Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

AAI File No. 15-1694
August 3, 2015

Opportunity, Inc. of Palm Beach County
1713 Quail Drive
West Palm Beach, Florida 33409

Attention: Ali Eger

**SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
PROPOSED DAYCARE PROJECT
WEST PALM BEACH, FLORIDA**

1.0 INTRODUCTION

In accordance with your request and authorization, Ardaman & Associates, Inc. has completed a subsurface exploration and geotechnical engineering evaluation for the above referenced project. We explored the general subsurface conditions in order to evaluate their suitability for the support of the proposed construction, to obtain a measure of pertinent engineering properties of subsurface materials, and to provide recommendations for site preparation and foundation design. Our work included Standard Penetration Test (SPT) borings, a field permeability test and engineering analyses. This report describes our explorations, reports their findings, and summarizes our conclusions and recommendations.

2.0 SITE LOCATION AND DESCRIPTION

The site is part of five properties (including 1820, 1832 & 1852 Donnell Road and 4131 & 4171 Westgate Avenue) located in Section 25, Township 43 South, and Range 42 East in West Palm Beach, Palm Beach County, Florida. A site vicinity map is presented as our Figure 1.

3.0 PROJECT DESCRIPTION

A plan showing an aerial view of the connected properties and the boring locations has been reproduced as our Figure 2 – Boring Location Plan. We understand that it is proposed to build an 18,000 square feet, 2-story preschool structure with associated asphalt parking lot. We expect the proposed structure to have a combination of weight-bearing masonry walls and isolated columns, with maximum wall loads on the order of 4 to 6 kips per lineal foot and maximum column loads on the order of 80 kips.

4.0 FIELD EXPLORATION

4.1 SOIL BORINGS

To explore subsurface conditions at the site, four (4) Standard Penetration Test (SPT) borings were performed at the approximate locations shown on Figure 2. The SPT borings were terminated at depths of 15 feet below the existing grades. The soil borings were performed in general accordance with the procedures outlined in ASTM D-1586 (SPT borings). The boring logs and a description of our drilling and testing procedures are attached.

4.2 FIELD PERMEABILITY TEST

In order to estimate the hydraulic conductivity of the upper soils, two (2) field permeability tests was performed at the approximate location shown in Figure 2. This test was conducted in general accordance with the usual open-hole exfiltration test method described in the South Florida Water Management District (SFWMD) Permit Information Manual, Volume IV. Descriptions of the soils observed in the test boreholes and the test results are presented in the attached field permeability test logs. In brief, the exfiltration tests yielded hydraulic conductivities of 4.62×10^{-4} cfs/sqf - ft head (E-1) and 6.03×10^{-4} cfs/sqf - ft head (E-2).

4.3 GENERAL

Our field exploration was conducted on July 28 and 30, 2015. The boring and test locations were laid out in the field in reference to the property boundaries and existing site features. We estimate that the actual boring locations are within approximately 10 feet of the locations shown in Figure 2.

5.0 LABORATORY TESTING

Our drillers examined the soils recovered from the SPT sampler, placed the recovered soil samples in moisture proof containers, and maintained a log for each boring. The field soil boring logs and recovered soil samples were transported to our West Palm Beach soils laboratory from the project site. Each soil sample was then examined by an Engineer and visually classified in general accordance with the Unified Soil Classification System (USCS).

6.0 GENERAL SUBSURFACE CONDITIONS

The attached boring logs present a detailed description of the soils encountered at the locations and the depths explored. The soil stratification shown on the boring logs is based on examination of recovered soil samples and interpretation of the driller's field logs. It indicates only the approximate boundaries between soil types. The actual transitions between adjacent soil strata may be gradual and indistinct.

As shown in the boring logs, the soils in the explored locations generally consisted of 3 to 4 feet of loose, gray to brownish gray to light brown sands with traces of fine roots and occasional traces of fine shell fragments, overlying very loose to loose, light brown to reddish brown to dark brown sands with trace to little silt and trace fine roots to depths of approximately 3 to 7 feet. Very loose to loose, light brown to gray sands were then encountered to depths of 10 to 13 feet, and were followed by loose, gray sands with occasional fine shell fragments to the termination depth of our borings at 15 feet.

6.1 USDA SOIL SURVEY

Our review of the Soil Survey of Palm Beach County, Florida, which was issued by the U.S. Department of Agriculture, Soil Conservation Service in 1978, indicates Basinger and Myakka sands, depressional are the predominant surficial soil type in the general site vicinity. These soils are described as nearly level, very poorly drained, sandy soils that have lighter colored surface soils underlain by grayish brown and reddish brown subsoils. A pale brown sand is generally encountered below the reddish brown subsoil. The soils encountered in our borings compared fairly well with those described in the USDA Soil Survey.

7.0 GROUNDWATER CONDITIONS

Our drillers observed groundwater in the boreholes at depths of approximately 4½ to 6 feet below the ground surface, as noted on the boring logs. Fluctuations in groundwater level on this site should be anticipated throughout the year due to a variety of factors, the most important of which is recharge from rainfall. We expect that groundwater conditions are controlled by rainfall events. Groundwater levels somewhat above the present levels should be expected after periods of heavy rains.

8.0 DISCUSSIONS AND RECOMMENDATIONS

8.1 GENERAL

Based on the findings of our site exploration and our evaluation of the encountered subsurface conditions, we conclude that the soils underlying this site are generally satisfactory to support the proposed construction on conventional spread foundations. However, in our opinion, the bearing capacity of the loose near-surface sands should be improved in order to reduce the risk of unsatisfactory foundation performance. The general soil improvement we recommend can be accomplished simply by proofrolling the site with a vibratory roller. Following are specific recommendations for site preparation procedures and the design of foundation systems.

The site preparation contractor should closely monitor the ground vibrations produced by the operation of the vibratory roller to minimize the risk of structural damage to any nearby adjacent structures and avoid creating excessive nuisance. A seismograph with a suitable indicator range should be arranged along the edge of the nearest structure to ensure that ground vibrations do not reach objectionable levels. We remain available to assist you in the planning and implementation of a suitable vibration monitoring program if deemed necessary.

8.2 SITE PREPARATION RECOMMENDATIONS

8.2.1 Clearing

The construction areas within lines five feet outside the building perimeters should be cleared, grubbed and stripped of all surface vegetation, trash, debris and topsoil. Stumps should be removed entirely. Remnants of old foundations, septic systems including their drainfields and underground utility lines, if any, should be removed from within the construction areas and their excavations/depressions backfilled with approved granular fill placed and compacted in thin lifts as recommended below.

8.2.2 Proofrolling and Placement of Fill

The cleared areas should be proofrolled with a minimum of a light (4 to 6 ton) vibratory roller. Any soft, yielding soils detected during the proofrolling operations should be excavated and replaced with approved fill conforming to the specifications below. Sufficient passes should be made during the proofrolling operations to produce minimum dry densities of 98 percent of the Modified Proctor (ASTM D-1557) maximum dry density value of the compacted subgrade soils to depths of 2 feet below the compacted surface. The proofrolled areas should receive not less than 10 overlapping passes, half of them in each of two perpendicular directions.

After the exposed surface has been proofrolled and tested to verify that the desired dry density has been obtained, the construction areas may be filled to the desired grades. All fill material should conform to the specifications below. It should be placed in uniform layers, not exceeding 12 inches in loose thickness, individually compacted with a heavy vibratory roller to a minimum dry density of 98 percent of the Modified Proctor maximum dry density value of the fill material.

8.2.3 Final Compaction

Note that after completion of the general site preparation, when excavations for the construction of foundations are made through the compacted soils, the bottom of the foundation excavations should be compacted to densify soils loosened during or after the excavation process and washed or sloughed into the excavation prior to the placement of forms. A vibratory rammer or plate compactor should be used for this final compaction, immediately prior to the placement of reinforcing steel, with previously described minimum dry density requirements to be maintained below the foundation level.

After the foundations are cast and the forms are removed, backfill around the foundations should be placed in thin lifts, six inches or less in loose thickness, individually compacted with a heavy-duty vibratory rammer or vibratory plate compactor to a minimum dry density of 98 percent of the Modified Proctor maximum dry density value of the backfill material.

8.2.4 Fill Material Specifications

All fill material under the buildings and pavement should consist of clean sands or fragmented limerock, free of organics and other deleterious materials. The fill material should have not more than eight percent by dry weight passing the U.S. No. 200 sieve and no particle larger than 3 inches in diameter. All structural fill should comply with the specifications given herein.

8.2.5 Additional Recommendations

Care must be exercised prior to, during and after construction to prevent erosion effects or undermining of foundations. The integrity of the raised building "pad" must hence be maintained for a distance of at least five feet beyond the foundation levels, with gutters disposing of rainfall runoff beyond the pad limits.

