City of Bay Minette

Site Plan Review Application

301 D'Olive Street · Bay Minette, Alabama 36507

Phone (251) 580-1650 · COBM_Planning@cityofbayminetteal.gov

Office Use Only

Case No.:________________

Fee: $500.00

Paid: □ **Cash** □ **Check** □ **Credit Card**

Are you the property owner? □ Yes □ No
(If you are not the property owner, you must submit an Agent Authorization Form signed by the property owner)

Applicant Name: BLUEWATER DESIGN, LLC Date: 4/24/2025

Mailing Address: P.O. BOX 217

City: PELL CITY State: AL Zip Code: 35125

Phone Number: 205-283-8824 Email: BWD217@BELLSOUTH.NET

Site Information

Property Address: 1100 USHWY 31S

or Property Location: ________________

*Parcel No.: 23-05-21-2-002-001.001 *PPIN No.: 527784
**Parcel or PPIN information must be completed*

Request: SITE PLAN APPROVAL FOR COMMERCIAL DEVELOPMENT LOCATED ON HWY 31S

I, the undersigned, do hereby request the City of Bay Minette Planning Commission to grant a Site Plan Review for the location to determine if it meets the regulations of the ***Zoning Ordinance*** for the reason(s) stated above. I understand and authorize City Staff to conduct site visits, as needed in relation to this request.

MIchael A. Thomas, P.E.
Digitally signed by MIchael A. Thomas, P.E.
DN: C=US, E=bwd217@bellsouth.net, O="Bluewater Design, LLC", CN="MIchael A. Thomas, P.E."
Reason: I am the author of this document
Date: 2025.04.24 21:13:23-05'00'

Signature of Applicant (Owner of Property of Authorized Agent) Date

Submittal Requirements

- X Application
- X Fee paid in full
- X Agent Authorization Form (if applicant is not the owner)
- X Complete Legal Description of Property
- X Plot Plan or Survey – indicating any existing structures, proposed structures, and setbacks from property lines
- X Submittal Requirements listed in 8.9 Site Plan, as applicable

City of Bay Minette

Agent Authorization Form

Office Use Only

Case No.:________________

I/We hereby appoint and designate BLUEWATER DESIGN, LLC ("Agent") to act as my/our–agent in all matters concerning this application/permit which relates to property described as tax parcel PPIN# 23-05-21-2-002-001.001. I/We understand that the scope of the agency designation granted herein is general in nature and includes, without limitation, all decision-making authority relating to submittals, status, conditions, or withdrawal of this application/permit. To the fullest extent permitted under Alabama law, I/we release and agree to hold the City of Bay Minette harmless from and against any liability resulting from acts or omissions of our Agent. I/We warrant and certify to the City of Bay Minette that I/we are the owner(s) of the real property identified herein, and that I/we have fully authority to make the agency designation herein. I/We further certify that the information stated on and submitted with this application/permit is true and correct. I also understand that the submittal of incorrect information will result in the revocation of this application/permit and any work performed will be at the risk of the applicant. I understand further that any changes which vary from the approved plans will result in the requirement of a new application/permit.

*NOTE: *All correspondence will be sent to the authorized Agent. It will be the Agent's responsibility to keep the owner(s) adequately informed as to the status of the application.*

PROPERTY OWNER(S)

TR PEED PROPERTIES, LLC

Name(s) - Printed

52350 STATE HIGHWAY 225

Mailing Address

STOCKTON / AL 36579

City/State

251-213-6807 RPEED1@AOL.COM

Phone Email

24APR25

Signature(s) Date

AUTHORIZED AGENT

BLEWATER DEISGN, LLC (MICHAEL A. THOMAS, P.E.)

Name(s) - Printed

P.O. BOX 217

Mailing Address

PELL CITY, AL 35125-0127

City/State

205-283-8824 BWD217@BELLSOUTH.NET

Phone Email

4/27/25

Signature(s) Date

BLUEWATER DESIGN, LLC

STORMWATER MANAGEMENT REPORT

Bay Minette Commercial

Prepared by:

Bluewater Design, LLC
Cropwell, Alabama

Prepared for:

T.R. Peed Properties, LLC

BWD Project No. PP-01

April 2025

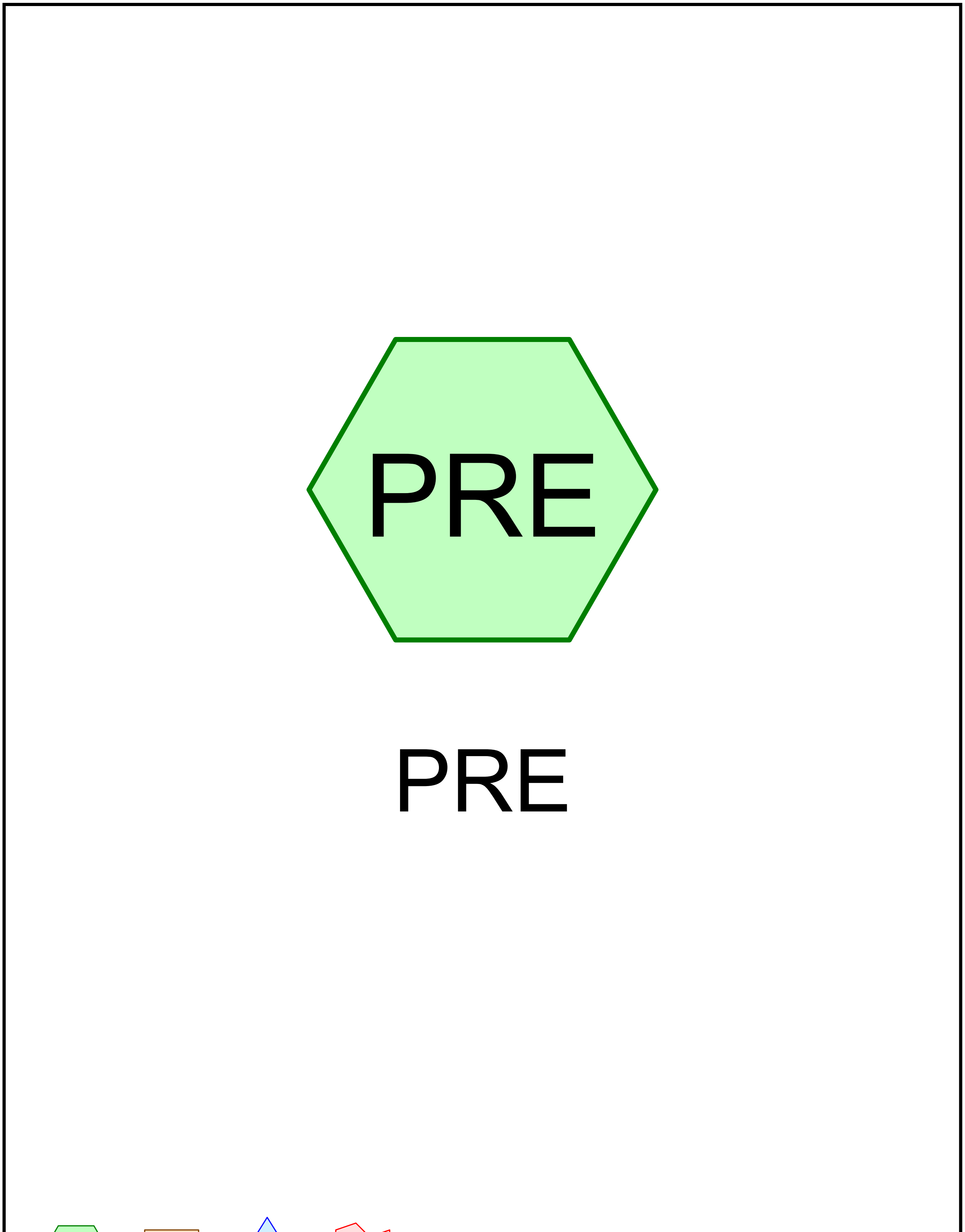
ALABAMA
LICENSED
No. 22146
PROFESSIONAL
April 24, 2025
ENGINEER
MICHAEL A. THOMAS

Bay Minette Commercial				
Year Storm	Pre (cfs)	Post (cfs)	Pond Elevation (ft)	Pond Freebaod (ft)
2	9.89	6.82	258.94	2.06
5	13.50	11.48	259.11	1.89
10	16.97	15.24	259.34	1.66
25	22.47	20.83	259.65	1.35
50	27.29	25.71	259.9	1.10
100	32.52	30.85	260.14	0.86
Bottom of Pond:		257.00		
Top of Pond:		261.00		

Table of Contents

1. **Pre-Developed Storm Calculations**
2. **Post-Developed Storm Calculations**
3. **NRCS Soils Report**

PRE-DEVELOPED DRAINAGE CALCULATIONS (SCS METHOD)



Routing Diagram for BMC - PRE
Prepared by HP Inc., Printed 4/21/2025
HydroCAD® 10.00-26 s/n 05112 © 2020 HydroCAD Software Solutions LLC

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPRE: PRE Runoff Area=200,398 sf 0.90% Impervious Runoff Depth>2.91"
Flow Length=350' Slope=0.0029 '/' Tc=24.7 min CN=81 Runoff=9.89 cfs 1.116 af

Total Runoff Area = 4.601 ac Runoff Volume = 1.116 af Average Runoff Depth = 2.91"
99.10% Pervious = 4.559 ac 0.90% Impervious = 0.041 ac

Summary for Subcatchment PRE: PRE

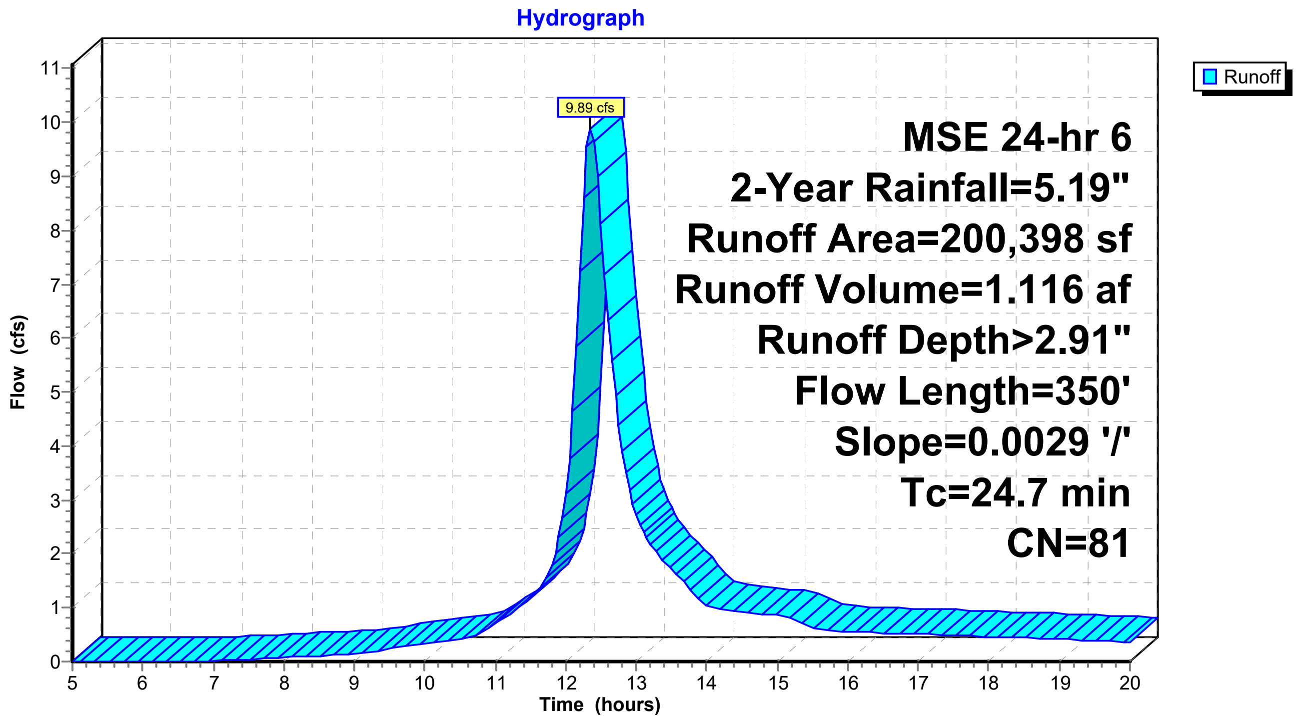
Runoff = 9.89 cfs @ 12.35 hrs, Volume= 1.116 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 2-Year Rainfall=5.19"

Area (sf)	CN	Description
155,038	79	50-75% Grass cover, Fair, HSG C
1,800	98	Unconnected roofs, HSG C
43,560	89	Gravel roads, HSG C
200,398	81	Weighted Average
198,598		99.10% Pervious Area
1,800		0.90% Impervious Area
1,800		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.7	350	0.0029	0.24		**Lag/CN Method,**

Subcatchment PRE: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPRE: PRE Runoff Area=200,398 sf 0.90% Impervious Runoff Depth>4.02"
Flow Length=350' Slope=0.0029 '/' Tc=24.7 min CN=81 Runoff=13.50 cfs 1.540 af

Total Runoff Area = 4.601 ac Runoff Volume = 1.540 af Average Runoff Depth = 4.02"
99.10% Pervious = 4.559 ac 0.90% Impervious = 0.041 ac

Summary for Subcatchment PRE: PRE

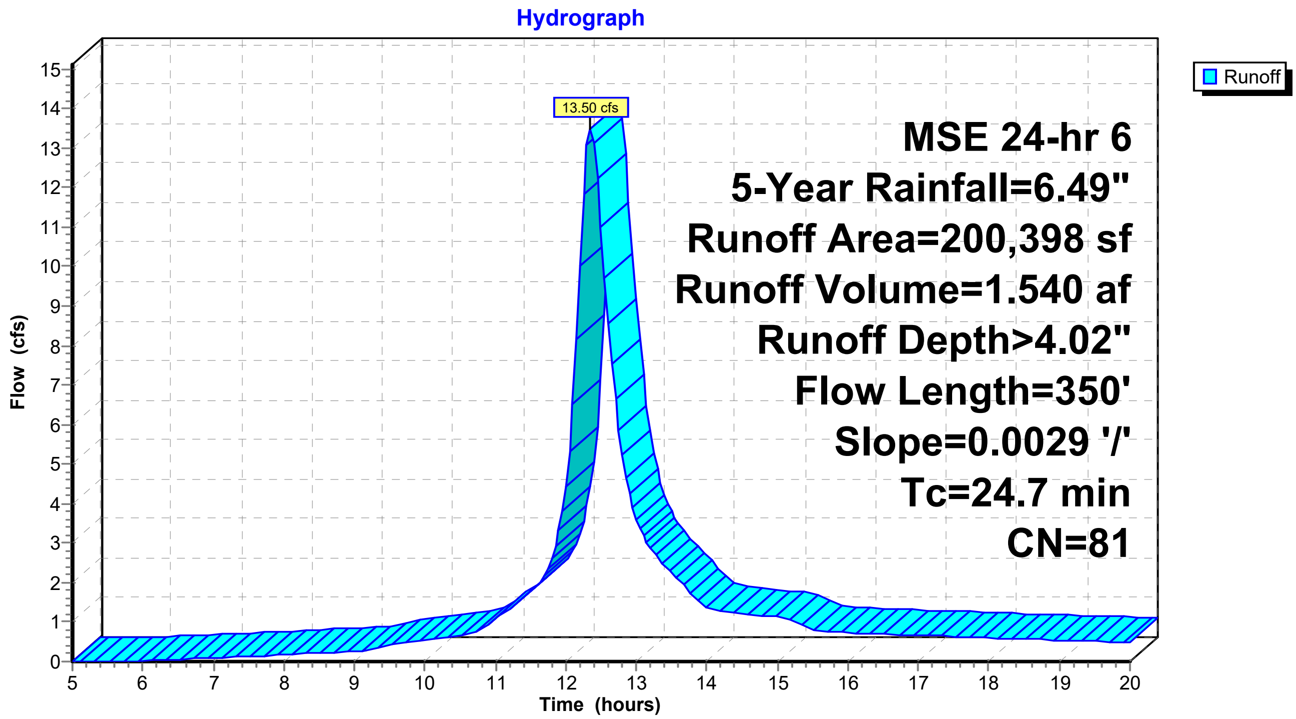
Runoff = 13.50 cfs @ 12.35 hrs, Volume= 1.540 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 5-Year Rainfall=6.49"

Area (sf)	CN	Description
155,038	79	50-75% Grass cover, Fair, HSG C
1,800	98	Unconnected roofs, HSG C
43,560	89	Gravel roads, HSG C
200,398	81	Weighted Average
198,598		99.10% Pervious Area
1,800		0.90% Impervious Area
1,800		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.7	350	0.0029	0.24		**Lag/CN Method,**

Subcatchment PRE: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPRE: PRE Runoff Area=200,398 sf 0.90% Impervious Runoff Depth>5.10"
Flow Length=350' Slope=0.0029 '/' Tc=24.7 min CN=81 Runoff=16.97 cfs 1.956 af

Total Runoff Area = 4.601 ac Runoff Volume = 1.956 af Average Runoff Depth = 5.10"
99.10% Pervious = 4.559 ac 0.90% Impervious = 0.041 ac

Summary for Subcatchment PRE: PRE

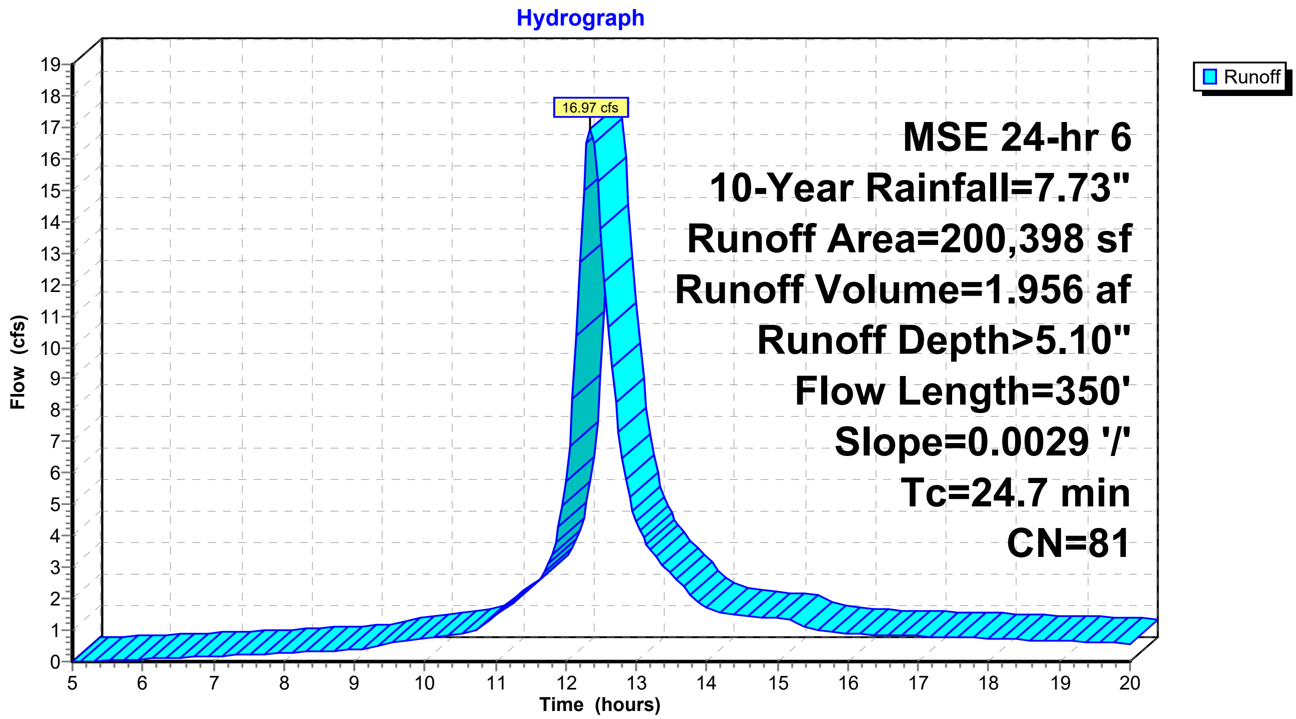
Runoff = 16.97 cfs @ 12.35 hrs, Volume= 1.956 af, Depth> 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 10-Year Rainfall=7.73"

Area (sf)	CN	Description
155,038	79	50-75% Grass cover, Fair, HSG C
1,800	98	Unconnected roofs, HSG C
43,560	89	Gravel roads, HSG C
200,398	81	Weighted Average
198,598		99.10% Pervious Area
1,800		0.90% Impervious Area
1,800		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.7	350	0.0029	0.24		**Lag/CN Method,**

Subcatchment PRE: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPRE: PRE Runoff Area=200,398 sf 0.90% Impervious Runoff Depth>6.86"
Flow Length=350' Slope=0.0029 '/' Tc=24.7 min CN=81 Runoff=22.47 cfs 2.631 af

Total Runoff Area = 4.601 ac Runoff Volume = 2.631 af Average Runoff Depth = 6.86"
99.10% Pervious = 4.559 ac 0.90% Impervious = 0.041 ac

Summary for Subcatchment PRE: PRE

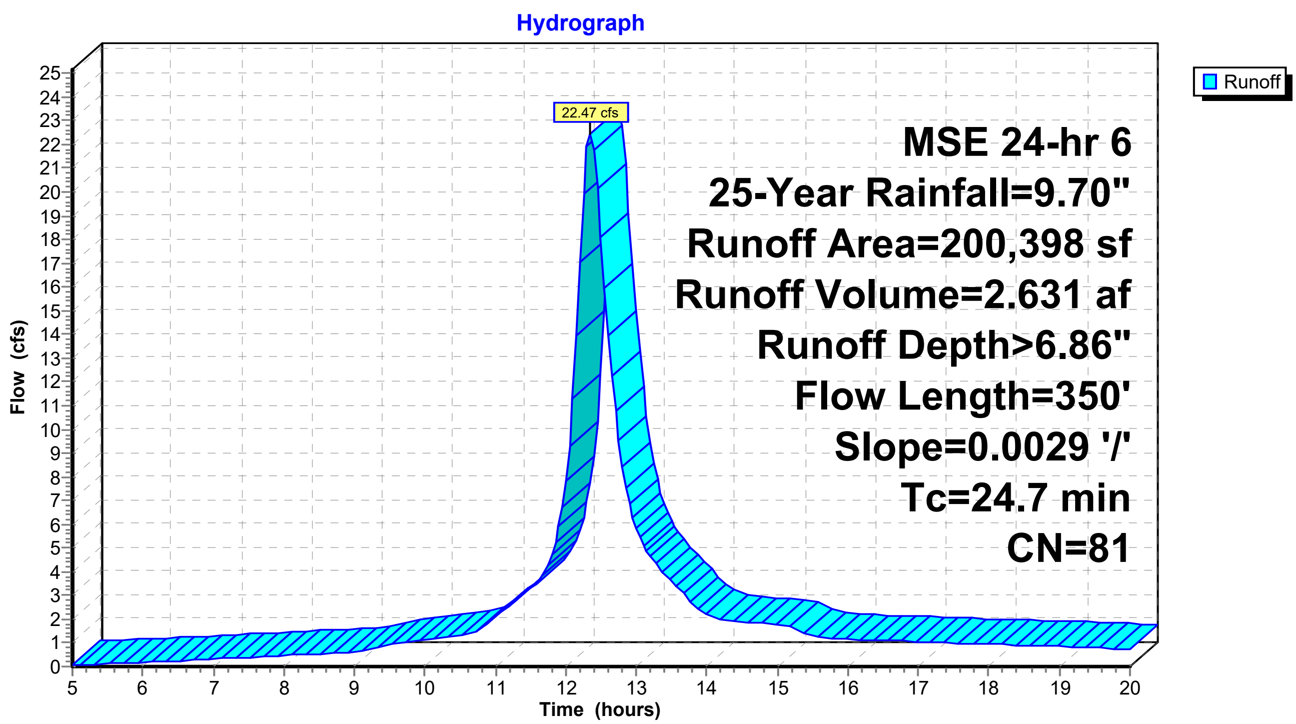
Runoff = 22.47 cfs @ 12.35 hrs, Volume= 2.631 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 25-Year Rainfall=9.70"

Area (sf)	CN	Description
155,038	79	50-75% Grass cover, Fair, HSG C
1,800	98	Unconnected roofs, HSG C
43,560	89	Gravel roads, HSG C
200,398	81	Weighted Average
198,598		99.10% Pervious Area
1,800		0.90% Impervious Area
1,800		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.7	350	0.0029	0.24		**Lag/CN Method,**

Subcatchment PRE: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPRE: PRE Runoff Area=200,398 sf 0.90% Impervious Runoff Depth>8.43"
Flow Length=350' Slope=0.0029 '/' Tc=24.7 min CN=81 Runoff=27.29 cfs 3.231 af

Total Runoff Area = 4.601 ac Runoff Volume = 3.231 af Average Runoff Depth = 8.43"
99.10% Pervious = 4.559 ac 0.90% Impervious = 0.041 ac

Summary for Subcatchment PRE: PRE

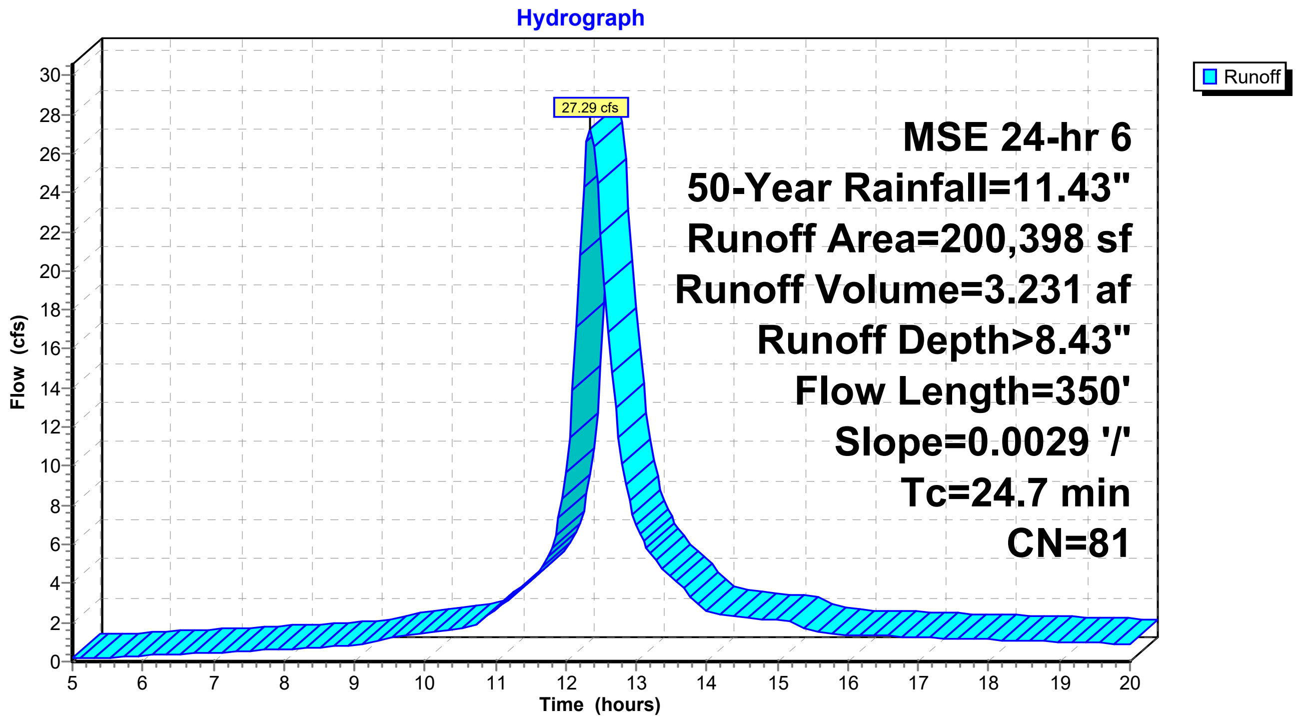
Runoff = 27.29 cfs @ 12.35 hrs, Volume= 3.231 af, Depth> 8.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 50-Year Rainfall=11.43"

Area (sf)	CN	Description
155,038	79	50-75% Grass cover, Fair, HSG C
1,800	98	Unconnected roofs, HSG C
43,560	89	Gravel roads, HSG C
200,398	81	Weighted Average
198,598		99.10% Pervious Area
1,800		0.90% Impervious Area
1,800		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.7	350	0.0029	0.24		**Lag/CN Method,**

Subcatchment PRE: PRE



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPRE: PRE Runoff Area=200,398 sf 0.90% Impervious Runoff Depth>10.14"
Flow Length=350' Slope=0.0029 '/' Tc=24.7 min CN=81 Runoff=32.52 cfs 3.889 af

Total Runoff Area = 4.601 ac Runoff Volume = 3.889 af Average Runoff Depth = 10.14"
99.10% Pervious = 4.559 ac 0.90% Impervious = 0.041 ac

Summary for Subcatchment PRE: PRE

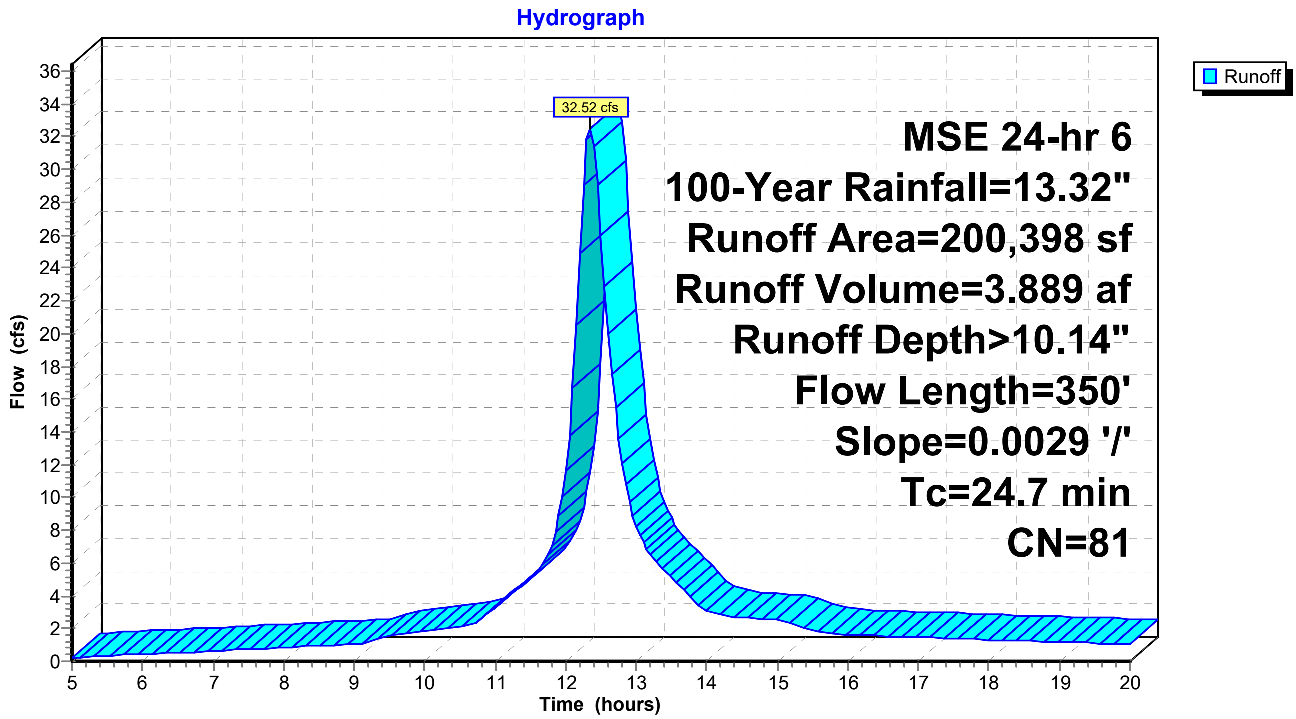
Runoff = 32.52 cfs @ 12.35 hrs, Volume= 3.889 af, Depth>10.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 100-Year Rainfall=13.32"

