

**SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
ABC FINE WINE & SPIRITS - STORE #50
SUNRISE, FLORIDA**



Ardaman & Associates, Inc.

OFFICES

Orlando, 8008 S. Orange Avenue, Orlando, Florida 32809, Phone (407) 855-3860

Bartow, 1525 Centennial Drive, Bartow, Florida 33830, Phone (863) 533-0858

Cocoa, 1300 N. Cocoa Blvd., Cocoa, Florida 32922, Phone (321) 632-2503

Fort Myers, 9970 Bavaria Road, Fort Myers, Florida 33913, Phone (239) 768-6600

Miami, 2608 W. 84th Street, Hialeah, Florida 33016, Phone (305) 825-2683

Port Charlotte, 740 Tamiami Trail, Unit 3, Port Charlotte, Florida 33954, Phone (941) 624-3393

Port St. Lucie, 460 Concourse Place NW, Unit 1, Port St. Lucie, Florida 34986, Phone (772) 878-0072

Sarasota, 2500 Bee Ridge Road, Sarasota, Florida 34239, Phone (941) 922-3526

Tallahassee, 3175 West Tharpe Street, Tallahassee, Florida 32303, Phone (850) 576-6131

Tampa, 3925 Coconut Palm Drive, Suite 115, Tampa, Florida 33619, Phone (813) 620-3389

West Palm Beach, 2200 North Florida Mango Road, Suite 101, West Palm Beach, Florida 33409, Phone (561) 687-8200

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Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

File No. 06-2121
July 18, 2006

ABC Liquors, Inc.
Post Office Box 593688
Orlando, Florida 32859-3688

Attention: Ms. Phyllis Fitzpatrick

**SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
ABC FINE WINE & SPIRITS - STORE #50
SUNRISE, FLORIDA**

1.0 INTRODUCTION

In accordance with your request and authorization, Ardaman & Associates, Inc. has completed a subsurface exploration and geotechnical studies for the above referenced project. We explored the general subsurface conditions in order to evaluate their suitability for supporting 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, solid-stem auger borings, field permeability tests and engineering analyses. This report describes our explorations and tests, reports their findings, and summarizes our conclusions and recommendations.

Our report has been prepared specifically for this project. It is intended for the exclusive use of ABC Liquors, Inc. and its 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.

2.0 SITE LOCATION AND DESCRIPTION

The site is located on the southwest corner of North Flamingo Road and Pink Flamingo Lane (entrance to Sawgrass Mills Mall) in Sunrise, Broward County, Florida (Section 26, Township 49 South, and Range 40 East). A site vicinity map is presented as our Figure 1. The site is currently vacant and covered by sparse weeds.

3.0 PROJECT DESCRIPTION

We have examined a site plan prepared by DRMP, Inc. and dated June 2006. Details of this plan have been reproduced as our Boring Location Plan, Figure 2, which shows the proposed single-story retail building with associated parking/driveway areas and drainage features arranged on the site. 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 4-6 kips per lineal foot and maximum column loads on the order of 60-80 kips.

4.0 FIELD EXPLORATION

4.1 SOIL BORINGS

To explore subsurface conditions at the site, two (2) Standard Penetration Test (SPT) borings and eleven (11) solid-stem auger borings were performed at the locations shown on the Boring Location Plan, Figure 2. The SPT borings were completed at depths of 15 feet and the auger borings at depths of 10 feet below the existing ground surface. This work was performed on June 8 and June 23, 2006 in accordance with the procedures recommended in ASTM D-1586 (SPT borings) and ASTM D-1452 (auger borings). The boring logs and a description of our drilling and testing procedures are included in the Appendix.

4.2 EXFILTRATION TESTS

In order to estimate the hydraulic conductivity of the upper soils, two (2) constant head exfiltration tests were performed at the locations shown on Figure 2. These tests were performed in accordance with methods described in the South Florida Water Management District (SFWMD) Permit Information Manual, Volume IV. Descriptions of the soils observed in the exfiltration test boreholes and the test results are presented in the Appendix.

4.3 GENERAL

The boring and test locations were laid out by our field crew by tape measurements from the property boundaries. We estimate that the actual boring locations are within about 15 feet of the locations shown in Figure 2.

The soil samples recovered from our explorations will be kept in our laboratory for 60 days, then discarded unless you request otherwise.

5.0 LABORATORY TESTING

Our drillers examined the soil 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 a geotechnical engineer to determine their engineering classification. The visual classification of the samples was performed in accordance with the Unified Soil Classification System, USCS. The soil classifications and other pertinent data obtained from our explorations and laboratory examinations and tests are reported on the boring logs in the Appendix.

6.0 GENERAL SUBSURFACE CONDITIONS

The boring logs in the Appendix 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 by the boring logs in the Appendix, the soils on the site at the locations and the depths explored consist generally of moderately dense fine sand and fine sand with rock fragments from the existing ground surface to depths of approximately 4.5 to 6 feet, followed by moderately hard slightly silty, sandy, fragmented limestone reaching the termination depths of our borings at 10 to 15 feet. Our borings A-4, A-8 and A-11, performed near the center of the eastern perimeter of the proposed building area, encountered a layer of soft silt starting at depths of 3 to 5 feet and reaching depths of 7 feet. Our boring B-2, performed near the southwest corner of the proposed building area, encountered a layer of moderately dense fine sand starting at a depth of approximately 13 feet and reaching the termination depth of this boring at 15 feet.

7.0 GROUNDWATER CONDITIONS

Our drillers observed groundwater in the boreholes at depths that ranged from 3.5 to 4 feet below the ground surface, as noted on the boring logs in the Appendix. 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, our evaluation of subsurface conditions, and judgment based on our experience with similar projects, we conclude that the soils underlying the majority of 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 heavy vibratory roller.

As mentioned above, our borings A-4, A-8 and A-11, performed near the center of the eastern perimeter of the proposed building area, encountered a layer of soft, compressible silt starting at depths of 3 to 5 feet and reaching depths of 7 feet. These soft, compressible soil deposits should be removed from within the proposed building and pavement areas and replaced with well-compacted approved granular fill in order to minimize the potential of excessive foundation and pavement settlements due to the consolidation of the silt.

Following are specific recommendations for site preparation procedures and the design of foundation systems.

8.2 SITE PREPARATION RECOMMENDATIONS

8.2.1 Clearing

The building areas within lines five feet outside building perimeters, and the areas to be paved should be cleared, grubbed and stripped of all surface vegetation, trash, debris and topsoil.

8.2.2 Excavating/Backfilling

The building areas within lines 5 feet outside building perimeters and the areas to be paved should be excavated as needed to remove the soft, compressible silt deposits underlying portions of the site. The overburden soils above the silt may be stockpiled for possible later use as fill. Care must be exercised to avoid mixing the overburden soils with the excavated compressible silt. The unsuitable materials are to be disposed of away from the building areas as directed by the Owner.

In general, it is desired to complete the excavation and backfilling operations in as short a time as possible to avoid open excavations. Consideration should be given to proceeding with the excavation/backfilling operation in stages across the site so that no deep excavations remain open overnight. If the excavations reach areas near the property lines, the slope of the excavation may have to be protected with a bracing system. The contractor is to be responsible for the integrity of adjacent property, and for implementing all necessary safety measures.

Once the excavation has been inspected to verify that the unsuitable soils have been adequately removed, it should be backfilled with approved granular fill material. The backfill should be placed in uniform layers not exceeding 12 inches in loose thickness, individually compacted to a minimum dry density of 98 percent of the Modified Proctor (ASTM D-1557) maximum dry density of the fill material. The initial vibratory roller passes may have to be given without vibrations, and then with the lowest possible vibration setting so as to allow the traffic of the vibratory roller. An additional thickness of backfill may be added to the initial lift if the traffic of the roller is made difficult by high pore pressure conditions.

