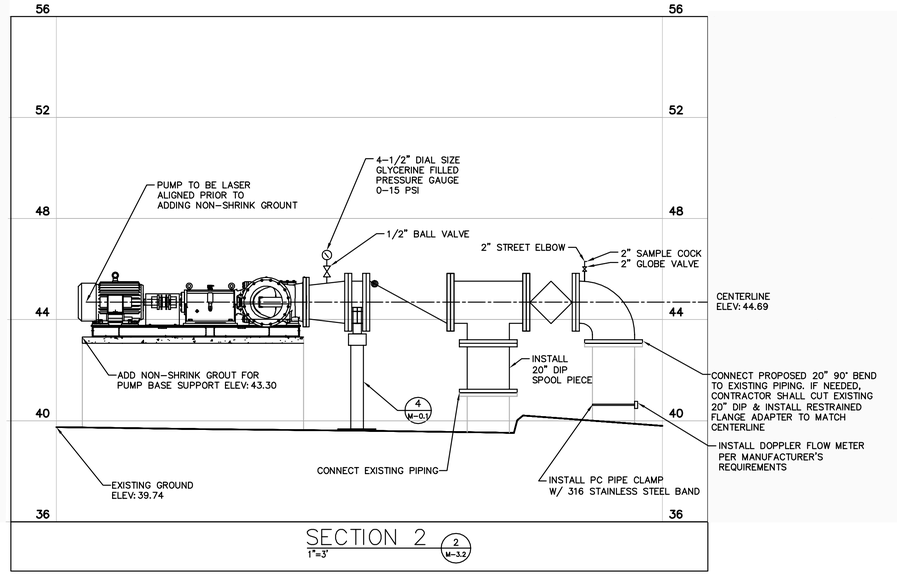
MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

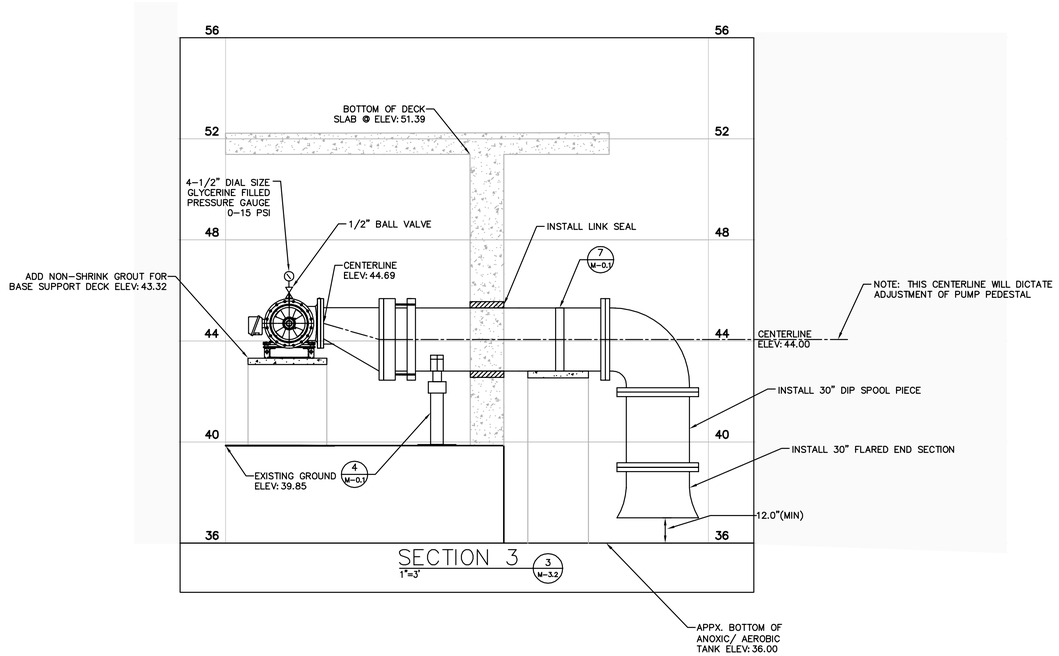
DATE
DECEMBER 2013

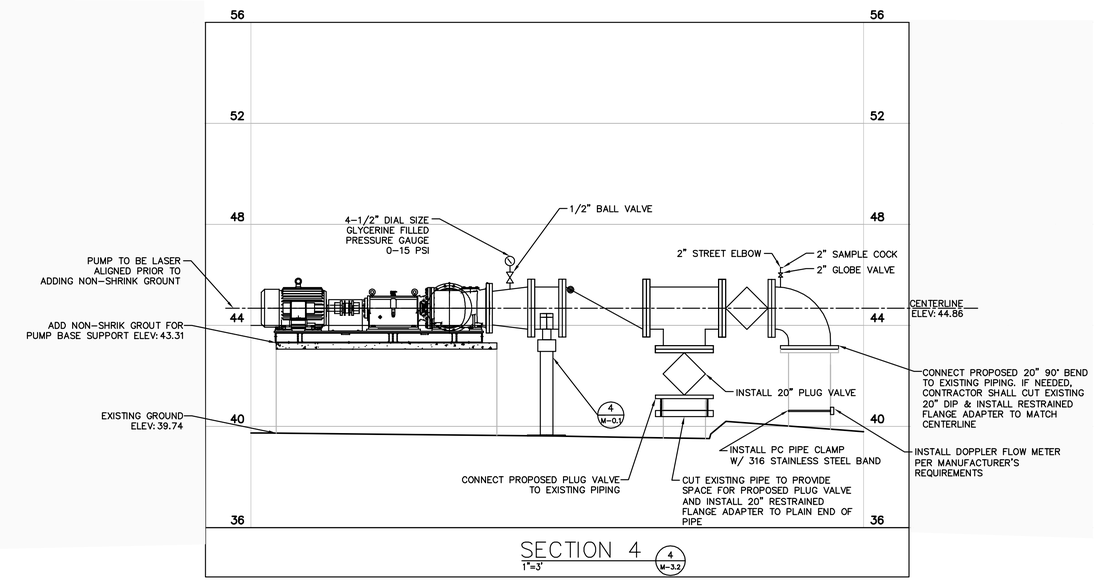
PROJECT NO.
148400001

SHEET NUMBER
M-3.1









No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY–HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813–620–1460
WWW.KIMLEY–HORN.COM CA 00000696

DESIGN ENGINEER: WAYNE E. WHITE, P.E.
FLORIDA REGISTRATION NUMBER: 53232
DATE:

SCALE AS NOTED
DESIGNED BY JWW
DRAWN BY JRT
CHECKED BY WEW

INTERNAL RECYCLE PUMPS SECTIONS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

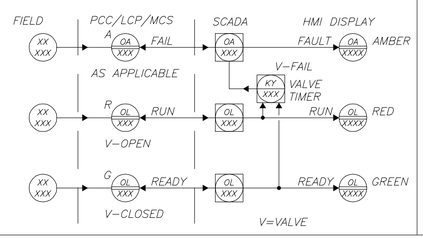
SHEET NUMBER
M-3.2

FUNCTION SYMBOL SCHEDULE

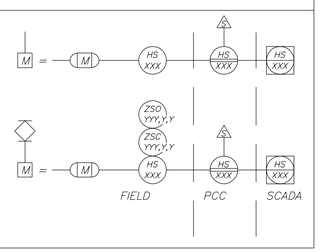
IDENTIFICATION LETTERS					
	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		PROGRAMMER		
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING		GLASS VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTOR	MOMENTARY			MIDDLE, INTERMEDIATE
N	VIBRATION		IGNITOR	ISOLATOR	
O	OPERATION	OFFSET	ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY, EVENT	INTEGRATE, TOTALIZE	INTEGRATE		
R	RADIATION		RECORD, PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE	TREND	MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VISCOSITY	VACUUM		VALVE, DAMPER, LOUVER, GATE	
W	WEIGHT, FORCE, TORQUE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y				RELAY, COMPUTE, CONVERT	
Z	POSITION			FINAL CONTROL ELEMENT	UNCLASSIFIED

S = STATUS

THIS SYMBOL INDICATES THE FOLLOWING INSTRUMENTATION
(NOTE : VALVE FAULT IS PLC GENERATED)



TYPICAL FOR M
(IF NOT OTHERWISE ILLUSTRATED ON DRAWINGS)



LINE DESIGNATIONS

INSTRUMENTATION SIGNAL
ELECTRICAL POWER
DATA LINK — D — D —
RADIO LINK — R — R —
FIBER OPTIC DATA — F — F —

CONTROLLER NOTATION

PV= PROCESS VARIABLE INPUT
SP= SET POINT INPUT
C= CONTROL OUTPUT

INPUT/OUTPUT NOTATIONS

AI = ANALOG INPUT
AO= ANALOG OUTPUT
DI = DISCRETE INPUT
DO= DISCRETE OUTPUT

HAND SWITCH NOTATION

HOA = HAND-OFF-AUTO
S/S = START/STOP
SEL = SELECTOR
O/C = OPEN/CLOSE
O/O = ON/OFF
LOS = LOCKOUT-START
LOR = LOCAL-OFF-REMOTE
OAC = OPEN-AUTO CLOSE
CAO = CLOSED-AUTO OPEN

MISCELLANEOUS NOTATIONS

S/D = SHUTDOWN
O/R = OVERRIDE
MCS = MASTER CONTROL STATION
VFD = VARIABLE FREQUENCY DRIVE
PCC = PROCESS CONTROL CABINET
LCP = LOCAL CONTROL PANEL
ES = ELECTRICAL SUPPLY (120VAC)

EQUIPMENT NOTATION

B = BLOWER OR FAN
E = ENGINE
G = GENERATOR
F = FILTER
GS = GRINDER/SCREEN
K = COMPRESSOR
H = HOIST
ME = MECHANICAL EQUIPMENT
MX = MIXER
P = PUMP
T = TANK OR SUMP

VALVE DESIGNATIONS

MOV = MOTOR OPERATED VALVE

GENERAL ABBREVIATIONS

SCADA - SUPERVISORY CONTROL AND DATA ACQUISITION.
PLC - PROGRAMMABLE LOGIC CONTROL
SA - SURGE SUPPRESSOR DEVICE

I — INTERLOCK

I-3 — CONTINUATION OF SIGNAL OR DATA TO/FROM SHEET NUMBER INDICATED

BASIC SYMBOLS

SINGLE FUNCTION		MUTIPLE FUNCTION	
○	OR	○○	FIELD MOUNTED INSTRUMENT OR DEVICE
⊖	OR	⊖⊖	FRONT OF PANEL MOUNTED INSTRUMENT ON LCP, PCC, MCS, OR VFD
⊜	OR	⊜⊜	REAR OF PANEL MOUNTED INSTRUMENT ON LCP, PCC, MCS, OR VFD
⊖	OR	⊖⊖	FRONT OF PANEL MOUNTED INSTRUMENT ON MAIN PANEL
⊜	OR	⊜⊜	REAR OF PANEL MOUNTED INSTRUMENT ON MAIN PANEL
⊡	OR	⊡⊡	PLC AND/OR COMPUTER SOFTWARE COMPONENT (OPERATOR ACCESSIBLE UNDER NORMAL CONDITIONS) OR
⊡	OR	⊡⊡	PLC AND/OR COMPUTER GENERATED COMPONENT (NOT OPERATOR ACCESSIBLE UNDER NORMAL CONDITIONS)
RTU	OR	RTU RTU	DATA FLOW SYSTEMS RTU INPUT/OUTPUT

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	TDT	EAK	DEV

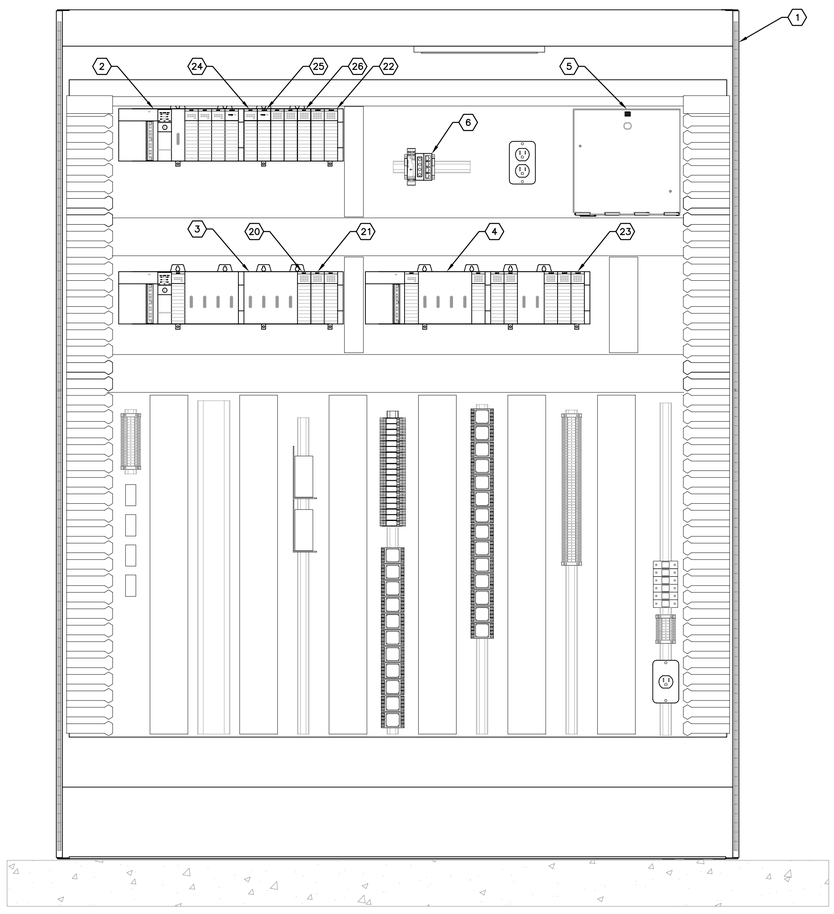
INSTRUMENTATION AND CONTROLS LEGEND

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

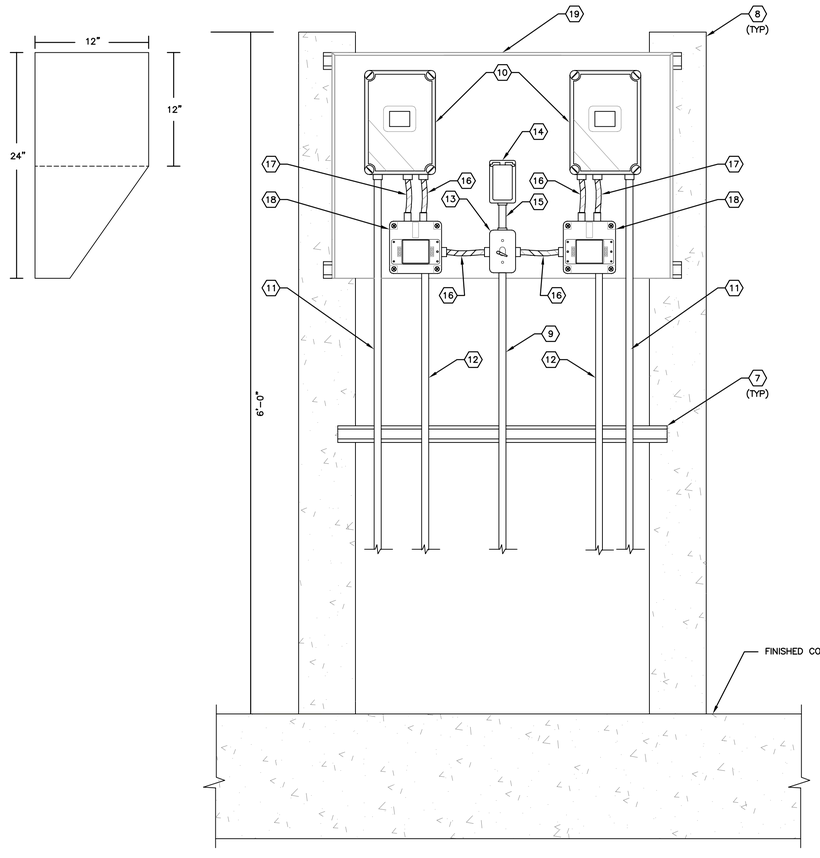
DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
I-1.1



SCADA PANEL 2 ELEVATION
N.T.S.
1 I-1.2



FLOW METER PANEL ELEVATION
N.T.S.
2 I-1.2

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR TO PROVIDE AND INSTALL ANY NEW MATERIALS (TERMINAL BLOCKS, SURGE ARRESTERS, INTERPOSING RELAYS, ETC.) AS REQUIRED TO ACCOMMODATE NEW SCADA PANEL 2 I/O. ALL NEW MATERIALS TO MATCH EXISTING.

KEY NOTES:

1. EXISTING SCADA PANEL 2 (SHOWN WITH DOORS OPEN).
2. EXISTING ALLEN-BRADLEY PLC (PLC-1, RACK 0). SLC 5/05 PROCESSOR; THREE (3) ANALOG INPUT MODULES: 1746-NI8; ONE (1) ANALOG OUTPUT MODULE: 1746-NO4I; TWO (2) A/C INPUT MODULES: 1746-IA16; TWO (2) DIGITAL CONTACT OUTPUT MODULES: 1746-OW16; POWER SUPPLY: 1746-P4; 13-SLOT RACK: 1746-A13. FOUR (4) SPARE I/O MODULE SPACES AVAILABLE.
3. EXISTING ALLEN-BRADLEY PLC (PLC-2, RACK 1). SLC 5/05 PROCESSOR; ONE (1) ANALOG INPUT MODULE: 1746-NI8; THREE (3) A/C INPUT MODULES: 1746-IA16; POWER SUPPLY: 1746-P4; 13-SLOT RACK: 1746-A13. EIGHT (8) SPARE I/O MODULE SPACES AVAILABLE.
4. EXISTING ALLEN-BRADLEY REMOTE I/O RACK (RACK 2). ONE (1) ANALOG INPUT MODULE: 1746-NI8; THREE (3) A/C INPUT MODULES: 1746-IA16; THREE (3) DIGITAL CONTACT OUTPUT MODULES: 1746-OW16; POWER SUPPLY: 1746-P4; 13-SLOT RACK: 1746-A13. CHASSIS INTERCONNECT CABLE: 1746-C9; SIX (6) SPARE I/O MODULE SPACES AVAILABLE.
5. EXISTING FIBER OPTIC PATCH PANEL.
6. EXISTING PHOENIX CONTACT ETHERNET SWITCH WITH FOUR (4) FIBER OPTIC PORTS AND FOUR (4) UTP COPPER PORTS.
7. PROVIDE AND INSTALL 1-5/8" STAINLESS STEEL UNISTRUT (OR EQUAL). BOLTS TO SECURE UNISTRUT SHALL BE INSTALLED COMPLETELY THROUGH CONCRETE POST.
8. PROVIDE AND INSTALL 6" X 6" CONCRETE POST. POST SHALL BE EMBEDDED A MINIMUM OF 3 FEET INTO CONCRETE SLAB/SOIL.
9. PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. TO FLOW METER TRANSMITTERS AND RECEPTACLE FOR 120V POWER.
10. PROVIDE AND INSTALL DOPPLER FLOW METER TRANSMITTER. REFER TO SPECIFICATIONS. PROVIDE 1/4" ALUMINUM PLATE FOR MOUNTING.
11. PROVIDE AND INSTALL ULTRASONIC DOPPLER SENSOR CABLES IN 1"C. TO FIELD SENSORS.
12. PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN 1"C. (4-20mA FLOW METER SIGNAL) TO SCADA 2 IN MCC/BLOWER BUILDING NO. 2.
13. PROVIDE AND INSTALL 120V, 15A, SINGLE-POLE SWICH IN WEATHERPROOF FS BOX AS 120V POWER DISCONNECTING MEANS. PROVIDE AND INSTALL SINGLE-GANG WEATHERPROOF SWITCH COVER. BELL #5121-0.
14. PROVIDE AND INSTALL DUPLEX GFCI RECEPTACLE, HUBBELL, GFR5352IA OR EQUAL. PROVIDE AND INSTALL SINGLE-GANG WEATHERPROOF GFCI COVER. BELL #5103-6.
15. PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. TO RECEPTACLE FOR 120V POWER.
16. PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" FLEXIBLE, SEALTITE CONDUIT TO FLOW METER TRANSMITTER FOR 120V POWER.
17. PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN 3/4" FLEXIBLE, SEALTITE CONDUIT. (4-20mA FLOW METER SIGNAL).
18. PROVIDE AND INSTALL EDCO - SLAC SERIES AC POWER/SIGNAL TVSS DEVICE IN NEMA 4X ENCLOSURE TO PROTECT 120V POWER CIRCUIT AND 4-20mA ANALOG OUTPUT SIGNAL.
19. PROVIDE AND INSTALL SUN-SHIELD, CONSTRUCTED FROM 1/8" ALUMINUM STOCK. PROVIDE FULL FILLET WELDS. 36" WIDE, 24" TALL.
20. EXISTING 120V A/C INPUT MODULE (RACK 1, SLOT 10). ALLEN-BRADLEY 1746-IA16. MODULE TO BE UTILIZED FOR NEW HEADWORKS DISCRETE INPUTS. REFER TO SHEET E-1.5 FOR MODIFICATIONS.
21. EXISTING 120V A/C INPUT MODULE (RACK 1, SLOT 11). ALLEN-BRADLEY 1746-IA16. MODULE TO BE UTILIZED FOR NEW VFD DISCRETE INPUTS. REFER TO SHEET E-1.5 FOR MODIFICATIONS.
22. EXISTING 120V A/C OUTPUT MODULE (RACK 0, SLOT 12). ALLEN-BRADLEY 1746-OW16. MODULE TO BE UTILIZED FOR NEW VFD OUTPUTS. REFER TO SHEET E-1.5 FOR MODIFICATIONS.
23. EXISTING 120V A/C OUTPUT MODULE (RACK 2, SLOT 12). ALLEN-BRADLEY 1746-OW16. MODULE TO BE UTILIZED FOR NEW BAR SCREEN OUTPUTS. REFER TO SHEET E-1.5 FOR MODIFICATIONS.
24. PROVIDE AND INSTALL NEW ANALOG INPUT MODULE. ALLEN-BRADLEY 1746-NI8 IN RACK 0, SLOT 6 FOR NEW 4-20mA INPUTS. REFER TO SHEET E-1.6 FOR NEW INPUTS REQUIRED.
25. PROVIDE AND INSTALL NEW ANALOG OUTPUT MODULE. ALLEN-BRADLEY 1746-NO4I IN RACK 0, SLOT 7 FOR NEW VFD 4-20mA OUTPUTS. REFER TO SHEET E-1.6 FOR NEW OUTPUTS REQUIRED.
26. PROVIDE AND INSTALL NEW 120V A/C INPUT MODULE. ALLEN-BRADLEY 1746-IA16 IN RACK 0, SLOT 10 FOR NEW DISCRETE INPUTS. REFER TO SHEET E-1.5 FOR NEW INPUTS REQUIRED.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

SCADA PANEL 2 ELEVATION

MANATEE COUNTY SEWRF
FLORIDA
MANATEE COUNTY

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
I-1.2

MCC-5
MCC-6
BELT FILTER PRESS #1-CONTROL PANEL
BELT FILTER PRESS #2-CONTROL PANEL

NEMA 4X S.S. ENCLOSURE
REMOTE PANEL OUTSIDE INSTRUMENTATION OFFICE
OPI
24VDC

SCADA PANEL 4
NEMA 4X S.S. ENCLOSURE
DEWATERING AND CHLORINATION IN INSTRUMENTATION OFFICE
DH+
13-SLOT RACK
PS | PLC | DI | DI | SPARE | SPARE | AI | AI | AI | AI | AO | AO | DO
FOM
FIBER OPTIC PATCH PANEL
DH+ FEMALE PLUG FOR PROGRAMMING TERMINAL

PROVIDE & INSTALL 6-CHANNEL FIBER OPTIC CABLE, USING EXISTING AND PROPOSED CONDUITS. SEE ELECTRICAL DRAWINGS FOR DETAILS. FIBER CABLES SHALL BE INSTALLED UNBROKEN AND UNSPLICED WITH NO INTERMEDIATE JUNCTIONS OR TERMINATIONS EXCEPT AS SHOWN.

FO-2

PROPOSED CONTROL CONSOLE
PIC
CONTROL BUILDING
OPI
24VDC
DH+
10-SLOT RACK
PS | PLC | DO | DO | SPARE | AI | AI | AI | AI | DI
FOM
FIBER OPTIC PATCH PANEL
DH+ FEMALE PLUG FOR PROGRAMMING TERMINAL
10-SLOT RACK
PS | ASB | SPARE | SPARE | SPARE | SPARE | AO | AO | AO | AO
FO-1

FILTER FLOW METERS
LOCAL INSTRUMENTATION

FIBER OPTIC TOPOLOGY PROVIDES "SELF HEALING" IN A COUNTER-ROTATING REDUNDUNT RING FORMAT-EMULATES DH+

FO-5
FO-6

GBT-CP-1
GRAVITY BELT THICKENER CONTROL PANEL
OPI
24VDC
DH+
10-SLOT RACK
PS | PLC | DI | DI | DI | DI | DI | AI | AO | AO
FOM
FIBER OPTIC PATCH PANEL

GRAVITY BELT THICKENER COMPONENTS

INLET SLUDGE FLOW METER POLYMER FEED RATE CONTROL

FO-3
FO-4

SCADA PANEL 1
NEMA 1 ENCLOSURE
MAIN ELECTRICAL BUILDING
OPI
24VDC
DH+
13-SLOT RACK
PS | PLC | SNI | AI | AI | AI | AI | AI | AI | AI | AI | AI | AI | AI
FOM
FIBER OPTIC PATCH PANEL
13-SLOT RACK
PS | ASB | DI | DI | DI | SPARE | SPARE | AO | AO | AO | AO | SPARE
13-SLOT RACK
PS | ASB | DI | DI | SPARE | SPARE | SPARE | SPARE | SPARE | DO | DO

MCC-11
MCC-12
VFD'S [RAS (3)]
VFD'S [WAS (4)]
VFD'S [EFFLUENT (8)]
LOCAL INSTRUMENTATION

CLARIFIERS
FLASH MIXER
SCUM EJECTORS
PLANT DRAIN P.S.

FO-2

LEGEND

C	CONTROL WIRING TERMINAL BOX
I	INSTRUMENTATION WIRING TERMINAL BOX
FO-X	FIBER OPTIC CABLE IDENTIFICATION NUMBER CABLES TO BE TAGGED AT EVERY BOX

SCADA PANEL 2
NEMA 1 ENCLOSURE
MCC/BLOWER BUILDING #2
EXISTING OPI NO LONGER CONNECTED
OPI
24VDC
ETHERNET
ETHERNET SWITCH
FIBER OPTIC PATCH PANEL
13-SLOT RACK
PS | PLC | SPARE | AI | AI | AO | SPARE | SPARE | DI | SPARE | DO
ETHERNET
13-SLOT RACK
PS | PLC | AI | SPARE | SPARE | SPARE | SPARE | SPARE | SPARE | SPARE | DI | DI
REMOTE I/O - CHASSIS INTERCONNECT CABLE
13-SLOT RACK
PS | AI | SPARE | SPARE | SPARE | SPARE | DI | DI | SPARE | SPARE | DO | DO

MCC-1
MCC-2
MCC-3
MCC-4
BLOWER CP-1
BLOWER CP-2
REJECT P.S.

EQUALIZATION TANK INSTRUMENTS

(FROM HEADWORKS)
MCC-1A
MCC-2A
GRIT PANELS
BAR SCREEN PANEL

ANOXIC BASINS ODOR CONTROL

INTERNAL RECYCLE PUMP VFD'S

DOPPLER FLOW METERS

SCADA PANEL 3
NEMA 1 ENCLOSURE
MCC/BLOWER BUILDING #3
DH+
13-SLOT RACK
PS | PLC | DI | DI | SPARE | AI | AI | AO | AO | SPARE | DO
FOM
FIBER OPTIC PATCH PANEL

BLOWER PANEL CP-1
BLOWER PANEL CP-2
BLOWER PANEL CP-3
MCC-7
MCC-8
SLUDGE PUMP VFD'S (8)
LOCAL INSTRUMENTATION

FO-2
FO-4

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00003363

No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

FIBER OPTIC TOPOLOGY AND PLC CONFIGURATION

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

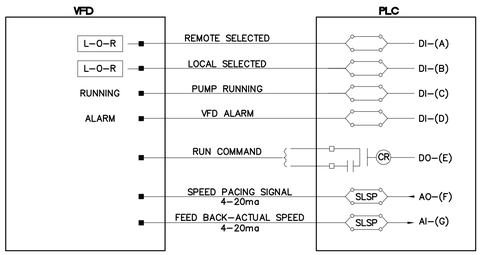
SHEET NUMBER
I-1.3

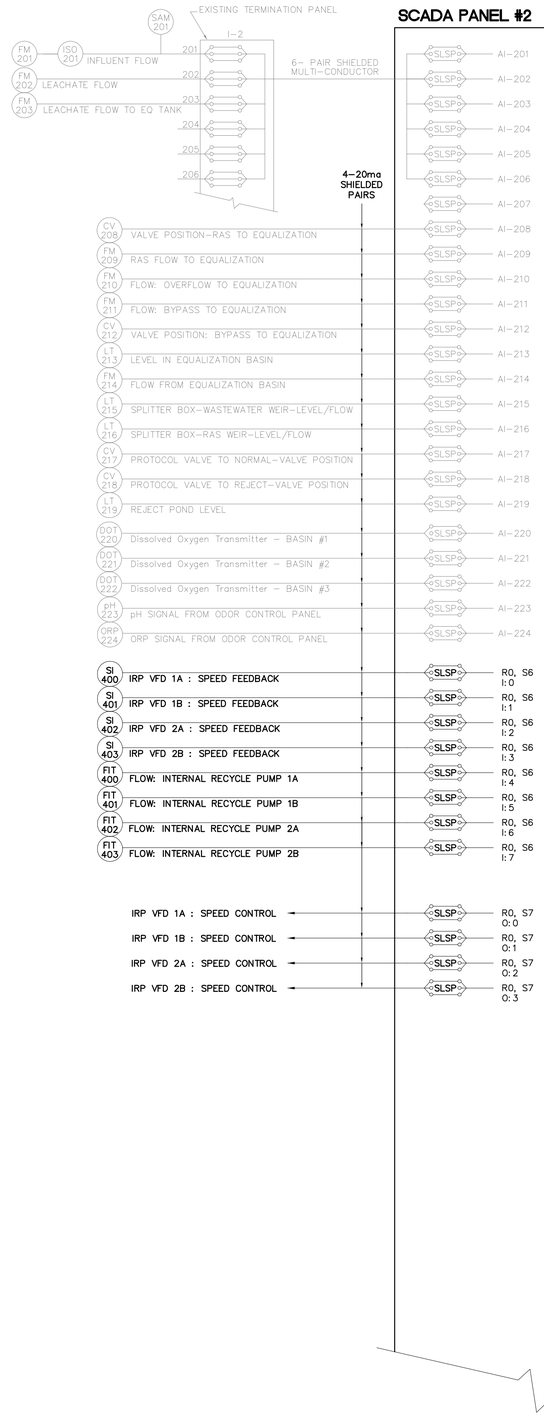
LEGEND	
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
SLSP	SIGNAL LINE SURGE PROTECTOR
FM	FLOW METER
CV	CONTROL VALVE
LT	LEVEL TRANSMITTER
CT	CURRENT TRANSMITTER
RML	RETURN MIXED LIQUOR
FLOC	FLOCCULATOR
TBR	TO BE REMOVED
EQ	EQUALIZATION
RAS	RETURN ACTIVATED SLUDGE
WAS	WASTE ACTIVATED SLUDGE
VFD	VARIABLE FREQUENCY DRIVE
LS	LIMIT SWITCH

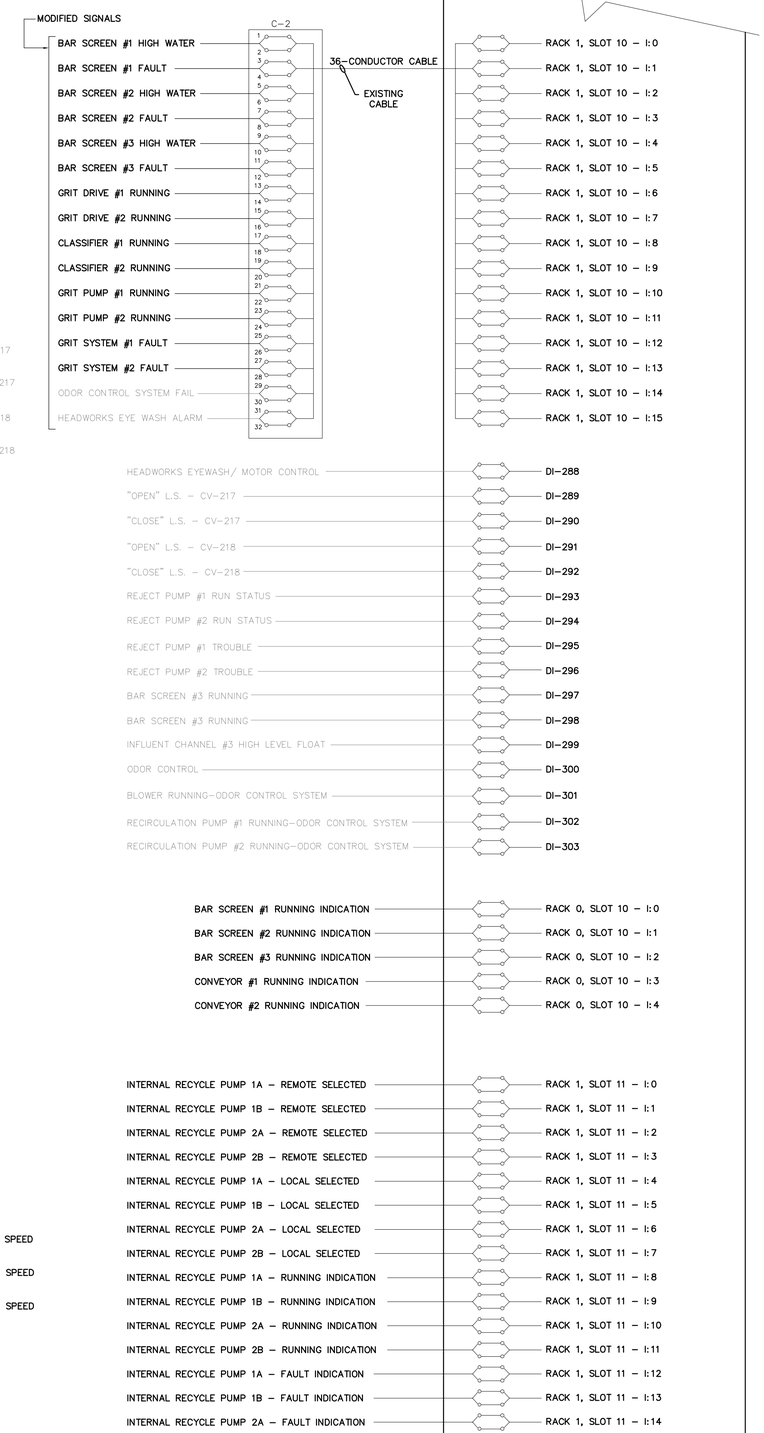
DISCRETE INPUTS FROM MCC 1, 2, 3 & 4 AND BLOWER C.P. 1 & 2 TO SCADA PANEL #2

		HIGH SPEED	LOW SPEED	TROUBLE	RUNNING	"AUTO" SELECTED	START (HIGH)	STOP (HIGH)	START (LOW)	STOP (LOW)
AERATORS	1A	DI-223	DI-224	DI-225			DO-212	DO-213	DO-214	DO-215
	1B	DI-226	DI-227	DI-228			DO-216	DO-217	DO-218	DO-219
	1C	DI-229	DI-230	DI-231			DO-220	DO-221	DO-222	DO-223
	2A	DI-232	DI-233	DI-234			DO-224	DO-225	DO-226	DO-227
	2B	DI-235	DI-236	DI-237			DO-228	DO-229	DO-230	DO-231
	2C	DI-238	DI-239	DI-240			DO-232	DO-233	DO-234	DO-235
	3A	DI-241	DI-242	DI-243			DO-236	DO-237	DO-238	DO-239
	3B	DI-244	DI-245	DI-246			DO-240	DO-241	DO-242	DO-243
	3C	DI-247	DI-248	DI-249			DO-244	DO-245	DO-246	DO-247
ANOXIC MIXERS	1A			DI-250	DI-251		DO-248	DO-249		
	1B			DI-252	DI-253		DO-250	DO-251		
	2A			DI-254	DI-255		DO-252	DO-253		
	2B			DI-256	DI-257		DO-254	DO-255		
	3A			DI-258	DI-259		DO-256	DO-257		
	3B			DI-260	DI-261		DO-258	DO-259		
RML PUMPS	1	DI-282	DI-283	DI-264						
	2	DI-285	DI-286	DI-267						
	3	DI-288	DI-289	DI-270						
	4	DI-291	DI-292	DI-273						
EQ PUMPS	1				DI-274	DI-275	DO-260	DO-261		
	2				DI-276	DI-277	DO-262	DO-263		
	3				DI-278	DI-279	DO-264	DO-265		
	4				DI-280	DI-281	DO-266	DO-267		
	5				DI-282	DI-283	DO-268	DO-269		
BLOWERS	1				DI-284	DI-285				
	2				DI-286	DI-287				

TYPICAL WIRING INTERFACE – VFD TO PLC







TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE: AS NOTED
DESIGNED BY: TDT
DRAWN BY: EAK
CHECKED BY: DEV

INPUT/OUTPUT ASSIGNMENTS TO SCADA PANEL #2

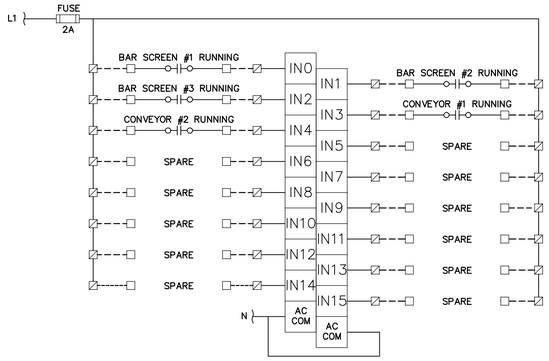
MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
I-1.4

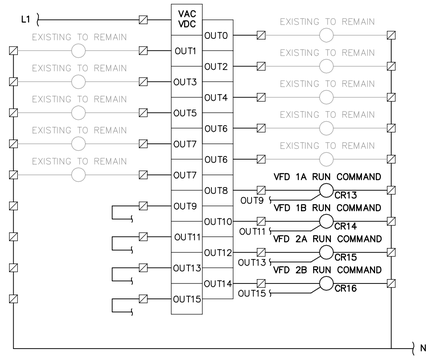
NEW INPUT MODULE
1746-IA16
RACK 0, SLOT 10



NEW INPUT MODULE - RACK 0-SLOT 10

EXISTING TO REMAIN

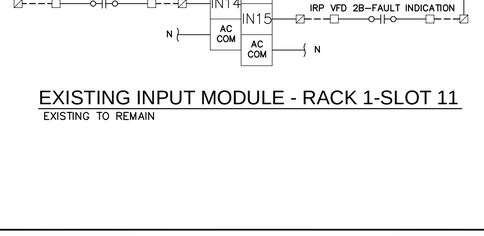
EXISTING OUTPUT MODULE
1746-OW16
RACK 0, SLOT 12



EXISTING OUTPUT CARD - RACK 0-SLOT 12

EXISTING TO REMAIN

EXISTING INPUT MODULE
1746-IA16
RACK 1, SLOT 10



EXISTING INPUT MODULE - RACK 1-SLOT 10

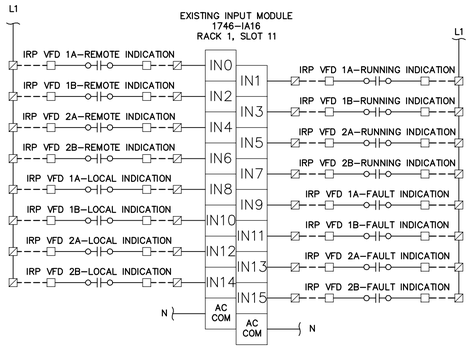
EXISTING TO REMAIN

EXISTING OUTPUT MODULE
1746-OW16
RACK 2, SLOT 12

EXISTING OUTPUT CARD - RACK 2-SLOT 12

EXISTING TO REMAIN

EXISTING INPUT MODULE
1746-IA16
RACK 1, SLOT 11



EXISTING INPUT MODULE - RACK 1-SLOT 11

EXISTING TO REMAIN

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. CONTRACTOR TO PROVIDE AND INSTALL ANY NEW MATERIALS (TERMINAL BLOCKS, SURGE ARRESTERS, INTERPOSING RELAYS, ETC.) AS REQUIRED TO ACCOMMODATE NEW SCADA PANEL 2 I/O. ALL NEW MATERIALS TO MATCH EXISTING.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

SCADA PANEL 2 MODIFICATIONS

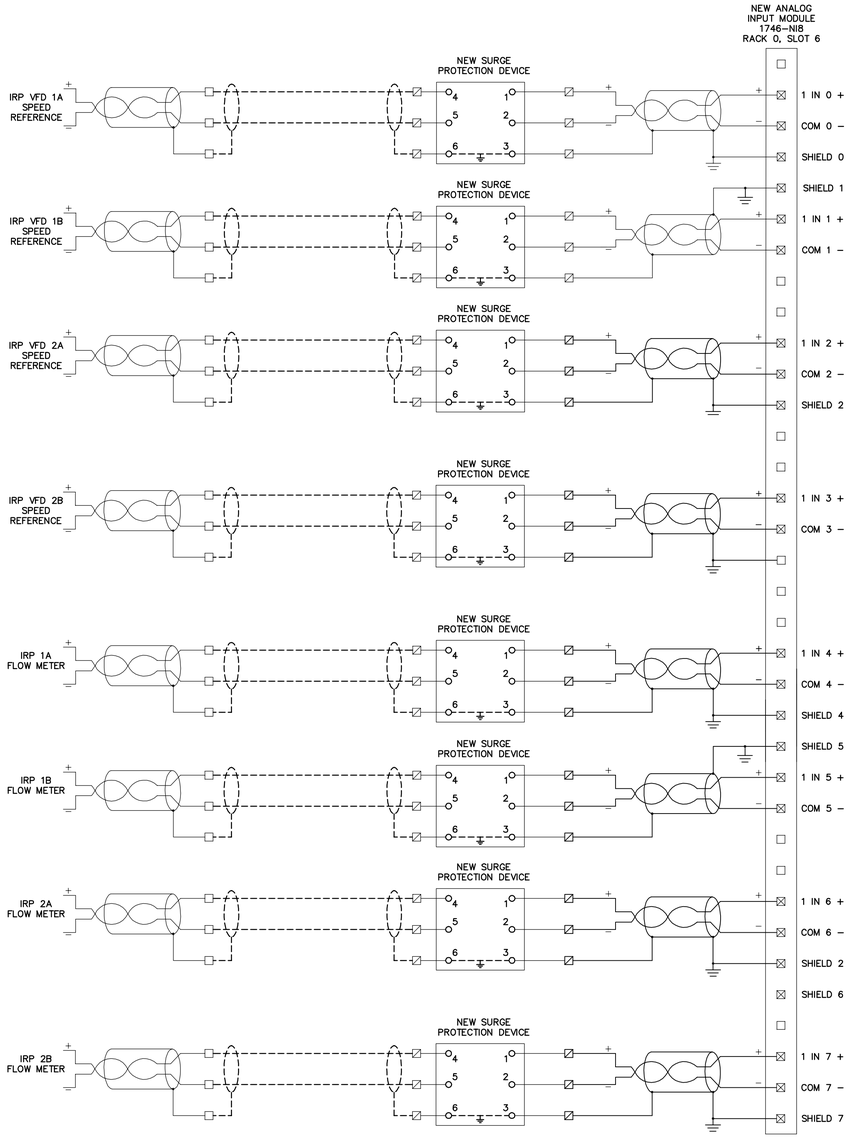
MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

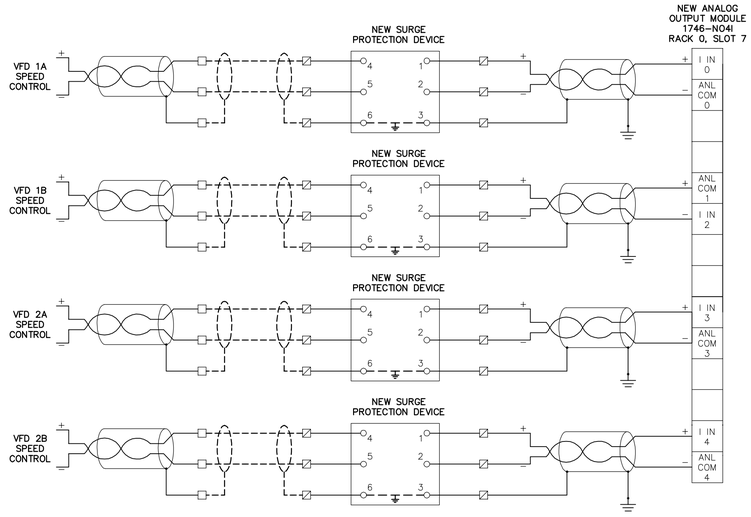
SHEET NUMBER
I-1.5

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .6100 FAX 813 .227 .6195
Certificate of Authorization No. 00003363



NEW ANALOG INPUT MODULE - RACK 0-SLOT 6

PROVIDED AND INSTALLED BY CONTRACTOR



NEW ANALOG OUTPUT MODULE - RACK 0-SLOT 7

PROVIDED AND INSTALLED BY CONTRACTOR

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. CONTRACTOR TO PROVIDE AND INSTALL ANY NEW MATERIALS (TERMINAL BLOCKS, SURGE ARRESTERS, INTERPOSING RELAYS, ETC.) AS REQUIRED TO ACCOMMODATE NEW SCADA PANEL 2 I/O. ALL NEW MATERIALS TO MATCH EXISTING.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 .227 .9195
Certificate of Authorization No. 00003363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

SCADA PANEL 2 MODIFICATIONS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
I-1.6

CONDUIT RUN EXPOSED

CONDUIT RUN CONCEALED UNDERGROUND

CONDUIT RUN CONCEALED IN FLOOR, SLAB OR WALL

GROUNDING ELECTRODE CONDUCTOR

CONDUIT STUB OUT AND CAP

GROUND ROD

JUNCTION BOX

JUNCTION BOX WITH FLEXIBLE CONNECTION

480V
15 KVA, 1*
120/240V

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

3P
30A

THERMAL MAGNETIC CIRCUIT BREAKER WITH NUMBER OF POLES AND AMPERE RATING

XX

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

XXX

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

FUSE

XX

MOTOR

THERMAL OVERLOAD

UTILITY METER

TRANSFER SWITCH

ELECTRIC PANELBOARD

DISCONNECT OR SAFETY SWITCH

FIELD WIRING

FLOAT SWITCH. OPENS ON LOW LEVEL.

FLOAT SWITCH. CLOSES ON LOW LEVEL.

NORMALLY OPEN (N.O.) CONTACT

NORMALLY CLOSED (N.C.) CONTACT

FUSE

GROUND CONNECTION

R

INDICATING PILOT LIGHT LETTER INDICATES COLOR OF LENS

DISCONNECT OR TOGGLE SWITCH

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

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

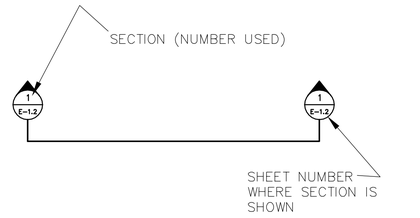
LIMIT SWITCH NORMALLY CLOSED CONTACT CONTACT OPENS WHEN ACTUATED

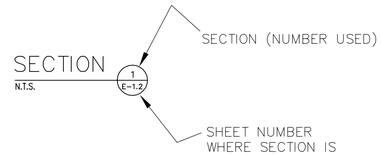
TORQUE SWITCH NORMALLY CLOSED CONTACT CONTACT OPENS WHEN ACTUATED

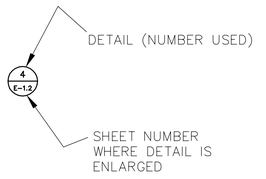
PUMP THERMAL SENSOR

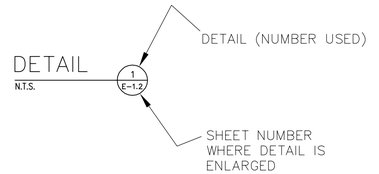
FAN THERMOSTAT

EXAMPLE OF SECTION CUT AND DETAIL









ABBREVIATIONS:

A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
DIA	DIAMETER
EX	EXISTING
ELEC	ELECTRICAL
GFI	GROUND FAULT INTERRUPTER
GND	GROUNDING CONDUCTOR
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
KVA	KILOVOLT AMPERES
KW	KILOWATTS
MAX	MAXIMUM
MIN	MINIMUM
N/A	NOT APPLICABLE
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
RECP	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTU	REMOTE TERMINAL UNIT
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
TYP	TYPICAL
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFMR	TRANSFORMER

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER:
TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER:
47079
DATE:

SCALE: AS NOTED
DESIGNED BY: TDT
DRAWN BY: EAK
CHECKED BY: DEV

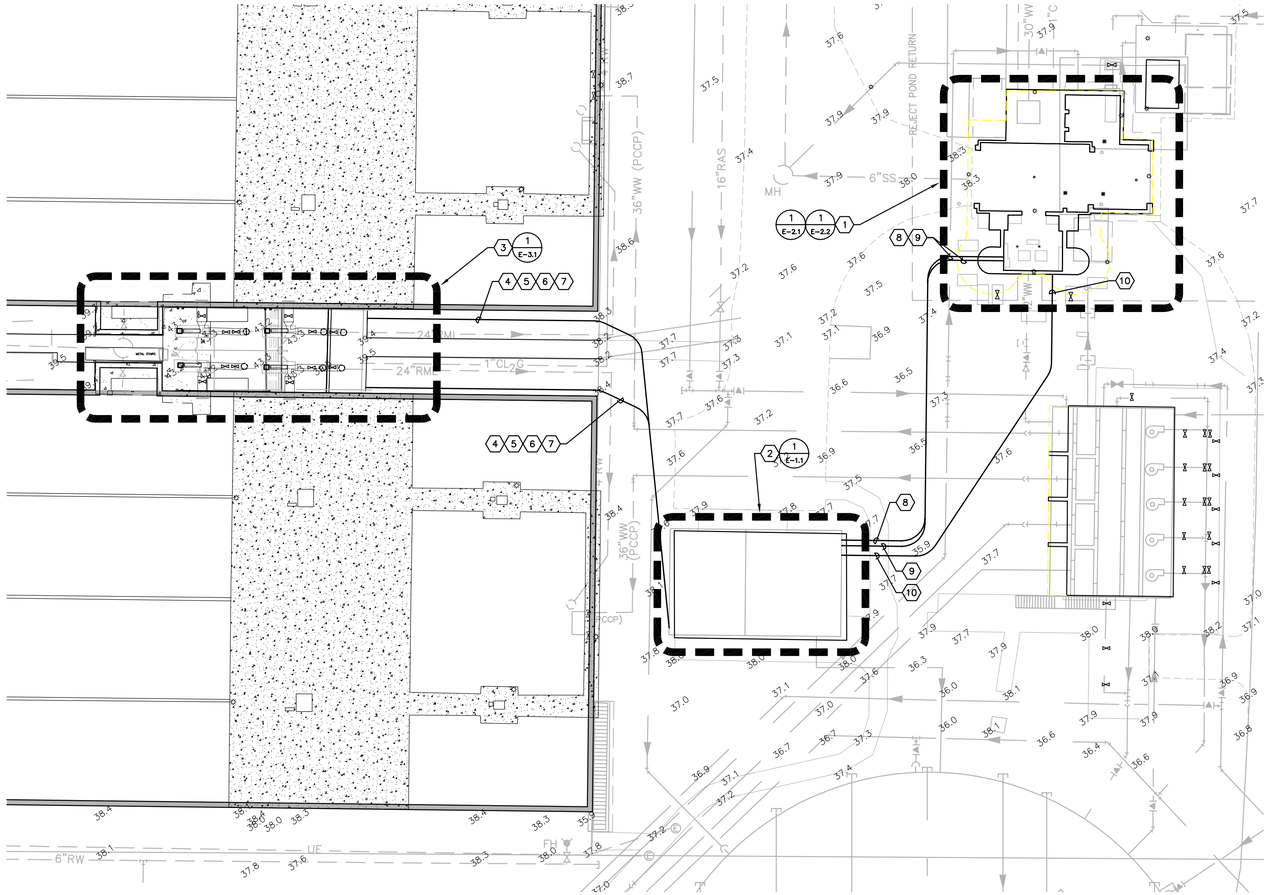
ELECTRICAL LEGEND

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-0.1



NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. CONTRACTOR TO REUSE EXISTING CONDUIT FOR NEW IRP VFD 480V FEEDER CIRCUITS. REFER TO SHEETS E-1.1. REFER ALSO TO SHEET E-3.1 FOR MODIFICATIONS REQUIRED TO EXISTING FEEDER CONDUITS AT PUMP PAD. LOCATION OF EXISTING IRP FEEDER CONDUITS NOT SHOWN. EXACT LOCATIONS ARE UNKNOWN.

KEY NOTES:

(1) EXISTING HEADWORKS. REFER TO PLAN DETAILS ON SHEET E-2.1 (UPPER LEVEL) AND SHEET E-2.2 (LOWER LEVEL) FOR NEW WORK REQUIRED.

(2) EXISTING MCC/BLOWER BUILDING NO. 2. REFER TO PLAN DETAIL ON SHEET E-1.1 FOR NEW WORK REQUIRED.

(3) LOCATION OF EXISTING INTERNAL RECYCLE PUMPS. REFER TO PLAN DETAIL ON SHEET E-3.1 FOR NEW WORK REQUIRED.

(4) CONTRACTOR TO PROVIDE AND INSTALL 15/C-#14 IN NEW 1-1/4" C. FROM EXISTING SCADA PANEL 2 TO NEW IRP VFD (REFER TO SHEET E-3.1 FOR VFD LOCATIONS). 2-#14 LOCAL MODE INDICATION, 2-#14 REMOTE MODE INDICATION, 2-#14 VFD FAULT INDICATION, 2-#14 REMOTE RUN SIGNAL, 2-#14 VFD RUNNING SIGNAL, 4-#14 SPARE, 1-#14 GND. (TYPICAL FOR 2 VFD'S).

(5) CONTRACTOR TO PROVIDE AND INSTALL TWO (2) : 2/C-#16 TWISTED-SHIELDED CABLES (BELDEN 8719) IN NEW 1"C. TO NEW IRP VFD FROM EXISTING SCADA PANEL 2 FOR VFD SPEED CONTROL AND SPEED REFERENCE 4-20mA SIGNALS. (TYPICAL FOR 2 VFD'S).

(6) CONTRACTOR TO PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN NEW 1"C. (4-20mA FLOW METER SIGNAL) FOR IRP FLOW METERS (TYPICAL FOR 2 FLOW METERS).

(7) CONTRACTOR TO PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN NEW 3/4"C. FOR FLOW METER 120V POWER.

(8) REFER TO DUCTBANK SECTION 'A' ON SHEET E-1.6 FOR CONDUIT/CONDUCTORS REQUIRED.

(9) REFER TO DUCTBANK SECTION 'B' ON SHEET E-1.6 FOR CONDUIT/CONDUCTORS REQUIRED.

(10) REFER TO DUCTBANK SECTION 'C' ON SHEET E-1.6 FOR CONDUIT/CONDUCTORS REQUIRED.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	TDT	EAK	DEV

DATE:

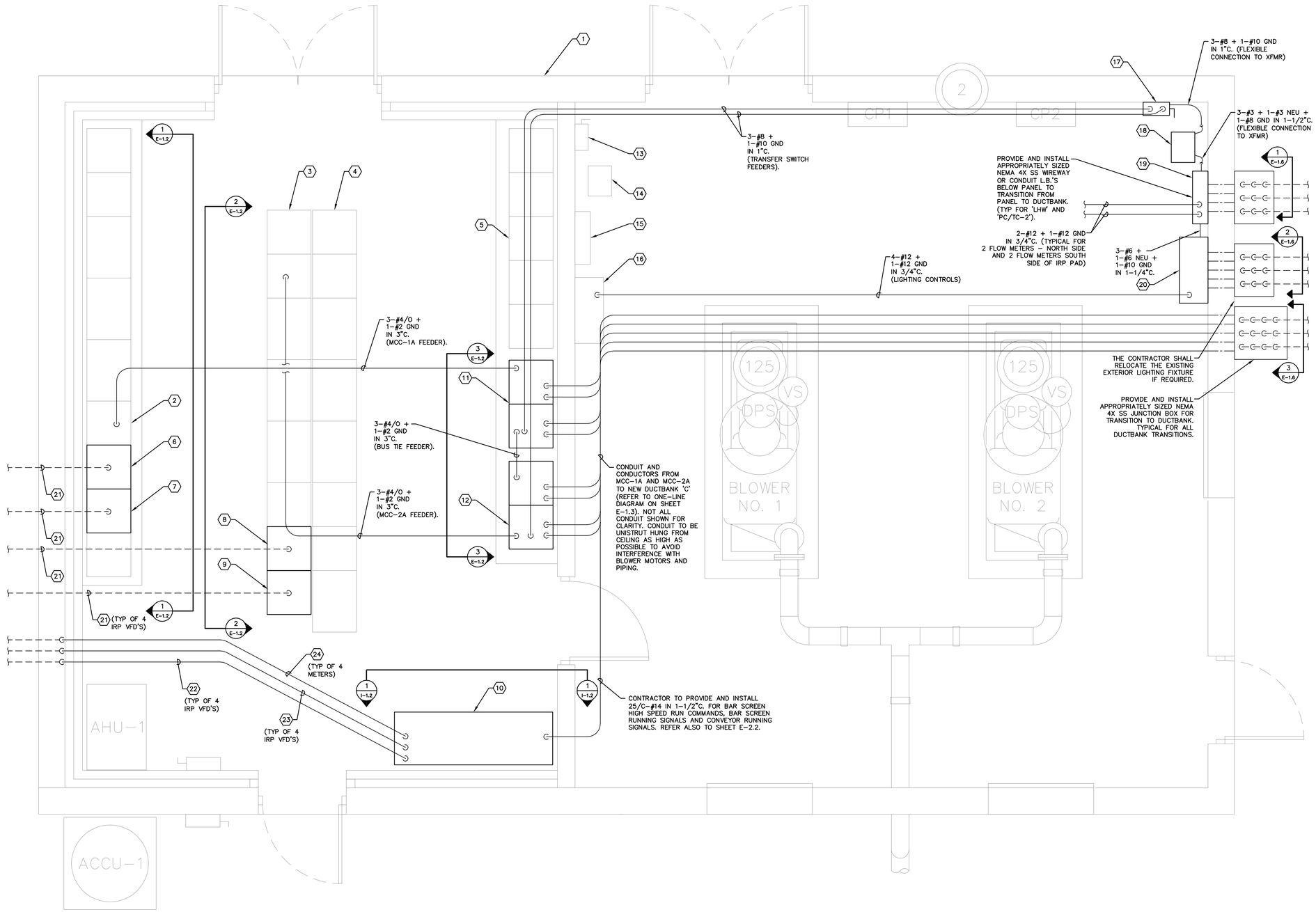
ELECTRICAL SITE PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-0.2



NORTH

GRAPHIC SCALE IN FEET
0 1 2 4

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.

KEY NOTES:

1. EXISTING MCC/BLOWER BUILDING NO. 2. REFER TO SHEET E-1.2 FOR MCC WORK REQUIRED.
2. EXISTING MOTOR CONTROL CENTER (MCC-1). CONTRACTOR TO REFEED NEW MCC-1A. REFER TO SHEET E-1.2.
3. EXISTING MOTOR CONTROL CENTER (MCC-2). CONTRACTOR TO REFEED NEW MCC-2A. REFER TO SHEET E-1.2.
4. EXISTING MOTOR CONTROL CENTER (MCC-3). NO WORK REQUIRED.
5. EXISTING MOTOR CONTROL CENTER (MCC-4). NO WORK REQUIRED.
6. EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMP 1A TO BE MODIFIED TO ACCOMMODATE NEW 50 HP VFD. REFER TO SHEET E-1.2.
7. EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMP 1B TO BE MODIFIED TO ACCOMMODATE NEW 50 HP VFD. REFER TO SHEET E-1.2.
8. EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMP 2A TO BE MODIFIED TO ACCOMMODATE NEW 50 HP VFD. REFER TO SHEET E-1.2.
9. EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMP 2B TO BE MODIFIED TO ACCOMMODATE NEW 50 HP VFD. REFER TO SHEET E-1.2.
10. EXISTING SCADA PANEL 2 (SP-2).
11. CONTRACTOR TO PROVIDE AND INSTALL NEW MOTOR CONTROL CENTER (REPLACEMENT FOR HEADWORKS MCC-1A REMOVED UNDER DEMOLITION).
12. CONTRACTOR TO PROVIDE AND INSTALL NEW MOTOR CONTROL CENTER (REPLACEMENT FOR HEADWORKS MCC-2A REMOVED UNDER DEMOLITION).
13. EXISTING MANUAL TRANSFER SWITCH FOR PANELBOARD 'L2'. NO WORK REQUIRED.
14. EXISTING 480-120/208V, 30 KVA TRANSFORMER FOR PANELBOARD 'L2'. NO WORK REQUIRED.
15. EXISTING 120/208V PANELBOARD 'L2'. NO WORK REQUIRED.
16. EXISTING LIGHTING CONTROL PANEL 'PC/TC-2A'. INSTALL CONTROL CIRCUITS INDICATED.
17. CONTRACTOR TO PROVIDE AND INSTALL NEW 100A, 480V, 3-POLE MANUAL TRANSFER SWITCH IN NEMA 4X SS ENCLOSURE TO REPLACE HEADWORKS TRANSFER SWITCH REMOVED UNDER DEMOLITION.
18. CONTRACTOR TO PROVIDE AND INSTALL NEW 480-120/208V, 30 KVA, 3ø TRANSFORMER (NEMA 4X SS) TO REPLACE HEADWORKS TRANSFORMER REMOVED UNDER DEMOLITION. TRANSFORMER TO PROVIDE 120/20V, 3ø POWER FOR PANEL NEW 'LHW' PANELBOARD. GROUND TRANSFORMER WITH #4 AWG BARE COPPER ELECTRODE CONDUCTOR TO 2 (TWO) 5/8" X 10'-0" COPPER GROUND RODS SPACED A MINIMUM OF 10'-0" APART. PROVIDE EXOTHERMIC CONNECTIONS.
19. CONTRACTOR TO PROVIDE AND INSTALL NEW 100A MCB, 120/208V, 3ø PANELBOARD 'LHW' IN NEMA 4X SS ENCLOSURE TO REPLACE HEADWORKS PANELBOARD 'LHW' REMOVED UNDER DEMOLITION.
20. CONTRACTOR TO PROVIDE AND INSTALL NEW LIGHTING CONTROL PANEL 'PC/TC-2' IN NEMA 4X SS ENCLOSURE TO REPLACE HEADWORKS PANEL 'PC/TC-2' REMOVED UNDER DEMOLITION.
21. CONTRACTOR TO PROVIDE AND INSTALL NEW 3-#2 + 1-#6 GND CONDUCTORS IN EXISTING 2-1/2"C. TYPICAL FOR EACH INTERNAL RECYCLE PUMP (IRP). THE CONTRACTOR SHALL INTERCEPT EXISTING CONDUIT AT THE IRP PUMP PAD (REFER ALSO TO SHEET 3.1). THE CONTRACTOR SHALL INSTALL NEW CONDUCTORS AFTER MANDREL CLEANING OF CONDUIT.
22. CONTRACTOR TO PROVIDE AND INSTALL 15/C-#14 IN NEW 1-1/4" C. FROM EXISTING SCADA PANEL 2 TO NEW IRP VFD (REFER TO SHEET E-3.1 FOR VFD LOCATIONS). 2-#14 LOCAL MODE INDICATION, 2-#14 REMOTE MODE INDICATION, 2-#14 VFD FAULT INDICATION, 2-#14 REMOTE RUN SIGNAL, 2-#14 VFD RUNNING SIGNAL, 4-#14 SPARE, 1-#14 GND. FOR CONTINUATION REFER TO SHEET E-0.2.
23. CONTRACTOR TO PROVIDE AND INSTALL TWO (2) : 2/C-#16 TWISTED-SHIELDED CABLES (BELDEN 8719) IN 1"C. TO NEW IRP VFD FROM EXISTING SCADA PANEL 2 FOR VFD SPEED CONTROL AND SPEED REFERENCE 4-20mA SIGNALS. FOR CONTINUATION REFER TO SHEET E-0.2.
24. PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN 1"C. (4-20mA FLOW METER SIGNAL) FOR IRP FLOW METER (TYPICAL FOR 4 FLOW METERS). FOR CONTINUATION REFER TO SHEET E-0.2.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813.227.9190 FAX 813.227.9195
Certificate of Authorization No. 00008363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	TDT	EAK	DEV

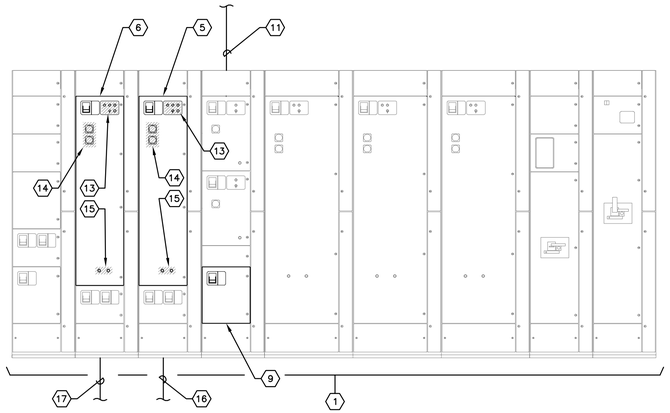
MMC/BLOWER BUILDING NO. 2 FLOOR PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

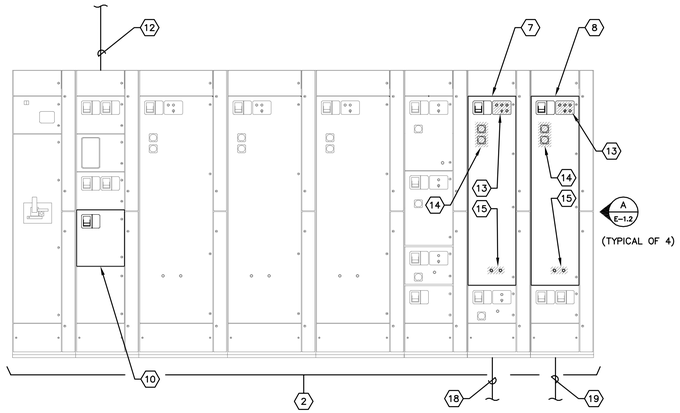
DATE
DECEMBER 2013

PROJECT NO.
148400001

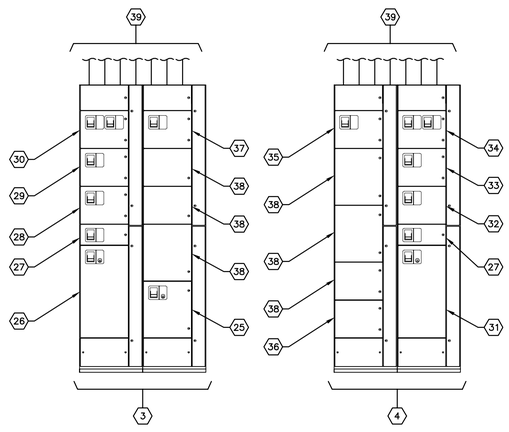
SHEET NUMBER
E-1.1



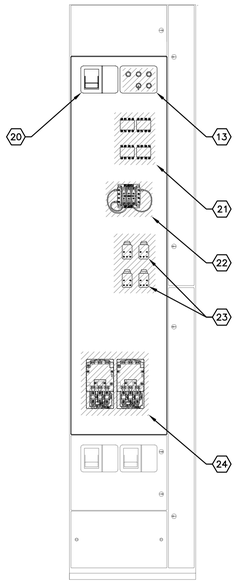
MCC 1 ELEVATION
N.T.S.
1 / E-1.2



MCC 2 ELEVATION
N.T.S.
2 / E-1.2



MCC 1A & MCC 2A ELEVATION
N.T.S.
3 / E-1.2



STARTER MODIFICATION DETAILS
N.T.S.
A / E-1.2

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

1. EXISTING MOTOR CONTROL CENTER : MCC-1.
2. EXISTING MOTOR CONTROL CENTER : MCC-2.
3. NEW MOTOR CONTROL CENTER : MCC-1A. REFER TO ONE-LINE DIAGRAM ON SHEET E-1.4 FOR REQUIREMENTS.
4. NEW MOTOR CONTROL CENTER : MCC-2A. REFER TO ONE-LINE DIAGRAM ON SHEET E-1.4 FOR REQUIREMENTS.
5. EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMP 1A. ACROSS-THE-LINE STARTER TO BE REMOVED. EXISTING CIRCUIT BREAKER TO BE UTILIZED TO FEED NEW 50 HP IRP VFD.
6. EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMP 1B. ACROSS-THE-LINE STARTER TO BE REMOVED. EXISTING CIRCUIT BREAKER TO BE UTILIZED TO FEED NEW 50 HP IRP VFD.
7. EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMP 2A. ACROSS-THE-LINE STARTER TO BE REMOVED. EXISTING CIRCUIT BREAKER TO BE UTILIZED TO FEED NEW 50 HP IRP VFD.
8. EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMP 2B. ACROSS-THE-LINE STARTER TO BE REMOVED. EXISTING CIRCUIT BREAKER TO BE UTILIZED TO FEED NEW 50 HP IRP VFD.
9. EXISTING 480V, 225 AMP, 3-POLE CIRCUIT BREAKER CURRENTLY FEEDING MCC-1A LOCATED IN HEADWORKS BUILDING. MCC-1A TO BE REMOVED. CONTRACTOR TO PROVIDE AND INSTALL 3-4/0 THWN CU + 1-#2 THWN CU GND IN 3"C. TO NEW MCC-1A LOCATED IN MCC/BLOWER BUILDING NO. 2.
10. EXISTING 480V, 225 AMP, 3-POLE CIRCUIT BREAKER CURRENTLY FEEDING MCC-2 LOCATED IN HEADWORKS BUILDING. MCC-2 TO BE REMOVED. CONTRACTOR TO PROVIDE AND INSTALL 3-4/0 THWN CU + 1-#2 THWN CU GND IN 3"C. TO NEW MCC-2A LOCATED IN MCC/BLOWER BUILDING NO. 2.
11. CONTRACTOR TO PROVIDE AND INSTALL 3-4/0 THWN CU + 1-#2 THWN CU GND IN 3"C. TO NEW MCC-1A.
12. CONTRACTOR TO PROVIDE AND INSTALL 3-4/0 THWN CU + 1-#2 THWN CU GND IN 3"C. TO NEW MCC-2A.
13. CONTRACTOR TO REMOVE EXISTING FAST, SLOW AND CHECK VALVE PILOT LIGHTS, HAND-OFF-AUTO SELECTOR SWITCH AND ALARM RESET PUSHBUTTON. CONTRACTOR SHALL INSTALL FACTORY BLANK FILLER FOR CUTLER-HAMMER FREEDOM 2100 UNIT.
14. CONTRACTOR TO REMOVE FAST AND SLOW SPEED ELAPSED RUN TIME METERS. PROVIDE STEEL BLANK FILLER PAINTED TO MATCH EXISTING MCC.
15. CONTRACTOR TO REMOVE FAST AND SLOW SPEED RESET PUSHBUTTONS. PROVIDE STEEL BLANK FILLER PAINTED TO MATCH EXISTING MCC.
16. CONTRACTOR TO PROVIDE AND INSTALL 3-#4 THWN CU + 1-#8 THWN CU GND IN EXISTING CONDUIT TO EXISTING INTERNAL RECYCLE PUMP 1A.
17. CONTRACTOR TO PROVIDE AND INSTALL 3-#4 THWN CU + 1-#8 THWN CU GND IN EXISTING CONDUIT TO EXISTING INTERNAL RECYCLE PUMP 1B.
18. CONTRACTOR TO PROVIDE AND INSTALL 3-#4 THWN CU + 1-#8 THWN CU GND IN EXISTING CONDUIT TO EXISTING INTERNAL RECYCLE PUMP 2A.
19. CONTRACTOR TO PROVIDE AND INSTALL 3-#4 THWN CU + 1-#8 THWN CU GND IN EXISTING CONDUIT TO EXISTING INTERNAL RECYCLE PUMP 2B.
20. EXISTING 100 AMPERE, 480V, 3-POLE CIRCUIT BREAKER AND THROUGH-DOOR HANDLE TO REMAIN.
21. EXISTING CONTROL RELAYS TO BE REMOVED.
22. EXISTING CONTROL POWER TRANSFORMER TO BE REMOVED.
23. EXISTING TIMING RELAYS TO BE REMOVED.
24. EXISTING ACROSS-THE-LINE STARTERS TO BE REMOVED.
25. 225A, 3-POLE, 480V TIE CIRCUIT BREAKER (WITH KIRK-KEY INTERLOCK TO MAIN CIRCUIT BREAKER - NOTE #26) TO MCC-2A.
26. 225A, 3-POLE, 480V MAIN CIRCUIT BREAKER (WITH KIRK-KEY INTERLOCK TO TIE CIRCUIT BREAKER - NOTE #25) FOR MCC-1A.
27. 480V SURGE PROTECTION DEVICE WITH 3-POLE, 30A CIRCUIT BREAKER DISCONNECT.
28. 40A, 3-POLE, 480V CIRCUIT BREAKER FOR BAR SCREEN CONTROL PANEL NO. 1. (CIRCUIT BREAKER REQUIREMENTS TO BE VERIFIED BY BAR SCREEN MANUFACTURER).
29. 100A, 3-POLE, 480V CIRCUIT BREAKER FOR REJECT LAKE (NORTH).
30. 15A, 3-POLE, 480V CIRCUIT BREAKER FOR OVERHEAD DOOR CONTROL PANEL (EAST), AND 50A, 3-POLE, 480V CIRCUIT BREAKER FOR PANEL 'LHW' MANUAL TRANSFER SWITCH.
31. 225A, 3-POLE, 480V MAIN CIRCUIT BREAKER FOR MCC-2A.
32. 40A, 3-POLE, 480V CIRCUIT BREAKER FOR BAR SCREEN CONTROL PANEL NO. 2. (CIRCUIT BREAKER REQUIREMENTS TO BE VERIFIED BY BAR SCREEN MANUFACTURER).
33. 100A, 3-POLE, 480V CIRCUIT BREAKER FOR REJECT LAKE (SOUTH).
34. 15A, 3-POLE, 480V CIRCUIT BREAKER FOR OVERHEAD DOOR CONTROL PANEL (WEST), AND 50A, 3-POLE, 480V CIRCUIT BREAKER FOR PANEL 'LHW' MANUAL TRANSFER SWITCH.
35. 60A, 3-POLE, 480V CIRCUIT BREAKER FOR ODOR CONTROL - CONTROL PANEL. (CIRCUIT BREAKER REQUIREMENTS TO BE FIELD VERIFIED BY CONTRACTOR).
36. MAIN LUG TIES TO MCC-1A.
37. 40A, 3-POLE, 480V CIRCUIT BREAKER FOR GRIT CONTROL PANEL. (CIRCUIT BREAKER REQUIREMENTS TO BE VERIFIED BY GRIT CONTROL PANEL MANUFACTURER).
38. PREPARED SPACE FOR FUTURE.
39. REFER TO ONE-LINE DIAGRAM ON SHEET E-1.4 FOR CONDUIT/CONDUCTORS REQUIRED FROM MCC.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd. STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00003363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

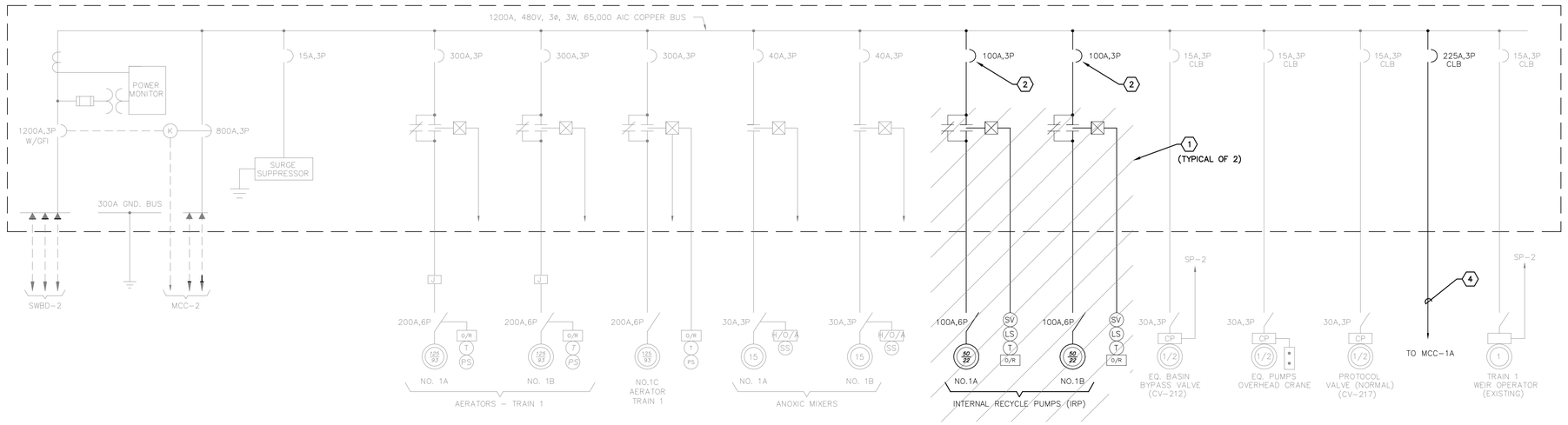
MOTOR CONTROL CENTER ELEVATIONS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

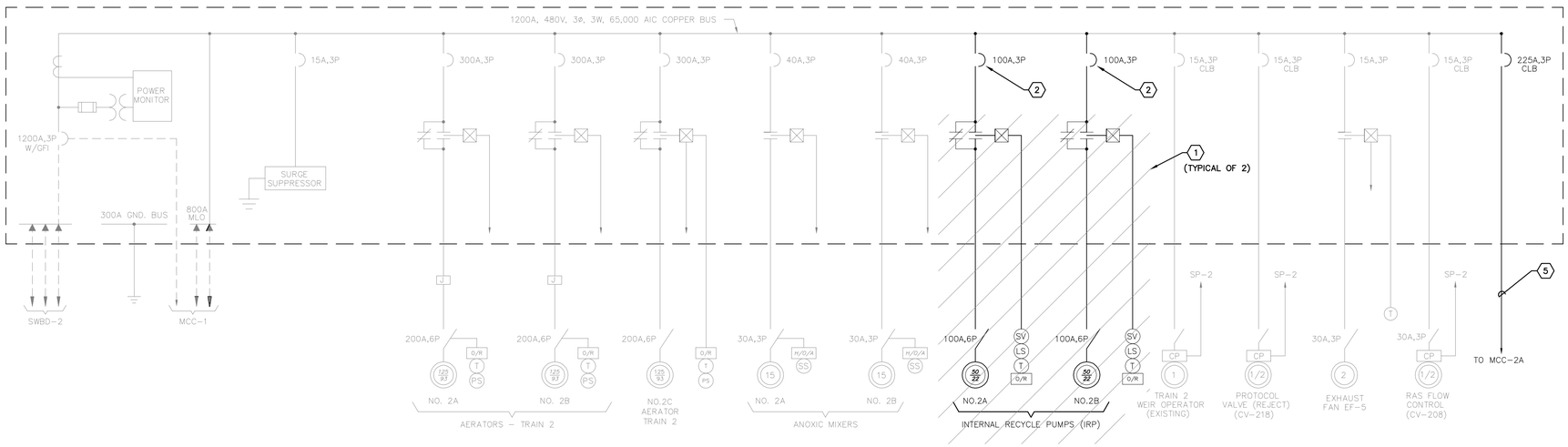
DATE
DECEMBER 2013

PROJECT NO.
148400001

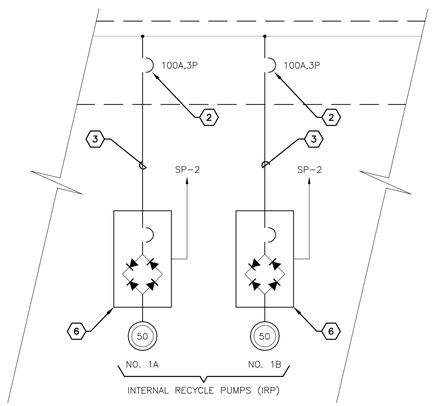
SHEET NUMBER
E-1.2



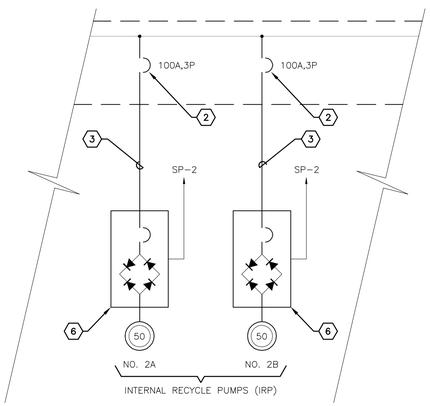
MCC-1 ONE-LINE DIAGRAM



MCC-2 ONE-LINE DIAGRAM



MCC-1 REVISIONS



MCC-2 REVISIONS

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

(1) EXISTING TWO-SPEED ACROSS-THE-LINE STARTER FOR INTERNAL RECYCLE PUMPS. ACROSS-THE-LINE STARTER TO BE REMOVED. EXISTING CIRCUIT BREAKER TO BE UTILIZED TO FEED NEW 50 HP IRP VFD. CONTRACTOR TO REMOVE EXISTING PILOT DEVICES, CONTROL RELAYS, CONTROL POWER TRANSFORMERS, TIMING RELAYS AND ACROSS-THE-LINE STARTERS.

(2) EXISTING 100 AMPERE, 480V, 3-POLE CIRCUIT BREAKER AND THROUGH-DOOR HANDLE TO REMAIN.

(3) CONTRACTOR TO PROVIDE AND INSTALL 3-#4 THWN CU + 1-#8 THWN CU GND IN EXISTING CONDUIT TO NEW IRP VFD. REFER ALSO TO SHEETS E-1.1 AND E-3.1.

(4) CONTRACTOR TO PROVIDE AND INSTALL 3-4/0 THWN CU + 1-#2 THWN CU GND IN 3"C. TO NEW MCC-1A.

(5) CONTRACTOR TO PROVIDE AND INSTALL 3-4/0 THWN CU + 1-#2 THWN CU GND IN 3"C. TO NEW MCC-2A.

(6) CONTRACTOR TO PROVIDE AND INSTALL NEW VFD ADJACENT TO NEW INTERNAL RECYCLE PUMP. REFER ALSO TO SHEET E-3.1.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE: AS NOTED
DESIGNED BY: TDT
DRAWN BY: EAK
CHECKED BY: DEV

MCC 1 & MCC 2 ONE-LINE DIAGRAMS

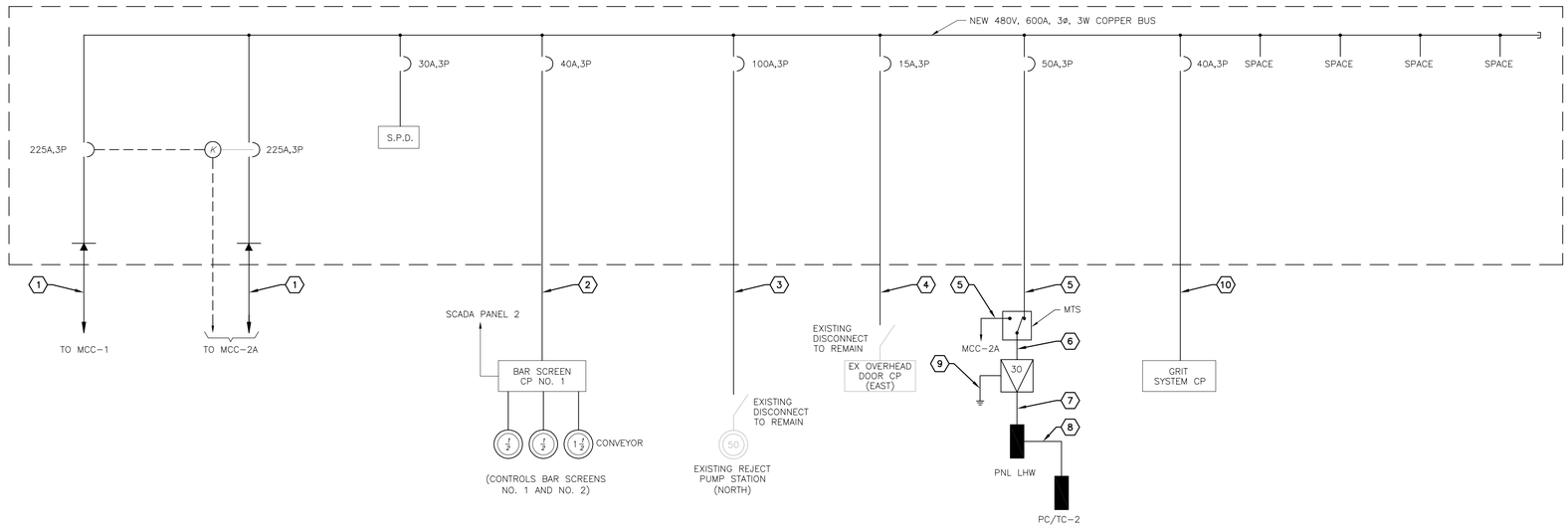
MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

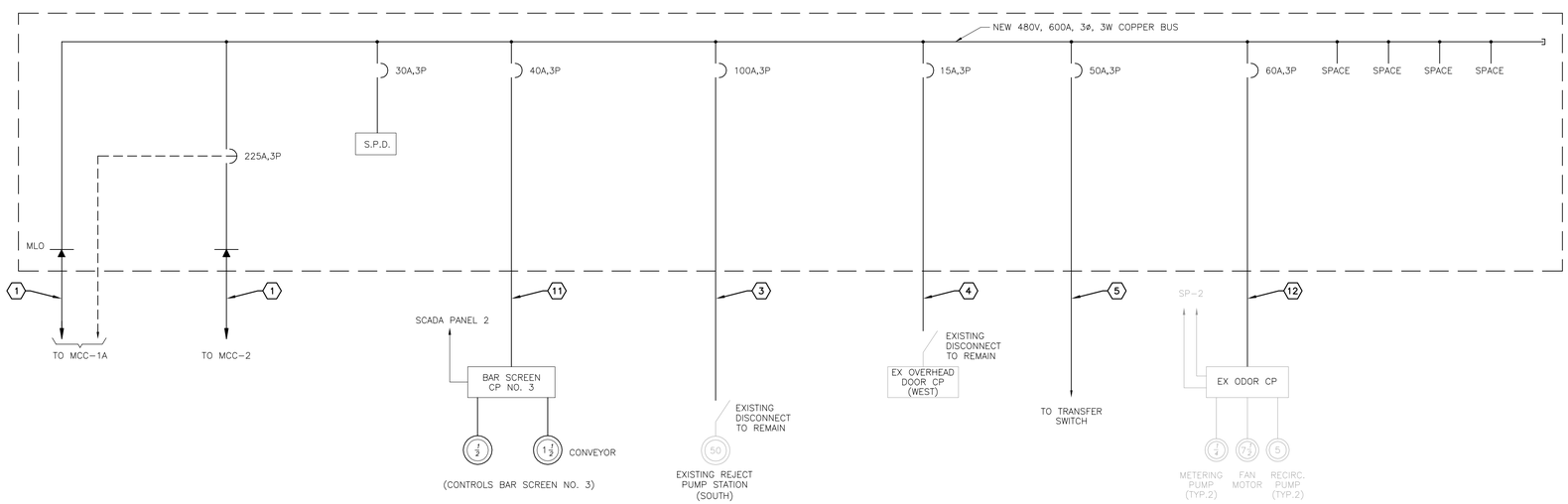
DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-1.3



MCC-1A ONE-LINE DIAGRAM



MCC-2A ONE-LINE DIAGRAM

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CIRCUIT BREAKER SIZES IN EXISTING MCC-1A AND MCC-2A (BOTH TO BE DEMOLISHED). NEW CIRCUIT BREAKER SIZES SHALL MATCH EXISTING.
6. REFER TO SHEET E-1.10 FOR 'LHW' AND 'PC/TC-2' PANEL SCHEDULES.

KEY NOTES:

(1) CONTRACTOR TO PROVIDE AND INSTALL 3-#4/0 + 1-#2 GND IN 3"C.

(2) CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 1"C. TO BAR SCREEN CONTROL PANEL NO. 1. CONTRACTOR SHALL VERIFY CONDUCTOR REQUIREMENTS WITH BAR SCREEN CONTROL PANEL MANUFACTURER.

(3) CONTRACTOR TO PROVIDE AND INSTALL 3-#2 + 1-#4 GND IN 1-1/2"C. CONTRACTOR SHALL INSTALL NEW CONDUCTORS FROM NEW CIRCUIT BREAKER TO EXISTING DISCONNECT.

(4) CONTRACTOR TO PROVIDE AND INSTALL 3-#10 + 1-#10 GND IN 3/4"C. CONTRACTOR SHALL INSTALL NEW CONDUCTORS FROM NEW CIRCUIT BREAKER TO EXISTING DISCONNECT.

(5) CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 3/4"C.

(6) CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 3/4"C. (WITH FLEXIBLE CONNECTION TO TRANSFORMER).

(7) CONTRACTOR TO PROVIDE AND INSTALL 3-#3 + 1-#3 NEU + 1-#8 GND IN 1-1/2"C. (WITH FLEXIBLE CONNECTION TO TRANSFORMER)

(8) CONTRACTOR TO PROVIDE AND INSTALL 3-#6 + 1-#6 NEU + 1-#10 GND IN 1-1/4"C.

(9) CONTRACTOR SHALL GROUND TRANSFORMER WITH #4 AWG BARE COPPER ELECTRODE CONDUCTOR TO 2 (TWO) 3/4" X 10'-0" COPPER-CLAD GROUND RODS SPACED A MINIMUM OF 10'-0" APART. PROVIDE EXOTHERMIC CONNECTIONS.

(10) CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 1"C. TO GRIT SYSTEM CONTROL PANEL. CONTRACTOR SHALL VERIFY CONDUCTOR REQUIREMENTS WITH GRIT SYSTEM CONTROL PANEL MANUFACTURER.

(11) CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 1"C. TO BAR SCREEN CONTROL PANEL NO. 2. CONTRACTOR SHALL VERIFY CONDUCTOR REQUIREMENTS WITH BAR SCREEN CONTROL PANEL MANUFACTURER.

(12) CONTRACTOR TO PROVIDE AND INSTALL 3-#6 + 1-#8 GND IN 1-1/2"C. CONTRACTOR SHALL INSTALL NEW CONDUCTORS FROM CIRCUIT BREAKER TO ODOR CONTROL PANEL. CONTRACTOR SHALL FIELD VERIFY EXISTING CIRCUIT REQUIREMENTS. CONTRACTOR SHALL FIELD LOCATE EXISTING ODOR CONTROL PANEL FEEDER CONDUIT AND INTERCEPT AT THE MOST CONVENIENT LOCATION. REFER ALSO TO SHEET 2.2.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813.227.9190 FAX 813.227.9195
Certificate of Authorization No. 00006363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	TDT	EAK	DEV

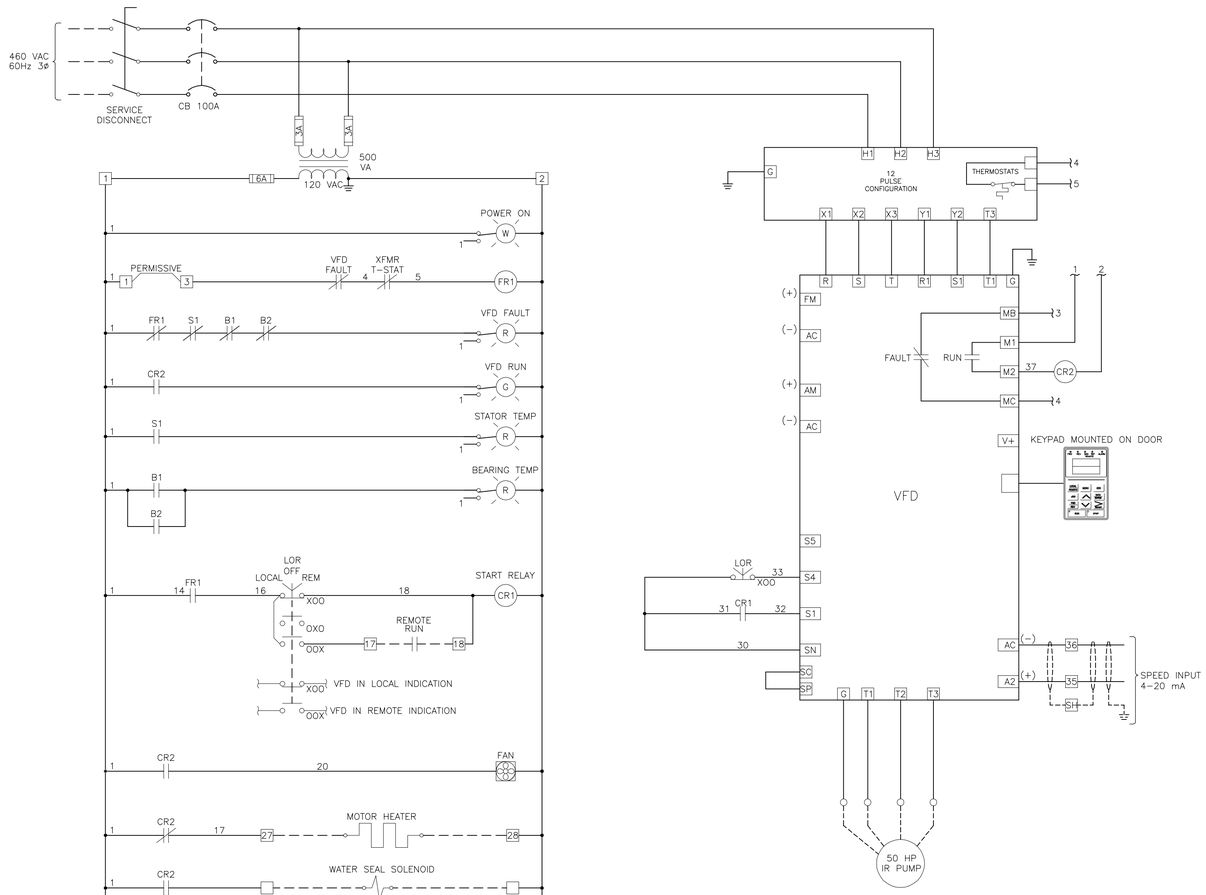
MCC 1A AND MCC 2A ONE-LINE DIAGRAMS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

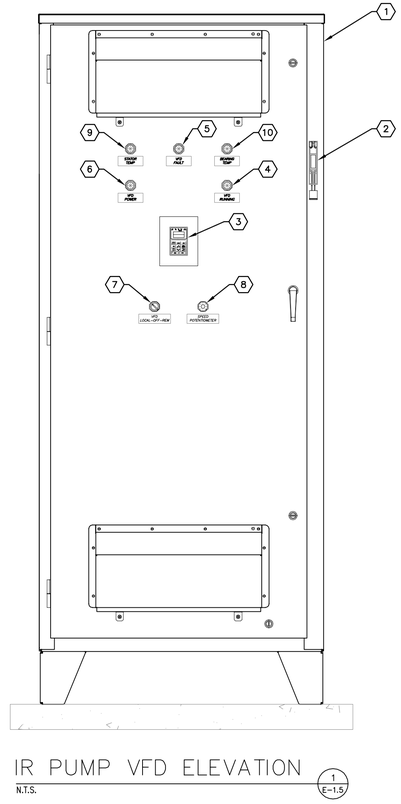
PROJECT NO.
148400001

SHEET NUMBER
E-1.4



VFD WIRING SCHEMATIC

TYPICAL FOR 4 INTERNAL RECYCLE PUMPS



IR PUMP VFD ELEVATION

N.T.S.

1 / E-1.5

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

1. CONTRACTOR TO PROVIDE AND INSTALL NEW VFD IN NEMA 3R STAINLESS STEEL ENCLOSURE, PAINTED WHITE. TYPICAL FOR 4 (FOUR) INTERNAL RECYCLE PUMPS. REFER ALSO TO SPECIFICATIONS.
2. 480V POWER DISCONNECTING MEANS.
3. DOOR MOUNTED KEYPAD.
4. VFD RUNNING PILOT LIGHT.
5. VFD FAULT PILOT LIGHT.
6. VFD POWER ON PILOT LIGHT.
7. LOCAL-OFF-REMOTE SELECTOR SWITCH.
8. SPEED CONTROL POTENTIOMETER.
9. STATOR HIGH TEMP PILOT LIGHT.
10. BEARING HIGH TEMP PILOT LIGHT.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008383

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

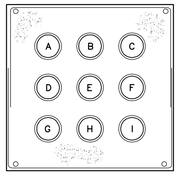
VFD CONTROL WIRING SCHEMATIC

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-1.5



DUCTBANK SECTION 'A'

N.T.S.

(1) E-1.6

DUCTBANK 'A' SCHEDULE:

A. 3/4"C. WITH 3-#12 + 1-#12 NEU + 1-#12 GND : CIRCUITS LHW-7, LHW-9 AND LHW-11.

B. 3/4"C. WITH 3-#12 + 1-#12 NEU + 1-#12 GND : CIRCUITS LHW-13, LHW-15 AND LHW-17.

C. 3/4"C. WITH 2-#12 + 1-#12 NEU + 1-#12 GND : CIRCUITS LHW-19 AND LHW-14.

D. 3/4"C. WITH 3-#12 + 1-#12 NEU + 1-#12 GND : CIRCUITS LHW-2, LHW-4 AND LHW-6.

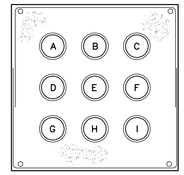
E. 3/4"C. WITH 3-#12 + 1-#12 NEU + 1-#12 GND : CIRCUITS LHW-8, LHW-10 AND LHW-12.

F. 3/4"C. SPARE.

G. 3/4"C. SPARE.

H. 3/4"C. SPARE.

I. 3/4"C. SPARE.



DUCTBANK SECTION 'B'

N.T.S.

(2) E-1.6

DUCTBANK 'A' SCHEDULE:

A. 3/4"C. WITH 3-#12 + 1-#12 NEU + 1-#12 GND : CIRCUITS PC/TC-9, PC/TC-11 AND PC/TC-13.

B. 3/4"C. WITH 3-#12 + 1-#12 NEU + 1-#12 GND : CIRCUITS PC/TC-15, PC/TC-17 AND PC/TC-19.

C. 3/4"C. WITH 3-#12 + 1-#12 NEU + 1-#12 GND : CIRCUITS PC/TC-8, PC/TC-10 AND PC/TC-12

D. 3/4"C. WITH 1-#12 + 1-#12 NEU + 1-#12 GND : CIRCUIT PC/TC-14.

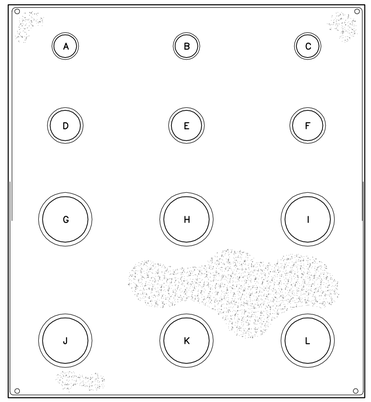
E. 3/4"C. SPARE.

F. 3/4"C. SPARE.

G. 3/4"C. SPARE.

H. 3/4"C. SPARE.

I. 3/4"C. SPARE.



DUCTBANK SECTION 'C'

N.T.S.

(3) E-1.6

DUCTBANK 'A' SCHEDULE:

A. 3/4"C. WITH 3-#10 + 1-#10 GND : OVERHEAD DOOR CONTROL PANEL (EAST).

B. 3/4"C. WITH 3-#10 + 1-#10 GND : OVERHEAD DOOR CONTROL PANEL (WEST).

C. 3/4"C. SPARE.

D. 1"C. WITH 3-#8 + 1-#10 GND : BAR SCREEN CONTROL PANEL NO. 1.

E. 1"C. WITH 3-#8 + 1-#10 GND : GRIT SYSTEM CONTROL PANEL.

F. 1"C. WITH 3-#8 + 1-#10 GND : BAR SCREEN CONTROL PANEL NO. 2.

G. 1-1/2"C. WITH 3-#2 + 1-#4 GND : EX REJECT PUMP STATION (NORTH).

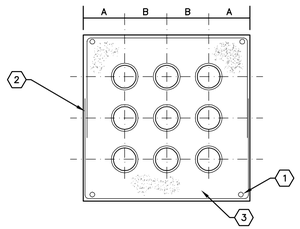
H. 1-1/2"C. WITH 3-#2 + 1-#4 GND : EX REJECT PUMP STATION (SOUTH).

I. 1-1/2"C. WITH 3-#6 + 1-#8 GND : EX ODOR CONTROL UNIT.

J. 1-1/2"C. SPARE.

K. 1-1/2"C. SPARE.

L. 1-1/2"C. WITH 25/C-#12 : BAR SCREEN #1, #2 & #3 HIGH SPEED RUN COMMANDS (6-#14), BAR SCREEN #1, #2 & #3 RUNNING INDICATION (6-#14), CONVEYOR #1 & #2 RUNNING INDICATION (4-#14), 1-#14 GND AND 8 SPARES.



DUCTBANK DETAILS

N.T.S.

DUCTBANK CONDUIT SPACING DIMENSION SCHEDULE				
COND SIZE	DIM 'A'	DIMENSION "B"		
		3/4"	1"	1-1/2"
3/4"	3-5/8"	3-1/8"	3-1/4"	3-1/2"
1"	3-3/4"	3-1/4"	3-3/8"	3-5/8"
1-1/2"	4"	3-1/2"	3-5/8"	4"

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

(1) #4 REBARS (TYPICAL).

(2) #4 HOOP AT 24" O.C..

(3) CONCRETE ENCASEMENT.

DUCTBANK NOTES:

1. DUCTBANK SHALL BE INSTALLED AT A MINIMUM OF 24" BELOW FINISHED GRADE.
2. CONCRETE SHALL BE 3000 PSI MINIMUM COMPRESSION STRENGTH.
3. ALL SPARE CONDUITS SHALL INCLUDE A PULL WIRE AND SHALL BE CAPPED.
4. DUCTBANKS MAY BE REARRANGED FOR CONVENIENCE OF EGRESS.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813.227.9190 FAX 813.227.9195
Certificate of Authorization No. 00008363

No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

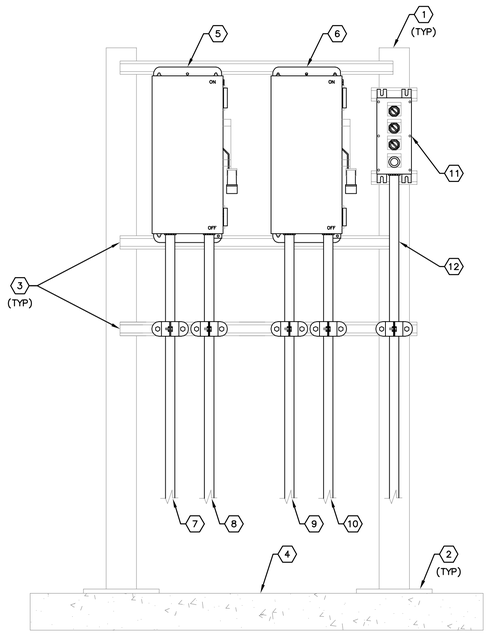
VFD CONTROL WIRING SCHEMATIC

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

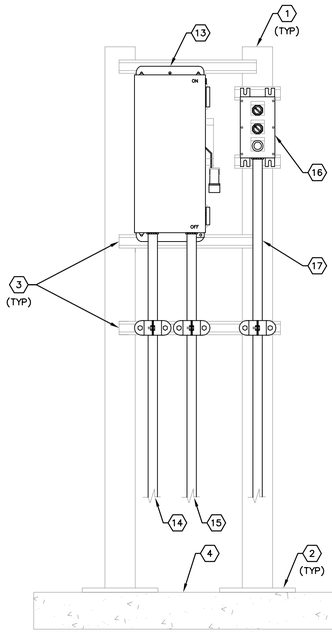
SHEET NUMBER
E-1.6



GRIT PUMP EQUIPMENT

N.T.S.

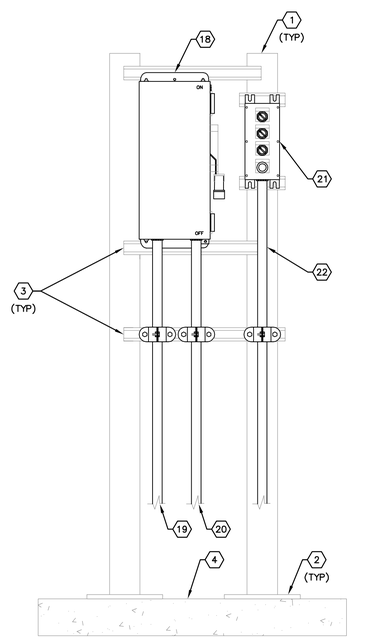
1 E-1.7



CLASSIFIER EQUIPMENT

N.T.S.

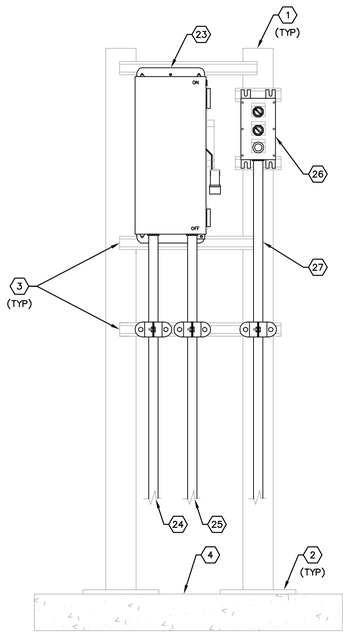
2 E-1.7



BAR SCREEN EQUIPMENT

N.T.S.

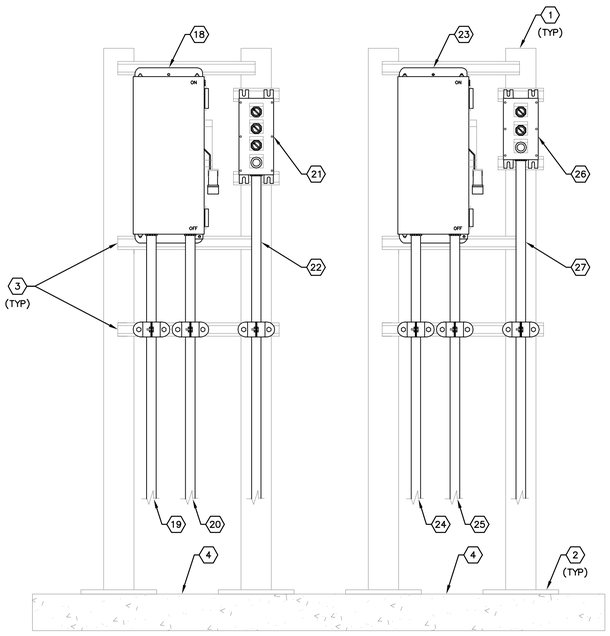
3 E-1.7



CONVEYOR EQUIPMENT

N.T.S.

4 E-1.7



BAR SCREEN–CONVEYOR

N.T.S.

5 E-1.7

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.

KEY NOTES:

(1) PROVIDE AND INSTALL 4" SQUARE ALUMINUM POST. WELD 1/4" TOP TO EACH POST. PROVIDE FULL FILLET WELD TO BASE PLATE (REFER TO NOTE #2).

(2) PROVIDE AND INSTALL 10" X 10" X 3/4" ALUMINUM BASE PLATE. SECURE EACH BASE PLATE TO CONCRETE W/(4) STAINLESS STEEL 1/2" DIA. X 4" BOLTS & STAINLESS STEEL HEX NUTS WITH LOCKWASHER. DRILL CONCRETE & EMBED BOLTS AND ANCHORS IN EPOXY. COAT BOTTOM OF BASE PLATE W/ ASPHALT PAINT.

(3) PROVIDE AND INSTALL 1-5/8" X 1-5/8" 316 STAINLESS STEEL UNISTRUT. ALL MOUNTING HARDWARE SHALL BE 3164 STAINLESS STEEL. UNISTRUT BOLTS SHALL BE INSTALLED THROUGH POST.

(4) TOP OF HEADWORKS SLAB.

(5) PROVIDE AND INSTALL 30A, 600V, 3-POLE NON-FUSED DISCONNECT IN NEMA 4X SS ENCLOSURE FOR GRIT PUMP MOTOR DISCONNECTING MEANS. DISCONNECT SHALL BE PROVIDED WITH INTERLOCKED AUXILIARY CONTACT FOR GRIT SYSTEM MANUFACTURER'S STOP CIRCUIT. COORDINATE AUXILIARY CONTACT RATING REQUIREMENTS WITH GRIT SYSTEM MANUFACTURER.

(6) PROVIDE AND INSTALL 30A, 600V, 3-POLE NON-FUSED DISCONNECT IN NEMA 4X SS ENCLOSURE FOR GRIT DRIVE DISCONNECTING MEANS. DISCONNECT SHALL BE PROVIDED WITH INTERLOCKED AUXILIARY CONTACT FOR GRIT SYSTEM MANUFACTURER'S STOP CIRCUIT. COORDINATE AUXILIARY CONTACT RATING REQUIREMENTS WITH GRIT SYSTEM MANUFACTURER.

(7) PROVIDE AND INSTALL 5-#12 (3-#12 480V POWER, 2-#12 STOP CIRCUIT) + 1-#12 GND IN 3/4"C. TO GRIT SYSTEM CONTROL PANEL FOR GRIT PUMP 480V POWER.

(8) PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4"C. TO GRIT PUMP. PROVIDE FLEXIBLE SEAL-TITE CONNECTION TO GRIT PUMP MOTOR.

(9) PROVIDE AND INSTALL 5-#12 (3-#12 480V POWER, 2-#12 STOP CIRCUIT) + 1-#12 GND IN 3/4"C. TO GRIT SYSTEM CONTROL PANEL FOR GRIT DRIVE MOTOR 480V POWER.

(10) PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4"C. TO GRIT DRIVE. PROVIDE FLEXIBLE SEAL-TITE CONNECTION TO GRIT DRIVE MOTOR.

(11) GRIT PUMP LOCAL PB STATION. SUPPLIED BY MANUFACTURER, INSTALLED BY CONTRACTOR.

(12) PROVIDE AND INSTALL 11-#12 + 1-#12 GND IN 3/4"C. FROM PB STATION TO GRIT SYSTEM CONTROL PANEL. CONTRACTOR TO VERIFY CONDUCTOR QUANTITIES WITH GRIT SYSTEM MANUFACTURER.

(13) PROVIDE AND INSTALL 30A, 600V, 3-POLE NON-FUSED DISCONNECT IN NEMA 4X SS ENCLOSURE FOR CLASSIFIER DRIVE MOTOR DISCONNECTING MEANS. DISCONNECT SHALL BE PROVIDED WITH INTERLOCKED AUXILIARY CONTACT FOR GRIT SYSTEM MANUFACTURER'S STOP CIRCUIT. COORDINATE AUXILIARY CONTACT RATING REQUIREMENTS WITH GRIT SYSTEM MANUFACTURER.

(14) PROVIDE AND INSTALL 5-#12 (3-#12 480V POWER, 2-#12 STOP CIRCUIT) + 1-#12 GND IN 3/4"C. TO GRIT SYSTEM CONTROL PANEL FOR CLASSIFIER DRIVE MOTOR 480V POWER.

(15) PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4"C. TO CLASSIFIER DRIVE MOTOR. PROVIDE FLEXIBLE SEAL-TITE CONNECTION TO MOTOR.

(16) CLASSIFIER LOCAL PB STATION. SUPPLIED BY MANUFACTURER, INSTALLED BY CONTRACTOR.

(17) PROVIDE AND INSTALL 10-#12 + 1-#12 GND IN 3/4"C. FROM PB STATION TO GRIT SYSTEM CONTROL PANEL. CONTRACTOR TO VERIFY CONDUCTOR QUANTITIES WITH GRIT SYSTEM MANUFACTURER.

(18) PROVIDE AND INSTALL 30A, 600V, 3-POLE NON-FUSED DISCONNECT IN NEMA 4X SS ENCLOSURE FOR BAR SCREEN DRIVE DISCONNECTING MEANS. DISCONNECT SHALL BE PROVIDED WITH INTERLOCKED AUXILIARY CONTACT FOR MANUFACTURER'S RAKE OVERTEMP CIRCUIT. COORDINATE AUXILIARY CONTACT RATING REQUIREMENTS WITH BAR SCREEN SYSTEM MANUFACTURER.

(19) PROVIDE AND INSTALL VFD RATED MOTOR CABLE, BELDEN 29502 + 2-#12 (OVERTEMP CIRCUIT) IN 1"C. TO BAR SCREEN CONTROL PANEL FOR DRIVE MOTOR 480V POWER.

(20) PROVIDE AND INSTALL VFD RATED MOTOR CABLE, BELDEN 29502 + 2-#12 (OVERTEMP CIRCUIT) IN 1"C. TO RAKE MOTOR. PROVIDE FLEXIBLE SEAL-TITE CONNECTION TO MOTOR.

(21) BAR SCREEN LOCAL PB STATION. SUPPLIED BY MANUFACTURER, INSTALLED BY CONTRACTOR.

(22) PROVIDE AND INSTALL 8-#14 + 1-#14 GND IN 3/4"C. FROM PB STATION TO BAR SCREEN CONTROL PANEL. CONTRACTOR TO VERIFY CONDUCTOR QUANTITIES WITH BAR SCREEN MANUFACTURER.

(23) PROVIDE AND INSTALL 30A, 600V, 3-POLE NON-FUSED DISCONNECT IN NEMA 4X SS ENCLOSURE FOR CONVEYOR MOTOR DISCONNECTING MEANS.

(24) PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4"C. TO BAR SCREEN CONTROL PANEL FOR CONVEYOR MOTOR 480V POWER.

(25) PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4"C. TO CONVEYOR MOTOR. PROVIDE FLEXIBLE SEAL-TITE CONNECTION TO MOTOR.

(26) CONVEYOR LOCAL PB STATION. SUPPLIED BY MANUFACTURER, INSTALLED BY CONTRACTOR.

(27) PROVIDE AND INSTALL 6-#14 + 1-#14 GND IN 3/4"C. FROM CONVEYOR PB STATION TO BAR SCREEN CONTROL PANEL. CONTRACTOR TO VERIFY CONDUCTOR QUANTITIES WITH BAR SCREEN MANUFACTURER.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	TDT	EAK	DEV

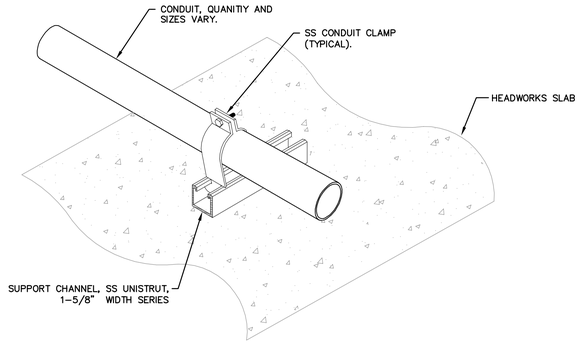
HEADWORKS EQUIPMENT DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

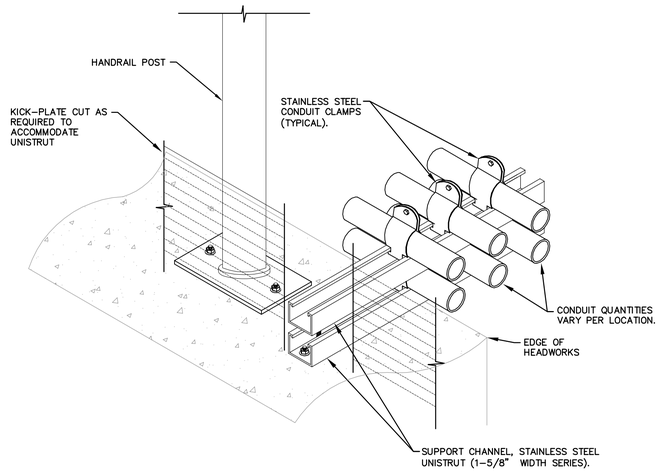
DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-1.7

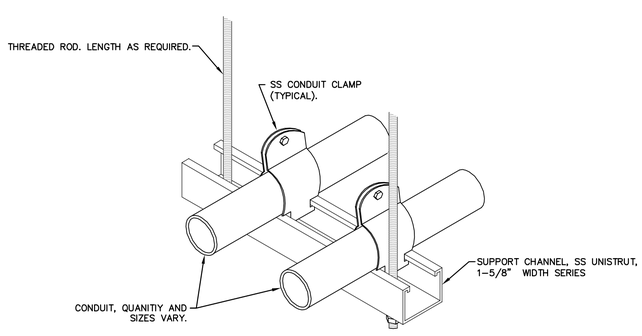


CONDUIT ON HEADWORKS SLAB DETAIL
N.T.S.

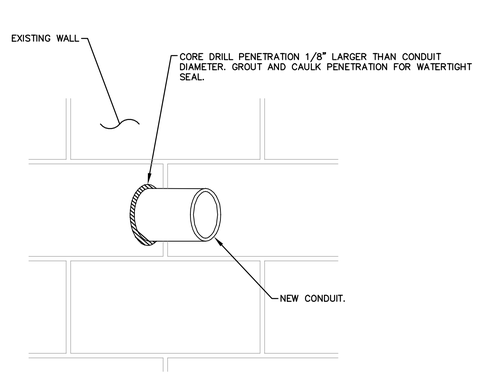


CONDUIT CANTILEVER SUPPORT DETAIL
N.T.S.

NOTE : PROVIDE CONDUIT SUPPORTS EVERY 4'-0" MINIMUM.



TYPICAL TRAPEZE SUPPORT DETAIL
N.T.S.



TYPICAL WALL PENETRATION DETAIL
N.T.S.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 970, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

No.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

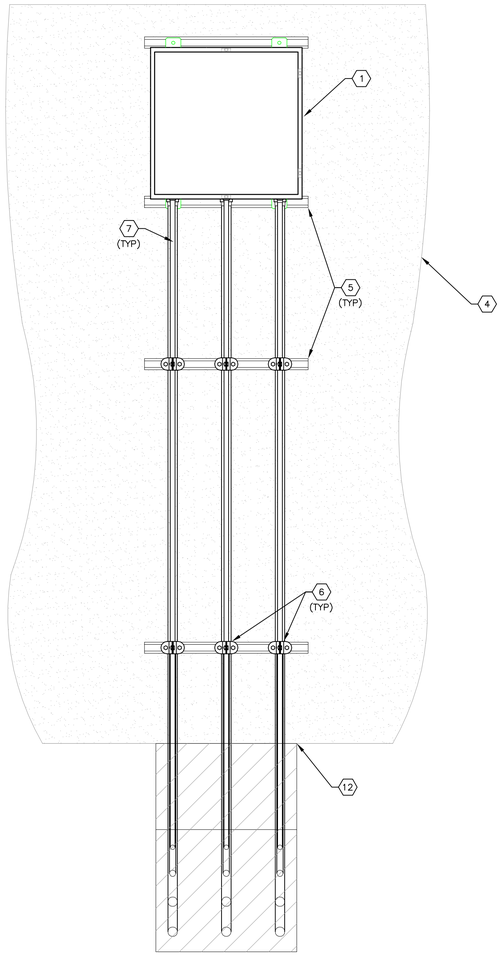
ELECTRICAL DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

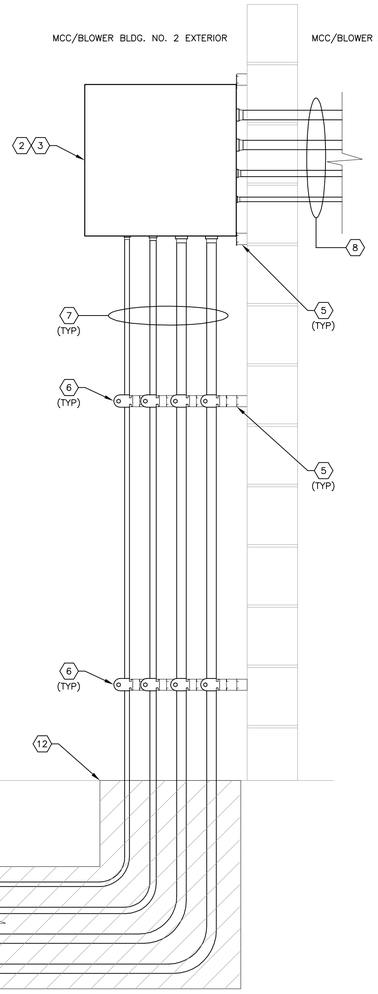
DATE
DECEMBER 2013

PROJECT NO.
148400001

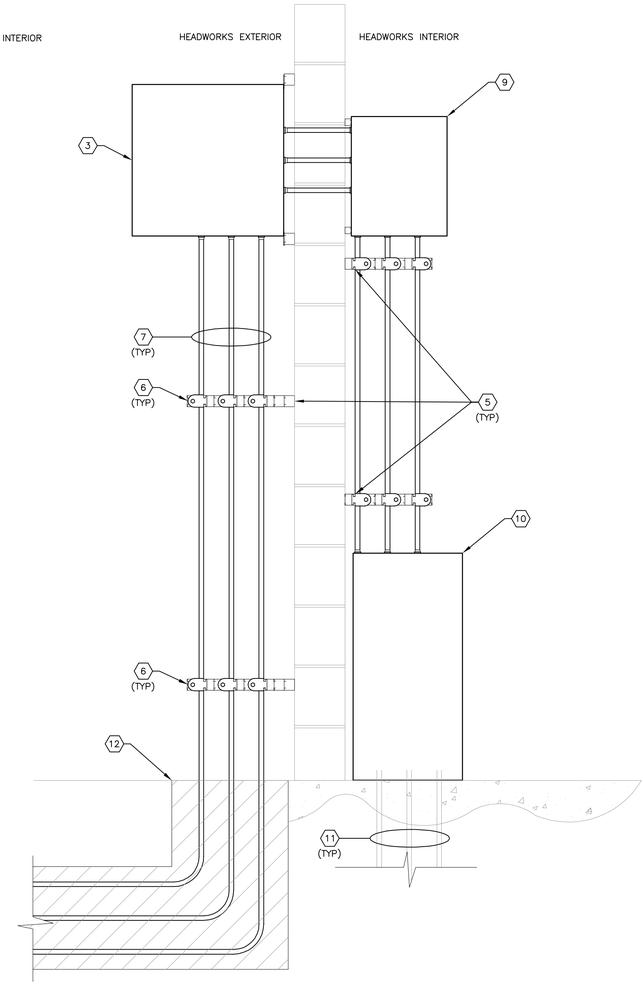
SHEET NUMBER
E-1.8



TYPICAL WALL TRANSITION DETAIL
N.T.S.



MCC/BLOWER BLDG. NO. 2/ HW TRANSITION DETAIL
N.T.S.



HEADWORKS TRANSITION DETAIL
N.T.S.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. CONTRACTOR SHALL PROVIDE MYERS HUBS FOR ALL EXTERIOR CONDUIT.
6. CONTRACTOR SHALL ADJUST CONDUIT/DUCTBANK AS REQUIRED TO ACCOMMODATE BUILDING FOOTERS.

KEY NOTES:

(1) CONTRACTOR TO PROVIDE AND INSTALL NEW 24" X 24" X 24" NEMA 4X STAINLESS STEEL JUNCTION BOX. TYPICAL FOR BOTH MCC/BLOWER BLDG. NO. 2 AND HEADWORKS INSTALLATIONS.

(2) CONTRACTOR TO PROVIDE AND INSTALL NEW 24" X 24" X 24" NEMA 4X STAINLESS STEEL JUNCTION BOX. COORDINATE JUNCTION BOX HEIGHT AT MCC/BLOWER BLDG. NO. 2 WITH ASSOCIATED CONDUITS TO BE INSTALLED.

(3) CONTRACTOR TO PROVIDE AND INSTALL NEW 24" X 24" X 24" NEMA 4X STAINLESS STEEL JUNCTION BOX. COORDINATE JUNCTION BOX HEIGHT AT HEADWORKS WITH ASSOCIATED CONDUITS TO BE INSTALLED.

(4) EXTERIOR OF MCC/BLOWER BLDG. NO. 2 OR HEADWORKS AS APPLICABLE.

(5) CONTRACTOR TO PROVIDE AND INSTALL 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT FOR CONDUIT AND JUNCTION BOX SUPPORT. CONTRACTOR TO PIGGY-BACK UNISTRUT AS REQUIRED TO ALLOW FOR CONDUIT OFFSETS.

(6) CONTRACTOR TO PROVIDE AND INSTALL STAINLESS STEEL CONDUIT CLAMPS. ALL HARDWARE TO BE STAINLESS STEEL.

(7) CONTRACTOR TO PROVIDE AND INSTALL CONDUITS AS REQUIRED. CONDUIT/CONDUCTORS VARY PER LOCATION. REFER TO SHEET E-1.6 FOR CIRCUITS REQUIRED.

(8) CONTRACTOR TO PROVIDE AND INSTALL CONDUITS AS REQUIRED. CONDUIT/CONDUCTORS VARY PER LOCATION. REFER TO SHEET E-1.1 FOR CIRCUITS REQUIRED AT MCC/BLOWER BLDG. NO. 2, REFER TO SHEET E-2.2 FOR CIRCUITS REQUIRED AT HEADWORKS.

(9) CONTRACTOR TO PROVIDE AND INSTALL NEW NEMA 4X SS WIREWAY. SIZE AS REQUIRED TO TRANSITION TO WIREWAYS IN NOTE #10. REFER ALSO TO SHEET E-2.2.

(10) CONTRACTOR TO PROVIDE AND INSTALL NEW NEMA 4X SS OPEN-BOTTOM WIREWAYS. ONE (1) WIREWAY FOR PANEL 'LHW' CIRCUITS (PANEL 'LHW' TO BE REMOVED DURING DEMOLITION. ONE (1) WIREWAY FOR PANEL 'PC/TC-2' CIRCUITS (EXISTING PANEL 'PC/TC-2' TO BE REMOVED DURING DEMOLITION). SIZE WIREWAYS AS REQUIRED TO COMPLY WITH NEC REQUIREMENTS, BUT WIREWAYS SHALL BE A MINIMUM OF 36" TALL FOR EASE OF ACCESS. CONTRACTOR SHALL PROVIDE TERMINAL BLOCKS RATED FOR 30 AMPERES MINIMUM. TERMINAL BLOCKS SHALL BE PROVIDED FOR EACH CURRENT CARRYING CONDUCTOR. CONTRACTOR SHALL PROVIDE COPPER GROUNDING BUS TO ACCOMMODATE ALL EQUIPMENT GROUNDING CONDUCTORS. GROUNDING BUS SHALL BE BONDED TO JUNCTION BOX WITH #6 THWN CONDUCTOR. CONTRACTOR SHALL PROVIDE 1/4" THICK NEOPRENE GASKET BETWEEN JUNCTION BOX AND HEADWORKS CONCRETE SLAB. CONTRACTOR TO PROVIDE TYPED SCHEDULE INDICATING TERMINAL BLOCK NUMBERS FOR ASSOCIATED CIRCUITS. REQUIREMENTS APPLY TO BOTH WIREWAYS. SECURE WIREWAYS TO HEADWORKS SLAB WITH STAINLESS STEEL TAPCONS WITH STAINLESS STEEL WASHERS.

(11) EXISTING CONDUITS (IN SLAB) AND CONDUCTORS FOR PANEL 'LHW' AND 'PC/TC-2' FIELD CIRCUITS. CONTRACTOR SHALL MEGGER EXISTING CONDUCTORS PRIOR TO TERMINATING IN NEW JUNCTION BOX. ALL CONDUCTORS FOUND TO BE UNACCEPTABLE FOR REUSE SHALL BE REPLACED WITH LIKE CONDUCTORS.

(12) TRANSITION TO DUCTBANK AT GRADE.

TRICON
CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00008363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS NOTED	TDT	EAK	DEV

DATE:

ELECTRICAL DETAILS

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-1.9

PANEL 'LHW' SCHEDULE

PANEL 'LHW' : SQUARE-D NQOD ; 120/208 VOLTS, 3ø, 4W ; 100 AMP MAIN CIRCUIT BREAKER ; GROUND BAR PROVIDED ; SURFACE ENCLOSURE TOP AT 5'-6" AFF

EQUIPMENT SERVED	CIRCUIT BREAKER POLE	AMPS	FRAME	KVA/PHASE A	B	C	CIRC. NO.	CIRC. NO.	KVA/PHASE A	B	C	CIRCUIT BREAKER POLE	AMPS	FRAME	EQUIPMENT SERVED
SURGE PROTECTION DEVICE	1	3	QOB				1	2	1.2			1	20	QOB	METER ROOM RECEPTACLES
" "	--	--	--				3	4		1.0		1	20	QOB	PUMP ROOM LIGHTS
" "	--	--	--				5	6			0.8	1	20	QOB	METER ROOM LIGHTS
WEST A/C UNIT	1	20	QOB	1.2			7	8	0.8			1	20	QOB	REC PUMP ROOM
DRIVE THROUGH LIGHTS	1	20	QOB		1.0		9	10		1.2		1	20	QOB	EXHAUST FAN MOTOR
EYE WASH PANEL	1	20	QOB			0.4	11	12			0.8	1	20	QOB	FAN
LEACHATE FLOW METER	1	20	QOB	0.4			13	14	1.0			2	20	QOB	CONTROL PANEL
EXHAUST FAN EF-9	1	20	QOB		1.0		15	16				1	20	QOB	SPARE
PLANT DRAIN	1	20	QOB			0.6	17	18				1	20	QOB	SPARE
HW FLOW METER	1	20	QOB	0.4			19	20				1	20	QOB	SPARE
IRP FLOW METERS - NORTH	1	20	QOB		0.2		21	22				--	--	--	SPACE
IRP FLOW METERS - SOUTH	1	20	QOB			0.2	23	24				--	--	--	SPACE
SPACE	--	--	--				25	26				--	--	--	SPACE
SPACE	--	--	--				27	28				--	--	--	SPACE
SPACE	--	--	--				29	30				--	--	--	SPACE
SPACE	--	--	--				31	32				--	--	--	SPACE
SPACE	--	--	--				33	34				--	--	--	SPACE
SPACE	--	--	--				35	36				--	--	--	SPACE
SPACE	--	--	--				37	38	3.1			3	40	QOB	PC/TC-2
SPACE	--	--	--				39	40		3.1		--	--	QOB	" "
SPACE	--	--	--				41	42			3.1	--	--	QOB	" "
SUB-TOTAL KVA				2.0	2.2	1.2			6.1	5.3	4.7				

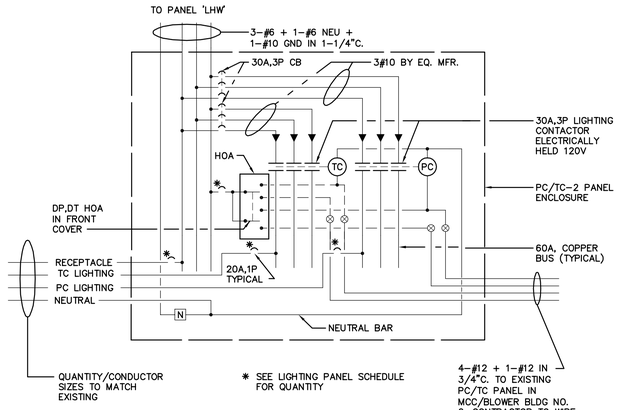
TOTAL CONNECTED LOAD = 21.5 KVA TOTAL DEMAND LOAD = 21.5 KVA

PANEL 'PC/TC-2' SCHEDULE

PANEL 'PC/TC-2' ; 120/208 VOLTS, 3ø, 4W ; 100 AMP MAIN MAIN LUGS ONLY ; GROUND BAR PROVIDED ; SURFACE ENCLOSURE TOP AT 5'-6" AFF

EQUIPMENT SERVED	CIRCUIT BREAKER POLE	AMPS	FRAME	KVA/PHASE A	B	C	CIRC. NO.	CIRC. NO.	KVA/PHASE A	B	C	CIRCUIT BREAKER POLE	AMPS	FRAME	EQUIPMENT SERVED
PC CONTACTOR	3	30	QOB	0.1			1	2	0.1			3	30	QOB	TC CONTACTOR
" "	--	--	--		0.1		3	4		0.1		--	--	--	" "
" "	--	--	--			0.1	5	6			0.1	--	--	--	" "
PC/TC CONTROL	1	20	QOB	0.2			7	8	0.4			1	20	QOB	SITE RECEPTACLES
RECEPTACLES	1	20	QOB		0.4		9	10		1.2		1	20	QOB	HW OUTDOOR LIGHTS
SITE RECS (AERATION BASIN W)	1	20	QOB			0.4	11	12			1.2	1	20	QOB	ROAD SITE LIGHTS
LIGHTS	1	20	QOB	1.0			13	14	1.2			1	20	QOB	ROAD SITE LIGHTS
1&2 WEST END ELEVATION	1	20	QOB		0.4		15	16		0.8		1	20	QOB	ANOXIC TANK OUTDOOR LIGHTS
ANOXIC TANKS OUTDOOR LIGHTS	1	20	QOB			1.2	17	18				1	20	QOB	SPARE
SITE RECEPTACLES	1	20	QOB	0.3			19	20				--	--	--	SPACE
SPARE	1	20	QOB				21	22				--	--	--	SPACE
SPARE	1	20	QOB				23	24				--	--	--	SPACE
SPACE	--	--	--				25	26				--	--	--	SPACE
SPACE	--	--	--				27	28				--	--	--	SPACE
SPACE	--	--	--				29	30				--	--	--	SPACE
SPACE	--	--	--				31	32				--	--	--	SPACE
SPACE	--	--	--				33	34				--	--	--	SPACE
SPACE	--	--	--				35	36				--	--	--	SPACE
SPACE	--	--	--				37	38				--	--	--	SPACE
SPACE	--	--	--				39	40				--	--	--	SPACE
SPACE	--	--	--				41	42				--	--	--	SPACE
SUB-TOTAL KVA				1.6	0.9	1.7			1.7	2.1	1.3				

TOTAL CONNECTED LOAD = 9.3 KVA TOTAL DEMAND LOAD = 9.3 KVA



PC/TC-2 DETAIL

NOTE :

NEW PC/TC-2 PANEL TO MATCH EXISTING PC/TC PANEL IN MCC/BLOWER BLDG NO. 2 IN BOTH CONSTRUCTION AND FUNCTION

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. THE CONTRACTOR SHALL FIELD VERIFY ALL PANEL SCHEDULE INFORMATION AND ADJUST QUANTITIES IF REQUIRED.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CIRCUITS.
7. THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY TO INSURE EACH PC/TC-2 CIRCUIT IS PROPERLY CONTROLLED (PHOTOCELL CONTROL OR TIME CLOCK CONTROL).
8. THE INTENT OF THE DESIGN IS TO HAVE PC/TC-2 CONTROLLED VIA THE EXISTING PC/TC PANEL IN THE BLOWER ROOM. PROVIDE CONDUIT/CONDUCTORS AS NOTED. IF IT IS DETERMINED THAT THE EXISTING REMOTE CONTACTS CANNOT ACCOMMODATE THE LOAD OF THE NEW PC/TC-2 COILS, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SINGLE-POLE, 120V, 15A CIRCUIT BREAKER FOR BOTH THE PC PORTION AND TC PORTION OF THE EXISTING PC/TC PANEL IN ORDER TO ENERGIZE THE NEW PC AND TC COILS.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813 .227 .9190 FAX 813 . 227 . 9195
Certificate of Authorization No. 00003393

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.

655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

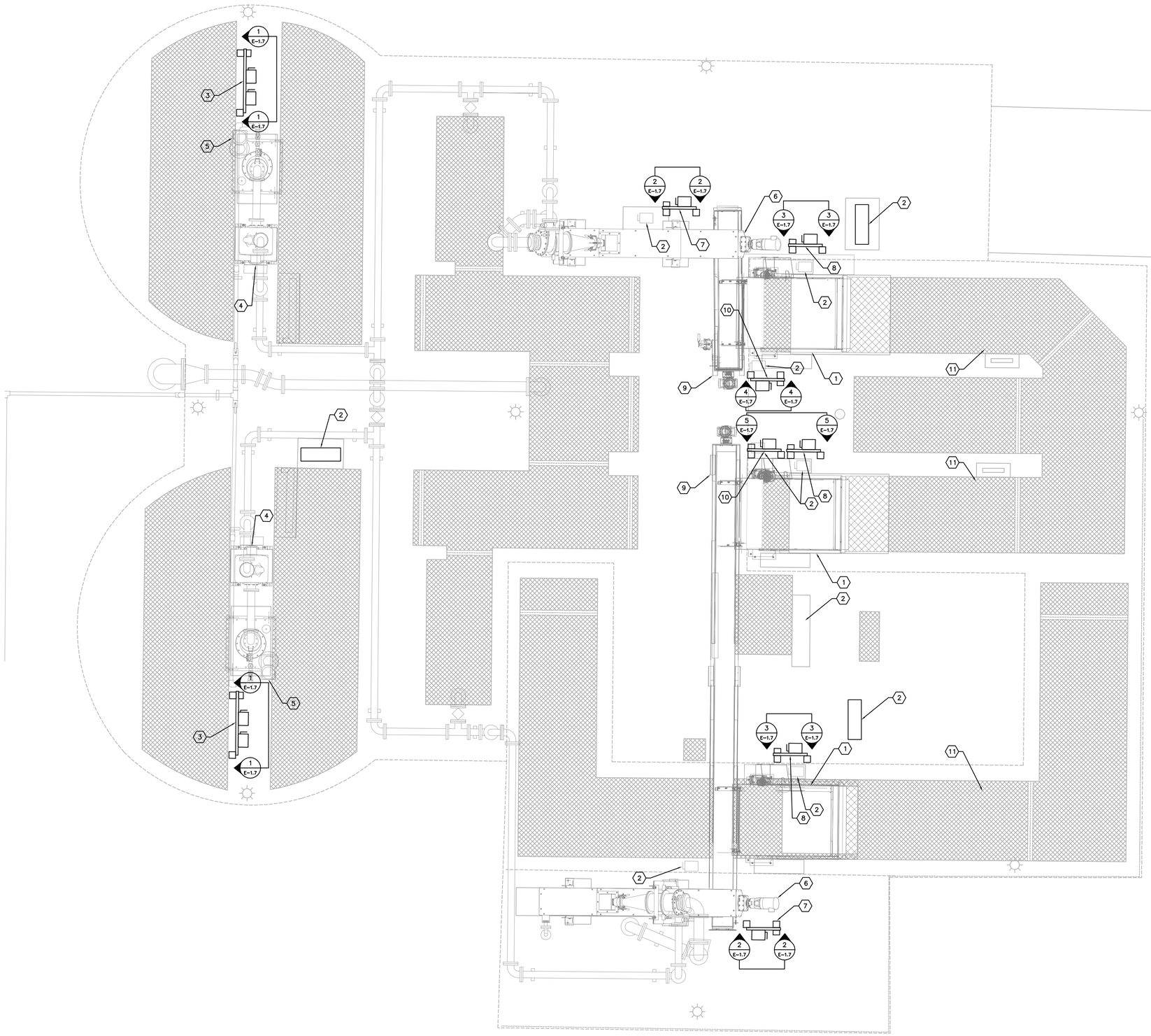
DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

PANEL SCHEDULES

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE DECEMBER 2013
PROJECT NO. 148400001
SHEET NUMBER E-1.10



NORTH

GRAPHIC SCALE IN FEET
12" 0 1' 2' 3' 4' 5'
3/8"=1'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. LOCATION AND POSITION OF GRIT CLASSIFIER, CONVEYOR, MECHANICAL BAR SCREEN, CYCLONE, GRIT PUMP, AND VORTEX UNIT DEPENDS UPON EQUIPMENT FURNISHED.
6. CONTRACTOR SHALL PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4"C. FOR GRIT SYSTEM FLUIDIZING SOLENOID VALVE. ONE (1) SOLENOID PER SYSTEM (TOTAL OF 2). COORDINATE EXACT LOCATION AND ALL FLUIDIZING SOLENOID VALVE REQUIREMENTS WITH GRIT SYSTEM MANUFACTURER.
7. CONTRACTOR SHALL PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4"C. FOR GRIT SYSTEM WASHING SOLENOID VALVE. ONE (1) SOLENOID PER SYSTEM (TOTAL OF 2). COORDINATE EXACT LOCATION AND ALL WASHING SOLENOID VALVE REQUIREMENTS WITH GRIT SYSTEM MANUFACTURER.
8. CONTRACTOR SHALL PROVIDE AND INSTALL 3/4"C. FROM CONVEYOR MOTION SENSOR TO ASSOCIATED BAR SCREEN CONTROLLER. MOTION SENSOR CABLE SHALL BE SUPPLIED WITH MOTION SENSOR. COORDINATE EXACT LOCATION OF SENSORS WITH CONVEYOR SYSTEM SUPPLIER. ONE (1) MOTION SENSOR PER CONVEYOR (TOTAL OF 2).
9. CONTRACTOR SHALL PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4"C. FROM CONVEYOR EMERGENCY STOP SWITCH TO ASSOCIATED BAR SCREEN CONTROLLER. COORDINATE EXACT LOCATION OF EMERGENCY STOP SWITCH WITH CONVEYOR SYSTEM SUPPLIER. ONE (1) STOP SWITCH PER CONVEYOR (TOTAL OF 2).
10. CONTRACTOR SHALL FIELD ROUTE CONDUIT ON HEADWORKS. CONDUIT SHALL BE INSTALLED AS TO AVOID CREATING ANY TRIP HAZARDS. WHERE TRIP HAZARD CAN NOT BE AVOIDED, CONTRACTOR SHALL PROVIDE AND INSTALL 6061-T6 ALUMINUM DIAMOND PLATE, 3/8" THICK TO COVER CONDUITS. SIZE AS REQUIRED. FASTEN TO CONCRETE STRUCTURE WITH 1/4" X 1"-1/4" FLATHEAD STAINLESS STEEL TAPCONS.
11. REFER TO SHEET E-1.8 FOR CONDUIT INSTALLATION DETAILS. THE CONTRACTOR, AS PART OF THEIR SHOP DRAWING SUBMITTAL, SHALL PROVIDE A CONDUIT LAYOUT PLAN INDICATING THE PROPOSED ROUTING OF ALL CONDUITS TO BE INSTALLED ON THE UPPER LEVEL OF THE HEADWORKS. THE MINIMUM SCALE OF THE CONDUIT PLAN SHALL BE 3/8" = 1'-0".
12. THE CONTRACTOR SHALL CLEAN AND RELAMP ALL EXISTING LIGHTING FIXTURES LOCATED ON THE UPPER HEADWORKS. ANY BALLAST FOUND TO BE IN NON-WORKING ORDER SHALL ALSO BE REPLACED.

KEY NOTES:

1. NEW MECHANICAL BAR SCREEN PROVIDED AND INSTALLED BY OTHERS.
2. EXISTING HEADWORKS ELECTRICAL EQUIPMENT TO BE REMOVED.
3. NEW EQUIPMENT RACK FOR GRIT PUMP AND GRIT DRIVE MOTOR. REFER TO DETAIL ON SHEET E-1.7 FOR CONDUIT/CONDUCTORS REQUIRED.
4. NEW GRIT PUMP MOTOR.
5. NEW GRIT DRIVE MOTOR.
6. NEW GRIT CLASSIFIER UNIT PROVIDED AND INSTALLED BY OTHERS.
7. NEW EQUIPMENT RACK FOR CLASSIFIER. REFER TO DETAIL ON SHEET E-1.7 FOR CONDUIT/CONDUCTORS REQUIRED.
8. NEW EQUIPMENT RACK FOR BAR SCREEN. REFER TO DETAIL ON SHEET E-1.7 FOR CONDUIT/CONDUCTORS REQUIRED.
9. NEW CONVEYOR UNIT PROVIDED AND INSTALLED BY OTHERS.
10. NEW EQUIPMENT RACK FOR CONVEYOR. REFER TO DETAIL ON SHEET E-1.7 FOR CONDUIT/CONDUCTORS REQUIRED.
11. CONTRACTOR TO PROVIDE AND INSTALL TWO (2) NEW FLOAT SWITCHES. PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4"C. TO BAR SCREEN CONTROL PANEL FOR EACH FLOAT SWITCH. VERIFY EXACT LOCATION REQUIRED FOR FLOAT SWITCHES WITH BAR SCREEN MANUFACTURER.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079
DATE:

SCALE AS NOTED
DESIGNED BY TDT
DRAWN BY EAK
CHECKED BY DEV

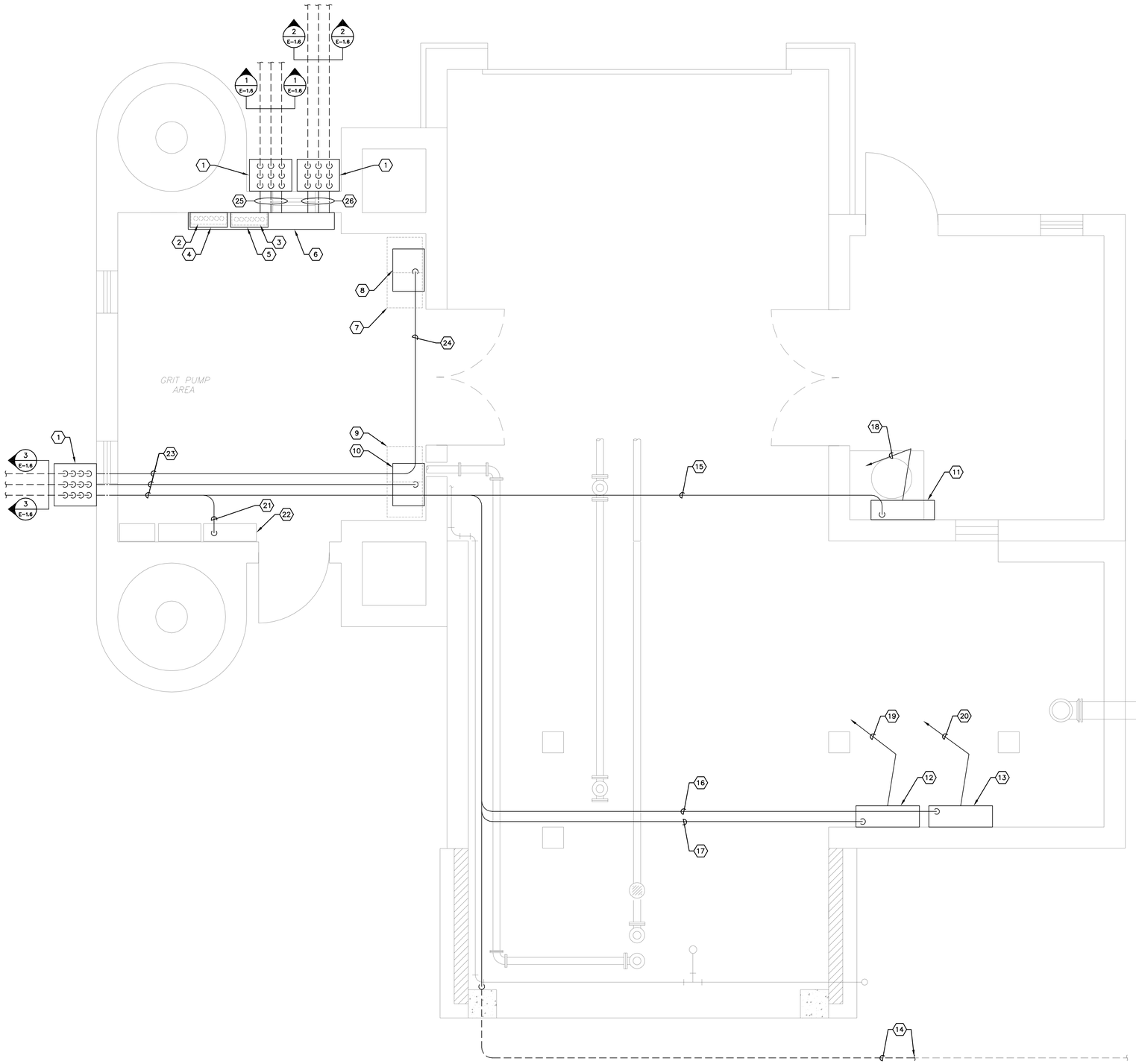
HEADWORKS UPPER LEVEL ELECTRICAL PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-2.1



NORTH

GRAPHIC SCALE IN FEET
12" 0 1' 2' 3' 4' 5'

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. REFER TO DEMOLITION PLAN SHEETS D-2.7 AND D-2.8 FOR ELECTRICAL EQUIPMENT TO BE REMOVED PRIOR TO COMMENCING WORK SHOWN.