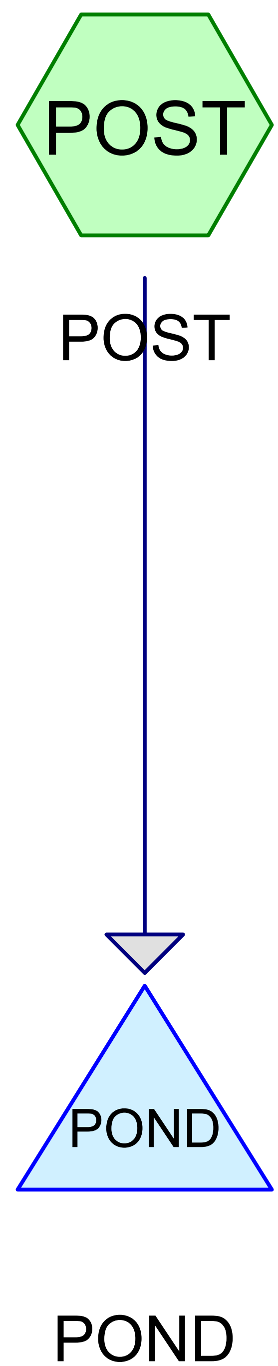
Area (sf)	CN	Description
155,038	79	50-75% Grass cover, Fair, HSG C
1,800	98	Unconnected roofs, HSG C
43,560	89	Gravel roads, HSG C
200,398	81	Weighted Average
198,598		99.10% Pervious Area
1,800		0.90% Impervious Area
1,800		100.00% Unconnected

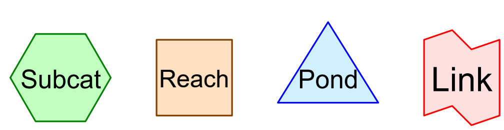
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.7	350	0.0029	0.24		**Lag/CN Method,**

Subcatchment PRE: PRE



POST-DEVELOPED DRAINAGE CALCULATIONS (SCS METHOD)





Routing Diagram for BMC - POST
Prepared by HP Inc., Printed 4/24/2025
HydroCAD® 10.00-26 s/n 05112 © 2020 HydroCAD Software Solutions LLC

Summary for Pond POND: POND

Inflow Area = 4.616 ac, 48.18% Impervious, Inflow Depth > 3.41" for 2-Year event
Inflow = 18.41 cfs @ 12.13 hrs, Volume= 1.312 af
Outflow = 6.82 cfs @ 12.32 hrs, Volume= 0.951 af, Atten= 63%, Lag= 10.9 min
Primary = 6.82 cfs @ 12.32 hrs, Volume= 0.951 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 258.78' @ 12.32 hrs Surf.Area= 16,307 sf Storage= 26,119 cf

Plug-Flow detention time= 141.5 min calculated for 0.948 af (72% of inflow)
Center-of-Mass det. time= 73.0 min (847.6 - 774.6)

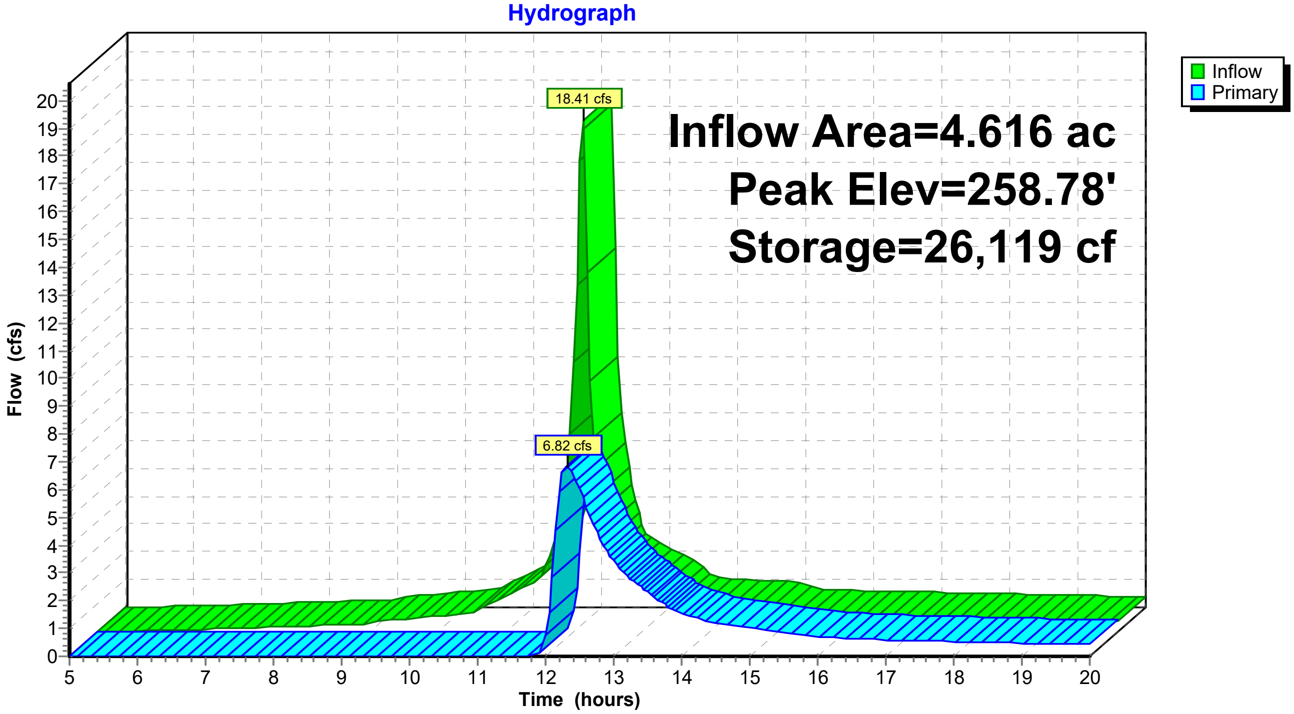
Volume	Invert	Avail.Storage	Storage Description
#1	257.00'	67,137 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
257.00	12,873	622.0	0	0	12,873
258.00	14,736	659.0	13,794	13,794	16,699
259.00	16,741	678.0	15,728	29,522	18,828
260.00	18,803	697.0	17,762	47,284	21,018
261.00	20,922	716.0	19,853	67,137	23,268

Device	Routing	Invert	Outlet Devices
#1	Primary	258.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 Width (feet) 3.00 3.00

Primary OutFlow Max=6.79 cfs @ 12.32 hrs HW=258.78' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 6.79 cfs @ 2.90 fps)

Pond POND: POND



Summary for Subcatchment POST: POST

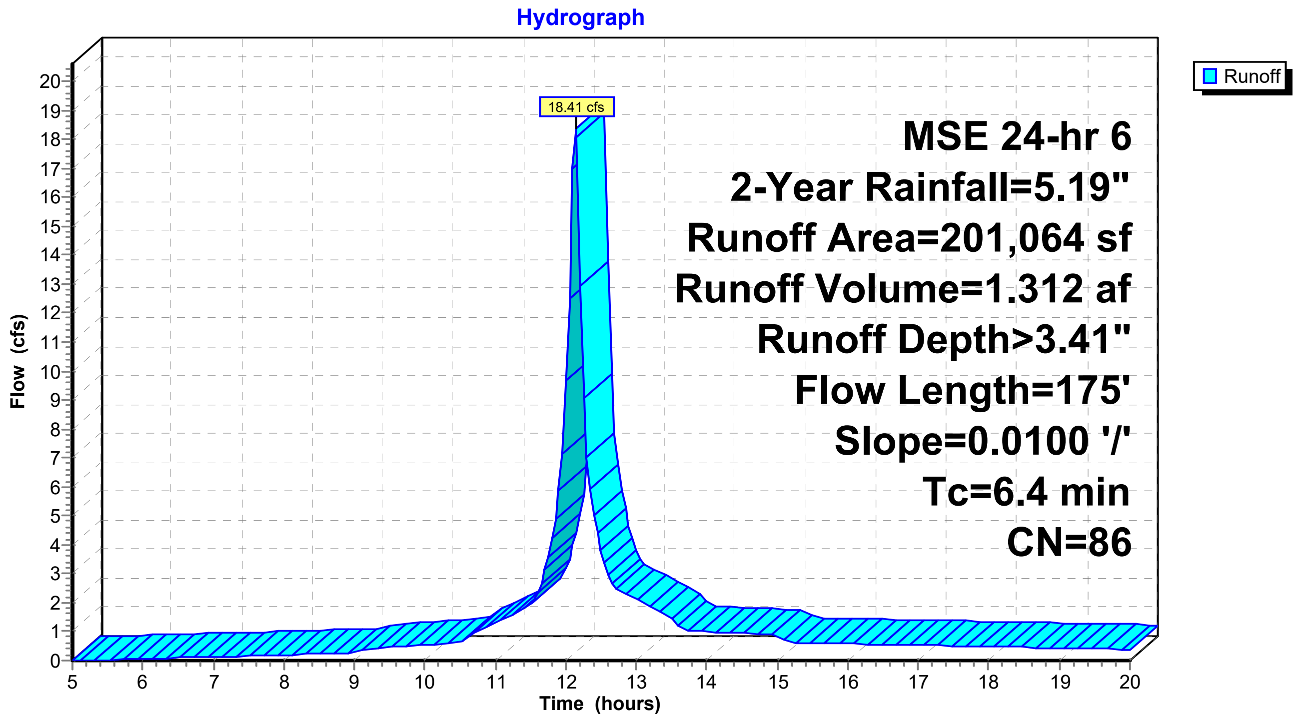
Runoff = 18.41 cfs @ 12.13 hrs, Volume= 1.312 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 2-Year Rainfall=5.19"

Area (sf)	CN	Description
104,194	74	>75% Grass cover, Good, HSG C
96,870	98	Paved parking, HSG C
201,064	86	Weighted Average
104,194		51.82% Pervious Area
96,870		48.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	175	0.0100	0.45		**Lag/CN Method,**

Subcatchment POST: POST



Summary for Pond POND: POND

Inflow Area = 4.616 ac, 48.18% Impervious, Inflow Depth > 4.57" for 5-Year event
Inflow = 24.24 cfs @ 12.13 hrs, Volume= 1.759 af
Outflow = 11.48 cfs @ 12.26 hrs, Volume= 1.391 af, Atten= 53%, Lag= 7.9 min
Primary = 11.48 cfs @ 12.26 hrs, Volume= 1.391 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 259.11' @ 12.26 hrs Surf.Area= 16,967 sf Storage= 31,469 cf

Plug-Flow detention time= 124.7 min calculated for 1.391 af (79% of inflow)
Center-of-Mass det. time= 64.9 min (832.0 - 767.1)

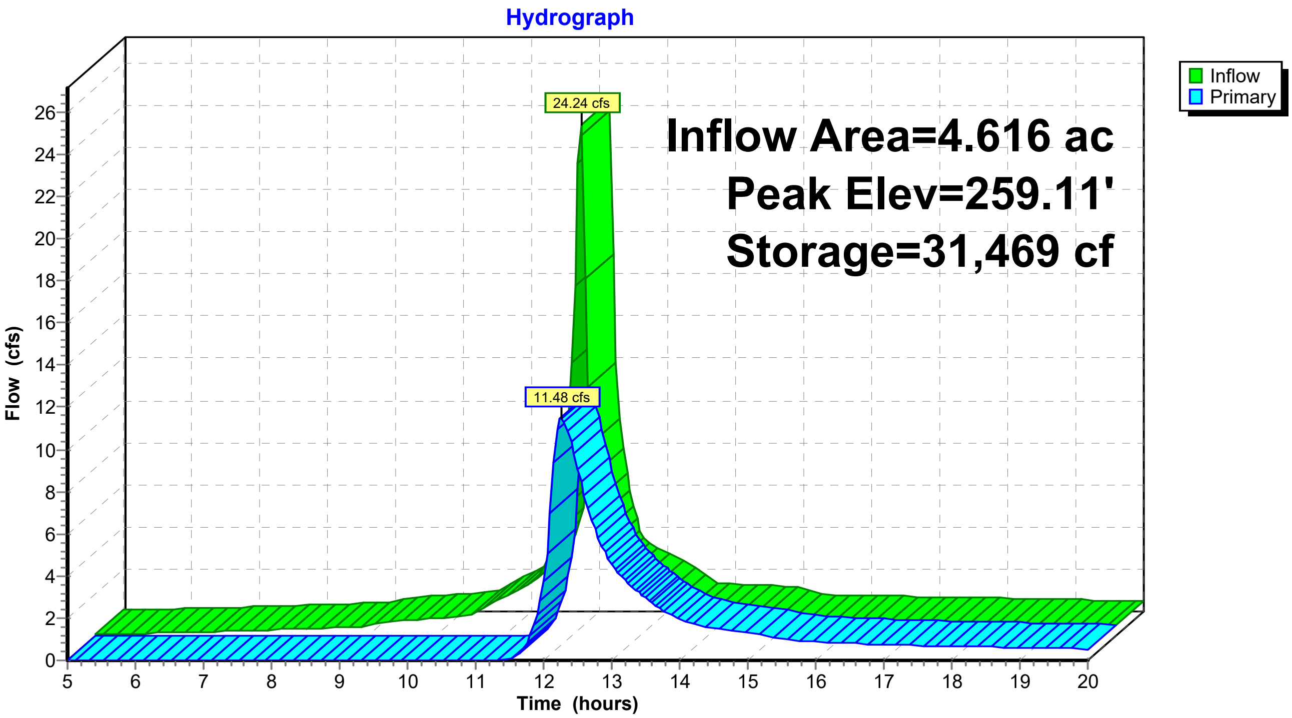
Volume	Invert	Avail.Storage	Storage Description
#1	257.00'	67,137 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
257.00	12,873	622.0	0	0	12,873
258.00	14,736	659.0	13,794	13,794	16,699
259.00	16,741	678.0	15,728	29,522	18,828
260.00	18,803	697.0	17,762	47,284	21,018
261.00	20,922	716.0	19,853	67,137	23,268

Device	Routing	Invert	Outlet Devices
#1	Primary	258.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 Width (feet) 3.00 3.00

Primary OutFlow Max=11.42 cfs @ 12.26 hrs HW=259.11' (Free Discharge)
└—**1=Custom Weir/Orifice** (Weir Controls 11.42 cfs @ 3.44 fps)

Pond POND: POND



Summary for Subcatchment POST: POST

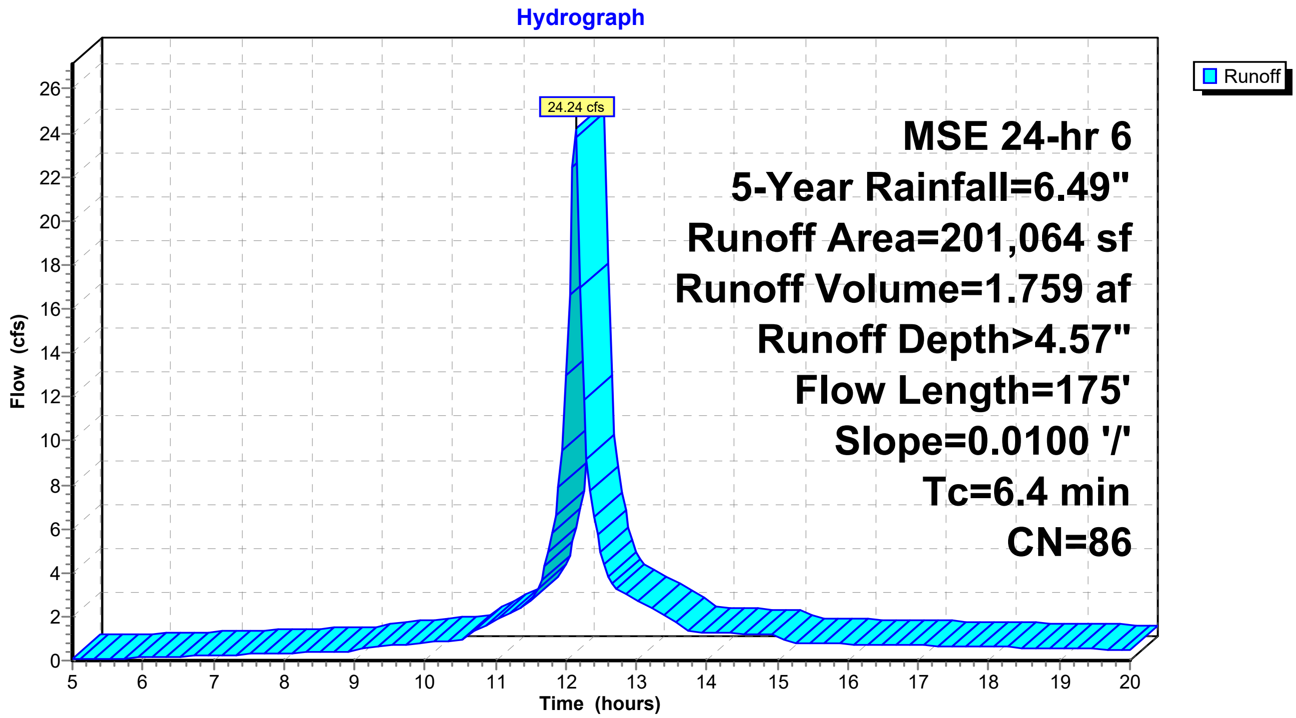
Runoff = 24.24 cfs @ 12.13 hrs, Volume= 1.759 af, Depth> 4.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 5-Year Rainfall=6.49"

Area (sf)	CN	Description
104,194	74	>75% Grass cover, Good, HSG C
96,870	98	Paved parking, HSG C
201,064	86	Weighted Average
104,194		51.82% Pervious Area
96,870		48.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	175	0.0100	0.45		**Lag/CN Method,**

Subcatchment POST: POST



Summary for Pond POND: POND

Inflow Area = 4.616 ac, 48.18% Impervious, Inflow Depth > 5.70" for 10-Year event
Inflow = 29.77 cfs @ 12.13 hrs, Volume= 2.191 af
Outflow = 15.24 cfs @ 12.25 hrs, Volume= 1.816 af, Atten= 49%, Lag= 7.2 min
Primary = 15.24 cfs @ 12.25 hrs, Volume= 1.816 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 259.34' @ 12.25 hrs Surf.Area= 17,441 sf Storage= 35,554 cf

Plug-Flow detention time= 113.2 min calculated for 1.816 af (83% of inflow)
Center-of-Mass det. time= 60.3 min (822.2 - 761.9)

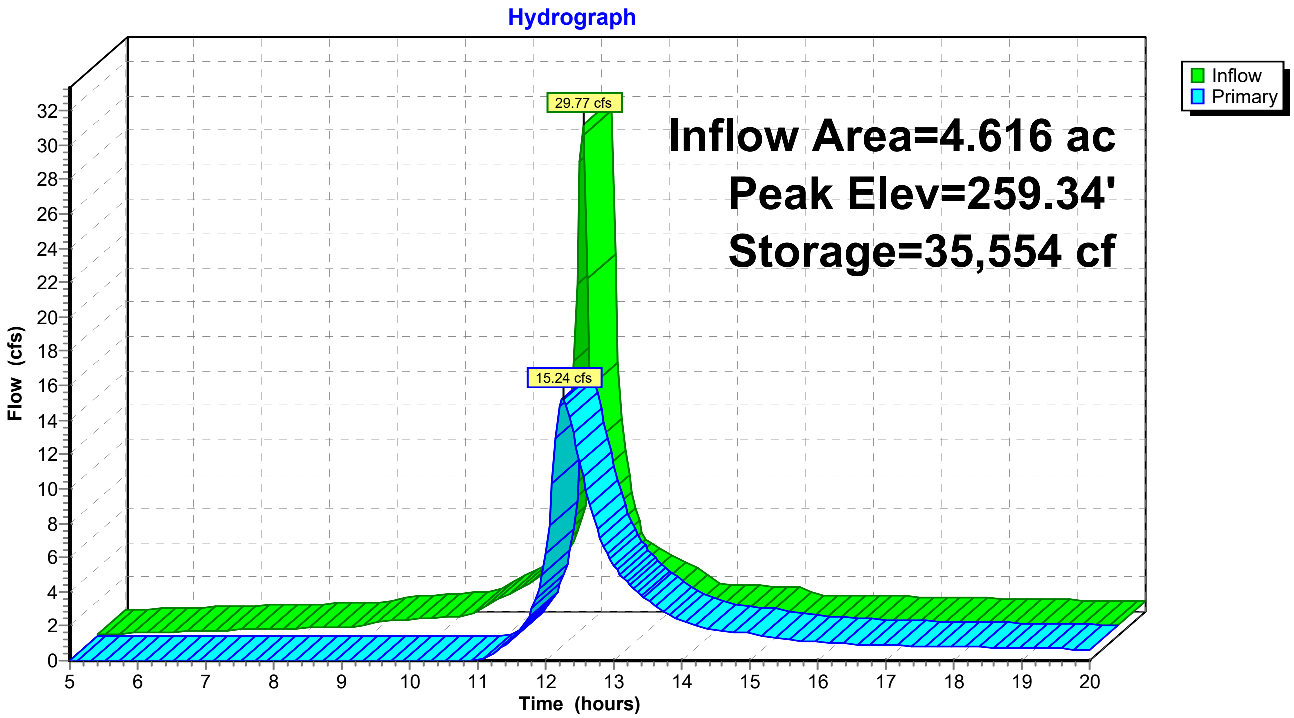
Volume	Invert	Avail.Storage	Storage Description
#1	257.00'	67,137 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
257.00	12,873	622.0	0	0	12,873
258.00	14,736	659.0	13,794	13,794	16,699
259.00	16,741	678.0	15,728	29,522	18,828
260.00	18,803	697.0	17,762	47,284	21,018
261.00	20,922	716.0	19,853	67,137	23,268

Device	Routing	Invert	Outlet Devices
#1	Primary	258.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 Width (feet) 3.00 3.00

Primary OutFlow Max=15.22 cfs @ 12.25 hrs HW=259.34' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 15.22 cfs @ 3.79 fps)

Pond POND: POND



Summary for Subcatchment POST: POST

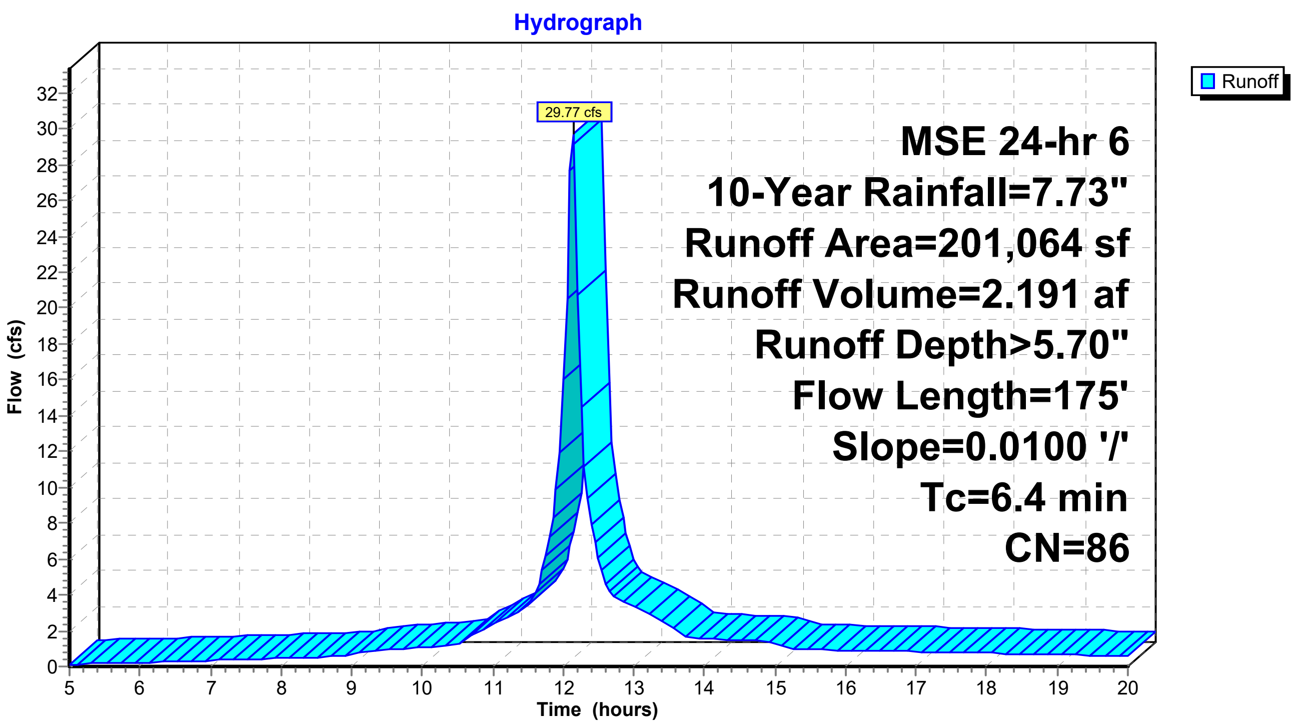
Runoff = 29.77 cfs @ 12.13 hrs, Volume= 2.191 af, Depth> 5.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 10-Year Rainfall=7.73"

Area (sf)	CN	Description
104,194	74	>75% Grass cover, Good, HSG C
96,870	98	Paved parking, HSG C
201,064	86	Weighted Average
104,194		51.82% Pervious Area
96,870		48.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	175	0.0100	0.45		**Lag/CN Method,**

Subcatchment POST: POST



Summary for Pond POND: POND

Inflow Area = 4.616 ac, 48.18% Impervious, Inflow Depth > 7.49" for 25-Year event
Inflow = 38.50 cfs @ 12.13 hrs, Volume= 2.881 af
Outflow = 20.83 cfs @ 12.24 hrs, Volume= 2.496 af, Atten= 46%, Lag= 6.6 min
Primary = 20.83 cfs @ 12.24 hrs, Volume= 2.496 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 259.65' @ 12.24 hrs Surf.Area= 18,081 sf Storage= 41,068 cf

Plug-Flow detention time= 99.9 min calculated for 2.495 af (87% of inflow)
Center-of-Mass det. time= 54.9 min (811.0 - 756.1)

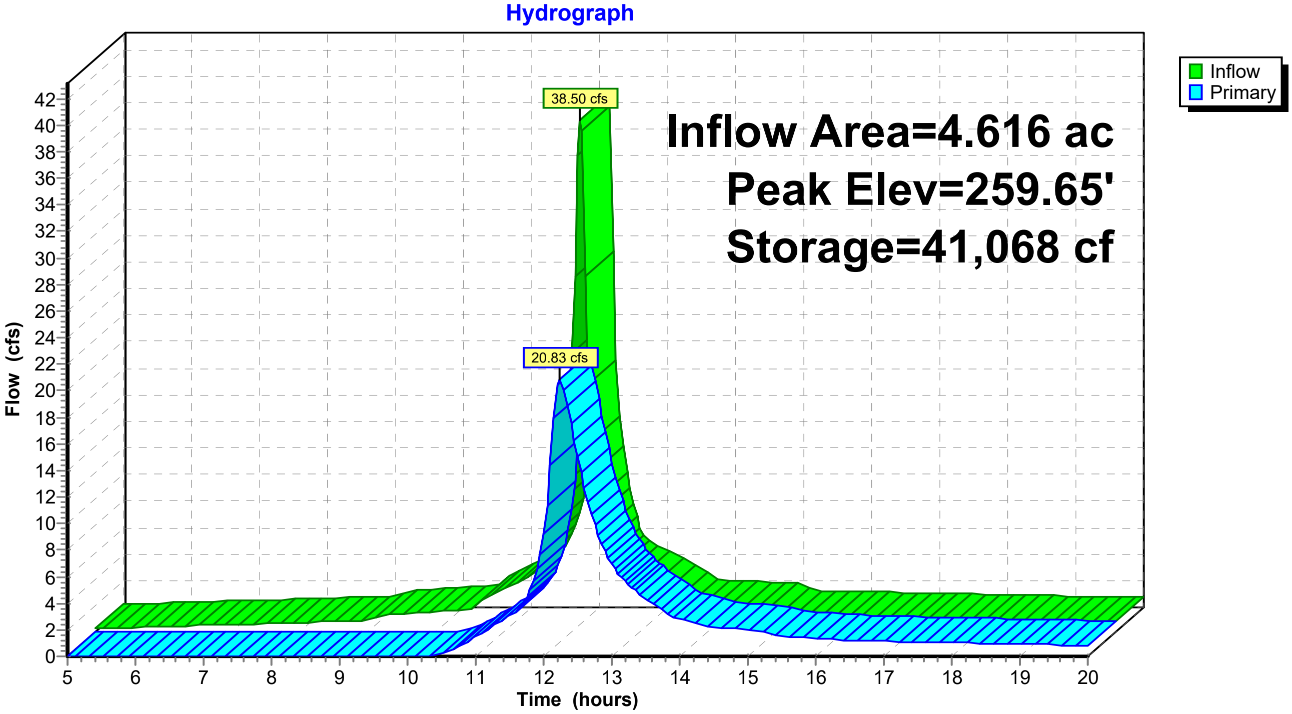
Volume	Invert	Avail.Storage	Storage Description
#1	257.00'	67,137 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
257.00	12,873	622.0	0	0	12,873
258.00	14,736	659.0	13,794	13,794	16,699
259.00	16,741	678.0	15,728	29,522	18,828
260.00	18,803	697.0	17,762	47,284	21,018
261.00	20,922	716.0	19,853	67,137	23,268

Device	Routing	Invert	Outlet Devices
#1	Primary	258.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 Width (feet) 3.00 3.00

Primary OutFlow Max=20.75 cfs @ 12.24 hrs HW=259.65' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 20.75 cfs @ 4.20 fps)

