

## Arnold Engineering Consulting, LLC

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March 2, 2020

Ms. Alexis Black  
Solid Waste Section  
Florida Department of Environmental Protection - Southwest District  
13051 North Telecom Parkway  
Temple Terrace, Florida 33637-0926

RE: Enterprise Recycling and Disposal Facility  
Cell 17 Construction Completion Report  
Angelo's Aggregate Materials, Ltd.  
FDEP Permit Nos. 177982-025-SC/T3  
WACS No.: 87895  
Pasco County, Florida

Dear Ms. Black,

This report contains the Certification of Construction Completion (Certification) and Construction Quality Assurance (CQA) data for Cell 17 of the Enterprise Class III landfill and is being submitted to the Florida Department of Environmental Protection (Department) for review and approval.

The CQA program and certification reporting are based on the specific condition requirements contained in FDEP Permit No. 177982-025-SC/T3, which include the following:

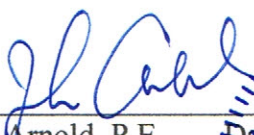
- a. The owner or operator shall submit a Certification of Construction Completion, Form 62-701.900(2), signed and sealed by the professional engineer in charge of construction and quality assurance to the Department for approval (Specific Condition 177982-025-SC/T3, Part B). The Certification of Construction Completion is provided in Attachment A.
  - b. The permittee shall submit Record Drawings/Documents showing all changes (i.e. additions, deletions, revisions to the plans previously approved by the Department including site grades and elevations). The Record Documents shall include, but not be limited to, as-built elevations of the disposal areas (surveys), details and elevations of limerock encountered, and other details as appropriate (Specific Condition 177982-025-SC/T3, Part B, 2.a.2). Record Drawings are provided in Attachment B.
  - c. The owner or operator shall submit a narrative indicating all changes in plans, the cause of the deviations, and certification of the Record Drawings/Documents by the Engineer to the Department (Specific Condition 177982-025-SC/T3, Part B). The narrative report prepared by the professional engineer responsible for the construction quality assurance (CQA Engineer of Record) program is provided in Attachment C.
  - d. The CQA Engineer of Record shall submit to the Department a final report to verify conformance with the project specifications, including all test results for the development of each cell (Specific Condition 177982-023-SC/T3, Part B). These documents including
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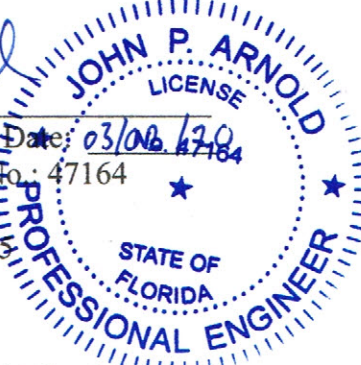
the Construction Quality Assurance Testing performed by Universal Engineering Sciences, Inc. are provided in Attachment D.

- e. Prepare and submit financial assurance for the facility in accordance with F.A.C. 62-701.630 and Specific Condition 177982-025-SC/T3, Part F). The approved financial assurance estimate and existing letter of credit on file with the Department include Cell 17.
- f. Limerock Details and Observations. There was no limerock observed or encountered as part of Cell 17 construction.
- g. Groundwater Monitoring Wells and Sampling. Installation, initial sampling, and reporting of the groundwater monitoring wells associated with Cell 17 construction is being coordinated by our sub-consultant, Mr. Locklear P.G. All of the requested materials have been provided by Mr. Locklear to the Department.

We trust this submittal, along with the financial assurance update, will satisfy the Department's certification requirements. Please call me at (813) 477-1719 if you have any questions or require any additional information.

Sincerely,

  
John Arnold, P.E.      Date: 03/02/20  
State of Florida P.E. No. 47164  
1530 McDuff AVE S  
Jacksonville, FL 32205  
Tel.: (352) 339-1408



attachments

cc: Dominic Iafrate, Angelo's Recycled Materials  
Lisa Baker, Locklear and Associates, Inc.  
John Locklear, Locklear and Associates, Inc.

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**Attachment A**

**Certification of Construction Completion  
FDEP Form 62-701.900(2)**



# Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

DEP Form # 62-701.900(2)

Form Title Certification of Construction Completion  
of a Solid Waste Management Facility  
Effective Date May 19, 1994

## Certification of Construction Completion of a Solid Waste Management Facility

DEP Construction Permit No: 177982-025-SC/T3 County: PASCO

Name of Project: ENTERPRISE RECYCLING & DISPOSAL FACILITY

Name of Owner: ANGELO'S AGGREGATE MATERIALS, LTD

Name of Engineer: JOHN P. ARNOLD, P.E.

Type of Project: CELL 17 OF THE CLASS III LANDFILL; CERTIFICATION OF AS-BUILT DRAWINGS  
AND CERTIFICATION OF CLAY LINER CONSTRUCTION AND CONFORMANCE TESTING

Cost: Estimate \$300,000 est. Actual \$300,000 est.

Site Design Quantity: 1,500 ton/day Site Acreage: 10 ac (apprx.) Cell 17 Acres

Deviations from Plans and Application Approved by DEP (attach additional pages as needed):

The 3' clay barrier layer was installed in substantial accordance with the approved drawings.

The bottom of the cell slopes towards the 8" DIA SDR 17 leachate collection pipe as designed.

Address and Telephone No. of Site: 41111 ENTERPRISE RD., DADE CITY, FL 33525

PH: 352-567-7676 Scale House

Name(s) of Site Supervisor: Mr. Phil Curtin

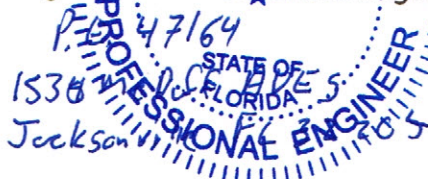
Date Site inspection is requested: March 9, 2020

This is to certify that, with the exception of any deviation noted above, the construction of the project has been completed in substantial accordance with the plans authorized by Construction

Permit No.: 177982-025-SC/T3 Dated: June 21, 2019

Date: 03/02/2020

Signature of Professional Engineer John Arnold 03/02/20



Northwest District  
160 Governmental Center  
Pensacola, FL 32501-5794  
850-595-8360

Northeast District  
7825 Baymeadows Way, Ste. B200  
Jacksonville, FL 32256-7590  
904-448-4300

Central District  
3319 Maguire Blvd., Ste. 232  
Orlando, FL 32803-3767  
407-894-7555

Southwest District  
3804 Coconut Palm Dr.  
Tampa, FL 33619  
813-744-6100

South District  
2295 Victoria Ave., Ste. 364  
Fort Myers, FL 33901-3881  
941-332-6975

Southeast District  
400 North Congress Ave.  
West Palm Beach, FL 33401  
561-681-6600



## **Attachment B**

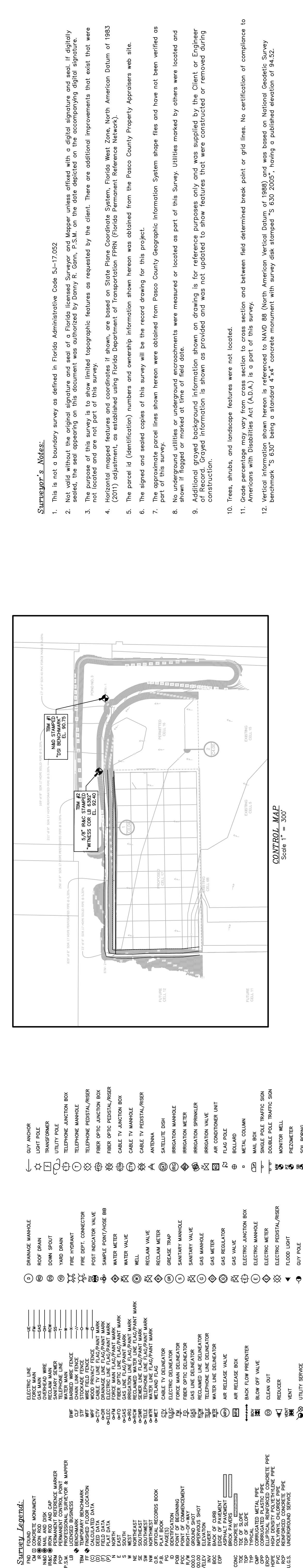
### **Record Drawings & Documents**

A topographic survey depicting as-built conditions of the site was prepared by Rapid Surveying, Inc. based on field work performed by them on various dates, including 7/5/19, 7/19/19, and 9/19/19. As-built elevations documenting the 3' clay over-excavation, top of Cell 17 clay, and leachate collection pipe were collected under the direction of John Arnold, P.E. as the Professional Engineer responsible for the Construction Quality Assurance (CQA) plan in accordance with Chapter 471, Florida Statutes.

Supporting Record Drawings and Documents include the following:

- Rapid Surveying, Inc. Topographic Survey (over-excavation, top of clay, and leachate pipe)
- Non-Woven Geofabric Cut Sheet
- No. 4 Aggregate Gradation Test

## Section 05, Township 25 South, Range 22 East, Pasco County, Florida

[illegible][illegible]

CONTROL MAP  
Scale 1" = 300'

# Mirafi® 160N



Mirafi® 160N is a nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. Mirafi® 160N is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids. Mirafi® 160N meets AASHTO M288 Class 2 for Elongation > 50%.

TenCate Geosynthetics Americas Laboratories are accredited by Geosynthetic Accreditation Institute – Laboratory Accreditation Program ([GAI-LAP](#)). [NTPEP Listed](#)

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	160 (712)
Grab Tensile Elongation	ASTM D4632	%	50	50
Trapezoid Tear Strength	ASTM D4533	lbs (N)	60 (267)	60 (267)
CBR Puncture Strength	ASTM D6241	lbs (N)	410 (1825)	
			Maximum Opening Size	
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve (mm)	70 (0.212)	
			Minimum Roll Value	
Permittivity	ASTM D4491	sec <sup>-1</sup>	1.5	
Flow Rate	ASTM D4491	gal/min/ft <sup>2</sup> (l/min/m <sup>2</sup> )	110 (4481)	
			Minimum Test Value	
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	70	
Physical Properties		Unit	Roll Size	
Roll Dimensions (width x length)		ft (m)	15 x 300 (4.5 x 91)	
Roll Area		yd <sup>2</sup> (m <sup>2</sup> )	500 (418)	

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FGS000361  
ETORRQ





GEOTECHNICAL & MATERIALS  
ENGINEERING, TESTING & INSPECTION

P.O. BOX 15732 • TAMPA, FLORIDA 33684 • 813/872-7821 CA No. 1450

## SIEVE ANALYSIS

**PROJECT:** Product Check - Cell 17  
Dade City, FL

**PROJECT NO:** 1170.15.1

**DATE:** 8/19/2019

**CLIENT:** Angelo's Recycled Materials

**LAB NO:** B-11587

**SAMPLE LOCATION:** Composite sample from stockpile

**SAMPLE DESCRIPTION:** No. 4 Crushed Concrete  
(Coarse Aggregate)

<u>Sieve Number</u>	<u>Percent Passing</u>	<u>FDOT Specifications</u> <u>Section 901-1.4</u>
2"	100	100
1 1/2"	95	90-100
1"	28	20-55
3/4"	5	0-15
1/2"	3	---
3/8"	3	0-5
		---

**WASH NO. 200** 0.9%

**FINENESS MODULUS:** 7.90

**DATE SAMPLED:** 8/5/19

**DATE TESTED:** 8/19/19

  
TEST LAB, INC.



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**Attachment C**

**CQA Engineer of Record Narrative Report**

**Construction Quality Assurance Engineer of Record Narrative Report**

**Enterprise Recycling and Disposal Facility  
Cell 17 Construction  
FDEP Permits No.: 177982-025-SC/T3  
WACS No.: 87895**

**Prepared For:**

**Angelo's Aggregate Materials, Ltd.  
855 28<sup>th</sup> Street South  
St. Petersburg, FL 33712**

**Prepared By:**

**CQA Engineer of Record, John P. Arnold, P.E.**

**Date: 03/02/20**

**State of Florida P.E. No.: 47164**

**1530 McDuff AVE**

**Jacksonville, FL 32205**

**Cell: (352) 339-1408**



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## **Background**

This report documents the activities and methods of construction for Cell 17 (approximately 14 acres in size) in accordance with FDEP Permit No. 177982-025-SC/T3.

Record Drawings of the as-built conditions, including the elevations of the excavation/undercut (prior to installation of the 3' thick clay barrier layer), top-of-clay (after installation of the 3' thick clay barrier layer), and leachate collection pipe were performed by the Rapid Surveying, Inc. Topographic survey and elevation data were evaluated by the Engineer for conformance with the Department requirements. All Record Drawings are provided in Attachment B and include the clay perimeter berm and leachate collection system. The elevations on the surveys show that the subgrade was over-excavated by a minimum of 3-feet and then backfilled with clay to construct a 3' thick clay layer. The 3' clay layer (cell floor) was placed in three (3) approximately 12-inch thick lifts, with each lift being compacted. Geotechnical soils tests were performed on each completed clay lift of the 3' clay barrier layer to ensure the installed clay layer met the Department requirements in accordance with the Operations Permit.

Universal Engineering Sciences, Inc. (UES) performed all field and laboratory testing in accordance with the Construction Quality Assurance (CQA) requirements. Mr. John Arnold, P.E. served as the CQA professional engineer of record and he, or his designee was on-site at all times during construction to monitor construction activities.

## **Clay Layer Construction**

Cell 17 was over-excavated by a minimum of 3 feet so that the finished 3-ft thick clay layer could be installed. The over-excavation was performed using tracked excavating equipment. The Engineer verified grades to ensure that the excavation was sufficient to meet the 3-foot over-excavation criteria. Clay was placed and compacted in the over-excavated area using approximately 12-inch lifts to construct the clay layer. Clay was also placed and compacted in approximate 12-inch lifts to construct the perimeter berm (road). Signed and Sealed drawings documenting the As-Built conditions are provided in Attachment B.

Clay from on-site was used to construct the 3' clay layer and the clay berms that extend along the west and north sides of Cell 17. The clay was installed in approximately 12-inch lifts and compacted to within at least 95% of the maximum dry density in accordance with ASTM D698. The clay for each lift was spread with a bull dozer and compacted with multiple passes of loaded off-road (articulating) dump trucks. The in-place density and moisture content for the clay lifts of the 3' clay layers were evaluated by the Universal representative using nuclear-density testing and Speedy Moisture Content devices, respectively. Cell 17 was subdivided by rows (1 thru 7) and columns (A and B) for testing. Each section was approximately 1 acre in size, which was the approved testing frequency used for in-place materials, per lift. Lifts were designated as Lift 1, 2, and 3 (from bottom to top). The perimeter clay berm was constructed in approximate 12" lifts up to the finished grades. A figure depicting the Cell 17 Test Plan is attached.

The UES field technician collected undisturbed Shelby tube samples for each test section of the 3' clay layer, per completed lift, to verify that the installed permeability met or exceeded the Department approved criteria. Additional samples were collected from the clay perimeter berm. Permeability testing was performed on the undisturbed Shelby tube samples in the laboratory using

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a triaxial-permeameter device. The collected samples were also used to evaluate Atterberg Limits.

Results of the density, permeability, and moisture content tests are provided as Attachment D and show that the installed, compacted clay for the 3' clay layer and perimeter berm satisfied the maximum installed hydraulic permeability of  $1 \times 10^{-8}$  cm/sec.

### **Leachate Pipe and Wetwell**

The leachate pipe along the north end of Cell 17 was installed by Sullivan Environmental, Inc. The leachate pipe was 8" DIA SDR 17 HDPE and was fusion welded by Sullivan Environmental, Inc. and was connected to the west end of the existing Cell 16 leachate collection pipe. The perforated portion of the pipe included 3/8" DIA holes at 3" linear spacing per the approved drawings. The pipe was backfilled with No. 4 aggregate and encapsulated with non-woven filter fabric. A gradation test of the aggregate used to bed and backfill the leachate collection pipe is provided in Attachment B.

The leachate collection toe drain was constructed in substantial accordance with the drawings. Non-woven geofabric was placed in the bottom of the trench and the pipe was placed on a 3-inch thick layer of gravel (pipe bedding). The pipe was then backfilled with gravel and encased in the non-woven geofabric. The completed toe drain was covered with excess (surplus) No. 4 gravel that was on-site to provide additional protection to the installed system.

### **Limerock**

Limerock was not observed or encountered within the area of Cell 17.

### **Field Inspection, Review, Conformance Assessment, and Major Deviations**

John Arnold, P.E., serving as the CQA Engineer of Record reviewed the UES Testing Report, As-Built (Record) drawings including Rapid Surveying, Inc. topographic survey, performed daily field inspections/observations, and prepared and submitted this report and Certification of Construction Completion to the Department for review and approval.

1. There were no occurrences of sinkholes, soft zones, ravel areas, or unstable conditions associated with the construction of Cell 17.
2. Weekly progress meetings were informal and minutes were not taken.
3. Daily observation reports and photographs of construction activity are attached to this CQA Engineer of Record Narrative Report.

### **Summary**

Review of the UES Testing Report, As-Built Drawings, and field observations during construction indicate that Cell 17 has been constructed in substantial accordance with the Department approved permit requirements. Specifically, the 3' clay layer and perimeter clay berm meet the maximum installed permeability requirement and the leachate collection pipe in the toe drain meets the design grades.



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## **Cell 17 Test Plan**

# Angelo's CLIII

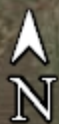
Cell 17



Google Earth

©2018 Google

800 ft



## Daily Observation Reports

# Enterprise Recycling and Disposal Facility

## Cell 17 Construction

### Daily Observation Reports

Client: Aneglo's Aggregate Materials, Ltd

Engineer of Record: John Arnold, P.E. (JPA)

Quality Assurance Testing Laboratory: Universal Engineering Sciences, Inc

As-Built Engineering Survey: Rapid Surveying, Inc.

Date	CQA Engineer	Temp. (F)	Rainfall	Observations and Comments
6/24/19	JPA	85		Clearing vegetation from construction area
6/25/19	JPA	85		Verify grades and undercut from mining operations
6/26/19	JPA	85		Haul and place clay layer
6/27/19	JPA	85		
6/28/19	JPA	85	0.15	
6/29/19				
6/30/19				
7/1/19	JPA	90		Haul and place clay
7/2/19	JPA	90		
7/3/19	JPA	90		
7/4/19	JPA	90		
7/5/19	JPA	90	0.20	Universal Sciences Testing Sample Collection
7/6/19				
7/7/19				
7/8/19	JPA	90	0.30	Clay backfill and compaction
7/9/19	JPA	90		
7/10/19	JPA	90	2.75	
7/11/19	JPA	90		
7/12/19	JPA	90		
7/13/19				
7/14/19				
7/15/19	JPA	90		Clay backfill and compaction
7/16/19	JPA	90		
7/17/19	JPA	90	0.30	
7/18/19	JPA	90		
7/19/19	JPA	90		Universal Sciences Testing Sample Collection
7/20/19				
7/21/19				
7/22/19	JPA	85		Clay backfill and compaction
7/23/19	JPA	85		
7/24/19	JPA	90		
7/25/19	JPA	90		
7/26/19	JPA	90	0.70	
7/27/19				
7/28/19				
7/29/19	JPA	90		
7/30/19	JPA	90		
7/31/19	JPA	90		



# Enterprise Recycling and Disposal Facility

## Cell 17 Construction

### Daily Observation Reports

Client: Aneglo's Aggregate Materials, Ltd

Engineer of Record: John Arnold, P.E. (JPA)

Quality Assurance Testing Laboratory: Universal Engineering Sciences, Inc

As-Built Engineering Survey: Rapid Surveying, Inc.

Date	CQA Engineer	Temp. (F)	Rainfall	Observations and Comments
8/1/19	JPA	90		
8/2/19	JPA	90		
8/3/19				
8/4/19				
8/5/19	JPA	90	0.10	
8/6/19	JPA	90	0.00	
8/7/19	JPA	90	0.00	
8/8/19	JPA	90	0.00	
8/9/19	JPA	90		
8/10/19				
8/11/19				
8/12/19	JPA	85		
8/13/19	JPA	85		
8/14/19	JPA	85		
8/15/19	JPA	85	2.50	
8/16/19	JPA	85	1.00	
8/17/19				
8/18/19				
8/19/19	JPA	90		Gravel sample and testing
8/20/19	JPA	90	1.00	
8/21/19	JPA	90		
8/22/19	JPA	90	0.30	
8/23/19	JPA	90		
8/24/19				
8/25/19				
8/26/19	JPA	90		
8/27/19	JPA	90		
8/28/19	JPA	90		
8/29/19	JPA	85	0.25	
8/30/19	JPA	90		
8/31/19				
9/1/19				
9/2/19	JPA	90	0.25	
9/3/19	JPA	90		
9/4/19	JPA	90		
9/5/19	JPA	90		
9/6/19	JPA	90		
9/7/19				

# Enterprise Recycling and Disposal Facility

## Cell 17 Construction

### Daily Observation Reports

Client: Aneglo's Aggregate Materials, Ltd

Engineer of Record: John Arnold, P.E. (JPA)

Quality Assurance Testing Laboratory: Universal Engineering Sciences, Inc

As-Built Engineering Survey: Rapid Surveying, Inc.

Date	CQA Engineer	Temp. (F)	Rainfall	Observations and Comments
9/8/19				
9/9/19	JPA	90		
9/10/19	JPA	90	0.10	
9/11/19	JPA	90		
9/12/19	JPA	90		
9/13/19	JPA	90		
9/14/19				
9/15/19				
9/16/19	JPA	85	0.50	Clay backfill substantially complete
9/17/19	JPA	90		
9/18/19	JPA	90		
9/19/19	JPA	90	0.25	Rapid Surveying, Inc. leacahte pipe
9/20/19	JPA	90		
9/21/19				
9/22/19				
9/23/19	JPA	90		Sullivan Environmental HDPE Leacahte Pipe Installation
9/24/19	JPA	90		Sullivan Environmental HDPE Leacahte Pipe Installation
9/25/19	JPA	90		Sullivan Environmental HDPE Leacahte Pipe Installation
9/26/19	JPA	90		Gravel backfill pipe
9/27/19	JPA	90		Gravel backfill pipe
9/28/19				
9/29/19				
9/30/19	JPA	90		
10/1/19	JPA	90		Rapid Surveying, top of clay grades
10/2/19	JPA	90		
10/3/19	JPA	90		
10/4/19	JPA	85		
10/5/19				
10/6/19				
10/7/19	JPA	90		
10/8/19	JPA	90		
10/9/19	JPA	90		
10/10/19	JPA	90		
10/11/19	JPA	90		Florida Jet Clean Pipe Cleaning/Washing
10/12/19				
10/13/19				
10/14/19	JPA	85		Earthwork and pipe work substantially complete
10/15/19	JPA	85		

Enterprise Recycling and Disposal Facility  
Cell 17 Construction  
Daily Observation Reports

Client: Aneglo's Aggregate Materials, Ltd

Engineer of Record: John Arnold, P.E. (JPA)

Quality Assurance Testing Laboratory: Universal Engineering Sciences, Inc

As-Built Engineering Survey: Rapid Surveying, Inc.

Date	CQA Engineer	Temp. (F)	Rainfall	Observations and Comments
10/16/19	JPA	80		
10/17/19	JPA	80		
10/18/19	JPA	80		
10/19/19				
10/20/19				





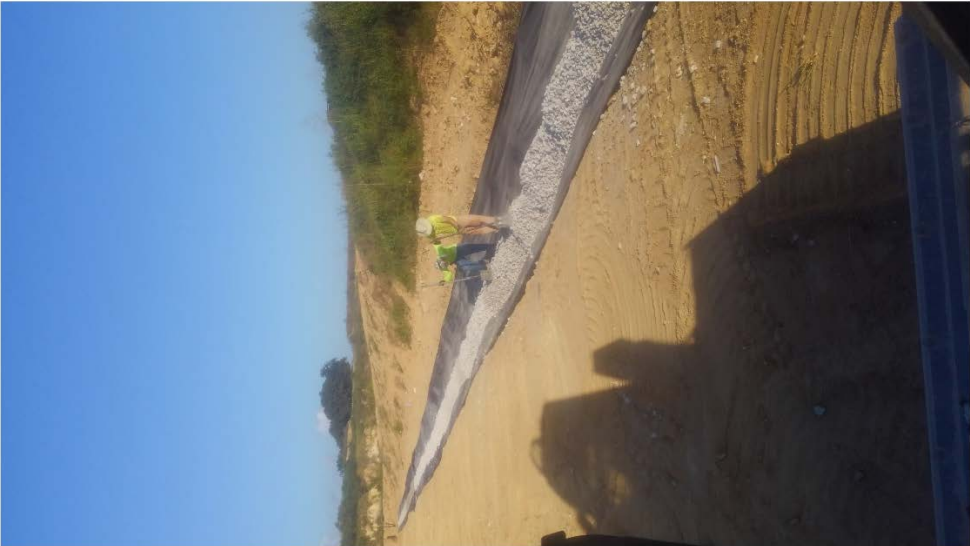




















**Attachment D**

**Construction Quality Assurance Test Results  
Universal Engineering Science, Inc.**



# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences  
Geophysical Services • Construction Materials Testing • Threshold Inspection  
Building Inspection • Plan Review • Building Code Administration

## LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- St. Petersburg
- Tampa
- Tifton
- West Palm Beach

March 2, 2020

### Angelo's Recycled Materials

41111 Enterprise Road  
Dade City, Florida 33525

Attention: John Arnold

Reference: John Arnold  
Enterprise Class III Landfill Cell 19  
Dade City, Florida  
UES Project No. 0810.1900213.0000

Mr. Arnold:

Pursuant to your request, please find attached all related testing reports for the Landfill Cell 17. This letter certifies reports for:

- **Proctor Report:** Page 1-45
- **Permeability Reports:** Pages 46-48
- **Density Reports:** Pages 49-51

**Please note failing tests were rerun, only passing tests have been provided.**

We trust that these testing reports bound herein, are acceptable to your current needs. However, if you should require additional information please contact us.

We appreciate the opportunity to work with you on this project and look forward to a continued association with Angelo's Recycled Materials. Please do not hesitate to contact us if you should have any questions or if we may further assist you as your plans proceed.

Respectfully submitted,  
**UNIVERSAL ENGINEERING SCIENCES, INC.**  
Certificate of Authorization No. 00000549

  
Mark Hardy, P.E.  
Tampa Regional Manager  
Florida PE Registration Number 57233  
Date: 3/2/20

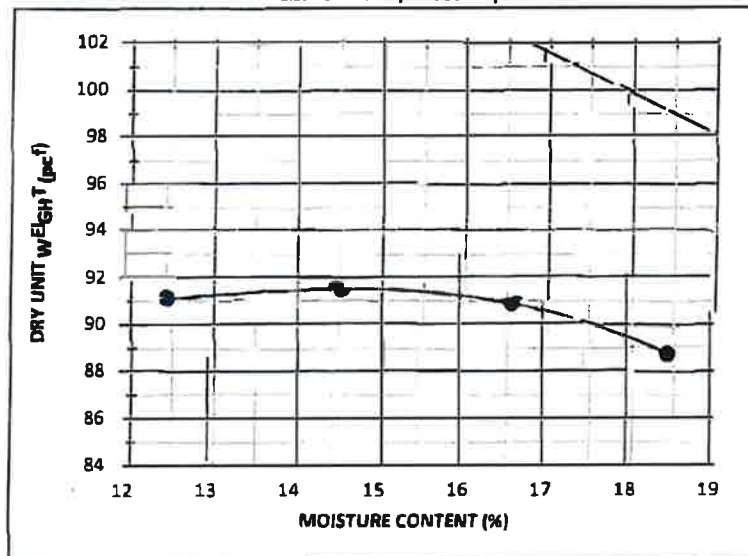




## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/22/2019
Client Project #		RADISE Project #	190708-
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1411

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.25 assumed for Zero Air Voids Curve

Sample Details

Sample Date	7/5/2019
Sample Location	1 - 1st Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	3

Moisture Content

Moisture Content	30.3
Note: Moisture Content performed in general accordance with ASTM-D2216	

Material Finer than #200 Sieve

Finer than #200 (%)	54.5
Note: Material Finer than #200 performed in accordance with ASTM-D1140	

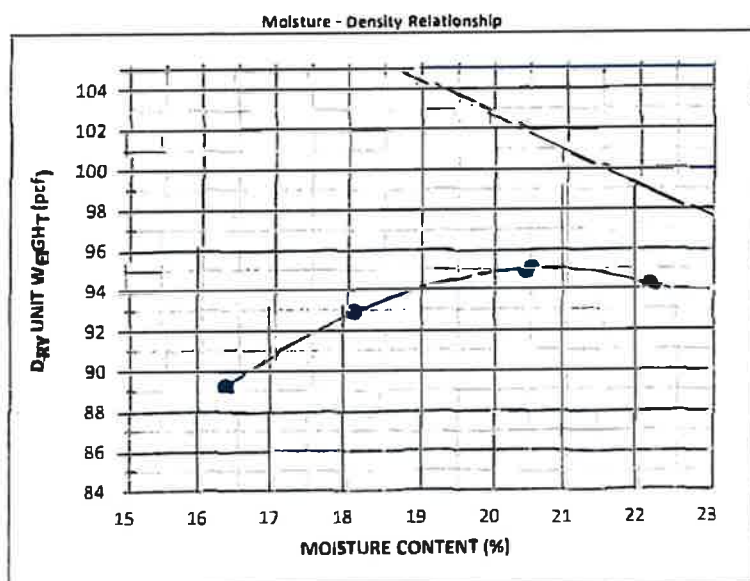
Proctor

Maximum Density (pcf)	91.5
Optimum Moisture (%)	14.5
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method B (Standard Proctor) Dry Preparation and Manual Hammer type was used.	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	8802 Palm River Road, Tampa, FL 33619	Test Date	7/30/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1412



Note: Soil Specific Gravity as 2.45 assumed for Zero Air Voids Curve

<b>Proctor</b>	
Maximum Density (pcf)	95
Optimum Moisture (%)	20.7
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used.	

**Sample Details**

Sample Date	7/5/2019
Sample Location	A2 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	4

**Moisture Content**

Moisture Content	31.3
Note: Moisture Content performed in general accordance with ASTM-D2216	

**Material Finer than #200 Sieve**

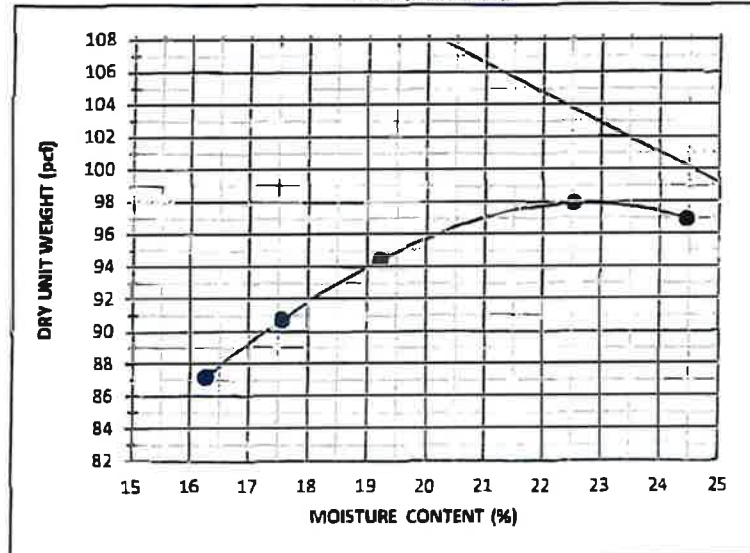
Finer than #200 (%)	45.4
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test date	7/29/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1413

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	97.9
Optimum Moisture (%)	22.7
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method B (Standard Proctor) Dry Preparation and Manual Hammer type was used	

Sample Details

Sample Date	7/5/2019
Sample Location	A3 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	5

Moisture Content

Moisture Content	28.7
Note: Moisture Content performed in general accordance with ASTM-D2216	

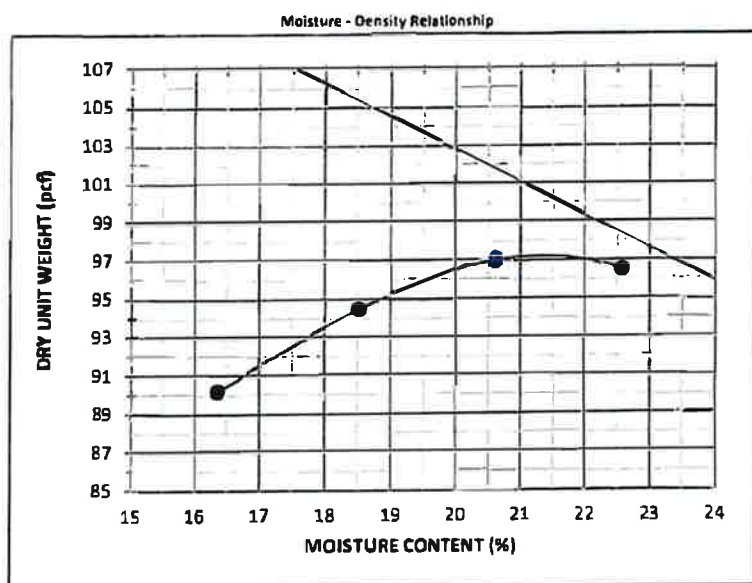
Material Finer than #200 Sieve

Finer than #200 (%)	55.6
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	09/05/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/30/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1414



