

Report of Geotechnical Exploration
For

Belleair Country Club Golf Course Improvements

MAE Project No. 0194-0001
February 23, 2018

Prepared for:



Prepared by:



8936 Western Way, Suite 12
Jacksonville, Florida 32256
Phone (904) 519-6990
Fax (904) 519-6992

February 23, 2018



McKim & Creed, Inc.
3903 Northdale Blvd, Ste 115E
Tampa, FL 33624

Attention: Mr. Craig Wells, P.E., ENV-SP

Reference: Report of Preliminary Geotechnical Exploration
Belleair Country Club Golf Course Improvements
MAE Project No. 0194-0001

Dear Mr. Wells:

Meskel & Associates Engineering, LLC (MAE) has completed a preliminary geotechnical exploration for the subject project. Our work was performed in general accordance with our proposal dated September 15, 2017. The geotechnical exploration was performed to evaluate the general subsurface conditions within the existing Belleair Country Club Golf Course limits, for the purpose of developing a preliminary soil survey including estimated seasonal high groundwater levels for the project area. A summary of our findings is presented below for your convenience; however, we recommend that this report be considered in its entirety.

As further discussed in this report, the borings typically encountered fine sands (SP) and fine sands with silt (SP-SM) to the boring termination depths of 6 feet beneath the existing ground surface. However, some of the borings also encountered silty fine sands (SM), fine sands with clay (SP-SC) and clayey fine sands (SC). In addition, clays (CL, CH) were encountered at two of the boring locations. Several borings encountered sands with various quantities of organic fines, and three of the borings encountered soils with various quantities of gravel. For specific boring numbers, please refer to Section 4.1. The measured groundwater levels during our field exploration were between elevations of approximately El +1.4 feet to El +39.9 feet.

We appreciate this opportunity to be of service as your geotechnical consultant on this phase of the project. If you have any questions, or if we may be of any further service, please contact us.

Sincerely,

MESKEL & ASSOCIATES ENGINEERING, LLC
MAE FL Certificate of Authorization No. 28142

W. Josh Mele, E.I.
Staff Engineer

Brett Harbison, P.E.
Senior Geotechnical Engineer
Registered, Florida No. 74679

Distribution: Mr. Craig Wells, P.E., ENV-SP – McKim & Creed, Inc.

1 pdf

TABLE OF CONTENTS

Subject	Page No.
1.0 PROJECT INFORMATION	1
1.1 General	1
1.2 Project Description	1
2.0 FIELD EXPLORATION	1
2.1 Auger Borings	1
3.0 LABORATORY TESTING.....	2
4.0 GENERAL SUBSURFACE CONDITIONS.....	2
4.1 General Soil Profile	2
4.2 Groundwater Level	3
4.3 Review of the USDA Web Soil Survey Map.....	3
4.4 Seasonal High Groundwater Level	4
8.0 REPORT LIMITATIONS.....	4

FIGURES

- Figure 1. Site Location Map
Figure 2. Boring Location Plan
Figures 3-11. Generalized Soil Profiles

APPENDICES

- Appendix A. Soil Boring Logs
Field Exploration Procedures
Key to Boring Logs
Key to Soil Classification

Appendix B. Summary of Laboratory Test Results
Laboratory Test Procedures

1.0 PROJECT INFORMATION

1.1 General

Project information was provided to us by Mr. Craig Wells, with McKim & Creed, Inc. via several emails, phone conversations and teleconferences. For our review and reference, we were provided with an aerial plan entitled *Active Work Areas Belleair Country Club* developed by McKim & Creed, Inc. and signed on November 20, 2017, which shows the various Segments and the Belleair Country Club property limits. At a later date, we were also provided with several survey topographic CADD files by Mr. Chris Bosshart, with McKim & Creed, Inc. which contained spot elevations for each boring location.

1.2 Project Description

The site for the subject project is located at the Belleair Country Club in Clearwater, Florida. The site is currently an existing 245-acre golf course. The general site location is shown on Figure 1.

Based on the provided information and our discussions with Mr. Wells, it is our understanding the proposed project includes:

- Modifying the layout of the existing course
- Modifications to the existing stormwater management ponds
- Construction of a new building and associated paved parking areas

We understand that the project is still in the preliminary phase, and detailed information regarding the planned improvements has not been provided. At this time, a preliminary soil survey including the estimated seasonal high groundwater levels is all that is requested.

If actual project information varies from these conditions, then the recommendations in this report may need to be re-evaluated. Any changes in these conditions should be provided so the need for re-evaluation of our recommendations can be assessed prior to final design.

2.0 FIELD EXPLORATION

A field exploration was performed during the period of January 8 and 9, 2018. A copy of the plan provided to us, which shows the approximate boring locations, is included as the *Boring Location Plan*, Figure 2. The boring locations were determined by us, and then GPS coordinates were obtained by overlaying the provided plan in Google Earth. These coordinates were then provided to our field crew who located each boring location using a Garmin GPSMAP 78 hand-held receiver. Therefore, the boring locations shown on Figure 2 should be considered accurate only to the degree implied by the method of measurement used.

2.1 Auger Borings

To explore the subsurface conditions within the existing Belleair Country Club golf course areas at the requested exploration locations, we located and performed 35 auger borings, drilled to depths of approximately 6 feet below the existing ground surface in general accordance with the methodology outlined in ASTM D 1452. The borings were visually described in the field and representative portions of the samples were transported to our laboratory for further evaluation. A summary of the field procedures is included in Appendix A.

3.0 LABORATORY TESTING

Representative soil samples obtained during our field exploration were visually classified by a geotechnical engineer using the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. A *Key to the Soil Classification System* is included in Appendix A.

Quantitative laboratory testing was performed on selected samples of the soils encountered during the field exploration to better define the composition of the soils encountered and to provide data for correlation to their anticipated strength and compressibility characteristics. The laboratory testing determined the percent fines (percentage of material passing the U.S. number 200 sieve), moisture and organic contents of selected soil samples. The results of the laboratory testing are shown in the *Summary of Laboratory Test Results* included in Appendix B. Also, these results are shown on the *Generalized Soil Profiles* on Figures 3 through 11, and on the *Log of Boring* records at the respective depths from which the tested samples were recovered.

4.0 GENERAL SUBSURFACE CONDITIONS

According to the Belleair Country Club website, the golf course was constructed in 1897. It should be noted that during our field exploration, golf course personnel informed us that the course has been redone several times and there is buried debris spanning the entire property.

4.1 General Soil Profile

Graphical presentation of the generalized subsurface conditions is presented on Figure 3. Detailed boring records are included in Appendix A. When reviewing these records, it should be understood that the soil conditions will vary between the boring locations.

In general, the borings encountered a surficial topsoil layer 4 to 6 inches in thickness, underlain by fine sands (SP) and fine sands with silt (SP-SM) to the boring termination depths of 6 feet below the existing ground surface.

As exceptions:

- Soils with varying amounts (few to some) of gravel (rock fragments) were encountered at three of the boring locations (borings A-2 and A-3 within the Segment 1 area and boring A-22 within the Segment 5 area), from beneath the topsoil layer and continuing to depths between 1 ½ to 3 feet beneath the existing ground surface. At location A-2, underneath the existing topsoil layer, the boring primarily encountered this gravel (rock fragments) material and was forced to terminate early at a depth of 3 feet beneath the ground surface. Golf course personnel informed us that gravel was placed on top of “dredge spoils” that make up the western portions of Segments 1 and 3.
- Sands with trace to with amounts of organic fines were encountered at four of the boring locations (A-1, A-7, A-14, and A-30, Segments 1, 2, 3, and 9, respectively).
- Clays (CH, CL) were encountered at two boring locations (A-9 and A-11, respectively) within the Segment 3 area from about 4 ¼ feet to the boring termination depths. Sands containing various amounts of clays (trace to clayey) were also encountered throughout the project area; most notably at boring location A-11 (Segment 3) where fine sand with clay (SP-SC) was encountered between a depth of about 3 ½ to 4 ¼ feet, and at boring location A-35 (Segment 11) where silty, clayey fine sand was encountered from approximately 4 feet to the boring termination depth.

- At three locations (A-11, A-30, and A-34), unidentified subsurface obstructions were encountered around depths of 2 to 3 feet beneath the existing ground surface, which required the borings to be offset by about 4 feet in order to proceed to the requested termination depth of 6 feet below existing grade.

4.2 Groundwater Level

The groundwater level was encountered at most of the boring locations and recorded at the time of drilling at depths varying from ground surface to 6 feet below the existing ground surface. It should be noted that due to the rolling nature of the existing terrain, the above-mentioned depths are relative to the elevation of the ground surface at each boring location. Elevations for each boring location were approximated by interpolating between contour lines from the provided topographic plan, showing the measured groundwater level at the time of our field exploration to range from El +1.4 feet to El +39.9 feet. However, it should be anticipated that the groundwater levels will fluctuate seasonally and with changes in climate. As such, we recommend that the water table be verified prior to construction. Measured groundwater levels are shown on the boring profiles and on the boring logs.

4.3 Review of the USDA Web Soil Survey Map

The results of a review of the USDA Soil Survey Conservation Service (SSCS) Web Soil Survey of Pinellas County are shown in the table below. There are two predominant soil map units at the project sight: Immokalee and Myakka soils. The soil drainage class, hydrological group, and estimated seasonal high groundwater levels reported in the Soil Survey are as follows:

Map Unit Symbol	Map Unit Name	Drainage Class	Hydrologic Group	Depth to the Water Table ⁽¹⁾ (inches)
4	Astatula soils and Urban land, 0 to 5 percent slopes	Excessively Drained	A	More than 80
10	EauGallie soils and Urban land	Poorly Drained	A/D	6 to 18
13	Immokalee soils and Urban land	Poorly Drained	A/D	6 to 18
16	Matlacha and St. Augustine soils and Urban land	Somewhat Poorly Drained	B	24 to 36
17	Myakka soils and Urban land	Poorly Drained	A/D	6 to 18
30	Urban land ⁽²⁾	---	---	---

⁽¹⁾ The "Water table" above refers to a saturated zone in the soil which occurs during specified months, typically the summer wet season. Estimates of the upper limit shown in the Web Soil Survey are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

⁽²⁾ The Urban land classification does not have an associated soil type, drainage class, hydrologic

group, and estimated seasonal high groundwater levels typically reported in the Soil Survey.

4.4 Seasonal High Groundwater Level

In estimating seasonal high groundwater level, a number of factors are taken into consideration including antecedent rainfall, soil redoximorphic features (i.e., soil mottling), stratigraphy (including presence of hydraulically restrictive layers), vegetative indicators, effects of development, and relief points such as drainage ditches, ponds, low-lying areas, etc.

Based on our interpretation of the current site conditions, including the boring logs and review of published data, we estimate the seasonal high groundwater levels at the site to be generally 1 to 2 feet above the water levels measured at the time of our field work. Please refer to the Estimated Seasonal High Groundwater Levels shown on the *Generalized Soil Profiles* (Figures 3 to 11) for specific seasonal high groundwater elevation estimates at each boring location.

It is possible that groundwater levels may exceed the estimated seasonal high groundwater level as a result of significant or prolonged rains. Therefore, we recommend that design drawings and specifications account for the possibility of groundwater level variations, and construction planning should be based on the assumption that such variations will occur.

If possible, we would request any information available which contains groundwater levels (normal, mean, high, etc.) of the existing stormwater ponds and/or elevations of outfall structures or invert elevations of outfall structures. This information may aid in the estimation of the seasonal high groundwater level across the golf course.

8.0 REPORT LIMITATIONS

This report has been prepared for the exclusive use of McKim & Creed, Inc. and their clients for specific application to the design and construction of the Belleair Country Club Golf Course Improvements project. An electronically signed and sealed version, and a version of our report that is signed and sealed in blue ink, may be considered an original of the report. Copies of an original should not be relied on unless specifically allowed by MAE in writing. Our work for this project was performed in accordance with generally accepted geotechnical engineering practice. No warranty, express or implied, is made.

The analyses and recommendations contained in this report are based on the data obtained from this project. This testing indicates subsurface conditions only at the specific locations and times, and only to the depths explored. These results do not reflect subsurface variations that may exist away from the boring locations and/or at depths below the boring termination depths. Subsurface conditions and water levels at other locations may differ from conditions occurring at the tested locations. In addition, it should be understood that the passage of time may result in a change in the conditions at the tested locations. If variations in subsurface conditions from those described in this report are observed during construction, the recommendations in this report must be re-evaluated.

The scope of our services did not include any environmental assessment or testing for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the subject site. Any statements made in this report, and/or notations made on the generalized soil profiles or boring logs, regarding odors or other potential environmental concerns are based on observations made during execution of our scope of services and as such are strictly for the information of our client. No opinion of any environmental concern of such observations is made or implied. Unless complete environmental information regarding the site is already available, an environmental assessment is recommended.

MAE is not responsible for conclusions, interpretations, opinions or recommendations made by others based on the data contained in this report.

Figures



Site Location Map

PREPARED BY



PREPARED FOR

McKim & Creed, Inc.

PROJECT NAME

**Belleair Country Club Golf Course Improvements
Clear Water, Florida**

REFERENCE

Delorme XMap 7.0

MAE PROJECT NO.

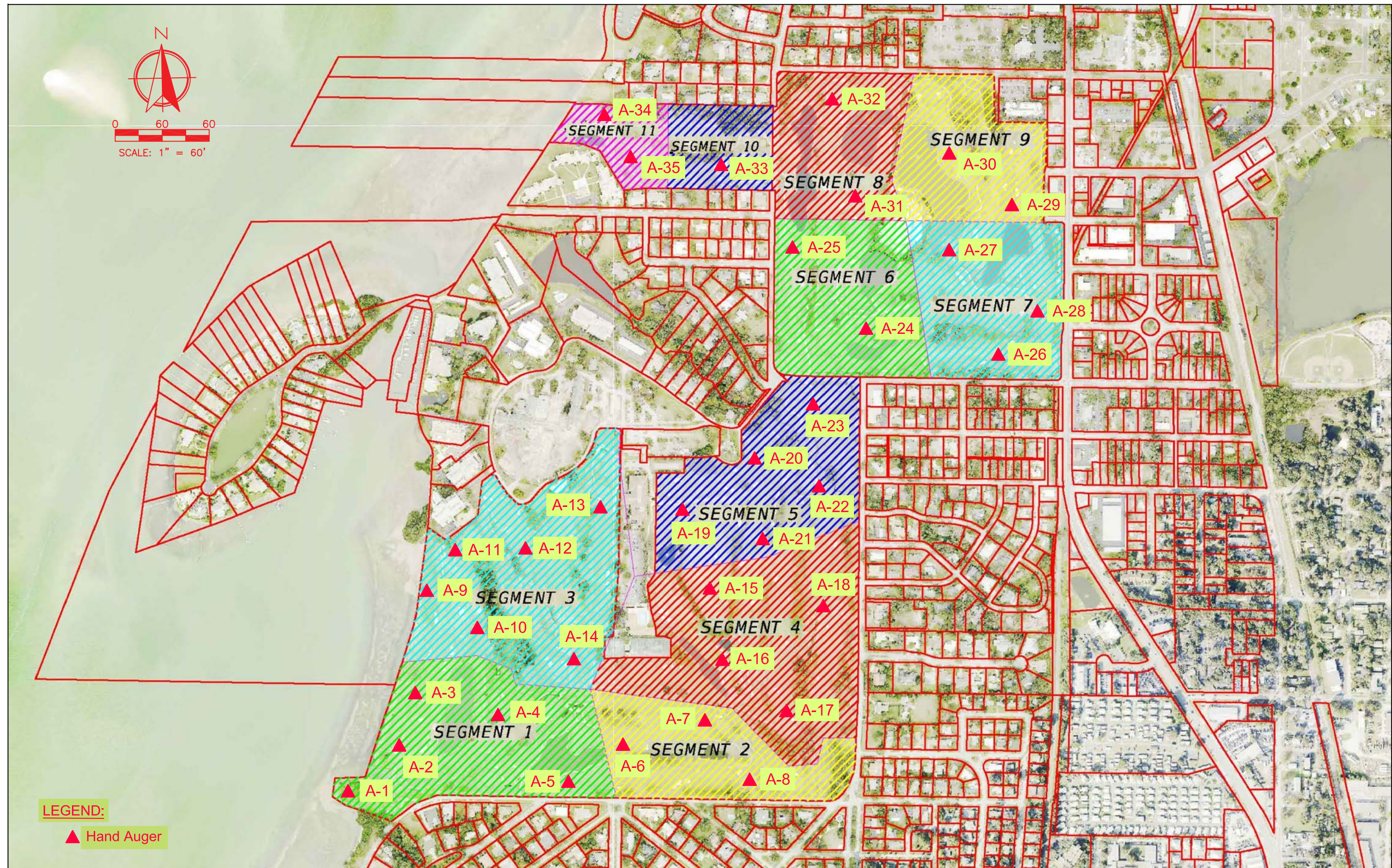
0194-0001

SCALE

NTS

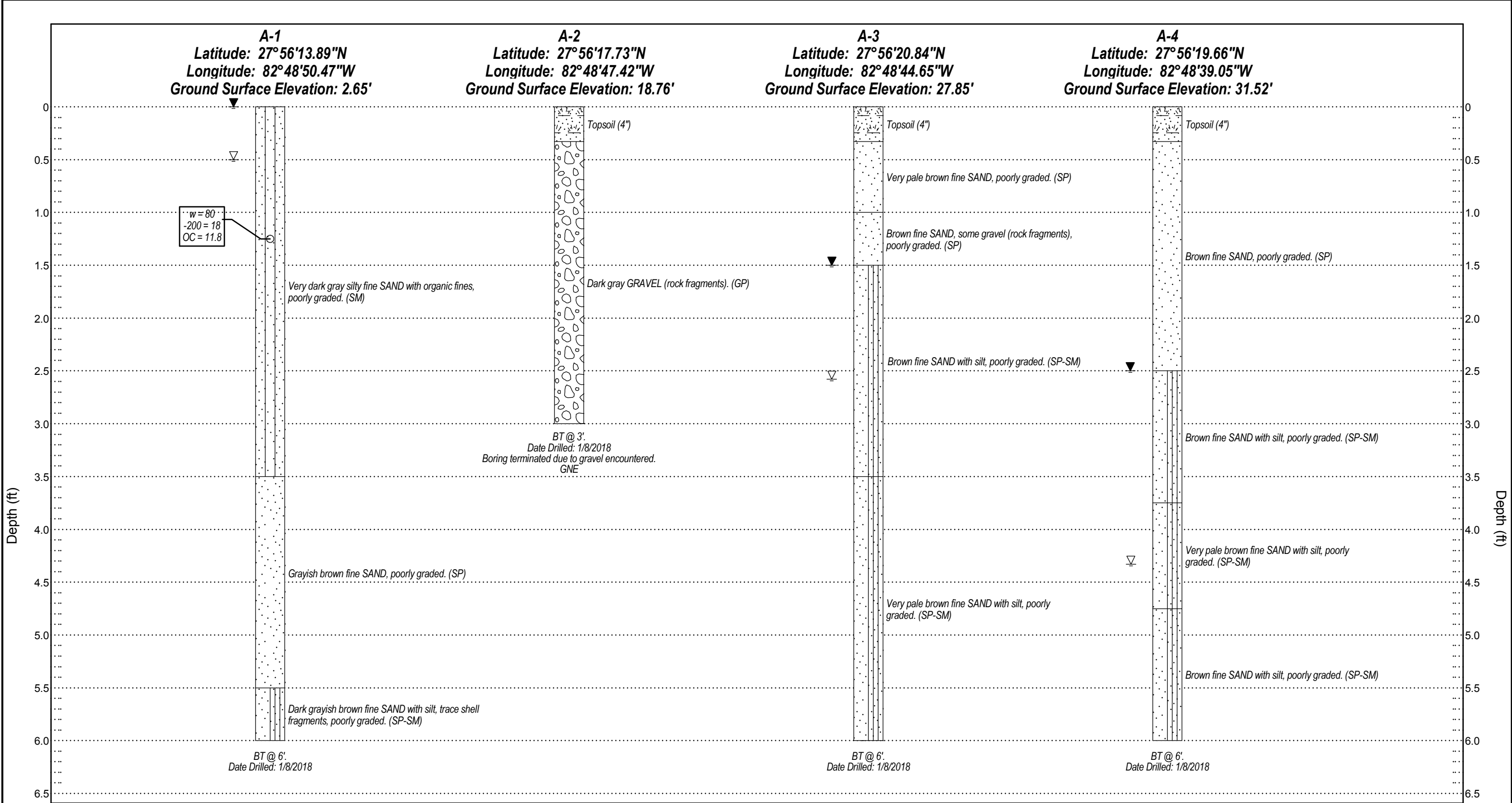
FIGURE NO.

1

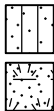


NOTE: Control Layout Plan dated November 20, 2017 was provided by McKim & Creed, Inc.

REVISIONS						<div><div>BRETT H. HARBISON, P.E. P.E. NO.: 74679</div><div><div>Meskel & Associates Engineering, LLC FL Certificate of Authorization No. 28142 8936 Western Way, Suite 12, Jacksonville, FL 32256</div></div></div>	CLIENT:		SHEET TITLE:		
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		McKim & Creed, Inc.		BORING LOCATION PLAN		
							DATE:	MAE PROJECT NO.	PROJECT NAME:		FIGURE NO.
						2/23/2018	0194-0001	Belleair Country Club Golf Course Improvements Clear Water, Florida		2	



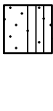
Legend



Silty Fine Sand



Fine Sand



Fine Sand with Silt

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

w Natural Moisture Content (%)

OC Organic Content (%)

BT Boring Terminated at Depth Below Existing Grade

GNE Groundwater Level Not Encountered at Time of Drilling

-200 % Passing No. 200 U.S. Standard Sieve

Note: Elevation information was provided by the project surveyor.

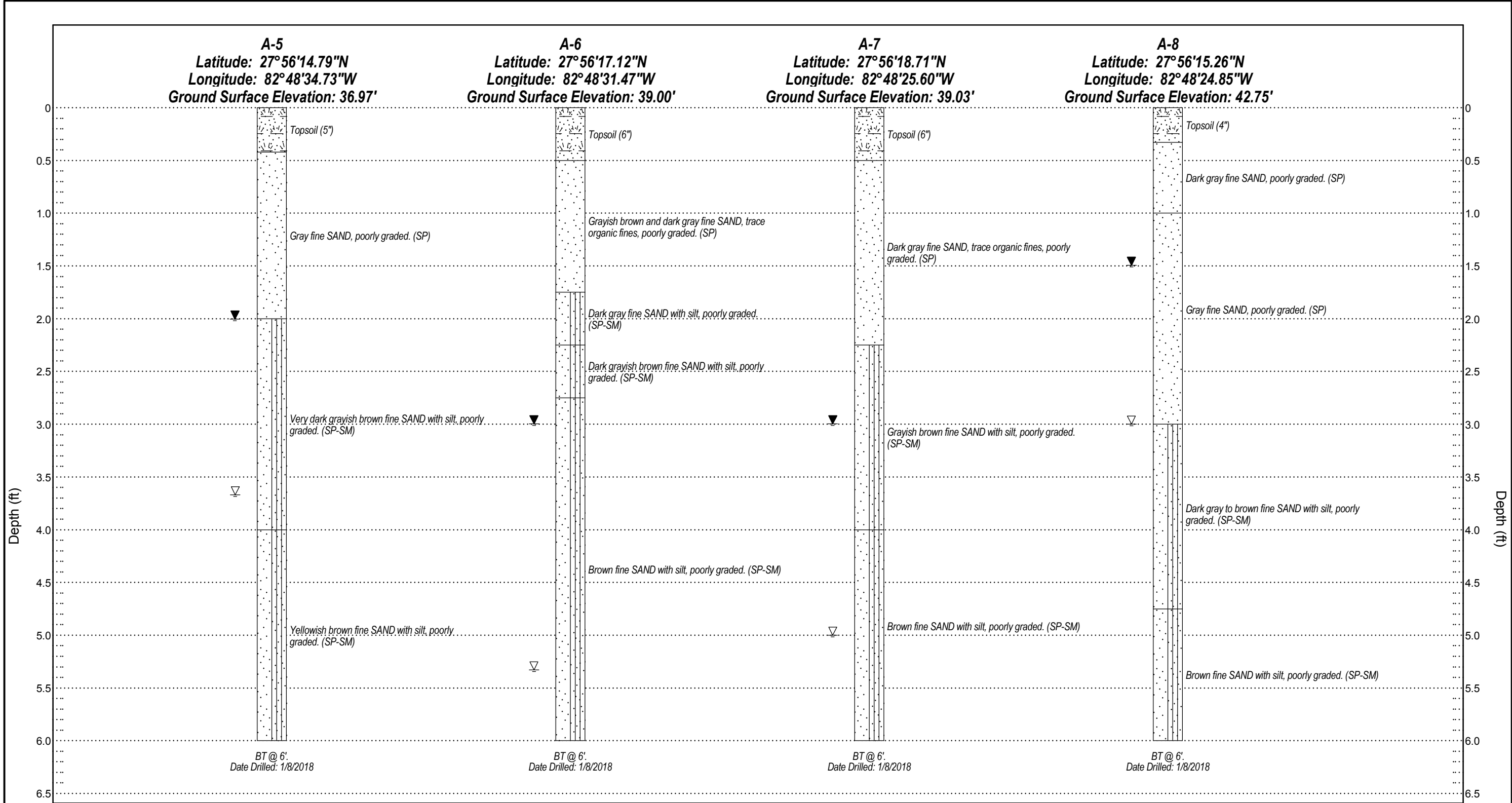
▼ Depth to Estimated Seasonal High Groundwater Table

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



McKim & Creed, Inc.	
DATE:	MAE PROJECT NO.
2/21/2018	0194-0001

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
Belleair Country Club Golf Course Improvements Clear Water, Florida	3



Legend



Topsoil



Fine Sand



Fine Sand with Silt

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

BT Boring Terminated at Depth Below Existing Grade

▼ Depth to Estimated Seasonal High Groundwater Table

Note: Elevation information was provided by the project surveyor.

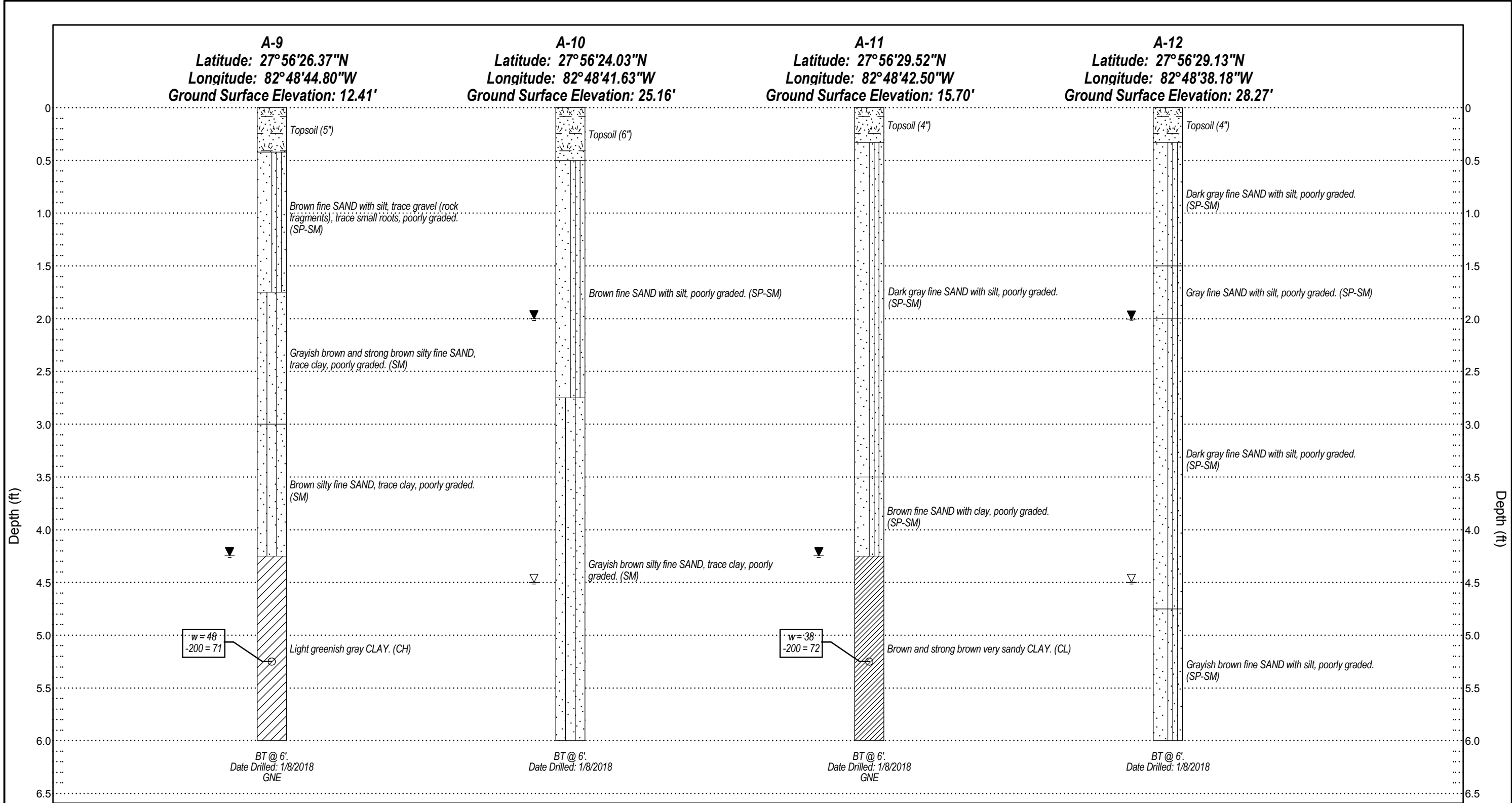
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BRETT H. HARBISON, P.E. P.E. NO.: 74679

Meskel & Associates Engineering
FL Certificate of Authorization No. 28142
8936 Western Way, Suite 12, Jacksonville, FL 32256

McKim & Creed, Inc.	
DATE:	MAE PROJECT NO.
2/21/2018	0194-0001

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
Belleair Country Club Golf Course Improvements Clear Water, Florida	4



Legend



Topsoil



Fine Sand with Silt



Silty Fine Sand



Sandy Clay



Sandy Clay



Clay

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

w Natural Moisture Content (%)

BT Boring Terminated at Depth Below Existing Grade

GNE Groundwater Level Not Encountered at Time of Drilling

-200 % Passing No. 200 U.S. Standard Sieve

Note: Elevation information was provided by the project surveyor.

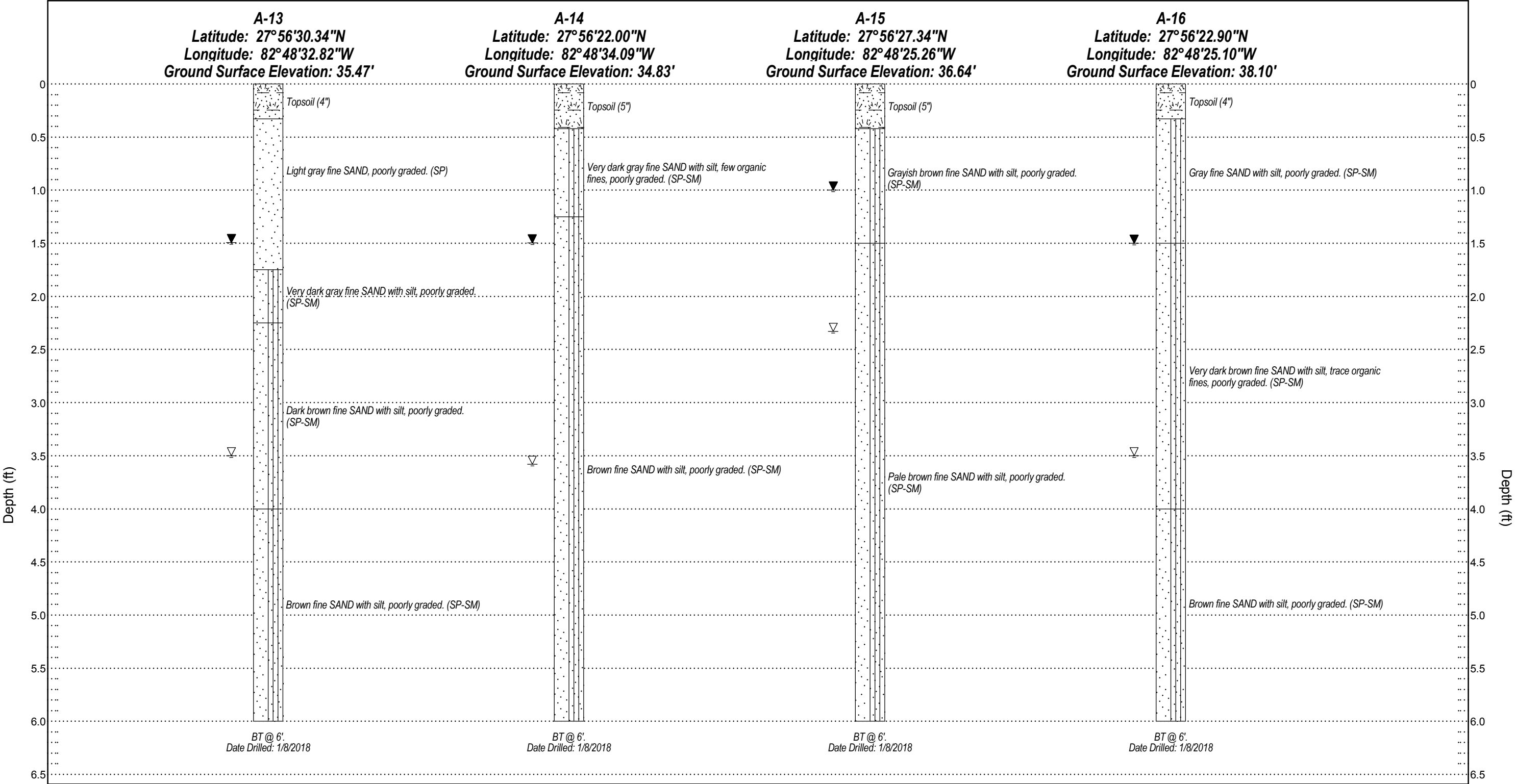
▼ Depth to Estimated Seasonal High Groundwater Table

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



McKim & Creed, Inc.	
DATE:	MAE PROJECT NO.
2/21/2018	0194-0001

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
Belleair Country Club Golf Course Improvements Clear Water, Florida	5



Legend



Topsoil



Fine Sand



Fine Sand with Silt

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

BT Boring Terminated at Depth Below Existing Grade

▼ Depth to Estimated Seasonal High Groundwater Table

Note: Elevation information was provided by the project surveyor.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BRETT H. HARBISON, P.E. P.E. NO.: 74679

MAE

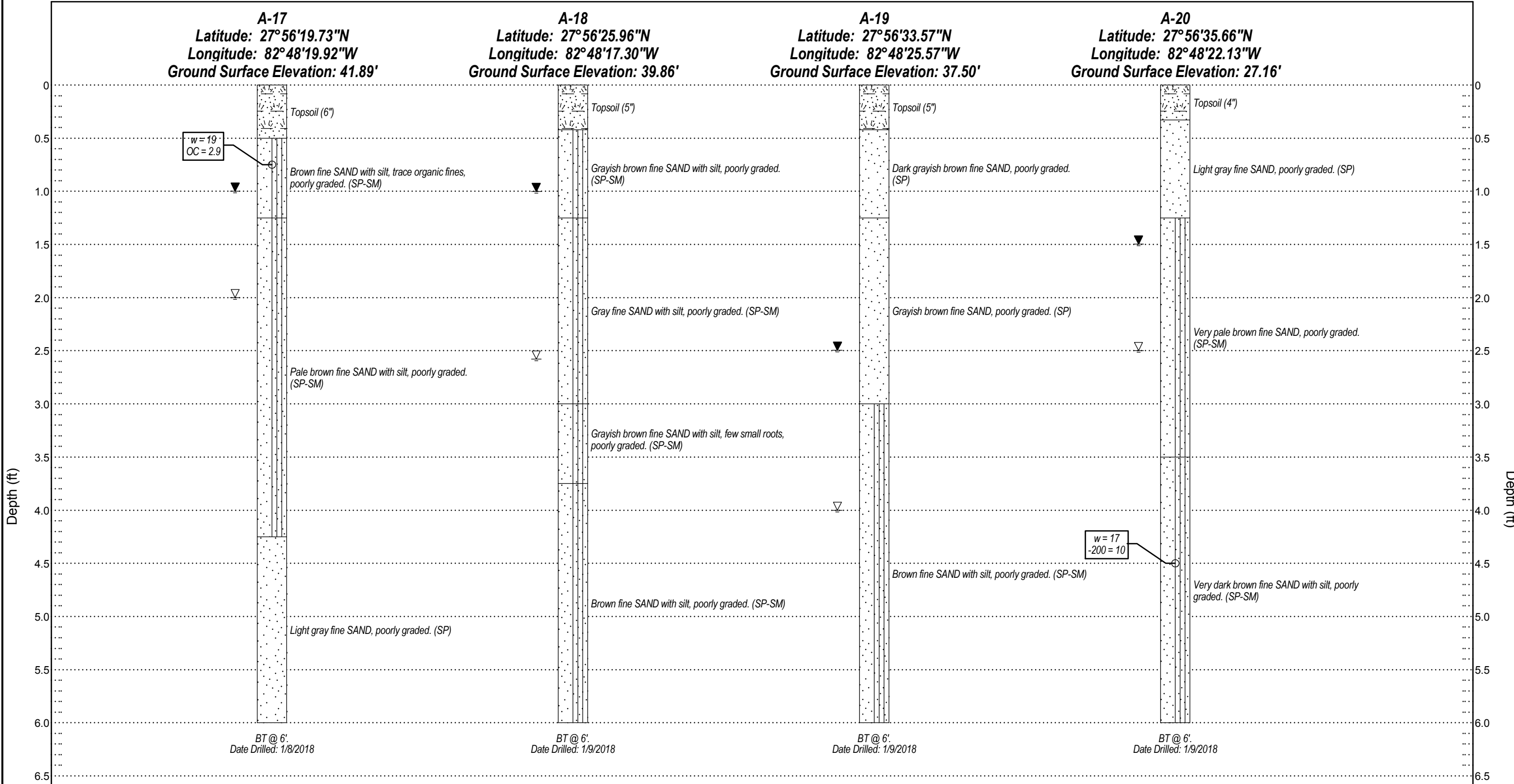
Meskel & Associates Engineering

FL Certificate of Authorization No. 28142

8936 Western Way, Suite 12, Jacksonville, FL 32256

McKim & Creed, Inc.	
DATE:	MAE PROJECT NO.
2/21/2018	0194-0001

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
Belleair Country Club Golf Course Improvements Clear Water, Florida	6



Legend



Topsoil



Fine Sand with Silt



Fine Sand

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

w Natural Moisture Content (%)

OC Organic Content (%)

BT Boring Terminated at Depth Below Existing Grade

▼ Depth to Estimated Seasonal High Groundwater Table

-200 % Passing No. 200 U.S. Standard Sieve

Note: Elevation information was provided by the project surveyor.

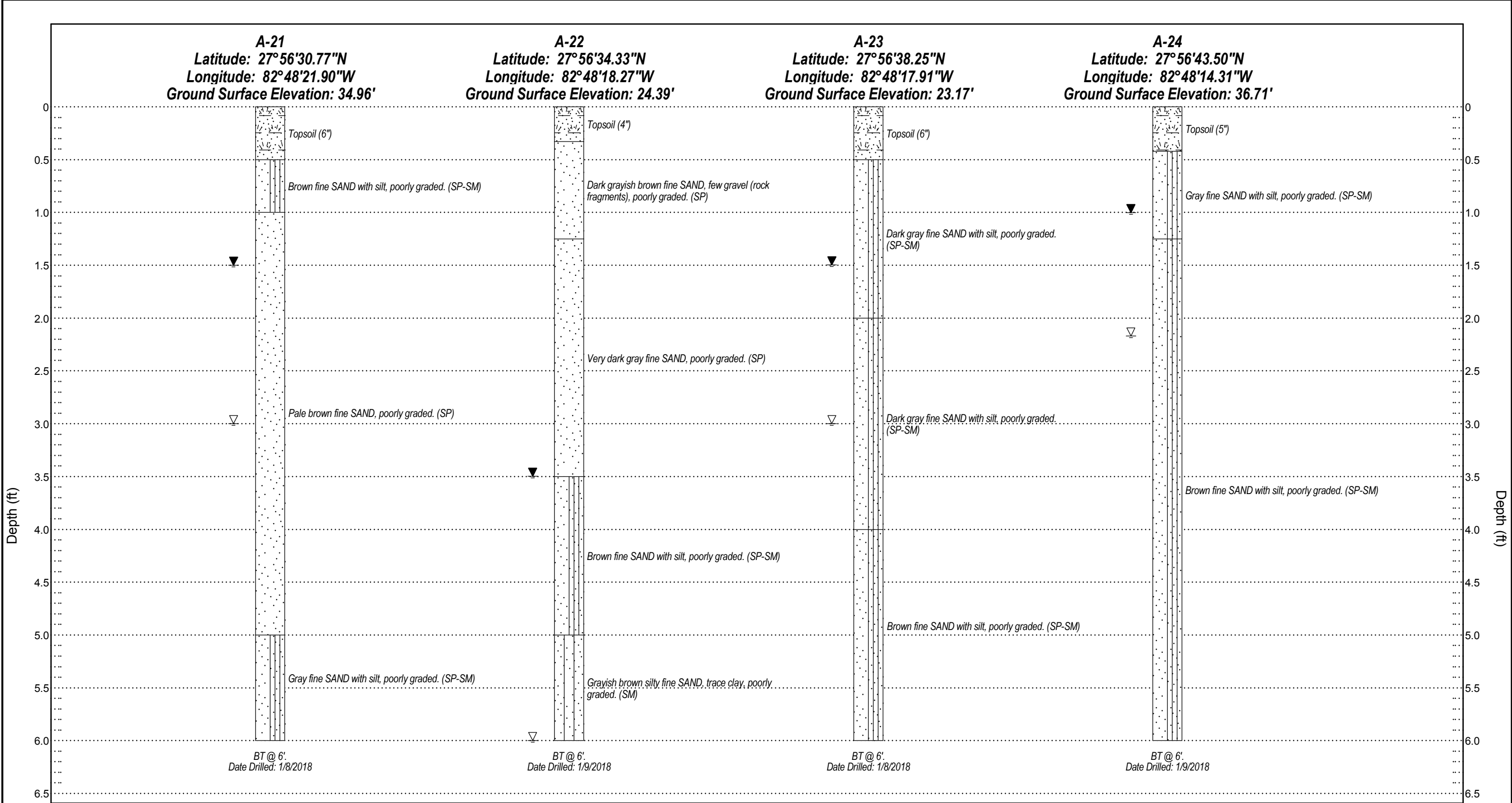
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BRETT H. HARBISON, P.E. P.E. NO.: 74679

Meskel & Associates Engineering
FL Certificate of Authorization No. 28142
8936 Western Way, Suite 12, Jacksonville, FL 32256

McKim & Creed, Inc.	
DATE:	MAE PROJECT NO.
2/21/2018	0194-0001

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
Belleair Country Club Golf Course Improvements Clear Water, Florida	7



Legend



Topsoil



Fine Sand with Silt



Fine Sand



Silty Fine Sand

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

BT Boring Terminated at Depth Below Existing Grade

▼ Depth to Estimated Seasonal High Groundwater Table

Note: Elevation information was provided by the project surveyor.

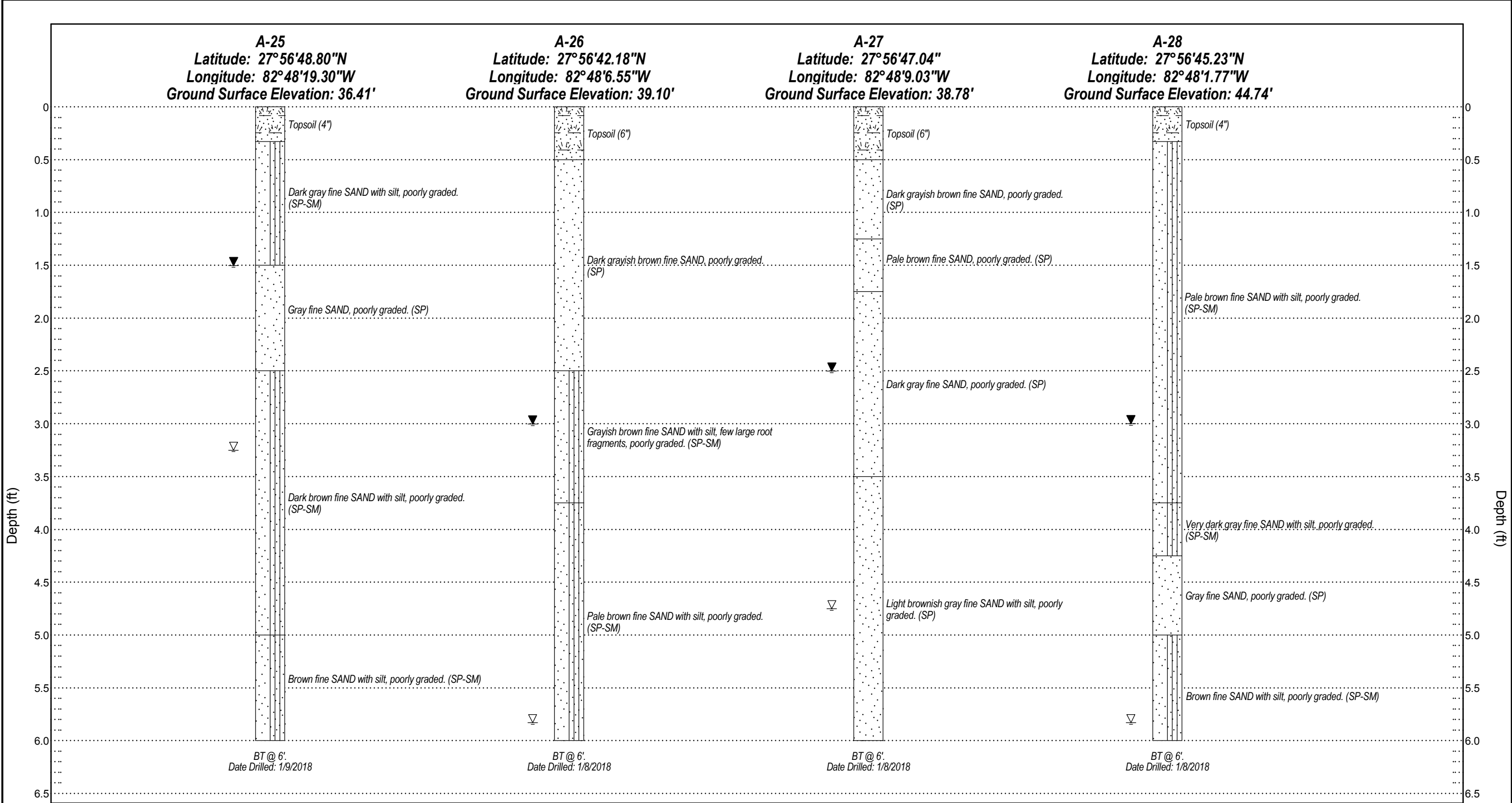
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BRETT H. HARBISON, P.E. P.E. NO.: 74679

Meskel & Associates Engineering
FL Certificate of Authorization No. 28142
8936 Western Way, Suite 12, Jacksonville, FL 32256

McKim & Creed, Inc.	
DATE:	MAE PROJECT NO.
2/21/2018	0194-0001

SHEET TITLE:		Generalized Soil Profiles	
PROJECT NAME:		Belleair Country Club Golf Course Improvements Clear Water, Florida	
FIGURE NO.		8	



Legend



Topsoil



Fine Sand with Silt



Fine Sand

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

BT Boring Terminated at Depth Below Existing Grade

▼ Depth to Estimated Seasonal High Groundwater Table

Note: Elevation information was provided by the project surveyor.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BRETT H. HARBISON, P.E. P.E. NO.: 74679

MAE

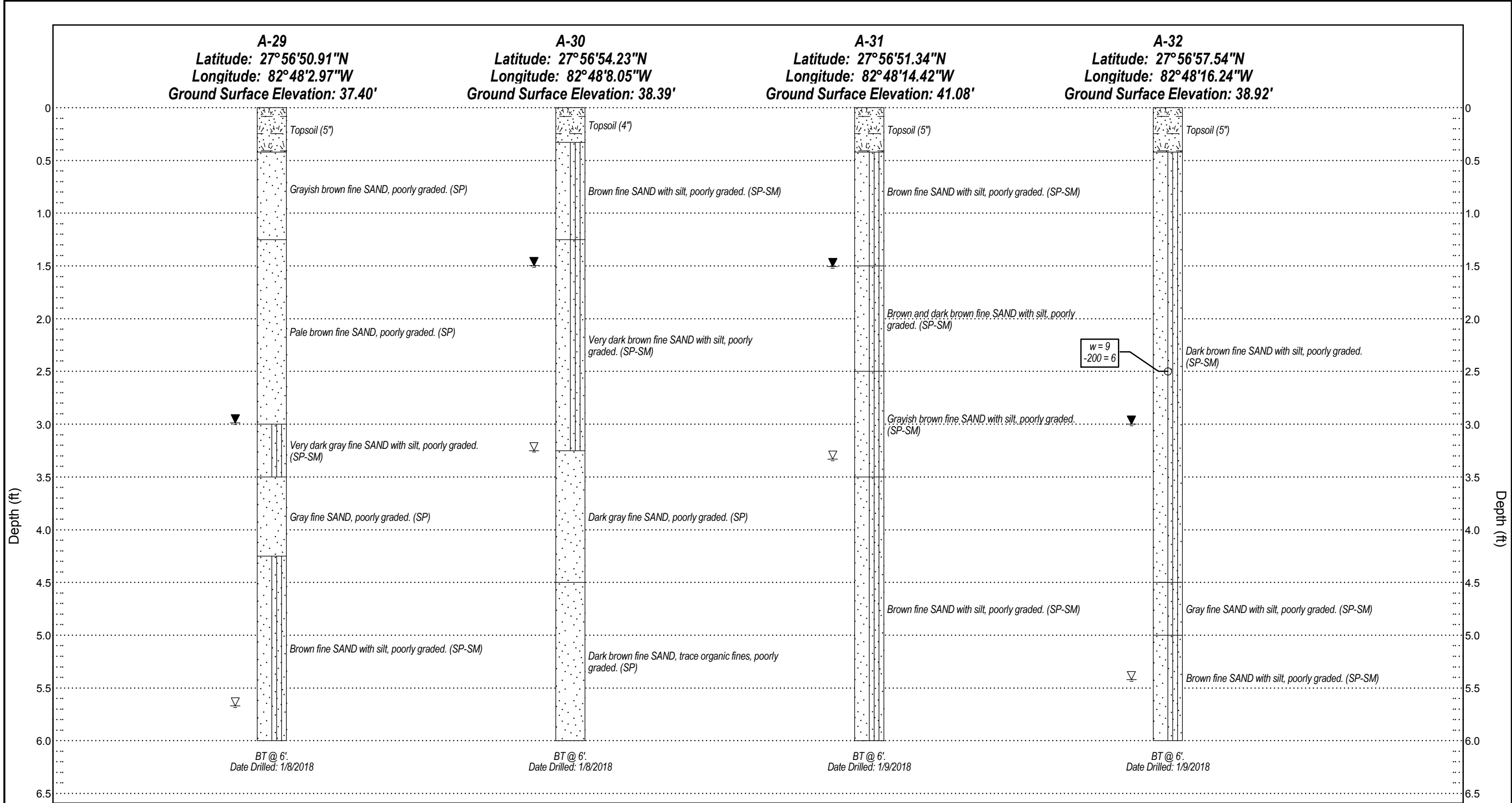
Meskel & Associates Engineering

FL Certificate of Authorization No. 28142

8936 Western Way, Suite 12, Jacksonville, FL 32256

McKim & Creed, Inc.	
DATE:	MAE PROJECT NO.
2/21/2018	0194-0001

SHEET TITLE:	Generalized Soil Profiles	
PROJECT NAME:	Belleair Country Club Golf Course Improvements	FIGURE NO.
	Clear Water, Florida	9



Legend

(SP) Unified Soil Classification System (USCS) ▽ Depth to Groundwater at Time of Drilling w Natural Moisture Content (%)

BT Boring Terminated at Depth Below Existing Grade ▴ Depth to Estimated Seasonal High Groundwater Table -200 % Passing No. 200 U.S. Standard Sieve

Note: Elevation information was provided by the project surveyor.

REVISIONS						McKim & Creed, Inc.		SHEET TITLE:	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			Generalized Soil Profiles	
						DATE:	MAE PROJECT NO.	PROJECT NAME:	FIGURE NO.
						2/21/2018	0194-0001	Belleair Country Club Golf Course Improvements Clear Water, Florida	10

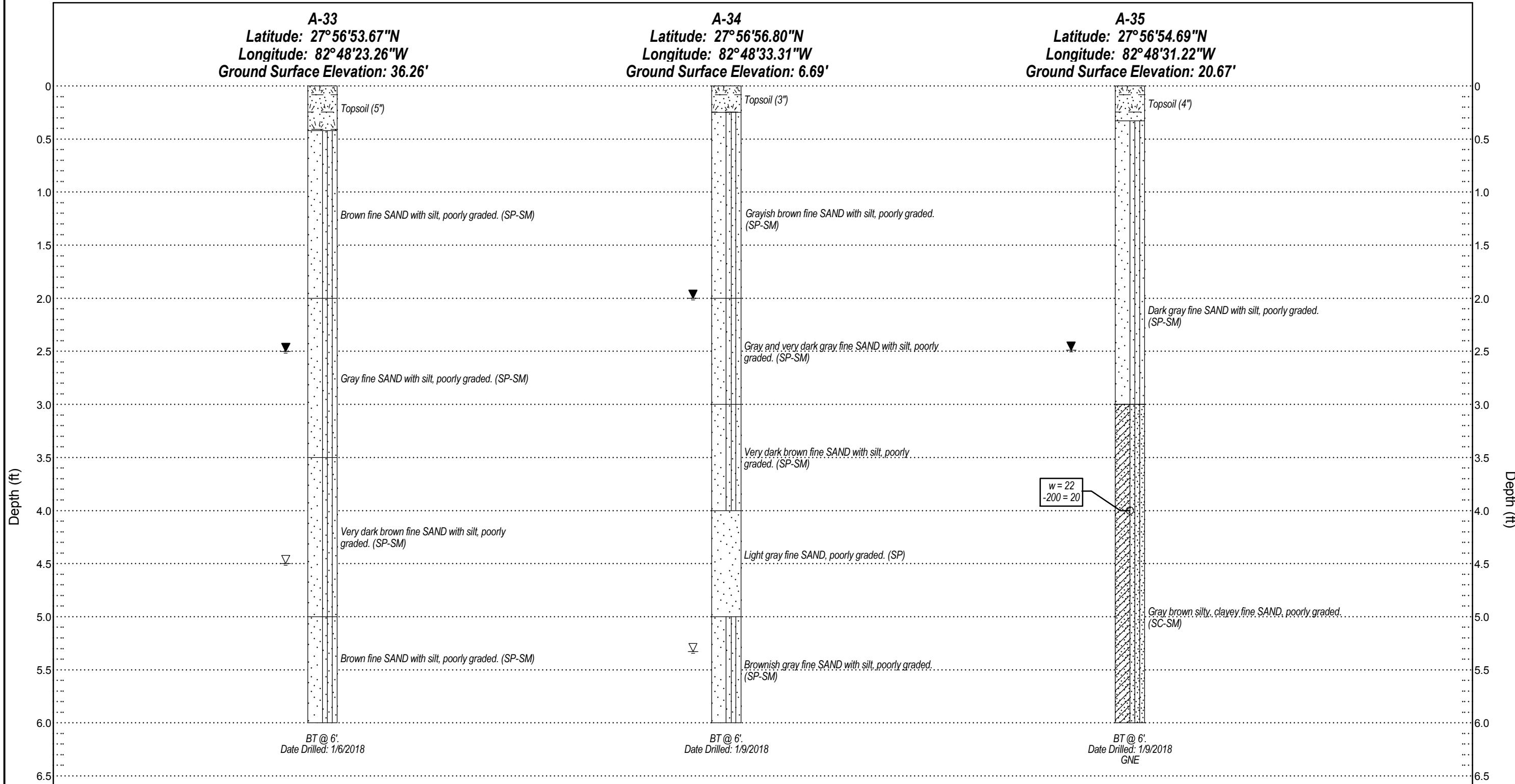
BRETT H. HARBISON, P.E. P.E. NO.: 74679

MAE





Meskel & Associates Engineering



FL Certificate of Authorization No. 28142

8936 Western Way, Suite 12, Jacksonville, FL 32256



Legend

-  Topsoil
-  Fine Sand with Silt
-  Fine Sand
-  Clayey/Silty Fine Sand

- (SP) Unified Soil Classification System (USCS)
- BT Boring Terminated at Depth Below Existing Grade
- Note: Elevation information was provided by the project surveyor.
-  Depth to Groundwater at Time of Drilling
- GNE Groundwater Level Not Encountered at Time of Drilling
-  Depth to Estimated Seasonal High Groundwater Table
- w Natural Moisture Content (%)
- 200 % Passing No. 200 U.S. Standard Sieve

REVISIONS						SHEET TITLE:		
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	Generalized Soil Profiles		
						PROJECT NAME: Belleair Country Club Golf Course Improvements Clear Water, Florida		
						FIGURE NO. 11		

BRETT H. HARBISON, P.E. P.E. NO.: 74679

 Meskel & Associates Engineering

FL Certificate of Authorization No. 28142
8936 Western Way, Suite 12, Jacksonville, FL 32256

McKim & Creed, Inc.

DATE: 2/21/2018

MAE PROJECT NO. 0194-0001

Appendix A

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-1

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'13.89"N **LONGITUDE** 82°48'50.47"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 2.65' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0														
2.5	1	Very dark gray silty fine SAND with organic fines, poorly graded.	SM				80	18	11.8					
5.0	2	Grayish brown fine SAND, poorly graded.	SP											
	3													
	4													
	5	Dark grayish brown fine SAND with silt, trace shell fragments, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 0 ft 6 in ▽ ESHGWT 0.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-2

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'17.73"N **LONGITUDE** 82°48'47.42"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 18.76' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
1.0	1	Dark gray GRAVEL (rock fragments).	GP											
2.5	2													
		Bottom of borehole at 3 feet. Boring Terminated due to gravel encountered.												

NOTES GNE-Groundwater Level Not Encountered at Time of Drilling.

GROUND WATER LEVELS

AT TIME OF DRILLING --- GNE ▼ ESHGWT 2.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-3

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'20.84"N **LONGITUDE** 82°48'44.65"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 27.85' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Very pale brown fine SAND, poorly graded.	SP											
	2	Brown fine SAND, some gravel (rock fragments), poorly graded.	SP											
2.5	3	▽ Brown fine SAND with silt, poorly graded.	SP-SM											
5.0	4	Very pale brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 2 ft 7 in ▼ ESHGWT 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-4

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'19.66"N **LONGITUDE** 82°48'39.05"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 31.52' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
1.0	1	Brown fine SAND, poorly graded.	SP											
2.5	2	Brown fine SAND with silt, poorly graded.	SP-SM											
3.5	3	Very pale brown fine SAND with silt, poorly graded.	SP-SM											
5.0	4	Brown fine SAND with silt, poorly graded.	SP-SM											
6.0		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 4 ft 4 in ▽ ESHGWT 2.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-5

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'14.79"N **LONGITUDE** 82°48'34.73"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 36.97' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (5")												
	1	Gray fine SAND, poorly graded.	SP											
2.5	2	Very dark grayish brown fine SAND with silt, poorly graded.	SP-SM											
5.0	3	Yellowish brown fine SAND with silt, poorly graded.	SP-SM											
	4													
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 3 ft 8 in ▽ ESHGWT 2.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-6

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'17.12"N **LONGITUDE** 82°48'31.47"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 39.00' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (6")												
	1	Grayish brown and dark gray fine SAND, trace organic fines, poorly graded.	SP											
	2	Dark gray fine SAND with silt, poorly graded.	SP-SM											
2.5	3	Dark grayish brown fine SAND with silt, poorly graded.	SP-SM											
	4	Brown fine SAND with silt, poorly graded.	SP-SM											
5.0		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 5 ft 4 in ▽ ESHGWT 3.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-7

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'18.71"N **LONGITUDE** 82°48'25.60"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 39.03' **HAMMER TYPE** —

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (6")												
	1	Dark gray fine SAND, trace organic fines, poorly graded.	SP											
2.5	2	▼ Grayish brown fine SAND with silt, poorly graded.	SP-SM											
	3													
5.0	4	▼ Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▼ AT TIME OF DRILLING 5 ft 0 in ▼ ESHGWT 3.0 ft

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-8

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'15.26"N **LONGITUDE** 82°48'24.85"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 42.75' **HAMMER TYPE** —

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:32 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Dark gray fine SAND, poorly graded.	SP											
	2	Gray fine SAND, poorly graded.	SP											
2.5														
	3	Dark gray to brown fine SAND with silt, poorly graded.	SP-SM											
5.0														
	4	Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 3 ft 0 in ▼ ESHGWT 1.5 ft

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-9

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'26.37"N **LONGITUDE** 82°48'44.80"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 25.16' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (5")												
	1	Brown fine SAND with silt, trace gravel (rock fragments), trace small roots, poorly graded.	SP-SM											
2.5	2	Grayish brown and strong brown silty fine SAND, trace clay, poorly graded.	SM											
	3	Brown silty fine SAND, trace clay, poorly graded.	SM											
5.0	4	Light greenish gray CLAY.	CH				48	71						
		Bottom of borehole at 6 feet.												

NOTES GNE-Groundwater Level Not Encountered at Time of Drilling.

GROUND WATER LEVELS

AT TIME OF DRILLING --- GNE ▼ ESHGWT 2.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:32 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-10

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'24.03"N **LONGITUDE** 82°48'41.63"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 25.16' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		▼												
		Topsoil (6")												
	1													
		Brown fine SAND with silt, poorly graded.	SP-SM											
2.5														
	2													
	3	Grayish brown silty fine SAND, trace clay, poorly graded.	SM											
5.0														
	4													
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▼ AT TIME OF DRILLING 4 ft 6 in ▼ ESHGWT 2.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-11

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'29.52"N **LONGITUDE** 82°48'42.50"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 15.70' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1													
	2	Dark gray fine SAND with silt, poorly graded.	SP-SM											
2.5														
	3	Brown fine SAND with clay, poorly graded.	SP-SM											
	4	Brown and strong brown very sandy CLAY.	CL				38	72						
5.0														
		Bottom of borehole at 6 feet.												

NOTES GNE-Groundwater Level Not Encountered at Time of Drilling.

GROUND WATER LEVELS

AT TIME OF DRILLING --- GNE ▼ ESHGWT 2.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-12

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'29.13"N **LONGITUDE** 82°48'38.18"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 28.27' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Dark gray fine SAND with silt, poorly graded.	SP-SM											
	2	Gray fine SAND with silt, poorly graded.	SP-SM											
2.5	3	Dark gray fine SAND with silt, poorly graded.	SP-SM											
5.0	4	Grayish brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 4 ft 6 in ▽ ESHGWT 2.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-13

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'30.34"N **LONGITUDE** 82°48'32.82"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 35.47' **HAMMER TYPE** —

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Light gray fine SAND, poorly graded.	SP											
	2	Very dark gray fine SAND with silt, poorly graded.	SP-SM											
2.5	3	Dark brown fine SAND with silt, poorly graded.	SP-SM											
	4	Brown fine SAND with silt, poorly graded.	SP-SM											
5.0														
		Bottom of borehole at 6 feet.												
NOTES					GROUND WATER LEVELS									
					▼ AT TIME OF DRILLING 3 ft 6 in ▼ ESHGWT 1.5 ft									



PAGE 1 OF 1

PROJECT NO. 0194-0001

CLIENT McKim & Creed, Inc.

COMPLETED 1/8/18

LATITUDE 27°56'22.00"N

LONGITUDE 82°48'34.09"W

DRILLING CONTRACTOR MAE, LLC

DRILLING METHOD Hand Auger

LOGGED BY P.R.Young

CHECKED BY W. Josh Mele

GROUND ELEVATION 34.83'

HAMMER TYPE _____

[illegible]

NOTES

GROUND WATER LEVELS

▽ **AT TIME OF DRILLING** 3 ft 7 in ▽ **ESHGWT** 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-000\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-15

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'27.34"N **LONGITUDE** 82°48'25.26"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 36.64' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (5")												
	1	▼ Grayish brown fine SAND with silt, poorly graded.	SP-SM											
	2	▽												
2.5														
	3	Pale brown fine SAND with silt, poorly graded.	SP-SM											
5.0	4													
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 2 ft 4 in ▼ ESHGWT 1.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
FL Certificate of Authorization No. 28142
8936 Western Way, Suite 12
Jacksonville, FL 32256
P: (904)519-6990 F: (904)519-6992



BORING A-16

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements

PROJECT LOCATION Clear Water, Florida

CLIENT McKim & Creed, Inc.

DATE STARTED 1/8/18

COMPLETED 1/8/18

LATITUDE 27°56'22.90"N

LONGITUDE 82°48'25.10"W

DRILLING CONTRACTOR MAE, LLC

DRILLING METHOD Hand Auger

LOGGED BY P.R.Young

CHECKED BY W. Josh Mele

GROUND ELEVATION 38.10'

HAMMER TYPE —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Gray fine SAND with silt, poorly graded.	SP-SM											
2.5	2	Very dark brown fine SAND with silt, trace organic fines, poorly graded.	SP-SM											
5.0	3	Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 3 ft 6 in ▽ ESHGWT 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-17

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'19.73"N **LONGITUDE** 82°48'19.92"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 41.89' **HAMMER TYPE** —

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (6")												
	1	▼ Brown fine SAND with silt, trace organic fines, poorly graded.	SP-SM				19		2.9					
	2	▽												
2.5		Pale brown fine SAND with silt, poorly graded.	SP-SM											
	3													
5.0		Light gray fine SAND, poorly graded.	SP											
	4													
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 2 ft 0 in ▼ ESHGWT 1.0 ft

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-18

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'25.96"N **LONGITUDE** 82°48'17.30"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 39.86' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (5")												
	1	Grayish brown fine SAND with silt, poorly graded.	SP-SM											
	2	Gray fine SAND with silt, poorly graded.	SP-SM											
2.5														
	3	Grayish brown fine SAND with silt, few small roots, poorly graded.	SP-SM											
5.0														
	4	Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 2 ft 7 in ▽ ESHGWT 1.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-19

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'33.57"N **LONGITUDE** 82°48'25.57"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 37.50' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (5")												
	1	Dark grayish brown fine SAND, poorly graded.	SP											
	2	Grayish brown fine SAND, poorly graded.	SP											
2.5														
	3													
		Brown fine SAND with silt, poorly graded.	SP-SM											
5.0	4													
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 4 ft 0 in ▽ ESHGWT 2.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-20

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'35.66"N **LONGITUDE** 82°48'22.13"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 27.16' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Light gray fine SAND, poorly graded.	SP											
2.5	2	Very pale brown fine SAND, poorly graded.	SP-SM											
5.0	3	Very dark brown fine SAND with silt, poorly graded.	SP-SM				17	10						
	4													
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 2 ft 6 in ▽ ESHGWT 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
FL Certificate of Authorization No. 28142
8936 Western Way, Suite 12
Jacksonville, FL 32256
P: (904)519-6990 F: (904)519-6992



BORING A-21

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements

PROJECT LOCATION Clear Water, Florida

CLIENT McKim & Creed, Inc.

DATE STARTED 1/8/18

COMPLETED 1/8/18

LATITUDE 27°56'30.77"N

LONGITUDE 82°48'21.90"W

DRILLING CONTRACTOR MAE, LLC

DRILLING METHOD Hand Auger

LOGGED BY P.R.Young

CHECKED BY W. Josh Mele

GROUND ELEVATION 34.96'

HAMMER TYPE —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (6")												
	1	Brown fine SAND with silt, poorly graded.	SP-SM											
2.5	2	▼												
		▽ Pale brown fine SAND, poorly graded.	SP											
	3													
5.0	4	Gray fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 3 ft 0 in ▼ ESHGWT 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-22

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'34.33"N **LONGITUDE** 82°48'18.27"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 24.39' **HAMMER TYPE** —

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Dark grayish brown fine SAND, few gravel (rock fragments), poorly graded.	SP											
	2	Very dark gray fine SAND, poorly graded.	SP											
2.5														
	3	Brown fine SAND with silt, poorly graded.	SP-SM											
5.0														
	4	Grayish brown silty fine SAND, trace clay, poorly graded.	SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 6 ft 0 in ▽ ESHGWT 2.0 ft

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-23

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'38.25"N **LONGITUDE** 82°48'17.91"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 23.17' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (6")												
1.0	1	Dark gray fine SAND with silt, poorly graded.	SP-SM											
2.5	2	Dark gray fine SAND with silt, poorly graded.	SP-SM											
5.0	3	Brown fine SAND with silt, poorly graded.	SP-SM											
	4													
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 3 ft 0 in ▽ ESHGWT 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ



PAGE 1 OF 1

PROJECT NO. 0194-0001

CLIENT McKim & Creed, Inc.

COMPLETED 1/9/18

LATITUDE 27°56'43.50"N

LONGITUDE 82°48'14.31"W

DRILLING CONTRACTOR MAE, LLC

DRILLING METHOD Hand Auger

LOGGED BY P.R.Young

CHECKED BY W. Josh Mele

GROUND ELEVATION 36.71'

HAMMER TYPE _____

[illegible]

NOTES

GROUND WATER LEVELS

▽ **AT TIME OF DRILLING** 2 ft 2 in ▽ **ESHGWT** 1.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-000\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-25

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'48.80"N **LONGITUDE** 82°48'19.30"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 36.41' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Dark gray fine SAND with silt, poorly graded.	SP-SM											
	2	Gray fine SAND, poorly graded.	SP											
2.5														
	3	Dark brown fine SAND with silt, poorly graded.	SP-SM											
5.0														
	4	Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 3 ft 3 in ▽ ESHGWT 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-26

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'42.18"N **LONGITUDE** 82°48'6.55"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 39.10' **HAMMER TYPE** —

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (6")												
1.0	1	Dark grayish brown fine SAND, poorly graded.	SP											
2.5	2	▼ Grayish brown fine SAND with silt, few large root fragments, poorly graded.	SP-SM											
5.0	3	Pale brown fine SAND with silt, poorly graded.	SP-SM											
	4	▽												
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 5 ft 10 in ▼ ESHGWT 3.0 ft

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-27

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'47.04" **LONGITUDE** 82°48'9.03"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 38.78' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (6")												
	1	Dark grayish brown fine SAND, poorly graded.	SP											
	2	Pale brown fine SAND, poorly graded.	SP											
2.5	3	Dark gray fine SAND, poorly graded.	SP											
5.0	4	Light brownish gray fine SAND with silt, poorly graded.	SP											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 4 ft 9 in ▽ ESHGWT 2.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-28

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'45.23"N **LONGITUDE** 82°48'1.77"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 44.74' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1													
2.5	2	Pale brown fine SAND with silt, poorly graded.	SP-SM											
	3	Very dark gray fine SAND with silt, poorly graded.	SP-SM											
	4	Gray fine SAND, poorly graded.	SP											
5.0														
	5	Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 5 ft 10 in ▽ ESHGWT 3.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-29

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/8/18 **COMPLETED** 1/8/18 **LATITUDE** 27°56'50.91"N **LONGITUDE** 82°48'2.97"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 37.40' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (5")												
	1	Grayish brown fine SAND, poorly graded.	SP											
	2	Pale brown fine SAND, poorly graded.	SP											
2.5														
	3	Very dark gray fine SAND with silt, poorly graded.	SP-SM											
	4	Gray fine SAND, poorly graded.	SP											
5.0														
	5	Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 5 ft 8 in ▽ ESHGWT 3.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
FL Certificate of Authorization No. 28142
8936 Western Way, Suite 12
Jacksonville, FL 32256
P: (904)519-6990 F: (904)519-6992



BORING A-30

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements

PROJECT LOCATION Clear Water, Florida

CLIENT McKim & Creed, Inc.

DATE STARTED 1/8/18

COMPLETED 1/8/18

LATITUDE 27°56'54.23"N

LONGITUDE 82°48'8.05"W

DRILLING CONTRACTOR MAE, LLC

DRILLING METHOD Hand Auger

LOGGED BY P.R.Young

CHECKED BY W. Josh Mele

GROUND ELEVATION 38.39'

HAMMER TYPE —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
	1	Brown fine SAND with silt, poorly graded.	SP-SM											
	2	Very dark brown fine SAND with silt, poorly graded.	SP-SM											
2.5														
	3	Dark gray fine SAND, poorly graded.	SP											
	4	Dark brown fine SAND, trace organic fines, poorly graded.	SP											
5.0														
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 3 ft 3 in ▽ ESHGWT 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-31

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'51.34"N **LONGITUDE** 82°48'14.42"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 41.08' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (5")												
	1	Brown fine SAND with silt, poorly graded.	SP-SM											
	2	Brown and dark brown fine SAND with silt, poorly graded.	SP-SM											
2.5														
	3	Grayish brown fine SAND with silt, poorly graded.	SP-SM											
	4	Brown fine SAND with silt, poorly graded.	SP-SM											
5.0														
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 3 ft 4 in ▽ ESHGWT 1.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-32

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'57.54"N **LONGITUDE** 82°48'16.24"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 38.92' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		▼												
	1	Topsoil (5")												
2.5	2	Dark brown fine SAND with silt, poorly graded.	SP-SM				9	6						
5.0	3	Gray fine SAND with silt, poorly graded.	SP-SM											
	4	▽ Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 5 ft 5 in ▼ ESHGWT 3.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-33

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/6/18 **LATITUDE** 27°56'53.67"N **LONGITUDE** 82°48'23.26"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 36.26' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (5")												
	1	Brown fine SAND with silt, poorly graded.	SP-SM											
2.5	2	Gray fine SAND with silt, poorly graded.	SP-SM											
	3	Very dark brown fine SAND with silt, poorly graded.	SP-SM											
5.0	4	Brown fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 4 ft 6 in ▽ ESHGWT 2.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-34

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'56.80"N **LONGITUDE** 82°48'33.31"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 6.69' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (3")												
	1	Grayish brown fine SAND with silt, poorly graded.	SP-SM											
2.5	2	Gray and very dark gray fine SAND with silt, poorly graded.	SP-SM											
	3	Very dark brown fine SAND with silt, poorly graded.	SP-SM											
	4	Light gray fine SAND, poorly graded.	SP											
5.0	5	Brownish gray fine SAND with silt, poorly graded.	SP-SM											
		Bottom of borehole at 6 feet.												

NOTES _____

GROUND WATER LEVELS

▽ AT TIME OF DRILLING 5 ft 4 in ▽ ESHGWT 2.0 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

Meskel & Associates Engineering, LLC
 FL Certificate of Authorization No. 28142
 8936 Western Way, Suite 12
 Jacksonville, FL 32256
 P: (904)519-6990 F: (904)519-6992



BORING A-35

PAGE 1 OF 1

PROJECT NO. 0194-0001

PROJECT NAME Belleair Country Club Golf Course Improvements
PROJECT LOCATION Clear Water, Florida **CLIENT** McKim & Creed, Inc.
DATE STARTED 1/9/18 **COMPLETED** 1/9/18 **LATITUDE** 27°56'54.69"N **LONGITUDE** 82°48'31.22"W
DRILLING CONTRACTOR MAE, LLC **DRILLING METHOD** Hand Auger
LOGGED BY P.R.Young **CHECKED BY** W. Josh Mele **GROUND ELEVATION** 20.67' **HAMMER TYPE** —

DEPTH (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
0.0		Topsoil (4")												
1.0	1	Dark gray fine SAND with silt, poorly graded.	SP-SM											
2.5														
3.0	2													
4.0														
5.0	3	Gray brown silty, clayey fine SAND, poorly graded.	SC-SM				22	20						
6.0	4													
		Bottom of borehole at 6 feet.												

NOTES GNE-Groundwater Level Not Encountered at Time of Drilling.

GROUND WATER LEVELS

AT TIME OF DRILLING ---GNE ▼ESHGWT 2.5 ft

NEW MAE LOG LAT/LONG-EOD-HA - NEW TEMPLATE 7-30-12.GDT - 2/6/18 14:31 - F:\GINT\GINT FILES\PROJECTS\0194-0001\BELLEAIR GOLF COURSE.GPJ

FIELD EXPLORATION PROCEDURES

Hand Auger Boring

The auger boring(s) were performed manually by the use of a hand-held bucket auger in general accordance with the latest revision of ASTM D 1452, "Standard Practice for Soil Exploration and Sampling by Auger Borings." Representative samples of the soils brought to the ground surface by the augering process were placed in sealed containers and transported to our laboratory, where they were examined by our engineer to verify the driller's field descriptions and classify the soil, and to select samples for laboratory testing.

KEY TO BORING LOGS - USCS

Soil Classification

Soil classification of samples obtained at the boring locations is based on the Unified Soil Classification System (USCS). Coarse grained soils have more than 50% of their dry weight retained on a #200 sieve. Their principal descriptors are: sand, cobbles and boulders. Fine grained soils have less than 50% of their dry weight retained on a #200 sieve. They are principally described as clays if they are plastic and silts if they are slightly to non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

BORING LOG LEGEND	
Symbol	Description
(SP)	Unified Soil Classification System
-200	Fines content, % Passing No. 200 U.S. Standard Sieve
w	Natural Moisture Content (%)
OC	Organic Content (%)
LL	Liquid Limit
PI	Plasticity Index
NP	Non-Plastic
PP	Pocket Penetrometer in tons per square foot (tsf)

MODIFIERS		
SECONDARY CONSTITUENTS (Sand, Silt or Clay)		
Trace		Less than 5%
With		5% to 12%
Sandy, Silty or Clayey		12% to 35%
Very Sandy, Very Silty or Very Clayey		35% to 50%
ORGANIC CONTENT		
Trace		2% or less
With		3% to 5%
Organic Soils		5% to 20%
Highly Organic Soils (Muck)		20% to 75%
PEAT		Greater than 75%
MINOR COMPONENTS (Shell, Rock, Debris, Roots, etc.)		
Trace		Less than 5%
Few		5% to 10%
Little		15% to 25%
Some		30% to 45%

Unified Soil Classification System (USCS)

(from ASTM D 2487)

Major Divisions			Group Symbol	Typical Names
Coarse-Grained Soils More than 50% retained on the 0.075 mm (No. 200) sieve	Gravels 50% or more of coarse fraction retained on the 4.75 mm (No. 4) sieve	Clean Gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		Gravels with Fines	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands 50% or more of coarse fraction passes the 4.75 (No. 4) sieve	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		Sands with Fines	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
Fine-Grained Soils More than 50% passes the 0.075 mm (No. 200) sieve	Silts and Clays Liquid Limit 50% or less		ML	Inorganic silts, very fine sands, rock four, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly/sandy/silty/lean clays
			OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays Liquid Limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Inorganic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, muck, and other highly organic soils

Prefix: G = Gravel, S = Sand, M = Silt, C = Clay, O = Organic

Suffix: W = Well Graded, P = Poorly Graded, M = Silty, L = Clay, LL < 50%, H = Clay, LL > 50%

Appendix B

TABLE 1
Summary of Laboratory Index Tests
Belleair Country Club Golf Course Improvements
Clear Water, Florida
MAE Project No.: 0194-0001

Boring No.	Sample No.	Depth (ft)	Percent Fines (-200)	Natural Moisture Content, %	Organic Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	USCS Classification
A-1	1	1.0-3.5	18	80	11.8	---	---	---	SM
A-17	1	0.5-1.0	---	19	2.9	---	---	---	SP-SM
A-9	4	4.0-6.0	71	48	---	---	---	---	CH
A-11	4	4.3-6.0	72	38	---	---	---	---	CL
A-20	4	3.5-6.0	10	17	---	---	---	---	SP-SM
A-32	2	2.0-3.0	6	9	---	---	---	---	SP-SM
A-35	3	2.0-3.0	20	22	---	---	---	---	SC-SM

LABORATORY TEST PROCEDURES

Percent Fines Content

The percent fines or material passing the No. 200 mesh sieve of the sample tested was determined in general accordance with the latest revision of ASTM D 1140. The percent fines are the soil particles in the silt and clay size range.

Natural Moisture Content

The water content of the tested sample was determined in general accordance with the latest revision of ASTM D 2216. The water content is defined as the ratio of “pore” or “free” water in a given mass of material to the mass of solid material particles.

Organic Loss on Ignition (Percent Organics)

The organic loss on ignition or percent organic material in the sample tested was determined in general accordance with ASTM D 2974. The percent organics is the material, expressed as a percentage, which is burned off in a muffle furnace at 455 ± 10 degrees Celsius.