Nevin Engineering Services
904-728-8722 • 701 Market Street, Suite 106B • St. Augustine, FL 32095

SUNSET POINT HOA
NES PROJECT # 19018

Attachment # 4

CLIENT: SUNSET POINT OF NEPTUNE BEACH HOMEOWNERS ASSOCIATION

HOA President: Chick Armstrong
Direct (404)-431-5478
Email chick3525@me.com

5/11/2020

DRAINAGE CALCULATIONS

2 | 1

Project Drainage Summary

Current Conditions

Sunset Point is an approximate 6 acre, 13 lot subdivision which was built adjacent to a marshy creek system along the edge of the Inter Coastal Waterway. Originally under SJRWMD Permit # 70456-1 the community was treated by a linear system of roadside swales which were designed to meet the 3 year, 1 hour storm event. Because the site dishcarges directly to the ICWW, then attenuation is not needed. However most of the swales were not built with the community, and thus there currently is not a stormwater treatement system to speak of.

Proposed Drainage:

Our proposed improvements involves constructing various independent drainage systems to help provide the treatment needed to meet State of Florida Standards. Our system includes 5 retension basins to provide spot treatment and percolate into the ground. It also includes two linear swale systems which are designed to provide treatment for the 3 year, one hour storm event. Based upon all of the treatment required and that provided the overall system provides 100% of the treatment required by the State of Florida Standards.

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Project: Sunset Point Designer: John Nevin, PE
Lots 12 & 13 ParcelTreatment Volume Provided

St. Johns River Water Manangment District Permit # 70456
TREATMENT VOLUME REQUIRED FOR RETENTION SYSTEM:

Hydrologic Soil Group A allows the greater of the volume created by a 1" Rainfall event or 1.25" over the Impervious area;

1.25" over the Impervious =	771	cf
Q=CIA=	669	cf
Drainage Area to Swale:	16300	SF
Drainage Area to Swale:	0.37	Acres

Calculate C:	Type Surface	C Factor'	Area (Ac.)	
	Pervious	0.2	0.204	
	Impervious	0.95	0.080	
	Brick Parking	0.75	0.090	
	Combined 'C'=	0.49	0.374	Ac.

Treatment Volume Required=larger of two= 771.4 CF

Lots 12 & 13 Treatment Volume Provided

Total Swale TOB Surface Area=	810	SF
Total Swale Bottom Surface Area=	80	SF
Average Swale Height=	1.25	Ft.
Design Swale Treatment Volume=	556.25	FT^3
Percent of criteria met=	72%	

Step 1:	Volume Infiltrated under Vertical Unsaturated Flow (Vu) Stage One Flow		
Vu=Ab*f*hb	Ab (Area of swale in which infiltration occurs) =	810.0	ft^2
	f=(Fillable Porosity)=	0.3	
	hb= (Height of swale above ground water)=	2.5	ft
	Vu=	607.5	ft^3

Step 2:	Calculate the time to Saturate the soil during Unsaturated Flow (Vu))		
	Kvu (From Soils Report)=	1.750	ft/hr
	Id=KVU	1.8	ft/hr
	Tsat (f*hb/Id)=	0.4	hrs
	T (total) Meet Criteria of 36 hour drawdown=	YES	

Note: all of the swale water was infiltrated during Stage one flow.

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Project: Sunset Point — Designer: John Nevin, PE

Lots 8 & 9 & Lift Station ParcelTreatment Volume Provided

St. Johns River Water Manangment District Permit # 70456

TREATMENT VOLUME REQUIRED FOR RETENTION SYSTEM:

Hydralogic Soil Group A allows the greater of the volume created by a 1" Rainfall event or 1.25" over the impervious area;

1.25" over the impervious =	454	cf
Q=CIA=	379	cf
Drainage Area to Swale system=	7689	SF
Drainage Area to Swale system=	0.18	Acres

Calculate C:

Type Surface	C Factor'	Area (Ac.)	
Pervious	0.2	0.077	
Impervious	0.95	0.070	
Brick Parking	0.75	0.030	
Combined 'C'=	**0.59**	**0.177**	Ac.

Treatment Volume Required=Q=CIA — 453.75 CF

Lots 12 & 13 Treatment Volume Provided

Total Swale TOB Surface Area=	730	SF
Total Swale Bottom Surface Area=	130	SF
Average Swale Height=	1	Ft.
Design Swale Treatment Volume=	430	FT^3
Percent of criteria met=	95%	

Step 1: Volume Infiltrated under Vertical Unsaturated Flow (Vu) Stage One Flow

Vu=Ab*f*hb

Ab (Area of swale in which Infiltration occurs) =	730.0	ft^2
f=(Fillable Porosity)=	0.3	
hb= (Height of swale above ground water)=	2.5	ft
Vu=	**547.5**	**ft^3**

Step 2: Calculate the time to Saturate the soil during Unsaturated Flow (Vu))

Kvu (From Soils Report)=	1.750	ft/hr
Id=KVU	1.8	ft/hr
Tsat (f*hb/Id)=	**0.4**	**hrs**
T (total) Meet Criteria of 36 hour drawdown=	YES	

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Project: Sunset Point
Lot 1 Treatment Volume Provided

Designer: John Nevin, PE

St. Johns River Water Manangment District Permit # 70456
TREATMENT VOLUME REQUIRED FOR RETENTION SYSTEM:

Hydrologic Soil Group A allows the greater of the volume created by a 1" Rainfall event or 1.25" over the impervious area;

1.25" over the Impervious =	211	cf
Q=CIA=	189	cf
Drainage Area to Swa	5300	SF
Drainage Area to Swa	0.12	Acres

Calculate C:	Type Surface	C Factor	Area (Ac.)	
	Pervious	0.2	0.075	
	Impervious	0.95	0.011	
	Brick Parking	0.75	0.035	
	Combined 'C'=	0.43	0.122	Ac.

Treatment Volume Required=Q=CIA 210.90 CF

Lots 12 & 13 Treatment Volume Provided

Total Swale TOB Surface Area=	170	SF
Total Swale Bottom Surface Area=	40	SF
Average Swale Height=	1	Ft.
Design Swale Treatment Volume=	105	FT^3
Percent of criteria met=	50%	

Step 1: Volume Infiltrated under Vertical Unsaturated Flow (Vu) Stage One Flow

Vu=Ab*f*hb

Ab (Area of swale in which infiltration occurs) =	170.0	ft^2
f=(Fillable Porosity)=	0.3	
hb= (Height of swale above ground water)=	2.0	ft
Vu=	102.0	ft^3

Step 2: Calculate the time to Saturate the soil during Unsaturated Flow (Vu))

Kvu (From Soils Report)=	1.750	ft/hr
Id=KVU	1.8	ft/hr
Tsat (f*hb/Id)=	0.3	hrs

Step 3: Calculate Lateral Saturation Stage Two Flow (Does not occur)

Remaining Treatment Volume to be recovered during Saturated Lateral Flow ('R)

Kh (Hor Perm, Set at Vertical to be Conservativ	1.8	
R=	3.0	FT^3
% of Vr		
Depth at Start of SLF (h2)=		ft
Total (Ht)=hb+h2		
Fy=hb/Ht=		
W (ditch)=	1.67	
Length to Width Ratio (L/W)=	20.00	
Fx (Table 26-7)=	7	
H (SHGWL - Impervious Layer)=	5	ft
Avg Thickness Aquifer (D)=		ft

t (Time to Recover Volume During Sat Lateral Flow)=W^2/(4*Kh*D*Fx^2)

t=	0.00	days
t=	0.00	Hrs
T (total)=Tsat + t =	0.34	hrs
T (total) Meet Criteria of 36 hour drawdown=	YES	

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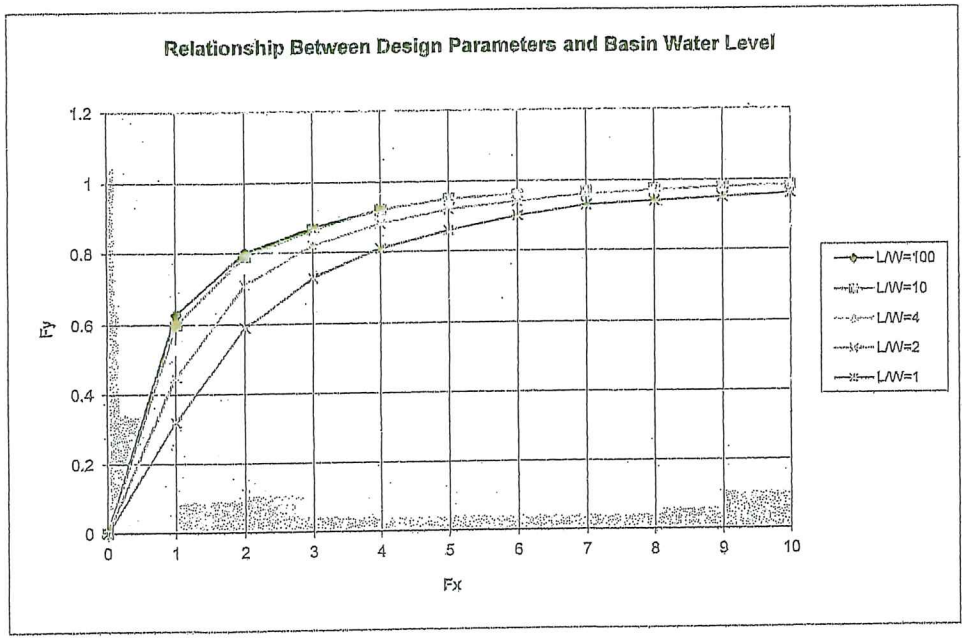
Table 26-7