Note: Soil Specific Gravity as 2.45 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	97.2
Optimum Moisture (%)	21.3
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Number 1 type was used	

### Sample Details

Sample Date	7/5/2019
Sample Location	A4 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	6

### Moisture Content

Moisture Content	30.1
Note: Moisture Content performed in general accordance with ASTM-D2216	

### Material Finer than #200 Sieve

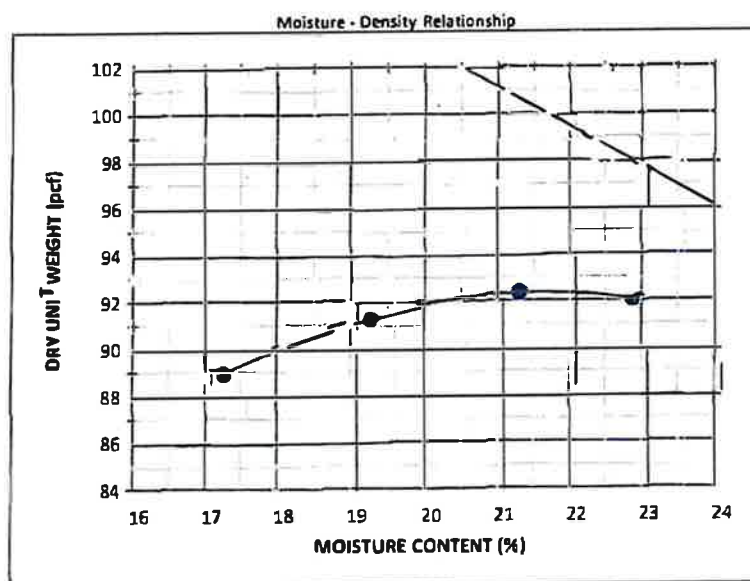
Finer than #200 (%)	55.7
Note: Material Finer than #200 performed in accordance with ASTM-D1140	





## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/30/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1415



Note: Soil Specific Gravity as 2.45 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	92.3
Optimum Moisture (%)	21.6

Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method B (Standard Proctor) Dry Preparation and Automatic Hammer type was used.

Sample Details	
Sample Date	7/5/2019
Sample Location	AS - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	7

Moisture Content	
Moisture Content	29.1

Note: Moisture Content performed in general accordance with ASTM-D2216

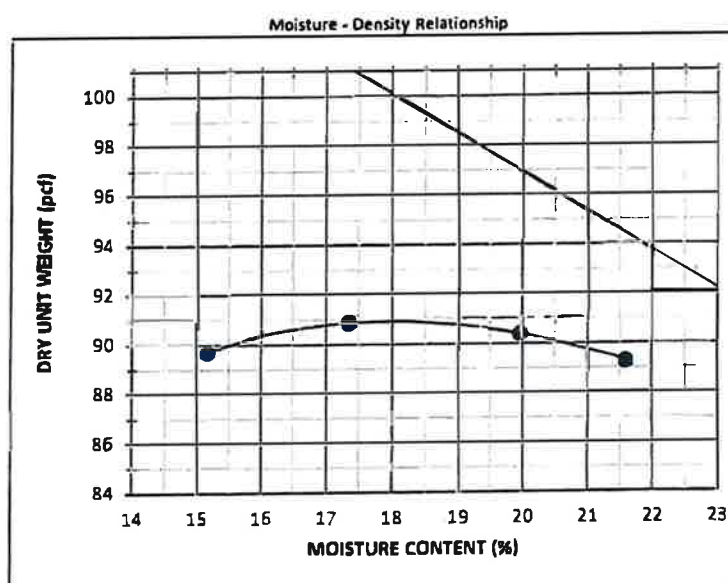
Material Finer than #200 Sieve	
Finer than #200 (%)	56.6

Note: Material Finer than #200 performed in accordance with ASTM-D1140



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	8/9/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1416



Note: Soil Specific Gravity as 2.25 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	90.9
Optimum Moisture (%)	17.9

Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used.

Sample Details	
Sample Date	7/5/2019
Sample Location	A6 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	8

Moisture Content	
Moisture Content	19.8

Note: Moisture Content performed in general accordance with ASTM D2238

Material Finer than #200 Sieve	
Finer than #200 (%)	60.9

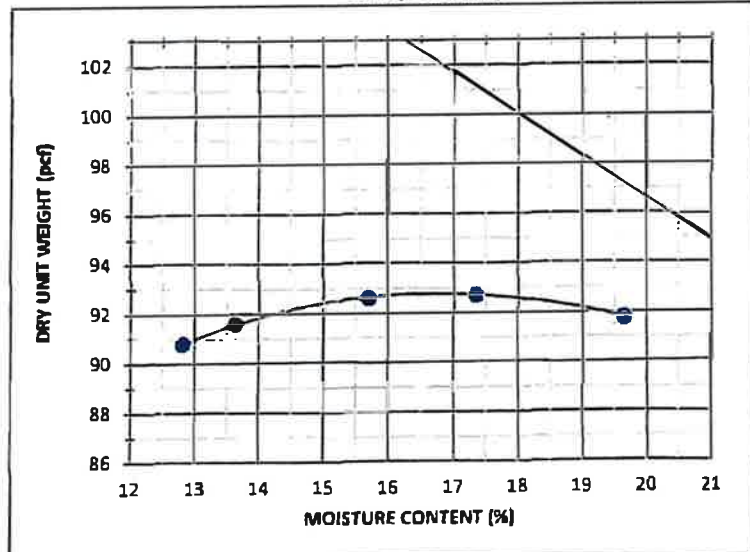
Note: Material Finer than #200 performed in accordance with ASTM D1140



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/26/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1417

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.75 assumed for Zero Air Voids Curve

Sample Details

Sample Date	7/5/2019
Sample Location	A7 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	9

Moisture Content

Moisture Content	30.6
Note: Moisture Content performed in general accordance with ASTM-D2216	

Material Finer than #200 Sieve

Finer than #200 (%)	55
Note: Material Finer than #200 performed in accordance with ASTM-D2140	

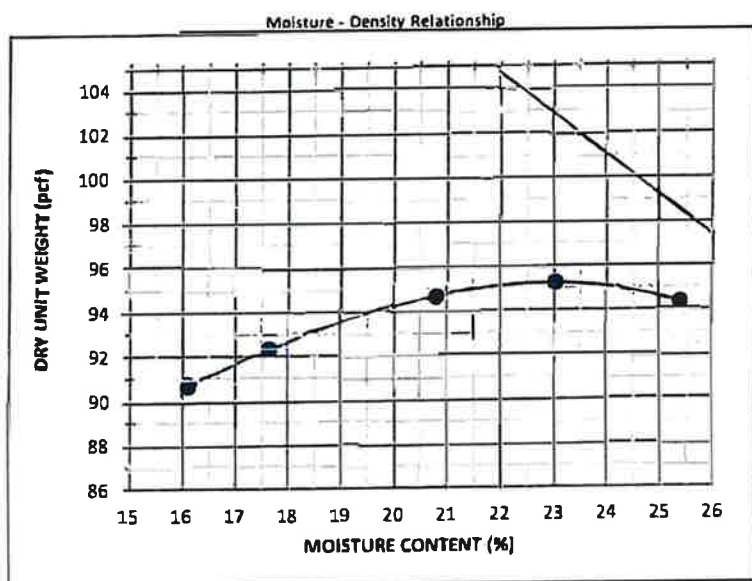
Proctor

Maximum Density (pcf)	92.7
Optimum Moisture (%)	16.7
Note: Moisture Density Relationship performed in accordance with ASTM D-648 Method B (Standard Proctor) Dry Preparation and Manual Rhymer type was used.	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	8/9/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1418



Note: Soil Specific Gravity as 1.65 assumed for Zero Air Voids Curve

<b>Proctor</b>	
Maximum Density (pcf)	95.2
Optimum Moisture (%)	22.9
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) and Manual hammer type was used	

## Sample Details

Sample Date	7/5/2019
Sample Location	B1 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	10

## Moisture Content

Moisture Content	28.4
Note: Moisture Content performed in general accordance with ASTM-D2216	

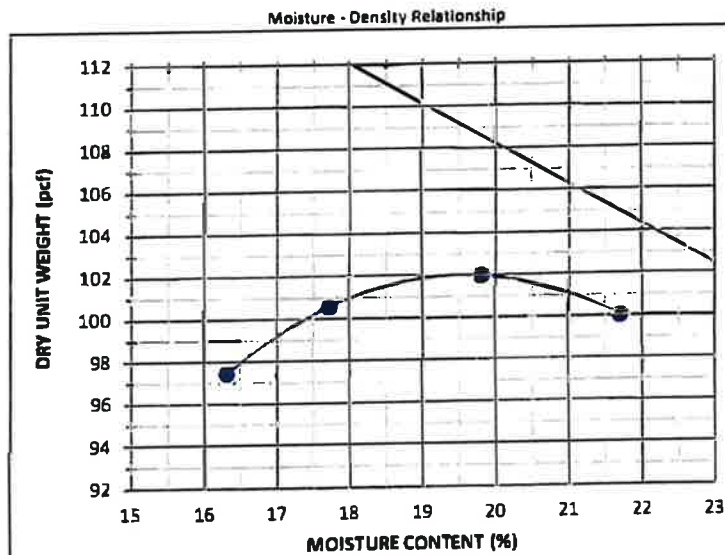
## Material Finer than #200 Sieve

Finer than #200 (%)	46.1
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/29/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1419



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	102
Optimum Moisture (%)	19.5

Note: Moisture Density Relationship performed in accordance with ASTM D 998 Method B (Standard Proctor) Dry Preparation and Manual Hummer Type A-11 WPL.

Sample Details	
Sample Date	7/5/2019
Sample Location	B2 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	11

Moisture Content	
Moisture Content	24.5
Note: Moisture Content performed in general accordance with ASTM-D2216	

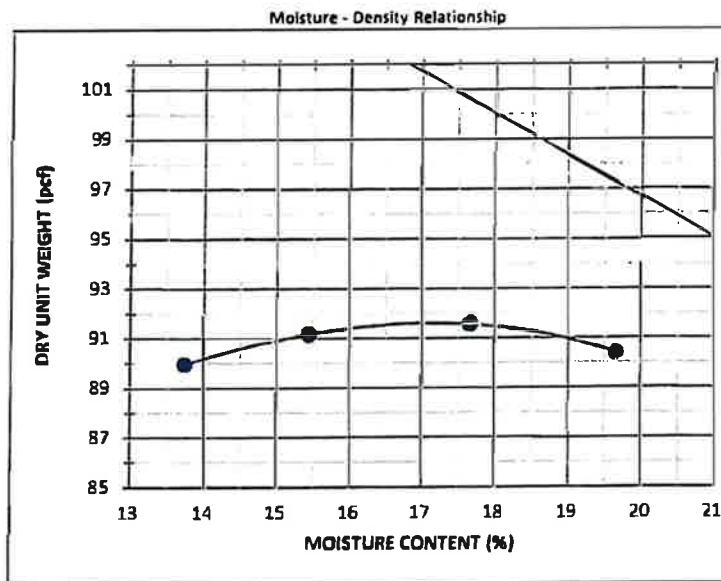
Material Finer than #200 Sieve	
Finer than #200 (%)	43.9
Note: Material Finer than #200 performed in accordance with ASTM D1140	

Hydraulic Conductivity	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/22/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1420



Note: Soil Specific Gravity as 2.25 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	91.6
Optimum Moisture (%)	17.1
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method B (Standard Proctor) Dry Preparation and Manual Hammer. 150W was used.	

### Sample Details

Sample Date	7/5/2019
Sample Location	B3 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	12

### Moisture Content

Moisture Content	31.8
Note: Moisture Content performed in general accordance with ASTM-D2216	

### Material Finer than #200 Sieve

Finer than #200 (%)	59.3
Note: Material Finer than #200 performed in accordance with ASTM-D1140	

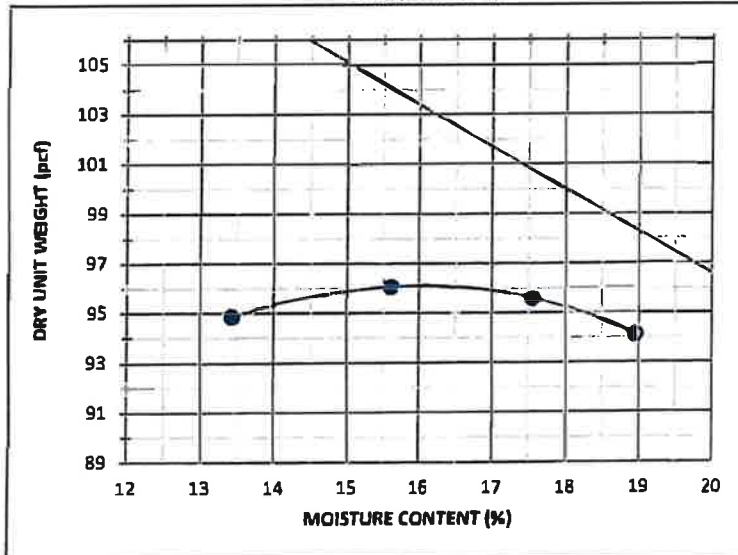




## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/25/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1421

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.25 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	96.1
Optimum Moisture (%)	16
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method B (Standard Proctor) (Dry Preparation and Manual Hammer Type) was used.	

Sample Details

Sample Date	7/5/2019
Sample Location	B4 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	13

Moisture Content

Moisture Content	28.7
Note: Moisture Content performed in general accordance with ASTM-D2216	

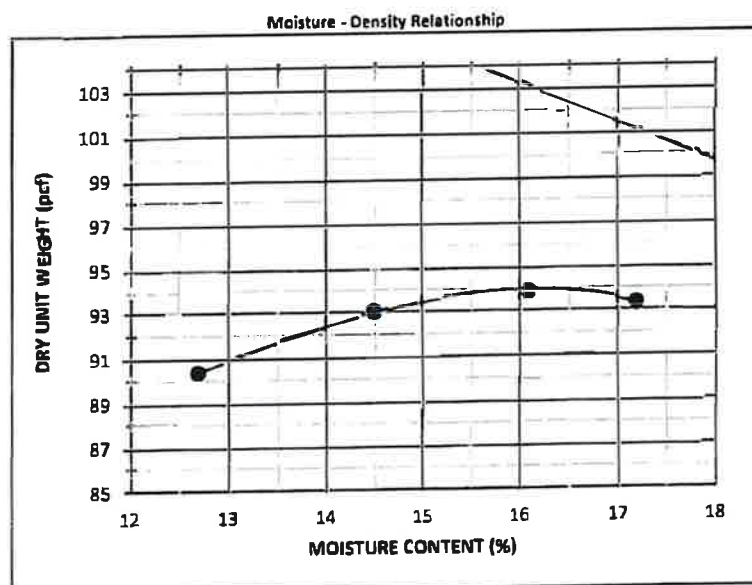
Material Finer than #200 Sieve

Finer than #200 (%)	57.4
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/29/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1422



Note: Soil Specific Gravity as 2.75 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	93.9
Optimum Moisture (%)	16.1
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method B (Standard Proctor) Dry Preparation and Manual Number 1 type wet used.	

