GEO-TECH, INC.

ENGINEERING CONSULTANTS IN GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION MATERIALS TESTING

August 14, 2025
Project No. 25-1729.132.1

Nathan Dodge, P.E.
Kimley-Horn
800 SW 2nd Avenue, Suite 100
Gainesville, Florida 32601

Reference: Proposed Open Air Storage Building, Fire Station #7, 885 SE 31st Street
Ocala, Florida
Geotechnical Site Evaluation

Dear Mr. Dodge:

Geo-Technologies, Inc. (Geo-Tech) completed a geotechnical evaluation of the project site as requested by you. Services were conducted in accordance with Geo-Tech Proposal No. 15354 dated February 19, 2025.

Our findings, evaluations and recommendations are presented in the following report using standard practices in soils and foundation engineering.

Loading conditions and the finish floor elevation of the proposed building were not established at the time of reporting. Evaluations and recommendations in this report are based on buildings of comparable size along with similar existing and final site grade elevations. Geo-Tech should be informed once the abovementioned design parameters are finalized in order to review the efficacy of evaluations and recommendations in this report.

Geo-Tech appreciates the opportunity to provide our services for this project. Should you have any questions regarding the contents of this report or if we may be of further assistance, please do not hesitate to contact the undersigned.

Sincerely,

Grady N. Polk, E.I.
Staff Engineer
GNP/CAH

Craig A. Hampy, P.E.
Florida Registration No. 83240

Purposes
Purposes of this evaluation were to characterize subsurface soil conditions in the proposed building area and to provide geotechnical engineering site preparation recommendations to guide design and construction.

Site Description
The site is the existing Fire Station #7 property located at 885 SE 31st Street in Ocala, Florida. The site consisted of an existing building with associated pavement areas along with native vegetation at the time of drilling.

Field Exploration Program
Field exploration services for this geotechnical site evaluation consisted of the following:

- Five (5) standard penetration test (SPT) borings to depths of approximately twenty (20) feet below existing site grade in the proposed building area (ASTM D1586). SPT borings were performed on August 11, 2025.

Boring locations were determined in the field based on the Geotechnical Boring Exhibit plan provided by you dated June 20205 and are depicted on the Boring Location Map presented in Appendix II.

Sampling & Testing Descriptions

Gradation (-200) Testing
Gradation (-200) testing is used to determine the percentage of fine material in a soil sample by washing a soil sample over a seventy-five (75) µm (No. 200) sieve. Clay and other particles dispersed by washing, as well as water-soluble materials, are removed from the soil sample during testing. The loss in mass resulting from washing is calculated as mass percent of the original sample. This value is reported as the percentage of material finer than a seventy-five (75) µm (No. 200) sieve.

Standard Penetration Test (SPT) Boring
SPT borings were performed in accordance with ASTM D1586. This SPT boring method consists of a split-barrel sampler driven into the subsurface soils by a one hundred and forty (140) pound hammer falling thirty (30) inches. The number of blows required to drive the sampler one (1) foot, after seating six (6) inches, is the designated resistance or N-Value and is an index to soil strength and consistency.

Soil samples recovered during the performance of our SPT borings were visually classified in the field. Representative soil samples were placed in containers and transported to our laboratory for further analysis.

Findings

General subsurface conditions found in our borings are presented on the soil profiles in Appendix I. Horizontal lines depicted on the soil profiles designate approximate boundaries between soils.

Soils found in borings our generally consisted of very loose to medium dense fine sand, loose to medium dense clayey sand and stiff to very stiff slightly sandy clay to the depths drilled.

Groundwater was not found within ten (10) feet below existing site grade in our borings at the time of drilling.

Gradation (-200) Testing Results

Gradation (-200) testing was performed on representative soils samples retrieved from our borings. Testing results are noted on the soil profiles presented in Appendix I and in Table 1 below.

Table 1 Gradation (-200) Testing Results

Boring No.	Test Depth (feet)	Gradation (-200) (%)
SPT-3	3.0	16
SPT-4	3.0	26

Evaluations and Recommendations

Fine sand soils found in our borings appear to be suitable support soils for conventional foundation systems.

Shallow clayey sand soils found in our borings appear to be unsuitable support soils for conventional foundation systems. Clayey sand soils typically exhibit moderate shrink/swell behavior which can cause movement of above placed structures.

Groundwater may become perched above clayey soils after periods of prolonged rainfall and may influence near surface construction.

Recommendations

Geo-Tech recommends a monolithic thickened-edge slab or perimeter footing foundation system with a minimum separation of two (2) feet between the bottoms of footings/floor slabs and unsuitable clayey soils. We refer you to the Recommended Separation detail presented in Appendix II.

Suitable options to attain the aforementioned separation are as follows:

Option 1: Excavate unsuitable clayey soils and backfill the excavation in accordance with the Structural Fill Material and Compaction of Structural Fill Material sections of

this report. Excavation operations should also extend a minimum of two (2) feet beyond each side of the footing.

The excavation should be controlled to avoid creating a "bathtub effect" that traps water. The excavation bottom should be graded to drain to a positive gravity outfall. If a positive gravity outfall is not feasible, an underdrain should be placed in the excavation bottom to drain stormwater away from the foundation system.

Option 2: Raise the existing site grade in accordance with the Structural Fill Material and Compaction of Structural Fill Material sections of this report. Stripping, grubbing and proof-rolling should be performed in accordance with the General Site Preparation Recommendations section of this report prior to placing structural fill material.

Option 3: Combine Options 1 and 2.

Geo-Tech should be notified to confirm the excavation depth, underdrain installation (if needed), backfill soil compaction and foundation placement within the excavation boundaries when excavating to attain the recommended separation.

General Building Site Preparation Recommendations

Stripping and Grubbing

The proposed building area plus an additional ten (10) foot horizontal margin should be stripped of existing vegetation, debris and/or deleterious materials. Expect stripping and grubbing depths to range between approximately eight (8) to twelve (12) inches. Deeper stripping and grubbing may be necessary in heavily vegetated areas where major root systems are found. Actual stripping and grubbing depths should be determined in the field during the earthwork phase of construction.

Proof-Rolling

Proof-rolling the cleared surface or excavation is recommended to increase density of the upper two (2) feet of in situ sand soils [soils with less than twenty-five (25) percent passing a No. 200 sieve] to at least ninety-five (95) percent of the maximum density as determined by the modified proctor test method (ASTM D1557) maximum dry density value, to verify unsuitable soils [soils with greater than twenty-five (25) percent passing a No. 200 sieve] are unyielding and to prepare for the addition of structural fill material (if required). Vibratory compaction equipment should not be used within one hundred (100) feet of neighboring structures.

Proof-rolling should consist of at least ten (10) passes of a self-propelled static compactor. Each compactor pass should overlap the preceding pass by a minimum of thirty (30) percent to ensure coverage. Please note that continuous yielding indicates unsuitable material and may require unsuitable material removal and replacement in accordance with the Structural Fill Material and Compaction of Structural Fill Material sections of this report.

Structural Fill Material

Structural fill material should be free of deleterious materials including roots and/or vegetation. Geo-Tech recommends utilizing sand soils with between three (3) to twelve (12) percent by dry weight of material passing a U.S. Standard No. 200 sieve. All structural fill material should be pre-qualified prior to importing and placing.

Fine sand soils found in our borings should meet structural fill material requirements. Clayey soils are typically not used for structural fill material due to their inherent moisture retention and natural weight which makes compaction requirements difficult to achieve. Clayey soils can be utilized for non-structural grading as desired.

Compaction of Structural Fill Material

Structural fill material should be placed in level lifts no greater than twelve (12) inches thick (uncompacted). Lift thicknesses should be reduced to six (6) inches if hand-held compaction equipment is utilized. Each lift should be compacted to at least ninety-eight (98) percent of the maximum density as determined by the Modified Proctor Test Method (ASTM D1557) maximum dry density value. Filling and compaction operations should continue in lifts until the desired elevation is attained.

Foundation Support

Foundations may be placed on compacted engineered structural fill material. Footings for the foundation system may be designed for maximum allowable soils contact pressures of two thousand five hundred (2,500) pounds per square foot. Exterior footings should be embedded at least twenty-four (24) inches below the lowest adjacent grade. Interior footings should be embedded a minimum of eighteen (18) inches below the lowest adjacent grade.

Moisture entry should be minimized with an impervious membrane placed between soils and floor slabs. A polyethylene film (six [6] mil) is commonly utilized for this purpose. Care should be used so the membrane is not punctured when placing reinforcing steel (or mesh) and concrete.

Quality Control

Geo-Tech recommends establishing a comprehensive quality control program to ensure site preparation and foundation construction operations are performed in accordance with the plans and specifications. Materials testing and inspection services should be provided by Geo-Tech.

An engineering technician should be on-site to monitor stripping and grubbing operations in order to verify deleterious material removal. In addition, density testing should be performed below all footings and floor slabs during backfill operations to ensure required compaction. Field density values should be compared to laboratory proctor moisture-density results for each natural soil and structural fill material encountered.

Geotechnical engineering design is an ongoing process throughout construction. Geo-Tech is most qualified to address problems that might arise during construction in a timely and cost-effective manner due to our familiarity with the site conditions.

Closure/General Qualifications

This report was prepared to assist various professionals in the building foundation system design for this project. The scope of this report is limited to this specific project. Geo-Tech should be informed of any project changes so our evaluations and recommendations can be reviewed. Earthwork and foundation construction operations should be reviewed by our engineer to assess fulfillment of the design requirements.

Evaluations and recommendations submitted in this report are based on our findings from the soil borings performed. Soil, limestone and groundwater conditions may vary between boring locations. These variations were not taken into consideration for this report. However, variations may become evident during the construction. Geo-Tech should be informed if variations are encountered during construction so our evaluations and recommendations can be reviewed.

APPENDIX I

SOIL PROFILES

Log of Borehole: SPT-1

Project: STORAGE BUILDING, FIRE STATION #7, SE 31ST ST, OCALA
Project No: 25-1729.132.1
Boring Location: (SEE BORING LOCATION MAP)
Engineer: CAH
Client: KIMLEY-HORN
Enclosure: BORING MAP

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ENGINEERING CONSULTANTS
1016 SE 3rd Avenue
Ocala, Florida
352.694.7711
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Depth (ft)	Description	Consistency	Depth/Elev.	Number	Type	Blows/ft	Standard Penetration Test N-Values
0	Ground Surface		0.0				
1	**FINE SAND** BROWN FINE SAND (SP)	VERY LOOSE		1		2	2
3		LOOSE	4.0	2		8	8
5	**CLAYEY SAND** YELLOWISH BROWN CLAYEY SAND (SC)	LOOSE	6.0	3		9	9
7	**SLIGHTLY SANDY CLAY** GRAY AND YELLOWISH BROWN SLIGHTLY SANDY CLAY (CH)	STIFF	8.0	4		12	12
9	**CLAYEY SAND** YELLOWISH BROWN AND GRAY CLAYEY SAND (SC)	MEDIUM DENSE		5		14	14
13			13.5				
14	**SLIGHTLY SANDY CLAY** GRAY AND YELLOWISH BROWN SLIGHTLY SANDY CLAY (CH)	STIFF		6		12	12
19		STIFF	20.0	7		15	15
20	End of Borehole						

Groundwater Depth: GREATER THAN 10.0 FEET
Drill Date: AUGUST 11, 2025
Drilled By: CS/NA
Drill Method: ASTM D1586

Remarks: UNIFIED SOIL CLASSIFICATION SYMBOL AS DETERMINED BY VISUAL REVIEW

Log of Borehole: SPT-2

Project: STORAGE BUILDING, FIRE STATION #7, SE 31ST ST, OCALA
Project No: 25-1729.132.1
Boring Location: (SEE BORING LOCATION MAP)
Engineer: CAH
Client: KIMLEY-HORN
Enclosure: BORING MAP

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Depth (ft)	Description	Consistency	Depth/Elev.	Number	Type	Blows/ft	Standard Penetration Test N-Values
0	Ground Surface		0.0				
1	**FINE SAND** BROWN FINE SAND (SP)	LOOSE		1		9	9
3		LOOSE		2		9	9
5		LOOSE	6.0	3		8	8
6	**CLAYEY SAND** YELLOWISH BROWN AND GRAY CLAYEY SAND (SC)	LOOSE		4		4	4
9		LOOSE		5		9	9
14		MEDIUM DENSE		6		11	11
18			18.5				
19	**SLIGHTLY SANDY CLAY** GRAY AND YELLOWISH BROWN SLIGHTLY SANDY CLAY (CH)	VERY STIFF		7		18	18
20			20.0				
20	End of Borehole						

Groundwater Depth: GREATER THAN 10.0 FEET
Drill Date: AUGUST 11, 2025
Drilled By: CS/NA
Drill Method: ASTM D1586

