



**Report**  
**Geotechnical Engineering Services**  
**Proposed Project Orchid 7-Acre Site**  
**Royal Palms Parkway and Town Center Boulevard**  
**Palm Coast, Flagler County, Florida**  
**PSI Project No.: 07573311**



Project Number: 07573311

September 9, 2024

**Professional Service Industries, Inc.**

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Mr. Ajit Abraham

Project Manager

**Jacobs Engineering**

1999 Bryan Street, Suite 3500

Dallas, TX 75201

Re: **Report**  
Geotechnical Engineering Services  
Proposed Project Orchid 7-Acre Site  
Royal Palms Parkway and Town Center Boulevard  
Palm Coast, Flagler County, Florida

Dear Mr. Abraham:

In general accordance with PSI Proposal No. 0757-430028, your authorization, and Change Order 0757-430028-U1, **Professional Service Industries, Inc. (PSI), an Intertek company**, has provided geotechnical engineering services for the referenced project. This report presents the results of our field exploration program and provides design-level geotechnical engineering recommendations to guide design and construction of the proposed building, pavement areas, and stormwater management system.

### PROJECT INFORMATION

The subject site is located approximately 525 feet southwest of the intersection of Royal Palms Parkway and Town Center Boulevard in Palm Coast, Flagler County, Florida. Based on aerial imagery from Google Earth Pro, the approximately  $\pm 7$ -acre parcel consists of a grassed field. The site was formerly covered in planted pine and cleared in 2005 concurrently with the construction of Town Center Boulevard. Based on review of historical aerial photographs, it appears the site underwent clearing and mass grading in 2005 and 2006.

PSI received a Conceptual Site Plan for use in preparing this report. According to the provided information, the project will involve constructing a 50,460-square-foot, single-story building with associated pavements. We anticipate the building will be a masonry or concrete tilt-panel structure with a monolithic concrete floor slab. Stormwater for the site will be managed by a newly proposed stormwater pond to be located to the east of the building and pavement areas.

Foundation loads for the proposed building were not available to PSI at the time of this report. However, based on the provided information and our experience with similar structures, we anticipate maximum column and wall loads to be in the range of 150 kips and 5 kips per foot, respectively.

The above-listed assumptions have been used for the purpose of preparing this report. Adjustments to the evaluations and recommendations may be necessary if the planned development differs from the noted assumptions.





### SCOPE OF GEOTECHNICAL SERVICES

The purpose of this exploration was to obtain information on the general subsurface soil and groundwater conditions at the proposed project site. The subsurface conditions encountered were then evaluated with respect to the available project characteristics. In this regard, design-level geotechnical engineering evaluations for the following elements were addressed.

1. Feasibility of utilizing a shallow foundation system for support of the proposed building, with a slab-on-grade ground floor system.
2. Design parameters required for the foundation system, including allowable bearing pressure, foundation levels and expected settlements.
3. Recommendations for soil subgrade preparation, including stripping, grubbing and compaction. Engineering criteria for placement and compaction of approved structural fill materials.
4. General location and description of potentially deleterious materials encountered in the borings which may interfere with construction progress or structure performance, including existing fills or surficial organics.
5. Identification of groundwater levels including estimated normal seasonal high and average wet season groundwater levels.
6. Recommendations for pavement design and construction.
7. Recommended soil and groundwater parameters for use in stormwater pond design (by others), including base of effective aquifer, estimated average wet season and normal seasonal high groundwater levels, soil permeabilities (vertical and horizontal rates) and soil fillable porosity.
8. Coordinated the evaluation of the flow characteristics of adjacent existing fire hydrants.
9. Coordinated Level A Subsurface Utility Engineering (SUE) at three specific locations, including the 8-inch sanitary sewer stub-out, 2-inch reclaim service, and 8-inch water main stub-out.

The following services were provided in order to achieve the preceding objectives.

1. Reviewed readily available published geologic and topographic information. This published information was obtained from the appropriate quadrangle map published by the United States Geological Survey (USGS) and the "Soil Survey of Flagler County, Florida" published by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS).
2. Executed a program of subsurface sampling. PSI performed eight (8) Standard Penetration Test (SPT) borings in the proposed building area to a depth of 40 feet and eleven (11) auger borings to a depth of 5 feet below the existing ground surface in the proposed pavement areas (driveways and parking lots). Additionally, five (5) auger borings were performed in the stormwater pond area to a depth of 20 feet below the existing ground surface.



Two relatively undisturbed Shelby tube soil samples were collected from the pond area for laboratory permeability testing.

In the SPT borings, the upper 4 feet were augered by hand to confirm utility clearance. Below 4 feet, samples were collected, and Standard Penetration Test resistances (N-values) were measured continuously to ten (10) feet and on intervals of five (5) feet thereafter. In the auger borings, samples were obtained at each change in soil strata. The boring locations were established in the field using a hand-held GPS device and the site development plan.

3. Visually classified and stratified representative soil samples in the laboratory using the Unified Soil Classification System (USCS). Conducted a limited laboratory testing program to confirm engineering properties of the encountered soils. Identified soil conditions at each boring location and formed an opinion of the site soil stratigraphy. In addition, PSI performed two laboratory falling-head permeability tests to estimate the permeability rates of the in-situ soils in the area of the planned stormwater system.
4. Collected groundwater level measurements in the borings at the time they were performed.
5. The results of our field exploration and laboratory tests were used in the engineering analysis and in the formulation of our design-level geotechnical engineering recommendations for the project. The results of the subsurface exploration, including the recommendations and the data on which they are based, are presented in this report.

### REVIEW OF PUBLISHED DATA

#### USGS Topographic Map

The topographic survey map published by the USGS entitled “Flagler Beach West, Florida” was reviewed for ground surface features in the area of the proposed project site (refer to **Figure 1** in the **Appendix**). Based on this review, the natural ground surface elevation at the site is on the order of +25 feet National Geodetic Vertical Datum (NGVD) of 1929. No site-specific topographic data was provided to PSI to assess the depth of fill placed during previous mass grading.

#### USDA NRCS Soil Survey Map

The “Soil Survey of Flagler County, Florida,” as contained in the Natural Resources Conservation Service (NRCS), was reviewed for general near-surface soil information within the project vicinity (refer to **Figure 2** in the **Appendix**). This information indicates that there are two soil groups within the vicinity of the proposed project. The general information for the mapped soil units is summarized in the following table.

Soil Series	Depth (inches)	Unified Soil Classification	USDA Seasonal High Groundwater Table
			Depth (feet)
11—Myakka-Myakka, wet, fine sands, 0 to 2 percent slopes	0 to 80	SP, SP-SM, SM	0.5 to 1.5
19—Valkaria fine sand, 0 to 2 percent slopes	0 to 80	SP, SP-SM	0 to 0.5



## FIELD EXPLORATION

### General

To evaluate subsurface conditions at the site, PSI performed a series of eight (8) Standard Penetration Test (SPT) borings in the proposed building areas to a depth of 40 feet and eleven (11) auger borings to a depth of 5 feet below the existing ground surface in the proposed pavement areas (driveways and parking lots). Additionally, five (5) auger borings were performed in the stormwater pond area to a depth of 20 feet below the existing ground surface. Two relatively undisturbed Shelby tube soil samples were collected from the pond area for laboratory permeability testing. The borings were completed at the approximate locations shown on **Sheet 1** in the **Appendix**.

The SPT borings were completed using rotary wash procedures and sampled in general accordance with ASTM D-1586. An automatic hammer was used to obtain the SPT samples. In the SPT borings, the upper 4 feet were augered by hand to confirm utility clearance. Below 4 feet, SPT samples and resistances were generally collected continuously to 10 feet with the sampling frequency being at 5-foot centers thereafter to boring termination.

Select soil samples were subjected to laboratory testing to determine pertinent engineering properties/parameters. Testing included wash 200 sieve evaluations, moisture content and organic content. The laboratory testing program also included falling-head permeability tests of two relatively undisturbed tube samples collected from the stormwater area. The various tests were carried out following appropriate ASTM standards.

The results of the tests are included with the soil profiles on **Sheets 2** through **5** in the **Appendix** adjacent to the depth increment of the test specimen. The results of the permeability test are presented in the Stormwater Management section of this report.

The stratification presented is based on visual observation of the recovered soil samples, laboratory testing results, and interpretation of field logs by a geotechnical engineer. It should be noted that variations in the subsurface conditions are expected and may be encountered between and away from PSI's borings. Also, whereas the individual boring logs indicate distinct strata breaks, the actual transition between the soil layers may be more gradual than shown on the soil profiles.

### Soil Conditions

Based on the borings PSI completed for the project, subsurface conditions at the site are somewhat variable in the depth interval explored (5 to 40 feet below existing grades). In general, the SPT borings revealed a series of fine sands grading relatively clean to slightly silty and silty in composition (i.e., SP, SP-SM, and SM materials). Generally, the upper sands tend to comprise cleaner sands that are underlain by the more silty soils and soils containing shell.

Sand with traces of organics (less than 5 percent by dry weight) was encountered in boring B-8 in the upper 4 to 6 feet of boring B-8. In borings AB-11, PB-3, PB-4 and PB-5, a layer of organic sand (Stratum 6) was found at a depth of approximately 3 to 5 feet below current grades. Where encountered this layer contained between 6 and 15 percent by dry weight of organic material and was approximately 1 to 2 feet thick.



Based on the SPT blow counts recorded during our field exploration, the sands generally appear to be in a medium-dense to dense condition in the upper 10 feet, with zones of loose and very dense soils below 10 feet. A zone of very loose soil was present at an approximate depth of 20 feet below ground surface in most of the SPT borings. A detailed description of the individual borings is shown on the soil profiles in **Sheets 2** through **5** in the **Appendix**.

