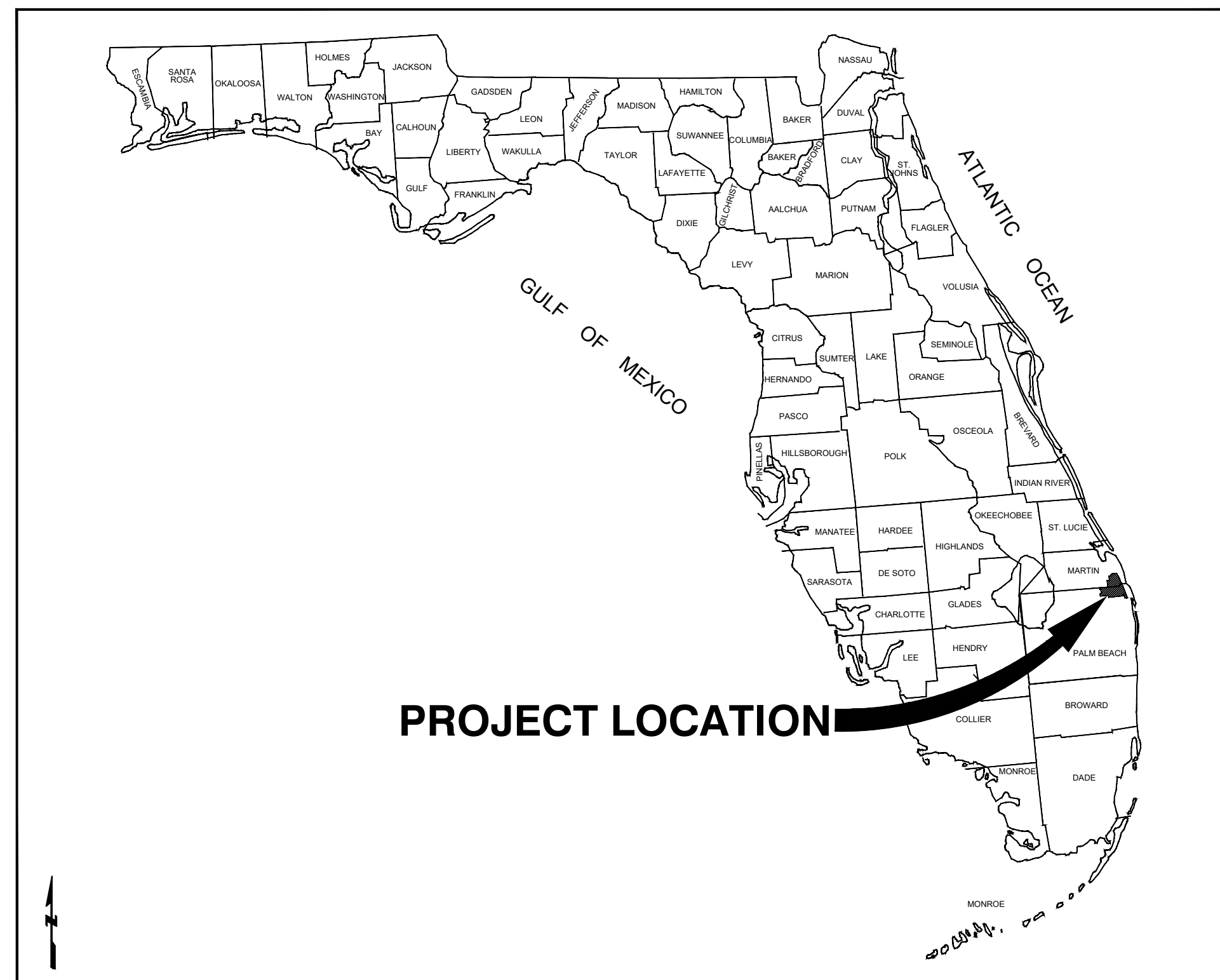


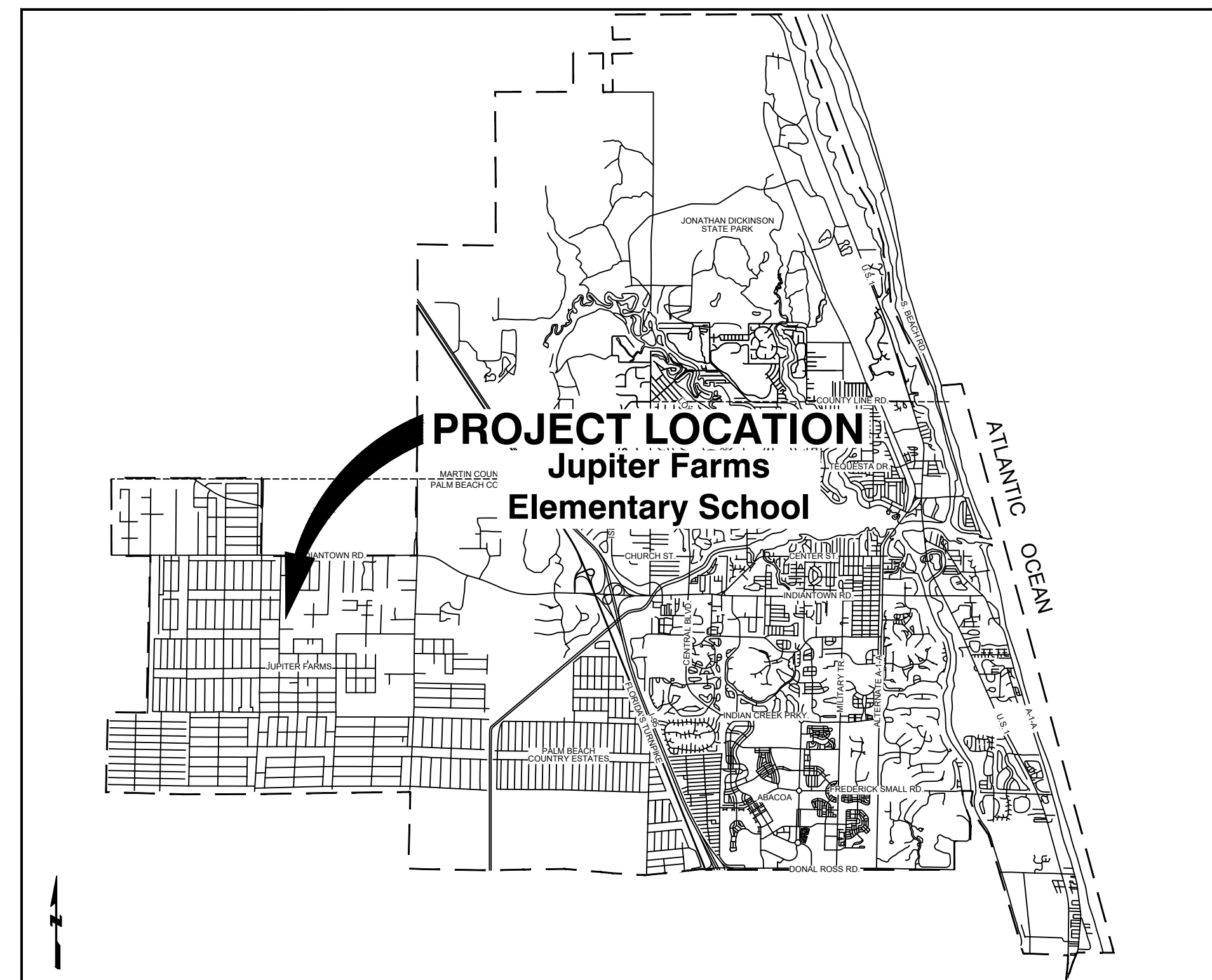
# CONSTRUCTION PLANS AND SPECIFICATIONS FOR LOXAHATCHEE RIVER DISTRICT

## LIFT STATION 296 EMERGENCY GENERATOR 17400 HAYNIE LANE

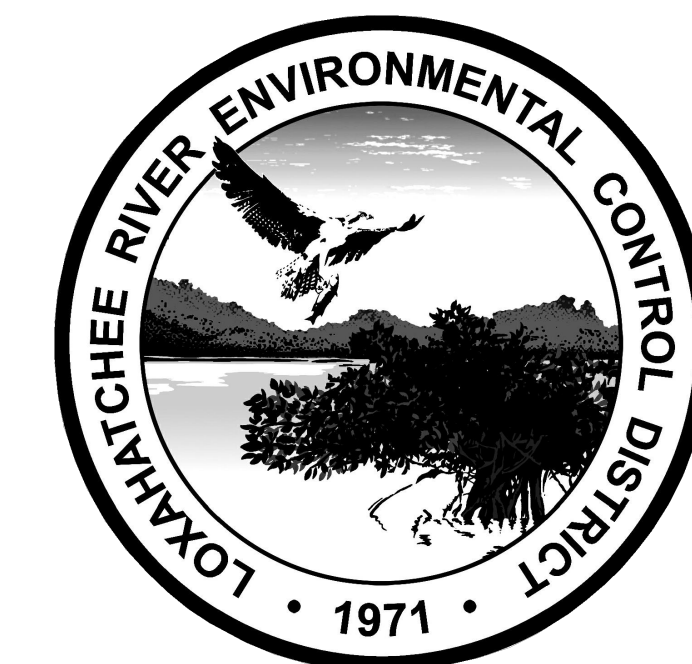
DECEMBER 2021



**JUPITER, FLORIDA**  
N.T.S.



**VICINITY MAP**  
N.T.S.



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GORDON M. BOGGIE  
CHAIRMAN

STEPHEN B. ROCKOFF  
BOARD MEMBER

DR. MATT H. ROSTOCK  
BOARD MEMBER

JAMES D. SNYDER  
BOARD MEMBER





ELECTRICAL SPECIFICATIONS

DIVISION 16 - ELECTRICAL

16010 BASIC ELECTRICAL REQUIREMENTS

A. ALL WORK AND EQUIPMENT UNDER THIS DIVISION SHALL BE IN STRICT COMPLIANCE WITH THE CODES, STANDARDS AND PRACTICES LISTED HEREIN. AND THEIR RESPECTIVE DATES ARE FURNISHED AS THE MINIMUM LATEST REQUIREMENTS.