Pond POND: POND



Summary for Subcatchment POST: POST

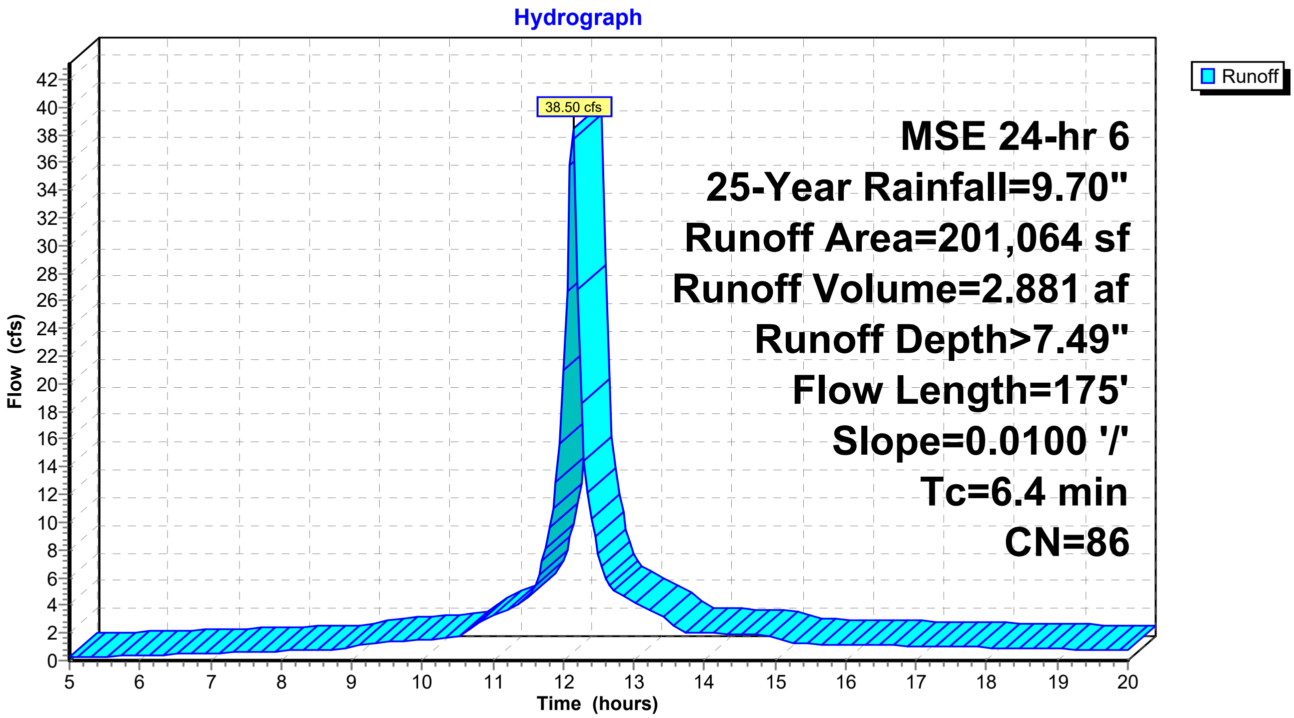
Runoff = 38.50 cfs @ 12.13 hrs, Volume= 2.881 af, Depth> 7.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 25-Year Rainfall=9.70"

Area (sf)	CN	Description
104,194	74	>75% Grass cover, Good, HSG C
96,870	98	Paved parking, HSG C
201,064	86	Weighted Average
104,194		51.82% Pervious Area
96,870		48.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	175	0.0100	0.45		**Lag/CN Method,**

Subcatchment POST: POST



Summary for Pond POND: POND

Inflow Area = 4.616 ac, 48.18% Impervious, Inflow Depth > 9.07" for 50-Year event
Inflow = 46.11 cfs @ 12.13 hrs, Volume= 3.488 af
Outflow = 25.71 cfs @ 12.24 hrs, Volume= 3.095 af, Atten= 44%, Lag= 6.3 min
Primary = 25.71 cfs @ 12.24 hrs, Volume= 3.095 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 259.90' @ 12.24 hrs Surf.Area= 18,595 sf Storage= 45,489 cf

Plug-Flow detention time= 91.0 min calculated for 3.095 af (89% of inflow)
Center-of-Mass det. time= 51.1 min (803.6 - 752.5)

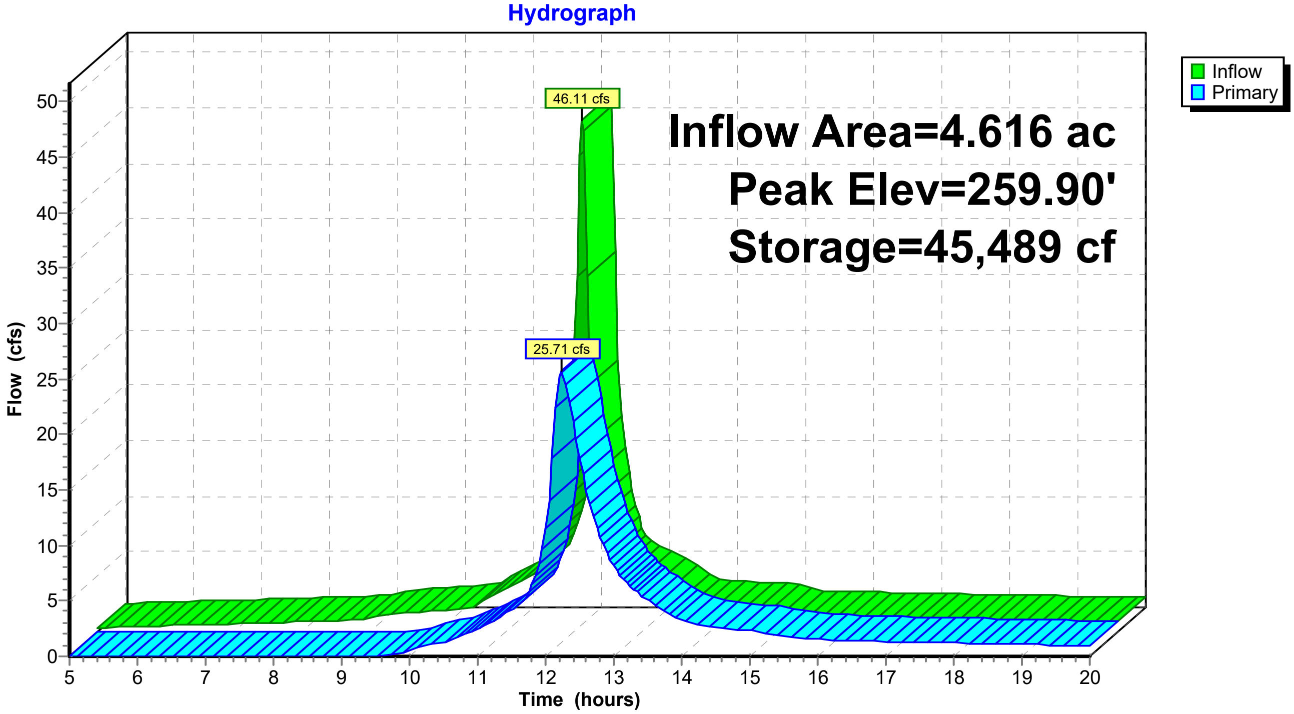
Volume	Invert	Avail.Storage	Storage Description
#1	257.00'	67,137 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
257.00	12,873	622.0	0	0	12,873
258.00	14,736	659.0	13,794	13,794	16,699
259.00	16,741	678.0	15,728	29,522	18,828
260.00	18,803	697.0	17,762	47,284	21,018
261.00	20,922	716.0	19,853	67,137	23,268

Device	Routing	Invert	Outlet Devices
#1	Primary	258.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 Width (feet) 3.00 3.00

Primary OutFlow Max=25.57 cfs @ 12.24 hrs HW=259.89' (Free Discharge)
└—**1=Custom Weir/Orifice** (Weir Controls 25.57 cfs @ 4.50 fps)

Pond POND: POND



Summary for Subcatchment POST: POST

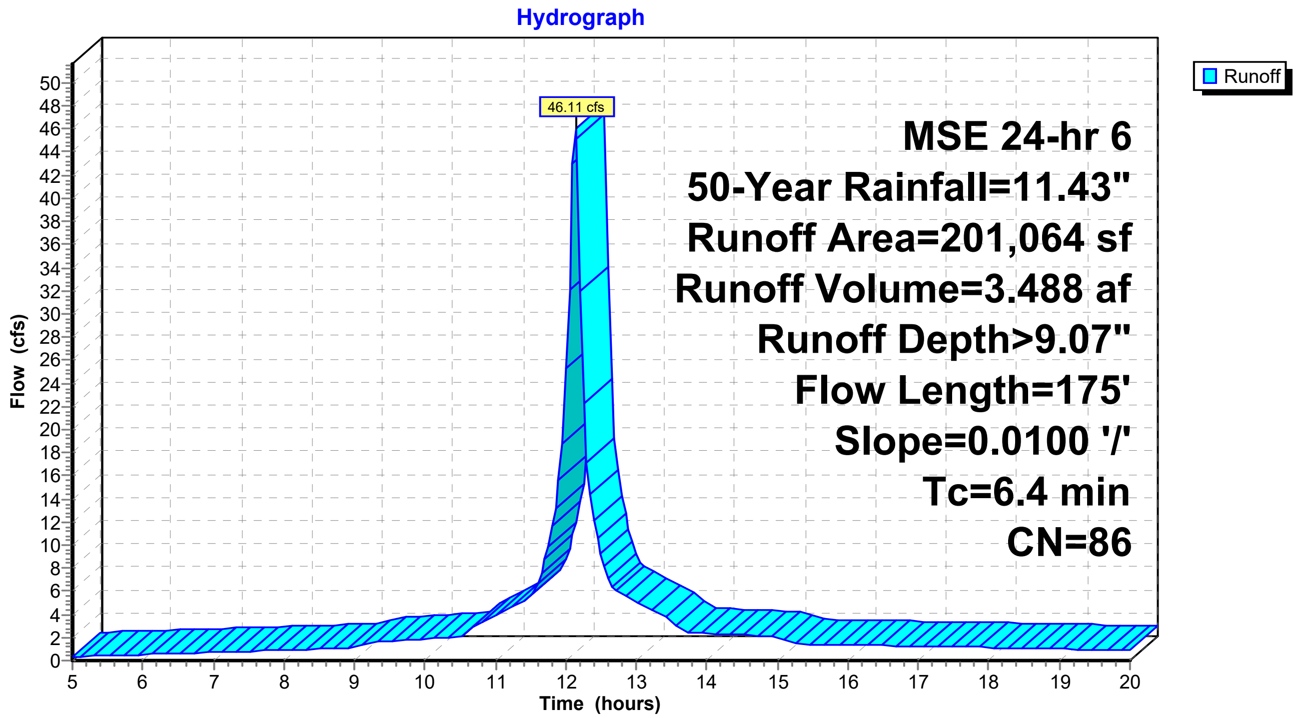
Runoff = 46.11 cfs @ 12.13 hrs, Volume= 3.488 af, Depth> 9.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 50-Year Rainfall=11.43"

Area (sf)	CN	Description
104,194	74	>75% Grass cover, Good, HSG C
96,870	98	Paved parking, HSG C
201,064	86	Weighted Average
104,194		51.82% Pervious Area
96,870		48.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	175	0.0100	0.45		**Lag/CN Method,**

Subcatchment POST: POST



Summary for Pond POND: POND

Inflow Area = 4.616 ac, 48.18% Impervious, Inflow Depth > 10.79" for 100-Year event
Inflow = 54.38 cfs @ 12.13 hrs, Volume= 4.152 af
Outflow = 30.85 cfs @ 12.23 hrs, Volume= 3.751 af, Atten= 43%, Lag= 6.1 min
Primary = 30.85 cfs @ 12.23 hrs, Volume= 3.751 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 260.14' @ 12.23 hrs Surf.Area= 19,108 sf Storage= 50,145 cf

Plug-Flow detention time= 82.7 min calculated for 3.737 af (90% of inflow)
Center-of-Mass det. time= 47.6 min (797.1 - 749.5)

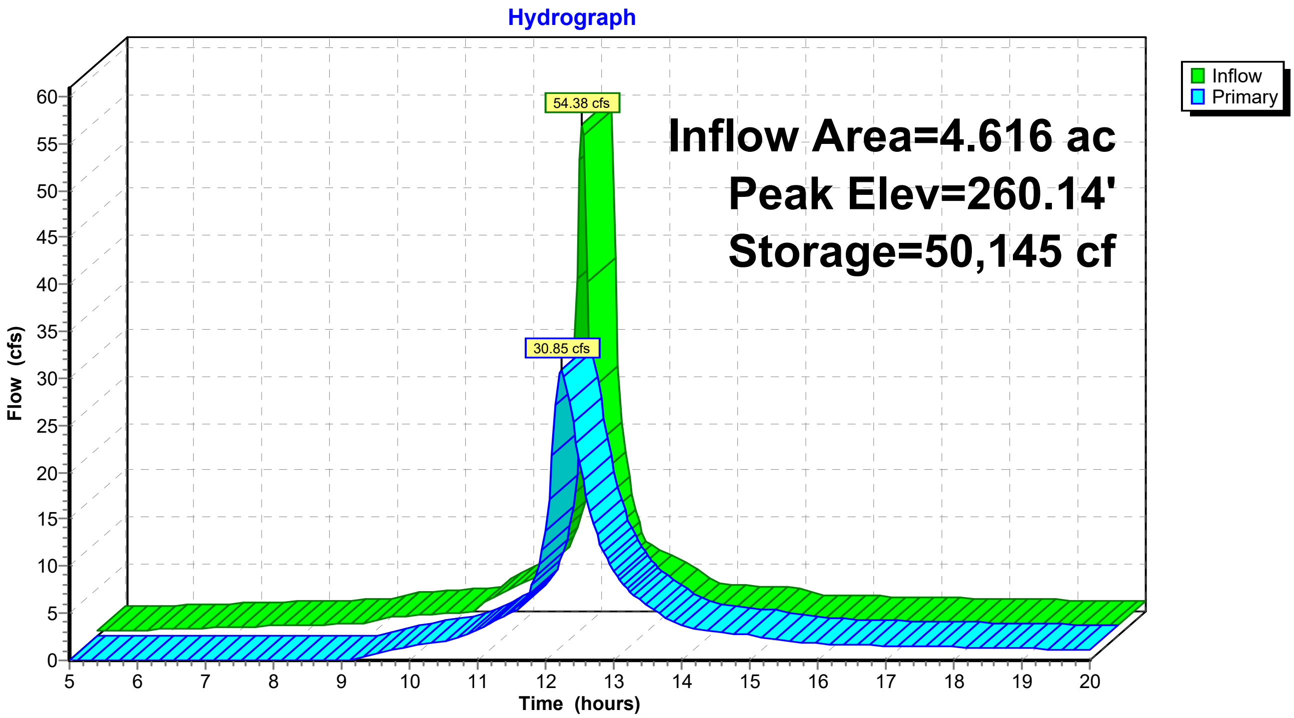
Volume	Invert	Avail.Storage	Storage Description
#1	257.00'	67,137 cf	**Custom Stage Data (Irregular)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
257.00	12,873	622.0	0	0	12,873
258.00	14,736	659.0	13,794	13,794	16,699
259.00	16,741	678.0	15,728	29,522	18,828
260.00	18,803	697.0	17,762	47,284	21,018
261.00	20,922	716.0	19,853	67,137	23,268

Device	Routing	Invert	Outlet Devices
#1	Primary	258.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 Width (feet) 3.00 3.00

Primary OutFlow Max=30.67 cfs @ 12.23 hrs HW=260.14' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 30.67 cfs @ 4.79 fps)

Pond POND: POND



Summary for Subcatchment POST: POST

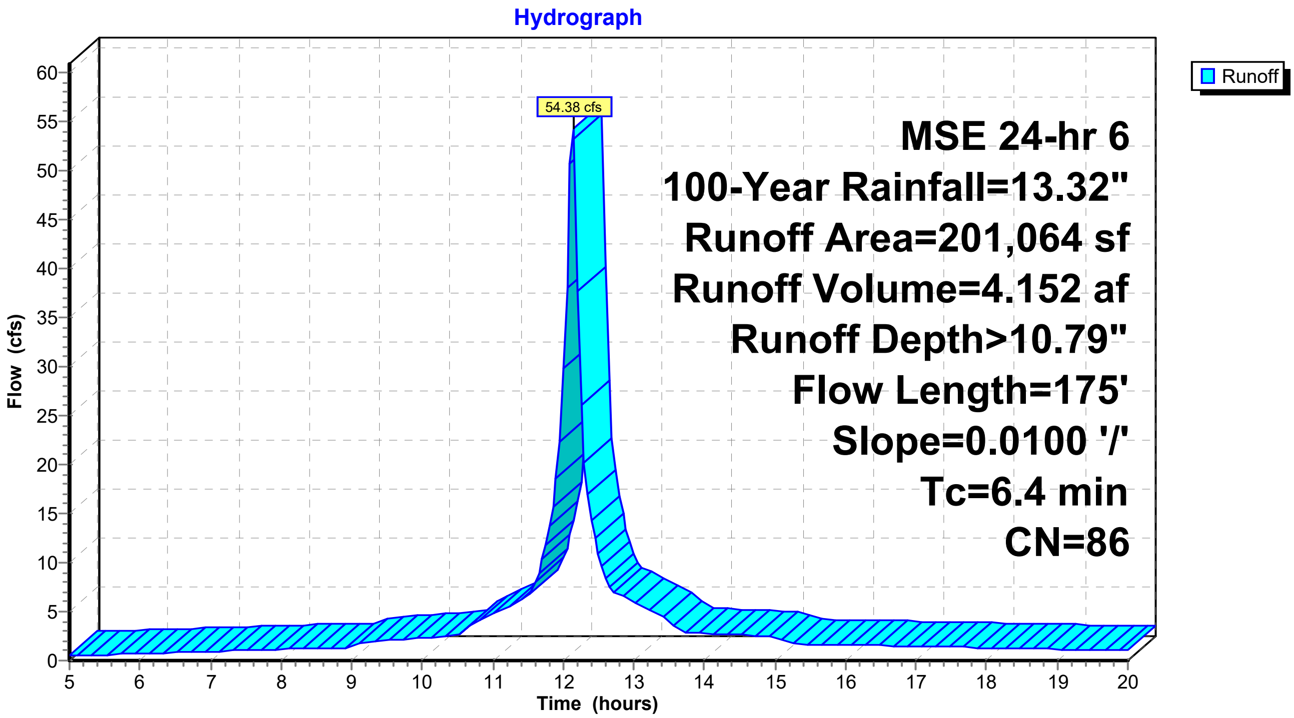
Runoff = 54.38 cfs @ 12.13 hrs, Volume= 4.152 af, Depth>10.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 6 100-Year Rainfall=13.32"