Relationship between Basin Design Parameters and Basin Water Level for f=0.3

Fx	L/W=100	L/W=10	L/W=4	L/W=2	L/W=1
0	0	0	0	0	0
1	0.63	0.6	0.53	0.45	0.32
2	0.8	0.79	0.76	0.71	0.59
3	0.87	0.865	0.85	0.82	0.73
4	0.92	0.92	0.9	0.88	0.81
5	0.95	0.95	0.94	0.92	0.86
6	0.96	0.96	0.96	0.94	0.9
7	0.97	0.97	0.97	0.96	0.93
8	0.975	0.975	0.975	0.97	0.94
9	0.98	0.98	0.98	0.98	0.95
10	0.985	0.985	0.985	0.985	0.96



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Lot #'s Covered by Linear Swale System= lots 2- lot 7 Designer: John Nevin, PE

Design: The SJRWMD requires that swales Percolate/treat 80% of the 3 yr, 1 hour Storm Event.

Note: Designed per Methodology and Design Examples of Swales from 1994 Applicants Handbook

Step 1: Determine Qp and Vr

Drainage Area to Swale system= 27600 SF
Drainage Area to Swale system= 0.63 Acres

Calculate C:

	Type Surface	C Factor'	Area (Ac.)	
	Pervious	0.2	0.440	
	Impervious	0.95	0.102	
	Brick Parking	0.75	0.092	
	Combined 'C'=	0.40	0.634	Ac.
I (rainfall intensity)=		2.3	in/hr	
D(duration)		1	hr	
Qp=C*I*A		0.583	FT^3/S	
Vr (Volume)=Qp*D		2100.41	FT^3	
Vr x 80% =		1680.33	ft^3	(Required Treatment Volume)

Step 2: Select Swale dimensions, Determine Flow Depth and Infiltration Area

Channel Shape is Trapezoidal

Z=(Side Slope)=	6.0	ft/ft
b (Avg. Bottom Width)=	2.5	ft
d (Normal Depth Trials)=	0.12	ft
n (Mannings N)=	0.027	
S (Channel Slope)=	0.010	ft/ft
L(Total Swale Length)=	440.0	ft
A (Swale Area)=(b*d)+(Z*d^2)=	0.391	
R (Hydraulic Radius)=((Z*d)+(b*d))/(b+(2*d(Z^2)^.5))=	0.187	
P (Wetted Perimeter)= (b+2*d*(1+Z^2)^0.5)=	4.000	
Check:		
1 R^2/3*A=	0.13	
2 Qp*n/(1.49*s^.5)	0.11	
Thus verified d=	0.12	ft

Step 3: Calculate Peak Infiltration

From Soils Report		KVU=	1.75	ft/hr
Safety Factor SF=	2.0	I (Design)= KVU/SF=	0.88	ft/hr
		Qip=Id*Ab=Id*L*P	25.7	ft^3/min

Step 4: Calculate Volume of Water Infiltrated

Vi=Qip*(D+Tc-((Tc*Qip)/Qp))

Given:		
Tc=	20	min
Qp=	35.01	cf/min
D (Duration)=	60	min
Vi=	1676.9	ft^3
TV (Required)=	1680.330579	ft^3
TV Provided	100%	ft^3
Actual Perentage achieved of 1hr/3yr storm=	80%	

Step 5: Calculate Velocity of Swale Flow Compared to Permissible Values

V (Velocity stormwater in Swale)=1.49/n*R^2/3*S^0.5= 1.80 fps

Since the Velocity is less than 4 feet per second then the design is adequate!

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Lot #'s Covered by Linear Swale System= lots 10 & 11 Designer: John Nevin, PE

Design: The SJRWMD requires that swales Percolate/treat 80% of the 3 yr, 1 hour Storm Event.

Note: Designed per Methodology and Design Examples of Swales from 1994 Applicants Handbook

Step 1: Determine Qp and Vr

Drainage Area to Swale system= 14000 SF
Drainage Area to Swale system= 0.32 Acres

Calculate C:

Type Surface	C Factor	Area (Ac.)	
Pervious	0.2	0.241	
Impervious	0.95	0.044	
Brick Parking	0.75	0.037	
Combined 'C'=	0.36	0.321	Ac.

I (rainfall intensity)=	2.3	in/hr
D(duration)	1	hr
Qp=C*I*A	0.270	FT^3/S
Vr (Volume)=Qp*D	970.37	FT^3
Vr x 80% =	776.30	ft^3 (Required Treatment Volume)

Step 2: Select Swale dimensions, Determine Flow Depth and Infiltration Area

Channel Shape is Trapezoidal

Z=(Side Slope)=	6.0	ft/ft
b (Bottom Width)=	6.5	ft
d (Normal Depth Trials)=	0.08	ft
n (Mannings N)=	0.027	
S (Channel Slope)=	0.010	ft/ft
L(Total Swale Length)=	190.0	ft
A (Swale Area)=(b*d)+(Z*d^2)=	0.558	
R (Hydraulic Radius)=((Z*d)+(b*d))/(b+(2*d(Z^2)^.5))=	0.112	
P (Wetted Perimeter)= (b+2*d*(1+Z^2)^0.5)=	7.473	

Check:

1 R^2/3*A=	0.13	
2 Qp*n/(1.49*s^.5)	0.05	
Thus verified d=	0.08	ft

Step 3: Calculate Peak Infiltration

From Soils Report		KVU=	1.75	ft/hr
Safety Factor SF=	2.0	I (Design)= KVU/SF=	0.88	ft/hr
		Qip=Id*Ab=Id*L*P	20.7	ft^3/min

Step 4: Calculate Volume of Water Infiltrated

Vi=Qip*(D+Tc-((Tc*Qip)/Qp))

Given:

Tc=	20	min
Qp=	16.17	cf/min
D (Duration)=	60	min
Vi=	1126.3	ft^3
TV (Required)=	776.2975207	ft^3
TV Provided	145%	ft^3
Actual Perentage achieved of 1hr/3yr storm=	116%	

Step 5: Calculate Velocity of Swale Flow Compared to Permissible Values

V (Velocity stormwater in Swale)=1.49/n*R^2/3*S^0.5= 1.28 fps

Since the Velocity is less than 4 feet per second then the design is adequate!

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Total Project Treatment Required= 3892.65 Ft^3

Total Project Treatment Provided= 3894.486 Ft^3

Total Project % Required Treatment met= 100%

Note: Some of the individual Swale treatment systems do not meet 100% of the required treatment, however the system as a total does provide approximatly the required treatment. Since the site directly discharges into the ICWW then pre/post criteria does not apply.

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0001-26

ATLANTIC GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

July 27, 2000

JARRETT LAND DEVELOPMENT
806A Third Street
Neptune Beach, Florida 32266

Re: Report of Subsurface Exploration
Proposed Kings Road Subdivision
Neptune Beach, Florida
AGES Job No. J3864, Report No. 001

Gentlemen:

Atlantic Geotechnical & Environmental Services, Inc. (AGES) has completed the requested exploratory auger borings and double ring infiltration testing at the proposed subdivision site. Our services were performed as requested and authorized by Mr. Steve Jarrett on July 26, 2000. This letter report presents an outline of the project background information provided, describes the field testing performed, and presents the collected test data.

General project information was provided by Mr. Gary Abbey of Connelly & Wicker and Mr. Steve Jarrett (the developer) during several recent telephone conversations and a site meeting. Plans provided for our use and review include a Conceptual Layout Plan which illustrates the planned lot and roadway layout. Proposed site topographical information is currently unavailable. Mr. Abbey has indicated that subsurface data will be required in the roadway and swale areas of the subdivision for use in the subdivision design and permitting process. Neither test borings on individual lots nor engineering evaluation of the lots with respect to construction of residential structures has been requested at this time.

The field exploration, which was performed on July 26, 2000, consisted of one(1) 6-foot deep auger boring and double ring infiltration test performed in the vicinity of the planned stormwater management swale and two(2) 6-foot deep auger borings (A1 and A2) along the proposed roadway alignment. The test locations, as shown on the attached Field Exploration Plan, were selected by Connelly & Wicker and Steve Jarrett and were established in the field by **AGES** personnel using taped measurements from the existing property corners. The test locations should be considered approximate. The attached Auger Boring Records present the descriptions of the soils and groundwater levels encountered at the boring locations. The double ring infiltration test data is presented on the Double Ring Infiltration Test Results sheet. The depth designations on the boring/test records represent the approximate boundary between the various soils encountered, as determined in the field by our personnel. In some cases, the transition between the various soils may be gradual. A brief discussion of the testing techniques is also provided.

10/22

P.O. Box 331373 • Atlantic Beach, Florida 32233
(904) 721-2347 • (904) 721-2321 (FAX)

AGES appreciates the opportunity to be of service to you on this project. Geotechnical engineering evaluation of the collected test data was not desired; however, we would be pleased to provide any engineering services upon your request and authorization. We are available to answer any questions you may have concerning this report and to provide any further services that may be needed.

Very truly yours,

A G E S, INC.

Bill C. McMahan Jr. ,P.E.
Principal Engineer
Registered, Florida No. 42677

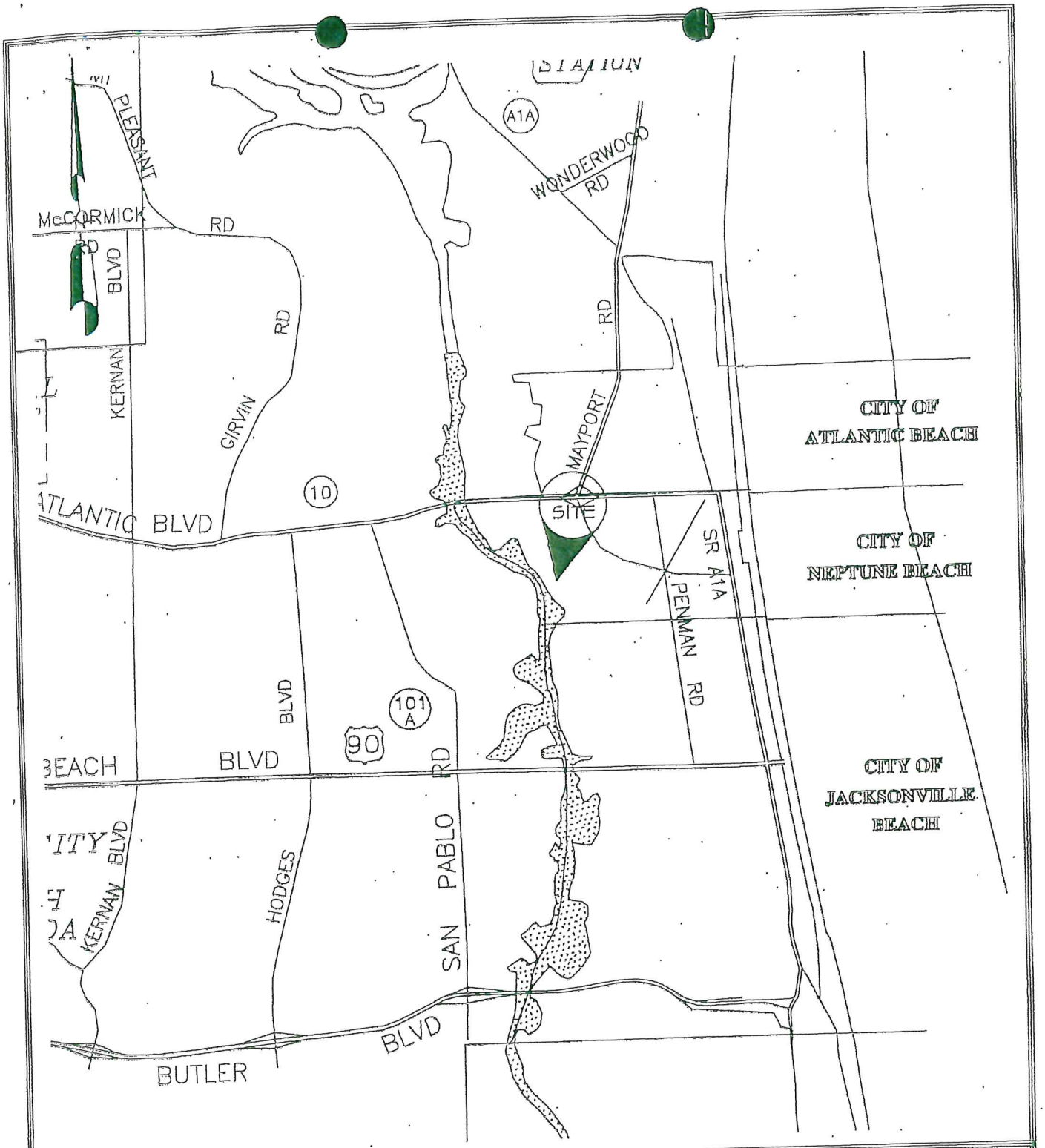
BCM/bcm/J3864.rpt
Attachments
Distribution: Addressee(1)
Connelly & Wicker (2) Attn: Mr. Gary Abbey

11/22

ATTACHMENTS

Site Location Map
Field Exploration Plan
Key to Soil Classification
Auger Boring Records
Double Ring Infiltration Test Results
Field Exploration Procedures

12/22



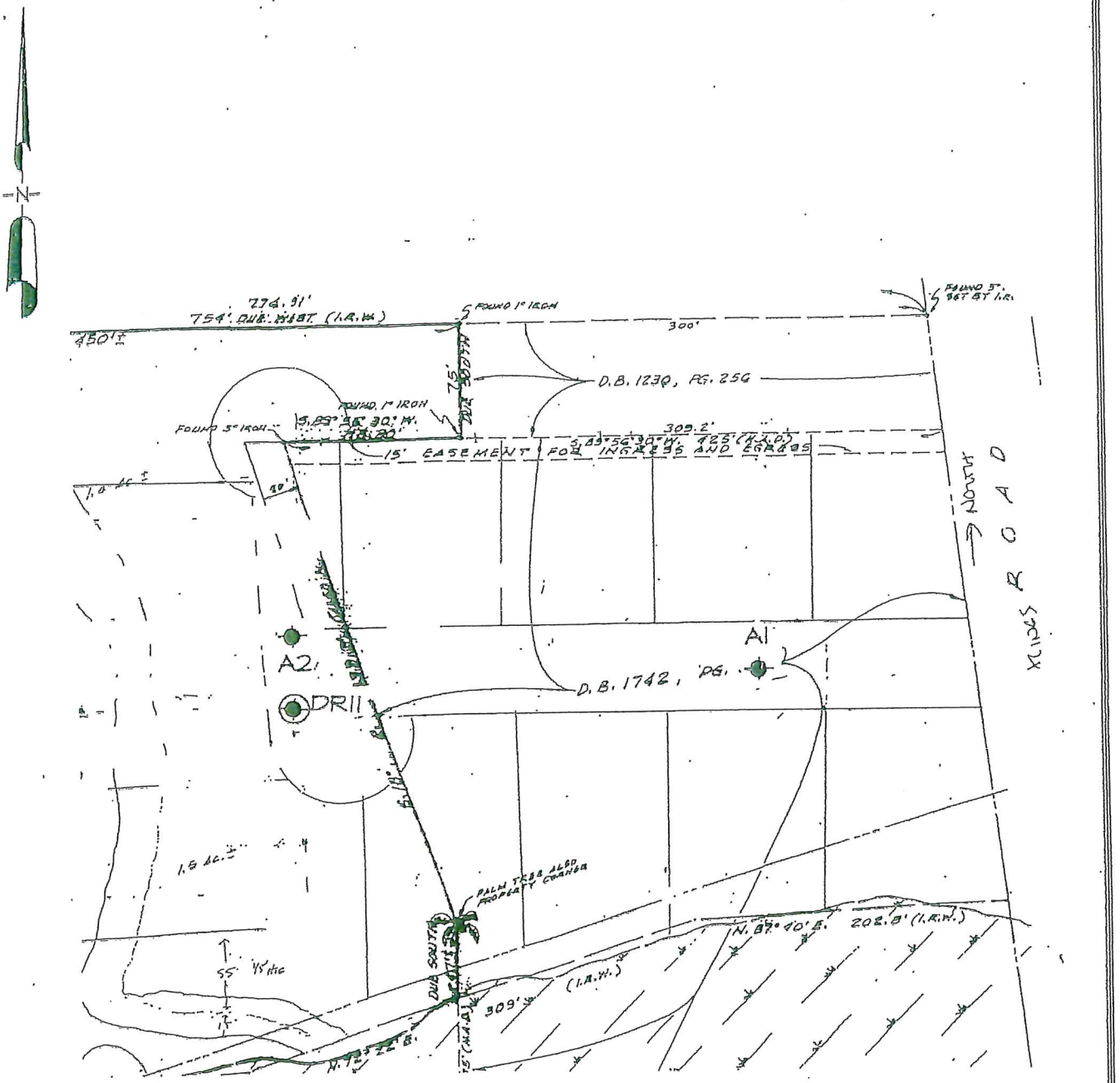
REFERENCE: Digital Street Map of Duval County.

13/22

ATLANTIC GEOTECHNICAL & ENVIRONMENTAL SERVICES
Jacksonville, Florida

SITE LOCATION MAP
Proposed Kings Road Subdivision
Neptune Beach, Florida

DRAWN: BCM	DATE: 7/27/00	SCALE: NTS
CHECKED: BCM	JOB NO: J3864	



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LEGEND:

- Auger Boring Location (approximate)
- Double Ring Infiltration Test Location

REFERENCE:
Conceptual Layout prepared by Connelly & Wicker.

NOTES:
The boring/test locations were established by AGES personell using paced and taped measurements relative to approximate boundary corners. Boring Locations are approximate.

ATLANTIC GEOTECHNICAL & ENVIRONMENTAL SERVICES
Jacksonville, Florida

FIELD EXPLORATION PLAN

Proposed Kings Road Subdivision
Neptune Beach, Florida

DRAWN: BCM	DATE: 7/26/00	SCALE: 1" = 100' ~~1 = 50'~~
CHECKED: BCM	JOB NO: J3864	

KEY TO SOIL CLASSIFICATION

CORRELATION OF N-VALUE WITH RELATIVE DENSITY & CONSISTENCY

SANDS AND GRAVEL	
NO. OF BLOWS,N*	RELATIVE DENSITY
0 - 4	VERY LOOSE
5 - 10	LOOSE
11 - 20	FIRM
21 - 30	VERY FIRM
31 - 50	DENSE
OVER 50	VERY DENSE

SILTS AND CLAYS	
NO. OF BLOWS, N*	CONSISTENCY
0 - 2	VERY SOFT
3 - 4	SOFT
5 - 8	FIRM
9 - 15	STIFF
16 - 30	VERY STIFF
31 - 50	HARD
OVER 50	VERY HARD

* ASTM D1586

PARTICLE SIZE IDENTIFICATION (UNIFIED SOIL CLASSIFICATION SYSTEM)

CATEGORY	DIMENSIONS
Boulders	Diameter exceeds 12 inches
Cobbles	3 to 12 inches
Gravel	Coarse - 0.75 to 3 inches in diameter Fine - 4.76 mm to .75 inch diameter
Sand	Coarse - 2.0 mm to 4.76 mm diameter Medium - 0.42 mm to 2.0 mm diameter Fine - 0.074 mm to 0.42 mm diameter
Silt and Clay	Less than 0.074 mm (invisible to the naked eye)

MODIFIERS

These modifiers provide our estimate of the amount of minor constituents (sand silt or clay size particles) in the soil sample.

PERCENTAGE OF MINOR CONSTITUENT	MODIFIERS
5% to 12% 12% to 30% 30% to 50%	Slightly Silty, Slightly Clayey, Slightly Sandy Silty, Clayey, Sandy Very Silty, Very Clayey, Very Sandy

These modifiers provide our estimate of the amount of other components in the soil sample.

APPROXIMATE CONTENT OF OTHER COMPONENTS (SHELL, GRAVEL, ETC.)	MODIFIERS	APPROXIMATE CONTENT OF ORGANIC COMPONENTS
0% to 5%	TRACE	1% to 2%
5% to 12%	FEW	2% to 4%
12% to 30%	SOME	4% to 8%
30% to 50%	MANY	>8%

15122

AUGER BORING RECORDS

Proposed Kings Road Subdivision
Neptune Beach, Florida
AGES Job No. J3864, Report No. 001

Date Performed: 07/26/00 Performed By: J. Anderson

Auger ID #	Depth (Feet)[a]	SOIL DESCRIPTION
A1	0.0 - 1.0	Medium Brown Slightly Silty Fine SAND
	1.0 - 5.0	Light Brown Fine SAND
	5.0 - 6.0	Brown Fine SAND
	A.B.T.[b]	GWL[c] = Not Encountered
A2	0.0 - 1.5	Light Brown Fine SAND
	1.5 - 4.0	Light Grey Brown Fine SAND
	4.0 - 6.0	Light Grey Brown Fine SAND w/ Orange Stringers
	A.B.T.	GWL[c] = Not Encountered

a - Depth measured below ground surface existing at boring location at time of drilling
b - Auger Boring Terminated (A.B.T.)
c - Groundwater Level (GWL) depth below existing ground surface, recorded at time of drilling.

J3864.aug

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DOUBLE RING INFILTRATION TEST RESULTS

CLIENT:	Jarrett Development	REPORT DATE:	7/30/00
PROJECT:	Proposed Kings Road Subdivision	TEST DATE:	7/26/00
LOCATION:	Neptune Beach, Florida	FIELD PERSONNEL:	J. Anderson
JOB NUMBER:	J3864	METHOD:	ASTM D3385
TEST NUMBER:	DR1	WATER HEAD:	0.5 Feet
		TEST DEPTH	0.5 Feet

ELAPSED TIME (MINUTES)	WATER QUANTITY (MILILITERS)	INFILTRATION RATE (IN/HOUR)
5	3000	19.42
10	3000	19.42
15	3000	19.42
20	3000	19.42
25	3100	20.07
30	3000	19.42
35	3500	22.66
40	3200	20.72
45	3250	21.04
50	3200	20.72
55	3200	20.72
60	3200	20.72
65		
70		
75		

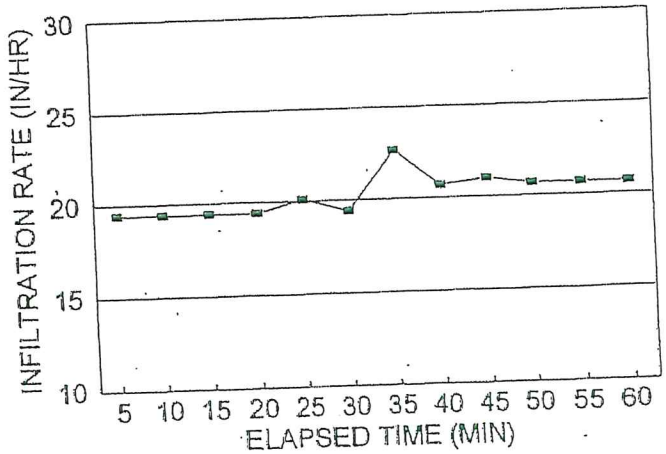
SUMMARY OF TEST DATA & RESULTS

INNER RING SIZE (INCHES): 12

OUTER RING SIZE (INCHES): 24

STEADY STATE INFILTRATION RATE (IN/HR): 20.7

INFILTRATION RATE VS TIME



SOIL PROFILE

Depth(Ft)	Soil Description
0.0 - 2.0	Brown Slightly Silty Fine SAND
2.0 - 4.0	Tan Fine SAND
4.0 - 6.0	Light Grey Fine SAND

GWL @ Not Encountered

Seasonal High GWL @ 4.0 feet

j3864dr1.wb2

FIELD EXPLORATION PROCEDURES

Auger Borings (Manual)

The auger borings were performed manually using a post-hole auger. The auger borings were drilled in general accordance with ASTM D 1452-80 ("Soil Investigation and Sampling by Auger Borings"). Representative samples of the soils brought to the ground surface by the augering process were placed in glass jars, sealed, and transported to our laboratory where they were examined by a geotechnical engineer to verify the driller's field classification.

Double-Ring Infiltrometer Test

The double-ring infiltrometer test was performed in the field in general accordance with the procedures outlined in ASTM D 3385-75, "Infiltration Rate of Soils in Field using Double-Ring Infiltrometers". Testing consisted of initially clearing all surface vegetation and topsoil from within the test area. The outer ring, which is approximately 24 inches in diameter, was then driven to a depth of six inches below the exposed ground surface. The inner ring, approximately 12 inches in diameter, was then centrally located within the outer ring and driven to a depth of two inches. A thin layer of gravel was placed upon the exposed soils within both rings.

The two rings were then simultaneously filled with water to a height of four inches above the exposed ground surface test soils. The water level was maintained at this height throughout the test period, with the required amount of water added to maintain this level in both rings recorded at time intervals of five minutes. The infiltration rate for (1) the inner ring, (2) the annular space between the rings, and (3) both rings combined is determined by dividing (a) the water volume used (within each specific area) during the stabilized flow period of the test, by (b) the specific area and (c) the time interval. Infiltration units are generally converted to units of inches per hour. The infiltration rate for the inner ring, if different than the infiltration rates of either the annular area between the rings or the combined area of both rings, according to ASTM should be used as the infiltration rate for the soils.

18/22

Duval County, Florida

75—Urban land-Hurricane-Albany complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: ssw2
Elevation: 0 to 190 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 64 to 72 degrees F
Frost-free period: 263 to 293 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 35 percent
Hurricane and similar soils: 30 percent
Albany and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluve, rise, talf
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: No parent material

Description of Hurricane

Setting

Landform: Flats on marine terraces, rises on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 68 inches: fine sand
Bh - 68 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: About 24 to 42 inches

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Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G153AA999FL)
Hydric soil rating: No

Description of Albany

Setting

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 50 inches: fine sand
Bt - 50 to 63 inches: fine sandy loam
Btg - 63 to 88 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A/D
Forage suitability group: Forage suitability group not assigned (G153AA999FL)
Hydric soil rating: No

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Minor Components

Ortega

Percent of map unit: 2 percent
Landform: Knolls on marine terraces, rises on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Mascotte

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Blanton

Percent of map unit: 2 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Pottsburg

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Leon

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Lynn haven

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

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Sapelo

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf

Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Ridgewood

Percent of map unit: 1 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rutlege, flooded

Percent of map unit: 1 percent
Landform: Flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Duval County, Florida
Survey Area Data: Version 14, Sep 16, 2019

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