July 19, 2016

Deerfield Land Corporation
14901 S. Orange Blossom Trial
Orlando, Florida 32806

Attn: Thomas Roehlk
P: [407] 826-4514
E: tomroehlk@tupperware.com

Re: Geotechnical Engineering Report
Tupperware Main Campus
Orange Blossom Trial and Mary Louis Lane
Kissimmee, Osceola County, Florida
Terracon Project Number: H1165094

Dear Mr. Roehlk:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project in Kissimmee, Florida. This study was performed in general accordance with our proposal number PH1165094 dated March 10, 2016 and authorized on March 18, 2016.

This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and pavements for the proposed development.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.
Certificate of Authorization Number 8830

Xuebing Zheng, E.I.
Staff Geotechnical Engineer

Amr M. Sallam, Ph.D., P.E.
Principal
Florida PE # 67578

This report has been electronically signed and sealed by Amr M. Sallam, Ph.D., P.E. on 7/19/16 using a Digital Signature. 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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</tr>
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</table>

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<table>
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<tr>
<th>Exhibit</th>
<th>Description</th>
</tr>
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<tbody>
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</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

A geotechnical exploration has been performed for the proposed approximate 75 acres land development planned to be constructed on the southeast corner of Orange Blossom Trail and Mary Louis Lane in Kissimmee, Osceola County, Florida. The development includes two additional wood-framed two-story buildings and additional pavement areas at the northern portion of the site and four-story buildings and master stormwater ponds at the southern portion of the site. A design level exploration includes total of 17 test boring and 13 hand auger borings have been performed within the northern portion of the site. A preliminary exploration has been performed for the southern portion of the site consist of 30 test borings, muck probing and hand augers. In addition, 6 test borings has been performed near the four existing ponds along Orange Blossom Trial and 10 piezometers tubes were installed to estimate the average mean groundwater table depth.

Based on the information obtained from our geotechnical exploration, it appears that the site can be developed for the proposed project. The following geotechnical considerations were identified:

- Muck probing was performed at the wetland areas to delineate muck thickness and extent. Summary of the muck probing results is presented later in this report.
- The shallow in-place sands appear suitable for re-use as general engineered fill. Due to the shallow groundwater table elevation, the site is expected to be filled.
- The subsoil conditions is suitable to support the anticipated buildings on typical shallow foundations in the form of spread and continuous footings supported on site soil or structural fill.
- A table that shows the recorded water table readings at each ten (10) piezometer is included in Exhibit A-87 in Appendix A.
- A table that shows encountered water table, average normal wet water, and the estimated seasonal high levels at each boring location is included in Exhibit B-2 in Appendix B.
- The southern portion of the site will include master stormwater ponds. Recommendations for preliminary stormwater design parameters for the overall site are presented later in this report.

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled GENERAL COMMENTS should be read for an understanding of the report limitations.
1.0 INTRODUCTION

This geotechnical exploration has been performed for the proposed approximate 75 acres land development planned to be constructed on the southeast corner of Orange Blossom Trial and Mary Louis Lane in Kissimmee, Osceola County, Florida as shown on the Topographic Vicinity Map included as Exhibit A-1 in Appendix A.

The development includes two additional wood-framed two-story buildings and pavement areas at the northern portion of the site and four-story buildings and master stormwater ponds at the southern portion of the site. A design level exploration includes total of 17 test boring and 13 hand auger borings have been performed within the northern portion of the site. A preliminary exploration has been performed for the southern portion of the site consist of 30 test borings and muck probing and hand augers in existing wetlands. In addition, 6 test borings has been performed near the four existing ponds along Orange Blossom Trial and 10 piezometer tubes were installed to estimate the average mean groundwater table depth.

Boring location plans along with muck probing results are included as Exhibit A-4 to A-7 in Appendix A. Logs of the borings are included in Appendix A. Laboratory testing procedures are included in Exhibit B-1 in Appendix B.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions for overall site
- Groundwater conditions for overall site
- Earthwork for overall site
- Foundation design and construction for the northern portion of the site
- Pavement design and construction for the northern portion of the site
- Floor slab design and construction for the northern portion of the site
- Anticipated foundation types for southern portion of the site
- Preliminary stormwater management parameters
- Preliminary pavement design for the southern portion of the site
2.0 PROJECT INFORMATION

2.1 Project Description

<table>
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<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>Site layout</td>
<td>Site plan for the northern portion of the site were provided to us, see figure below:</td>
</tr>
<tr>
<td>Proposed Construction</td>
<td>The proposed development includes approximately 75 acres land. The site will have 2 wood-framed two-story buildings and pavements at the north portion of the site. The south portion of the site will include four-story buildings and master stormwater ponds.</td>
</tr>
</tbody>
</table>

2.2 Site Location and Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>The proposed development is located at southeast corner of the intersection of Orange Blossom Trail and Mary Louis Lane in Kissimmee, Osceola County, Florida.</td>
</tr>
<tr>
<td>Current ground cover</td>
<td>The site is covered with existing buildings, ponds, grass, tree, and wetlands.</td>
</tr>
<tr>
<td>Existing topography</td>
<td>The site is relatively flat. From the provided surveyed boring elevation, the ground elevation at the northern portion of the site is approximately at elevation +83 feet near Mary Louis Lane to +85 feet. The southwestern portion of the site is sloped from west to east (+88 feet to +85 feet). The southeastern portion of the site is near elevation +83.5 feet to +86.5 feet.</td>
</tr>
</tbody>
</table>
### Surface Water & Ponds

Four (4) existing ponds are located just east of Orange Blossom Trail and six (6) ponds are located within the project site area. An existing swale/canal is located within the northern portion of the site. Four (4) wetlands are located in the southern portion of the site.

## 3.0 Subsurface Conditions

### 3.1 Geology

#### 3.1.1 Regional Geology

The geology of Osceola County can be broadly divided into three layers. The lowermost and the oldest layer is the Limestone layer. The Floridan Aquifer, the primary source of potable water in Osceola County, is located within the Limestone layer. The Limestone layer can be subdivided into Avon Park Formation and Ocala Formation. Ocala Formation lies unconformably on top of Avon Park Formation.

Above the Ocala Formation lies the Hawthorn Group. The Hawthorn Group acts as a confining layer, maintaining the Floridan Aquifer beneath it and separating it from the surficial unconfined aquifer. The highly variable, diverse, lithologic character of the Hawthorn Group includes interbedded and interfingering sand, clayey sand, sandy clay, phosphatic sediment, dolomite, and limestone. The carbonate part generally occurs in the lower Hawthorn Group and contains highly variable amounts of sand, clay, and phosphorite or sand and clay. Sedimentary deposits of the Hawthorn Group underlie the entire county except in scattered areas where these deposits have been removed by erosion prior to deposition of younger units.

Above the Hawthorn Group, unconsolidated sand blankets the county. This sand consists of medium to fine sand and silt and does not contain clay or shell fragments. The surface expression of this lithologic type is generally flat to slightly undulating.

The site is located in a flat area of Osceola County which is referred to as the Osceola Plain. The Osceola Plain is bounded on the west and northwest by the higher land of the east side of the Lake Wales Ridge and the southern ends of the Mount Dora and Orlando Ridges. On the northeast, east and south it is bounded by the an outward-facing scarp which look out onto lower ground which for the most part is the solution-reduced beach ridge plain at about 25 feet elevation which is known as the solution part of the Eastern Valley.

The extreme elevation of the Osceola Plain is about 90 to 95 feet. This elevation is reached near its northern edge where it rises gradually but with increasing local relief toward the southern edge of the Orlando Ridge. Although the various parts of the Osceola Plain show little recognizable difference in relief, there is nonetheless a notable distinction in the terrain east and west of a line running approximately parallel with the axis of the Peninsula.
3.1.2 General Potential for Sinkhole Development

Sinkhole development occurs in Florida and varies geographically from areas with almost no potential or a very low potential to areas with a high potential where sinkholes occur frequently. The subject property is located in Area II on the United States Geological Survey map entitled “Sinkhole Type, Development, and Distribution in Florida”. The cover (over limestone bedrock) in Area II is between 30 to 200 feet thick and is predominantly sandy. Sinkholes are few, shallow, and of small diameter and develop gradually in Area II. The risk of sinkhole occurrence at most sites is small even in areas known to have a higher than average risk of sinkhole occurrence.

A review of the Florida Geologic Survey’s sinkhole database (updated March 4, 2014) reveals one reported sinkhole within three mile of the subject site. It should be noted that the number of sinkholes is based on information reported to the FGS and does not necessarily reflect the number of sinkholes confirmed by public or private industry.

During our limited shallow evaluation, we did not encounter traditional signs associated with potential sinkhole development including loss of drilling fluids, obvious raveled zones, surface depressions, etc. However, this evaluation was not planned to specifically address sinkhole potential. The risk of sinkhole occurrence at most sites is small even in areas known to have a higher than average risk of sinkhole occurrence.

If the sinkhole potential of the site is to be evaluated, additional site-specific data must be obtained. This might include using geophysical methods such as Electrical Resistivity tests and additional geotechnical tests such as Cone Penetrometer Test (CPT) soundings, dilatometer (DMT) soundings, and/or more/deeper Standard Penetration Test borings. Interpretation of the test data should be done by a professional geologist/engineer familiar with the use of these tests under local conditions. However, it should be noted that even if indicators of sinkhole activity are found, it is impossible to predict if, when or precisely where a sinkhole may occur. If requested, Terracon can assist in assessing the sinkhole potential of the location of the proposed construction.

3.2 Soil Survey

The Soil Survey of Osceola County, Florida as prepared by the United States Department of Agriculture (USDA), Soil Conservation Service (SCS; later renamed the Natural Resource Conservation Service - NRCS), dated 1979, identifies the soil type at the subject site as Arents, 0 to 5 percent slopes, Basinger fine sand, depressional, Myakka fine sand, and Placid fine sand. It should be noted that the Soil Survey is not intended as a substitute for site-specific geotechnical exploration; rather it is a useful tool in planning a project scope in that it provides information on soil types likely to be encountered. Boundaries between adjacent soil types on the Soil Survey maps are approximate (included in Appendix A as Exhibit A-2). Descriptions of the mapped soil units are included in Appendix A as Exhibit A-3.
3.3 Typical Profile

Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Approximate Depth to Bottom of Stratum (feet)</th>
<th>Material Description</th>
<th>Consistency/ Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6 to 18.5</td>
<td>Sand to sand with silt (SP) (SP-SM)</td>
<td>Very loose to medium dense</td>
</tr>
<tr>
<td>2</td>
<td>25 to 30</td>
<td>Silty to clayey sand to sandy clay (SM) (SC) (CH)</td>
<td>Loose to medium dense Stiff to very stiff</td>
</tr>
</tbody>
</table>

Conditions encountered at each boring location and results of laboratory testing are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Details for each of the borings can be found on the boring logs in Appendix A of this report. Descriptions of our field exploration are included as Exhibit A-88 in Appendix A. Descriptions of our laboratory testing procedures are included as Exhibit B-1 in Appendix B. General notes for SPT borings can be found in Exhibit C-1. A more detailed description of the Unified Soil Classification System (USCS) is included as Exhibit C-2 in Appendix C. General notes for CPT soundings can be found in Exhibit C-3.

3.4 Muck Probing

As shown on Exhibit A-4, Soil Boring Location Plan, four wetlands are located at southern portion of the site. Muck probing was performed at Wetland A, B and C to delineate muck thickness and extent. Exhibits A-5, A-6, and A-7 present the approximate water depth and the muck/organic soil thickness at the approximate probed locations “at time of probing”. The figure blow identifies our naming of the wetlands and the table below summarizes our findings.
3.5 Groundwater

The boreholes were observed during drilling for the presence and level of groundwater. Groundwater was observed in almost all of the borings, varying from depths of 1 inch of standing water to 7.5 feet below existing grade. Ten (10) piezometers were installed to better define groundwater conditions at the site. A Boring Location Diagram (Exhibit A-4) is included in Appendix A of this report. A detailed table that shows the recorded water table readings at each ten (10) piezometer is included in Exhibit A-87 in Appendix A.

An existing swale/canal is located within the northern portion of the site. Four wetlands are located in the southern portion of the site. In addition, four (4) existing ponds are located east of the Orange Blossom Trial, and six (6) ponds are located within the project site area. These water features serve as boundary conditions and were taken into consideration when estimating the average mean water table elevation (AMWT) and estimated seasonal high water table elevations (SHWT). SHWT for the wetlands were provided by the Ecologist (Cody Sparaco at Modica & Associates, Inc.) and is included in Exhibit B-3 for immediate reference. Borings were surveyed by Tinklepaugh Surveying Services, Inc. to National Geodetic Vertical Datum of 1929.

Wetland A is surrounded by piezometers PZ-2, PZ-3, PZ-4 and muck probing points and borings P-8, P-13, P-18/HA-23, P-19/HA-24, P-20/HA-25, P-17, P-12/HA-22, SPT-21, P-3, P-2/HA-26, P-1, P-4. The encountered water table (EWT) for this wetland is +83.5 feet at the time of drilling/probing, AMWT is estimated at +84.5 feet, and estimated SHWT is +85.5 feet.

Wetland B is boundary by muck probing points and hand auger borings P-22/HA-14, P-25, P-28/HA-15, P-31/HA-17, P-30/HA-16, P-27, P-24, and P-21. The encountered water table (EWT) for this wetland is +83 feet at the time of drilling/probing, AMWT is estimated at +83.5 feet, and estimated SHWT is +84.5 feet.

Wetland C is boundary by piezometers PZ-5 and PZ-6 and muck probe points and borings P-32, P-33, P-36, P-39/HA-18, P-44/HA-19, P-45/HA-20, P-46/HA-21, P-43, P-38, and P-35. The encountered water table (EWT) for this wetland is +83.5 feet at the time of drilling/probing, AMWT is estimated at +83.5 feet, and estimated SHWT is +84.5 feet.

The swale/canal at the northern portion of the site is closed to borings HA-3, HA-2, HA-1, HA-6, SPT-1, SPT-7, SPT-9, HA-11, HA-12, HA-13, HA-9, and HA-10. The encountered water table (EWT) for this wetland is +81.5 feet, AMWT is +82 feet, and estimated SHWT is +83 feet.
A detailed table that shows encountered water table levels, average normal wet water levels, and the estimated seasonal high at each boring location is included in Exhibit B-2 in Appendix B.

It should be recognized that fluctuations of the groundwater table will occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the boring was performed. In addition, perched water can develop within higher permeability soils overlying less permeable soils. Therefore, groundwater levels during construction or at other times in the future may be higher or lower than the levels indicated on the boring logs.

The seasonal water table estimates do not represent the temporary rise in water table that occurs immediately following a storm event, including adjacent to other stormwater management facilities. This is different from static groundwater levels in wet ponds and/or drainage canals which can affect the design water levels of new, nearby ponds. The seasonal high water table may vary from normal when affected by extreme weather changes, localized or regional flooding, karst activity, future grading, drainage improvements, or other construction that may occur on our around the site following the date of this report.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

Borings encountered shallow sand to sand with silt within top 6 to 20 feet below existing ground surface. These materials are generally suitable for construction of the proposed foundations, floor slabs, pavements, and stormwater systems following the recommended Earthwork portions of this report.

Seasonal high groundwater levels should be considered in the civil engineering design for site grading, utility construction, and pavements.

Due to the shallow groundwater condition, we anticipate filling the site in the order of 3 feet or as needed by the project drainage engineer.

Spread footings bearing on natural sands or engineered fill are recommended for support of the proposed building. The engineered fill should be placed as outlined in Section 4.2, Earthwork, of this report.

We recommend that the exposed subgrade be thoroughly evaluated after stripping of any topsoil and creation of all cut areas, but prior to the start of structural fill operations (if any). We recommend that Terracon be retained to evaluate the satisfactory preparation of the bearing material for the pavements, foundations, and floor slab subgrade soils. Subsurface conditions,
as identified by the field and laboratory testing programs, have been reviewed and evaluated with respect to the proposed building plans known to us at this time. Design and construction recommendations for foundation systems, other earth connected phases of the project, and preliminary stormwater design parameters are outlined below.

4.2 Earthwork

4.2.1 Site Preparation
Prior to placing any fill, all vegetation, topsoil organic soils and any otherwise unsuitable material should be removed from the construction areas. Wet or dry material should either be removed or moisture conditioned and re-compacted. After stripping and grubbing and achieving cut grades, the exposed surface should be proofrolled where possible to aid in locating loose or soft areas. Proof-rolling can be performed with appropriate heavy equipment to obtain a minimum compaction as defined in Section 4.2.3. Unstable soil (pumping) should be removed or moisture conditioned and compacted in place prior to placing fill.

Where fill is placed on existing slopes, we recommend that fill slopes be over filled and then cut back to develop an adequately compacted slope face. Slopes should be provided with appropriate erosion protection.

4.2.2 Material Requirements
Compacted structural fill should meet the following material property requirements:

<table>
<thead>
<tr>
<th>Fill Type</th>
<th>USCS Classification</th>
<th>Acceptable Location for Placement</th>
<th>Maximum Lift Thickness (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>SP (fines content &lt; 5%)</td>
<td>All locations and elevations</td>
<td>12(^3)</td>
</tr>
<tr>
<td></td>
<td>SP-SM (fines content between 5 and 12%)(^2)</td>
<td>All locations and elevations, except strict moisture control will be required during placement, particularly during the rainy season.</td>
<td>8 to 12(^3)</td>
</tr>
</tbody>
</table>

1. Controlled, compacted fill should consist of approved materials that are free of organic matter and debris.
2. If fines contents are greater than 12 percent, special design and construction procedures may be necessary.
3. Loose thickness when heavy compaction equipment is used in vibratory mode. Lift thickness should be decreased if static compaction is being used, typically to no more than 8 inches, and the required compaction must still be achieved. Use 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is required.
4.2.3 Compaction Requirements-Mass Fill Areas

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Compaction Requirements¹</td>
<td>95 percent of the material’s maximum modified Proctor dry density (ASTM D 1557).</td>
</tr>
<tr>
<td>Moisture Content²</td>
<td>Within ±2 percent of optimum moisture content as determined by the Modified Proctor test, at the time of placement and compaction.</td>
</tr>
<tr>
<td>Minimum Testing Frequency</td>
<td>One field density test per 20,000 square feet or fraction thereof per 1-foot lift.</td>
</tr>
</tbody>
</table>

1. We recommend that engineered fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.

2. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proofrolled.

4.2.4 Utility Trench Backfill
All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. Utility trenches are a common source of water infiltration and migration. All utility trenches that penetrate beneath the building should be backfilled with native soils to avoid creating a preferred flow path through the trenches.

4.2.5 Grading and Drainage
Final surrounding grades should be sloped away from the structure on all sides to prevent ponding of water. Gutters, downspouts, or other appropriate methods that direct water a minimum of 10 feet beyond the footprint of the proposed structures are recommended. Site grades should be set considering the estimated seasonal high groundwater presented in Section 3.4.

4.2.6 Earthwork Construction Considerations
After initial proofrolling and compaction, unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and re-compacted prior to floor slab and pavement construction.

Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to the structure.
shrubbery should be kept away from the exterior edges of the foundation element a distance at least equal to 1.5 times their expected mature height.

As a minimum, all temporary excavations should be sloped or braced as required by Occupational Health and Safety Administration (OSHA) regulations to provide stability and safe working conditions. Temporary excavations will probably be required during grading operations. The grading contractor, by his contract, is usually 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. All excavations should comply with applicable local, state and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of building floor slabs.

4.3 Preliminary Foundation Recommendations for Southern Portion of the Site

For the southern portion of the site, the performed borings showed consistent subsurface soil profile that is typical for the project area. The subsoil conditions described above, together with the proposed development, is considered suitable to adequately support the anticipated buildings on typical shallow foundations in the form of spread and continuous footings supported on site soil or structural fill. Bearing pressures in the order of 3000 to 4000 psf are feasible with a minimum footing width of 36 inches and minimum embedment depth of 3 feet assuming the 24 inches below the foundation level are compacted to 98% of modified Proctor Density.

4.4 Foundation for Two Additional Wood-framed 2-story Buildings

In our opinion, the proposed two additional wood-framed two-story buildings can be supported by a shallow foundation system bearing on native soil or newly placed fill extending to native soil. Design recommendations for shallow foundations for the proposed two buildings are presented in the following sections.

4.4.1 Foundation Design Recommendations

<table>
<thead>
<tr>
<th>Description</th>
<th>Column Footing</th>
<th>Wall Footing</th>
<th>Monolithic Slab Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net allowable bearing pressure (^1)</td>
<td>3,500 psf</td>
<td>3,000 psf</td>
<td>2,500 psf</td>
</tr>
<tr>
<td>Minimum width</td>
<td>30 inches</td>
<td>18 inches</td>
<td>12 inches</td>
</tr>
<tr>
<td>Minimum embedment below finished grade (^2)</td>
<td>18 inches</td>
<td>18 inches</td>
<td>12 inches</td>
</tr>
</tbody>
</table>
### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Column Footing</th>
<th>Wall Footing</th>
<th>Monolithic Slab Foundation 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compaction requirements</td>
<td>95 percent of the materials maximum Modified Proctor dry density for a depth of 12 inches below footing.</td>
<td>95 percent of the materials maximum Modified Proctor dry density for a depth of 12 inches below footing.</td>
<td>95 percent of the materials maximum Modified Proctor dry density for a depth of 12 inches below footing.</td>
</tr>
<tr>
<td>Minimum Testing Frequency</td>
<td>One field density test per footing for a minimum depth of 2 feet below the footing subgrade.</td>
<td>One field density test per 50 linear feet for a minimum depth of 2 feet below the footing subgrade.</td>
<td>One field density test per 50 linear feet for a minimum depth of 2 feet below the footing subgrade.</td>
</tr>
<tr>
<td>Approximate total settlement 3</td>
<td>&lt;1 inch</td>
<td>&lt;1 inch</td>
<td>&lt;1 inch</td>
</tr>
<tr>
<td>Estimated differential settlement 3</td>
<td>&lt;½ inch between columns</td>
<td>&lt;½ inch over 40 feet</td>
<td>&lt;½ inch over 40 feet</td>
</tr>
</tbody>
</table>

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Assumes any unsuitable fill or soft soils, if encountered, will be undercut and replaced with engineered fill.
2. For erosion protection and to reduce effects of seasonal moisture variations in subgrade soils.
3. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. The above settlement estimates have assumed that the maximum footing width is 8 feet for column footings and 1.5 feet for continuous footings.
4. Turned-down portion of slab. For slab requirements see Section 4.5.1.

#### 4.4.2 Foundation Construction Considerations

The base of all foundation excavations should be free of water and loose soil and debris prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soils at bearing level become excessively dry, disturbed or saturated, the affected soil should be removed or moisture conditioned and re-compacted prior to placing concrete. Place a lean concrete mud-mat over the bearing soils if the excavations must remain open over night or for an extended period of time. It is recommended that the geotechnical engineer be retained to observe and test the soil foundation bearing materials.

If unsuitable bearing soils are encountered in footing excavations, the excavations should be extended deeper to suitable soils and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The footings could also bear on properly compacted backfill extending down to the suitable soils. Overexcavation for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation with granular material placed in lifts of 6 inches or less in loose thickness and compacted to at least 95 percent of the material's modified effort maximum dry density (ASTM D-1557). The overexcavation and backfill procedures are described in the figures below. Compaction tests should be performed at a frequency of 1 test
per footing per 1-foot lift for square footings, and 1 test per 50 linear feet per 1-foot lift for wall or continuous footings.

The base of all foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soils at bearing level become excessively dry, disturbed or saturated, the affected soil should be removed prior to placing concrete. It is recommended that Terracon be retained to observe and test the soil foundation bearing materials.

4.5 Seismic Considerations

The 2014 Florida Building Code (effective June 30, 2015) now requires the geotechnical engineer to provide a Seismic Site Classification. Based on the explored profiles at the building boring locations, we do not believe it is a reasonably conservative assumption that the unexplored depths beyond boring termination and extending to a depth of 100 feet would support consideration of site classification D. Therefore, in lieu of additional, deeper exploration (i.e. deeper SPT borings, seismic CPT soundings) at these locations we recommend consideration of site classification E at these locations.

Seismic considerations will rarely control the structural design of buildings in Central Florida (as compared to wind loading conditions). If seismic considerations control the structural design, we can provide a proposal to perform additional services to measure shear wave velocity such as MASW (multichannel analysis of surface waves), ReMi testing (refraction microtremor), seismic cone penetrometer (SCPT) testing to see if the site classification improves.
4.6 Floor Slabs Recommendations for Two Additional Wood-framed 2-story Buildings

4.6.1 Floor Slab Design Recommendations

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor slab support</td>
<td>Free draining granular material meeting the general fill specification (^1)</td>
</tr>
<tr>
<td>Modulus of subgrade reaction</td>
<td>100 pounds per square inch per inch (psi/in) for point loading conditions</td>
</tr>
<tr>
<td>Aggregate base course/capillary break (^2)</td>
<td>6 inches of free draining granular material</td>
</tr>
<tr>
<td>Compaction requirements</td>
<td>95 percent of the materials maximum Modified Proctor dry density</td>
</tr>
<tr>
<td>Minimum Testing Frequency</td>
<td>One field density test per 2,000 square feet or fraction thereof for a depth of 12 inches. (^3)</td>
</tr>
</tbody>
</table>

1. We recommend subgrades be maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become desiccated prior to construction of floor slabs, the affected material should be removed or the materials scarified, moistened, and recompacted. Upon completion of grading operations in the building areas, care should be taken to maintain the recommended subgrade moisture content and density prior to construction of the building floor slabs.

2. The floor slab design should include a capillary break, comprised of free-draining, compacted, granular material, at least 6 inches thick and can be considered as part of the low volume change zone. Free-draining granular material should have less than 5 percent fines (material passing the \#200 sieve).

3. Density should be re-checked after utility construction.

Where appropriate, saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual.

The use of a vapor retarder should be considered beneath concrete slabs-on-grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer and slab contractor should refer to ACI and Florida Building Code (FBC) regarding moisture and radon for procedures and cautions regarding the use and placement of a vapor retarder. We note that FBC requires a minimum of 6-mil polyethylene, which is typically used in Florida. However, local requirements that might affect what moisture barrier may use should also be consulted.

4.6.2 Floor Slab Construction Considerations

On most project sites, the site grading is generally accomplished early in the construction phase. We recommend the area underlying the floor slab be rough graded and then thoroughly proofrolled.
prior to final grading. However as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, the floor slab subgrade may not be suitable for placement of concrete and corrective action will be required.

Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with properly compacted fill. All floor slab subgrade areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to placement of concrete.

4.7 Lateral Earth Pressures

Reinforced concrete walls with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to those indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement, such as a basement wall that is structurally confined at both the top and bottom of the wall. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.
Earth Pressure Conditions | Coefficient for Backfill Type | Equivalent Fluid Density (pcf) | Surcharge Pressure, $p_1$ (psf) | Earth Pressure, $p_2$ (psf)
--- | --- | --- | --- | ---
Active (Ka) | Granular - 0.33 | 40 | $(0.33)S$ | $(40)H$
At-Rest (Ko) | Granular - 0.46 | 55 | $(0.46)S$ | $(55)H$
Passive (Kp) | Granular - 3.0 | 360 | --- | ---

Applicable conditions to the above include:
- Uniform surcharge, where $S$ is surcharge pressure
- In-situ soil backfill weight a maximum of 120 pcf
- Horizontal backfill, compacted between 95 and 98 percent of modified Proctor maximum dry density
- Loading from heavy compaction equipment not included
- No hydrostatic pressures acting on wall
- No dynamic loading
- No safety factor included in soil parameters

Backfill placed against structures should consist of granular soils. For the granular values to be valid, the granular backfill must extend out from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively. To calculate the resistance to sliding, a value of 0.32 should be used as the ultimate coefficient of friction between the footing and the underlying soil.

To control hydrostatic pressure behind the wall we recommend that a drain be installed at the foundation wall with a collection pipe leading to a reliable discharge. If this is not possible, then combined hydrostatic and lateral earth pressures should be calculated for lean clay backfill using an equivalent fluid weighing 90 and 100 pcf for active and at-rest conditions, respectively. For granular backfill, an equivalent fluid weighing 85 and 90 pcf should be used for active and at-rest, respectively. These pressures do not include the influence of surcharge, equipment or floor loading, which should be added. Heavy equipment should not operate within a distance closer than the exposed height of retaining walls to prevent lateral pressures more than those provided.

4.8 Pavements

4.8.1 Subgrade Preparation
Site grading is typically accomplished relatively early in the construction phase. Fills are placed and compacted in a uniform manner. However, as construction proceeds, excavations are made into these areas, rainfall and surface water saturates some areas, heavy traffic from concrete trucks and other delivery vehicles disturbs the subgrade and many surface irregularities are filled in with loose soils to temporarily improve ride comfort. As a result, the pavement subgrades, initially prepared early in the project, should be carefully evaluated as the time for pavement construction approaches.
We recommend the moisture content and density of the top 12 inches of the subgrade be evaluated and the pavement subgrades be proofrolled and tested within two days prior to commencement of actual paving operations. Compaction tests should be performed at a frequency of 1 test per 10,000 square feet or fraction thereof. Areas not in compliance with the required ranges of moisture or density should be moisture conditioned and recompacted. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are found should be repaired by removing and replacing the materials with properly compacted fills.

After proofrolling and repairing deep subgrade deficiencies, the entire subgrade should be scarified and prepared as recommended in Section 4.2 of the Earthwork section this report to provide a uniform subgrade for pavement construction. Areas that appear severely desiccated following site stripping may require further undercutting and moisture conditioning. If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reviewed by qualified personnel immediately prior to paving. The subgrade should be in its finished form at the time of the final review.

4.8.2 Design Considerations
Traffic patterns and anticipated loading conditions were not available at the time that this report was prepared. However, we anticipate that traffic loads will be produced primarily by automobile traffic and occasional delivery and trash removal trucks. The thickness of pavements subjected to heavy truck traffic should be determined using expected traffic volumes, vehicle types, and vehicle loads and should be in accordance with local, city or county ordinances.

Pavement thickness can be determined using AASHTO, Asphalt Institute, PCA, and/or other methods if specific wheel loads, axle configurations, frequencies, and desired pavement life are provided. Terracon can provide thickness recommendations for pavements subjected to loads other than personal vehicle and occasional delivery and trash removal truck traffic if this information is provided. However, absent that data, we recommend the following minimum typical sections.

4.8.3 Estimates of Minimum Pavement Thickness

<table>
<thead>
<tr>
<th>Traffic Area</th>
<th>Alternative</th>
<th>Asphalt Concrete Surface Course</th>
<th>Limerock, Soil-Cement or Crushed Concrete Base Course</th>
<th>Stabilized Subbase Course</th>
<th>Portland Cement Concrete</th>
<th>Free Draining Subgrade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Parking</td>
<td>PCC</td>
<td>--</td>
<td>--</td>
<td>5.0</td>
<td>18.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC</td>
<td>1.5</td>
<td>6.0</td>
<td>12.0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>PCC</td>
<td>--</td>
<td>--</td>
<td>6.0</td>
<td>18.0</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Traffic Area</th>
<th>Alternative</th>
<th>Asphalt Concrete Surface Course</th>
<th>Limerock, Soil-Cement or Crushed Concrete Base Course</th>
<th>Stabilized Subbase Course&lt;sup&gt;2,3,4&lt;/sup&gt;</th>
<th>Portland Cement Concrete</th>
<th>Free Draining Subgrade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck and Drive Areas</td>
<td>AC</td>
<td>2.5</td>
<td>8.0</td>
<td>12.0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Trash Container Pad&lt;sup&gt;1&lt;/sup&gt;</td>
<td>PCC</td>
<td>--</td>
<td>--</td>
<td>6.0</td>
<td>18.0</td>
<td></td>
</tr>
</tbody>
</table>

1. The trash container pad should be large enough to support the container and the tipping axle of the collection truck.
2. Often referred to as Stabilized Subgrade.
3. Use coarse granular materials such as recycled crushed concrete, shell, or gravel when seasonal high groundwater is within 4 feet of the profile grade. Clay stabilization is acceptable with deeper seasonal high groundwater.
4. Some municipalities do not require stabilized subbase beneath soil-cement base.

### 4.8.4 Asphalt Concrete Design Recommendations

The following items are applicable to asphalt concrete pavement sections.

- Terracon recommends a minimum separation of 12 inches for this purpose between the bottom of the base course and the seasonal high water table.
- Natural or fill subgrade soils to a depth of 18 inches below the base should be clean, free draining sands with a fines content passing a No. 200 sieve of 7 percent or less.
- Stabilized subgrade soils (also identified as stabilized subbase) should be stabilized to a minimum Limerock Bearing Ratio (LBR; Florida Method of Test Designation FM 5-515) value of 40 if they do not already meet this criterion, or modified/replaced with new compacted fill that meets the minimum LBR value. Although LBR testing has not been performed, our experience with similar soils indicates that the near surficial sands encountered in the soil borings are unlikely to meet this requirement.
- The stabilized subgrade course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (AASHTO T-180 or ASTM D-1557). Any underlying, newly-placed subgrade fill need only be compacted to a minimum of 95 percent of the Modified Proctor maximum dry density. Compaction tests should be performed at a frequency of 1 test per 10,000 square feet or fraction thereof.
- Limerock base courses from an approved FDOT source should have a minimum LBR value of 100, and be compacted to a minimum of 98 percent of the maximum dry density as determined by the Modified Proctor test. Limerock should be placed in uniform lifts not to exceed 6 inches loose thickness. Recycled limerock is not a suitable substitute for virgin limerock for base courses but may be used as a granular stabilizing admixture.
Soil cement base courses typically experience shrinkage cracking due to hydration curing of the cement. This shrinkage cracking typically propagates through the overlying asphalt course and reflects in the pavement surface. This reflective cracking is not necessarily indicative of a pavement structural failure, though it is sometimes considered to be aesthetically undesirable.

Soil cement bases should have 7-day design strength of 300 psi. Soil cement base should be compacted to a minimum of 98 percent of the material’s maximum dry density as determined by the Standard Proctor Test for Soil Cement (AASHTO T-134). Higher design strengths may result in increased cracking.

Crushed (recycled) concrete base should meet the current FDOT specification 204 for recycled materials.

Asphalt should be compacted to a minimum of 95 percent of the design mix density. Asphalt surface courses should be Type SP, Type S, or other suitable mix design according to FDOT and local requirements.

To verify thicknesses, after placement and compaction of the pavement courses, core the wearing surface to evaluate material thickness and composition at a minimum frequency of 5,000 square feet or two locations per day’s production.

Underdrains or strip drains should be considered along all landscaped areas in, or adjacent to pavements to reduce moisture migration to subgrade soils. Underdrains will also be required below pavement if the separation between the bottom of the base course and the seasonal high groundwater table is less than 1 foot.

All curbing should be full depth. Use of extruded curb sections which lie on top of asphalt surface courses can allow migration of water between the surface and base courses, leading to rippling and pavement deterioration.

4.8.5 Portland Cement Concrete Design Recommendations
The following items are applicable to rigid concrete pavement sections.

At least 18 inches of free-draining material should be included directly beneath rigid concrete pavement. Fill meeting the requirements presented in Section 4.2 (Earthwork) of this report may be considered free-draining for this purpose. Limerock should not be considered free draining for this purpose.

The PCC should be a minimum of 4,000 psi at 28 days. PCC pavements are recommended for trash container pads and in any other areas subjected to heavy wheel loads and/or turning traffic.

The upper 1 foot of rigid pavement subgrade soils should be compacted to at least 98 percent of the Modified Proctor maximum dry density (AASHTO T-180 or ASTM D-1557). Compaction tests should be performed at a frequency of 1 test per 10,000 square feet or fraction thereof.

Rigid PCC pavements will perform better than ACC in areas where short-radii turning and braking are expected (i.e. entrance/exit aprons) due to better resistance to rutting and shoving. In addition, PCC pavement will perform better in areas subject to large or
sustained loads. An adequate number of longitudinal and transverse control joints should be placed in the rigid pavement in accordance with ACI and/or AASHTO requirements. Expansion (isolation) joints must be full depth and should only be used to isolate fixed objects abutting or within the paved area.

- Adequate separation should be provided between the bottom of the concrete and the seasonal high water table. Terracon recommends that in no case should less than 1 foot of separation be provided. Based on the encountered conditions and anticipated development, we anticipate filling the site in the order of 3 feet or as needed by the project drainage engineer.

- Saw cut patterns should generally be square or rectangular but nearly square, and extend to a depth equal to a quarter of the slab thickness. If the bottom of the concrete pavement is separated from the seasonal high water table by at least 1 foot, filter fabric will not be necessary beneath the expansion joints.

**4.8.6 Pavement Drainage**

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. The subgrade and the pavement surface should have a minimum ¼ inch per foot slope to promote drainage. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the base layer.

**4.8.7 Pavement Maintenance**

The pavement sections provided in this report represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the first priority when implementing a pavement maintenance program. Additional engineering observation is recommended to determine the type and extent of a cost effective program. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.
4.9 Preliminary Stormwater Management Parameters

Based on USDA soil maps, our site exploration and laboratory results, the table below presents the expected values for the stormwater design parameters for each pond:

<table>
<thead>
<tr>
<th>Stormwater Parameter</th>
<th>Boring SPT-3</th>
<th>Boring SPT-8</th>
<th>Boring SPT-19</th>
<th>Boring SPT-22</th>
<th>Boring SPT-16</th>
<th>Boring SPT-26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Depth to Confining Layer</td>
<td>13.5 feet</td>
<td>13.5 feet</td>
<td>5.5 feet</td>
<td>13.5 feet</td>
<td>18.5 feet</td>
<td>6 feet</td>
</tr>
<tr>
<td>Estimated Mean Wet Water Table Elevation</td>
<td>+82.5 feet</td>
<td>+83.5 feet</td>
<td>+83.5 feet</td>
<td>+84.5 feet</td>
<td>+83.5 feet</td>
<td>+84.5 feet</td>
</tr>
<tr>
<td>Estimated Seasonal High Water Table Elevation</td>
<td>+83.5 feet</td>
<td>+84 feet</td>
<td>+84 feet</td>
<td>+85.5 feet</td>
<td>+84 feet</td>
<td>+85.5 feet</td>
</tr>
<tr>
<td>Measured Permeability Rate¹</td>
<td>22 feet/day @ 1 feet</td>
<td>12 feet/day @ 1 feet</td>
<td>19 feet/day @ 3 feet</td>
<td>7 feet/day @ 1 feet</td>
<td>12 feet/day @ 4.5 feet</td>
<td>2 feet/day @ 6 feet</td>
</tr>
</tbody>
</table>

Recommended Unsaturated Vertical Infiltration Rate

- 14 feet/day for sand to sand with silt (SP) (SP-SM) materials
- 4 feet/day for silty sand materials (SM)

Horizontal Saturated Hydraulic Conductivity

- 20 feet/day for sand to sand with silt (SP) (SP-SM) materials
- 6 feet/day for silty sand materials (SM)

Fillable Porosity

- 25% for sand to sand with silt (SP) (SP-SM) materials
- 20% for silty sand materials (SM)

¹ Permeability test assigned for samples from borings SPT-3, SPT-8, SPT-19 and SPT-22 are stratified as fine sand (SP) to fine sand with silt (SP-SM). The samples from boring SPT-16 and SPT-26 are stratified as silty fine sand (SM).
5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.
APPENDIX A
FIELD EXPLORATION
U.S.D.A. SOIL SURVEY FOR OSCEOLA COUNTY, FLORIDA
ISSUED: 1979

SECTION: 3
TOWNSHIP: 25 SOUTH
RANGE: 29 EAST

SCALE 1" = 2000'

OSCEOLA COUNTY SOILS MAP INDEX
4 ARENS, 0 TO 5 PERCENT SLOPES
6 BASINGER FINE SAND, DEPRESSIONAL
22 MYAKKA FINE SAND
32 PLACID FINE SAND
Soil Survey Descriptions

4 – *Arents, 0 to 5 percent slopes*. This soil group consists of somewhat poorly drained, nearly level to gently sloping soils that have been reworked and shaped by earthmoving equipment. Arents are located throughout the county in both urban and rural areas. Most areas are low and adjacent to the ponds or canals from which the soil material was excavated. Arents have no orderly sequence of layers, and consist primarily of sandy mineral material and are highly variable over short distances. The groundwater table is typically between depths of 20 and 60 inches (1.7 and 5.0 feet).

6 – *Basinger fine sand, depressional*. This soil type is nearly level and poorly drained. It is typically found in shallow depressions and poorly defined drainageways in the flatwoods. In its natural state, water stands on the surface of this soil type for 6 to 12 months during most years. This soil type is predominantly sandy throughout the defined profile of 80 inches (6.7 feet).

22 – *Myakka fine sand*. This soil type is nearly level and poorly drained. It is typically found in broad areas in the flatwoods. In its natural state, during years of normal rainfall, this soil type has a seasonal high water table within 10 inches (0.8 feet) of the surface, receding to a depth of more than 40 inches (3.3 feet) during the dry season. Myakka fine sand is generally predominantly sandy throughout the defined depth of 82 inches (6.8 feet). Between typical depths of 7 and 27 inches (0.5 and 2.2 feet), Myakka soil exhibits mottling. Between typical depths of 27 and 37 inches (2.3 and 3.1 feet), Myakka soil is weakly cemented with organic matter; typical organic contents of this layer are on the order of 3.5 percent.

32 – *Placid fine sand*. This soil type is nearly level and very poorly drained. It is typically found in low, wet depressions and swamps in the flatwoods. In its natural state, groundwater is ponded atop this soil type for 6 to 9 months of years with normal rainfall. This soil type is sometimes associated with a surficial organic surface layer, extending to a depth of 24 inches (2.0 feet), with typical organic contents approaching 7 percent.
**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**ORlando, Florida**

13.5
- **SAND (SP),** fine grained, light gray to dark grayish-brown, loose

18.5
- **SAND WITH SILT (SP-SM),** fine grained, dark grayish-brown, loose

25.0
- **SILTY SAND (SM),** fine grained, brown, loose

**Boring Terminated at 25 Feet**

**WATER LEVEL OBSERVATIONS**
- **Water Initially Observed at 3.5’**

**Notes:**
- Advancement Method: Mud Rotary
- Abandonment Method: Borings backfilled with soil cuttings upon completion.
- Hammer Type: Automatic

**Permeability (FEET/DAY):**
- 1-2-1-3 N=3
- 2-2-4 N=6
- 2-3-3 N=6
- 3-3-3-3 N=6
- 3-3-4 N=7

**Atterberg Limits:**
- LL: 21
- PL: 21

**Stratification lines are approximate. In-situ, the transition may be gradual.**
**BORING LOG NO. SPT-2**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

### Location

**GRAPHIC LOG**  
**DEPTH**  

<table>
<thead>
<tr>
<th>Depth (Ft.)</th>
<th>Water Level Observations</th>
<th>Field Test Results</th>
<th>Organic Content (%)</th>
<th>Permeability (Feet/Day)</th>
<th>Water Content (%)</th>
<th>Atterberg Limits</th>
<th>Percent Finer</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>13.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Notes:

- **Advancement Method:** Mud Rotary  
- **Abandonment Method:** Borings backfilled with soil cuttings upon completion.
- **Notes:**

### Water Level Observations

- **Water Initially Observed at 3’**
- **Boring Terminated at 25 Feet**

- **Stratification lines are approximate. In-situ, the transition may be gradual.**  
  - **Hammer Type:** Automatic

### Project Details

- **Driller:** John F.  
- **Boring Started:** 3/31/2016  
- **Exhibit:** A-9  
- **Notes:**

### Exhibit Information

- **Drill Rig:** D-50  
- **Driller:** John F.  
- **Project No.:** H1165094  
- **Exhibit:** A-9

---

**Deerfield Land Corporation**  
**Orlando, Florida**

**Tupperware Main Campus**  
1675 Lee Rd  
Winter Park, FL

**1675 Lee Rd**  
Winter Park, FL
**BORING LOG NO. SPT-3**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Orando, Florida**

**LOCATION**  
See Exhibit A-4

**DEPT (FT.)** | **WATER LEVEL OBSERVATIONS** | **FIELD TEST RESULTS** | **PERCENT FINES** | **ATTERBERG LIMITS**
--- | --- | --- | --- | ---
5 | 2-2-2-3  
N=4 | 22 | 23 | 3
6 | 4-5-6  
N=9 |  |  | 
7 | 6-6-7  
N=12 |  |  | 
8 | 8-8-7-7  
N=15 |  |  | 
9 | 8-9-8-9  
N=17 |  |  | 
10 | 5-6-6  
N=12 |  |  | 
15 | 3-4-5  
N=9 | 19 | 27-15-12 | 25
20 | 3-3-3  
N=6 |  |  | 
25 | **Boring Terminated at 25 Feet**

**SAND (SP),** fine grained, light gray to brown, loose to medium dense

**SILTY SAND (SM),** fine grained, brown, medium dense

**CLAYEY SAND (SC),** fine grained, brown to grayish-brown, loose to medium dense

Stratification lines are approximate. In-situ, the transition may be gradual.

**Advancement Method:** Mud Rotary  
**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**  
Water Initially Observed at 1.5'

**Notes:**

**WHERE THIS BORING LOG IS SEPARATED FROM ORIGINAL REPORT - GEO SMART LOG NO. WELL H1165094_SPT BORINGS.GPJ  TERRACON2015.GDT  5/2/16**

1675 Lee Rd  
Winter Park, FL

Driller: John F.  
Drill Rig: D-50  
Project No.: H1165094  
Exhibit: A-10
### BORING LOG NO. SPT-4

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln Kissimmee, FL

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DEPTH (Ft.)</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>LL-PL-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAND (SP), fine grained, gray, loose</td>
<td>3.0</td>
<td>3-3-3-4</td>
<td>N=6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAND WITH SILT (SP-SM), fine grained, dark brown, loose</td>
<td>5.5</td>
<td>3-4-4-3</td>
<td>N=8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAND (SP), fine grained, brown, loose to medium dense</td>
<td>9.0</td>
<td>1-1-3-6</td>
<td>N=4</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SAND WITH SILT (SP-SM), fine grained, reddish-brown, medium dense</td>
<td>13.5</td>
<td>3-6-9-9</td>
<td>N=15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SILTY SAND (SM), fine grained, gray to brown, loose to medium dense</td>
<td>25.0</td>
<td>9-10-12-12</td>
<td>N=22</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Boring Terminated at 25 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

**Advancement Method:** Mud Rotary

**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>DEPTH</th>
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<tr>
<td>1&quot; Standing Water</td>
<td>See Exhibit A-4</td>
</tr>
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</table>

**NOTES**

- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**Boring Completed:** 3/31/2016

**Driller:** John F.

**Project No.:** H1165094  
**Exhibit:** A-11
**BORING LOG NO. SPT-5**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
Kissimmee, FL

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>See Exhibit A-4</th>
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<tr>
<td><strong>DEPTH</strong></td>
<td><strong>SAMPLE TYPE</strong></td>
</tr>
<tr>
<td><strong>DEPTH (Ft.)</strong></td>
<td><strong>PERCENT FINES</strong></td>
</tr>
<tr>
<td>13.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, gray to dark brown, loose to medium dense</td>
</tr>
<tr>
<td>15.5</td>
<td>SILTY SAND (SM), fine grained, brown, medium dense</td>
</tr>
<tr>
<td>18.5</td>
<td>CLAYEY SAND (SC), fine grained, brown, loose to medium dense</td>
</tr>
<tr>
<td>25.0</td>
<td>Boring Terminated at 25 Feet</td>
</tr>
</tbody>
</table>

Stratification lines are approximate. In-situ, the transition may be gradual.

**Hammer Type:** Automatic

**Advancement Method:** Mud Rotary

**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

Water Initially Observed at 1.3'

**Notes:**

See Exhibit A-3 for description of field procedures.  
See Appendix C for explanation of symbols and abbreviations.

**Boring Started:** 3/31/2016  
**Boring Completed:** 3/31/2016  
**Drill Rig:** D-50  
**Driller:** John F.

**Exhibit:** A-12
**BORING LOG NO. SPT-6**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Orlando, Florida**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>FRESH WATER_content (%)</th>
<th>ATTERBERG LIMITS</th>
<th>LL-PL-PI</th>
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</thead>
<tbody>
<tr>
<td>1.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, dark gray, (topsoil)</td>
<td>SAND (SP), fine grained, light gray to brown</td>
<td>1-1-1-2 N=2</td>
<td>6-7-7 N=14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, grayish-brown to dark brown, very loose to medium dense</td>
<td></td>
<td>2-4-6-8 N=10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td>CLAYEY SAND (SC), fine grained, light grayish-brown, medium dense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.5</td>
<td>SILTY SAND (SM), fine grained, brown, medium dense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.5</td>
<td>CLAY (CH), fine grained, dark grayish-brown trace orange, medium stiff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td>Boring Terminated at 25 Feet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**Stratification lines are approximate. In-situ, the transition may be gradual.**

**Hammer Type:** Automatic

**Notes:**
- Advancement Method: Mud Rotary
- Abandonment Method: Borings backfilled with soil cuttings upon completion.
- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**
- Water Initially Observed at 2.2'

**TERRACON**

1675 Lee Rd  
Winter Park, FL

Project No.: H1165094  
Exhibit: A-13
PROJECT: Tupperware Main Campus

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

CLIENT: Deerfield Land Corporation
Orlando, Florida

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>LL-PL-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>2-3-5-5 N=8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.0</td>
<td>3-5-5-7 N=10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td>4-6-6-5 N=12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.0</td>
<td>4-4-6-5 N=10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td>4-5-6-5 N=11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.5</td>
<td>5-6-6 N=12</td>
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<td></td>
</tr>
<tr>
<td>25.0</td>
<td>4-4-5 N=9</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>25.0</td>
<td>3-5-5 N=10</td>
<td>31</td>
<td>51-21-30</td>
<td>48</td>
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</tbody>
</table>

SAND (SP), fine grained, gray, loose to medium dense

SAND WITH SILT (SP-SM), fine grained, reddish-brown, medium dense

SAND (SP), fine grained, grayish-brown to brown, medium dense

Silty Sand (SM), fine grained, brown, medium dense

CLAYEY SAND (SC), fine grained, grayish-brown, medium dense

Boring Terminated at 25 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: Mud Rotary

Abandonment Method: Borings backfilled with soil cuttings upon completion.

WATER LEVEL OBSERVATIONS

Water Initially Observed at 2.5'

Notes:

Boring Started: 3/31/2016
Boring Completed: 3/31/2016

Drill Rig: D-50
Driller: John F.

Project No.: H1165094
Exhibit: A-14
LOCATION: See Exhibit A-4

DEPTH | WATER LEVEL OBSERVATIONS | FIELD TEST RESULTS | ORGANIC CONTENT (%) | PERCENT FINES | ATTERBERG LIMITS | LL-PL-PL
---|--------------------------|--------------------|---------------------|---------------|-----------------|-------
3.0  | SAND (SP), fine grained, gray | 12 22 5 |  |  |  |  
5.0  | SAND WITH SILT (SP-SM), fine grained, dark brown | |  |  |  |  
13.5 | SILTY SAND (SM), fine grained, grayish-brown to brown, medium dense | |  |  |  |  
25.0 | Boring Terminated at 25 Feet | |  |  |  |  

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: Mud Rotary

Abandonment Method: Borings backfilled with soil cuttings upon completion.

Notes:

Boring Started: 3/31/2016
Boring Completed: 3/31/2016

Drill Rig: D-50
Driller: John F.

Project No.: H1165094
Exhibit: A-15
**BORING LOG NO. SPT-9**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**SITE:** Kissimmee, FL  

**CLIENT:** Deerfield Land Corporation  
**PROJECT:** Orando, Florida

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>WATER OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>LL-PL-PI</th>
<th>PERCENT FINES</th>
</tr>
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<tr>
<td></td>
<td>13.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SAND WITH SILT (SP-SM), fine grained, gray to grayish-brown, loose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-3-2-1 N=5</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>3-2-4-5 N=6</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-5-7 N=12</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7-8-10 N=18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-4-8 N=12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BORING Terminated at 25 Feet</td>
<td></td>
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</tr>
</tbody>
</table>

Stratification lines are approximate. In-situ, the transition may be gradual.

**Hammer Type:** Automatic

**Advancement Method:** Mud Rotary  
**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**SITE:** Kissimmee, FL

**Notes:**

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 2.2'

**Drill Rig:** D-50  
**Driller:** John F.

**Boring Started:** 3/30/2016  
**Boring Completed:** 3/31/2016

**Project No.:** H1165094  
**Exhibit:** A-16

**Terracon**

1675 Lee Rd  
Winter Park, FL

---

**Exhibit A-4**

---

**Exhibit A-16**
**BORING LOG NO. SPT-10**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**ORlando, Florida**

**LOCATION**  
See Exhibit A-4

**DEPTH**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>FIELD LEVEL</th>
<th>SAMPLE TYPE</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>LL-PL-PI</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>3-4-3-6</td>
<td>N=7</td>
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<tr>
<td>8.5</td>
<td>3-3-4-4</td>
<td>N=7</td>
<td></td>
<td></td>
<td></td>
<td>18</td>
<td>16</td>
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<td>18.5</td>
<td>7-8-10</td>
<td>N=18</td>
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<tr>
<td>30.0</td>
<td>3-3-4</td>
<td>N=7</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>30.0</td>
<td>3-2-4</td>
<td>N=6</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>30.0</td>
<td>3-3-5</td>
<td>N=8</td>
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</tbody>
</table>

**SAND WITH SILT (SP-SM), fine grained, dark gray**

**SAND (SP), fine grained, gray to brown, loose**

**SILTY SAND (SM), fine grained, grayish-brown, loose to medium dense**

**SANDY CLAY TO CLAY (CH), fine grained, gray, medium stiff to stiff**

**Hammer Type:** Automatic

**Boring Terminated at 30 Feet**

**Stratification lines are approximate. In-situ, the transition may be gradual.**

**Advancement Method:** Mud Rotary

**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**Notes:**

- Water Initially Observed at 1.5'

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>WATER LEVEL</th>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5'</td>
<td>Water Initially Observed at 1.5'</td>
</tr>
</tbody>
</table>

**PROJECT: Tupperware Main Campus**

**1675 Lee Rd**

**Winter Park, FL**

**Drill Rig:** D-50  
**Driller:** John F.

**Project No.: H1165094**  
**Exhibit:** A-17

**Boring Started: 3/30/2016**  
**Boring Completed: 3/30/2016**
# Boring Log No. SPT-11

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Location:** Kissimmee, FL

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>LL-PL-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, brown to grayish-brown, loose</td>
<td>2-3-3-5 N=8</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>13.5</td>
<td>SILTY SAND (SM), fine grained, brown, medium dense</td>
<td>4-4-5-6 N=9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.5</td>
<td>CLAYEY SAND (SC), fine grained, grayish-brown, medium dense</td>
<td>6-8-8 N=16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.5</td>
<td>SILTY SAND (SM), fine grained, grayish-brown, loose</td>
<td>4-4-4 N=8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.5</td>
<td>SANDY CLAY (CH), fine grained, bluish-gray, stiff</td>
<td>6-5-6 N=11</td>
<td>28</td>
<td>56-17-39</td>
<td>63</td>
</tr>
<tr>
<td>30.0</td>
<td>CLAYEY SAND (SC), fine grained, greenish-brown, loose</td>
<td>3-3-4 N=7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Boring Terminated at 30 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**

- Advancement Method: Mud Rotary
- Abandonment Method: Borings backfilled with soil cuttings upon completion.
- Hammer Type: Automatic
- Project No.: H1165094
- Exhibit: A-18

**Groudwater Not Encountered Within Top 10 Feet**

**Terminology:**

- **SAND WITH SILT (SP-SM):** Fine-grained, brown to grayish-brown, loose
- **SILTY SAND (SM):** Fine-grained, brown, medium dense
- **CLAYEY SAND (SC):** Fine-grained, grayish-brown, medium dense
- **SANDY CLAY (CH):** Fine-grained, bluish-gray, stiff
- **CLAYEY SAND (SC):** Fine-grained, greenish-brown, loose

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>LOCATION</th>
<th>WATER LEVEL</th>
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<td>23.5</td>
</tr>
<tr>
<td>30.0</td>
<td></td>
<td>28.5</td>
</tr>
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</table>

**GROUNDWATER:**

- Not encountered within Top 10 Feet

**Site:**

- SE of Orange Blossom Trl and Mary Louis Ln
- Kissimmee, FL

**Hammer Type:** Automatic

**Notes:**

- Advancement Method: Mud Rotary
- Abandonment Method: Borings backfilled with soil cuttings upon completion.
- Project No.: H1165094
- Exhibit: A-18

**GROUNDWATER:**

- Not encountered within Top 10 Feet

**TERMNAL POINT:**

- Boring Terminated at 30 Feet
BORING LOG NO. SPT-12

PROJECT: Tupperware Main Campus

SITE: SE of Orange Blossom Trl and Mary Louis Ln Kissimmee, FL

CLIENT: Deerfield Land Corporation
Orlando, Florida

LOCATION See Exhibit A-4

DEPTH

SAND WITH SILT (SP-SM), fine grained, gray to dark brown, medium dense

with cementation at 4.5'

6.5

SILTY SAND (SM), fine grained, grayish-brown, medium dense

18.5

CLAYEY SAND (SC), fine grained, grayish-brown, medium dense

23.5

CLAY (CH), fine grained, greenish-gray trace orange, medium stiff

28.5

CLAYEY SAND (SC), fine grained, greenish-gray, loose

30.0

Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

ADVANCEMENT METHOD: Mud Rotary

ABANDONMENT METHOD: Borings backfilled with soil cuttings upon completion.

WATER LEVEL OBSERVATIONS

\(\triangledown\) Water Initially Observed at 1.5'

5.0

6-6-6-9
N=12

4-5-6-6
N=11

8-10-11
N=21

6-7-6
N=13

2-2-2
N=4

2-2-3
N=5

Notes:

See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.

Boring Started: 3/28/2016
Boring Completed: 3/28/2016

Drill Rig: D-50
Driller: John F.

Project No.: H1165094
Exhibit: A-19
Project: Tupperware Main Campus
Client: Deerfield Land Corporation
Site: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: Mud Rotary
Abandonment Method: Borings backfilled with soil cuttings upon completion.

Notes:

Boring Terminated at 30 Feet

Water Initially Observed at 2'
# Boring Log No. SPT-14

## Project: Tupperware Main Campus

### Site:
SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

### Client:
Deerfield Land Corporation
Orando, Florida

### Graphic Log

<table>
<thead>
<tr>
<th>Depth (Ft.)</th>
<th>Water Level Observations</th>
<th>Sample Type</th>
<th>Field Test Results</th>
<th>Organic Content (%)</th>
<th>Perm (Feet/Day)</th>
<th>Water Content (%)</th>
<th>Atterberg Limits</th>
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Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

### Advancement Method:
Mud Rotary

### Abandonment Method:
Borings backfilled with soil cuttings upon completion.

### Notes:
- Water Initially Observed at 4.5'
- Boring Started: 3/30/2016
- Boring Completed: 3/30/2016
- Drill Rig: D-50
- Driller: John F.
- Project No.: H1165094
- Exhibit: A-21
### BORING LOG NO. SPT-15

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation, Orlando, Florida

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<tr>
<th>DEPTH (Ft.)</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>ATTERBERG LIMITS</th>
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<tr>
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</table>

**DEPTHS (Ft.):**
- 3.0: SAND WITH SILT (SP-SM), fine grained, brown to dark brown
- 5.0: SAND (SP), fine grained, gray
- 9.0: SAND WITH SILT (SP-SM), fine grained, dark brown, loose to medium dense
- 23.5: SILTY SAND (SM), fine grained, light brown to brown, loose to medium dense
- 28.5: SANDY CLAY (CH), fine grained, bluish-gray, stiff
- 30.0: CLAYEY SAND (SC), fine grained, greenish-gray, medium dense

**BORING TERMINATED AT 30 FEET**

**Hammer Type:** Automatic

**Advancement Method:** Mud Rotary

**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**GEO SMART LOG NO. WELL H1165094-SP-BORINGSPGPJ  TERRACON2015.GDT 5/2/16**

**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

**PROJECT:** Tupperware Main Campus

**CLINICAL:** Deerfield Land Corporation, Orlando, Florida

**DRILLER:** John F.

**BORING COMPLETED:** 3/29/2016

**BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.**

**PROJECT No.: H1165094**

**Drill Rig:** D-50

**Driller:** John F.

**Exhibit:** A-22

**TERRACON2015.GDT 5/2/16**

**1676 Lee Rd**  
**Winter Park, FL**
# BORING LOG NO. SPT-16

## Project: Tupperware Main Campus

### Site: SE of Orange Blossom Trl and Mary Louis Ln

## Client: Deerfield Land Corporation

### Orlando, Florida

## Water Level Observations

<table>
<thead>
<tr>
<th>Depth (Ft.)</th>
<th>Location</th>
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<tr>
<td>7.5</td>
<td>SEE EXHIBIT A-4</td>
</tr>
<tr>
<td>13.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, dark reddish-brown, medium dense</td>
</tr>
<tr>
<td>18.5</td>
<td>SILTY SAND (SM), fine grained, grayish-brown, loose to medium dense</td>
</tr>
<tr>
<td>28.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, grayish-brown, medium dense</td>
</tr>
</tbody>
</table>

### Water Initially Observed at 7.5'

### Hammer Type: Automatic

### Advancement Method: Mud Rotary

### Abandonment Method: Borings backfilled with soil cuttings upon completion.

### Notes:

- Boring Started: 3/30/2016
- Boring Completed: 3/30/2016
- Drill Rig: D-50
- Driller: John F.
- Project No.: H1165094
- Exhibit: A-23
PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, Florida

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

LOCATION: See Exhibit A-4

DEPTH

0.5
SAND (SP), fine grained, brown

1.5
LEMEROCK BASE

SAND WITH SILT (SP-SM), fine grained, gray to grayish-brown, loose to medium dense

13.5
SILTY SAND (SM), fine grained, light brown to light grayish-brown, loose to medium dense

28.5
SANDY CLAY (CL), fine grained, gray, medium stiff

30.0
Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.

Notes:

PROJECT: Tupperware Main Campus

CLIENT: Deerfield Land Corporation
Orlando, Florida

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

DEPTH

0.5
SAND (SP), fine grained, brown

1.5
LEMEROCK BASE

SAND WITH SILT (SP-SM), fine grained, gray to grayish-brown, loose to medium dense

13.5
SILTY SAND (SM), fine grained, light brown to light grayish-brown, loose to medium dense

28.5
SANDY CLAY (CL), fine grained, gray, medium stiff

30.0
Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.

Notes:

PROJECT: Tupperware Main Campus

CLIENT: Deerfield Land Corporation
Orlando, Florida

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

DEPTH

0.5
SAND (SP), fine grained, brown

1.5
LEMEROCK BASE

SAND WITH SILT (SP-SM), fine grained, gray to grayish-brown, loose to medium dense

13.5
SILTY SAND (SM), fine grained, light brown to light grayish-brown, loose to medium dense

28.5
SANDY CLAY (CL), fine grained, gray, medium stiff

30.0
Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.

Notes:

PROJECT: Tupperware Main Campus

CLIENT: Deerfield Land Corporation
Orlando, Florida

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

DEPTH

0.5
SAND (SP), fine grained, brown

1.5
LEMEROCK BASE

SAND WITH SILT (SP-SM), fine grained, gray to grayish-brown, loose to medium dense

13.5
SILTY SAND (SM), fine grained, light brown to light grayish-brown, loose to medium dense

28.5
SANDY CLAY (CL), fine grained, gray, medium stiff

30.0
Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.

Notes:
### BORING LOG NO. SPT-18

#### PROJECT: Tupperware Main Campus

#### CLIENT: Deerfield Land Corporation
Orlando, Florida

#### SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

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<tr>
<th>LOCATION</th>
<th>See Exhibit A-4</th>
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<table>
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<tr>
<th>DEPTH (Ft.)</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM. (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
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<td>2-3-3 N=6</td>
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**Water Initially Observed at 3.7'**

**Stratification lines are approximate. In-situ, the transition may be gradual.**

Hammer Type: Automatic

Advancement Method: Mud Rotary

Abandonment Method: Borings backfilled with soil cuttings upon completion.

**Notes:**

- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 3.7’

---

**TERACON**

1675 Lee Rd
Winter Park, FL

**TERRACON 2015**

---

**Boring Started:** 3/30/2016

**Boring Completed:** 3/30/2016

**Drill Rig:** D-50

**Driller:** John F.

**Project No.: H1165094**

**Exhibit:** A-25
<table>
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<th>DEPTH (Ft.)</th>
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<th>PERCENT FINES</th>
<th>WATER CONTENT (%)</th>
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### Stratification lines are approximate. In-situ, the transition may be gradual.

### WATER LEVEL OBSERVATIONS
- **Water Initially Observed at 2.3'**

### Advancement Method:
- Mud Rotary

### Abandonment Method:
- Borings backfilled with soil cuttings upon completion.

### Notes:
- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

### Project Information
- **Project:** Tupperware Main Campus
- **Client:** Deerfield Land Corporation
- **Location:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL
- **Driller:** John F.
- **Boring Completed:** 3/28/2016
- **Boring Started:** 3/28/2016
- **Drill Rig:** D-50
- **Exhibits:** A-26

### Additional Information
- **PERM:**
  - FEET/DAY
  - WATER CONTENT (%)
  - LL-PL-PI
  - ATTERTBERG LIMITS
- **SAMPLE TYPE:**
  - ORGANIC CONTENT (%)
BORING LOG NO. SPT-20

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

LOCATION: See Exhibit A-4

DEPTH

SAND (SP), fine grained, light gray to grayish-brown, loose

8.5

Silty Sand (SM), fine grained, grayish-brown, medium dense

13.5

Clayey Sand (SC), fine grained, grayish-brown, medium dense

28.5

SAND WITH SILT (SP-SM), fine grained, greenish-gray, medium dense

Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

Water Initially Observed at 1.5'

PROJECT:  Tupperware Main Campus
CLIENT: Deerfield Land Corporation

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

LOCATION: See Exhibit A-4

DEPTH

SAND (SP), fine grained, light gray to grayish-brown, loose

8.5

Silty Sand (SM), fine grained, grayish-brown, medium dense

13.5

Clayey Sand (SC), fine grained, grayish-brown, medium dense

28.5

SAND WITH SILT (SP-SM), fine grained, greenish-gray, medium dense

Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

Water Initially Observed at 1.5'

PROJECT:  Tupperware Main Campus
CLIENT: Deerfield Land Corporation

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

LOCATION: See Exhibit A-4

DEPTH

SAND (SP), fine grained, light gray to grayish-brown, loose

8.5

Silty Sand (SM), fine grained, grayish-brown, medium dense

13.5

Clayey Sand (SC), fine grained, grayish-brown, medium dense

28.5

SAND WITH SILT (SP-SM), fine grained, greenish-gray, medium dense

Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

Water Initially Observed at 1.5'

PROJECT:  Tupperware Main Campus
CLIENT: Deerfield Land Corporation

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

LOCATION: See Exhibit A-4

DEPTH

SAND (SP), fine grained, light gray to grayish-brown, loose

8.5

Silty Sand (SM), fine grained, grayish-brown, medium dense

13.5

Clayey Sand (SC), fine grained, grayish-brown, medium dense

28.5

SAND WITH SILT (SP-SM), fine grained, greenish-gray, medium dense

Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

Water Initially Observed at 1.5'

PROJECT:  Tupperware Main Campus
CLIENT: Deerfield Land Corporation

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

LOCATION: See Exhibit A-4

DEPTH

SAND (SP), fine grained, light gray to grayish-brown, loose

8.5

Silty Sand (SM), fine grained, grayish-brown, medium dense

13.5

Clayey Sand (SC), fine grained, grayish-brown, medium dense

28.5

SAND WITH SILT (SP-SM), fine grained, greenish-gray, medium dense

Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Mud Rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

Water Initially Observed at 1.5'
## Boring Log No. SPT-21

**Project:** Tupperware Main Campus  
**Client:** Deerfield Land Corporation  
**Site:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

### Graphical Log

<table>
<thead>
<tr>
<th>Depth (Ft.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
</table>
| 0.0        | SAND WITH SILT (SP-SM), trace organics, fine grained, brown, loose, (topsoil)  
SAND (SP), fine grained, brown to dark gray, loose to medium dense | | | | | | |
| 13.5       | SILTY SAND (SM), fine grained, light grayish-brown, medium dense | | | | | | |
| 18.5       | CLAYEY SAND (SC), fine grained, bluish-gray, loose | | | | | | |
| 23.5       | SANDY CLAY (CH), fine grained, grayish-brown, stiff | | | | | | |
| 30.0       | Boring Terminated at 30 Feet | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

- **Advancement Method:** Mud Rotary
- **Abandonment Method:** Borings backfilled with soil cuttings upon completion.
- **Hammer Type:** Automatic

**Notes:**

- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**Water Level Observations**

- **Water Initially Observed at 0'**

**Boring Log Information**

- **Start Date:** 3/25/2016  
- **Completion Date:** 3/25/2016

- **Drill Rig:** D-50  
- **Driller:** John F.

- **Project No.:** H1165094  
- **Exhibit:** A-28
**BORING LOG NO. SPT-22**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Orlando, Florida**

**LOCATION**  
See Exhibit A-4

**DEPTH (Ft.)**  
**WATER LEVEL OBSERVATIONS**  
**FIELD TEST RESULTS**  
**PERCENT FINES**

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>LL-PL-PI</th>
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<td></td>
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<td>10.0</td>
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<td>10.0</td>
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<td>6-6-7-7</td>
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<td>15.0</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

**SAND (SP), fine grained, gray to brown, loose to medium dense**

**SAND WITH SILT (SP-SM), fine grained, grayish-brown, loose to medium dense**

**SAND (SP), fine grained, brown, medium dense**

**SILTY SAND (SM), fine grained, light grayish-brown, medium dense**

**CLAY (CH), fine grained, grayish-brown trace orange, medium stiff to very stiff**

**CLAYEY SAND (SC), fine grained, light gray, loose**

*Boring Terminated at 30 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual.

**Hammer Type:** Automatic

**Advection Method:** Mud Rotary

**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**Notes:**

- Water Initially Observed at 1.5'
- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**Boring Started:** 3/23/2016  
**Boring Completed:** 3/23/2016

**Project No.: H1165094**  
**Exhibit:** A-29
PROJECT: Tupperware Main Campus

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

CLIENT: Deerfield Land Corporation
Orlando, Florida

LOCATION: See Exhibit A-4

Depth

SAND WITH SILT (SP-SM), fine grained, brown to dark brown, loose

2.5

SAND (SP), fine grained, light gray to light brown, medium dense to dense

6.5

SILTY SAND (SM), fine grained, grayish-brown, medium dense

18.5

CLAY (CH), fine grained, grayish-brown, medium stiff

23.5

CLAYEY SAND (SC), fine grained, gray, medium dense

30.0

Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: Mud Rotary

Abandonment Method: Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.

Notes:

Boring Started: 3/23/2016
Boring Completed: 3/23/2016
Drill Rig: D-50
Driller: John F.
Project No.: H1165094
Exhibit: A-30
## BORING LOG NO. SPT-24

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

### Location
- **See Exhibit A-4**

### Depth

<table>
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<tr>
<th>Depth (Ft.)</th>
<th>Water Level Observations</th>
<th>Field Test Results</th>
<th>Organic Content (%)</th>
<th>P.F.R. (FEET/DAY)</th>
<th>Water Content (%)</th>
<th>Atterberg Limits</th>
<th>PERCENT FINES</th>
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</thead>
<tbody>
<tr>
<td>2.5</td>
<td>SAND (SP), fine grained, light brown, loose</td>
<td>2-2-3-2 N=5</td>
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<td></td>
</tr>
<tr>
<td>7.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, brown to dark reddish-brown, loose to medium dense, (trace cemented sands at 2.5')</td>
<td>3-4-5-5 N=9</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13.5</td>
<td>SILTY SAND (SM), fine grained, light brown, loose to medium dense</td>
<td>2-3-4-4 N=7</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>15</td>
<td>CLAY (CH), fine grained, gray to greenish-gray trace orange, stiff</td>
<td>3-4-4-6</td>
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<td>20</td>
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<tr>
<td>20</td>
<td></td>
<td>4-4-5-4 N=9</td>
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<td></td>
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</tr>
<tr>
<td>23</td>
<td></td>
<td>4-4-3 N=7</td>
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<tr>
<td>25</td>
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<td>3-3-5 N=8</td>
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<tr>
<td>28.5</td>
<td>SAND (SP), fine grained, light brown, medium dense</td>
<td>2-3-4 N=7</td>
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<tr>
<td>30.0</td>
<td></td>
<td>4-8-10 N=18</td>
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<td></td>
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</tbody>
</table>

**Boring Terminated at 30 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

### Advancement Method:
- Mud Rotary

### Abandonment Method:
- Borings backfilled with soil cuttings upon completion.

### Notes:
- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

### WATER LEVEL OBSERVATIONS
- **Water Initially Observed at 1'**

**Terracon**

1675 Lee Rd  
Winter Park, FL

**Boring Started:** 3/25/2016  
**Boring Completed:** 3/25/2016

**Drill Rig:** D-50  
**Driller:** John F.

**Project No.:** H1165094  
**Exhibit:** A-31
**BORING LOG NO. SPT-25**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
Orlando, Florida

**LOCATION**  
See Exhibit A-4

<table>
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<tr>
<th>DEPTH (Ft.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>LL-PL-PI</th>
<th>PERCENT FINE</th>
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<td>7.5</td>
<td>3-3-3-3</td>
<td>N=6</td>
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<td>10.0</td>
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<tr>
<td>18.0</td>
<td>4-4-5-5</td>
<td>N=9</td>
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<tr>
<td>18.5</td>
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<tr>
<td>20.0</td>
<td>4-4-4</td>
<td>N=8</td>
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<tr>
<td>25.0</td>
<td>2-3-4</td>
<td>N=7</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>28.0</td>
<td>2-2-3</td>
<td>N=5</td>
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<td>30.0</td>
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</table>

**SAND (SP), fine grained, light gray to brown, loose to medium dense**

**SAND WITH SILT (SP-SM), fine grained, brown, medium dense**

**SILTY SAND (SM), fine grained, grayish-brown, loose to medium dense**

**CLAY (CH), fine grained, gray, medium stiff to stiff**

**CLAYEY SAND (SC), fine grained, gray, loose**

**Boring Terminated at 30 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Hammer Type:** Automatic

**Advancement Method:** Mud Rotary

**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**Notes:**

- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 2'

**TERRACON**

1675 Lee Rd  
Winter Park, FL

**Boring Started:** 3/23/2016  
**Boring Completed:** 3/23/2016  
**Drill Rig:** D-50  
**Driller:** John F.

**Project No.:** H1165094  
**Exhibit:** A-32
**BOARING LOG NO. SPT-26**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**SITE:** Kissimmee, FL

---

**GRAPHIC LOG**

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<th>DEPTH</th>
<th>SAND (SP), fine grained, light gray to brown, loose to medium dense</th>
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<td>10.0</td>
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<td>15.0</td>
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**SILTY SAND (SM), fine grained, light gray to light grayish-brown, loose to medium dense**

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<th>DEPTH</th>
<th>SILTY SAND (SM)</th>
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**SANDY CLAY (CH), fine grained, gray trace orange, stiff**

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<th>SANDY CLAY (CH)</th>
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<td>27.5</td>
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<td>32.5</td>
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**Boring Terminated at 30 Feet**

---

**FIELD TEST RESULTS**

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<tr>
<th>DEPTH (Ft.)</th>
<th>WATER CONTENT (%)</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>ATTERBERG LIMITS</th>
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**WATER LEVEL OBSERVATIONS**

- Groudwater Not Encountered Within Top 10 Feet

---

**ADVANCEMENT METHOD:** Mud Rotary  
**ABANDONMENT METHOD:** Borings backfilled with soil cuttings upon completion.

---

**Notes:**

- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

---

**Boring Started:** 3/24/2016  
**Boring Completed:** 3/24/2016

**Exhibit:** A-33

---

**TERACON**

---

**1675 Lee Rd**  
**Winter Park, FL**
### BORING LOG NO. SPT-27

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Orlando, Florida**

**LOCATION**  
See Exhibit A-4

### DEPTH

<table>
<thead>
<tr>
<th>Depth (Ft.)</th>
<th>Water Level Observations</th>
<th>Field Test Results</th>
<th>Organic Content (%)</th>
<th>Permeability (Feet/Day)</th>
<th>Water Content (%)</th>
<th>Atterberg Limits</th>
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<td>2.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, gray to dark brown, loose, (TOPSOIL)</td>
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<tr>
<td>5.0</td>
<td>SAND (SP), fine grained, brown, loose to medium dense</td>
<td>5-5-6-7 N=11</td>
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<tr>
<td>13.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, brown, loose</td>
<td>3-5-4-5 N=9</td>
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</tr>
<tr>
<td>18.5</td>
<td>SILTY SAND (SM), fine grained, light grayish-brown, medium dense</td>
<td>2-3-2-3 N=5</td>
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<td></td>
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</tr>
<tr>
<td>23.5</td>
<td>CLAY (CH), fine grained, gray, medium stiff</td>
<td>3-3-2-4 N=5</td>
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<td></td>
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<tr>
<td>30.0</td>
<td>Boring Terminated at 30 Feet</td>
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</table>

**Notes:**

- Advancement Method: Mud Rotary
- Abandonment Method: Borings backfilled with soil cuttings upon completion.
- Hammer Type: Automatic

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 4'

**Stratification lines are approximate. In-situ, the transition may be gradual.**

---

**Exhibit:** A-34  
**Boring Started:** 3/24/2016  
**Boring Completed:** 3/24/2016  
**Drill Rig:** D-50  
**Driller:** John F.  
**Project No.:** H1165094
SAND (SP), fine grained, brown to dark gray, loose

5.5

SAND WITH SILT (SP-SM), fine grained, brown to grayish-brown, loose, (trace cementation at 5.5')

13.5

Silty Sand (SM), fine grained, light gray, loose to medium dense

23.5

CLAY (CH), fine grained, gray to greenish-gray, medium stiff to stiff

30.0

Boring Terminated at 30 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: Mud Rotary

Abandonment Method: Borings backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

Boring Started: 3/24/2016

Boring Completed: 3/24/2016

Drill Rig: D-50

Driller: John F.

Project No.: H1165094

Exhibit: A-35
## BORING LOG NO. SPT-29

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**LOCATION:** See Exhibit A-4  

### GRAPHIC LOG

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>パーミナル (DIA)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERTBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, gray, very loose</td>
<td>2-1-1-2 N=2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>SAND (SP), fine grained, brown, loose to medium dense</td>
<td>2-2-2-1 N=4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td>SILTY SAND (SM), fine grained, brown to grayish-brown, medium dense</td>
<td>2-1-2-3 N=3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.5</td>
<td>with clayey sand at 18.5'</td>
<td>3-4-5-6 N=9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.5</td>
<td>CLAY (CH), fine grained, gray, medium stiff to stiff</td>
<td>1-2-2-4 N=4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stratification lines are approximate. In-situ, the transition may be gradual.

### WATER LEVEL OBSERVATIONS

- **Water Initially Observed at 3'**

### Notes:

- **Advance Method:** Mud Rotary  
- **Abandonment Method:** Borings backfilled with soil cuttings upon completion.  
- **Hammer Type:** Automatic  
- **Boring Started:** 3/24/2016  
- **Boring Completed:** 3/24/2016  
- **Drill Rig:** D-50  
- **Driller:** John F.
### BORING LOG NO. SPT-30

#### SITE:
SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

#### PROJECT:
Tupperware Main Campus

#### CLIENT:
Deerfield Land Corporation
Orlando, Florida

#### GRAPHIC LOG

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0</td>
<td></td>
<td>9-8-12-13</td>
<td>N=20</td>
<td></td>
</tr>
<tr>
<td>8.0</td>
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<td>5-5-5-6</td>
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<tr>
<td>13.5</td>
<td></td>
<td>2-2-2</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>23.5</td>
<td></td>
<td>4-6-8</td>
<td>N=14</td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SAND (SP)**, fine grained, grayish-brown

**SAND WITH SILT (SP-SM)**, with cementation, fine grained, dark reddish-brown, medium dense

**SAND (SP)**, fine grained, brown, medium dense

**SILTY SAND (SM)**, fine grained, brown, loose

**SAND (SP)**, fine grained, gray, medium dense

*Boring Terminated at 25 Feet*

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

**ADVANCEMENT METHOD:** Mud Rotary

**ABANDONMENT METHOD:** Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 4'

---

See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.

---

Boring Started: 4/1/2016
Boring Completed: 4/1/2016
Drill Rig: D-50
Driller: John F.
Project No.: H1165094
Exhibit: A-37

---

Terracon
1675 Lee Rd
Winter Park, FL
BORING LOG NO. SPT-31

PROJECT: Tupperware Main Campus

SITE: SE of Orange Blossom Trl and Mary Louis Ln
      Kissimmee, FL

CLIENT: Deerfield Land Corporation
        Orlando, Florida

LOCATION: See Exhibit A-4

GRAPHIC LOG

DEPTH

13.5

SAND WITH SILT (SP-SM), fine grained, brown, loose

25.0

SILTY SAND (SM), fine grained, light grayish-brown, loose

Boring Terminated at 25 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

 adv

 MUD RIG

 Notes:

 Advancement Method: Mud Rotary

 Abandonment Method: Borings backfilled with soil cuttings upon completion.

 Water Initially Observed at 5'

 WATER LEVEL OBSERVATIONS

 Water Initially Observed at 5'

 3-1-2-3
 26
 N=3

 2-2-2-2
 N=4

 3-3-3
 N=6

 2-2-2
 N=4

 3-3-5
 N=8

Permeability (FEET/DAY)

PERCENT FINES

WATER CONTENT (%)

Atterberg Limits

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>Field Test Results</th>
<th>Organic Content (%)</th>
<th>PERM (FEET/DAY)</th>
<th>Water Content (%)</th>
<th>LL-PL-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.


Drill Rig: D-50  Driller: John F.

Project No.: H1165094  Exhibit: A-38
Boring Terminated at 25 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: Mud Rotary

Abandonment Method: Borings backfilled with soil cuttings upon completion.

Notes:

PERM (FEET/DAY)

SAMPLE TYPE

PERCENT FINES

ATERBERG LIMITS

SAND (SP), fine grained, brown

4.0

1-2-1-1
N=3

36
10

1-1-1-1
N=2

SAND WITH SILT (SP-SM), fine grained, brown to dark brown, very loose to loose

13.5

4-5-6
N=11

22
16

SILTY SAND (SM), fine grained, grayish-brown, medium dense

25.0

8-7-7
N=14

7-6-8
N=14

Water Initially Observed at 4’

Graph: Boring Log No. SPT-32

Project No.: H1165094

TERRACON

1675 Lee Rd
Winter Park, FL

10
16
36
22
4-5-6
N=11

Tupperware Main Campus

Orlando, Florida

Hammer Type: Automatic

Boring Started: 4/1/2016

Boring Completed: 4/1/2016

Drill: D-50

Driller: John F.

Exhibit: A-39
### Boring Log No. SPT-33

**Project:** Tupperware Main Campus  
**Client:** Deerfield Land Corporation  
**Site:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

<table>
<thead>
<tr>
<th>Depth (Ft.)</th>
<th>Water Level Observations</th>
<th>Field Test Results</th>
<th>Organic Content (%)</th>
<th>Permeability (ft/day)</th>
<th>Water Content (%)</th>
<th>Atterberg Limits</th>
<th>Hammer Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>2-1-1-1 N=2</td>
<td>26</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>Automatic</td>
</tr>
<tr>
<td>5.0</td>
<td>2-2-3-3 N=5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td></td>
<td>5-5-7 N=12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.5</td>
<td></td>
<td>5-6-6 N=12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td></td>
<td>7-9-7 N=16</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Notes:**
- **Advancement Method:** Mud Rotary  
- **Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 5'

**Hammer Type:** Automatic  

**Location:** See Exhibit A-4

---

**Stratification Lines:** Stratifaction lines are approximate. In-situ, the transition may be gradual.

**Project No.:** H1165094  
**Driller:** John F.  
**Drill Rig:** D-50  
**Exhibit:** A-40  
**Boring Started:** 4/1/2016  
**Boring Completed:** 4/1/2016
Boring Log No. SPT-34

Project: Tupperware Main Campus

Client: Deerfield Land Corporation
Orlando, Florida

Site: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

Graphical Log

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>SAND (SP), fine grained, gray to brown</td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td>SILENT SAND (SM), fine grained, dark brown, loose</td>
<td></td>
</tr>
<tr>
<td>18.5</td>
<td>SAND (SP), fine grained, brown, medium dense</td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td>SILENT SAND (SM), fine grained, grayish-brown, loose to medium dense</td>
<td></td>
</tr>
</tbody>
</table>

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: Mud Rotary

Abandonment Method: Borings backfilled with soil cuttings upon completion.

Notes:

Water Initially Observed at 5'
**BORING LOG NO. SPT-35**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
Kissimmee, FL

**CLIENT:** Deerfield Land Corporation  
Orando, Florida

**LOCATION**  
See Exhibit A-4

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PER CM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>LL-PL-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, grayish-brown</td>
<td></td>
<td></td>
<td>3-4-3-3</td>
<td>N=7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.0</td>
<td>SAND (SP), fine grained, light brown to dark gray</td>
<td></td>
<td></td>
<td>2-2-2-2</td>
<td>N=4</td>
<td>19</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>18.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, light grayish-brown, very loose to loose</td>
<td></td>
<td></td>
<td>2-1-1</td>
<td>N=2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td>SILTY SAND (SM), fine grained, grayish-brown, loose</td>
<td></td>
<td></td>
<td>4-3-4</td>
<td>N=7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Boring Terminated at 25 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.  
Hammer Type: Automatic

**Advancement Method:** Mud Rotary  
**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**FIELD TEST RESULTS**  
Water Initially Observed at 4’

**Notes:**
See Exhibit A-3 for description of field procedures.  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

**CLIENT:** Deerfield Land Corporation  
Orando, Florida

**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
Kissimmee, FL

**LOCATION**  
See Exhibit A-4

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PER CM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>LL-PL-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, grayish-brown</td>
<td></td>
<td></td>
<td>3-4-3-3</td>
<td>N=7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.0</td>
<td>SAND (SP), fine grained, light brown to dark gray</td>
<td></td>
<td></td>
<td>2-2-2-2</td>
<td>N=4</td>
<td>19</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>18.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, light grayish-brown, very loose to loose</td>
<td></td>
<td></td>
<td>2-1-1</td>
<td>N=2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td>SILTY SAND (SM), fine grained, grayish-brown, loose</td>
<td></td>
<td></td>
<td>4-3-4</td>
<td>N=7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Boring Terminated at 25 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.  
Hammer Type: Automatic

**Advancement Method:** Mud Rotary  
**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

**FIELD TEST RESULTS**  
Water Initially Observed at 4’

**Notes:**
See Exhibit A-3 for description of field procedures.  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.
**BORING LOG NO. SPT-36**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

---

**GRAPHIC LOG**

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>LOCATION</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PREM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td><strong>SAND WITH SILT (SP-SM)</strong>, fine grained, dark grayish-brown to dark brown, (topsoil at 0 to 1.5')</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td><strong>CLAYEY SAND (SC)</strong>, fine grained, grayish-brown, medium dense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.5</td>
<td><strong>CLAY TO SANDY CLAY (CH)</strong>, fine grained, gray trace orange, medium stiff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.5</td>
<td><strong>SILTY SAND (SM)</strong>, fine grained, gray, loose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.0</td>
<td><strong>Boring Terminated at 30 Feet</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Stratification lines are approximate. In-situ, the transition may be gradual.

**Advancement Method:** Mud Rotary  
**Abandonment Method:** Borings backfilled with soil cuttings upon completion.

---

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 3'

---

**Notes:**

- Boring Started: 3/30/2016  
- Boring Completed: 3/30/2016  
- Drill Rig: D-50  
- Driller: John F.

---

**Exhibit:** A-43
### BORING LOG NO. HA-1

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL  

**Graphic Log Location:** See Exhibit A-4

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Water Level Observations</th>
<th>Field Test Results</th>
<th>Organic Content (%)</th>
<th>Percent Fines</th>
<th>Water Content (%)</th>
<th>Atterberg Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, gray, (topsoil)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>SAND (SP), fine grained, gray to brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Stratification lines are approximate. In-situ, the transition may be gradual.*

**Advancement Method:**

**Abandonment Method:**

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

**Notes:**

**Water Level Observations**

- Water Initially Observed at 3’
- Water Observed at 2.7’ After 24 hours

**Terracon**

1675 Lee Rd  
Winter Park, FL

**Project No.: H1165094**  
Exhibit: A-44

**Boring Started:** 3/21/2016  
**Boring Completed:** 3/21/2016

**Drill Rig:**  
Driller: Dee S.
**BORING LOG NO. HA-2**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**Kissimmee, FL**

**GRAPHIC LOG**

<table>
<thead>
<tr>
<th>DEPTH (FT.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>WATERTENT (%)</th>
<th>LL-PL-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, dark gray</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td>SAND (SP), fine grained, gray to dark brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Boring Terminated at 6 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**

Advancement Method: See Exhibit A-3 for description of field procedures.  
Abandonment Method: See Appendix B for description of laboratory procedures and additional data (if any).  
WATER LEVEL OBSERVATIONS: See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 3.5'
- Water Observed at 2.4' After 24 hours

1675 Lee Rd  
Winter Park, FL  
Project No.: H1165094  
Exhibit: A-45

**THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.**  
GEO SMART LOG-NO WELL H1165094-SPT BORINGS.GPJ  
TERRACON2015.GDT  
5/2/16

Drill Rig: Dee S.  
Driller: Dee S.
**BORING LOG NO. HA-3**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Kissimmee, FL**

---

### Location
- **Location:** See Exhibit A-4

### Stratification
- **Depth:** 5.0 feet
- **Description:** SAND (SP), fine grained, light gray to brown

---

### Boring Terminated at 6 Feet

### Water Level Observations
- **Water Initially Observed at 3'**
- **Water Observed at 2.1' After 24 hours**

---

### Notes:
- Advancement Method:
- Abandonment Method:
- **Terracon**
  - 1675 Lee Rd  
  - Winter Park, FL
  - Project No.: H1165094  
  - Exhibit: A-46

---

### Terrain
- Stratification lines are approximate. In-situ, the transition may be gradual.

---

### Terracon Details
- **Boring Started:** 3/21/2016
- **Boring Completed:** 3/21/2016
- **Drill Rig:** Driller: Dee S.
**BORING LOG NO. HA-4**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln Kissimmee, FL

**CLIENT:** Deerfield Land Corporation  
Orlando, Florida

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM (FEET/ DAY)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, gray, (topsoil)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>SAND (SP), fine grained, gray to brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Boring Terminated at 6 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**

- **Advancement Method:** See Exhibit A-3 for description of field procedures.
- **Abandonment Method:** See Appendix B for description of laboratory procedures and additional data (if any).
- **WATER LEVEL OBSERVATIONS**
  - Water Initially Observed at 4'
  - Water Observed at 2.8' After 24 hours

**Exhibit:** A-47
**BORING LOG NO. HA-5**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
Kissimmee, FL

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td></td>
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<td></td>
<td></td>
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</tr>
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</table>

**SAND (SP), fine grained, gray to dark brown**

Boring Terminated at 6 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 2.5'
- Water Observed at 3' After 24 hours
- Boring Started: 3/21/2016  
- Boring Completed: 3/21/2016  
- Drill Rig:  
- Driller: Dee S.  
- Project No.: H1165094  
- Exhibit: A-48

**Notes:**

See Exhibit A-3 for description of field procedures.  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.
Borong Terminated at 6 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Stratification lines are approximate. In-situ, the transition may be gradual.
**BORING LOG NO. HA-7**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

<table>
<thead>
<tr>
<th>GRAPHIC LOG</th>
<th>DEPTH</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>PERCENT FINES</th>
<th>ATTERBerg LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPTH (Ft.)</td>
<td></td>
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</table>

**SAND WITH SILT (SP-SM), fine grained, gray to brown**

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>LL-PL-PI</th>
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<tr>
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<td></td>
<td>29</td>
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</table>

**Boring Terminated at 6 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**

- Advancement Method:  
- Abandonment Method:  
- See Exhibit A-3 for description of field procedures.  
- See Appendix B for description of laboratory procedures and additional data (if any).  
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 2.5'
- Water Observed at 3' After 24 hours

**Terracon**

1675 Lee Rd  
Winter Park, FL

Drill Rig:  
Driller: Dee S.  
Project No.: H1165094  
Exhibit: A-50
**BORING LOG NO. HA-8**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**Kissimme, FL**

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>WATER OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM. (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SAND (SP), fine grained, gray to dark brown**

Boring Terminated at 6 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**

- Advancement Method: See Exhibit A-3 for description of field procedures.
- Abandonment Method: See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 2’
- Water Observed at 3’ After 24 hours

- Boring Started: 3/21/2016  
- Boring Completed: 3/21/2016  
- Drill Rig:  
- Driller: Dee S.  
- Project No.: H1165094  
- Exhibit: A-51
BORING LOG NO. HA-9

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
SE of Orange Blossom Trl and Mary Louis Ln
Orando, Florida
Kissimmee, FL

SITE: SE of Orange Blossom Trl and Mary Louis Ln

GRAPHIC LOG

LOCATION
See Exhibit A-4

DEPTH

1.0
SAND WITH SILT (SP-SM), with roots, fine grained, gray,
(topsoil)

3.0
SAND (SP), fine grained, gray to brown

Boring Terminated at 6 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:

Abandonment Method:

Notes:

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Water Initially Observed at 3'

Water Observed at 2.3' After 24 hours

Boring Started: 3/21/2016

Boring Completed: 3/21/2016

Drill Rig:

Driller: Dee S.

Project No.: H1165094

Exhibit: A-52
### BORING LOG NO. HA-10

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL  
**CLIENT:** Deerfield Land Corporation, Orlando, Florida

**LOCATION**
- **SAND WITH SILT (SP-SM)**, fine grained, gray  
- **SAND (SP)**, fine grained, brown

**DEPTH**
- 1.5 ft
- 6 ft

**WATER LEVEL OBSERVATIONS**
- Water Initially Observed at 3.5'  
- Water Observed at 2.2' After 24 hours

**Notes:**
- Stratification lines are approximate. In-situ, the transition may be gradual.

**Advancement Method:**
- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**Abandonment Method:**
- Boring Started: 3/21/2016  
- Boring Completed: 3/21/2016

**Drill Rig:** Drill Rig:  
**Driller:** Dee S.

**Project No.:** H1165094  
**Exhibit:** A-53

---

**GRAPHIC LOG**

**THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL H1165094-SPT BORINGS.GPJ TERRACON2015.GDT 5/2/16**

---
## Project: Tupperware Main Campus

### Site: SE of Orange Blossom Trl and Mary Louis Ln

**Client:** Deerfield Land Corporation  
Orlando, Florida

### Advancement Method:

- See Exhibit A-4 for description of field procedures.

### Abandonment Method:

- See Appendix B for description of laboratory procedures and additional data (if any).

### Notes:

- See Appendix C for explanation of symbols and abbreviations.

### Boring Terminated at 6 Feet

<table>
<thead>
<tr>
<th>Depth (Ft.)</th>
<th>Water Level Observations</th>
<th>Field Test Results</th>
<th>Organic Content (%)</th>
<th>Permeability (Ft./Day)</th>
<th>Water Content (%)</th>
<th>Atterberg Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, gray</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td>SAND (SP), fine grained, light brown to brown</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Stratification lines are approximate. In-situ, the transition may be gradual.

---

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 3'
- Water Observed at 2.7' After 24 hours

---

**Drill Rig:**

- 1675 Lee Rd  
  Winter Park, FL

**Project No.: H1165094**  
**Exhibit:** A-54

---

**Boring Started:** 3/21/2016  
**Boring Completed:** 3/21/2016

**Driller:** Dee S.
### BORING LOG NO. HA-12

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>LOCATION</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
<th>LL-PL-PI</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
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</thead>
<tbody>
<tr>
<td>1.5</td>
<td>SAND WITH SILT (SP-SM), fine grained, gray, (topsoil)</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>6.0</td>
<td>SAND (SP), fine grained, gray to brown</td>
<td></td>
<td></td>
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</table>

**Boring Terminated at 6 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**
- Advancement Method: See Exhibit A-3 for description of field procedures.
- Abandonment Method: See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**
- Water Initially Observed at 3.5'  
- Water Observed at 3' After 24 hours

**Exhibit:** A-55  
**Project No.:** H1165094  
**Drill Rig:**  
**Driller:** Dee S.

**Boring Log Information:**
- Boring Started: 3/21/2016  
- Boring Completed: 3/21/2016  
- Drill Rig:  
- Driller: Dee S.
**BORING LOG NO. HA-13**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERM (FEET/DAY)</th>
<th>WATER CONTENT (%)</th>
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</tr>
</tbody>
</table>

**SAND (SP):** fine grained, light gray to brown

**Boring Terminated at 6 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**
- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**
- Water Initially Observed at 3.5'
- Water Observed at 1.7' After 24 hours

**Advancement Method:**
- Abandonment Method:

**Terracon**  
1675 Lee Rd  
Winter Park, FL

**Drill Rig:**  
Driller: Dee S.

**Project No.: H1165094**  
Exhibit: A-56

**Boring Started:** 3/21/2016  
**Boring Completed:** 3/21/2016
### BORING LOG NO. HA-14/P-22

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**ORlando, Florida**

<table>
<thead>
<tr>
<th>Location</th>
<th>Storm Drain</th>
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</tr>
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<td><strong>Observations</strong></td>
<td><strong>Field Test Results</strong></td>
</tr>
<tr>
<td>1.5</td>
<td><strong>SAND WITH SILT (SP-SM)</strong>, fine grained, gray</td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td><strong>SAND (SP)</strong>, fine grained, gray to brown</td>
<td></td>
</tr>
</tbody>
</table>

**Boring Terminated at 4 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

### Advancement Method:
See Exhibit A-3 for description of field procedures.

### Abandonment Method:
See Appendix B for description of laboratory procedures and additional data (if any).

### Notes:
See Appendix C for explanation of symbols and abbreviations.

### WATER LEVEL OBSERVATIONS

- Water Initially Observed at 2'

------

**Terracon**  
1675 Lee Rd  
Winter Park, FL
Boring Terminated at 4 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation

SITE: SE of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

LOCATION See Exhibit A-4

DEPTH Depth (Ft.)

SAMPLE TYPE WATER LEVEL OBSERVATIONS FIELD TEST RESULTS ORGANIC CONTENT (%) PERM (FEET/DAY) WATER CONTENT (%) ATTERBERG LIMITS LL-PL-PI PERCENT FINES

2.5 SAND WITH SILT (SP-SM), trace roots and limerock base, fine grained, grayish-brown

3.0 SILTY SAND (SM), with organics, fine grained, dark brown

4.0 SAND (SP), fine grained, brown

Notes:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Advancement Method: Abandonment Method:

WATER LEVEL OBSERVATIONS

Water Initially Observed at 2.5'


Drill Rig: Drill: Andrew R.

Project No.: H1165094 Exhibit: A-58
### Stratification

- **SAND WITH SILT (SP-SM)**, trace organics, fine grained, brown
- **SAND WITH SILT (SP-SM)**, with cemented sands, fine grained, gray
- **SILTY SAND (SM)**, with organics, fine grained, dark brown
- **SAND WITH SILT (SP-SM)**, fine grained, gray

_Boring Terminated at 4 Feet_

---

### WATER LEVEL OBSERVATIONS

<table>
<thead>
<tr>
<th>FIELD TEST RESULTS</th>
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<tr>
<td>ORGANIC CONTENT (%)</td>
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<tr>
<td>WATER CONTENT (%)</td>
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<tr>
<td>ATTERBERG LIMITS</td>
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<thead>
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<th>DEPTH (Ft.)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>SAND WITH SILT (SP-SM), trace organics, fine grained, brown</td>
</tr>
<tr>
<td>3.0</td>
<td>SAND WITH SILT (SP-SM), with cemented sands, fine grained, gray</td>
</tr>
<tr>
<td>4.0</td>
<td>SILTY SAND (SM), with organics, fine grained, dark brown</td>
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<tr>
<td>4.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, gray</td>
</tr>
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</table>

*Stratification lines are approximate. In-situ, the transition may be gradual.*

---

### Notes:

- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

---

**TERRACON**

1675 Lee Rd
Winter Park, FL

Project No.: H1165094  Exhibit: A-59

---

**GEO SMART LOG-NO WELL  H1165094-SPT BORINGS.GPJ  TERRACON2015.GDT  5/2/16**

---

**TRAVERSING: San Pedro Trl, Kissimmee, FL**

---

**SE of Orange Blossom Trl and Mary Louis Ln**

---

**Kissimmee, FL**

---

**PROJECT: Tupperware Main Campus**

---

**CLIENT: Deerfield Land Corporation**

---

**Orando, Florida**

---

**SITE: SE of Orange Blossom Trl and Mary Louis Ln**

---

**Kissimmee, FL**

---

**LOCATION See Exhibit A-59**

---

**DEPTH**

---

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 3’

---

**Boring Terminated at 4 Feet**

---

**Boring Started: 3/22/2016**

---

**Driller: Andrew R.**

---

**Boring Completed: 3/22/2016**

---

**Advancement Method:**

---

**Abandonment Method:**

---

**Notes:**
**BORING LOG NO. HA-17/P-31**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL  
**CLIENT:** Deerfield Land Corporation, Orando, Florida

<table>
<thead>
<tr>
<th>DEPTH</th>
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<th>GRAPHIC LOG</th>
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<tbody>
<tr>
<td>1.0</td>
<td>SAND WITH SILT (SP-SM), with organics, fine grained, dark brown</td>
<td>See Exhibit A-4</td>
</tr>
<tr>
<td></td>
<td>SAND WITH SILT (SP-SM), fine grained, brown to dark brown</td>
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</tr>
</tbody>
</table>

**Boring Terminated at 4 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Advancement Method:**  
**Abandonment Method:**

**WATER LEVEL OBSERVATIONS**

<table>
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<th>DEPTH</th>
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<tbody>
<tr>
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</table>

- Water Initially Observed at 2.5'

**FIELD TEST RESULTS**

- Notes:
- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**Drill Rig:**

- Project No.: H1165094  
- Exhibit: A-60
<table>
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<tr>
<th>DEPTH (Ft.)</th>
<th>LOCATION</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>WET CONTENT (%)</th>
<th>LL-PL-PI</th>
<th>ATTERBERG LIMITS</th>
<th>WATER CONTENT (%)</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, dark gray</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>SAND (SP), fine grained, gray to dark brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

Boring Terminated at 4 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**

- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 3'

**Terracon**

1675 Lee Rd
Winter Park, FL

Boring Started: 3/22/2016
Boring Completed: 3/22/2016

Drill Rig: Driller: Andrew R.
### Stratification Lines

Stratification lines are approximate. In-situ, the transition may be gradual.

#### Advancement Method

See Exhibit A-3 for description of field procedures.

#### Abandonment Method

See Appendix B for description of laboratory procedures and additional data (if any).

#### Notes

See Appendix C for explanation of symbols and abbreviations.

#### WATER LEVEL OBSERVATIONS

Water Initially Observed at 3.5'
### BORING LOG NO. HA-20/P-45

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Orlando, Florida**

| BORING LOG NO. HA-20/P-45 | Page 1 of 1 |

**LOCATION**  
See Exhibit A-4

**DEPTH**  
1.0  
**SANDY PEAT (PT), brown**

**DEPTH**  
4.0  
**SAND (SP), fine grained, gray to brown**

**Boring Terminated at 4 Feet**

---

**Stratification lines are approximate. In-situ, the transition may be gradual.**

---

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>DEPTH (Ft)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>ATTERBERG LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Water Initially Observed at 1.9'</td>
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**Notes:**

---

**Driller:** Andrew R.  
**Drill Rig:**  
**Boring Started:** 3/22/2016  
**Boring Completed:** 3/22/2016  
**Project No.: H1165094**  
**Exhibit:** A-63

---

**Disclaimer:** This boring log is not valid if separated from original report.
**SAND WITH SILT (SP-SM)**, trace organics, fine grained, brown

**SAND WITH SILT (SP-SM)**, fine grained, brown to dark gray

**SAND (SP)**, fine grained, gray to brown

**Boring Terminated at 4 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

### WATER LEVEL OBSERVATIONS

<table>
<thead>
<tr>
<th>WATER LEVEL OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Initially Observed at 3'</td>
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</tbody>
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**Notes:**

Advancement Method: See Exhibit A-3 for description of field procedures.

Abandonment Method: See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

---

**Graphic Log:**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Orando, Florida**

**LOCATION:** See Exhibit A-4

<table>
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<tr>
<th>DEPTH</th>
<th>WATER TYPE</th>
<th>SAMPLE TYPE</th>
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<th>ATTERBERG LIMITS</th>
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<tbody>
<tr>
<td>1.0</td>
<td>SAND WITH SILT (SP-SM), trace organics, fine grained, brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, brown to dark gray</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>SAND (SP), fine grained, gray to brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Stratification lines are approximate. In-situ, the transition may be gradual.**

---

**Advancement Method:**

**Abandonment Method:**

---

**Notes:**

**Boring Started:** 3/22/2016  
**Boring Completed:** 3/22/2016  
**Drill Rig:**  
**Driller: Andrew R.**  
**Project No.: H1165094**  
**Exhibit:** A-64
### BORING LOG NO. HA-22/P-12

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL  
**CLIENT:** Deerfield Land Corporation, Orlando, Florida

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>LOCATION</th>
<th>SAMPLE TYPE</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>LL-PL-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>SAND WITH SILT (SP-SM), fine grained, grayish-brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>SAND WITH SILT (SP-SM), with organics, fine grained, dark brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>SAND (SP), fine grained, gray to brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Boring Terminated at 4 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**
- See Exhibit A-3 for description of field procedures.
- See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**Advancement Method:**

**Abandonment Method:**

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 1.5'

**Terracon**

1675 Lee Rd  
Winter Park, FL

**Notes:**
- Boring Started: 3/22/2016  
- Boring Completed: 3/22/2016  
- Drill Rig:  
- Driller: Andrew R.  
- Project No.: H1165094  
- Exhibit: A-65
**BORING LOG NO. HA-23/P-18**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**Orando, Florida**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DEPTH (Ft.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCUM (FEET/Day)</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEAT (PT)</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAND (SP)</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Boring Terminated at 2 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**

- ADVANCEMENT METHOD:
  - [See Exhibit A-3 for description of field procedures.]
  - [See Appendix B for description of laboratory procedures and additional data (if any).]
  - [See Appendix C for explanation of symbols and abbreviations.]

- ABANDONMENT METHOD:

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 0.3'

---

**SOUTHERN CHEMICAL COMPANY**

**1675 Lee Rd**  
**Winter Park, FL**

**Project No.: H1165094**  
**Exhibit: A-66**
**Boring Terminated at 5 Feet**

<table>
<thead>
<tr>
<th>DEPTH (Ft.)</th>
<th>WATER OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>WORM CONTENT (%)</th>
<th>ATTERBEG LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>SAND WITH SILT (SP-SM), with trace limerock base, fine grained, grayish-brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>SANDY PEAT (PT), with roots, dark brown</td>
<td>17</td>
<td>107</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>SAND (SP), fine grained, gray</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**

- Advancement Method: See Exhibit A-3 for description of field procedures.
- Abandonment Method: See Appendix B for description of laboratory procedures and additional data (if any).
- Water Initially Observed at 3.5'
- Boring Terminated at 5 Feet
**BORING LOG NO. HA-25/P-20**

**PROJECT:** Tupperware Main Campus  
**SITE:** SE of Orange Blossom Trl and Mary Louis Ln  
**CLIENT:** Deerfield Land Corporation  
**ORlando, Florida**

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>LOCATION</th>
<th>DEPTH LEVELS</th>
<th>FIELD TEST RESULTS</th>
<th>ORGANIC CONTENT (%)</th>
<th>WATER CONTENT (%)</th>
<th>PERCENT FINES</th>
<th>ATTERBERG LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>PEAT (PT), fiberous, dark brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.0</td>
<td>SAND (SP), fine grained, gray</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Boring Terminated at 4 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

**Notes:**
- Advancement Method: See Exhibit A-3 for description of field procedures.
- Abandonment Method: See Appendix B for description of laboratory procedures and additional data (if any).
- See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

- Water Initially Observed at 1'
LOCATION: SE of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

SAND WITH SILT (SP-SM), with roots and trace organics, fine grained, brown

SAND WITH SILT (SP-SM), fine grained, gray

PEAT (PT), fiberous, dark brown

Boring Terminated at 3 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

PROJECT: Tupperware Main Campus

CLIENT: Deerfield Land Corporation
Orlando, Florida

Advancement Method: Abandonment Method:

Notes:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Water Initially Observed at 0.7'

Boring Started: 3/22/2016
Boring Completed: 3/22/2016

Drill Rig: Driller: Andrew R.

Project No.: H1165094 Exhibit: A-69
CPT LOG NO. CPT-1

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, FL

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

TEST LOCATION: See Exhibit A-4

Latitude: 28.34702°
Longitude: -81.40044°

CPT Started: 3/30/2016
CPT Terminated at 27.8 Feet
CPT Completed: 3/30/2016
Operator: Doug

WATER LEVEL OBSERVATION

Probe no. DDG1284 with net area ratio of 0.8
U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

Tip Resistance, qₜ (tsf)
Sleeve Friction, fₛ (tsf)
Friction Ratio, Fᵣ (%)
Hydrostatic Pressure, Pₒ (tsf)
Pore Pressure, u₂ (tsf)

Material Description
Normalized CPT
Soil Behavior Type

1 2 3 4 5 6 7 8
1. Sensitive, fine grained
2. Organic soils - clay
3. Silt mixtures - clayey silt to silty clay
4. Sand mixtures - silty sand to sandy silt
5. Sands - clean sand to silty sand
6. Gravelly sand to dense sand
7. Very stiff sand to clayey sand
8. Very stiff fine grained

CPT sensor calibration reports available upon request.

See Exhibit A-3 for description of field procedures.
See Appendix C for explanation of symbols and abbreviations.
### CPT LOG NO. CPT-3

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**TEST LOCATION:** See Exhibit A-4

**SITE:** Southeast of Orange Blossom Trl and Mary Louis Ln  
Kissimmee, FL

---

**CPT Started:** 3/30/2016  
**Rig:** Probe no. DDG1284 with net area ratio of 0.8  
**Manufactured by Vertek**  
**Net area ratio:** 0.8  
**Pore pressure transducer location:** 0.16  
**U2 pore pressure transducer location:** 0.32  
**Sleeve friction:** 0.48  
**Fraciton ratio:** 0.64  
**Ring friction reducer with O.D. of 1.875 in**  
**Estimated water depth:**  

---

**WATER LEVEL OBSERVATION**  
See exhibit A-3 for description of field procedures.

---

**SITE:** Tupperware Main Campus  
Kissimmee, FL  
**EXHIBIT:** A-4

---

**Latitude:** 28.34665°  
**Longitude:** -81.40074°

---

**CPT Terminated at 26.4 Feet**

---

**Material description**  
1. Gravelly sand to dense sand  
2. Very stiff sand to clayey sand  
3. Very stiff fine grained  
4. Silt mixtures - clayey silt to silty clay  
5. Sand mixtures - silty sand to sandy silt  
6. Sands - clean sand to silty sand  
7. Gravelly sand to dense sand  
8. Very stiff sand to clayey sand  
9. Very stiff fine grained

---

**Depth:**  
0 5 10 15 20 25 30

**Material Description**  
1. Sensitive, fine grained  
2. Organic soils - clay  
3. Clay - silty clay to clay  
4. Silt mixtures - clayey silt to silty clay  
5. Sand mixtures - silty sand to sandy silt  
6. Sands - clean sand to silty sand  
7. Gravelly sand to dense sand  
8. Very stiff sand to clayey sand  
9. Very stiff fine grained

---

**CPT sensor calibration reports available upon request.**  

---

**THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.**

---

**TERRACON 2015.GDT**

---

**9182736**

---

**2 ft estimated water depth**  
(used in normalizations and correlations; see Appendix C)
CPT LOG NO. CPT-4

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, FL

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimme, FL

TEST LOCATION: See Exhibit A-4

CPT Started: 3/30/2016
Rig: Doug

CPT Completed: 3/30/2016

Probe no. DDG1284 with net area ratio of 0.8
U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

WATER LEVEL OBSERVATION

Probe: DDG1284 with net area ratio of 0.8
U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

CPT Terminated at 27.2 Feet

Material Description

1. Sensitive, fine grained
2. Organic soils - clay
3. Clay - silty clay to clay
4. Silt mixtures - clean sand to silty silt
5. Sand mixtures - clean sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

Hydrostatic Pressure

Pore Pressure, u₂

Friction Ratio, F_r

Sleeve Friction, f_s

Tip Resistance, q_t

Normal CPT

Soil Behavior Type

Depth (ft)

0 5 10 15 20 25 30

0 90 180 270 360

0.16 0.32 0.48 0.64

2 4 6

0 2 4 6

0

CPT sensor calibration reports available upon request.

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.

CPT REPORT  H1165094_CPT SOUNDINGS.GPJ  TERRACON2015.GDT  5/2/16

Exhibit: A-73

CPT Terminated at 27.2 Feet

See Exhibit A-3 for description of field procedures.
See Appendix C for explanation of symbols and abbreviations.

Latitude: 28.3469°
Longitude: -81.39989°

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.
### CPT LOG NO. CPT-5

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** Southeast of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

**TEST LOCATION:** See Exhibit A-4

**SITE:** Southeast of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL  
**Latitude:** 28.3463°  
**Longitude:** -81.40066°

**CPT Started:** 3/30/2016  
**Operator:** Doug

**CPT Terminated at 27.4 Feet**

### Material Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Material Description</th>
<th>Normalized CPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Silt mixtures - clay</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Organic soils - clay</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Clay - silty clay to clay</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Sand mixtures - silty sand to sandy silt</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Sands - clean sand to silty sand</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Gravelly sand to dense sand</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Very stiff sand to clayey sand</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Very stiff fine grained</td>
<td>8</td>
</tr>
</tbody>
</table>

### Tip Resistance, q_t (tsf)

<table>
<thead>
<tr>
<th>Tip Resistance, q_t (tsf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
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</tbody>
</table>

### Friction Ratio, F_r (%)

<table>
<thead>
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<th>Friction Ratio, F_r (%)</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

### Hydrostatic Pressure,

<table>
<thead>
<tr>
<th>Hydrostatic Pressure</th>
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<tbody>
<tr>
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</tr>
</tbody>
</table>

### Sleeve Friction, f_s (tsf)

<table>
<thead>
<tr>
<th>Sleeve Friction, f_s (tsf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.16</td>
</tr>
</tbody>
</table>

### Water Level Observation

- Probe no. DDG1284 with net area ratio of 0.8
- U2 pore pressure transducer location
- Manufactured by Vertek
- Tip and sleeve areas of 15 cm² and 225 cm²
- Ring friction reducer with O.D. of 1.875 in

CPT Completed: 3/30/2016  
Operator: Doug
## CPT Log No. CPT-6

**Project:** Tupperware Main Campus  
**Client:** Deerfield Land Corporation  
**Location:** Southeast of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL  
**Date:** CPT Started: 3/30/2016  
**Operator:** Doug

### Site Information
- **SITE:** Southeast of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL
- **Latitude:** 28.34625°  
- **Longitude:** -81.39996°

### Materials and Description

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Normalized CPT</th>
<th>Soil Behavior Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silt mixtures - clay</td>
<td>1</td>
<td>Sensitive, fine grained</td>
</tr>
<tr>
<td>Clay - silty clay to clay</td>
<td>2</td>
<td>Organic soils - clay</td>
</tr>
<tr>
<td>Sand mixtures - silty sand to sandy silt</td>
<td>3</td>
<td>Clayey soils - clayey silt</td>
</tr>
<tr>
<td>Gravelly sand to dense sand</td>
<td>4</td>
<td>Very stiff fine grained</td>
</tr>
<tr>
<td>Very stiff sand to clayey sand</td>
<td>5</td>
<td>Very stiff fine grained</td>
</tr>
</tbody>
</table>

### Observation
- **WATER LEVEL OBSERVATION:** Probe no. DDG1284 with net area ratio of 0.8 U2 pore pressure transducer location. Manufactured by Vertek. Tip and sleeve areas of 15 cm² and 225 cm². Ring friction reducer with O.D. of 1.875 in.  
- **Tips:** Tip and sleeve areas of 15 cm² and 225 cm². Ring friction reducer with O.D. of 1.875 in.  
- **Sleeve Friction:**  
- **Friction Ratio:**  
- **Hydrostatic Pressure:**  
- **Pore Pressure:**

---

**CPT Terminated at 27.4 Feet**
CPT LOG NO. CPT-7

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, FL
TEST LOCATION: See Exhibit A-4

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

CPT Started: 3/30/2016
Rig: Probe no. DDG1284 with net area ratio of 0.8

U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

Material Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tip Resistance, q&lt;sub&gt;t&lt;/sub&gt; (tsf)</td>
<td>90</td>
<td>180</td>
<td>270</td>
<td>360</td>
<td>90</td>
<td>180</td>
<td>270</td>
</tr>
<tr>
<td>Sleeve Friction, f&lt;sub&gt;s&lt;/sub&gt; (tsf)</td>
<td>1.6</td>
<td>3.2</td>
<td>4.8</td>
<td>6.4</td>
<td>1.6</td>
<td>3.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Friction Ratio, F&lt;sub&gt;r&lt;/sub&gt; (%)</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Hydrostatic Pressure (tsf)</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Pore Pressure, u&lt;sub&gt;2&lt;/sub&gt; (tsf)</td>
<td>0.16</td>
<td>0.32</td>
<td>0.48</td>
<td>0.64</td>
<td>0.16</td>
<td>0.32</td>
<td>0.48</td>
</tr>
</tbody>
</table>

CPT Terminated at 27 Feet

Water Level Observation
- Probe no. DDG1284 with net area ratio of 0.8
- U2 pore pressure transducer location
- Manufactured by Vertek
- Tip and sleeve areas of 15 cm² and 225 cm²
- Ring friction reducer with O.D. of 1.875 in

CPT sensor calibration reports available upon request.

CPT Terminated at 27 Feet

See Exhibit A-3 for description of field procedures.
See Appendix C for explanation of symbols and abbreviations.

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.

CPT REPORT: H1165094_CPT SOUNDINGS.GPJ
TERRACON2015.GDT - 5/2/16

Latitude: 28.34595°
Longitude: -81.40029°

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, FL
TEST LOCATION: See Exhibit A-4

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

CPT Started: 3/30/2016
Rig: Probe no. DDG1284 with net area ratio of 0.8

U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

Material Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tip Resistance, q&lt;sub&gt;t&lt;/sub&gt; (tsf)</td>
<td>90</td>
<td>180</td>
<td>270</td>
<td>360</td>
<td>90</td>
<td>180</td>
<td>270</td>
</tr>
<tr>
<td>Sleeve Friction, f&lt;sub&gt;s&lt;/sub&gt; (tsf)</td>
<td>1.6</td>
<td>3.2</td>
<td>4.8</td>
<td>6.4</td>
<td>1.6</td>
<td>3.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Friction Ratio, F&lt;sub&gt;r&lt;/sub&gt; (%)</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Hydrostatic Pressure (tsf)</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Pore Pressure, u&lt;sub&gt;2&lt;/sub&gt; (tsf)</td>
<td>0.16</td>
<td>0.32</td>
<td>0.48</td>
<td>0.64</td>
<td>0.16</td>
<td>0.32</td>
<td>0.48</td>
</tr>
</tbody>
</table>

CPT Terminated at 27 Feet

Water Level Observation
- Probe no. DDG1284 with net area ratio of 0.8
- U2 pore pressure transducer location
- Manufactured by Vertek
- Tip and sleeve areas of 15 cm² and 225 cm²
- Ring friction reducer with O.D. of 1.875 in

CPT sensor calibration reports available upon request.

CPT Terminated at 27 Feet

See Exhibit A-3 for description of field procedures.
See Appendix C for explanation of symbols and abbreviations.

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.

CPT REPORT: H1165094_CPT SOUNDINGS.GPJ
TERRACON2015.GDT - 5/2/16

Latitude: 28.34595°
Longitude: -81.40029°
CPT LOG NO. CPT-8

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, FL

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

CPT Started: 3/30/2016
Rig: Probe no. DDG1284 with net area ratio of 0.8
Tip and sleeve areas of 15 cm$^2$ and 225 cm$^2$
Ring friction reducer with O.D. of 1.875 in

CPT Terminated at 27.3 Feet

Hydrostatic Pressure
Pore Pressure, $u_2$
(tsf)

Friction Ratio, $F_r$
(%)

Sleeve Friction, $f_s$
(tsf)

Tip Resistance, $q_t$
(tsfs)

Depth (ft)
0 5 10 15 20 25 30

Depth (ft)
0 5 10 15 20 25 30

Material Description
Normalized CPT
Soil Behavior Type

Depth (ft)
1 2 3 4 5 6 7 8

CPT Completed: 3/30/2016
Operator: Doug

This boring log is not valid if separated from original report.

CPT REPORT: H1165094_CPT_SOUNDINGS.GPJ
TERRACON2015.GDT 5/2/16

Hydrostatic Pressure
Pore Pressure, $u_2$
(tsf)

Friction Ratio, $F_r$
(%)

Sleeve Friction, $f_s$
(tsf)

Tip Resistance, $q_t$
(tsfs)

Depth (ft)
0 5 10 15 20 25 30

Material Description
Normalized CPT
Soil Behavior Type

Depth (ft)
1 2 3 4 5 6 7 8

CPT sensor calibration reports available upon request.

Water Level Observation

Probed: DDG1284 with net area ratio of 0.8
U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm$^2$ and 225 cm$^2$
Ring friction reducer with O.D. of 1.875 in

CPT Started: 3/30/2016
CPT Completed: 3/30/2016

Rig: Operator: Doug
Project No.: H1165094
Exhibit: A-77
### CPT LOG NO. CPT-10

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**SITE:** Southeast of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL  
**TEST LOCATION:** See Exhibit A-4  
**CPT Started:** 3/29/2016  
**CPT Completed:** 3/29/2016  
**Operator:** Doug  
**Latitude:** 28.34407°  
**Longitude:** -81.40136°

#### WATER LEVEL OBSERVATION
- Probe no. DDG1284 with net area ratio of 0.8
- U2 pore pressure transducer location
- Manufactured by Vertek
- Tip and sleeve areas of 15 cm² and 225 cm²
- Ring friction reducer with O.D. of 1.875 in
- **Tip Resistance, qₜ (tsf):**
  - 90
  - 180
  - 270
  - 360

- **Sleeve Friction, fₛ (tsf):**
  - 0.16
  - 0.32
  - 0.48
  - 0.64

- **Friction Ratio, Fᵣ (%):**
  - 2
  - 4
  - 6

- **Hydrostatic Pressure, Pore Pressure, u₂ (tsf):**
  - 0
  - 2
  - 4
  - 6

- **Material Description & Normalized CPT Soil Behavior Type:**
  - 1. Sensitive, fine grained
  - 2. Organic soils - clay
  - 3. Organic soils - clayey silt
  - 4. Silt mixtures - clayey silt to silty clay
  - 5. Sand mixtures - silty sand to sandy silt
  - 6. Sands - clean sand to silty sand
  - 7. Gravelly sand to dense sand
  - 8. Very stiff sand to clayey sand
  - 9. Very stiff fine grained

- **CPT Terminated at 33.5 Feet**

CPT sensor calibration reports available upon request.

See Exhibit A-3 for description of field procedures.

See Appendix C for explanation of symbols and abbreviations.
CPT LOG NO. CPT-11

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, FL

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

CPT Started: 3/29/2016
Rig: Probe no. DDG1284 with net area ratio of 0.8
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

CPT Completed: 3/29/2016
Operator: Doug

TEST LOCATION: See Exhibit A-4

See Exhibit A-3 for description of field procedures.
See Appendix C for explanation of symbols and abbreviations.

CPT Terminated at 34.1 Feet

WATER LEVEL OBSERVATION

Probes no. DDG1284 with net area ratio of 0.8
U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

Hydrostatic Pressure
Pore Pressure, \( u_2 \) (tsf)

Sleeve Friction, \( f_s \) (tsf)

Friction Ratio, \( F_r \) (%)

Normalized CPT
Soil Behavior Type

Material Description

CPT sensor calibration reports available upon request.

5 ft estimated water depth
(used in normalizations and correlations; see Appendix C)

Latitude: 28.34396°
Longitude: -81.40211°

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.    CPT REPORT  H1165094_CPT SOUNDINGS.GPJ  TERRACON2015.GDT  5/2/16

CPT Terminated at 34.1 Feet
### CPT LOG NO. CPT-12

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**TEST LOCATION:** See Exhibit A-4  
**SITE:** Southeast of Orange Blossom Trl and Mary Louis Ln, Kissimmee, FL

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Tip Resistance, $q_t$ (tsf)</th>
<th>Sleeve Friction, $f_s$ (tsf)</th>
<th>Friction Ratio, $F_r$ (%)</th>
<th>Hydrostatic Pressure</th>
<th>Pore Pressure, $u_2$ (tsf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>18</td>
<td>27</td>
<td>36</td>
<td>0.16</td>
<td>0.32</td>
</tr>
<tr>
<td>0.32</td>
<td>0.48</td>
<td>0.64</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CPT Terminated at 34 Feet**

See Exhibit A-3 for description of field procedures.  
See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATION**  
Probing DDG1284 with net area ratio of 0.8  
U2 pore pressure transducer location  
Manufactured by Vertek  
Tip and sleeve areas of 15 cm$^2$ and 225 cm$^2$  
Ring friction reducer with O.D. of 1.875 in

**CPT Sensor calibration reports available upon request.**

**CPT Terminated at 34 Feet**

Latitude: 28.34426°  
Longitude: -81.39996°
CPT LOG NO. CPT-14

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
LOCATION: See Exhibit A-4

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

CPT Started: 3/29/2016
CPT Completed: 3/29/2016
Operator: Doug

Lat.: 28.34358°
Long.: -81.39886°

WATER LEVEL OBSERVATION

Probe no. DDG1284 with net area ratio of 0.8
U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

0.5 ft estimated water depth

(used in normalizations and correlations; see Appendix C)

Tip Resistance, \( q_t \) (tsf)
Sleeve Friction, \( f_s \) (tsf)
Friction Ratio, \( F_r \) (%)
Hydrostatic Pressure
Pore Pressure, \( u_2 \) (tsf)

Material Description
Normalized CPT
Soil Behavior Type

Depth (ft)

0 5 10 15 20 25 30

CPT Terminated at 33.5 Feet

CPT Sensor calibration reports available upon request.

See Exhibit A-3 for description of field procedures.
See Appendix C for explanation of symbols and abbreviations.
**CPT LOG NO. CPT-15**

**PROJECT:** Tupperware Main Campus  
**CLIENT:** Deerfield Land Corporation  
**TEST LOCATION:** See Exhibit A-4

**SITE:** Southeast of Orange Blossom Trl and Mary Louis Ln  
Kissimmee, FL

---

**SITES:**
- 1. Silt mixtures - clayey silt to silty clay
- 2. Sand mixtures - silty sand to sandy silt
- 3. Sands - clean sand to silty sand
- 4. Sensitive, fine grained
- 5. Organic soils - clay
- 6. Clay - silty clay to clay
- 7. Gravelly sand to dense sand
- 8. Very stiff sand to clayey sand
- 9. Very stiff fine grained

**WATER LEVEL OBSERVATION**
- Probe no. DDG1284 with net area ratio of 0.8
- U2 pore pressure transducer location
- Tip and sleeve areas of 15 cm² and 225 cm²
- Ring friction reducer with O.D. of 1.875 in

---

**CPT Terminated at 33.5 Feet**

---

Sam Newton  
1875 Lee Rd  
Winter Park, FL

---

**CPT sensor calibration reports available upon request.**

---

**WATER LEVEL OBSERVATION**
- Probe no. DDG1284 with net area ratio of 0.8
- U2 pore pressure transducer location
- Tip and sleeve areas of 15 cm² and 225 cm²
- Ring friction reducer with O.D. of 1.875 in

---

**CPT Terminated at 33.5 Feet**

---

**CPT sensor calibration reports available upon request.**
CPT LOG NO. CPT-16

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, FL

TEST LOCATION: See Exhibit A-4

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

Latitude: 28.34299°
Longitude: -81.39805°

CPT Sensor calibration reports available upon request.

CPT Terminated at 31 Feet

Material Description
Normalized CPT
Soil Behavior Type

Tupperware Main Campus

2 ft estimated water depth
(used in normalizations and correlations; see Appendix C)

Tip Resistance, \( q_t \) (tsf)
Sleeve Friction, \( f_s \) (tsf)
Friction Ratio, \( F_r \) (%)
Hydrostatic Pressure
Pore Pressure, \( u_2 \) (tsf)

CPT Terminated at 31 Feet

CPT sensor calibration reports available upon request.

1 Sensitive, fine grained
2 Organic soils - clay
3 Silt mixtures - clayey silt to silty clay
4 Sand mixtures - silty sand to sandy silt
5 Sands - clean sand to silty sand
6 Sands - clean sand to silty sand
7 Gravelly sand to dense sand
8 Very stiff sand to clayey sand
9 Very stiff fine grained

See Exhibit A-3 for description of field procedures.
See Appendix C for explanation of symbols and abbreviations.
CPT LOG NO. CPT-17

PROJECT: Tupperware Main Campus
CLIENT: Deerfield Land Corporation
Orlando, FL

SITE: Southeast of Orange Blossom Trl and Mary Louis Ln
Kissimmee, FL

WATER LEVEL OBSERVATION
Probe no. DDG1284 with net area ratio of 0.8
U2 pore pressure transducer location
Manufactured by Vertek
Tip and sleeve areas of 15 cm² and 225 cm²
Ring friction reducer with O.D. of 1.875 in

CPT Terminated at 33.7 Feet

Tip Resistance, qt (tfs)
Sleeve Friction, fs (tfs)
Friction Ratio, Fr (%)
Hydrostatic Pressure
Pore Pressure, u₂ (tfs)

Material Description
Normalized CPT
Soil Behavior Type

1 2 3 4 5 6 7 8
Normalized CPT
Material Description
Soil Behavior Type

1 Sensitive, fine grained
2 Organic soils - clay
3 Silt mixtures - clayey silt to silty clay
4 Silt mixtures - silty sand to sandy silt
5 Sands - clean sand to silty sand
6 Gravelly sand to dense sand
7 Very stiff sand to clayey sand
8 Very stiff fine grained

CPT Terminated at 33.7 Feet

CPT sensor calibration reports available upon request.

See Exhibit A-3 for description of field procedures.
See Appendix C for explanation of symbols and abbreviations.

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT.
CPT REPORT H1165094_CPT SOUNDINGS.GPJ
TERRACON2015.GDT 5/2/16

1 ft estimated water depth
(used in normalizations and correlations; see Appendix C)

1875 Lee Rd
Winter Park, FL

CPT Started: 3/29/2016
CPT Completed: 3/29/2016

Operator: Doug

Exhibit: A-86
## Piezometer Water Readings

<table>
<thead>
<tr>
<th>PZ #</th>
<th>Groud Surface Elevation (+feet)</th>
<th>Depth to Water Table from GSE (feet)</th>
<th>Encountered Water Table Elevation (+feet)</th>
<th>Depth to Water Table from GSE (feet)</th>
<th>Encountered Water Table Elevation (+feet)</th>
<th>Depth to Water Table from GSE (feet)</th>
<th>Encountered Water Table Elevation (+feet)</th>
<th>Depth to Water Table from GSE (feet)</th>
<th>Encountered Water Table Elevation (+feet)</th>
<th>Depth to Water Table from GSE (feet)</th>
<th>Encountered Water Table Elevation (+feet)</th>
<th>Average Water Table Elevation (+feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PZ-1</td>
<td>84.1</td>
<td>1.5</td>
<td>82.6</td>
<td>2.3</td>
<td>81.8</td>
<td>1.2</td>
<td>82.9</td>
<td>0.8</td>
<td>83.3</td>
<td>2.5</td>
<td>81.6</td>
<td>82.4</td>
</tr>
<tr>
<td>PZ-2</td>
<td>84.7</td>
<td>0.3</td>
<td>84.4</td>
<td>0.8</td>
<td>83.9</td>
<td>0.5</td>
<td>84.2</td>
<td>1</td>
<td>83.7</td>
<td>1.3</td>
<td>83.4</td>
<td>83.9</td>
</tr>
<tr>
<td>PZ-3</td>
<td>84.1</td>
<td>0.5</td>
<td>83.6</td>
<td>0.5</td>
<td>83.6</td>
<td>0</td>
<td>84.1</td>
<td>0.9</td>
<td>83.2</td>
<td>1.5</td>
<td>82.6</td>
<td>83.4</td>
</tr>
<tr>
<td>PZ-4</td>
<td>84.7</td>
<td>0</td>
<td>84.7</td>
<td>0.6</td>
<td>84.1</td>
<td>0</td>
<td>84.7</td>
<td>1</td>
<td>83.7</td>
<td>1.7</td>
<td>83</td>
<td>84.0</td>
</tr>
<tr>
<td>PZ-5</td>
<td>84.0</td>
<td>0.2</td>
<td>83.8</td>
<td>0.5</td>
<td>83.5</td>
<td>0</td>
<td>84.0</td>
<td>1</td>
<td>83</td>
<td>1.8</td>
<td>82.2</td>
<td>83.3</td>
</tr>
<tr>
<td>PZ-6</td>
<td>85.6</td>
<td>2.5</td>
<td>83.1</td>
<td>2.7</td>
<td>82.9</td>
<td>2.5</td>
<td>83.1</td>
<td>2</td>
<td>83.6</td>
<td>3.3</td>
<td>82.3</td>
<td>83.0</td>
</tr>
<tr>
<td>PZ-7</td>
<td>85.0</td>
<td>1.6</td>
<td>83.4</td>
<td>2.7</td>
<td>82.3</td>
<td>2</td>
<td>83.0</td>
<td>1.1</td>
<td>83.9</td>
<td>2.6</td>
<td>82.4</td>
<td>83.0</td>
</tr>
<tr>
<td>PZ-8</td>
<td>85.2</td>
<td>2.1</td>
<td>83.1</td>
<td>2.4</td>
<td>82.8</td>
<td>1.6</td>
<td>83.6</td>
<td>2.4</td>
<td>82.8</td>
<td>2.5</td>
<td>82.7</td>
<td>83.0</td>
</tr>
<tr>
<td>PZ-9</td>
<td>84.3</td>
<td>2</td>
<td>82.3</td>
<td>1.9</td>
<td>82.4</td>
<td>1.8</td>
<td>82.5</td>
<td>1.1</td>
<td>83.2</td>
<td>2.3</td>
<td>82</td>
<td>82.5</td>
</tr>
<tr>
<td>PZ-10</td>
<td>86.2</td>
<td>4</td>
<td>82.2</td>
<td>3.9</td>
<td>82.3</td>
<td>4.2</td>
<td>82.0</td>
<td>4</td>
<td>82.2</td>
<td>4.5</td>
<td>81.7</td>
<td>82.1</td>
</tr>
</tbody>
</table>

### Graph

- **Legend:**
  - PZ-1
  - PZ-2
  - PZ-3
  - PZ-4
  - PZ-5
  - PZ-6
  - PZ-7
  - PZ-8
  - PZ-9
  - PZ-10

- **Dates:**
  - 4/5/2016
  - 4/10/2016
  - 4/15/2016
  - 4/20/2016
  - 4/25/2016

- **Average Water Table Elevation (+feet):**
  - PZ-1: 82.4
  - PZ-2: 83.9
  - PZ-3: 83.4
  - PZ-4: 84.0
  - PZ-5: 83.3
  - PZ-6: 83.0
  - PZ-7: 83.0
  - PZ-8: 83.0
  - PZ-9: 82.5
  - PZ-10: 82.1
Field Exploration Description

The boring locations were laid out at the project site by Terracon personnel. The locations indicated on the attached diagram are approximate and were measured by pacing distances and estimating right angles, across vegetated/wooded terrain. The locations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

Soil Test Borings

The SPT soil borings were drilled with a CME automatic SPT hammer was used to advance the split-barrel sampler in the borings performed on this site. The boreholes were advanced with a cutting head and stabilized with the use of bentonite (drillers’ mud). Soil samples were obtained by the split spoon sampling procedure in general accordance with the Standard Penetration Test (SPT) procedure. In the split spoon sampling procedure, the number of blows required to advance the sampling spoon the last 12 inches of an 18-inch penetration or the middle 12 inches of a 24-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (N). This value is used to estimate the in-situ relative density of cohesionless soils and the consistency of cohesive soils. A significantly greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency has an appreciable effect on the SPT-N value. The effect of the automatic hammer’s efficiency has been considered in the interpretation and analysis of the subsurface information for this report. The sampling depths and penetration distance, plus the standard penetration resistance values, are shown on the boring logs.

Portions of the samples from the borings were sealed in glass jars to reduce moisture loss, and then the jars were taken to our laboratory for further observation and classification. Upon completion, the boreholes were backfilled with the site soil.

Field logs of each boring were prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling as well as the driller’s interpretation of the subsurface conditions between samples. The boring logs included with this report represent an interpretation of the field logs and include modifications based on laboratory observation of the samples.

Cone Penetration Testing

The CPT hydraulically pushes an instrumented cone through the soil while nearly continuous readings are recorded to a portable computer. The cone is equipped with electronic load cells to measure tip resistance and sleeve resistance and a pressure transducer to measure the generated ambient pore pressure. The face of the cone has an apex angle of 60° and an area of 10 cm². Digital data representing the tip resistance, friction resistance, pore water pressure, and probe inclination angle are recorded about every 2 centimeters while advancing through the ground at a rate between 1½ and 2½ centimeters per second. These measurements are correlated to various soil properties...
used for geotechnical design. No soil samples are gathered through this subsurface investigation technique.

CPT testing is conducted in general accordance with ASTM D5778 "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils."

Upon completion, the data collected were downloaded and processed by the project engineer.
APPENDIX B – LABORATORY TESTING
Laboratory Testing

During the field exploration, a portion of each recovered sample was sealed in a glass jar and transported to our laboratory for further visual observation and laboratory testing. Selected samples retrieved from the borings were tested for moisture (water) content, fines content (soil passing a US standard #200 sieve), organic content, and laboratory permeability. Those results are included in this report and on the respective boring logs, except for permeability. The visual-manual classifications were modified as appropriate based upon the laboratory testing results.

The soil samples were classified in general accordance with the appended General Notes and the Unified Soil Classification System based on the material's texture and plasticity. The estimated group symbol for the Unified Soil Classification System is shown on the boring logs and a brief description of the Unified Soil Classification System is included in Appendix B. The results of our laboratory testing are presented in the Laboratory Test Results section of this report and on the corresponding borings logs.

Permeability testing was performed on samples obtained from select borings. The samples were remolded in a permeameter to subjectively approximate in-place relative density of the sampled soil. Water was allowed to flow into the soil sample until the sample was apparently saturated. Once saturated, water flow was halted and incremental drops in the supply water level were timed.
<table>
<thead>
<tr>
<th>Boring #</th>
<th>Ground Surface Elevation (+feet)</th>
<th>Depth to GWT below GSE during drilling (feet)</th>
<th>Encountered GWT Elevation during drilling (+feet)</th>
<th>Depth to WT below GSE, 24 hrs, (feet)</th>
<th>Encountered Water Table Elevation, 24 hrs, (+feet)</th>
<th>Estimated Mean WT Elevation (+feet)</th>
<th>Estimated SHWT Elevation (+feet)</th>
<th>Notes / Boundary Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPT-1</td>
<td>85</td>
<td>3.5</td>
<td>81.5</td>
<td>-</td>
<td>-</td>
<td>82</td>
<td>83</td>
<td>Lowered WT because Boring is near the Canal/Ditch</td>
</tr>
<tr>
<td>SPT-2</td>
<td>84.4</td>
<td>3</td>
<td>81.4</td>
<td>-</td>
<td>-</td>
<td>82</td>
<td>83.5</td>
<td></td>
</tr>
<tr>
<td>SPT-3</td>
<td>84.2</td>
<td>1.5</td>
<td>82.7</td>
<td>-</td>
<td>-</td>
<td>82.5</td>
<td>83.5</td>
<td></td>
</tr>
<tr>
<td>SPT-4</td>
<td>84.1</td>
<td>-0.1</td>
<td>84.2</td>
<td>-</td>
<td>-</td>
<td>84</td>
<td>84</td>
<td>one inch of standing water was encountered during drilling due to rain</td>
</tr>
<tr>
<td>SPT-5</td>
<td>84.7</td>
<td>1.3</td>
<td>83.4</td>
<td>-</td>
<td>-</td>
<td>84</td>
<td>84.5</td>
<td></td>
</tr>
<tr>
<td>SPT-6</td>
<td>85</td>
<td>2.2</td>
<td>82.8</td>
<td>-</td>
<td>-</td>
<td>83.5</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>SPT-7</td>
<td>84.8</td>
<td>2.5</td>
<td>82.3</td>
<td>-</td>
<td>-</td>
<td>82</td>
<td>83</td>
<td>Lowered WT because Boring is near the Canal/Ditch</td>
</tr>
<tr>
<td>SPT-8</td>
<td>85</td>
<td>2</td>
<td>83</td>
<td>-</td>
<td>-</td>
<td>83.5</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>SPT-9</td>
<td>85</td>
<td>2.2</td>
<td>82.8</td>
<td>-</td>
<td>-</td>
<td>82</td>
<td>83</td>
<td>Lowered WT because Boring is near the Canal/Ditch</td>
</tr>
<tr>
<td>SPT-10</td>
<td>84.6</td>
<td>1.5</td>
<td>83.1</td>
<td>-</td>
<td>-</td>
<td>84.5</td>
<td>85.5</td>
<td>Water table governed by Wetland A</td>
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<td>Near Pond 4 - control level is +81.7 feet</td>
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<td>Near Pond 3 - control level is +81.7 feet</td>
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<td>Near Pond 2 - control level is +82.3 feet</td>
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<td>Encountered GWT Elevation during drilling (+feet)</td>
<td>Depth to WT below GSE, 24 hrs, (feet)</td>
<td>Encountered Water Table Elevation, 24 hrs, (+feet)</td>
<td>Estimated Mean WT Elevation (+feet)</td>
<td>Estimated SHWT Elevation (+feet)</td>
<td>Notes / Boundary Conditions</td>
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<td>85.5</td>
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APPENDIX C
SUPPORTING DOCUMENTS
GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>SYMBOLS</th>
<th>ABBREVIATIONS</th>
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<tr>
<td>(HP)</td>
<td>Hand Penetrometer</td>
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<tr>
<td>(T)</td>
<td>Torvane</td>
</tr>
<tr>
<td>(DCP)</td>
<td>Dynamic Cone Penetrometer</td>
</tr>
<tr>
<td>(PID)</td>
<td>Photo-Ionization Detector</td>
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<tr>
<td>(OVA)</td>
<td>Organic Vapor Analyzer</td>
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SAMPLING

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<tr>
<td>Grab Sample</td>
<td>No Recovery</td>
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<td>Shelby Tube</td>
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FIELD TESTS

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<tr>
<td>(T)</td>
<td>Water Level After a Specified Period of Time</td>
</tr>
<tr>
<td>(DCP)</td>
<td>Water Level After a Specified Period of Time</td>
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</table>

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

RELATIVE DENSITY OF COARSE-GRAINED SOILS

<table>
<thead>
<tr>
<th>STRENGTH TERMS</th>
<th>Descriptive Term (Density)</th>
<th>Automatic Hammer SPT N-Value (Blows/ft.)</th>
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<tr>
<td>Very Loose</td>
<td>&lt; 3</td>
<td>Very Soft</td>
</tr>
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<td>Loose</td>
<td>3 - 8</td>
<td>Soft</td>
</tr>
<tr>
<td>Medium Dense</td>
<td>8 - 24</td>
<td>Medium Stiff</td>
</tr>
<tr>
<td>Dense</td>
<td>24 - 40</td>
<td>Stiff</td>
</tr>
<tr>
<td>Very Dense</td>
<td>&gt; 40</td>
<td>Very Stiff</td>
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CONSISTENCY OF FINE-GRAINED SOILS

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<th>Descriptive Term (Consistency)</th>
<th>Unconfined Compressive Strength Qu. (psf)</th>
<th>Automatic Hammer SPT N-Value (Blows/ft.)</th>
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<td>less than 500</td>
<td>&lt; 1</td>
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<tr>
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<td>3 - 8</td>
<td>500 to 1,000</td>
<td>1 - 3</td>
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<tr>
<td>Medium Dense</td>
<td>8 - 24</td>
<td>1,000 to 2,000</td>
<td>3 - 6</td>
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<tr>
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<td>2,000 to 4,000</td>
<td>6 - 12</td>
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<tr>
<td>Very Dense</td>
<td>&gt; 40</td>
<td>4,000 to 8,000</td>
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<tr>
<td>Hard</td>
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RELATIVE PROPORTIONS OF SAND AND GRAVEL

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<th>Percent of Dry Weight</th>
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<td>With Modifier</td>
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<td>Modifier</td>
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RELATIVE PROPORTIONS OF FINES

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<td>Modifier</td>
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CONSISTENCY OF FINE-GRAINED SOILS

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

RELATIVE DENSITY OF COARSE-GRAINED SOILS

<table>
<thead>
<tr>
<th>STRENGTH TERMS</th>
<th>Descriptive Term (Density)</th>
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<tbody>
<tr>
<td>Very Loose</td>
<td>&lt; 3</td>
<td>Very Soft</td>
</tr>
<tr>
<td>Loose</td>
<td>3 - 8</td>
<td>Soft</td>
</tr>
<tr>
<td>Medium Dense</td>
<td>8 - 24</td>
<td>Medium Stiff</td>
</tr>
<tr>
<td>Dense</td>
<td>24 - 40</td>
<td>Stiff</td>
</tr>
<tr>
<td>Very Dense</td>
<td>&gt; 40</td>
<td>Very Stiff</td>
</tr>
</tbody>
</table>

CONSISTENCY OF FINE-GRAINED SOILS

<table>
<thead>
<tr>
<th>STRENGTH TERMS</th>
<th>Descriptive Term (Consistency)</th>
<th>Unconfined Compressive Strength Qu. (psf)</th>
<th>Automatic Hammer SPT N-Value (Blows/ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Loose</td>
<td>&lt; 3</td>
<td>less than 500</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Loose</td>
<td>3 - 8</td>
<td>500 to 1,000</td>
<td>1 - 3</td>
</tr>
<tr>
<td>Medium Dense</td>
<td>8 - 24</td>
<td>1,000 to 2,000</td>
<td>3 - 6</td>
</tr>
<tr>
<td>Dense</td>
<td>24 - 40</td>
<td>2,000 to 4,000</td>
<td>6 - 12</td>
</tr>
<tr>
<td>Very Dense</td>
<td>&gt; 40</td>
<td>4,000 to 8,000</td>
<td>12 - 24</td>
</tr>
<tr>
<td>Hard</td>
<td></td>
<td>&gt; 8,000</td>
<td>&gt; 24</td>
</tr>
</tbody>
</table>

RELATIVE PROPORTIONS OF SAND AND GRAVEL

<table>
<thead>
<tr>
<th>Descriptive Term(s) of other constituents</th>
<th>Percent of Dry Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace</td>
<td>&lt; 15</td>
</tr>
<tr>
<td>With Modifier</td>
<td>15 - 29</td>
</tr>
<tr>
<td>Modifier</td>
<td>&gt; 30</td>
</tr>
</tbody>
</table>

RELATIVE PROPORTIONS OF FINES

<table>
<thead>
<tr>
<th>Descriptive Term(s) of other constituents</th>
<th>Percent of Dry Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>With Modifier</td>
<td>5 - 12</td>
</tr>
<tr>
<td>Modifier</td>
<td>&gt; 12</td>
</tr>
</tbody>
</table>

PLASTICITY DESCRIPTION

<table>
<thead>
<tr>
<th>Term</th>
<th>Plasticity Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-plastic</td>
<td>0</td>
</tr>
<tr>
<td>Low</td>
<td>1 - 10</td>
</tr>
<tr>
<td>Medium</td>
<td>11 - 30</td>
</tr>
<tr>
<td>High</td>
<td>&gt; 30</td>
</tr>
</tbody>
</table>

Terracon
## UNIFIED SOIL CLASSIFICATION SYSTEM

### Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests

<table>
<thead>
<tr>
<th>Soil Classification</th>
<th>Group Symbol</th>
<th>Group Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Gravels: Less than 5% fines</td>
<td>Cu ≥ 4 and 1 ≤ Cc ≤ 3</td>
<td>GW Well-graded gravel</td>
</tr>
<tr>
<td>Gravels with Fines: More than 12% fines</td>
<td>Cu &lt; 4 and/or 1 &gt; Cc &gt; 3</td>
<td>GM Silty gravel</td>
</tr>
<tr>
<td>Fines classify as CL or CH</td>
<td>GC Clayey gravel</td>
<td></td>
</tr>
<tr>
<td>Sands: 50% or more of coarse fraction passes No. 4 sieve</td>
<td>Cu ≥ 6 and 1 ≤ Cc ≤ 3</td>
<td>SW Well-graded sand</td>
</tr>
<tr>
<td>Fines classify as ML or MH</td>
<td>SM Silty sand</td>
<td></td>
</tr>
<tr>
<td>Fines classify as CL or CH</td>
<td>SC Clayey sand</td>
<td></td>
</tr>
</tbody>
</table>

### Coarse Grained Soils: More than 50% retained on No. 200 sieve

| Clean Gravels: Less than 5% fines | Cu ≥ 4 and 1 ≤ Cc ≤ 3 | GW Well-graded gravel |
| Gravels with Fines: More than 12% fines | Cu < 4 and/or 1 > Cc > 3 | GM Silty gravel |
| Fines classify as CL or CH | GC Clayey gravel |

### Sands: 50% or more of coarse fraction retained on No. 200 sieve

| Clean Sands: Less than 5% fines | Cu ≥ 6 and 1 ≤ Cc ≤ 3 | SW Well-graded sand |
| Fines classify as ML or MH | SM Silty sand |
| Fines classify as CL or CH | SC Clayey sand |

### Fine-Grained Soils: 50% or more passes the No. 200 sieve

| Inorganic: PI > 7 and plots on or above “A” line | CL Lean clay |
| Organic: PI < 4 or plots below “A” line | ML Silt |
| Liquid limit - oven dried | OL Organic clay |
| Liquid limit - not dried | Organic silt |

### Silts and Clays: Liquid limit 50 or more

| Inorganic: PI plots on or above “A” line | CH Fat clay |
| Organic: PI plots below “A” line | MH Elastic Silt |
| Liquid limit - oven dried | OH Organic clay |
| Liquid limit - not dried | Organic silt |

### Highly organic soils: Primarily organic matter, dark in color, and organic odor

| PI plots on or above “A” line | PT Peat |

### Formulas

1. \( E = \frac{D_{60}}{D_{10}} \)
2. \( Cc = \left( \frac{D_{20}}{D_{10} \times D_{60}} \right)^2 \)

### Diagram

The diagram illustrates the classification of fine-grained soils and fine-grained fraction of coarse-grained soils, with PLASTICITY INDEX (PI) plotted against LIQUID LIMIT (LL) to determine group names. For example:

- **CL or OL**: If fines are organic, add “with organic fines” to group name.
- **ML or OL**: If soil contains ≥ 15% gravel, add “with gravel” to group name.
- **CH or OH**: If Atterberg limits plot in shaded area, soil is a CL-ML, siltly clay.
- **MH or OH**: If soil contains ≥ 30% plus No. 200, predominantly gravel, add “gravelly” to group name.

### Notes

- **A**: Based on the material passing the 3-inch (75-mm) sieve
- **B**: If field sample contained cobbles or boulders, or both, add “with cobbles or boulders, or both” to group name.
- **C**: Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
- **D**: Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
- **E**: If soil contains ≥ 15% sand, add “with sand” to group name.
- **F**: If soil contains ≥ 15% gravel, add “with gravel” to group name.
- **G**: If fines classify as CL-ML, use dual symbol GC-GM, or SC-SC.
- **H**: If soil contains ≥ 30% plus No. 200, predominantly sand, add “sandy” to group name.
- **I**: If soil contains ≥ 30% plus No. 200, predominantly gravel, add “gravelly” to group name.
**REPORTED PARAMETERS**

CPT logs as provided, at a minimum, report the data as required by ASTM D5778 and ASTM D7400 (if applicable). This minimum data include tip resistance, sleeve resistance, and porewater pressure. Other correlated parameters may also be provided. These other correlated parameters are interpretations of the measured data based upon published and reliable references, but they do not necessarily represent the actual values that would be derived from direct testing to determine the various parameters. The following chart illustrates estimates of reliability associated with correlated parameters based upon the literature referenced below.

**RELATIVE RELIABILITY OF CPT CORRELATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Low Reliability</th>
<th>High Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permeability, k</td>
<td>Clay and Silt</td>
<td>Sand</td>
</tr>
<tr>
<td>Constrained Modulus, M</td>
<td>Clay and Silt</td>
<td>Sand</td>
</tr>
<tr>
<td>Unit Weight</td>
<td>Sand</td>
<td>Clay and Silt</td>
</tr>
<tr>
<td>Effective Friction Angle, θ</td>
<td>Clay and Silt</td>
<td>Sand</td>
</tr>
<tr>
<td>Sensitivity, St</td>
<td>Clay and Silt</td>
<td>Sand</td>
</tr>
<tr>
<td>Undrained Shear Strength, Su</td>
<td>Clay and Silt</td>
<td>Sand</td>
</tr>
<tr>
<td>Relative Density, Dr</td>
<td>Over Consolidation Ratio, OCR</td>
<td>Clay and Silt</td>
</tr>
<tr>
<td>Small Strain Modulus, Gs*</td>
<td>Sand</td>
<td>Clay and Silt</td>
</tr>
<tr>
<td>Elastic Modulus, Es*</td>
<td>* improves with seismic Vs measurements</td>
<td></td>
</tr>
</tbody>
</table>

Reliability of CPT-predicted Np values as commonly measured by the Standard Penetration Test (SPT) is not provided due to the inherent inaccuracy associated with the SPT test procedure.

**WATER LEVEL**

The groundwater level at the CPT location is used to normalize the measurements for vertical overburden pressures and as a result influences the normalized soil behavior type classification and correlated soil parameters. The water level may either be "measured" or "estimated:" Measured - Depth to water directly measured in the field. Estimated - Depth to water interpolated by the practitioner using pore pressure measurements in coarse grained soils and known site conditions.

While groundwater levels displayed as "measured" more accurately represent site conditions at the time of testing than those "estimated," in either case the groundwater level should be further defined prior to construction as groundwater level variations will occur over time.

**CONE PENETRATION SOIL BEHAVIOR TYPE**

The estimated stratigraphic profiles included in the CPT logs are based on relationships between corrected tip resistance (q), friction resistance (fs), and porewater pressure (U2). The normalized friction ratio (FR) is used to classify the soil behavior type.

Typically, silts and clays have high FR values and generate large excess penetration porewater pressures; sands have lower FRs and do not generate large excess penetration porewater pressures. Negative pore pressure measurements are indicative of fissured fine-grained material. The adjacent graph (Robertson et al.) presents the soil behavior type correlation used for the logs. This normalized SBT chart, generally considered the most reliable, does not use pore pressure to determine SBT due to its lack of repeatability in onshore CPTs.

**REFERENCES**


Mayne, P.W., (2013). "Geotechnical Site Exploration in the Year 2013," Georgia Institute of Technology, Atlanta, GA.