Area (sf)	CN	Description
104,194	74	>75% Grass cover, Good, HSG C
96,870	98	Paved parking, HSG C
201,064	86	Weighted Average
104,194		51.82% Pervious Area
96,870		48.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	175	0.0100	0.45		**Lag/CN Method,**

Subcatchment POST: POST



NRCS SOILS REPORT

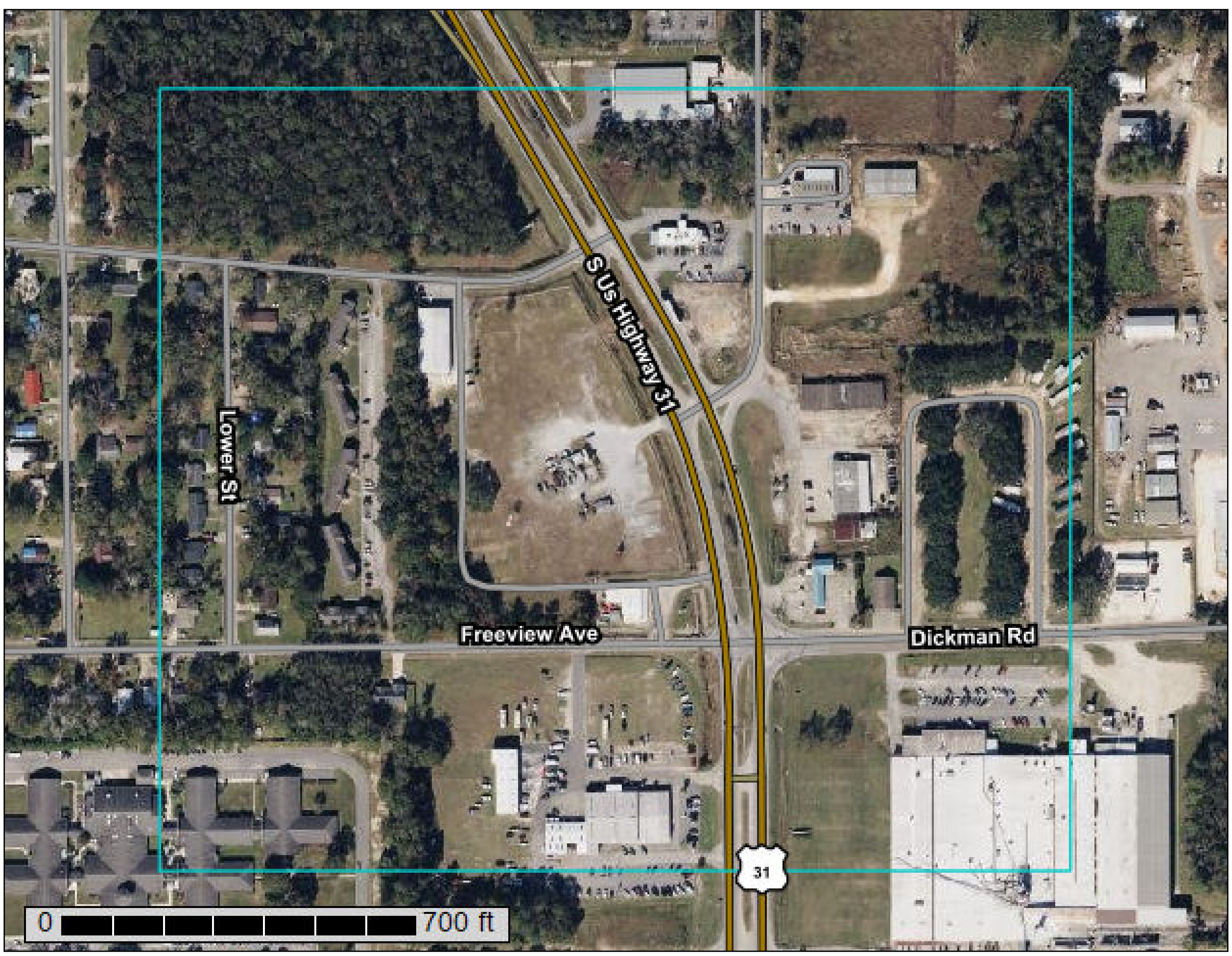
USDA United States Department of Agriculture

NRCS Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Baldwin County, Alabama



April 21, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface......... 2
How Soil Surveys Are Made......... 5
Soil Map......... 8
Soil Map......... 9
Legend......... 10
Map Unit Legend......... 11
Map Unit Descriptions......... 11
Baldwin County, Alabama......... 13
Bb—Bibb and Mantachie soils, local alluvium......... 13
GoA—Goldsboro fine sandy loam, 0 to 2 percent slopes......... 14
Gr—Grady soils......... 15
Hb—Hyde, Bayboro, and Muck soils......... 16
MaA—Malbis fine sandy loam, 0 to 2 percent slopes......... 18
MaB—Malbis fine sandy loam, 2 to 5 percent slopes......... 19
Soil Information for All Uses......... 21
Soil Reports......... 21
Soil Physical Properties......... 21
Engineering Properties......... 21
Engineering Properties......... 28
References......... 34

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

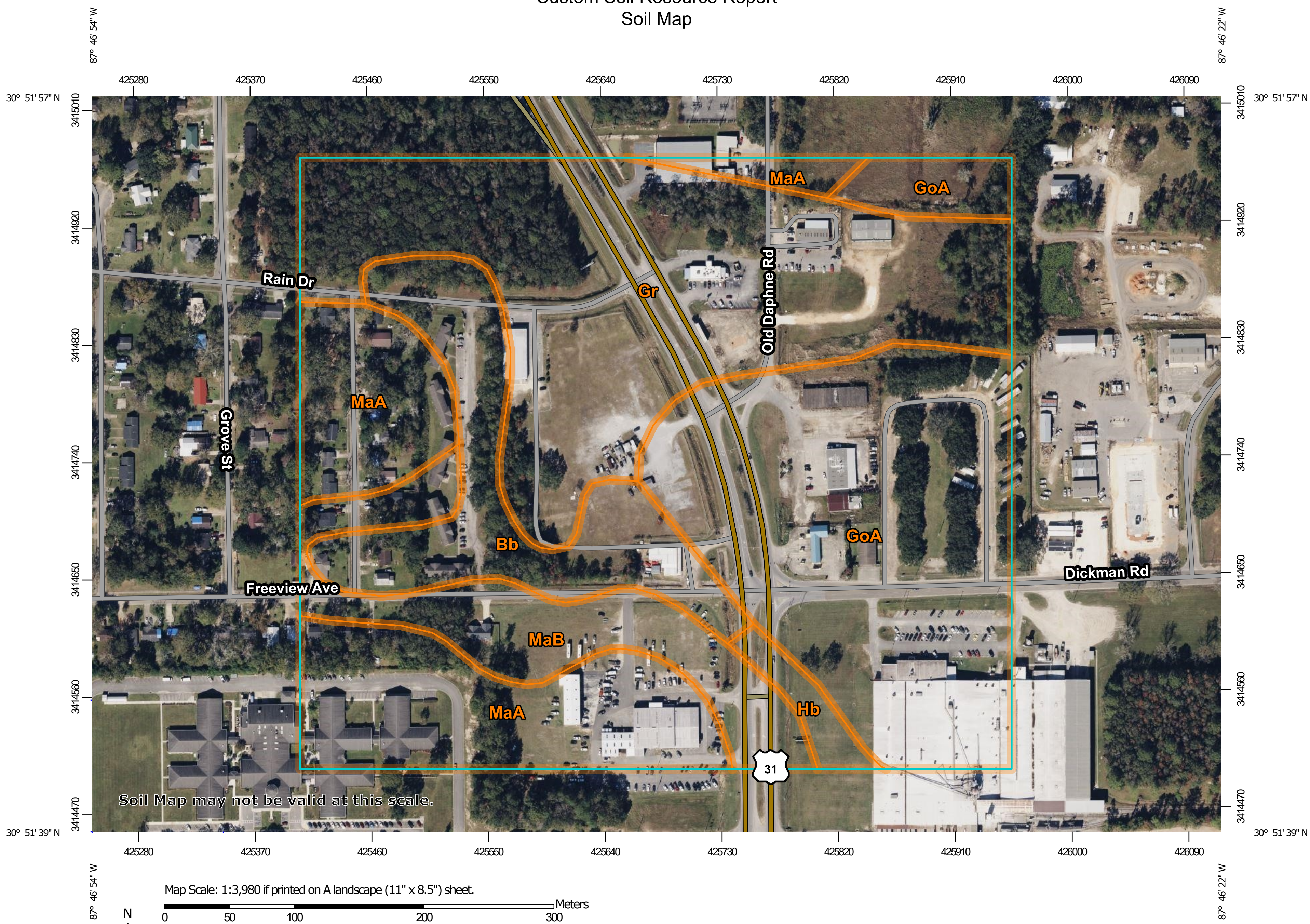
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:3,980 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 50, 100, 200, 300

Feet: 0, 150, 300, 600, 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

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 1:20,000.

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: Baldwin County, Alabama
Survey Area Data: Version 17, Sep 10, 2024

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

Date(s) aerial images were photographed: Nov 12, 2021—Dec 22, 2021

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bb	Bibb and Mantachie soils, local alluvium	7.1	11.1%
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes	18.2	28.6%
Gr	Grady soils	19.9	31.2%
Hb	Hyde, Bayboro, and Muck soils	0.9	1.5%
MaA	Malbis fine sandy loam, 0 to 2 percent slopes	11.7	18.3%
MaB	Malbis fine sandy loam, 2 to 5 percent slopes	6.0	9.3%
Totals for Area of Interest		**63.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Baldwin County, Alabama

Bb—Bibb and Mantachie soils, local alluvium

Map Unit Setting

National map unit symbol: c0dy
Elevation: 0 to 450 feet
Mean annual precipitation: 40 to 67 inches
Mean annual air temperature: 52 to 77 degrees F
Frost-free period: 217 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Bibb and similar soils: 40 percent
Mantachie and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bibb

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Stratified sandy and silty alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 4 inches: silt loam
H2 - 4 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Mantachie

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave

Parent material: Loamy alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 61 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: No

GoA—Goldsboro fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: c0g4
Elevation: 0 to 450 feet
Mean annual precipitation: 40 to 67 inches
Mean annual air temperature: 52 to 77 degrees F
Frost-free period: 217 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Goldsboro, (poarch), and similar soils: 85 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Goldsboro, (poarch)

Setting

Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Fine-loamy fluviomarine deposits derived from sedimentary rock

Typical profile

H1 - 0 to 10 inches: fine sandy loam
H2 - 10 to 32 inches: loam

H3 - 32 to 66 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 30 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Grady

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Gr—Grady soils

Map Unit Setting

National map unit symbol: c0g7
Elevation: 100 to 450 feet
Mean annual precipitation: 40 to 67 inches
Mean annual air temperature: 52 to 77 degrees F
Frost-free period: 217 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Grady and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grady

Setting

Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave

Across-slope shape: Concave
Parent material: Clayey marine deposits derived from sedimentary rock

Typical profile

H1 - 0 to 10 inches: silty clay loam
H2 - 10 to 33 inches: clay loam
H3 - 33 to 65 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Hb—Hyde, Bayboro, and Muck soils

Map Unit Setting

National map unit symbol: c0gf
Elevation: 0 to 450 feet
Mean annual precipitation: 40 to 67 inches
Mean annual air temperature: 52 to 77 degrees F
Frost-free period: 217 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Hyde, (johnson), and similar soils: 40 percent
Dorovan and similar soils: 30 percent
Bayboro, (pamlico), and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hyde, (johnson)

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy marine deposits derived from sedimentary rock

Typical profile

H1 - 0 to 18 inches: loam

H2 - 18 to 54 inches: loamy sand
H3 - 54 to 72 inches: sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Description of Bayboro, (pamlico)

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey marine deposits derived from sedimentary rock

Typical profile

Oa - 0 to 30 inches: muck
H2 - 30 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 14.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Description of Dorovan

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave

Across-slope shape: Concave
Parent material: Highly decomposed woody organic material over sandy marine deposits derived from sedimentary rock

Typical profile

Oi - 0 to 3 inches: mucky peat
Oa - 3 to 74 inches: muck
H3 - 74 to 99 inches: loamy sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 13.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

MaA—Malbis fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w8xv
Elevation: 30 to 380 feet
Mean annual precipitation: 57 to 69 inches
Mean annual air temperature: 61 to 70 degrees F
Frost-free period: 215 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Malbis and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malbis

Setting

Landform: Fluviomarine terraces
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits over loamy to clayey fluviomarine deposits

Typical profile

Ap - 0 to 13 inches: fine sandy loam
BE - 13 to 17 inches: loam
Bt - 17 to 35 inches: sandy clay loam
Btv1 - 35 to 52 inches: sandy clay loam
Btv2 - 52 to 70 inches: sandy clay loam
2Btvg - 70 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 31 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Hydric soil rating: No

MaB—Malbis fine sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2w8xx
Elevation: 30 to 380 feet
Mean annual precipitation: 57 to 69 inches
Mean annual air temperature: 61 to 70 degrees F
Frost-free period: 215 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Malbis and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malbis

Setting

Landform: Fluviomarine terraces
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits over loamy to clayey fluviomarine deposits

Typical profile

Ap - 0 to 13 inches: fine sandy loam
BE - 13 to 17 inches: loam
Bt - 17 to 35 inches: sandy clay loam
Btv1 - 35 to 52 inches: sandy clay loam
Btv2 - 52 to 70 inches: sandy clay loam
2Btvg - 70 to 79 inches: loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 31 to 55 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Baldwin County, Alabama

Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
Bb—Bibb and Mantachie soils, local alluvium														
Bibb	40	B/D	0-4	Silt loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0- 0- 0	0- 0- 0	95-98-100	90-95-100	60-75-90	30-45-60	0-25 -35	NP-6 -12
			4-60	Sandy loam, loam, silt loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0- 0- 0	0- 0- 0	60-80-100	50-75-100	40-70-100	30-60-90	0-27 -31	NP-9 -12
Mantachie	30	B/D	0-11	Silt loam	CL-ML, SC-SM	A-4	0- 0- 0	0- 0- 0	95-98-100	90-95-100	60-73-85	40-50-60	21-29 -37	4-9 -13
			11-61	Loam, clay loam, sandy clay loam	CL, SC, SC-SM	A-6	0- 0- 0	0- 3- 5	95-98-100	90-95-100	80-88-95	45-63-80	28-37 -47	12-18-24
GoA—Goldsboro fine sandy loam, 0 to 2 percent slopes														
Goldsboro, (poarch)	85	C	0-10	Fine sandy loam	SC-SM, SM	A-2-4, A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	70-83-95	30-40-50	17-23 -28	2-6 -10
			10-32	Loam, fine sandy loam, silt loam	CL, CL-ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	85-90-95	51-63-75	19-24 -30	4-8 -12
			32-66	Loam, fine sandy loam, silt loam	CL, CL-ML	A-4	0- 0- 0	0- 0- 0	85-93-100	85-93-100	85-90-95	51-63-75	20-28 -35	6-11-17

Engineering Properties–Baldwin County, Alabama															
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
Gr—Grady soils														
Grady	85	C/D	0-10	Silty clay loam	SC, SC-SM, CL	A-7, A-2	0- 0- 0	0- 0- 0	100-100-100	99-100-100	85-93-100	25-38-50	38-51-56	19-27-28
			10-33	Clay loam, sandy clay loam, loam	CL	A-7, A-6	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	51-66-80	30-40-49	13-19-24
			33-65	Clay, sandy clay	CH	A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	55-73-90	52-63-75	32-40-47
Hb—Hyde, Bayboro, and Muck soils														
Hyde, (johnson)	40	A/D	0-18	Loam	ML, SM	A-2, A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	60-80-100	18-42-65	23-34-46	2-7 -12
			18-54	Loamy sand	SM, SP-SM	A-3, A-2	0- 0- 0	0- 0- 0	100-100-100	100-100-100	50-75-100	5-18- 30	0-21 -30	NP-2 -7
			54-72	Sandy loam	SM	A-2, A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	50-75-100	25-37-49	16-25-35	2-8 -13
Bayboro, (pamlico)	30	A/D	0-30	Muck	PT	—	0- 0- 0	0- 0- 0	—	—	—	—	—	—
			30-60	Loamy sand, sand, loamy fine sand	SM	A-2-4, A-2	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-83-95	5-13- 20	17-25-33	2-4 -6
Dorovan	30	B/D	0-3	Mucky peat	PT	A-8	0- 0- 0	0- 0- 0	—	—	—	—	0-0 -0	—
			3-74	Muck	PT	—	0- 0- 0	0- 0- 0	—	—	—	—	0-0 -0	—
			74-99	Sand, loamy sand, loam	SC-SM, SM, SP-SM	A-1, A-2-4, A-3, A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	5-38- 70	5-27- 49	0-19 -31	NP-3-10

Engineering Properties–Baldwin County, Alabama														
Map unit symbol and soil name	**Pct. of map unit**	**Hydrologic group**	**Depth**	**USDA texture**	**Classification**		**Pct Fragments**		**Percentage passing sieve number—**				**Liquid limit**	**Plasticity index**
					Unified	**AASHTO**	**>10 inches**	**3-10 inches**	**4**	**10**	**40**	**200**		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
MaA—Malbis fine sandy loam, 0 to 2 percent slopes														
Malbis	85	C	0-13	Fine sandy loam	SM, SC-SM, CL	A-4, A-2-4	0- 0- 0	0- 0- 0	100-100-100	79-96-100	69-91-100	33-46-56	17-26-31	1-6 -9
			13-17	Loam, fine sandy loam, sandy loam	CL, SC-SM	A-4, A-6	0- 0- 0	0- 0- 0	100-100-100	79-96-100	69-92-100	39-56-64	20-27-31	4-10-13
			17-35	Sandy clay loam, loam, clay loam	SC, CL	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	79-96-100	70-92-100	43-58-71	30-34-44	13-16-24
			35-52	Sandy clay loam, loam, clay loam	SC, CL	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	80-96-100	71-93-100	42-56-69	30-33-43	13-16-24
			52-70	Sandy clay, clay loam, sandy clay loam, loam	SC, CL	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	80-96-100	69-91-100	40-55-67	29-38-48	13-20-28
			70-79	Loam, sandy clay loam, clay, sandy loam, clay loam	CL, CH, SC-SM	A-6, A-7-6, A-4	0- 0- 0	0- 0- 0	100-100-100	80-97-100	66-89-100	43-67-80	20-29-52	6-13-32

Engineering Properties–Baldwin County, Alabama															
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
MaB—Malbis fine sandy loam, 2 to 5 percent slopes														
Malbis	80	C	0-13	Fine sandy loam	SC-SM, CL, SM	A-4, A-2-4	0- 0- 0	0- 0- 0	100-100-100	79-96-100	69-91-100	33-46-56	17-26-31	1-6 -9
			13-17	Fine sandy loam, sandy loam, loam	CL, SC-SM	A-4, A-6	0- 0- 0	0- 0- 0	100-100-100	79-96-100	69-92-100	39-56-64	20-27-31	4-10-13
			17-35	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	79-96-100	70-92-100	43-58-71	30-34-44	13-16-24
			35-52	Clay loam, sandy clay loam, loam	CL, SC	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	80-96-100	71-93-100	42-56-69	30-33-43	13-16-24
			52-70	Clay loam, sandy clay loam, loam, sandy clay	CL, SC	A-7-6, A-6	0- 0- 0	0- 0- 0	100-100-100	80-96-100	69-91-100	40-55-67	29-38-48	13-20-28
			70-79	Sandy clay loam, sandy loam, clay loam, clay, loam	CL, CH, SC-SM	A-4, A-7-6, A-6	0- 0- 0	0- 0- 0	100-100-100	80-97-100	66-89-100	43-67-80	20-29-52	6-13-32

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Baldwin County, Alabama

Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
Bb—Bibb and Mantachie soils, local alluvium														
Bibb	40	B/D	0-4	Silt loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0- 0- 0	0- 0- 0	95-98-100	90-95-100	60-75-90	30-45-60	0-25 -35	NP-6 -12
			4-60	Sandy loam, loam, silt loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0- 0- 0	0- 0- 0	60-80-100	50-75-100	40-70-100	30-60-90	0-27 -31	NP-9 -12
Mantachie	30	B/D	0-11	Silt loam	CL-ML, SC-SM	A-4	0- 0- 0	0- 0- 0	95-98-100	90-95-100	60-73-85	40-50-60	21-29 -37	4-9 -13
			11-61	Loam, clay loam, sandy clay loam	CL, SC, SC-SM	A-6	0- 0- 0	0- 3- 5	95-98-100	90-95-100	80-88-95	45-63-80	28-37 -47	12-18-24
GoA—Goldsboro fine sandy loam, 0 to 2 percent slopes														
Goldsboro, (poarch)	85	C	0-10	Fine sandy loam	SC-SM, SM	A-2-4, A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	70-83-95	30-40-50	17-23 -28	2-6 -10
			10-32	Loam, fine sandy loam, silt loam	CL, CL-ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	85-90-95	51-63-75	19-24 -30	4-8 -12
			32-66	Loam, fine sandy loam, silt loam	CL, CL-ML	A-4	0- 0- 0	0- 0- 0	85-93-100	85-93-100	85-90-95	51-63-75	20-28 -35	6-11-17

Engineering Properties–Baldwin County, Alabama														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
Gr—Grady soils														
Grady	85	C/D	0-10	Silty clay loam	SC, SC-SM, CL	A-7, A-2	0- 0- 0	0- 0- 0	100-100-100	99-100-100	85-93-100	25-38-50	38-51-56	19-27-28
			10-33	Clay loam, sandy clay loam, loam	CL	A-7, A-6	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	51-66-80	30-40-49	13-19-24
			33-65	Clay, sandy clay	CH	A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	55-73-90	52-63-75	32-40-47
Hb—Hyde, Bayboro, and Muck soils														
Hyde, (johnson)	40	A/D	0-18	Loam	ML, SM	A-2, A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	60-80-100	18-42-65	23-34-46	2-7 -12
			18-54	Loamy sand	SM, SP-SM	A-3, A-2	0- 0- 0	0- 0- 0	100-100-100	100-100-100	50-75-100	5-18- 30	0-21 -30	NP-2 -7
			54-72	Sandy loam	SM	A-2, A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	50-75-100	25-37-49	16-25-35	2-8 -13
Bayboro, (pamlico)	30	A/D	0-30	Muck	PT	—	0- 0- 0	0- 0- 0	—	—	—	—	—	—
			30-60	Loamy sand, sand, loamy fine sand	SM	A-2-4, A-2	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-83-95	5-13- 20	17-25-33	2-4 -6
Dorovan	30	B/D	0-3	Mucky peat	PT	A-8	0- 0- 0	0- 0- 0	—	—	—	—	0-0 -0	—
			3-74	Muck	PT	—	0- 0- 0	0- 0- 0	—	—	—	—	0-0 -0	—
			74-99	Sand, loamy sand, loam	SC-SM, SM, SP-SM	A-1, A-2-4, A-3, A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	5-38- 70	5-27- 49	0-19 -31	NP-3 -10

Engineering Properties–Baldwin County, Alabama														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
MaA—Malbis fine sandy loam, 0 to 2 percent slopes														
Malbis	85	C	0-13	Fine sandy loam	SM, SC-SM, CL	A-4, A-2-4	0- 0- 0	0- 0- 0	100-100-100	79-96-100	69-91-100	33-46-56	17-26-31	1-6 -9
			13-17	Loam, fine sandy loam, sandy loam	CL, SC-SM	A-4, A-6	0- 0- 0	0- 0- 0	100-100-100	79-96-100	69-92-100	39-56-64	20-27-31	4-10-13
			17-35	Sandy clay loam, loam, clay loam	SC, CL	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	79-96-100	70-92-100	43-58-71	30-34-44	13-16-24
			35-52	Sandy clay loam, loam, clay loam	SC, CL	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	80-96-100	71-93-100	42-56-69	30-33-43	13-16-24
			52-70	Sandy clay, clay loam, sandy clay loam, loam	SC, CL	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	80-96-100	69-91-100	40-55-67	29-38-48	13-20-28
			70-79	Loam, sandy clay loam, clay, sandy loam, clay loam	CL, CH, SC-SM	A-6, A-7-6, A-4	0- 0- 0	0- 0- 0	100-100-100	80-97-100	66-89-100	43-67-80	20-29-52	6-13-32

Engineering Properties–Baldwin County, Alabama														
Map unit symbol and soil name	**Pct. of map unit**	**Hydrologic group**	**Depth**	**USDA texture**	**Classification**		**Pct Fragments**		**Percentage passing sieve number—**				**Liquid limit**	**Plasticity index**
					Unified	**AASHTO**	**>10 inches**	**3-10 inches**	**4**	**10**	**40**	**200**		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
MaB—Malbis fine sandy loam, 2 to 5 percent slopes														
Malbis	80	C	0-13	Fine sandy loam	SC-SM, CL, SM	A-4, A-2-4	0- 0- 0	0- 0- 0	100-100-100	79-96-100	69-91-100	33-46-56	17-26-31	1-6 -9
			13-17	Fine sandy loam, sandy loam, loam	CL, SC-SM	A-4, A-6	0- 0- 0	0- 0- 0	100-100-100	79-96-100	69-92-100	39-56-64	20-27-31	4-10-13
			17-35	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	79-96-100	70-92-100	43-58-71	30-34-44	13-16-24
			35-52	Clay loam, sandy clay loam, loam	CL, SC	A-6, A-7-6	0- 0- 0	0- 0- 0	100-100-100	80-96-100	71-93-100	42-56-69	30-33-43	13-16-24
			52-70	Clay loam, sandy clay loam, loam, sandy clay	CL, SC	A-7-6, A-6	0- 0- 0	0- 0- 0	100-100-100	80-96-100	69-91-100	40-55-67	29-38-48	13-20-28
			70-79	Sandy clay loam, sandy loam, clay loam, clay, loam	CL, CH, SC-SM	A-4, A-7-6, A-6	0- 0- 0	0- 0- 0	100-100-100	80-97-100	66-89-100	43-67-80	20-29-52	6-13-32

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

May 23, 2025

Mr. Raymond Peed
TR Peed Properties LLC
52350 Hwy 225
Stockton, AL 36579

Re: *Wetland Jurisdictional Assessment*
1100 US Highway 31 S, Bay Minette, Baldwin County, AL
WSI Reference #2025-430

Dear Mr. Peed,

As requested, Wetland Sciences, Inc. has completed a field wetland assessment for a property located at 1100 US Highway 31 S, Baldwin County, Alabama. The Baldwin County Revenue Commission identifies the property with parcel identification number (PIN): 72510 (See site location map in **Exhibit A**). The following is a summary of our findings.

Wetland Delineation

The purpose of performing the wetland assessment was to assess if wetlands or Waters of the United States (WOTUS) are present and, if so, to identify the boundaries. The wetland delineation was conducted in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Federal – Corps). The following is a summary of our findings.

Desktop Review

Prior to performing the delineation, several remote data sources were reviewed to assist with identifying potential WOTUS and wetland areas at the site. Each source of data is described in detail below.

Natural Resource Conservation Service Soil Survey

WSI reviewed the Natural Resources Conservation Service (NRCS) on-line Web Soil Survey (WSS) to identify soil types within the subject property. The soil survey identifies three (3) soil types within the subject property: Bibb and Mantachie soils, local alluvium, Goldsboro fine sandy loam, and Grady soils. These soils are fully described in the Custom Soil Survey Report in **Exhibit B**.

Bibb and Mantachie soils, local alluvium and Grady soils are considered hydric with a hydric rating of 40 and 85% respectively (See Hydric Soil Map in **Exhibit C**). This rating indicates the percentage of map units that meet the criteria for hydric soils. This essentially suggests there is a very low probability of hydric soil being located within the subject property. This information was consistent with the results of the field investigation.

Aerial Photograph

WSI reviewed current and historic aerial photographs to identify suspected wetland areas on the site and to determine changes in wetland areas over time (See Current Aerial in Exhibit D). No wetland or surface water signatures are evident on the subject property.

National Wetland Inventory Map

The US Fish and Wildlife Service (FWS) is the principal US Federal agency tasked with providing information to the public on the status and trends of our Nation's wetlands. The USFWS National Wetlands Inventory (NWI) is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of US wetlands. Prior to our field inspection of the property, Wetland Sciences, Inc. researched the U.S. Fish and Wildlife Service's National Wetland Inventory Data (See NWI Map in Exhibit E). The National Wetlands Inventory map does not suggest the presence of any wetlands on the subject property.

USGS Quadrangle Map

The USGS 7.5-minute quadrangle map and the National Map were reviewed (Exhibit F). The quad map does not suggest that surface waters associated with wetlands or Waters of the United States (WOTUS) are present on the subject property.

Field Review

The desktop review was followed by a pedestrian survey. I personally inspected the property on May 22, 2025. During the site walkover, I examined the parcel utilizing methods referenced in the Corps of Engineers Wetland Delineation Manual, 1987 and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region.

The purpose of performing the wetland assessment was to assess if wetlands or Waters of the United States (WOTUS) are present and, if so, to identify the boundaries. The assessment was performed in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Federal – Corps) via a pedestrian survey covering 100% of the subject property. During inspection of the property, I used technical criteria, field indicators, historic aerial photographs, and other sources of information to assess the site. The evaluation methods followed the routine on-site determination method referenced in the Corps of Engineers Wetland Delineation Manual.

Wetlands generally have three essential characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. The techniques for evaluating the plant community, soils, and hydrology are described in the following sections.

Hydric Soils Assessment

Several soil test holes located within potential wetland areas were evaluated to identify field indications of hydric soils. WSI utilized the hydric soil definition provided by the National Technical Committee for

Hydric Soils and criteria to determine whether soils within the site are considered hydric. During our field inspection of the property, no hydric soils were identified within the subject property.

Wetland Hydrology Assessment

Visual indicators of wetland hydrology were evaluated. Examples of primary wetland hydrology indicators include, but are not limited to, surface water, high water table, soil saturation, water marks, sediment deposits, drift deposits, iron deposits, inundation visible on aerial imagery, sparsely vegetated concave surface, and water-stained leaves. If at least one primary or two secondary indicators are observed, the data point locations were in areas identified as "potential wetlands"

No primary and secondary indicators of hydrology were noted within the property.

Plant Community Assessment

The subject property can be described as disturbed uplands. The property was historically used as a parking lot.

Field Identification of Wetlands

During the site inspection, Wetland Sciences, Inc. did not identify wetlands or surface waters under the regulatory jurisdiction of either the Department of the Army Corps of Engineers and/or Alabama Department of Environmental Protection within the subject property. <u>It is our opinion that the entire parcel is comprised entirely of uplands</u> (see sketch **Exhibit G**). A data sheet is appended as **Exhibit H**.

Please be advised, the information presented within this report represents the professional opinion of the scientist that performed the work and is intended to furnish the client with the status of wetland resources on the site under consideration. It is the responsibility of the regulatory agencies to verify our approximation before this determination can be considered legally binding.

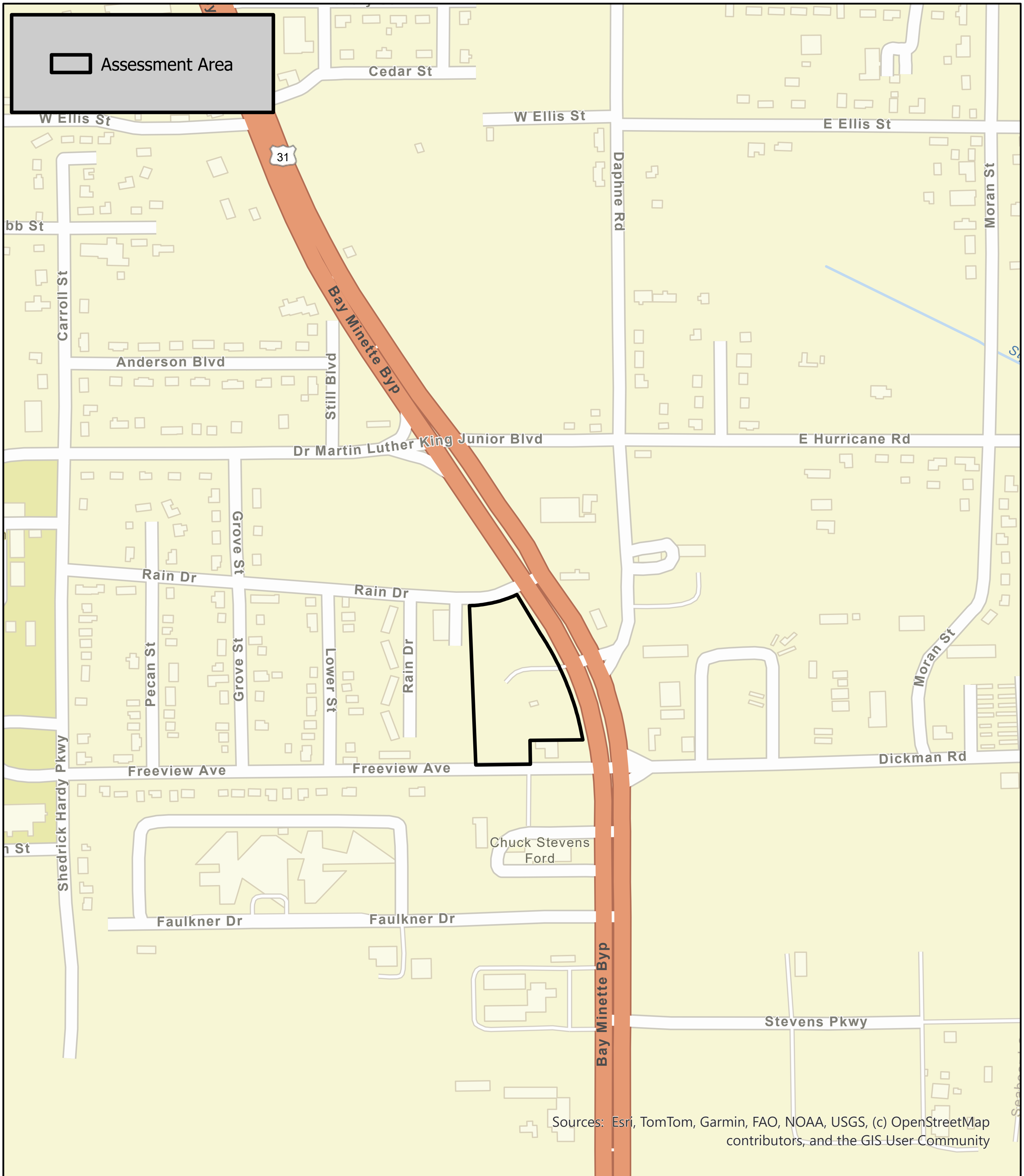
This concludes our report. Please call me with any questions.

Respectfully,
WETLAND SCIENCES, INC.

Craig D. Martin
Senior Scientist

Exhibit A

Site Location Map



WETLAND SCIENCES INCORPORATED

All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the usability of the information.

Site Location Map

1101 US Highway 31 S
Baldwin County, AL

0 0.04 0.08 0.15 0.23 0.3 Miles

Data Source:
ESRI
Imagery Source:
ESRI

Coordinate System:
NAD 1983 Alabama
State Plane West

N
W E
S

Exhibit B

Custom Soil Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Baldwin County, Alabama

May 23, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface...2
How Soil Surveys Are Made...5
Soil Map...8
Soil Map...9
Legend...10
Map Unit Legend...11
Map Unit Descriptions...11
Baldwin County, Alabama...13
Bb—Bibb and Mantachie soils, local alluvium...13
GoA—Goldsboro fine sandy loam, 0 to 2 percent slopes...14
Gr—Grady soils...15
References...17

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

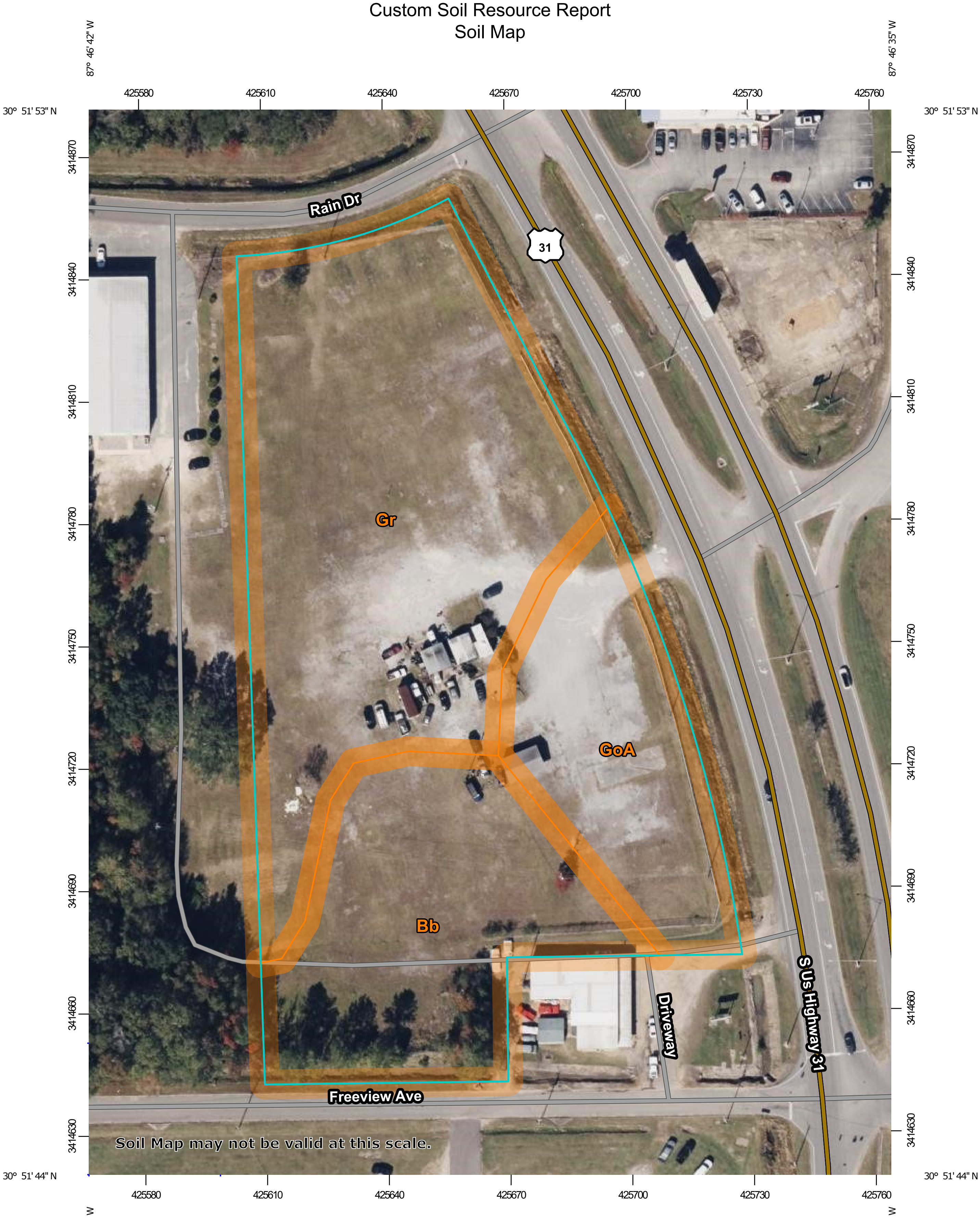
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:1,270 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 15, 30, 60, 90

Feet: 0, 50, 100, 200, 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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 1:20,000.

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: Baldwin County, Alabama
Survey Area Data: Version 17, Sep 10, 2024

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

Date(s) aerial images were photographed: Nov 12, 2021—Dec 22, 2021

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bb	Bibb and Mantachie soils, local alluvium	1.2	27.1%
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes	0.9	19.6%
Gr	Grady soils	2.5	53.3%
Totals for Area of Interest		**4.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Baldwin County, Alabama

Bb—Bibb and Mantachie soils, local alluvium

Map Unit Setting

National map unit symbol: c0dy
Elevation: 0 to 450 feet
Mean annual precipitation: 40 to 67 inches
Mean annual air temperature: 52 to 77 degrees F
Frost-free period: 217 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Bibb and similar soils: 40 percent
Mantachie and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bibb

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Stratified sandy and silty alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 4 inches: silt loam
H2 - 4 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Mantachie

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave

Parent material: Loamy alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 61 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: No

GoA—Goldsboro fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: c0g4
Elevation: 0 to 450 feet
Mean annual precipitation: 40 to 67 inches
Mean annual air temperature: 52 to 77 degrees F
Frost-free period: 217 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Goldsboro, (poarch), and similar soils: 85 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Goldsboro, (poarch)

Setting

Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Fine-loamy fluviomarine deposits derived from sedimentary rock

Typical profile

H1 - 0 to 10 inches: fine sandy loam
H2 - 10 to 32 inches: loam

H3 - 32 to 66 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 30 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Grady

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Gr—Grady soils

Map Unit Setting

National map unit symbol: c0g7
Elevation: 100 to 450 feet
Mean annual precipitation: 40 to 67 inches
Mean annual air temperature: 52 to 77 degrees F
Frost-free period: 217 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Grady and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grady

Setting

Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave

Across-slope shape: Concave
Parent material: Clayey marine deposits derived from sedimentary rock

Typical profile

H1 - 0 to 10 inches: silty clay loam
H2 - 10 to 33 inches: clay loam
H3 - 33 to 65 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

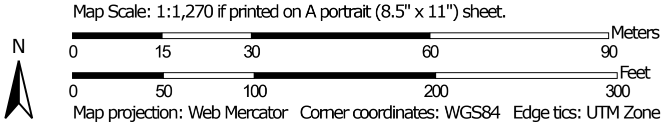
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Exhibit C

Hydric Rating Map

Hydric Rating by Map Unit—Baldwin County, Alabama
(Assessment Area)

Map Scale: 1:1,270 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Lines

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Points

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

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 1:20,000.

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: Baldwin County, Alabama
Survey Area Data: Version 17, Sep 10, 2024

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

Date(s) aerial images were photographed: Nov 12, 2021—Dec 22, 2021

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.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Bb	Bibb and Mantachie soils, local alluvium	40	1.2	27.1%
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes	5	0.9	19.6%
Gr	Grady soils	85	2.5	53.3%
Totals for Area of Interest			**4.6**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Exhibit D

Current Aerial

WETLAND SCIENCES INCORPORATED

All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the usability of the information.

Current Aerial

1101 US Highway 31 S
Baldwin County, AL

0 0.02 0.03 0.06 0.09 0.12 Miles

Data Source:
ESRI
Imagery Source:
ESRI

Coordinate System:
NAD 1983 Alabama
State Plane West

N W E S

Exhibit E

National Wetlands Inventory Map

WETLAND SCIENCES INCORPORATED

All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the usability of the information.

National Wetlands Inventory Map

1101 US Highway 31 S
Baldwin County, AL

0 0.02 0.03 0.06 0.09 0.12 Miles

Data Source:
USFWS
Imagery Source:
ESRI

Coordinate System:
NAD 1983 Alabama
State Plane West

N
W E
S

Exhibit F

Quad Map

WETLAND SCIENCES INCORPORATED

USGS Quad Map

1101 US Highway 31 S
Baldwin County, AL

0 0.02 0.05 0.1 0.15 0.19 Miles

Data Source:
USGS
Imagery Source:
ESRI

Coordinate System:
NAD 1983 Alabama State Plane West

N W E S

Exhibit G

Wetland Sketch

SHEET:	DATE:	DRAWN BY:	PROJECT NO.:
1 of 1	05/23/2025	JTC	2025-430

PPIN 72510
Baldwin County, AL

Sketch of Wetland Resources

NO.	DATE	APPR.	REVISION/ACTION TAKEN

ENVIRONMENTAL CONSULTANTS
3308 GULF BEACH HIGHWAY
PENSACOLA, FLORIDA 32507
TEL: 850.453.4700
KEITH@WETLANDSCIENCES.COM

WETLAND SCIENCES INCORPORATED

Exhibit H

USACE Data Sheet

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region** See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R	*OMB Control #: 0710-0024, Exp: 11/30/2024* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: PPIN 72510 City/County: Bay Minette / Baldwin County Sampling Date: 05/2025

Applicant/Owner: Raymond Peed State: AL Sampling Point: UPL-1

Investigator(s): Kevin McAuliffe, Jonah Cruz Section, Township, Range: Sec 21 Twp 2S R 3E

Landform (hillside, terrace, etc.): flats Local relief (concave, convex, none): none Slope (%): 0-5

Subregion (LRR or MLRA): LRR T, MLRA 152A Lat: 30.8634832° Long: -87.7781063° Datum: WGS84

Soil Map Unit Name: Grady soils NWI classification: Upl

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)

Are Vegetation x , Soil x , or Hydrology x significantly disturbed? Are "Normal Circumstances" present? Yes ___ No x

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No x	**Is the Sampled Area within a Wetland?**	**Yes** ___ **No** x
Hydric Soil Present?	Yes ___ No x		
Wetland Hydrology Present?	Yes ___ No x		

Remarks:
Historically cleared and graded. Rock gravel surface. Land disturbance occurred more than 30-years ago.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches): ___
Water Table Present?	Yes ___	No ___	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ___	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL-1

Tree Stratum (Plot size: 30-ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus virginiana*	1	No	FACU
2. *Triadica sebifera*	1	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	2	=Total Cover	
50% of total cover: 1		20% of total cover:	1

Sapling/Shrub Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30-ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Paspalum notatum*	98	Yes	FACU
2. *Imperata cylindrica*	2	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover:	20

Woody Vine Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	99	x 4 =	396
UPL species	2	x 5 =	10
Column Totals:	102 (A)		409 (B)

Prevalence Index = B/A = 4.01

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** x

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: UPL-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 6/8	100					Sandy	Historic fill
8-14	10YR 3/2	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(MLRA 149A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** x

Remarks: