# Scope of Work

## ROMP 88.5 – Northeast Polk Upper Floridan Aquifer Monitor Well Construction

## Central Florida Water Initiative

**March 28, 2022**

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

# Scope of Work

**ROMP 88.5 – Northeast Polk Upper Floridan Aquifer Monitor Well Construction**
**Section 24, Township 25 South, Range 25 East**
**Polk County, Florida**

3/28/2022

## Site Location

The ROMP 88.5 – Northeast Polk well site is in northwestern Polk County in the northwest ¼ of the southwest ¼ of the southwest ¼ of Section 24, Township 25 South, Range 25 East. The well site is located at latitude 28° 17' 29.08" North and longitude 81° 46' 20.94" West (fig. 1).

From Interstate 4 in Lakeland, take exit 48 for County Road 557/State Road 557. Continue for 5.6 miles and turn left (west) onto Deen Still Road. After 0.3 miles, turn right (north) onto Brown Shinn Road. Proceed for 2.2 miles and turn right (east) onto Hog Farm Road. Continue for 0.2 miles and the well site is located on the left hand (north) side of the road (fig. 1). Figure 2 shows the well site layout.

## Drilling Water Supply

A 4-inch diameter Upper Floridan aquifer well exists on the site for use as a water supply. The well is equipped with a District-owned submersible pump and is available for contractor use. Contractor will not charge the Southwest Florida Water Management District (District) standby time to replace or repair pump in the event of pump failure.

## Well Construction

**Note:** Well construction will begin on the **Lower Floridan aquifer below middle confining unit VIII permanent monitor well** (Figure 6). Construction shall proceed in the following order:

1. The 24-inch, 16-inch, and 10-inch steel casings will be installed to the specified depths. The 10-inch open hole will then be drilled only to 1,800 feet below land surface (bls). The contractor will then mobilize the drill rig to the next monitor well to be constructed.
2. The District will then mobilize the District-owned Universal Drill Rig (UDR) core drilling rig to the **Lower Floridan aquifer below middle confining unit VIII permanent monitor well** (Figure 6) and begin exploratory coring and testing from 1,800 feet bls to a total depth of 2,500 feet bls. The District will then demobilize the UDR core drilling rig from the well.
3. The contractor will then mobilize back to this well and resume drilling the 10-inch borehole from 1,800 to 2500 feet bls and installation and grouting of the final 4-inch steel casing to 1,920 feet bls.

The results from the exploratory coring and testing from 1,800 feet bls to 2,500 feet bls will determine if the **Lower Floridan aquifer below middle confining unit VIII – temporary production well** (Figure 7) will be constructed.

## Well Specifications

The **Upper Floridan aquifer – temporary production well (U Fldn Aq Production Temp)** is shown in figure 3. A 24-inch steel surface casing shall be installed from land surface to approximately 80 feet bls. Next, 16-inch steel casing shall be installed to approximately 95 feet bls. Finally, a 10-inch nominal open hole shall be drilled from approximately 95 to 520 feet bls.

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The **Lower Floridan aquifer below middle confining unit I – permanent monitor well (L FIdn Aq I Monitor)** is shown in figure 4. A 16-inch steel surface casing shall be installed from land surface to approximately 80 feet bls. Next, 10-inch steel casing shall be installed to approximately 195 feet bls. Then, a 10-inch nominal borehole shall be drilled to a total depth of approximately 960 feet bls and 4.5-inch SDR 17 spline lock casing shall be installed and grouted approximately 620 feet bls using formation packers. The District will run a caliper log in the borehole before installing the casing to determine the most suitable depth for the formation packers.

The **Lower Floridan aquifer below middle confining unit I – temporary production well (L FIdn Aq I Production Temp)** is shown in figure 5. A 24-inch steel casing shall be installed from land surface to approximately 80 feet bls. Next, 16-inch steel casing shall be installed to approximately 195 feet bls. Then, 10-inch steel casing shall be installed to approximately 620 feet bls. Finally, a 10-inch nominal open hole shall be drilled from approximately 620 to 960 feet bls.

The **Lower Floridan aquifer below middle confining unit VIII – permanent monitor well (L FIdn Aq VIII Monitor)** is shown in figure 6. A 24-inch steel surface casing shall be installed from land surface to approximately 80 feet bls. Next, 16-inch steel casing shall be installed to approximately 300 feet bls. Then, 10-inch steel casing shall be installed to 1,120 feet bls. A 10-inch nominal open hole shall be drilled to a total depth of approximately 2,500 feet bls and 4-inch steel casing shall be installed and grouted approximately 1,920 feet bls using formation packers. The District will run a caliper log in the borehole before installing the casing to determine the most suitable depth for the formation packers.

The **Lower Floridan aquifer below middle confining unit VIII – temporary production well (L FIdn Aq VIII Production Temp)** is shown in figure 7. A 24-inch steel casing shall be installed from land surface to approximately 80 feet bls. Next, 16-inch steel casing shall be installed to approximately 300 feet bls. Then, 10-inch steel casing shall be installed from land surface to approximately 1,920 feet bls, utilizing a back-off coupling at 250 feet bls. The 10-inch nominal open hole will then be drilled from approximately 1,920 to 2,500 feet bls. Finally, the upper 250 feet of casing will be removed via the back-off coupling. **NOTE: Construction of this well is dependent on results of exploratory coring and testing.**

**Note: All casing depths and open hole depths are estimated. Actual depths will be determined in the field by the on-site geologist and the driller.**

**Miscellaneous**

- The contractor will supply all materials including drilling supplies, well casings, and cement. No well protector or concrete pads will be required. The discharge of water from **reverse-air drilling** shall be directed into an on-site pit.
- The District will run a caliper log inside the well to confirm casing integrity and total depth prior to payment.

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- *The selected contractor will need to apply for the well construction and/or abandonment permits as soon as the purchase order is issued. Well construction permits for District-owned monitor wells must be approved by the Florida Department of Environmental Protection. Approval may take 1-2 weeks. Please list* ***SWFWMD 2379 BROAD STREET, BROOKSVILLE, FL 34604-6899, 1-800-423-1476*** *as owner on well construction permit.*

**Solids Control**

Before beginning mud rotary drilling operations, a written solids control plan must be submitted for approval by District staff which will include the type of solids control equipment to be used (i.e., de-sanding cones, shake table, et cetera) The solids control plan will be monitored throughout the well construction by District staff and will be designed based upon the following needs of the District:

- Drilling fluid sand content must be maintained at less than 2% during drilling operation.
- Wall cake thickness should be 2/32 inch during drilling operation.
- Drilling fluid weight should be less than 9.0 lbs. per gallon during drilling operation.
- Viscosity of the drilling mud should range between 32-38 seconds per quart during drilling operation.
- Grout weight should range between 14.0 lbs. per gallon before grouting installation occurs.

**Materials**

The contractor will supply all materials including drilling supplies, well casings, polymers, and additives for controlling drilling fluids and cement.

**Site Restoration**

The well site must be restored to pre-well construction conditions at completion of well construction. Site clean-up and restoration will include removal of drilling debris, cuttings, sand, and drilling fluids from the site. If earthen mud pits have been utilized, mud thinners or dispersants should be utilized to break down drilling mud before drilling fluids, solids, and other debris are excavated from the pit. Mud pits will be back filled with the same material that was removed from the pit during its excavation. Solids or cuttings that were removed from the drilling fluid during drilling operations must also be removed from the drill site to an off-site location.

Final payment and free-on-board acceptance of the well by the District is contingent upon successful well installation per this scope of work and satisfactory site restoration.

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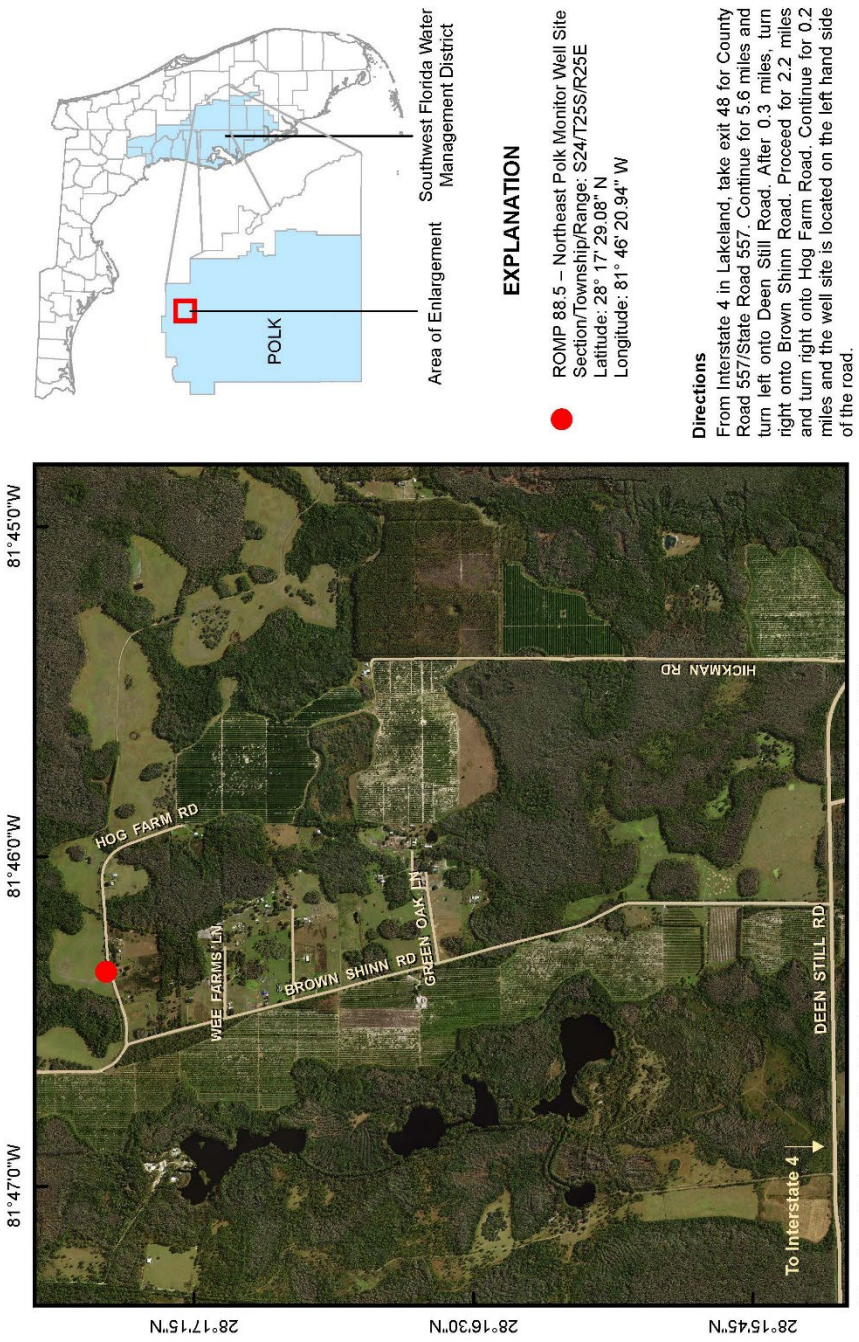


**Figure 1. Location of the ROMP 88.5 – Northeast Polk well site in Polk County, Florida.**

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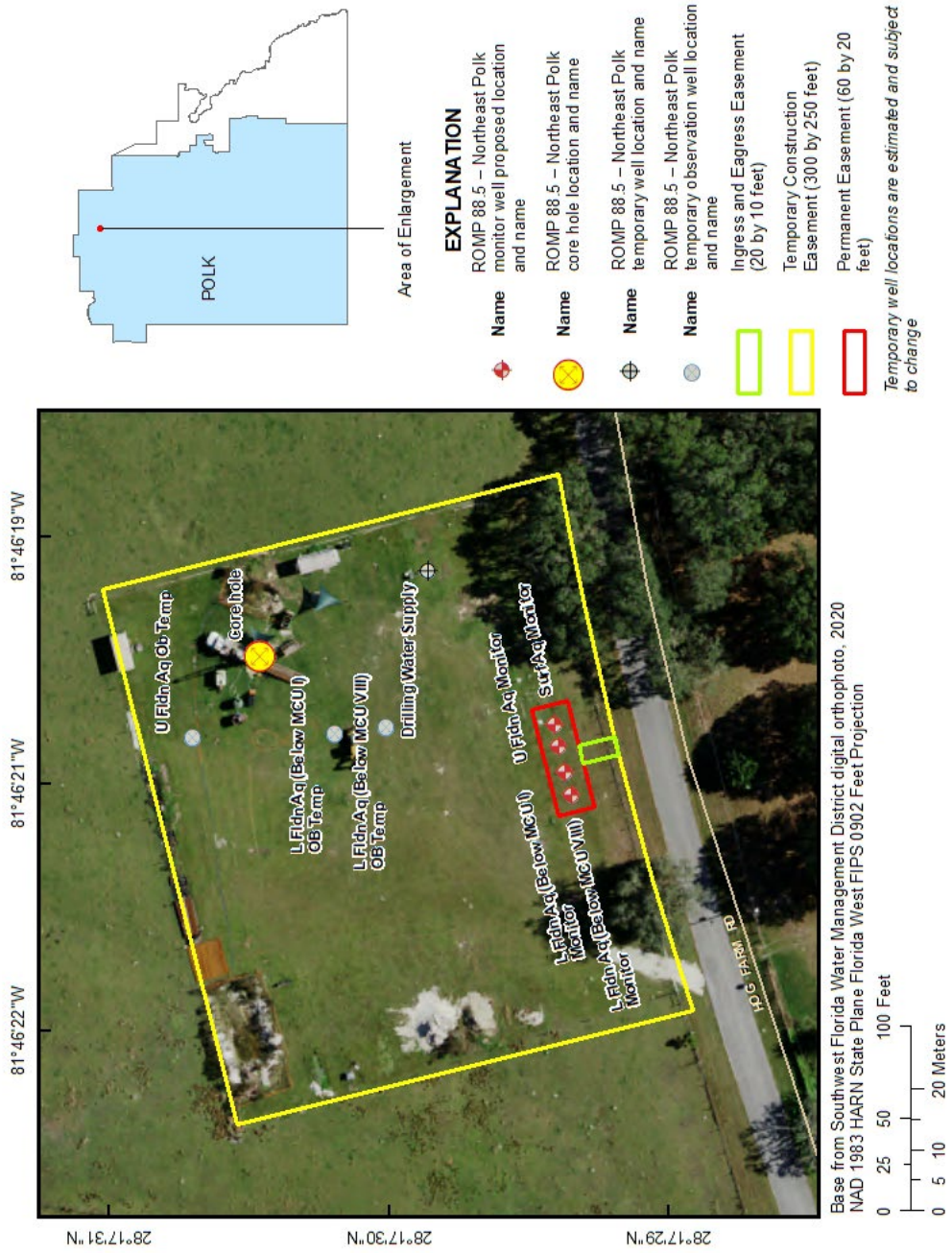


**Figure 2. Layout of the ROMP 88.5 – Northeast Polk well site in Polk County, Florida.**

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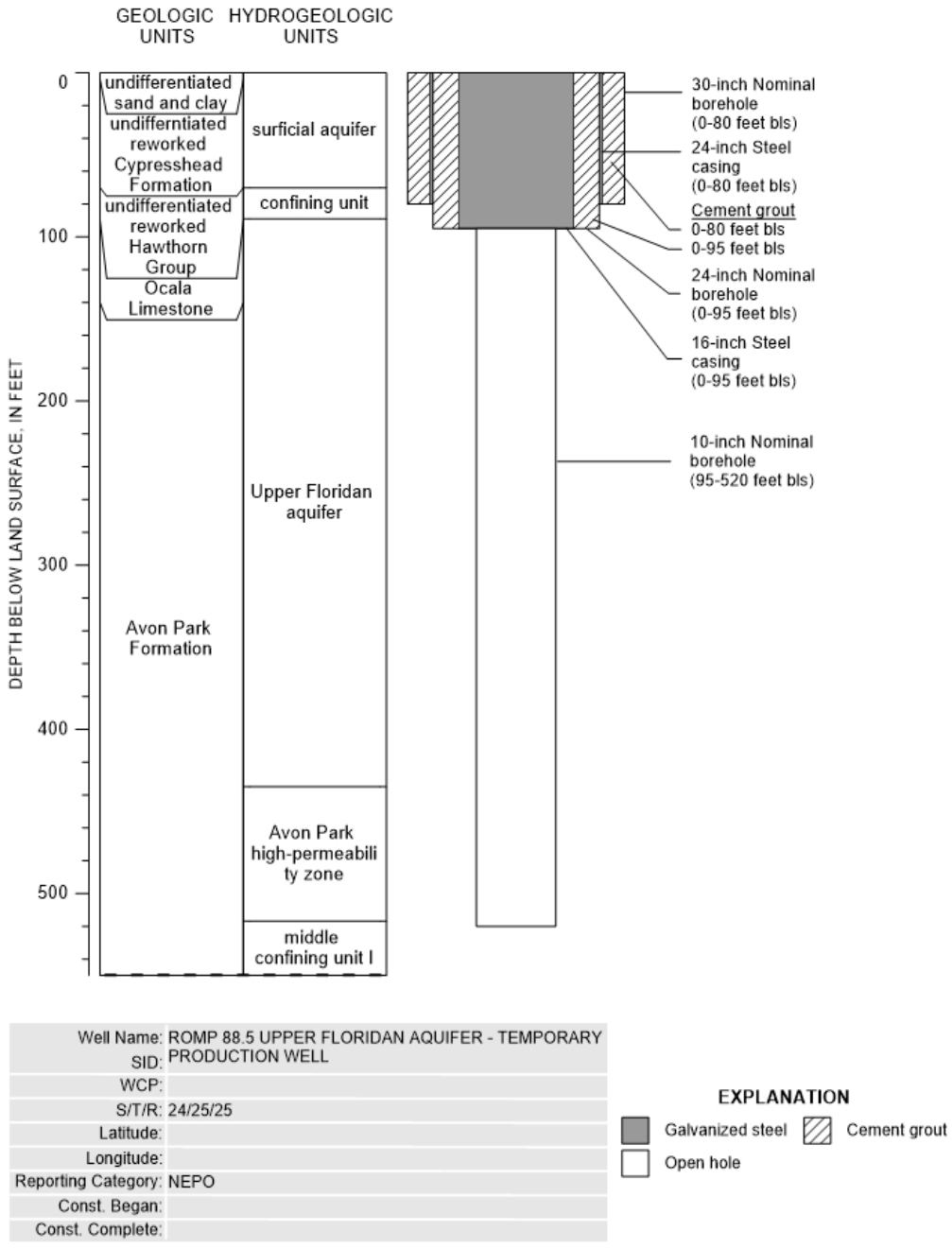


**Figure 3. Diagram for the proposed Upper Floridan aquifer - temporary production well at the ROMP 88.5 – Northeast Polk in Polk County, Florida.**

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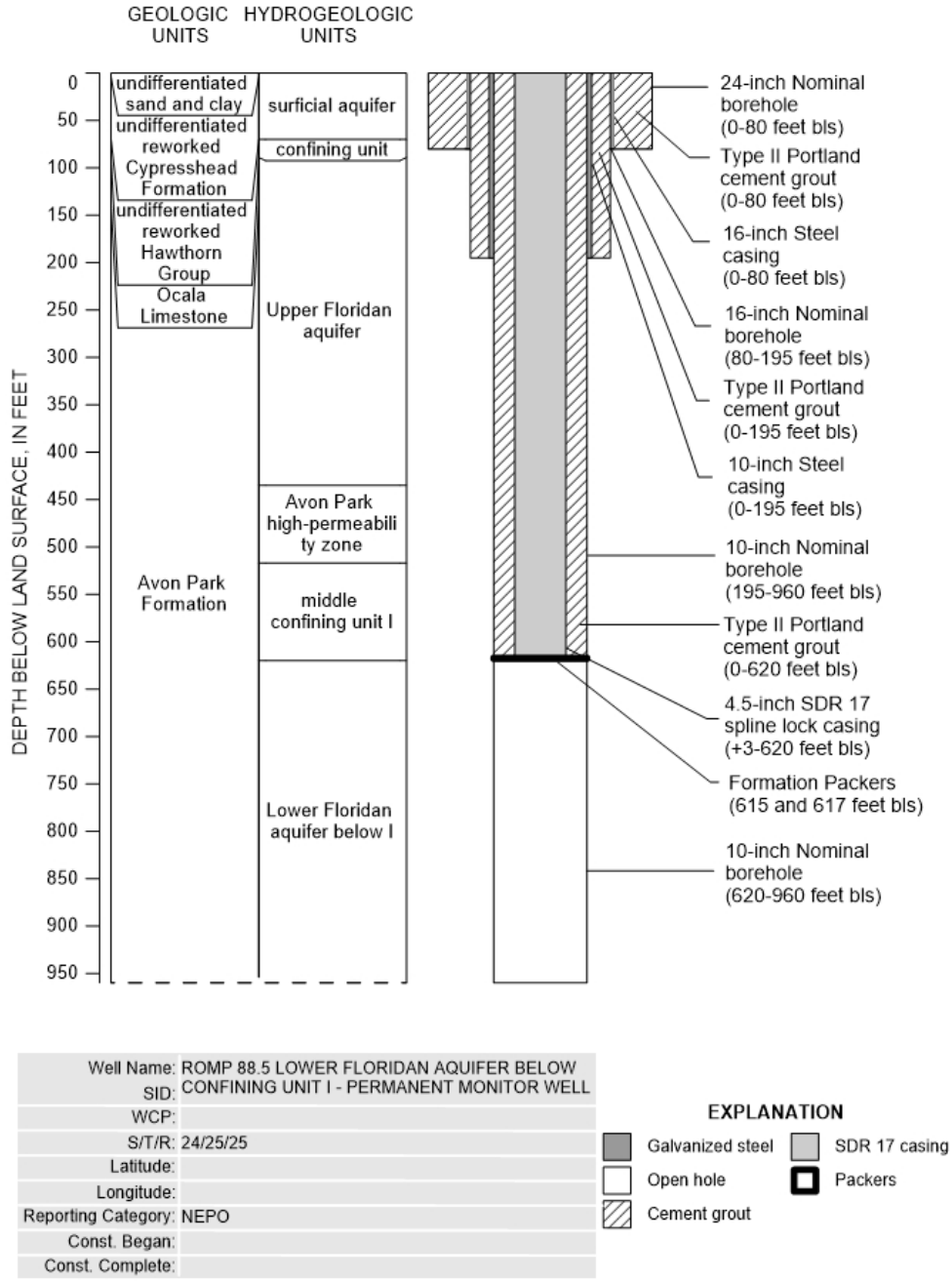


**Figure 4. Diagram for the proposed Lower Floridan aquifer below middle confining unit I – permanent monitor well at the ROMP 88.5 – Northeast Polk in Polk County, Florida.**

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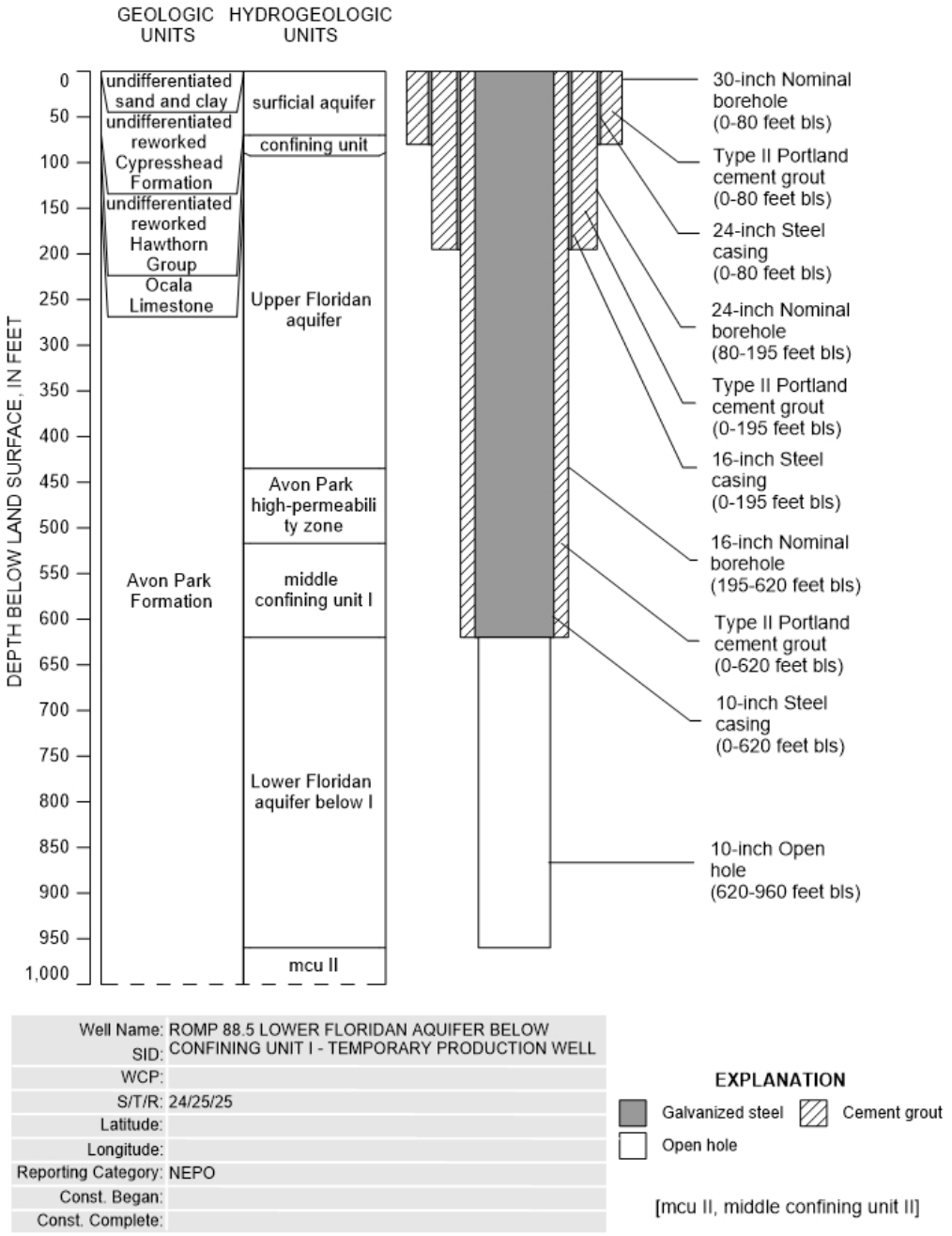


**Figure 5. Diagram for the proposed Lower Floridan aquifer below middle confining unit I- temporary production well at the ROMP 88.5 – Northeast Polk in Polk County, Florida.**

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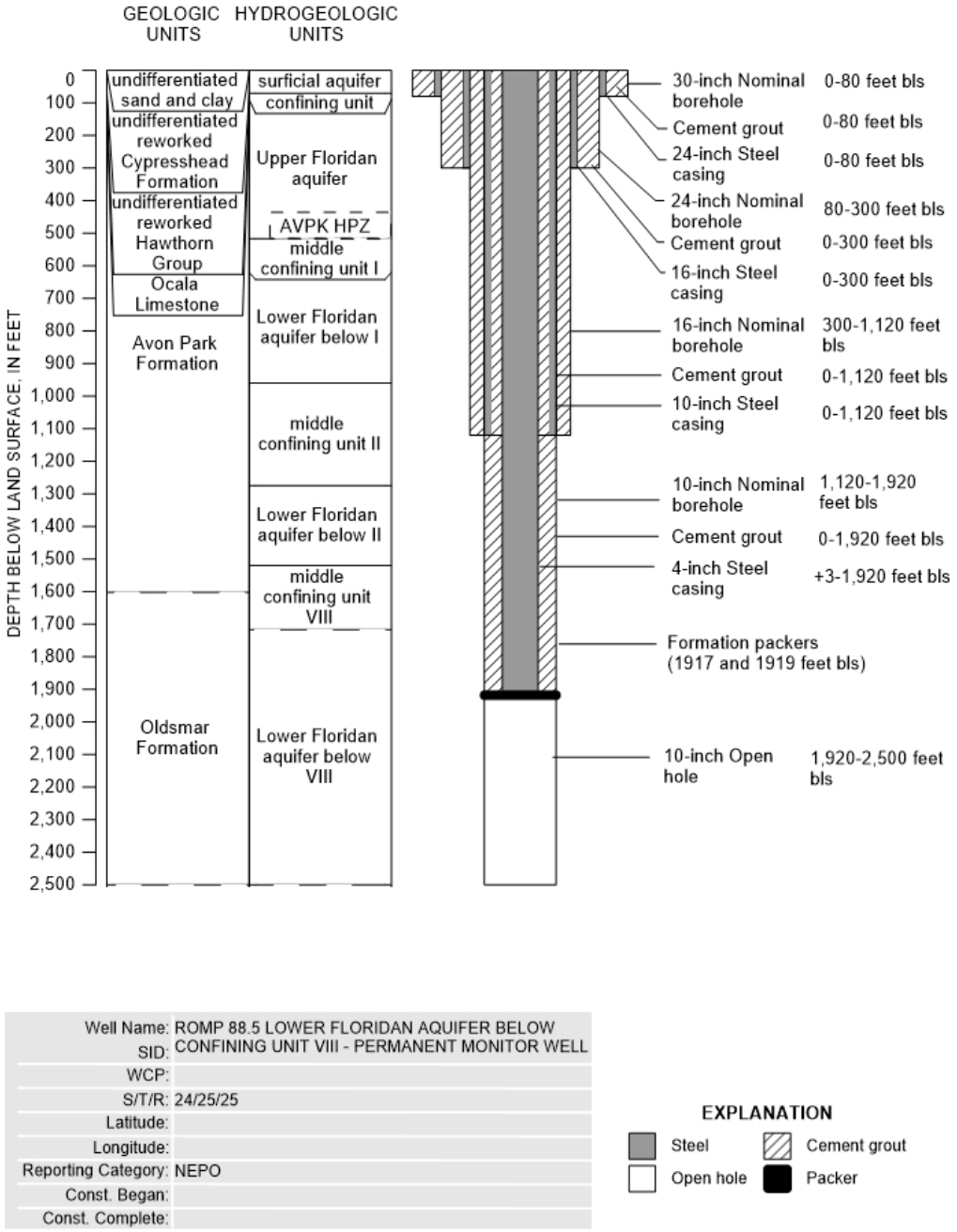


**Figure 6. Diagram for the proposed Lower Floridan aquifer below middle confining unit VIII - permanent monitor well at the ROMP 88.5 – Northeast Polk in Polk County, Florida.**

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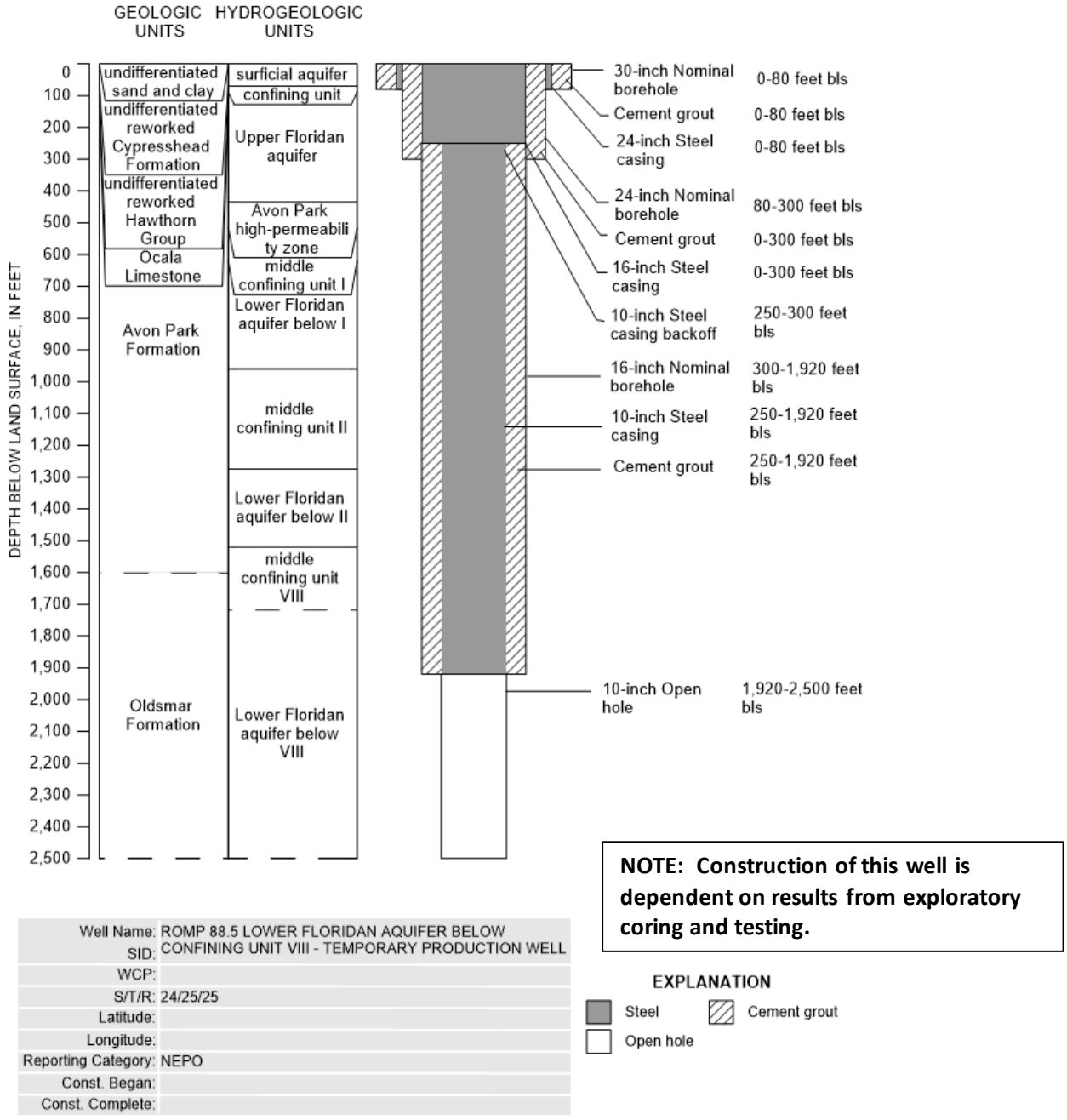


**Figure 7. Diagram for the proposed Lower Floridan aquifer below middle confining unit VIII - temporary production well at the ROMP 88.5 – Northeast Polk in Polk County, Florida.**