CODES THAT APPLY TO THIS PROJECT:

2020 FBC 7th ED.,  
2017 NFPA-70  
2018 NFPA-101  
2016NFPA-72  
FLORIDA FIRE PREVENTION CODE EH ED.

B. SCOPE OF WORK:

THE WORK PROVIDED UNDER THIS DIVISION SHALL INCLUDE ALL LABOR, MATERIALS, PERMITS, INSPECTIONS AND REINSPECTION FEES, TOOLS, EQUIPMENT, TRANSPORTATION, INSURANCE, TEMPORARY PROTECTION, TEMPORARY LIGHTING, SUPERVISION AND INCIDENTAL ITEMS ESSENTIAL FOR PROPER INSTALLATION AND OPERATION, EVEN THOUGH NOT SPECIFICALLY MENTIONED OR INDICATED BUT WHICH ARE USUALLY PROVIDED OR ARE ESSENTIAL FOR PROPER INSTALLATION AND OPERATION OF ALL ELECTRICAL SYSTEMS AS INDICATED IN CONTRACT DOCUMENTS.

C. NOTICES:

GIVE ALL NOTICES, FILE ALL PLANS, PAY ALL FEES, OBTAIN ALL PERMITS AND APPROVALS FROM AUTHORITIES HAVING JURISDICTION. INCLUDE ALL FEES IN THE BID PRICE.

D. INTERPRETATION OF DRAWINGS:

1. THE DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO SHOW EXACT LOCATIONS OF CONDUIT RUNS, OUTLET BOXES, JUNCTION BOXES, PULL BOXES, ETC. THE LOCATIONS OF EQUIPMENT, APPLIANCES, FIXTURES, CONDUITS, OUTLETS, BOXES AND SIMILAR DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. EXACT LOCATIONS SHALL BE AS ACCEPTED BY THE ENGINEER DURING CONSTRUCTION. OBTAIN IN THE FIELD ALL INFORMATION RELEVANT TO THE PLACING OF ELECTRICAL WORK AND IN CASE OF INTERFERENCE WITH OTHER WORK, PROCEED AS DIRECTED BY THE ENGINEER AND PROVIDE ALL LABOR AND MATERIALS NECESSARY TO COMPLETE THE WORK IN AN ACCEPTABLE MANNER.

2. DISCREPANCIES:

NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES FOUND DURING CONSTRUCTION OF THE PROJECT AND DO NOT PROCEED WITH THAT PORTION OF THE PROJECT, UNTIL A WRITTEN DEFINITIVE STATEMENT IS RECEIVED PROVIDING CLEAR DIRECTION. IF A CONFLICT EXISTS BETWEEN THE CONTRACT DOCUMENTS AND ANY APPLICABLE CODE OR STANDARD, THE MOST STRINGENT REQUIREMENT SHALL BE INCLUDED FOR THIS PROJECT. THE ENGINEER SHALL MAKE THE DECISION REGARDING QUESTIONABLE AREAS OF CONFLICT.

3. WIRING:

EACH THREE-PHASE CIRCUIT SHALL BE RUN IN A SEPARATE CONDUIT UNLESS OTHERWISE SHOWN ON THE DRAWINGS. UNLESS OTHERWISE ACCEPTED BY THE ENGINEER, CONDUIT SHALL NOT BE INSTALLED EXPOSED UNLESS SPECIFICALLY DIRECTED TO BE CONCEALED. WHERE CIRCUITS ARE SHOWN AS "HOME-RUNS" ALL NECESSARY FITTINGS AND BOXES SHALL BE PROVIDED FOR A COMPLETE RACEWAY INSTALLATION.

E. INVESTIGATION ON SITE:

1. GENERAL: BEFORE COMMENCING THE WORK, VERIFY EXISTING CONDITIONS AT THE PUMP STATION, BUT NOT LIMITED TO, EXISTING STRUCTURAL FRAME, LOCATION AND ALL DIMENSIONS, EXISTING MECHANICAL, AND ELECTRICAL WORK, EQUIPMENT TYPE, AND SHALL EXAMINE ALL ADJOINING WORK ON WHICH HIS WORK IF ANYWAY DEPENDENT FOR ITS PERFECT EFFICIENCY ACCORDING TO THE INTENT OF THE CONTRACT DOCUMENTS.

2. POWER OUTAGE:

SPECIAL ATTENTION IS CALLED TO THE FACT THAT WORK INVOLVED IS IN CONNECTION WITH PUMP STATION WHICH REMAIN IN OPERATION WHILE WORK IS BEING PERFORMED. WORK MUST BE DONE IN ACCORDANCE WITH THE PRIORITY SCHEDULE. SCHEDULE WORK FOR A MINIMUM OUTAGE TO OWNER. REQUEST WRITTEN PERMISSION AND RECEIVE WRITTEN ACCEPTANCE FROM THE OWNER NO LATER THAN 48 HOURS IN ADVANCE OF ALL POWER AND COMMUNICATION SHUT-DOWNS. PERFORM WORK REQUIRED AT OTHER THAN STANDARD WORKING HOURS WHERE OUTAGES CANNOT BE ACCEPTED BY OWNER DURING REGULAR WORKING HOURS. PROTECT EXISTING PUMP STATION EQUIPMENT DURING CONSTRUCTION.

3. SPECIAL CONSIDERATIONS:

SPECIAL ATTENTION IS CALLED TO THE FACT THAT THERE WILL BE PIPING, FIXTURES OR OTHER ITEMS IN THE EXISTING PUMP STATION WHICH MUST BE REMOVED OR RELOCATED IN ORDER TO PERFORM THE ALTERATION WORK. BID SHALL INCLUDE ALL REMOVAL AND RELOCATION REQUIRED FOR COMPLETION OF THE ALTERATIONS AND THE NEW CONSTRUCTION.

4. DEMOLITION - GENERAL:

DURING THE EXECUTION OF WORK, ALL REQUIRED RELOCATION, REROUTING, ETC., OF EXISTING EQUIPMENT AND SYSTEMS IN THE EXISTING PUMP STATION WHERE THE WORK IS REQUIRED, SHALL BE PERFORMED BY THE CONTRACTOR, AS INDICATED ON THE DRAWINGS, OR AS REQUIRED BY JOB CONDITIONS AND AS DETERMINED BY THE ARCHITECT IN THE FIELD, TO FACILITATE THE INSTALLATION OF THE NEW SYSTEMS. THE OWNER SHALL REQUIRE CONTINUOUS OPERATION OF THE EXISTING SYSTEMS, WHILE DEMOLITION, RELOCATION WORK OR NEW TIE-INS ARE PERFORMED.

5. OWNER'S SALVAGE: THE OWNER RESERVES THE RIGHT TO INSPECT THE MATERIAL SCHEDULED FOR REMOVAL AND SALVAGE ANY ITEMS HE DEEMS USABLE AS SPARE PARTS.

F. EXISTING CONDITIONS:

1. SUPPORT:

ALL EXISTING CONDUIT AND CABLES WITHIN THE AREA OF RENOVATION SHALL BE PROVIDED WITH PROPER SUPPORTS AS SPECIFIED FOR NEW WORK IN OTHER SECTIONS OF THIS SPECIFICATION.

2. INSTALLATION: ALL EXISTING ELECTRICAL WHICH IS DESIGNATED FOR REWORKING OR REQUIRES RELOCATION, REPAIR OR ADJUSTMENT SHALL CONFORM TO ALL APPLICABLE CODES AND SHALL BE TREATED AS NEW WORK COMPLYING TO ALL SECTIONS OF THIS SPECIFICATION.

3. VIOLATIONS:

WHERE EXISTING CONDITIONS ARE DISCOVERED WHICH ARE NOT IN COMPLIANCE WITH THE CODES AND STANDARDS, THE CONTRACTOR SHALL SUBMIT PROPER DOCUMENTATION TO THE ENGINEER FOR CLARIFICATION AND CORRECTIVE WORK DIRECTION. EXISTING CONDITIONS SHALL NOT REMAIN WHICH WILL CREATE A DISAPPROVAL OF THE RENOVATED AREA.

4. PATCHING:

ALL EXISTING CONDUIT AND CABLE PENETRATIONS SHALL BE PROPERLY FIRE TREATED PER CODE AND SPECIFICATION REQUIREMENTS. THE CONTRACTOR SHALL THOROUGHLY INSPECT ALL EXISTING LOCATIONS AND INCLUDE THE COST OF PATCHING AND REPAIR IN HIS PROPOSED CONSTRUCTION COST.

G. ALL MATERIALS SHALL BE NEW, FREE FROM DEFECTS AND SHALL BE EITHER U.L. LABELED, U.L. LISTED OR BEAR THE SEAL OF A NATIONALLY RECOGNIZED ELECTRICAL TESTING LABORATORY.

H. SHOP DRAWINGS ARE REQUIRED FOR ALL MATERIALS AND EQUIPMENT.

I. ALL EQUIPMENT SHALL BE FIRMLY MOUNTED USING APPROVED HANGERS ATTACHED TO STRUCTURAL PORTIONS OF THE BUILDING. SUPPORTING WITH TIE WIRE IS PROHIBITED.

J. SERVICE AND METERING SHALL MEET THE REQUIREMENTS OF THE LOCAL UTILITY COMPANY AND ALL PROVISIONS OF NAPA 70. TEMPORARY LIGHT AND POWER SHALL BE PROVIDED AS REQUIRED.

K. SYSTEMS GUARANTEE: PROVIDE A ONE-YEAR GUARANTEE. THIS GUARANTEE SHALL BE BY THE CONTRACTOR TO THE OWNER FOR ANY DEFECTIVE WORKMANSHIP OR MATERIAL WHICH HAS BEEN PROVIDED UNDER THIS CONTRACT AT NO COST TO THE OWNER FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE SYSTEM. THE GUARANTEE SHALL INCLUDE ALL LAMPS, FOR NINETY DAYS AFTER DATE OF SUBSTANTIAL COMPLETION OF THE SYSTEM. EXPLAIN THE PROVISIONS OF GUARANTEE TO THE OWNER AT THE DEMONSTRATION OF COMPLETED SYSTEM.