Dewatering measures will be required on this site to facilitate the excavation of the silt and allow the proper placement and compaction of the backfill. Adequate dewatering for the excavating/backfilling operations can likely be accomplished with the use of sump pumps. Dewatering measures should be controlled so that the groundwater is not lowered in adjacent property. In addition, special permits may be required to discharge the flow off-site should the rest of the site not be able to handle the flow as it is discharged on the site surface. The contractor should consider excavating and at least partially backfilling small segments of the site at a time to reduce dewatering needs and discharge flows.

8.2.3 Proofrolling and Grading

The entire building and pavement areas should be proofrolled with a heavy vibratory roller that exerts a centrifugal linear load not less than 340 pounds per linear inch. Any soft, yielding soils detected should be excavated and replaced with clean, compacted backfill that conforms with the recommendations below. Sufficient passes should be made during the proofrolling operations to produce dry densities not less than 98 percent of the Modified Proctor maximum dry density of the compacted material to depths of 2 feet below the compacted surface. In any case, the building area should receive not less than 10 overlapping passes, half of them in each of two perpendicular directions.

We recommend that the site preparation contractor closely monitor the vibrations produced during the proofrolling operations so that they do not adversely affect any nearby structures.

After the exposed surface has been proofrolled and tested to verify that the desired dry density has been obtained, the building and pavement areas may be filled to the desired grades. All fill material should conform to the recommendations below. It should be placed in uniform layers not exceeding 12 inches in loose thickness. Each layer should be compacted to a dry density not less than 98 percent of its Modified Proctor maximum value.

Note that after completion of the general site preparation, when excavations for the construction of foundations are made through the compacted natural ground, fill or backfill, the bottoms of the excavations are to be tamped so as to densify soils loosened during or after the excavation process, or washed or sloughed into the excavation prior to the placement of forms. A plate tamper can be used for this final densification immediately prior to the placement of reinforcing steel, with previously described density requirements to be maintained below the foundation level.

After foundation forms are removed, backfill around foundations should be placed in lifts six inches or less in thickness, with each lift individually compacted with a plate tamper. The backfill should be compacted to a dry density of at least 95% of the modified Proctor (ASTM D-1557) maximum dry density.

8.2.4 Fill Material

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. Backfill behind walls, if any, should be particularly pervious, with not more than 4 percent by dry weight passing the U.S. #200 sieve.

8.2.5 Erosion Control

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.

8.2.6 Quality Control

In order to verify the contractor's compliance with the above recommendations, all demucking, proofrolling and placement of compacted fill and backfill should be observed and tested by Ardaman & Associates, Inc. For your convenience, please contact our office a few days prior to proofrolling, so that we can obtain proctor test samples and perform proctor tests in our laboratory. This will allow for the maximum proctor dry density values to be available at the time of proofrolling and density testing.

8.2.7 Additional Recommendations

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 grill 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 structure on conventional shallow foundations proportioned for an allowable bearing stress of 2,500 pounds per square foot [psf], or less. However, to provide an adequate factor of safety against a shearing failure in the subsoils, all continuous foundations should be at least 18 inches wide, and all individual column footings should have a minimum width of 24 inches. Exterior foundations should bear at least 18 inches below adjacent outside final grades.

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 quarter of an inch. Because of the granular nature of the subsurface soils, the majority of the settlements should occur during construction; post-construction settlement should be minimal.

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

8.3.2 Slab-On-Grade

After the ground surface is proofrolled and filled, if necessary, as recommended in this report, the floor slab can be placed directly on the prepared subgrade. In our opinion, a highly porous base material is not necessary. We recommend to use a minimum of 10 mil polyolefin film as the main component of a vapor barrier system.

We recommend isolating the ground floor slab from column and wall foundations. 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.

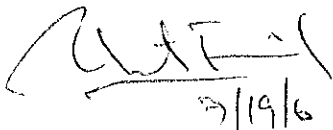
9.0 CLOSURE

This report has been prepared in accordance with generally accepted local foundation engineering practice. The recommendations submitted herein are based on the data obtained from the soil borings presented in the Appendix and the assumed loading conditions previously described. This report may not account for all the possible 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 further explorations are made or construction is underway. If variations are then observed, we recommend that Ardaman & Associates, Inc. be requested to inspect the actual site conditions and, if necessary, re-evaluate the recommendations of this report.

In the event any changes occur in the design, nature or location of any project facilities, Ardaman & Associates, Inc. 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.



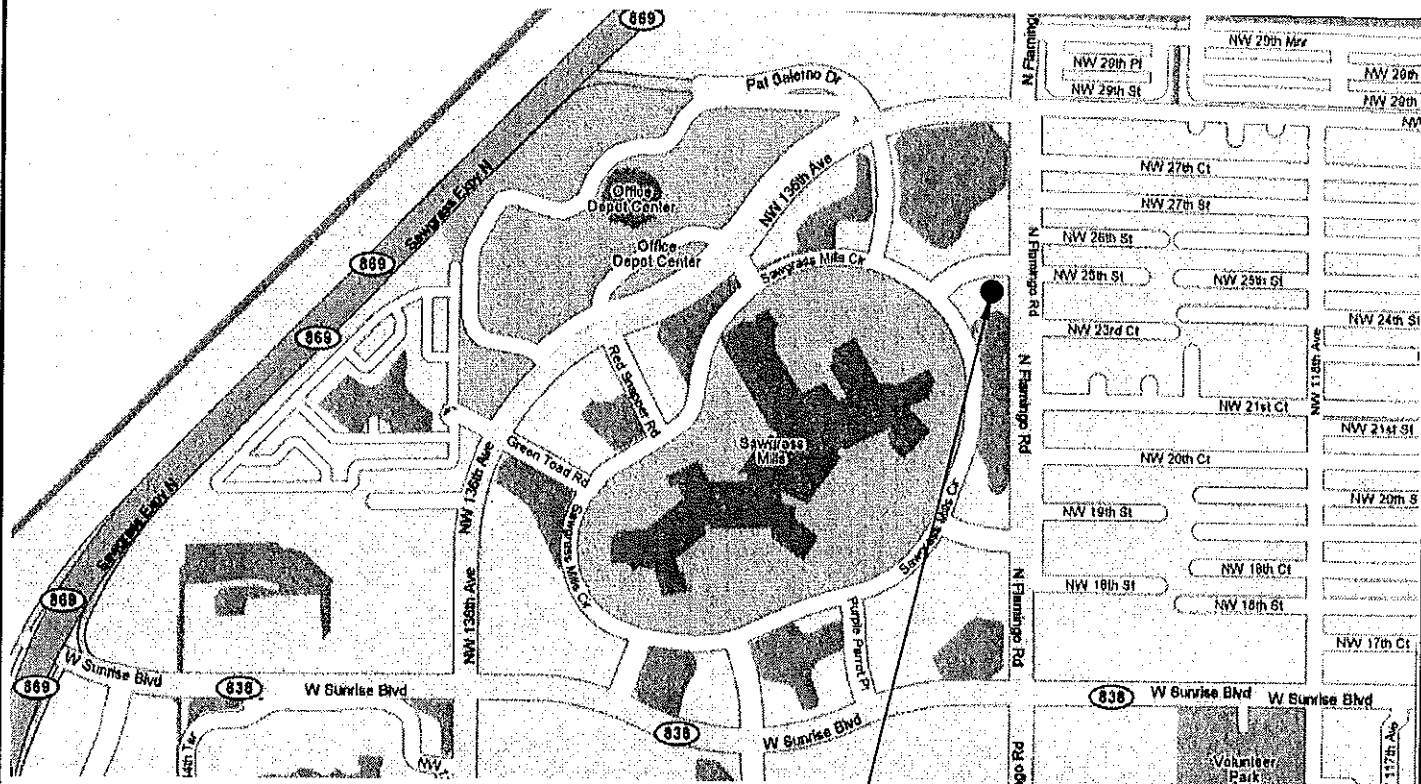
Roberto Fernandez, P.E.
Project Engineer
Fla. Reg. No. 60070



