

1. LIFT STATION MINIMUM COMPONENTS: WET WELL, DUPLEX SUBMERSIBLE OR SURFACE MOUNTED OR RECESSED MOUNTED PUMPS, EMERGENCY PUMP OUT AND VALVE BOX, METER AND BOX, ISOLATION VALVE AND BOX, POWER AND CONTROL PANELS, WATER SERVICE, AND TELEMETRY.
2. WET WELL DIMENSIONS/REQUIREMENTS:
 - DIAMETER, MINIMUM = 6'
 - DEPTH, MAXIMUM = 16' FOR SURFACE MOUNTED PUMP SYSTEM, 26' FOR SUBMERSIBLE PUMP SYSTEM
 - WALL THICKNESS MINIMUM = 8"
 - LOWEST INVERT TO WET WELL BOTTOM SEPARATION MINIMUM = 60"
 - TOP ELEVATION MINIMUM = 12" ABOVE FINISHED/SURROUNDING GRADE/NO LOWER THAN THE 100-YEAR BASE FLOOD ELEVATION
3. LIFT STATIONS PROPOSED TO BE GREATER THAN 16' DEEP OR THAT DO NOT MEET THE MINIMUM DISTANCE REQUIREMENT FROM LOWEST INVERT TO WET WELL BOTTOM SHALL BE SUBMERSIBLE PUMP SYSTEMS.
4. SUBMERSIBLE PUMPS SHALL BE FLYGT (XYLEM) AND SURFACE OR RECESSED PUMPS SHALL BE SMITH & LOVELESS, INC. EQUIPMENT OTHER THAN SPECIFIED NEED TO BE REVIEWED AND APPROVED BY THE CITY.
5. INSTRUMENTATION AND CONTROLS (ALL LIFT STATION TYPES):
 - A. ALL INSTRUMENTATION, CONTROL, EQUIPMENT, PROGRAMMING, AND OPERATION, HEREINAFTER TERMED "THE SYSTEM", SHALL BE INTEGRATED BY THE CONTROL SYSTEM INTEGRATOR WHO, WITH THE CONTRACTOR, SHALL COORDINATE AND HAVE RESPONSIBILITY FOR INTERCONNECTION AND INTEGRATION OF ALL NEW, EXISTING AND ANY EQUIPMENT BEING INSTALLED AS SHOWN ON THE DRAWINGS. THE SYSTEM INTEGRATOR, WITH THE CONTRACTOR, SHALL PROVIDE ALL OF THE SERVICES, EQUIPMENT AND APPURTENANCES REQUIRED TO ACHIEVE A FULLY INTEGRATED AND OPERATIONAL SYSTEM. THE CONTROL SYSTEM INTEGRATOR, WITH THE CONTRACTOR, SHALL COORDINATE WITH ALL EQUIPMENT MANUFACTURERS AND WITH ALL MECHANICAL AND ELECTRICAL SYSTEM SUPPLIERS FOR INTERFACE REQUIREMENTS AND FURNISH ALL COMPATIBLE INTERFACE SIGNALING ANY SIGNAL ISOLATORS THAT ARE REQUIRED.
 - B. PRODUCTS SHALL BE OF THE SAME MAJOR INSTRUMENTATION MANUFACTURER WITH PANEL MOUNTED DEVICES OF THE SAME TYPE AND MODEL, AS POSSIBLE. SUBSTITUTION ON FUNCTIONS OR EQUIPMENT SPECIFIED WILL NOT BE ACCEPTABLE.
 - C. IN ORDER TO ENSURE THE INTERCHANGEABILITY OF PARTS, QUALITY CONTROL, EASE OF INTERFACING BETWEEN VARIOUS SUB-SYSTEMS AND ESTABLISHMENT OF MINIMUMS WITH REGARD TO RANGES AND ACCURACY, STRICT COMPLIANCE WITH THE ABOVE REQUIREMENTS SHALL BE MAINTAINED.
 - D. THE SYSTEM INTEGRATOR SHALL BE SANDERS COMPANY, INC. STUART, FLORIDA, PHONE 800-247-0880.
 - E. THE SYSTEM SHALL BE FABRICATED, ASSEMBLED, INSTALLED AND PLACED IN PROPER OPERATING CONDITION IN FULL CONFORMITY WITH DRAWINGS, SPECIFICATIONS, ENGINEERING DATA, INSTRUCTIONS AND RECOMMENDATIONS.
 - F. ALL EQUIPMENT AND INSTALLATIONS SHALL SATISFY APPLICABLE NATIONAL, STATE AND LOCAL MECHANICAL AND ELECTRICAL CODES.
6. WET WELL SECTIONS SHALL BE JOINED USING "RAMNECK" JOINT MATERIAL AND SHALL BE FREE FROM SEEPAGE PRIOR TO ACCEPTANCE. PROVIDE "EZ-WRAP" BUTYL ADHESIVE TAPE PER MANUFACTURER'S RECOMMENDATIONS AT EACH WETWELL SECTION EXTERIOR JOINT CIRCUMFERENCE.