Sample Details	
Sample Date	7/5/2019
Sample Location	B5 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	14

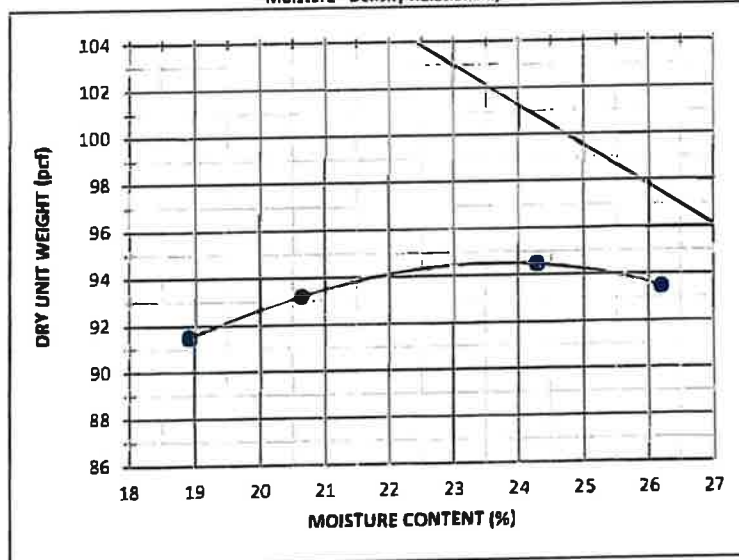
Moisture Content	
Moisture Content	27.7
Note: Moisture Content performed in general accordance with ASTM-D2216	
Material Finer than #200 Sieve	
Finer than #200 (%)	54.7
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	9/5/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	8/9/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1423

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	94.5
Optimum Moisture (%)	23.7
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer Type was used	

Sample Details

Sample Date	7/5/2019
Sample Location	B6 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	15

Moisture Content

Moisture Content	22.9
Note: Moisture Content performed in general accordance with ASTM-D1226	

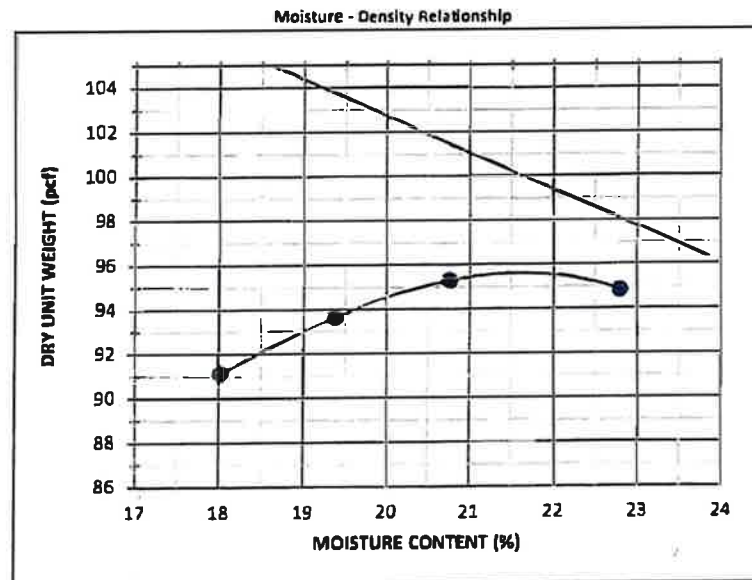
Material Finer than #200 Sieve

Finer than #200 (%)	51.8
Note: Material Finer than #200 performed in accordance with ASTM-D1190	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	09/05/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	7/29/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1424



Note: Soil Specific Gravity as 2.45 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	95.6
Optimum Moisture (%)	21.6
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor/Dry Preparation and Manual Hammer type was used.	

## Sample Details

Sample Date	7/5/2019
Sample Location	87 - First Lift
Soil Description	Yellowish brown clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	16

## Moisture Content

Moisture Content	32.3
Note: Moisture Content performed in general accordance with ASTM-D1236	

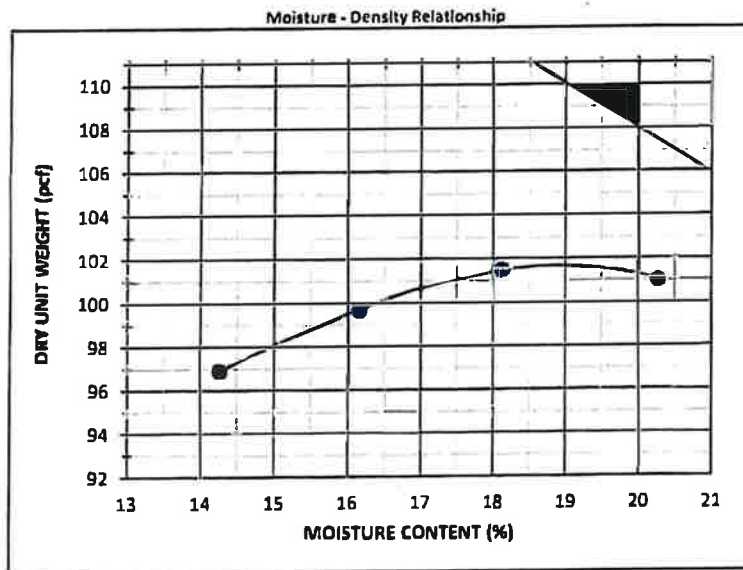
## Material Finer than #200 Sieve

Finer than #200 (%)	52.4
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	12/03/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	11/15/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1536



Note: Soil Specific Gravity as 2.85 assumed for Zero Air Voids Curve

<b>Proctor</b>	
Maximum Density (pcf)	101.7
Optimum Moisture (%)	18.9
Note: Moisture Density Relationship performed in accordance with ASTM D 698 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used.	

## Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; A-1 ; 2nd Lift
Soil Description	Orange, clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	20

## Moisture Content

Moisture Content	9.2
Note: Moisture Content performed in general accordance with ASTM-D2216	

## Material Finer than #200 Sieve

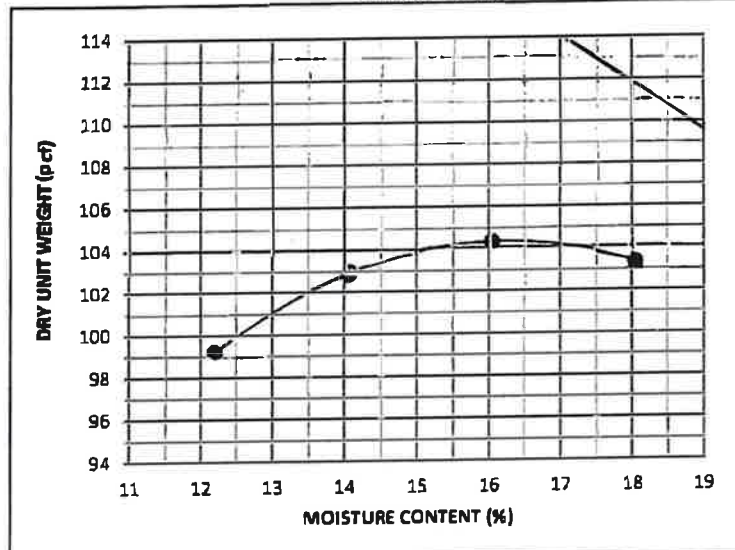
Finer than #200 (%)	39.5
Note: Material Finer than #200 performed in accordance with ASTM-D1348	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	01/08/2020
	9802 Palm River Road, Tampa, FL 33619	Test Date	12/26/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1549

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.55 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	104.3
Optimum Moisture (%)	16.2
Notes: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual hammer type was used.	

Sample Details

Sample Date	7/19/2019
Sample Location	CELL- 17; Berm ; S1
Soil Description	Light reddish brown fine clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	32

Moisture Content

Moisture Content	16.5
Note: Moisture Content performed in general accordance with ASTM-D2216	

Material Finer than #200 Sieve

Finer than #200 (%)	40.7
Note: Material Finer than #200 performed in accordance with ASTM-D1140	

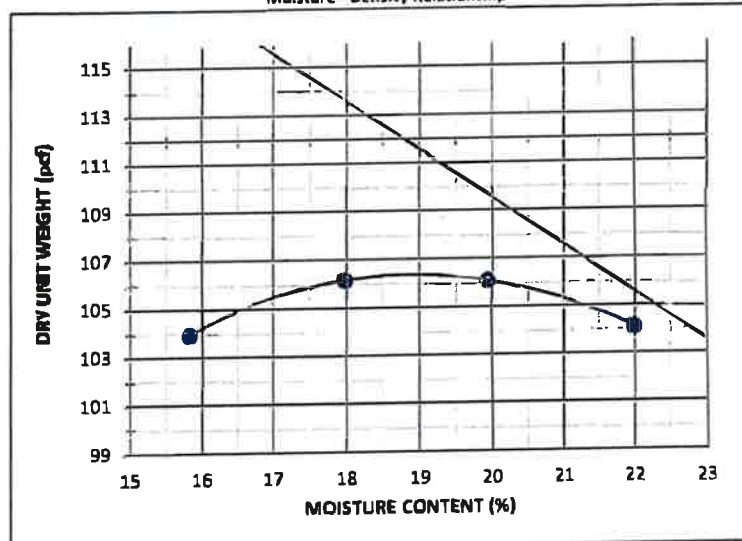




## Proctor Report

Client	Universal Engineering Sciences	Report Date	12/03/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	11/15/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1537

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.70 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	106.4
Optimum Moisture (%)	18.9

Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer Type was used

Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; A-2 ; Lift 2
Soil Description	Brownish yellow Clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	21

Moisture Content

Moisture Content	8.3
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Note: Moisture Content performed in general accordance with ASTM-D2216

Material Finer than #200 Sieve

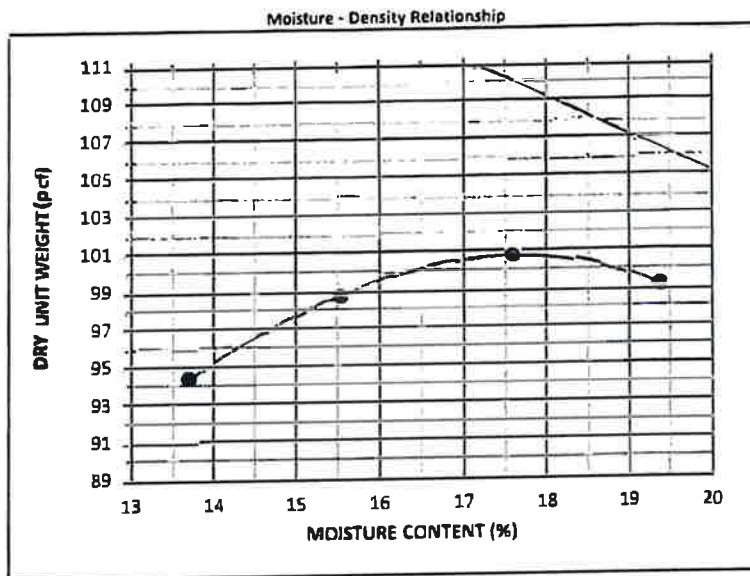
Finer than #200 (%)	41.7
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Note: Material Finer than #200 performed in accordance with ASTM-D1140



## Proctor Report

Client	Universal Engineering Sciences	Report Date	10/28/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	10/11/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1551



Note: Soil Specific Gravity as 2.55 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	100.8
Optimum Moisture (%)	17.6
Note: Moisture Density Relationship performed in accordance with ASTM D-698 (Standard Proctor) Dry Preparation and Manual Hammer type was used.	

## Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; A-3 ; Lift 2
Soil Description	Brownish yellow Clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	34

## Moisture Content

Moisture Content	22.3
Note: Moisture Content performed in general accordance with ASTM-D3216	

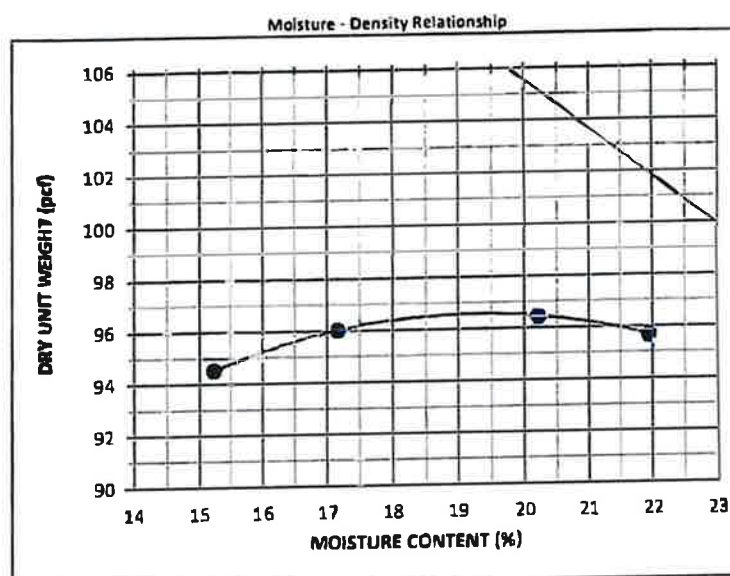
## Material Finer than #200 Sieve

Finer than #200 (%)	40.8
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	10/28/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	10/11/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1552



Note: Soil Specific Gravity as 2.55 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	96.6
Optimum Moisture (%)	19.2
Note: Moisture Density Relationship performed in accordance with ASTM D 698 method A (Standard Proctor) Dry Preparation and Manual Hammer type was used	

### Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17; A-4; Lift 2
Soil Description	Brownish yellow clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	35

### Moisture Content

Moisture Content	11.9
Note: Moisture Content performed in general accordance with ASTM-D2216	

### Material Finer than #200 Sieve

Finer than #200 (%)	47.7
Note: Material Finer than #200 performed in accordance with ASTM-D1140	

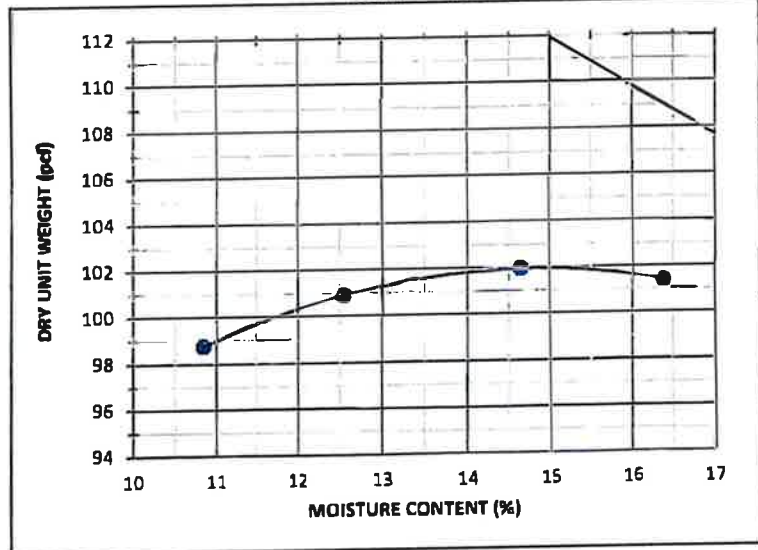
### Hydraulic Conductivity



## Proctor Report

Client	Universal Engineering Sciences	Report Date	12/03/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	11/15/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1538

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.45 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	101.9
Optimum Moisture (%)	14.8

Note: Moisture Density Relationship performed in accordance with ASTM D 698 Method A (Standard Proctor) Dry Preparation and Modified hammer type was used.

Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; A-5 ; Lift 2
Soil Description	Light reddish brown fine clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	22

Moisture Content

Moisture Content	8.9
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Note: Moisture Content performed in general accordance with ASTM-D2216

Material Finer than #200 Sieve

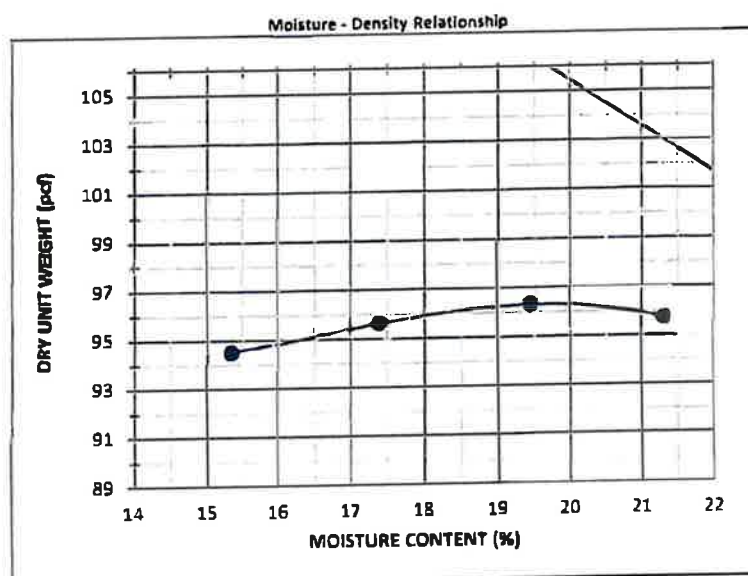
Finer than #200 (%)	49.6
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Note: Material Finer than #200 performed in accordance with ASTM-D1140



## Proctor Report

Client	Universal Engineering Sciences	Report Date	12/03/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	11/15/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1540



Note: Soil Specific Gravity as 2.55 assumed for Zero Air Voids Curve

Proctor	
Maximum Density (pcf)	96.3
Optimum Moisture (%)	19.6
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used	

## Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; A-6 ; Lift 2
Soil Description	Light reddish brown fine clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	23

## Moisture Content

Moisture Content	8.8
Note: Moisture Content performed in general accordance with ASTM-D2216	

## Material Finer than #200 Sieve

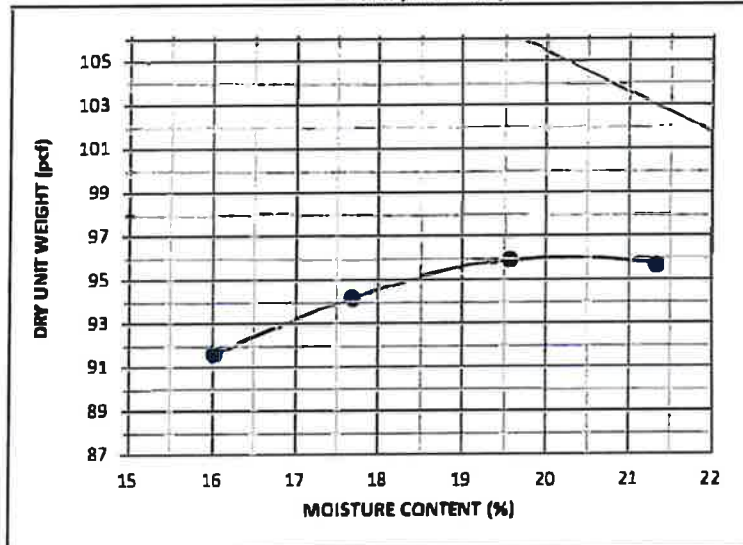
Finer than #200 (%)	49
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	10/28/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	10/22/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1541

Moisture - Density Relationship



Note: Soil Specific Gravity at 2.55 assumed for Zero Air Voids Curve

Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; A-7 ; Lift 2
Soil Description	Brownish yellow Clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	24

Moisture Content

Moisture Content	19.1
Note: Moisture Content performed in general accordance with ASTM-D2216	

Material Finer than #200 Sieve

Finer than #200 (%)	51.8
Note: Material Finer than #200 performed in accordance with ASTM-D1140	

Proctor

Maximum Density (pcf)	96.1
Optimum Moisture (%)	20.3
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer Type was used	

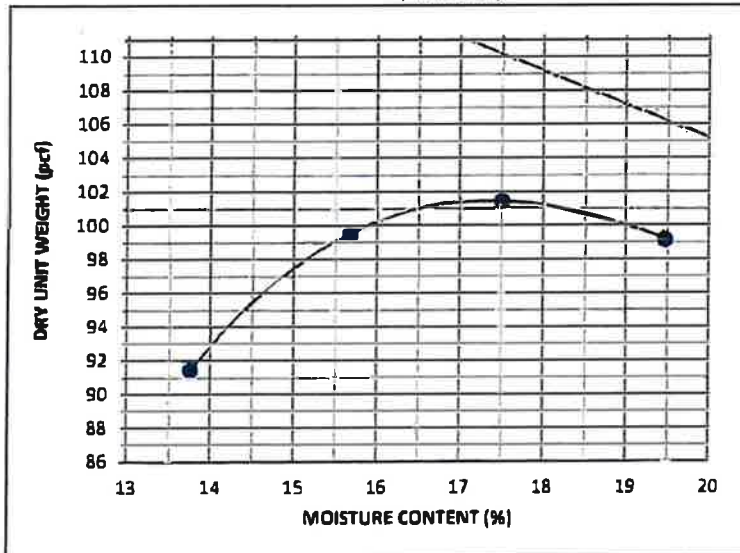




## Proctor Report

Client	Universal Engineering Sciences	Report Date	12/03/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	11/15/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1542

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	101.5
Optimum Moisture (%)	17.3
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used	

Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17; B-1; UH 2
Soil Description	Light reddish brown fine clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	25

Moisture Content

Moisture Content	7.4
Note: Moisture Content performed in general accordance with ASTM-D7216	

Material Finer than #200 Sieve

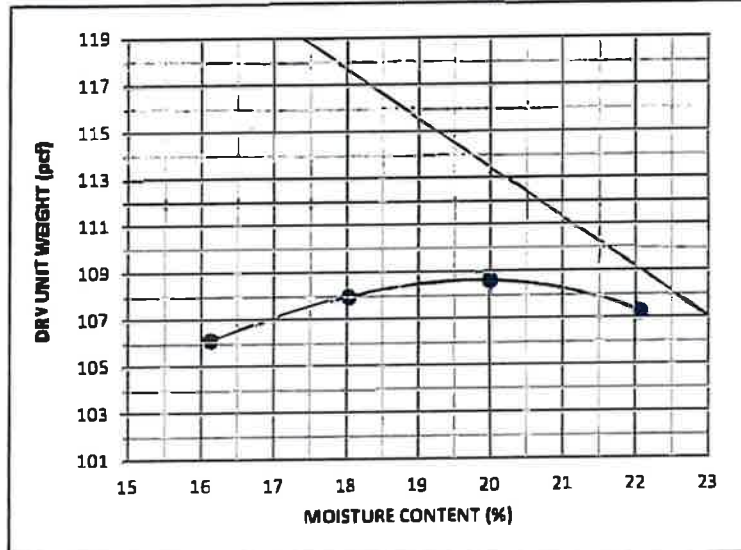
Finer than #200 (%)	43.1
Note: Material finer than #200 performed in accordance with ASTM-D1346	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	12/03/2019
	9802 Palm River Road, Tampa, FL 33619	Test Date	11/15/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1543

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	108.7
Optimum Moisture (%)	19.8
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used	

Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; B-2 ; Lift 2
Soil Description	Light reddish brown fine clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	26

Moisture Content

Moisture Content	9.1
Note: Moisture Content performed in general accordance with ASTM-D2216	

Material Finer than #200 Sieve

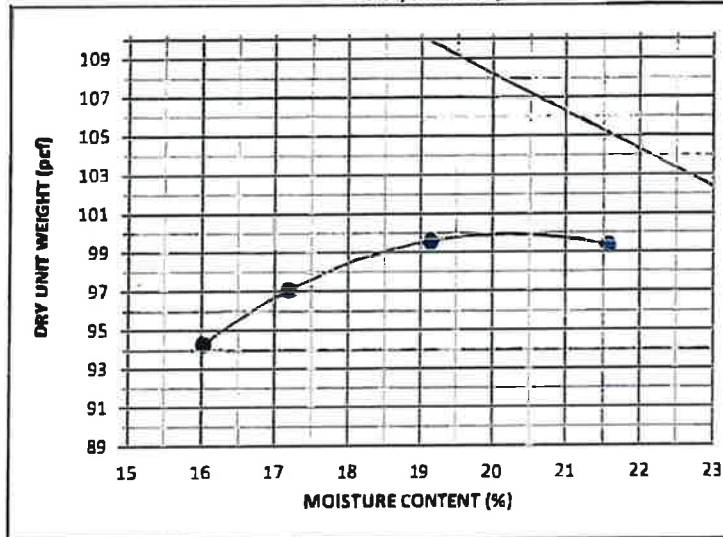
Finer than #200 (%)	45.5
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	01/08/2020
	9802 Palm River Road, Tampa, FL 33619	Test Date	12/13/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1544

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	99.9
Optimum Moisture (%)	20.2
Note: Moisture Density Relationship performed in accordance with ASTM D-698 Method A (Standard Proctor) Dry Preparation and Manual Hammer tamping was used.	

Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; B-3 ; Lift 2
Soil Description	Orange, Sandy Clay
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	27

Moisture Content

Moisture Content	6.3
Note: Moisture Content performed in general accordance with ASTM D2216	

Material Finer than #200 Sieve

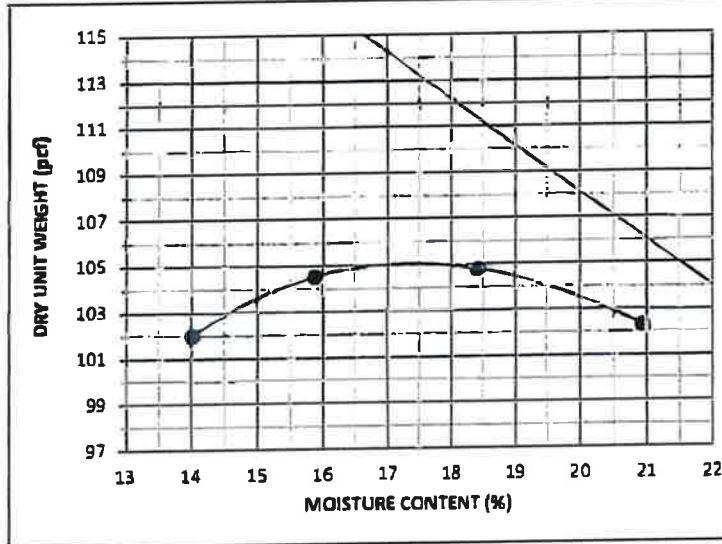
Finer than #200 (%)	43.2
Note: Material finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	01/08/2020
	9802 Palm River Road, Tampa, FL 33619	Test Date	12/13/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1545

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

## Proctor

Maximum Density (pcf)	105.1
Optimum Moisture (%)	17.3
Note: Moisture Density Relationship performed in accordance with ASTM D 698 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used.	

## Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; B-4 ; Lift 2
Soil Description	Orange, Sandy Clay
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	28

## Moisture Content

Moisture Content	8.4
Note: Moisture Content performed in general accordance with ASTM-D2216	

## Material Finer than #200 Sieve

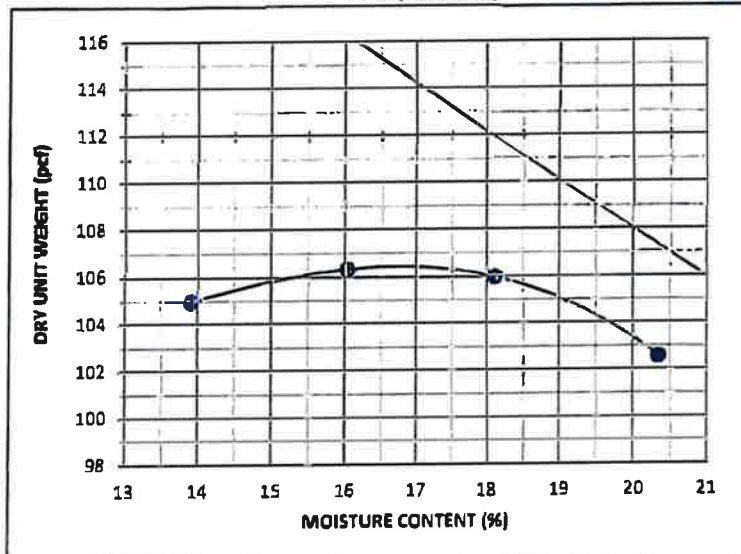
Finer than #200 (%)	37.1
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	01/08/2020
	9802 Palm River Road, Tampa, FL 33619	Test Date	12/26/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1546

### Molsture - Density Relationship



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	106.4
Optimum Moisture (%)	16.8

Note: Moisture Density Relationship performed in accordance with ASTM D-698 (Standard Proctor) Dry Preparation and Manual hammer type was used.

### Sample Details

Sample Date	7/19/2019
Sample Location	
CELL-17 ; B-5 ; Lift 2	
Soil Description	
Light reddish brown fine clayey SAND	
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	29

### Moisture Content

Moisture Content	5
------------------	---

Note: Moisture Content performed in general accordance with ASTM-D2216

Note: Moisture Content performed in general accordance with ASTM-D2216

Material Finer than #200 Sieve

Finer than #200 (%)	39.4
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Note: Material Finer than #200 performed in accordance with ASTM D3140

Note: Material finer than #200 performed in accordance with ASTM-D1190

### Hydraulic Conductivity

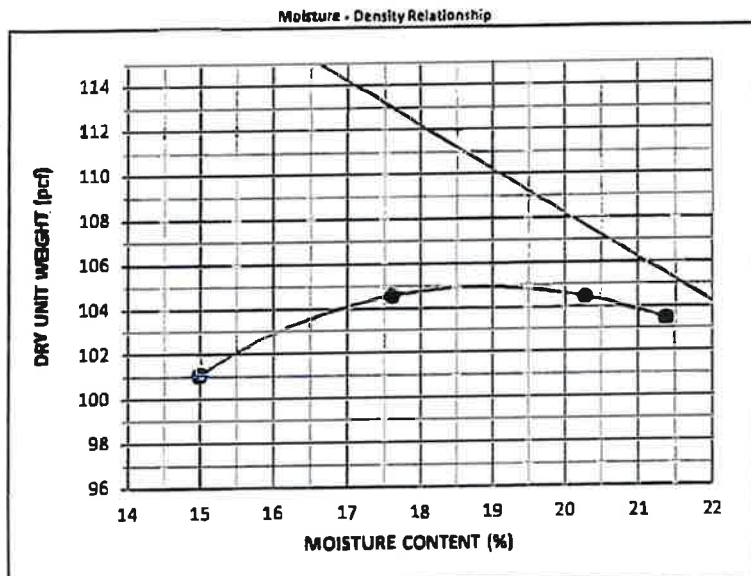
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## Proctor Report

Client	Universal Engineering Sciences	Report Date	01/08/2020
	9802 Palm River Road, Tampa, FL 33619	Test Date	12/23/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1547



Note: Soil Specific Gravity is 2.65 assumed for Area Air Voids Curve

## Proctor

Maximum Density (pcf)	104.9
Optimum Moisture (%)	18.8

Note: Moisture Density Relationship performed in accordance with ASTM D 698 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used.

## Sample Details

Sample Date	7/19/2019
Sample Location	CELL-6 ; B-6 ; Lift 2
Soil Description	Orange Clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	30

## Moisture Content

Moisture Content	5
------------------	---

Note: Moisture Content performed in general accordance with ASTM-D2236

## Material Finer than #200 Sieve

Finer than #200 (%)	39.2
---------------------	------

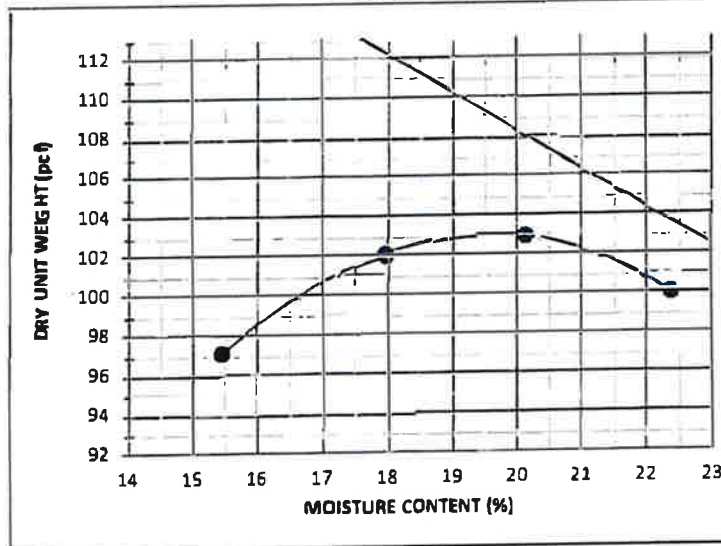
Note: Material Finer than #200 performed in accordance with ASTM-D1164



## Proctor Report

Client	Universal Engineering Sciences	Report Date	01/08/2020
	9802 Palm River Road, Tampa, FL 33619	Test Date	12/23/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering - General Lab Testing	RADISE Sample #	2019 - 1548

Moisture - Density Relationship



Note: Soil Specific Gravity at 2.65 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	103
Optimum Moisture (%)	19.6
Note: Moisture Density Relationship performed in accordance with ASTM D 498 Method A (Standard Proctor) Dry Preparation and Manual Hammer type was used.	