### **Groundwater Conditions**

At the time PSI's borings were performed (July 30 to August 1, 2024), groundwater was observed in the range of 3 to 4 feet below existing grades. Groundwater levels will fluctuate seasonally in response to rainfall or lack thereof. Additionally, water levels will to some degree be influenced by drainage improvements and irrigation practices in any given area.

The estimated normal seasonal high groundwater level presented herein is based on the observed soil stratigraphy, conditions observed in the borings, USDA Soil Survey information, and our experience in the project vicinity. In this regard, we estimate the normal seasonal high groundwater table (SHWT) ranges from at the natural ground surface to within 1 foot below the natural ground surface. More detailed information related to groundwater levels can be provided once site-specific topographic information is provided to PSI.

In general, the normal seasonal high groundwater level is not intended to define a limit or ensure that future seasonal fluctuations in groundwater levels will not exceed the estimated levels. Groundwater conditions will vary with environmental changes and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences, such as swales, drainage ponds, underdrains, and areas of covered soil (buildings, paved parking lots, sidewalks, etc.).

### **Utility Verification (Level A Subsurface Utility Engineering - SUE)**

PSI coordinated Utility Verification (Level A Subsurface Utility Engineering - SUE) to support the connection points for the existing Force Main and Water Main stub-outs in preparation for future construction at the vacant lot off Town Center Blvd, approximately 525 feet south of Royal Palms Pkwy. Non-destructive vacuum excavation methods were utilized to expose utilities at three locations: the 8-inch sanitary sewer stub-out, the 2-inch reclaim water service, and the 8-inch water main stub-out. The water main and sanitary sewer were successfully excavated and verified; however, the reclaim water service was only detected via Ground Penetrating Radar (GPR) up to the point where it crossed the road. The absence of a trace wire, combined with saturated soil conditions, significantly diminished GPR visibility, hindering further identification of the reclaim water service. Additionally, the reclaim water service was not marked by the City. Despite trenching efforts in the area, the utility could not be physically located.

Each test hole location was tied to a minimum of three visible physical features to facilitate future recovery and integration into the Base Map. TH3, TH4, and TH5 correspond to the three requested utility locations, while TH1 and TH2, provided as additional information, correspond to two utility locations excavated approximately 800 feet south of the requested locations. A report summarizing the Level A Subsurface Utility Engineering (SUE) findings is included in the **Appendix**.



### **SITE SUITABILITY**

Based on the results of the borings, it is our opinion that subsurface conditions are generally suitable for the planned development from a geotechnical perspective, provided our site preparation recommendations are followed. Given anticipated foundation loading noted herein, shallow spread footings can be used for support of the proposed building. Such foundations can be designed for a net allowable bearing pressure of 3,000 pounds per square foot (psf).

Based on our experience, the native sands including traces of organics (less than 5 percent organic content), should be acceptable to remain in place for building and pavement areas. The Stratum 6 organic soils (sands containing greater than 5 percent organic content) should be completely removed from beneath the building and pavement/hardscape areas where present, extending outward within the foundation and pavement zone of load influence. If organic soils with an organic content of less than 5 percent are encountered to be unstable or pumping during site preparation, PSI should evaluate them for potential removal. Additionally, if soils encountered during construction within the building and pond areas differ from those reported here, PSI should be notified to determine if modifications to our recommendations are required.

Pavements for the project can utilize conventional asphalt and concrete sections provided a minimum 18-inch clearance is maintained between the asphalt pavement base/bottom of concrete, and the estimated normal seasonal high groundwater table (ESHGWT). The site appears to be best-suited for construction of a wet-bottom stormwater pond similar to other existing ponds in the area.

More detailed discussions and recommendations regarding site preparation, foundation design, pavements, and stormwater management for the project are provided in the following sections of this report.

### **SITE PREPARATION CONSIDERATIONS**

#### **General**

The following recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered. If there is any change in the project criteria, including the location or orientation of the development, a review must be made by PSI to determine if additional fieldwork and/or any modifications to our recommendations will be required.

Once final design plans and specifications are available, a general review by PSI is strongly recommended as a means to check that the evaluations made in preparation of this report are correct and that earthwork and foundation recommendations are properly interpreted and implemented.

#### **Site Clearing/Stripping**

Prior to subgrade preparation and fill placement, clearing and grubbing including root raking and removal of trees/scrub, any organic-laden topsoil or any existing debris that may remain on the site should be completed. This normally includes removing the surface vegetation, stripping topsoil, grubbing major root systems, and removing any miscellaneous debris and/or other deleterious materials. Stratum 6 organic soils should be removed in their entirety from beneath all building and pavement/hardscape areas. Additional shallow borings or test pits may be needed to better delineate the extent of the Stratum 6 soils.



At a minimum, it is recommended that the clearing/stripping operations extend at least ten feet beyond the proposed pavement and building perimeters, where possible. Material generated during stripping operations should be properly disposed of off-site as directed by the Owner. Initial site clearing and preparation work should be carried out under the full-time observation of a representative of PSI's geotechnical engineer.

### **Ground Improvement by Proof Rolling**

After completion of site clearing, the stripped subgrade should be densified by heavy proof rolling. Proof rolling operations should be carried out from the stripped/cleared subgrade with a heavy self-propelled vibratory roller. This work should be carried out with a compactor capable of imparting a maximum dynamic drum force of at least 36,000 pounds. The limits of proof rolling should encompass the development areas, plus a horizontal distance of 10 feet beyond the exterior edges of the proposed building and pavement areas.

Densification of the subsoils should be accomplished by making repeated overlapping coverages of the roller as it operates at its full vibrational frequency and a travel speed of not more than two feet per second. Within 75 feet of existing nearby buildings/structures, the roller should be operated in static mode, or vibration monitoring can be performed to assess vibration levels. Proof rolling operations should be carried out under the surveillance of the PSI geotechnical engineer's representative so that observations of the subgrade can be made, and in-place density tests can be taken to evaluate if compaction is being achieved.

The stripped subgrade should be compacted to a minimum density of 95 percent of the soil's ASTM D-1557 maximum dry density to a depth of 12 inches. Following compaction of the stripped subgrade, engineered fill can be placed as needed to achieve design grades. If unstable/yielding soils are encountered by the roller, then such materials should be locally removed and be replaced with clean dry granular soil (Engineered Fill) that is thoroughly and uniformly compacted.

### **Engineered Fill**

All engineered fill for the project should consist of clean fine sand with less than 12 percent by dry weight passing the U.S. Standard No. 200 sieve and be free of rubble, organics, clay, debris, and other deleterious material. Fill should be tested and approved prior to import and placement. Each lift should have a loose thickness not exceeding 12 inches. Density tests should be performed to confirm the required compaction is being achieved prior to placing the next lift.

Prior to beginning compaction, soil moisture conditioning may be required. Soil moisture contents should be controlled to facilitate proper compaction. A moisture content within two percentage points of the material's optimum indicated by the modified Proctor test (ASTM D-1557) is recommended prior to compaction of the existing ground and fill. All engineered fill should be compacted to at least 95 percent of the material's modified Proctor (ASTM D-1557) maximum dry density.



### **On-Site Soil Suitability**

Engineered fill for construction from pond excavations at the site should be evaluated and tested by PSI prior to placement to determine if they are suitable for the intended use. In general, based on the results of the borings, the on-site relatively clean to slightly silty sands (Strata 1, 2, 3 and 4) appear to be suitable for use as engineered fill, provided the material is free of debris, rubble, clay, roots, and organics.

Soils from Strata 5 consist of silty sands, which are not recommended for use as fill due to their moisture sensitivity and poor drainage characteristics. If it is desired to use the Stratum 5 soils, they should be thoroughly blended/mixed with other more suitable/cleaner granular materials in such a way that the content of fines of the hybrid material is less than 12 percent passing the No. 200 sieve. Soils from Stratum 6, consisting of organic sands, should not be utilized as engineered fill.

## **DESIGN RECOMMENDATIONS**

### **Shallow Foundations**

Based on the proposed construction and recommended site preparation, shallow foundations can be used for building support. Such foundations may be designed for a net allowable bearing pressure of 3,000 pounds per square foot (psf). The allowable bearing pressure can be increased by one-third for transient loads (wind) as permissible by code. The foundations and floor slabs should bear on properly placed and compacted cohesionless (sand) fills or on compacted native granular soils. All footings should be embedded so that the bottom of the foundation is a minimum of 18 inches below adjacent finished grades on all sides. Strip or wall footings should be a minimum of 24 inches wide, while column footings should be at least 30 inches square.

All foundation excavations should be observed by PSI's Geotechnical Engineer or his representative to explore the extent of any fill, excessively loose, soft, or otherwise undesirable materials. If the foundation excavations appear suitable for support, the bottom of foundation excavations should be compacted after excavation. The subgrade soils should be compacted to a minimum density requirement of 95 percent of the material's modified Proctor (ASTM D-1557) maximum dry density for a minimum depth of two feet below the bottom of footings, as determined by field density compaction tests.

If soft or loose materials are encountered in the footing excavations, then such materials should be removed, and the subgrade re-established by backfilling. This backfilling may be done with a well-compacted, suitable fill such as engineered fill, lean concrete, or crushed FDOT No. 57 or FDOT No. 67 stone. Sand backfill should be compacted to at least 95 percent of the material's modified Proctor maximum dry density (ASTM D-1557), as previously described. Crushed stone should be compacted to a firm and unyielding condition. Stone should be blended with clean sand (50:50 ratio) to fill all voids within the stone matrix.

Immediately prior to placement of reinforcing steel, it is suggested that the bearing surfaces of all footing and floor slab areas be re-compacted using hand-operated mechanical tampers. In this manner, any localized areas that have been loosened by excavation operations should be adequately re-compacted.



Provided the recommended subgrade preparation operations presented herein are properly performed, total settlements are estimated to be on the order of one inch. Differential settlements should be approximately 50 percent of the total movements. These estimates are based on the noted foundation loads. The settlement of shallow foundations supported primarily on sandy soils should occur relatively quickly after initial loading. Thus, the majority of the expected settlement should occur during construction as dead loads are imposed.

