

**Agri-Waste Technology, Inc.**  
501 N Salem Street, Suite 203, Apex, NC 27502  
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# *Soil Suitability for Domestic Sewage Treatment and Disposal Systems*

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Battery Dairy Road,  
Rockingham, NC. 28379  
Richmond County  
PIN: 746000930006

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Prepared For: Patty Connor

Prepared By: Jeff Vaughan, Ph.D., L.S.S.  
Senior Agronomist/Soil Scientist

Trevor Hackney  
Environmental Scientist

Report Date: November 22, 2024



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PREPARED FOR: Patty Conner

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Trevor Hackney

DATE: November 22, 2024

Soil suitability for domestic sewage treatment and disposal systems was evaluated on November 14, 2024, for the property located on Battery Dairy Road, Rockingham, NC. Trevor Hackney of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. A detailed soil evaluation of the land area will follow. Evaluation maps for the property are included in Attachment 1. A review of the soil and landscape characteristics that dictate soil suitability for domestic sewage treatment and disposal systems can be found in Attachment 2.

The total property area is approximately 56 acres. Two one-acre areas were selected by the client to be evaluated. The property is mostly wooded. The overall slope of the property ranges from 5-10% slopes. Surface waters and wetlands identified by USGS and by NWI are located throughout the property. Areas of unsuitable topography for septic systems were identified within the evaluation areas. These features can be seen on the maps in Attachment 1.

Soil Suitability for Domestic Sewage Treatment and Disposal Systems

The aerial map in Attachment 1 details the soil boring locations, contour data, and soil types. Three separate portions of the property identified by AWT meet the soil depth requirements for conventional septic systems. Area 2 is approximately 29,744 square feet. Area 3 is approximately 14,612 square feet. Area 4 is approximately 11,879 square feet. Area 1 would be better suited for subsurface drip septic systems and is approximately 16,025 square feet. This evaluation was a preliminary review to determine what potential this land might have for domestic sewage treatment and disposal systems. Therefore, specific types of septic systems, exact locations of future drain fields and

repair areas, building foundations, lot lines, etc. are not fully considered. These things will need to be more fully considered as the plans develop for the potential future of this site. It is likely that additional soil evaluations will be required so that septic system types and the location of a septic drain field can be more fully and appropriately considered.

Typical profile descriptions of the soil borings done for this property is in Attachment 2. Two distinct soil profiles were observed in the soil borings on the property: 1) Usable soil to 36 inches with a group 3 soil and 2) Usable soil to 28 inches prior to encountering soil wetness conditions (chroma 2 colors).

The mapped soil types on this property are Ailey, Johnston and Pelion soil series. The soil borings evaluated on this property were generally consistent with Ailey soil series.

#### Conclusions

Based on the results of this evaluation, the installation of conventional septic systems seems probable on this property in the areas 1, 2, and 3 designated on the maps in Attachment 1. Typically, 8,000-12,000 square feet are necessary for an individual conventional three or four-bedroom septic system. Any grading or disturbance to the soil could impact soil suitability for a septic system on the property. It will be critical to establish final lot lines select house footprints that allow enough room for primary and repair septic systems.

Sincerely,

Jeff Vaughan



Trevor Hackney



**Attachment 1: Evaluation Maps**

**Preliminary Soil Evaluation**

Patty Conner  
Richmond Co., NC  
PIN: 746000930006

GIS Acres: 57.1



**Area for Septic:**

Area 1 ~ 16,025 sq.ft.  
Area 2 ~ 29,744 sq.ft.  
Area 3 ~ 14,612 sq.ft.  
Area 4 ~ 11,879 sq.ft.

**Soil Types:**

AcB-Ailey loamy sand  
JmA-Johnston mucky loam  
PoB/PoC-Pelion loamy sand

**Note:**

Not in Riparian Buffer

- Parcel
- Parcel Setback 10'
- Soil Survey USGS Water
- Surface Water Setback 50'
- NWI Wetland
- Floodplain -AE

**Soil Boring Depth (in.)**

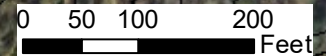
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**Evaluation**

- Area 1
- Area 2
- