

**GLENWOOD WELL #15**

- ① PEERLESS VERTICAL 91 HP PUMP MODEL 12HXX
- ② 2250 GPM @ 125' DEEP WELL TURBINE PUMP
- ③ 2" GIP WELDED TO CASING. USE FOR DISINFECTANT AND WATER DEPTH MEASUREMENTS.
- ④ METAL PLUG SHALL BE EXTRACTED FROM CASING. DO NOT DROP IN WELL!
- ⑤ 0-50 PSI PRESSURE GAUGE AND SAMPLE COCK.
- ⑥ WELL PUMP DISCONNECT SW.
- ⑦ WEATHERPROOF DUPLEX RECEPTACLE

NOTE: WELL VENT WILL NEED TO BE INSTALLED IN A 90° TURNDOWN AND WILL BE SCREENED. (BY WELL DRILLER)

**CHLORINATION AT WELL**

PRIOR TO INSTALLATION OF PUMP, WELL SHALL BE DISINFECTED BY THE FOLLOWING METHOD:  
 (1) MIX WITH 10 GAL WATER, 3 QTS. CHLORINE LIQUID BLEACH (5.25%)  
 (2) SWAB SOLUTION ON TO WELL CASING BEING CAREFUL TO WET ENTIRE INSIDE SURFACE AREA.  
 (3) REFER TO SPECIFICATIONS HEREIN FOR ADDITIONAL DISINFECTION PROCEEDURE.

**SCOPE OF WORK FOR GLENWOOD WELL # 15**

INSTALL A PEERLESS VERTICAL TURBINE PUMP, MODEL 12HXX, 4 STAGE BOWL ASSEMBLY, AN AIR RELEASE VALVE, CHECK VALVE, RAW WATER SAMPLING POINT, A FLOW METER AND RAW WATER PIPING TYING INTO AND EXISTING RAW WATER LINE. ALL ABOVE GROUND WATER LINE WILL BE FLANGED C-53 DUCTILE IRON PIPE AND BELOW GROUND PIPE WILL BE DR-18 C-900 AWWA PVC, ALL FITTING WILL BE EBBA MEGA LUGGED RESTRAINTS UNLESS FLANGED. A SAMPLE POINT WILL BE REQUIRE AT EACH END OF PROPOSED PIPING FOR BACTERIOLOGICAL TESTING.

SUPPLY ELECTRIC SERVICE TO OPERATE THE PUMP WILL NEED TO BE PART OF THIS PROJECT BUT WILL BE BY OTHERS, INCLUDING BUT NOT LIMITED TO: ELECTRICAL EQUIPMENT INCLUDING CONTROL PANEL BOX, FLOW DATA AND TELEMTRY.