Lateral loads that are applied to the spread foundations may be resisted by earth pressure mobilized on the buried vertical faces of the footings and by shearing forces acting along the footing-subgrade interface. Earth pressure resistance may be determined using an equivalent fluid density of 360 pounds per cubic foot for moist soil and 180 pounds per cubic foot for submerged soil below the water table. A friction factor of 0.40 should be used to determine base shearing resistance.

The noted values presume that the foundations are surrounded by well-compacted sand backfill and can withstand horizontal movements on the order of one-quarter to three-eighth inches. Horizontal restraint determined in accordance with the recommended values should be considered resistance that is available rather than allowable. Therefore, the design should incorporate a factor of safety and we recommend that this be taken as 1.5 or somewhat more.

### **Floor Slabs**

Floor slabs can be safely supported as slab-on-grade systems provided the final subgrade elevation is densified and prepared as recommended herein. We further recommend that the upper one (1) foot of the subgrade soils within the building pad areas be compacted to at least 95 percent of the maximum dry density of the soil's modified Proctor (ASTM D-1557).

It is recommended that the building floor slab-bearing soils be covered by lapped polyethylene sheeting to reduce the potential for floor dampness which can affect the performance of floor coverings. This membrane should consist of a minimum six-mil thick, single layer of non-corroding, non-deteriorating sheeting material placed to minimize seams and to cover all of the soil below the building floor slabs. Seams should be overlapped a minimum of 12 inches. To avoid potential problems with cracking because of differential loadings, the floor slabs should be liberally jointed and separated from columns and walls.

Based on the soil conditions encountered at the project site and the recommended site preparation requirements, the modulus of vertical subgrade reaction is expected to be on the order of 150 pci.

### **Pavements**

Pavements for the project will include at-grade parking with interior entrance drives, plus loading areas. Provided that pavements are designed to provide at least 18 inches of clearance between the bottom of the base material and the estimated normal seasonal high groundwater table (ESHGWT), the basecourse for asphalt sections can comprise limerock or crushed concrete. Recommendations for pavement sections for light-duty (car parking lots) and medium-duty (entrance drives) are included in the following.



Light-Duty (Car Parking Areas)

- 1.5 inches      Type SP Asphaltic Concrete (min. PG 67-22)
- 6.0 inches      Limerock (LBR = 100) or crushed concrete (LBR = 150) basecourse
- 12.0 inches     Stabilized subgrade (LBR = 40) compacted to 98 percent of the material’s ASTM D-1557 maximum dry density.

Medium-Duty (Driveway and Service Areas)

- 2.5 inches      Type SP Asphaltic Concrete (min. PG 67-22)
- 8.0 inches      Limerock (LBR = 100) or crushed concrete (LBR = 150) basecourse
- 12.0 inches     Stabilized subgrade (LBR = 40) compacted to 98 percent of the material’s ASTM D-1557 maximum dry density.

For heavy-duty uses, such as in truck delivery areas, dumpster pad and approach areas, as well as other heavily loaded pavements, we recommend the following minimum pavement section.

Heavy-Duty (Rigid Pavement)

- 7.0 inches      Portland cement concrete, minimum 28-day compressive strength of 4000 psi.
- 12.0 inches     Well-draining granular subgrade (AASHTO A-3 material) compacted to at least 98 percent of the material’s AASHTO T-180 maximum dry density.

Pavement joints and reinforcing for concrete pavement should be in accordance with American Concrete Institute (ACI) standards. The recommended pavement sections are based on past experience with similar projects and the encountered subsurface conditions at the site. All pavement materials and construction should meet the more stringent of the Florida Department of Transportation (FDOT) and local city/county requirements. The noted pavement sections should be considered recommended minimums based on anticipated traffic loadings and our past experience.

**Stormwater Management**

Stormwater management for the site will be handled by a stormwater pond located in the eastern portion of the site. To evaluate subsoil conditions in the planned pond area, PSI drilled five (5) auger borings (borings PB-1 through PB-5) to a depth of 20 feet below existing grades. Additionally, two relatively undisturbed Shelby tube soil samples were collected from the stormwater management pond area to perform laboratory permeability testing. The results of the permeability testing are summarized in the following.

Boring / Sample Depth	Percent Fines Passing the U.S. No. 200 Sieve	Vertical Hydraulic Conductivity, Kv (feet per day)
PB-1 / 2 feet	8	48
PB-4 / 2 feet	10	35

Based on the results of our borings and laboratory testing, we recommend the following parameters be used to model the shallow effective aquifer of the proposed stormwater management pond area.



Parameter	Value	Unit
Depth of Estimated Normal Seasonal High Groundwater Table	1	feet
Depth of Estimated Average Wet Seasonal High Groundwater Table	2	feet
Recommended Horizontal Permeability, Kh	40	feet/day
Depth of Confining Layer*	12	feet
Fillable Porosity of Shallow Aquifer	25	percent

\*Assumes Strata 5 and 6 soils are removed.

Depth is referenced to the grades that existing at the time of PSI's field exploration program.

The performance of a given stormwater system is dependent on the soil permeability as well as the groundwater table, system bottom elevation, system geometry, confining layer and water level in the system. We recommend a commercially available computer program such as PONDS or MODRET be used by an engineer experienced in groundwater modeling to evaluate the proposed stormwater system. The system should be designed and constructed in accordance with Water Management District requirements. The values presented above are based on measured laboratory results and do not include a factor of safety.

As design proceeds on the project, we will work with the Civil Engineer in refining stormwater system soil and groundwater parameters.

**OTHER CONSIDERATIONS**

**Site Dewatering**

Dewatering for excavations that are only a few feet below the water table can likely be dewatered with a sump pump. Deeper excavations will most likely require well-pointing or sock drains to achieve adequate drawdown. In either case, the dewatering system should be designed and operated to lower the groundwater table to a depth at least 2 feet below the bottom of surfaces to be compacted in any given area. The design and discharge of the dewatering system should be in accordance with current regulatory criteria.

**Excavations**

In Federal Register, Volume 54, No. 209 (October 1989) the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better ensure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, general construction excavations or footing excavations, be constructed following the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed the Owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.



PSI is providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations.

### **Hydrant Flow Testing**

PSI coordinated with the City of Palm Coast for evaluation of the flow characteristics of the adjacent existing fire hydrant system. Hydrant TC-082 was tested on July 7<sup>th</sup>, 2024, with the results provided in the **Appendix**.

### **LIMITATIONS**

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on these data.

The scope of our exploration was intended to evaluate soil conditions within the influence of the planned development areas and does not include an evaluation of potential deep soil problems such as sinkholes. The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated. If any subsoil variations become evident during the course of this project, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature, or location of the proposed development.

The scope of our services provided herein does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.



**CLOSURE**

We appreciate the opportunity to be of service on this project and we trust that the foregoing and accompanying attachments are of assistance to you and the project team at this time. In the event that you have any questions or if you require additional information, please contact the undersigned.

Sincerely,

**PROFESSIONAL SERVICE INDUSTRIES, INC.**  
**Certificate of Authorization No. 3684**

Paola Castillo, MS.c, M.eng  
Staff Engineer



Robert A. Trompke, P.E.  
Chief Engineer/Florida Geotechnical Practice Leader  
Florida License No. 55456

This document has been digitally signed and sealed by Robert A. Trompke, P.E.  
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.  
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07573311 Report (Proposed Project Orchid 7-Acre Site Palm Coast).docx

cc: Mr. Alan Bennett – PSINCG

Appendix:

- Level A Subsurface Utility Engineering (SUE) Report
- Figures 1 & 2 – USGS Quadrangle Map & SCS Soil Survey Map
- Sheet 1 – Boring Location Plan
- Sheets 2 through 5 – Boring Profiles



## Appendix

## Subsurface Utility Engineering Test Hole Report

Test Hole # 3 Client: Intertek-PSI  
 Project: Town Center Boulevard - Level A SUE



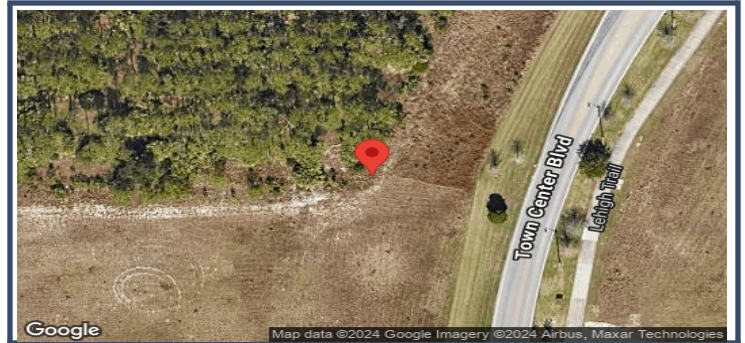
### PROJECT DATA

<b>WO #:</b>	<u>W116024.000</u>	<b>JN:</b>	<u>J069861</u>	<b>Date</b>	<u>09/04/2024</u>
<b>Task #:</b>	<u>N/A</u>	<b>FPN #:</b>	<u>N/A</u>	<b>PM:</b>	<u>Jordan Thibault</u>
<b>Station:</b>	<u>N/A</u>	<b>Offset:</b>	<u>N/A</u>	<b>Chief:</b>	<u>Steve</u>
<b>Crew:</b>	<u>Maddie, Henry, Jordan</u>			<b>Time:</b>	<u>2:42 PM</u>
				<b>Weather:</b>	<u>clear sky, 87F</u>

### TEST HOLE DATA

<b>Utility Type:</b>	<u>Sanitary Gravity</u>
<b>Condition:</b>	<u>Unknown</u>
<b>Material:</b>	<u>Polyvinyl Chloride</u>
<b>Marker:</b>	<u>Iron Rod and Cap</u>
<b>Height (IN):</b>	<u>8.00</u>
<b>Width (IN):</b>	<u>8.00</u>
<b>Top (f):</b>	<u>13.10</u>
<b>Bottom (f):</b>	<u>13.77</u>
<b>Ground Cover:</b>	<u>Dirt</u>
<b>Owner:</b>	<u>City of Palm Coast</u>
<b>Soil Type:</b>	<u>Dirt</u>
<b>Soil Condition:</b>	<u>Dry</u>

### Location



**Notes:** We used a sonde ( using vivax to follow signal) inside manhole @ 14' deep to locate sanitary cap. Tapped pipe at 13.10ft w/ air probe. Probed area to ensure the end of pipe. Per clients records sanitary stub-out is 8" in width. Unable to visibly verify due to aggressive water table. TH marker placed on top of cap.

### Also Found:

Type	Material	Height (IN)	Width (IN)	Top (f)	Bottom (f)	Owner

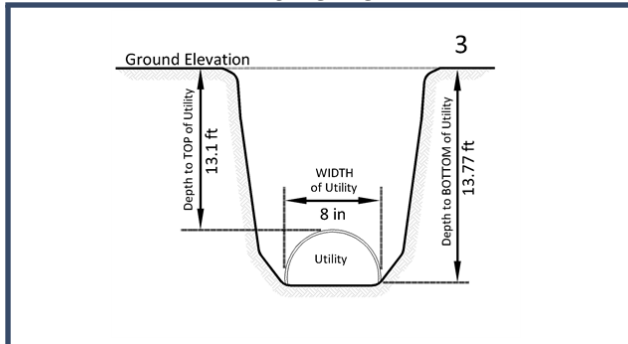
### SURVEY DATA

<b>V Datum:</b>	<u>N/A</u>
<b>H Datum:</b>	<u>N/A</u>
<b>Zone:</b>	<u>N/A</u>
<b>Northing:</b>	<u>N/A</u>
<b>Easting:</b>	<u>N/A</u>
<b>Grade Elev:</b>	<u>N/A</u>
<b>Utility Elev:</b>	<u>N/A</u>

### Site Image



### Profile View





**Photo No. 1**



**Photo No. 2**



**Photo No. 3**



**Photo No. 4**  
**Site Image**



**Photo No. 5**



**Photo No. 6**

## Subsurface Utility Engineering Test Hole Report

Test Hole # 4 Client: Intertek-PSI  
 Project: Town Center Boulevard - Level A SUE



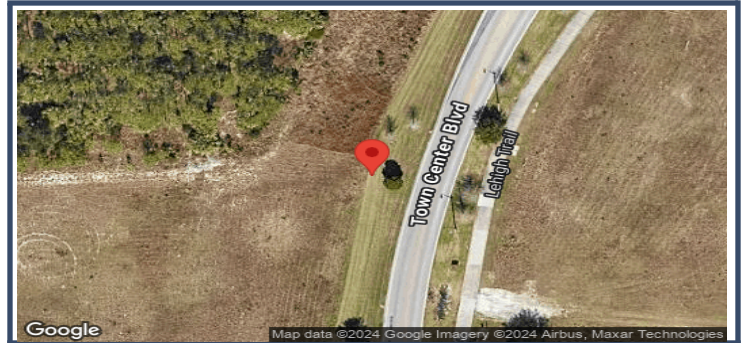
### PROJECT DATA

<b>WO #:</b>	<u>W116024.000</u>	<b>JN:</b>	<u>J069861</u>	<b>Date</b>	<u>09/06/2024</u>
<b>Task #:</b>	<u>N/A</u>	<b>FPN #:</b>	<u>N/A</u>	<b>PM:</b>	<u>Jordan Thibault</u>
<b>Station:</b>	<u>N/A</u>	<b>Offset:</b>	<u>N/A</u>	<b>Chief:</b>	<u>Steve</u>
<b>Crew:</b>	<u>Henry, Maddie</u>			<b>Time:</b>	<u>12:53 PM</u>
				<b>Weather:</b>	<u>overcast clouds, 87F</u>

### TEST HOLE DATA

**Utility Type:** Water  
**Condition:** Fair  
**Material:** Metal  
**Marker:** Iron Rod and Cap  
**Height (IN):** 8.50  
**Width (IN):** 8.50  
**Top (f):** 3.00  
**Bottom (f):** 3.71  
**Ground Cover:** Dirt  
**Owner:** City of Palm Coast  
**Soil Type:** Dirt  
**Soil Condition:** Soft-Wet

### Location



**Notes:** Water main cap

### Also Found:

Type	Material	Height (IN)	Width (IN)	Top (f)	Bottom (f)	Owner

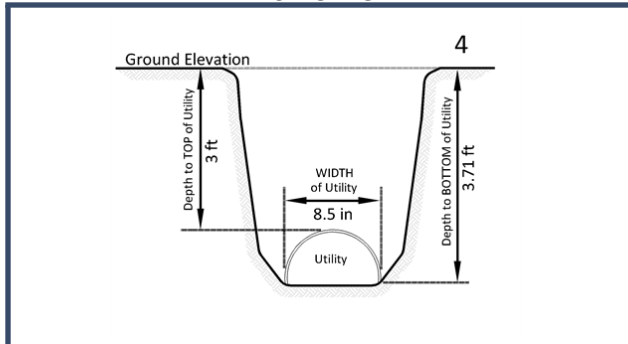
### SURVEY DATA

**V Datum:** N/A  
**H Datum:** N/A  
**Zone:** N/A  
**Northing:** N/A  
**Easting:** N/A  
**Grade Elev:** N/A  
**Utility Elev:** N/A

### Site Image



### Profile View





**Photo No. 1**



**Photo No. 2**



**Photo No. 3**



**Photo No. 4**



**Photo No. 5**  
Site Image



**Photo No. 6**



**Photo No. 7**

## Subsurface Utility Engineering Test Hole Report

Test Hole # 5 Client: Intertek-PSI  
Project: Town Center Boulevard - Level A SUE



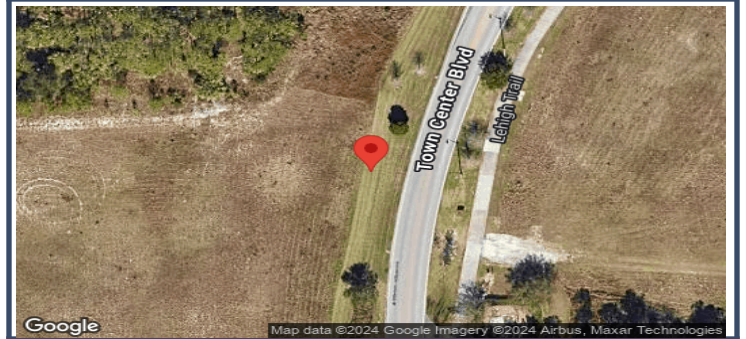
### PROJECT DATA

<b>WO #:</b>	<u>W116024.000</u>	<b>JN:</b>	<u>J069861</u>	<b>Date</b>	<u>09/06/2024</u>
<b>Task #:</b>	<u>N/A</u>	<b>FPN #:</b>	<u>N/A</u>	<b>PM:</b>	<u>Jordan Thibault</u>
<b>Station:</b>	<u>N/A</u>	<b>Offset:</b>	<u>N/A</u>	<b>Chief:</b>	<u>Steve</u>
<b>Crew:</b>	<u>Maddie, Henry</u>			<b>Time:</b>	<u>1:03 PM</u>
				<b>Weather:</b>	<u>scattered clouds, 88F</u>

### TEST HOLE DATA

<b>Utility Type:</b>	<u>RWM</u>
<b>Condition:</b>	<u>No Utility Found</u>
<b>Material:</b>	<u>Polyvinyl Chloride</u>
<b>Marker:</b>	<u>Iron Rod and Cap</u>
<b>Height (IN):</b>	<u>N/A</u>
<b>Width (IN):</b>	<u>N/A</u>
<b>Top (f):</b>	<u>N/A</u>
<b>Bottom (f):</b>	<u>N/A</u>
<b>Ground Cover:</b>	<u>Dirt</u>
<b>Owner:</b>	<u>City of Palm Coast</u>
<b>Soil Type:</b>	<u>Dirt</u>
<b>Soil Condition:</b>	<u>Soft-Wet</u>

### Location



**Notes:** Exposed reclaim on the East side of the road. Poor GPR visibility in area. Dug a 10' trench, probed and vacuumed in approximate stub-out area per overall provided. Also dug at the West E/P. RCW possibly ends under road way. No utility found.

### Also Found:

Type	Material	Height (IN)	Width (IN)	Top (f)	Bottom (f)	Owner

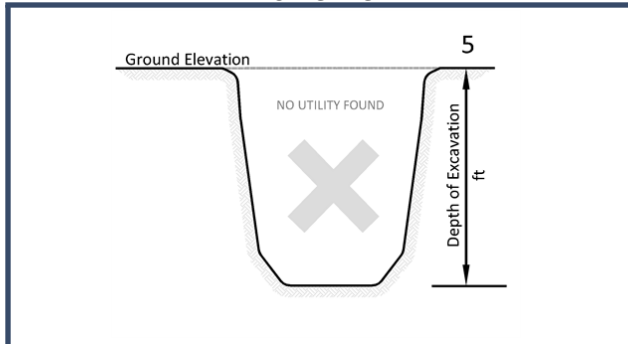
### SURVEY DATA

<b>V Datum:</b>	<u>N/A</u>
<b>H Datum:</b>	<u>N/A</u>
<b>Zone:</b>	<u>N/A</u>
<b>Northing:</b>	<u>N/A</u>
<b>Easting:</b>	<u>N/A</u>
<b>Grade Elev:</b>	<u>N/A</u>
<b>Utility Elev:</b>	<u>N/A</u>

### Site Image



### Profile View





**Photo No. 1**  
Site Image



**Photo No. 2**  
Site Image



**Photo No. 3**



**Photo No. 4**

# Subsurface Utility Engineering Test Hole Report



Test Hole # 1 Client: Intertek-PSI  
Project: Town Center Boulevard - Level A SUE

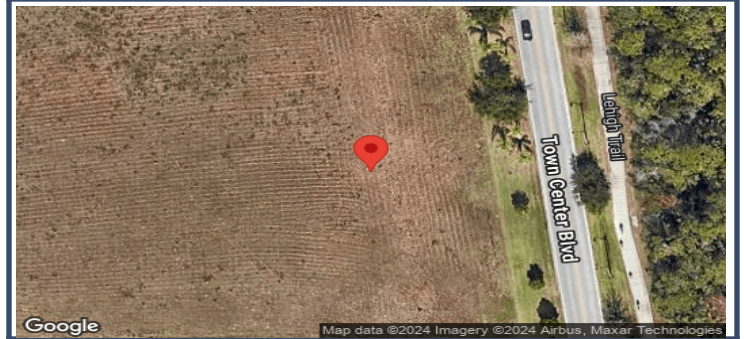
## PROJECT DATA

<b>WO #:</b> <u>W116024.000</u>	<b>JN:</b> <u>J069861</u>	<b>Date:</b> <u>09/04/2024</u>
<b>Task #:</b> <u>N/A</u>	<b>FPN #:</b> <u>N/A</u>	<b>PM:</b> <u>Jordan Thibault</u>
<b>Station:</b> <u>N/A</u>	<b>Offset:</b> <u>N/A</u>	<b>Chief:</b> <u>Steve</u>
<b>Crew:</b> <u>Maddie, Henry, Jordan</u>		<b>Time:</b> <u>1:30 PM</u>
		<b>Weather:</b> <u>clear sky, 89F</u>

## TEST HOLE DATA

<b>Utility Type:</b>	<u>Sanitary Gravity (South)</u>
<b>Condition:</b>	<u>Fair</u>
<b>Material:</b>	<u>Polyvinyl Chloride</u>
<b>Marker:</b>	<u>Iron Rod and Cap</u>
<b>Height (IN):</b>	<u>8.00</u>
<b>Width (IN):</b>	<u>8.00</u>
<b>Top (f):</b>	<u>8.50</u>
<b>Bottom (f):</b>	<u>9.17</u>
<b>Ground Cover:</b>	<u>Dirt</u>
<b>Owner:</b>	<u>City of Palm Coast</u>
<b>Soil Type:</b>	<u>Dirt</u>
<b>Soil Condition:</b>	<u>Dry</u>

### Location



**Notes:** Used a sonde (using vivax to follow signal) inside manhole @ 12' +/- deep to locate sanitary cap. Cap air probed to obtain depth. Unable to visually verify sanitary stub out due to aggressive water table. Pipe size is per records provided by client. Electric handhole staked in field (for tie verification).

### Also Found:

Type	Material	Height (IN)	Width (IN)	Top (f)	Bottom (f)	Owner

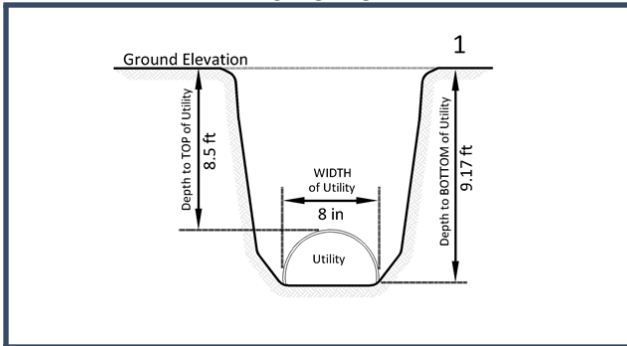
## SURVEY DATA

<b>V Datum:</b>	<u>N/A</u>
<b>H Datum:</b>	<u>N/A</u>
<b>Zone:</b>	<u>N/A</u>
<b>Northing:</b>	<u>N/A</u>
<b>Easting:</b>	<u>N/A</u>
<b>Grade Elev:</b>	<u>N/A</u>
<b>Utility Elev:</b>	<u>N/A</u>

### Site Image



### Profile View





**Photo No. 1**



**Photo No. 2**



**Photo No. 3**



**Photo No. 4**



**Photo No. 5**



**Photo No. 6**  
Site Image



**Photo No. 7**



**Photo No. 8**

## Subsurface Utility Engineering Test Hole Report

Test Hole # 2 Client: Intertek-PSI  
 Project: Town Center Boulevard - Level A SUE



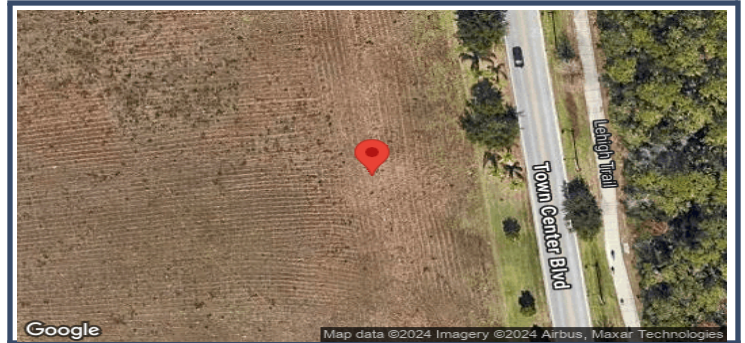
### PROJECT DATA

<b>WO #:</b>	<u>W116024.000</u>	<b>JN:</b>	<u>J069861</u>	<b>Date</b>	<u>09/04/2024</u>
<b>Task #:</b>	<u>N/A</u>	<b>FPN #:</b>	<u>N/A</u>	<b>PM:</b>	<u>Jordan Thibault</u>
<b>Station:</b>	<u>N/A</u>	<b>Offset:</b>	<u>N/A</u>	<b>Chief:</b>	<u>Steve</u>
<b>Crew:</b>	<u>Maddie, Henry, Jordan</u>			<b>Time:</b>	<u>1:44 PM</u>
				<b>Weather:</b>	<u>clear sky, 88F</u>

### TEST HOLE DATA

<b>Utility Type:</b>	<u>Water (South)</u>
<b>Condition:</b>	<u>Fair</u>
<b>Material:</b>	<u>Polyvinyl Chloride</u>
<b>Marker:</b>	<u>Iron Rod and Cap</u>
<b>Height (IN):</b>	<u>8.50</u>
<b>Width (IN):</b>	<u>8.50</u>
<b>Top (f):</b>	<u>6.60</u>
<b>Bottom (f):</b>	<u>7.31</u>
<b>Ground Cover:</b>	<u>Dirt</u>
<b>Owner:</b>	<u>City of Palm Coast</u>
<b>Soil Type:</b>	<u>Dirt</u>
<b>Soil Condition:</b>	<u>Dry</u>

### Location



**Notes:** Connected to trace wire on WM to locate the stub-out. We uncovered a vertical PVC line (probable marker for the end of the WM) during excavation. Unable to visibly verify due to aggressive water table. Size/material gathered by visually verifying near the West E/P (see photo).

### Also Found:

Type	Material	Height (IN)	Width (IN)	Top (f)	Bottom (f)	Owner

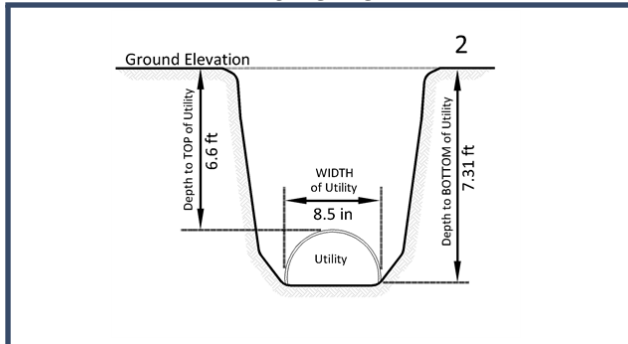
### SURVEY DATA

<b>V Datum:</b>	<u>N/A</u>
<b>H Datum:</b>	<u>N/A</u>
<b>Zone:</b>	<u>N/A</u>
<b>Northing:</b>	<u>N/A</u>
<b>Easting:</b>	<u>N/A</u>
<b>Grade Elev:</b>	<u>N/A</u>
<b>Utility Elev:</b>	<u>N/A</u>