Remarks: UNIFIED SOIL CLASSIFICATION SYMBOL AS DETERMINED BY VISUAL REVIEW

Log of Borehole: SPT-3

Project: STORAGE BUILDING, FIRE STATION #7, SE 31ST ST, OCALA
Project No: 25-1729.132.1
Boring Location: (SEE BORING LOCATION MAP)
Engineer: CAH
Client: KIMLEY-HORN
Enclosure: BORING MAP

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Depth (ft)	Symbol	Description	Consistency	Depth/Elev.	Number	Type	Blows/ft	Standard Penetration Test N-Values
0		Ground Surface		0.0				
1		**FINE SAND** BROWN FINE SAND (SP)	LOOSE		1		8	8
2				2.0				
3		**CLAYEY SAND** YELLOWISH BROWN CLAYEY SAND (SC)	MEDIUM DENSE		2		18	18
4		% PASS -200 AT APPROX. 3.0 FEET = 16						
5			MEDIUM DENSE		3		12	12
6								
7			LOOSE		4		6	6
8								
9			LOOSE		5		7	7
10								
11								
12								
13								
14			MEDIUM DENSE		6		17	17
15								
16								
17								
18								
19			MEDIUM DENSE		7		29	29
20		End of Borehole		20.0				
21								
22								

Groundwater Depth: GREATER THAN 10.0 FEET
Drill Date: AUGUST 11, 2025
Drilled By: CS/NA
Drill Method: ASTM D1586

Remarks: UNIFIED SOIL CLASSIFICATION SYMBOL AS DETERMINED BY VISUAL REVIEW

Log of Borehole: SPT-4

Project: STORAGE BUILDING, FIRE STATION #7, SE 31ST ST, OCALA
Project No: 25-1729.132.1
Boring Location: (SEE BORING LOCATION MAP)
Engineer: CAH
Client: KIMLEY-HORN
Enclosure: BORING MAP

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Depth (ft)	Description	Consistency	Depth/Elev.	Number	Type	Blows/ft	Standard Penetration Test N-Values
0	Ground Surface		0.0				
0–8	**CLAYEY SAND** YELLOWISH BROWN CLAYEY SAND (SC)	LOOSE		1		6	6
	% PASS -200 AT APPROX. 3.0 FEET = 26	MEDIUM DENSE		2		12	12
		MEDIUM DENSE		3		13	13
		LOOSE		4		7	7
8–13.5	**SLIGHTLY SANDY CLAY** GRAY AND YELLOWISH BROWN SLIGHTLY SANDY CLAY (CH)	STIFF	8.0	5		9	9
13.5–18.5	**CLAYEY SAND** YELLOWISH BROWN AND GRAY CLAYEY SAND (SC)	MEDIUM DENSE	13.5	6		14	14
18.5–20	**SLIGHTLY SANDY CLAY** GRAY AND YELLOWISH BROWN SLIGHTLY SANDY CLAY (CH)	VERY STIFF	18.5	7		16	16
20	End of Borehole		20.0				

Groundwater Depth: GREATER THAN 10.0 FEET
Drill Date: AUGUST 11, 2025
Drilled By: CS/NA
Drill Method: ASTM D1586

Remarks: UNIFIED SOIL CLASSIFICATION SYMBOL AS DETERMINED BY VISUAL REVIEW

Log of Borehole: SPT-5

Project: STORAGE BUILDING, FIRE STATION #7, SE 31ST ST, OCALA
Project No: 25-1729.132.1
Boring Location: (SEE BORING LOCATION MAP)
Engineer: CAH
Client: KIMLEY-HORN
Enclosure: BORING MAP

GEO-TECH, INC.
ENGINEERING CONSULTANTS
1016 SE 3rd Avenue
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Depth (ft)	Description	Consistency	Depth/Elev.	Number	Type	Blows/ft	Standard Penetration Test N-Values
0	Ground Surface		0.0				
1	**FINE SAND** BROWN FINE SAND (SP)	MEDIUM DENSE		1		15	15
3		LOOSE		2		7	7
5		LOOSE		3		4	4
6			6.0				
7	**CLAYEY SAND** YELLOWISH BROWN CLAYEY SAND (SC)	LOOSE		4		4	4
9		LOOSE		5		7	7
14		MEDIUM DENSE		6		16	16
19		MEDIUM DENSE		7		18	18
20	End of Borehole		20.0				

Groundwater Depth: GREATER THAN 10.0 FEET
Drill Date: AUGUST 11, 2025
Drilled By: CS/NA
Drill Method: ASTM D1586

Remarks: UNIFIED SOIL CLASSIFICATION SYMBOL AS DETERMINED BY VISUAL REVIEW

APPENDIX II

BORING LOCATION MAP

GEO-TECH, INC.
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■CONSTRUCTION MATERIALS TESTING ■GEOPHYSICAL EXPLORATION
1016 SE 3rd AVENUE, OCALA, FLORIDA 34471 ~ (352) 694-7711

KIMLEY-HORN
PROPOSED STORAGE BUILDING, FIRE STATION #7
885 SE 31ST STREET
OCALA, FLORIDA

BORING LOCATION MAP

PROJECT NO.
25-1729.132.1

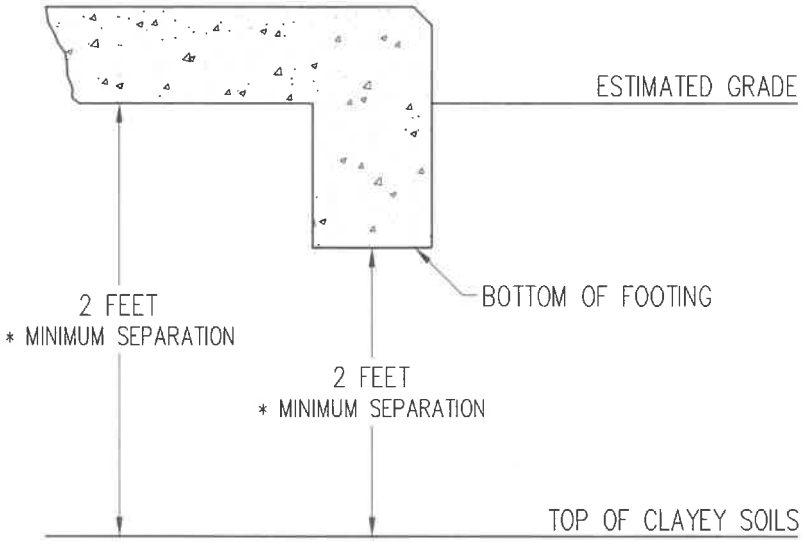
SCALE: N.T.S.

DATE: 8-12-25

FIGURE: 1

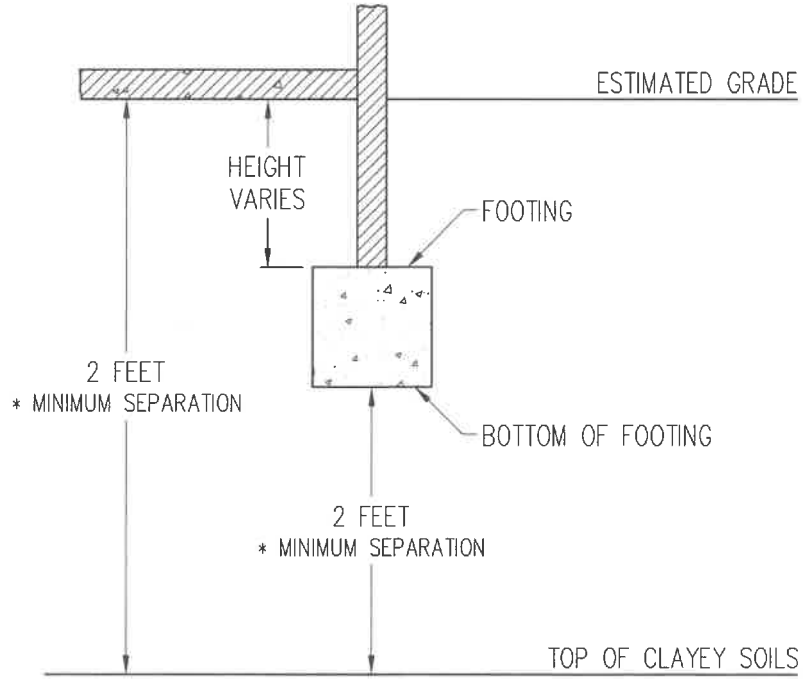
APPENDIX III

RECOMMENDED SEPARATION DETAIL



MONOLITHIC FOOTING DETAIL

NOT TO SCALE



STEM WALL FOOTING DETAIL

NOT TO SCALE

* MAY VARY DEPENDING UPON CONSTRUCTION TECHNIQUE

RECOMMENDED SEPARATION

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■CONSTRUCTION MATERIALS TESTING ■GEOPHYSICAL EXPLORATION
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Figure 2