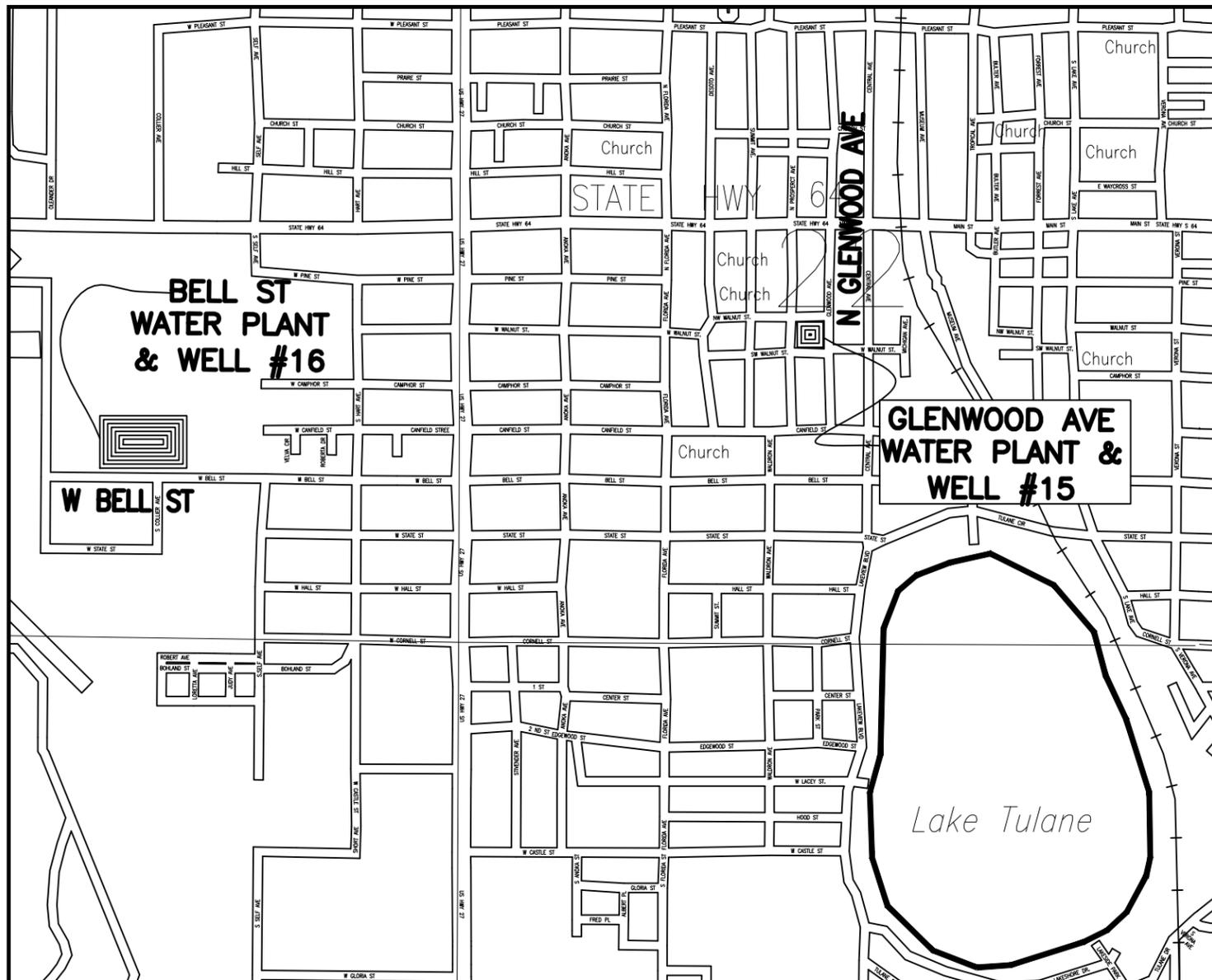
NOTE: ALL SUPPLIES / MATERIAL, BUT NOT LIMITED TO, PUMPS, FLOW METERS, VALVES, CHECK VALVES, FITTINGS, ETC. WILL BE INSTALLED TO MANUFACTURES SPECIFICATIONS.

SCALE: 1"=15'	SHEET: 2 OF 3	JOB #: 14041
APPROVED BY:	INITIAL SUBMITTAL	MJW/GCH
	DATE	REMARK
		DR/CH

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**THE CITY OF AVON PARK UTILITIES**  
**GLENWOOD WATER PLANT / WELL #15**  
**RAW WATER TIE INTO SYSTEM**



**HYDROSTATIC TESTS:**

- ALL COMPONENTS OF THE WATER DISTRIBUTION SYSTEM, INCLUDING FITTINGS, HYDRANTS, SERVICES, CONNECTIONS, AND VALVES SHALL BE HYDROSTATIC TESTED. SPECIFIC DISTRIBUTION SYSTEM COMPONENTS INCLUDING FITTINGS, VALVES, AND HYDRANTS, SHALL REMAIN UNCOVERED UNTIL TESTED AND APPROVED, PROVIDED, HOWEVER, THAT PIPE TRENCHES UNDER TRAVELED STREETS OR ROADS MAY BE BACKFILLED WITH THE PERMISSION OF THE PROJECT ENGINEER. NO TESTING SHALL BE DONE UNTIL ALL CONCRETE THRUST BLOCKING IS IN PLACE AND SET. IF HIGH EARLY STRENGTH CONCRETE IS USED, TESTING MAY BE CONDUCTED 48 HOURS AFTER THE CONCRETE IS PLACED; OTHERWISE, THRUST BLOCK CONCRETE MUST CURE 5 DAYS BEFORE PRESSURE TESTING COMMENCES. IN TESTING, THE PART OF THE SYSTEM UNDER TEST SHALL BE FILLED WITH POTABLE WATER AND SUBJECTED TO A SUSTAINED PRESSURE OF 150 PSI. THE PIPING SHALL BE TESTED IN SECTIONS, THEREBY TESTING EACH VALVE FOR SECURE CLOSURE. WHILE THE SYSTEM IS BEING FILLED, AIR SHALL BE CAREFULLY AND COMPLETELY EXHAUSTED. IF PERMANENT AIR VENTS ARE NOT LOCATED AT ALL HIGH POINTS, THE CONTRACTOR SHALL INSTALL CORPORATION STOPS OR FITTINGS AND VALVES AT SUCH POINTS SO THE AIR CAN BE EXPELLED AS THE PIPE SYSTEM IS SLOWLY FILLED WITH WATER.
- TEST PRESSURE SHALL BE MAINTAINED BY PUMPING FOR AT LEAST TWO HOURS AND UNTIL ALL SECTIONS UNDER TEST HAVE BEEN CHECKED FOR EVIDENCE OF LEAKAGE. RATE OF LOSS SHALL NOT EXCEED THAT SPECIFIED BELOW, "ALLOWABLE LIMITS FOR LEAKAGE". VISIBLE LEAKS SHALL BE CORRECTED REGARDLESS OF TOTAL LEAKAGE SHOWN BY TEST.
- THE SYSTEM AS A WHOLE, OR ANY PART, SHALL BE TESTED PRIOR TO CONSTRUCTION OF ANY SUBDIVISION ROADWAY OR PAVEMENT OVER THE WATER SYSTEM.
- THE SYSTEM AS A WHOLE, OR ANY PART, SHALL BE RETESTED AFTER COMPLETION OF BACKFILLING WHEN IT IS BELIEVED NECESSARY, AS DIRECTED BY THE PROJECT ENGINEER. THE SYSTEM SHALL ALSO BE RETESTED UPON COMPLETION OF SUBDIVISION ROADWAY OR OTHER PAVEMENT CONSTRUCTION THAT IS CONSTRUCTED OVER THE WATER SYSTEM.
- ALL PUMPS, GAUGES, AND MEASURING DEVICES SHALL BE FURNISHED, INSTALLED, AND OPERATED BY THE CONTRACTOR AND ALL SUCH EQUIPMENT AND DEVICES AND THEIR INSTALLATION SHALL BE APPROVED BY THE PROJECT ENGINEER. ALL PRESSURES AND LEAKAGE TESTING SHALL BE DONE IN THE PRESENCE OF A REPRESENTATIVE OF THE ENGINEER.
- WATER FOR TESTING AND FLUSHING SHALL BE POTABLE WATER PROVIDED BY THE CONTRACTOR FROM A SOURCE APPROVED BY THE PROJECT ENGINEER. THE HYDROSTATIC PRESSURE TESTS SHALL BE PERFORMED AS SPECIFIED AND NO INSTALLATION, OR SECTION THEREOF, WILL BE ACCEPTABLE UNTIL THE LEAKAGE IS LESS THAN THE NUMBER OF GALLONS PER HOUR AS DETERMINED BY THE FORMULA:

$$L = \frac{N \cdot D \cdot \sqrt{P}}{7400}$$

IN WHICH,  
 L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR  
 N = APPROXIMATE NUMBER OF JOINTS IN THE SECTION OF MAIN BEING TESTED  
 D = PIPE DIAMETER, IN INCHES  
 P = THE AVERAGE TEST PRESSURE DURING THE TEST, IN GAUGE PSI

**WATER PIPE SPECIFICATION:**

WATER MAIN - 4" AND UP TO 12" AWWA APPROVED AWWA C-900 PVC DR 18 ASTM D1784 (COLOR BLUE)

WATER MAIN - SMALLER THAN 4" AWWA APPROVED RING-TITE PVC CLASS 200, ASTM D2241 (COLOR BLUE)

DUCTILE IRON PIPE - 12" D.I.P. ABOVE GROUND C-53  
 12" D.I.P. BELOW GROUND PC-350  
 ALL FITTINGS REQUIRE SERIES 1100 MEGA-LUG

- ALL PIPE MATERIAL WILL BE AWWA OR ASTM STANDARD.
- ALL PVC WATERLINE 4" - 12" WILL BE AWWA C-900 DR 18.
- ALL PVC WATERLINE SMALLER THAN 4" WILL MEET THE REQUIREMENTS OF ASTM D-1785
- ALL POLYETHYLENE PIPE FOR PIPE SIZES 1/2" TO 3" SHALL MEET THE REQUIREMENTS OF AWWA C-901
- POLYETHYLENE PIPE SIZES 4" TO 63" SHALL MEET THE REQUIREMENTS OF AWWA C-906.

NOTE: EACH SUBCONTRACTOR WILL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL UTILITIES EFFECTED BY HIS WORK.

**INSTALLATION INSTRUCTIONS:**

- THE SUBCONTRACTOR WILL BE RESPONSIBLE FOR TAKING ALL STEPS NECESSARY INCLUDING SHORING TO INSURE THE INTEGRITY OF THE ALL EXISTING PAVEMENTS, UTILITIES AND STRUCTURES AND BE RESPONSIBLE FOR REPLACEMENT OR REPAIR OF ANY DAMAGE CAUSED BY OR RELATED TO CONSTRUCTION OF WATERLINE.
- THE PIPE SHALL BE BEDDED IN COMPACTED CLEAN SAND WITH ALL ORGANIC MATTER AND DEBRIS REMOVED.
- BACK FILL SHALL BE OF SIMILAR MATERIAL AND PLACED BY HAND AND COMPACTED BY TAMPING TO AT LEAST 12" OVER THE TOP OF THE PIPE.
- ALL FILL TO BE CLEAN SAND AND TO BE PLACED IN APPROXIMATE 12" LAYERS AND IS TO BE COMPACTED BY ROLLING OR TAMPING.
- PIPE IS TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS, USING THE MANUFACTURER SPECIFIED JOINT LUBRICANTS AND CEMENTS IF REQUIRED.
- ALL DISTURBED AREAS WITHIN THE CITY, COUNTY AND STATE R/W ARE TO BE RESTORED AND SODDED.
- THE CONNECTION TO THE CITY OF AVON PARK UTILITIES WATER DISTRIBUTION SYSTEM WILL BE DONE TO THE CITY OF AVON PARK UTILITIES SPECIFICATIONS UNDER THE UTILITY DEPARTMENT SUPERVISION REQUIREMENTS.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING ALL UTILITIES, ROADS AND STRUCTURES DAMAGED DURING THE DIRECTIONAL BORE OR JACK AND BORE CONSTRUCTION PHASE.

**TESTING:**

- ALL TESTS WILL REQUIRE THE PRESENCE OF THE ENGINEER, CONTRACTOR OR HIS DESIGNATED INSPECTOR.
- ALSO PRESENT WILL BE A DESIGNATED INSPECTOR FROM THE CITY OF AVON PARK UTILITIES WATER DISTRIBUTION PLANT.
- THE SUBCONTRACTOR SHALL TAKE ALL PRECAUTIONS TO SECURE A WATERTIGHT WATER LINE UNDER ALL CONDITIONS.
- ALL VISIBLE DAMAGE FLAWS SHALL BE REPAIRED OR REPLACED REGARDLESS OF THE OUT COME OF ANY TESTING PERFORMED.
- TEST SHALL BE PERFORMED PRIOR TO CONNECTION TO THE CITY OF AVON PARK UTILITIES WATER DISTRIBUTION SYSTEM.

