

# UNIVERSAL ENGINEERING SCIENCES

GEOTECHNICAL EXPLORATION
PROPOSED MOCCASIN WALLOW ROAD IMPROVEMENTS
FROM US41 TO WEST OF I-75 (GILLETTE DRIVE)
PARRISH, MANATEE COUNTY, FL

UES PROJECT NO. 1130.1800187.0000 UES REPORT NO.: 13620

### Prepared for:

Cardno 380 Park Place Boulevard, Suite 300 Clearwater, FL 333759

### **Prepared By:**

Universal Engineering Sciences, Inc. 1748 Independence Boulevard, Suite B-1 Sarasota, FL 34234 941-358-7410

November 19, 2018



November 19, 2018

Cardno 380 Park Place Boulevard, Suite 300 Clearwater, FL 333759

Attn: Mr. Hamid R. Faraji, PE

Reference:

**GEOTECHNICAL EXPLORATION** 

Proposed Moccasin Wallow Road Improvements

From US41 to West of I-75 (Gillette Drive)

Parrish, Manatee County, FL

UES Project No. 1130.1800187.0000

UES Report No.: 13620

Dear Mr. Faraji:

Universal Engineering Sciences, Inc. (UES) has completed the subsurface exploration for the above referenced project. The scope of our exploration was planned in conjunction with and authorized by you.

In this report, we present the findings and results of our field and laboratory explorations for the existing roadway and an engineering evaluation of the subsurface conditions.

We appreciate the opportunity to have worked with you on this project and look forward to a continued association. 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 Number 549

Yudelsy Alvarez Project Engineer

RG/YA

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



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### **APPENDICES**

### **APPENDIX A**

SITE LOCATION PLAN BORING LOCATION PLAN SCS SOIL SURVEY MAP LBR TEST RESULTS BORING LOGS SOIL CLASSIFICATION CHART

### **APPENDIX B**

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT CONSTRAINTS AND RESTRICTIONS GENERAL CONDITIONS



### 1.0 INTRODUCTION

### 1.1 GENERAL

In this report, we present the results of the proposed roadway improvements located in Parrish, Florida. We have divided this report into the following sections.

- 1.0 Introduction Defines what we did
- 2.0 Exploration Procedures Describes how we did it
- 3.0 Findings Describes what we encountered
- **4.0** Recommendations Describes what we encourage you to do
- **5.0** Limitations Describes the restrictions inherent in this report

**Appendices** - Presents support materials referenced in this report

### 1.2 PROJECT DESCRIPTION

The project under consideration involves the widening of the existing 2-lane Moccasin Wallow Road (97 Street E.) to 6-lane divided from US-41 to west of I-75 (Gillete Drive) located in Parrish; Florida. We understand that the project length is approximately 1.9 miles, and the improvements will also included the signalization of four (4) intersections, and two (2) stormwater management wet ponds. An aerial plan showing the project location was provided to us.

Our recommendations are based upon the above considerations. If any of this information is incorrect or if you anticipate any changes inform Universal Engineering Sciences so that we may review our recommendations.

### 1.3 PURPOSE AND SCOPE

The purposes of this exploration were:

- To explore the general subsurface conditions along the proposed structures.
- To interpret and review the subsurface conditions with respect to the proposed construction, and provide soil classification.
- To provide soil design parameters for the proposed pipeline and water main construction.

This study was generally conducted according to the guidelines set forth in the Florida Department of Transportation Soil and Foundation Manual.

Recommendations concerning other soil related considerations were beyond the scope of our exploration. This report presents an evaluation of site conditions on the basis of traditional



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geotechnical procedures for site characterization. Our work did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. Universal Engineering Sciences would be pleased to perform these services, if you desire.

### 2.0 EXPLORATION PROCEDURES

### 2.1 FIELD EXPLORATION

The subsurface conditions were explored by drilling and sampling eleven (11) Standard Penetration Test (SPT) borings adjacent to the existing roadway to a depth of 10 feet below grade. Due to accessibility site constrains, UES was only able to performed eleven SPT borings.

We performed the Standard Penetration Test using our truck mounted drill rig utilizing mud rotary procedures according to the procedures of ASTM D-1586, with continuous sampling performed above a depth of 10 feet, to detect slight variations in the soil profile at shallow depths, and then at five-foot intervals thereafter. The basic procedure for the Standard Penetration Test is as follows: A standard split-barrel sampler is driven into the soil by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler 1-foot, after seating 6 inches, is designated the penetration resistance, or N-value; this value is an index to soil strength and consistency.

In addition, we performed one hundred and sixty seven (167) hand auger borings along both sides of the existing roadway to a depth of 5 feet below grade. These borings were performed by manually twisting and advancing a 3 inch diameter stainless steel "bucket" auger into the ground in approximate 6 inch increments. As each soil type was revealed, representative samples were placed in "air-tight" jars.

Five (5) bulk samples of the subgrade material were sampled for performing LBR test. The LBR test, which were performed according to the procedures of Florida Test Method FM 5-515, are used to determine the bearing value of soils when they are compacted in the laboratory at moisture contents varying from the dry to wet side of optimum. The LBR test results indicate a LBR values ranging from 27 to 94 of the subgrade material from the testing locations. Typical subgrade material for permanent design requires an LBR value of 40 minimum. The results of the laboratory testing program completed are enclosed in Appendix A.

The boring locations were located by our drill crew based on the site plan and existing site conditions. The test boring locations are shown on the attached Boring Location Plan in Appendix A.

### 2.2 LABORATORY INVESTIGATION

The soil samples recovered from the soil test borings were returned to our laboratory and then an engineer visually examined and reviewed the field descriptions. We selected representative soil samples for laboratory testing consisting of fourteen (14) wash 200 determinations and moisture content tests.



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We performed these tests to aid in classifying the soils and to help evaluate the general engineering characteristics of the site soils. See Appendix A: Boring Logs and Description of Testing Procedures for further data and explanations. Jar samples of the soils will be held in our laboratory for your inspection for sixty days unless we are notified otherwise.

### 3.0 FINDINGS

### 3.1 SURFACE CONDITIONS

A Universal Engineering Sciences representative performed a visual site inspection of the property to gain a "hands-on" familiarity with the project area. The overall existing roadways are relatively level and generally elevated above surrounding grade and consist of ditches along the roadside for drainage.

### 3.2 SOIL SURVEY INFORMATION

The "Soil Survey of Sarasota County, Florida", published by the published by the United States Department of Agriculture (USDA) - Soil Conservation Service (SCS), was reviewed for general near-surface soil information prior to development within the general project vicinity. The USDA, SCS primary soil mapping groups within the proposed project area, and some characteristics and properties are summarized below. The location of these groups can be observed on the SCS Soil Survey Map provided in the Appendix A.

<u>Bradenton</u> (Soil Group No. 5): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 13 inches, fine sandy loam from 13 to 47 inches, and **unweathered bedrock** from 47 to 51 inches below grade. Based on the soil survey, the water table is from 0 to 12 inches below grade.

<u>Canova, Anclote, and Okeelanta</u> (Soil Group No. 7): Under natural conditions, this soil group consists of **muck** from the surface to a depth of about 8 inches, fine sand from 8 to 24 inches, and sandy clay loam from 24 to 68 inches below grade. Based on the soil survey, the water table is at the ground surface.

<u>Cassia</u> (soil Group No. 11): This soil group consists of fine sand from the surface to a depth of about 80 inches below grade. Based on the soil survey, the water table is from 18 to 42 inches below grade, under natural conditions.

<u>Chobby</u> (Soil Group No. 13): Under natural conditions, this soil group consists of loamy fine sand from the surface to a depth of about 8 inches, sandy clay loam from 8 to 51 inches, and loamy fine sand from 51 to 80 inches below grade. Based on the soil survey, the water table is from 0 to 6 inches below grade.

<u>Chobby</u> (Soil Group No. 14): Under natural conditions, this soil group consists of sandy clay loam from the surface to a depth of about 35 inches, sandy loam from 35 to 40 inches, and loamy sand from 40 to 80 inches below grade. Based on the soil survey, the water table is from 0 to 12 inches below grade.

<u>Delray</u> (Soil Group No. 16): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 55 inches, and sandy clay loam from 55 inches to 80



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inches below grade. Based on the soil survey, the water table is from the ground surface to 18 inches below grade.

<u>Delray-Eaugallie</u> (Soil Group No. 17): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 55 inches, and sandy clay loam from 55 inches to 80 inches below grade. Based on the soil survey, the water table is from the ground surface to 6 inches below grade.

<u>EauGallie</u> (Soil Group No. 20): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 42 inches, sandy clay loam from 42 to 50 inches, and fine sand from 50 to 65 inches below grade. Based on the soil survey, the water table is from 6 to 18 inches below grade.

<u>Felda</u> (Soil Group No. 22): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 35 inches, fine sandy loam from 35 to 43 inches, and extremely paragravelly fine sand from 43 to 80 inches below grade. Based on the soil survey, the water table is from the ground surface to 12 inches below grade.

<u>Floridana-Immokalee-Okeelanta</u> (Soil Group No. 26): Under natural conditions, this soil group consists of fine sand and **muck** from the surface to a depth of about 20 inches, fine sand from 20 inches to 36 inches; sandy clay loam from 36 to 63 inches, and fine sand from 63 to 80 inches below grade. Based on the soil survey, the water table is at the ground surface.

<u>Gator muck</u> (Soil Group No. 27): Under natural conditions, this soil group consists of **muck** from the surface to a depth of about 18 inches, sandy clay loam from 18 inches to 36 inches; fine sandy loam from 36 to 55 inches, and fine sand from 55 to 80 inches below grade. Based on the soil survey, the water table is from 0 to 6 inches below grade.

<u>Palmetto</u> (soil Group No. 38): Under natural conditions, this soil group consists of sand from the surface to a depth of 45 inches, sandy clay loam from 45 to 64 inches, and loamy sand from 64 to 68 inches below grade. Based on the soil survey, the water table is at the ground surface.

<u>Tavares</u> (soil Group No. 45): This soil group consists of fine sand from the surface to a depth of about 80 inches below grade. Based on the soil survey, the water table is from 42 to 72 inches below grade, under natural conditions.

<u>Wabasso</u> (Soil Group No. 48): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 37 inches, sandy clay loam from 37 to 65 inches, and fine sand from 65 to 80 inches below grade. Based on the soil survey, the water table is from 6 to 18 inches below grade.

### 3.3 SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix A: Boring Location Plan and Boring Logs. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soil samples. Also, see Appendix A: Soils Classification Chart, for further explanation of the symbols and placement of data on the Boring Logs. The following table summarizes the soil conditions encountered.



		TABLE 2 General Soil Profile
	l depth t)	Soil Descriptions
From	То	
HA-1 th	rough H	IA-80, HA-82 through HA-94, HA-96, HA-129 through HA-141, HA-143 through HA-167
0	5*	Fine sand, and fine sand with silt [SP, SP-SM]
		HA-81, HA-95, HA-97 through HA-124, HA-142
0	1	Fine sand, fine sand with silt and clay [SP, SP-SM, SP-SC]
1	5*	Fine with silt and clay, and clayey sand [SP-SM, SP-SC, SC]
		HA-125 through HA-128
O	5*	Fine sand with clay, and clayey sand [SP-SC, SC]
		SPT Borings (B-1 through B-11)
0	2	Loose to medium dense fine sand, fine sand with silt and clay, and clayey sand [SP, SP-SC, SP-SC, SC]
2	8	Medium dense to dense fine sand, fine sand with silt and clay, and clayey sand with shell [SP, SP-SC, SP-SC, SC]
8 _	10*	Loose to dense fine sand, fine sand with clay, clayey sand, silty sand with shell, and hard sandy clay [SP, SP-SC, SC, SM, CL]
		tion Depth of Deepest Boring ed Text Indicates: Unified Soil Classification

Variations in the depth, thickness and consistency of the aforementioned soil strata occurred at the individual test boring locations. We encountered groundwater at depths ranging from 2 to more than 5 feet below existing grade at the time of our investigation. The variations in the measured water levels are attributed to the variation in the ground surface elevation at this site as well as the soil type encountered.

### Notable Features:

- The presence of shallow clayey soils encountered in some of the soil borings. These soils
  may be moisture sensitive and difficult to compact if encountered during construction.
- We did not encounter muck material in the soil borings performed; however, the soils may vary across the site and the Manatee County Soil Survey indicated muck from the groundsurface to 20 inches below grade. This material; if encountered will need to be removed and replaced with engineering sandy fill for pavement areas.



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• We did not encounter shallow rock in the soil borings performed; however, sands with rock fragments were encountered in a few soil borings in the upper 5 feet. Dense sands were encountered in the SPT borings below a depth of 6 feet with N-values ranging from 30 to 48 blows per foot. The Manatee County Soil Survey also indicated unweathered bedrock from 47 to 51 inches below grade (Soil Group No. 5). This soil and rock material may vary across the site in depth and consistency, and may be difficult to excavate.

### 4.0 RECOMMENDATIONS

The following recommendations are based upon a review of the attached soil tests data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the locations or grading plans change from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

Additionally, if subsurface conditions are encountered during construction, which were not encountered in the borings and cores, report those conditions immediately to us for observation and recommendations.

In this section of the report, we present our detailed recommendations for:

- Groundwater Control
- Roadway Embankment
- Pavement Evaluation
- Drainage Structure and Utility Considerations

### 4.1 GROUNDWATER CONTROL

The groundwater table will fluctuate seasonally depending upon local rainfall. The normal seasonal high groundwater level typically occurs in the August-September period at the end of the rainy season. The seasonal high groundwater level is affected by a number of factors, such as drainage characteristics of the soils; land surface elevation, relief points (i.e. drainage ditches, lakes, rivers, swampy areas) and distance to relief points.

Several other factors influence the determination of the seasonal high water table (SHWT). When soils are subjected to alternating cycles of saturation and drying, discoloration or staining that is not part of the dominant soil color occurs. This is called mottling, and manifests itself in various shades of gray, brown, red or yellow. There are numerous processes that lead to this discoloration, including mineral accretions, oxidation, and bacteria growth within the soil. The presence of this discoloration indicates that groundwater has, at some point in time, reached that elevation and remained there long enough to cause any or all of these processes to occur. The SHWT elevation is assumed to be the highest point at which mottling is observed regardless of whether water is present at the time of observation. This estimate is independent of the actual location of the groundwater table.



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Based upon our visual inspection of the recovered soil samples and existing site conditions, our best estimate is that the seasonal high groundwater level could be 2 to 3 feet below existing grade. Water could be temporarily ponded in the ditches and other low lying areas of the overall site especially during periods of heavy rainfall. The shallow clayey soil may cause temporary perched water at or near the ground surface.

It should be noted that the estimated seasonal high water levels do not provide any assurance that groundwater levels will not exceed these estimated levels during any given year in the future. Should the impediments to surface water drainage be present, or should rainfall intensity and duration, or total rainfall quantities, exceed the normally anticipated rainfall quantities, groundwater levels may exceed our seasonal high estimates.

We recommend sufficient quantities of fill will be placed in the pavement areas to mitigate the effect of groundwater on shallow excavations, such as foundations. Further, we recommend the bottom of the base course used in pavement construction be maintained at least 18 inches above the seasonal high water levels.

Temporary dewatering may be required during site preparation, especially if construction proceeds during the wet season or periods of heavy rainfall. Temporary dewatering may also be required for deeper excavations, such as utility trenches, the backfilling of the drainfield area and other excavations. We recommend that the contract documents provide for determining the groundwater level just prior to construction and for any dewatering measures which might be required. We recommend that the groundwater table be maintained at least 24 inches below all earthwork and compaction surfaces.

### 4.2 ROADWAY EMBANKMENT

We offer the following recommendations for site preparation and embankment construction for the widening areas, if required.

### 4.2.1 Site Preparation

The following procedures should be followed to properly prepare the alignment area for roadway embankment construction.

- 1. If required, perform remedial dewatering prior to any earthwork operations.
- 2. Strip the proposed construction limits of all vegetation, roots, topsoil, existing improvements, debris and other deleterious materials within the limits of the pavement, shoulder, sidewalk, and other structural areas.
- 3. Proof-roll the subgrade with a heavily loaded, rubber-tired vehicle under the observation of a Universal Engineering Sciences' geotechnical engineer or his representative. Proof-rolling will help locate any zones of especially loose or soft soils not encountered in the soil test borings. Then undercut, or otherwise treat these zones as recommended by the engineer.
- 4. Proof-compact the subgrade from the surface by a vibratory roller until you obtain a minimum density of 100 percent of the standard Proctor maximum dry density (AASTHO T-99) to a depth of 1 foot below the existing site grade.



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5. Test the subgrade for compaction at a frequency of not less than one test every 500 feet for each lane, shoulder, bike path, sidewall, curb or other structural area per foot of depth of improvement.

### 4.2.2 Embankment Materials and Construction

We recommend the construction of the roadway and associated embankments proceed according to F.D.O.T. index 120 (FDOT Standard Specification for Road and Bridge Construction 2010). The fill material utilized should consist of clean sand with less than 5 percent soil fines. Fill materials with soil fines between 5 and 12 percent may be used when above the water table, so long as strict moisture control is applied (within 2% of optimum moisture). The fill material should be placed in uniform 6 inch loose lifts and compacted to 100 percent of the standard Proctor maximum dry density (AASHTO T-99). Field density tests should be performed on each layer of fill material at a frequency of one test for every 500 linear feet of construction for each lane or associated area.

The surficial soils at the site would generally be suitable for use in embankment construction. However, fill from off-site borrow sources will generally be required above existing grades along the majority of the intersection. The soil placed within the stabilized subgrade layer must meet an LBR of 40 or will need to be stabilized after placement to achieve the minimum LBR value.

### 4.3 DRAINAGE STRUCTURE AND UTILITY CONSIDERATIONS

We assume that proposed drainage utility improvements at the site may have invert elevations several feet below existing grades. The soils encountered at the boring locations should be suitable for support of the planned utility improvements. The fine sand and fine sand with silt and clay soils are suitable for reuse as backfill. The clayey sands are not recommended to be used as fill material since these soils may be moisture sensitive and difficult to compact if encountered during construction. The fine sand with silt and clay type soils, when excavated from below the water table, may require spreading and drying prior to reuse to achieve a moisture content sufficient to obtain the recommended degree of compaction. Further, any clayey sand type soils will require extensive aeration and drying prior to reuse.

### 4.3.1 Trench Excavation and Backfill Recommendations

The following are our recommendations for construction of the proposed utility improvements.

- 1. If deemed necessary by the contractor, install a dewatering system capable of maintaining a groundwater level at least 2 feet below bottom of pipe level.
- 2. After excavation to design invert elevations, the in-situ bedding soils should be compacted to at least 95 percent of the Modified Proctor test maximum dry density (ASTM D 1557) to a depth of 12 inches below the bedding level. Compaction in confined areas can probably be achieved using jumping jacks or light weight walk-behind vibratory sleds and/or rollers.
- 3. After constructing the utility lines, backfill with suitable sand fill placed in 6 to 8 inch loose lifts. Each lift should be compacted to at least 95 percent of the Modified Proctor test maximum dry density (ASTM D 1557). Beneath pavement areas, the



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top 36 inches of backfill should be compacted to at least 98 percent. Additionally, when/where applicable local jurisdictional compaction requirements should be followed when stricter than the recommendations herein.

- 4. If difficult compaction operations are encountered beneath the utilities due to excessive fines and/or wet conditions, saturated soils could be over-excavated and replaced with FDOT No. 57 stone.
- 5. Excavation work will be required to meet OSHA Excavation Standard Subpart P regulations, Type C Soils. Either a trench box, braced sheet pile structure or an excavation with temporary side slopes cut back at 1.5 horizontal to 1.0 vertical can be implemented. The side slope of 1.5 horizontal to 1.0 vertical is contingent upon the dewatering system adequately controlling slope seepage. Sheet piling should be designed according to OSHA sheeting and bracing requirements. We recommend a Florida registered Professional Engineer design any required sheeting/bracing system.
- 6. Within Right-of-Way driveways connecting to FDOT or county roads, the local county authority criteria and requirements for trench backfill and compaction should govern the testing procedures.

### **5.0 FILL REQUIREMENTS**

In general, the typical criteria for determining the acceptability of a material for use as structural fill is based on the percent "fines" in the soil matrix (e.g. material passing the No. 200 sieve). We recommend that the proposed fill is tested from the source prior to delivery and site placement.

The fill should consist of clean sands which have less than 5% soil fines (Unified Soil Classification: SP, SW). These soils are the most desirable for use as engineering fill because they drain freely when excavated from beneath the groundwater table and are not as susceptible to moisture related instability.

If soils with 5% to 12% soil fines (Unified Soil Classification: SP-SM, SP-SC) are used, they will require some extra care during placement and compaction. The moisture content of these soils should not be higher than 2% above optimum during placement and compaction in order to reduce the potential for moisture related instability.

### **6.0 CONSTRUCTION RELATED SERVICES**

We recommend the owner retain Universal Engineering Sciences to perform construction materials tests and observations on this project. Field tests and observations include verification of foundation and pavement subgrades by monitoring proof-rolling operations and performing quality assurance tests on the placement of compacted structural fill and pavement courses.

The geotechnical engineering design does not end with the advertisement of the construction documents. The design is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, we are most qualified to address problems that might arise during construction in a timely and cost-effective manner.



Proposed Sarasota County Peace River Interconnect Proctor Road & Clark Road UES Project No.:1130.1800069.0000 September 14, 2018

### 6.0 LIMITATIONS

This report has been prepared in order to aid the engineer in the design of the proposed roadway improvements. The scope of services provided was limited to the specific project and locations described herein. The description of the project's design parameters represents our understanding of significant aspects relevant to soil and foundation characteristics.

The recommendations submitted in this report are based upon the data obtained from the limited number of cores performed at the locations indicated on the Core Locations Plan and from other information as referenced. This report does not reflect any variations which may occur between the core locations or unexplored areas of the site.

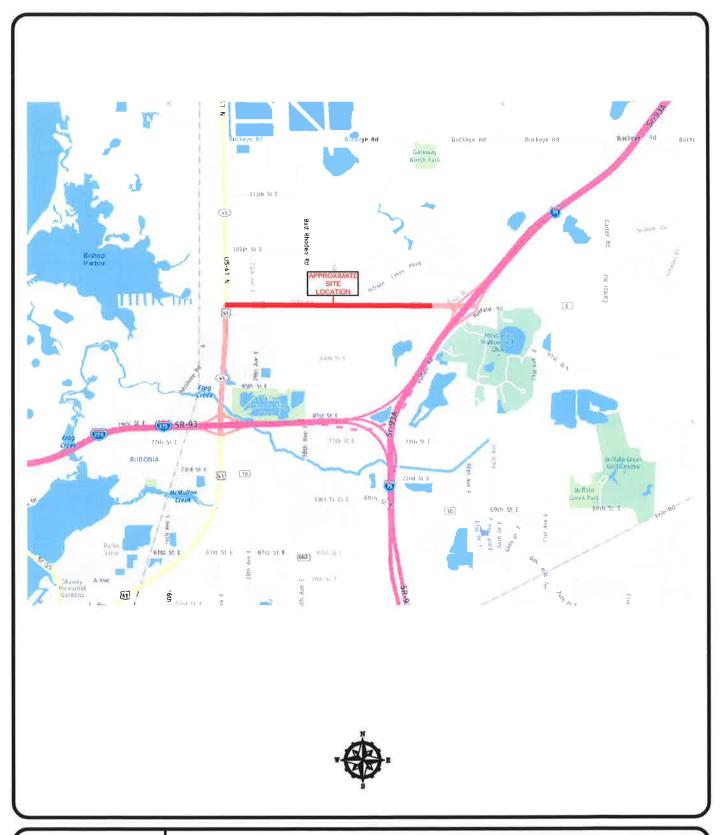
Borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. UES will not be responsible for any extrapolation or use of our data by others beyond the purpose(s) for which it is applicable or intended.

All users of this report are cautioned that there was no requirement for Universal to attempt to locate any man-made buried objects or identify any other potentially hazardous conditions that may exist at the site during the course of this exploration. Therefore no attempt was made by Universal to locate or identify such concerns. Universal cannot be responsible for any buried man-made objects or environmental hazards which may be subsequently encountered during construction that are not discussed within the text of this report. We can provide this service if requested.

For a further description of the scope and limitations of this report please review the document attached within Appendix B "Important Information About Your Geotechnical Engineering Report" prepared by ASFE, an association of firms practicing in the geosciences.



# **APPENDIX A**





# PROPOSED MOCCASIN WALLOW ROAD IMPROVEMENTS MOCCASIN WALLOW ROAD FROM US 41 TO WEST OF I 75 PARRISH, MANATEE COUNTY, FLORIDA

			SITE	LOCA	TION	PLAN	
DRAWN BY:	RLD	DATE:	JULY	2018	CHE	CKED BY: R.G.	DATE: JULY 2018
SCALE:	NOT TO SCALE	PROJECT	NO: 11	30-180018	37.0000	REPORT NO: 13620	APPENDIX







# PROPOSED MOCCASIN WALLOW ROAD IMPROVEMENTS MOCCASIN WALLOW ROAD FROM US 41 TO WEST OF I 75 PARRISH, MANATEE COUNTY, FLORIDA

SCS SOIL SURVEY MAP

DRAWN BY: RLD

DATE: SEPTEMBER 2018 CHECKED BY: R.G. DATE: SEPTEMBER 2018

SCALE: NOT TO SCALE

PROJECT NO: 1130.1800187.0000 REPORT NO: 13620 APPENDIX:







PROPOSED MOCCASIN WALLOW ROAD IMPROVEMENTS MOCCASIN WALLOW ROAD FROM US 41 TO WEST OF I 75 PARRISH, MANATEE COUNTY, FLORIDA

HAND AUGER BORING LOCATION PLAN

DF 1 75		
-	DRAWN BY: R.D.	DATE: SEPTEMBER 2018
	CHECKED BY: Robert G.	DATE: SEPTEMBER 2018
	REPORT NO: 13620	SCALE: NOT TO SCALE
7	PROJECT NO: 1130,1800187,0000	



**LEGEND** 

APPROXIMATE LOCATION

SPT BORING X DRI TEST

PROPOSED MOCCASIN WALLOW ROAD IMPROVEMENTS MOCCASIN WALLOW ROAD FROM US 41 TO WEST OF I 75 PARRISH, MANATEE COUNTY, FLORIDA

UNIVERSAL ENGINEERING SCIENCE

DRAWN BY: R.D.
CHECKED BY: Robert G.
REPORT NO: 13620 PLAN SPT AND LBR BORING LOCATION

DATE: SEPTEMBER 2018
DATE: SEPTEMBER 2018
SCALE: NOT TO SCALE

Client:

Cardno

**Report Date: 9/25/2018** 

Project: N

Moccasin Wallow Rd. Improvements

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Report No.: 4766

**Project No.:** 1130.1800069.0000

Technician: D. Childress

### **TEST DATA**

**SAMPLE** 

Description: Light and Dark Gray Sand Trace Silt and Roots

Source: Sub

Subgrade

Location:

LBR 1

Passing #4:

100%

Date Sampled:

09/14/18

**COMPACTION** 

Method:

FM 5-515

Date:

09/25/18

**TESTING** 

Surcharge:

15 lbs

Soak time: n/a

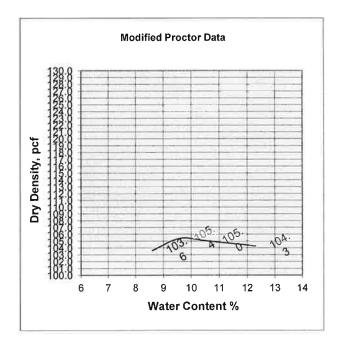
Date:

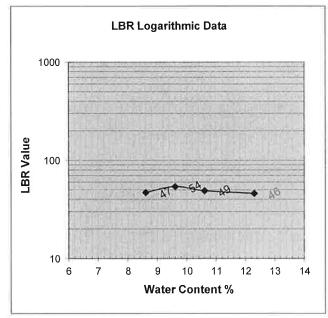
09/25/18

**REPORT DATA** 

Max. Dry Density: Optimum Water %:

105 %Passing 10 #200 Sieve 2.6% Maximum LBR:





1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client: Project: Cardno

Moccasin Wallow Rd. Improvements

Project No.: 1130.1800069.0000

Report Date: 9/25/2018

Report No.: 4765

Technician: D. Childress

**TEST DATA** 

**SAMPLE** 

Description: Light Brown Sand Trace Silt

LBR 2 Location:

Source:

Subgrade

Passing #4:

100%

Date Sampled:

09/14/18

**COMPACTION** 

Method:

FM 5-515

Date:

09/25/18

**TESTING** 

Surcharge:

15 lbs

Soak time: n/a

Date:

09/25/18

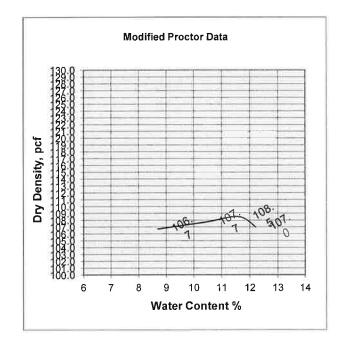
**REPORT DATA** 

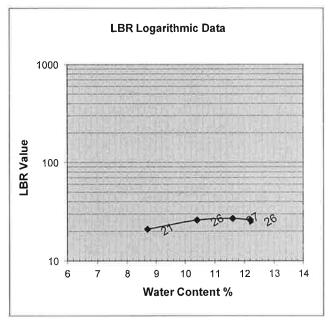
Max. Dry Density:

Optimum Water %:

109	%Passing
12	#200 Sieve
	2.6%

Maximum LBR:





1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client:

Cardno

**Report Date: 9/21/2018** 

Project:

Moccasin Wallow Rd. Improvements

Report No.: 4764

Project No.: 1130.1800069.0000

Technician: 20-Sep

**TEST DATA** 

**SAMPLE** 

Description: Brown Sand Trace Shell and Root

Source:

Subgrade

Location:

LBR 3

Passing #4:

86%

Date Sampled:

09/14/18

**COMPACTION** 

Method:

FM 5-515

Date:

09/20/18

**TESTING** 

Surcharge:

15 lbs

Soak time: n/a

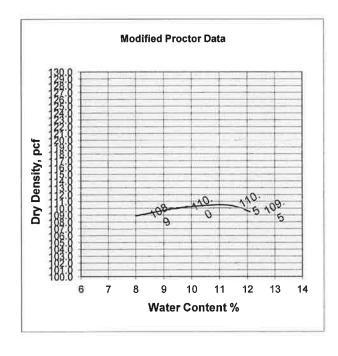
Date:

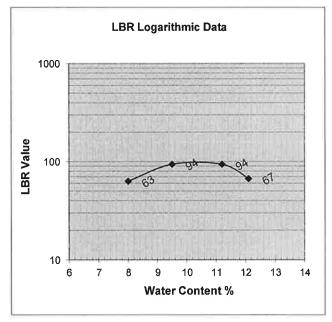
09/20/18

**REPORT DATA** 

Max. Dry Density: Optimum Water %: 111 %Passing 11 #200 Sieve 4.6%

Maximum LBR:





1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client: Cardno

Report Date: 9/20/2018 Report No.: 4763

**Project:** Moccasin Wallow Rd. Improvements

Technician: D. Childress

Project No.: 1130.1800187.0000

**TEST DATA** 

**SAMPLE** 

Description: Light and Dark Gray Sand Trace mixed rock fragmen Source: Subgrade

Location: LBR 4 Passing #4: 78%

Date Sampled:

09/14/18

**COMPACTION** 

Method: FM 5-515

Date:

09/20/18

**TESTING** 

Surcharge: 15 lbs

Soak time: n/a

Date:

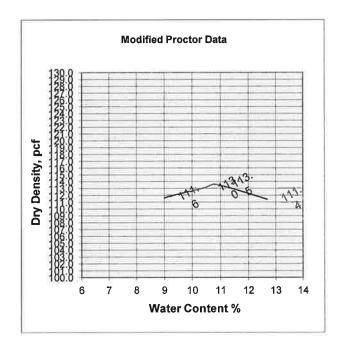
09/20/18

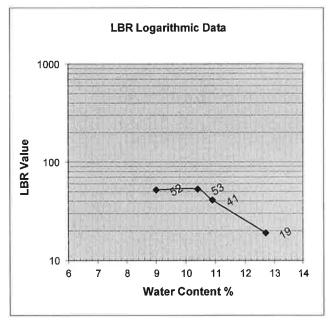
**REPORT DATA** 

Max. Dry Density: Optimum Water %:

114	%Passing
11	#200 Sieve
	9.6%

Maximum LBR:





1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client:

Cardno

**Report Date: 9/20/2018** 

Project: M

Moccasin Wallow Rd. Improvements

Report No.: 4762

4/62

Project No.: 1130.1800069.0000

Technician: D. Childress

### **TEST DATA**

**SAMPLE** 

Description: Gray Sand Trace Roots and some shell

Subgrade

Location:

LBR 5

Passing #4:

Source:

98%

Date Sampled:

09/14/18

COMPACTION

Method:

FM 5-515

Date:

09/20/18

**TESTING** 

Surcharge:

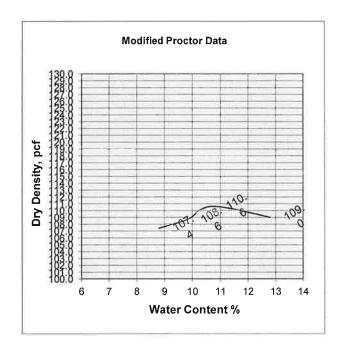
15 lbs Soak time: n/a

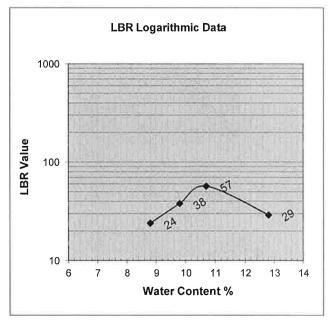
Date:

09/20/18

**REPORT DATA** 

Max. Dry Density: Optimum Water %: 111 %Passing 11 #200 Sieve 7.7% Maximum LBR:







PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

PAGE: 28

PROJECT: Proposed M

Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: 0

Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING DESIGNATION:

B-01

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

9/28/18 9/28/18

WATER TABLE (ft): 2.3

DATE FINISHED:

9/20/10

DATE OF READING: 9/28/2018

DRILLED BY:

TS / BG

EST. W.S.W.T. (ft):

DEPTH	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
(FT.)	LE	INCREMENT	FT.)		Ö	K	(%)	(76)	LL	PI	(	(%)
0-	$\bigvee$	4-6-5-5	11			Medium dense gray clayey sand with shell (SC)						
	V V	6-6-7-6	13	•		Medium dense yellowish brown fine sand with clay and shell (SP-SC)						
5 —	\\\\\\\\	7-8-8-8	16			Medium dense to dense light brown fine sand with silt and shell (SP-SM)						
E E		9-12-14-20	26									
10 —		13-16-18-22	34			Boring terminated at 10 feet below grade						
						и						



PROJECT NO.: 1130,1800187.0000

REPORT NO.: 13620

PAGE: 29

PRO JECT

Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING DESIGNATION

B-02

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

DATE STARTED:

9/28/18

WATER TABLE (ft): 2.6

DATE FINISHED:

9/28/18

DATE OF READING: 9/28/2018

G.S. ELEVATION (ft):

DRILLED BY:

TS / BG

DEPTH	SAMPLE	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M	DESCRIPTION	-200	MC	ATTER	RBERG IITS	UCS (tsf)	ORG.
(FT.)	F	INCREMENT	FT.)		B O L		(%)	(%)	LL	PI	000 ((31)	(%)
0 -	$\sqrt{}$	3-3-4-4	7			Loose to medium dense brown clayey sand (SC)						
-		4-5-6-6	11	•		Medium dense brown fine sand with elay and						
5—		6-6-8-9	14			Medium dense brown fine sand with clay and shell (SP-SC)  Medium dense brown fine sand with silt and shell (SP-SM)	toria tuto tuto nareta	horrande.				*****
-	\ \ \ \	6-10-12-17	22			Dense tan shelly silty sand (SM)						
10	$\bigwedge$	13-16-23-24	39	*******		Boring terminated at 10 feet below grade	•••••	ANT 1.0 NO 511 N	Haus			VANALATAT.
10												



PROJECT NO.: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 30

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING DESIGNATION:

B-03

1 of 1 SHEET:

TOWNSHIP: SECTION:

DATE STARTED:

9/28/18 9/28/18

WATER TABLE (ft): DATE OF READING: 9/28/2018

2,2

DATE FINISHED:

TS/BG

EST. W.S.W.T. (ft):

G.S. ELEVATION (ft):

DRILLED BY:

г		9				9 1	E31. VV.3.VV.1. (ii).	Т			_	J. ASTIVIL	
I	DEPTH	SAMPLE	BLOWS PER 6"	N (BLOWS/	WT	S Y M B	DESCRIPTION	-200	MC	ATTE	RBERG NTS	UCS (tsf)	ORG CONT (%)
١	(FT.)	P L E	INCREMENT	FT.)		O B	BESSIAN NEW	(%)	(%)	LL	PI	003 ((31)	(%)
Ì	0 —	Ē				7777	1 11 1 11 (00)						
	-		3-3-4-3	7			Loose gray clayey sand with shell (SC)  Medium dense light brown fine sand (SP)						
	-	-	7-9-8-10	17									
	5—			24	1.55.65.1		Medium dense yellowish brown fine sand with clay and shell (SP-SC)	81528528522	********				<u> </u>
	-		11-11-13-9	24			Dense to loose light brown fine sand with silt and shell (SP-SM)						
83	10 —		13-17-20-19 8-5-5-3	37									
G.GPJ UNIENGSC.GDT 11/19/1	10 —						Boring terminated at 10 feet below grade						
BORING LOG GINT 2018 BORING GPJ UNIENGSC. GDT 11/19/18													



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 31

PROJECT: Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

Cardno CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

1 of 1 B-04 SHEET: BORING DESIGNATION: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft):

DATE STARTED:

9/28/18

WATER TABLE (ft):

3.2

DATE FINISHED:

9/28/18

DATE OF READING: 9/28/2018

DRILLED BY:

TS / BG

EST, W.S.W.T. (ft):

M	BLOWS PER 6"	N (BLOWS/	W.T.	S M	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
Ė	INCREMENT	FT.)		O L		(70)	(70)	LL	PI		(%)
					Loose brown clayey sand (SC)						
	4-4-5-4	9			Medium dense yellowish brown clayey sand (SC)	21.1	14.1				
	9-10-10-8	20			Medium dense brown fine sand with silt and shell (SP-SM)	***********					311632303
	8-11-15-22	26			Medium dense brown fine sand with silt and shell (SP-SM)						
	11-6-5-5	11			Loose tan shelly silty sand (SM)						
	7-3-4-4	7		0000	Boring terminated at 10 feet below grade	*************	*1665******				ta Salarasan
	SASP-III SASPA	9-10-10-8 8-11-15-22	4-4-5-4 9 9-10-10-8 20 8-11-15-22 26 11-6-5-5 11	4-4-5-4 9 9-10-10-8 20 8-11-15-22 26 11-6-5-5 11	4-4-5-4 9 9-10-10-8 20 8-11-15-22 26	4-4-5-4 9-10-10-8 20 Medium dense yellowish brown clayey sand (SC)  Medium dense brown fine sand with silt and shell (SP-SM)  Medium dense brown fine sand with silt and shell (SP-SM)  Loose tan shelly silty sand (SM)	4-4-5-4 9 Medium dense yellowish brown clayey sand (SC)  9-10-10-8 20 Medium dense brown fine sand with silt and shell (SP-SM)  8-11-15-22 26 Medium dense brown fine sand with silt and shell (SP-SM)  11-6-5-5 11 Loose tan shelly silty sand (SM)	4-4-5-4 9-10-10-8 20 Medium dense yellowish brown clayey sand (SC)  Medium dense brown fine sand with silt and shell (SP-SM)  Medium dense brown fine sand with silt and shell (SP-SM)  Loose tan shelly silty sand (SM)	4-4-5-4 9 Medium dense yellowish brown clayey sand (SC)  9-10-10-8 20 Medium dense brown fine sand with silt and shell (SP-SM)  Medium dense brown fine sand with silt and shell (SP-SM)  Loose tan shelly silty sand (SM)	4-4-5-4 9 Medium dense yellowish brown clayey sand (SC)  9-10-10-8 20 Medium dense brown fine sand with silt and shell (SP-SM)  8-11-15-22 26 Medium dense brown fine sand with silt and shell (SP-SM)  Loose tan shelly silty sand (SM)	4-4-5-4 9 Medium dense yellowish brown clayey sand (SC)  9-10-10-8 20 Medium dense brown fine sand with silt and shell (SP-SM)  Medium dense brown fine sand with silt and shell (SP-SM)  Loose tan shelly silty sand (SM)



PROJECT NO,: 1130,1800187.0000 REPORT NO.: 13620

32

PROJECT:

Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

See Boring Location Plan LOCATION:

REMARKS:

BORING DESIGNATION:

B-05

PAGE:

1 of 1 SHEET:

TOWNSHIP:

RANGE:

WATER TABLE (ft):

DATE FINISHED:

9/28/18 9/28/18

DATE OF READING: 9/28/2018

2.3

DRILLED BY:

DATE STARTED:

TS / BG

EST. W.S.W.T. (ft):

G.S. ELEVATION (ft):

SECTION:

4-6-7 10 2-12-11 24	BLOWS PER 6" INCREMENT E		Loose brown fine sand with clay (SP-SC)  Medium dense brown fine sand with silt (SP-SM)	(%)	(%)	ŁL	PI	UCS (tsf)	(%)
2-12-11 24	5-4-6-7								
2-12-11 24	5-4-6-7		Medium dense brown fine sand with silt (SP-SM)						
**********									
3-16-17 29	7-12-12-11	2-11 24	Medium dense to dense brown fine sand with trace silt (SP)						
	10-13-16-1	16-17 29							*****
5-17-13 32	15-15-17-1	17-13 32	Medium dense tan silty sand with shell and cemented fragments (SM)						
9-10-1219	.11-9-10-12	0-12 19	Boring terminated at 10 feet below grade				******	**********	



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 33

PROJECT:

Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS:

BORING DESIGNATION:

B-06

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

9/28/18

WATER TABLE (ft): 2'6 DATE FINISHED:

9/28/18 TS / BG

SECTION:

DATE OF READING: 9/28/2018

DRILLED BY:

FST WSWT (ff):

DEPTH	S A M	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG CON (%)
(FT.)	PLE	INCREMENT	FT.)		Ď.		(70)	(70)	LL	PI		(%)
0 —	V					Loose dark gray fine sand with trace silt and shell (SP)						
	/\ \/	4-4-5-7	9			Medium dense brown fine sand with silt (SP-SM)	3.5	17.3				
-	$\sqrt{}$	8-11-10-10	21									
5 —	\	únumuntinti		> < < > > <		Dense light brown fine sand with trace silt (SP)			*******		***********	
	<u> </u>	9-14-18-22	32									
	$\bigwedge$	16-20-17-16	31									
1	$\bigvee$					Dense tan shelly silty sand (SM)						
10 —		13-18-19-19	37		, o c	Boring terminated at 10 feet below grade	************	********			.00.500.00.000.00	



PROJECT NO.: 1130.1800187,0000 REPORT NO .: 13620

34

PROJECT:

Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING DESIGNATION:

**B-07** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

PAGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

9/26/18

WATER TABLE (ft): 2.5 DATE OF READING: 9/26/2018

DATE FINISHED: DRILLED BY:

9/26/18 TS / BG

FST WSWT (ff):

DEPTH	SAM	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	MC (%)	ATTEI	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
(FT.)	PLE	INCREMENT	FT.)		P		(%)	(70)	LL	PI		
0 —						Medium dense dark brown fine sand with silt and rock fragments (SP-SM)						
-		3-5-8-9	13	•	all	Dense light brown fine sand with trace silt (SP)						
5 —	/ \ 	12-18-18-20	36	+13600		Medium dense orange fine sand with silt (SP-SM)		855285525			18.41.V27172A?	
-		20-15-10-7	25			Medium dense light yellowish brown fine sand with trace silt (SP)	6.7	17.7				
-	\ \ - \ \	6-9-13-18	22			Dense light brown fine sand (SP)						
10 —	1	15-20-22-32	42	Contract to the		Boring terminated at 10 feet below grade	association	7984733408			***********	



PROJECT NO.: 1130.1800187,0000

REPORT NO.: 13620

PAGE: 35

PROJECT: Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING DESIGNATION:

SECTION:

B-08

SHEET: 1 of 1

TOWNSHIP: RANGE:

G.S. ELEVATION (ft): DATE STARTED: 9/26/18

 WATER TABLE (ft):
 2.5
 DATE FINISHED:
 9/26/18

 DATE OF READING:
 9/26/2018
 DRILLED BY:
 TS / BG

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1586

DEPTH	SAM		N (BLOWS/	W.T.	SYMBO	DESCRIPTION	-200	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(FT.)	P L E	INCREMENT	FT.)		Ö		(%)		LL	Pl		
0 —	V					Loose grayish brown fine sand with clay (SC)						
	/ \ \ !	3-4-4-6	8			Medium dense dark brown fine sand with silt (SP-SM)						
-	$\frac{N}{N}$	10-9-9-9	18			Dense to medium dense yellowish brown fine sand with trace silt (SP)						
5 —		13-18-15-12	33									
-		10-11-14-19	25			Dense yellowish brown fine sand with trace silt (SP)						
10 —		18-17-21-27	38			Boring terminated at 10 feet below grade	<u> </u>	*******		*******	***********	<



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING DESIGNATION:

B-09

TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

9/26/18

1 of 1

WATER TABLE (ft):

DATE FINISHED:

9/26/18

DATE OF READING: 9/26/2018

DRILLED BY:

TS / BG

EST. W.S.W.T. (ft):

ſ	DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	0-						Medium dense grayish brown fine sand with clay (SP-SC)						
	=		5-5-7-6	12	<b>_</b>		Medium dense dark brown fine sand with silt (SP-SM)						
	5—		11-14-12-11	26	**********		Medium dense orange fine sand with silt (SP-SM)						
	5		13-15-14-17	29			Medium dense yellowish brown fine sand (SP)						
			9-7-16-27	23			Dense brown fine sand with clay (SP-SC)						
GDT 11/19/18	10 —		17-19-22-28	41			Boring terminated at 10 feet below grade		00020002000	. 1.1.4.4.4.7.	. in conc.	10000014112	tentumum
G GPJ UNIENGSC GD													
BORING LOG GINT 2018 BORING GPJ UNIENGSC													
BORING L			P										



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

37

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of 175

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING DESIGNATION:

G.S. ELEVATION (ft):

SECTION:

B-10

SHEET: 1 of 1

TOWNSHIP:

PAGE:

DATE STARTED: 9/26/18

 WATER TABLE (ft):
 2,5
 DATE FINISHED:
 9/26/18

 DATE OF READING:
 9/26/2018
 DRILLED BY:
 TS / BG

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG MITS	UCS (tsf)	ORG.	
(FT:)	LE	INCREMENT	` FT.)		ÖL		(70)	(70)	LL	PI		(%)
0 —						Loose grayish brown fine sand with trace silt (SP)						
-	\ \ - \ \	6-5-5-9	10	▼		Medium dense grayish brown fine sand with clay (SP-SC)						
5—		10-15-14-15	29	4. 6. 4. 9. 5 14. 6		Medium dense light gray fine sand (SP)	·BABAA•					
=		12-14-15-11	29			Medium dense light gray clayey sand (SC)						
3		. 13-8-7-8	15			Hard dark gray sandy clay (CL)						
10 —		15-20-28-32	48			Boring terminated at 10 feet below grade		miskinski kino	******		000000000	



PROJECT NO.: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 38

PROJECT:

Proposed Moccasin Wallow Road Improvements

Mocasin Wallow From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS:

BORING DESIGNATION:

B-11

1 of 1 SHEET:

TOWNSHIP:

2,5

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

SECTION:

DATE STARTED: 9/26/18 DATE FINISHED:

DATE OF READING: 9/26/2018

9/26/18 TS / BG

DRILLED BY:

DEPTH M	3	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT.
(F1.) F	"	NCREMENT	FT.)		ő		(%)	(70)	LL	PI		(%)
0 —			10			Medium dense gray fine sand with silt (SP-SM)						
-		5-5-7-13	12	•		Dense light gray fine sand with clay and rock fragments (SP-SC)						
5 —	1	2-19-16-18	35			Medium dense gray clayey sand (SC)						awa sata
		8-8-12-13	20									
		9-7-10-14	17			Dense grayish brown clayey sand (SC)	35.5	25.2				
10	-11	9-22-18-22	40			Boring terminated at 10 feet below grade	inoneis.					



PROJECT NO.: 1130,1800187,0000 REPORT NO.: 13620

PAGE: 1

Proposed Moccasin Wallow Road Improvements PROJECT:

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-001** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/10/18 8/10/18

WATER TABLE (ft): DATE OF READING: 8/10/2018

5.0

DRILLED BY: LR / TM

EST. W.S.W.T. (ft):

							EST. W.S.W.T. (ff	<i>J</i> ·		2010	/ WIT LIN	G: ASIMI	71402
	DEPTH (FT,)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
1	(1 1,)	Ė	INCREMENT	FT.)		Į Č		(7-5)	(75)	LL	PI		(%)
	0 —						Dark gray fine sand with silt (SP-SM)						
							Dark gray fine sand with silt and trace shell (SP-SM)						
	-						Brown fine sand with trace silt (SP)						
	5 —	1	4 2 4 4 5 4 5 4 5 5 5 5 5 5 5 5 5 5 5 5	of any block is White	<b>V</b>		Boring terminated at 5 feet below grade		2312020				wii
88													
BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 11/19/18													
18 HA, GPJ UNIEN													
G LOG GINT 201													
BORIN													



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

PAGE: 2

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-002

SHEET: 1 of 1

SECTION:

TOWNSHIP:

8/10/2018

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/10/18

WATER TABLE (ft): 4.6

DATE FINISHED:

8/10/18

DATE OF READING:

DRILLED BY:

LR / TM

EST, W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

						EST. W.S.W.T. (ft)		TY	PE OF S	AMPLING	G: ASTM E	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	\\\ T	S Y M B	DESCRIPTION	-200	МС	ATTER	RBERG IITS	UOD (4-5)	ORG. CONT. (%)
(FT.)	PLE	INCREMENT	FT.)	VV. I.	B O L	BESONIF HON	(%)	(%)	LL	PI	UCS (tsf)	(%)
0 —	1					Brown fine sand with trace silt (SP)						
						Dark brown fine sand with silt (SP-SM)						
						Gray fine sand with trace silt and rock fragments (SP)						
5 —	1		*********	+14 = 14 = 14 = 14	000	Boring terminated at 5 feet below grade	514188898841.5	b4405344304	containe			
								T				



PROJECT NO.: 1130\_1800187\_0000 REPORT NO .: 13620 PAGE: 3

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

See Boring Location Plan LOCATION:

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-003** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/10/18 8/10/18

WATER TABLE (ft): DATE OF READING:

8/10/2018

DATE FINISHED: DRILLED BY.

LR / TM

						EST, W.S.W.T. (f	t):	TY	PE OF S	AMPLING	G: ASTM (	01452
DEPTH	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200	MC	ATTE	RBERG IITS	UCS (tsf)	ORG.
(FŤ₌)	F	INCREMENT	FT.)		ÖL		(%)	(%)	LL	PI	003 (tsi)	CONT. (%)
0-	1					Brown fine sand with trace silt (SP)						
	1											
	1											
25				•		Brown fine sand (SP)						
	1											
	1											
-						Dark brown fine sand with silt (SP-SM)						
5—	1			2512121		Boring terminated at 5 feet below grade	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					********
2												



PROJECT NO.: 1130,1800187.0000

REPORT NO.: 13620

4

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardn

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

SECTION:

HA-004

SHEET: 1 of 1

TOWNSHIP: RANGE:

PAGE:

G.S. ELEVATION (ft):

):

DATE STARTED:

8/10/18 8/10/18

DATE OF READING:

WATER TABLE (ft):

8/10/2018

DATE FINISHED: DRILLED BY:

LR / TM

				EST. W.S.W.T. (f			PE OF S		G: ASTM	
DEPTH M (FT.) P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG, CONT, (%)
					-					
0				Brown fine sand with silt (SP-SM)						===
1				Brown fine sand with trace silt (SP)						
- 1										
1			_							
5				Boring terminated at 5 feet below grade				A.C.A.C.6	**********	



PROJECT NO.: 1130.1800187.0000 REPORT NO .: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-005** 

PAGE:

SHEET:

RANGE:

5

TOWNSHIP:

DATE STARTED:

8/10/18 8/10/18

1 of 1

DATE OF READING: 8/10/2018

3.0

DATE FINISHED: DRILLED BY:

LR / TM

EST. W.S.W.T. (ff):

G.S. ELEVATION (ft):

WATER TABLE (ft):

İş	T				S	EST, W.S.W.T. (ft	): T	TY	1		3: ASTM E	)1452
DEPTH M (FT.) P L		BLOWS PER 6" NCREMENT	N (BLOWS/ FT <sub>e</sub> )	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
0 -	-				Ĺ				LL	PI		
0-	)					Dark gray fine sand with silt (SP-SM)						
						Dark brown fine sand with silt (SP-SM)	-					
				•								
	7					Brown fine sand with trace silt (SP)						
5 —						Boring terminated at 5 feet below grade	*100120015000		00,000	0.0001		
	_											



PROJECT NO .: 1130,1800187.0000 REPORT NO.: 13620 PAGE: 6

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

G.S. ELEVATION (ft):

WATER TABLE (ft):

SECTION:

**HA-006** 

1 of 1 SHEET:

TOWNSHIP:

DATE STARTED:

8/10/18 8/10/18

DATE OF READING: 8/10/2018

DATE FINISHED: DRILLED BY:

LR / TM

							EST, W.S.W.T, (f	t):	TY	PE OF S	AMPLING	G: ASTM	)1452
İ	DEPTH	SAMPLE	BLOWS PER 6"	N (BLOWS/	w.t.	S Y M B	DESCRIPTION	-200	мс	ATTER	RBERG	UCS (tsf)	ORG. CONT.
L	(FT <sub>2</sub> )	E E	INCREMENT	FT.)	7.5	O F		(%)	(%)	LL	PI	UCS (ISI)	(%)
l	0 —	•					Dark gray fine sand with silt (SP-SM)						
ı	-	4											
ı							Dark brown fine sand with silt (SP-SM)						
ŀ	\ <del>-</del>	1											
l	N-												
١					•		Light brown fine sand (SP)						
	27						Dark brown fine sand with silt (SP-SM)						
١	5 —		***********					1001101011111	158127812788				*****
							Boring terminated at 5 feet below grade						
l													
l													
l													
١													
l													
l													
2													
,													
-													
L													



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 7

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-007** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/10/18 8/10/18

DATE OF READING: 8/10/2018

WATER TABLE (ft):

DRILLED BY:

LR / TM

					EST. W.S.W.T. (ft	):	TY	PE OF S	SAMPLING	G ASTM [	D1452
DEPTH M (FT <sub>r</sub> ) F	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
	INCREMENT	FT <sub>2</sub> )		<u>C</u>		(70)	(70)	LL	PI		(%)
0 —					Dark gray fine sand with silt (SP-SM)						
					Gray fine sand with trace silt (SP)	-					
	<u>.</u>		▼.		Brown fine sand with trace silt (SP)	-					
5			******		Boring terminated at 5 feet below grade		00.000.000.000.000.000.000.000.000.000	*****	*********		
					Boring terminated at 5 feet below grade						



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-008** 

PAGE:

SHEET:

RANGE:

8

TOWNSHIP:

DATE STARTED:

DATE FINISHED:

8/10/18 8/10/18

WATER TABLE (ft):

3.0

LR/TM

DATE OF READING:

G.S. ELEVATION (ft):

8/10/2018

DRILLED BY:

1 of 1

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 SYMBOL ATTERBERG BLOWS PER 6" INCREMENT AMPLIE N (BLOWS/ ORG. DEPTH MC (%) LIMITS -200 W.T. DESCRIPTION CONT. UCS (tsf) (FT..) (%) FT,) (%) LL 0 Dark brown fine sand with silt (SP-SM) V Gray fine sand with trace silt (SP) Boring terminated at 5 feet below grade



PROJECT NO.: 1130,1800187,0000 REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

See Boring Location Plan LOCATION:

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-009** 

SHEET:

TOWNSHIP: RANGE:

DATE STARTED: 8/10/18

8/10/18

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/10/2018

DATE FINISHED: DRILLED BY:

LR / TM

1 of 1

DEPTH (FT <sub>+</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200	MC (%)	ATTE	RBERG HTS	UCS (tsf)	ORG CONT (%)
(F1,)	LE	INCREMENT	FT,)	1000	O L		(%)	(%)	LL	PI	000 (tsi)	(%)
0 —	1					Gray fine sand (SP)						
	1					Dark brown fine sand with silt (SP-SM)						
	1					Dark Grown fine Sand With Site (CF - Sivi)						
	1					Light brown fine sand (SP)						
15	1			┻								
	ľ											
-												
5 —	1	***********	**********	terner		Boring terminated at 5 feet below grade		000000000		011111111111111111111111111111111111111	555555555555	erosero
										-		



PROJECT NO.: 1130\_1800187\_0000 REPORT NO .: 13620 PAGE: 10

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-010** TOWNSHIP:

1 of 1 SHEET:

RANGE:

DATE STARTED:

8/10/18 8/10/18

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

3,5

LR / TM

8/10/2018

DATE FINISHED: DRILLED BY:

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

s				S	EST. W.S.W.T. (ft	/· 				G: ASTM [	71402
DEPTH M (FT.) P L	BLOWS PER 6" INCREMEN	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
Ė	INGINER		_	2				LL	PI		(%)
0					Dark brown fine sand with silt (SP-SM)	5.3	10.7				
			▼.		Light brown fine sand (SP)						
5 —	entententen				Boring terminated at 5 feet below grade		*******	* 0 * 0 * 0 * 0 *		***********	



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

See Boring Location Plan LOCATION:

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-011** 

SHEET:

RANGE:

TOWNSHIP:

DATE STARTED:

8/10/18 8/10/18

1 of 1

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/10/2018

DATE FINISHED: DRILLED BY.

LR / TM

ORG CONT (%)
(%)
_



PROJECT NO.: 1130\_1800187,0000

REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

SECTION:

HA-012

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/10/18 8/10/18

WATER TABLE (ft): DATE OF READING:

8/10/2018

DRILLED BY:

LR / TM

						EST. W.S.W.T. (f			PE OF S		G: ASTM	
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT:)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTER LIN	RBERG IITS Pi	UCS (tsf)	ORG CONT (%)
0 —	K				SHIP	Dark brown fine sand with silt (SP-SM)						
								_				
(2 12						Light brown fine sand (SP)						
5 —		***********				Boring terminated at 5 feet below grade			comtorn	1011111		
	Н											



PROJECT NO .: 1130,1800187.0000 REPORT NO :: 13620 PAGE: 13

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION: SECTION:

**HA-013** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/10/18 8/10/18

WATER TABLE (ft): DATE OF READING:

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

8/10/2018

TYPE OF SAMPLING: ASTM D1452

SAMPLE ATTERBERG BLOWS PER 6" N (BLOWS/ ORG. CONT. (%) MBOL DEPTH -200 MC LIMITS W.T. DESCRIPTION UCS (tsf) (FT.) (%) (%) INCREMENT FT.) LL Ρí 0 Dark brown fine sand with silt (SP-SM) Light brown fine sand (SP) \_\_\_\_ Boring terminated at 5 feet below grade BORING LOG GINT 2018 HA GPJ UNIENGSC.GDT 9/27/18



PROJECT NO .: 1130.1800187,0000 REPORT NO .: 13620 PAGE: 14

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-014 TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/10/18 8/10/18

1 of 1

WATER TABLE (ft): DATE OF READING:

DATE FINISHED: DRILLED BY:

G.S. ELEVATION (ft):

8/10/2018

LR / TM

EST. W.S.W.T. (ft):

ASTM D1452 TYPE OF SAMPLING:

DEPTH (FT <sub>+</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200	MC	ATTE	RBERG	UCS (tsf)	ORG CONT. (%)
(1 13)	Ĺ	INCREMENT	FT <sub>2</sub> )		ő		(%)	(%)	LL	PI	000 (101)	(%)
0-	}					Dark brown fine sand with silt (SP-SM)						
				1000		Light brown fine sand (SP)						
				•								
5 —			(V.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S	003/03/		Boring terminated at 5 feet below grade		*********	*******	97643783	PHESPEAN PROF	*******



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 15

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING LOG GINT 2018 HA GPJ UNIENGSC, GDT 9/27/18

BORING DESIGNATION:

SECTION:

**HA-015** 

SHEET: 1 of 1

TOWNSHIP: RANGE:

G.S, ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/13/18 8/13/18

WATER TABLE (ft): DATE OF READING: 8/13/2018

DRILLED BY:

LR / TM

			EST, W,S,W,T. (ft)	). 	11	PE OF S	AMPLIN	G: ASTM	01452
DEPTH (FT.) S A BLOWS PER 6" (I	N (BLOWS/ W.T. FT.)	S Y M B	DESCRIPTION	-200	мс	ATTER	RBERG	1100 (4-6)	ORG.
(FT.) L INCREMENT	FT.)	B O L	DESCRIPTION	(%)	(%)	ĹĹ	PI	UCS (tsf)	CONT. (%)
0			Dark brown fine sand with silt (SP-SM)						
			Light brown fine sand (SP)						
5			Boring terminated at 5 feet below grade						***************************************



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 16

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

See Boring Location Plan LOCATION:

REMARKS: Roadway BORING DESIGNATION:

**HA-016** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G,S. ELEVATION (ft): WATER TABLE (ft):

SECTION:

DATE STARTED: 8/13/18 DATE FINISHED:

8/13/18

DATE OF READING:

8/13/2018

DRILLED BY:

LR / TM

						EST, W.S,W.T. (ft	):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEPTH	S M P L E	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	мс	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(FT <sub>a</sub> )	E	INCREMENT	` FT.)	13.10	O L		(%)	(%)	LL	PI	003 (ISI)	(%)
0 —	1					Dark brown fine sand with silt (SP-SM)						
y <del> </del>						Light brown fine sand (SP)						
1												
1	•											
5 —	L	111111111111111111111111111111111111111				Boring terminated at 5 feet below grade		35050500000				******
						251mg to minutou at 6 1001 501011 grade						



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-017

SHEET: 1 of 1

TOWNSHIP:

RANGE:

DATE STARTED: DATE FINISHED: 8/13/18 8/13/18

WATER TABLE (ft):
DATE OF READING:

G.S. ELEVATION (ft):

8/13/2018

DRILLED BY:

LR/TM

					EST. W.S.W.T. (	ft):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH M (FT.) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG	UCS (tsf)	ORG. CONT. (%)
				Ĺ				LL	P!		
0					Dark brown fine sand with silt (SP-SM)						
1					Light brown fine sand (SP)						
4											
5			. 🔻 .		Boring terminated at 5 feet below grade	- Ernackarana				> 4 + 4 + 4 + 4 + 4 + 4   1   1	
					botting terminated at 5 feet below grade						



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 18

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-018** 

SHEET:

RANGE:

TOWNSHIP:

DATE STARTED:

8/13/18 8/13/18

1 of 1

DATE OF READING:

LR / TM

G.S. ELEVATION (ft):

WATER TABLE (ft):

8/13/2018

DATE FINISHED: DRILLED BY:

						EST, W.S.W.T. (fi	t):	TY	PE OF S	SAMPLIN	G: ASTMI	D1452
DEPTH (FT <sub>.</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W,T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG //ITS	UCS (tsf)	ORG CONT (%)
0 —	I					Dark brown fine sand with silt (SP-SM)						
	I					, , ,						
-	Ì											
3	1											
						Light brown fine sand (SP)						
	1											
	ľ											
-	1											
5 —	4		*********	. 🔻							**********	
						Boring terminated at 5 feet below grade						
											Ī	



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 19

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

G.S. ELEVATION (ft):

WATER TABLE (ft):

SECTION:

**HA-019** 

1 of 1 SHEET:

8/13/18

TOWNSHIP: RANGE:

DATE STARTED: 8/13/18

DATE FINISHED: DATE OF READING: 8/13/2018 DRILLED BY: LR / TM

			_				EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLIN	G: ASTM [	01452
D	EPTH (FT.)	mrd⊠≽⊗	BLOWS PER 6"	N (BLOWS/ FT_)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MTS	UCS (tsf)	ORG. CONT. (%)
L	· - 1/1/2	Ë	INCREMENT	FT,		Ŏ L		(70)	(70)	LL	PI		(%)
	0 —	b					Dark brown fine sand with silt (SP-SM)						
	=												
		1											
-	77	1					Light brown fine sand (SP)						
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	5 —				. 🔻 .				*******				
							Boring terminated at 5 feet below grade						
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PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

PAGE: 20

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

G.S. ELEVATION (ft):

WATER TABLE (ft):

SECTION:

HA-020

SHEET: 1 of 1

TOWNSHIP:

DATE STARTED:

8/13/18 8/13/18

DATE OF READING: 8/13/2018

DATE FINISHED: DRILLED BY:

LR / TM

EST, W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

	_			,		EST, W,S.W.T, (ff	):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/ FT.)	w.t.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG, CONT.
(1.5)	Ë	INCREMENT	FT,)		ο̈́L		(%)	(%)	LL	PI	000 (10.)	(%)
0 -	Б				111	Dark brown fine sand with silt (SP-SM)						
	1											
	4											
	1					Light brown fine sand (SP)				i iā		
	1											
5-	1	MICOANIERHEA				Daving towningted at 5 feet heless and		******				
						Boring terminated at 5 feet below grade						
	П											
	П											



PROJECT NO.: 1130\_1800187,0000 REPORT NO.: 13620 PAGE: 21

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-021** TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/13/18

WATER TABLE (ft):

8/13/2018

DATE FINISHED: DRILLED BY:

8/13/18 LR / TM

1 of 1

DATE OF READING: EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

PER 6" (BLOWS/FT.)	W.T. MBOOL	Dark brown fine sand with silt (SP-SM)  Brown fine sand with trace silt (SP)  Light brown fine sand (SP)	(%)	(%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
		Brown fine sand with trace silt (SP)						
	<b>▼</b>							
	•	Light brown fine sand (SP)						
		Boring terminated at 5 feet below grade	M10390256	PARTICIPAL PROPERTY AND INC.	1000000	0.000		



PROJECT NO.: 1130.1800187.0000 REPORT NO .: 13620 PAGE:

22

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-022** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

DATE STARTED:

8/13/18

WATER TABLE (ft): 4.5

DATE FINISHED:

8/13/18

DATE OF READING:

G.S. ELEVATION (ft):

8/13/2018

DRILLED BY: LR / TM

Г	ș	1		S	EST. W.S.W.T. (	ft):	TY	_		G: ASTM [	
DEPTH (FT.)	S A BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	-	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0	E				Dark brown fine sand with silt (SP-SM)			LL	PI		
					Brown fine sand with trace silt (SP)						
					Light brown fine sand (SP)						
8-	7										
-			•								
5 —		(0):00:00	******		Boring terminated at 5 feet below grade	800,000,000				***********	



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18

Roadway

BORING DESIGNATION:

SECTION:

**HA-023** TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/13/18 8/13/18

1 of 1

WATER TABLE (ft): DATE OF READING:

DRILLED BY:

LR / TM

8/13/2018

EST, W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

SYMBOL ATTERBERG BLOWS PER 6" N (BLOWS/ ORG. **DEPTH** -200 MC LIMITS W.T. DESCRIPTION CONT. UCS (tsf) (FT, (%) (%) INCREMENT FT.) (%) LL ы 0 Yellowish brown fine sand with silt (SP-SM) Brown fine sand with silt (SP-SM) Light brown fine sand (SP)  $\blacksquare$ Boring terminated at 5 feet below grade



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REPORT NO.: 13620

PAGE: 24

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-024

SHEET:

TOWNSHIP: RANGE:

G.S. ELEVATION (ft):
WATER TABLE (ft): 4.0

DATE STARTED: DATE FINISHED: 8/13/18 8/13/18

1 of 1

DATE OF READING:

8/13/2018

DRILLED BY

LR / TM

EST, W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

S	BLOWS	N		S Y	EST, W.S.W.T. (			ATTER	RBERG	G ASTM C	
DEPTH M (FT.) F	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	LIM	IITS PI	UCS (tsf)	ORG CONT (%)
0					Yellowish brown fine sand with silt (SP-SM)						
					Brown fine sand with silt (SP-SM)						
			_▼_		Light brown fine sand (SP)						
5		)	erenen		Boring terminated at 5 feet below grade		*********				**********



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION: SECTION:

**HA-025** 

TOWNSHIP:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/13/18 8/13/18

WATER TABLE (ft):

4\_0

DATE FINISHED:

LR / TM

DATE OF READING:

8/13/2018

DRILLED BY:

7=							EST, W,S,W,T, (ft	):	TY	PE OF S	AMPLIN	G: ASTMI	D1452
	DEPTH (FT,)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
I	0 —	1					Yellowish brown fine sand with silt (SP-SM)						
	-						Brown fine sand with silt (SP-SM)	_					
	7.	1					Light brown fine sand (SP)						
	_				▼.								
	5 —		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				Boring terminated at 5 feet below grade	***************************************	***************************************	*********	518.5A/84	************	*********
3/27/18													
ENGSC GDT													
118 HA GPJ UN													
BORING LOG GINT 2018 HA GPJ UNIENGSC.GDT 9/27/18													
BORING													



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 26

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-026** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

SECTION:

DATE STARTED: 8/13/18 DATE FINISHED:

8/13/18

DATE OF READING:

8/13/2018

DRILLED BY:

LR / TM

	S				S	EST. W.S.W.T. (ft)		11		-	G: ASTMI	D1452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	w.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG CON (%
	Ė	WORLINEIVI	11.9		2				LL	PI		(%)
0 —						Yellowish brown fine sand with silt (SP-SM)						
_	1					Brown fine sand with silt (SP-SM)						
	I					Distriction of the control of the co						
	1											
-	1											
	1					Light brown fine sand (SP)						
17 <u>-</u>	1			▼.								
5 —				enerel								
3		- 2017		301.54		Boring terminated at 5 feet below grade	nomen					



PROJECT NO.: 1130,1800187.0000

REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-027
TOWNSHIP:

SHEET:

RANGE:

....

DATE STARTED:

8/14/18 8/14/18

DATE OF READING: 8/14/2018

7.0

DATE FINISHED: DRILLED BY:

LR / TM

1 of 1

EST. W.S.W.T. (ft):

G.S. ELEVATION (ft):

WATER TABLE (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH	SAMP	BLOWS	N (BLOWS/		S Y	EST, W.S.W.T. (f		мс	ATTE	RBERG	G: ASTM	
(FT.)	₽ P F	BLOWS PER 6" INCREMENT	(BLOWS/ FT.)	W.T.	M B O L	DESCRIPTION	-200 (%)	(%)	LIN LL	IITS PI	UCS (tsf)	ORG. CONT. (%)
0 —	ŀ					Yellowish brown fine sand with silt (SP-SM)						
	Ì					Yellowish brown fine sand with trace silt (SP)						
_	}											
5 —	1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		<b>.</b>				***************************************		O Kina ki Kina	**********	*****
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-028

SHEET:

RANGE:

TOWNSHIP: R

DATE STARTED: DATE FINISHED: 8/14/18 8/14/18

1 of 1

WATER TABLE (ft): DATE OF READING.

G.S. ELEVATION (ft):

4<sub>.5</sub> 8/14/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING

ASTM D1452

| DESCRIPTION   Service   Private   OR CON                                  |
|---|---|
| Light brown fine sand (SP)  | (%                                      |
| <b>▼</b>  |   |
| <b>▼</b>  |   |
| <b>▼</b>  |   |
| <b>▼</b>  |   |
| 5 20 20.5   |   |
| 5 20 20.5   |   |
| 5 20 20.5   |   |
| 5 20 20.5   |   |
| Boring terminated at 5 feet below grade   |   |
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PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-029 TOWNSHIP:

3

SHEET: RANGE:

~

8/14/18

WATER TABLE (ft): 4.3

ı

DATE STARTED: DATE FINISHED:

8/14/18

DATE OF READING:

G.S. ELEVATION (ft):

8/14/2018

DRILLED BY:

LR / TM

1 of 1

DEPTH M (FT:) F	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	MC	ATTERBERG LIMITS		UCS (tsf)	ORG CONT (%)
(FT.) F	INCREMENT	FT.)		O L		(%)	(%)	LL	PI	UCS (tsi)	(%)
0 —					Brown fine sand with silt (SP-SM)						
					Brown fine sand with trace silt (SP)						
-	1		_								
5 —	~10001000100010	23725322077	MARKE 0		Boring terminated at 5 feet below grade		******	********		***************************************	1000000



PROJECT NO.: 1130\_1800187\_0000 REPORT NO .: 13620 PAGE: 30

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING\_LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18

BORING DESIGNATION:

SECTION:

**HA-030** 

1 of 1 SHEET:

TOWNSHIP:

DATE STARTED:

8/14/18

WATER TABLE (ft):

DATE FINISHED:

8/14/18

G.S. ELEVATION (ft):

DATE OF READING: 8/14/2018

DRILLED BY:

LR / TM

FST. W.S.W.T. (fft): TYPE OF SAMPLING: ASTM D1452

						EST, W,S,W,T, (ft	):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT.
(1 (9)	L E	INCREMENT	FT.)		0 5		(70)	(%)	LL	PI		(%)
0 —	I					Brown fine sand with silt (SP-SM)						
	I											
	•					Brown fine sand with trace silt (SP)						
	•											
j.												
	И											
) <del>-</del>	ł			▼.								
5 —				2500240		Boring terminated at 5 feet below grade	********					
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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING\_LOG GINT 2018 HA GPJ UNIENGSC.GDT 9/27/18

Roadway

BORING DESIGNATION:

SECTION:

**HA-031** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

DATE STARTED: DATE FINISHED:

8/14/18 8/14/18

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

DRILLED BY:

LR / TM

8/14/2018

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH M	, IDI FER 0 ((BLOVV)		N (BLOWS/	w T	S Y M B	EST. W.S.W.T. (fi	-200 (%)	MC (%)	ATTERBERG LIMITS		G: ASTM	ORG. CONT. (%)	
(FT.) P L E		INCREMENT	FT.)	10.0	B O L	SESSIAN FISH	(%)	(%)	LL	PI	UCS (tsf)	(%)	
0-	)					Dark brown fine sand with silt (SP-SM)							
						Brown fine sand with silt (SP-SM)							
5						Brown fine sand with trace silt (SP)							
5 —	ľ		0.0000000000000000000000000000000000000	HILL		Boring terminated at 5 feet below grade		********		*******		041T3T355	



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 32

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION

SECTION:

**HA-032** TOWNSHIP:

SHEET:

RANGE;

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/14/18 8/14/18

1 of 1

WATER TABLE (ft): DATE OF READING:

8/14/2018

DRILLED BY:

LR / TM

						EST, W.S.W.T. (	ft):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO.	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
0-	-				L							
	ì					Dark brown fine sand with silt (SP-SM)						
	1					Brown fine sand with silt (SP-SM)						
92	Ì											
+	1					Brown fine sand with trace silt (SP)						
-												
5-						Boring terminated at 5 feet below grade			,,,,,,,,,	****		0110110
						borning terminated at 5 feet below grade						



PROJECT NO.: 1130,1800187,0000

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-033

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/14/18 8/14/18

WATER TABLE (ft): DATE OF READING:

4.3 8/14/2018

DRILLED BY:

LR / TM

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						EST, W,S,W,T. (1	t):	TY	PE OF S	AMPLIN	G: ASTMI	D1452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG.
	Ŀ	INCREMENT	` FT.)		Ŏ		(70)	(76)	LL	PI	,	(%)
0 —	b					Yellowish brown fine sand with silt (SP-SM)						
8.	1					Brown fine sand with silt (SP-SM)						
	ľ					Blown line saild with silt (SF-SW)						
3	١					Light brown fine sand (SP)	1					
	1											
2	1			•								
5 —		onenonesos sasses										
						Boring terminated at 5 feet below grade						



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of | 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

**HA-034** 

TOWNSHIP:

1 of 1 SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/14/18

WATER TABLE (ft):

SECTION:

4.2

DATE FINISHED:

8/14/18

DATE OF READING:

8/14/2018

DRILLED BY:

LR / TM

EST-W-S-W-T (ff):

TYPE OF SAMPLING ASTM D1452

					EST., W.S.W.T. (fi	.y. 		PE OF S	MIVIELIN	G: ASTMI	J1452
H M	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT.
Ŀ	INCREMENT	FT <sub>a</sub> )		P.		(,,,	(70)	LL	PI		(%)
,					Yellowish brown fine sand with silt (SP-SM)						
					Brown fine sand with silt (SP-SM)	2.1	8.3				
			•		Light brown fine sand (SP)						
_ \					Boring terminated at 5 feet below grade					10410441111	
	Ś										
	SAMPLE	PER 6" L INCREMENT E				Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  2.1 8.3  Light brown fine sand (SP)  Boring terminated at 5 feet below grade	Pellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)  Boring terminated at 5 feet below grade



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-035** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

DATE STARTED: 8/14/18

DATE FINISHED:

8/14/18 LR / TM

DATE OF READING: EST. W.S.W.T. (ft):

8/14/2018

4.0

DRILLED BY:

						EST. W.S.W.T. (	(ft):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT <sub>s</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
0 —	A					Yellowish brown fine sand with silt (SP-SM)						
	ľ					renewer shown the said war six (or six)						
						Brown fine sand with silt (SP-SM)						
	Ì					Light brown fine sand (SP)						
	1											
	1			▼.								
	1											
5 —	W				figures.	Boring terminated at 5 feet below grade		*********				
							Ď.					



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-036

SHEET:

36

TOWNSHIP: RA

PAGE:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: 8/14/18

WATER TABLE (ft): 4.0

DATE FINISHED:

8/14/18 LR / TM

DATE OF READING:

8/14/2018

DRILLED BY:

E1(7 1181

1 of 1

						EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLIN	G: ASTM I	D1452
DEPTH (FT.)	SAMP	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.		DESCRIPTION	-200 (%)	MC (%)		RBERG	UCS (tsf)	ORG. CONT.
	F	INCREMENT	FT.)		P.		, ,		LL	Pł		(%)
0 —	•					Yellowish brown fine sand with silt (SP-SM)						
-						Brown fine sand with silt (SP-SM)	-					
_	(											
	N					Light brown fine sand (SP)						
· ·												
12 <u>-</u>	4			≖								

Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

G.S. ELEVATION (ft):

SECTION:

**HA-037** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

DATE STARTED:

8/14/18 8/14/18

WATER TABLE (ft): DATE OF READING: DATE FINISHED:

8/14/2018

DRILLED BY:

LR / TM

)EDTU	S A M P	BLOWS	N		S Y		-200	мс	ATTE	RBERG		ORG.
DEPTH (FT.)	P L E	PER 6" INCREMENT	(BLOWS/	W.T.	M B O L	DESCRIPTION	(%)	(%)	LL	PI	UCS (tsf)	ORG CONT (%)
0 —	1					Yellowish brown fine sand with silt (SP-SM)						
	ľ											
						Light yellow brown fine sand with trace silt (SM)						
=	1											
	ľ											
-	)											
=	1			•								
	ľ											
5 —				3.03.00		Boring terminated at 5 feet below grade		ENGRED SER	enoneous	********	**********	



PROJECT NO.: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 38

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-038** 

TOWNSHIP:

1 of 1 SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/14/18 8/14/18

DATE OF READING:

8/14/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

WATER TABLE (ft):

TYPE OF SAMPLING: ASTM D1452

P	Ιe				I 6	EST, W,S,W,T, (I	1):	1 1	TE OF S	AMPLIN	G: ASTM [	J1452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	(BLOWS/	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
	Ė	INCREMENT	FT <sub>-</sub> )		O L		(,	(,,,	LL	PI		(%)
0 —						Yellowish brown fine sand with silt (SP-SM)						
-				▼.	111	Brown fine sand with trace silt (SP)						
5 —	•	MARKAREA				Boring terminated at 5 feet below grade		0000000000		******		or the contract



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620

PAGE: 39

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS. Roadway BORING DESIGNATION:

**HA-039** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/14/18 8/14/18

WATER TABLE (ft): DATE OF READING:

2.5

DATE FINISHED:

LR / TM

8/14/2018

DRILLED BY:

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
(( 1.)	Ë	INCREMENT	FT.)		O L		(70)	(70)	LL	PI		(%)
0 —					ভাষাক	Brown fine sand with silt (SP-SM)						
						brown line sand with silt (SP-Sivi)						
59												
						Brown fine sand with trace silt (SP)						
				•								
											1	
	1											
	ı				141.0							
-	t											
	I											
5 —	1	*********	**********	emeu		Boring terminated at 5 feet below grade		*********			**********	
	Н											
			21									



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-040** TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/14/18

WATER TABLE (ft):

DATE FINISHED:

8/14/18

1 of 1

DATE OF READING:

G.S. ELEVATION (ft):

8/14/2018

DRILLED BY: LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

	_				,	EST. W.S.W.T. (f	t):	11	PE OF S	AMPLIN	G: ASTM [	J1452
DEPTH (FT_)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
` "	Ŀ	INCREMENT	F1.)		O L		(73)	(,0)	LL	PI		(%)
0 —						Brown fine sand with silt (SP-SM)						
_						Brown fine sand with trace silt (SP)						
, <del>-</del>				▼.								
5 —						Boring terminated at 5 feet below grade				*******		0.0000000000000000000000000000000000000
											1	
	П											
								-				



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620

RANGE:

41

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-041** 

TOWNSHIP:

PAGE:

1 of 1 SHEET:

SECTION:

8/16/18

G.S. ELEVATION (ft): WATER TABLE (ft):

5.0

DATE STARTED: DATE FINISHED:

8/16/18

DATE OF READING:

8/16/2018

DRILLED BY:

LR / TM

							EST, W,S,W,T. (ft	):	TY	PE OF S	AMPLIN	G: ASTMI	D1452
DEF (F3	PTH T.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.		DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
<u> </u>		Ē	INCINEIN	11,57		P P				LL	PI		(%)
	0 —	<b>)</b>					Dark brown fine sand with silt (SP-SM)						
	=						Brown fine sand with silt (SP-SM)	-					
	_												
	-						Brown fine sand with trace silt (SP)						
	-	Ì											
	5 —	1					Boring terminated at 5 feet below grade					***********	10100010014
l													
l													



PROJECT NO .: 1130.1800187.0000 13620 REPORT NO .:

42

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-042** TOWNSHIP:

PAGE:

SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/16/18 8/16/18

1 of 1

WATER TABLE (ft): DATE OF READING:

8/16/2018

DRILLED BY:

LR / TM

-						EST, W,S,W,T, (ft	):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W <sub>e</sub> T <sub>e</sub>	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
		INONEMENT	11.7		Ĉ.				LL	PI		(70)
0	I					Dark brown fine sand with silt (SP-SM)						
	1					Brown fine sand with silt (SP-SM)						
	4											
	4					Proves fine cond with trace silt (CD)						
	1					Brown fine sand with trace silt (SP)						
	1											
5 -			*********	2. <b>▼</b> -2		Boring terminated at 5 feet below grade	constrateror	tjonenosenos		079310		
												ę



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-043** 

PAGE:

TOWNSHIP:

SHEET:

43

RANGE

G.S. ELEVATION (ft):

DATE STARTED:

8/16/18 8/16/18

1 of 1

WATER TABLE (ft): DATE OF READING:

5.0

8/16/2018

DATE FINISHED: DRILLED BY:

LR / TM

	2				0				_			D1452
EPTH (FT <sub>*</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIN	RBERG IITS PI	UCS (tsf)	ORG CON (%
0 —	K				enn:	Dark brown fine sand with silt (SP-SM)						
-						Yellowish brown fine sand with trace silt (SP)	1					
						Brown fine sand with trace slit (SP)						
_	1											
-	ì											
				•								
5 —			*********			Boring terminated at 5 feet below grade		*********			**********	

BORING\_LOG\_GINT 2018 HA.GPJ\_UNIENGSC.GDT\_9/27/18



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44

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

G.S. ELEVATION (ft):

WATER TABLE (ft):

SECTION:

**HA-044** 

4.0

1 of 1 SHEET:

TOWNSHIP:

PAGE:

RANGE:

DATE STARTED: 8/16/18

DATE FINISHED: 8/16/18

DATE OF READING: 8/16/2018 DRILLED BY: LR / TM

l'a	γ	r			EST. W.S.W.T. (f	t):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEPTH M (FT <sub>-</sub> ) P L	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
	INCREMENT	` FT,)		B O L		(76)	(70)	LL	PI	000 (10.1)	(%)
0					Dark brown fine sand with silt (SP-SM)						
4											
					Yellowish brown fine sand with silt (SP-SM)						
+											
4			▼.								
- 1											
5—	K****************	*********	814 8 X 9 X 9	1113	Boring terminated at 5 feet below grade		11000000000		0000	x 53 45 65 65 65 66	**********



PROJECT NO.: 1130.1800187.0000 REPORT NO .: 13620

PROJECT:

CLIENT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION

SECTION:

**HA-045** TOWNSHIP:

SHEET:

45

RANGE:

DATE STARTED:

8/16/18 8/16/18

WATER TABLE (ft): DATE OF READING: 8/16/2018

G.S. ELEVATION (ft):

DRILLED BY:

DATE FINISHED:

PAGE

LR/TM

1 of 1

EST\_W.S.W.T. (ft):

DEPTH M	BLOWS	N (BLOWS/		S Y M	EST.:W.S.W.T. (f	-200		1	RBERG	G: ASTM [	ORG
DEPTH M	PER 6" INCREMENT	(BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	(%)	MC (%)	LL	PI	UCS (tsf)	CONT (%)
0-					Dark brown fine sand with silt (SP-SM)						
3					Yellowish brown fine sand with trace silt (SP)						
					Brown fine sand with trace sllt (SP)						
5 —					Boring terminated at 5 feet below grade	.aa.aau	10.400 FOR	94.550 s.55	0 FOO ( PO)	2306-3306-336-4	



PROJECT NO.: 1130,1800187.0000

REPORT NO.: 13620

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18

BORING DESIGNATION:

HA-046

PAGE:

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/16/18 8/16/18

WATER TABLE (ft): DATE OF READING:

8/16/2018

DATE FINISHED: DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

	S	BI OWS	N		S Y M	EST. W.S.W.T. (f			ATTE	RBERG	G: ASTM	
DEPTH (FT <sub>-</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	M B O L	DESCRIPTION	-200 (%)	MC (%)	LL	IITS PI	UCS (tsf)	ORG. CONT. (%)
0 —	1					Dark brown fine sand with silt (SP-SM)						
-						Yellowish brown fine sand with trace silt (SP)						
2						Brown fine sand with trace silt (SP)						
_												
5		71674-71717171		1111111		Boring terminated at 5 feet below grade					***********	******



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REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

G.S. ELEVATION (ft):

SECTION:

HA-047

SHEET: 1 of 1

TOWNSHIP:

RANGE:

DATE STARTED:

8/16/18 8/16/18

WATER TABLE (ft): >5

DATE OF READING: 8/1

>5

DATE FINISHED:

LR / TM

8/16/2018

DRILLED BY: LF

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG	UCS (tsf)	ORG. CONT. (%)
	Ē				Ľ				LL	PI		
0 —						Dark brown fine sand with silt (SP-SM)						
						Davin fire and vill to a vill (OD)						
						Brown fine sand with trace silt (SP)						
5 —				S				7***>***>				11>00<100
ĭ				32,000,000		Boring terminated at 5 feet below grade	AUGU SPACIFICA					
	1											
- 1												
		1			- 1		1		1 1			



PROJECT NO.: 1130\_1800187,0000

REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-048

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/16/18

WATER TABLE (ft):

>5

8/16/2018

DATE FINISHED: DRILLED BY: 8/16/18 LR / TM

DATE OF READING: EST. W.S.W.T. (ft):

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 SAMPLE **ATTERBERG** BLOWS PER 6" INCREMENT ORG. M B O DEPTH -200 MC LIMITS (BLOWS/ W:T: DESCRIPTION UCS (tsf) (FT:) (%) (%) FT.) (%) LL Ы 0 Dark brown fine sand with silt (SP-SM) Brown fine sand with trace silt (SP) Boring terminated at 5 feet below grade



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

HA-049

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/16/18

WATER TABLE (ft): DATE OF READING:

DATE FINISHED:

8/16/18

8/16/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH N (FT:) F	S	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200	мс	ATTE	RBERG MITS	UCS (tsf)	ORG.
(F1:)   F L		INCREMENT	`FT₃)		BO L		(%)	(%)	LL	PI	000 (tai)	(%)
0-						Dark brown fine sand with silt (SP-SM)						
						Yellowish brown fine sand with trace silt (SP)						
5 —	L		va avera			Boring terminated at 5 feet below grade	garanana.	5555510575V	rziuroian			



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

**HA-050** 

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

DATE STARTED: DATE FINISHED:

8/16/18 8/16/18

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/16/2018

DRILLED BY:

LR/TM

EPTH M	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M	DESCRIPTION	-200	МС		RBERG NTS	UCS (tsf)	ORG.
FT:) P L E	INCREMENT	FT.)		B O L	BESSIAI TION	(%)	(%)	LL	PI	UCS (tsr)	(%)
0					Dark brown fine sand with silt (SP-SM)						
+					Yellowish brown fine sand with trace silt (SP)						
4											
5 —				in the second	Boring terminated at 5 feet below grade	<b>T</b>		tostion)	nationica (	icaninacian	
										((*)	



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

G.S. ELEVATION (ft):

SECTION:

HA-051

SHEET: 1 of 1

TOWNSHIP: RANGE:

DATE STARTED:

8/16/18 8/16/18

WATER TABLE (ft): >5

DATE OF READING: 8/16

8/16/2018

DATE FINISHED: 8/16/18
DRILLED BY: LR / TM

EST, W.S.W.T. (ft): TYPE OF SAM

TYPE OF SAMPLING: ASTM D1452

Is	F			S	EST, W.S,W,T, (f	.): 	1 1			G: ASTM C	)1452
DEPTH M (FT.) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>-</sub> )	W.T	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG	UCS (tsf)	ORG. CONT. (%)
<u> </u>	HACKEMIENT	11.,		, C				LL	PI		(%)
0 —					Yellowish brown fine sand with silt (SP-SM)						
1					Light brown fine sand with trace silt (SP)						
5 —	STEERS HOUSE	201122222			Boring terminated at 5 feet below grade					**********	4305-94305-943
					<b>3</b>						
				et l							



PROJECT NO .: 1130.1800187.0000 13620 REPORT NO .:

52

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-052** 

SHEET:

RANGE:

TOWNSHIP:

DATE STARTED: DATE FINISHED:

PAGE:

8/16/18 8/16/18

1 of 1

WATER TABLE (ft): DATE OF READING:

DRILLED BY: 8/16/2018

LR / TM

EST. W.S.W.T. (ft):

G.S. ELEVATION (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M	DESCRIPTION	-200	мс	ATTE	RBERG	UCS (tsf)	ORG. CONT (%)
(FI <sub>3</sub> )	L	INCREMENT	FT.)		M B O L		(%)	(%)	LL	PI	0C3 (tsi)	(%)
0 —	1					Yellowish brown fine sand with silt (SP-SM)						
_						Light brown fine sand with trace silt (SP)						
_							3.1	13.8				
5 —	1					Boring terminated at 5 feet below grade			******	(49,43%,443)	****	0000
						· ·						



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION See Boring Location Plan

REMARKS: Roadway

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18

BORING DESIGNATION:

HA-053

1 of 1 SHEET:

TOWNSHIP: RANGE:

DATE STARTED:

G.S. ELEVATION (ft):

SECTION:

DATE FINISHED:

8/20/18 8/20/18

WATER TABLE (ft): DATE OF READING:

LR / TM

8/20/2018

DRILLED BY:

EST, W.S.W.T. (ft):	TYPE OF SAMPLING:	ASTM D1452

						ES1, W,S,W,T. (fi	,-				G: ASTMI	
DEPT (FT.)	гн   )	S BLOWS M PER 6" INCREMEN	N (BLOWS	/ w.T.		DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CONT. (%)
		E INCREMEN	F1.)		O L		(**)	(,	LL	PI		(%)
						Dark gray fine sand with silt (SP-SM)						
	-(	5				Brown fine sand (SP)						
	_(											
	_(											
	_											
5		<u></u>										
ľ						Boring terminated at 5 feet below grade		110000000000000000000000000000000000000		100000000	04-01040-001-01	
1												
l												



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-054

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

SECTION:

DATE STARTED:

8/20/18 8/20/18

DATE OF READING: 8/20/2018

>5

DATE FINISHED: DRILLED BY:

LR / TM

TVDE 05 044

0						EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLIN	G ASTM I	D1452
DEPTH (FT_)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT_)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	_	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	Ē				Ľ				LL	PI		
0 —						Dark gray fine sand with silt (SP-SM)						
y_						Brown fine sand with silt (SP-SM)						
-						DIGWITTING SAITA WITH SITE (OF FORM)						
5 —	-		herenen	80000	231103	Boring terminated at 5 feet below grade	*********				********	.0000101100



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

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PROJECT: Propo

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardne

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

G.S. ELEVATION (ft):

WATER TABLE (ft):

SECTION: TOWNSHIP:

SHEET:

RANGE:

\_\_\_\_\_

**HA-055** 

DATE STARTED:

DATE FINISHED:

8/20/18 8/20/18

DATE OF READING: 8

8/20/2018

DRILLED BY:

LR / TM

1 of 1

				EST. W.S.W.T. (ft.			PE OF S		G: ASTM	
DEPTH M (FT_) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT_)	W.T.	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG MITS	UCS (tsf)	ORG CONT (%)
5—				Brown fine sand with trace silt (SP)  Boring terminated at 5 feet below grade				PI		



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

SECTION:

**HA-056** TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/20/18 8/20/18

1 of 1

WATER TABLE (ft): DATE OF READING:

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

8/20/2018

TYPE OF SAMPLING: ASTM D1452

DEPTH M (FT.) P L	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	мс	ATTER LIM	RBERG IITS	UCS (tsf)	ORG.
(FT.) F	INCREMENT	` FT:)		ВО-		(%)	(%)	LL	PI	UCS (ISI)	CONT. (%)
0-					Grayish brown fine sand with silt (SP-SM)						
					Brown fine sand with trace silt (SP)						
5		randaria (		1000	Boring terminated at 5 feet below grade		528550765076	011010333			



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REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

G.S. ELEVATION (ft):

SECTION:

HA-057 TOWNSHIP:

SHEET:

1 of 1

RANGE:

DATE STARTED: 8/20/18

 WATER TABLE (ft):
 >5
 DATE FINISHED:
 8/20/18

 DATE OF READING:
 8/20/2018
 DRILLED BY:
 LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

	,				EST. W,S,W,T, (ff	):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH M (FT,) P L	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG.
L	INCREMENT	F1.)		P F		(73)	(70)	LL	PI		(%)
0 —					Brown fine sand with silt (SP-SM)						
+					Dark brown fine sand with silt (Sp-SM)	-					
					Tan fine sand with trace silt (SP)						
4											
5 —					Boring terminated at 5 feet below grade				+11000013		
			$\square$								



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

See Boring Location Plan LOCATION:

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-058** TOWNSHIP:

SHEET:

RANGE:

PAGE:

8/20/18

WATER TABLE (ft):

DATE STARTED: DATE FINISHED:

8/20/18

DATE OF READING:

G.S. ELEVATION (ft):

8/20/2018

DRILLED BY:

LR / TM

1 of 1

ERG S UCS (tsf)	ORG. CONT. (%)
	(%)
	1
	06000000000000000000000000000000000000
- Cc	



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REPORT NO,: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-059

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

SECTION:

DATE STARTED: DATE FINISHED:

8/20/18 8/20/18

DATE OF READING: 8

8/20/2018

DRILLED BY:

LR / TM

						EST, W.S,W.T. (ft	:): 	TY	PE OF S	AMPLIN	G ASTM	D1452
EPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG CONT (%)
0 —	K					Dark brown fine sand with silt (SP-SM)						
	ľ											
	Ì											
	)					Brown fine sand with trace silt (SP)						
	4											
	И											
-	1											
	ľ											
5 —	•			idvosso		Boring terminated at 5 feet below grade			*******	5000000	**********	



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-060** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/20/18

WATER TABLE (ft):

DATE FINISHED:

8/20/18

DATE OF READING:

8/20/2018

DRILLED BY: LR / TM

				EST., W.S.W.T. (ft)	): 	TY	PE OF S	AMPLING	G: ASTM [	1452
DEPTH M PER INCREI	WS N 6" (BLOWS MENT FT.)	/ w.T.	S Y M B O	DESCRIPTION	-200	мс	ATTEF	RBERG IITS	1100 # 5	ORG. CONT. (%)
(FT.)   INCREI	MENT FT.)		B O L	BESONII TISN	(%)	(%)	LL	PI	UCS (tsf)	(%)
0				Dark brown fine sand with silt (SP-SM)						
1				Brown fine sand with trace silt (SP)						
1										
			7257/2=							
5				Boring terminated at 5 feet below grade	******	***********		*******		



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-061** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

DRILLED BY:

G.S. ELEVATION (ft):

DATE STARTED:

8/20/18

WATER TABLE (ft):

DATE FINISHED:

8/20/18 LR / TM

DATE OF READING: 8/20/2018 CCT MALC MALT (6)

,						EST, W.S,W.T, (ft)	):	TY	PE OF S	AMPLIN	G: ASTM E	1452
DEPTH (FT.)	MT UK >0	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG ITS	UCS (tsf)	ORG. CONT.
( ,	F	INCREMENT	` FT.)		Ö		(,,,	(70)	LL	PI		(%)
0 -	Т					Dark brown fine sand with silt (SP-SM)						
	M											
1						Brown fine sand with silt (SP-SM)						
	4											
						Yellowish brown fine sand with silt (SP SM)						
	1					Tan fine sand with trace silt (SP)						
8	1											
5-												
	П					Boring terminated at 5 feet below grade				00050485		
	П											
1												
	Н											



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-062** TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft). WATER TABLE (ft):

SECTION:

DATE STARTED: DATE FINISHED:

8/20/18 8/20/18

1 of 1

DATE OF READING:

8/20/2018

DRILLED BY:

LR / TM

						EST, W.S,W.T. (fi	):	TY	PE OF S	AMPLIN	G: ASTM [	D1452
DEPT (FT.)	l P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0	E				Y W	Dark brown fine sand with silt (SP-SM)			ILL	PI		. ,
	1					Yellowish brown fine sand with silt (SP-GM)						
	1					Light brown fine sand with trace silt (SP)						
5	-1		ANION OLOGAY	nanaan.		Boring terminated at 5 feet below grade	*********		1.00.00.00		*********	
9/2//18												
NGSCIGN												
AGPJ UNIE												
N 2018 H												
BORING LOG GINI 2018 HA GPJ UNIENGSC.GDI 9/2/1/8												
DO CARIO												



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-063** TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/20/18 8/20/18

WATER TABLE (ft): DATE OF READING: 8/20/2018

DATE FINISHED: DRILLED BY:

LR / TM

1 of 1

						EST, W.S,W.T. (ft	):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
	Ē	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI	,	(%)
0 -	Б					Dark brown fine sand with silt (SP-SM)						
						Grayish brown fine sand with silt (SP-SM)						
y.	4											
	ľ											
18	1											
1 6												
	1											
5 –	1		*********	20020		Boring terminated at 5 feet below grade						*********
			-									
	П											
	П											



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REPORT NO.: 13620

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PROJECT:

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardr

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-064

SHEET: 1 of 1

TOWNSHIP: RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/20/18

WATER TABLE (ft): >5

DATE FINISHED:

8/20/18

DATE OF READING:

8/20/2018

DRILLED BY: LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

To						EST. W.S.W.T. (f	t):		PE OF S	AMPLING	G: ASTM [	D1452
DEPTH M (FT.) P L	BLO PER INCRE	WS 6"	N (BLOWS/ FT.)	w.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
L L	INCRE	VIENI	F Iĝ)		Ĉ.		(44)	(**)	LL	PI		(%)
0						Dark brown fine sand with silt (SP-SM)						
						Grayish brown fine sand with trace silt (SP)						
5						Boring terminated at 5 feet below grade					*745******	*****



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Ca

LOCATION: See Boring Location Plan

REMARKS: F

Roadway

BORING DESIGNATION:

SECTION:

SIGNATION: **HA-**:TOWNSHIP:

HA-065

SHEET:

RANGE:

ED: 8/20/18

DATE STARTED: DATE FINISHED:

8/20/18

1 of 1

DATE OF READING:

8/20/2018

2018 DRILLED BY:

LR/TM

EST. W.S.W.T. (ft):

G.S. ELEVATION (ft):

WATER TABLE (ft):

LUIZUIU BIX

TYPE OF SAMPLING: ASTM D1452

						EST, W.S.W.T. (fi	:):	1 Y	PE OF S	AMPLIN	G: ASTM D	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	(Broms)	W.T.		DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1.3.3)	L E	INCREMENT	FT.)		O L		(,,,,	(,,,	LL	PI		(%)
0 —						Dark brown fine sand with silt (SP-SM)						
-						Brown fine sand with silt and shell (SP-SM)						
-						Brown fine sand with silt (SP-SM)						
						Dark gray fine sand with silt (SP-SM)						
-	1											
5			14-10-1			Boring terminated at 5 feet below grade	0.00000000	-000000	K = E = 1 = E = 1	0.0000000000000000000000000000000000000	.00000000000000000000000000000000000000	



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-066** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED: DATE FINISHED: 8/20/18 8/20/18

WATER TABLE (ft): DATE OF READING:

8/20/2018 DRILLED BY: LR / TM

EST. W.S.W.T. (ft):

G.S. ELEVATION (ft):

TYPE OF SAMPLING: ASTM D1452

						E01: 44:0:44:1: (it	,				G. ASTIVIT	
DEPTH (FT <sub>-</sub> )	S BLC M PEI P INCRE	OWS R 6" EMENT	N (BLOWS/ FT.)	W <sub>*</sub> T <sub>*</sub>	S M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
(* 137	L INCRE	MENT	FT.)		O L		(70)	(,0)	LL	PI		(%)
0-												
						Dark brown fine sand with silt (SP-SM)						
1 10												
1 1	1					Brown fine sand with silt and shell (SP-SM)	1					
	H											
1 1												
						Dark gray fine sand with silt (SP-SM)	1					
1 1/												
1 +	H											
5								*********				
						Boring terminated at 5 feet below grade						
1			- 1									
						-						



PROJECT NO.: 1130.1800187,0000

REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION

SECTION:

HA-067 TOWNSHIP

SHEET:

RANGE:

DATE STARTED:

8/20/18 8/20/18

1 of 1

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

>5

DATE FINISHED: DRILLED BY:

LR / TM

8/20/2018

LLED BY: LR /

EST, W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 SAMPLE SYMBOL **ATTERBERG** BLOWS PER 6" INCREMENT N (BLOWS/ ORG. DEPTH -200 MC LIMITS W.T. DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) (%) LL ы 0 Brown fine sand with silt (SP-SM) Gray fine sand with trace silt (SP) Dark brown fine sand with silt (SP-SM) Boring terminated at 5 feet below grade



PROJECT NO.: 1130.1800187.0000 REPORT NO .: 13620 PAGE:

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-068** 

SHEET:

RANGE:

68

TOWNSHIP:

DATE STARTED:

8/21/18 8/21/18

1 of 1

WATER TABLE (ft):

DATE FINISHED:

DATE OF READING:

G.S. ELEVATION (ft):

8/21/2018

DRILLED BY: LR/TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH MP L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>+</sub> )	W.T.	S Y M B	DESCRIPTION	-200	MC (%)	ATTER	RBERG	UCS (tsf)	ORG CONT. (%)
L E	INCREMENT	FT <sub>+</sub> )		l o		(%)	(%)	LL	PI	000 (10.)	(%)
0-					Brown fine sand with silt (SP-SM)						
					Gray fine sand with trace silt (SP)						
					Dark brown fine sand with sllt (SP-SM)						
5 —				201100	Boring terminated at 5 feet below grade						*******



PROJECT NO.: 1130.1800187,0000 REPORT NO.: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-069** 

PAGE:

SHEET:

RANGE:

69

DATE STARTED: DATE FINISHED: 8/21/18 8/21/18

1 of 1

WATER TABLE (ft): DATE OF READING: 8/21/2018

G.S. ELEVATION (ft):

LR / TM

EST. W.S.W.T. (ft):

TOWNSHIP:

DRILLED BY:

TYPE OF SAMPLING: ASTM D1452

						EST. VV.S. VV.T. (IC					J. ASTIVIT	
DEPTH (FT,)	SAMPLE	BLOWS PER 6"	(Brome\	w.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
	E	INCREMENT	FT.)		O L		L ` ′	. ,	LL	PI		(%)
0-					C 54440	D						
						Brown fine sand with silt (SP-SM)						
2	1					Gray fine sand with trace silt (SP)						
	I					, ,						
8	1					Dark brown fine sand with silt (SP-SM)	-					
	I											
9												
5 -												
						Boring terminated at 5 feet below grade						
	П											
	П											
	Н											
	П											
	П											
	П											
	П											
	-											



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620 PAGE: 70

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION; See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-070** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

DATE STARTED: DATE FINISHED: 8/21/18 8/21/18

DATE OF READING: 8/21/2018

DRILLED BY:

LR/TM

EST- W.S.W.T. (ft):

G.S. ELEVATION (ft):

WATER TABLE (ft):

TYPE OF SAMPLING

ASTM D1452

DEPTH (FT <sub>-</sub> )	SAMPLE	BLOWS PER 6" ICREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG CONT (%)
(F1;)	F	ICREMENT	FT.)		Ö		(%)	(%)	LL	PI	000 ((31)	(%)
0 —						Brown fine sand with silt (SP-SM)						
2,												
-						Dark gray fine sand with silt (SP-SM)						
:=1												
+												
5						Boring terminated at 5 feet below grade		*********				



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-071** TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/21/18 8/21/18

WATER TABLE (ft): DATE OF READING: 8/21/2018

DATE FINISHED: DRILLED BY:

LR / TM

1 of 1

G.S. ELEVATION (ft):

					EST, W,S,W,T, (ft)	):	TY	PE OF S	AMPLIN	G: ASTM D	01452
DEPTH M (FT.) P L	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG	UCS (tsf)	ORG CONT (%)
Ė	INCREMENT	FT,)		O L		(/*)	(,,,	LL	PI		(%)
0-					Brown fine sand with silt (SP-SM)						
					Dark gray fine sand with silt (SP-SM)						
5 —		********************	,		Boring terminated at 5 feet below grade		**********		******	**********	2003/80/170/
							188				



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-072** 

TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/21/18 8/21/18

WATER TABLE (ft): DATE OF READING:

8/21/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

1 of 1

DEPTH (FT,)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
. 2	F	INCREMENT	` FT.)		O L		(,,,	(,0)	LL	PI		(%)
0-												
						Yellowish brown fine sand with trace silt (SP)						
	И											
-	ì					Brown fine sand with silt (SP-SM)	4.7	8.7				
	11											
	N											
	И											
-						Brown fine sand with silt (SP)	1					
	П					, ,						
_	1											
	Į I											
5 —			.4.000000000000000000000000000000000000	550000		Boring terminated at 5 feet below grade			1	*130*14	DECOURGE OF THE	201020000
			li l									
												- 1
												I
												- 1
												- 1



PROJECT NO.: 1130.1800187,0000

REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-073

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

8/21/18

WATER TABLE (ft): >

DATE FINISHED:

8/21/18

DATE OF READING: 8/21/2018

DRILLED BY:

DATE STARTED:

LR / TM

EST. W.S.W.T. (ft):

						EST. W.S.W.T. (ft)	:	TY	PE OF S	AMPLIN	G: ASTM D	1452
DEPTH	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(FT.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	)	(%)
0 —	1					Yellowish brown fine sand with trace silt (SP)						
	(					Brown fine sand with silt (SP-SM)						
						brown file Sand With Sit (SF-Siv)						
-	t											
8						Brown fine sand with silt (SP)	_	) 				
						blown the said with sit (or)						
-	1											
5 —	1					Boring terminated at 5 feet below grade						normania.
						Dorning terminated at 0 1000 bolow grade						



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 74

PROJECT:

CLIENT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-074 TOWNSHIP:

SHEET:

RANGE:

DATE STARTED: DATE FINISHED:

8/21/18

1 of 1

WATER TABLE (ft):

G.S. ELEVATION (ft):

8/21/18

DATE OF READING: EST. W.S.W.T. (ft):

8/21/2018

DRILLED BY:

LR / TM

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (DI O)MO	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	S Y M B	EST, W.S.W.T. (f	-200	мс	_	RBERG	G: ASTM [	
(FT.)	P L E	INCREMENT	N (BLOWS/ FT.)	VV, I a	B O L	DESCRIPTION	(%)	(%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0 —	1)					Dark gray fine sand with silt (SP-SM)						
-						Gray fine sand with silt (Sp-SM)  Dark brown fine sand with silt (SP-SM)						
						Dark Brown line Sand with Silt (SF-Siw)						
5 —					114.	Boring terminated at 5 feet below grade	************	***************************************			*********	



PROJECT NO .: 1130,1800187.0000 REPORT NO.: 13620

75

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-075** 

PAGE:

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/21/18 8/21/18

WATER TABLE (ft): DATE OF READING: 8/21/2018

DRILLED BY: LR / TM

DEPTH M (FT.) P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T <sub>i</sub>	S Y M B	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0-				Ľ Z-V-S-S	Dark gray fine sand with trace silt (SP)			LL	PI		
					Daily gray into said with trace sit (or )						
1					Gray fine sand with silt (SP-SM)	-					
-4					Dark brown fine sand with silt (SP-SM)	-					
1											
5—		*********	000000		Boring terminated at 5 feet below grade	FC+1 *** 5+51 }	**********			***************************************	



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

Roadway REMARKS:

BORING DESIGNATION:

SECTION:

**HA-076** 

PAGE:

1 of 1 SHEET:

TOWNSHIP:

RANGE:

76

G.S. ELEVATION (ft):

DATE STARTED:

8/21/18 DATE FINISHED:

8/21/18

DATE OF READING: 8/21/2018

DRILLED BY:

LR / TM

FST: W S W T: (ff):

WATER TABLE (ft):

TYPE OF SAMPLING: ASTM D1452

	s		1		s	EST, W.S.W.T. (ft	):	11	T		G: ASTM D	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	_	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
0 —	Ē				Ľ				LL	PI		
						Dark gray fine sand with trace silt (SP)						
:-	1											
	ľ											
-						Gray fine sand with silt (SP-SM)						
:=	1											
	ľ											
-	Ì					,	4.0	27.0				
5	1	i Bookke i torki ni	100000000						. Livery and			nuscos
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-077** TOWNSHIP:

SHEET:

77

RANGE:

DATE STARTED: DATE FINISHED:

PAGE:

8/21/18 8/21/18

WATER TABLE (ft): DATE OF READING:

8/21/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

G.S. ELEVATION (ft):

TYPE OF SAMPLING: ASTM D1452

1 of 1

						EST. W.S.W.T. (f	t):	1 Y	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG. CONT (%)
(* *3,7	Ę	INCREMENT	` FT.)		O L		(,,,	(,,,	LL	PI		(%)
0 —						Dark gray fine sand with trace silt (SP)	6.6	19.8				
, <u>.</u>						Dark brown fine sand with silt (SP-SM)				-		
-												
5 —				10.00.00	ancioù siofz	Boring terminated at 5 feet below grade		********		- 3 4 3 4		*******



PROJECT NO:: 1130.1800187.0000 REPORT NO.: 13620

78

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-078** 

PAGE:

1 of 1 SHEET:

RANGE:

TOWNSHIP:

DATE STARTED:

8/21/18 8/21/18

WATER TABLE (ft): DATE OF READING:

DATE FINISHED:

G.S. ELEVATION (ft):

8/21/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 ATTERBERG LIMITS A M P **BLOWS** ORG. DEPTH -200 (%) MC (%) M B O PER 6" INCREMENT W.T. (BLOWS/ UCS (tsf) DESCRIPTION CONT. (FT<sub>-</sub>) FT.) (%) LL 0 Dark gray fine sand with trace silt (SP) Dark brown fine sand with silt (SP-SM) Boring terminated at 5 feet below grade



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

BORING DESIGNATION:

TOWNSHIP:

HA-079

SHEET:

RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED: DATE FINISHED: 8/21/18 8/21/18

1 of 1

LOCATION:	See Boring Lo	cation Plan				WATER TABLE (ft)	: >5	DA	TE FINIS	SHED:	8/21/18	}
REMARKS:	Roadway					DATE OF READING			ILLED B		LR / TM	
						EST. W.S.W.T. (ft):	:	TY	PE OF S	AMPLIN	G: ASTM	D1452
Te	r	_		T c								
DEPTH M (FT,) P	1	N (BLOWS/	W <sub>s</sub> T <sub>s</sub>	S Y M B	DESCRIPTION		-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT.
L	INCREMENT	FT.)		O L			(,0)	(70)	LL	PI		(%)
0-				27757	Crowfine and with transmit (CD)							
					Gray fine sand with trace silt (SP)							
				Ш	Dark brown fine sand with silt (SP-	SM)						
+												
+												
5	0.112.5510.000.0000.000	*******	(11)	emakelehiki	Boring terminated at 5 feet be	low grade	amarari)			loveriones.	hedderder)	++00+00+0+000



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

TOWNSHIP:

**HA-080** 

1 of 1 SHEET:

RANGE:

DATE STARTED:

DATE FINISHED:

8/21/18 8/21/18

DATE OF READING:

8/21/2018

DRILLED BY:

LR / TM

G.S. ELEVATION (ft):

WATER TABLE (ft):

S A M P L E	BLOWS PER 6"	N		0							
F	INCOEMENT	(BLOWS/	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
<del></del>	INCREMENT	FT.)		O L		(/0)	(70)	LL	PI		(%)
1					Gray fine sand with trace silt (SP)						
I											
4					Dark brown fire and with all (CD CM)						
1					Dark brown line sand with silt (SP-SIM)						
+											
1											
1					Doring to minuted at 5 feet below great	**********	60000000				
					borning terminated at 5 leet below grade						
					<						
						Dark brown fine sand with silt (SP-SM)	Dark brown fine sand with silt (SP-SM)	Dark brown fine sand with silt (SP-SM)	Dark brown fine sand with silt (SP-SM)	Dark brown fine sand with silt (SP-SM)	Dark brown fine sand with silt (SP-SM)



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS: Roadway **BORING DESIGNATION:** 

HA-081

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/22/18 8/22/18

WATER TABLE (ft): DATE OF READING: 8/22/2018

>5

DRILLED BY: LR / TM

FST WSWT (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	BLOWS M PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG	UCS (tsf)	ORG CON (%)
(F15)	L INCREMENT E	FT.)		Ö D		(70)	(70)	LL	PI	` 1	(%)
0	ľ				Gray fine sand with trace silt (SP)						
	j				Light brown fine sand (SP)						
:-					Brown fine sand with trace silt (SP)						
×											
_					Gray clayey sand (SC)	16.6	18.6				
5 —					Boring terminated at 5 feet below grade						
								111			



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82

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-082** 

TOWNSHIP:

PAGE:

SHEET:

RANGE:

DATE STARTED:

8/22/18 8/22/18

DATE OF READING:

8/22/2018

DATE FINISHED: DRILLED BY:

LR/TM

1 of 1

G.S. ELEVATION (ft):

WATER TABLE (ft):

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH M (FT,) F	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	)A/ T	S Y M	EST, W.S.W.T. (fi	-200	мс	_	RBERG	G: ASTM [	
(FT,) F	INCREMENT	FT.)	VV. I	M B O L	DESCRIPTION	(%)	(%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0					Brown fine sand with silt (SP-SM)						
					Gray fine sand with silt (SP-SM)						
	_				Light brown fine sand (SP)						
5	000000000000000000000000000000000000000		******		Brown fine sand with silt (SP)						000000000000000000000000000000000000000
					Boring terminated at 5 feet below grade						



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-083** TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/22/18

1 of 1

WATER TABLE (ft):

G.S. ELEVATION (ft):

DATE FINISHED:

8/22/18 LR / TM

DATE OF READING:

8/22/2018

DRILLED BY:

					EST. W.S.W.T. (f	t):	TY	PE OF S	AMPLIN	G: ASTM (	01452
DEPTH (FT_)	BLOWS PER 6" INCREMEN	N (BLOWS/ T FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTER LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0 —					Brown fine sand with silt (SP-SM)						
-					Light brown fine sand (SP)						
5	4 50 5000000000000000000000000000000000				Boring terminated at 5 feet below grade		7.000000000				*****



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-084** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

SECTION:

DATE STARTED:

8/22/18

DATE OF READING:

DATÉ FINISHED:

8/22/18 LR / TM

8/22/2018

DRILLED BY:

	S				S			T	1			,
EPTH (FT <sub>+</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	-	RBERG IITS	UCS (tsf)	ORG CON (%
	Ė				Ľ				LL	PI		(/0
0 —	Т					Gray fine sand with silt and roots (SP-SM)						
	И											
7						_						
).	1					Gray fine sand with silt (SP-SM)						
(177												
	I											
-	I					Dark gray fine sand with silt (SP-SM)						
_	H											
5 —						Boring terminated at 5 feet below grade	2512211222	*********		40184018		*****
	П											
- 1												



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

HA-085 TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft):

SECTION:

WATER TABLE (ft):

DATE STARTED: DATE FINISHED: 8/22/18 8/22/18

DATE OF READING:

8/22/2018

DRILLED BY:

LR / TM

1 of 1

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

			**5					
DEPTH A BLOWS PER 6" P INCREMEN	N (BLOWS/ W.T. M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
(FI)   INCREMEN	T FT.) OL		(,	(/*/	LL	PI		(%)
0		Gray fine sand with silt and roots (SP-SM)						
		Gray fine sand with silt (SP-SM)						
		Dark gray fine sand with silt (SP-SM)		11				
5		Boring terminated at 5 feet below grade	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			*(0.000.000)	*********	
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/1/8								



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-086** TOWNSHIP:

SHEET:

86

RANGE:

DATE STARTED: DATE FINISHED: 8/22/18 8/22/18

WATER TABLE (ft): DATE OF READING:

DRILLED BY:

PAGE:

LR / TM

G.S. ELEVATION (ft):

8/22/2018

1 of 1

EST, W.S.W.T. (ft):	TYPE OF SAMPLING:	ASTM D1452
---------------------	-------------------	------------

	s				S	EST, W.S.W.T. (1	1).		_		G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	Ę	INCREMENT	FI.)		O L		(,,,	(70)	LL	Pi		(%)
0 —	Ь					Gray fine sand with silt and shell (SP-SM)						
	N											
			×									
_												
						Gray fine sand (SP)						
-												
	I											
	1											
_												
5 —				53.537719		Boring terminated at 5 feet below grade					00000000	



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

HA-087

1 of 1 SHEET:

TOWNSHIP: RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED: DATE FINISHED:

8/22/18 8/22/18

WATER TABLE (ft): DATE OF READING: 8/22/2018

DRILLED BY:

LR / TM

	I o					EST, W,S,W,T, (	ft):	T	PE OF S	AMPLIN	G: ASTM [	D1452
DEPTH (FT_)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG NTS	UCS (tsf)	ORG. CONT. (%)
	Ë	INCREMENT	FT.)		<u>Č</u>		(70)	(70)	LL	PI	ì	(%)
0 —	1					Gray fine sand with silt and shell (SP-SM)						
<u>,                                     </u>	4											
	1											
22	1					Gray fine sand (SP)						
-	1											
2	1											
5 —	4			50.75505				*********				
						Boring terminated at 5 feet below grade						



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION

G.S. ELEVATION (ft):

SECTION:

**HA-088** TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/22/18

WATER TABLE (ft):

DATE FINISHED:

8/22/18

DATE OF READING:

8/22/2018

DRILLED BY:

LR / TM

1 of 1

						EST. W.S.W.T. (fi	):	TY	PE OF S	SAMPLING	G: ASTM [	01452
DEPTH (FT <sub>*</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	SYMBO.	DESCRIPTION	-200 (%)	MC	ATTE	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
(113)	Ė	INCREMENT	FT.)		Ö		(%)	(%)	LL	PI	OCC (tal)	(%)
0-	þ					Dark gray fine sand with silt (SP-SM)						
N.	4											
	1											
	1					Gray fine sand (SP)						
3	1											
8	4											
_	(											
5 —			101220102010	OBLECON.		Boring terminated at 5 feet below grade		. 14545 124112		*******	**********	
	Ш											
	П											



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-089** 

SHEET:

RANGE:

TOWNSHIP:

8/22/18 8/22/18

G.S. ELEVATION (ft): WATER TABLE (ft): DATE OF READING:

8/22/2018

DRILLED BY:

LR / TM

1 of 1

DATE STARTED:

DATE FINISHED:

						EST, W.S.W.T. (ft	):	TY	PE OF S	SAMPLIN	G ASTM (	01452
DEPTH (FT <sub>=</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>-</sub> )	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
0 —						Dark gray fine sand with silt (SP-SM)						
:-						Dark gray fine sand with silt and rock fragments (SP-SM)	-					
					<u>-010</u>	Light gray fine sand (SP)	_					
5 —		**************	***********	01101		Boring terminated at 5 feet below grade	2.8	16.7				1100140014



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-090** TOWNSHIP:

1 of 1 SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/22/18 8/22/18

WATER TABLE (ft): DATE OF READING:

8/22/2018

DRILLED BY:

LR/TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

s		S	EST. W.S.W.T. (ff	<i>y.</i>				G: ASTM	
DEPTH (FT.)   S A M PER 6" INCREMENT	N (BLOWS/ W.T. FT.)	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
		L				LL	Pł		(70)
0			Dark gray fine sand with silt (SP-SM)						
			Gray fine sand (SP)						
5	***************************************		Boring terminated at 5 feet below grade		0.00000000		******		and discussion



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-091 TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/22/18 8/22/18

1 of 1

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/22/2018

DATE FINISHED: DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

	S		T		s	EST, W.S.W.T. (I	n):	1 1			G: ASTMI	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG	UCS (tsf)	ORG, CONT. (%)
	Ė	- TOTAL METAL	1 12		L				LL	Pl		(70)
0 —	1					Grayish brown fine sand with silt and shell (SP-SM)						
3				)		Dark gray fine sand with silt (SP-SM)						
2						Dark brown fine sand with silt (SP-SM)						
-						Light brown fine sand (SP)						
5 —			**********	_							*************	**********
						Boring terminated at 5 feet below grade		3314431231				



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 92

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-092** 

TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

SECTION:

DATE STARTED: DATE FINISHED: 8/22/18 8/22/18

DATE OF READING:

8/22/2018

DRILLED BY:

LR / TM

1 of 1

					EST, W.S.W.T, (	ft):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEPTH M (FT.) P L	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG NTS	UCS (tsf)	ORG. CONT. (%)
L E	INCREMENT	FT.)		o r		(70)	(70)	LL	PI	,	(%)
0					Grayish brown fine sand with silt and shell (SP-SM)						
					Dark gray fine sand with silt (SP-SM)						
					Dark brown fine sand with silt (SP-SM)						
					Light brown fine sand (SP)						
5		promiona	LE AT LES		Boring terminated at 5 feet below grade			******	0.000000	C2300230034W	01/01/0
						27					



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

PAGE: 93

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

SECTION:

HA-093

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/22/18

WATER TABLE (ft): 5,0
DATE OF READING: 8/22/3

5,0 DATE FINISHED:8/22/2018 DRILLED BY:

8/22/18 LR / TM

11877				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLIN	G: ASTM [	)1452
DEPTH M (FT <sub>2</sub> ) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>+</sub> )	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG	UCS (tsf)	ORG. CONT. (%)
0 —				Ĺ				LL	PI		
					Dark gray fine sand with silt (SP-SM)						
					Gray fine sand with trace silt (SP)	-					
					Dark brown fine sand with silt (SP-SM)						
5	25.028851325.22		. 🔻 ,		Boring terminated at 5 feet below grade		X = 5.5 = = +(1 = (2)		******		******
					botting terminated at 3 feet below grade						
N											



PROJECT NO.: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 94

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

See Boring Location Plan LOCATION:

REMARKS: Roadway BORING DESIGNATION:

**HA-094** 

1 of 1 SHEET:

SECTION:

TOWNSHIP:

G.S. ELEVATION (ft):

WATER TABLE (ft):

DATE STARTED: DATE FINISHED: 8/22/18 8/22/18

DATE OF READING: 8/22/2018

EST. W.S.W.T. (ft):

4,9

DRILLED BY:

LR / TM TYPE OF SAMPLING: ASTM D1452

RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	WT	S Y M B	DESCRIPTION	-200	МС	ATTER LIM	BERG ITS	UCS (tsf)	ORG. CONT. (%)
(FT.)	L	INCREMENT	FT.)		O F		(%)	(%)	LL	PI	000 ((31)	(%)
0-						Dark gray fine sand with silt (SP-SM)  Gray fine sand with trace silt (SP)						
-						Dark brown fine sand with trace silt (SP)		4.7	23.6			
5 —	ł			<b>.</b>		Boring terminated at 5 feet below grade	O-001-00-0-0-1		800000	90.800		neixi#axi#



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 95

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION

SECTION:

**HA-095** TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/22/18 8/22/18

1 of 1

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/22/2018

DATE FINISHED: DRILLED BY:

LR/TM

							EST, W,S,W.T, (f	t):	TY	PE OF S	AMPLING	3: ASTM [	1452
	DEPTH (FT,)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200	MC	ATTE	RBERG NTS	UCS (tsf)	ORG. CONT.
L	(F1,)	Ē	INCREMENT	`FT₊)		Ö		(%)	(%)	LL	PI	000 ((3))	(%)
	0 —	}					Grayish brown fine sand with silt and shell (SP-SM)						
							Gray clayey sand (SC)	26.9	21.3				
							Gray fine sand with silt (SP-SM)	15.5	21.0				
	5						Dark gray fine sand with silt (SP-SM)						
	5 —						Boring terminated at 5 feet below grade		+ = 0 + 5 = 0 ( 0 + 8				
l													
l													
L													



PROJECT NO.: 1130,1800187,0000 REPORT NO.: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-096** TOWNSHIP:

SHEET:

RANGE:

96

PAGE:

DATE STARTED: 8/23/18

DATE FINISHED:

8/23/18 LR / TM

G.S. ELEVATION (ft):

WATER TABLE (ft):

DATE OF READING: 8/23/2018

DRILLED BY:

1 of 1

EST. W.S.W.T. (ft):	TYPE OF SAMPLING:	ASTM D1452

						EST, W,S,W,T, (f	t):	TY	PE OF S	AMPLIN	G: ASTM [	)1452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG, CONT,
(1 1)	Ë	INCREMENT	FT,)		Ö		(70)	(70)	LL	PI	(,	(%)
0 —	1					Grayish brown fine sand with silt (SP-SM)						
	I											
2	4					Dark gray fine sand with silt (SP-SM)						
	1					Sant gray into sand man six (or saw)						
	1											
	1											
5 —	1			-516561		Boring terminated at 5 feet below grade		********			*1> < 1> **1> ()	
	Ш											
	П											
	Ш											



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 97

PROJECT:

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION; See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-097** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

SECTION:

DATE STARTED:

8/23/18 8/23/18

DATE OF READING: 8/23/2018

DATE FINISHED: DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200	MC (%)	ATTEI	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1,4)	Ė	INCREMENT	FT.)		Ŏ.		(%)	(%)	LL	PI	(,	(%)
0 —						Gray fine sand with silt (SP-SC)						
						Gray clayey sand (SC)  Light gray fine sand with clay (SP-SC)						
						Light gray line saild with clay (GP-50)						
5 —	1			*******	1/	Boring terminated at 5 feet below grade		K+2-5-12-1-1-1				*>*****



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 98

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-098** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/23/18

WATER TABLE (ft):

DATE FINISHED: 8/23/18 LR / TM

DATE OF READING: EST, W.S.W.T. (ft):

8/23/2018

DRILLED BY:

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG MITS	UCS (tsf)	ORG. CONT (%)
(1 1.)	Ë	INCREMENT	FT.)		ρ̈́		(70)	(70)	LL	PI	()	(%)
0 -	}					Light gray fine sand with clay (SP-SC)	10.9	11.8				
, -						Light gray fine sand with clay (SC)						
5 —		ATTENDED TO THE TOTAL OF				Boring terminated at 5 feet below grade	0.0000000000000000000000000000000000000	1,23471,2314431	21011301	40170010		



PROJECT NO.: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 99

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-099** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/23/18

WATER TABLE (ft):

DATE FINISHED: DRILLED BY:

8/23/18 LR / TM

DATE OF READING:

8/23/2018

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH M P L E	BLOWS PER 6"	N (BLOWS/ FT,)	W T	S M B O L	DESCRIPTION	-200	мс	ATTE	RBERG MITS		ORG. CONT. (%)
(FT <sub>-</sub> ) P L E	INCREMENT	FT.)	**** 85	B O L	BESSAII HON	(%)	(%)	LL	PI	UCS (tsf)	(%)
0-					Light gray fine sand with clay (SP-SC)						
					Gray fine sand with clay (SP-SC)						
5		*********	ntenter	V.7	Boring terminated at 5 feet below grade	0111011011					0



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 100

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

G.S. ELEVATION (ft):

WATER TABLE (ft):

SECTION:

**HA-100** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

DATE STARTED:

8/23/18

DATE FINISHED: 6/23/18

DATE OF READING: 8/23/2018

DRILLED BY: LR / TM

FST. W.S.W.T. (ft); TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
( , , ,	Ŀ	INCREMENT	FT.)		Õ		(70)	(70)	LL	PI	, í	(%)
0 —	•				0	Light gray fine sand with clay (SP-SC)						
-	1											
-						Gray fine sand with clay (SP-SC)						
-	1											
5 —			1000100010		77	Boring terminated at 5 feet below grade	6333300000	100-1000-111		68596859	54-24-30-00-00-0	200000



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 101

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

BORING LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18

Roadway

BORING DESIGNATION:

SECTION:

**HA-101** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

DATE STARTED:

8/23/18 8/23/18

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/23/2018

DATE FINISHED: DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT:)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG CONT (%)
(	F	INCREMENT	F (a)		O L		(,0)	(,,,	LL	PI		(%)
0 —	H				23/22	Light grow fine and with alow (CD CO)						2
	11					Light gray fine sand with clay (SP-SC)						
	И											
7.4	ł											
	11											
94					1							
						Light gray sandy clay (SC)						
											1	
	I											
5 —	4	**********			1111	Boring terminated at 5 feet below grade						ntsixi
											1	
											1	
	- 1											
	1											
									13)			



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of i 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-102** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

102

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/23/18

WATER TABLE (ft):

DATE FINISHED:

8/23/18

DATE OF READING:

8/23/2018

DRILLED BY:

LR / TM

					EST. W.S.W.T. (ff	):	TY	PE OF S	AMPLIN	G: ASTMI	D1452
DEPTH M (FT.) P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	LIM	RBERG HTS	UCS (tsf)	ORG. CONT. (%)
		Ĺ		Ľ				LL	PI		(,
0 —					Light gray fine sand with clay (SP-SC)						
-					Light gray sandy clay (SC)						
5			66.001400		Boring terminated at 5 feet below grade				******		**********



PROJECT NO.: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 103

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of i 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-103** 

TOWNSHIP:

SHEET: RANGE:

8/23/18

WATER TABLE (ft):

DATE FINISHED:

DATE STARTED:

8/23/18

1 of 1

DATE OF READING:

G.S. ELEVATION (ft):

8/23/2018

DRILLED BY:

LR / TM

						EST. W <sub>s</sub> S.W.T. (fi	t):	TY	PE OF S	AMPLING	G: ASTM [	D1452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.		DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG	UCS (tsf)	ORG. CONT. (%)
	È				<u>C</u>		-		LL	PI		(78)
0 —						Dark gray fine sand with silt and shell (SP-SM)						
<del>.</del>	1					Gray fine sand with silt (SP-SM)						
-	1					Light brown fine sand with clay (SP-SC)	_					
-	}					**						
5 —	Ī		**********			Boring terminated at 5 feet below grade	**************************************	ACC+3-00(+3000(+)	errenerrene			



PROJECT NO.: 1130,1800187.0000 REPORT NO.: 13620 PAGE: 104

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-104** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

WATER TABLE (ft):

DATE STARTED: DATE FINISHED:

8/23/18 8/23/18

DATE OF READING:

G.S. ELEVATION (ft):

8/23/2018

DRILLED BY:

LR / TM

			-		EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.)	BLOWS PER 6"	N (BLOWS/	W.T.		DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
(1.12)	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI		(%)
0	<b>)</b>				Dark gray fine sand with silt and shell (SP-SM)						
	H				Crow fine cond with ails (CD CBA)						
	<b>?</b>				Gray fine sand with silt (SP-SM)						
1	5				Light brown fine sand with clay (SP-SC)	-					
1											
	)										
s++											
5			2513536							*********	X********
					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO .: 13620 PAGE: 105

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

TOWNSHIP:

**HA-105** 

SHEET:

RANGE:

8/23/18

DATE STARTED: DATE FINISHED:

8/23/18

DATE OF READING:

8/23/2018

DRILLED BY:

LR/TM

EST, W.S.W.T. (ft):

G.S. ELEVATION (ft):

WATER TABLE (ft):

TYPE OF SAMPLING: ASTM D1452

1 of 1

DEPTH (FT <sub>+</sub> )	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG CON' (%)
	F	INCREWENT	FI.)		0 L			( , ,	LL	PI		(%)
0 —	1					Dark gray fine sand with silt and roots (SP-SM)						
-						Gray fine sand with silt (SP-SM)						
:-						Grayish brown fine sand with clay (SP-SC)						
5	•	************	KOLENOLEO (1	EXOVERSION	\(\frac{1}{2}\)	Boring terminated at 5 feet below grade	*********	******				



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-106** 

1 of 1 SHEET:

106

TOWNSHIP:

RANGE:

DATE STARTED: DATE FINISHED:

8/23/18 8/23/18

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/23/2018

DRILLED BY:

LR / TM

EST, W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH M (FT.) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200	MC	ATTEF	RBERG DITS	UCS (tsf)	ORG. CONT. (%)
(FTS)   F	INCREMENT	FT.)		O L		(%)	(%)	LL	PI	000 (101)	(%)
0					Dark gray fine sand with silt and roots (SP-SM)						
					Gray fine sand with silt (SP-SM)						
					Grayish brown fine sand with clay (SP-SC)						
5	00	16 (F) (F) (F) (F) (F) (F) (F) (F)	0035000		Boring terminated at 5 feet below grade		**********		*******		



PROJECT NO .: 1130.1800187,0000 REPORT NO .: 13620 PAGE: 107

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-107** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: 8/23/18 DATE FINISHED: 8/23/18

WATER TABLE (ft): DATE OF READING:

8/23/2018

DRILLED BY:

LR / TM

						EST_W_S_W_T_ (fi	t):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M	DESCRIPTION	-200	MC	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
(11.)	LE	INCREMENT	` FT.)		B O L		(%)	(%)	LL	PI	000 (131)	(%)
0 —	>					Dark gray fine sand with silt (SP-SM)						
7=	1					Gray fine sand with silt (SP-SM)						
0=												
						Brayish brown fine sand with clay (SP-SC)						
	1					Light brown fine sand with clay (SP-SC)						
2	}											
5 —	4	************		niozota		Boring terminated at 5 feet below grade			*******	10,000,00		00000000
2												
-	_											



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620 PAGE: 108

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-108** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

DATE STARTED:

8/23/18

WATER TABLE (ft):

DATE FINISHED:

8/23/18

DATE OF READING:

8/23/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ff)

G.S. ELEVATION (ft):

DEPTH (FT,)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>-</sub> )	W.T.	S Y M	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG HTS	UCS (tsf)	ORG. CONT. (%)
(F 1 <sub>2</sub> )	Ę	INCREMENT	` FT <sub>=</sub> )		B O L		(%)	(%)	LL	PI	003 (tai)	(%)
0 —						Dark brown fine sand with silt (SP-SM)						
8-						Light gray fine sand with clay (SP-SM)						
5 —		X 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	*********			Boring terminated at 5 feet below grade	4500 F000 F000	200700700		1940000		
			-									



PROJECT NO.: 1130.1800187,0000 REPORT NO.: 13620 PAGE: 109

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-109** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

DATE STARTED: DATE FINISHED: 8/23/18 8/23/18

WATER TABLE (ft):

G.S. ELEVATION (ft):

>5

DATE OF READING:

8/23/2018

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>-</sub> )	W.T <sub>e</sub>	SY MBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS PI	UCS (tsf)	ORG CONT (%)
0 —	}					Dark gray fine sand with silt (SP-SM)						
						Gray fine sand with clay (SP-SC)						
						Light brown fine sand with silt (SP-SM)	8.9	10.7				
						Gray fine sand with clay (SP-SC)						
5 —	•		100000000000000000000000000000000000000	W 654 N 654		Boring terminated at 5 feet below grade		30.03860300		*******		



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

PAGE: 110

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

SECTION:

G.S. ELEVATION (ft):

HA-110

SHEET: 1 of 1

TOWNSHIP: RANGE:

DATE STARTED: 8/23/18

 WATER TABLE (ft):
 >5
 DATE FINISHED:
 8/23/18

 DATE OF READING:
 8/23/2018
 DRILLED BY:
 LR / TM

						EST. W.S.W.T. (ft)	):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG.
	Ŀ	INCREMENT	` FT <sub>-</sub> )		Q L		(70)	(70)	LL	PI	ì	(%)
0 -	1					Dark gray fine sand with silt (SP-SM)						
						Gray fine sand with clay (SP-SC)						
-	1					Light brown fine sand with silt (SP-SM)						
	I					G						
0.5	1					Gray fine sand with clay (SP-SC)						
9 <del>-</del>	1											
	ľ											
5 —	•	менениц			1	Boring terminated at 5 feet below grade	encenorenor	70707710771		****		*********

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18



PROJECT NO.: 1130.1800187,0000

REPORT NO.: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-111

PAGE:

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

111

G.S. ELEVATION (ft):

DATE STARTED:

8/24/18

WATER TABLE (ft):

4.5

DATE FINISHED:

8/24/18

DATE OF READING:

8/24/2018

DRILLED BY: LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CON1
( , , ,	E	INCREMENT	FT.)		O L	8	(70)	(70)	LL	PI		(%)
0 —	1					Gray fine sand with clay (SP-SC)						
7						Gray clayey sand (SC)						
_				<b>.</b> ▼.		Dark brown fine sand with silt (SP-SM)						
5	•	eco. Milrostror.			ESSO E DE	Boring terminated at 5 feet below grade		*********				tosstos



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-112** 

PAGE:

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

112

G.S. ELEVATION (ft):

DATE STARTED:

DATE FINISHED:

8/24/18

WATER TABLE (ft): DATE OF READING:

DRILLED BY:

8/24/18

EST. W.S.W.T. (ft):

8/24/2018

LR/TM

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/ FT.)	10/ T	S Y M B	EST, W.S,W.T. (ft	-200	мс	_	RBERG	G: ASTM [	ORG
(FT.)	P L E	INCREMENT	FT.)	VV.:C.	B O L	DESCRIPTION	(%)	(%)	LL	PI	UCS (tsf)	CONT. (%)
0						Gray fine sand with clay (SP-SC)						
						Dark brown fine sand with silt (SP-SM)						
5 —	•					Boring terminated at 5 feet below grade		wawan		*****		

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC,GDT 9/27/18



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-113

PAGE:

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

113

G.S. ELEVATION (ft):

WATER TABLE (ft): 4.0

DATE STARTED: DATE FINISHED: 8/24/18 8/24/18

DATE OF READING:

8/24/2018 I

DRILLED BY: LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

			_			LO1, VV.0.VV.1, (IC			1 0 0		-	
DEP	TH   1	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG CONT (%)
L	<u> </u>	INCREMENT	F1.)		O L		(,	(/*/	LL	Pi		(%)
	0					Gray fine sand with clay (SP-SC)						
	η <u>=1</u>	,				Gray clayey sand (SC)						
				•		Dark brown fine sand with silt (SP-SM)						
į	5 —					Boring terminated at 5 feet below grade						WIELEN



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

**HA-114** 

PAGE:

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

114

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/24/18 8/24/18

WATER TABLE (ft): DATE OF READING:

8/24/2018

DRILLED BY:

LR/TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	S A Z P L H	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CON (%)
(1.1.)	Ë	INCREMENT	FT.)		Ŏ L		(/0)	(70)	LL	PI		(%
0 —	}					Gray fine sand with clay (SP-SC)						
=						Gray clayey sand (SC)						
-				▼.		Dark brown fine sand with silt (SP-SM)						
5						Boring terminated at 5 feet below grade					 	555553



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-115** 

PAGE:

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

115

G.S. ELEVATION (ft):

DATE OF READING:

DATE STARTED:

8/24/18

WATER TABLE (ft): 3.5

8/24/2018

DATE FINISHED: DRILLED BY:

8/24/18 LR / TM

	_					EST.: W.S.W.T. (ft)	): 	TY	PE OF S	AMPLIN	G: ASTMI	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG IITS	UCS (tsf)	ORG CON (%)
0 —						Gray fine sand with clay (SP-SC)						
-						Gray clayey sand (SC)						
_				•		Dark brown fine sand with silt (SP-SM)						
5 —	1		120,000	es vo		Boring terminated at 5 feet below grade				*******	enteronos.	eteres:
			78									



PROJECT NO.: 1130.1800187,0000 REPORT NO.: 13620 PAGE: 116

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

TOWNSHIP:

**HA-116** 

1 of 1 SHEET:

RANGE:

DATE STARTED:

8/24/18 8/24/18

DATE FINISHED:

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/24/2018

DRILLED BY:

LR / TM

	To.					EST. W.S.W.T. (ft	:):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
(1.1.2)	Ë	INCREMENT	FT.)		, C		(%)	(%)	JLL	PI	000 (101)	(%)
0 -	b				1	Gray fine sand with clay (SP-SC)						
	4				1/	Corrections and (CO)						
	1					Gray clayey sand (SC)						
	1					Dark brown fine sand with silt (SP-SM)						
125	1											
	1			•								
88	1											
5 —	1		.000000000	#1000#160		Desire Assessing and the State I				locessori	3 HACO 4500 8 HOLE	3000 - 3000 - 540
						Boring terminated at 5 feet below grade						
	Ш											

BORING\_LOG GINT 2018 HA GPJ UNIENGSC.GDT 9/27/18



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-117** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

DATE STARTED: DATE FINISHED:

8/24/18 8/24/18

DATE OF READING:

2.0 8/24/2018

DRILLED BY:

LR / TM

E

EST, W.S.W.T. (ft):	TYPE OF SAMPLING:	ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT (%)
( /	L	INCREMENT	` FT.)		O L		(70)	(70)	LL	PI		(%)
0 —						Gray fine sand with clay (SP-SC)						
	1					Gray line sand with day (SF-SC)						
						Gray clayey sand (SC)						
				T.								
				_		Dark brown fine sand with silt (SP-SM)	1					
-	ħ						1					
	I											
9	t											
	И											
5 —	1			00000		Boring terminated at 5 feet below grade		*******		*******		********
	Н					borning terminated at 5 feet below grade						
	П											

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18



PROJECT NO.: 1130.1800187.0000 REPORT NO .: 13620 PAGE: 118

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-118** 

SHEET:

RANGE:

TOWNSHIP:

8/24/18

WATER TABLE (ft):

2,0

DATE FINISHED:

8/24/18

1 of 1

DATE OF READING: 8/24/2018

G.S. ELEVATION (ft):

DRILLED BY:

DATE STARTED:

LR / TM

FST\_W S W.T. (ff)

					EST. W.S.W.T. (f	t):	TY	PE OF S	AMPLIN	G: ASTM D	1452
DEPTH M (FT,) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
Ľ	INCREMENT	FI,)		0	8	(74)	(7.5)	LL	Pl		(%)
0					Gray fine sand with clay (SP-SC)						
=			_		Gray clayey sand (SC)						
			•		Dark brown fine sand with silt (SP-SM)						
5		ore trem	*****		Boring terminated at 5 feet below grade	************	560-0007007		S-Services		*********

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC GDT 9/27/18



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

PAGE: 119

PROJECT: Pro

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-119

SHEET: 1 of 1

SECTION:

TOWNSHIP:

8/24/2018

RANGE:

G,S, ELEVATION (ft):

DATE STARTED:

8/24/18

WATER TABLE (ft): 2.0

DATE FINISHED:

8/24/18 LR / TM

DATE OF READING:

DRILLED BY:

LIX/ IIVI

EST. W.S.W.T., (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT,)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG CONT (%)
(FT₄)	E	INCREMENT	FT,)		o l		(70)	(70)	LL	PI		(%)
o —	1					Gray fine sand with silt and shell (SP-SM)						
*						Gray fine sand with silt, shell and rock fragments (SP-SM)						
=	1			•	10.	Light brown fine sand (SP)						
-	1											
<u>~</u>												
5—	1	*********				Boring terminated at 5 feet below grade				manu		2012.000
											)	



PROJECT NO.: 1130.1800187.0000 REPORT NO .: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-120** TOWNSHIP:

PAGE:

SHEET:

RANGE:

120

DATE STARTED: 8/24/18

8/24/18

WATER TABLE (ft): DATE OF READING:

8/24/2018

DATE FINISHED: DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

G.S. ELEVATION (ft):

TYPE OF SAMPLING: ASTM D1452

1 of 1

			_			EST, W.S.W.T. (ft	): 	I Y	PE OF S	AMPLIN	G: ASTM [	)1452
DEPTH (FT,)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
	F	INCREMENT	F1.)		O L		<u> </u>	` ′	LL	Pί		(%)
0 —	}					Gray fine sand with clay (SP-SC)						
				•		White clayey sand (SC)						
3												
5 —		.x				Boring terminated at 5 feet below grade		2.5584.5544.65	+20000	******		

BORING LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-121** 

TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/24/18 8/24/18

1 of 1

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

2.0 8/24/2018

DATE FINISHED: DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT <sub>+</sub> )	S A BLOV	OWS N S Y M B DESCRIPTION O L		DESCRIPTION	-200	MC	ATTE	RBERG NTS	UCS (tsf)	ORG CONT (%)	
(1 12)	L INCREM	IENT FT.	)	0 7		(%)	(%)	LL	PI	000 (151)	(%)
0-	1				Gray fine sand with clay (SP-SC)  White clayey sand (SC)						
			•		write dayey sailu (SC)	25.3	15.9				
5 —	1		551 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		Boring terminated at 5 feet below grade	150×100×100×100	0.0.00000	000000	A000000	5-000-00-00-00-00-00-00-00-00-00-00-00-0	



PROJECT NO.: 1130.1800187,0000 REPORT NO .: 13620 PAGE: 122

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-122** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

G.S. ELEVATION (ft): DATE STARTED:

8/24/18 8/24/18

DATE OF READING:

WATER TABLE (ft):

8/24/2018

2.0

DATE FINISHED: DRILLED BY:

LR / TM

FST-WSWT-(ft):

TYPE OF SAMPLING:

ASTM D1452

EPTH (FT.)	S 4 M L L L	BLOWS PER 6"	N (BLOWS/ FT.)	W <sub>A</sub> T <sub>a</sub>	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG CONT (%)
· · · · · · ·	Ē	INCREMENT	FT <sub>=</sub> )		Ö		(70)	(70)	LL	PI		(%)
0 —					1/2	Gray fine sand with clay (SP-SC)						
	+					White clayey sand (SC)						
	IJ1					a a						
-	t			_								
29-												
	U											
3.	1											
,												
5 —						Boring terminated at 5 feet below grade	**********					
	Н		(									
	Н											
	Н											
					- 1							

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18



PROJECT NO :: 1130,1800187.0000 REPORT NO .: 13620 PAGE: 123

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-123** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

8/24/18

WATER TABLE (ft):

2.0

DATE STARTED: DATE FINISHED:

8/24/18

DATE OF READING:

G.S. ELEVATION (ft):

8/24/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 A M P ATTERBERG **BLOWS** ORG. DEPTH M B O MC LIMITS -200 PER 6" INCREMENT W.T. (BLOWS/ DESCRIPTION CONT. (FT.) UCS (tsf) (%) (%) FT.) (%) LL PI 0 Light brown fine sand with clay (SP-SC) White clayey sand (SC) . Boring terminated at 5 feet below grade

BORING\_LOG GINT 2018 HA GPJ UNIENGSC.GDT 9/27/18



PROJECT NO .: 1130\_1800187\_0000 REPORT NO .: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

**HA-124** 

PAGE:

SHEET:

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

8/24/18

1 of 1

WATER TABLE (ft): 2,5

8/24/18

DATE OF READING: 8/24/2018

DRILLED BY:

DATE STARTED:

DATE FINISHED:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	\\/\T	S Y M B	DESCRIPTION	-200	MC	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(FT₄)	P L E	INCREMENT	FT.)	VV. I.e.	B O L	BESONIF HON	(%)	(%)	LL	Pl	UCS (tsi)	(%)
0 —	}					Light brown fine sand with clay (SP-SC)						
-				▼.		White clayey sand (SC)	27.2	15.5				
5 —	1			encessos		Boring terminated at 5 feet below grade		Es en Econo Eco				



PROJECT NO.: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 125

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

TOWNSHIP:

**HA-125** 

SHEET:

RANGE:

DATE STARTED:

8/24/18 8/24/18

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/24/2018

DATE FINISHED: DRILLED BY:

LR / TM

1 of 1

DEPTH	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O !	DESCRIPTION	-200 (%)	MC	ATTER	RBERG NTS	UCS (tsf)	ORG. CONT (%)
(FT.)	L	INCREMENT	FT.)		, P		(%)	(%)	LŁ	PI	003 (ISI)	(%)
0 —	b		-			Yellow clayey sand (SC)						
S <del>-</del>						Yellow fine sand with clay (SP-SC)						
						Tellow life saild with day (SP-SC)						
-	1											
_												
	1											
5 <del></del>	1			_								
5 —			1010000000	04.000.004.004				1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		000000		
-						Boring terminated at 5 feet below grade						

BORING\_LOG GINT 2018 HA GPJ UNIENGSC.GDT 9/27/18



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 126

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-126** 

TOWNSHIP:

SHEET: RANGE:

DATE STARTED: DATE FINISHED:

8/24/18 8/24/18

DATE OF READING:

G.S. ELEVATION (ft):

WATER TABLE (ft):

8/24/2018

DRILLED BY:

LR / TM

1 of 1

						EST, W.S.W.T. (fi	t):	TY	PE OF S	SAMPLING	G: ASTM [	01452
DEPTH (FT <sub>*</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>-</sub> )	W.T <sub>s</sub>	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MITS	UCS (tsf)	ORG, CONT. (%)
0 -	1					Yellow clayey sand (SC)  Yellow fine sand with clay (SP-SC)						
12 22 23				<b>▼</b> .		Tollow line Sand with Clay (61-56)						
5 —			*******			Boring terminated at 5 feet below grade				01100110	***********	5-/105-/1050

BORING LOG GINT 2018 HA GPJ UNIENGSC.GDT 9/27/18



PROJECT NO .: 1130,1800187,0000 REPORT NO.: 13620 PAGE: 127

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-127** TOWNSHIP:

SHEET:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/24/18 8/24/18

1 of 1

WATER TABLE (ft): DATE OF READING:

8/24/2018

DRILLED BY:

LR / TM

EST W.S.W.T. (ft):

TYPE OF SAMPLING≅ ASTM D1452

DERTH	S A	BLOWS	N		S	EST., W.,S.,W.,T. (f			1	RBERG	G ASTM	ORG
DEPTH (FT.)	SAMPLE	PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	LIN	PI	UCS (tsf)	(%)
0 —	1					Brown fine sand with clay (SP-SC)						
						Yellowish brown fine sand with clay (SP-SC)						
-				•		Yellow fine sand with clay (SP-SC)						
5—				*******		Boring terminated at 5 feet below grade		*****	*******	9.833T3.03	356166517851	20010020



PROJECT NO.: 1130,1800187,0000 REPORT NO .: 13620 PAGE: 128

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-128** TOWNSHIP:

SHEET:

RANGE:

DATE STARTED:

8/24/18 8/24/18

1 of 1

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/24/2018

DATE FINISHED: DRILLED BY:

LR / TM

						EST, W,S,W,T, (f	t):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEP1	S A M P	BLOWS PER 6"	N (BLOWS/	w.T.	S Y M B	DESCRIPTION	-200	MC	ATTER	RBERG	UCS (tsf)	ORG, CONT. (%)
(FŤ.	, E	INCREMENT	` FT.)		Ö L		(%)	(%)	LL	PI	003 (ISI)	(%)
						Brown fine sand with clay (SP-SC)						
	4											
	1											
	+					Yellow fine sand with clay (SP-SC)						
	4											
	1											
	1			•	(/)	Brown fine sand with trace silt (SP)						
5			**********				20000000000	0.101.01				100000116
						Boring terminated at 5 feet below grade						

BORING\_LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18



PROJECT NO .: 1130\_1800187\_0000 REPORT NO .: 13620 PAGE: 129

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-129** 

SHEET:

RANGE:

TOWNSHIP:

DATE STARTED:

8/24/18

1 of 1

WATER TABLE (ft): DATE OF READING: 8/24/2018

DATE FINISHED:

8/24/18

G.S. ELEVATION (ft):

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING ASTM D1452

DEPTH M BLOWS PER 6" INCREMENT	(BLOWS/	W.T. B	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG MITS	UCS (tsf)	ORG.
E	11 F1.)	Ę		(,	(/-/	LL	Pl		(%)
0			Dark gray fine sand with silt (SP-SM)						
		▼	Brown fine sand with trace silt (SP)						
5			Boring terminated at 5 feet below grade			× • • • • • • • • ×			

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18



PROJECT NO : 1130.1800187,0000 REPORT NO .: 13620 PAGE: 130

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-130** 

SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED: DATE FINISHED:

8/27/18 8/27/18

1 of 1

WATER TABLE (ft): DATE OF READING:

8/27/2018

3,9

DRILLED BY: LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.) S A BLOWS PER 6" INCREMENT	N (BLOWS/ W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG MITS	UCS (tsf)	ORG. CONT (%)
Ē	,	Ľ				LL	PI		(%)
0			Dark gray fine sand with silt (SP-SM)						
5	<u>*</u>		Brown fine sand with silt (SP-SM)						
	n recognition that the		Boring terminated at 5 feet below grade		*********				

BORING LOG GINT 2018 HAGPJ UNIENGSC.GDT 9/27/18



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

PROJECT:

CLIENT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-131** 

SHEET:

RANGE:

131

DATE STARTED:

8/27/18 8/27/18

1 of 1

WATER TABLE (ft): DATE OF READING:

4.0

TOWNSHIP:

LR / TM

G.S. ELEVATION (ft):

8/27/2018

DATE FINISHED: DRILLED BY:

			EST. W <sub>s</sub> S.W.T. (t	ft):	TY	PE OF S	AMPLING	G: ASTMI	D1452
DEPTH M BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
5			Dark brown fine sand with silt (SP-SM)  Brown fine sand with trace silt (SP)  Boring terminated at 5 feet below grade						Pi

BORING\_LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620 PAGE: 132

PROJECT:

Proposed Moccasin Wallow Road Improvements Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-132** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/27/18 8/27/18

WATER TABLE (ft): DATE OF READING:

3.5

DRILLED BY:

LR / TM

8/27/2018

	[8]				l e	EST, W.S.W.T. (	ft):	TY	PE OF S	AMPLIN	G: ASTM [	D1452
DEPTH (FT <sub>=</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>+</sub> )	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTE LIN	RBERG MITS PI	UCS (tsf)	ORG. CONT (%)
0 —	}					Dark gray fine sand with silt (SP-SM)						
						Dark brown fine sand with silt (SP-SM)						
				<b>T</b>		Brown fines sand with trace silt (SP)						
5 —	4	************		98 90909		Boring terminated at 5 feet below grade	-0.000000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			90170TO	*******

BORING LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18



PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620 PAGE: 133

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18

Roadway

BORING DESIGNATION:

SECTION:

G.S. ELEVATION (ft):

**HA-133** 

1 of 1 SHEET:

RANGE:

DATE STARTED: DATE FINISHED:

8/27/18 8/27/18

WATER TABLE (ft): DATE OF READING:

3.5

DRILLED BY:

LR / TM

EST, W.S.W.T. (ft):

8/27/2018

TOWNSHIP:

TYPE OF SAMPLING: ASTM D1452

DÉPTH (FT)	S BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG	UCS (tsf)	ORG. CONT. (%)
	E	1.127		l L				LL	PI		(%)
0					Dark gray fine sand with silt (SP-SM)						
-					Brown fine sand with trace silt (SP)						
5 —			•		Boring terminated at 5 feet below grade		menson		J0024440		
					boning terminated at 5 feet below grade					1	



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

PAGE: 134

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

TOWNSHIP:

**HA-134** 

SHEET:

RANGE:

RANG

DATE STARTED:

8/27/18 8/27/18

1 of 1

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

4.0

8/27/2018

DATE FINISHED: DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING:

: ASTM D1452

	e I				I e	EST. W.S.W.T. (f	r):	11	TE OF S	AMPLIN	G: ASTM [	71452
DEPTH (FT.)	A	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
( ),	L IN	CREMENT	FT <sub>s</sub> )		Ō: L		(70)	(70)	LL	PI	( )	(%)
0						Dark gray fine sand with silt (SP-SM)						
	<u>-</u>					Brown fine sand with trace silt (SP)						
5 —		hinem (7.531).	**1*******	****		Boring terminated at 5 feet below grade		*********			***************************************	i Princescho

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REPORT NO.: 13620

PAGE: 135

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

SECTION:

HA-135

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED: 8/27/18 8/27/18

WATER TABLE (ft): DATE OF READING:

8/27/2018

4.0

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF CAMP

\_\_\_\_\_

EPTH (FT <sub>e</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W,T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG IITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
	Ė		,	-	L C				ŁL	PI		(70)
0-						Dark gray fine sand with silt (SP-SM)						
				•		Brown fine sand with trace silt (SP)						
5	•		A PROPERTY OF THE			Boring terminated at 5 feet below grade					e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.	
								0				
Đ												

BORING LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18



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RANGE:

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

BORING LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18

Roadway

BORING DESIGNATION:

**HA-136** 

TOWNSHIP:

1 of 1 SHEET:

SECTION:

G.S. ELEVATION (ft): WATER TABLE (ft):

DATE STARTED: DATE FINISHED:

8/27/18 8/27/18

DATE OF READING: 8/27/2018

3.5

DRILLED BY:

LR / TM

						EST, W.S.W.T. (fi	t):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.,)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT.
(,,)	Ë	INCREMENT	FT <sub>2</sub> )		ο̈́L		(70)	(70)	LL	PI		(%)
0 —	}					Dark gray fine sand with silt (SP-SM)						
5 —				<b>.</b>		Brown fine sand with trace silt (SP)						
5-		esuo-oou80048008				Boring terminated at 5 feet below grade				,,,,,,,,		
						¥						



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

**HA-137** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

8/27/18

G.S. ELEVATION (ft): WATER TABLE (ft):

3.5

DATE STARTED: DATE FINISHED:

8/27/18

DATE OF READING:

SECTION:

8/27/2018

DRILLED BY:

LR / TM

							EST. W.S,W.T. (ft)	): 	TY	PE OF \$	AMPLIN	G: ASTM [	01452
DE (F	PTH T.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
H		Ė	TO VEHICLE	,		L L				LL	PI		(70)
	0 —						Dark gray fine sand with silt (SP-SM)						
	-												
		A											
	10-						Brown fine sand with trace silt (SP)						
	2												
	-				_▼_								
	-												
	5—	1					Boring terminated at 5 feet below grade						on on the
718													
D1 3/2/													
9 000 00 00 00 00 00 00 00 00 00 00 00 0													
ONIE C													
BORING, LOG GINT 2018 HA GPJ UNIENGSC, GDJ 9/2//18													
NIN ZO													
LOG													
BORING													

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-138** 

PAGE:

TOWNSHIP:

SHEET: RANGE:

138

DATE STARTED:

DATE FINISHED:

8/27/18

G.S. ELEVATION (ft): WATER TABLE (ft):

4.0

8/27/18

1 of 1

DATE OF READING: 8/27/2018

DRILLED BY:

LR / TM

						EST. W.S.W.T. (ft)	):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEPTH	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M	DESCRIPTION	-200	MC	ATTER	RBERG	UCS (tsf)	ORG. CONT. (%)
(FT.)	L	INCREMENT	` FT.)		B O L		(%)	(%)	LL	PI	0C3 (tsi)	(%)
0 -	1					Dark gray fine sand with silt (SP-SM)						
	4					Dode brown fine conducith ailt (CD CM)						
	1					Dark brown fine sand with silt (SP-SM)						
	1					Brown fine sand with trace silt (SP)						
	1											
	1											
2-	•			_								
5 —	1	******	********	na m		Boring terminated at 5 feet below grade					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	***********
						Doming community at 0 1000 bolow grade						
						-						

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PROJECT NO .: 1130.1800187.0000 REPORT NO .: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-139** 

PAGE:

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/27/2018

8/27/18 8/27/18

WATER TABLE (ft): 3.8 DATE FINISHED: DRILLED BY:

LR / TM

DATE OF READING: EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

						Ε51. ۷۷.5. νν.1. (π,					G: ASINII	
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
	F	INCREMENT	FI.)		O L		( ,	()	LL	PI		(%)
0					ं अज्ञा	Dod fire duith -it (CD OM)						
	1					Dark gray fine sand with silt (SP-SM)						
						Dark brown fine sand with silt (SP-SM)						
_						Brown fine sand with trace silt (SP)						
32	4											
) P <u>e</u>				•								
	1											
5 —	-					Boring terminated at 5 feet below grade			100000000	322552	oneantainta	*********



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

SHEET:

RANGE;

140

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

Sandan

WATER TABLE (ft):

SECTION:

DATE STARTED:

PAGE:

**HA-140** 

8/27/18

1 of 1

G.S. ELEVATION (ft):

BORING DESIGNATION:

TOWNSHIP:

DATE FINISHED: 8/27/18

DATE OF READING: 8/27/2018

DRILLED BY:

LR / TM

						EST. W.S.W.T. (f	t):	TY	PE OF S	AMPLING	G: ASTM [	D1452
DEPTH (FT.)	0 4 <b>∑</b> ₽ ⊔ ⊔	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	MC	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(F1_)	Ē	INCREMENT	FT.)		Ö		(%)	(%)	LL	PI	000 (131)	(%)
0 —	1					Dark brown fine sand with silt (SP-SM)						
	1											
	P					Brown fine sand with trace silt (SP)						
-	1											
_												
-	1											
-				<b>—</b>								
5 —			33131813181			Boring terminated at 5 feet below grade		2412141514				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

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PROJECT NO.; 1130.1800187,0000 REPORT NO.: 13620

141

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

**HA-141** 

PAGE:

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: 8/27/18 DATE FINISHED: 8/27/18

WATER TABLE (ft): 4.2 DATE OF READING: 8/27/2018

DRILLED BY:

LR / TM

	S	BLOWS	N		S				ATTE	RBERG		OBC
EPTH (FT <sub>-</sub> )	S A M P L E	PER 6" INCREMENT	(BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	_	MITS	UCS (tsf)	ORC CON (%)
	Ē				Ĺ				LL	PI		
0 —						Dark brown fine sand with silt (SP-SM)						
	IJ											
						Brown fine sand with trace silt (SP)						
ų.												
	И											
\ <del>-</del>	1			4:								
27				┸								
5 —								A8.000.00.00		**********		-001-201
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-142** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/27/18

WATER TABLE (ft): 4.5 DATE FINISHED:

8/27/18

DATE OF READING: 8/27/2018

DRILLED BY:

LR / TM

						EST. W <sub>*</sub> S <sub>*</sub> W <sub>*</sub> T <sub>*</sub> (ft)	):	TY	PE OF S	AMPLIN	G: ASTM	D1452
DEPTH (FT_)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0						Dark brown fine sand with silt (SP-SM)						
	}					Brown clayey sand (SC)						
5 —	ı		y(1.020,000,00			Boring terminated at 5 feet below grade				******	**********	0010011001
•												
	Ш											

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 9/27/18



PROJECT NO.: 1130.1800187.0000 REPORT NO .: 13620

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Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-143** 

SHEET:

TOWNSHIP: RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/27/18

1 of 1

WATER TABLE (ft): 8/27/2018 DATE FINISHED:

8/27/18

DATE OF READING:

DRILLED BY:

LR / TM

DÉPTH (FT.,)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S≻ <b>™</b> BO∟	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG IITS	UCS (tsf)	ORG CON (%)
0						Dark brown fine sand with silt (SP-SM)						
_				_▼_		Brown fine sand with trace silt (SP)						
5 —	1	voscovoscorosco	F-2-5-6-5			Boring terminated at 5 feet below grade		5.224.07200				

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PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-144

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: 8/27/18

DATE FINISHED:

8/27/18

WATER TABLE (ft): 1.5

DATE OF READING: 8/27/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

		,	FST, W.S.W.T. (ft):		11	PE OF S	AVIF CITY	G: ASTM D	1452
DEPTH (FT.) S A BLOWS PER 6" INCREMENT	N (BLOWS/ W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(FT.)   INCREMENT	` FT.)	O L		(17)		LL	PI		(%)
0			Brown fine sand with silt (SP-SM)						
			Brown fine sand with trace silt (SP)						
5 - 1		1. 54.50	Boring terminated at 5 feet below grade		F000F00000		econeucu.	.004690450045	
			~						



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-145** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

8/27/18

DATE STARTED: DATE FINISHED:

8/27/18

WATER TABLE (ft): DATE OF READING:

G.S. ELEVATION (ft):

8/27/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

		T .			-				
DEPTH (FT.) S A BLOWS PER 6" INCREMENT	N (BLOWS/ W.T.	r O ⊞ M ≺ %	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG CONT (%)
(FT.)   INCREMENT	FT,)	O L			(,	LL	PI		(%)
0 —	•		Dark brown fine sand with silt (SP-SM)						
			Brown fine sand with trace silt (SP)						
5			Boring terminated at 5 feet below grade		********		100000	*** (*** (***	E000 E000 E0



PROJECT NO .: 1130,1800187.0000 REPORT NO .: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-146** 

1 of 1 SHEET:

146

TOWNSHIP:

RANGE:

DATE STARTED:

PAGE:

8/28/18

WATER TABLE (ft):

2.0

DATE FINISHED:

8/28/18

DATE OF READING: 8/28/2018

DRILLED BY:

LR / TM

G.S. ELEVATION (ft):

	,,		,		,	EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLIN	G: ASTM [	)1452
DEPTH	S A M	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	МС	ATTER	BERG ITS	UCS (tsf)	ORG.
(FT,)	PLE	INCREMENT	`FT <sub>=</sub> )		Ö		(%)	(%)	LL	PI	UCS (ISI)	(%)
0-	6					Dark brown fine sand with silt (SP-SM)						
						Brown fine sand with trace silt (SP)						
-				▼		Dark brown fine sand with silt (SP-SM)	_					
_												
3-	1											
_	I											
5 →		*************	**********	E-10014		Boring terminated at 5 feet below grade						



PROJECT NO.: 1130,1800187.0000 REPORT NO .: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-147** 

SHEET:

TOWNSHIP:

PAGE:

RANGE:

147

DATE STARTED:

DATE FINISHED:

WATER TABLE (ft): 2.0

8/28/2018

DRILLED BY:

8/28/18 LR / TM

8/28/18

1 of 1

DATE OF READING:

G.S. ELEVATION (ft):

1					EST. W.S.W.T. (fi	t):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH N	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	\w.T	S Y M B O	DESCRIPTION	-200	мс	ATTER	RBERG IITS		ORG.
(FT.) F	INCREMENT	FT.)	VV.T.	B O L	DESCRIPTION	(%)	(%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0-	S .				Dark brown fine sand with silt (SP-SM)						
4			≖								
	1										
1	5										
<u></u>											
					Brown fine sand with trace silt (SP)						
5 —					Boring terminated at 5 feet below grade		********				. Silbaror
							Y				
							20				



PROJECT NO.: 1130,1800187.0000

REPORT NO.: 13620

PAGE: 148

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION

HA-148

SHEET: 1 of 1

SECTION: TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/28/18

WATER TABLE (ft): 2,5

DATE OF READING: 8/28/2018

DATE FINISHED: DRILLED BY: 8/28/18 LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING - ASTM D1452

					,	EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLIN	G: ASTMI	D1452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT.
,	F	INCREMENT	F1-)		0			(73)	LL	PI		(%)
0 —	1					Dark brown fine sand with silt (SP-SM)						
3	}					Brown fine sand with silt (SP-SM)						
	j			•		Brown fine sand with trace silt (SP)						
,-						Dark brown fine sand with silt (SP-SM)						
5 —	ı				6 . H.E	Boring terminated at 5 feet below grade		00757076400		******	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
5												



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620

PAGE: 149

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-149** 

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/28/18 8/28/18

WATER TABLE (ft): 2,3 DATE OF READING: 8/28/2018 DATE FINISHED:

LR/TM

DRILLED BY:

FST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

					EST, W.S,W,T, (fi	:):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH M (FT.) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>-</sub> )	W.T.	S M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG.
L E	INCREMENT	FT,)		ō L		(70)	(70)	LL	PI	` ′	(%)
0-					Dark brown fine sand with silt (SP-SM)						
			•		Brown fine sand with trace silt (SP)	-					
					Dark brown fine sand with silt (SP-SM)						
5—	MATERIAL SERVICE			::111	Boring terminated at 5 feet below grade			177-000	0.000		X * * * X * * * X * *



PROJECT NO .: 1130,1800187.0000 REPORT NO .: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

**HA-150** BORING DESIGNATION: SHEET: SECTION:

TOWNSHIP:

RANGE:

1 of 1

G.S. ELEVATION (ft): DATE STARTED: 8/28/18

WATER TABLE (ft): DATE FINISHED: 8/28/18 3.0 DATE OF READING: 8/28/2018 DRILLED BY: LR/TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(, ,,)	Ë	INCREMENT	FT,)		, L		(70)	(/0)	LL	PI		(%)
0-						Dark brown fine sand with silt (SP-SM)						
				_		Brown fine sand with trace silt (SP)	-					
				•		Dark brown fine sand with silt (SP-SM)	-					
5 —	1					Boring terminated at 5 feet below grade		la savara				



PROJECT NO.: 1130,1800187,0000 REPORT NO .: 13620

SHEET:

PAGE: 151

Proposed Moccasin Wallow Road Improvements

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS: Roadway

Moccasin Wallow Road From US 41 to West of I 75 SECTION:

G.S. ELEVATION (ft):

BORING DESIGNATION

RANGE:

1 of 1

DATE STARTED:

8/28/18

WATER TABLE (ft):

3.2

8/28/2018

DATE FINISHED:

8/28/18

DATE OF READING:

DRILLED BY:

**HA-151** 

TOWNSHIP:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO.	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG IITS	UCS (tsf)	ORG, CONT (%)
	È				Ľ				LL	PI		(70)
0			Di			Dark brown fine sand with silt (SP-SM)						
-						Brown fine sand with trace silt (SP)						
				▼.		Dark brown fine sand with silt (SP-SM)						
5 —		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			1.15	Boring terminated at 5 feet below grade						



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

**HA-152** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/28/18

WATER TABLE (ft): 3.6 8/28/2018 DATE FINISHED:

8/28/18

DATE OF READING:

DRILLED BY:

LR / TM

EST, W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT,)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1.13)	Ë	INCREMENT	FT.)		O L		(70)	(70)	LL	PI	555 (10.7)	(%)
0 —						Gray fine sand with silt (SP-SM)						
io <del>-</del>	1					Dark brown fine sand with silt (SP-SM)						
5 —		K-EXKELON-ESSES	*******	•		Gray fine sand (SP)  Boring terminated at 5 feet below grade		2111210100	*********	V-500000	secondarya.	



PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

RANGE:

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION: HA-153 SHEET: 1 of 1

PAGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): DATE STARTED: 8/28/18

 WATER TABLE (ft):
 3.8
 DATE FINISHED:
 8/28/18

 DATE OF READING:
 8/28/2018
 DRILLED BY:
 LR / TM

EST, W,S,W,T, (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT <sub>i</sub> )	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG MTS	UCS (tsf)	ORG CONT (%)
(1 197	Ŀ	INCREMENT	FT.)		Ŏ.		(70)	(70)	LL	PI		(%)
0 —						Gray fine sand with silt (SP-SM)						
-						Dark brown fine sand with silt (SP-SM)						
5 —		one contract of the contract o	J. 1711 (2.11)	• • • • • • • • • • • • • • • • • • • •		Gray fine sand (SP)					waana.	
						Boring terminated at 5 feet below grade						



PROJECT NO .: 1130.1800187,0000 REPORT NO.: 13620

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-154** 

PAGE:

1 of 1 SHEET:

TOWNSHIP:

RANGE:

154

G.S. ELEVATION (ft):

SECTION:

DATE STARTED:

8/28/18

WATER TABLE (ft): DATE OF READING: 8/28/2018

4.5

DATE FINISHED: DRILLED BY:

8/28/18 LR / TM

EST: W.S.W.T. (ft):

					EST. W.S.W.T. (f	t):	TY	PE OF S	AMPLIN	G: ASTM D	1452
DEPTH M (FT.) P L	BLOWS PER 6"	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG	UCS (tsf)	ORG. CONT.
L E	INCREMENT	FT:)		O L		(70)	(70)	LL	PI	, ,	(%)
0					Gray fine sand with silt (SP-SM)						
					Dark brown fine sand with silt (SP-SM)  Light brown fine sand (SP)						
5 —					Boring terminated at 5 feet below grade			*******	*******		



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REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-155

SHEET: 1 of 1

SECTION: TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/28/18

WATER TABLE (ft): 4,3

DATE OF READING: 8/28/2018

DATE FINISHED: 8/28/18

DRILLED BY: LR

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH M (FT.) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200	MC	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(F1.) F	INCREMENT	FT:)		Ö		(%)	(%)	LL	PI	000 (191)	(%)
0-					Gray fine sand with silt (SP-SM)						
					Dark brown fine sand with silt (SP-SM)						
5 —			*		Light brown fine sand (SP)		Confliction Construction		Letterete		
					Boring terminated at 5 feet below grade						



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

HA-156

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/28/18

WATER TABLE (ft): DATE OF READING: 8/28/2018

DATE FINISHED: 8/28/18 LR / TM

DRILLED BY:

			EST, W.S,W.T. (fi	:):	TY	PE OF S	AMPLIN	G: ASTM [	01452
BLOWS N	S/ W/T	S Y M	DESCRIPTION	-200	мс	ATTER	RBERG	1100 (1-0	ORG. CONT. (%)
CREMENT FT.)	37 11.12	B O L	BESSAII TION	(%)	(%)	LL	PI	UCS (tst)	(%)
			Gray fine sand with silt (SP-SM)						
			Dark brown fine sand with silt (SP-SM)	-					
			Dank Brown mile saile with site (cir siw)						
	•		Light brown fine sand (SP)						
			Boring terminated at 5 feet below grade					n resverin sau	Valvallara
			•						
	PER 6"   (BLOWS	PER 6" (BLOWS/ W.T.)	PER 6" CREMENT  (BLOWS/ W.T. B) OL	BLOWS PER 6" (BLOWS/ FT.)  OREMENT  ORE	PER 6" CREMENT  (BLOWS/ FT.)  W.T. M B O C  Gray fine sand with silt (SP-SM)  Dark brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	BLOWS PER 6" CREMENT    N	BLOWS PER 6" (BLOWS/ FT.) W.T. B O DESCRIPTION -200 (%) MC (%) LL  Gray fine sand with silt (SP-SM)  Dark brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	BLOWS PER 6" (%)  W.T. M B O DESCRIPTION  GREWENT PT.)  OF THE STREET ST	BLOWS PER 6" CREMENT RITE OF THE PROPERTY OF T



PROJECT NO.: 1130.1800187,0000

REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-157

PAGE:

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/28/18

WATER TABLE (ft):

DATE FINISHED:

8/28/18

DATE OF READING:

DRILLED BY:

LR / TM

EST., W.S., W.T., (ft): TYPE OF SAMPLING: ASTM D1452

8/28/2018

S	BLOWS	N		S Y	EST. W.S.W.T. (fi		ĺ	ATTE	RBERG	G: ASTM D	
DEPTH M (FT.) P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT <sub>-</sub> )	W.T <sub>≥</sub>	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	LIN	IITS PI	UCS (tsf)	ORG. CONT: (%)
0					Gray fine sand with silt (SP-SM)						
					Dark brown fine sand with silt (SP-SM)						
5					Light brown fine sand (SP)						50000000000
					Boring terminated at 5 feet below grade						



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-158** 

PAGE:

1 of 1 SHEET:

TOWNSHIP:

RANGE:

DATE STARTED:

8/28/18

WATER TABLE (ft):

DATE OF READING: 8/28/2018

DATE FINISHED: DRILLED BY:

8/28/18 LR / TM

G.S. ELEVATION (ft):

_				···			EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLIN	G: ASTM [	01452
	DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	MC	ATTER	RBERG	UCS (tsf)	ORG.
ŀ	(1 14)	Ė	INCREMENT	FT.)		O F		(%)	(%)	LL	PI	000 (10.1)	CONT. (%)
١	0 —						Gray fine sand with silt (SP-SM)						
	-						Dark brown fine sand with silt (SP-SM)						
ı							`						
١							Light gray fine sand (SP)						
	-	1					Brown fine sand (SP)	-					
١	:				•								
		1			<b>.</b>								
	5 —	•	-942-211-242-21				Boring terminated at 5 feet below grade			2	nocuneru		***********
١													
l													
l													
11216 17													
1000													
ONE													
BORING LOG GINT ZOTO THA, GP.3 UNIENGSO, GD.1 9/2//18													
CIIN L													
201.0													
200													



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REPORT NO.: 13620

PAGE: 159

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

HA-159

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/28/18

WATER TABLE (ft): 4,5

DATE OF READING: 8/28/2018

DATE FINISHED:

8/28/18

DRILLED BY:

LR / TM

EST, W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

	S				S	EST., W.S.W.T. (ft)	):	1 1 1	1	RBERG	G: ASTM [	
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0 —	1					Light gray fine sand (SP)						
						Gray fine sand with trace silt (SP)						
5 —	1	***************************************	+0.5.0.50	_		Brown fine sand (SP)					00	2001/2000 200
						Boring terminated at 5 feet below grade						
									0			



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

BORING LOG GINT 2018 HA GPJ UNIENGSC GDT 9/27/18

Cardno

LOCATION:

See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

**HA-160** 

PAGE:

1 of 1 SHEET:

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED:

8/28/18 8/28/18

WATER TABLE (ft): 4.5 DATE OF READING: 8/28/2018

DATE FINISHED:

LR / TM

DRILLED BY:

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH M (FT) P L	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CONT (%)
(F1-)   L	INCREMENT	FT.)		O L		(%)	(70)	LL	PI	000 (10.7)	(%)
0 —					Dark brown fine sand with silt (SP-SM)						
					Gray fine sand with trace silt (SP)						
	-				Brown fine sand with trace silt (SP)						
5 —		,			Boring terminated at 5 feet below grade						inion.



PROJECT NO.: 1130,1800187,0000 REPORT NO.: 13620

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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

HA-161

PAGE:

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): WATER TABLE (ft):

DATE STARTED: DATE FINISHED: 8/29/18 8/29/18

DATE OF READING: 8/29/2018

DRILLED BY: LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/	w T	S Y M B	EST., W.,S.,W.,T. (ft	-200	MC	ATTER	RBERG	G: ASTM [	ORG. CONT. (%)
(FT.)	L	INCREMENT	FT.)		B O L	DESCRIPTION	(%)	(%)	LL	PI	UCS (tsf)	(%)
0 —	1					Dark brown fine sand with silt (SP-SM)						
						Gray fine sand with trace silt (SP)						
15				_		Brown fine sand with trace silt (SP)						
5 —				▼		Light brown fine sand (SP)						
5						Boring terminated at 5 feet below grade						etaieteta)
			l L									



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PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION:

See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-162** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

DATE STARTED: DATE FINISHED:

8/29/18 8/29/18

DATE OF READING: 8/29/2018

DRILLED BY:

LR / TM

WATER TABLE (ft):

							EST. W.S.W.T. (ft	):	TY	PE OF S	AMPLING	G: ASTM [	01452
DE	EPTH	S A M P	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M	DESCRIPTION	-200	MC	ATTER	RBERG	UCS (tsf)	ORG, CONT. (%)
	FT.)	L	INCREMENT	`FT.)		M B O L		(%)	(%)	LL	Pí	003 (tai)	(%)
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		1					Gray fine sand with trace silt (SP)						
	2	1					Brown fine sand with trace silt (SP)	-					
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	-	1			•		Light brown fine sand (SP)						
	5 —		evenene	MINISTERNIA.	oawn		Daries to suit acted at 5 fact halous and	ressesses	202037	areare.			
							Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

PAGE: 163

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

HA-163

SHEET: 1 of 1

SECTION:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft):

WATER TABLE (ft):

DATE FINISHED: 8/29/18

DATE OF READING: 8/29/2018

4.0

DRILLED BY:

DATE STARTED:

LR / TM

8/29/18

EST., W.S., W.T., (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W <sub>z</sub> T <sub>z</sub>	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG	UCS (tsf)	ORG. CONT (%)
( /	Ĺ	INCREMENT	FT.)		Ŏ.		(70)	(70)	LL	PI	. 1	(%)
0 —						Dark brown fine sand with silt (SP-SM)						
:=	-											
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£			A MOMENT OF THE O			Light brown fine sand with trace silt (SP)						
5 —				0000000		Boring terminated at 5 feet below grade		********		********	**********	
	Ш											
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	П											
	П											
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PROJECT NO.: 1130,1800187,0000

REPORT NO.: 13620

164

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-164** 

PAGE

SHEET: 1 of 1

TOWNSHIP:

RANGE:

DATE STARTED:

8/29/18

WATER TABLE (ft): 4,0

DATE FINISHED:

8/29/18

DATE OF READING: 8/29/2018

G.S. ELEVATION (ft):

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D145

DEDTU	S	BLOWS PER 6"	N		S	EST.; W.S.W.T. (ft				RBERG	G: ASTM D	
DEPTH (FT <sub>+</sub> )	SAMPLE	PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	LL	PI	UCS (tsf)	ORG CONT (%)
0 —	1					Dark brown fine sand with silt (SP-SM)						
	4											
	1					μ						
82	1											
8	4			•		Light brown fine sand with trace silt (SP)						
5 —	(	ABABABA		2.0.200								
						Boring terminated at 5 feet below grade						
						*						



PROJECT NO .: 1130,1800187,0000 REPORT NO .: 13620

PROJECT:

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of | 75

Parrish, Manatee County, FL

CLIENT:

Cardno

LOCATION: See Boring Location Plan

REMARKS:

Roadway

BORING DESIGNATION:

SECTION:

**HA-165** 

PAGE:

1 of 1 SHEET:

165

RANGE:

8/29/18

DATE STARTED:

8/29/18

WATER TABLE (ft): DATE OF READING: 8/29/2018

TOWNSHIP:

DATE FINISHED: DRILLED BY:

LR / TM

G.S. ELEVATION (ft):

						EST. W.S.W.T. (fi	):	TY	PE OF S	AMPLING	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6"	N (BLOWS/	W.T <sub>2</sub>	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	Ē	INCREMENT	FT <sub>2</sub> )		P.			(,,,	LL	PI		(%)
o — -						Dark brown fine sand with silt (SP-SM)						
-						Light brown fine sand with trace silt (SP)						
5 —	1	************	********	Errana.		Boring terminated at 5 feet below grade						
						Botting terminated at 3 feet below grade						



PROJECT NO .: 1130.1800187.0000 REPORT NO.: 13620

PAGE: 166

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway BORING DESIGNATION:

SECTION:

**HA-166** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G,S, ELEVATION (ft):

DATE STARTED:

8/29/18

WATER TABLE (ft):

8/29/2018

DATE FINISHED:

8/29/18

DATE OF READING:

DRILLED BY:

LR / TM

						EST. W.S.W.T. (fi	:):	TY	PE OF S	AMPLIN	G: ASTM [	01452
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0-						Dark brown fine sand with silt (SP-SM)  Brown fine sand with trace silt (SP)						
5 —		***************************************	**********			Boring terminated at 5 feet below grade		cantarnasaa				P. P. C. ROS T. R. C. S. P.



PROJECT NO.: 1130,1800187.0000

REPORT NO.: 13620

PAGE: 167

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Roadway

BORING DESIGNATION:

G.S. ELEVATION (ft):

DATE OF READING:

SECTION:

HA-167

SHEET: 1 of 1

TOWNSHIP: RANGE:

DATE STARTED:

8/29/18

WATER TABLE (ft): 4.2

4.2 8/29/2018 DATE FINISHED: 8/29/18

DRILLED BY:

LR/TM

EST, W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

							ES1, VV.S, VV.1. (II	,		0. 0		G: ASTM	
	DEPTH (FT.)	SAMPLU	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T <sub>ic</sub>	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG	UCS (tsf)	ORG CONT (%)
L		E	INCREMENT	FI <sub>3</sub> )		0		()	(,0)	LL	PI		(%)
	0 —					223312							
1							Dark brown fine sand with silt (SP-SM)						
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1		П											
ı	-	H											
L		И											
Т													
Т													
ı													
ı	2.00	1			_		Brown fine sand with trace silt (SP)	1					
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ı	5 —	-		***********	(******		Boring terminated at 5 feet below grade		110031112701				Serezeroner
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UNIVERSAL ENGINEERING SCIENCES 9802 Palm River Road Tampa, Florida 33619

(813) 740-8506

# SOIL CLASSIFICATION CHART

#### TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No 200 sieve): includes (1) clean gravel and sands and (2) sifty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests

Descriptive Terms	Relative Density	SPT Blow Coun
Very loose	0 to 15 %	< 4
Loose	15 to 35 %	4 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

FINE-GRAINED SOILS (major portions passing on No. 200 sieve), includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests

# Unconfined Compressive

Descriptive Terms	<u>Strength kPa</u>	SPT Blow Coun
Very soft	< 25	< 2
Soft	25 to 50	2 to 4
Medium stiff	50 to 100	4 to 8
Stiff	100 to 200	8 to 15
Very stiff	200 to 400	15 to 30
Hard	> 400	> 30

#### GENERAL NOTES

- Classifications are based on the United Soil Classification
   System and include consistency, moisture, and color Field
   descriptions have been modified to reflect results of laboratory tests
   where deemed appropriate
- 2 Surface elevations are based on topographic maps and estimated locations
- Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times.

# SOIL SYMBOLS

FIL	10PSGR	Allibrati	CONCRETE	SANO	SAND W/	HACONV CLAY	SILTY	CLAYEY
S S S S S S S S S S S S S S S S S S S	SILT LOW PLASTIC	SILT HICH PLASTIC	ORGANIC SILT	CLAY LOW PLASTIC	CLAY IRQII PLASTIC	SACRETON OF THE PROPERTY OF TH		DOFONILS

#### **OTHER SYMBOLS**

2	Measured Water Table Level	℧	Estimated Seasonal High Water Table

Ma	Major Divisions		Group Symbols Typical Names			Laboratory Classification Criteria							
	action size)	Clean gravel (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines		$C_0 = \frac{D_{80}}{D_{10}}$ greater than 4: $C_c =$	(D <sub>30</sub> ) <sup>2</sup> between 1 and 3		Sieve sizes	< #200	#200 to #40	0#10	4
ueve size)	eve size) els coarse fractio d sleve size) Clean grave		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines	ZOO dis*	Not meeting all gradation require	ements for GW		Sieve	* *	#200	#40 to #10	#10 to #4
No 200 s	Gravels (More than half of coarse fraction is larger than No 4 sieve size)	ith fines ciable of fines)	GM	Silty gravels, gravel-sand-silt mixtures	ain size cu than No s: duai symb	Atterberg limits below "A" line or P I less than 4	Above "A" line with P I between 4 and 7 are border-	icle Size					
sined soils arger than	(More is larg	Gravel with fines (Appreciable amount of fines)	GC	Clayey gravels, gravel-sand-silt mixtures	vel from gr on smaller as follows V, SP M, SC requiring of	Atterberg limits above "A" line or P I greater than 7	line cases requiring use of dual symbols	Particle	Н	24		١.	
Coarse-Grained soils (More than heif the material is larger than No. 200 sieve size)	action size)	sands no fines)	sw	Well-graded sands, gravelly sands, little or no fines	Determine perconlages of sand and gravel from grain size curve. Depending on percentage of fines (fraction smaller than No 200 sleve) coarse-grained solis are classified as follows: Less than 5 percent. GW, GS, SW, SP More than 12 percent. GW, GC, SW, SC 5 to 12 percent. Borderline cases requiring dual symbols*	$C_0 = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c =$	(D <sub>30</sub> ) <sup>2</sup> D <sub>10</sub> × D <sub>60</sub> between 1 and 3		шш	< 0.074	0.074 to 0.42	0 42 to 2 00	2.00 to 4 76
half the n	ids f coarse fra to 4 sieve	Clean sands (Little or no fines)	SP	Poorly-graded sands, gravelly sands, little or no fines	ges of san intage of fi ad solis are ent Gi roent (	Not meeting all gradation require	ments for SW				G	, 0	7
(More than	(More than half the material Sands (More than half of coarse fraction is smaller than No. 4 sieve size) ands with fines (Appreciable (Little or no fine nount of fines)	ith fines ciable of fines)	SM	Silty sands, sand-silt mixtures	elermine percentages of appending on percentage and coarse-grained solis. Less than 5 percent. More than 12 percent. 5 to 12 percent.	Atterberg limits below "A" line or P1 less than 4	Above "A" line with P I between 4 and 7 are border-	Material	<u>a</u>	clay		Ę	
	(More than hall is smaller than Sands with fines (Appreciable amount of fines)		sc	Clayey sands, sand-clay mixtures	Depending Sieve) cos Less to More to 5 to 12	Atterberg limits above "A" line or P I greater than 7	line cases requiring use of dual symbols	Motor	Male	Silt or clay	Sand	Medium	Coarse
Size)	s.		ML	Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity	#0 FOR CLA	RIFICATION OF FINE-GRAINED SOIL AND AINED FRACTION OF COARSE-GRAINED SOILS					_ =	c	. <b>⊆</b>
200 sieve	Silts and Clays	ss than 50	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	70 - FINE-GR	AINED FRACTION OF COARSE-GRAINED SOLS	"J" LINE		Sieve		#4 to 3/4 in 3/4 in to 3 in	3 in to 12 in	12 in to 36 in
oils r than No	- is '	<u>- a</u>	OL	Organic silts and organic silty clays of low plasticity		Or Or	Or	Particle Size					
-Grained s	More than half the material is smaller than No. 200 sieve size)  phy Sits and Clays Sits and Clays (Liquid limit (Liquid limit sits and Silvan 50)  greater than 50)  less than 50)		MH Inorganic silts, micaceous or disto- maceous fine sandy or silty soils, organic silts		PLASTICITY INDEX (PI)			Part	٤		4 76 to 19 1 19 1 to 76 2	76 2 to 304 8	9144
Fine The maters			СН	Inorganic clays of high plasticity, fat clays	20	20 MH OH OH			mm	i	4 76 to 19 1 19 1 to 76 2	76 2 to	304 8 to 914 4
than half			ОН	Organic clays of medium to high plasticity, organic silts	0 10			ļ.	5		92	9	Sig
(More	Highly Soils Soils Pt Pe		Pt	Peat and other highly organic soils		Plasticity Cha	rt	Material	Matc	Grave	Fine Coarse	Cobble	Boulders

When the percent passing a No 200 sieve is between 5% and 12%, a dual symbol is used to denote the soil For example; SP-SC, poorly-graded sand with day content between 5% and 12%

# **APPENDIX B**

# Important Information about This

# **Geotechnical-Engineering Report**

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you - assumedly a client representative - interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

# Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civilworks constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared solely for the client. Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.

# Read this Report in Full

Costly problems have occurred because those relying on a geotechnicalengineering report did not read it in its entirety. Do not rely on an executive summary. Do not read selected elements only. Read this report in full.

# You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, always inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

# This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- · for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

# Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

# This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

# This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- · confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

# Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated subsurface conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you've included the material for informational purposes only. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

# Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

# **Geoenvironmental Concerns Are Not Covered**

The personnel, equipment, and techniques used to perform an environmental study - e.g., a "phase-one" or "phase-two" environmental site assessment - differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.

# Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.



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# CONSTRAINTS AND RESTRICTIONS

#### WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

# **UNANTICIPATED SOIL CONDITIONS**

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until construction begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

#### **CHANGED CONDITIONS**

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

# MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

# CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

#### **USE OF REPORT BY BIDDERS**

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other explorations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

# **STRATA CHANGES**

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

### **OBSERVATIONS DURING DRILLING**

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

#### **WATER LEVELS**

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

#### **LOCATION OF BURIED OBJECTS**

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

# TIME

This report reflects the soil conditions at the time of exploration. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

# Universal Engineering Sciences, Inc. GENERAL CONDITIONS

#### **SECTION 1: RESPONSIBILITIES**

- 1.1 Universal Engineering Sciences, Inc., ("UES"), has the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "UES" as used herein includes all of Universal Engineering Sciences, Inc's agents, employees, professional staff, and subcontractors.
- 1.2 The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.
- The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the services so described, unless otherwise agreed upon by both parties.
- 1.4 Universal will not be responsible for scheduling our services and will not be responsible for tests or inspections that are not performed due to a failure to schedule our services on the project or any resulting damages.
- 1.5 PURSUANT TO FLORIDA STATUTES §558.0035, ANY INDIVIDUAL EMPLOYEE OR AGENT OF UES MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.

#### SECTION 2: STANDARD OF CARE

- 2.1 Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made.
- 2.2 The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.
- 2.3 Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under which the services are to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the Client's responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and the Client assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described.
- Should UES be retained to provide threshold inspection services under Florida Statutes §553.79, Client acknowledges that UES's services thereunder do not constitute a guarantee that the construction in question has been properly designed or constructed, and UES's services do not replace any of the obligations or liabilities associated with any architect, contractor, or structural engineer. Therefore it is explicitly agreed that the Client will not hold UES responsible for the proper performance of service by any architect, contractor, structural engineer or any other entity associated with the project.

# SECTION 3: SITE ACCESS AND SITE CONDITIONS

- 3.1 Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Proposal.
- The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

#### SECTION 4: SAMPLE OWNERSHIP AND DISPOSAL

- 4.1 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client.
- 4.2 UES will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. Further storage or transfer of samples can be made at Client's expense upon Client's prior written request.
- 4.3 Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with all appropriate federal, state, or local regulations.

#### SECTION 5: BILLING AND PAYMENT

- 5.1 UES will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications
- 5.2 Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts.
- 5.3 If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

#### **SECTION 6: OWNERSHIP AND USE OF DOCUMENTS**

- 6.1 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, as instruments of service, shall remain the property of UES.
- 6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.
- 6.3 UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times.
- All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared for the sole and exclusive use of Client, and may not be given to any other party or used or relied upon by any such party without the express written consent of UES.

### SECTION 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS

- 7.1 Client warrants that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site.
- 7.2 Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous substances (40 CFR 300.6), petroleum products, polychlorinated biphenyls, and asbestos.
- Hazardous materials may exist at a site where there is no reason to believe they could or should be present. UES and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. UES and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous waste.
- 7.4 UES agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold UES harmless for any and all consequences of disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.
- Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES hamless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.

#### **SECTION 8: RISK ALLOCATION**

Client agrees that UES's liability for any damage on account of any breach of contract, error, omission or other professional negligence will be limited to a sum not to exceed \$50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of \$1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or \$400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.

#### **SECTION 9: INSURANCE**

UES represents and warrants that it and its agents, staff and consultants employed by it, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save UES harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other UESs employed by Client.

#### SECTION 10: DISPUTE RESOLUTION

- All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation or arbitration, before and as a condition precedent to other remedies provided by law, including the commencement of litigation.
- 10.2 If a dispute arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:
  - (a) the claim will be brought and tried in judicial jurisdiction of the court of the county where UES's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and
  - (b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses.

### SECTION 11: TERMINATION

- This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses.
- In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records and reports.

### **SECTION 12: ASSIGNS**

12.1 Neither the Client nor UES may delegate, assign, sublet or transfer their duties or interest in this Agreement without the written consent of the other party.

# SECTION 13. GOVERNING LAW AND SURVIVAL

- 13.1 The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance
- 13.2 If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.

#### **SECTION 14. INTEGRATION CLAUSE**

- This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein.
- 14.2 This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any modification or amendment is sought.



November 5, 2019

Cardno 380 Park Place Boulevard, Suite 300 Clearwater. FL 333759

Attn: Mr. Hamid R. Faraji, PE

Reference: Estimated SHGWT

Proposed A-1 & B-3 Pond Excavations

Proposed Moccasin Wallow Road Improvements

From US41 to West of I-75 (Gillette Drive)

Parrish, Manatee County, FL UES Project No. 1130.1800187.0000

UES Report No. 14443

Dear Mr. Faraji:

Universal Engineering Sciences, Inc. (UES) has completed the subsurface exploration for the above referenced project. The scope of our exploration was planned in conjunction with and authorized by you.

### PROJECT INFORMATION

The purpose of our exploration was to provide estimated seasonal high groundwater levels and fill suitability for the proposed A-1 and B-3 ponds for the Moccasin Wallow Road improvements. An aerial plan showing the proposed stormwater management ponds was provided to us.

Our recommendations are based upon the above considerations. If any of this information is incorrect or if you anticipate any changes, inform Universal Engineering Sciences so that we may review our recommendations.

Recommendations concerning other soil related considerations were beyond the scope of our exploration. This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. Our work did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. Universal Engineering Sciences would be pleased to perform these services, if you desire.

#### LOCATIONS:

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

Proposed A-1 & B-3 Pond Excavations Proposed Moccasin Wallow Road Improvements UES Project No. 1130.1800187.0000 November 5, 2019

#### FIELD EXPLORATION

The subsurface conditions were explored by drilling and sampling two (2) Standard Penetration Test (SPT) borings within the proposed A-1 pond and four (4) SPT borings within the proposed B-3 ponds. These borings were advanced to a depth of 20 feet below existing grades.

We performed the Standard Penetration Test using our truck mounted drill rig utilizing mud rotary procedures according to the procedures of ASTM D-1586, with continuous sampling performed above a depth of 10 feet, to detect slight variations in the soil profile at shallow depths, and then at five-foot intervals thereafter. The basic procedure for the Standard Penetration Test is as follows: A standard split-barrel sampler is driven into the soil by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler 1-foot, after seating 6 inches, is designated the penetration resistance, or N-value; this value is an index to soil strength and consistency.

The test boring locations are shown on the attached Boring Location Plans in the Appendix as B-1 through B-6.

### SOIL SURVEY-PUBLISHED INFORMATION

The "Soil Survey of Manatee County, Florida", published by the published by the United States Department of Agriculture (USDA) - Soil Conservation Service (SCS), was reviewed for general near-surface soil information prior to development within the general project vicinity. The USDA, SCS primary soil mapping units within the proposed project area, and some characteristics and properties are summarized below:

# Pond A-1Area

<u>Delray</u> (Soil Group No. 16): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 55 inches, and sandy clay loam from 55 inches to 80 inches below grade. Based on the soil survey, the water table is from the ground surface to 18 inches below grade.

<u>EauGallie</u> (Soil Group No. 20): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 42 inches, sandy clay loam from 42 to 50 inches, and fine sand from 50 to 65 inches below grade. Based on the soil survey, the water table is from 6 to 18 inches below grade.

#### Pond B-3 Area

<u>Bradenton</u> (Soil Group No. 5): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 13 inches, fine sandy loam from 13 to 47 inches, and **unweathered bedrock** from 47 to 51 inches below grade. Based on the soil survey, the water table is from 0 to 12 inches below grade.

<u>EauGallie</u> (Soil Group No. 20): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 42 inches, sandy clay loam from 42 to 50 inches, and fine sand from 50 to 65 inches below grade. Based on the soil survey, the water table is from 6 to 18 inches below grade.



Proposed A-1 & B-3 Pond Excavations Proposed Moccasin Wallow Road Improvements UES Project No. 1130.1800187.0000 November 5, 2019

<u>Felda</u> (Soil Group No. 22): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 35 inches, fine sandy loam from 35 to 43 inches, and extremely paragravelly fine sand from 43 to 80 inches below grade. Based on the soil survey, the water table is from the ground surface to 12 inches below grade.

<u>Floridana</u> (Soil Group No. 25): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 32 inches, sandy loam from 32 to 65 inches, and fine sand from 65 to 80 inches below grade. Based on the soil survey, the water table is from 6 to 18 inches below grade.

<u>Gator muck</u> (Soil Group No. 27): Under natural conditions, this soil group consists of **muck** from the surface to a depth of about 18 inches, sandy clay loam from 18 inches to 36 inches; fine sandy loam from 36 to 55 inches, and fine sand from 55 to 80 inches below grade. Based on the soil survey, the water table is from 0 to 6 inches below grade.

<u>Wabasso</u> (Soil Group No. 48): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 37 inches, sandy clay loam from 37 to 65 inches, and fine sand from 65 to 80 inches below grade. Based on the soil survey, the water table is from 6 to 18 inches below grade.

# SUBSURFACE CONDITIONS

The boring location and detailed subsurface conditions are illustrated in the Appendix: Boring Location Plan and Boring Log. The classifications and descriptions shown on the log are generally based upon visual characterizations of the recovered soil samples. Also, see the Appendix: Soils Classification Chart, for further explanation of the symbols and placement of data on the Boring Log. The following table summarizes the soil conditions encountered.



TABLE 1 General Soil Profile								
Typical (ft	-	Soil Descriptions						
From	То							
	Pond A-1 (B-1 & B-2)							
0	2	Loose fine sand with roots [SP]						
2	6	Loose fine sand with trace silt [SP]						
6	12	Medium dense fine sand [SP]						
12	20*	Stiff clay [CL, CH]						
		Pond B-3 (B-3 – B-6)						
1	1 2 Fine sand [SP]							
2	2 8 Loose fine sand, and fine sand with silt [SP, SP-SM]							
8	12	Medium dense fine sand with clay, and clayey sand [SP-SC, SC]						
12	12 20* Loose to medium dense fine sand, and fine sand with clay [SP, SP-SC]							
* Termination Depth of Deepest Boring [] Bracketed Text Indicates: Unified Soil Classification								

Variations in the depth, thickness and consistency of the aforementioned soil strata occurred at the individual test boring locations.

# **GROUNDWATER CONSIDERATIONS**

We encountered groundwater at depths ranging from 2 to 4 feet below existing grade at the time of our investigation. The variations in the measured water levels are attributed to the variation in the ground surface elevation at this site as well as the soil type encountered.

Based upon our visual inspection of the recovered soil samples and existing site conditions, our best estimate is that the seasonal high groundwater level could be at approximately 2.5 feet below existing grade at A-1 pond boring locations, and at approximately 2 feet below grade at B-3 pond boring locations. The SHGWL are noted on the attached boring logs. Water could be temporarily ponded in the ditches and other low lying areas of the overall site especially during periods of heavy rainfall.



Proposed A-1 & B-3 Pond Excavations Proposed Moccasin Wallow Road Improvements UES Project No. 1130.1800187.0000 November 5, 2019

### **FILL SUITABILITY**

In general, the typical criteria for determining the acceptability of a material for use as structural fill is based on the percent "fines" in the soil matrix (e.g. material passing the No. 200 sieve). The following grouping system explains more fully the suitability of various soil types with respect to the amount of fines.

# Group "A"

These soils consist of clean sands which have less than 5% soil fines (Unified Soil Classification: SP, SW). These soils are the most desirable for use as engineering fill because they drain freely when excavated from beneath the groundwater table and are not as susceptible to moisture related instability.

# Group "B"

These soils consist of sand with silt which contains between 5% and 12% soil fines (Unified Soil Classification: SP-SM, SP-SC). These soils are good sources of engineered fill, but require some extra care during placement and compaction. The moisture content of these soils should not be higher than 2% above optimum during placement and compaction in order to reduce the potential for moisture related instability. These soils drain fairly well, but will require some stockpiling and aeration time when excavated from below the groundwater table.

# Group "C"

These soils consist of silty and clayey sands which contain between 12% and 20% soil fines (Unified Soil Classification: SM, SC). These soils are more difficult to use because they are moisture sensitive. The moisture content of these soils should be maintained at or below optimum in order to help mitigate the potential for moisture related instability during placement and compaction. Further, these soils will require significant stockpiling and aeration periods in order to reduce the moisture content if the soils are excavated from below the groundwater table. For similar reasons, we caution the use of these soils during the wet season in areas where groundwater might be encountered.

# Group "D"

These soils consist of silty and clayey sands which have greater than 20% soil fines (Unified Soil Classification: SM, SC, CL, CH, ML, MH). These soils are not recommended for use as engineered fill because they will be too difficult to dry and work.

### Onsite Soils

Based on the soil classification, the best suitable soils recommended for use as fill at each boring location are presented in the following table:



Proposed A-1 & B-3 Pond Excavations Proposed Moccasin Wallow Road Improvements UES Project No. 1130.1800187.0000

November 5, 2019

Boring No.	Suitable Depth (ft)	Unified Soil Classification	Soil Group
B-1	0 to 12	SP	А
B-2	0 to 12	SP	Α
B-3	0 to 20	SP, SP-SC	A, B
B-4	0 to 8	SP, SP-SM	A, B
B-5	0 to 20	SP, SP-SM, SP-SC	A, B
B-6	0 to 20	SP, SP-SC	A, B

#### **EXCAVATION CONSIDERATIONS**

We did not encounter shallow hard rock at the test boring locations. However, a review of the Manatee County SCS did indicate **unweathered bedrock** from 47 to 51 inches below grade within pond B-3 area. If deep excavations encounter this material it may require specialized equipment to excavate. Soils excavated below the water table will require stockpile and drying. Areas not drilled for this report may encounter different soil types.

We suggest the gradation of the excavated material be periodically checked to determine their suitability as fill. General mixing of the materials can be expected to result in material gradations different from the gradations obtained from our test samples.

It should be noted that other excavation considerations, such as temporary and long term slope stability, erosion control, etc. were beyond the scope of this study.

# **LIMITATIONS**

This report has been prepared in order to aid the architect/engineer in the design of the proposed stomrwater management ponds. The scope of services provided was limited to the specific project and locations described herein. The description of the project's design parameters represents our understanding of significant aspects relevant to soil.

The recommendations submitted in this report are based upon the data obtained from the limited number of soil borings performed at the locations indicated on the Boring Location Plan and from other information as referenced. This report does not reflect any variations which may occur between the boring locations or unexplored areas of the site. This report should not be used for estimating such items as cut and fill quantities.

Borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. Accordingly, UES does not recommend relying on our boring information to negate presence of anomalous materials or for estimation of material quantities unless our contracted services *specifically* include sufficient exploration for such purpose(s) and within the report we so state that the level of exploration provided should be sufficient to detect such anomalous conditions or estimate such quantities. Therefore, UES will not be responsible for any extrapolation or use of our data by others beyond the purpose(s) for which it is applicable or intended.



Proposed A-1 & B-3 Pond Excavations Proposed Moccasin Wallow Road Improvements UES Project No. 1130.1800187.0000 November 5, 2019

All users of this report are cautioned that there was no requirement for Universal to attempt to locate any man-made buried objects or identify any other potentially hazardous conditions that may exist at the site during the course of this exploration. Therefore no attempt was made by Universal to locate or identify such concerns. Universal cannot be responsible for any buried man-made objects or environmental hazards which may be subsequently encountered during construction that are not discussed within the text of this report. We can provide this service if requested.

For a further description of the scope and limitations of this report please review the document attached within the Appendix "Important Information About Your Geotechnical Engineering Report" prepared by ASFE, an association of firms practicing in the geosciences.

We appreciate the opportunity to have provided these services to you. If you have any questions, or if we may be of further service, please do not hesitate to call.

Respectfully submitted,

#### **UNIVERSAL ENGINEERING SCIENCES**

Certificate of Authorization Number 549

Yudelsy Alvarez

Project Engineer

Robert Gomez, P.E. #58348

Branch Manager

#### **Enclosure:**

Site Location Plan
Test Location Plan
SCS Soil Survey Map
Soil Profiles
Soil Classification Chart
Important Information about Your Geotechnical
Engineering Report
Constraints and Restrictions
General Conditions





LEGEND

APPROXIMATE LOCATION

**(** 

SPT BORING



A-2

BORING LOCATION PLAN

THIS MAP SHOWS APPROXIMATE LOCATION

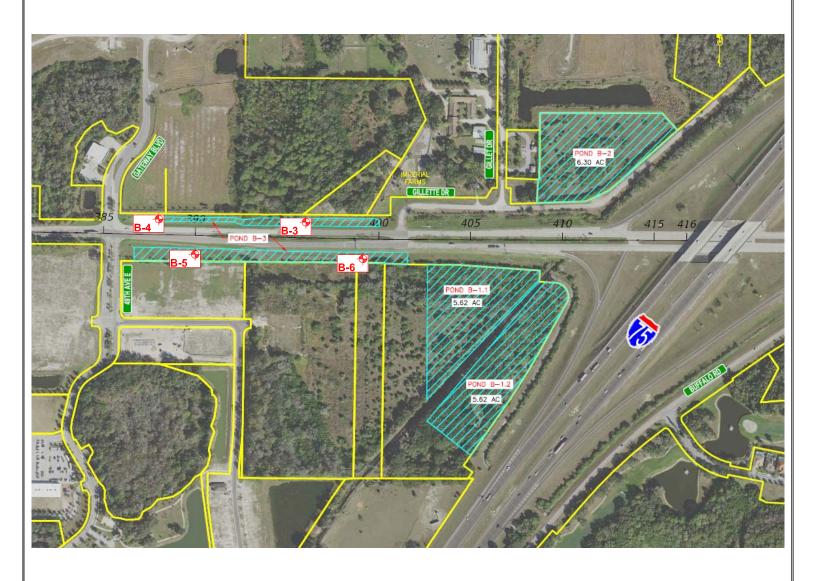
PROPOSED MOCCASIN WALLOW
ROAD IMPROVEMENTS
US 41 TO WEST OF I-75 (GILLETTE DRIVE)
PARISH, FL

ROJECT NO:
1130.1800187.0000
14443

DRAWN FOR	CARDNO
DRILLED BY	UES
DRAWN BY	R.L.D
DRAWING DATE	10/31/2019
SCALE	NOT TO SCALE



UNIVERSAL
ENGINEERING SCIENCES
1748 INDEPENDENCE BLVD.
SARASOTA, FL.
941-358-7410



LEGEND

APPROXIMATE LOCATION

SPT BORING



A-2 1

BORING LOCATION PLAN

THIS MAP SHOWS APPROXIMATE LOCATION

PROPOSED MOCCASIN WALLOW ROAD IMPROVEMENTS US 41 TO WEST OF I-75 (GILLETTE DRIVE						
PARISH, FI	_					
PROJECT NO:	REPORT NO:					
1130.1800187.0000	14443					

DRAWN FOR	CARDNO
DRILLED BY	UES
DRAWN BY	R.L.D
DRAWING DATE	10/31/2019
SCALE	NOT TO SCALE





B-3 POND





A-1 POND



PROPOSED MOCCASIN WALLOW ROAD IMPROVEMENTS
MOCCASIN WALLOW ROAD FROM US 41 TO WEST OF I 75
PARRISH, MANATEE COUNTY, FLORIDA

$c \wedge c$	$\sim \sim 1$		7 / L	·~ ·	4 A D
SCS	SOL	L SUI	てVヒ	1 N	ИΑР

DRAWN BY:	RLD	DATE: NOVEMBER 2019	CHECKED BY: R.G.	DATE: NOVEMBER 2019
SCALE:	NOT TO SCALE	PROJECT NO: 1130.1800187.0	000 REPORT NO: 14429	APPENDIX:



PROJECT NO.:	
REPORT NO.:	
PAGE.	1

B-01 1 of 1 BORING DESIGNATION: SHEET: Proposed Moccasin Wallow Road Improvements PROJECT: RANGE:

SECTION:

Parrish, Manatee County, FL

CLIENT: G.S. ELEVATION (ft): DATE STARTED: LOCATION: WATER TABLE (ft): DATE FINISHED: DATE OF READING: REMARKS: DRILLED BY:

> EST. W.S.W.T. (ft): TYPE OF SAMPLING:

DEPTH	o∠∑o	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	MC		RBERG IITS	K (FT./	ORG. CONT.
(FT.)	P L E	INCREMENT	FT.)		B O L		(%)	(%)	LL	PI	DAY)	(%)
0 —						Loose light gray fine sand with roots (SP)						
- - 5 —	-					Loose dark yellowish brown fine sand with silt (SP-SM) Loose yellowish brown fine sand with trace silt (SP) Loose tanning brown fine sand with trace silt (SP)						
- - 10 —						Medium dense brown fine sand with trace silt (SP)  Medium dense white fine sand (SP)  Medium dense brown fine sand (SP)						
- - -						Stiff light grayish brown clay (CL)						
15 — - -						Stiff olive gray clay (CH)						
20 —						Boring terminated at 20 feet below grade						



PROJECT NO.:	
REPORT NO.:	
PAGE.	2

**B-02** 1 of 1 BORING DESIGNATION: SHEET: Proposed Moccasin Wallow Road Improvements PROJECT: RANGE:

SECTION:

Parrish, Manatee County, FL

CLIENT: G.S. ELEVATION (ft): DATE STARTED: LOCATION: WATER TABLE (ft): DATE FINISHED: DATE OF READING: REMARKS: DRILLED BY:

> EST. W.S.W.T. (ft): TYPE OF SAMPLING:

					6	ES1. W.S.W.1. (π)	•		PE OF S	7 (17)11 (2)11 (1)	J.	
DEPTH (ET.)	SAMP	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200	MC (%)		RBERG IITS	K (FT./	ORG. CONT.
(FT.)	PLE	INCREMENT	FT.)		B O L		(%)	(%)	LL	PI	DAY)	(%)
0 —						Loose light gray fine sand with trace roots (SP)						
-						Loose dark reddish brown fine sand with silt \((SP-SM)\) Loose tanning brown fine sand with trace silt (SP)						
5 <del></del> -						Medium dense light grayish brown fine sand (SP)						
10 —	-					Medium dense white fine sand (SP)						
-						Stiff light grayish brown clay (CL)						
- 15 —	-											
-												
20 —						Boring terminated at 20 feet below grade						



PROJECT NO.:		
REPORT NO.:		
PAGE:	3	

**B-03** 1 of 1 BORING DESIGNATION: SHEET: Proposed Moccasin Wallow Road Improvements PROJECT: RANGE:

SECTION:

Parrish, Manatee County, FL

CLIENT: G.S. ELEVATION (ft): DATE STARTED: LOCATION: WATER TABLE (ft): DATE FINISHED: DATE OF READING: REMARKS: DRILLED BY:

> EST. W.S.W.T. (ft): TYPE OF SAMPLING:

DEPTH	S A M	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200	MC	ATTEF LIM	RBERG IITS	K (FT./	ORG. CONT.
(FT.)	P L E	INCREMENT	FT.)	****	O B	Beer an Heat	(%)	(%)	LL	PI	DAY)	(%)
0 —						Light gray fine sand (SP)						
-						Yelowish brown fine sand with trace silt (SP) Light gray fine sand (SP)						
5 <del></del>						Loose brown fine sand with trace silt (SP)						
-						Loose light brown fine sand with trace clay (SP)						
-						Medium dense light brown fine sand with clay (SP-SC)						
10 —												
-						Loose to medium dense light grayish-brown fine sand with clay (SP-SC)						
15 <del></del>												
-												
20 —						Boring terminated at 20 feet below grade						



PROJECT NO.:	
REPORT NO.:	
PAGE:	4

**B-04** 1 of 1 BORING DESIGNATION: SHEET: Proposed Moccasin Wallow Road Improvements PROJECT: RANGE:

SECTION:

Parrish, Manatee County, FL

CLIENT: G.S. ELEVATION (ft): DATE STARTED: LOCATION: WATER TABLE (ft): DATE FINISHED: DATE OF READING: REMARKS: DRILLED BY:

> EST. W.S.W.T. (ft): TYPE OF SAMPLING:

	To				_	ES1. W.S.W.1. (π)				AMPLING	<u> </u>	
DEPTH (FT.)	S A M P	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	K (FT./	ORG. CONT.
(1 1.)	P L E	INCREMENT	FT.)		B O L		(70)	(70)	LL	PI	DAY)	(%)
0 —	-					Light grow fine cond (CD)			ļ			
						Light gray fine sand (SP)						
-												
-						Yellowish brown fine sand with trace silt (SP)						
						Light gray fine sand (SP)						
-						Loose brown fine sand with silt (SP-SM)						
5 —	<u> </u>											
· ·												
-						Loose light brown fine sand with trace clay (SP)						
=												
-						Medium dense brown clayey sand (SC)						
-	+											
10 —				]								
10												
-	-											
-												
						Medium dense light grayish-brown clayey sand (SC)						
-												
-												
45												
15 —												
-	-											
-												
						Medium dense light grayish-brown fine sand with clay (SP-SC)						
-	L											
-	4											
22												
20 —	1			1		Boring terminated at 20 feet below grade				1		



PROJECT NO.:	
REPORT NO.:	
PAGE:	5

1 of 1 **B-05** BORING DESIGNATION: SHEET: Proposed Moccasin Wallow Road Improvements PROJECT: RANGE:

SECTION:

Parrish, Manatee County, FL

CLIENT: G.S. ELEVATION (ft): DATE STARTED: LOCATION: WATER TABLE (ft): DATE FINISHED: DATE OF READING: REMARKS: DRILLED BY:

> EST. W.S.W.T. (ft): TYPE OF SAMPLING:

DEPTH (FT.)		BLOWS PER 6"	N (BLOWS/	W.T.	T. $\begin{bmatrix} S \\ Y \\ B \\ O \end{bmatrix}$ DESCRIPTION $\begin{bmatrix} -200 \\ (\%) \end{bmatrix}$	DESCRIPTION	MC	ATTEF LIM	RBERG IITS	K (FT./	ORG. CONT.	
(FT.)	P L E	INCREMENT	` FT.)		ЬОЬ		(%)	(%)	LL	PI	DAY)	(%)
0 —						Light gray fine sand (SP)						
-						Yellowish brown fine sand with trace silt (SP) Light gray fine sand (SP)	-					
5 —						Medium dense dark brown fine sand with silt (SP-SM)						
-						Loose brown fine sand with trace silt (SP)						
- - 10 —						Medium dense light grayish-brown fine sand with clay (SP-SC)						
-						Medium dense light grayish-brown fine sand with						
-						Medium dense light grayish-brown fine sand with trace clay (SP)						
15 — -	-											
-												
20 —	-					Boring terminated at 20 feet below grade						



PROJECT NO.:	
REPORT NO.:	
PAGE:	6

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements BORING DESIGNATION: B-06 SHEET: 1 of 1

SECTION:

Parrish, Manatee County, FL

CLIENT: G.S. ELEVATION (ft): DATE STARTED:

LOCATION: WATER TABLE (ft): DATE FINISHED:

REMARKS: DATE OF READING: DRILLED BY:

EST. W.S.W.T. (ft): TYPE OF SAMPLING:

DEPTH (FT.)	S M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	K (FT./ DAY)	ORG. CONT. (%)
0 —						Light gray fine sand (SP)						
-												
-						Yellowish brown fine sand with trace silt (SP) Light gray fine sand (SP)						
-						Light gray line sails (Of )						
-						Loose gray fine sand with trace clay (SP)						
5 —												
_						Loose brown fine sand with trace silt (SP)						
_												
_						Medium dense light grayish-brown fine sand with clay (SP-SC)						
10 —	-											
-												
-												
_												
-												
15 —												
-												
						Loose light grayish-brown fine sand with trace clay (SP)						
_	H											
20 —						Poving toyminated at 20 feet helesy are de-						
						Boring terminated at 20 feet below grade						
3												



PROJECT NO.:		
REPORT NO.:		
PAGE.	7	

HA-1 1 of 1 BORING DESIGNATION: SHEET: Proposed Moccasin Wallow Road Improvements PROJECT: TOWNSHIP: RANGE:

SECTION:

Parrish, Manatee County, FL

CLIENT: G.S. ELEVATION (ft): DATE STARTED: LOCATION: WATER TABLE (ft): DATE FINISHED: DATE OF READING: REMARKS: DRILLED BY:

> EST. W.S.W.T. (ft): TYPE OF SAMPLING:

						ΕS1. W.S.W.1. (π):			L 01 0	AMPLING	J.	
DEPTH (FT.)	DEPTH M P IN		N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	K (FT./	ORG.
(Г1.)	P L E	INCREMENT	FT.)		B O L		(70)	(70)	LL	PI	DAY)	(%)
0 —												
0						Light gray fine sand with trace roots (SP)						
-												
-												
_						Dark reddish brown fine sand with silt (SP-SM) Light brown fine sand (SP)						
						Light brown line sand (Sr.)						



PROJECT NO.:	
REPORT NO.:	
PAGE:	8

RANGE:

HA-2 1 of 1 BORING DESIGNATION: SHEET: Proposed Moccasin Wallow Road Improvements PROJECT: TOWNSHIP:

SECTION:

Parrish, Manatee County, FL

CLIENT: G.S. ELEVATION (ft): DATE STARTED: LOCATION: WATER TABLE (ft): DATE FINISHED: DATE OF READING: REMARKS: DRILLED BY:

> EST. W.S.W.T. (ft): TYPE OF SAMPLING:

DEPTH M (FT.)		BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG	K (FT./	ORG CONT
(1 1.)	Ĺ	INCREMENT	FT.)		O L		(70)	(70)	LL	PI	DAY)	(%)
0 —												
0 —						Light brown fine sand (SP)						
_												
_	1											
						Dark reddish gray fine sand with silt (SP-SM)						
-						Yellowish brown fine sand (SP)						
			1	1	l		I					l



UNIVERSAL ENGINEERING SCIENCES 9802 Palm River Road Tampa, Florida 33619

(813) 740-8506

### SOIL CLASSIFICATION CHART

#### TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Coun
Very loose	0 to 15 %	< 4
Loose	15 to 35 %	4 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

#### **Unconfined Compressive**

<b>Descriptive Terms</b>	Strength kPa	SPT Blow Count
Very soft	< 25	< 2
Soft	25 to 50	2 to 4
Medium stiff	50 to 100	4 to 8
Stiff	100 to 200	8 to 15
Very stiff	200 to 400	15 to 30
Hard	> 400	> 30

#### **GENERAL NOTES**

- Classifications are based on the United Soil Classification
   System and include consistency, moisture, and color. Field
   descriptions have been modified to reflect results of laboratory tests
   where deemed appropriate.
- 2. Surface elevations are based on topographic maps and estimated locations.
- 3. Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times.

#### **SOIL SYMBOLS**























#### OTHER SYMBOLS

▼ Measured Water ∑ Table Level Estimated Seasonal High Water Table

Ma	ajor Divi	sions	Group Symbols	Typical Names		Laboratory Classification	Criteria						٦
	action size)	gravel no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines		$C_{\rm U} = \frac{D_{60}}{D_{10}}$ greater than 4, $C_{\rm C} =$	$\frac{(\ D_{30})^2}{D_{10}\ x\ D_{60}}$ between 1 and 3		Sieve sizes	< #200	#200 to #40	#40 to #10	#10 to #4
sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravel (Little or no fines)	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines	200 200 ols*	Not meeting all gradation require	ernents for GW		Sieve	*	#200	#40 t	#10
No. 200 s	Gra than half o ger than N	Gravel with fines (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures	rain size or r than No s. dual symb	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are border-	Particle Size					
ained soils larger thar	(More is lan	Gravel with (Apprecial amount of fi	GC	Clayey gravels, gravel-sand-silt mixtures	vel from good some smalle as follow M, SP SM, SC requiring	Atterberg limits above "A" line or P.I. greater than 7	line cases requiring use of dual symbols	Part			5	0	٥
Coarse-Grained solls (More than half the material is larger than No. 200 sieve size)	action size)	Clean sands (Little or no fines)	sw	Well-graded sands, gravelly sands, little or no fines	Determine percentages of sand and gravel from grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows:  Less than 5 percent GW GP. SW, SP. More than 12 percent GW, GC, SM, SC 5 to 12 percent Bordenine cases requiring dual symbols*	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6, $C_c =$	$\frac{(D_{30})^2}{D_{10} \times D_{80}}$ between 1 and 3		uu .	< 0.074	0.074 to 0.42	0.42 to 2.00	2 00 to 4 76
n half the r	Sands (More than half of coarse fraction is smaller than No, 4 sieve size)	Clean (Little or	SP	Poorly-graded sands, gravelly sands, little or no fines	ages of sar entage of red soils ar cent Gerrent Borde	Not meeting all gradation require	ements for SW				0		
(More tha	Sar than half aller than b	Sands with fines (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures	stermine percentages of spending on percentage vel poarse-grained solls Less than 5 percent	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are border-	15.5	<u> </u>	clay			ege
	(More is sm	Sands w (Appre amount	sc	Clayey sands, sand-clay mixtures	Determin Dependir Sieve) co Less I More 5 to 1	Alterberg limits above "A" line or P.I. greater than 7	line cases requiring use of dual symbols	Motorio	Mala	Silt or clay	Sand	Medium	Coarse
size)	s,	, (î	ML	Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity	80 FOR CU	ARIFICATION OF FINE-GRAINED SOIL AND NAMED FRACTION OF COARSE-GRAINED SOILS	, like				i i	. <u>c</u>	gin.
200 sieve	Silts and Clays	ess than 50	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	70 <b>-</b>	AMEDITACION OF COMES CAMED SOILS	LINE		Sieve	270 01 211	#4 to 3/4 th 3/4 in to 3 in	3 in to 12 in	12 in, to 36 in
soils er than No	is `	<u>a</u>	OL	Organic silts and organic silty clays of low plasticity	INDEX (PI)	/ or	Or	Particle Size				Н	_
e-Grained a	ys	20)	МН	Inorganic silts, micaceous or disto- maceous fine sandy or silty soils, organic silts	PLASTICITY INDEX (PI)			Par	mm	,	4.76.10.19.1 19.1 to 76.2	76.2 to 304.8	304.8 to 914.4
Fine-Grained soils (More than half the material is smaller than No. 200 sieve size)	Silts and Clays	sater than	СН	Inorganic clays of high plasticity, fat clays	20-	100	MH OR OH		=	4 72 4	19,11	76.2 to	304.81
than half	S		ОН	Organic clays of medium to high plasticity, organic silts	3 10	ML OL OL 1620 30 40 50 60 LIQUID LIMIT (LL)	70 80 90 100 110	<u>-</u>	<u> </u>		es.	e e	ers
(More	Highly	Soils	Pt	Peat and other highly organic soils		Plasticity Cha	rt	Material	Maid	Grave	Coarse	Cobble	Boulders

When the percent passing a No. 200 sieve is between 5% and 12%, a dual symbol is used to denote the soil.
 For example; SP-SC, poorly-graded sand with clay content between 5% and 12%.

# Important Information about This

# Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you - assumedly a client representative - interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

# Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civilworks constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared solely for the client. Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.

#### Read this Report in Full

Costly problems have occurred because those relying on a geotechnicalengineering report did not read it in its entirety. Do not rely on an executive summary. Do not read selected elements only. Read this report in full.

# You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- · the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- · the composition of the design team; or
- project ownership.

As a general rule, always inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

#### This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

#### Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

# This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

#### This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnicalengineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- · confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

### Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you've included the material for informational purposes only. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

#### Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

#### Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.

# Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.



Telephone: 301/565-2733 e-mail: info@geoprofessional.org www.geoprofessional.org

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#### CONSTRAINTS AND RESTRICTIONS

#### WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

#### **UNANTICIPATED SOIL CONDITIONS**

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until construction begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

#### CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

# MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

#### CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

#### **USE OF REPORT BY BIDDERS**

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other explorations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

#### STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

#### **OBSERVATIONS DURING DRILLING**

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

#### **WATER LEVELS**

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

#### LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

#### TIME

This report reflects the soil conditions at the time of exploration. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

# Universal Engineering Sciences, Inc. GENERAL CONDITIONS

#### **SECTION 1: RESPONSIBILITIES**

- 1.1 Universal Engineering Sciences, Inc., ("UES"), has the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "UES" as used herein includes all of Universal Engineering Sciences, Inc's agents, employees, professional staff, and subcontractors.
- The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.
- The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the services so described, unless otherwise agreed upon by both parties.
- 1.4 Universal will not be responsible for scheduling our services and will not be responsible for tests or inspections that are not performed due to a failure to schedule our services on the project or any resulting damages.
- PURSUANT TO FLORIDA STATUTES §558.0035, ANY INDIVIDUAL EMPLOYEE OR AGENT OF UES MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.

#### **SECTION 2: STANDARD OF CARE**

- 2.1 Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made.
- The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.
- 2.3 Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under which the services are to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the Client's responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and the Client assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described.
- Should UES be retained to provide threshold inspection services under Florida Statutes §553.79, Client acknowledges that UES's services thereunder do not constitute a guarantee that the construction in question has been properly designed or constructed, and UES's services do not replace any of the obligations or liabilities associated with any architect, contractor, or structural engineer. Therefore it is explicitly agreed that the Client will not hold UES responsible for the proper performance of service by any architect, contractor, structural engineer or any other entity associated with the project.

#### **SECTION 3: SITE ACCESS AND SITE CONDITIONS**

- 3.1 Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Proposal.
- The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

#### SECTION 4: SAMPLE OWNERSHIP AND DISPOSAL

- 4.1 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client.
- 4.2 UES will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. Further storage or transfer of samples can be made at Client's expense upon Client's prior written request.
- 4.3 Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with all appropriate federal, state, or local regulations.

#### SECTION 5: BILLING AND PAYMENT

- 5.1 UES will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications.
- Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts.
- 5.3 If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

#### SECTION 6: OWNERSHIP AND USE OF DOCUMENTS

- All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, as instruments of service, shall remain the property of UES.
- 6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.
- 6.3 UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times.
- All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared for the sole and exclusive use of Client, and may not be given to any other party or used or relied upon by any such party without the express written consent of UES.

#### SECTION 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS

- 7.1 Client warrants that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site.
- 7,2 Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous substances (40 CFR 300.6), petroleum products, polychlorinated biphenyls, and asbestos.
- Hazardous materials may exist at a site where there is no reason to believe they could or should be present. UES and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. UES and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous waste.
- 7.4 UES agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold UES harmless for any and all consequences of disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.
- Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES harmless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.

#### **SECTION 8: RISK ALLOCATION**

Client agrees that UES's liability for any damage on account of any breach of contract, error, omission or other professional negligence will be limited to a sum not to exceed \$50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of \$1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or \$400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.

#### **SECTION 9: INSURANCE**

9.1 UES represents and warrants that it and its agents, staff and consultants employed by it, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save UES harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other UESs employed by Client.

#### **SECTION 10: DISPUTE RESOLUTION**

- All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation or arbitration, before and as a condition precedent to other remedies provided by law, including the commencement of litigation.
- 10.2 If a dispute arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:
  - the claim will be brought and tried in judicial jurisdiction of the court of the county where UES's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and
  - (b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses.

#### **SECTION 11: TERMINATION**

- This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses.
- In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records and reports.

#### **SECTION 12: ASSIGNS**

12.1 Neither the Client nor UES may delegate, assign, sublet or transfer their duties or interest in this Agreement without the written consent of the other party.

#### **SECTION 13. GOVERNING LAW AND SURVIVAL**

- The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance.
- If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.

#### **SECTION 14. INTEGRATION CLAUSE**

- 14.1 This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein.
- 14.2 This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any modification or amendment is sought.

Rev. 06/10/2015



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

1

Proposed Moccasin Wallow Road Improvements PROJECT:

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-001** 

PAGE:

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/10/18

G.S. ELEVATION (ft): 15.50 WATER TABLE (ft):

DATE OF READING:

5.0

DATE FINISHED:

8/10/18

8/10/2018

DRILLED BY: LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 3 **ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. M B O DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Dark gray fine sand with silt (SP-SM) Dark gray fine sand with silt and trace shell (SP-SM)  $\nabla$ Brown fine sand with trace silt (SP) \_\_\_\_\_ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

2

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-002** TOWNSHIP:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft): 16.00

8/10/2018

DATE STARTED: 8/10/18

WATER TABLE (ft): 4.6

DATE FINISHED: DRILLED BY:

8/10/18 LR / TM

EST. W.S.W.T. (ft):

DATE OF READING:

TYPE OF SAMPLING: ASTM D1452

DEPTH	S A M	BLOWS	N	\\\.	S Y M	EST. W.S.W.T. (ft)		MC	ATTER	RBERG		
(FT.)	P L E	INCREMENT	FT.)	W.I.	B O L	DESCRIPTION	(%)	(%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0 —	}					Brown fine sand with trace silt (SP)						
-						Dark brown fine sand with silt (SP-SM)						
-						Gray fine sand with trace silt and rock fragments (SP)						
5 —						Boring terminated at 5 feet below grade						
	DEPTH (FT.)  0 —  -  5 —	0	0	0	0 ✓ ✓		DEPTH (FT.)    S A PER 6"   RECREMENT   N (BLOWS)   W.T.   N B O L	DEPTH M PER 6" (BLOWS FT.)  O  Brown fine sand with trace silt (SP)  Brown fine sand with silt (SP-SM)  Gray fine sand with trace silt and rock fragments (SP)	DEPTH A M PER 6" (BLOWS) FT.)  O  Brown fine sand with trace silt (SP)  Brown fine sand with trace silt and rock fragments (SP)  Gray fine sand with trace silt and rock fragments (SP)	DEPTH (FT.)    A   BLOWS   PER 6"   NCREMENT   FT.)   W.T.   Y   B   DESCRIPTION   -200 (%)   (%)     LL	DEPTH (FT.)   A PER 6"   N (BLOWS) FT.)   W.T.   B O LIMITS      DESCRIPTION   -200 (%)   MC (%)      LL PI     DESCRIPTION   -200 (%)   MC (%)      LL PI     Dark brown fine sand with trace silt (SP)     Dark brown fine sand with silt (SP-SM)     Dark brown fine sand with trace silt and rock fragments (SP)	DEPTH (FT.)    BLOWS PER 6"   NCREMENT   PI     DESCRIPTION   PI     DES



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 3

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-003** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/10/18

G.S. ELEVATION (ft): 17.50 WATER TABLE (ft): 2.0

8/10/2018

DATE FINISHED:

8/10/18

DATE OF READING:

DRILLED BY:

LR / TM

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
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	1					brown line sand with trace siit (SF)						
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	I											
_	1			┻		Brown fine sand (SP)						
	1					Brown and carra (er )						
_												
	1											
	ı											
-	1					Dark brown fine sand with silt (SP-SM)						
	ľ					,						
5	1											
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-004** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/10/18

G.S. ELEVATION (ft): 18.00 WATER TABLE (ft):

3.5

DATE STARTED: DATE FINISHED:

8/10/18

DATE OF READING: 8/10/2018

DRILLED BY: LR / TM

RANGE:

2.5

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ D		(70)	(70)	LL	PI	,	(%)
0 —	}					Brown fine sand with silt (SP-SM)						
-						Brown fine sand with trace silt (SP)						
_												
-	1			▼.								
5 —						Boring terminated at 5 feet below grade						
ı												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

5

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

EST. W.S.W.T. (ft):

**HA-005** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/10/18

G.S. ELEVATION (ft): 19.00 WATER TABLE (ft): 3.0

2.5

8/10/18 DATE FINISHED:

DATE OF READING: 8/10/2018

DRILLED BY: LR / TM

DATE STARTED:

TYPE OF SAMPLING: ASTM D1452

	DEPTH (FT.)	S A M P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	0 —	L				L	Dark gray fine sand with silt (SP-SM)			LL	PI		
	_	}					Dark brown fine sand with silt (SP-SM)						
	_	}			□ ▼		Daving for a read with trace of the (OD)						
	_	1					Brown fine sand with trace silt (SP)						
	5 —						Boring terminated at 5 feet below grade						
1/19													
NGSC.GDT 1/1													
3 HA.GPJ UNIE													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
30RING_													



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

6

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION:

**HA-006** 

PAGE:

SHEET: 1 of 1

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 19.00

WATER TABLE (ft): 3.5

DATE STARTED: 8/10/18

DATE FINISHED:

8/10/18

DATE OF READING: 8/10/20

8/10/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 2.5 TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	S BLOWS PER 6" INCREMENTE	N (BLOWS/ FT.)	W.T.		DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
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_					Dark brown fine sand with silt (SP-SM)						
_											
-			$\Box$		Light brown fine sand (SP)						
-			▼		Dark brown fine sand with silt (SP-SM)						
5 —	4				Boring terminated at 5 feet below grade						
					<u>-</u>						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

7

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-007** 

PAGE:

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/10/18

G.S. ELEVATION (ft): 20.00 WATER TABLE (ft):

3.5

DATE FINISHED:

8/10/18

DATE OF READING: 8/10/2018

DRILLED BY:

LR / TM

_							EST. W.S.W.T. (ft)	: 2.5	TYI	PE OF SA	AMPLIN(	G: ASTM [	D1452
	DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM LL	RBERG ITS PI	UCS (tsf)	ORG. CONT. (%)
	0 —						Dark gray fine sand with silt (SP-SM)						
	-	1			✓		Gray fine sand with trace silt (SP)						
	-				•		Brown fine sand with trace silt (SP)						
	5 —						Boring terminated at 5 feet below grade						
יווויון וופיי													
BORING_LOG GIN   2018 HA.GPJ UNIENGSC.GDI   1/11/19													
06 GIN 201011													
BORING													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

8

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-008** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/10/18

WATER TABLE (ft):

3.0

DATE FINISHED:

8/10/18

DATE OF READING: 8/10/2018

DRILLED BY:

DATE STARTED:

LR / TM

EST. W.S.W.T. (ft): 2.5

G.S. ELEVATION (ft): 20.00

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF	RBERG IITS	UCS (tsf)	ORG. CONT (%)
(1 1.)	L E	INCREMENT	FT.)		O L		(70)	(70)	LL	PI	,	(%)
0 —						Dark brown fine sand with silt (SP-SM)						
-				<b>▼</b>		Gray fine sand with trace silt (SP)						
5 —	1					Boring terminated at 5 feet below grade	<u> </u>					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-009** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/10/18

G.S. ELEVATION (ft): 22.00 WATER TABLE (ft):

DATE OF READING:

3.0

8/10/2018

DATE FINISHED:

8/10/18 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG CONT (%)
(* * * *)	Ë	INCREMENT	FI.)		O L		(/-/	(/-/	LL	PI		(%)
0 —						Crowfine cond (CD)			ļ	ļ		
						Gray fine sand (SP)						
						Dark brown fine sand with silt (SP-SM)						
	И											
_	t					Light brown fine sand (SP)						
	П			$\Box$								
_	H			┻								
_	Ц											
5 —												
J						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 10

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-010** TOWNSHIP:

1 of 1 SHEET: RANGE:

DATE STARTED:

8/10/18

G.S. ELEVATION (ft): 21.50 WATER TABLE (ft): 3.5

DATE FINISHED:

8/10/18

DATE OF READING:

8/10/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):	2.5	TYPE OF SAMPLING:	ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	Ĺ	INCREMENT	FT.)		O L		(70)	(70)	LL	PI	( ,	(%)
0 —						Dark brown fine sand with silt (SP-SM)	5.3	10.7				
_						Light brown fine sand (SP)	0.0	10.7				
_				<b>▽</b>		•						
_												
5 —	1					Boring terminated at 5 feet below grade	<u> </u>					
						· ·						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-011** TOWNSHIP:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft): 23.00

DATE STARTED:

8/10/18 8/10/18

WATER TABLE (ft): DATE OF READING: 8/10/2018

4.0

DATE FINISHED:

DRILLED BY: LR / TM

	DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	0 —	}					Dark brown fine sand with silt (SP-SM)						
	_	1			✓		Light brown fine sand (SP)	_					
	-												
	5 —						Boring terminated at 5 feet below grade						
/11/19													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
GINT 2018 HA.GPJ													
BORING_LOG													1



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 12

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-012** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

G.S. ELEVATION (ft): 23.50

DATE STARTED: DATE FINISHED:

8/10/18 8/10/18

WATER TABLE (ft): DATE OF READING: 8/10/2018

4.0

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
0 —	}					Dark brown fine sand with silt (SP-SM)						
_	1			abla								
_	1					Light brown fine sand (SP)						
5 —						Boring terminated at 5 feet below grade						
						g						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 13

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-013** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 24.00 DATE STARTED: 8/10/18

WATER TABLE (ft): 3.0

8/10/18 DATE FINISHED:

DATE OF READING: 8/10/2018

DRILLED BY: LR / TM

DEPTH (FT.)	S BLOWS PER 6" INCREMEN	N (BLOWS/ T FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(* 1.7)	L INCREMEN	I FI.)		O L		(1.5)	(7-7)	LL	PI	. /	(%)
0 —					Dark brown fine sand with silt (SP-SM)						
-					Light brown fine sand (SP)	_					
_			<u></u>								
5 —	<u> </u>				Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

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Proposed Moccasin Wallow Road Improvements PROJECT:

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

G.S. ELEVATION (ft): 25.00

DATE OF READING:

SECTION:

**HA-014** 

PAGE:

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/10/2018

8/10/18

WATER TABLE (ft): 3.0 DATE FINISHED:

DATE STARTED:

DRILLED BY:

8/10/18 LR / TM

EST. W.S.W.T. (ft): 2.5

TYPE OF SAMPLING: ASTM D1452 SYMBO. **ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Dark brown fine sand with silt (SP-SM) Light brown fine sand (SP)  $\nabla$ \_ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 15

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-015** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/13/18

G.S. ELEVATION (ft): 25.00 WATER TABLE (ft):

5.0

DATE FINISHED:

8/13/18

DATE OF READING:

8/13/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 3 SYMBO. **ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Dark brown fine sand with silt (SP-SM) Light brown fine sand (SP)  $\nabla$ \_\_\_\_\_ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

G.S. ELEVATION (ft): 25.00

WATER TABLE (ft):

DATE OF READING:

**HA-016** 

1 of 1 SHEET: RANGE:

LR / TM

TOWNSHIP:

8/13/2018

5.0

DATE STARTED: 8/13/18

DATE FINISHED: 8/13/18

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 3

DRILLED BY:

DEPTH (FT.)	S A BLOWS M PER 6" INCREMENT E	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		UCS (tsf)	ORG. CONT. (%)	
		INCREMENT	FT.)		Ö		(70)	(%)	LL	PI		(%)
0 —					5.51117	Dark brown fine sand with silt (SP-SM)			<u> </u>			<del> </del>
	ľ					Dark blown line sand with sit (OF -OW)						
_	1											
	1											
_	1											
	•					Light brown fine sand (SP)						
_	1			$\Box$								
_	1											
5 —												
3						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 17

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-017** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

DRILLED BY:

8/13/18

G.S. ELEVATION (ft): 26.50 WATER TABLE (ft):

DATE OF READING:

5.0

DATE FINISHED:

8/13/18

8/13/2018

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG	UCS (tsf)	ORG CON <sup>-</sup> (%)
` ′ L	L E	INCREMENT	F1.)		O L			(70)	LL	PI		(%)
0 —					35111	Dark brown fine sand with silt (SP-SM)			ļ			
	ľ					Dank Brown and cand wan one (cr. cm.)						
_	1					Light brown fine sand (SP)						
						Light brown line state (cir )						
_	4											
_	4			$\Box$								
_	4											
5 —	1					<u>-</u>						
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 18

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-018** TOWNSHIP:

1 of 1 SHEET: RANGE:

DATE STARTED:

8/13/18

G.S. ELEVATION (ft): 26.50 WATER TABLE (ft): 5.0

DATE OF READING:

8/13/2018

DATE FINISHED:

8/13/18 LR / TM

DRILLED BY:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
( )	Ē	INCREMENT	FI.)		O L		(1.5)	(7-7)	LL	PI		(%)
0 —	}					Dark brown fine sand with silt (SP-SM)						
-				$\Box$		Light brown fine sand (SP)	_					
-	1											
5 —	1					Boring terminated at 5 feet below grade	<u> </u>					



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-019** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/13/18

G.S. ELEVATION (ft): 26.00 WATER TABLE (ft):

5.0

DATE FINISHED:

8/13/18

DATE OF READING: 8/13/2018 DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
( )	Ē	INCREMENT	FI.)		O L		(1.5)	(7-7)	LL	PI		(%)
0 —	}					Dark brown fine sand with silt (SP-SM)						
-				$\Box$		Light brown fine sand (SP)	_					
-	1											
5 —	1					Boring terminated at 5 feet below grade	<u> </u>					



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-020** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 27.00 DATE STARTED:

8/13/18

WATER TABLE (ft):

5.0

DATE FINISHED: 8/13/18 LR / TM

DATE OF READING: 8/13/2018 DRILLED BY:

DEP (F1	РТН Г.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
	,	L E	INCREMENT	FI.)		O L		( , ,	(**)	LL	PI		(%)
	0 —	}					Dark brown fine sand with silt (SP-SM)						
	_	1			$\Box$		Light brown fine sand (SP)						
	5 —	1					Boring terminated at 5 feet below grade	<u> </u>					
							Botting terminated at 3 feet below grade						



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION: SECTION:

**HA-021** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/13/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft): 4.5

DATE FINISHED:

8/13/18

DATE OF READING:

8/13/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

				1	1								
	EPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	()	L	INCREMENT	FI.)		O L		(/-/	(7-7)	LL	PI		(%)
	0 —					2000							
							Dark brown fine sand with silt (SP-SM)						
		l											
	_	t					Brown fine sand with trace silt (SP)						
		П											
	_	1					Light brown fine sand (SP)						
		ľ					Light brown line sand (Sr.)						
	_				$\Box$								
		ı											
	_	1											
		ľ			▼								
	5 —	1					Desires to make a st 5 feet heless and de						
							Boring terminated at 5 feet below grade						
20													
1/11													
3													
285													
NEN													
بار ا													
HA.C													
2018													
N S													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
NGL													
BCK 													



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-022** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/13/18

G.S. ELEVATION (ft): 28.00 WATER TABLE (ft): 4.5

DATE FINISHED:

8/13/18

DATE OF READING:

8/13/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 3

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	WT	S Y M B	DESCRIPTION	-200	MC	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(FT.)	L	INCREMENT	FT.)		O B	3265. W. 115.1	(%)	(%)	LL	PI	003 (131)	(%)
0 —						Dark brown fine sand with silt (SP-SM)						
						Brown fine sand with trace silt (SP)						
_				$\Box$		Light brown fine sand (SP)						
_	1			_								
5 —				<b>▼</b>		Boring terminated at 5 feet below grade						

BORING LOG GINT 2018 HA. GPJ UNIENGSC. GDT 1/11/19



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-023** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 28.50 DATE STARTED:

8/13/18

WATER TABLE (ft): 4.3

DATE FINISHED:

8/13/18

DATE OF READING:

8/13/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

TYPE OF SAMPLING: ASTM D1452

DEDTU	S	BLOWS	N		S Y	E31. W.3.W.1. (II)		MC		RBERG		
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	(%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0 —						Yellowish brown fine sand with silt (SP-SM)						
	ľ											
-	+					Brown fine sand with silt (SP-SM)	_					
	I											
-						Light brown fine sand (SP)						
	1			$\Box$								
	4											
				_								
5 —						Boring terminated at 5 feet below grade						
<u> </u>												

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

G.S. ELEVATION (ft): 29.50

**HA-024** 

SHEET: RANGE: 1 of 1

8/13/18

TOWNSHIP:

DATE STARTED:

DATE FINISHED: 8/13/18

WATER TABLE (ft): 4.0 DATE OF READING: 8/13/2018 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG IITS	UCS (tsf)	ORG CON <sup>1</sup> (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI	, í	(%)
0 —						Yellowish brown fine sand with silt (SP-SM)						
						reliowish brown line sand with slit (SP-SW)						
_												
						Brown fine sand with silt (SP-SM)						
	H											
_						Light brown fine sand (SP)						
	И											
_	t			$\Box$								
	П											
_				▼								
	И											
5 —	1					Boring terminated at 5 feet below grade						
						borning terminated at 3 feet below grade						



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-025** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/13/18

G.S. ELEVATION (ft): 29.50 WATER TABLE (ft): 4.0

DATE FINISHED:

8/13/18

DATE OF READING:

LR / TM

8/13/2018

DRILLED BY:

S A BLOWS M PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
L INCREMEN	FI.)		ΟL		(,	(7-7)	LL	PI		(%)
				Yellowish brown fine sand with silt (SP-SM)						
		$\nabla$		Brown fine sand with silt (SP-SM)						
		<b>T</b>		Light brown fine sand (SP)						
T-1				Boring terminated at 5 feet below grade	1					
	BLOWS PER 6" INCREMENTE	BLOWS N (BLOWS/FT.)	<u>√</u>		Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	Yellowish brown fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Light brown fine sand (SP)



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Proposed Moccasin Wallow Road Improvements PROJECT:

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-026** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

DRILLED BY:

8/13/18

G.S. ELEVATION (ft): 30.00 WATER TABLE (ft): 4.2

8/13/2018

DATE FINISHED:

8/13/18 LR / TM

EST. W.S.W.T. (ft): 3

DATE OF READING:

TYPE OF SAMPLING: ASTM D1452

**ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. DEPTH М В О--200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Yellowish brown fine sand with silt (SP-SM) Brown fine sand with silt (SP-SM)  $\nabla$ Light brown fine sand (SP) ▼ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-027** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 30.00

DATE STARTED:

8/14/18

WATER TABLE (ft): 4.5 DATE OF READING: 8/14/2018 DATE FINISHED:

8/14/18

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG IITS	UCS (tsf)	ORG CONT (%)
` ,	E	INCREWENT	F1.)		O L		, ,	, ,	LL	PI		(%)
0 —	}					Yellowish brown fine sand with silt (SP-SM)						
_						Yellowish brown fine sand with trace silt (SP)						
_	}			<b>□</b>								
_	1			$\Delta$								
_	}			▼.								
5 —						Boring terminated at 5 feet below grade	<del> </del>					



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-028** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/14/18

G.S. ELEVATION (ft): 30.50 WATER TABLE (ft):

4.5

DATE FINISHED:

8/14/18

DATE OF READING: 8/14/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

3

TYPE OF SAMPLING: ASTM D1452

SYMBO. **ATTERBERG** A M P **BLOWS** N (BLOWS/ ORG. DEPTH -200 MC PER 6" INCREMENT W.T. CONT. DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Brown fine sand with silt (SP-SM) Light brown fine sand (SP)  $\nabla$ \_\_\_\_ 2.0 20.5 Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-029** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

G.S. ELEVATION (ft): 30.50 DATE STARTED:

8/14/18

WATER TABLE (ft):

4.3

8/14/2018

DATE FINISHED:

8/14/18

DATE OF READING:

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLI	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG CON (%)
(1 1.)	LE	INCREMENT	FT.)		101		(70)	(70)	LL	PI	, í	(%)
0 —					3. 3.414	Draws fine and with allt (CD CM)						
	1					Brown fine sand with silt (SP-SM)						
_	1											
						Brown fine sand with trace silt (SP)						
	t											
_												
	ı											
_	t			$\nabla$								
	Ι											
_	1											
	I											
5 —	1					Boring terminated at 5 feet below grade	<u> </u>					
						borning terminated at 3 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 30

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

**HA-030** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED: 8/14/18

G.S. ELEVATION (ft): 31.00 4.2 DATE FINISHED:

WATER TABLE (ft): 8/14/18 DATE OF READING: 8/14/2018 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO-	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
0 —	}					Brown fine sand with silt (SP-SM)						
_	}					Brown fine sand with trace silt (SP)						
-	}											
_	1			$\Box$								
_	1			▼								
5 —	1					Boring terminated at 5 feet below grade						
						Tolling tollimitation at 0 look solion grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 31

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-031** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 31.00

DATE STARTED: 8/14/18

WATER TABLE (ft): 4.5

DATE FINISHED:

8/14/18

DATE OF READING: 8/14/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

_													
	DEPTH (FT.)	RTUZYS	BLOWS PER 6"	N (BLOWS/	W.T.	-08M≺©	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
	( )	L	INCREMENT	` FT.)		O L		(**)	(**)	LL	PI		(%)
ı	0 —												
	Ū						Dark brown fine sand with silt (SP-SM)						
		ı											
	_	1					Brown fine sand with silt (SP-SM)						
		И											
	_	1											
		l			$\Box$								
	_	ı					Brown fine sand with trace silt (SP)						
		П											
	-	1											
		ľ											
	_	K											
	5 —						Boring terminated at 5 feet below grade						
/19													
1/1													
.GDT													
GSC													
NEN													
PJ U													
HA.G													
2018													
BORING_LOG_GINT 2018 HA.GPJ_UNIENGSC.GDT_1/11/19													
9G G													
g_L													
ORIN													
Μ̈́.				l .					l				



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 32

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-032** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 31.00

DATE STARTED: 8/14/18

WATER TABLE (ft): 4.5

DATE FINISHED: 8/14/18

DATE OF READING: 8/14/2018

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	∞≻⊠во	DESCRIPTION	-200 (%)	MC (%)		RBERG MITS	UCS (tsf)	ORG CONT (%)
	Ė		,		L				LL	PI		(70)
0 —	}					Dark brown fine sand with silt (SP-SM)						
_						Brown fine sand with silt (SP-SM)						
_	1											
						Brown fine sand with trace silt (SP)						
5 —	1			<b>_</b>								
•						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 33

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-033** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/14/18

G.S. ELEVATION (ft): 32.00 WATER TABLE (ft): 4.3

DATE OF READING:

DATE FINISHED:

8/14/2018

8/14/18 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG CON (%)
(1.7)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI	, í	(%)
0 —						Valley ich braum fine eend with eilt (CD CM)			ļ			
						Yellowish brown fine sand with silt (SP-SM)						
_												
						Brown fine sand with silt (SP-SM)						
	I											
_	t					Light brown fine sand (SP)						
	П											
_	+			$\Delta$								
_												
				_								
5 —												
5 —						Boring terminated at 5 feet below grade	1					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 34

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-034** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/14/2018

G.S. ELEVATION (ft): 32.50 DATE STARTED: 8/14/18

WATER TABLE (ft): 4.2

DATE FINISHED: DRILLED BY:

8/14/18

EST. W.S.W.T. (ft):

DATE OF READING:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON (%)
0 —	Ė		,		L				LL	PI		
	1					Yellowish brown fine sand with silt (SP-SM)						
_						Brown fine sand with silt (SP-SM)	2.1	8.3				
_	1					Light brown fine sand (SP)						
	I			$\Box$		-g(c. /						
_												
_	1			≖								
5 —												
Ü						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 35

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-035** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/14/18

G.S. ELEVATION (ft): 33.00 WATER TABLE (ft):

4.0

8/14/2018

DATE FINISHED:

DRILLED BY:

8/14/18 LR / TM

EST. W.S.W.T. (ft): 2.5

DATE OF READING:

TYPE OF SAMPLING: ASTM D1452

DATE STARTED:

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	%×MBO	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI	, ,	(%)
0 —	}					Yellowish brown fine sand with silt (SP-SM)						
_	1					Brown fine sand with silt (SP-SM)	-					
_	1			又		Light brown fine sand (SP)						
_	1			_								
5 —	1					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 36

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-036** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 33.50

DATE STARTED:

8/14/18

WATER TABLE (ft): DATE OF READING: 8/14/2018

4.0

DATE FINISHED:

8/14/18 LR / TM

DRILLED BY:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(F1.)	L E	INCREMENT	FT.)		Ö		(70)	(76)	LL	PI		(%)
0 —	}			<del></del>		Yellowish brown fine sand with silt (SP-SM)						
_						Brown fine sand with silt (SP-SM)						
_	Ì			$\Box$		Light brown fine sand (SP)						
_	1											
5 —	}			<u>*</u>								
5—						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 37

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-037** 

1 of 1 SHEET: RANGE:

SECTION:

TOWNSHIP:

G.S. ELEVATION (ft): 33.50

DATE STARTED: DATE FINISHED: 8/14/18 8/14/18

DATE OF READING: 8/14/2018

WATER TABLE (ft): 4.0

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

	S A	BI OWS	N		S Y	EST. W.S.W.T. (ft)			_	RBERG IITS	G: ASTM [	
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	LIN	PI	UCS (tsf)	ORG. CONT. (%)
0 —	}					Yellowish brown fine sand with silt (SP-SM)						
-	}					Light yellow brown fine sand with trace silt (SM)						
-	1			$\Box$								
-	}											
_	}			▼								
5 —						Boring terminated at 5 feet below grade						
:												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 38

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

**HA-038** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/14/18

G.S. ELEVATION (ft): 34.50 WATER TABLE (ft):

4.0

DATE STARTED: DATE FINISHED:

8/14/18

DATE OF READING: 8/14/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 2.5	TYPE OF SAMPLING:	ASTM D1452
-------------------------	-------------------	------------

	DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O I	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
L	( /	F	INCREMENT	FI.)		O L		(/)	(7-7)	LL	PI		(%)
	0 —						Yellowish brown fine sand with silt (SP-SM)						
	-				_▽ _▼		Brown fine sand with trace silt (SP)						
	5 —						Boring terminated at 5 feet below grade						
DT 1/11/19													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
3_LOG_GINT 2018 H													
BORING													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 39

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-039** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/14/18

G.S. ELEVATION (ft): 34.50 WATER TABLE (ft):

2.5

DATE FINISHED: 8/14/18

DATE OF READING: 8/14/2018 DRILLED BY:

DATE STARTED:

LR / TM

EST. W.S.W.T. (ft): 2.5

DEPTH (FT.)	SAMPLIE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O I	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
( ,	L	INCREMENT	FT.)		Ö		(75)	(70)	LL	PI		(%)
0 —	}					Brown fine sand with silt (SP-SM)						
_	1					Brown fine sand with trace silt (SP)	-					
_				_								
_	1			▼								
_												
5 —												
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION:

DATE OF READING:

HA-040

SHEET: 1 of 1 RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 35.00 DATE

8/14/2018

DATE STARTED: 8/14/18

WATER TABLE (ft): 4.0

.0 DA

DATE FINISHED: 8/14/18
DRILLED BY: LR / TM

DEPTH M PE INCR	DWS R 6" (BLOWS/ EMENT FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG	UCS (tsf)	ORG. CONT. (%)
O TO TO THE INCR	R 6" (BLOWS/ EMENT FT.)	<b>▼</b>	BOL	Brown fine sand with silt (SP-SM)  Brown fine sand with trace silt (SP)  Boring terminated at 5 feet below grade	(%)	(%)	LL	PI	UCS (tsf)	(%)
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19										



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

41

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-041** 

PAGE:

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 35.00

DATE STARTED: 8/16/18

WATER TABLE (ft):

5.0

DATE FINISHED:

8/16/18

DATE OF READING: 8/16/2018 DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

	DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	0 —	<u> </u>					Dark brown fine sand with silt (SP-SM)						
	_	1					Brown fine sand with silt (SP-SM)	_					
	_				$\Box$		Davies for a read with trace with (OD)						
	-	1					Brown fine sand with trace silt (SP)						
	5 —				. <b></b> .		Boring terminated at 5 feet below grade						
C.GDT 1/11/19													
GPJ UNIENGS													
GINT 2018 HA.(													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 42

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-042** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 36.00

WATER TABLE (ft): 5.0 DATE STARTED: DATE FINISHED:

8/16/18 8/16/18

DATE OF READING: 8/16/2018 DRILLED BY:

LR / TM

	DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	0 —	ŀ					Dark brown fine sand with silt (SP-SM)						
	-				$\nabla$		Brown fine sand with silt (SP-SM)						
	-				. 🔻 .		Brown fine sand with trace silt (SP)						
	5 —				. —— .		Boring terminated at 5 feet below grade						
ОТ 1/11/19													
JNIENGSC.GI													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT													
OG GINT 20													
BORING_L													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 43

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-043** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/16/18

G.S. ELEVATION (ft): 35.00 WATER TABLE (ft):

5.0

DATE FINISHED:

8/16/18

DATE OF READING:

8/16/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

Γ		S A	BLOWS	N		S Y	EST. W.S.W.T. (ft)			ATTER	RBERG	G: ASTM [	
	DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	(BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	LIM	IITS PI	UCS (tsf)	ORG. CONT. (%)
	0 —	ł					Dark brown fine sand with silt (SP-SM)						
	_	}					Yellowish brown fine sand with trace silt (SP)						
	_	Ì					Brown fine sand with trace silt (SP)						
		}											
	5 —	}											
							Boring terminated at 5 feet below grade						
2													
)													
BOXING FOO GIVE ZOTO TA GIS ONENGO CODE STATE													
2 - 1 - 1 - 1 - 1													
,													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 44 PAGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

**HA-044** BORING DESIGNATION:

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 36.00

8/16/2018

DATE STARTED:

8/16/18

WATER TABLE (ft):

4.0

DATE FINISHED: DRILLED BY:

8/16/18

DATE OF READING:

LR / TM

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	LIN	RBERG IITS	UCS (tsf)	ORG CONT (%)
	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI		(%)
0 —					5.5114	Dark brown fine sand with silt (SP-SM)						
						Dark brown line sand with site (or -ow)						
_	1											
_						V II - 1 - 1 - 5						
						Yellowish brown fine sand with silt (SP-SM)						
_	1			$\Box$								
_				▼								
5 —	K											
3						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 45

RANGE:

Proposed Moccasin Wallow Road Improvements PROJECT:

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-045** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/16/18

G.S. ELEVATION (ft): 36.50 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/16/18

DATE OF READING:

8/16/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

3

TYPE OF SAMPLING: ASTM D1452

**ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. M B O DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Dark brown fine sand with silt (SP-SM) Yellowish brown fine sand with trace silt (SP) Brown fine sand with trace silt (SP)  $\nabla$ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 46

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-046** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/16/18

G.S. ELEVATION (ft): 36.00 WATER TABLE (ft): >5

DATE FINISHED:

8/16/18

DATE OF READING:

8/16/2018

DRILLED BY: LR / TM

DEPTH (FT.)	S BLOWS PER 6'P INCREME	S N (BLOWS	S/ W.T.		DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	E INCREME	INI FI.)		O L				LL	PI		(70)
0 —					Dark brown fine sand with silt (SP-SM)						
_					Yellowish brown fine sand with trace silt (SP)						
_					Brown fine sand with trace silt (SP)						
_											
5 —	<u> </u>				Poving towningted at 5 feet helevy grade						
					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 47 PAGE:

SHEET:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

**HA-047** BORING DESIGNATION: SECTION:

TOWNSHIP:

RANGE:

1 of 1

G.S. ELEVATION (ft): 36.50 DATE STARTED: 8/16/18

WATER TABLE (ft): >5 DATE FINISHED: 8/16/18 DATE OF READING: 8/16/2018 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O I	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG. CONT (%)
( )	Ĺ	INCREMENT	FT.)		Ö L		(70)	(70)	LL	PI		(%)
0 —						Dark brown fine sand with silt (SP-SM)				<b> </b>		
						Dark brown line sand with sit (Or -Ow)						
_	1											
						Brown fine sand with trace silt (SP)						
	U			$\Delta$								
_	1			<u>~</u>								
	U											
-	Ì											
	П											
5 —	1					Boring terminated at 5 feet below grade	<del> </del>					
						<b>3</b>						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 48

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-048** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/16/18

G.S. ELEVATION (ft): 36.50 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/16/18

DATE OF READING: 8/16/2018 DRILLED BY:

LR / TM

3

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
(* * * *)	L	INCREMENT	FI.)		O L		(1-)	(7-7)	LL	PI		(%)
0 —						Dark brown fine sand with silt (SP-SM)						
_	1					Brown fine sand with trace silt (SP)						
_	1			$\Box$								
_	1											
5 —	1					Boring terminated at 5 feet below grade						
						borning terminated at 3 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 49

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-049** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/16/18

G.S. ELEVATION (ft): 37.00 WATER TABLE (ft):

DATE OF READING:

>5

DATE FINISHED:

8/16/18

EST. W.S.W.T. (ft): 3

8/16/2018

DRILLED BY:

LR / TM

	DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
	0 —	}	-				Dark brown fine sand with silt (SP-SM)  Yellowish brown fine sand with trace silt (SP)						
	-												
	5 —						Boring terminated at 5 feet below grade						
SC.GDT 1/11/19													
018 HA.GPJ UNIENG													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

PAGE: 50

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION:

DATE OF READING:

HA-050

SHEET: 1 of 1 RANGE:

8/16/18

LR / TM

SECTION: TOWNSHIP:

8/16/2018

G.S. ELEVATION (ft): 36.50 DATE STARTED:

WATER TABLE (ft): >5 DATE FINISHED: 8/16/18

DRILLED BY:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O I	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MTS	UCS (tsf)	ORG. CONT. (%)
(1.1.)	L E	INCREMENT	FT.)		Ŏ L		(,0)	(70)	LL	PI		(%)
0 —					3311	Dark brown fine sand with silt (SP-SM)				ļ		
	I					Bank Brown into Gang man sin (cir cin)						
_	1											
	ľ											
_	1					Yellowish brown fine sand with trace silt (SP)						
	ľ					renowish brown line sand with trace sitt (SF)						
_	1			고								
	ì											
_	1											
5 —	1											
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 51

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-051** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/16/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft):

>5

DATE FINISHED:

8/16/18 LR / TM

DATE OF READING: 8/16/2018 DRILLED BY:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O I	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG ITS PI	UCS (tsf)	ORG. CONT. (%)
0 —	}					Yellowish brown fine sand with silt (SP-SM)  Light brown fine sand with trace silt (SP)						
-				✓								
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 52

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-052** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/16/18

G.S. ELEVATION (ft): 37.00 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/16/18

DATE OF READING: 8/16/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT (%)
(F1.)	L	INCREMENT	FT.)		O L		(70)	(70)	LL	PI	, , , , , , , , , , , , , , , , , , ,	(%)
0 —						Yellowish brown fine sand with silt (SP-SM)						
_						Light brown fine sand with trace silt (SP)						
5 —							3.1	13.8				
3						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 53

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-053** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/20/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft): >5

8/20/2018

DATE STARTED: DATE FINISHED:

8/20/18

DATE OF READING:

DRILLED BY: LR / TM

TYPE OF SAMPLING: ASTM D1452 EST. W.S.W.T. (ft): 3 S A M P SYMBO. **ATTERBERG BLOWS** N (BLOWS/ W.T. ORG. DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Dark gray fine sand with silt (SP-SM) Brown fine sand (SP)  $\nabla$ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

54

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-054** TOWNSHIP:

PAGE:

1 of 1 SHEET: RANGE:

SECTION:

DATE STARTED:

8/20/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft):

>5

DATE FINISHED:

8/20/18

DATE OF READING:

8/20/2018

DRILLED BY: LR / TM

Dark gray fine sand with silt (SP-SM)  Brown fine sand with silt (SP-SM)  Boring terminated at 5 feet below grade	DEPTH (FT.)	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
Boring terminated at 5 feet below grade		Ē			Ľ	Dark gray fine sand with silt (SP-SM)			LL	PI		
Boring terminated at 5 feet below grade						Brown fine sand with silt (SP-SM)	_					
Boring terminated at 5 feet below grade												
	5 —	•				Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

55

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-055** 

PAGE:

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 37.50

DATE STARTED: 8/20/18

WATER TABLE (ft): >5 DATE FINISHED:

8/20/18

DATE OF READING: 8/20/2018

DRILLED BY: LR / TM

3

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
( )	L E	INCREMENT	FI.)		O L		(,,,	(7-7)	LL	PI		(%)
0 —						Grayish brown fine sand with silt (SP-SM)						
-				$\nabla$		Brown fine sand with trace silt (SP)	_					
5 <del></del>						Boring terminated at 5 feet below grade						
						. 0						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

56

SHEET:

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

**HA-056** BORING DESIGNATION: SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 37.00

DATE STARTED:

PAGE:

8/20/18

1 of 1

WATER TABLE (ft):

>5

DATE FINISHED:

8/20/18

DATE OF READING: 8/20/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
( ,	L E	INCREMENT	FI.)		O L		(7-7)	(7-7)	LL	PI		(%)
0 —	1					Grayish brown fine sand with silt (SP-SM)						
_	1					Brown fine sand with trace silt (SP)						
_	1			$\Box$								
_	{											
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 57

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-057** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/20/18

G.S. ELEVATION (ft): 38.00 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/20/18

DATE OF READING: 8/20/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

_													
	DEPTH (FT.)	A	BLOWS PER 6"	N (BLOWS/		S M B O		-200	MC	ATTER LIM	RBERG		ORG.
	(FT.)	P	PER 6" INCREMENT	(BLOWS/ FT.)	W.T.	B	DESCRIPTION	-200 (%)	MC (%)			UCS (tsf)	ORG. CONT. (%)
L		L E				Ľ				LL	PI		
	0 —					5. SH114	Brown fine sand with silt (SP-SM)						
							Brown line saile with sit (or -own)						
		И											
							Dark brown fine sand with silt (Sp-SM)						
		П											
	_	H					Tan fine sand with trace silt (SP)						
		И					ran ine sana with trace sit (ci )						
		K			$\Box$								
		П											
	-	Н											
		И											
	5	H											
	5 —						Boring terminated at 5 feet below grade						
49													
1/11/19													
GDT													
3SC.(													
NEN EN													
BORING_LOG GINT 2018 HA. GPJ UNIENGSC.GDT													
A.GP													
)18 H													
NT 20													
G GI													
) I													
RING													
BO													



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

58

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

HA-058

PAGE:

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 38.00

DATE STARTED:

8/20/18

WATER TABLE (ft): DATE OF READING:

ft): >5

8/20/2018

DATE FINISHED: DRILLED BY: 8/20/18

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG CONT (%)
0 —	}					Brown fine sand with silt (SP-SM)						
-	1			✓		Tan fine sand with trace silt (SP)						
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 59

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

**HA-059** TOWNSHIP:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft): 37.50

DATE STARTED: 8/20/18

WATER TABLE (ft): >5 DATE FINISHED:

8/20/18

DATE OF READING: 8/20/2018 DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

_		- '		1		- 1	L31. W.3.W.1. (II)						
ı	DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
	()	L	INCREMENT	FI.)		O L		(/-/	(//	LL	PI		(%)
Г	0 —												
							Dark brown fine sand with silt (SP-SM)						
		l											
	_	ħ											
	-						Brown fine sand with trace silt (SP)						
		И											
	_	1			$\Box$								
		1											
	_												
		U											
	5 —						Boring terminated at 5 feet below grade						
1/19													
1/1													
C.GD.													
NGS													
N N													
GPJ													
18 HA													
1T 20.													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
Ĭ O													
JRINC													
<u>ы</u>													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 60

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-060** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 38.00

8/20/2018

DATE STARTED:

8/20/18

WATER TABLE (ft):

>5

DATE FINISHED:

8/20/18 LR / TM

DATE OF READING:

DRILLED BY:

DEPTH (FT.)	SAMPLI	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON (%)
	Ē	INORLINEIVI	,		L				LL	PI		(70)
0 —	}					Dark brown fine sand with silt (SP-SM)						
_	1			✓		Brown fine sand with trace silt (SP)	_					
_												
5 —	4					Boring terminated at 5 feet below grade	<u></u>					
						Donning termination at 0 1000 2010 in graduo						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 61

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-061** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/20/2018

DATE STARTED:

8/20/18

G.S. ELEVATION (ft): 38.00 WATER TABLE (ft): >5

DATE OF READING:

DATE FINISHED:

8/20/18 LR / TM

EST. W.S.W.T. (ft): 3

DRILLED BY:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(F1.)	L E	INCREMENT	` FT.)		Ö		(%)	(%)	LL	PI	. 000 (10.7)	(%)
0 —	}					Dark brown fine sand with silt (SP-SM)						
_	1					Brown fine sand with silt (SP-SM)						
_	1					Yellowish brown fine sand with silt (SP-SM)						
_						Tan fine sand with trace silt (SP)						
5 —	1					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 62

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-062** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/20/2018

DATE STARTED: 8/20/18

WATER TABLE (ft): >5

8/20/18 DATE FINISHED:

DRILLED BY:

LR / TM

3

DATE OF READING:

G.S. ELEVATION (ft): 38.00

DEPTH (FT.)	SAMPI	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON (%)
	L E		,		Ľ				LL	PI		. ,
0 —						Dark brown fine sand with silt (SP-SM)						
_				abla		Yellowish brown fine sand with silt (SP-SM)						
_						Light brown fine sand with trace silt (SP)						
5 —	1					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 63

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-063** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/20/18

G.S. ELEVATION (ft): 37.00 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/20/18

DATE OF READING: 8/20/2018

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI		(%)
0 —					5.51114	Dark brown fine sand with silt (SP-SM)			-			
						Dark brown line saila with site (SI -SW)						
_	4					Grayish brown fine sand with silt (SP-SM)	_					
						Grayish brown line sand with site (or -ow)						
_	4											
_	4			고								
_	4											
5 —	1											
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 64

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-064** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/20/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft):

DATE OF READING:

>5

8/20/2018

DATE STARTED: DATE FINISHED:

8/20/18 DRILLED BY: LR / TM

RANGE:

	DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO-	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
L		Ē	INCREWENT	F1.)		O L				LL	PI		(70)
	0 —	1					Dark brown fine sand with silt (SP-SM)						
	-	1			abla		Grayish brown fine sand with trace silt (SP)						
	- 5 —												
	-						Boring terminated at 5 feet below grade						
0													
1/11/1													
SC.GDT													
JNIENG													
A.GPJ L													
2018 HA													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
JO TOG													
BORIN													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

65

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

WATER TABLE (ft):

DATE OF READING:

G.S. ELEVATION (ft): 38.00

**HA-065** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

>5

8/20/2018

DATE STARTED: 8/20/18

8/20/18 DATE FINISHED:

DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON (%)
	Ė		,		Õ				LL	PI		(70)
0 —	}					Dark brown fine sand with silt (SP-SM)						
_	}					Brown fine sand with silt and shell (SP-SM)						
_						Brown fine sand with silt (SP-SM)						
_						Dark gray fine sand with silt (SP-SM)						
5 —	•					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 66

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-066** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/20/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft): >5

DATE FINISHED:

8/20/18

DATE OF READING: 8/20/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	E	-	,		Ľ				LL	PI		,
0 —	1					Dark brown fine sand with silt (SP-SM)						
-						Brown fine sand with silt and shell (SP-SM)						
-						Dark gray fine sand with silt (SP-SM)						
5 —	1					Boring terminated at 5 feet below grade	1			1		



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 67

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-067** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/20/18

G.S. ELEVATION (ft): 38.00 WATER TABLE (ft):

>5

DATE FINISHED:

8/20/18

DATE OF READING:

8/20/2018 DRILLED BY:

LR / TM

						EST. W.S.W.T. (ft)	: 3	TYI	PE OF SAMPLING	G: ASTM [	D1452
DEPTH (FT.)	S A M P	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS	UCS (tsf)	ORG CON

DEPT (FT.	H	A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	Y M B O	DESCRIPTION	-200 (%)	MC (%)	LIN	MITS	UCS (tsf)	ORG. CONT. (%)
(	<i>'</i>	L E	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
(	) <del> </del>						Brown fine sand with silt (SP-SM)  Gray fine sand with trace silt (SP)						
					$\nabla$		Dark brown fine sand with silt (SP-SM)						
5	5-					114	Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

68

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-068** 

1 of 1 SHEET:

SECTION:

TOWNSHIP:

G.S. ELEVATION (ft): 38.00

>5

DATE STARTED: DATE FINISHED:

8/21/18 8/21/18

WATER TABLE (ft): DATE OF READING: 8/21/2018

DRILLED BY:

LR / TM

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(11.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	` ′	(%)
0 —	1					Brown fine sand with silt (SP-SM)						
						Gray fine sand with trace silt (SP)						
		-		$\Box$		Dark brown fine sand with silt (SP-SM)						
5 —						Boring terminated at 5 feet below grade						
BURING_LOG GINT ZUIG ITA.GF3 GNIENGSC.GD												
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

69

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-069** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 38.00

DATE STARTED:

8/21/18

WATER TABLE (ft):

>5

8/21/2018

DATE FINISHED:

8/21/18

DATE OF READING:

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	L E	INCREMENT	FT.)		, P		(70)	(70)	LL	PI	, , ,	(%)
0 —	}					Brown fine sand with silt (SP-SM)						
_	}					Gray fine sand with trace silt (SP)						
-				▽		Dark brown fine sand with silt (SP-SM)						
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 70

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-070** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/21/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/21/18

DATE OF READING:

8/21/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	EST. W.S.W.T. (ft	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0 -					L	Brown fine sand with silt (SP-SM)			LL	PI		
	1											
						Dark gray fine sand with silt (SP-SM)						
	1											
5 -	1					Boring terminated at 5 feet below grade						
J. 1/11/19												
UNIENGSC.C												
BORING_LOG GIN I 2018 HA GPJ UNIENGSC.GDT 1/11/19												
KING FOG GI												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 71

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-071** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/21/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft): >5

DATE FINISHED:

8/21/18

EST. W.S.W.T. (ft):

DATE OF READING: 8/21/2018 DRILLED BY:

LR / TM

3

	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
DEPTH (FT.)	L E	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
0 —						Brown fine sand with silt (SP-SM)			ļ	ļ		<del> </del>
	ľ					,						
_	1											
	I											
_	1					Dark gray fine sand with silt (SP-SM)						
	I											
_	1			$\Box$								
	l											
_	1											
5 —												
3						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

72

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-072** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 37.00

DATE STARTED:

8/21/18

WATER TABLE (ft):

DATE OF READING:

>5

DATE FINISHED:

8/21/18

8/21/2018

DRILLED BY: LR / TM

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG ITS	UCS (tsf)	ORG. CONT. (%)
0 -	Ė	INOI CIMENT	11.9		ОL	Yellowish brown fine sand with trace silt (SP)	4.7	8.7	LL	PI		(70)
				abla		Brown fine sand with silt (SP-SM)	4.7	0.7				
						Brown fine sand with silt (SP)						
5 -					r. 1 1.	Boring terminated at 5 feet below grade						
1/19												
.GDT 1/1												
MENGSC												
A.GPJ UI												
T 2018 H.												
LOG GIN												
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/1/1/19												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

73

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-073** 

PAGE:

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 37.50

DATE STARTED:

8/21/18

WATER TABLE (ft): DATE OF READING: 8/21/2018

>5

DATE FINISHED:

8/21/18 LR / TM

3

DRILLED BY:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.		DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	Ė	INCINEINI	11.)		Ö				LL	PI		(70)
0 —	ŀ					Yellowish brown fine sand with trace silt (SP)						
-						Brown fine sand with silt (SP-SM)						
_	1			$\Box$		Brown fine sand with silt (SP)	_					
_	1											
5 —	1					Boring terminated at 5 feet below grade						
						3						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

74

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-074** 

PAGE:

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/21/18

G.S. ELEVATION (ft): 38.00 WATER TABLE (ft): >5

8/21/2018

DATE FINISHED:

8/21/18

3

DATE OF READING:

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	` ,	(%)
0 —						Dark gray fine sand with silt (SP-SM)						
-				$\overline{\nabla}$		Gray fine sand with silt (Sp-SM)  Dark brown fine sand with silt (SP-SM)						
	1											
5 —						Boring terminated at 5 feet below grade						
BORING_LOG GIN I KUIS TALGFU UNIENGOCIGDI 171718												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 75

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-075** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 37.00

DATE STARTED: 8/21/18

WATER TABLE (ft):

>5

DATE FINISHED:

8/21/18

DATE OF READING: 8/21/2018

DRILLED BY:

LR / TM

	La	.1	T			EST. W.S.W.T. (ft	): 3	TY	PE OF S	AMPLIN	G: ASTM [	D1452
DEP (FT	TH   N T.)   F L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(FI	.)   F	INCREMENT	`FT.)		O B		(%)	(%)	LL	PI	000 (131)	(%)
	0					Dark gray fine sand with trace silt (SP)						
						Gray fine sand with silt (SP-SM)						
						Dark brown fine sand with silt (SP-SM)						
:	5					Boring terminated at 5 feet below grade						
GDT 1/11/19												
UNIENGSC												
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19												
OG GINT 2												
BORING_I												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

76

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-076** 

PAGE:

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/21/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft): >5

8/21/2018

DATE FINISHED: DRILLED BY:

8/21/18

3

DATE OF READING:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG IITS	UCS (tsf)	ORG CON (%)
(1 1.)	L E	INCREMENT	FT.)		ÖL		(70)	(70)	LL	PI	, ,	(%)
0 —	1					Dark gray fine sand with trace silt (SP)						
_				abla		Gray fine sand with silt (SP-SM)						
5 —							4.0	27.0				
5						Boring terminated at 5 feet below grade						
											1	



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 77

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-077** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 37.00

8/21/2018

DATE STARTED:

8/21/18

WATER TABLE (ft):

>5

DATE FINISHED: DRILLED BY:

8/21/18 LR / TM

3

DATE OF READING:

DEDTU	S A M P	BLOWS	N		S Y M B	EST. W.S.W.T. (ft)	-200			RBERG	G: ASTM D	
DEPTH (FT.)	P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	B O L	DESCRIPTION	(%)	MC (%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0 —						Dark gray fine sand with trace silt (SP)	6.6	19.8				
-	1					Dark brown fine sand with silt (SP-SM)						
5 —					- 1144	Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

78

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-078** 

PAGE:

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 37.00 DATE STARTED:

8/21/18

WATER TABLE (ft):

>5

8/21/2018

DATE FINISHED:

DRILLED BY:

8/21/18

3

DATE OF READING:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI		(%)
0 —						Dark gray fine sand with trace silt (SP)			<del> </del>			
	ı					Dank gray into sana with trase sint (or )						
_	4											
	1											
_	4					Dark brown fine sand with silt (SP-SM)						
	1					Bank Brown line saint with site (or site)						
_	4			$\Box$								
	ı											
_	1											
	ı											
5 —	1					Boring terminated at 5 feet below grade						
						Borning terminated at 3 feet below grade						
				1			1		1		1	



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 79

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-079** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/21/18

G.S. ELEVATION (ft): 36.50 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/21/18

DATE OF READING: 8/21/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0 —						Gray fine sand with trace silt (SP)						
	1					Dark brown fine sand with silt (SP-SM)						
	}											
5						Boring terminated at 5 feet below grade						
DONING_EOG GINT 2018 IR. GF.3 GINENGGG. GOT IT IT IS												
) ) )												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 80

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-080** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/21/18

G.S. ELEVATION (ft): 37.50 WATER TABLE (ft): >5

8/21/2018

DATE FINISHED:

8/21/18

3

DATE OF READING:

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMP.	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CONT (%)
(1.7)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI		(%)
0 —						Gray fine sand with trace silt (SP)						
						Gray line sand with trace slit (SP)						
_	(											
	l											
						Dark brown fine sand with silt (SP-SM)						
	l			$\Box$								
_	1											
	ı											
_	1											
	I											
5 —	1					Boring terminated at 5 feet below grade	1					
						3						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

81

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-081** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/22/18

G.S. ELEVATION (ft): 36.50 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/22/18

DATE OF READING: 8/22/2018 DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 3

DEPTH	SAM	BLOWS	N		S Y M B	E31. W.3.W.1. (II)		MC		RBERG IITS	3. ASTWL	
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	B O L	DESCRIPTION	-200 (%)	(%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0 -						Gray fine sand with trace silt (SP)						
	I											
	1					Light brown fine sand (SP)						
	4					David for and with transit (OD)						
	1					Brown fine sand with trace silt (SP)						
	+			$\Box$								
	K											
						Gray clayey sand (SC)						
5 -	4					Boring terminated at 5 feet below grade	16.6	18.6				
						251mg torminatou at 0 100t 2010m grado						
2												
_1												

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 82

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION: SECTION:

**HA-082** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/22/18

G.S. ELEVATION (ft): 36.00 WATER TABLE (ft):

>5

DATE FINISHED: DRILLED BY:

8/22/18 LR / TM

EST. W.S.W.T. (ft): 3

DATE OF READING: 8/22/2018

	DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG ITS PI	UCS (tsf)	ORG. CONT. (%)
	0 —	}					Brown fine sand with silt (SP-SM)						
	_	}					Gray fine sand with silt (SP-SM)	_					
	_	}					Light brown fine sand (SP)	_					
	_	}											
	5 —						Brown fine sand with silt (SP)						
	Ü						Boring terminated at 5 feet below grade						
6													
C.GDT 1/11/1													
ONIENGS													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
NG_LOG_GIN													
30RIN(													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 83

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-083** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 35.50

DATE STARTED:

8/22/18

WATER TABLE (ft): DATE OF READING: 8/22/2018

>5

DATE FINISHED: DRILLED BY:

8/22/18 LR / TM

EST. W.S.W.T. (ft): 3

_				1			L31. W.3.W.1. (II)						
	DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
	(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	, ,	(%)
Γ	0 —						Drawn fine conduction all (CD CEA)						
							Brown fine sand with silt (SP-SM)						
		t											
	_												
		ı											
	-	t					Light brown fine sand (SP)						
		I											
	-	1			$\Box$								
	_	1											
	E	t											
	5 —						Boring terminated at 5 feet below grade						
1/19													
_ 1/1													
C.GD													
ENGS													
Z D													
A.GP,													
018 H.													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
)G G													
ZG_LC													
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ш_		_		-									



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 84

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-084** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/22/18

G.S. ELEVATION (ft): 36.00 WATER TABLE (ft): >5

8/22/2018

DATE FINISHED:

8/22/18

DATE OF READING:

DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
( )	L E	INCREMENT	FI.)		O L		(1-5)	(//	LL	PI		(%)
0 —	}					Gray fine sand with silt and roots (SP-SM)						
_						Gray fine sand with silt (SP-SM)						
_	1											
5 —						Dark gray fine sand with silt (SP-SM)						
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 85

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-085** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/22/18

G.S. ELEVATION (ft): 36.00 WATER TABLE (ft): >5

DATE OF READING:

8/22/2018

DATE STARTED: DATE FINISHED:

DRILLED BY:

8/22/18

3

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG. CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI	, ,	(%)
0 —	}					Gray fine sand with silt and roots (SP-SM)						
_	1			✓		Gray fine sand with silt (SP-SM)						
_	1					Dark gray fine sand with silt (SP-SM)	_					
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 86

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-086** TOWNSHIP:

1 of 1 SHEET: RANGE:

SECTION:

G.S. ELEVATION (ft): 36.00

8/22/2018

DATE STARTED: 8/22/18

WATER TABLE (ft): >5

DATE FINISHED: DRILLED BY:

8/22/18 LR / TM

EST. W.S.W.T. (ft): 3

DATE OF READING:

TYPE OF SAMPLING: ASTM D1452

SYMBO. **ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Gray fine sand with silt and shell (SP-SM) Gray fine sand (SP)  $\nabla$ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

87

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-087** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/22/18

G.S. ELEVATION (ft): 36.00

DATE FINISHED:

WATER TABLE (ft): >5 DATE OF READING: 8/22/2018

DRILLED BY:

DATE STARTED:

8/22/18 LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	SAMPLI	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG CON (%)
(1 1.)	L E	INCREMENT	FT.)		ŎL		(70)	(70)	LL	PI	, ,	(%)
0 —						Gray fine sand with silt and shell (SP-SM)						
-				abla		Gray fine sand (SP)	_					
_	1											
5 —						Boring terminated at 5 feet below grade	<b>-</b>					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 88

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-088** TOWNSHIP:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft): 35.50

DATE STARTED:

8/22/18

WATER TABLE (ft):

DATE OF READING:

>5

8/22/2018

DATE FINISHED:

8/22/18 LR / TM

EST. W.S.W.T. (ft): 3 DRILLED BY:

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	EST. W.S.W.T. (ft)	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
,	L E	INCREMENT	FI.)		O L		(**)	(**)	LL	PI		(%)
0 —	1					Dark gray fine sand with silt (SP-SM)						
-	1					Gray fine sand (SP)	-					
-												
5 —						Boring terminated at 5 feet below grade						

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 89

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-089** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

8/22/18

G.S. ELEVATION (ft): 35.00 WATER TABLE (ft): >5

DATE STARTED: DATE FINISHED:

8/22/18

DATE OF READING:

8/22/2018

DRILLED BY: LR / TM

RANGE:

DEPTH (FT.)	S A M	BLOWS PER 6"	N (BLOWS/	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	UCS (tsf)	ORG. CONT.
(1 1.)	L E	INCREMENT	FT.)		ŎL		(70)	(70)	LL	PI		(%)
0 —	ŀ					Dark gray fine sand with silt (SP-SM)						
_	}					Dark gray fine sand with silt and rock fragments (SP-SM)						
_				abla		Light gray fine sand (SP)						
_	1											
5 —	1						2.8	16.7				
·						Boring terminated at 5 feet below grade						
	DEPTH (FT.)  0	0					Dark gray fine sand with silt (SP-SM)  Dark gray fine sand with silt and rock fragments (SP-SM)  Light gray fine sand (SP)	Dark gray fine sand with silt (SP-SM)  Dark gray fine sand with silt and rock fragments (SP-SM)  Light gray fine sand (SP)	Dark gray fine sand with silt (SP-SM)  Dark gray fine sand with silt and rock fragments (SP-SM)  Light gray fine sand (SP)	Dark gray fine sand with silt (SP-SM)  Dark gray fine sand with silt and rock fragments (SP-SM)  Light gray fine sand (SP)	Dark gray fine sand with silt (SP-SM)  Dark gray fine sand with silt and rock fragments (SP-SM)  Light gray fine sand (SP)	Dark gray fine sand with silt (SP-SM)  Dark gray fine sand with silt and rock fragments (SP-SM)  Light gray fine sand (SP)



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 90

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-090** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 35.00

DATE STARTED:

8/22/18

WATER TABLE (ft): DATE OF READING: 8/22/2018

>5

DATE FINISHED: DRILLED BY:

8/22/18

LR / TM ASTM D1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG CON (%)
	Ė		,		L				LL	PI		(70)
0 —						Dark gray fine sand with silt (SP-SM)						
- 5 —						Gray fine sand (SP)						
3						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 91

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-091** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/22/18

G.S. ELEVATION (ft): 35.00 WATER TABLE (ft): 4.7

DATE FINISHED:

8/22/18

DATE OF READING:

8/22/2018

DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG CON1 (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	, í	(%)
0 —	}					Grayish brown fine sand with silt and shell (SP-SM)						
_						Dark gray fine sand with silt (SP-SM)						
_						Dark brown fine sand with silt (SP-SM)						
_				$\Box$		Light brown fine sand (SP)						
_				_								
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 92

SHEET:

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

TOWNSHIP:

**HA-092** 

G.S. ELEVATION (ft): 35.00 DATE STARTED:

8/22/18 8/22/18

WATER TABLE (ft): DATE OF READING: 8/22/2018

4.5

DATE FINISHED: DRILLED BY:

3

LR / TM

1 of 1

DEPTH (FT.)	S A M P L E	BLOWS PER 6"	N (BLOWS/	W.T.		DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
,	L	INCREMENT	` FT.)		O L		(1.7)	(**)	LL	PI		(%)
0 —	}					Grayish brown fine sand with silt and shell (SP-SM)						
_	1					Dark gray fine sand with silt (SP-SM)	_					
_				$\Box$		Dark brown fine sand with silt (SP-SM)  Light brown fine sand (SP)	_					
_	1					Light brown line sand (SP)						
5 —	1					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 93

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-093** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 35.00

WATER TABLE (ft): 5.0 DATE STARTED: DATE FINISHED:

8/22/18 8/22/18

DATE OF READING: 8/22/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
` ,	E	INCREWENT	FI.)		O L			` ′	LL	PI		(%)
0 —	}					Dark gray fine sand with silt (SP-SM)						
_	}					Gray fine sand with trace silt (SP)						
-	1			$oxedsymbol{oxtsigma}$		Dark brown fine sand with silt (SP-SM)						
5 —	1			. <u> </u>		Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 94

SHEET:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

**HA-094** TOWNSHIP:

RANGE:

1 of 1

G.S. ELEVATION (ft): 34.50

8/22/2018

DATE STARTED: 8/22/18

WATER TABLE (ft):

DATE OF READING:

4.9

DATE FINISHED:

8/22/18

DRILLED BY:

LR / TM

DEPTH (FT.) S A BLOWS PER 6" INCREMENT	N (BLOWS/ FT.) W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG CONT (%)
L INCREMENT	FT.)	Ŏ L		(,0)	(70)	LL	PI		(%)
0			Dark gray fine sand with silt (SP-SM)						
			Gray fine sand with trace silt (SP)						
			Dark brown fine sand with trace silt (SP)		4.7	23.6			
5	- <del></del> -		Boring terminated at 5 feet below grade	-					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

95

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

**HA-095** TOWNSHIP:

PAGE:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft): 34.50

DATE STARTED:

8/22/18

WATER TABLE (ft): DATE OF READING: 8/22/2018

>5

DATE FINISHED:

8/22/18 LR / TM

FST WSWT (ft)

DRILLED BY: TYPE OF SAMPLING: ASTM D1452

_				1			EST. W.S.W.T. (ft)	: 3	TY	PE OF S	AMPLIN:	G: ASTM [	D1452
DI	EPTH FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	w T	S Y M B O L	DESCRIPTION	-200	MC	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(	FT.)	P L E	INCREMENT	FT.)	*****	O L	BESSIAL FISH	(%)	(%)	LL	PI	UC3 (ISI)	(%)
	0 —	ł					Grayish brown fine sand with silt and shell (SP-SM)						
	_						Gray clayey sand (SC)	26.9	21.3				
	-				$\Box$		Gray fine sand with silt (SP-SM)  Dark gray fine sand with silt (SP-SM)						
	_	1					Dank gray line sand with sit (or -ow)						
	5 —	1					Boring terminated at 5 feet below grade						
19													
)T 1/11/													
GSC.GE													
ONEN N													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
T 2018													
NIS SC													
ZING_L(													
5													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 96

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

**HA-096** BORING DESIGNATION: SECTION:

TOWNSHIP:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft): 35.00 DATE STARTED:

WATER TABLE (ft): 4.9 DATE FINISHED:

8/23/18 8/23/18

DATE OF READING: 8/23/2018

DRILLED BY: LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.) BLOW PER 6 INCREMI	S N (BLOWS/ W.T. FT.)		DESCRIPTION	-200 (%)	MC (%)	LIIV	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0		S Y M B O L		(70)	(70)	LL	PI	,	(%)
-			Grayish brown fine sand with silt (SP-SM)						
			Dark gray fine sand with silt (SP-SM)						
	_								
5			Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

PAGE: 97

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

G.S. ELEVATION (ft): 34.50

DATE OF READING:

HA-097

SHEET: 1 of 1 RANGE:

8/23/18

LR / TM

TOWNSHIP:

DATE STARTED: 8/23/18

WATER TABLE (ft): >5 DATE FINISHED:

8/23/2018

EST. W.S.W.T. (ft): 3 TYPE OF SAMPLING: ASTM D1452

DRILLED BY:

SYMBO. **ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Gray fine sand with silt (SP-SC) Gray clayey sand (SC) Light gray fine sand with clay (SP-SC)  $\nabla$ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 98

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION: SECTION:

**HA-098** TOWNSHIP:

SHEET: RANGE:

1 of 1

G.S. ELEVATION (ft): 34.50

DATE STARTED: 8/23/18

WATER TABLE (ft): DATE OF READING: 8/23/2018

>5

DATE FINISHED: DRILLED BY:

8/23/18 LR / TM

EST. W S W T (#\)

ES1. W.S.W.1. (π):	3	TYPE OF SAMPLING:	ASTM D1452

DEPTH (FT.)	S A M P L E	BLOWS	N (DLOWS)	\\\ T	S Y M B O	EST. W.S.W.T. (ft)  DESCRIPTION			1	RBERG	G: ASTM [	
(FT.)	PLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	VV.1.	B O L	DESCRIPTION	-200 (%)	MC (%)	LL	PI	UCS (tsf)	ORG. CONT. (%)
0 —	}					Light gray fine sand with clay (SP-SC)						
_	1						10.9	11.8				
-	1					Light gray fine sand with clay (SC)						
5 —	1					Boring terminated at 5 feet below grade						
i												

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 99

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-099** 

1 of 1 SHEET:

SECTION:

TOWNSHIP:

G.S. ELEVATION (ft): 34.00 WATER TABLE (ft):

DATE STARTED: DATE FINISHED: 8/23/18 8/23/18

DATE OF READING: 8/23/2018

>5

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	L E	INCINLINI	11.)		O L				LL	PI		( /0)
0 —	1					Light gray fine sand with clay (SP-SC)						
_	1					Gray fine sand with clay (SP-SC)	-					
-				$\Box$								
5—	1					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 100

**HA-100** SHEET: BORING DESIGNATION: PROJECT: Proposed Moccasin Wallow Road Improvements

1 of 1 Moccasin Wallow Road From US 41 to West of I 75 SECTION: TOWNSHIP: RANGE:

Parrish, Manatee County, FL

CLIENT: Cardno G.S. ELEVATION (ft): 34.50 DATE STARTED: 8/23/18

LOCATION: See Boring Location Plan WATER TABLE (ft): >5 DATE FINISHED: 8/23/18 REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 DATE OF READING: 8/23/2018 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
0 —	}					Light gray fine sand with clay (SP-SC)						
_				✓		Gray fine sand with clay (SP-SC)						
_	1											
5 —	. 1					Boring terminated at 5 feet below grade	1					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 101

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-101** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/23/18

G.S. ELEVATION (ft): 34.00 WATER TABLE (ft): >5

DATE FINISHED:

8/23/18

DATE OF READING:

8/23/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
0 —	}					Light gray fine sand with clay (SP-SC)						
_	}					Light gray sandy clay (SC)	_					
5 —	•					Boring terminated at 5 feet below grade						



BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19

## UNIVERSAL ENGINEERING SCIENCES **BORING LOG**

PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 102

**HA-102** SHEET: BORING DESIGNATION: PROJECT: Proposed Moccasin Wallow Road Improvements

1 of 1 Moccasin Wallow Road From US 41 to West of I 75 SECTION: TOWNSHIP: RANGE:

Parrish, Manatee County, FL

CLIENT: Cardno G.S. ELEVATION (ft): 34.00 DATE STARTED: 8/23/18

LOCATION: See Boring Location Plan WATER TABLE (ft): >5 DATE FINISHED: 8/23/18 REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 DATE OF READING: 8/23/2018 DRILLED BY: LR / TM

DEPTH M (FT.) P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(i i i j	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
0					Light gray fine sand with clay (SP-SC)						
					Light gray sandy clay (SC)	_					
5					Boring terminated at 5 feet below grade	+					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 103

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-103** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 34.00

>5

DATE STARTED: DATE FINISHED:

8/23/18 8/23/18

WATER TABLE (ft): DATE OF READING: 8/23/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(* * * *)	L	INCREMENT	FI.)		O L		(,	(7-7)	LL	PI		(%)
0 —	ŀ					Dark gray fine sand with silt and shell (SP-SM)						
_	}					Gray fine sand with silt (SP-SM)	_					
_						Light brown fine sand with clay (SP-SC)	_					
_	Ì			$\Box$								
	}											
5 —	1				//	Boring terminated at 5 feet below grade	1					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 104

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION: SECTION:

**HA-104** 

1 of 1 SHEET:

TOWNSHIP:

RANGE: DATE STARTED:

8/23/18

G.S. ELEVATION (ft): 34.00 WATER TABLE (ft):

>5

DATE FINISHED: 8/23/18

DATE OF READING: 8/23/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	L E	INONLINEIVI	11.,		L				LL	PI		(70)
0 —	}					Dark gray fine sand with silt and shell (SP-SM)						
_						Gray fine sand with silt (SP-SM)						
_	1			✓		Light brown fine sand with clay (SP-SC)						
5 —	Ì					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 105

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-105** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/23/18

G.S. ELEVATION (ft): 33.50 WATER TABLE (ft):

DATE OF READING:

>5

8/23/2018

DATE FINISHED: DRILLED BY:

8/23/18 LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(,0)	(70)	LL	PI		(%)
0 —	}					Dark gray fine sand with silt and roots (SP-SM)						
_	}					Gray fine sand with silt (SP-SM)	_					
_				_		Grayish brown fine sand with clay (SP-SC)	_					
_												
5 —												
5						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 106

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

**HA-106** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/23/18

G.S. ELEVATION (ft): 34.00 WATER TABLE (ft):

>5

DATE FINISHED:

8/23/18

DATE OF READING: 8/23/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

	S	BI OWS	N		S	EST. W.S.W.T. (ft				RBERG	G: ASTM [	
DEPTH (FT.)	A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)	LIN	PI	UCS (tsf)	ORG. CONT. (%)
0 —	}					Dark gray fine sand with silt and roots (SP-SM)						
-						Gray fine sand with silt (SP-SM)						
-						Grayish brown fine sand with clay (SP-SC)						
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 107

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-107** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

DATE STARTED:

8/23/18

G.S. ELEVATION (ft): 33.50 WATER TABLE (ft):

>5

DATE FINISHED:

8/23/18

DATE OF READING: 8/23/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
( )	L E	INCREMENT	FI.)		O L		(/-/	(7-7)	LL	PI		(%)
0 -						Dark gray fine sand with silt (SP-SM)						
						Gray fine sand with silt (SP-SM)						
						Brayish brown fine sand with clay (SP-SC)	-					
						Light brown fine sand with clay (SP-SC)						
5						Boring terminated at 5 feet below grade						
/11/19												
SC.GDT 1												
UNIENGS												
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/1/1/19												
3INT 2018												
907 9												
BORIN												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 108

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-108** TOWNSHIP:

1 of 1 SHEET: RANGE:

SECTION:

DATE STARTED:

8/23/18

G.S. ELEVATION (ft): 33.00 WATER TABLE (ft): >5

DATE FINISHED:

8/23/18

DATE OF READING:

8/23/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

TYPE OF SAMPLING: ASTM D1452

DEPTH N (FT.) F	S A	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG	UCS (tsf)	ORG. CONT. (%)
(F1.)   F	 	INCREMENT	FT.)		O L		(%)	(%)	LL	PI	000 (131)	(%)
0 —	)					Dark brown fine sand with silt (SP-SM)						
						Light gray fine sand with clay (SP-SM)						
5	<b>L</b>   .					Boring terminated at 5 feet below grade						

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 109

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-109** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/23/18

G.S. ELEVATION (ft): 33.50 WATER TABLE (ft):

>5

DATE STARTED: DATE FINISHED:

8/23/18

DATE OF READING:

8/23/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MTS	UCS (tsf)	ORG CON <sup>-</sup> (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI	, í	(%)
0 —	}					Dark gray fine sand with silt (SP-SM)						
_	1					Gray fine sand with clay (SP-SC)						
_	Ì					Light brown fine sand with silt (SP-SM)	8.9	10.7				
_	ł					Gray fine sand with clay (SP-SC)						
5 —	l					Boring terminated at 5 feet below grade						
						Borning terminated at 0 root Boron grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

110

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

G.S. ELEVATION (ft): 33.50

DATE OF READING:

**HA-110** TOWNSHIP:

1 of 1 SHEET: RANGE:

LR / TM

8/23/2018

DATE STARTED: 8/23/18

WATER TABLE (ft): >5 DATE FINISHED: 8/23/18

DRILLED BY:

DEPTH (FT.)	BLOWS PER 6" INCREMENT	Γ \ FT.)	S Y M B	DESCRIPTION	-200 (%)	MC (%)	LIIV	RBERG IITS	UCS (tsf)	ORG. CONT (%)
0 —			Ö L		(/-/	(1-5)	LL	PI		(%)
+	1			Dark gray fine sand with silt (SP-SM)						
				Gray fine sand with clay (SP-SC)						
				Light brown fine sand with silt (SP-SM)						
				Gray fine sand with clay (SP-SC)						
5	<u> </u>			Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

111

SHEET:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-111** TOWNSHIP:

RANGE:

1 of 1

G.S. ELEVATION (ft): 33.00 DATE STARTED: 8/24/18

WATER TABLE (ft): 4.5 DATE FINISHED: 8/24/18 DATE OF READING: 8/24/2018 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLI	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O I	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT (%)
( )	L E	INCREMENT	FT.)		Ö		(75)	(70)	LL	PI		(%)
0 —	}					Gray fine sand with clay (SP-SC)						
_	}					Gray clayey sand (SC)						
_	}					Dark brown fine sand with silt (SP-SM)						
_				$\Box$								
_				_								
5 —	1					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 112

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 SECTION: TOWNSHIP:

4.3

BORING DESIGNATION:

G.S. ELEVATION (ft): 32.50

WATER TABLE (ft):

DATE OF READING:

8/24/2018

SHEET:

RANGE:

1 of 1

LR / TM

DATE STARTED: 8/24/18

DRILLED BY:

DATE FINISHED: 8/24/18

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 3

**HA-112** 

DEPTH PER 6" INCREMENT (PT.) W.T. SAN DESCRIPTION (%) MC (%) MC (%) LIN PER 6" INCREMENT (PT.) W.T. SAN DESCRIPTION (%) MC (%) M	RBERG UCS (tsf)
Dark brown fine sand with silt (SP-SM)	
Dark brown fine sand with silt (SP-SM)	
5	
Boring terminated at 5 feet below grade	



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 113

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-113** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 32.00 DATE STARTED:

8/24/18

WATER TABLE (ft): 4.0

DATE FINISHED:

8/24/18

DATE OF READING:

8/24/2018

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
. ,	L E	INCREMENT	FI.)		O L		(**)	(*-,	LL	PI		(%)
0 —	}					Gray fine sand with clay (SP-SC)						
_						Gray clayey sand (SC)						
_	1			$\Box$		Dark brown fine sand with silt (SP-SM)						
_	1											
5 —	1					Boring terminated at 5 feet below grade						
						Borning terminated at 3 leet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

114

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-114** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 32.00 DATE STARTED:

8/24/18

WATER TABLE (ft): 4.0

DATE OF READING:

8/24/2018

DATE FINISHED:

DRILLED BY:

8/24/18 LR / TM

EST. W.S.W.T. (ft): 2.5

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI	RBERG MITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI	, í	(%)
0 —					1/2	Gray fine sand with clay (SP-SC)						
	I											
_	t					Gray clayey sand (SC)						
	I											
_	T			$\Box$		Dark brown fine sand with silt (SP-SM)						
_												
_	1			_								
	I											
5 —	1					Boring terminated at 5 feet below grade						
						-						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

115

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-115** 

PAGE:

SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 31.00

DATE STARTED:

8/24/18

1 of 1

WATER TABLE (ft):

3.5

DATE FINISHED:

8/24/18

DATE OF READING:

8/24/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

2.5

		_											
	DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
	( ,	Ĺ	INCREMENT	FT.)		O L		(75)	(70)	LL	PI		(%)
	0 —					: :122	Occupies and with also (OD OO)						
							Gray fine sand with clay (SP-SC)						
		U											
	_						Gray clayey sand (SC)						
		И											
	-						Dark brown fine sand with silt (SP-SM)						
		И			$\Box$		. ,						
	_	1											
	_												
		U											
	5 —					2.31132	Boring terminated at 5 feet below grade						
6													
1/11/1													
3DT													
GSC.													
Ź N N													
PJ U													
HA.G													
2018													
GINT													
90													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
BOR													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

116

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-116** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/24/18

G.S. ELEVATION (ft): 32.00 WATER TABLE (ft): 3.5

DATE FINISHED:

8/24/18

DATE OF READING: 8/24/2018 DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" ICREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	E "	NCKLIVILINI	11.)		Ö L				LL	PI		(70)
0 —						Gray fine sand with clay (SP-SC)						
_						Gray clayey sand (SC)						
_				$\nabla$		Dark brown fine sand with silt (SP-SM)						
_				_								
5 —						Poving towningted at 5 fact below grade						
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

117

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-117** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/24/18

G.S. ELEVATION (ft): 31.00 WATER TABLE (ft): 2.0

8/24/2018

DATE FINISHED:

8/24/18

DATE OF READING:

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMP.	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON (%)
	L		,		Ľ				LL	PI		(70)
0 —	}					Gray fine sand with clay (SP-SC)						
_	}			_		Gray clayey sand (SC)						
_						Dark brown fine sand with silt (SP-SM)						
5 —	1					Boring terminated at 5 feet below grade						
						Borning terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION:

SECTION:

HA-118

PAGE:

SHEET: 1 of 1

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 31.00

DATE STARTED:

8/24/18

WATER TABLE (ft): 2.0

DATE FINISHED: 8/24/18

DATE OF READING: 8/24/2018

DRILLED BY: LR / TM

DEPTH (FT.)	∾∢∑р ⊔ш	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
( )	Ĺ	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI		(%)
0 —						Gray fine sand with clay (SP-SC)						
_	1					Gray clayey sand (SC)						
_				<b>-¥</b> -		Dark brown fine sand with silt (SP-SM)						
5 —	1					Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

119

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-119** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/24/18

G.S. ELEVATION (ft): 30.00 WATER TABLE (ft): 2.0

DATE FINISHED:

8/24/18

DATE OF READING:

8/24/2018 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG CON (%)
(1 1.)	L E	INCREMENT	FT.)		O L		(70)	(70)	LL	PI		(%)
0 —						Gray fine sand with silt and shell (SP-SM)			ļ			
	1					Gray line sand with six and shell (Of -OM)						
_	4				000	Gray fine cand with city chall and rock fragments						
					500	Gray fine sand with silt, shell and rock fragments (SP-SM)						
_	4			┻		Light brown fine sand (SP)						
						Light brown line saild (Sr.)						
_	4											
_	4											
5 —	1					Boring terminated at 5 feet below grade						
						Bornig terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 120

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-120** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED: 8/24/18

8/24/18

WATER TABLE (ft): DATE OF READING: 8/24/2018

2.0

DATE FINISHED: DRILLED BY:

LR / TM

G.S. ELEVATION (ft): 30.00

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CON <sup>1</sup> (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	, ,	(%)
0 —						Gray fine sand with clay (SP-SC)			<b>_</b>			
	1					Gray line sand with day (GF-GC)						
_	1					White slaves and (OO)	1					
	1					White clayey sand (SC)						
_	1			≖								
	1											
_												
_	l											
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 121

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS:

BORING DESIGNATION:

SECTION:

**HA-121** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 30.00

DATE STARTED:

8/24/18

WATER TABLE (ft):

2.0

DATE FINISHED:

8/24/18

Elevation is estimated from the Topographic Map provided on 1/8/2019 DATE OF READING: 8/24/2018 DRILLED BY: LR / TM TYPE OF SAMPLING: ASTM D1452 EST. W.S.W.T. (ft): 2 **ATTERBERG** A M P N (BLOWS/ W.T. **BLOWS** ORG. MC (%) DEPTH (FT.) -200 (%) LIMITS DESCRIPTION PER 6" UCS (tsf) CONT.

Gray fine sand with clay (SP-SC)  White clayey sand (SC)	(%)	(%)	LL	PI	UCS (tsf)	(%)
Gray fine sand with clay (SP-SC)  White clayey sand (SC)						
White clayey sand (SC)					<del> </del>	
White clayey sand (SC)						l .
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						[ <b>]</b>
						[ <b>]</b>
						[ <b>]</b>
<b>1</b> + <b>1</b>   1   <b>1</b>					[ <b>]</b>	
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	5.3	15.9				[ <b>]</b>
						[ <b>]</b>
						[ <b>]</b>
5 Poring torminated at 5 feet helevy grade						
Boring terminated at 5 feet below grade						<b> </b>
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토						į <b>l</b>
<b>ਰ </b>						į <b>l</b>
g <b> </b>						į <b>l</b>
<b>게</b>						į <b>l</b>
BORING_LOG GINT 2018 HA GPJ UNIENGSC.GDT 1/11/19						į <b>l</b>
원						į <b>l</b>
m						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 122

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-122** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/24/18

WATER TABLE (ft):

2.0

DATE FINISHED:

8/24/18

DATE OF READING: 8/24/2018

G.S. ELEVATION (ft): 30.00

DRILLED BY:

LR / TM

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CON' (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	`	(%)
0 —									ļ			
						Gray fine sand with clay (SP-SC)						
_	H											
	Н					White clayey sand (SC)						
	H			ϫ								
	H											
_												
	И											
_	Н											
	И											
5 —	1					Boring terminated at 5 feet below grade	<u> </u>					
						Borning terminated at 0 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 123

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-123** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 28.50

DATE STARTED:

8/24/18

WATER TABLE (ft): DATE OF READING: 8/24/2018

2.0

DATE FINISHED: DRILLED BY:

8/24/18 LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	, í	(%)
0 —						Light brown fine sand with clay (SP-SC)			ļ	ļ		
	ľ					Light blown line sand with clay (SF-SC)						
_	1					Military Land						
	P					White clayey sand (SC)						
_	1			≖								
_												
_	l											
5 —		*				Boring terminated at 5 feet below grade	1			1		



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 124

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-124** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/24/18

G.S. ELEVATION (ft): 29.50 WATER TABLE (ft): 2.5

DATE STARTED: DATE FINISHED:

8/24/18

DATE OF READING: 8/24/2018 DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

DEPTH (FT.) S A M P PER 6" INCREMENT	N (BLOWS/ FT.) W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(F1.)     INCREMENT   E	FT.)	O L		(70)	(70)	LL	PI		(%)
0	\times_\		Light brown fine sand with clay (SP-SC)  White clayey sand (SC)	27.2	15.5				
5			Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

125

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-125** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/24/18

WATER TABLE (ft): 4.5

G.S. ELEVATION (ft): 30.00

DATE STARTED: DATE FINISHED:

8/24/18

DATE OF READING: 8/24/2018

DRILLED BY:

LR / TM

3

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	, ,	(%)
0 —					1777	Yellow clayey sand (SC)			<b> </b>			
						Tellow diayey dana (ee)						
_						Yellow fine sand with clay (SP-SC)						
						Tellow line said with elay (or -co)						
_												
_				$\Box$								
_												
				┻								
5 —												
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 126

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-126** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/24/18

G.S. ELEVATION (ft): 30.00 WATER TABLE (ft): 4.2

DATE FINISHED:

8/24/18

DATE OF READING: 8/24/2018 DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1.1.)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI	` ,	(%)
0 —	}					Yellow clayey sand (SC)						
- - -						Yellow fine sand with clay (SP-SC)						
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 127

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-127** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/24/18

G.S. ELEVATION (ft): 30.00 WATER TABLE (ft): 3.8

DATE FINISHED: 8/24/18

DATE OF READING: 8/24/2018 DRILLED BY:

DATE STARTED:

LR / TM

EST. W.S.W.T. (ft):

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(F1.)	Ĺ	INCREMENT	FT.)		O L		(70)	(%)	LL	PI		(%)
0 —	}					Brown fine sand with clay (SP-SC)						
_				abla		Yellowish brown fine sand with clay (SP-SC)						
5 —				▼		Yellow fine sand with clay (SP-SC)						
5—						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 128

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION: TOWNSHIP:

**HA-128** 

SHEET: RANGE:

DATE STARTED:

8/24/18

1 of 1

G.S. ELEVATION (ft): 30.00 WATER TABLE (ft):

3.9

DATE FINISHED:

8/24/18

DATE OF READING:

8/24/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	L E	INCREMENT	FT.)		ÖL		(70)	(70)	LL	PI	, ,	(%)
0 —						Brown fine sand with clay (SP-SC)						
-						Yellow fine sand with clay (SP-SC)						
5 —				_▼		Brown fine sand with trace silt (SP)  Boring terminated at 5 feet below grade						

BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

PAGE: 129

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION:

HA-129

SHEET: 1 of 1 RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/24/18

WATER TABLE (ft): 4.0

DATE FINISHED:

8/24/18

DATE OF READING: 8/24/2018

G.S. ELEVATION (ft): 30.00

DRILLED BY:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
	Ē	INORLIVILIA	1 1.,		L				LL	PI		(70)
0 —	}					Dark gray fine sand with silt (SP-SM)						
_						Brown fine sand with trace silt (SP)						
_	-			$\Box$								
_	1			_▼_								
5 —	1					Boring terminated at 5 feet below grade	<del>- </del>					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 130

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-130** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 30.00

8/27/2018

DATE STARTED:

8/27/18

WATER TABLE (ft): 3.9

DATE FINISHED:

8/27/18 LR / TM

EST. W.S.W.T. (ft): 3

DATE OF READING:

DRILLED BY:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MITS	UCS (tsf)	ORG. CONT. (%)
(,	Ĺ	INCREMENT	FT.)		Ö L		(70)	(70)	LL	PI		(%)
0 —						Dark gray fine sand with silt (SP-SM)				<b> </b>		
	1					Dark gray line sand with site (Si Siw)						
_	1											
	1											
_	1											
	1											
_	1			$\Box$		Decree for a read with ailt (OD OM)						
	1					Brown fine sand with silt (SP-SM)						
_	1			┻								
5 —	1											
Ŭ						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 131

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION: SECTION:

**HA-131** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 30.00

DATE STARTED:

8/27/18

WATER TABLE (ft):

DATE OF READING:

4.0

8/27/2018

DATE FINISHED: DRILLED BY:

8/27/18 LR / TM

EST. W.S.W.T. (ft): 3

Г		0			ı		E31. W.3.W.1. (II)						
	DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO-	DESCRIPTION	-200 (%)	MC (%)	ATTER LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	(ГІ.)	L	INCREMENT	FT.)		O L		(70)	(70)	LL	PI	555 (44.)	(%)
Γ	0 —					2000							
							Dark brown fine sand with silt (SP-SM)						
		K											
	_												
		I											
	-	1					Brown fine sand with trace silt (SP)						
	_	4			$\Box$								
	_				┻								
	_	K											
	5 —						Boring terminated at 5 feet below grade						
11/19													
DT 1/													
SC.G													
JENG													
2													
HA.GF													
2018													
UNIS													
90													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
BOR													



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

PAGE: 132

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION:

HA-132

SHEET: 1 of 1

SECTION: T

TOWNSHIP:

G.S. ELEVATION (ft): 28.00

WATER TABLE (ft): 3.5

DATE FINISHED:

HED: 8/27/18

DATE OF READING: 8/27/2018

DRILLED BY:

DATE STARTED:

LR / TM

8/27/18

DEPTH (FT.)	S A M P -	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON (%)
	L E		,		L				LL	PI		(70)
0 —	ł					Dark gray fine sand with silt (SP-SM)						
_						Dark brown fine sand with silt (SP-SM)						
_				_		Brown fines sand with trace silt (SP)						
_				▼								
_												
5 —	1					Boring terminated at 5 feet below grade	<del>-</del>					
							1					



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 133

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-133** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/27/18

G.S. ELEVATION (ft): 29.50 WATER TABLE (ft):

3.5

DATE STARTED: DATE FINISHED:

8/27/18

DATE OF READING: 8/27/2018

DRILLED BY:

LR / TM

3

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0 —	Ē				Ĺ	Dark gray fine sand with silt (SP-SM)			LL	PI		
-	<u> </u>					Brown fine sand with trace silt (SP)	_					
-				▼.								
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 134

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-134** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/27/18

G.S. ELEVATION (ft): 29.00 WATER TABLE (ft): 4.0

8/27/2018

DATE FINISHED:

8/27/18

EST. W.S.W.T. (ft): 3

DATE OF READING:

DRILLED BY: LR / TM

_		- I				۱ - ۱							
	DEDTU	SAMPLE	BLOWS	N		SYMBOL		200	MC	ATTER LIM	BERG		ORG.
	DEPTH (FT.)	P	BLOWS PER 6" INCREMENT	(BLOWS/ FT.)	W.T.	B	DESCRIPTION	-200 (%)	MC (%)			UCS (tsf)	ORG. CONT. (%)
L		Ē	INOREMENT	1 1.,		L				LL	PI		(70)
	0 —					्र स्ट्राज्यतम्	Dark grow fine cond with all (CD CM)						
							Dark gray fine sand with silt (SP-SM)						
		И											
	_	T											
	_	И											
							Brown fine sand with trace silt (SP)						
		И											
	_	t			$\Box$								
	_	Ц			┻								
		И											
	5 —						Boring terminated at 5 feet below grade						
11/15													
7													
C.GE													
NGS													
ij													
GP.													
3 HA.													
2018													
GINT													
90													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
SORIE													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 135

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-135** TOWNSHIP:

1 of 1 SHEET: RANGE:

DATE STARTED:

DRILLED BY:

8/27/18

G.S. ELEVATION (ft): 28.00 WATER TABLE (ft):

4.0

8/27/2018

DATE FINISHED:

8/27/18

DATE OF READING:

LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG MTS	UCS (tsf)	ORG CON <sup>-</sup> (%)
(1 1.)	L E	INCREMENT	FT.)		O L		(70)	(70)	LL	PI	, ,	(%)
0 —						Dark gray fine sand with silt (SP-SM)						
						Dark gray line sand with sit (3F-3M)						
_	Ш											
_												
						Brown fine sand with trace silt (SP)						
	KI			$\Box$								
_												
	Ш			_								
_	1			_								
	И											
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 136

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-136** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 30.00

DATE STARTED:

8/27/18

WATER TABLE (ft): DATE OF READING:

3.5

8/27/2018

DATE FINISHED: DRILLED BY:

8/27/18 LR / TM

EST. W.S.W.T. (ft):

Г		ş				S	EST. W.S.W.T. (ft	: 3	''	_		G: ASTM [	
D	EPTH FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	0 —	Ė		,		Ľ				LL	PI		
	U						Dark gray fine sand with silt (SP-SM)						
	_	1											
		l											
							Brown fine sand with trace silt (SP)						
	_	1			고								
		l			_								
	5 —	1					Boring terminated at 5 feet below grade						
2													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 137

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-137** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/27/18

G.S. ELEVATION (ft): 29.00 WATER TABLE (ft): 3.5

DATE OF READING:

DATE FINISHED:

8/27/18

8/27/2018

DRILLED BY: LR / TM

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG	UCS (tsf)	ORG. CONT. (%)
. ,	L E	INCREMENT	FI.)		O L		(**)	(**)	LL	PI		(%)
0 —	}					Dark gray fine sand with silt (SP-SM)						
-	1					Brown fine sand with trace silt (SP)						
-	1											
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 138

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-138** TOWNSHIP:

1 of 1 SHEET: RANGE:

SECTION:

DATE STARTED:

8/27/18

WATER TABLE (ft):

G.S. ELEVATION (ft): 30.00

4.0

8/27/18 DATE FINISHED:

DATE OF READING: 8/27/2018

DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTER	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ D		(70)	(70)	LL	PI		(%)
0 —	}					Dark gray fine sand with silt (SP-SM)						
_						Dark brown fine sand with silt (SP-SM)						
_						Brown fine sand with trace silt (SP)						
_	1			<u> </u>								
5 —	}											
J						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 139

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-139** TOWNSHIP:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft): 29.50

8/27/2018

DATE STARTED: 8/27/18

WATER TABLE (ft): 3.8

DATE OF READING:

DATE FINISHED: DRILLED BY:

8/27/18 LR / TM

DEPTH (FT.)	RTUZYS	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBO-	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(,	Ĺ	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
0 —						Dark gray fine sand with silt (SP-SM)						
_						Dark brown fine sand with silt (SP-SM)	_					
_						Brown fine sand with trace silt (SP)	_					
-	1			$\overline{\Box}$								
_	1			▼.								
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 140

SHEET:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-140** TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 30.00

8/27/2018

DATE STARTED:

8/27/18

1 of 1

WATER TABLE (ft):

4.5

DATE FINISHED: DRILLED BY:

8/27/18 LR / TM

EST. W.S.W.T. (ft): 3

DATE OF READING:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI	, ,	(%)
0 —					3.51114	Dark brown fine sand with silt (SP-SM)			<b> </b>			
						Dark brown line sand with sit (Sr -Sivi)						
_	4					Brown fine sand with trace silt (SP)						
						Brown line sand with trace slit (SP)						
_	Ц											
_	K			$\nabla$								
_												
				_								
5 —	H											
5 —						Boring terminated at 5 feet below grade						
							1		1			



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620

141

RANGE:

Proposed Moccasin Wallow Road Improvements PROJECT:

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-141** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

PAGE:

8/27/18

G.S. ELEVATION (ft): 29.00 WATER TABLE (ft): 4.2

DATE STARTED: DATE FINISHED:

8/27/18

DATE OF READING: 8/27/2018 DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

TYPE OF SAMPLING: ASTM D1452 SYMBO. **ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Dark brown fine sand with silt (SP-SM) Brown fine sand with trace silt (SP)  $\nabla$ ▼ Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 142

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

**HA-142** TOWNSHIP:

1 of 1 SHEET: RANGE:

G.S. ELEVATION (ft): 29.00 DATE STARTED: 8/27/18

WATER TABLE (ft):

4.5

DATE FINISHED:

8/27/18

DATE OF READING: 8/27/2018

DRILLED BY:

LR / TM

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O L	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0 —	È				Ľ	Dark brown fine sand with silt (SP-SM)			LL	PI		
_	1					Brown clayey sand (SC)	-					
-	1			abla								
_	1											
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 143

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-143** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/27/18

G.S. ELEVATION (ft): 28.00 WATER TABLE (ft): 3.5

DATE FINISHED:

8/27/18

DATE OF READING: 8/27/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

3

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O-	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG ITS	UCS (tsf)	ORG. CONT. (%)
0 —						Dark brown fine sand with silt (SP-SM)						
-				□ ■		Brown fine sand with trace silt (SP)	_					
- 5 <i>-</i>						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

144

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION: SECTION: TOWNSHIP:

**HA-144** 

1 of 1 SHEET: RANGE:

DATE STARTED:

8/27/18

G.S. ELEVATION (ft): 27.50 WATER TABLE (ft): 1.5

8/27/2018

DATE FINISHED:

8/27/18 LR / TM

DATE OF READING:

DRILLED BY:

						EST. W.S.W.T. (ft	): 2	TY	PE OF S	AMPLING	G: ASTM [	D1452
DEPT (FT.)	H M P L	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O I	DESCRIPTION	-200 (%)	MC	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(F1.,	Ĺ	INCREMENT	FT.)		Ö		(%)	(%)	LL	PI	000 (10.7)	(%)
0						Brown fine sand with silt (SP-SM)						
	4											
				<b>▼</b>								
	4					Brown fine sand with trace silt (SP)						
5		1			es (la eja)	Boring terminated at 5 feet below grade						
n e												
10.00 CE												
BURING_EUG GINT ZOTO HA.GF.3 UNENGSU.GDT 1717/19												
NIS I												
50												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 145

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

G.S. ELEVATION (ft): 26.50

2.0

8/27/2018

WATER TABLE (ft):

DATE OF READING:

SECTION:

**HA-145** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/27/18

DATE STARTED:

8/27/18 DATE FINISHED: DRILLED BY: LR / TM

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ŏ		(70)	(70)	LL	PI		(%)
0 —	1					Dark brown fine sand with silt (SP-SM)						
-	1					Brown fine sand with trace silt (SP)						
5						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

146

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-146** 

1 of 1 SHEET:

SECTION:

TOWNSHIP:

8/28/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft):

2.0

8/28/18 DATE FINISHED:

DATE OF READING: 8/28/2018

DATE STARTED:

DRILLED BY: LR / TM

RANGE:

0 —	S A BLOWS PER 6" INCREMEN'	N (BLOWS/FT.)	SYMBOL	Dark brown fine sand with silt (SP-SM)	-200 (%)	(%)	LL	PI	ORG. CONT (%)
0				Dark brown fine sand with silt (SP-SM)					
				Brown fine sand with trace silt (SP)					
+				Dark brown fine sand with silt (SP-SM)					
5	<u> </u>			Boring terminated at 5 feet below grade					 



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 147

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-147** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

DATE STARTED:

8/28/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft):

DATE OF READING:

2.0

DATE FINISHED:

8/28/18

2

8/28/2018

DRILLED BY: LR / TM

RANGE:

TYPE OF SAMPLING: ASTM D1452 EST. W.S.W.T. (ft):

DEPTH M P PER 6" INCREMENT	N (BLOWS/ W.T. M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
E INCREMENT	FI.) O		(/-5/	(7-7)	LL	PI		(%)
0	_▼	Dark brown fine sand with silt (SP-SM)						
5		Brown fine sand with trace silt (SP)						
BORING_LOG GINT 2018 HA GPJ UNIENGSC.GDT 1/11/19		Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 148

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-148** 

1 of 1 SHEET:

SECTION:

TOWNSHIP:

8/28/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft):

2.5

DATE FINISHED:

8/28/18

DATE OF READING: 8/28/2018 DRILLED BY:

DATE STARTED:

LR / TM

				1			EST. W.S.W.T. (ft	): 2	TY	PE OF S	AMPLIN	G: ASTM [	01452
	DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC	ATTER LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
L	(F1.)	L E	INCREMENT	` FT.)		Ö		(%)	(%)	LL	PI	000 (10.7)	(%)
	0 —						Dark brown fine sand with silt (SP-SM)						
	_												
		ľ					Brown fine sand with silt (SP-SM)						
	-	4			✓		Brown fine sand with trace silt (SP)						
					▼								
	_						Dark brown fine sand with silt (SP-SM)						
	-	4											
		I											
	5 —					1 - 1 - 1 - 1 - 1	Boring terminated at 5 feet below grade						
9													
⊤ 1/11/													
3SC.GD													
ONIEN													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
T 2018 I													
NG GIN													
SING_LC													
ģ 													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 149

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-149** 

1 of 1 SHEET:

TOWNSHIP:

RANGE:

G.S. ELEVATION (ft): 27.00

DATE STARTED:

8/28/18

WATER TABLE (ft): DATE OF READING:

2.3

8/28/2018

DATE FINISHED:

8/28/18

DRILLED BY:

LR / TM

DEPTH (FT.)	S A B M P INCI	LOWS PER 6" REMENT	N (BLOWS/ FT.)	W.T.	S Y M B O.	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0 —						Dark brown fine sand with silt (SP-SM)						
-				\ <u>\\\</u>		Brown fine sand with trace silt (SP)  Dark brown fine sand with silt (SP-SM)						
- 5 —						Boring terminated at 5 feet below grade						
						Borning terminated at 3 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 150

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-150** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

DATE STARTED:

8/28/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft): 3.0

DATE OF READING:

8/28/2018

DATE FINISHED: DRILLED BY:

8/28/18 LR / TM

EST. W.S.W.T. (ft): 2.5

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON (%)
	Ē		,		L				LL	PI		(,0)
0 —						Dark brown fine sand with silt (SP-SM)						
_						Brown fine sand with trace silt (SP)						
_				▼.		Dark brown fine sand with silt (SP-SM)						
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 151

SHEET:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

**HA-151** BORING DESIGNATION: SECTION: TOWNSHIP:

RANGE:

1 of 1

8/28/18

G.S. ELEVATION (ft): 27.00 DATE STARTED:

WATER TABLE (ft): 3.2

8/28/18 DATE FINISHED:

DATE OF READING: 8/28/2018

DRILLED BY: LR / TM

EST. W.S.W.T. (ft): 2.5

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
( ,	L E	INCREMENT	FI.)		O L		(7-)	(/-)	LL	PI		(%)
0 —	1					Dark brown fine sand with silt (SP-SM)						
_	1					Brown fine sand with trace silt (SP)  Dark brown fine sand with silt (SP-SM)						
5 —						Boring terminated at 5 feet below grade						
						Borning terminiated at a feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 152

SHEET:

RANGE:

Proposed Moccasin Wallow Road Improvements PROJECT:

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

**HA-152** BORING DESIGNATION: SECTION: TOWNSHIP:

DATE STARTED: 8/28/18

1 of 2

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft):

3.6

DATE FINISHED: 8/28/18

DATE OF READING: 8/28/2018 DRILLED BY:

LR / TM TYPE OF SAMPLING: ASTM D1452

EST. W.S.W.T. (ft): 25 SYMBO. **ATTERBERG** A M P **BLOWS** N (BLOWS/ W.T. ORG. DEPTH -200 MC CONT. PER 6" INCREMENT DESCRIPTION UCS (tsf) (FT.) (%) (%) FT.) LL Ы 0 Gray fine sand with silt (SP-SM) Dark brown fine sand with silt (SP-SM) ▼ Gray fine sand (SP) Boring terminated at 5 feet below grade BORING\_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

PAGE: 153

PROJECT:

Proposed Moccasin Wallow Road Improvements Moccasin Wallow Road From US 41 to West of I 75 Parrish, Manatee County, FL BORING DESIGNATION: SECTION:

**HA-152** TOWNSHIP:

SHEET: 2 of 2

RANGE:

DE (I	EPTH FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	,	E	INCREMENT	FT.)		O L		. ,		LL	PI		(%)
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/1/1/19		<u>E</u>									PI		



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 153

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-153** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/28/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft):

3.8

DATE FINISHED:

8/28/18

DATE OF READING:

8/28/2018 DRILLED BY: LR / TM

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)		RBERG MITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
	Ē				Ľ				LL	PI		
0 —	}					Gray fine sand with silt (SP-SM)						
_	1			✓		Dark brown fine sand with silt (SP-SM)						
_				_▼		Gray fine sand (SP)						
5 —	1											
						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 154

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-154** 

1 of 1 SHEET:

TOWNSHIP:

DATE STARTED:

8/28/18

G.S. ELEVATION (ft): 26.00 WATER TABLE (ft): 4.5

DATE FINISHED:

8/28/18

3

DATE OF READING:

8/28/2018

DRILLED BY: LR / TM

DEPTH (FT.)	SAMP.	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG CON (%)
( )	Ĺ	INCREMENT	FT.)		O L		(,,,	(70)	LL	PI		(%)
0 —					र स्वातनार	Cray fine conducth oil (CD CM)			ļ			
						Gray fine sand with silt (SP-SM)						
_												
						Dark brown fine sand with silt (SP-SM)						
	И											
_	t											
	И											
_	Н			$\Box$								
	И											
_	4					Light brown fine sand (SP)	-					
				┻		Light brown line sand (3F)						
5 —							<u></u>					
Ü						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 155

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-155** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/28/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft): 4.3

DATE FINISHED:

8/28/18

DATE OF READING: 8/28/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

_													
	DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	()	F	INCREMENT	F1.)		O L		(/-/	(//	LL	PI		(%)
	0 —												
	Ū						Gray fine sand with silt (SP-SM)						
		ı											
	_												
	_	1					D 11 (0D 010)						
							Dark brown fine sand with silt (SP-SM)						
		ı			\\\\\\\\\\\								
	_												
		П											
	_	Н			_		Light brown fine sand (SP)						
							5						
	5 —	1											
							Boring terminated at 5 feet below grade						
/19													
1/11													
GDT.													
IGSC													
NEN													
PJ L													
HA.G													
2018													
GINT													
90													
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19													
BOR													



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 156

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-156** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/28/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft): 4.5

DATE FINISHED:

8/28/18

DATE OF READING:

8/28/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):	3	TYPE OF SAMPLING:	ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O I	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1.1.)	L E	INCREMENT	FT.)		Ŏ L		(70)	(70)	LL	PI		(%)
0 —	}					Gray fine sand with silt (SP-SM)						
_				abla		Dark brown fine sand with silt (SP-SM)						
5 —						Light brown fine sand (SP)						
5 <del></del>						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 157

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

SECTION:

**HA-157** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

G.S. ELEVATION (ft): 27.00

DATE STARTED:

8/28/18

WATER TABLE (ft): 4.5 DATE OF READING: 8/28/2018

8/28/18 DATE FINISHED: DRILLED BY: LR / TM

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1.1.)	Ĺ	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI		(%)
0 —	}					Gray fine sand with silt (SP-SM)						
						Dark brown fine sand with silt (SP-SM)						
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5 —						Boring terminated at 5 feet below grade						
BURING LOG GINT 2018 HA.GPJ UNENGSC.GDT 1/11/19												
2018 HA. GPJ												
ECO GIN												
BOKING BOKING												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 158

Proposed Moccasin Wallow Road Improvements PROJECT:

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-158** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

8/28/18

G.S. ELEVATION (ft): 26.50 WATER TABLE (ft): 4.2

DATE STARTED: DATE FINISHED:

8/28/18

DATE OF READING: 8/28/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

TYPE OF SAMPLING: ASTM D1452

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PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 159

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-159** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/28/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft): 4.5

DATE FINISHED:

8/28/18

DATE OF READING:

8/28/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
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5 —						Boring terminated at 5 feet below grade	-			1		



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 160

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-160** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/28/18

G.S. ELEVATION (ft): 26.50 WATER TABLE (ft): 4.5

DATE FINISHED:

8/28/18

DATE OF READING: 8/28/2018

DRILLED BY:

LR / TM

3

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	,	(%)
0 —	}					Dark brown fine sand with silt (SP-SM)						
_	1					Gray fine sand with trace silt (SP)						
_				abla		Brown fine sand with trace silt (SP)						
_	}											
5 —						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 161

RANGE:

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-161** 

1 of 1 SHEET:

SECTION: TOWNSHIP:

DATE STARTED:

8/29/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft):

4.0

8/29/2018

DATE FINISHED:

8/29/18

DATE OF READING:

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452 3

DEPTH (FT.)	S A M P	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG CON <sup>-</sup> (%)
(1 1.)	Ĺ	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	, ,	(%)
0 —												
						Dark brown fine sand with silt (SP-SM)						
	K											
						Gray fine sand with trace silt (SP)						
	l											
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	1					Light brown line Sand (SF)						
5 —	1											
ŭ						Boring terminated at 5 feet below grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 162

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-162** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/29/18

G.S. ELEVATION (ft): 26.50 WATER TABLE (ft): 4.2

DATE FINISHED:

8/29/18

DATE OF READING: 8/29/2018

DRILLED BY:

LR / TM

52

EST. W.S.W.T. (ft): 3	TYPE OF SAMPLING:	ASTM D1452
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DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG IITS	UCS (tsf)	ORG CON <sup>1</sup> (%)
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						Dark brown fine sand with silt (SP-SM)						
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	П											
5 —						Boring terminated at 5 feet below grade	<u> </u>					



PROJECT NO.: 1130.1800187.0000

REPORT NO.: 13620

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PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION:

HA-163

SHEET: 1 of 1 RANGE:

SECTION: TOWNSHIP:

G.S. ELEVATION (ft): 27.00 DATE

DATE STARTED: 8/29/18

WATER TABLE (ft): 4.0

DATE FINISHED:

8/29/18

DATE OF READING: 8/29/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3 TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O	DESCRIPTION	-200 (%)	MC (%)	ATTE	RBERG IITS	UCS (tsf)	ORG CONT (%)
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	I											
_												
	ı			$\Box$								
_	T											
	П			_								
_	1			_		Light brown fine sand with trace silt (SP)	1					
	П											
5 —	1					Boring terminated at 5 feet below grade	<u> </u>					
						g						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 164

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-164** 

1 of 1 SHEET: RANGE:

TOWNSHIP:

8/29/18

G.S. ELEVATION (ft): 26.50 WATER TABLE (ft):

4.0

DATE FINISHED:

DATE STARTED:

8/29/18

DATE OF READING: 8/29/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMP LE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG MITS	UCS (tsf)	ORG CON (%)
	F	INCREMENT	11.)		O L				LL	PI		(70)
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+												
	I											
	Ì											
-	4			$\Box$								
	I											
	Ì			_		Light brown fine sand with trace silt (SP)						
5 —	1					Boring terminated at 5 feet below grade						
						Dorning to minimated at 0 100t Dollon grade						



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE:

165

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-165** TOWNSHIP:

1 of 1 SHEET: RANGE:

DATE STARTED:

8/29/18

G.S. ELEVATION (ft): 27.00 WATER TABLE (ft):

4.2

DATE FINISHED:

8/29/18

EST. W.S.W.T. (ft): 3

DATE OF READING: 8/29/2018 DRILLED BY: LR / TM

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTEF LIM	RBERG IITS	UCS (tsf)	ORG. CONT. (%)
	E				L							
0 -	1					Dark brown fine sand with silt (SP-SM)						
	I											
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	1			$\Box$								
	1			┻		Light brown fine sand with trace silt (SP)	1					
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2												
-												
5												
5												
DONING_EOG GINT 2018 IP. OF O ONE NOOC. OF 17 IT. OF												
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PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 166

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019

BORING DESIGNATION: SECTION:

**HA-166** 

1 of 1 SHEET:

TOWNSHIP: RANGE:

8/29/18

G.S. ELEVATION (ft): 26.00

4.3

DATE STARTED: DATE FINISHED:

8/29/18

WATER TABLE (ft): DATE OF READING: 8/29/2018

DRILLED BY:

LR / TM

3

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B	DESCRIPTION	-200 (%)	MC (%)		RBERG IITS	UCS (tsf)	ORG. CONT. (%)
0 —	Ė			*****	Ľ	Dark brown fine sand with silt (SP-SM)			LL	PI		
	1											
	1					Brown fine sand with trace silt (SP)	_					
5 —						Boring terminated at 5 feet below grade						
C.GDT 1/11/19												
SPJ UNIENGS												
BORING_LOG GINT 2018 HA.GPJ UNIENGSC.GDT 1/11/19												
ORING_LOG (												



PROJECT NO.: 1130.1800187.0000 REPORT NO.: 13620 PAGE: 167

PROJECT: Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road From US 41 to West of I 75

Parrish, Manatee County, FL

CLIENT: Cardno

LOCATION: See Boring Location Plan

REMARKS: Elevation is estimated from the Topographic Map provided on 1/8/2019 BORING DESIGNATION:

**HA-167** 

1 of 1 SHEET: RANGE:

SECTION: TOWNSHIP:

DATE STARTED:

8/29/18

G.S. ELEVATION (ft): 26.00 WATER TABLE (ft): 4.2

DATE FINISHED:

8/29/18

DATE OF READING: 8/29/2018

DRILLED BY:

LR / TM

EST. W.S.W.T. (ft): 3

TYPE OF SAMPLING: ASTM D1452

DEPTH (FT.)	SAMP.	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S M B O	DESCRIPTION	-200 (%)	MC (%)	ATTEI LIN	RBERG MITS	UCS (tsf)	ORG CONT (%)
(1 1.)	L E	INCREMENT	FT.)		Ö		(70)	(70)	LL	PI	`	(%)
0 —						Dark brown fine sand with silt (SP-SM)			ļ	ļ		
						Dark brown line sand with siit (SP-SW)						
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	И			$\Box$								
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_	t			┻		Brown fine sand with trace silt (SP)	-					
	И											
5 —						Boring terminated at 5 feet below grade						
						-						



# UNIVERSAL ENGINEERING SCIENCES

GEOTECHNICAL EXPLORATION
PROPOSED MAST ARM STRUCTURES
MOCCASIN WALLOW ROAD
PALMETTO, MANATEE COUNTY; FL

UES PROJECT NO.:1130.1800187.0000 UES REPORT NO.: 14602

#### **Prepared For:**

Cardno 380 Park Place Boulevard, Suite 300 Clearwater, FL 333759

#### Prepared By:

Universal Engineering Sciences, Inc. 1748 Independence Boulevard, Ste. B-1 Sarasota, FL 34234 (941) 358-7410

January 16, 2020



January 16, 2020

Cardno 380 Park Place Boulevard, Suite 300 Clearwater, FL 333759

Attn: Mr. Hamid R. Faraji, PE

Reference: **GEOTECHNICAL EXPLORATION** 

Proposed Mast Arm Structures

Moccasin Wallow Road

Palmetto, Manatee County; FL

UES Project No.:1130.1800187.0000

UES Report No.: 14602

Dear Mr. Faraji:

Universal Engineering Sciences, Inc. (UES) has completed the subsurface exploration for the above referenced project. The scope of our exploration was planned in conjunction with and authorized by you.

This report contains the results of our exploration, an engineering interpretation of these results with respect to the project characteristics described to us, and recommendations to aid in foundation design, and site preparation.

We appreciate the opportunity to have worked with you on this project and look forward to a continued association. 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 Number 549

Yudelsy Alvarez Project Engineer Robert Gomez, P.E. #58348 Branch Manager

LOCATIONS:

Jacksonville

Orlando (Headquarters)Palm CoastPanama CityPensacolaRockledge

Miami

Sarasota
St. Petersburg
Tampa
Tifton
West Palm Beach

Ocala

AtlantaDaytona BeachFort MyersFort PierceGainesville

RG/YA:

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#### **LIST OF APPENDICES**

#### **APPENDIX A**

SITE LOCATION PLAN
BORING LOCATION PLAN
SCS SOIL SURVEY MAP
BORING LOGS
SOIL CLASSIFICATION CHART

#### **APPENDIX B**

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT CONSTRAINTS AND RESTRICTIONS GENERAL CONDITIONS

#### 1.0 INTRODUCTION

#### 1.1 GENERAL

In this report, we present the results of the subsurface exploration of the proposed mast arm structures. A general location plan of the project appears in Appendix A: Site Location Plan. We have divided this report into the following sections:

- SCOPE OF SERVICES Defines what we did
- FINDINGS Describes what we encountered
- RECOMMENDATIONS Describes what we encourage you to do
- LIMITATIONS Describes the restrictions inherent in this report
- APPENDICES Presents support materials referenced in this report.

#### 2.0 SCOPE OF SERVICES

#### 2.1 PROJECT DESCRIPTION

The project consists of the construction of mast arms structures within three (3) intersections along Moccasin Wallow Road in Palmetto, FL. A site plan showing the pole locations was provided to us.

Our recommendations are based upon the above considerations. If any of this information is incorrect or if you anticipate any changes, inform Universal Engineering Sciences so that we may review our recommendations.

#### 2.2 PURPOSE

The purposes of this exploration were:

- To explore the general subsurface conditions at the site;
- To interpret and review the subsurface conditions with respect to the proposed construction; and
- To provide geotechnical engineering recommendations for foundation design, and site preparation.

Recommendations concerning other soil related considerations were beyond the scope of our exploration. This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. Our work did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. Universal Engineering Sciences would be pleased to perform these services, if you desire.



#### 2.3 FIELD EXPLORATION

The subsurface conditions were explored by drilling and sampling eleven (11) Standard Penetration Test (SPT) borings within the intersection areas to a depth of 40 feet below existing grades.

We performed the Standard Penetration Test using our truck mounted drill rig utilizing mud rotary procedures according to the procedures of ASTM D-1586, with continuous sampling performed above a depth of 10 feet, to detect slight variations in the soil profile at shallow depths, and then at five-foot intervals thereafter. The basic procedure for the Standard Penetration Test is as follows: A standard split-barrel sampler is driven into the soil by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler 1-foot, after seating 6 inches, is designated the penetration resistance, or N-value; this value is an index to soil strength and consistency.

The boring locations were located by our drill crew based on the site plan and existing site conditions. The test boring locations are shown on the attached Boring Location Plan in Appendix A as B-1 through B-11.

#### 2.4 LABORATORY INVESTIGATION

The soil samples recovered from the soil test borings were returned to our laboratory and then an engineer visually examined and reviewed the field descriptions. We selected representative soil samples for laboratory testing consisting of ten (10) wash 200 determinations and moisture content tests.

We performed these tests to aid in classifying the soils and to help evaluate the general engineering characteristics of the site soils. See Appendix A: Boring Logs and Description of Testing Procedures for further data and explanations. Jar samples of the soils will be held in our laboratory for your inspection for sixty days unless we are notified otherwise.

#### 3.0 FINDINGS

#### 3.1 SURFACE CONDITIONS

A Universal Engineering Sciences representative performed a visual site observation of the subject property to gain a "hands-on" familiarity of the project area. The overall existing roadways are relatively level and generally elevated above surrounding grade and consist of ditches along the roadside for drainage.

#### 3.2 SOIL SURVEY-PUBLISHED INFORMATION

The "Soil Survey of Manatee County, Florida", published by the published by the United States Department of Agriculture (USDA) - Soil Conservation Service (SCS), was reviewed for general near-surface soil information prior to development within the general project vicinity. The USDA, SCS primary soil mapping groups within the proposed project area, and some characteristics and properties are summarized below. The location of these groups can be observed on the SCS Soil Survey Map provided in the Appendix A.



<u>EauGallie</u> (Soil Group No. 20): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 42 inches, sandy clay loam from 42 to 50 inches, and fine sand from 50 to 65 inches below grade. Based on the soil survey, the water table is from 6 to 18 inches below grade.

<u>Felda</u> (Soil Group No. 22): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 35 inches, fine sandy loam from 35 to 43 inches, and extremely paragravelly fine sand from 43 to 80 inches below grade. Based on the soil survey, the water table is from the ground surface to 12 inches below grade.

<u>Floridana-Immokalee-Okeelanta</u> (Soil Group No. 26): Under natural conditions, this soil group consists of fine sand and **muck** from the surface to a depth of about 20 inches, fine sand from 20 inches to 36 inches; sandy clay loam from 36 to 63 inches, and fine sand from 63 to 80 inches below grade. Based on the soil survey, the water table is at the ground surface.

<u>Palmetto</u> (soil Group No. 38): Under natural conditions, this soil group consists of sand from the surface to a depth of 45 inches, sandy clay loam from 45 to 64 inches, and loamy sand from 64 to 68 inches below grade. Based on the soil survey, the water table is at the ground surface.

<u>Tavares</u> (soil Group No. 45): This soil group consists of fine sand from the surface to a depth of about 80 inches below grade. Based on the soil survey, the water table is from 42 to 72 inches below grade, under natural conditions.

<u>Wabasso</u> (Soil Group No. 48): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 37 inches, sandy clay loam from 37 to 65 inches, and fine sand from 65 to 80 inches below grade. Based on the soil survey, the water table is from 6 to 18 inches below grade.

#### 3.3 SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix A: Boring Location Plan and Boring Logs. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soil samples. Also, see Appendix A: Soils Classification Chart, for further explanation of the symbols and placement of data on the Boring Logs. The following table summarizes the soil conditions encountered.



		TABLE 1 General Soil Profile
Typica (f	l depth t)	Soil Descriptions
From	То	
		B-1 – B-4: Moccasin Wallow Rd and 36 <sup>th</sup> Ave Intersection
0	2	Fine sand with silt [SP-SM]
2	6	Fine sand [SP]
6	8	Loose to medium dense fine sand with trace silt [SP]
8	12	Loose fine sand with trace silt [SP]
12	17	Medium dense to loose fine sand [SP]
17	32	Very dense clayey sand, and stiff to very hard clay [SC, CL/CH]
32	40*	Very hard clay [CL/CH]
	B-5	5 – B-7: Moccasin Wallow Rd and Artisian Lakes Pkwy Intersection
0	4	Very loose to loose fine sand, and fine sand with silt and roots [SP, SP-SM]
4	8	Medium dense fine sand, and clayey sand [SP, SC]
8	17	Very loose to loose fine sand, and clayey sand [SP, SC]
17	22	Very loose clayey sand, and medium stiff clay [SC, CL]
22	40*	Very hard clay [CL]
		B-8 – B-11 Moccasin Wallow Rd and Gateway Blvd Intersection
0	4	Fine sand with silt [SP-SM]
4	6	Fine sand, and fine sand with silt [SP, SP-SM]
6	12	Loose to medium dense fine sand with trace silt [SP]
12	17	Loose to medium dense silty clayey sand with shell, phosphates, and limestone fragments [SC-SM]
17	22	Loose silty clayey sand with shell, phosphates, and limestone fragments, and still clay [SC-SM, CL]
22	32	Loose clayey sand, and stiff to very hard clay [SC, CL]
32	40*	Very hard clay [CL]
		ntion Depth of Deepest Boring ed Text Indicates: Unified Soil Classification



Variations in the depth, thickness and consistency of the aforementioned soil strata occurred at the individual test boring locations. We encountered groundwater at depths ranging from 3.5 to 6 feet below existing grade at the time of our investigation. The variations in the measured water levels are attributed to the variation in the ground surface elevation at this site as well as the soil type encountered.

Shallow clayey soils were encountered in the soil borings. These soils may be moisture sensitive and difficult to compact if encountered during construction.

Very dense cemented sands and very hard cemented clays (rock-like material) were encountered in the borings below a depth of 22 feet with N-values of more than 50 blows per foot. This soil may vary across the site in depth and consistency, and may be difficult to excavate.

#### 4.0 RECOMMENDATIONS

#### **4.1 GENERAL**

The following recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the assumed structural loadings, building locations, building sizes, or grading plans change or are different from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

Additionally, if subsurface conditions are encountered during construction which was not encountered in the borings, report those conditions immediately to us for observation and recommendations.

In this section of the report, we present our detailed recommendations for groundwater control, building foundations, and site preparation.

#### 4.2 GROUNDWATER CONSIDERATIONS

The groundwater table will fluctuate seasonally depending upon local rainfall and tidal fluctuation. Temporary dewatering may be required for deeper excavations, such as large foundation elements, elevator pits and utility trenches. Surface drainage and dewatering measures may be required during site preparation procedures such as proof-compacting of the existing soils, and fill placement particularly if construction proceeds during the wet season. Further, we recommend that the groundwater table be maintained 18 to 24 inches below earthwork and compaction surfaces.

We recommend sufficient quantities of fill be placed in the building and pavement areas to mitigate the effect of groundwater on shallow excavations, such as foundations. Further, we recommend the bottom of the base course used in pavement construction be maintained at least 18 inches above the seasonal high water levels.

Temporary dewatering may be required during site preparation, especially if construction proceeds during the wet season or periods of heavy rainfall. Temporary dewatering may also be required for deeper excavations, such as utility trenches, the backfilling of the



drainfield area and other excavations. We recommend that the contract documents provide for determining the groundwater level just prior to construction and for any dewatering measures which might be required. We recommend that the groundwater table be maintained at least 24 inches below all earthwork and compaction surfaces.

#### **4.3 SOIL DESIGN PARAMETERS**

Based on the SPT test results and soils encountered with the borings along the evaluated roads, soil design parameters of angle of internal friction, earth pressure coefficient, unit weights, cohesion, shear modulus, and bearing pressure were estimated and are presented in Table 2 below.

						Table 2					
					Estimated :	Soil Design Pa	arameter	•			
Typic Dep		Effective Unit	Saturated Unit	Dry Unit	Friction	Cohesion		mmended sure Coeff		Allowable Bearing	Shear
From	То	Weight (pcf)	Weight (pcf)	Weight (pcf)	Angle (psf)	(psf)	At Rest K <sub>o</sub>	Active K <sub>A</sub>	Passive K <sub>P</sub>	Pressure (Ksf)	Modulus (psf)
			B-1 –	B-4: Mod	casin Wa	llow Rd an	d 36 <sup>th</sup> A	ve Inters	section		
0	6	42.6*	105	100	29	0	0.52	0.34	2.88	1.5	86,400
6	12	47.6	110	105	30	0	0.50	0.33	3.00	2.0	259,200
12	22	42.6	105	100	29	0	0.52	0.34	2.88	2.5	86,400
22	32	57.6	120	115	0	1,250	1.00	1.00	1.00	3.0	72,000
32	40	62.6	125	120	0	6,250	1.00	1.00	1.00	4.0	308,571
			B-5 – B-7: N	/loccasin	Wallow F	d and Artis	ian Lak	es Pkwy	Intersec	tion	
0	4	42.6*	105	100	29	0	0.52	0.34	2.88	1,5	86,400
4	8	47.6	110	105	30	0	0.50	0.33	3.00	2.0	259,200
8	17	42.6	105	100	29	0	0.52	0.34	2.88	2.5	86,400
17	22	52.6	115	110	0	750	1.00	1.00	1.00	3.0	72,000
22	40	57.6	62.6	125	120	6,250	1.00	1.00	1.00	4.0	308,571
			B-8 – B-	11 Mocca	sin Wallo	w Rd and 0	3ateway	/ Blvd In	tersection	า	
0	6	42.6*	105	100	29	0	0.52	0.34	2.88	1.5	86,400
6	8	47.6	110	105	30	0	0.50	0.33	3.00	2.0	259,200
8	17	42.6	105	100	29	0	0.52	0.34	2.88	2.5	86,400
17	32	57.6	120	115	0	1,250	1.00	1.00	1.00	3.0	72,000
32	40	62.6	125	120	0	6,250	1.00	1.00	1.00	4.0	308,571



#### 4.4 DRILLED SHAFTS FOR MAST ARM STRUCTURES

The finished grade elevations of the mast arm footings are assumed to be at the existing ground surface. The shaft tips are recommended to be embedded a minimum depth below the ground surface following the site preparation recommendations. The estimated allowable resistance values were based on static analysis, as determined during the field exploration and laboratory testing. Geotechnical information to aid in mast arms foundation design, for the specific boring locations, is shown at the above table.

#### 4.4.1 Drilled Shaft Installation

The previously recommended allowable pile resistance values are estimates based on anticipated installation techniques, the subsurface conditions at the site, and our experience in the area. Significant movement of a pile may be necessary to develop the full shear strength of the soil. The magnitude of this movement may not be compatible with the desired structural "fixity", and allowable deflection may become the governing criterion for capacity rather than the ultimate shear strength of the soil. This is particularly true for piles subjected to uplift. Based on our experience, the previously recommended capacities should result in deflections tolerable to the proposed self supported cell tower.

Installation of the drilled shafts must also be monitored by a representative from UES. The auger teeth used to install the drilled shafts should have cutting teeth in good condition to prevent soil from being smeared on the shaft sidewalls. All production shafts should contain at least the neat-line volume of concrete calculated for the length of shaft installed.

Groundwater was encountered at the boring locations at depths ranging from 3.5 to 6 feet below existing ground surface, therefore depending on the design depth of the drilled shafts, and the rainfall variations, water may be encountered during the placement of the drilled shafts. Water in the bottom of the drilled shafts should be removed by pumping. Due to possible presence of groundwater, a temporary steel casing should be installed along the entire length of the shaft during drilling operations. Once the drilled shaft has been advanced to its designed depth the bottom of the shaft should be evaluated by a representative of UES to verify the proper diameter and that the bottom of the shaft is free of loose soil. The steel reinforcing cage should be installed upon the satisfactory evaluation of the drilled shaft excavation. The concrete should then be placed as soon as practicable to reduce the deterioration of the supporting soils due to sidewall caving and groundwater intrusion.

If the contractor elects to install the drilled shafts by 'wet' or 'slurry' methods a temporary casing may be needed in conjunction with the slurry. The slurry level should be at least a minimum of 5 feet or one shaft diameter, whichever is greater, above the groundwater level. The pH, specific gravity, and sand content of the drilling slurry should be periodically tested during the placement of the shafts. A significant change in any of these parameters during the drilling of the shafts may indicate excess soil migration into the slurry, which may settle on the bottom of the excavation and consequently result in a reduction of the allowable end bearing capacity of the drilled shafts.



We recommend a thorough testing program for the concrete placed in drilled shafts. During concrete placement the concrete may be allowed to fall freely through the open area in the reinforcing steel cage as long as the concrete is not allowed to strike the rebar or the casing prior to reaching the bottom of the shaft. If the shafts are advanced utilizing the 'wet' method the concrete should be placed using a tremie pipe which should be placed about 1 shaft diameter above the bottom of the shaft. The bottom of the tremie pipe must be below the concrete during placement. Qualified personnel should be present to cast compressive representative test specimens of the concrete being placed in the drilled shafts. We recommend that at least two sets of specimens, four specimens per set, be cast per day and that at least one set of specimens be cast for every 50 cubic yards of concrete placed. Batching tickets should reference the mix approved in the specifications and show batching times. The concrete mix shall have a slump of 6 to 8 inches. Admixtures, such as super plasticizer, may be needed to achieve this specified slump. The protective steel casing should be extracted as the concrete is being placed, however a head of concrete should be maintained above the bottom of the shaft casing to prevent soil and water intrusions into the shaft.

Buried obstructions such as debris or boulders can prevent shaft installation. If drilled shafts stop short of their design depths, it may be necessary to make backhoe explorations or one or more exploratory borings to evaluate the condition. Based on the findings, it may be necessary to add shafts. Likewise, it is possible that longer shafts may be required in some areas. Therefore, the contract documents should contain provisions for adding or deducting shaft length or installing additional shafts.

#### 4.5 CONSTRUCTION RELATED SERVICES

We recommend the owner retain Universal Engineering Sciences to perform construction materials tests and observations on this project. Field tests and observations include verification of foundation and pavement subgrades by monitoring proof-rolling operations and performing quality assurance tests on the placement of compacted structural fill and pavement courses.

The geotechnical engineering design does not end with the advertisement of the construction documents. The design is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, we are most qualified to address problems that might arise during construction in a timely and cost-effective manner.



#### **5.0 LIMITATIONS**

This report has been prepared in order to aid the architect/engineer in the design of the proposed mast arm structures. The scope of services provided was limited to the specific project and locations described herein. The description of the project's design parameters represents our understanding of significant aspects relevant to soil and foundation characteristics.

The recommendations submitted in this report are based upon the data obtained from the limited number of soil borings performed at the locations indicated on the Boring Location Plan and from other information as referenced. This report does not reflect any variations which may occur between the boring locations or unexplored areas of the site. This report should not be used for estimating such items as cut and fill quantities.

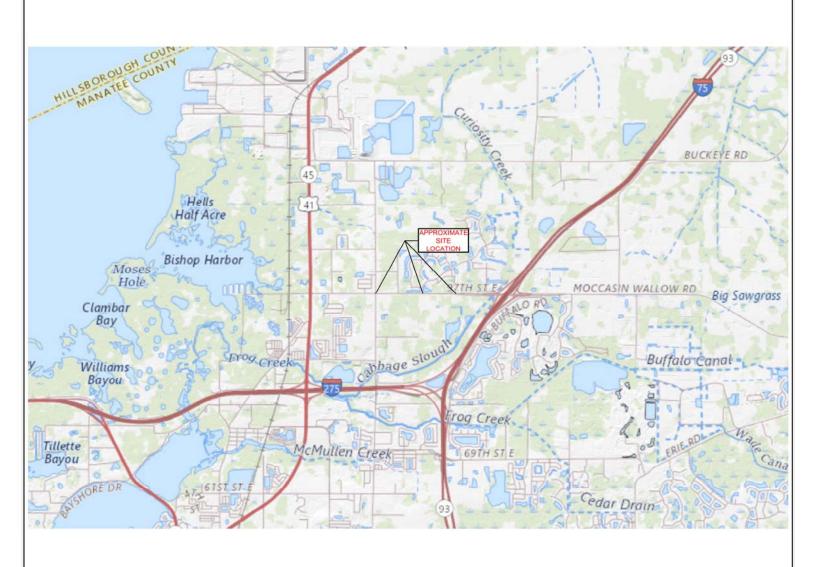
Borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. Accordingly, UES does not recommend relying on our boring information to negate presence of anomalous materials or for estimation of material quantities unless our contracted services *specifically* include sufficient exploration for such purpose(s) and within the report we so state that the level of exploration provided should be sufficient to detect such anomalous conditions or estimate such quantities. Therefore, UES will not be responsible for any extrapolation or use of our data by others beyond the purpose(s) for which it is applicable or intended.

All users of this report are cautioned that there was no requirement for Universal to attempt to locate any man-made buried objects or identify any other potentially hazardous conditions that may exist at the site during the course of this exploration. Therefore no attempt was made by Universal to locate or identify such concerns. Universal cannot be responsible for any buried man-made objects or environmental hazards which may be subsequently encountered during construction that are not discussed within the text of this report. We can provide this service if requested.

For a further description of the scope and limitations of this report please review the document attached within Appendix B "Important Information About Your Geotechnical Engineering Report" prepared by ASFE, an association of firms practicing in the geosciences.



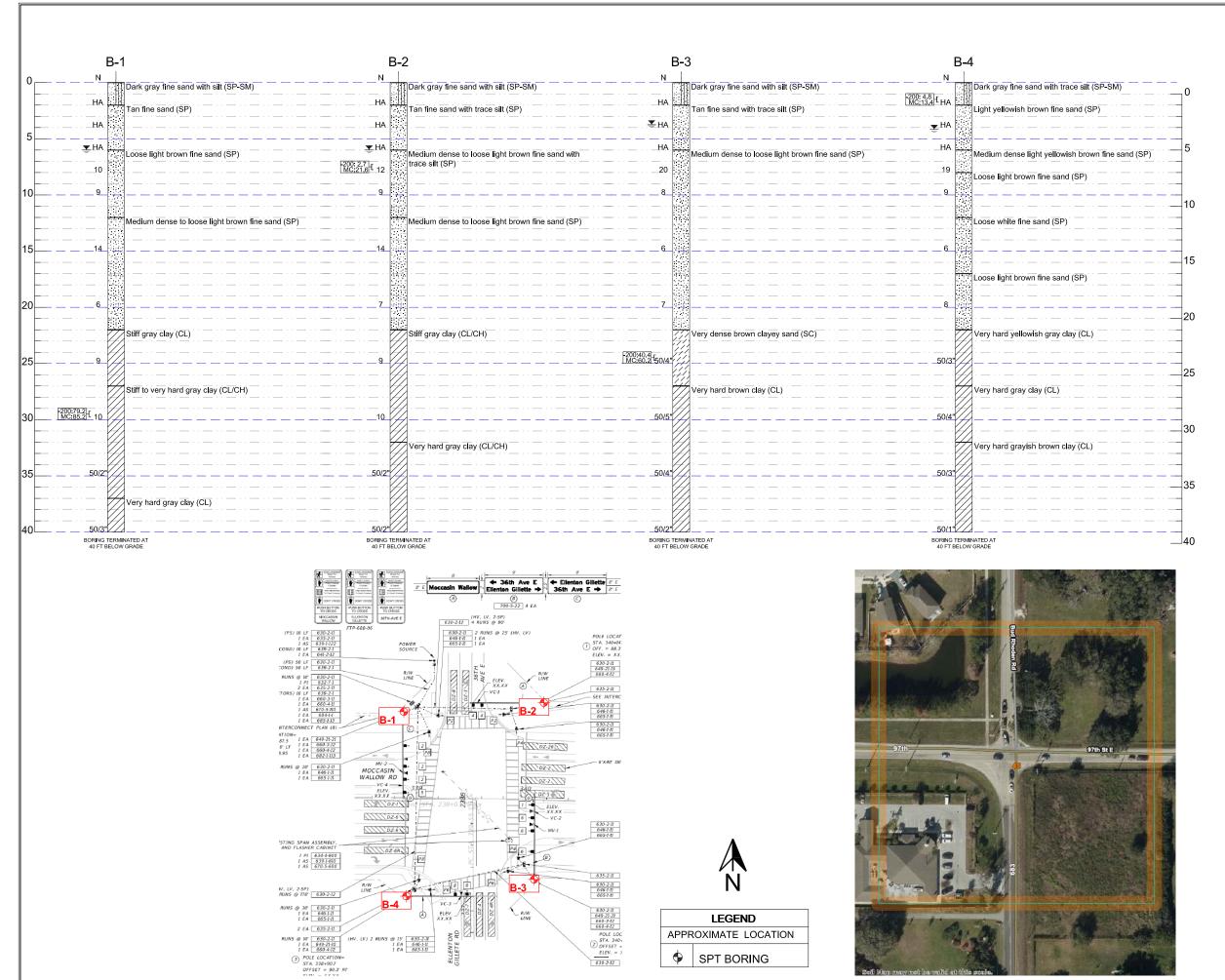
# **APPENDIX A**





			100	TO 8000		
	SITE LOCATION	PROPOSED C	IDCLE K	DRAWN FOR	THOMAS ENGINEERING	Т
60 8	PLAN	NUMBER OF STREET		DRILLED BY	NP / CL	
A-1		4219 MOCCASIN W PALMETTO		DRAWN BY	R.L.D	7
15 (15)	OBTAINED FROM YAHOO MAPS 2018	PROJECT NO:	REPORT NO:	DRAWING DATE	12/30/2019	
		1130.1900375.0000	14404	SCALE	NOT TO SCALE	7





#### LEGEND

- [SP] UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL (ASTM D2487) BASED ON VISUAL OBSERVATION AND LABORATORY TEST.
- N STANDARD PENETRATION RESISTANCE (N-VALUE) IN BLOWS PER FOOT (ASTM D1586)
- HA HAND AUGER
- GROUND WATER LEVEL MEASURED ON DATE DRILLED
- SEASONAL HIGH WATER LEVEL
- GNE GROUNDWATER LEVEL NOT ENCOUNTERD
- (%) LOSS OF CIRCULATION (%) -200 FINES PASSING NO. 200 U.S. STANDARD SIEVE (%)
- 50/1" 50 BLOWS FOR 1 INCH OC. ORGANIC CONTENT (%)
- MC NATURAL MOISTURE CONTENT (%)
- I I LIQUID LIMIT (%)
- NP NON PLASTIC
- UCS UNCONFINED COMPRESSION STRENGTH

		D PENETRATION AND CONSISTENC	
COARSE- SOILS-	GRAINED SANDS	FINES - CLA	Y AND SILT
CONSISTENCY DESIGNATION	SPT N(BLOWS/FT)	CONSISTENCY DESIGNATION	SPT N(BLOWS/FT)
VERY LOOSE	0-4	VERY SOFT	0-1
LOOSE 5-10		SOFT	2-3
MEDIUM DENSE	11-30	MEDIUM STIFF	4-7
DENSE	31-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	16-31
		HARD	32-50
		VERY HARD	>50

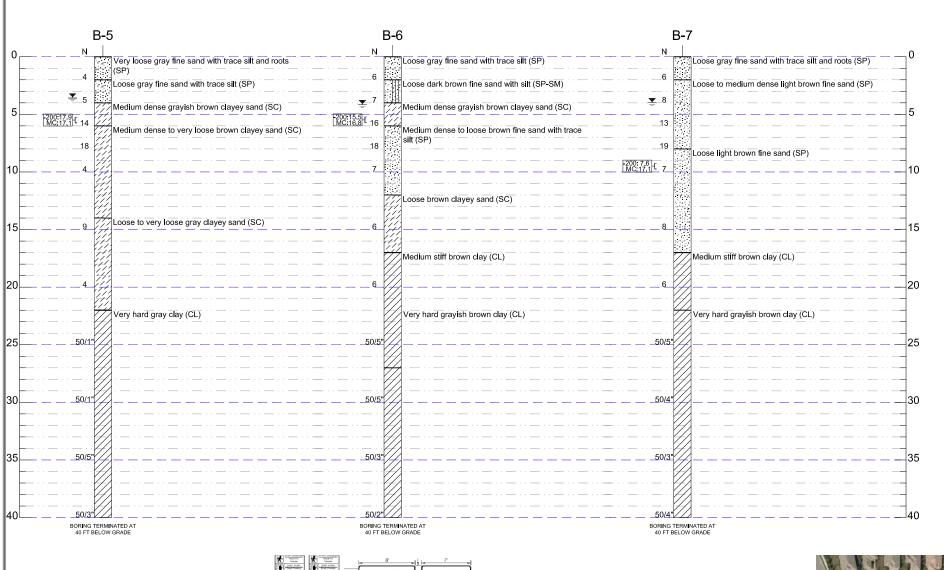


-	DRAWIN FOR	CARDNO
9	DRILLED BY	NP / CL
	DRAWN BY	R.L.D
	DRAWING DATE	12/30/2019
	SCALE	NOT TO SCALE

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CASIN WALLOW ROAD PALMETTO, FL PROPOSED MAST ARMS

A-4.0

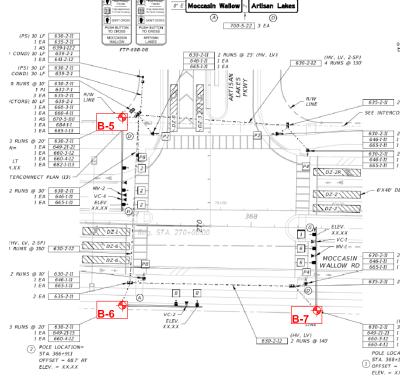




- [SP] UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL (ASTM D2487) .BASED ON VISUAL OBSERVATION AND LABORATORY TEST.
- N STANDARD PENETRATION RESISTANCE (N-VALUE) IN BLOWS PER FOOT (ASTM D1586)
- HA HAND AUGER
- GROUND WATER LEVEL MEASURED ON DATE DRILLED
- SEASONAL HIGH WATER LEVEL
- GNE GROUNDWATER LEVEL NOT ENCOUNTERD (%) LOSS OF CIRCULATION (%)
- -200 FINES PASSING NO. 200 U.S. STANDARD SIEVE (%)
- WOH WEIGHT OF HAMMER 50/1" 50 BLOWS FOR 1 INCH
- OC ORGANIC CONTENT (%)
- MC NATURAL MOISTURE CONTENT (%)
- I I LIQUID LIMIT (%)
- NP NON PLASTIC
- UCS UNCONFINED COMPRESSION STRENGTH

		D PENETRATION AND CONSISTEN	
COARSE-GRAINED SOILS-SANDS		FINES - CLA	Y AND SILT
CONSISTENCY DESIGNATION	SPT N(BLOWS/FT)	CONSISTENCY DESIGNATION	SPT N(BLOWS/FT
VERY LOOSE	0-4	VERY SOFT	0-1
LOOSE	5-10	SOFT	2-3
MEDIUM DENSE	11-30	MEDIUM STIFF	4-7
DENSE	31-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	16-31
		HARD	32-50
		VERY HARD	>50







**LEGEND** APPROXIMATE LOCATION

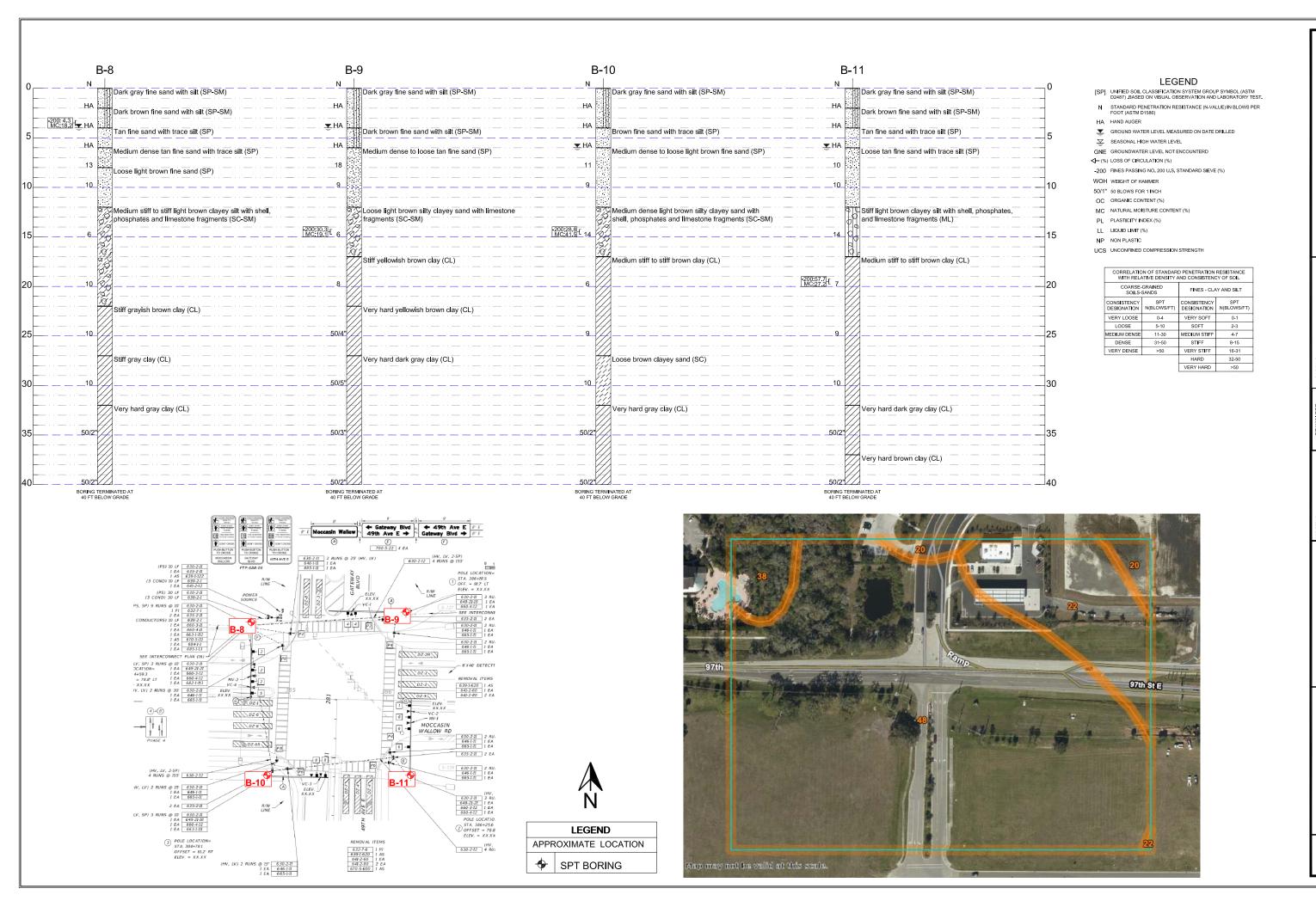
♦ SPT BORING

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PROPOSED MAST ARMS MOCCASIN WALLOW ROAD

CASIN WALLOW F PALMETTO, FL

A-4.1



CASIN WALLOW ROAD PALMETTO, FL PROPOSED MAST ARMS

1130 1

SOIL BORING PROFILES

A-4.2



UNIVERSAL ENGINEERING SCIENCES 9802 Palm River Road Tampa, Florida 33619

(813) 740-8506

## SOIL CLASSIFICATION CHART

#### TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Coun
Very loose	0 to 15 %	< 4
Loose	15 to 35 %	4 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count,

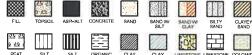
#### **Unconfined Compressive**

Descriptive Terms	Strength kPa	SPT Blow Count
Very soft	< 25	< 2
Soft	25 to 50	2 to 4
Medium stiff	50 to 100	4 to 8
Stiff	100 to 200	8 to 15
Very stiff	200 to 400	15 to 30
Hard	> 400	> 30

#### **GENERAL NOTES**

- Classifications are based on the United Soil Classification
   System and include consistency, moisture, and color, Field
   descriptions have been modified to reflect results of laboratory tests where deemed appropriate.
- 2, Surface elevations are based on topographic maps and estimated locations.
- 3. Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times,

#### SOIL SYMBOLS



#### 0

	PLASTIC	HIGH PLASTIC	SILT	LOW PLASTIC	HIGH PLASTIC	HIGHLY WEATHERED	CINCOTONE	
TH	IER SYN	/BOLS						
Z	Measur Table L		er <u>v</u>			Seasor		

			нага	> 400 > 30	Table Level High Wa	ter lat	ole				
M	ajor Div	isions	Group Symbols	Typical Names	Laboratory Classification Criteria			T			
	action size)	Clean gravel (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C_u = \frac{D_{80}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{80}}$ between 1:	and 3		sieve sizes	3	#200 to #40	#10 to #4
(exis evei	Gravels alf of coarse fraction in No. 4 sieve size)	Clean (Little or	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW			Neve V		#200	# 10
No 200	Grave (More than half of is larger than No	Gravel with fines (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A"  Alterberg limits below "A"  Above "A" line with P.I.  between 4 and 7 are between 4 and 7 are between 4 and 8 are between 4 are		icle Size	_			
ained soils	(More is lan	Gravel w (Appre amount	GC	Clayey gravels, gravel-sand-silt mixtures	The control of the co	e of	Particle			אַ כ	o 00
Coarse-Grained soils (More than half the material is larger than No. 200 sieve	action size)	Clean sands (Little or no fines)	sw	Well-graded sands, gravelly sands, little or no fines	Atterberg limits below "A" line with P.I. less than 4 between 4 and 7 are by line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line cases requiring us a line or P.I. less than 4 line or P.I. less than 4 line or P.I. less than 4 line or P.I. less than 4 line or P.I. less than 4 line or P.I. less than 4 line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. less than 4 line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or P.I. greater than 6 line cases requiring us dual symbols line with P.I. letween 4 and 7 are by line or P.I. greater than 7 line with P.I. letween 4 and 7 are by line or	and 3	E	× 0.074		0.074 to 0.42	2.00 to 4.76
n half the	Sands More than half of coarse fraction is smaller than No. 4 sieve size)	Clean (Little or	SP	Poorly-graded sands, gravelly sands, little or no fines	Ros of segment of segments of				'	5	
(More than	Sar than half o	Sands with fines (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures	Not meeting all gradation requirements for SW  Not meeting all gradation requirements for SW  Not meeting all gradation requirements for SW  Atterberg limits below "A" line or P.I. less than 4  Atterberg limits above "A" line cases requiring us dual symbols		ria	clav	1	<u> </u>	- e
ŀ	(More is sma	Sands w (Appre amount	sc	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line cases requiring us dual symbols	e of	Material	Silt or clay	Sand	Medium	Coarse
size)	s.	. (1	ML	Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity	FOR CLARIFICATION OF FINE-GRAINED SOIL AND FINE-GRAINED FRACTION OF COARSE-GRAINED SOILS	1		T	2	<u> </u>	.⊆
Fine-Grained soils (More than half the material is smaller than No. 200 sieve size)	Silts and Clays	ss than 50	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	70			Sieve	#4 to 3/4 in	3 in to 12 in	12 in to 36 in
coils r than No.	is '	<u> </u>	OL	Organic silts and organic silty clays of low plasticity	SSO ON ON THE ON		Particle Size	_			
-Grained s	sy	20)	МН	Inorganic silts, micaceous or disto- maceous fine sandy or silty soils, organic silts	PLASTICITY MODEX (P.)		Par	=	4.76 to 19.1	76.2 to 304.8	304 8 to 914.4
Fine the materia	Silts and Clays	ater than (	СН	Inorganic clays of high plasticity, fat clays	20 MH OR OH		3	Ξ	4.76	76.2 to	304 8 to
than half t	is	gre	ОН	Organic clays of medium to high plasticity, organic silts	ML ON OL 10 1620 30 40 50 60 70 80 90 100 1	10	lia!			D 0	J.S
(More	Highly	Soils	Pt	Peat and other highly organic soils	Plasticity Chart		Material	Gravel	Fine	Cobble	Boulders

vvnen the percent passing a No. 200 sieve is between 5% and 12%, a dual symbol is used to denote the soil. For example; SP-SC, poorly-graded sand with clay content between 5% and 12%.

# **APPENDIX B**

# Important Information about This

# Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you - assumedly a client representative - interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

# Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civilworks constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared solely for the client. Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.

#### Read this Report in Full

Costly problems have occurred because those relying on a geotechnicalengineering report did not read it in its entirety. Do not rely on an executive summary. Do not read selected elements only. Read this report in full.

# You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- · the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities,

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, always inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

#### This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- · for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

# Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

# This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

#### This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnicalengineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- · help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

## Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you've included the material for informational purposes only. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

#### Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

#### **Geoenvironmental Concerns Are Not Covered**

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.

# Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.



Telephone: 301/565-2733 e-mail: info@geoprofessional.org www.geoprofessional.org

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#### CONSTRAINTS AND RESTRICTIONS

#### WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

#### **UNANTICIPATED SOIL CONDITIONS**

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until construction begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

#### CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

## MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

#### CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

#### **USE OF REPORT BY BIDDERS**

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other explorations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

#### STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

#### **OBSERVATIONS DURING DRILLING**

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

#### **WATER LEVELS**

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

#### LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

#### TIME

This report reflects the soil conditions at the time of exploration. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

# Universal Engineering Sciences, Inc. GENERAL CONDITIONS

#### **SECTION 1: RESPONSIBILITIES**

- 1.1 Universal Engineering Sciences, Inc., ("UES"), has the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "UES" as used herein includes all of Universal Engineering Sciences, Inc's agents, employees, professional staff, and subcontractors.
- The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.
- The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the services so described, unless otherwise agreed upon by both parties.
- 1.4 Universal will not be responsible for scheduling our services and will not be responsible for tests or inspections that are not performed due to a failure to schedule our services on the project or any resulting damages.
- PURSUANT TO FLORIDA STATUTES §558.0035, ANY INDIVIDUAL EMPLOYEE OR AGENT OF UES MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.

#### **SECTION 2: STANDARD OF CARE**

- Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made.
- 2.2 The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.
- 2.3 Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under which the services are to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the Client's responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and the Client assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described.
- Should UES be retained to provide threshold inspection services under Florida Statutes §553.79, Client acknowledges that UES's services thereunder do not constitute a guarantee that the construction in question has been properly designed or constructed, and UES's services do not replace any of the obligations or liabilities associated with any architect, contractor, or structural engineer. Therefore it is explicitly agreed that the Client will not hold UES responsible for the proper performance of service by any architect, contractor, structural engineer or any other entity associated with the project.

#### **SECTION 3: SITE ACCESS AND SITE CONDITIONS**

- 3.1 Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Proposal.
- The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

#### SECTION 4: SAMPLE OWNERSHIP AND DISPOSAL

- 4.1 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client.
- 4.2 UES will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. Further storage or transfer of samples can be made at Client's expense upon Client's prior written request.
- 4.3 Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with all appropriate federal, state, or local regulations.

#### **SECTION 5: BILLING AND PAYMENT**

- 5.1 UES will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications.
- Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts.
- 5.3 If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

#### SECTION 6: OWNERSHIP AND USE OF DOCUMENTS

- 6.1 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, as instruments of service, shall remain the property of UES.
- 6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.
- UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times.
- All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared for the sole and exclusive use of Client, and may not be given to any other party or used or relied upon by any such party without the express written consent of UES.

#### SECTION 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS

- 7.1 Client warrants that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site.
- 7.2 Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous substances (40 CFR 300.6), petroleum products, polychlorinated biphenyls, and asbestos.
- Hazardous materials may exist at a site where there is no reason to believe they could or should be present. UES and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. UES and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous waste.
- 7.4 UES agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold UES harmless for any and all consequences of disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.
- Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES harmless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.

#### **SECTION 8: RISK ALLOCATION**

8.1 Client agrees that UES's liability for any damage on account of any breach of contract, error, omission or other professional negligence will be limited to a sum not to exceed \$50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of \$1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or \$400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.

#### **SECTION 9: INSURANCE**

UES represents and warrants that it and its agents, staff and consultants employed by it, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save UES harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other UESs employed by Client.

#### **SECTION 10: DISPUTE RESOLUTION**

- All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation or arbitration, before and as a condition precedent to other remedies provided by law, including the commencement of litigation.
- 10.2 If a dispute arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:
  - the claim will be brought and tried in judicial jurisdiction of the court of the county where UES's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and
  - (b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses.

#### **SECTION 11: TERMINATION**

- This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses.
- In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records and reports.

#### **SECTION 12: ASSIGNS**

12.1 Neither the Client nor UES may delegate, assign, sublet or transfer their duties or interest in this Agreement without the written consent of the other party.

#### SECTION 13. GOVERNING LAW AND SURVIVAL

- 13.1 The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance.
- If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.

#### **SECTION 14. INTEGRATION CLAUSE**

- This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein.
- This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any modification or amendment is sought.

Rev. 06/10/2015



March 9, 2020

Cardno 380 Park Place Boulevard, Suite 300 Clearwater, FL 333759

Attn: Mr. Hamid R. Faraji, PE

Reference: GEOTECHNICAL TESTING SERVICE

Existing Pavement Cores

Proposed Moccasin Wallow Road Improvements

Moccasin Wallow Road, 36th Avenue E, and Bud Rhoden Road

Parrish, Manatee County, FL UES Project No. 1130.1800187.0000

UES Report No.: 14715

Dear Mr. Faraji:

Universal Engineering Sciences, Inc. (UES) has completed the pavement cores for the above referenced project. The scope of our work was planned in conjunction with and authorized by you.

#### PROJECT INFORMATION

We understand that you are considering widening, milling and resurfacing the existing Moccassin Wallow Road located in Parrish, FL. The purpose of the cores was to confirm the existing asphalt and base material thickness of the existing paved roadway.

#### FIELD EXPLORATION

UES performed twelve (12) pavement cores along a roadway section of Moccasin Wallow Road, 36<sup>th</sup> Avenue E, and Bud Rhoden Road at the locations shown on plan provided. A hand auger borings was also performed at each core location to a depth of 4 feet below the bottom of the base. Samples of the asphalt and base materials were extracted from the existing sections using a 4-inch I.D. diamond impregnated core barrel. The base material was visually classified and thickness of the various components was measured. The asphalt and base material recovered from the core locations were returned to our office and then a geotechnical engineering staff member visually examined and reviewed the field descriptions. The core locations and photographs are presented in the appendix of this report.

#### LOCATIONS:

- Atlanta
- Davtona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Miami
- Ocala
- Orlando (Headquarters)
- Palm CoastPanama City
- Panama Ci
   Pensacola
- Rockledge
- Rockledg
- SarasotaSt. Petersburg
- Tampa
- Tifton
- West Palm Beach

#### **CORE RESULTS**

The core test results indicate the existing pavement section consists of 2.5 to 6 inches of asphalt, 1 to 10 inches of cement treated shell and limerock base, and sandy subgrade soils. The results of the cores are presented in the following table:

CORE NO.	TOTAL ASPHLAT THICKNESS (IN)	BASE THICKNESS (IN)	BASE MATERIAL
C-1	3.5	10.0	Cement treated shell
C-2	3.5	9.0	Cement treated shell
C-3	2.5	9.0	Cement treated shell
C-4	3.5	10.0	Cement treated shell
C-5	2.75	9.0	Cement treated shell
C-6	3.0	10.0	Cement treated shell
C-7	4.5	10.0	Limerock
C-8	3.5	9.0	Limerock
C-9	9.0	6.0	Limerock
C-10	4.0	5.5	Limerock
C-11	6.0		Bituminous
C-12	6.0	1.0	Bituminous /Cement treated shell

#### **CLOSURE**

We appreciate the opportunity to have worked with you on this project and look forward to a continued association. 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 Number 549

Yudelsy Alvarez Project Engineer

RG/YA:

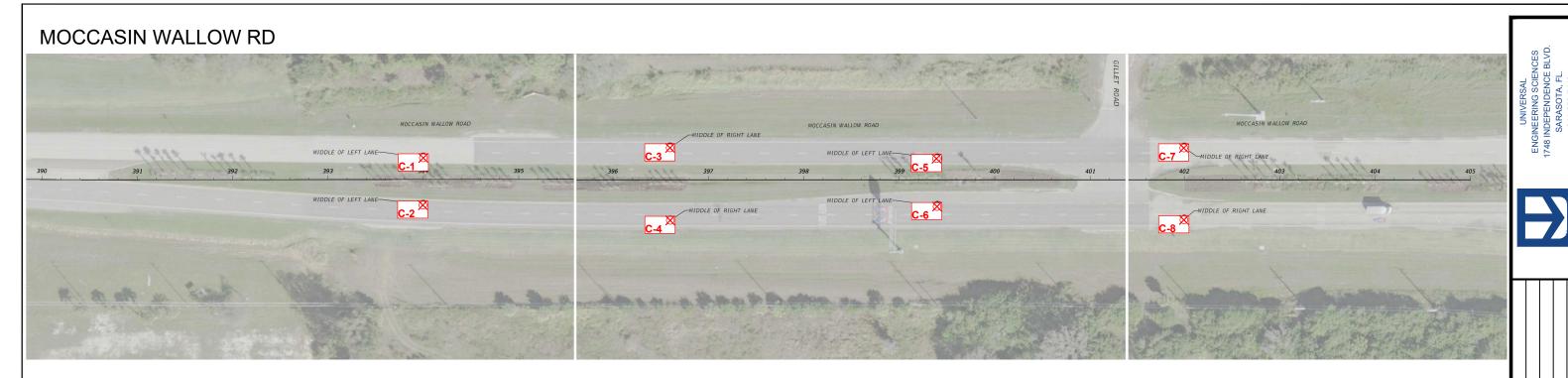
Robert Gomez, P. Branch Manager

Gomez, P # #50348 & Manager WEER

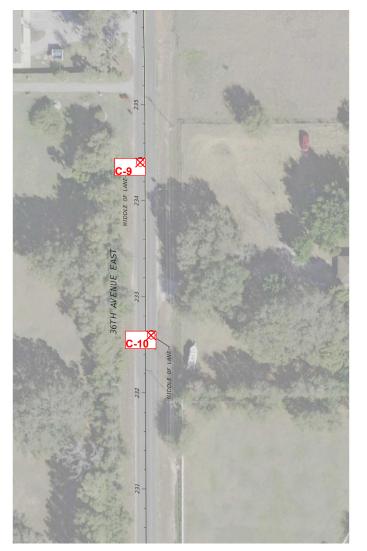
Existing Pavement Cores Moccasin Wallow Road UES Project No. 1130.1800187.0000 March 9, 2020

#### **APPENDICES:**

Test Location Plan Core Photographs Soil Profiles Information about Your Geotechnical Report Constraints and Restrictions General Conditions



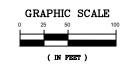
# 36TH AVE E



# **BUD RHODEN RD**







	LEGEND
APPR	OXIMATE LOCATION
×	CORE TEST

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PROJECTINO:	1130.1800187.0000		CALEGORIA	NEPON INC.	14/15	
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PROPOSED MOCCA WALLOW ROAD IMPROV MOCCASIN WALLOW I PARRISH, MANATEE COL

CORE LOCATION
PLAN
HIS MAP SHOWS APPROXIMATE LOCAT

A-1

Core-1 Core-2





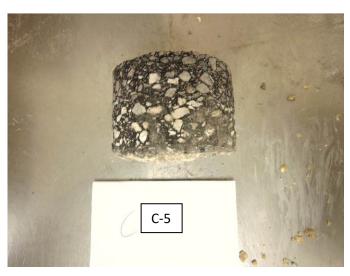
Core-4 Core-3

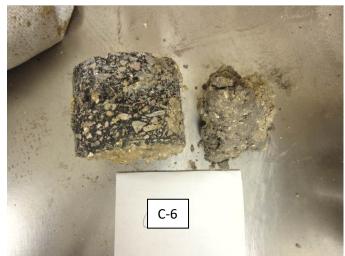




Core Photographs
Cardno – Moccasin Wallow
UES Project No.:1130.1800187.0000

Core-5 Core-6





Core-7 Core-8





Core Photographs
Cardno – Moccasin Wallow
UES Project No.:1130.1800187.0000

<u>Core-10</u> Core-9

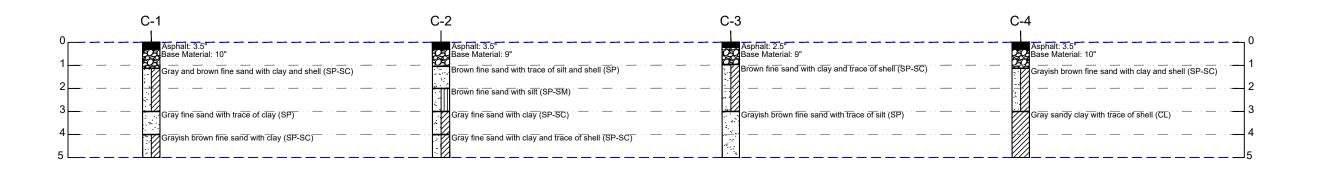




<u>Core-11</u> <u>Core-12</u>







С	;-5	C-6	C-7	C-8
0	Asphalt: 2.75" Base Material: 9"	Asphali: 3" Base Material: 10"	Asphalt: 4.5" Base Material: 10"	Asphalt: 3.5" 0 Base Material: 9"
1	Brown fine sand with silt and shell (SP-SM)	Gray fine sand with clay and trace of shell (SP-SC)	Brown fine sand with silt and shell (SP-SM)	Grayish brown fine sand with clay and shell (SP-SC)
3				2
4	Grayish brown fine sand with trace of silt (SP)		Gray fine sand with trace of silt (SP)	Gray sandy clay with shell and phosphate (CL)
5			 	5

C-9	C-10
0	
1	Asphalt: 4"  Base Material: 5.5"  Dark gray fine sand with silt (SP-SM)
Dark gray fine sand with silt (S	P-SM)  Tan fine sand with trace of silt (SP)
3 — Brown fine sand with silt (SP-S	sm) a
4 Light brown fine sand with trace	`   _   4
5	<sub>5</sub>

C-11		C-12		
Asphalt: 6"    Asphalt: 6"   Dark gray fine sand	with silt (SP-SM)	Aspha Base I Brown	alt: 6" Material: 1" n fine sand with trace of <u>sil</u> t and <u>s</u> hell (SP)	0 1
2				2
Tan fine sand with t	race of silt (SP)	Dark b	brown fine sand with silt (SP-SM)	3
4		Tan fir	ine sand with trace of sift (SP)	4
5		<u></u>	!	5

## LEGEND

- [SP] UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL (ASTM D2487) .BASED ON VISUAL OBSERVATION AND LABORATORY TEST.
- N STANDARD PENETRATION RESISTANCE (N-VALUE) IN BLOWS PER FOOT (ASTM D1586)
- HA HAND AUGER
- GROUND WATER LEVEL MEASURED ON DATE DRILLED
- SEASONAL HIGH WATER LEVEL GNE GROUNDWATER LEVEL NOT ENCOUNTERD
- (%) LOSS OF CIRCULATION (%) -200 FINES PASSING NO. 200 U.S. STANDARD SIEVE (%)
- WOH WEIGHT OF HAMMER
- 50/1" 50 BLOWS FOR 1 INCH OC ORGANIC CONTENT (%)
- MC NATURAL MOISTURE CONTENT (%)
- PL PLASTICITY INDEX (%)
- LL LIQUID LIMIT (%)
- NP NON PLASTIC
- UCS UNCONFINED COMPRESSION STRENGTH

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY OF SOIL								
COARSE- SOILS-	GRAINED SANDS	FINES - CLAY AND SILT						
CONSISTENCY DESIGNATION	SPT N(BLOWS/FT)	CONSISTENCY DESIGNATION	SPT N(BLOWS/FT)					
VERY LOOSE	0-4	VERY SOFT	0-1					
LOOSE	5-10	SOFT	2-3					
MEDIUM DENSE	11-30	MEDIUM STIFF	4-7					
DENSE	31-50	STIFF	8-15					
VERY DENSE	>50	VERY STIFF	16-31					
		HARD	32-50					
		VERY HARD	>50					



CARDNO	M.B.	a	o.e.	3/2020	1" = 100"
DRAWN FOR	DRILLED BY	VB NWARD	I S NAME OF	DRAWING DATE	SCALE
PROJECTINO:	1130.1800187.0000		OUDDING	14715	
	PROPOSED MOCCASIN	WALLOW ACAD IMPROVEMENTS		MOCCASIN WALLOW ROAD PARRISH MANATER COLINTY FI	

SOIL BORING PROFILES



UNIVERSAL ENGINEERING SCIENCES 9802 Palm River Road Tampa, Florida 33619

(813) 740-8506

## SOIL CLASSIFICATION CHART

#### TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Cour		
Very loose	0 to 15 %	< 4		
Loose	15 to 35 %	4 to 10		
Medium dense	35 to 65 %	10 to 30		
Dense	65 to 85 %	30 to 50		
Very dense	85 to 100 %	> 50		

**FINE-GRAINED** SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count,

#### **Unconfined Compressive**

Harmonia Marchan (1995) Was addition in Colored (									
Descriptive Terms	Strength kPa	SPT Blow Count							
Very soft	< 25	< 2							
Soft	25 to 50	2 to 4							
Medium stiff	50 to 100	4 to 8							
Stiff	100 to 200	8 to 15							
Very stiff	200 to 400	15 to 30							
Hard	> 400	> 30							

## **GENERAL NOTES**

- Classifications are based on the United Soil Classification
   System and include consistency, moisture, and color. Field
   descriptions have been modified to reflect results of laboratory tests where deemed appropriate.
- 2, Surface elevations are based on topographic maps and estimated
- 3, Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times.

### **SOIL SYMBOLS**















### **OTHER SYMBOLS**

Measured Water  $\ \ \underline{\nabla}$ Table Level

Estimated Seasonal High Water Table

						14510 20101	Tilgii vvatei Ta						
Ma	ajor Divi	isions	Group Symbols	Typical Names		Laboratory Classification	Criteria						
	eve size) els coarse fraction 4 sieve size) Clean gravel (Little or no fines)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines	C <sub>u</sub>	$J = \frac{D_{60}}{D_{10}}$ greater than 4, $C_c = -$	$\frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3		Sieve sizes	< #200	#200 to #40	#40 to #10	#10 to #4
ieve size)	vels if coarse fr o, 4 sieve	Clean (Little or	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines	002 *s	ot meeting all gradation require	ments for GW	0	Sieve	**	#200	#40 t	#10
No 200 s	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Gravel with fines (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures	than No than No dual symb	terberg limits below "A" e or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are border-	icle Size					4
ained soils arger than	(More is larg	Gravel w (Appre amount	GC	Clayey gravels, gravel-sand-silt mixtures	vel from gr on smaller on smaller on SP N, SP SM, SC requiring	terberg limits above "A" e or P.I. greater than 7	line cases requiring use of dual symbols	Particle			2	0	ا
Coarse-Grained soils (More than half the material is larger than No. 200 sieve size)	action size)	sands no fines)	sw	Well-graded sands, gravelly sands, little or no fines	Determine percentages of sand and gravel from grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows:  Less than 5 percent	$D_{\rm so} = \frac{D_{\rm so}}{D_{\rm 10}}$ greater than 6, $C_{\rm c} = -$	$\frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3		mm	< 0.074	0 074 to 0 42	0.42 to 2.00	2.00 to 4.76
) half the n	n half the material is not the material is not the material is not the material is not a since size)  Clean sands (Little or no fines)		SP	Poorly-graded sands, gravelly sands, little or no fines	ges of sar entage of f ed soils an ent. G rcent. Border	ot meeting all gradation require	ments for SW				0		
(More than	Sands (More than half of coa is smaller than No. 4		SM	Silty sands, sand-silt mixtures	e percenta gon percenta arse-grain. han 5 percenta percenta na 12 percenta na 12 percenta na 14 percenta na 15	terberg limits below "A" e or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are border-		<u> </u>	clay			Se
	(More is sma	Sands with fines (Appreciable amount of fines)	sc	Clayey sands, sand-clay mixtures	Determin Sieve) Cos Less t More t 5 to 12	terberg limits above "A" e or P.I. greater than 7	line cases requiring use of dual symbols	Motorio	Male O.I.	Silt or clay	Fine	Medium	Coarse
size)	e e	_	ML	Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity	80 FOR CLARIFICA	ATION OF FINE-GRAINED SOIL AND FRACTION OF COARSE-GRAINED SOILS					Į.	<u>c</u> .	u
200 sieve	Silts and Clays	ss than 50	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	70 -	FRACTION OF COARSE GRAINED SOILS	"I Inte		Sieve	#4 to 3/4 in	3/4 in to 3 in	3 in to 12 in	12 in to 36 in
oils r than No.	is.	<u>. e</u>	OL	Organic silts and organic silty clays of low plasticity	NDEX (P!)	Or Or	OH	Particle Size	1			H	
-Grained s	s.	(05	МН	Inorganic silts, micaceous or disto- maceous fine sandy or silty soils, organic silts	PLASTICITY INDEX (P)			Part	шш	4.76 to 19.1	19.1 to 76.2	76.2 to 304.8	304 8 to 914.4
Fine he materia	Silts and Clays	ater than 5	СН	Inorganic clays of high plasticity, fat clays	20-	0	MH or OH		E	4.76 tr	19.1 to	76.2 to	304.0
Fine-Grained soils (More than half the malerial is smaller than No. 200 sieve size)	Siii	ge	ОН	Organic clays of medium to high plasticity, organic silts	10 1620	ML = OL 30 40 50 60 7 Liquid LiMit (LL)	0 80 90 100 110	<u> </u>	5		eg	0	SIS
(More	Highly	Soils	Pt	Peat and other highly organic soils		Plasticity Char	t	Material	Name of	Grave	Coarse	Cobble	Boulders

When the percent passing a No. 200 sieve is between 5% and 12%, a dual symbol is used to denote the soil For example; SP-SC, poorly-graded sand with clay content between 5% and 12%.

# Important Information about This

# Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you - assumedly a client representative - interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

# Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civilworks constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared solely for the client. Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.

## Read this Report in Full

Costly problems have occurred because those relying on a geotechnicalengineering report did not read it in its entirety. Do not rely on an executive summary. Do not read selected elements only. Read this report in full.

# You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- · the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- · the composition of the design team; or
- · project ownership.

As a general rule, always inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

## This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

## Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

# This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

## This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnicalengineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

## Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you've included the material for informational purposes only. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

## Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

## Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.

# Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.



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## CONSTRAINTS AND RESTRICTIONS

## WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

## **UNANTICIPATED SOIL CONDITIONS**

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until construction begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

## CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

## MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

## CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

### **USE OF REPORT BY BIDDERS**

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other explorations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

## STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

#### **OBSERVATIONS DURING DRILLING**

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

## **WATER LEVELS**

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

## LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

## TIME

This report reflects the soil conditions at the time of exploration. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

## Universal Engineering Sciences, Inc. GENERAL CONDITIONS

## **SECTION 1: RESPONSIBILITIES**

- 1.1 Universal Engineering Sciences, Inc., ("UES"), has the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "UES" as used herein includes all of Universal Engineering Sciences, Inc's agents, employees, professional staff, and subcontractors.
- The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.
- The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the services so described, unless otherwise agreed upon by both parties.
- 1.4 Universal will not be responsible for scheduling our services and will not be responsible for tests or inspections that are not performed due to a failure to schedule our services on the project or any resulting damages.
- PURSUANT TO FLORIDA STATUTES §558.0035, ANY INDIVIDUAL EMPLOYEE OR AGENT OF UES MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.

### **SECTION 2: STANDARD OF CARE**

- 2.1 Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made.
- The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.
- 2.3 Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under which the services are to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the Client's responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and the Client assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described.
- Should UES be retained to provide threshold inspection services under Florida Statutes §553.79, Client acknowledges that UES's services thereunder do not constitute a guarantee that the construction in question has been properly designed or constructed, and UES's services do not replace any of the obligations or liabilities associated with any architect, contractor, or structural engineer. Therefore it is explicitly agreed that the Client will not hold UES responsible for the proper performance of service by any architect, contractor, structural engineer or any other entity associated with the project.

## **SECTION 3: SITE ACCESS AND SITE CONDITIONS**

- 3.1 Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Proposal.
- The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

## SECTION 4: SAMPLE OWNERSHIP AND DISPOSAL

- 4.1 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client.
- 4.2 UES will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. Further storage or transfer of samples can be made at Client's expense upon Client's prior written request.
- 4.3 Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with all appropriate federal, state, or local regulations.

## SECTION 5: BILLING AND PAYMENT

- 5.1 UES will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications.
- Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts.
- 5.3 If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

## SECTION 6: OWNERSHIP AND USE OF DOCUMENTS

- All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, as instruments of service, shall remain the property of UES.
- 6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.
- 6.3 UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times.
- All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared for the sole and exclusive use of Client, and may not be given to any other party or used or relied upon by any such party without the express written consent of UES.

## SECTION 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS

- 7.1 Client warrants that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site.
- 7,2 Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous substances (40 CFR 300.6), petroleum products, polychlorinated biphenyls, and asbestos.
- Hazardous materials may exist at a site where there is no reason to believe they could or should be present. UES and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. UES and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous waste.
- 7.4 UES agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold UES harmless for any and all consequences of disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.
- 7.5 Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES harmless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.

## **SECTION 8: RISK ALLOCATION**

Client agrees that UES's liability for any damage on account of any breach of contract, error, omission or other professional negligence will be limited to a sum not to exceed \$50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of \$1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or \$400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.

#### **SECTION 9: INSURANCE**

9.1 UES represents and warrants that it and its agents, staff and consultants employed by it, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save UES harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other UESs employed by Client.

#### **SECTION 10: DISPUTE RESOLUTION**

- All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation or arbitration, before and as a condition precedent to other remedies provided by law, including the commencement of litigation.
- 10.2 If a dispute arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:
  - the claim will be brought and tried in judicial jurisdiction of the court of the county where UES's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and
  - (b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses.

## **SECTION 11: TERMINATION**

- This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses.
- In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records and reports.

## **SECTION 12: ASSIGNS**

12.1 Neither the Client nor UES may delegate, assign, sublet or transfer their duties or interest in this Agreement without the written consent of the other party.

#### **SECTION 13. GOVERNING LAW AND SURVIVAL**

- The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance.
- If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.

## **SECTION 14. INTEGRATION CLAUSE**

- 14.1 This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein.
- 14.2 This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any modification or amendment is sought.

Proposed Moccassin Wallow Road Improvements UES Project No. 1130.1800187.000									
Boring No.	Date Drilled	*Approximate Station No.	*Approximate Offset (ft)	*Approximate Surface Elevation (ft)	**Measured Water Table Depth (ft)	*Approximate Water Table Elevation (ft)	*Estimated SHGWL Depth (ft)	**Estimated SHWGL Elevation (ft)	
HA-001	8/10/2018	13+10	17 ft S. of center line	15.50	5	10.50	3	12.50	
HA-002	8/10/2018	13+70	16 ft N. of center line	16.00	4.6	11.40	3	13.00	
HA-003	8/10/2018	14+30	17 ft S. of center line	17.50	2	15.50	2	15.50	
HA-004	8/10/2018	15+10	20 ft N. of center line	18.00	3.5	14.50	2.5	15.50	
HA-005	8/10/2018	15+50	16 ft S. of center line	19.00	3	16.00	2.5	16.50	
HA-006	8/10/2018	16+10	17 ft N. of center line	19.00	3.5	15.50	2.5	16.50	
HA-007	8/10/2018	16+70	18 ft S. of center line	20.00	3.5	16.50	2.5	17.50	
HA-008	8/10/2018	17+30	16 ft N. of center line	20.00	3	17.00	2.5	17.50	
HA-009	8/10/2018	18+00	15 ft S. of center line	22.00	3	19.00	2.5	19.50	
HA-010	8/10/2018	18+50	17 ft N. of center line	21.50	3.5	18.00	2.5	19.00	
HA-011	8/10/2018	19+10	15 ft S. of center line	23.00	4	19.00	2.5	20.50	
HA-012	8/10/2018	19+80	16 ft N. of center line	23.50	4	19.50	2.5	21.00	
HA-013	8/10/2018	20+30	15 ft S. of center line	24.00	3	21.00	2.5	21.50	
HA-014	8/10/2018	20+90	17 ft N. of center line	25.00	3	22.00	2.5	22.50	
HA-015	8/13/2018	21+50	14 ft S. of center line	25.00	5	20.00	3	22.00	
HA-016	8/13/2018	22+10	17 ft N. of center line	25.00	5	20.00	3	22.00	
HA-017	8/13/2018	23+10	21 ft S. of center line	26.50	5	21.50	3	23.50	
HA-018	8/13/2018	23+30	16 ft N. of center line	26.50	5	21.50	3	23.50	
HA-019	8/13/2018	23+90	15 ft S. of center line	26.00	5	21.00	3	23.00	
HA-020	8/13/2018	24+60	18 ft N. of center line	27.00	5	22.00	3	24.00	
HA-021	8/13/2018	25+20	17 ft S. of center line	27.00	4.5	22.50	3	24.00	
HA-022	8/13/2018	25+70	16 ft N. of center line	28.00	4.5	23.50	3	25.00	
HA-023	8/13/2018	26+30	15 ft S. of center line	28.50	4.3	24.20	3	25.50	
HA-024	8/13/2018	26+80	15 ft N. of center line	29.50	4	25.50	3	26.50	
HA-025	8/13/2018	27+50	16 ft S. of center line	29.50	4	25.50	3	26.50	
HA-026	8/13/2018	28+20	17 ft N. of center line	30.00	4.2	25.80	3	27.00	
HA-027	8/14/2018	28+70	15 ft S. of center line	30.00	4.5	25.50	3	27.00	
HA-028	8/14/2018	29+30	16 ft N. of center line	30.50	4.5	26.00	3	27.50	
HA-029	8/14/2018	29+90	15 ft S. of center line	30.50	4.3	26.20	3	27.50	
HA-030	8/14/2018	30+50	14 ft N. of center line	31.00	4.2	26.80	3	28.00	

Boring No.	Date Drilled	*Approximate Station No.	*Approximate Offset (ft)	*Approximate Surface Elevation (ft)	**Measured Water Table Depth (ft)	*Approximate Water Table Elevation (ft)	*Estimated SHGWL Depth (ft)	**Estimated SHWGL Elevation (ft)
HA-031	8/14/2018	31+10	15 ft S. of center line	31.00	4.5	26.50	3	28.00
HA-032	8/14/2018	31+60	15 ft N. of center line	31.00	4.5	26.50	3	28.00
HA-033	8/14/2018	32+30	14 ft S. of center line	32.00	4.3	27.70	3	29.00
HA-034	8/14/2018	32+90	17 ft N. of center line	32.50	4.2	28.30	3	29.50
HA-035	8/14/2018	33+50	15 ft S. of center line	33.00	4	29.00	2.5	30.50
HA-036	8/14/2018	34+00	15 ft N. of center line	33.50	4	29.50	2.5	31.00
HA-037	8/14/2018	34+60	14 ft S. of center line	33.50	4	29.50	2.5	31.00
HA-038	8/14/2018	35+30	16 ft N. of center line	34.50	4	30.50	2.5	32.00
HA-039	8/14/2018	35+90	15 ft S. of center line	34.50	2.5	32.00	2.5	32.00
HA-040	8/14/2018	36+60	17 ft N. of center line	35.00	4	31.00	2.5	32.50
HA-041	8/16/2018	37+00	15 ft S. of center line	35.00	5	30.00	3	32.00
HA-042	8/16/2018	37+70	14 ft N. of center line	36.00	5	31.00	3	33.00
HA-043	8/16/2018	38+30	15 ft S. of center line	35.00	5	30.00	3	32.00
HA-044	8/16/2018	38+90	16 ft N. of center line	36.00	4	32.00	3	33.00
HA-045	8/16/2018	39+50	14 ft S. of center line	36.50	>5	<31.50	3	33.50
HA-046	8/16/2018	40+10	17 ft N. of center line	36.00	>5	<31.00	3	33.00
HA-047	8/16/2018	40+70	15 ft S. of center line	36.50	>5	<31.50	3	33.50
HA-048	8/16/2018	41+10	15 ft N. of center line	36.50	>5	<31.6	3	33.50
HA-049	8/16/2018	41+90	16 ft S. of center line	37.00	>5	<32.00	3	34.00
HA-050	8/16/2018	42+50	17 ft N. of center line	36.50	>5	<31.50	3	33.50
HA-051	8/16/2018	43+10	14 ft S. of center line	37.50	>5	<32.50	3	34.50
HA-052	8/16/2018	43+40	21 ft N. of center line	37.00	>5	<32.00	3	34.00
HA-053	8/20/2018	44+30	15 ft S. of center line	37.50	>5	<32.50	3	34.50
HA-054	8/20/2018	44+90	21 ft N. of center line	37.50	>5	<32.50	3	34.50
HA-055	8/20/2018	45+50	15 ft S. of center line	37.50	>5	<32.50	3	34.50
HA-056	8/20/2018	46+10	16 ft N. of center line	37.00	>5	<32.00	3	34.00
HA-057	8/20/2018	46+70	17 ft S. of center line	38.00	>5	<33.00	3	35.00
HA-058	8/20/2018	47+30	18 ft N. of center line	38.00	>5	<33.00	3	35.00
HA-059	8/20/2018	47+90	15 ft S. of center line	37.50	>5	<32.50	3	34.50
HA-060	8/20/2018	48+50	19 ft N. of center line	38.00	>5	<33.00	3	35.00
HA-061	8/20/2018	49+10	16 ft S. of center line	38.00	>5	<33.00	3	35.00
HA-062	8/20/2018	49+70	18 ft N. of center line	38.00	>5	<33.00	3	35.00

Boring No.	Date Drilled	*Approximate Station No.	*Approximate Offset (ft)	*Approximate Surface Elevation (ft)	**Measured Water Table Depth (ft)	*Approximate Water Table Elevation (ft)	*Estimated SHGWL Depth (ft)	**Estimated SHWGL Elevation (ft)
HA-063	8/20/2018	50+20	21 ft S. of center line	37.00	>5	<32.00	3	34.00
HA-064	8/20/2018	51+20	20 ft N. of center line	37.50	>5	<32.50	3	34.50
HA-065	8/20/2018	51+50	17 ft S. of center line	38.00	>5	<33.00	3	35.00
HA-066	8/20/2018	52+10	15 ft N. of center line	37.50	>5	<32.50	3	34.50
HA-067	8/20/2018	52+70	15 ft S. of center line	38.00	>5	<33.00	3	35.00
HA-068	8/21/2018	53+30	14 ft N. of center line	38.00	>5	<33.00	3	35.00
HA-069	8/21/2018	53+90	15 ft S. of center line	38.00	>5	<33.00	3	35.00
HA-070	8/21/2018	54+50	16 ft N. of center line	37.50	>5	<32.50	3	34.50
HA-071	8/21/2018	55+10	15 ft S. of center line	37.50	>5	<32.50	3	34.50
HA-072	8/21/2018	55+70	17 ft N. of center line	37.00	>5	<32.00	3	34.00
HA-073	8/21/2018	56+30	15 ft S. of center line	37.50	>5	<32.50	3	34.50
HA-074	8/21/2018	57+00	15 ft N. of center line	38.00	>5	<33.00	3	35.00
HA-075	8/21/2018	57+50	16 ft S. of center line	37.00	>5	<32.00	3	34.00
HA-076	8/21/2018	58+10	16 ft N. of center line	37.50	>5	<32.50	3	34.50
HA-077	8/21/2018	58+70	15 ft S. of center line	37.00	>5	<32.00	3	34.00
HA-078	8/21/2018	59+30	17 ft N. of center line	37.00	>5	<32.00	3	34.00
HA-079	8/21/2018	59+90	15 ft S. of center line	36.50	>5	<31.50	3	33.50
HA-080	8/21/2018	60+20	16 ft N. of center line	37.50	>5	<32.50	3	34.50
HA-081	8/22/2018	61+10	16 ft S. of center line	36.50	>5	<31.50	3	33.50
HA-082	8/22/2018	61+70	17 ft N. of center line	36.00	>5	<31.00	3	33.00
HA-083	8/22/2018	62+30	15 ft S. of center line	35.50	>5	<30.50	3	32.50
HA-084	8/22/2018	63+00	16 ft N. of center line	36.00	>5	<31.00	3	33.00
HA-085	8/22/2018	63+60	15 ft S. of center line	36.00	>5	<31.00	3	33.00
HA-086	8/22/2018	64+10	18 ft N. of center line	36.00	>5	<31.00	3	33.00
HA-087	8/22/2018	64+70	15 ft S. of center line	36.00	>5	<31.00	3	33.00
HA-088	8/22/2018	65+30	16 ft N. of center line	35.50	>5	<30.50	3	32.50
HA-089	8/22/2018	65+90	14 ft S. of center line	35.00	>5	<30.00	3	32.00
HA-090	8/22/2018	66+50	16 ft N. of center line	35.00	>5	<30.00	3	32.00
HA-091	8/22/2018	67+10	17 ft S. of center line	35.00	4.7	30.30	3	32.00
HA-092	8/22/2018	67+70	16 ft N. of center line	35.00	4.5	30.50	3	32.00
HA-093	8/22/2018	68+30	16 ft S. of center line	35.00	5	30.00	3	32.00
HA-094	8/22/2018	68+90	17 ft N. of center line	34.50	4.9	29.60	3	31.50

Boring No.	Date Drilled	*Approximate Station No.	*Approximate Offset (ft)	*Approximate Surface Elevation (ft)	**Measured Water Table Depth (ft)	*Approximate Water Table Elevation (ft)	*Estimated SHGWL Depth (ft)	**Estimated SHWGL Elevation (ft)
HA-095	8/22/2018	69+50	15 ft S. of center line	34.50	>5	<29.50	3	31.50
HA-096	8/23/2018	70+10	20 ft N. of center line	35.00	4.9	30.10	3	32.00
HA-097	8/23/2018	70+90	18 ft S. of center line	34.50	>5	<29.50	3	31.50
HA-098	8/23/2018	71+00	18 ft N. of center line	34.50	>5	<29.50	3	31.50
HA-099	8/23/2018	71+90	10 ft S. of center line	34.00	>5	<29.00	3	31.00
HA-100	8/23/2018	72+00	12 ft N. of center line	34.50	>5	<29.50	3	31.50
HA-101	8/23/2018	73+10	16 ft S. of center line	34.00	>5	<29.00	3	31.00
HA-102	8/23/2018	73+70	17 ft N. of center line	34.00	>5	<29.00	3	31.00
HA-103	8/23/2018	74+30	16 ft S. of center line	34.00	>5	<29.00	3	31.00
HA-104	8/23/2018	74+90	15 ft N. of center line	34.00	>5	<29.00	3	31.00
HA-105	8/23/2018	75+50	16 ft S. of center line	33.50	>5	<28.50	3	30.50
HA-106	8/23/2018	76+10	15 ft N. of center line	34.00	>5	<29.00	3	31.00
HA-107	8/23/2018	76+70	17 ft S. of center line	33.50	>5	<28.50	3	30.50
HA-108	8/23/2018	77+30	16 ft N. of center line	33.00	>5	<28.00	3	30.00
HA-109	8/23/2018	77+90	15 ft S. of center line	33.50	>5	<28.50	3	30.50
HA-110	8/23/2018	78+20	16 ft N. of center line	33.50	>5	<28.50	3	30.50
HA-111	8/24/2018	79+10	22 ft S. of center line	33.00	4.5	28.50	3	30.00
HA-112	8/24/2018	79+70	22 ft N. of center line	32.50	4.3	28.20	3	29.50
HA-113	8/24/2018	80+30	12 ft S. of center line	32.00	4	28.00	2.5	29.50
HA-114	8/24/2018	81+00	21 ft N. of center line	32.00	4	28.00	2.5	29.50
HA-115	8/24/2018	81+50	12 ft S. of center line	31.00	3.5	27.50	2.5	28.50
HA-116	8/24/2018	82+10	20 ft N. of center line	32.00	3.5	28.50	2.5	29.50
HA-117	8/24/2018	82+70	12 ft S. of center line	31.00	2	29.00	2	29.00
HA-118	8/24/2018	83+30	20 ft N. of center line	31.00	2	29.00	2	29.00
HA-119	8/24/2018	83+90	13 ft S. of center line	30.00	2	28.00	2	28.00
HA-120	8/24/2018	84+50	18 ft N. of center line	30.00	2	28.00	2	28.00
HA-121	8/24/2018	85+00	12 ft S. of center line	30.00	2	28.00	2	28.00
HA-122	8/24/2018	85+70	18 ft N. of center line	30.00	2	28.00	2	28.00
HA-123	8/24/2018	86+30	18 ft S. of center line	28.50	2	26.50	2	26.50
HA-124	8/24/2018	86+90	18 ft N. of center line	29.50	2.5	27.00	2	27.50
HA-125	8/24/2018	87+50	19 ft S. of center line	30.00	4.5	25.50	3	27.00
HA-126	8/24/2018	88+10	17 ft N. of center line	30.00	4.2	25.80	3	27.00

Boring No.	Date Drilled	*Approximate Station No.	*Approximate Offset (ft)	*Approximate Surface Elevation (ft)	**Measured Water Table Depth (ft)	*Approximate Water Table Elevation (ft)	*Estimated SHGWL Depth (ft)	**Estimated SHWGL Elevation (ft)
HA-127	8/24/2018	88+70	17 ft S. of center line	30.00	3.8	26.20	3	27.00
HA-128	8/24/2018	89+30	18 ft N. of center line	30.00	3.9	26.10	3	27.00
HA-129	8/24/2018	89+40	17 ft S. of center line	30.00	4	26.00	3	27.00
HA-130	8/27/2018	90+50	18 ft N. of center line	30.00	3.9	26.10	3	27.00
HA-131	8/27/2018	91+10	19 ft S. of center line	30.00	4	26.00	3	27.00
HA-132	8/27/2018	91+70	21 ft N. of center line	28.00	3.5	24.50	3	25.00
HA-133	8/27/2018	92+30	22 ft S. of center line	29.50	3.5	26.00	3	26.50
HA-134	8/27/2018	92+90	22 ft N. of center line	29.00	4	25.00	3	26.00
HA-135	8/27/2018	93+50	25 ft S. of center line	28.00	4	24.00	3	25.00
HA-136	8/27/2018	94+10	11 ft N. of center line	30.00	3.5	26.50	3	27.00
HA-137	8/27/2018	94+70	25 ft S. of center line	29.00	3.5	25.50	3	26.00
HA-138	8/27/2018	95+30	12 ft N. of center line	30.00	4	26.00	3	27.00
HA-139	8/27/2018	95+90	22 ft S. of center line	29.50	3.8	25.70	3	26.50
HA-140	8/27/2018	96+00	16 ft N. of center line	30.00	4.5	25.50	3	27.00
HA-141	8/27/2018	97+50	18 ft S. of center line	29.00	4.2	24.80	3	26.00
HA-142	8/27/2018	97+70	22 ft N. of center line	29.00	4.5	24.50	3	26.00
HA-143	8/27/2018	98+30	18 ft S. of center line	28.00	3.5	24.50	3	25.00
HA-144	8/27/2018	98+90	22 ft N. of center line	27.50	1.5	26.00	2	25.50
HA-145	8/27/2018	99+50	20 ft S. of center line	26.50	2	24.50	2	24.50
HA-146	8/28/2018	100+10	22 ft N. of center line	27.00	2	25.00	2	25.00
HA-147	8/28/2018	100+70	20 ft S. of center line	27.00	2	25.00	2	25.00
HA-148	8/28/2018	101+30	22 ft N. of center line	27.00	2.5	24.50	2	25.00
HA-149	8/28/2018	101+90	20 ft S. of center line	27.00	2.3	24.70	2	25.00
HA-150	8/28/2018	102+50	17 ft N. of center line	27.00	3	24.00	2.5	24.50
HA-151	8/28/2018	103+10	18 ft S. of center line	27.00	3.2	23.80	2.5	24.50
HA-152	8/28/2018	103+70	18 ft N. of center line	27.00	3.6	23.40	2.5	24.50
HA-153	8/28/2018	104+30	17 ft S. of center line	27.00	3.8	23.20	2.5	24.50
HA-154	8/28/2018	104+90	19 ft N. of center line	26.00	4.5	21.50	3	23.00
HA-155	8/28/2018	105+50	22 ft S. of center line	27.00	4.3	22.70	3	24.00
HA-156	8/28/2018	105+60	20 ft N. of center line	27.00	4.5	22.50	3	24.00
HA-157	8/28/2018	106+70	22 ft S. of center line	27.00	4.5	22.50	3	24.00
HA-158	8/28/2018	107+30	18 ft N. of center line	26.50	4.2	22.30	3	23.50

Boring No.	Date Drilled	*Approximate Station No.	*Approximate Offset (ft)	*Approximate Surface Elevation (ft)	**Measured Water Table Depth (ft)	*Approximate Water Table Elevation (ft)	*Estimated SHGWL Depth (ft)	**Estimated SHWGL Elevation (ft)
HA-159	8/28/2018	107+90	19 ft S. of center line	27.00	4.5	22.50	3	24.00
HA-160	8/28/2018	108+50	22 ft N. of center line	26.50	4.5	22.00	3	23.50
HA-161	8/29/2018	109+10	20 ft S. of center line	27.00	4	23.00	3	24.00
HA-162	8/29/2018	109+70	19 ft N. of center line	26.50	4.2	22.30	3	23.50
HA-163	8/29/2018	110+30	22 ft S. of center line	27.00	4	23.00	3	24.00
HA-164	8/29/2018	110+90	18 ft N. of center line	26.50	4	22.50	3	23.50
HA-165	8/29/2018	111+50	22 ft S. of center line	27.00	4.2	22.80	3	24.00
HA-166	8/29/2018	112+10	23 ft N. of center line	26.00	4.3	21.70	3	23.00
HA-167	8/29/2018	112+70	23 ft S. of center line	26.00	4.2	21.80	3	23.00

## Notes:

<sup>\*</sup>Approximate elevation from the Topographic Map provided on 1/8/2019

 $<sup>\</sup>ensuremath{^{**}}$  Water table depth measured at the time of boring from existing ground surface.