REPORT OF

ADDITIONAL SUBSURFACE EXPLORATION AND GEOTECHNICAL ANALYSIS

16-ACRE HANCOCK ROAD SITE
CLERMONT, LAKE COUNTY, FLORIDA

FOR

BIO-TECH CONSULTING, INC.

ECS JOB NO. 24-4380-A

NOVEMBER 19, 2013

November 19, 2013

Mr. John Miklos
Bio-Tech Consulting, Inc.
2002 E. Robinson Street
Orlando, Florida 32803

ECS Job No.: 24-4844

Reference: Report of Subsurface Exploration and Geotechnical Analyses, 16-Acre Site, Hancock Road, Clermont, Lake County, Florida

Dear Mr. Miklos:

As authorized by acceptance of our proposal, ECS Florida, LLC (ECS) has completed the subsurface exploration and conducted geotechnical engineering analyses for the proposed storage facility located on Hancock Road in Clermont, Lake County, Florida. Our report includes the results of our subsurface exploration program, laboratory testing program, and geotechnical engineering analyses.

Although details of the construction of the building were not available at the time this report was prepared, it is our understanding that the storage structure will be one-story in height, and will use spread footing foundations and slab on grade construction. Footings should be founded on compacted natural soils or suitable compacted structural fill. The remaining portions of the site will be paved along with a stormwater pond.

This geotechnical evaluation includes an evaluation of the subsurface soil and groundwater conditions of the site and general area as described in scope of services identified in our proposal. No other non-scope considerations or additional issues were explored, requested or proposed during this evaluation.

The conclusions and recommendations presented within this report are based upon a reasonable level of exploration within normal bounds and standards of professional practice for a site in this particular geographic and geologic setting. This report has been prepared to aid in the evaluation of this site and to assist the Owner and Engineer in the feasibility study of the project. The report scope is limited to the specific project and location described, and the project description represents our understanding of the significant aspects relevant to soil and foundation characteristics, based on fifteen (15) soil test borings, corresponding laboratory testing, and geotechnical analysis.

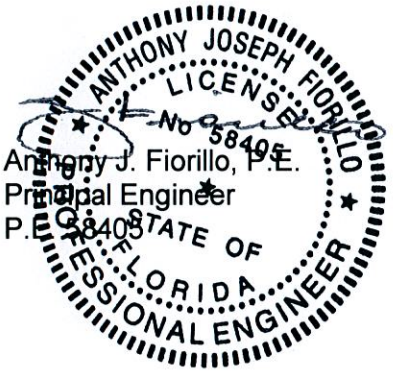
Observations, conclusions and recommendations about geotechnical conditions at the subject site are necessarily limited to conditions observed, and/or materials reviewed at the time this study was undertaken. No warranty, express or implied, is made about the conclusions and recommendations presented within this report. This report is provided for the exclusive use of Bio-Tech Consulting, Inc. This report is not intended to be used or relied upon about other projects or by other unidentified third parties. The use of this report by any undesignated third party or parties will be at such party's sole risk and ECS disclaims liability for any such third party use or reliance.

We appreciate this opportunity to be of service to you on this project. If you have any questions about the information and recommendations contained in the accompanying report, or if we may be of further assistance to you in any way during planning or construction of this project, please contact us.

Respectfully,

ECS FLORIDA, LLC
Florida Certificate of Authorization No. 26152

Sunil Sundaram
Project Manager



Anthony J. Fiorillo, P.E.
Principal Engineer
P.E. 58405

TABLE OF CONTENTS

PROJECT OVERVIEW

Project Location and Proposed Construction

The site is located on Hancock Road, south of State Road 50 in Clermont, Florida. Although details of the construction of the building and final locations were not available at the time this report was prepared, it is our understanding that the storage structure will be one-story in height, and will use spread footing foundations and slab on grade construction. Footings should be founded on compacted natural soils or suitable compacted structural fill. The remaining portions of the site will be paved along with a stormwater pond.

Scope of Service

The conclusions and recommendations contained in this report are based on our field subsurface explorations, laboratory testing, and review of available geologic and/or geotechnical data. The recent subsurface exploration program included 15 soil borings, extended to depths of 10 to 25 feet. Laboratory tests were then performed on selected soil samples to identify the soils and to assist in determination of the soil properties. We have also visited the site to conduct a site reconnaissance.

The boring locations for the proposed development were located in the field by ECS. No site survey was available for our field exploration. Consider the indicated locations and depths to be approximate. Our layout crew located the borings based upon limited GPS data and visually estimated distances and relationships to obvious landmarks. The Boring Location Plan is included in the Appendix.

Our exploration program explored the zone of soil likely to be stressed by the proposed construction. Our work did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. This evaluation requires a more extensive range of exploration than performed in this study. We will be pleased to conduct an exploration to evaluate the probable effect of the regional geology upon the proposed construction.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. ECS would be pleased to perform these services.

Purposes of Exploration

The purposes of the exploration were to explore the soil and groundwater conditions at the site and to develop engineering recommendations to guide the Geotechnical design and construction of the current project. We accomplished these purposes by:

1. Drilling borings to explore the subsurface soil and groundwater conditions,

2. Performing laboratory tests on selected representative soil samples from the test

borings to evaluate pertinent engineering properties and,

3. Evaluating the field and laboratory test results to develop appropriate engineering recommendations.

EXPLORATION PROCEDURES

Subsurface Exploration Procedures

Eight soil borings were performed with an ATV-mounted drilling rig, which used continuous mud rotary methods to advance the boreholes. Drilling fluid was used in this process.

Representative soil samples were obtained by the split-barrel sampling procedure per ASTM Specification D-1586. In this procedure, a 2-inch O.D., split-barrel sampler is driven into the soil a distance of 18 inches by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler through a 12-inch interval is termed the Standard Penetration Test (SPT) value, or "N" value, and is indicated for each sample on the boring logs. This value can be used as a qualitative indication of the in-place relative density of non-cohesive soils. In a less reliable way, it also indicates the consistency of cohesive soils. This indication is qualitative, since many factors can significantly affect the standard penetration resistance value and prevent a direct correlation between drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies.

A field log of the soils encountered in each boring was maintained by the drill crew. After recovery, each sample was removed from the sampler and visually classified. Representative portions of each sample were then sealed and delivered to our laboratory for further visual examination and laboratory testing.

Laboratory Testing Program

Representative soil samples were selected and tested in our laboratory to confirm the field classifications and to determine pertinent engineering properties. The laboratory testing program included visual sample classifications, moisture content tests, washed sieve gradation tests, and permeability tests. Data obtained from the laboratory tests are included on the respective boring logs in the Appendix.

An experienced Geotechnical Engineer or Geologist classified each soil sample on the basis of texture and plasticity per the Unified Soil Classification System (USCS). The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. A brief explanation of the Unified System is included with this report. The Geotechnical Engineer grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs and profiles are approximate; in the field, the transitions may be gradual.

EXPLORATION RESULTS

Regional Geology

Central Florida geologic conditions can generally be described in term of three basic sedimentary layers. The near-surface layer is primarily composed of sands containing varying amounts of silt and clay fines. These sands are underlain by a layer of clay, clayey sand, phosphate, and limestone which are locally referred to as the "Hawthorn Group." The third layer underlies the "Hawthorn Group" and is composed of limestone. The thickness of these three strata varies throughout Central Florida. In general, the surficial sands typically extend to depths of 40 to 70 feet while the "Hawthorn Group" ranges from nearly absent in some locations to thicknesses greater than 100 feet. The limestone formation may be several thousand feet thick.

The groundwater hydrogeology of Central Florida can be described in terms of the nature and relationship of the three basic geologic strata. The near-surface sand strata are relatively permeable and consist of the unconfined water table aquifer. The deep limestone formation of the Floridan aquifer is highly permeable due to the presence of large interconnected channels and cavities throughout the rock. The Floridan aquifer is the primary source of drinking water in Central Florida. These two permeable strata are separated by the relatively low permeability clays in the "Hawthorn Group." The amount of groundwater flow between the two aquifer systems is dependent on the thickness and consistency of the Hawthorn clay confining beds which, as previously stated, varies widely throughout Central Florida.

Soil Conditions

Subsurface conditions within the project site were evaluated with fifteen (15) soil test borings. Borings B-1 through B-8 were drilled to depths of 15 to 25 feet below the existing ground surface in the potential building area; B-9 through B-13 were drilled to depths of 10 to 15 feet below the existing ground surface in the potential pavement areas; and B-14 and B-15 were drilled to depths of 15 feet below existing ground surface in a potential retention pond area. The approximate boring location is shown on the Boring Location Plan in the Appendix. Ground surface elevations were not available at the time of drilling or submittal of the report.

In general, borings encountered brown to orangish brown fine sand (SP) from the existing grade to the termination depth of the borings. SPT N-values ranged from 3 to 10 blows per foot (bpf) of sampler penetration, indicating a relative density of very loose to loose. For details, refer to the boring logs attached in the Appendix.

Groundwater Observations

On the basis of depth to water measurements made in the open boreholes, the groundwater was not encountered to 10 feet in the borings performed. The groundwater will fluctuate seasonally depending upon local rainfall. The rainy season in Central Florida is normally between June and September. Based upon our site specific field data, our review of the USDA Soils Survey of Lake County, the USGS topographic map of the area, published lake level data, the expected regional hydrogeology and our experience in the area, we estimate the seasonal high groundwater levels could be on the order of 12 feet below existing grade at the boring

locations. Variations in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, and other factors not apparent at the time of this exploration.

Please note that the ground surface elevations were not surveyed by a licensed surveyor. Therefore, groundwater elevations described in this report may not be relied upon for site design.

Stormwater Ponds

Typically in Florida, the infiltration potential of soils is empirically evaluated using falling head permeability laboratory test. Permeability tests was performed on bulk soil sample obtained from boring B-14 at a depth of about 2 to 7 feet below existing grade. The test was performed on fine sand (SP) material.

ECS recommends the following soil and groundwater parameters should be used in stormwater pond design:

- **Vertical Permeability:** 15 feet/day for (SP) soils
- **Horizontal Permeability**: 30 feet/day for (SP) soils
- **Seasonal High Groundwater Level**: 12 feet below existing grade
- **Depth to Base of Aquifer:** 15 feet
- **Fillable Porosity:** 0.30 for (SP) soils

The permeability values given above include a factor of safety of 2.

For dry bottom retention ponds, it is common to place sod on the pond bottom. **Do not use muck grown sod**. It will slow infiltration in the pond and the pond will not work as designed.

All fill material used to bring the ponds to final grades should be clean, inorganic, granular soil (fine sand) with a fines content of no more than 5 percent. Care should be taken not to overcompact the pond bottom during excavation and grading of the ponds. The soil encountered at the site may be susceptible to overcompaction which can significantly decrease the infiltration capacity of the pond.

In addition, sediment control measures should be employed during the construction process to keep the pond from receiving significant amounts of stormwater runoff from the surrounding construction site. This runoff is likely to contain suspended fine-grained soil particles that can impede the infiltration capacity of the ponds if allowed to settle out on the pond bottoms. If dewatering effluent or stormwater runoff from the active construction site is discharged to the pond, we recommend scraping and removal of fine-grained sediments that may have accumulated on the pond bottom.

ANALYSES AND RECOMMENDATIONS

The recommendations presented in this report are based on the project information provided to us, the results of the soil test borings, laboratory testing, and the engineering analyses. Considering the results of our field exploration, and our experience with similar projects, it is our judgment that the existing on-site soils at the project site are considered to be suitable for the proposed development, provided that the subgrade soils have been properly prepared, as described in this report, and approved by the Geotechnical Engineer or their authorized representative.

Foundation

According to the test borings and anticipated lowest floor grades for the proposed buildings, the materials anticipated at normal footing depths below the proposed floor slab should consist of Sand (SP) soils. Based on the results of the subsurface exploration, our recommendations outlined in the "**Earthwork Operations**" section, and our engineering analysis, we recommend that the proposed building be supported on spread footing foundations or a monolithic foundation.

No structural information has been provided to us for the planned building, however we have assumed the structure will have column and wall loads of less than 75 kips and 5 kips per foot, respectively. The geotechnical analyses of the test boring data indicate the sand soils expected at subgrade levels should be suitable for a recommended **allowable bearing pressure of 2,500 psf**. The net allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation bearing soils in excess of the final minimum surrounding overburdened pressure. **However, it should be noted that the soils from 5 to 7 feet below grade in the majority of the borings were very loose. In order to achieve an allowable bearing pressure of 2,500 psf, these areas must be over-excavated and re-compacted prior to construction in accordance with the Earthwork Operations section of this report.**

Settlement of individual footings designed in accordance to recommendations outlined above is expected to be small and within tolerable limits for the proposed structure. Within the proposed building, total settlements of about 1 inch are anticipated with differential settlements per 30 foot of wall footing expected to be on the order of 0.5 inch. These settlement estimates are based on our engineering experience with these soils and are provided to guide the structural engineer for design.

In order to prevent disproportionately small footing sizes, we recommend that continuous footings have a minimum width of 1.5 feet and that isolated column footings have a minimum lateral dimension of 2.5 feet. The minimum dimensions recommended above help reduce the possibility of foundation bearing failure and excessive settlement due to local shear or "punching" action.

Our settlement analysis assumes the soils from the bottom of the footings to a depth of 3 feet have been compacted prior to placing concrete in the footings. As such, we recommend this zone be compacted to at least 95 percent of the maximum dry density, as determined by the Modified Proctor Compaction Test (ASTM D-1557). Generally, the moisture content of the sub-footing soils should be maintained between 2% below to the optimum moisture content for the fill material, as determined by ASTM D-1557. One compliance compaction test should be

performed at least every 2,000 square feet per foot of improvement. In addition, one Dynamic Cone Penetrometer (DCP) test should be performed per 50 linear feet of foundation length to a depth of at least 3 feet below the bottom of the footing to confirm the bearing capacity.

Floor Slab Design

According to the test borings and recommendations included in this report, soils at the lowest floor slab subgrade should consist of firm Sand (SP) soils, which should be suitable for floor slab support. The subgrade should be prepared in accordance with our recommendations outlined in the section entitled "**Earthwork Operations**". The lowest slabs can then be designed as slab on grade with a modulus of subgrade reaction of 150 pci.

Earthwork Operations

Floor Subgrades

The existing ground surface in the proposed structural areas should be stripped of vegetation, rootmat, topsoil, and any other soft or unsuitable material from the proposed building area. The stripping within the proposed building area should be extended at least 5 feet, where possible, beyond the planned limits.

After stripping to the desired grade, performing excavation, and prior to fill placement, the exposed soils should be carefully examined to identify any localized loose, yielding or otherwise unsuitable materials by an experienced Geotechnical Engineer or his/her authorized representative. After examining the exposed soils, loose and yielding areas should be identified by proof-rolling with a suitable piece of equipment, such as a loaded dump truck, having an axle weight of at least 10 tons. Any soft or unsuitable materials encountered during this proof-rolling should be removed and replaced with engineered fill compacted meeting the criteria given below in the section entitled "**Fill Placement**".

Fill Placement

Prior to the placement of fill, proof-rolling observations should be performed by a certified technician with a suitable piece of equipment, such as a loaded dump truck, having an axle weight of at least 10 tons. Any soft or unsuitable materials encountered during this proof-rolling should be removed and replaced with engineered fill compacted to the criteria given below.

Any fill to be placed on site should consist of soils classified SP per ASTM D-2487 and have less than 5 percent passing the No. 200 sieve. The on-site soils should be suitable for reuse as compacted fill, provided that the natural moisture content is within an desirable range to obtain compaction.

Structural fill should be placed in loose lifts, which do not exceed 12 inches in thickness, and should be compacted to at least 95 percent of the maximum dry density, as determined by the Modified Proctor Compaction Test (ASTM D-1557). Generally, the moisture content of the fill materials should be maintained between 2 % below to the optimum moisture content for the fill material, as determined by ASTM D-1557. Fill placed in non-structural areas (e.g. grassed

areas) should be compacted to at least 90% of the maximum dry density according to ASTM D-1557, in order to avoid significant subsidence. The upper one foot of soils supporting slabs-on-grade and pavements should also be compacted to a minimum of 95% of the maximum dry density obtained in accordance with the ASTM Specification D-1557, Modified Proctor Method discussed above. Compliance tests should be performed at a rate of 1 test per 2,000 square feet per foot of improvement (depth) in the structural areas and 1 test per 5,000 square feet in paved areas.

If any problems are encountered during the earthwork operations, or if site conditions deviate from those encountered during our subsurface exploration, the Geotechnical Engineer should be notified immediately.

Borrow Suitability

1) Fine sand (SP) can be utilized as structural and pavement subgrade fill material provided that the natural moisture content is within a desirable range to obtain compaction.

Pavement Considerations

All pavement subgrades should be prepared in accordance with the recommendations presented in the section entitled Earthwork Operations. In areas where Portland cement concrete pavement is planned, the concrete should be placed upon a minimum of 12 inches of compacted, free draining material and compacted to 98% of the Modified Proctor maximum dry density (ASTM D-1557).

Where asphaltic concrete pavements are used, we recommend that subgrade materials be compacted in place according to the requirements presented in the Earthwork Operations section of this report. **If the existing sandy soils do not meet the design criteria**, we suggest stabilizing the subgrade materials to a minimum Florida Bearing Value (FBV) of 75 pounds per square inch (psi). As an alternate for the FBV, materials can have a Limerock Bearing Ratio (LBR) of 40 percent. All stabilized subgrade materials should be compacted to **98 percent** of the Modified Proctor (AASHTO T-180 or ASTM D-1557) maximum dry density and meet specification requirements for Type B or Type C Stabilized Subgrade by the Florida Department of Transportation (FDOT). The stabilized subgrade may consist of imported material or a blend of on-site soils and imported materials. If a blend is proposed, we recommend that the contractor perform a mix design to find the optimum mix proportions.

Effects of Groundwater

One of the most critical influences on the pavement performance in Central Florida is the relationship between the pavement subgrade and the seasonal high groundwater level. Many roadways and parking areas have been destroyed as a result of deterioration of the base and the base/surface course bond. Regardless of the type of base selected, we recommend that the seasonal high groundwater and the bottom of the base course be separated by at least 12 inches.

Landscape Drains and Curbing

If needed, where landscaped sections are located adjacent to parking lots or driveways, we recommend that drains be installed around these landscaped sections to protect the asphalt pavement from excess rainfall and over irrigation. Migration of irrigation water from the landscape areas to the interface between the asphalt and the base usually occurs unless landscape drains are installed. This migration often causes separation of the wearing surface from the base and subsequent rippling and pavement deterioration. The underdrains or strip drains should be routed to a positive outfall at the pavement area catch basins.

Curbing around landscaped sections adjacent to parking lots and driveways should be constructed with full-depth curb sections. Using extended curb sections which lie directly on top of the final asphalt level, or eliminating curbing entirely, can allow migration of irrigation water from the landscaped areas to the interface between the asphalt and the base. This migration often causes separation of the wearing surface from the base and subsequent rippling and pavement deterioration.

Deleterious Materials - Organic Soils and Buried Debris

Our borings did not encounter organic soils or buried debris; however, these materials can be difficult to identify using the split-barrel sampling techniques in this exploration. Therefore, ECS highly recommends conducting test pits, a ground penetrating radar survey, and/or other geophysical techniques to determine the presence of and delineate the extents of deleterious materials such as organic soils and buried debris. ECS would be pleased to provide these services.

Geoenvironmental Concerns

The equipment, techniques, and personnel used to perform a geoenvironmental study differ significantly from those used to perform a geotechnical study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated environmental problems have led to numerous project failures. If you have not already obtained your own geoenvironmental information, ECS would be pleased to assist with these services. ECS recommends that you not rely on reports prepared for someone else.

Construction Considerations

Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are dug during the rainy season or if rain is anticipated. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, we recommend that a 1-to 3-inch thick "mud-mat" of "lean" concrete be placed on the bearing soils before the placement of reinforcing steel.

The surficial soils contain fines which are considered moderately erodible. The Contractor should provide and maintain good site drainage during earthwork operations to help maintain the integrity of the surface soils. The surface of the site should be kept properly graded in order to enhance drainage of the surface water away from the proposed construction areas during the earthwork phase. We recommend that surface drainage be diverted around the proposed building area without significantly interrupting its pattern. All erosion and sedimentation should be controlled in accordance with sound engineering practice and current state and local requirements.

In a dry and undisturbed state, the upper 1 foot of the majority of the soil at the site will provide good subgrade support for fill placement and construction operations. However, when wet, these soils will degrade quickly with disturbance from contractor operations. Therefore, good site drainage should be maintained during earthwork operations, which will help maintain the integrity of the soil.

Report Limitations

This report has been prepared to aid in the evaluation of this site and to assist the design team with the design of the proposed facility. The report scope is limited to this specific project and the location described. The project description represents our current understanding of the significant aspects of the proposed improvements relevant to the geotechnical considerations.

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. ECS reviewed field and laboratory data and then applied professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Retaining ECS to provide construction observation is one of the most effective methods of managing the risks associated with unanticipated conditions.

The analysis and recommendations are, of necessity, based on the information made available to us at the time of the actual writing of the report and the on-site conditions, surface and subsurface that existed at the time the exploratory borings were drilled. Further assumptions have been made that the limited exploratory borings, in relation both to the aerial extent of the site and to depth, are representative of conditions across the site. If subsurface conditions are encountered which differ significantly from those reported herein, this office should be notified immediately so that the analyses and recommendations can be reviewed for validity.

A geotechnical engineering report is based upon conditions that existed at the time the study was performed. Do not rely on this report if the adequacy may have been affected by: passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events such as floods, hurricanes, or groundwater fluctuations. Always contact ECS before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of study. Typical factors include: the client's goals, objectives, and risk management preferences; the nature of the structure involved, its size, and configuration; the location of the

structure on site; and other planned or existing site improvements, such as access roads, parking lots, underground utilities. Unless ECS indicates otherwise, do not rely on this report if it was not prepared for you; not prepared for your project; not prepared for the specific site explored; or completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that effect: the function of the proposed structure; elevation, configuration, location, orientation, or weight of the proposed structure; composition of the design team; or project ownership. As a general rule, always inform ECS of project changes – even minor ones – and request an assessment of their impact. ECS cannot accept responsibility or liability for problems that occur because our report does not consider developments of which we were not informed.

The report was designed to meet the specific needs that we have discussed. **This report should not be relied upon to fulfill the needs of contractors.** No one should rely on this report without first consulting with ECS. Furthermore, no one should apply this report for any purpose or project except the one originally contemplated. If you wish to have a report that may be relied upon for earthwork operations, then ECS highly recommends additional exploration that may include test pits and/or a geophysical exploration, etc.

ECS recommends that the complete geotechnical report be provided to contractors, but that it should be prefaced with a clearly written letter of transmittal. **In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited**. We recommend that the contractor retain ECS to conduct additional study to obtain the specific types of information they need or prefer. A pre-bid conference may also be valuable. Be sure contractors have sufficient time to perform additional study. Only then might you be in a position to give contractors the available information, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Do not over rely on the construction recommendations included in this report. These recommendations are not final. We can finalize our recommendations only by observing actual subsurface conditions revealed during construction. The placement of any new engineered fill will require adequate monitoring during construction in order to confirm that the fill mass is installed properly to avoid future settlements. Because of our in-depth knowledge of the subsurface conditions at the site, we recommend that ECS observe all earthwork and construction operations to confirm that the work is being performed in accordance with the project specifications. It is also recommended that ECS be allowed to prepare or at least review the project specifications with regard to the earthwork for this site. ECS cannot assume responsibility or liability if we do not perform full-time construction observation during earthwork operations and foundation installation.

Closing

We would appreciate the opportunity to continue our involvement on the project during construction. ECS-Florida, LLC would appreciate the opportunity to offer our construction materials testing, threshold inspections, and facilities engineering services.

APPENDIX

Unified Soil Classification System

Reference Notes for Boring Logs

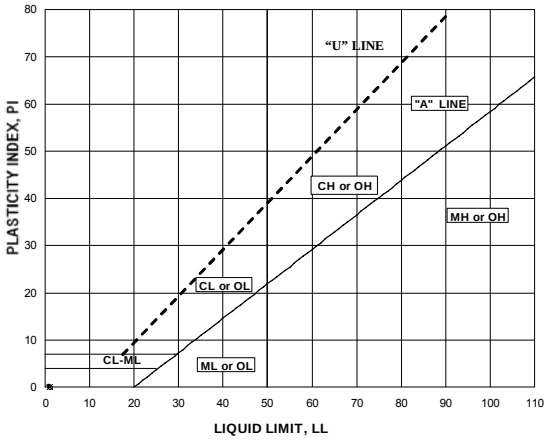
Boring Logs B-1 through B-15

Boring Location Plan

Unified Soil Classification System
(ASTM Designation D-2487)

Major Division		Group Symbol	Typical Names		Classification Criteria
Coarse-grained soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Classification on basis of percentage of fines: Less than 5% Pass No. 200 sieve	$C_u = D_{60}/D_{10}$ Greater than 4 $C_z = (D_{30})^2/(D_{10}xD_{60})$ Between 1 and 3
		GP	Poorly graded gravels and gravel-sand mixtures, little or no fines		Not meeting both criteria for GW
		GM	Silty gravels, gravel-sand-silt mixtures	More than 12% Pass No. 200 sieve	Atterberg limits plot below "A" line or plasticity index less than 4
		GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits plot above "A" line and plasticity index greater than 7
	Sands: More than 50% of coarse fraction passes No. 4 sieve	SW	Well-graded sands and gravelly sands, little or no fines		$C_u = D_{60}/D_{10}$ Greater than 6 $C_z = (D_{30})^2/(D_{10}xD_{60})$ Between 1 and 3
		SP	Poorly graded sands and gravelly sands, little or no fines		Not meeting both criteria for SW
		SM	Silty sands, sand-silt mixtures	5% to 12% Pass No. 200 sieve	Atterberg limits plot below "A" line or plasticity index less than 4
		SC	Clayey sands, sand-clay mixtures	Borderline classification requiring use of dual symbol: GW, GP, SW, SP / GM, GC, SM, SC	Atterberg limits plot above "A" line and plasticity index greater than 7
Fine-grained soils: 50% or more passing No. 200 sieve	Silts and Clays: Liquid limit 50% or less	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands		
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
		OL	Organic silts and organic silty clays of low plasticity		
	Silts and Clays: Liquid limit greater than 50%	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts		
		CH	Inorganic clays of high plasticity, fat clays		
		OH	Organic clays of medium to high plasticity		
Highly organic soils		Pt	Peat, muck and other highly organic soils		Fibrous organic matter; will char, burn, or glow

Note: U-line represents approximate upper limit of LL and PI combinations for natural soils (empirically determined). ASTM-D2487.



Plasticity chart for the classification of fine-grained soils.
Tests made on fraction finer than No. 40 sieve

ECS LLC FLORIDA

UNIFIED SOIL CLASSIFICATION SYSTEM

REFERENCE NOTES FOR BORING LOGS

I. Drilling Sampling Symbols:

SS	Split Spoon Sampler	ST	Shelby Tube Sampler
RC	Rock Core, NX, BX, AX	PM	Pressuremeter
DC	Dutch Cone Penetrometer	RD	Rock Bit Drilling
BS	Bulk Sample of Cuttings	PA	Power Auger (no sample)
HAS	Hollow Stem Auger	WS	Wash Sample

II. Correlation of Penetration Resistances to Soil Properties:

Standard Penetration (Blows/Ft) refers to the blows per foot of a 140 lb. Hammer falling 30 inches on a 2-inch OD split spoon sampler, as specified in ASTM D-1586. The blow count is commonly referred to as the N value.

A. Non-Cohesive Soils (Silt, Sand, Gravel and Combinations)

Density		*Relative Properties*	
Under 4 blows/ft	Very Loose	Adjective Form	12% to 49%
4 to 10 blows/ft	Loose	With	5% to 12%
11 to 30 blows/ft	Medium Dense		
31 to 50 blows/ft	Dense		
Over 51 blows/ft	Very Dense		

Particle Size Identification		
Boulders		8 inches or larger
Cobbles		3 to 8 inches
Gravel	Coarse	1 to 3 inches
	Medium	½ to 1 inch
	Fine	¼ to ½ inch
Sand	Coarse	2.00 mm to ¼ inch (dia. of lead pencil)
	Medium	0.42 to 2.00 mm (dia. of broom straw)
	Fine	0.074 to 0.42 mm (dia. of human hair)
Silt and Clay		0.0 to 0.074 mm (particles cannot be seen)

B. Cohesive Soils (Clay, Silt, and Combinations)

Blows/ft	*Consistency*	*Unconfined Comp. Strength Q_p (tsf)*	*Degree of Plasticity*	*Plasticity Index*
Under 2	Very Soft	Under 0.25	None to Slight	0 – 4
2 to 4	Soft	0.25-0.49	Slight	5 -7
4 to 8	Med. Stiff	0.50-0.99	Medium	8 - 22
9 to 15	Stiff	1.00-1.99	High to Very High	Over 22
16 to 30	Very Stiff	2.00-3.00		
Over 30	Hard	Over 4.00		

III. Water Level Measurement Symbols:

WL	Water Level	BCR	Before Casing Removal	DCI	Dry Cave-In
WS	While Sampling	ACR	After Casing Removal	WCI	Wet Cave-In
WD	While Drilling	▽	Existing Groundwater Level	▼▽	Est. Seasonal High GWT

The water levels are those water levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in a granular soil. In clay and plastic silts, the accurate determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally applied.

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-1	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Fine SAND, Brown to Orangish Brown, Dry, Moist, Loose (SP)			3 2 3 3 4
	S-2	SS	24	24				3 4 4 4 3
5	S-3	SS	24	24				4 5 4 5 4
	S-4	SS	24	24				4 4 4 3 4
	S-5	SS	24	24	Fine SAND, Light Brown, Moist, Loose (SP)			5 4
10								
	S-6	SS	18	18				3 4 4
15								
	S-7	SS	18	18				3 4 5
20								
	S-8	SS	18	18				4 4 4
25					END OF BORING @ 25.00'			
30								

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@25' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-2	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT
0	S-1	SS	24	24	Fine SAND, Brown to Orangish Brown, Dry to Moist, Very Loose to Loose (SP)			3 2	3
	S-2	SS	24	24				1 2	3
5	S-3	SS	24	24				1 2	3
	S-4	SS	24	24				1 2	5
	S-5	SS	24	24				2 3	7
10	S-6	SS	24	24				3 4	9
	S-7	SS	24	24				5 4	7
15	S-8	SS	24	24				4 3	9
	S-9	SS	24	24				4 3	9
	S-10	SS	24	24				5 5	9
20					END OF BORING @ 20.00'			4 5	
								4 5	
25								4 6	
30									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@20' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-3	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

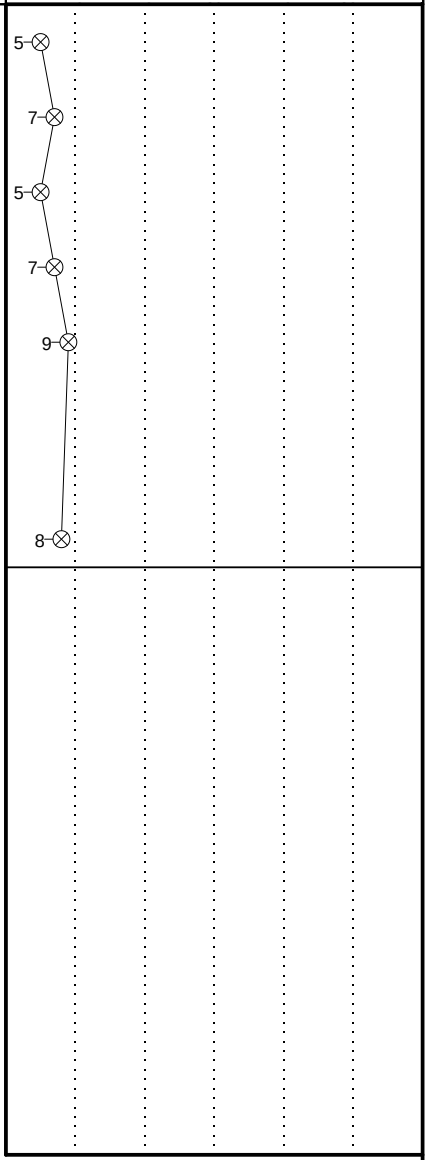
STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Fine SAND, Brown to Light Brown, Moist, Loose (SP)			2 3 2 2 2 3 3 4 3 3 2 3 4 3 3 4 3 3 5 4 3
	S-2	SS	24	24				
5	S-3	SS	24	24				
	S-4	SS	24	24				
	S-5	SS	24	24				
10								
	S-6	SS	18	18				4 4 4
15					END OF BORING @ 15.00'			
20								
25								
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@15' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-4	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
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5	S-3	SS	24	24				3 2 3 3
	S-4	SS	24	24				3 4 6 5
	S-5	SS	24	24				4 3 4 5
10								
	S-6	SS	18	18				4 4 5
15					END OF BORING @ 15.00'			
20								
25								
30								

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WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-5	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS
BOTTOM OF CASING | LOSS OF CIRCULATION
SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
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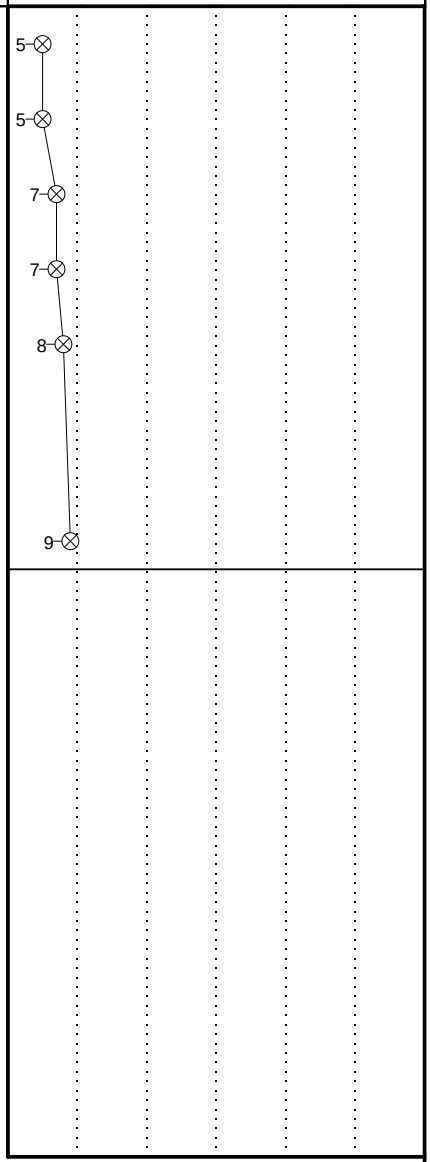
	S-2	SS	24	24				3 2 3 4 4
5	S-3	SS	24	24	Fine SAND, Orangish Brown to Light Brown, Moist, Loose (SP)			4 3 4 4 5
	S-4	SS	24	24				4 3 5 4 4
	S-5	SS	24	24				4 4 4
10								
	S-6	SS	18	18				4 5 4
15					END OF BORING @ 15.00'			
20								
25								
30								



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WL DRY@15' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-6	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS
BOTTOM OF CASING | LOSS OF CIRCULATION
SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
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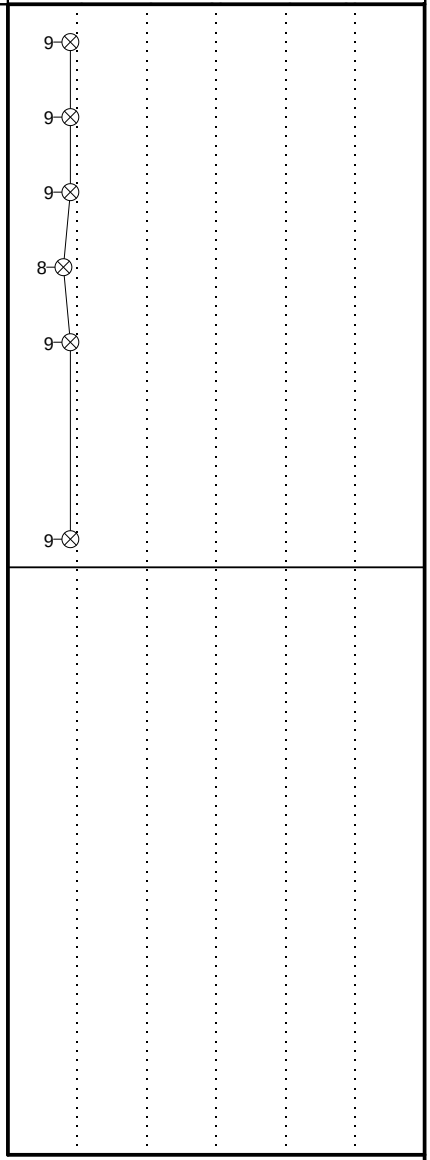
	S-2	SS	24	24				4 5 4 4
5	S-3	SS	24	24				3 5 4 5
	S-4	SS	24	24	Fine SAND, Light Orangish Brown, Moist, Loose (SP)			4 3 5 4
	S-5	SS	24	24				4 4 5 4
10								
	S-6	SS	18	18				3 4 5
15					END OF BORING @ 15.00'			
20								
25								
30								



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WL DRY@15' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-7	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS
BOTTOM OF CASING | LOSS OF CIRCULATION
SURFACE ELEVATION

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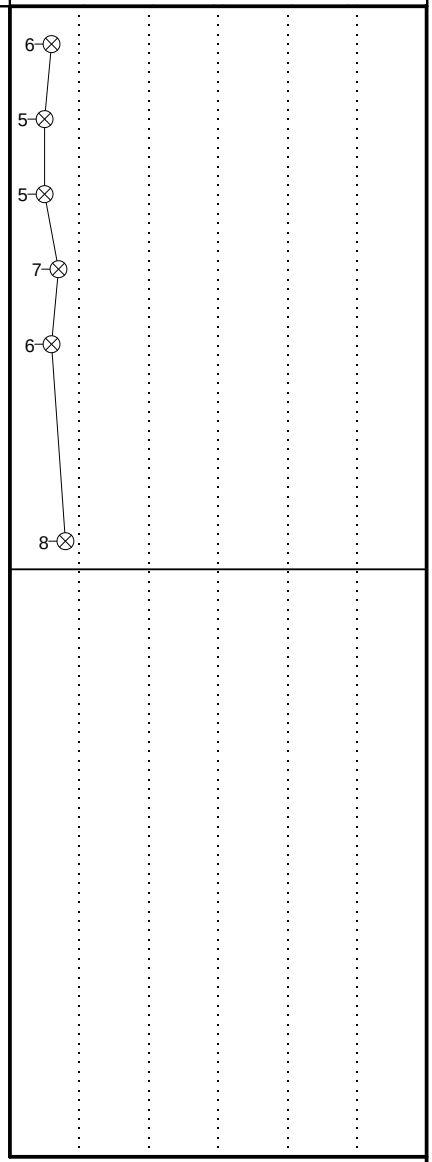
5	S-3	SS	24	24				3 3 2 3
	S-4	SS	24	24	Fine SAND, Light Orangish Brown, Moist, Loose (SP)			4 4 3 4
	S-5	SS	24	24				4 3 3 4
10								
	S-6	SS	18	18				4 4 4
15					END OF BORING @ 15.00'			
20								
25								
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@10' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-8	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

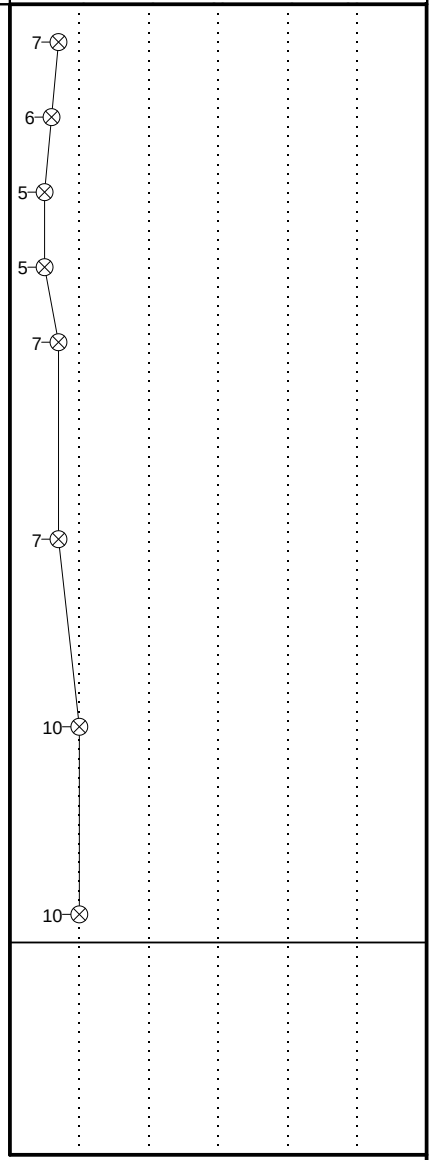
STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Fine SAND, Brown to Light Brown, Moist, Loose (SP)			3 4 3 3 2 3 3 4
	S-2	SS	24	24				3 3 2 3 2 2 3 3
5	S-3	SS	24	24				2 3 4 3 3
	S-4	SS	24	24				
	S-5	SS	24	24				
10					Fine SAND, Light Orangish Brown to Light Brown, Moist, Loose (SP)			4 4 3
	S-6	SS	18	18				
15								
	S-7	SS	18	18				4 5 5
20								
	S-8	SS	18	18				4 5 5
25					END OF BORING @ 25.00'			
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@25' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-9	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Fine SAND, Grayish Brown to Light Brown, Dry to Moist, Loose (SP)			2 3 2 2 2
	S-2	SS	24	24				4 3 3 2 3
5	S-3	SS	24	24				3 4 4 3 4
	S-4	SS	24	24	Fine SAND, Light Orangish Brown, Moist, Loose (SP)			4 4 3 4 4
	S-5	SS	24	24				5 4
10					END OF BORING @ 10.00'			
15								
20								
25								
30								

5 6 7 8 9

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@10' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-10	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS
BOTTOM OF CASING | LOSS OF CIRCULATION
SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
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	S-2	SS	24	24				3 2 3 3 3
5	S-3	SS	24	24	Fine SAND, Brown to Light Orangish Brown, Moist, Loose (SP)			3 4 3 4 4
	S-4	SS	24	24				4 5 4 4 3
	S-5	SS	24	24				4 4 4
10								
	S-6	SS	18	18				4 4 4
15					END OF BORING @ 15.00'			
20								
25								
30								

5 5 7 9 8 8

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@15' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-11	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

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	S-2	SS	24	24				
5	S-3	SS	24	24				
	S-4	SS	24	24				
	S-5	SS	24	24				
10					END OF BORING @ 10.00'			
15								
20								
25								
30								

5 – 7 – 7 – 6 – 9

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@10' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-12	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS
BOTTOM OF CASING | LOSS OF CIRCULATION
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	S-2	SS	24	24				
5	S-3	SS	24	24				
	S-4	SS	24	24				
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10					END OF BORING @ 10.00'			
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20								
25								
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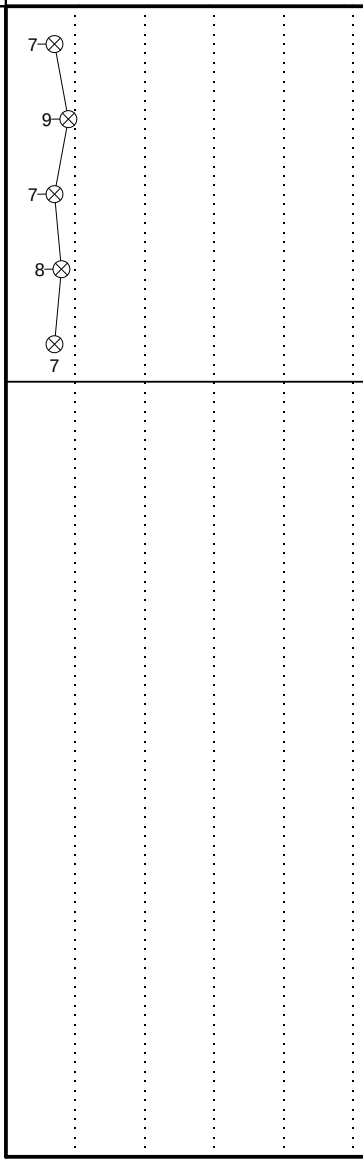

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WL DRY@10' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-13	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL (ENGLISH UNITS; BOTTOM OF CASING; LOSS OF CIRCULATION; SURFACE ELEVATION)	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Fine SAND, Brown to Orangish Brown, Dry to Moist, Loose (SP)			3 4
	S-2	SS	24	24				3 3
5	S-3	SS	24	24				3 5
	S-4	SS	24	24				4 5
	S-5	SS	24	24				5 4
10					END OF BORING @ 10.00'			4 3
15								5 4
20								4 4
25								3 4
30								4 3

7 9 7 8 7

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@10' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-14	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

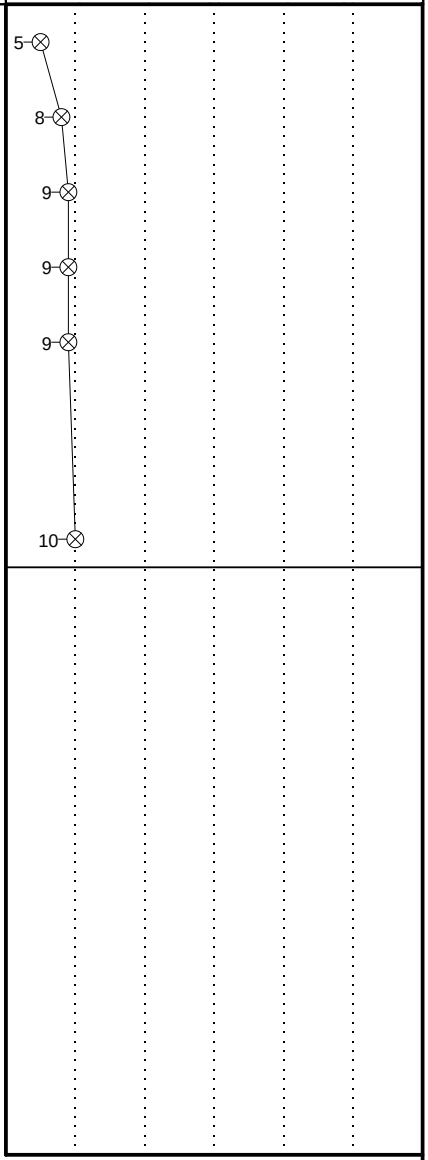
STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Fine SAND, Brown to Light Orangish Brown, Dry to Moist, Loose (SP)			3 2 3 4
	S-2	SS	24	24				4 3 3 5
5	S-3	SS	24	24				4 5 4 3
	S-4	SS	24	24				4 5 4 4
	S-5	SS	24	24				3 4 5 5
10								
	S-6	SS	18	18				5 5 5
15					END OF BORING @ 15.00'			
20								
25								
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY@15' WS☐ WD☐	BORING STARTED 10/29/13	
WL(BCR) WL(ACR)	BORING COMPLETED 10/29/13	CAVE IN DEPTH
WL	RIG D-50 ATV FOREMAN Gary	DRILLING METHOD Mud Rotary

CLIENT	JOB #	BORING #	SHEET
Bio-Tech Consulting, Inc.	4844	B-15	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
16-Acre Hancock Road Site GEO	

SITE LOCATION: Hancock Road, Clermont, Lake County

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

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5	S-3	SS	24	24				5 4 5
	S-4	SS	24	24				4 4 3
	S-5	SS	24	24				3 4 3
10								4 4 4
	S-6	SS	18	18				3 4 4
15					END OF BORING @ 15.00'			5 4
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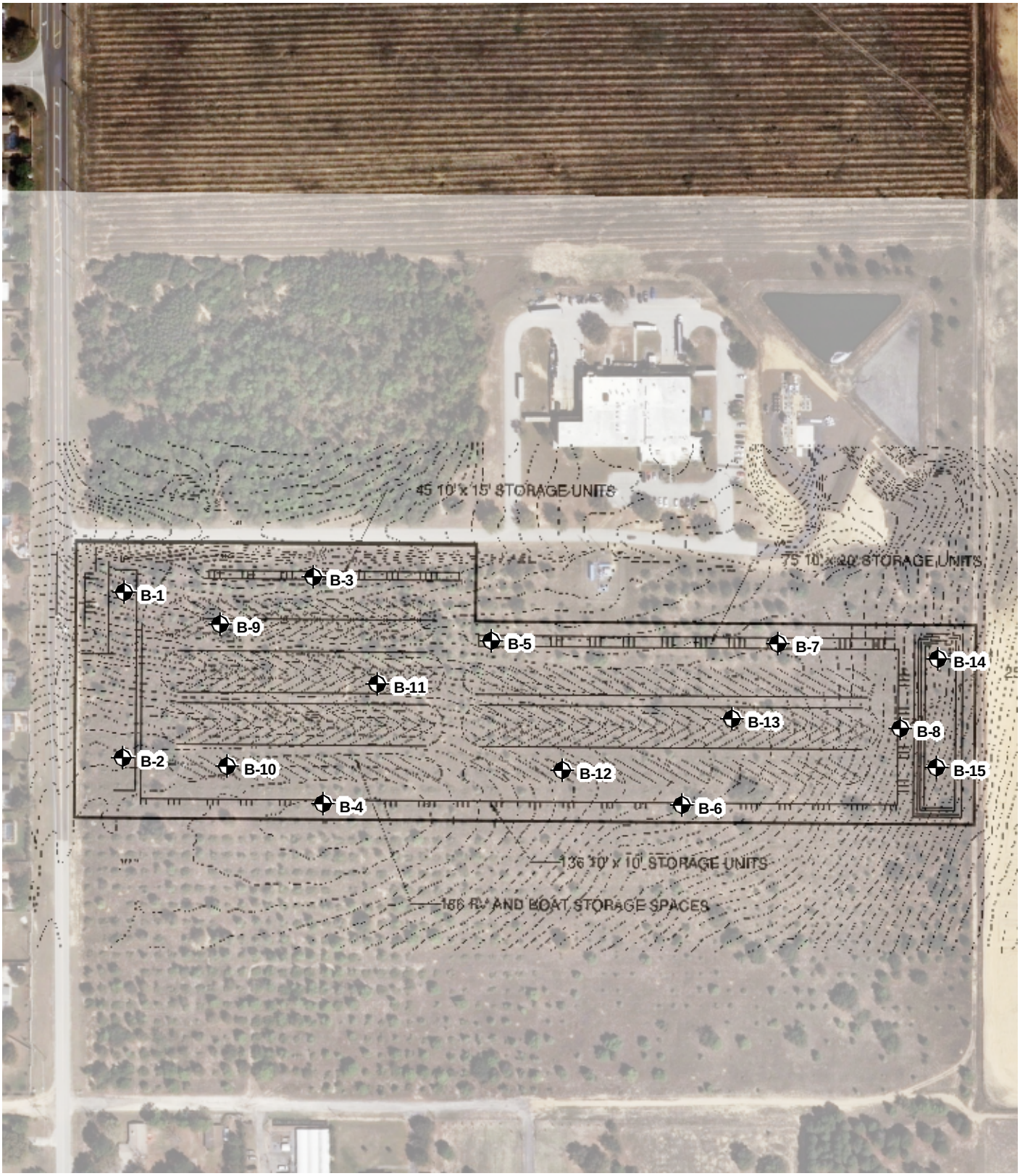

ECS LLC FLORIDA

ECS No. 24-4844

NOTES:

Aerial photograph courtesy of Florida State University

Site plan provided by Client

Borings locations provided by Client

0 125 250

Feet

Figure 1

Boring Location Plan

16-Acre Hancock Road Site

CLERMONT, LAKE COUNTY, FLORIDA

Section 34, Township 22 South, Range 26 East