

GFA INTERNATIONAL

FLORIDA'S LEADING ENGINEERING SOURCE

Report of Geotechnical Exploration

Proposed Commercial Site 1066 US Hwy 1, Vero Beach, Indian River County, Florida

May 7, 2015 GFA Project No. 15-0422.00

For: Roberts Equities, LLC



Florida's Leading Engineering Source

Roberts Equities, LLC Attention: Rick Bittler

Site: Proposed Commercial Site 1066 US Hwy 1 Vero Beach, Indian River County, Florida

GFA Project # 15-0422.00

Dear Mr. Bittler: GFA International, Inc. (GFA) has completed the subsurface exploration and geotechnical engineering evaluation for the above-referenced project...

EXECUTIVE SUMMARY

The purpose of our subsurface exploration was to classify the nature of the subsurface soils and general geomorphic conditions and evaluate their impact upon the proposed construction...

Based on a site plan prepared by Thomas Engineering Group dated 12/10/2014 (reproduced in Appendix B - Test Location Plan) and conversations with the client, the project consists of demolishing and removing an existing structure and then constructing two one-story commercial structures...

The recommendations provided herein are based upon the above considerations. If the project description has been revised, please inform GFA International so that we may review our recommendations with respect to any modifications.

A total of four (4) standard penetration test (SPT) borings to depths of approximately fifteen (15) feet below ground surface (BGS) were completed for this study.

Proposed Commercial Site 1066 US Hwy 1, Vero Beach, Florida GFA Project No. 15-0422.00

The subsurface soil conditions encountered at this site generally consist of medium dense sand (SP) with occasional loose layers to a depth of 8 feet, and then medium dense to very dense hard sand (SP) to the boring and probe termination depths...

The subsurface soil conditions at the project site are generally favorable for the support of the proposed structures on shallow foundations. An allowable bearing capacity of 2,500 pcf may be used for foundation design.

The subgrade soils should be improved with compaction from the stripped grade prior to constructing the foundation pads. The top 2 feet below stripped grade should be compacted to a minimum of 90% density prior to placing fill to achieve final grade...

We appreciate the opportunity to be of service to you on this project and look forward to a continued association. Please do not hesitate to contact us if you have any questions or comments, or if we may further assist you as your plans proceed.



Copies: 2, Addressee

Geotechnical Report May 7, 2015 Page 2 of 9

Proposed Commercial Site 1066 US Hwy 1, Vero Beach, Florida GFA Project No. 15-0422.00

1.0 INTRODUCTION 4
1.1 Scope of Services 4
1.2 Project Description 4
2.0 OBSERVATIONS 4
2.1 Site Inspection 4
2.2 Field Exploration 5
2.3 Laboratory Analysis 5
2.4 Geomorphic Conditions 5
2.5 Hydrogeological Conditions 5
3.0 ENGINEERING EVALUATION AND RECOMMENDATIONS 6
3.1 General 6
3.2 Site Preparation 7
3.3 Design of Foundations 8
3.4 Ground Floor Slabs 8
4.0 REPORT LIMITATIONS 9
5.0 BASIS FOR RECOMMENDATIONS 9

Appendix A - Vicinity Map
Appendix B - Test Location Plan
Appendix C - Notes Related to Borings
Appendix D - Record of Test Borings
Appendix E - Discussion of Soil Groups



GFA INTERNATIONAL STANDARD PENETRATION TEST BORING (ASTM D-1586)

Client: Roberts Equities, LLC
Project: Proposed Commercial Site 1066 US Hwy 1, Vero Beach, Indian River County, FL
Elevation: Existing Grade
Water Level: 5 feet after 8 hours

Table with columns: Depth (ft), Blows (15' blow count), Frac. No., Layer, USCS, Description, Penetration Test, Moisture Content, Organic Content. Includes data for SPT-1, SPT-2, SPT-3, SPT-4.

Boring Terminated at 15 feet



DISCUSSION OF SOIL GROUPS

COARSE GRAINED SOILS

GW and SW GROUPS. These groups comprise well-graded gravels and sandy soils having little or no plastic fines (less than percent passing the No. 200 sieve)...

GP and SP GROUPS. Poorly graded gravels and sands containing little or no plastic fines (less than 5 percent passing the No. 200 sieve) are classified in GP and SP groups...

GM and SM GROUPS. In general, the GM and SM groups comprise gravels or sands with fines (more than 12 percent the No. 200 sieve) having low or no plasticity...

GC and SC GROUPS. In general, the GC and SC groups comprise gravelly or sandy soils with fines (more than 12 percent passing the No. 200 sieve) which have a fairly high plasticity...

FINE GRAINED SOILS

ML and MH GROUPS. In these groups, the symbol M has been used to designate predominantly silty material. The symbols L and H represent low and high liquid limits, respectively...

CL and CH GROUPS. In these groups the symbol C stands for clay, with L and H denoting low or high liquid limits, with the dividing line again set at a liquid limit of 50. The soils are primarily organic clays...



Proposed Commercial Site 1066 US Hwy 1, Vero Beach, Florida GFA Project No. 15-0422.00

2.2 Field Exploration A total of four (4) standard penetration test (SPT) borings to depths of approximately fifteen (15) feet below ground surface (BGS) were completed for this study...

The soil samples recovered from the soil borings were visually classified and their stratification is illustrated in Appendix D - "Record of Test Borings". It should be noted that soil conditions might vary between the strata interfaces, which are shown...

2.3 Laboratory Analysis Soil samples recovered from our field exploration were returned to our laboratory where they were visually examined in general accordance with ASTM D-2486. Samples were evaluated to obtain an accurate understanding of the soil properties and site geomorphic conditions...

2.4 Geomorphic Conditions The geology of the site as mapped on the USDA Soil Survey website consists of Innotakate fine sand (4) at the east side of the property and Urban land (22) for the remainder of the property...

Boring logs derived from our field exploration are presented in Appendix D - "Record of Test Borings". The boring logs depict the observed soils in graphic detail. The Standard Penetration Test borings indicate the penetration resistance, or N-value, during the drilling and sampling

GFA INTERNATIONAL STANDARD PENETRATION TEST BORING (ASTM D-1586)

Client: Roberts Equities, LLC
Project: Proposed Commercial Site 1066 US Hwy 1, Vero Beach, Indian River County, FL
Elevation: Existing Grade
Water Level: 5 feet after 8 hours

Table with columns: Depth (ft), Blows (15' blow count), Frac. No., Layer, USCS, Description, Penetration Test, Moisture Content, Organic Content. Includes data for SPT-1, SPT-2, SPT-3, SPT-4.

Boring Terminated at 15 feet

SCHULKE, BITTLE & STODDARD, L.L.C. CIVIL & STRUCTURAL ENGINEERING - LAND PLANNING - ENVIRONMENTAL PERMITTING CERTIFICATION OF AUTHORIZATION NO.: 0000808

SOIL BORINGS

SHOPPES AT 11TH

ENGINEER CERTIFICATION JOSEPH W. SCHULKE FL REG. NO. 47048

DATE: SHEET 4

PROJECT NO. 15-096

Table with columns: DATE, REVISION, REV. IFC, COMMENTS, MARK, DRAWING NO., DESIGNED, J.B.B., CHECKED, J.B.B., DRAWN, J.B.B., SCALE, NTS, DATE, 5/5/15