KEY NOTES:

(1) CONTRACTOR TO PROVIDE AND INSTALL NEMA 4X SS JUNCTION BOX FOR TRANSITION TO DUCTBANK. REFER TO SHEET E-1.9 FOR TYPICAL DETAILS.

(2) PAST LOCATION FOR PANEL 'LHW'. CONTRACTOR SHALL REUSE EXISTING CONDUITS AND CONDUCTORS (AFTER MEGGERING) FOR FIELD CIRCUITS. REFER TO DETAILS ON SHEET E-1.9.

(3) PAST LOCATION FOR PANEL 'PC/TC-2'. CONTRACTOR SHALL REUSE EXISTING CONDUITS AND CONDUCTORS (AFTER MEGGERING) FOR FIELD CIRCUITS. REFER TO DETAILS ON SHEET E-1.9.

(4) CONTRACTOR TO PROVIDE AND INSTALL APPROPRIATELY SIZED NEMA 4X SS WIREWAY ABOVE EXISTING 'LHW' IN SLAB CONDUITS TO REDISTRIBUTE PANEL 'LHW' CIRCUITS. REFER TO SHEET E-1.9 FOR DETAILS.

(5) CONTRACTOR TO PROVIDE AND INSTALL APPROPRIATELY SIZED NEMA 4X SS WIREWAY ABOVE EXISTING 'PC/TC-2' IN SLAB CONDUITS TO REDISTRIBUTE PANEL 'PC/TC-2' CIRCUITS. REFER TO SHEET E-1.9 FOR DETAILS.

(6) CONTRACTOR TO PROVIDE AND INSTALL APPROPRIATELY SIZED NEMA 4X SS WIREWAY TO TRANSITION RACEWAYS DOWN TO 'LHW' AND 'PC/TC-2' WIREWAYS. REFER TO SHEET E-1.9 FOR DETAILS.

(7) PAST LOCATION FOR 'MCC-1A'. CONTRACTOR SHALL REUSE EXISTING CONDUITS FROM OLD 'MCC-1A' LOCATION TO OVERHEAD DOOR CONTROL PANEL (EAST) AND EXISTING REJECT PUMP STATION (NORTH) AFTER MANDREL CLEANING. ALL CONDUCTORS FOR CIRCUITS SHALL BE NEW. CONDUCTORS SHALL BE CONTINUOUS FROM NEW 'MCC-1A' CIRCUIT BREAKER TO ASSOCIATED EQUIPMENT.

(8) CONTRACTOR TO PROVIDE AND INSTALL APPROPRIATELY SIZED NEMA 4X SS JUNCTION BOX TO REDISTRIBUTE 'MCC-1A' CIRCUITS. REFER TO NOTE #7 ON THIS SHEET AND TYPICAL DETAILS ON SHEET E-1.9.

(9) PAST LOCATION FOR 'MCC-2A'. CONTRACTOR SHALL REUSE EXISTING CONDUITS FROM OLD 'MCC-2A' LOCATION TO OVERHEAD DOOR CONTROL PANEL (WEST) AND EXISTING REJECT PUMP STATION (SOUTH) AFTER MANDREL CLEANING. ALL CONDUCTORS FOR CIRCUITS SHALL BE NEW. CONDUCTORS SHALL BE CONTINUOUS FROM NEW 'MCC-2A' CIRCUIT BREAKER TO ASSOCIATED EQUIPMENT.

(10) CONTRACTOR TO PROVIDE AND INSTALL APPROPRIATELY SIZED NEMA 4X SS JUNCTION BOX TO REDISTRIBUTE 'MCC-2A' CIRCUITS. REFER TO NOTE #9 ON THIS SHEET AND TYPICAL DETAILS ON SHEET E-1.9.

(11) CONTRACTOR TO INSTALL NEW GRIT SYSTEM CONTROL PANEL (PANEL SUPPLIED BY MANUFACTURER). REFER ALSO TO SHEET E-2.1 FOR CONDUIT/CONDUCTORS REQUIRED TO BE INSTALLED TO UPPER HEADWORKS AREA.

(12) CONTRACTOR TO INSTALL NEW BAR SCREEN CONTROL PANEL FOR SCREENS 1 & 2 (PANEL SUPPLIED BY MANUFACTURER). REFER ALSO TO SHEET E-2.1 FOR CONDUIT/CONDUCTORS REQUIRED TO BE INSTALLED TO UPPER HEADWORKS AREA.

(13) CONTRACTOR TO INSTALL NEW BAR SCREEN CONTROL PANEL FOR SCREEN 3 (PANEL SUPPLIED BY MANUFACTURER). REFER ALSO TO SHEET E-2.1 FOR CONDUIT/CONDUCTORS REQUIRED TO BE INSTALLED TO UPPER HEADWORKS AREA.

(14) CONTRACTOR TO INTERCEPT EXISTING FEEDER FOR ODOR CONTROL SYSTEM AND INSTALL NEW FEEDER (3-#6 + 1-#8 GND IN 1-1/2"C.) TO MCC/BLOWER BLDG NO. 2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT AND CONDUCTOR SIZES.

(15) CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 1"C. FOR NEW GRIT SYSTEM CONTROL PANEL.

(16) CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 1"C. FOR NEW BAR SCREEN CONTROL PANEL (SCREENS 1 & 2).

(17) CONTRACTOR TO PROVIDE AND INSTALL 3-#8 + 1-#10 GND IN 1"C. FOR NEW BAR SCREEN CONTROL PANEL (SCREEN).

(18) CONTRACTOR TO PROVIDE AND INSTALL 25/C-#14 IN 1-1/2"C. TO EXISTING TERMINAL CABINET C-2 FOR GRIT DRIVE #1 RUNNING, GRIT DRIVE #2 RUNNING, GRIT CLASSIFIER #1 RUNNING, GRIT CLASSIFIER #2 RUNNING, GRIT PUMP #1 RUNNING, GRIT PUMP #2 RUNNING, GRIT SYSTEM #1 FAULT, GRIT SYSTEM #2 FAULT (8 SPARES, 1-#14 GND).

(19) CONTRACTOR TO PROVIDE AND INSTALL 25/C-#14 IN 1-1/2"C. TO EXISTING TERMINAL CABINET C-2 FOR BAR SCREEN #1 ALARM (HIGH WATER LEVEL), BAR SCREEN #2 ALARM (HIGH WATER LEVEL), BAR SCREEN #1 FAULT, BAR SCREEN #2 FAULT, BAR SCREEN #1 RUNNING INDICATION, BAR SCREEN #2 RUNNING INDICATION, CONVEYOR #1 RUNNING INDICATION, BAR SCREEN #1 OPERATOR HIGH SPEED COMMAND, BAR SCREEN #2 OPERATOR HIGH SPEED COMMAND (6 SPARES, 1-#14 GND).

(20) CONTRACTOR TO PROVIDE AND INSTALL 15/C-#14 IN 1-1/4"C. TO EXISTING TERMINAL CABINET C-2 FOR BAR SCREEN #3 ALARM (HIGH WATER LEVEL), BAR SCREEN #3 FAULT, BAR SCREEN #3 RUNNING INDICATION, CONVEYOR #2 RUNNING INDICATION, BAR SCREEN BAR SCREEN #3 OPERATOR HIGH SPEED COMMAND (4 SPARES, 1-#14 GND).

(21) CONTRACTOR TO PROVIDE AND INSTALL 25/C-#14 IN 1-1/2"C. FROM EXISTING TERMINAL CABINET C-2 TO SCADA PANEL 2 FOR BAR SCREEN #1 OPERATOR HIGH SPEED COMMAND, BAR SCREEN #2 OPERATOR HIGH SPEED COMMAND, BAR SCREEN #3 OPERATOR HIGH SPEED COMMAND, BAR SCREEN #1 RUNNING INDICATION, BAR SCREEN #2 RUNNING INDICATION, BAR SCREEN #3 RUNNING INDICATION, CONVEYOR #1 RUNNING INDICATION, CONVEYOR #2 RUNNING INDICATION, (8 SPARES, 1-#14 GND).

(22) EXISTING TERMINAL CABINET C-2. A 36-CONDUCTOR CABLE IS CURRENTLY INSTALLED BETWEEN TERMINAL CABINET C-2 AND SCADA PANEL 2 (IN MCC/BLOWER BLDG NO. 2). CONTRACTOR SHALL FIELD VERIFY THE AVAILABILITY OF THE 36 CONDUCTORS AND SHALL REUSE THE EXISTING CONDUCTORS TO SCADA PANEL 2 FOR THE CONDUCTORS INDICATED IN NOTES #18, #19 AND #20 (CONDUCTORS IN NOTE #21 SHALL BE INSTALLED SEPARATELY BACK TO SCADA PANEL 2 DUE TO LACK OF SUFFICIENT NUMBER OF CONDUCTORS AVAILABLE). THE CONTRACTOR SHALL UTILIZE ADDITIONAL CONDUCTORS IN CABLE (NOTE #21) IF ALL THE NEW I/O INDICATED CANNOT BE ACCOMMODATED BY THE EXISTING 36-CONDUCTOR CABLE. CONTRACTOR SHALL UTILIZE EXISTING TERMINAL BLOCKS WITHIN TERMINAL CABINET C-2, BUT SHALL PROVIDE ADDITIONAL TERMINAL BLOCKS (TO MATCH EXISTING) IF REQUIRED.

(23) ALL CONDUITS/CONDUCTORS NOT SHOWN FOR CLARITY. REFER TO ONE-LINE DIAGRAMS ON SHEET E-1.4 FOR MCC-1A AND MCC-2A REQUIREMENTS, AS WELL AS, DUCTBANK SECTION 'C' ON SHEET E-1.6 AND SHEETS E-1.1 AND I-1.5 FOR SCADA PANEL 2 REQUIREMENTS. CONTRACTOR SHALL FIELD VERIFY ALL CIRCUITS PRIOR TO COMMENCING CONSTRUCTION.

(24) ALL CONDUITS/CONDUCTORS NOT SHOWN FOR CLARITY. REFER TO ONE-LINE DIAGRAMS ON SHEET E-1.4 FOR MCC-1A REQUIREMENTS, AS WELL AS, DUCTBANK SECTION 'C' ON SHEET E-1.6. CONTRACTOR SHALL FIELD VERIFY ALL CIRCUITS PRIOR TO COMMENCING CONSTRUCTION.

(25) ALL CONDUITS/CONDUCTORS NOT SHOWN FOR CLARITY. REFER TO DUCTBANK SECTION 'A' ON SHEET E-1.6, AS WELL AS, PANEL SCHEDULE FOR 'LHW'. CONTRACTOR SHALL FIELD VERIFY ALL CIRCUITS PRIOR TO COMMENCING CONSTRUCTION.

(26) ALL CONDUITS/CONDUCTORS NOT SHOWN FOR CLARITY. REFER TO DUCTBANK SECTION 'B' ON SHEET E-1.6, AS WELL AS, PANEL SCHEDULE FOR 'PC/TC-2'. CONTRACTOR SHALL FIELD VERIFY ALL CIRCUITS PRIOR TO COMMENCING CONSTRUCTION.

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079

SCALE AS NOTED | DESIGNED BY TDT | DRAWN BY EAK | CHECKED BY DEV | DATE:

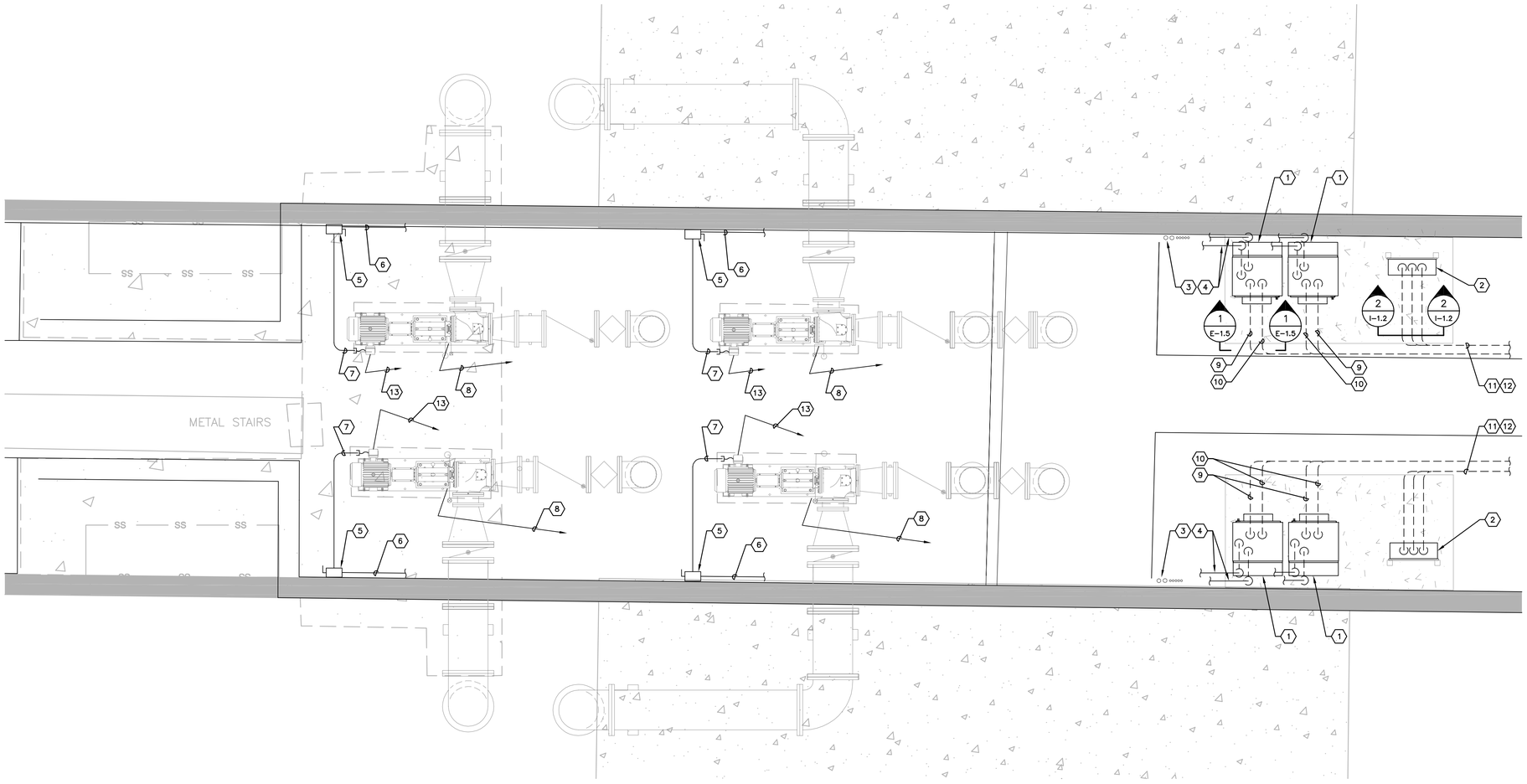
LOWER HEADWORKS ELECTRICAL PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-2.2



NORTH

GRAPHIC SCALE IN FEET
0 2 4 8

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
4. CONSTRUCTION SEQUENCE SHALL BE COORDINATED TO AVOID ANY TREATMENT PROCESS INTERRUPTION.
5. CONTRACTOR SHALL COORDINATE CONDUCTOR REQUIREMENTS FOR MOTOR STATOR WINDING RTD'S AND BEARING RTD'S WITH MOTOR MANUFACTURER AND VFD SUPPLIER. ADJUST QUANTITIES INDICATED IF REQUIRED.

KEY NOTES:

(1) CONTRACTOR TO PROVIDE AND INSTALL NEW VFD IN NEMA 3R SS WHITE PAINTED ENCLOSURE. TYPICAL FOR 4 (FOUR) INTERNAL RECYCLE PUMPS. REFER ALSO TO DETAIL ON SHEET E-1.5 AND SPECIFICATIONS.

(2) CONTRACTOR TO PROVIDE AND INSTALL NEW DOPPLER FLOW METERS FOR INTERNAL RECYCLE PUMPS. TWO PER LOCATION, TOTAL OF 4 (FOUR). REFER ALSO TO DETAIL ON SHEET I-1.2 AND SPECIFICATIONS.

(3) EXISTING CONDUIT AND CONDUCTORS FROM MCC/BLOWER BUILDING NO. 2 FOR EXISTING INTERNAL RECYCLE PUMPS. CONTRACTOR TO INTERCEPT EXISTING CONDUIT AND REWORK TO EXTEND CONDUIT TO NEW VFD'S. EXISTING CONDUIT MAY BE REUSED AFTER MANDREL CLEANING.

(4) CONTRACTOR TO EXTEND EXISTING CONDUIT IN NOTE #3 AND INSTALL NEW 3-#2 + 1-#6 GND IN 2-1/2"C. BACK TO RESPECTIVE MCC. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL 3-#2 + 1-#6 GND IN 2-1/2"C. TO NEW MOTOR DISCONNECT SWITCH. (TYPICAL FOR ALL 4 VFD'S).

(5) CONTRACTOR TO REMOVE EXISTING MOTOR DISCONNECT SWITCH AND INSTALL NEW 60A, 600V, 3-POLE, NON-FUSED DISCONNECT SWITCH IN NEMA 4X SS ENCLOSURE FOR NEW IRP MOTOR.

(6) CONTRACTOR TO FIELD ROUTE 3-#2 + 1-#6 GND IN 2-1/2"C. FROM MOTOR DISCONNECT TO ASSOCIATED VFD. REFER ALSO TO NOTE #4.

(7) CONTRACTOR TO FIELD ROUTE 3-#2 + 1-#6 GND IN 2-1/2"C. FROM MOTOR DISCONNECT TO ASSOCIATED MOTOR. CONTRACTOR TO PROVIDE FLEXIBLE SEAL-TITE CONNECTION TO HIGH VOLTAGE TERMINAL BOX ON MOTOR.

(8) CONTRACTOR TO PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4"C. TO VFD FOR WATER SEAL ASSEMBLY SOLENOID VALVE. CONTRACTOR SHALL FIELD ROUTE CONDUIT TO VFD AND PROVIDE FLEXIBLE SEAL-TITE CONNECTION TO SOLENOID.

(9) CONTRACTOR TO PROVIDE AND INSTALL 15/C-#14 IN NEW 1-1/4" C. FROM EXISTING SCADA PANEL 2 TO NEW IRP VFD (REFER TO SHEET E-0.2 AND E-1.1. 2-#14 LOCAL MODE INDICATION, 2-#14 REMOTE MODE INDICATION, 2-#14 VFD FAULT INDICATION, 2-#14 REMOTE RUN SIGNAL, 2-#14 VFD RUNNING SIGNAL, 4-#14 SPARE, 1-#14 GND. FOR CONTINUATION REFER TO SHEET E-0.2.

(10) CONTRACTOR TO PROVIDE AND INSTALL TWO (2) - 2/C-#16 TWISTED-SHIELDED CABLE (BELDEN 8719) IN 1"C. FROM NEW IRP VFD TO EXISTING SCADA PANEL 2 FOR VFD SPEED CONTROL AND SPEED REFERENCE 4-20mA SIGNALS. FOR CONTINUATION REFER TO SHEET E-0.2.

(11) CONTRACTOR TO PROVIDE AND INSTALL 2/C-#16 SHIELDED (BELDEN 8719) IN 1"C. (4-20mA FLOW IRP FLOW METER SIGNAL). TYPICAL FOR 2 FLOW METERS. FOR CONTINUATION REFER TO SHEET E-0.2.

(12) CONTRACTOR TO PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4"C. FROM FLOW METER TO NEW PANEL 'LHW' FOR METER AND RECEPTACLE 120V POWER. FOR CONTINUATION REFER TO SHEET E-0.2.

(13) CONTRACTOR TO FIELD ROUTE 2-#12 SPACE HEATER CONDUCTORS AND CONDUCTORS FOR STATOR RTD AND BEARING RTD'S + 1-#12 GND IN 1-1/4"C. FROM LOW VOLTAGE TERMINAL BOX ON MOTOR TO RESPECTIVE VFD. REFER TO SPECIFICATIONS FOR RTD CONDUCTOR REQUIREMENTS.

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd, STE 870, TAMPA, FL 33602
813.227.9190 FAX 813.227.9195
Certificate of Authorization No. 00008363

NO.	REVISIONS	DATE	BY

Kimley-Horn and Associates, Inc.
© 2013 KIMLEY-HORN AND ASSOCIATES, INC.
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

DESIGN ENGINEER: TIMOTHY THOMAS, P.E.
FLORIDA REGISTRATION NUMBER: 47079

SCALE: AS NOTED
DESIGNED BY: TDT
DRAWN BY: EAK
CHECKED BY: DEV
DATE:

INTERNAL RECYCLE PUMPS PLAN

MANATEE COUNTY SEWRF
MANATEE COUNTY FLORIDA

DATE
DECEMBER 2013

PROJECT NO.
148400001

SHEET NUMBER
E-3.1