**WATER LINES:**

- THE WATER LINES SHALL BE TESTED UNDER A HYDROSTATIC PRESSURE OF 150 PSI FOR AT LEAST 2 HOURS.
- THE WATER LINE SHALL BE CHLORINATED AND SAMPLES TAKEN AT TEMPORARY SAMPLING POINTS ON 2 CONSECUTIVE DAYS, AND TESTED PER HIGHLANDS COUNTY HEALTH DEPARTMENT REQUIREMENTS. THE TESTS SHALL INCLUDE, BUT NOT LIMITED TO, BACTERIOLOGICAL, PH AND CHLORINE RESIDUAL.

THE SUBCONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT TO PERFORM ALL TESTS.

NOTE: BACTERIOLOGICAL TEST FOR A COMMUNITY OR NON-COMMUNITY WATER SUPPLY SYSTEM WELL CLEARANCE, A MINIMUM OF TWENTY (20) CONSECUTIVE SAMPLES ARE REQUIRED WITH NO MORE THAN TWO (2) SAMPLES TAKEN DAILY. WELL SAMPLES RESULTS SHALL NOT EXCEED FOUR (4) COLIFORM PER 100 MILLILITERS OF SAMPLE IN MORE THAN TEN PERCENT (10%) OF THE SAMPLES ANALYZED. SAMPLES RESULTS FROM ANY COMMUNITY OR NON-COMMUNITY WATER SUPPLY FACILITY SHALL NOT BE ACCEPTED ON ANY ANALYSIS WITH TNTC OR HEAVY NON-COLIFORM COUNTS.

CONTROL OF COPPER PIPE CORROSION AND BLACK WATER TEST : MEASUREMENT FOR ALKALINITY, DISSOLVED IRON, DISSOLVED OXYGEN, PH, TOTAL SULFIDE AND TURBIDITY IN MINIMUM OF ONE RAW WATER FROM THE NEW WELL.

### WATERLINE CROSSING TABLE

	HORIZONTAL SEPARATION	CROSSING (1)	JOINT SPACING • CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER (2)	<p>3' MINIMUM</p>	<p>WATER MAIN 12" IS THE MINIMUM, EXCEPT FOR STORM SEWER, THEN 6" IS THE MINIMUM AND 12" IS PREFERRED</p>	<p>ALTERNATE 3' MINIMUM</p>
VACUUM SANITARY SEWER	<p>10' PREFERRED 3' MINIMUM</p>	<p>WATER MAIN 12" IS PREFERRED 6" IS THE MINIMUM</p>	<p>ALTERNATE 3' MINIMUM</p>
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER FORCE MAIN, RECLAIMED WATER (4)	<p>10' PREFERRED 6' MINIMUM (3)</p>	<p>WATER MAIN 12" IS THE MINIMUM, EXCEPT FOR GRAVITY SEWER, THEN 6" IS THE MINIMUM AND 12" IS PREFERRED</p>	<p>ALTERNATE 6' MINIMUM</p>

(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE THE MINIMUM SEPARATION IS 12 INCHES.  
 (2) RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.  
 (3) 3 FEET FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.  
 (4) RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

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**PE Polston Engineering Inc.**  
 CIVIL ENGINEERING CONSULTANTS

THE CITY OF AVON PARK UTILITIES  
 BELL STREET WATER PLANT / WELL #16  
 RAW WATER TIE INTO SYSTEM

SCALE: 1"=NTS  
 APPROVED BY: [Signature]

SHEET: 3 OF 3  
 JOB #: 14041  
 INITIAL SUBMITTAL  
 DATE

REMARK