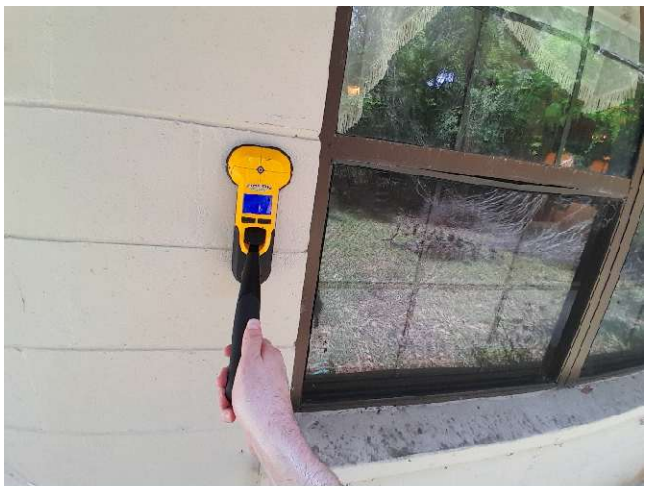
HELICAL PILE DESIGN & ANALYSIS REPORT

DATE: 07/11/2025
CLIENT: DOUG CASON
RE: 2300 SW CR778, FORT WHITE, FL, 32038

SITE INFORMATION

On June 11, 2025, at approximately 1:00 PM, a site visit was conducted in response to wall cracking reported by the property owner. During the inspection, step-cracking was observed in the exposed concrete masonry unit (CMU) wall located in the northwest quadrant of the home. The cracking ranged in width from hairline to approximately 1/4 inch. Notably, step-cracking extended at an approximate 45-degree angle from both sides of reinforced window opening, indicative of tensile stresses within the wall – an observation commonly associated with differential foundation settlement. From interior observation, no apparent differential floor settlement was observed, which may be an indication slab is structurally isolated from wall (floating slab). Given the presence of existing step-cracking, helical piles are proposed as a preventative stabilization measure to mitigate the potential for future differential settlement and associated structural movement.

As-built plans for the home were not found. The structure, constructed in 1980, consists of concrete masonry unit (CMU) walls with an undetermined footing size and type. A Zircon metal detector scan indicated minimal reinforcement within the walls, with rebar present at window jambs, within the bond beam, at building corners, and spaced approximately 4 feet on center. Given the age of the home, it will be conservatively assumed that the footing dimensions and reinforcement may not conform to current standards. As such, helical piles with extended seat brackets will be employed to provide supplemental support to the existing footing system.

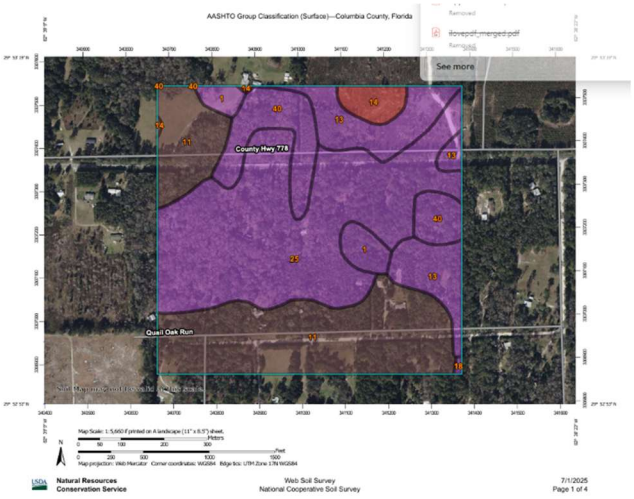


Gravity and uplift loads were derived from the Florida Building Code (FBC) 2023 8th edition and self-weights obtained from the Residential Structural Design Guide 2nd edition. All incorporated into the total load of lbs. per linear foot to be supported by the proposed helical piers (see attached worksheet).

SOIL CONDITIONS

A geotechnical investigation was not performed. NRCS web soil survey was utilized to find existing in-situ soil properties. NRCS shows soil consisting of Goldsboro loamy fine sand, 2%-5% slopes, with depth to water table of approximately 76 cm (2.5') at property location. The soil is generally classified as medium-density, transitioning from loamy sand near the surface to sandy clay loam at depth. Based on regional geotechnical data and typical field conditions, this soil would correlate to a standard penetration test (SPT) 'N' value ranging from 6 to 20 blows per foot. These soil parameters are suitable for use in the Torque Correlation Method for sizing helical piles.

FBC-Building section 1810.2.1 states, "Piers standing in unbraced, in air, water or fluid soils shall be designed as columns in accordance with the provisions of this code. Such piles driven into firm soils can be considered fixed and laterally supported at 5' below the ground surface and in soft material at 10' below the ground surface unless otherwise prescribed by the building official after a foundation investigation by an approved agency." Therefore, the minimum helical pile embedment depth shall exceed 10' below ground surface to be laterally supported for a soft material condition.



HELICAL PILE

The Torque Correlation Method is empirical based and correlates the torque to drive the helical pile into the ground to the capacity of the helical pile at a given torque. Additionally, the torque is correlated to the installation pressure of the helical driver machine. The helical pile shall be driven into the ground until the required minimum pile embedment depth and installation pressure are achieved. Ram Jack Foundation Solutions™ software was utilized for the Torque correlation Method. Soil and Helices parameters were input into the software. The software provides the estimated torsional resistance to be expected to achieve a given pile embedment and ultimate capacity. Field conditions may vary to the software provided values and required torsional resistance may be achieved after the stated embedment depth anchor results.