16020 TEST AND PERFORMANCE VERIFICATION

A. EQUIPMENT AND APPLICATIONS SHALL BE PER NEMA STANDARDS.

B. CABLES, MOTORS, GROUNDS, TRANSFORMERS, AND THE EMERGENCY SYSTEM SHALL BE THOROUGHLY TESTED. CONTRACTOR SHALL PROVIDE A REPORT INDICATING THE RESULTS OF ALL TESTS.

16030 ELECTRICAL IDENTIFICATION

A. LANGUAGE ALL IDENTIFICATION SHALL BE IN ENGLISH.

B. CONDUITS SYSTEM MARKERS SHALL BE ENGRAVED PLASTIC, LAMINATE NAMEPLATES AND SHALL BE ADHESIVE OR PRE-TENSIONED SNAP ON COLOR CODED, SYSTEM MARKING MATERIALS.

C. IDENTIFICATION: IDENTIFY ALL RACEWAYS PROVIDED OR UTILIZED AS PART OF THIS PROJECT AS FOLLOWS:

1. APPLY BANDS 10 FEET ON CENTER ALONG THE RACEWAY SYSTEM AND AT EACH SIDE OF WALLS OR FLOORS, AND AT BRANCHES FROM MAINS.

2. IDENTIFY THE FOLLOWING SERVICES:

SERVICE	LABEL
A. LOW VOLTAGE	120/208 VOLTAGE
B. HIGH VOLTAGE	277/480 VOLTAGE
C. FIRE ALARM	FIRE ALARM
D. TELEPHONE	TELEPHONE
E. EMERGENCY	EMERGENCY
EQUIPMENT BRANCH	EQUIPMENT BRANCH

3. SPOT PAINTING ON ROUGH-IN:

A. CONDUIT, RACEWAYS, BOXES, BACKBONES, PANELBOARDS, ETC. SHALL BE SPOT PAINTED. CONDUIT SHALL BE IDENTIFIED WITHIN 6 INCHES OF THE BOX OR ENCLOSURE. THE ENTIRE BOX AND COVERPLATE SHALL BE PAINTED.

B. USE FOLLOWING COLORS FOR COLOR BANDS AND FOR COLOR CODING:

SYSTEM	COLOR
1) EQUIPMENT BRANCH	KELLY GREEN
2) NORMAL POWER	WHITE
3) MISCELLANEOUS COMMUNICATIONS	BROWN
4) FIRE ALARM	RED
5) TELEPHONE/COMPUTER	BLACK

C. CABLE AND CONDUCTOR IDENTIFICATION WILL BE AS PER NFPA 70.

D. OPERATIONAL SIGNAGE SHALL BE PROVIDED WHERE REQUIRED.

16110 BASIC MATERIALS AND METHODS

A. RACEWAYS AND FITTINGS:

1. ALL WIRING SHALL BE INSTALLED IN APPROPRIATE RACEWAY SYSTEMS OF SCHEDULE 80 PVC CONDUIT AND LIQUID-TIGHT FLEXIBLE CONDUIT AS CONDITIONS AND CODES DICTATE.

2. ALL CONDUIT SHALL HAVE AN INSULATED COPPER EQUIPMENT GROUNDING CONDUCTOR THROUGHOUT THE ENTIRE LENGTH OF THE CIRCUIT WITHIN THE CONDUIT.

16120 WIRES AND CABLES

A. ALL BRANCH CIRCUITS SHALL BE COPPER WITH THHN/THWN INSULATION. MINIMUM SIZE #12 AWG.

B. FEEDERS AND SUBFEEDERS SIZE #4 AND LARGER SHALL BE XXHW COPPER.

C. COLOR CODING SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE, 2014 EDITION SPECIFICALLY. PHASE CONDUCTORS OF EACH VOLTAGE SYSTEM MUST BE OF A DIFFERENT COLOR. NEUTRALS SHALL BE WHITE FOR 120/208 AND GRAY FOR 277/480. EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN INSULATED.

16130 OUTLET BOXES

A. OUTLET BOXES: OUTLET BOXES SHALL BE ONE PIECE OR PROJECTION WELDED, STAINLESS STAMPED STEEL FOR GANG SIZES REQUIRED. SECTIONAL BOXES ARE NOT ACCEPTABLE. BOXES SHALL BE 4" SQUARE AND 1-1/2" DEEP GENERALLY. LARGER BOXES SHALL BE USED AS REQUIRED BY CODE.

16140 WIRING DEVICES

A. ALL RECEPTACLES SHALL BE 20 AMP, 125 VOLT GROUNDING TAMPER PROOF TYPE, (HOSPITAL GRADE) (SPECIFICATION GRADE) AND MOUNTED AT 18" AFF.

B. RECEPTACLES LOCATED WHERE WATER OR WET CONDITIONS EXIST SHALL BE GROUND FAULT CIRCUIT. (GFCI)

C. ALL RECEPTACLES SHALL BE TAMPER PROOF.

D. APPROVED MANUFACTURERS: HUBBEL, PASS & SEYMOR, LEVITON.

16470 PANELBOARDS

ALL NEW PANELBOARD AND DISCONNECTS TO BE STAINLESS STEEL NEMA 4X

A. PANELS SHALL BE FULL SIZE, MINIMUM 20" WIDE X 5-3/4" DEEP USING FULL SIZE, BOLT-ON QUICK-MAKE, QUICK-BREAK CIRCUIT BREAKERS OF THE THERMAL MAGNETIC TYPE. MAINS SHALL BE LUGS ONLY OR MAIN BREAKERS AS REQUIRED. PANELS SURFACE MOUNTED IN CLOSETS. ALL PANELS TO HAVE SEPARATE EQUIPMENT GROUND BAR AND TYPEWRITTEN DIRECTORIES.

B. PANELS SHALL BE RATED FOR USE AS SERVICE ENTRANCE WHERE REQUIRED.

C. APPROVED MANUFACTURERS: SQUARE D, GE, CUTLER HAMMER, SIEMENS.

16480 SAFETY SWITCHES AND MOTOR CONTROLS

A. MOTOR STARTERS SHALL BE ACROSS-THE-LINE MAGNETIC TYPE SIZED FOR MOTOR HORSEPOWER, OVERLOADS SHALL BE PROVIDED IN EACH PHASE. HAND-OFF-AUTO SELECTOR SWITCHES, RUN PILOT LIGHTS AND AUXILIARY CONTACTS SHALL BE INCLUDED. CONTROL SHALL BE 120V.

B. ALL CONTROL, ALARM AND INTERLOCK WIRING SHALL BE IN CONDUIT AND SHALL BE COLOR CODED.

C. DISCONNECT SWITCHES SHALL BE HEAVY DUTY AND SHALL USE A QUICK-MAKE, QUICK-BREAK MECHANISM WITH AN ENCLOSURE OF A NEMA TYPE CONFORMING TO AREA IN WHICH IT IS INSTALLED. DISCONNECTS FOR MOTORS SHALL BE HORSEPOWER RATED.

D. APPROVED MANUFACTURERS: SQUARE D, GE, CUTLER HAMMER, SIEMENS.

16709 SURGE SUPPRESSION, BONDING AND GROUNDING

A. SURGE SUPPRESSION EQUIPMENT SHALL BE UL1449 3RD EDITION LISTED, 22L AIC MIN. RATING AND BE PROVIDED FOR ALL NEW DISTRIBUTION EQUIPMENT. IT SHALL BE INSTALLED ON THE MAIN ELECTRICAL SERVICE, ALL DISTRIBUTION PANELS AND SELECTED SUB-PANELS, POWER SUPPLIES OF SPECIAL SYSTEMS, AND ON CIRCUITS FEEDING SELECTED MAJOR ITEMS THAT HAVE A SENSITIVE ELECTRICAL NATURE. A BONDING AND SINGLE POINT GROUNDING SYSTEM SHALL BE PROVIDED TO INTERCONNECT THE MAIN ELECTRIC SERVICE GROUND AND ALL SPECIAL ELECTRONIC SYSTEM.

Rev. Description

LOXAHATCHEE RIVER  
ENVIRONMENTAL CONTROL DISTRICT  
2500 JUPITER PARK  
DRIVE  
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33458-8964  
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GENERAL  
CONSTRUCTION SERVICES

STANDARD DETAILS

Drawn: JD

Checked: PN

Proj. Eng. KD

Scale: NTS

Date: 01/03/2022

E-1

Sheet #1 of 4