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7. WET WELL CONSTRUCTION SHALL BE REINFORCED CONCRETE IN ACCORDANCE WITH A.S.T.M. C-76, 4,000 PSI AT 28 DAYS. ALTERNATE CONSTRUCTION SHALL BE PRECAST MONOLITHIC WITH BASE SLAB IN ACCORDANCE WITH ASTM C-478.
8. LIFT STATION AND THE LAST MANHOLE CONNECTING TO THE WET WELL SHALL BE FIBERGLASS LINED, AGRU SURE GRIP 13MM STUD HEIGHT, PE YELLOW, 3.0 MIN THICKNESS, OR OTHER MATERIAL AS APPROVED BY THE CITY OF PORT ORANGE.
9. PIPE AND FITTINGS IN WET WELLS TO BE ASSEMBLED USING 316 STAINLESS STEEL BOLTS AND NUTS ONLY.
10. ALL DISCHARGE FITTINGS TO BE PVC RESTRAINED JOINT.
11. ALL SEWER LINES ENTERING AND EXITING MANHOLES SHALL BE SEALED UTILIZING RUBBER BOOTS WITH 316 STAINLESS STEEL STRAPS AND COVERED WITH HYDRAULIC CEMENT OR OTHER CITY APPROVED INFILTRATION LIMITING METHODS.
12. ELECTRICAL PERMIT TO BE OBTAINED FROM CITY OF PORT ORANGE (OR APPROPRIATE JURISDICTION) PRIOR TO BEGINNING WORK ON ANY ELECTRICAL WIRING, EQUIPMENT, ETC. ALL ELECTRICAL WIRING TO COMPLY WITH NATIONAL ELECTRICAL CODE.
13. NO SPLICES OR JUNCTION BOXES ARE ALLOWED FOR BALL FLOAT CORD INSTALLATION.
14. LINKABLE FUSED ELECTRICAL DISCONNECT REQUIRED.
15. ALL LIFT STATION WIRING SHALL BE STANDARD COPPER. THREE PHASE POWER AND MOTORS REQUIRED.
16. DEMARCATION PANEL REQUIRED FOR ALL CONNECTIONS INTO WET WELL.
17. EMERGENCY "HIGH LEVEL" WET WELL SOLID ALARM LIGHT REQUIRED. NO HORN OR AUDIBLE ALARM REQUIRED.
18. EMERGENCY ELECTRICAL RECEPTACLE REQUIRED TO BE INSTALLED ON ELECTRICAL EQUIPMENT RACK.
19. DEVELOPER/CONTRACTOR TO PAY ALL INITIAL ELECTRICAL CONNECTION CHARGES, ETC. ON THE DAY OF FINAL ACCEPTANCE BY THE CITY, ALL FUTURE MONTHLY ELECTRICAL BILLS TO BE TAKEN OVER BY THE CITY OF PORT ORANGE PUBLIC UTILITIES DEPT. PLEASE CONTACT THE PUBLIC UTILITIES DEPARTMENT AT (386) 506-5750 TO TRANSFER POWER BILL OVER TO THE CITY.
20. LIFT STATION ENCLOSURE SHALL BE 6' HIGH BLACK PLASTIC COATED CHAIN LINK FENCE, WOODEN SHADOW BOX FENCE, OR MASONRY WALL, AS APPROVED BY THE CITY OF PORT ORANGE COMMUNITY DEVELOPMENT DEPARTMENT. THE MASONRY WALL SHALL BE IN COMPLIANCE WITH THE ARCHITECTURAL AND LANDSCAPE REQUIREMENTS OF THE LDC. ANY SPECIAL FENCING APPROVED AND INSTALLED SHALL BE MAINTAINED BY THE PRIVATE ENTITY RESPONSIBLE. THE ENCLOSURE SHALL BE INSTALLED WITH A MINIMUM OF 36" CLEARANCE FROM ALL ELECTRICAL / MECHANICAL EQUIPMENT.
21. ALL GROUND SURROUNDING THE LIFT STATION MUST BE GRADED IN #57 STONE. FINAL ACCEPTANCE OF THE LIFT STATION WILL NOT BE GIVEN UNTIL EFFECTIVE EROSION AND POSITIVE DRAINAGE CONTROL HAVE BEEN PROVIDED
22. LIFT STATION INSPECTIONS SHALL BE SCHEDULED AND COORDINATED THROUGH THE CITY'S SITE INSPECTOR 48 HOURS IN ADVANCE. IF DETERMINED BY THE CITY'S INSPECTOR THAT ALL WORK IS COMPLETE AND READY, THE CONTRACTOR MAY SCHEDULE THE STATION START-UP.
23. THE CONTRACTOR WILL NOTIFY, AT A MINIMUM, THE CITY UTILITIES ENGINEER, ENGINEER OF RECORD, POWER COMPANY, REMOTE TELEMETRY PROVIDER, AND PUMP SUPPLIER OF THE OFFICIAL START-UP DATE AND TIME.