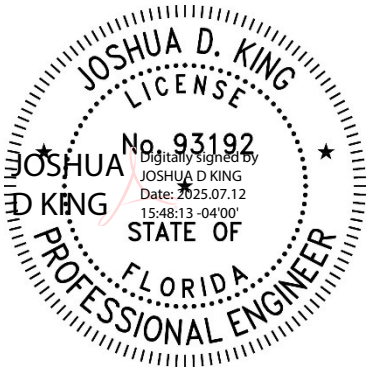
SUMMARY

Based on the Ram Jack Foundation Solutions™ software results, the helical pile design parameters are as follows:

Minimum Pile Embedment Depth for lateral stability:	**10'**
Minimum Pile Embedment to achieve required anchor capacity:	**27'**
Torsional Resistance required to achieve required anchor capacity:	**2,700 ft*lb**
Helical Driver Model 300200B7301AAAAB required installation pressure:	**1,095 psi**
Helical Pile shaft size:	**2 7/8"**
Helices diameter:	**10"-12"**
# of Helices:	**2**

THANK YOU,

JOSHUA KING
JBROTHER'S HOME INSPECTION
FL PE# 93192



THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY JOSHUA D. KING ON THE DATE ADJACENT TO THE SEAL USING SHA AUTHENTICATION CODE.

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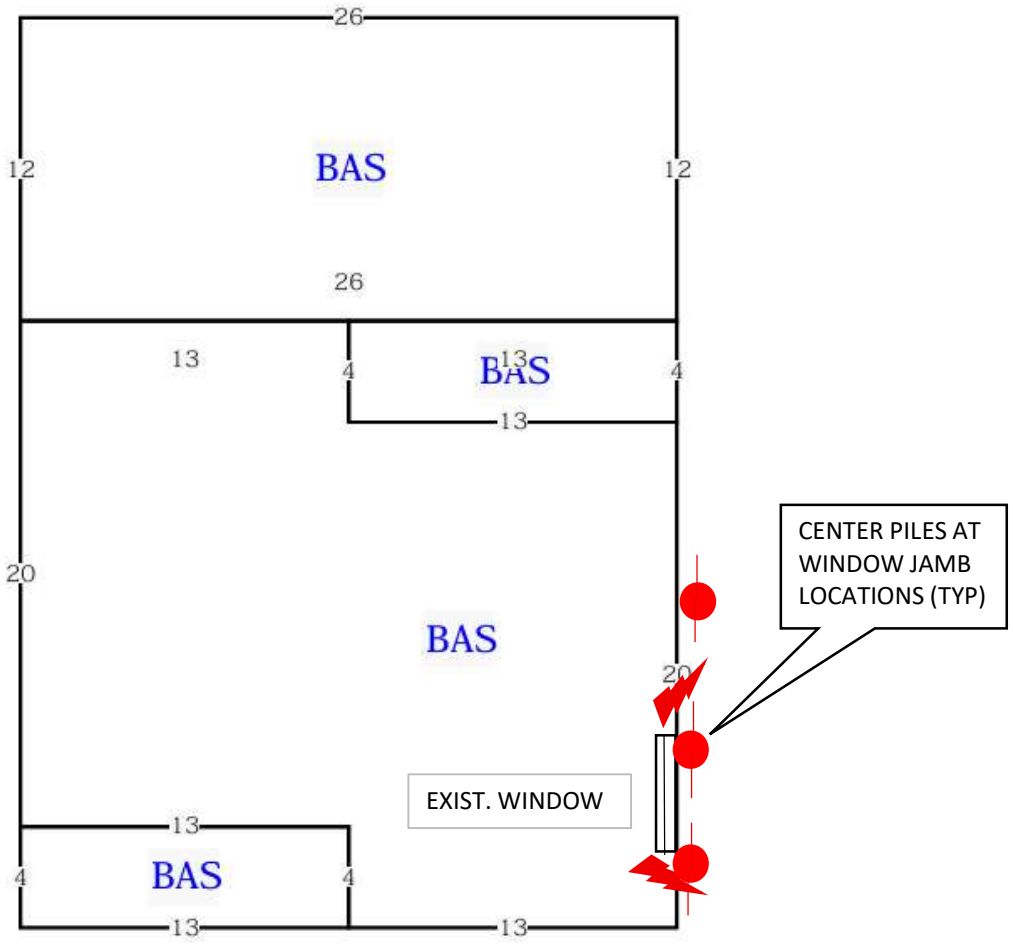
HELICAL PILE NOTES:

1. SITE PLAN PREPARED USING COUNTY PUBLIC DATA, FOR REFERENCE ONLY.
2. PILE LOCATIONS SHOWN ARE TO ALLOW FOR FIELD ADJUSTMENT WITHIN THE ALLOWABLE MAXIMUM TRIBUTARY SPAN.
3. PILES MAY BE RELOCATED TO INTERIOR OF WALL PER FIELD CONDITIONS TO AVOID INTERFERENCE WITH EXISTING STRUCTURES.
4. MINIMUM ON-CENTER PILE SPACING TO BE AT LEAST THREE (3) TIMES THE DIAMETER OF LARGEST HELIX PLATE, AND BATTERED 10° OPPOSING EACH OTHER.
5. PILES ARE TO BE PLACED ON EACH SIDE OF STRUCTURAL DISCONTINUTIES NOT EXCEEDING 2' OFFSET, EACH SIDE OF BUILDING CORNERS NOT LESS THAN 18" FROM END POINT TO REDUCE STRESS CONCENTRATIONS, DIRECTLY BELOW POINT LOADS, AND AT 6' OFFSETS FOR CONTINUOUS FOOTINGS.
6. "EXTRA WIDE SEAT" 4' WIDE, 372 IN^2 BEARING AREA, GRADE 36 KSI CAN BE USED TO IMPROVE FOOTING SPAN UNDER DOORS AND WINDOWS.
7. PREPARED IN ACCORDANCE WITH FLORIDA BUILDING CODE 2023, 8TH EDITION RESIDENTIAL.



STEP-CRACKING LOCATIONS

PROPOSED HELICAL PILE (MAX SPACING 6' ± 1' UNLESS NOTED OTHERWISE)

PROPOSED HELICAL PILE W/ EXTRA WIDE SEAT (MAX SPACING 6' ± 1' UNLESS NOTED OTHERWIS

DESIGN CALCULATIONS

	USER INPUT
	CALCULATED

PARAMETERS

*TRIBUTARY LENGTH	N/A	FT
*TRIBUTARY WIDTH	13	FT (HALF-WIDTH OF EXISTING TRUSS)
*AREA	N/A	FT^2
*PERIMETER	N/A	FT
*WALL HEIGHT	8	FT
*ROOF ANGLE	21°	(CALC)
*V_{ULT}	121	MPH, FBC 2023
*V_{ASD}	94	MPH, FBC 2023
EXPOSURE	B	FBC 2023 R301.2.1.4

LOADS

*CONCRETE UNIT WEIGHT	150	PCF
*SLAB	50	PSF, 4" THICK SLAB
*FOOTING DIMENSIONS (10"X20")	208	PLF, CALCULATED
*FLOOR LIVE LOAD (LL)	40	PSF,FBC 2023 TABLE R301.5
*WALL DEAD LOAD (DL) (8" CMU GROUTED)	80	PSF, RESIDENTIAL STRUCTURAL DESIGN GUIDE TABLE 3.2
*ROOF/CEILING DEAD LOAD (DL)	15	PSF, RESIDENTIAL STRUCTURAL DESIGN GUIDE TABLE 3.2
*ROOF LIVE LOAD (LL) (SLOPE < 4:12)	20	PSF,FBC 2023 TABLE R301.6

PILE LOADING @ WEST WALL

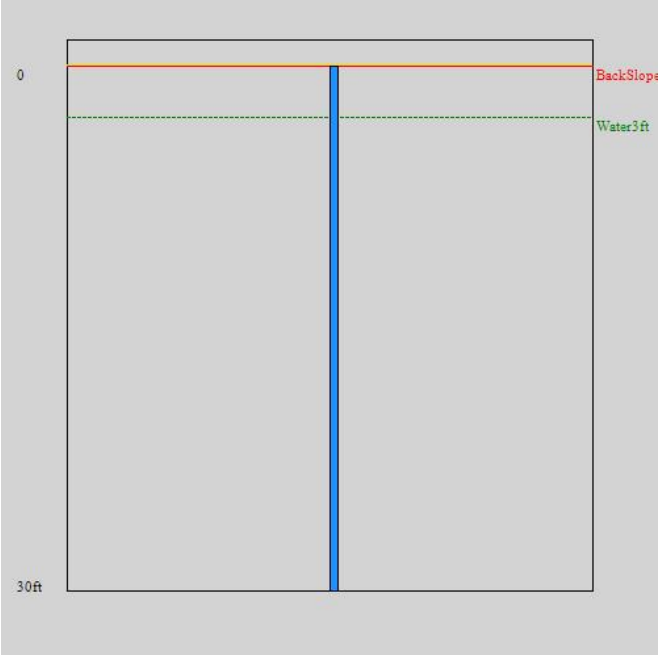
*FOOTING DIMENSIONS (10"X20")	208	PLF, RESIDENTIAL STRUCTURAL DESIGN GUIDE TABLE 3.2
*WALL DEAD LOAD (DL) (8" CMU GROUTED)	640	PLF, RESIDENTIAL STRUCTURAL DESIGN GUIDE TABLE 3.2
*GRAVITY LOAD FROM TRUSS REACTION	455	PLF
UNIT LOAD (P) REQUIRED BY FOUNDATION	1,303	PLF
UNIT LOAD (P) ROUNDED UP	2,000	PLF
DESIRED HELICAL PILE SPACING	6	FT
CAPACITY REQUIRED BY ANCHOR ($Q_{REQUIRED}$)	12,000	LBS, $Q_{REQUIRED}$ = (X) SPACING * (P) UNIT LOAD
($Q_{REQUIRED}$) W/ F.S. = 2	24,000	LBS, $Q_{REQUIRED}$ * F.S.

Analysis Options

Omit Shaft Resistance	Omit Mechianical Strength Checks	Omit Shaft Strength Checks
No	No	No

Soil Information

Provided/Performed by :
Soil Report #
Soil Report Date
Boring #
Boring Log Date
Boring Termination Depth : ft
Depth of Ground Water Table 3 ft
Maximum Depth 30 ft
Soil Type (Upper 10 Feet) NonCohesive



Geometric Data

	1	2	3	4	5
X	0	0	0	0	0
Y	0	0	0	0	0

Inclination Angle 90(deg)

Pile Head Position 0

Soil Profile

Depth (ft)	SPT Blow Count (N)	Layer	Cohesion (psf)	Adhesion Coefficient	Internal Friction Angle (deg)Ø	Friction Co-efficient B	Moist Unit Weight (pcf)	Sat Unit Weight (pcf)	Nc	Nq
0	6	Sand	0	0	28	0.27	90	100	0	15.2

RAMJACK FOUNDATION SOLUTIONS ™

Helical Pile/Anchor Information:

Req. Allowable Pile Capacity :	12	kip
Applied Factor of Safety	2	
Helical Pile Diameter	2.875	in
Helix Configuration	10-12	in
Torque Correlation Factor	9	lbs/ft-lbs

Pile Capacity Theory

End Bearing

$q_u = cN_c + qN_q$

q_u - Ultimate End Bearing Capacity, psf

c - Cohesion, psf

N_c & N_q - Bearing Capacity Factors

q - Effecitve Vertical Stress, psf

Skin Friction

$f_s = \alpha\, c + K\, \sigma_o{}' \tan\delta$

fs = ultimate capacity from skin friction

α = Adhesion Factor

c = cohesion, psf

$\sigma_o{}'$ = Effective Vertical Stress, psf

δ = Angle of External Friction = 0.54 (ϕ)

Tension Results		
Embedment (ft)	Ultimate Anchor Capacity (lbs)	Torsinal Resistance (lb ft)
10	8487	1057
11	9294	1148
12	10108	1239
13	10930	1332
14	11760	1425
15	12598	1519
16	13443	1614
17	14296	1710
18	15157	1807
19	16026	1905
20	16902	2004
21	17786	2104
22	18677	2204
23	19576	2306
24	20482	2408
25	21396	2512
26	22318	2616
27	23248	2721
28	24185	2827
29	25130	2934
30	26083	3042

Compression Results		
Embedment (ft)	Ultimate Anchor Capacity (lbs)	Torsinal Resistance (lb ft)
5	6525	591
6	7372	711
7	8156	798
8	8946	887
9	9745	976
10	10550	1067
11	11363	1158
12	12184	1250
13	13013	1344
14	13850	1438
15	14694	1533
16	15546	1628
17	16406	1725
18	17273	1823
19	18147	1922
20	19030	2021
21	19920	2122
22	20817	2223
23	21723	2325
24	22635	2428
25	23556	2533
26	24485	2638
27	25421	2744
28	26364	2850
29	27315	2958
30	28273	3067

Warning

Torsional resistance numbers in bold red font indicate calculated torsional resistance exceeds Ram Jack rating for the selected lead or extension shaft, whichever is less.

Estimated Pile Capacity:

Compression Results

Allowable Frictional Resistance:	1.52	kip
Allowable End Bearing Capactiy:	10.48	kip
Allowable Pile Capactiy:	12.0	kip
Appr. Pile Embedment Depth:	27	ft
Required Min. Installation Torque:	2700	ft-lbs

NOTE:

1.The reported “Appr. Pile Embedment Depth” is only an approximate estimate of the embedment depth and may vary based on the actual field conditions.

2.It is crucial to install the pile to the reported “Required Min. Installation Torque” value to realize the required allowable load capacity unless approved otherwise by a licensed professional engineer.

2 7/8” DIAMETER HELICAL PILE

Threaded Connection

Primary Applications

- Ram Jack’s 2 7/8” helical lead sections can be used in either tension or compression due to its unique internal threaded connection.
- Can be used with all brackets with a 3 1/2” diameter bracket or guide sleeve.
- Maximum ultimate compression strength is 73.8 kips. Recommended allowable loads should be limited to 36.9 kips for axial load (non-eccentric) pile. Maximum torque is 8,200 ft-lbs.
- All recommended allowable loads assume proper helix configurations and torque required for soil conditions is achieved.

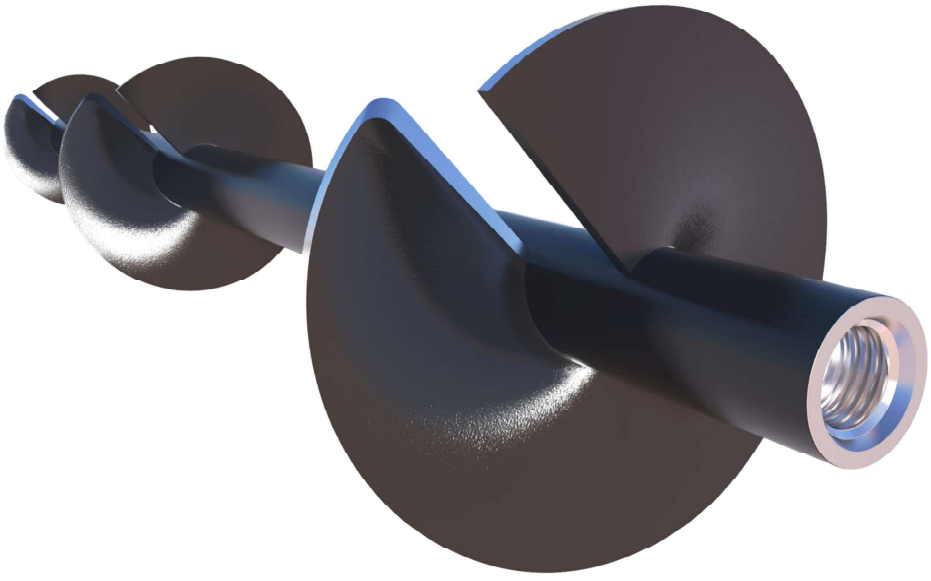
Features/Benefits

- Piles can be loaded same day as installed. No more waiting days or weeks for concrete to cure
- Internal threaded connection makes a smooth homogenous pile
- Variable length 3 1/2” sleeves can be added to increase pile stiffness & moment capacity
- Lead sections come in a variety of lengths for flexibility in installation
- Helices are available in specialty configurations and 1/2” blade thicknesses
- Thermoplastic polymer powder coated

- **Codes: 2006, 2009, 2012, and 2015 IBC per ESR-1854**

Materials/Parts

- Helical Blades – minimum Fy 50 ksi
- 2 7/8” O.D. pipe – minimum Fy of 65 ksi



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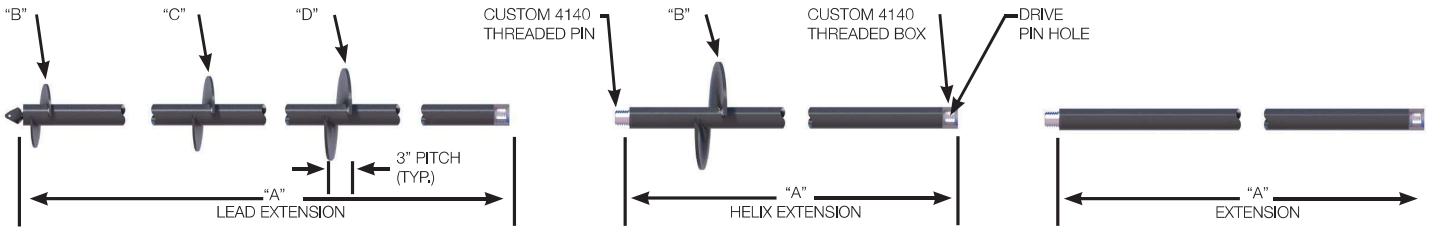
2 7/8” DIAMETER HELICAL PILE

Threaded Connection

STRENGTH RATING

MAX TORQUE STRENGTH - 8,200 FT-LB
ULTIMATE CAPACITY (TENS/COMP) - 73.8 KIP*
ALLOWABLE CAPACITY (TENS/COMP) - 36.9 KIP**

* BASED ON A TORQUE FACTOR (Kt) = 9
**W/ SAFETY FACTOR OF 2 BEING APPLIED CAPACITIES
ASSUME PILES ARE FULLY BRACED WITH NO ECCENTRICITY



2 7/8” LEAD SECTION & HELIX CONFIGURATION CHART

PART#	ICC-ES PART#	HELIX BLADE SIZE (B-C-D)	BLADE THICKNESS	LENGTH (ft) (A)	PARTS PER PALLET
4379	4379.1	10″	3/8″	2′-0	50
4396	4396.1	6″	3/8″	5′-0	25
4372	4372.1	8″	3/8″	5′-0	25
4373	4373.1	10″	3/8″	5′-0	25
4375	4375.1	12″	3/8″	5′-0	25
4410	4410.1	6″-8″	3/8″-3/8″	5′-0	25
4363	4363.1	8″-8″	3/8″-3/8″	5′-0	25
4362	4362.1	8″-10″	3/8″-3/8″	5′-0	25
4368	4368.1	10″-12″	3/8″-3/8″	5′-0	25
4426	4426.1	12″-12″	3/8″-3/8″	5′-0	25
4367	4367.1	14″-16″	1/2″-1/2″	5′-0	20
4360	4360.1	8″-10″-12″	3/8″-3/8″-3/8″	5′-0	25
4405	4405.1	8″	3/8″	7′-0	25
4374	4374.1	10″	3/8″	7′-0	25
4376	4376.1	12″	3/8″	7′-0	25
4415	4415.1	6″-8″	3/8″-3/8″	7′-0	25
4416	4416.1	6″-10″	3/8″-3/8″	7′-0	25
4364	4367.1	8″-10″	3/8″-3/8″	7′-0	25
4370	4370.1	10″-12″	3/8″-3/8″	7′-0	25
5371	5371.1	8″-10″-12″	3/8″-3/8″-3/8″	7′-0	25
4371	4371.1	10″-12″-14″	3/8″-3/8″-1/2″	7′-0	20
4429	4429.1	8″-10″	3/8″-3/8″	10′-0	25
4399	4399.1	10″-12″	3/8″-3/8″	10′-0	25
4423	4423.1	8″-10″-12″	3/8″-3/8″-3/8″	10′-0	25
4430	4430.1	10″-12″-14″	3/8″-3/8″-1/2″	10′-0	20
4400	4400.1	10″-12″	3/8″-3/8″	12′-0	25

Custom helix configurations and lengths available

To order custom product please email orders@ramjack.com

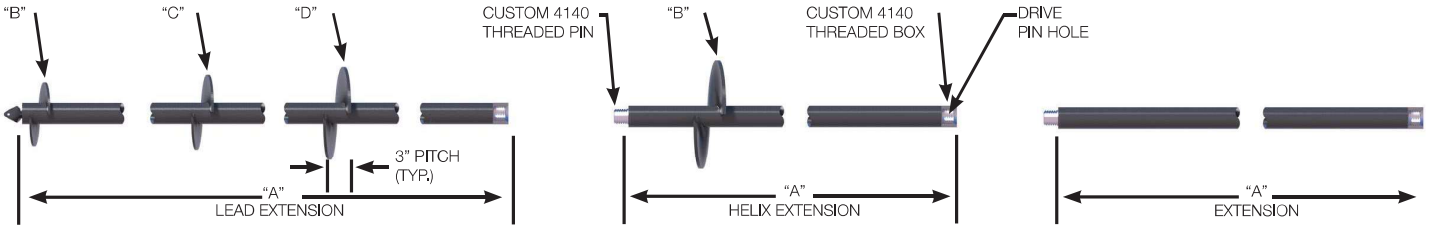
2 7/8” DIAMETER HELICAL PILE

Threaded Connection Continued

STRENGTH RATING

MAX TORQUE STRENGTH - 8,200 FT-LB
ULTIMATE CAPACITY (TENS/COMP) - 73.8 KIP*
ALLOWABLE CAPACITY (TENS/COMP) - 36.9 KIP**

* BASED ON A TORQUE FACTOR (Kt) = 9
**W/ SAFETY FACTOR OF 2 BEING APPLIED CAPACITIES
ASSUME PILES ARE FULLY BRACED WITH NO ECCENTRICITY



2 7/8” HELIX EXTENSION

PART#	ICC-ES PART#	Helix Blade Size (B)	BLADE THICKNESS	LENGTH (ft) (A)	PARTS PER PALLET
4382.12	4382.12.1	12”	3/8”	2’-0	25
4382.14	4382.14.1	14”	1/2”	2’-0	25
4385.10	4385.10.1	10”	3/8”	5’-0	25
4385.12	4385.12.1	12”	3/8”	5’-0	25
4385.14	4385.14.1	14”	1/2”	5’-0	25
4387.10	4387.10.1	10”	3/8”	7’-0	25
4387.12	4387.12.1	12”	3/8”	7’-0	25
4387.14	4387.14.1	14”	1/2”	7’-0	25

2 7/8” EXTENSION

PART#	ICC-ES PART#	LENGTH (ft) (A)	PARTS PER PALLET
4382	4382.1	2’-0	110
4383	4383.1	3’-6	55
4385	4385.1	5’-0	55
4387	4387.1	7’-0	46
4422	4422.1	10’-0	46

Custom helix configurations and lengths available

To order custom product please email orders@ramjack.com

INDEPENDENT GUIDE SLEEVE

Primary Applications

- The patented independent guide sleeve is a key component of the Ram Jack Driven Pile System. Ram Jack's 2 3/8" and 2 7/8" diameter piles are installed through the guide sleeve. It allows the pile to rifle through the soil in a straight and accurate path to a load bearing strata. It also increases the moment resistant capacity of the pile which allows higher installation forces to be applied to the pile.
- Can also be used with Ram Jack's helical pile system (threaded connection)

Features/Benefits

- Increases the moment resistant capacity of the piles. When upper soils are too soft to provide adequate lateral bracing
- Custom lengths are available. Call for lead time
- Upper end is flared and has (2) steel buttons attached to prevent the guide sleeve from slipping through the bracket during pile installation
- No welding required for installation
- Thermoplastic polymer powder coated (up to 12'-0 lengths)

Materials/Parts

3 1/2" O.D. pipe – minimum Fy of 65 ksi (use with 2 7/8" O.D. pilings)

2 7/8" O.D. Guide Sleeves

PART#	LENGTH	PARTS PER PALLET
4100.78	18"	110
4103.78	2'-0	110
4105.78	3'-0	55
4107.78	4'-0	55
4109.78	5'-0	55
4110.78	6'-0	55

3 1/2" O.D. Guide Sleeves

PART#	LENGTH	PARTS PER PALLET
4101	1'-0	135
4103	2'-0	90
4105	3'-0	45
4107	4'-0	45
4109	5'-0	45
4110	6'-0	45
4111	7'-0	30
4112	8'-0	30
4113	9'-0	30
4114	10'-0	30
4116	12'-0	30
4117*	14'-0	30
4118*	15'-0	30

* These products are NOT COATED with thermoplastic corrosion protection

To order custom product please email orders@ramjack.com

PILE BRACKET

#4021

Primary Applications
- Underpinning grade beams and footings of existing structures with Ram Jack's 2 7/8" diameter driven pile system.
- Bracket can also be used with 3 1/2" diameter helical pile or 2 7/8" diameter helical pile w/ 3 1/2" guide sleeve.

Features/Benefits
- 67.0 kip ultimate capacity with proper installation (*Assumes minimum 5'-0 unbraced length per section 1810.2.1 of 2009 IBC) 33.5 kip Allowable-Helical and Driven Pile
- Can be attached to face of grade beam/footing with 1/2" diameter concrete anchors (not included)
- Variable length 3 1/2" diameter guide sleeve can be installed through bracket sleeve
- No welding required for installation
- Easily adjusts foundation elevation
- Thermoplastic polymer powder coated
- Lift height w/ standard lift bolts = 6" (Longer fastening bolts can be ordered for greater lift heights.)

- **Codes: 2006, 2009, 2012, and 2015 IBC per ESR-1854**

Materials/Parts
- Steel plates – minimum Fy of 36 ksi
- 4 1/2" O.D. bracket sleeve – minimum Fy of 65 ksi
- Two (2) 1" diameter all-thread bolts with nuts (ASTM-A36)
- One (1) support strap

Additional Pile Assembly Items:
Hydraulically Driven Pile
- 3 1/2" O.D. guide sleeve (Ref. page 71)
- 2 7/8" O.D. driven steel pilings (Ref. page 67)
- Driven Pile Starter (Ref. page 69-70)

Helical Pile
- 3 1/2" O.D. helical leads and extensions (Ref. page 19-22)
- 2 7/8" O.D. helical leads and extensions (Ref. page 13-18)
- 3 1/2" O.D. guide sleeve (Ref. page 27)

Capacity per ICC-ES & ESR-1854 with 5'-0 unbraced length
• 33.5 k Allowable - Helical & Driven

Product Information Chart

PART#	ICC-ES PART#	PARTS PER PALLET
4021	4021.1	25

EXTRA WIDE SEAT

#4048, #4041, #4041.55HP, #4041.55DP

Primary Applications

- The wide seat bracket is used to underpin weak or under reinforced foundations
- The wide seat allows the capacity of the pile to govern pile spacing and not the strength of the footing in most cases
- The 4-foot wide bracket seat can be used to replace the standard 10" wide seat on the 4038, 4021 and 4021.55 brackets

Features/Benefits

- The 4-foot wide bracket seat provides up to 372 in^2 of bearing area
- Since the wide seat doesn't change the eccentricity of the bracket on the 4038, 4021 or 4021.55, their respective capacities do not change
- Can be used with helical or driven pile system
- No welding required for installation
- Easily adjusts foundation elevation
- Thermoplastic polymer powder coated
- Lift height with standard fastening bolts = 6" (Longer fastening bolts can be ordered for greater lift heights.)

Materials/Parts

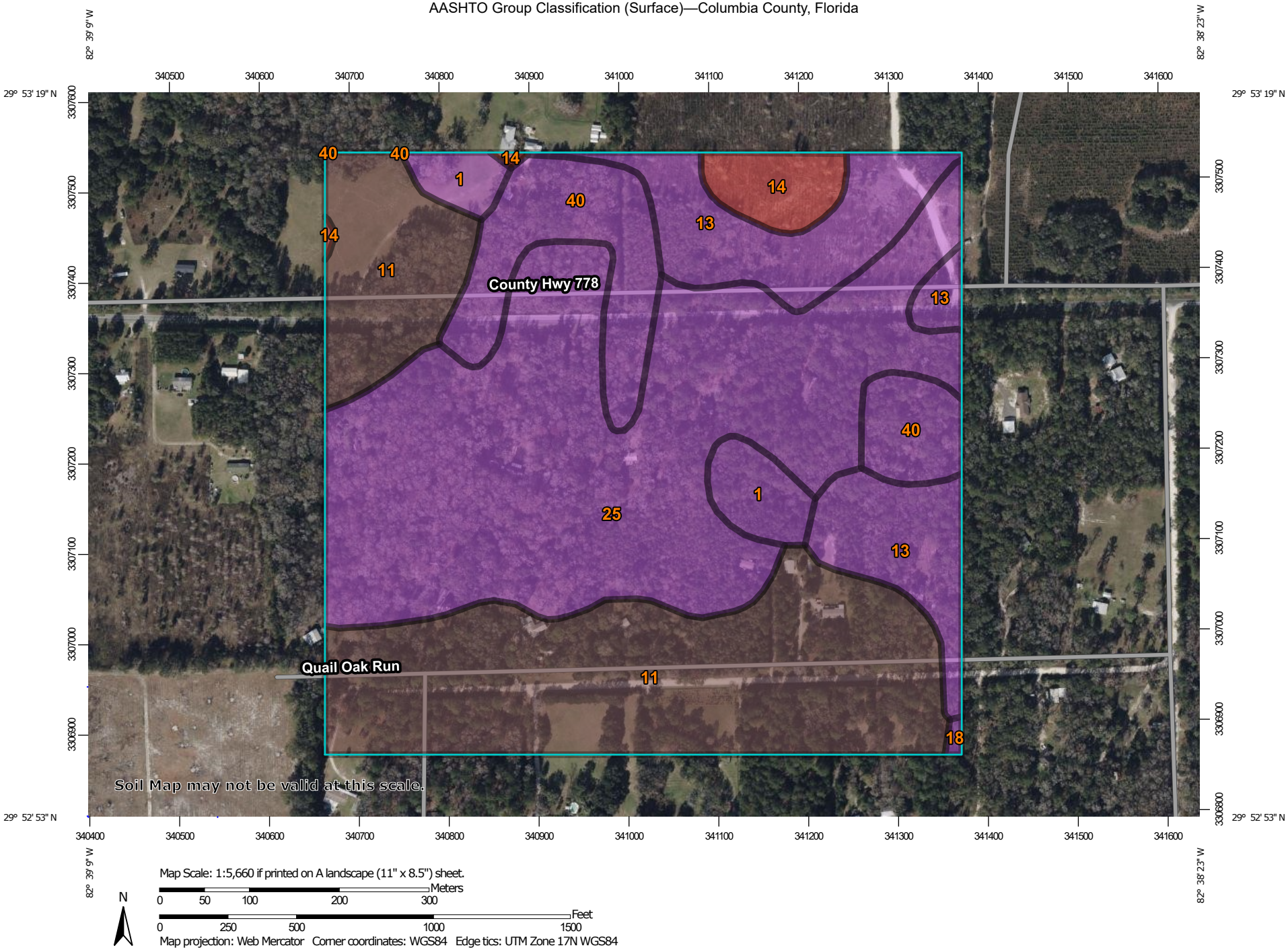
- Steel plates – minimum Fy of 36 ksi
- Bracket sleeve – minimum Fy of 65 ksi
- Two (2) all-thread bolts with nuts (ASTM-A36)
- One (1) support strap

Additional Pile Assembly Items

- Reference standard bracket the wide seat is being used on (4038, 4021, 4021.55, 4021.55DP)

Product Information Chart

PART#	originial part number	PARTS PER PALLET
4048	4038	14
4041	4021	14
4041.55HP	4021.55HP	14
4041.55DP	4021.55DP	14


82° 39' 9" W
82° 38' 23" W
29° 53' 19" N
29° 52' 53" N
340400
340500
340600
340700
340800
340900
341000
341100
341200
341300
341400
341500
341600
3307600
3307500
3307400
3307300
3307200
3307100
3307000
3306900
3306800
40
40
14
1
40
14
13
14
11
County Hwy 778
13
40
1
25
13
Quail Oak Run
11
18
Soil Map may not be valid at this scale.
Map Scale: 1:5,660 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 250 500 1000 1500
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A-1
A-1-a
A-1-b
A-2
A-2-4
A-2-5
A-2-6
A-2-7
A-3
A-4
A-5
A-6
A-7
A-7-5
A-7-6
A-8
Not rated or not available

Soil Rating Lines

A-1
A-1-a
A-1-b
A-2
A-2-4
A-2-5
A-2-6
A-2-7
A-3
A-4
A-5
A-6
A-7
A-7-5
A-7-6
A-8
Not rated or not available

Soil Rating Points

A-1
A-1-a
A-1-b
A-2
A-2-4
A-2-5
A-2-6
A-2-7
A-3
A-4
A-5
A-6
A-7
A-7-5
A-7-6
A-8
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Columbia County, Florida
Survey Area Data: Version 20, Aug 22, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 9, 2022—Feb 10, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

AASHTO Group Classification (Surface)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Albany fine sand, 0 to 5 percent slopes	A-2-4	3.9	3.4%
11	Blanton-Bonneau-Ichetucknee complex, 2 to 5 percent slopes	A-3	37.2	31.8%
13	Bonneau fine sand, 2 to 5 percent slopes	A-2-4	14.9	12.7%
14	Bonneau fine sand, 5 to 8 percent slopes	A-2	3.0	2.6%
18	Chiefland-Pedro variant complex, 5 to 8 percent slopes	A-2-4	0.2	0.1%
25	Goldsboro loamy fine sand, 2 to 5 percent slopes	A-2-4	46.7	39.8%
40	Ocilla fine sand, 0 to 5 percent slopes	A-2-4	11.3	9.6%
Totals for Area of Interest			**117.1**	**100.0%**

Description

AASHTO group classification is a system that classifies soils specifically for geotechnical engineering purposes that are related to highway and airfield construction. It is based on particle-size distribution and Atterberg limits, such as liquid limit and plasticity index. This classification system is covered in AASHTO Standard No. M 145-82. The classification is based on that portion of the soil that is smaller than 3 inches in diameter.

The AASHTO classification system has two general classifications: (i) granular materials having 35 percent or less, by weight, particles smaller than 0.074 mm in diameter and (ii) silt-clay materials having more than 35 percent, by weight, particles smaller than 0.074 mm in diameter. These two divisions are further subdivided into seven main group classifications, plus eight subgroups, for a total of fifteen for mineral soils. Another class for organic soils is used.

For each soil horizon in the database one or more AASHTO Group Classifications may be listed. One is marked as the representative or most commonly occurring. The representative classification is shown here for the surface layer of the soil.

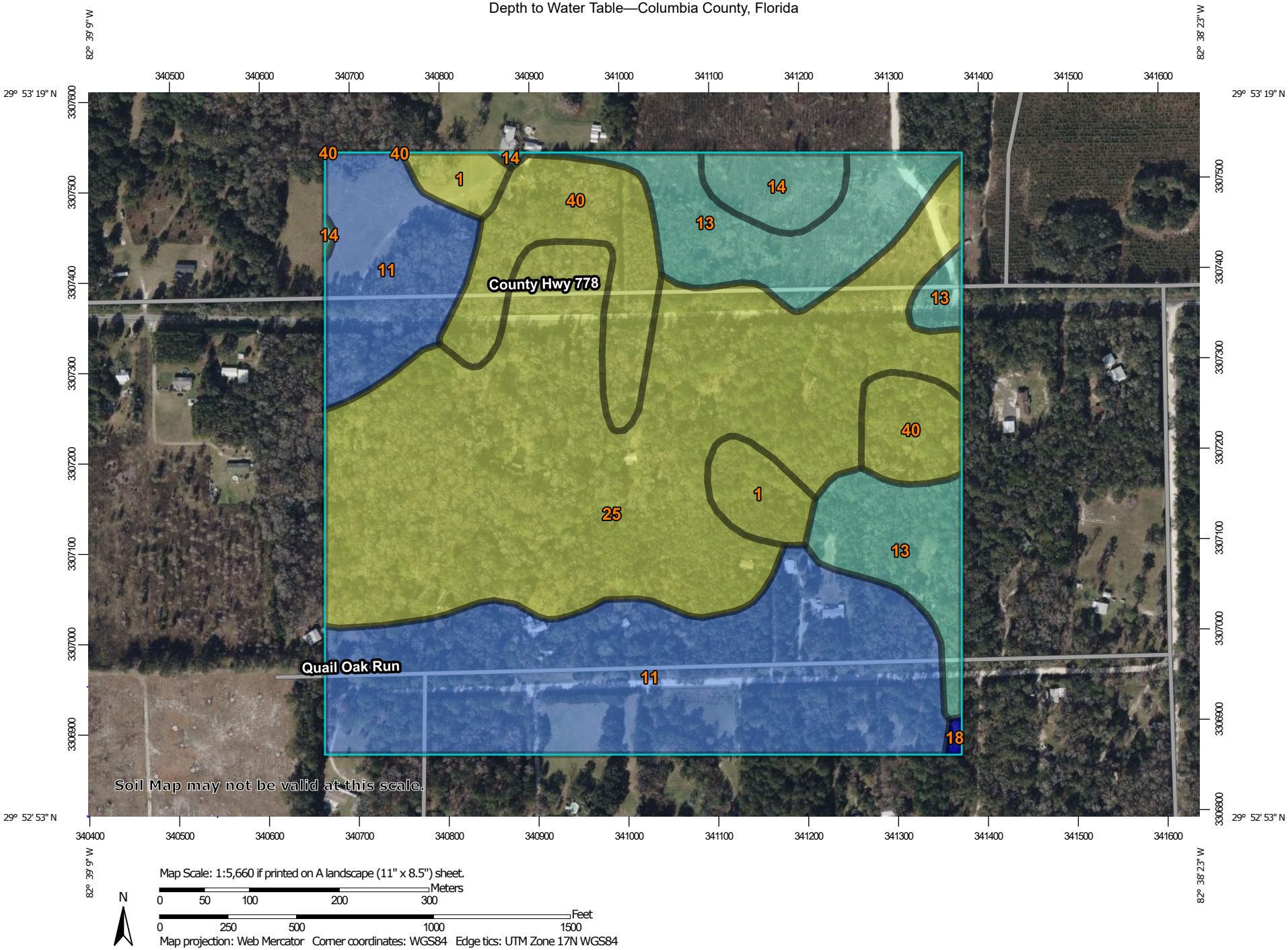
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)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82° 38' 23" W
29° 53' 19" N
29° 52' 53" N
340400
340500
340600
340700
340800
340900
341000
341100
341200
341300
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341500
341600
3307600
3307500
3307400
3307300
3307200
3307100
3307000
3306900
3306800
40
40
14
1
40
14
13
14
11
13
40
1
25
13
11
18
County Hwy 778
Quail Oak Run
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Feet
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MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

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Major Roads

Local Roads

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Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
1	Albany fine sand, 0 to 5 percent slopes	53	3.9	3.4%
11	Blanton-Bonneau-Ichetucknee complex, 2 to 5 percent slopes	153	37.2	31.8%
13	Bonneau fine sand, 2 to 5 percent slopes	130	14.9	12.7%
14	Bonneau fine sand, 5 to 8 percent slopes	130	3.0	2.6%
18	Chiefland-Pedro variant complex, 5 to 8 percent slopes	>200	0.2	0.1%
25	Goldsboro loamy fine sand, 2 to 5 percent slopes	76	46.7	39.8%
40	Ocilla fine sand, 0 to 5 percent slopes	53	11.3	9.6%
Totals for Area of Interest			**117.1**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit 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.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December