Sample Details

Sample Date	7/19/2019
Sample Location	CELL-6 ; 8-7 ; Lift 2
Soil Description	Light reddish brown fine clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	31

Moisture Content

Moisture Content	10.3
Note: Moisture Content performed in general accordance with ASTM-D2216	

Material Finer than #200 Sieve

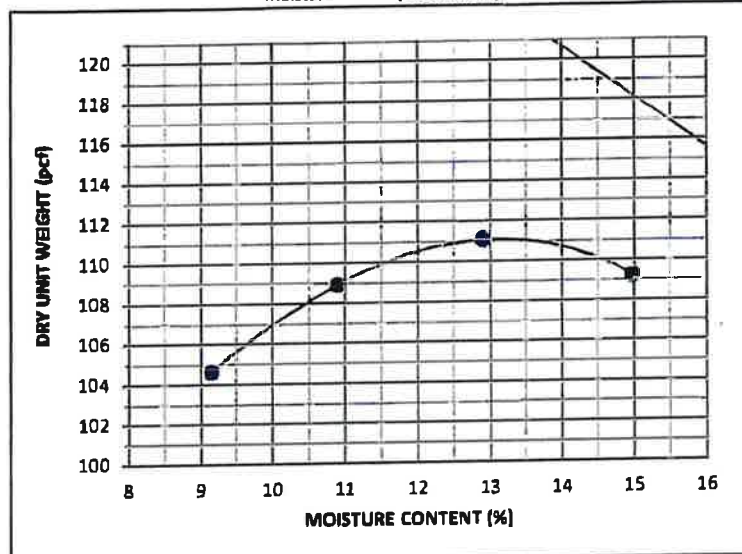
Finer than #200 (%)	43.3
Note: Material Finer than #200 performed in accordance with ASTM-D1140	



## Proctor Report

Client	Universal Engineering Sciences	Report Date	01/08/2020
	9802 Palm River Road, Tampa, FL 33619	Test Date	12/26/2019
Client Project #		RADISE Project #	190708
Project Name	Universal Engineering – General Lab Testing	RADISE Sample #	2019 - 1550

Moisture - Density Relationship



Note: Soil Specific Gravity as 2.65 assumed for Zero Air Voids Curve

Proctor

Maximum Density (pcf)	111.1
Optimum Moisture (%)	13.1

Note: Moisture Density Relationship performed in accordance with ASTM D 698 Standard Proctor Dry Preparation and Automatic hammer type was used

Sample Details

Sample Date	7/19/2019
Sample Location	CELL-17 ; Berm ; S2
Soil Description	Light reddish brown fine clayey SAND
Soil Classification	Not Performed
Material	Delivered Sample
Sample #	33

Moisture Content

Moisture Content	5.4
------------------	-----

Note: Moisture Content performed in general accordance with ASTM-D2216

Material Finer than #200 Sieve

Finer than #200 (%)	39.3
---------------------	------

Note: Material Finer than #200 performed in accordance with ASTM-D1140



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**Client:** Angelo's Materials

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#1

**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 9/19/2019

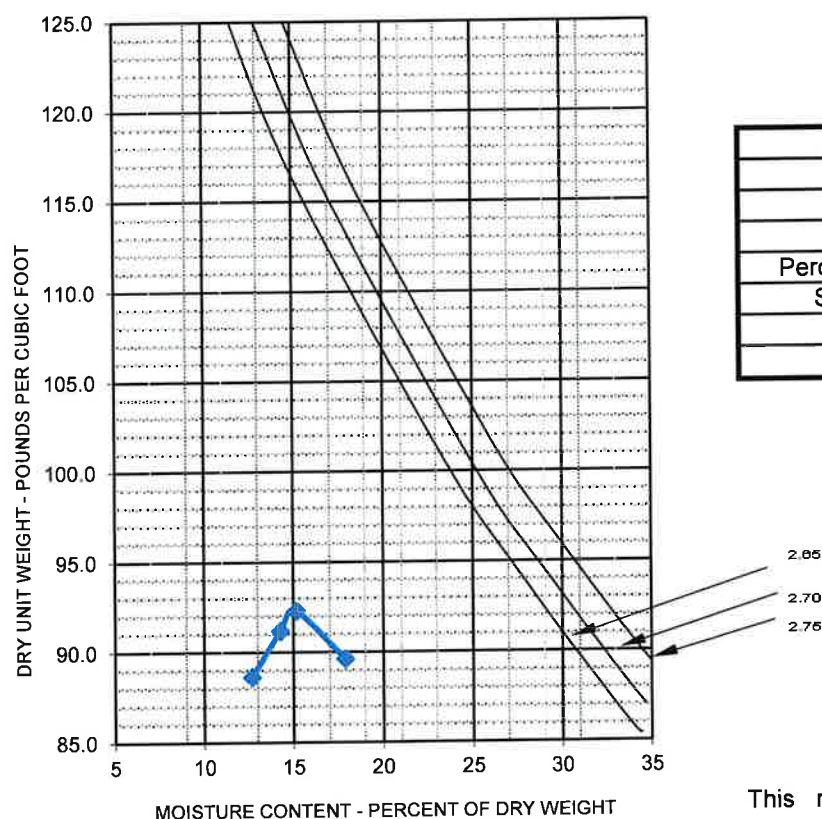
**Date Tested:** 10/15/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** A1 3rd

**Location:** A-1 3rd Lift



Proctor	
Maximum Density (pcf)	92.3
Optimum Moisture (%)	15.1
Soil Classification	
Percent Passing 200 (ASTM D1140)	52.3
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Yellowish Brown Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#2

**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 9/19/2019

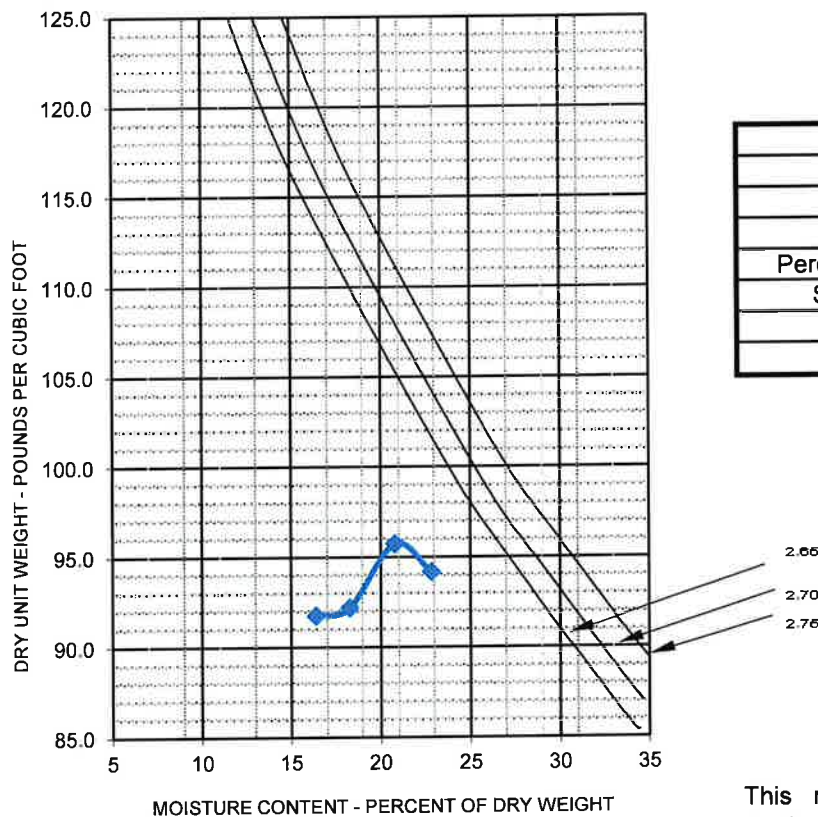
**Date Tested:** 10/15/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** A2-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	95.7
Optimum Moisture (%)	20.8
Soil Classification	
Percent Passing 200 (ASTM D1140)	44.5
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Yellowish Brown Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#3

**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 9/19/2019

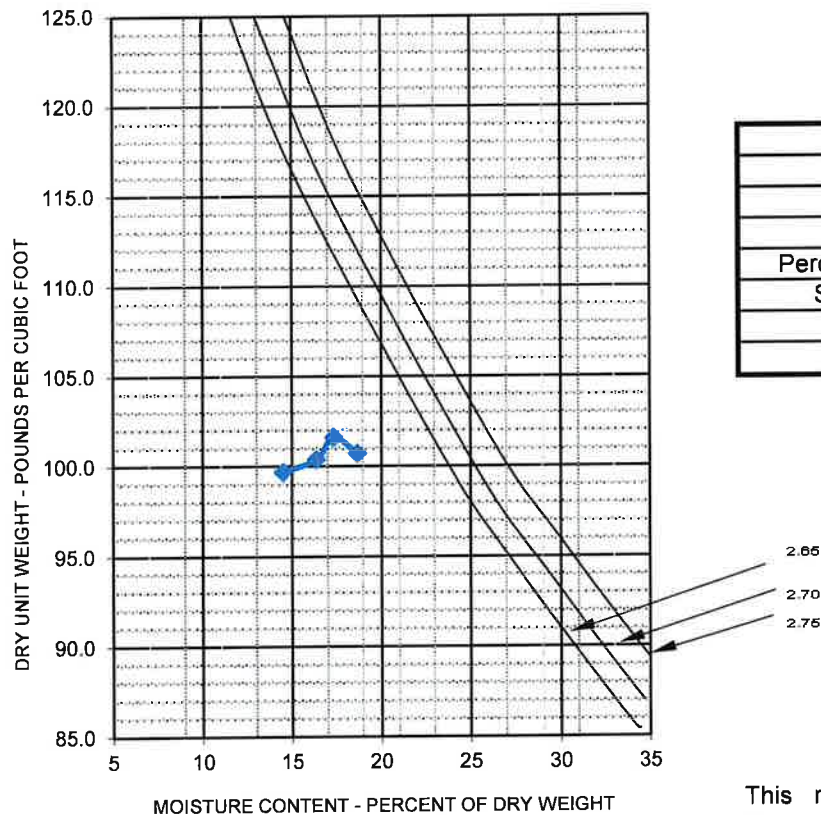
**Date Tested:** 10/15/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** A3-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	101.6
Optimum Moisture (%)	17.4
Soil Classification	
Percent Passing 200 (ASTM D1140)	39.2
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Brownish Yellow Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#4

**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 9/19/2019

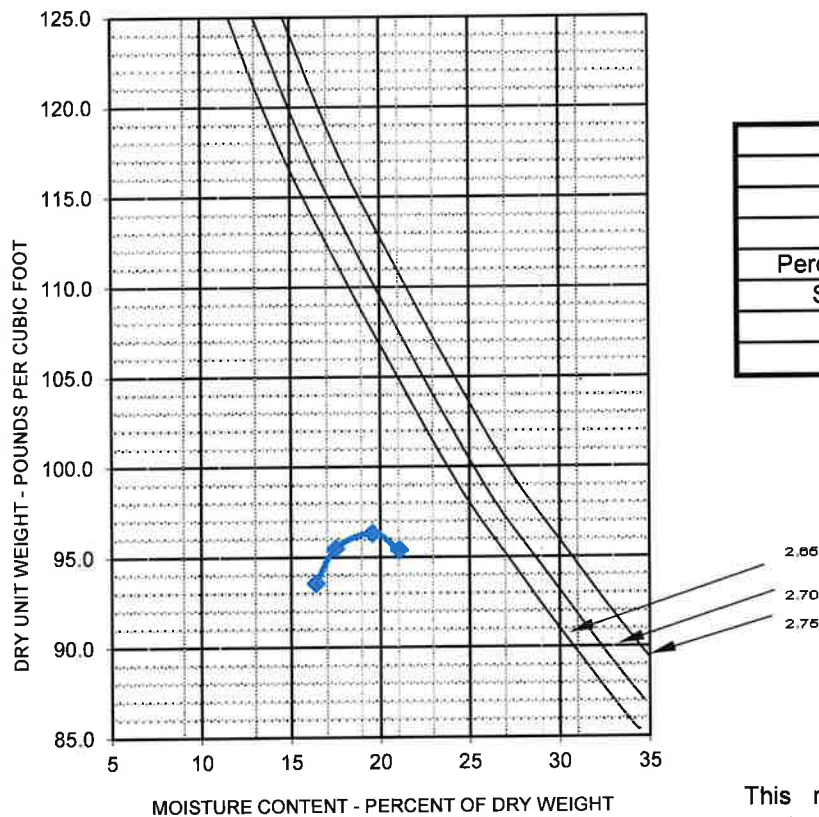
**Date Tested:** 10/16/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** A4-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	96.4
Optimum Moisture (%)	19.8
Soil Classification	
Percent Passing 200 (ASTM D1140)	48.3
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Brownish Yellow Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#5

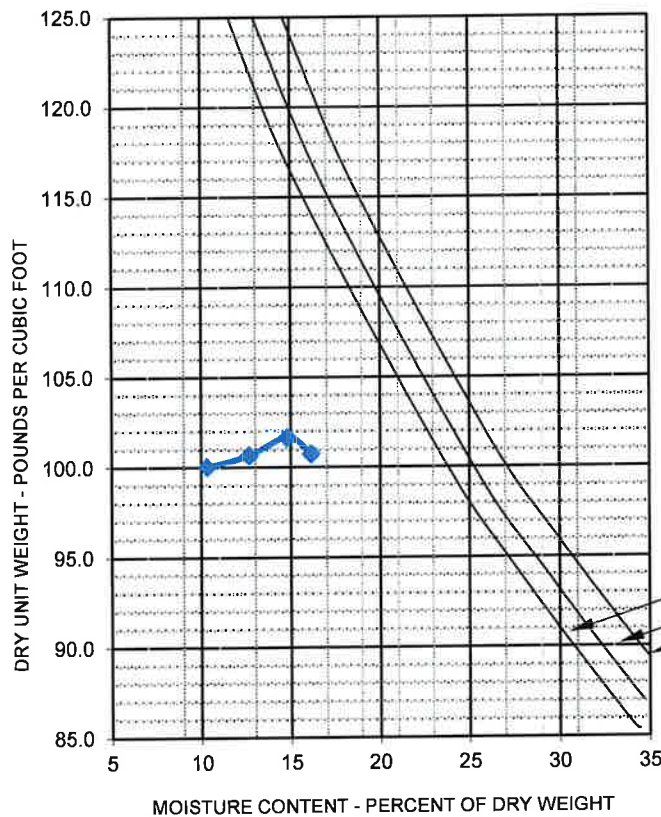
**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 9/19/2019  
**Date Tested:** 10/16/2019  
**Workorder No.:** N/A

**Sampled By:** M. Arroyo  
**Sample No.:** A5-3  
**Location:** Cell 17



Proctor	
Maximum Density (pcf)	101.7
Optimum Moisture (%)	14.8
Soil Classification	
Percent Passing 200 (ASTM D1140)	47.9
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Light Reddish Brown Fine Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#6

**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 9/19/2019

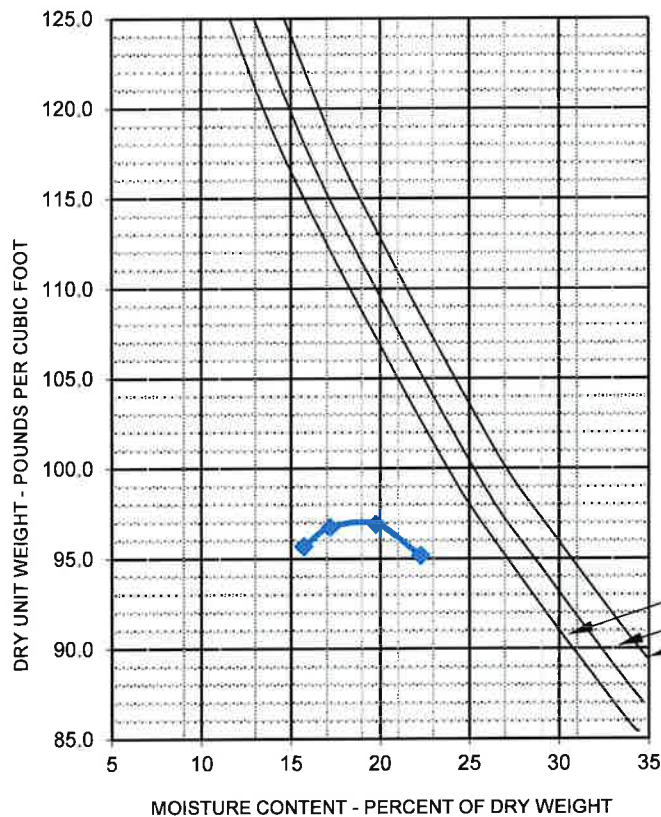
**Date Tested:** 10/16/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** A6-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	96.9
Optimum Moisture (%)	19.8
Soil Classification	
Percent Passing 200 (ASTM D1140)	47.8
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Light Reddish Brown Fine Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#7

**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

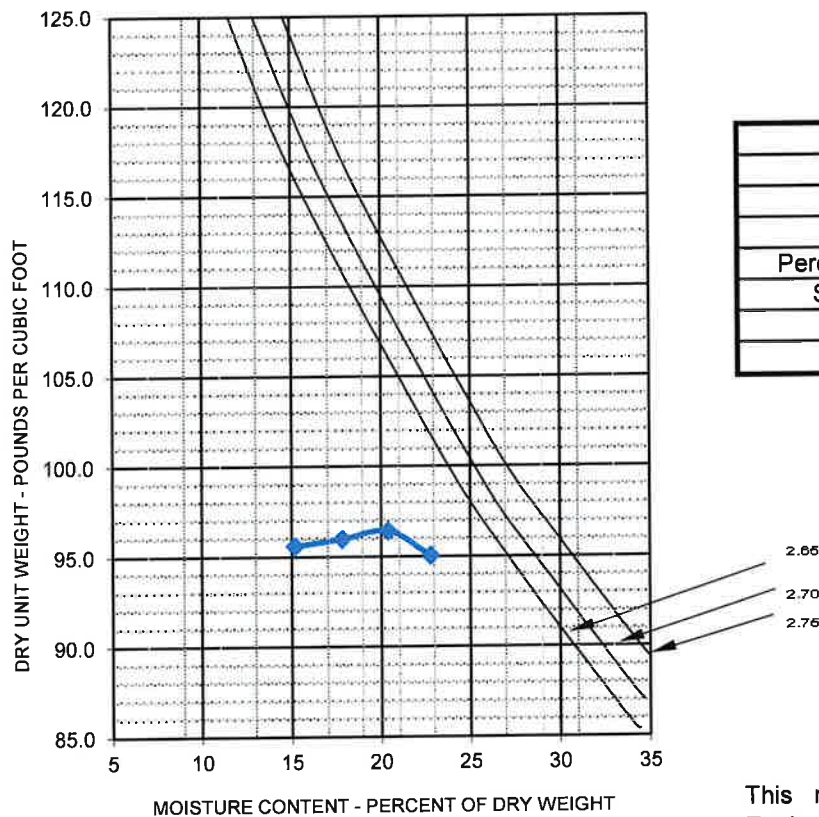
**Date Tested:** 10/16/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** A7-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	96.4
Optimum Moisture (%)	20.4
Soil Classification	
Percent Passing 200 (ASTM D1140)	51.3
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Brownish Yellow Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#8

**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

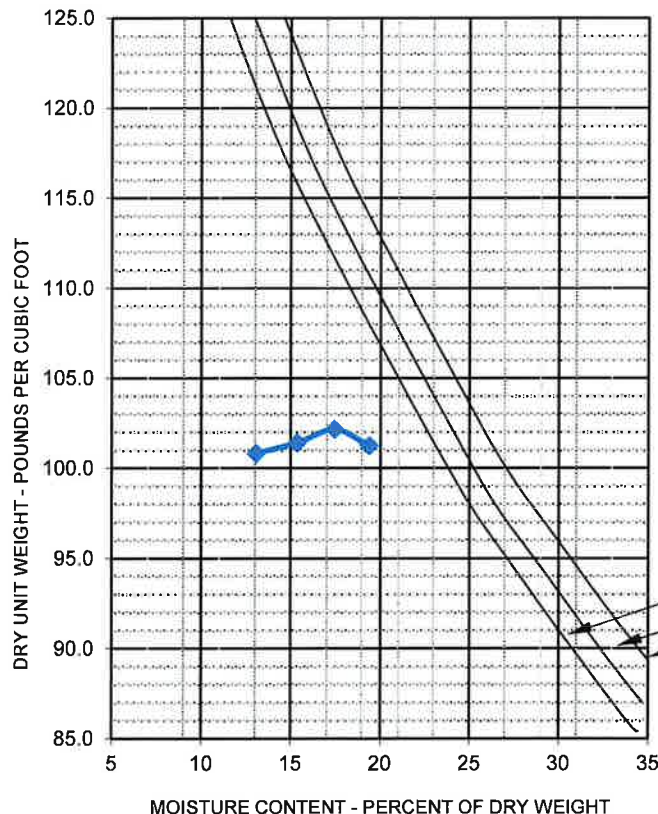
**Date Tested:** 10/16/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** B1-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	102.2
Optimum Moisture (%)	17.4
Soil Classification	
Percent Passing 200 (ASTM D1140)	42.5
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Brownish Yellow Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#9

**Date:** October 21, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

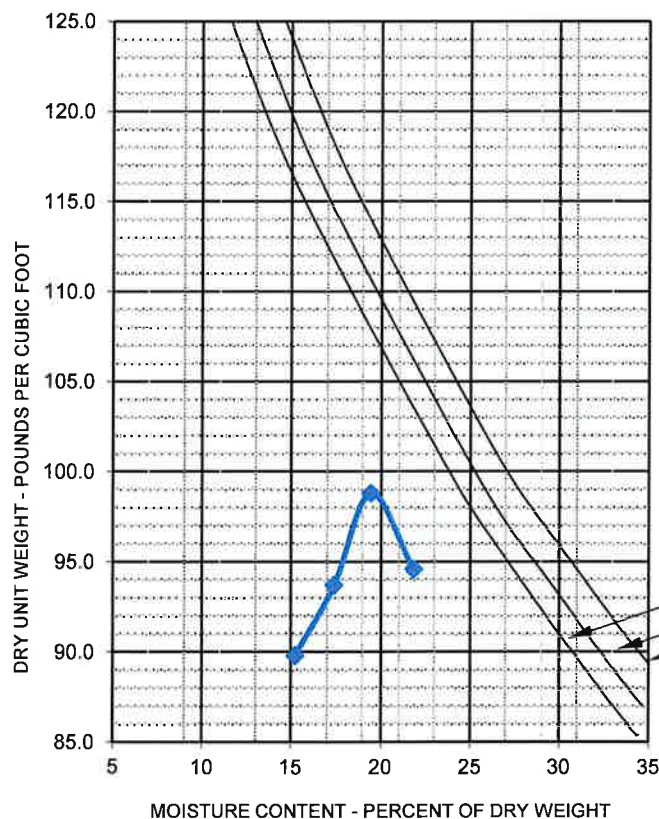
**Date Tested:** 10/18/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** B2-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	98.8
Optimum Moisture (%)	18.2
Soil Classification	
Percent Passing 200 (ASTM D1140)	46.7
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Light Reddish Brown Fine Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#10

**Date:** October 18, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

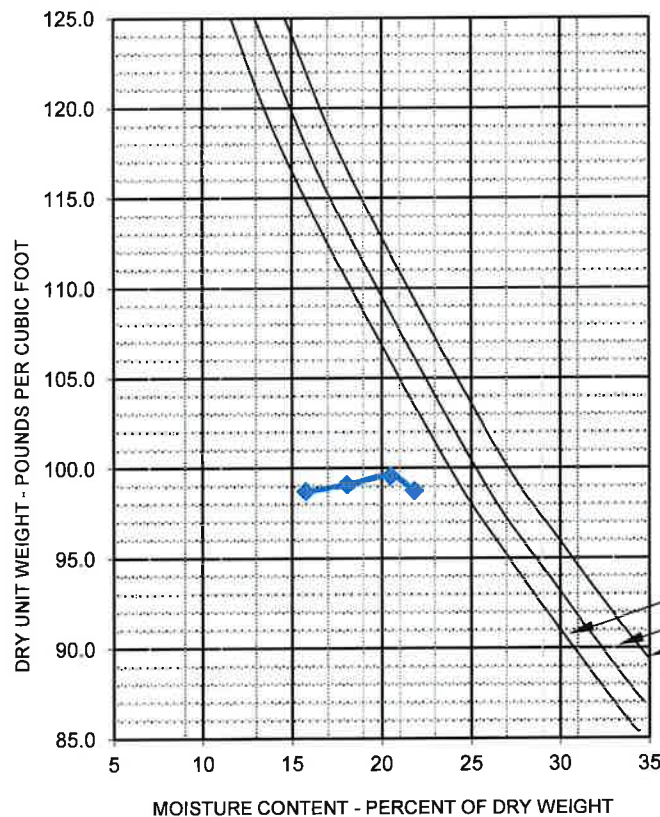
**Date Tested:** 10/18/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** B3-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	99.6
Optimum Moisture (%)	20.5
Soil Classification	
Percent Passing 200 (ASTM D1140)	42.9
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Orange Sandy Clay  
**Rammer Type:** Manual

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- Sarasota
- Tampa
- Tifton
- West Palm Beach

**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#11

**Date:** October 21, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

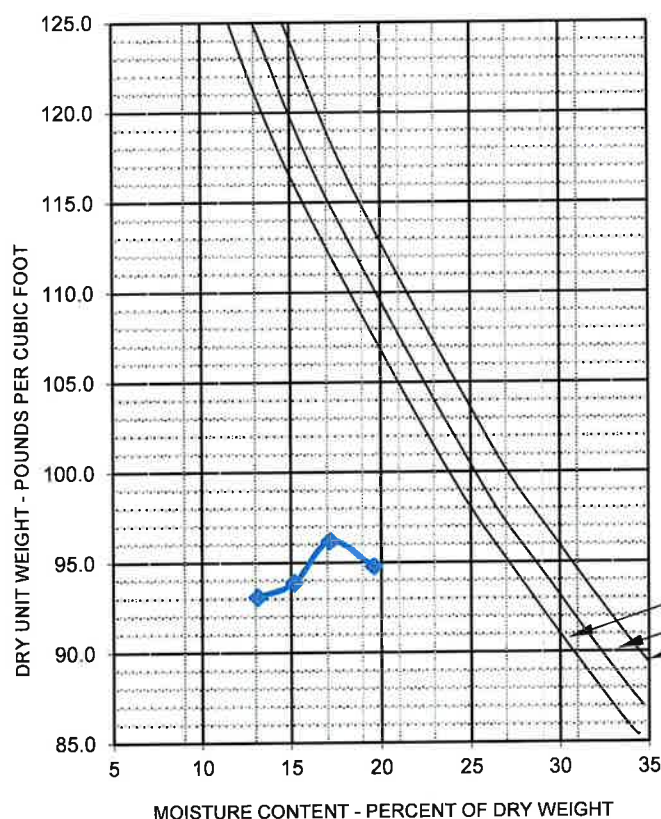
**Date Tested:** 10/19/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** B4-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	96.2
Optimum Moisture (%)	18.6
Soil Classification	
Percent Passing 200 (ASTM D1140)	43.7
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Orange Sandy Clay  
**Rammer Type:** Manual

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- Rockledge
- Sarasota
- Tampa
- Tifton
- West Palm Beach

**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#12

**Date:** October 21, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

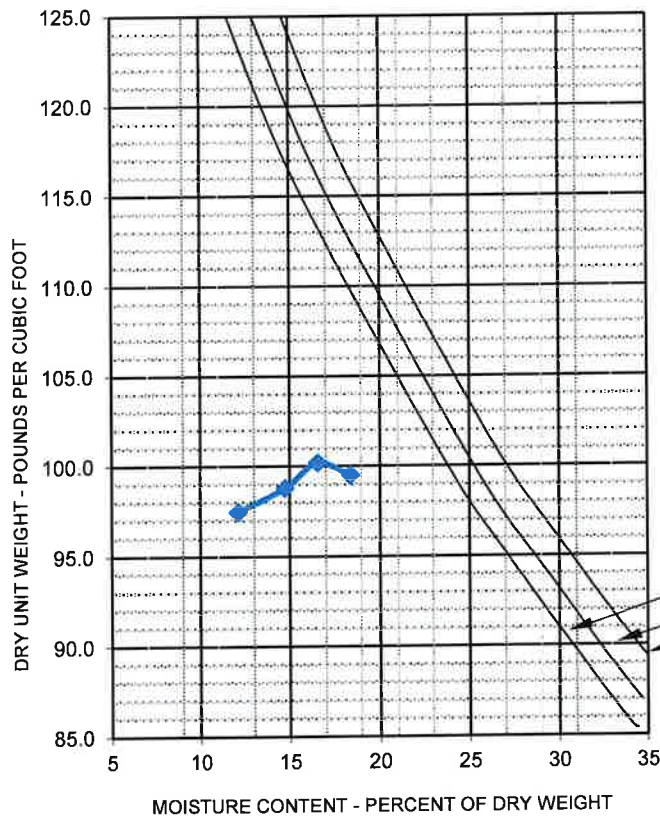
**Date Tested:** 11/15/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** B5-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	100.2
Optimum Moisture (%)	17.9
Soil Classification	
Percent Passing 200 (ASTM D1140)	48.8
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Light Reddish Brown Fine Clayey Sand  
**Rammer Type:** Manual

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- Tifton
- West Palm Beach

**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#13

**Date:** October 21, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

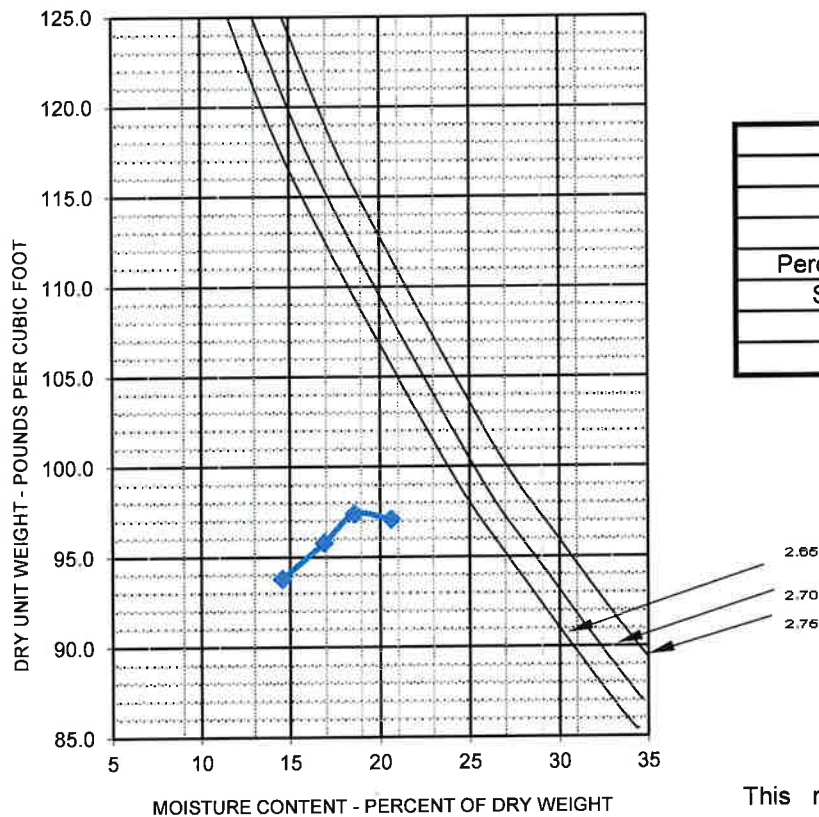
**Date Tested:** 10/19/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** B6-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	97.4
Optimum Moisture (%)	18.6
Soil Classification	
Percent Passing 200 (ASTM D1140)	39.7
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Ornge Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1900213.0000

**Report No.:** SPR#14

**Date:** October 21, 2019

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

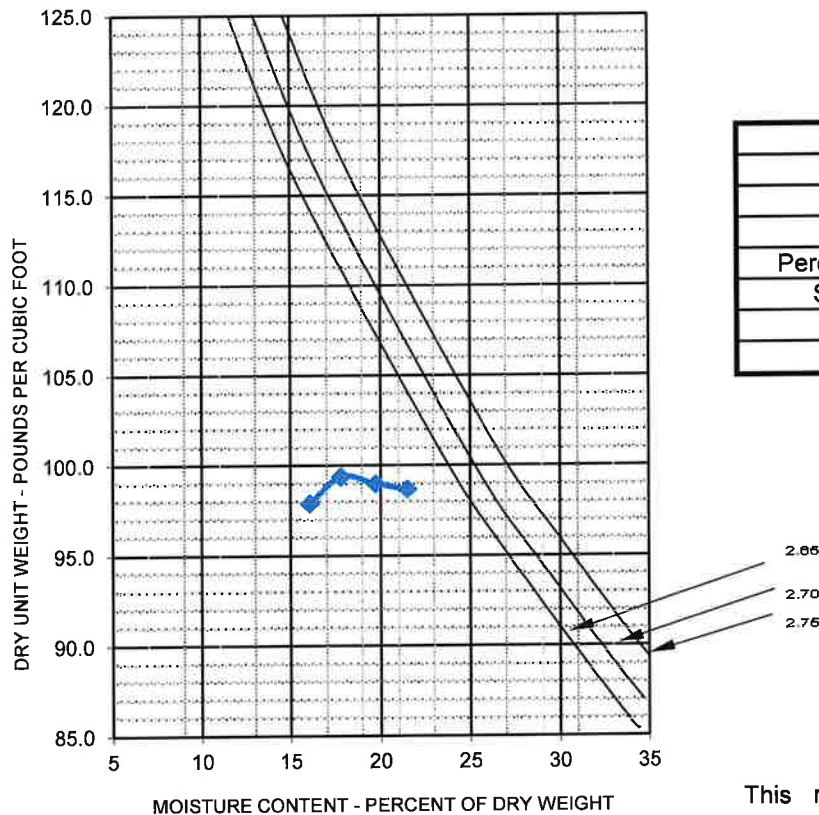
**Date Tested:** 10/19/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** B7-3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	99.4
Optimum Moisture (%)	18.2
Soil Classification	
Percent Passing 200 (ASTM D1140)	44.6
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Light Reddish Brn Fine Clayey Sand  
**Rammer Type:** Manual

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**Client:** Enterprise

**Project No.:** 0810.1500214.0000

**Report No.:** SPR#15

**Date:** March 2, 2020

**Project:** Cell 17

## STANDARD PROCTOR REPORT ASTM 698 METHOD A

**Date Sampled:** 7/19/2019

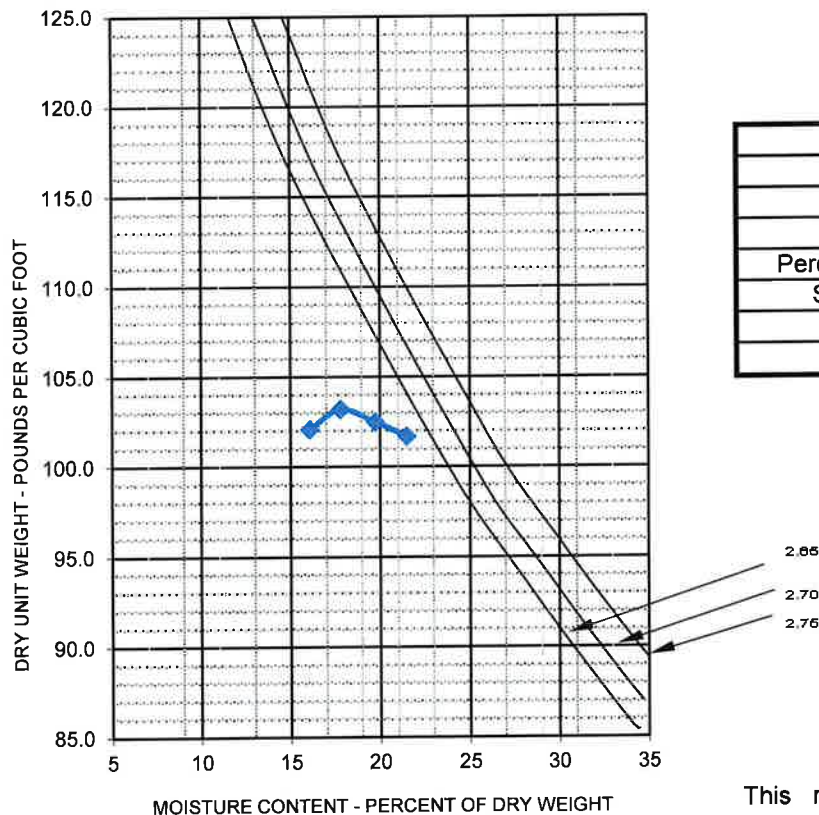
**Date Tested:** 10/19/2019

**Workorder No.:** N/A

**Sampled By:** M. Arroyo

**Sample No.:** Berm S3

**Location:** Cell 17



Proctor	
Maximum Density (pcf)	103.2
Optimum Moisture (%)	16.4
Soil Classification	
Percent Passing 200 (ASTM D1140)	44.6
Soil Classification (ASTM D2487)	N/A
Plasticity Index (ASTM D4318)	N/A
Organic Content (ASTM D2974)	N/A

**Soil Description:** Light Reddish Brn Fine Clayey Sand  
**Rammer Type:** Manual

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**Client:** Angelo's Materials's

**Project:** Enterprise Class 3 Cell 17

## REPORT ON TRIAXIAL PERMEABILITY AND PERCENT PASSING NO. 200 SIEVE (ASTM D-5084 and ASTM C-117) (AASHTO T-11)

Date Tested: 7/23/19-2/24/20 Tested By: Various  
Date Sampled: 7/19/2019-2/06/2020 Sampled By: MA

Sample Location	Percent Passing No. 200 Sieve	Proctor Value		Permeability:
		Optimum Moisture	Dry Unit Weight (pcf)	K (cm/s)
Section A-1 L1	54.5	14.5	91.5	$1.08 \times 10^{-8}$
Section A-1 L2	39.5	18.9	101.7	$6.65 \times 10^{-9}$
Section A-1 L3	52.3	15.1	92.3	$3.92 \times 10^{-9}$
Section A-2 L1	45.4	20.7	95.0	$2.18 \times 10^{-9}$
Section A-2 L2	41.7	18.9	106.4	$1.03 \times 10^{-8}$
Section A-2 L3	44.5	20.8	95.7	$4.61 \times 10^{-9}$
Section A-3 L1	55.6	22.7	97.9	$2.88 \times 10^{-9}$
Section A-3 L2	40.8	17.6	100.8	$1.13 \times 10^{-8}$
Section A-3 L3	39.2	17.4	101.6	$1.09 \times 10^{-9}$
Section A-4 L1	55.7	21.3	97.2	$2.73 \times 10^{-9}$
Section A-4 L2	47.7	19.2	96.6	$3.06 \times 10^{-9}$
Section A-4 L3	48.3	19.8	96.4	$1.48 \times 10^{-9}$
Section A-5 L1	56.6	21.6	92.3	$1.06 \times 10^{-8}$
Section A-5 L2	49.6	14.8	101.9	$1.36 \times 10^{-8}$
Section A-5 L3	47.9	14.4	101.7	$2.41 \times 10^{-9}$
Section A-6 L1	60.9	17.9	90.9	$1.22 \times 10^{-9}$
Section A-6 L2	49.0	19.6	96.3	$1.04 \times 10^{-8}$
Section A-6 L3	47.8	19.8	96.9	$2.22 \times 10^{-9}$





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Client: Angelo's Materials's

Project: Enterprise Class 3 Cell 17

## REPORT ON TRIAXIAL PERMEABILITY AND PERCENT PASSING NO. 200 SIEVE (ASTM D-5084 and ASTM C-117) (AASHTO T-11)

Date Tested: 7/23/19-2/24/20 Tested By: Various  
Date Sampled: 7/19/2019-2/06/2020 Sampled By: MA

Sample Location	Percent Passing No. 200 Sieve	Proctor Value		Permeability:
		Optimum Moisture	Dry Unit Weight (pcf)	K (cm/s)
Section A-7 L1	55.0	16.7	92.7	$1.04 \times 10^{-8}$
Section A-7 L2	51.8	20.3	96.1	$9.95 \times 10^{-9}$
Section A-7 L3	51.3	20.4	96.4	$3.57 \times 10^{-9}$
Section B-1 L1	46.1	22.9	95.2	$5.45 \times 10^{-9}$
Section B-1 L2	43.1	17.3	101.5	$1.17 \times 10^{-8}$
Section B-1 L3	42.5	17.4	102.2	$2.13 \times 10^{-9}$
Section B-2 L1	43.9	19.5	102.0	$4.68 \times 10^{-9}$
Section B-2 L2	45.5	19.8	94.2	$9.04 \times 10^{-9}$
Section B-2 L3	46.7	17.4	98.8	$4.73 \times 10^{-9}$
Section B-3 L1	59.3	17.1	91.6	$2.13 \times 10^{-9}$
Section B-3 L2	43.2	20.2	99.9	$6.35 \times 10^{-9}$
Section B-3 L3	42.9	20.5	99.6	$2.09 \times 10^{-9}$
Section B-4 L1	57.4	16.0	96.1	$6.27 \times 10^{-9}$
Section B-4 L2	37.1	17.3	105.1	$5.34 \times 10^{-9}$
Section B-4 L3	43.7	18.6	96.3	$4.95 \times 10^{-9}$
Section B-5 L1	54.7	16.1	93.9	$5.01 \times 10^{-9}$
Section B-5 L2	39.4	16.8	106.4	$2.94 \times 10^{-9}$
Section B-5 L3	48.8	17.9	100.2	$2.25 \times 10^{-9}$





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**Client:** Angelo's Materials's

**Project:** Enterprise Class 3 Cell 17

## REPORT ON TRIAXIAL PERMEABILITY AND PERCENT PASSING NO. 200 SIEVE (ASTM D-5084 and ASTM C-117) (AASHTO T-11)

Date Tested: 7/23/19-2/24/20 Tested By: Various  
Date Sampled: 7/19/2019-2/06/2020 Sampled By: MA

Sample Location	Percent Passing No. 200 Sieve	Proctor Value		Permeability:
		Optimum Moisture	Dry Unit Weight (pcf)	K (cm/s)
Section B-6 L1	51.8	23.7	94.5	$1.22 \times 10^{-8}$
Section B-6 L2	39.2	18.8	104.9	$5.84 \times 10^{-9}$
Section B-6 L3	39.7	18.5	97.4	$2.72 \times 10^{-9}$
Section B-7 L1	52.4	21.6	95.6	$3.81 \times 10^{-9}$
Section B-7 L2	43.3	19.6	103	$3.28 \times 10^{-9}$
Section B-7 L3	44.6	18.2	99.4	$1.82 \times 10^{-9}$
Section BERM S1	40.7	16.2	104.3	$2.01 \times 10^{-9}$
Section BERM S2	39.3	13.1	111.1	$4.26 \times 10^{-9}$
Section BERM S3	44.2	16.4	103.2	$3.21 \times 10^{-9}$



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Building Code Administration, Compliance Inspection & Plan Review

9802 Palm River Road, Tampa, FL 33619 - P: 813.740.8506 - F: 813.740.8706

UES Project No: 0810.1900213.0000

Workorder No: 101893-1

Report Date: 01/10/2020

## In-Place Density Test Report

**Client:** Angelo's Materials  
41111 Enterprise Road  
Dade City, FL 33525

**UES Technician:** Mario Arroyo

**Date Tested:** 07/12/2019

**Project:** Enterprise Class III Landfill Cell 17  
,, Pasco County,

**Area Tested:** 1st lift

**Material:** Fill

**Reference Datum:** 0 = Top of Fill

### Type of Test:

**Field:** ASTM D-6938 Nuclear Gauge Method

**Laboratory:** ASTM D698 Standard Proctor

The tests below meet the 95% minimum compaction requirement.

Test No.	Location of Test	Range	Maximum Density (pcf)	Optimum Moisture (%)	Field Dry Density (pcf)	Field Moisture (%)	Soil Compaction (%)	Pass or Fail
1	A-1	1 ft	91.5	14.5	92.3	16.8	101	Pass
2	A-2	1 ft	95.0	20.7	96.8	17.2	102	Pass
3	A-3	1 ft	97.9	22.7	96.2	15.3	98	Pass
4	A-4	1 ft	97.2	21.3	98.4	19.3	101	Pass
5	A-5	1 ft	92.3	21.6	93.9	18.0	102	Pass
6	A-6	1 ft	90.9	17.9	91.5	16.8	101	Pass
7	A-7	1 ft	92.7	16.7	94.1	15.9	102	Pass
8	B-1	1 ft	95.2	22.9	94.3	18.4	99	Pass
9	B-2	1 ft	102.2	17.4	99.4	18.3	97	Pass
10	B-3	1 ft	91.6	17.1	93.4	16.5	102	Pass
11	B-4	1 ft	96.1	16.0	95.2	17.2	99	Pass
12	B-5	1 ft	93.9	16.1	95.8	15.4	102	Pass
13	B-6	ft	94.5	23.7	94.1	18.9	100	Pass
14	B-7	1 ft	95.6	21.6	94.1	17.5	98	Pass

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Building Code Administration, Compliance Inspection & Plan Review

9802 Palm River Road, Tampa, FL 33619 - P: 813.740.8506 - F: 813.740.8706

UES Project No: 0810.1900213.0000

Workorder No: 103427-1

Report Date: 02/04/2020

## In-Place Density Test Report

**Client:** Angelo's Materials  
41111 Enterprise Road  
Dade City, FL 33525

**UES Technician:** Mario Arroyo

**Date Tested:** 08/02/2019

**Project:** Enterprise Class III Landfill Cell 17  
, Pasco County,

**Area Tested:** Second lift

**Material:** Fill

**Reference Datum:** 0 = Top of Fill

### Type of Test:

**Field:** ASTM D-6938 Nuclear Gauge Method

**Laboratory:** ASTM D698 Standard Proctor

The tests below meet the 95% minimum compaction requirement.

Test No.	Location of Test	Range	Maximum Density (pcf)	Optimum Moisture (%)	Field Dry Density (pcf)	Field Moisture (%)	Soil Compaction (%)	Pass or Fail
1	A-1	1 ft	96.1	20.3	96.4	18.7	100	Pass
2	A-2	1 ft	106.4	18.9	103.8	17.4	98	Pass
3	A-3	1 ft	100.8	17.6	101.5	17.4	101	Pass
4	A-4	1 ft	96.6	19.2	97.5	17.0	101	Pass
5	A-5	1 ft	101.9	14.8	99.4	15.7	98	Pass
6	A-6	1 ft	96.3	19.6	98.2	18.5	102	Pass
7	A-7	1 ft	96.1	16.7	96.6	15.8	101	Pass
8	B-1	1 ft	101.5	17.3	99.7	15.4	98	Pass
9	B-2	1 ft	94.2	19.8	96.3	16.6	102	Pass
10	B-3	1 ft	99.9	20.2	98.7	16.9	99	Pass
11	B-4	1 ft	105.1	17.3	101.7	18.2	97	Pass
12	B-5	1 ft	106.4	16.8	102.7	17.1	97	Pass
13	B-6	1 ft	104.9	18.8	101.7	17.9	97	Pass
14	B-7	1 ft	103.0	19.6	100.9	17.0	98	Pass
15	Berm S1	1 ft	104.3	16.2	103.2	14.6	99	Pass
16	Berm S2	1 ft	111.1	13.1	106.3	14.5	96	Pass

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# UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences  
Geophysical Services • Materials Testing • Threshold Inspection  
Building Code Administration, Compliance Inspection & Plan Review

9802 Palm River Road, Tampa, FL 33619 - P: 813.740.8506 - F: 813.740.8706

UES Project No: 0810.1900213.0000

Workorder No: 119034-1

Report Date: 02/18/2020

## In-Place Density Test Report

**Client:** Angelo's Materials  
41111 Enterprise Road  
Dade City, FL 33525

**UES Technician:** Mario Arroyo

**Date Tested:** 09/19/2019

**Project:** Enterprise Class III Landfill Cell 17  
,, Pasco County,

**Area Tested:** Lift 3

**Material:** Fill

**Reference Datum:** 0 = Top of Fill

### Type of Test:

**Field:** ASTM D-6938 Nuclear Gauge Method

**Laboratory:** ASTM D698 Standard Proctor

The tests below meet the 95% minimum compaction requirement.

Test No.	Location of Test	Range	Maximum Density (pcf)	Optimum Moisture (%)	Field Dry Density (pcf)	Field Moisture (%)	Soil Compaction (%)	Pass or Fail
1	A-1	1 ft	92.3	15.1	96.4	18.2	104	Pass
2	A-2	1 ft	95.7	20.8	96.5	19.4	101	Pass
3	A-3	1 ft	101.6	17.4	100.8	16.9	99	Pass
4	A-4	1 ft	96.4	19.8	98.2	17.4	102	Pass
5	A-5	1 ft	101.7	14.4	98.3	15.9	97	Pass
6	A-6	1 ft	96.9	19.8	99.3	17.0	102	Pass
7	A-7	1 ft	96.4	20.4	97.5	18.1	101	Pass
8	B-1	1 ft	102.2	17.4	100.9	17.7	99	Pass
9	B-2	1 ft	98.8	17.0	100.4	18.5	102	Pass
10	B-3	1 ft	99.6	20.5	101.5	18.1	102	Pass
11	B-4	1 ft	96.3	18.6	97.0	17.2	101	Pass
12	B-5	1 ft	93.9	16.1	95.7	17.5	102	Pass
13	B-6	1 ft	97.4	18.5	99.4	16.1	102	Pass
14	B-7	1 ft	99.4	18.2	98.3	16.5	99	Pass
15	Berm S3	1 ft	104.3	16.2	103.2	14.6	99	Pass

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