SOILS

A. 1. Provide a description of each of the soils on the Natural Resources Conservation Service Soils Map of the Hammock Creek Project Site utilizing the following format:

Please refer to Table 1, Review of USCS Soil Survey Maps, Restoration.

Table 1
Review of USCS Soil Survey Maps, Restoration

Soil Name and Map Symbol	Brief Soil Description	Seasonal High Water Table Depth and Duration	Permeability Rate		Degree & Kind of Limitation for Proposed Uses	Degree & Kind of Limitation For Pond Embankments
			Depth (ft)	Rate (in/hr)		
8 Basinger fine sand, depressional	Poorly drained, nearly level sandy soil in depressions and in poorly defined drainageways.	At or above the ground surface for several months in most years.	0-90	>20	Severe: wetness, ponds	Severe: seepage, piping, wetness
20 EauGallie Fine Sand	Nearly level, poorly drained soil on broad flatwoods	Within 10 inches of the surface for 1 to 4 months in most years.	0-21 21-35 35-52 52-61 61-65	6-20 0.6-6 6-20 0.6-6 2-6	Severe: wetness	Severe: Seepage, unstable fill
21 EauGallie fine sand, depressional	Nearly level, poorly drained soil occurs mainly in depressions & broad, poorly defined waterways.	Ponded 7 days to one month after heavy rainfall and within ten inches for 3 to 6 months.	0-23 23-35 35-43 43-67	6-20 0.6-6 6-20 0.6-6	Severe: ponds, wetness	Severe: seepage, unstable fill
25 Gator muck	Very poorly drained, nearly level, well decomposed organic soil in freshwater swamps and marshes.	At or above the ground surface in spring, summer and fall.	0-34 34-52 52-58	6-20 0.6-2 6-20	Severe: floods, wetness, low strength	Severe: excess humus, wetness
29 Immokalee fine sand	Nearly level, poorly drained sandy soil on broad areas in the flatwoods.	Within 10 inches for 1 to 2 months of most years.	0-36 36-50 50-80	6-20 0.6-2 6-20	Severe: wetness	Severe: seepage, piping, wetness
30 Immokalee sand, depressional	Poorly drained, nearly level sandy soils in shallow intermittent ponds and sloughs in the flatwoods.	At or above the surface for long periods after heavy raind and within 10 inches for 6 months in most years.	0-36 36-50 50-80	6-20 0.6-2 6-20	Severe: ponds, wetness	Severe: seepage, piping, wetness
31 Malabar fine sand	Poorly drained, nearly level soil occurs in broad, low flats.	Within a depth of 10 inches for 2 to 6 months in most years.	0-42 42-80	6-20 0.6-2	Severe: wetness	Severe: Seepage, piping, wetness
32 Myakka fine sand	Nearly level, poorly drained soil in the flatwoods.	Within a depth of 12 inches from June to November.	0-27 27-43 43-78	6-20 0.6-6 6-20	Severe: wetness	Severe: seepage, piping, wetness

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			Depth (ft)	Rate (in/hr)		
33 Myakka fine sand, depressional	Nearly level, poorly drained soils in depressions in the flatwoods. The upper subsoil is coated with organic matter.	At or above the ground surface for 7 days to a month during rainy periods and within 10 inches for 3 to 6 months during most years.	0-25 25-39 39-80	6-20 0.6-6 6-20	Severe: Wetness, ponds	Severe: seepage, piping, wetness
34 Myakka – St. Johns complex	Nearly level, poorly drained soils in low areas and depressions. the upper subsoil is coated with organic matter.	Above the ground surface in wet periods and continuously saturated within a depth of 10 inches in the summer, fall and winter.	0-27 27-43 43-78	6-20 0.6-6 6-20	Severe: wetness, ponds	Severe: seepage, piping, wetness
45 Pineda	Poorly drained, nearly level soil in low, broad areas in the flatwoods.	Standing water in some areas for 7 days to 6 months and within a depth of 10 inches for 1 to 6 months during most years.	0-40 40-96	6-20 2-6	Severe: Wetness, floods	Severe: seepage, piping, wetness
49 Pomona fine sand	Poorly drained, nearly level soil in low, broad areas in the flatwoods.	Within a depth of 10 inches for 1 to 3 months in most years.	0-18 18-45 45-50 50-60	6-20 0.6-20 6-20 0.2-0.6	Severe: wetness	Severe: seepage, piping, wetness
50 Pomona fine sand, depressional	Poorly drained, nearly level soil occurs in depressions and in broad low flats in the flatwoods.	At or above the ground surface to a depth of 10 inches for 4 to 8 months during most years.	0-18 18-45 45-50 50-60	6-20 0.6-20 6-20 0.2-0.6	Severe: ponds, wetness	Severe: seepage, piping, wetness
51 Pomona – St. Johns Complex	Nearly level, poorly drained soils in broad depressions and drainageways.	Standing water in wet periods and within 10 inches in summer, fall and winter.	0-14 14-33 33-53 53-70	6-20 0.6-20 6-20 0.2-0.6	Severe: ponds, wetness	Severe: seepage, piping, wetness
56 Samsula muck	Very poorly drained, nearly level organic soils in broad low flats and swamps. The upper 36 inches consists of muck.	At or above the ground surface except during extended dry periods.	0-60	6-20	Severe: wetness, low strength	Severe: excess humus, wetness
60 Smyrna fine sand	Nearly level, poorly drained sandy soil on broad areas in flatwoods.	Within a depth of 10 inches for 1 to 4 months.	0-17 17-27 27-80	6-20 0.6-6 6-20	Severe: wetness	Severe: seepage, piping, unstable fill
64 Tequesta muck	Very poorly drained, nearly level soil in freshwater swamps. Typically, this soil has about 12 inches of muck at the surface.	At or above the ground surface in wet seasons and within a depth of 10 inches for 6 to 9 months in most years.	0-25 25-31 31-70	6-20 0.6-2 6-20	Severe: wetness, excess humus	Severe: excess humus, seepage, compressible
72 Vakaria fine sand	Nearly level, poorly drained sandy soil in broad, poorly defined drainageways and low areas bordering swamps.	At or near the surface for as much as 6 months in most years.	0-75	6-20	Severe: wetness, ponds	Severe: seepage, piping

Soil Name and Map Symbol	Brief Soil Description	Seasonal High Water Table Depth and Duration	Permeability Rate		Degree & Kind of Limitation for Proposed Uses	Degree & Kind of Limitation For Pond Embankments
			Depth (ft)	Rate (in/hr)		
73 Wabasso fine sand	Poorly drained, nearly level soil in broad, low areas in the flatwoods.	Within a depth of 10 inches for most years.	0-24 24-35 35-39 39-80	6-20 0.6-2 6-20 0.6-2	Severe: wetness	Severe: seepage, piping, unstable fill
74 Wabasso fine sand, depressional	Poorly drained, nearly level soil occurs in depressions and in swales in the flatwoods.	Within a depth of ten inches to 6 inches above the soil surface for 4 to 8 months during most years.	0-24 24-35 35-39 39-80	6-20 0.6-2 6-20 0.6-2	Severe: wetness, ponds	Severe: seepage, piping, unstable fill

2. Describe the potential for subsidence and any unique geologic features (such as sand dunes, bluffs, sinkholes, springs, steepheads, etc.) on the site. Discuss what aspects of the site plan will be used to compensate for or take advantage of these features.

The site is an area of the state which has relatively low potential for sinkhole activity as compared to other areas of the state, such as Central Florida. Higher elevation areas of the site will be used for development, while lower elevation areas will be used for ponds/lakes. Areas delineated as wetland areas will generally be protected. There are no known unique geologic features on the site.

B. Where a soil presents a limitation to the type of use proposed in the development, state how the limitation will be overcome. Specify construction methods that would be used for building, road and parking lot foundations, and for lake or canal bank stabilization as relevant.

The primary limitation to site development is the relatively high Seasonal High Water Table (SHWT) present throughout much of the site. Also of concern is the possible presence of surficial organic soils in some areas.

The high SHWT limitation can be overcome using standard design and constructions methods. The primary method is to raise the grade as needed in the proposed development areas to provide sufficient separation between the SHWT and the building slabs and the pavement base. Other potential methods include the use of underdrains adjacent to roads and setting control elevations within ponds to lower the SHWT adjacent to them.

Although wetland areas are not to be developed within the site, some areas of surficial organic soils may be encountered in the development areas. If encountered, they will likely be of limited depth and can be removed and replaced with suitable fill using standard construction methods.

Site preparation in the proposed development areas will follow standard construction procedures including stripping and grubbing, proof-rolling of the cleared surface followed by placement and compaction of any fill soils. Foundation and pavement subgrades will be compacted to the densities specified by the project Geotechnical Engineer.

Pond/lake side slopes will be designed to provide stability against slope failures. Also, the surfaces will be vegetated to minimize erosion. If above-grade berms are necessary, they will be designed to control seepage and/or piping.

C. What steps will be taken during site preparation and construction to prevent or control wind and water soil erosion? Include a description of proposed plans for clearing and grading as related to erosion control.

The development will be designed and constructed in accordance with the St. Johns River Water Management District, Volusia County and the Cities of Edgewater and New Smyrna Beach recommended erosion control plans.

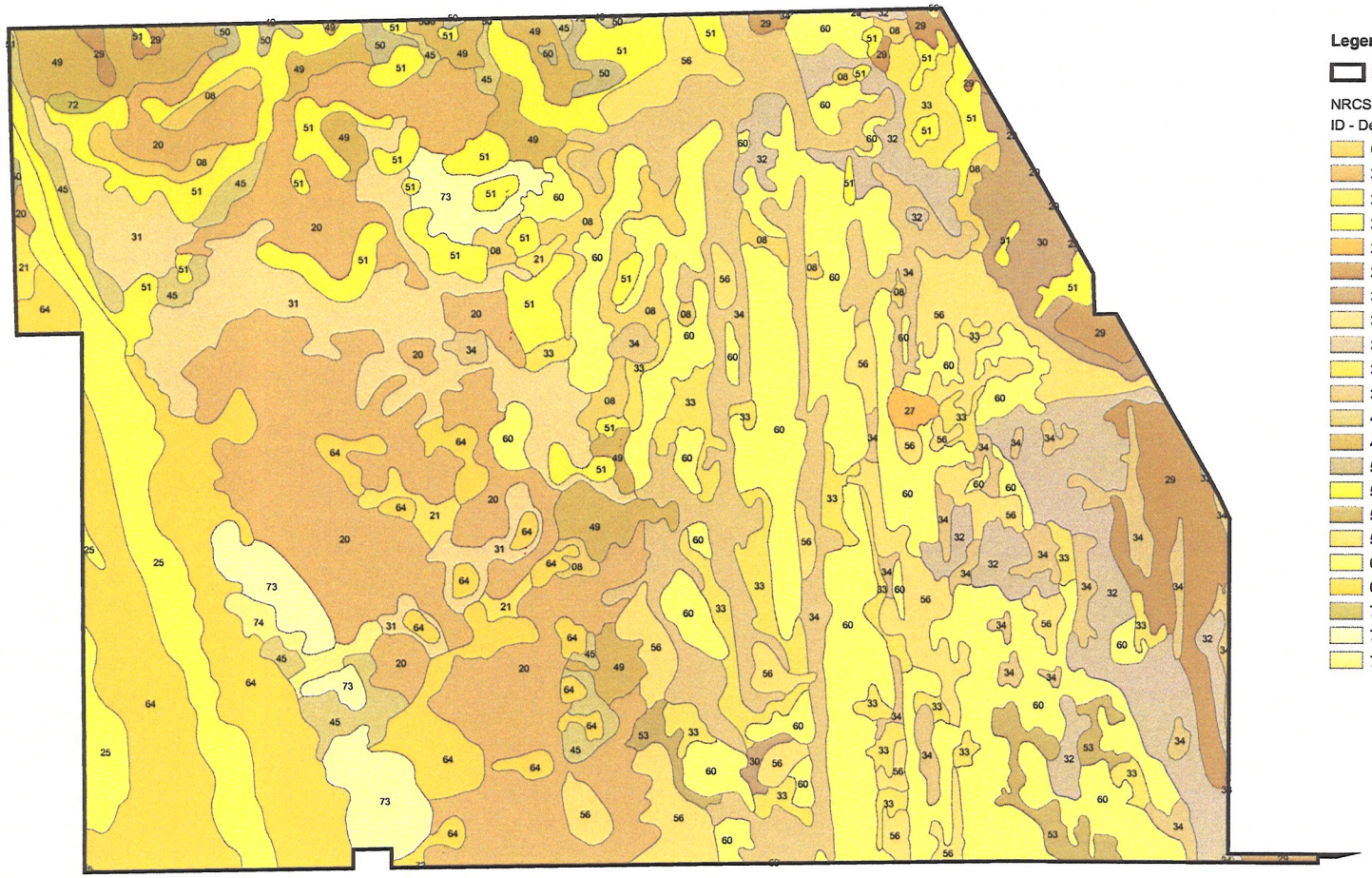
These plans may include some or all of the following:

- Silt fences adjacent to wetland areas, lakes and offsite properties.
- Floating turbidity barriers within water bodies.
- Wetting down unpaved access roads and cleared areas to provide dust control.
- Sock drains in storm sewer inlets to prevent sediment from entering the storm sewers.
- Sediment traps for rainfall runoff.

D. To what degree and in what location(s) will the development site be altered by fill material? If known, specify the source location and composition of the fill. Also identify the disposal location for any overburden or spoil.

Some of the proposed development area will require fill to provide the necessary separation between the SHWT and the foundation slabs and the pavement base. Fill for the site will primarily come from on-site sources (excavation of ponds/lakes). Preliminary borings done at the site indicate that the soils within the upper 10 to 15 feet consist of fine sands and fine sands with silt which will be suitable for use as fill material. Any additional fill required beyond what can be obtained on-site may be imported and will meet specifications recommended by the project Geotechnical Engineer.

Unsuitable material, such as muck, if not incorporated into the project, will be removed from the site and disposed of in accordance with all applicable regulations.



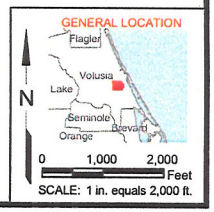
Legend

Project boundary (6,281.66 ac)

NRCS Soils

ID - Description

- 08 - Basinger Fine Sand; Depressional
- 20 - Eaugallie Fine Sand
- 21 - Eaugallie Fine Sand; Depressional
- 25 - Gator Muck
- 27 - Hontoon Mucky Peat
- 29 - Immokalee Sand
- 30 - Immokalee Sand; Depressional
- 31 - Malabar Fine Sand
- 32 - Myakka Fine Sand
- 33 - Myakka Fine Sand; Depressional
- 34 - Myakka-St. Johns Complex
- 45 - Pineda Fine Sand
- 49 - Pomona Fine Sand
- 50 - Pomona Fine Sand; Depressional
- 51 - Pomona-St. Johns Complex
- 53 - Pompano-Placid Complex
- 56 - Samsula Muck
- 60 - Smyrna Fine Sand
- 64 - Tequesta Muck
- 72 - Valkaria Fine Sand
- 73 - Wabasso Fine Sand
- 74 - Wabasso Fine Sand; Depressional



Source: Florida Geographic Data Library (FGDL), Version 3.0, July 2000; USDA NRCS; SSURGO data, 1995.

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EXHIBIT 3 .

NATURAL RESOURCES CONSERVATION SERVICE SOILS MAP OF THE HAMMOCK CREEK PROJECT SITE, VOLUSIA COUNTY, FLORIDA.