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24. LIFT STATION START-UP AND ACCEPTANCE PROCEDURES:

- BEFORE FINAL APPROVAL OR ACCEPTANCE OF ANY PUMP STATION BY THE CITY, THE CONTRACTOR SHALL PERFORM A STATION START-UP TEST IN THE PRESENCE OF CITY'S REPRESENTATIVE AND/OR INSPECTOR TO DEMONSTRATE SATISFACTORY PERFORMANCE OF ALL EQUIPMENT AND APPURTENANCES AND THAT THE STATION IS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND STANDARD CONSTRUCTION DETAILS.
- REPRESENTATIVES FROM THE PUMPING EQUIPMENT MANUFACTURER, REMOTE TELEMETRY PROVIDER, AND ELECTRICAL CONTRACTOR SHALL BE PRESENT AT THE PUMP STATION START-UP TEST.
- CONTRACTOR OR ENGINEER OF RECORD SHALL PROVIDE A FORMAL TEST PROCEDURE AND FORMS FOR RECORDING DATA FOR THE START-UP TEST.
- THE RECORDED FIELD DATA SHALL BE SUBMITTED TO THE PUBLIC UTILITIES DEPARTMENT BY THE ENGINEER OF RECORD ALONG WITH A LIST OF ALL PUNCH LIST ITEMS OUTSTANDING.
- IN THE EVENT THAT THE STATION OR ANY OF IT'S ASSOCIATED COMPONENTS ARE DETERMINED TO BE DEFICIENT, THE CITY RESERVES THE RIGHT TO REQUIRE A COMPLETE NEW START-UP WITH ALL PARTIES NOTED ABOVE PRESENT.
- THE ENGINEER OF RECORD SHALL PROVIDE THREE (3) PAPER COPIES, ONE (1) PDF FILE AND ONE (1) DWG FILE OF THE STATION AS-BUILTS AND OPERATION AND MAINTENANCE MANUAL TO THE PUBLIC UTILITIES DEPARTMENT PRIOR TO FINAL ACCEPTANCE OF THE LIFT STATION.
- LIFT STATIONS SHALL ONLY BE CONSIDERED AS ACCEPTED BY THE CITY UPON WRITTEN CONFIRMATION BY THE PUBLIC UTILITIES DEPARTMENT TO THE ENGINEER OF RECORD.



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