Foundation concrete should not be cast over a foundation surface containing topsoil or organic soils, trash of any kind, surface made muddy by rainfall runoff, or groundwater rise, or loose soil caused by excavation or other construction work. Reinforcing steel should also be clean at the time of concrete casting. If such conditions develop during construction, the reinforcing steel must be lifted out and the foundation surface reconditioned and approved by the Foundation Engineer.

8.3 FOUNDATIONS

After the foundation soils have been prepared in accordance with the above site preparation recommendations, the site should be suitable for supporting the proposed structures on conventional shallow foundations proportioned for a maximum allowable bearing stress of 2,500 pounds per square foot (psf). Continuous foundations should be at least 18 inches wide, and individual column footings should have a minimum width of 24 inches; all foundations should bear at least 18 inches below adjacent finish grades. We recommend that attention be given to the apparent groundwater level when deciding on the elevation of the bottom of the foundations so as to reduce construction difficulties.

8.3.1 Bearing Capacity and Settlements

Based upon the boring information and the assumed loading conditions, we estimate that the recommended allowable bearing stress will provide a minimum factor of safety in excess of two against bearing capacity failure. With the site prepared and the foundations designed and constructed as recommended, we anticipate total settlements of one inch or less, and differential settlement between adjacent similarly loaded footings of less than one half of an inch. Because of the granular nature of the subsurface soils, the majority of the settlements should occur during construction. For design purposes, we recommend using a subgrade reaction modulus of 150 pounds per cubic inch (pci) for the well compacted shallow sands.

8.3.2 Slab-On-Grade

After the site is prepared in accordance with the recommendations provided herein, the floor slab can be placed directly on the compacted subgrade. In our opinion, a highly porous base material is not necessary. We recommend the use of a polyolefin film vapor barrier with a minimum thickness of 10 mils.

We recommend isolating the ground floor slab from column and wall foundations. If a "monolithic" slab foundation system is nevertheless desired, we would recommend additional tamping of the foundation excavation bottoms, and if possible, the centering of walls over the thickened slab edge.

Care must be exercised in installing control joints shortly after placing the concrete, and in placing and maintaining the steel reinforcement at its designated elevation within the floor slab.

8.4 QUALITY CONTROL

In order to verify the contractor's compliance with the above recommendations, all site preparation procedures should be inspected and tested by Ardaman & Associates, Inc. For your convenience, please contact our office a few days prior to the commencement of the site preparation procedures so that we can obtain subgrade soils samples for the performance of laboratory compaction tests. This will allow for the Modified Proctor maximum dry density and optimum moisture content values to be available at the time of the initial proofrolling and density testing.

We recommend that Ardaman & Associates, Inc. inspect all footing excavations in order to verify that footing bearing conditions are consistent with expectations.

9.0 CLOSURE

This report has been prepared specifically for subject project. It is intended for the exclusive use of Opportunity, Inc. of Palm Beach County and their representatives. Our work has used methods and procedures consistent with local foundation engineering practices. No other warranty, expressed or implied, is made. We do not guarantee project performance in any respect, only that our work meets normal standards of professional care. Environmental concerns, including (but not limited to) the possibility that hazardous materials or petroleum-contaminated soils or groundwater may be present on the subject site, were not included in the scope of work. The recommendations submitted in this report are based on the data obtained from our exploration program and our understanding of the proposed construction and loading conditions as described herein. This report may not account for any variations that may exist between conditions observed in the borings and conditions at locations that were not explored. The nature and extent of any

such variations may not become evident until construction is underway. If variations are then observed, we should be requested to review the conclusions and recommendations in this report.

In the event any changes occur in the design, nature or location of any project facilities, we should be requested to review the conclusions and recommendations in this report. We also recommend that we be requested to review the final foundation drawings and earthwork specifications so that our recommendations may be properly interpreted and implemented in the contract documents.

It has been a pleasure to assist you on this phase of your project. Please contact us whenever we may be of service to you, and please call if you have any questions concerning this report.

ARDAMAN & ASSOCIATES, INC.
FL. Certificate of Authorization No. 5950

8/3/15

Kevin Ferguson, P.E.
Geotechnical Engineer
Fla. Reg. No. 60712

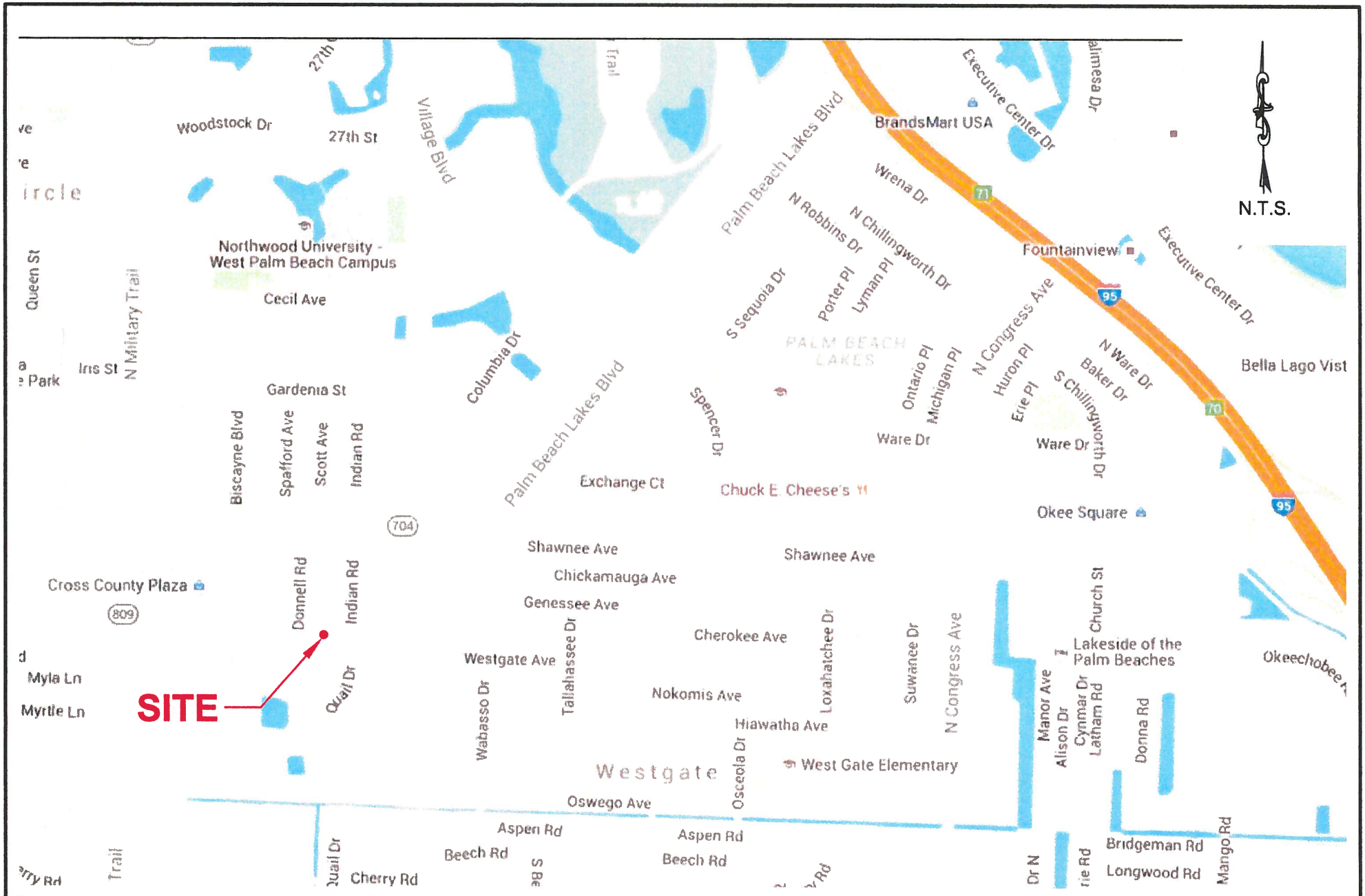
8/3/15

ANDREW NIXON LICENSE No. 71458 STATE OF FLORIDA PROFESSIONAL ENGINEER

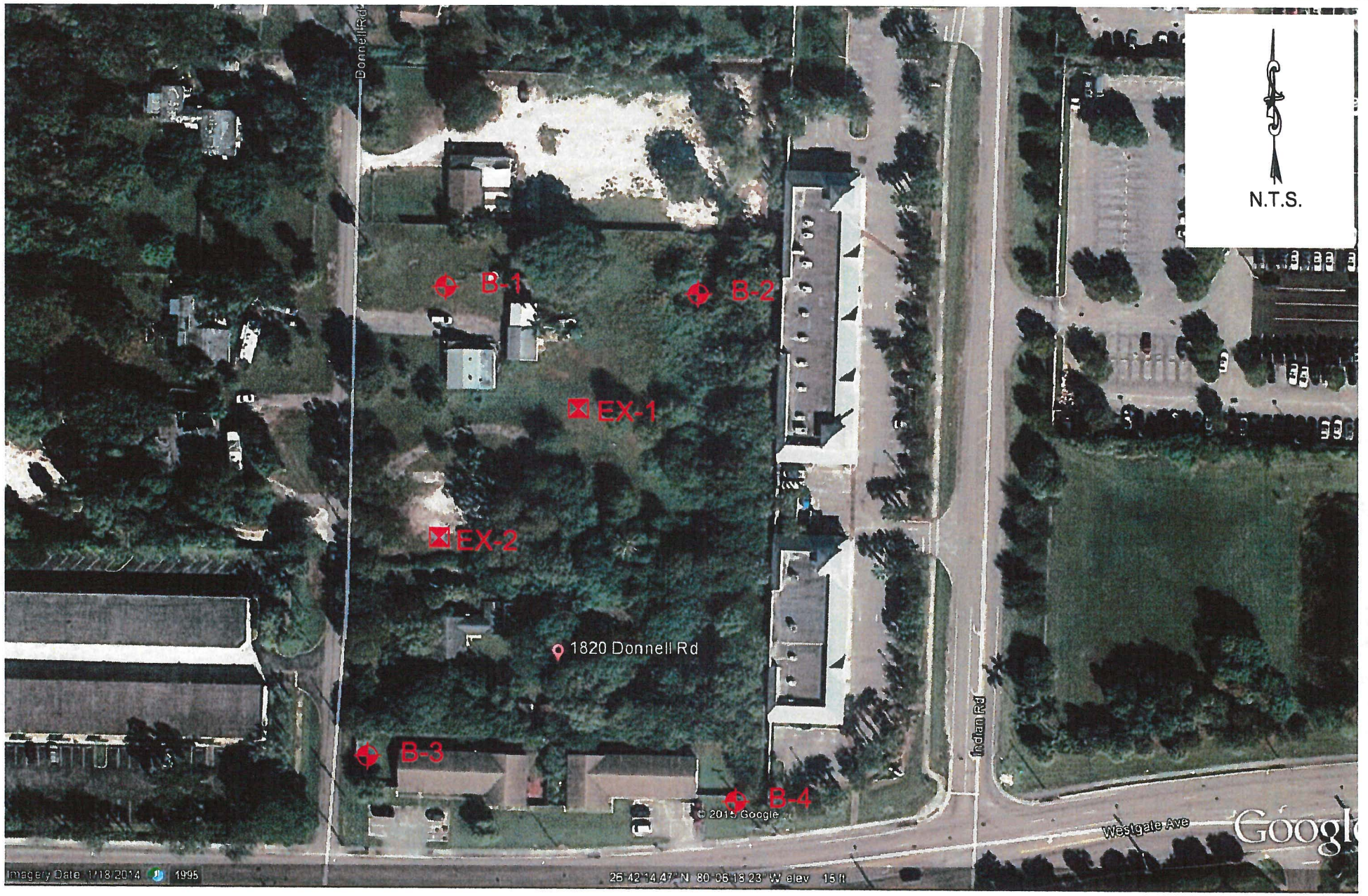
Andrew J. Nixon, P.E.
Project Engineer
Fla. Reg. No. 71458

Attachments: Site Vicinity Map - Figure 1, Test Location Plan - Figure 2, Subsurface Exploration Information, SPT Boring Logs (4), Field Permeability Test Log (1)

KF/AJN: kf



Ardaman & Associates, Inc. Geotechnical, Environmental & Materials Consultants 2200 N. Florida Mango Road, Suite 101 West Palm Beach, Florida 33409 Phone: (561) 687 8200 / Fax: (561) 640 7375	SUBSURFACE EXPLORATION PROPOSED DAYCARE PROJECT WEST PALM BEACH, FLORIDA	SITE VICINITY MAP Figure No. 1	File No.: 15-1694 Prepared By: KF Date: 08/03/15



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SUBSURFACE EXPLORATION
PROPOSED DAYCARE PROJECT
WEST PALM BEACH, FLORIDA

BORING LOCATION PLAN

Figure No. 2

File No.:	15-1694
Prepared By:	KF
Date:	08/03/15

Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

SUBSURFACE EXPLORATION INFORMATION

GENERAL

Our borings describe subsurface conditions only at the locations drilled and at the time drilled. They provide no information about subsurface conditions below the bottom of the boreholes. At locations not explored, surface conditions that differ from those observed in the borings may exist and should be anticipated.

The information reported on our boring logs is based on our drillers' logs and on visual examination in our laboratory of disturbed soil samples recovered from the borings. The distinction shown on the logs between soil types is approximate only. The actual transition from one soil to another may be gradual and indistinct.

The groundwater depth shown on our boring logs is the water level the driller observed in the borehole when it was drilled. These water levels may have been influenced by the drilling procedures, especially in borings made by rotary drilling with bentonitic drilling mud. An accurate determination of groundwater level requires long-term observation of suitable monitoring wells. Fluctuations in groundwater levels throughout the year should be anticipated.

The absence of a groundwater level on certain logs indicates that no groundwater data is available. It does not mean that no groundwater will be encountered at that boring location.

STANDARD PENETRATION TEST BORINGS

The Standard Penetration Test is a widely accepted method of testing foundation soils in place. The N-Value obtained from the test has been correlated empirically with various soil properties. These empirical correlations allow satisfactory estimates to be made of how the soil is likely to behave when subjected to foundation loads. Tests are usually performed in the boreholes at intervals of five feet. In addition, our Firm performs tests continuously in the interval directly below the expected foundation bearing grade where the soil will be most highly stressed.

Boreholes where Standard Penetration Tests will be performed are drilled with a truck-mounted drilling rig. The boreholes are advanced by rotary drilling with a winged bit that makes a hole about three inches in diameter. A bentonitic drilling mud is recirculated in order to remove the cuttings and support the walls of the borehole. The drag bit is specially modified to direct the mud upward and reduce disturbance of the soil ahead of the bit. If access is not available for our truck-mounted drilling equipment, portable tripod drilling equipment can be used instead.

Occasionally, running or squeezing ground is encountered that cannot be stabilized by the drilling mud alone. In addition, drilling mud may be lost into the soil or rock strata that are unusually pervious. In such cases, flush-joint steel casing with an outside diameter of about 3.5 inches is driven as a liner for the borehole.

After the borehole has been advanced to the depth where a Standard Penetration Test will be performed, the soil sampler used to run the test is attached to the end of the drill rods and lowered to the bottom of the borehole. The testing procedure used conforms closely to the methods recommended in ASTM D-1586. The sampler used has a split-barrel 24 inches long and an outside diameter of 2.0 inches. It is driven into the ground below the bottom of the borehole using a hammer that weighs 140 pounds and falls 30 inches. The driller records the number of hammer blows needed to advance the sampler in successive increments of six inches. The total number of blows required to advance the sampler the second and third six-inch increments constitutes the test result; that is, the N-value at the depth. The test is completed after the sampler has been driven not more than 24 inches or when refusal is encountered, whichever occurs first. Refusal occurs when 50 hammer blows advance the sampler less than 6 inches. After the test is completed, the sampler is removed from the borehole and opened.

The drillers examines and classifies the soil recovered by the sampler, place representative soil specimens from each test in glass jars or plastic bags and take them to our laboratory. In the laboratory, additional evaluations and tests are performed, if needed. The driller's classifications may be adjusted, if necessary, to conform more closely with the Unified Soil Classification System (USCS). Jar samples are retained in our laboratory for sixty days, then discarded unless our clients request otherwise.

The following tables relate N-values to a qualitative description of the relative soil density.

	Description	SPT N Value
Cohesionless Soils	Very loose	0-4
	Loose	5-9
	Medium dense	10-29
	Dense	30-49
	Very dense	50+

	Description	SPT N Value
Cohesive Soils	Very soft	0-2
	Soft	3-4
	Medium stiff	5-8
	Stiff	9-15
	Very stiff	16-30
	Hard	31+

SFWMD EXFILTRATION TESTS

In order to estimate the hydraulic conductivity of the upper soils, constant head or falling head exfiltration tests can be performed. These tests are performed in accordance with methods described in the South Florida Water Management District (SFWMD) Permit Information Manual, Volume IV. In brief, a 6 to 9 inch diameter test hole is augered to the desired test depth (typically 6 feet), then a screen is lowered into the test hole, the depths of the test hole and groundwater level are recorded, then the surroundings of the test hole are saturated by pouring water into the screen as needed to maintain the water level in the test hole at the ground surface for 10 minutes.

If a constant head test is performed, the rate of pumping will be recorded at fixed intervals of 1 minute for a total of 10 minutes, following the saturation period.

If a falling head test is performed (typically for relatively high permeability soils), water is added until the water level reaches the ground surface. Then the water flow is stopped and the drop in water level for discrete time intervals is recorded until the water level in the test hole has dropped to at least half the distance to the groundwater table.

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-1

PROJECT: Proposed Daycare Project
West Palm Beach, FL

FILE No.: 15-1694

BORING LOCATION: As per plan

DRILL CREW: Centerline

WATER OBSERVED AT DEPTH 4.5 feet

DATE DRILLED: 7/30/2015

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE
0	3/6, 4/6, 6/6, 7/6	Light brown fine sand	1	10
	4/6, 5/6, 4/6, 3/6	Light brown fine sand with darker brown mottles	2	9
5	2/6, 1/6, 2/6, 2/6, 1/6, 2/6	Dark reddish brown sand trace fine roots	3	3
	2/6, 4/6, 3/6, 5/6, 5/6, 4/6	Gray fine sand, trace roots	4 5	4 10
10	2/6, 2/6, 3/6, 4/6	Gray sand trace fine shell fragments	6	5
15		End of boring at 15 feet		
20				
25				
30				

N VALUE: 5, 10, 15, 20, 25, 30, 35, 40, 45

NOTES:

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-2

PROJECT: Proposed Daycare Project
West Palm Beach, FL

FILE No.: 15-1694

BORING LOCATION: As per plan

DRILL CREW: Centerline

WATER OBSERVED AT DEPTH 4.5 feet

DATE DRILLED: 7/30/2015

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE
0	2/6, 3/6, 5/6, 5/6	Brownish gray fine sand, trace roots	1	8
5	3/6, 6/6, 5/6, 4/6, 2/6, 3/6, 3/6, 4/6	Light brown fine sand	2	11
			3	6
	4/6, 5/6, 5/6, 4/6	Light brownish gray fine sand	4	10
10	2/6, 2/6, 2/6, 2/6	Gray fine sand	5	4
	3/6, 3/6, 2/6, 3/6		6	5
15		End of boring at 15 feet		
20				
25				
30				

N VALUE: 5, 10, 15, 20, 25, 30, 35, 40, 45

NOTES:

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-3

PROJECT: Proposed Daycare Project
West Palm Beach, FL

FILE No.: 15-1694

BORING LOCATION: As per plan

DRILL CREW: Centerline

WATER OBSERVED AT DEPTH 4.5 feet

DATE DRILLED: 7/30/2015

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE
0	2/6 2/6 4/6 4/6	Gray fine sand	1	6
	2/6 5/6 4/6 5/6	Reddish brown to dark brown fine sand	2	9
5	2/6 2/6 2/6 2/6 3/6 4/6	Light brown fine sand	3	4
	3/6 3/6		4	7
	2/6 1/6 3/6 2/6	Gray fine sand	5	4
10				
	2/6 2/6 3/6 2/6		6	5
15		End of boring at 15 feet		
20				
25				
30				

N VALUE: 5 10 15 20 25 30 35 40 45

NOTES:

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-4

PROJECT: Proposed Daycare Project
West Palm Beach, FL

FILE No.: 15-1694

BORING LOCATION: As per plan

DRILL CREW: Centerline

WATER OBSERVED AT DEPTH 5.0 feet

DATE DRILLED: 7/30/2015

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE
0	1/6, 2/6, 5/6, 4/6	Gray fine sand, trace fine shell fragments	1	7
	3/6, 5/6, 5/6, 9/6			10
	5/6	Light brown fine sand	2	
5	4/6, 4/6, 4/6	Light brown fine sand, trace loosely cemented sand nodules	3	8
	3/6, 3/6, 4/6		4	7
	4/6	Gray fine sand	5	
10	2/6, 1/6, 2/6, 2/6			3
	3/6, 3/6, 3/6, 4/6		6	6
15		End of boring at 15 feet		
20				
25				
30				

N VALUE: 5, 10, 15, 20, 25, 30, 35, 40, 45

NOTES:

FIELD TEST DATA ARE "BLOWS"/"INCHES DRIVEN" **140-LB HAMMER, 30-INCH FALL.** **(ASTM D-1586)**

Ardaman & Associates, Inc.