Roberto E. Balbis, P.E.
Principal
Fla. Reg. No. 15832

RF/REB:rf/aw






SITE

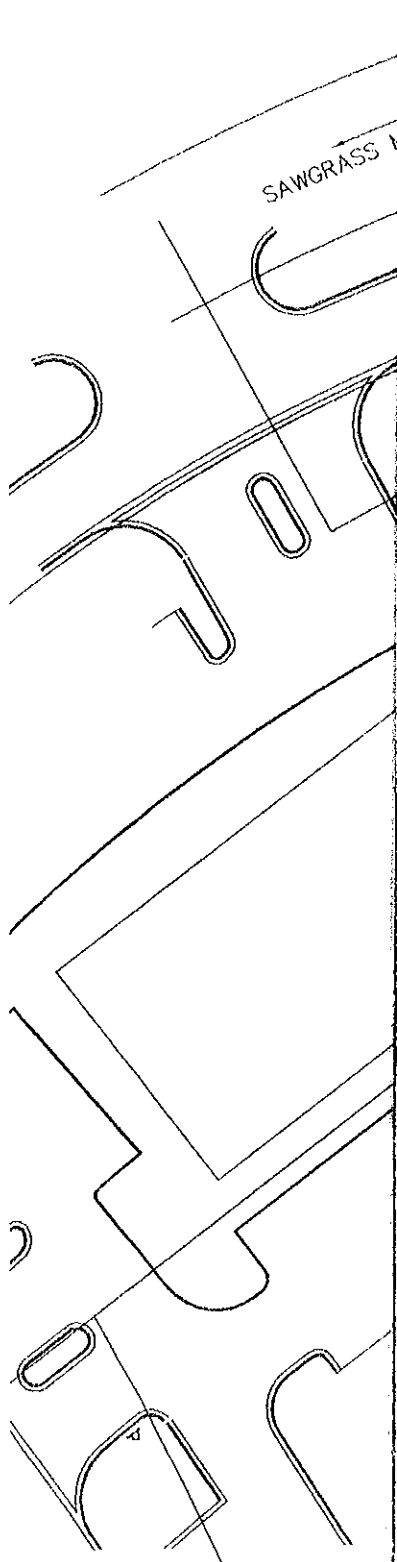


SITE VICINITY MAP

 Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants

SUBSURFACE EXPLORATION
ABC FINE WINE & SPIRITS
STORE NO. 50
SUNRISE, FLORIDA

FILE NO. 06-2121	BY: RF	FIGURE NO.: 1
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NORTH FLAMINGO ROAD
a.k.a. N.W. 124th AVENUE
VARIABLE R/W



BORING LOCATION PLAN

 Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants

SUBSURFACE EXPLORATION
ABC FINE WINE & SPIRITS
STORE NO. 50
SUNRISE, FLORIDA

FILE NO. 06-2121	BY RF	FIGURE NO. 2
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APPENDIX



Subsurface Exploration Information

Ardaman & Associates, Inc.

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 CME 45 drill rig or a CME 55 drill 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-coupled 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 six inches or less. After the test is completed, the sampler is removed from the borehole and opened.

The driller examines and classifies the soil recovered by the sampler. He places representative soil specimens from each test in closed glass jars or plastic bags and takes 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.

After completion of a test boring, the water level in the borehole is recorded.

SOLID-STEM AUGER BORINGS

Solid-stem auger borings are used when a relatively large, continuous sampling of soil strata close to the ground surface is desired. The testing procedure used conforms closely to the methods recommended in ASTM D-1452. A 4-inch diameter continuous flight, helical auger with a cutting head at its end is screwed into the ground in 5 foot sections. It is powered by the rotary drill rig. The samples are recovered by withdrawing the auger out of the ground without rotating it. The soil samples so obtained, are described and representative samples put in jars or bags and returned to the laboratory for further classification and testing, if necessary.

HAND AUGER BORINGS

Hand auger borings are used, if soil conditions are favorable, when the soil strata are to be determined within a shallow (approximately 5 foot) depth, or when access is not available for our truck-mounted drilling equipment. A 3-inch diameter hand bucket auger with a cutting head is simultaneously turned and pressed into the ground. The bucket auger is retrieved at approximately 6-inch increments and its content emptied for inspection. Sometimes post-hole diggers are used, especially in the upper 3 feet or so. The soil samples obtained are described and representative samples put in jars or bags and transported to the laboratory for further classification and testing, if necessary.

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 hole is augered to depths of about 6 feet, whereafter a screen is lowered in the hole and the distance from the groundwater table and to the ground surface is recorded. The hole is then saturated for 10 minutes with the water level maintained at the ground surface.

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 (for instance in highly permeable soils), the adding of water is ceased and the water level versus elapsed time is recorded in equal time increments. This is continued until the water level has dropped at least half the distance to the groundwater table.

ENGINEERING CLASSIFICATION OF SOILS

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

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

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

LEGEND FOR BORING LOGS

- N: Number of blows to drive a 2-inch OD split spoon sampler 12 inches using a 140-pound hammer dropped 30 inches
- R: Refusal (less than six inches advance of the split spoon after 50 hammer blows)
- MC: Moisture content (percent of dry weight)
- OC: Organic content (percent of dry weight)
- PL: Moisture content at the plastic limit
- LL: Moisture content at the liquid limit
- PI: Plasticity index (LL-PL)
- qu: Unconfined compressive strength (tons per square foot, unless otherwise noted)
- 200: Percent passing a No. 200 sieve (200 wash)
- +40: Percent retained above a No. 40 sieve
- US: Undisturbed sample obtained with a thin-wall Shelby tube
- k: Permeability (feet per minute, unless otherwise noted)
- DD: Dry density (pounds per cubic foot)
- TW: Total unit weight (pounds per cubic foot)

ABBREVIATIONS USED ON BORING LOGS

bk	black	crs	coarse	orn	orange
bkn	broken	dr	dark	org	organic
br	brown	f	fine	sl	slightly
calc	calcareous	frag	fragments	si	silty
cem	cemented	gr	gray	v	very
cmtn	cementation	gn	green	w.	with
cl	clay	med	medium		



Ardaman & Associates, Inc.

STANDARD PENETRATION TEST BORING LOG

BORING B-1

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/08/06

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE	N VALUE																
					1	2	3	4	5	6	7	8	9	10							
0		Brown fine sand with rock fragments	1	17																	
		Brown fine sand	2	10																	
5		Brown slightly silty, sandy, fragmented limestone	3	12																	
				4	53																53
10					76																76
				5	30																
15			Boring terminated at a depth of 15 feet																		
20																					
25																					
30																					
35																					

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: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 3.5 feet

DATE DRILLED: 06/08/06

DEPTH (FEET)	SYMBOLS FIELD TEST DATA	SOIL DESCRIPTION	SAMPLE No.	N VALUE	N VALUE															
					1	2	3	4	5	6	7	8	9	10						
0		Brownish gray fine sand with rock fragments	1	16																
			2																	
					3															
5			Light brown slightly silty, sandy, fragmented limestone	4	14															
				5																
10			(Driller's note: hard drilling from 10 to 13 feet - limestone)																	
		Light brown fine sand	6	35																
15		Boring terminated at a depth of 15 feet																		
20																				
25																				
30																				
35																				

NOTES:

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



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-1

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

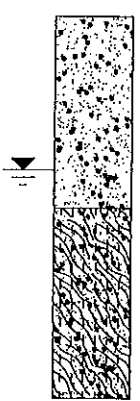
FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/08/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5		Light brown slightly silty, sandy, fragmented limestone	
10			
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-2

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

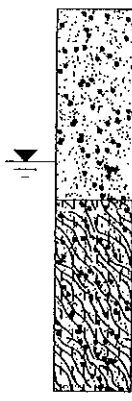
FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/08/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5		Light brown slightly silty, sandy, fragmented limestone	
10			
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-3

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

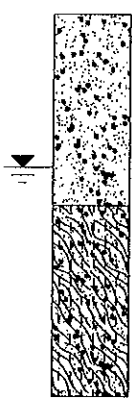
FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/08/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5		Light brown slightly silty, sandy, fragmented limestone	
10			
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-4

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

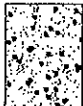



FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/08/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5	 	Gray silt	
10		Light brown slightly silty, sandy, fragmented limestone	
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-5

PROJECT: ABC Fine Wine & Spirits Store No. 50.
Sunrise, Florida

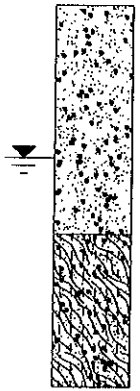
FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/08/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5		Light brown slightly silty, sandy, fragmented limestone	
10			
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-6

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/23/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0 5 10 15 20 25 30		Brown fine sand with rock fragments Light brown slightly silty, sandy, fragmented limestone	

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-7

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

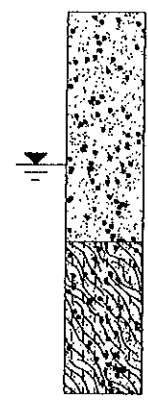
FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/23/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5		Light brown slightly silty, sandy, fragmented limestone	
10			
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-8

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/23/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5		Gray silt	
10		Light brown slightly silty, sandy, fragmented limestone	
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-9

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

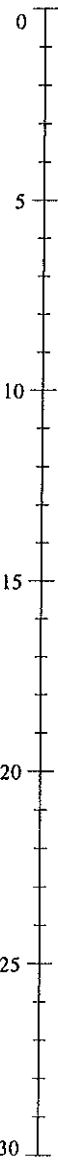
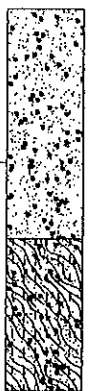
FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/23/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0  5 10 15 20 25 30		Brown fine sand with rock fragments Light brown slightly silty, sandy, fragmented limestone	

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-10

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

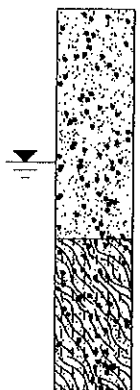
FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/23/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5		Light brown slightly silty, sandy, fragmented limestone	
10			
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

AUGER BORING LOG

BORING A-11

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

FILE No.: 06-2121

BORING LOCATION: As per plan

DRILL CREW: DG/JH

WATER OBSERVED AT DEPTH 4.0 feet

DATE DRILLED: 06/23/06

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
5		Gray silt	
10		Light brown slightly silty, sandy, fragmented limestone	
15			
20			
25			
30			

NOTES:



Ardaman & Associates, Inc.