### Site Image



### Profile View





**Photo No. 1**



**Photo No. 2**



**Photo No. 3**  
Site Image



**Photo No. 4**



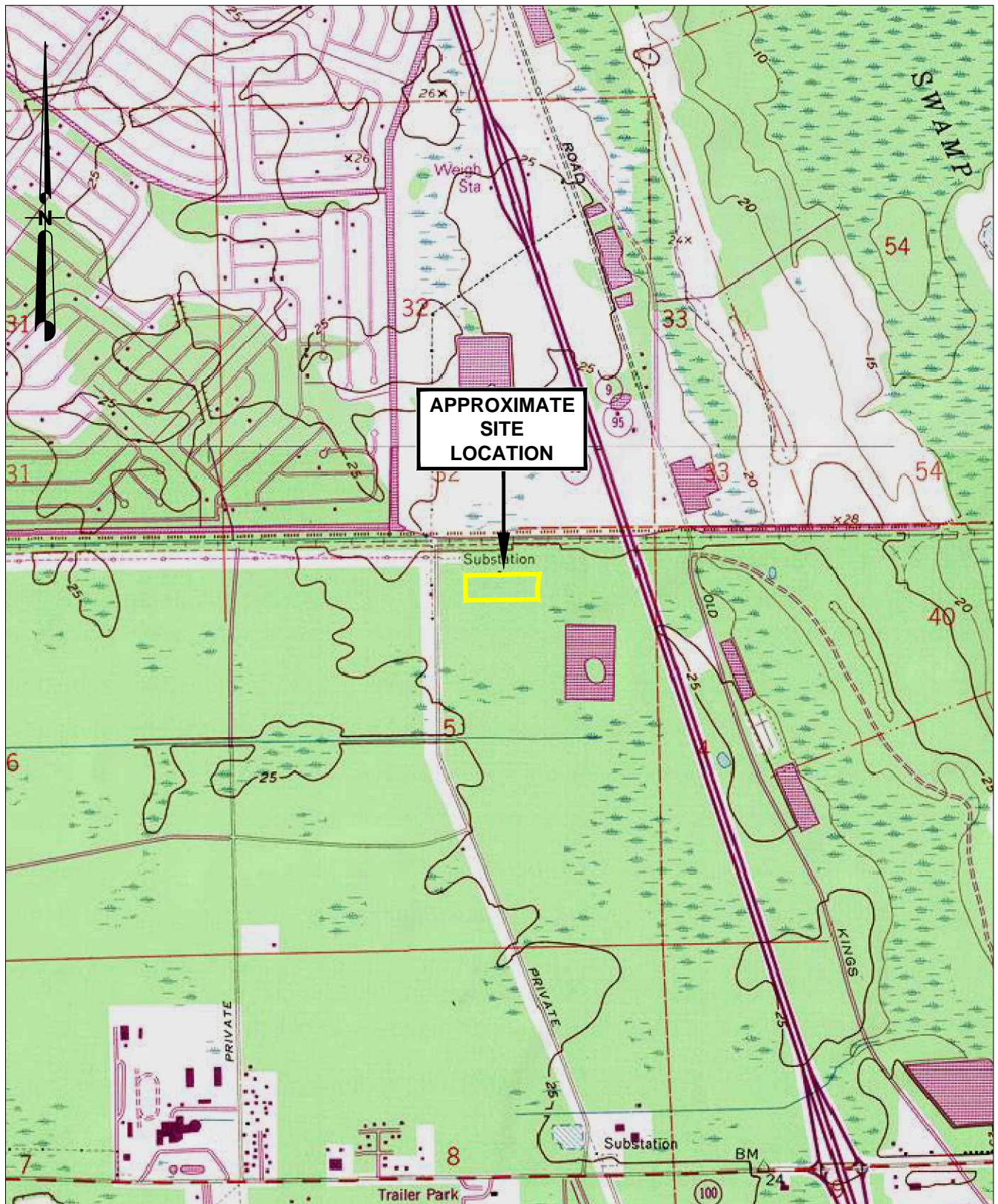
**Photo No. 5**



**Photo No. 6**



**Photo No. 7**



REFERENCE: U.S.G.S. QUADRANGLE MAP. THE REPRESENTED DATA IS FOR INFORMATION PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. INTERTEK-PSI ASSUMES NO RESPONSIBILITY FOR ANY DECISIONS MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON INFORMATION OBTAINED FROM THE ABOVE DATA.

PROJ. NO:  
07573311

SCALE:  
1"=2000'

DATE CREATED:  
8-6-24



1748 33rd Street  
Orlando, FL 32839  
(407)304-5560  
(407)304-5561 fax

TOPOGRAPHIC MAP

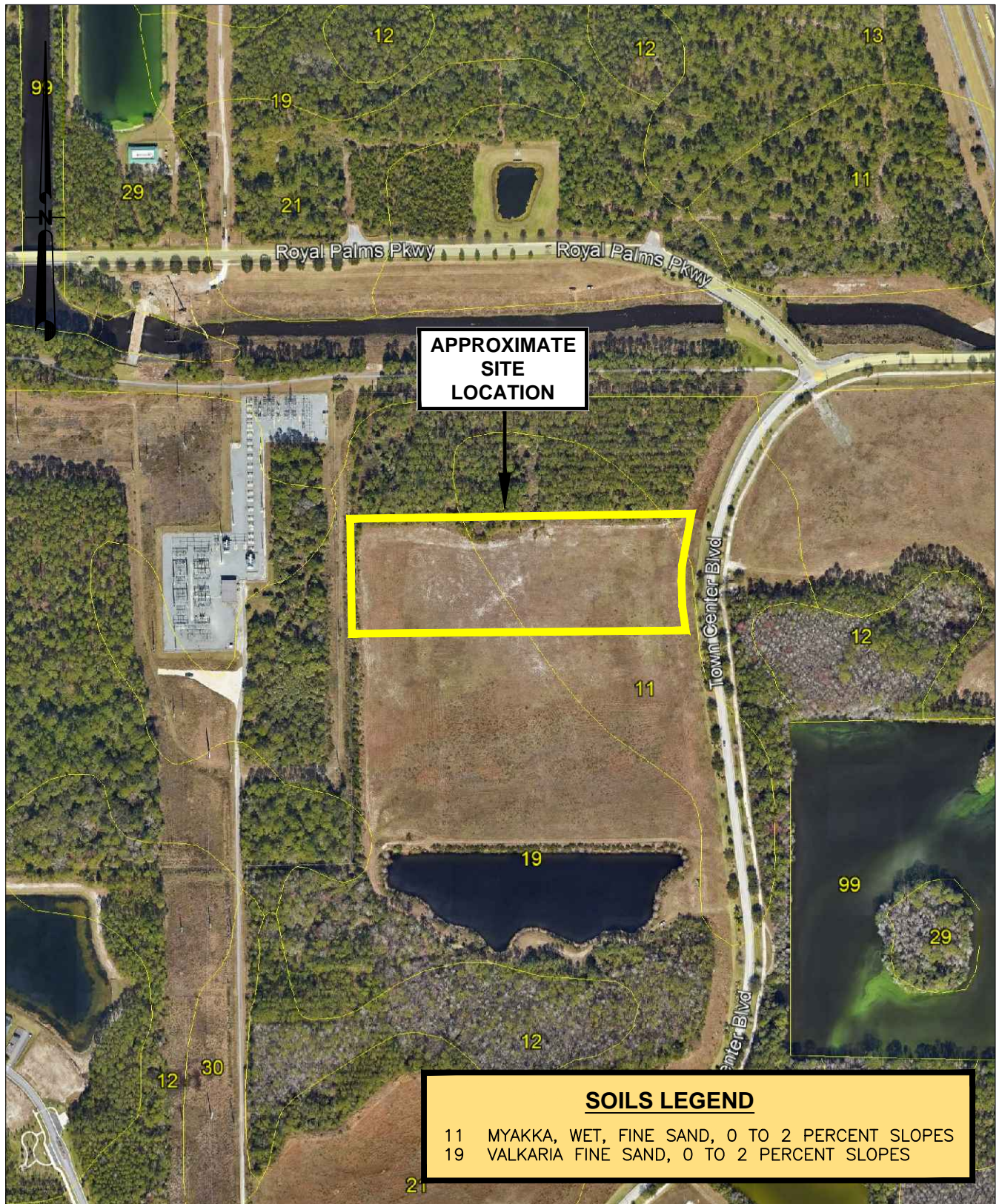
**PROPOSED PROJECT ORCHID 7-ACRE SITE**  
**ROYAL PALMS PARKWAY AND TOWN CENTER BOULEVARD**

PALM COAST, FLAGLER COUNTY, FLORIDA

FIGURE:  
1

DRAWN:  
DJW

CHECKED:  
PC



REFERENCE: THE AERIAL PHOTOGRAPH WAS OBTAINED FROM GOOGLE EARTH. THE REPRESENTED DATA IS FOR INFORMATION PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. INTERTEK-PSI ASSUMES NO RESPONSIBILITY FOR ANY DECISIONS MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON INFORMATION OBTAINED FROM THE ABOVE DATA.

PROJ. NO:  
07573311

SCALE:  
1"=400'

DATE CREATED:  
8-6-24



1748 33rd Street  
Orlando, FL 32839  
(407)304-5560  
(407)304-5561 fax

SOILS MAP  
**PROPOSED PROJECT ORCHID 7-ACRE SITE**  
**ROYAL PALMS PARKWAY AND TOWN CENTER BOULEVARD**  
 PALM COAST, FLAGLER COUNTY, FLORIDA



FIGURE:  
2

DRAWN:  
DJW

CHECKED:  
PC



**LEGEND**

 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING  
 APPROXIMATE LOCATION OF AUGER BORING

REFERENCE: THE AERIAL PHOTOGRAPH WAS OBTAINED FROM GOOGLE EARTH. THE PRESENTED DATA IS FOR INFORMATION PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. INTERTEK-PSI ASSUMES NO RESPONSIBILITY FOR ANY DECISIONS MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON INFORMATION OBTAINED FROM THE ABOVE DATA.

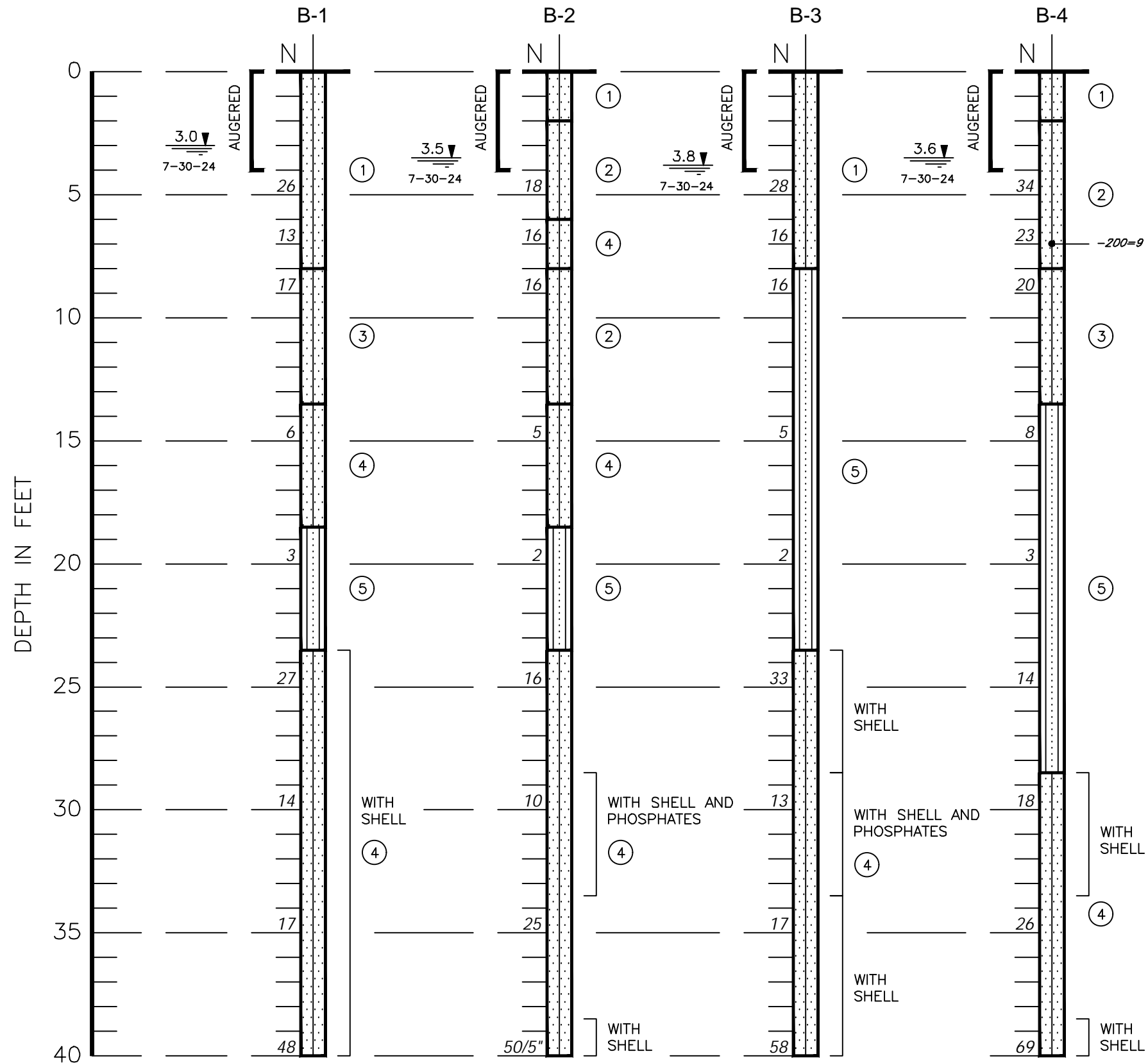
PROJECT NO.  
07573311  
SCALE:  
1"=150'  
DATE CREATED:  
8-6-24



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Orlando, FL 32839  
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(407)304-5561 fax

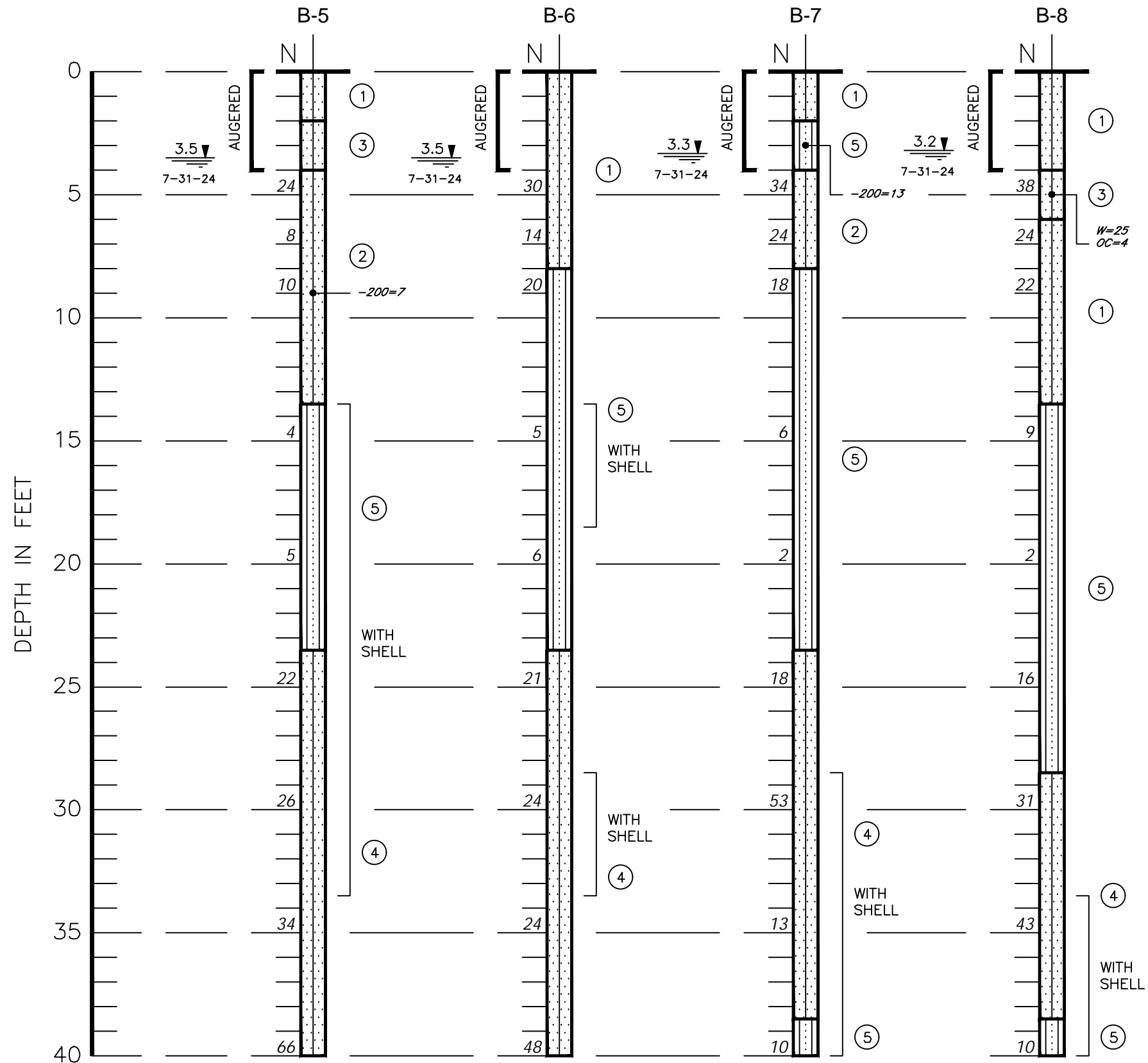
GEOTECHNICAL ENGINEERING SERVICES  
**PROPOSED PROJECT ORCHID 7-ACRE SITE**  
**ROYAL PALMS PARKWAY AND TOWN CENTER BOULEVARD**  
 PALM COAST, FLAGLER COUNTY, FLORIDA

SHEET:  
1  
DRAWN:  
DJW  
CHECKED:  
PC



- LEGEND**
- ① LIGHT GRAY TO LIGHT ORANGE-BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
  - ② GRAY-BROWN TO MEDIUM GRAY-BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
  - ③ MEDIUM BROWN TO DARK BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
  - ④ GRAY TO BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
  - ⑤ GRAY TO GREEN-GRAY SILTY FINE SAND, (SM)
  - ⑥ DARK BROWN ORGANIC SAND
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT USING AN AUTOMATIC HAMMER
- $\frac{3.0 \nabla}{7-30-24}$  DEPTH TO GROUNDWATER LEVEL IN FEET WITH DATE OF READING
- 50/5" NUMBER OF BLOWS REQUIRED (50) TO DRIVE SAMPLING SPOON 5 INCHES
- 200 FINES PASSING #200 SIEVE IN PERCENT

**SOIL PROFILES**  
SCALE: 1"=5'



- LEGEND**
- ① LIGHT GRAY TO LIGHT ORANGE-BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
  - ② GRAY-BROWN TO MEDIUM GRAY-BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
  - ③ MEDIUM BROWN TO DARK BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
  - ④ GRAY TO BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
  - ⑤ GRAY TO GREEN-GRAY SILTY FINE SAND, (SM)
  - ⑥ DARK BROWN ORGANIC SAND
  - (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
  - N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT USING AN AUTOMATIC HAMMER
  - DEPTH TO GROUNDWATER LEVEL IN FEET WITH DATE OF READING
  - W NATURAL MOISTURE CONTENT IN PERCENT
  - 200 FINES PASSING #200 SIEVE IN PERCENT
  - OC ORGANIC CONTENT IN PERCENT

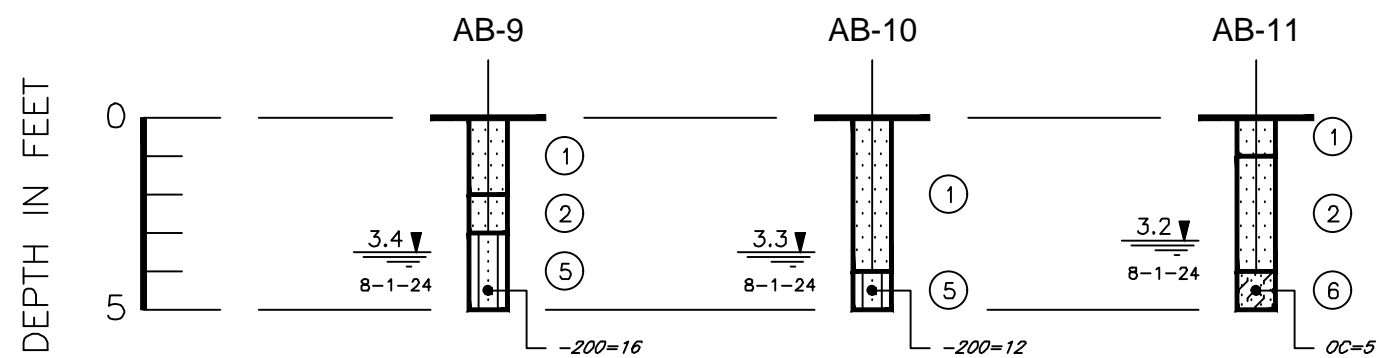
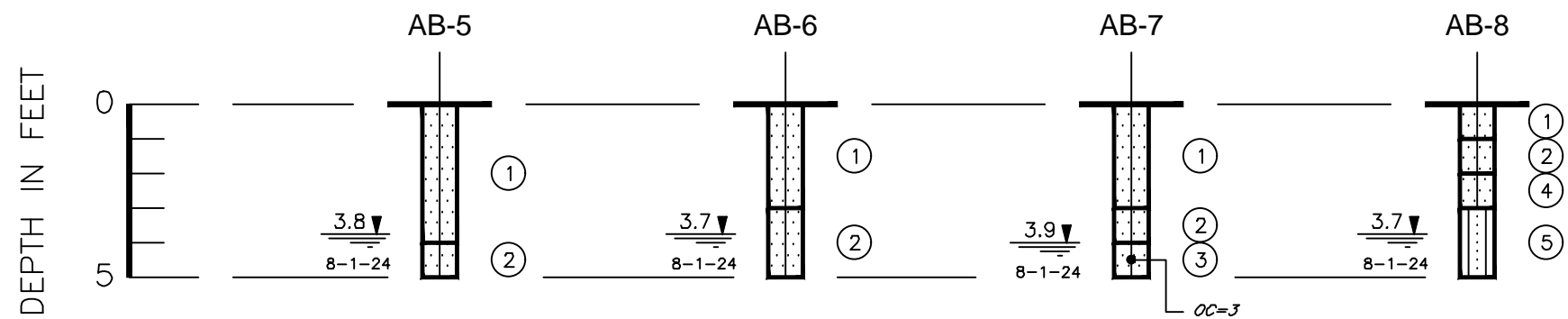
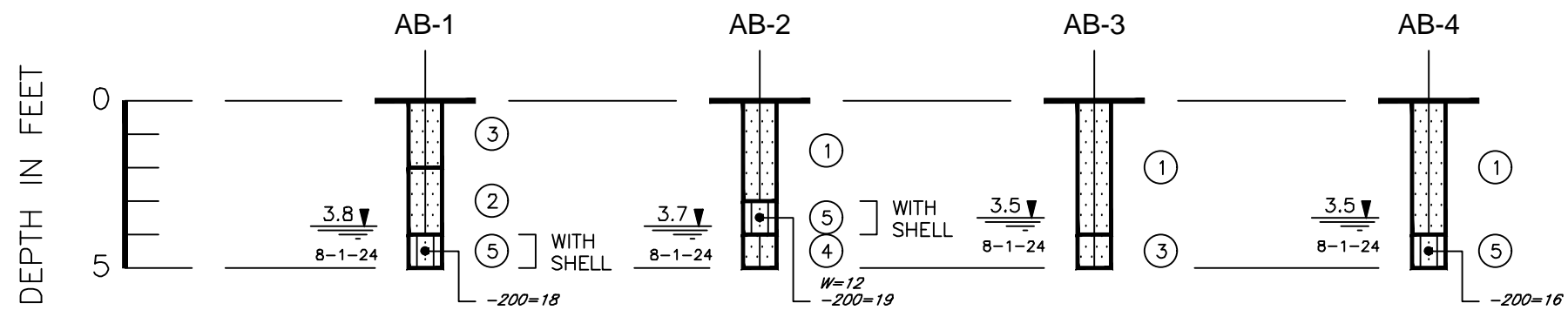
**SOIL PROFILES**  
SCALE: 1"=5'

PROJECT NO.  
07573311  
SCALE:  
NOTED  
DATE CREATED:  
8-6-24

**intertek**  
**psi**  
1748 33rd Street  
Orlando, FL 32839  
(407)304-5560  
(407)304-5561 fax

GEOTECHNICAL ENGINEERING SERVICES  
**PROPOSED PROJECT ORCHID 7-ACRE SITE**  
**ROYAL PALMS PARKWAY AND TOWN CENTER BOULEVARD**  
PALM COAST, FLAGLER COUNTY, FLORIDA







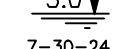
SHEET:  
3  
DRAWN:  
DJW  
CHECKED:  
PC



**SOIL PROFILES**

SCALE: 1"=5'

**LEGEND**

-  ① LIGHT GRAY TO LIGHT ORANGE-BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
-  ② GRAY-BROWN TO MEDIUM GRAY-BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
-  ③ MEDIUM BROWN TO DARK BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
-  ④ GRAY TO BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
-  ⑤ GRAY TO GREEN-GRAY SILTY FINE SAND, (SM)
-  ⑥ DARK BROWN ORGANIC SAND
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
-  3.0  
7-30-24 DEPTH TO GROUNDWATER LEVEL IN FEET WITH DATE OF READING
- W NATURAL MOISTURE CONTENT IN PERCENT
- 200 FINES PASSING #200 SIEVE IN PERCENT
- OC ORGANIC CONTENT IN PERCENT

PROJECT NO.  
07573311

SCALE:  
NOTED

DATE CREATED:  
8-6-24



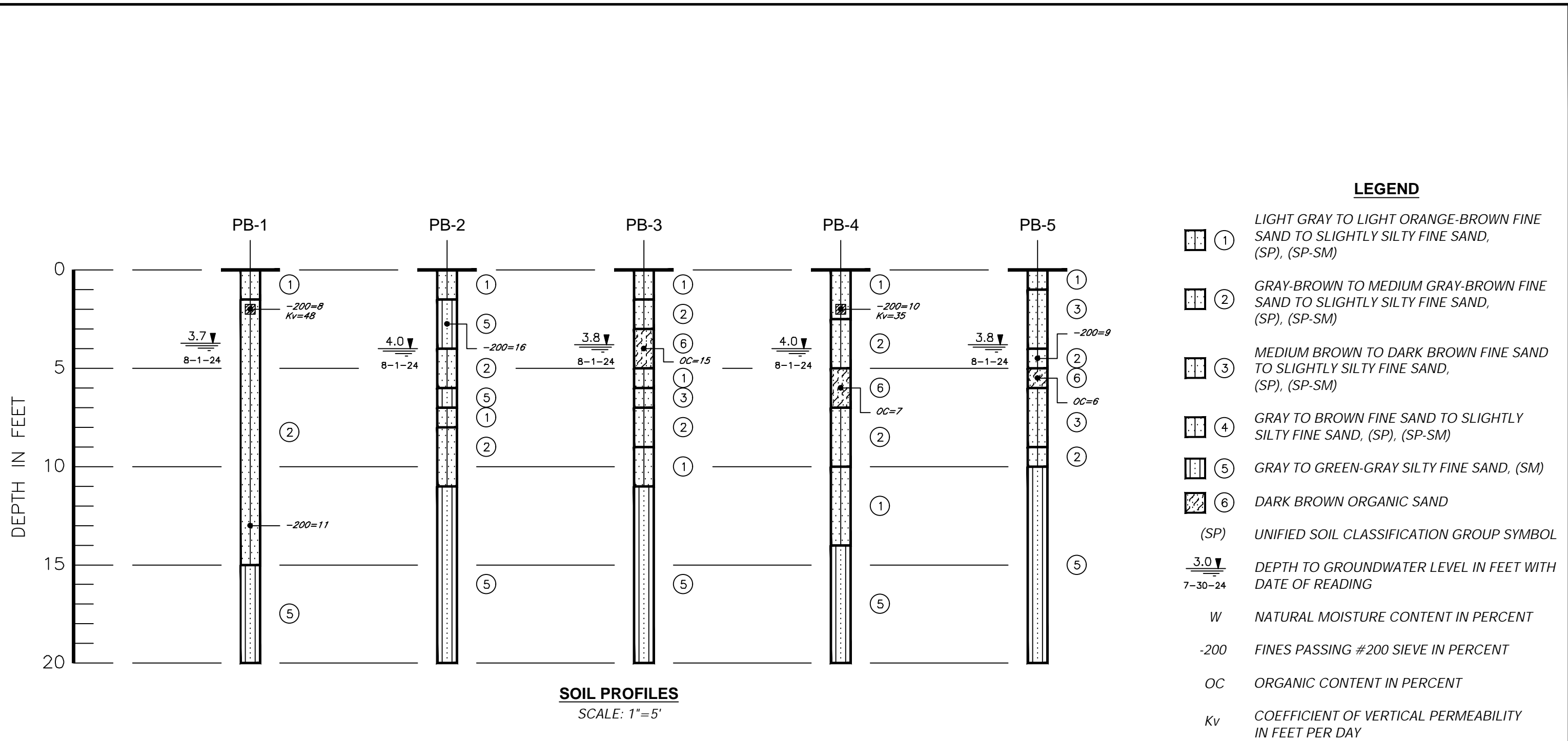
1748 33rd Street  
Orlando, FL 32839  
(407)304-5560  
(407)304-5561 fax

GEOTECHNICAL ENGINEERING SERVICES  
**PROPOSED PROJECT ORCHID 7-ACRE SITE**  
**ROYAL PALMS PARKWAY AND TOWN CENTER BOULEVARD**  
PALM COAST, FLAGLER COUNTY, FLORIDA

SHEET:  
4

DRAWN:  
DJW

CHECKED:  
PC



PROJECT NO.  
07573311  
SCALE:  
NOTED  
DATE CREATED:  
8-6-24



1748 33rd Street  
Orlando, FL 32839  
(407)304-5560  
(407)304-5561 fax

GEOTECHNICAL ENGINEERING SERVICES  
**PROPOSED PROJECT ORCHID 7-ACRE SITE**  
**ROYAL PALMS PARKWAY AND TOWN CENTER BOULEVARD**  
PALM COAST, FLAGLER COUNTY, FLORIDA

SHEET:  
5  
DRAWN:  
DJW  
CHECKED:  
PC