FIELD PERMEABILITY TEST LOG
SFWMD USUAL OPEN-HOLE TEST
EX-1

PROJECT: Proposed Daycare Project
West Palm Beach, FL

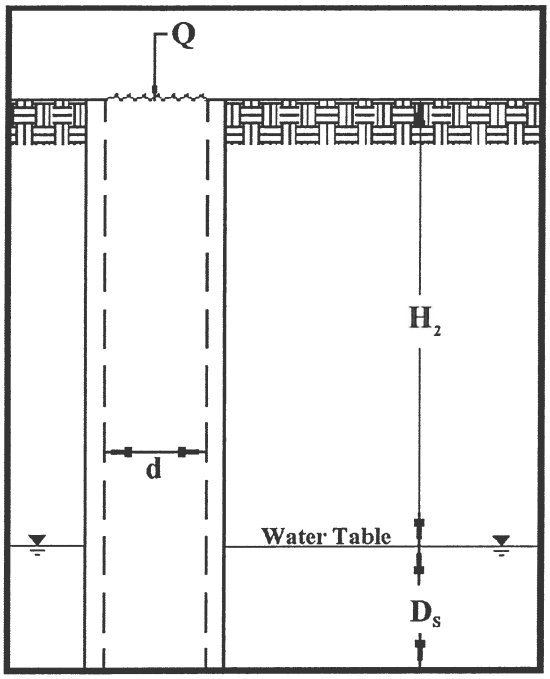
FILE No.: 15-1694

TEST LOCATION: As per plan

DRILL CREW: Centerline

GROUNDWATER OBSERVED AT DEPTH 6 feet

TEST DATE: 7/28/15



$$K = \frac{4Q}{\pi d(2H_2^2 + 4H_2 D_s + H_2 d)}$$

Q ["Stabilized" Flow Rate (cfs)] = 1.34×10^{-2}

K [Hydraulic Conductivity (cfs/sqf - ft head)] = 4.62 x 10^{-4}

d [Diameter of Test Hole (ft)] = 0.5

H_2 [Depth to Water Table (ft)] = 6

* D_s [Saturated Hole Depth (ft)] = 0

* By Groundwater

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0 1 2 3 4 5 6		Light brown fine sand	

NOTES: Boring terminated at 6 feet

Ardaman & Associates, Inc.

FIELD PERMEABILITY TEST LOG
SFWMD USUAL OPEN-HOLE TEST
EX-2

PROJECT: Proposed Daycare Project
West Palm Beach, FL

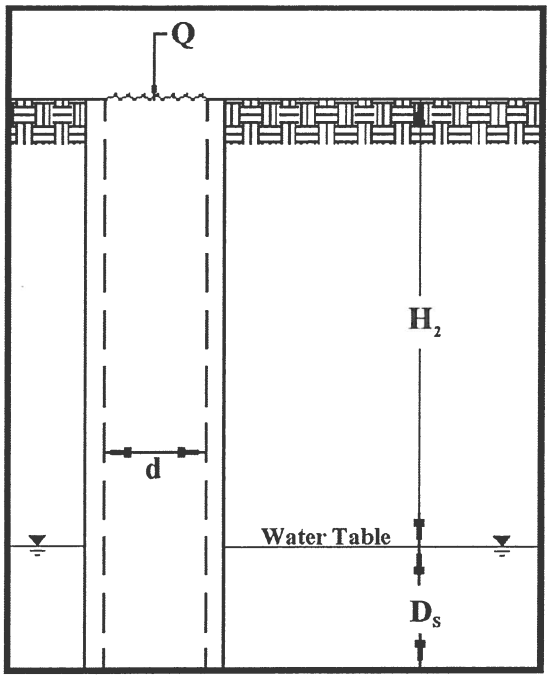
FILE No.: 15-1694

TEST LOCATION: As per plan

DRILL CREW: Centerline

GROUNDWATER OBSERVED AT DEPTH 6 feet

TEST DATE: 7/28/15



$$K = \frac{4Q}{\pi d(2H_2^2 + 4H_2 D_s + H_2 d)}$$

Q ["Stabilized" Flow Rate (cfs)] = 1.78×10^{-2}

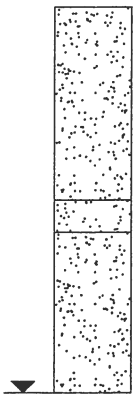
K [Hydraulic Conductivity (cfs/sqf - ft head)] = 6.03 x 10^{-4}

d [Diameter of Test Hole (ft)] = 0.5

H_2 [Depth to Water Table (ft)] = 6

* D_S [Saturated Hole Depth (ft)] = 0

* By Groundwater

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0 1 2 3 4 5 6		Light gray fine sand Dark brown fine sand Brown fine sand	

NOTES: Boring terminated at 6 feet