**SFWMD USUAL OPEN-HOLE TEST
EX-1**

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

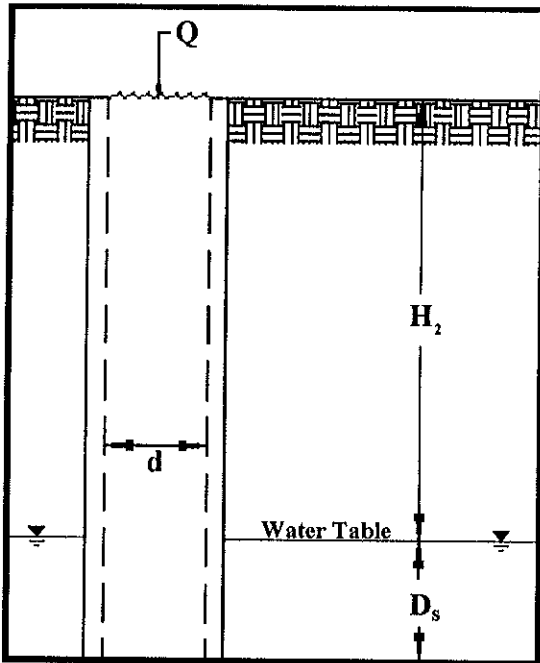
FILE No.: 06-2121

TEST LOCATION: As per plan

DRILL CREW: DG/JH

GROUNDWATER OBSERVED AT DEPTH 4.0 feet

TEST DATE: 06/08/06



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

Q ["Stabilized" Flow Rate (cfs)] = 1.11×10^{-3}

K [Hydraulic Conductivity (cfs/sqft - ft head)] = 4.30×10^{-5}

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

H₂ [Depth to Water Table (ft)] = 4.0

* D_s [Saturated Hole Depth (ft)] = 2.0

* By Groundwater

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
1			
2			
3			
4			
5			
6			

NOTES:



Ardaman & Associates, Inc.

**SFWMD USUAL OPEN-HOLE TEST
EX-2**

PROJECT: ABC Fine Wine & Spirits Store No. 50
Sunrise, Florida

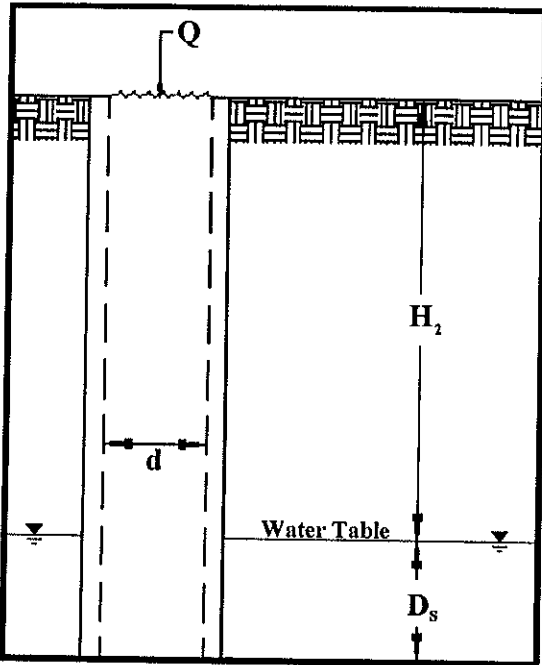
FILE No.: 06-2121

TEST LOCATION: As per plan

DRILL CREW: DG/JH

GROUNDWATER OBSERVED AT DEPTH 4.0 feet

TEST DATE: 06/08/06



$$K = \frac{4Q}{\pi d(2H_2^2 + 4H_2D_s + H_2d)}$$

$$Q \text{ [\"Stabilized\" Flow Rate (cfs)]} = 1.67 \times 10^{-3}$$

$$K \text{ [Hydraulic Conductivity (cfs/sqft - ft head)]} = 6.45 \times 10^{-5}$$

$$d \text{ [Diameter of Test Hole (ft)]} = 0.5$$

$$H_2 \text{ [Depth to Water Table (ft)]} = 4.0$$

$$* D_s \text{ [Saturated Hole Depth (ft)]} = 2.0$$

* By Groundwater

DEPTH	SYMBOLS	SOIL DESCRIPTION	SAMPLE No.
0		Brown fine sand with rock fragments	
1			
2			
3			
4			
5			
6			

NOTES: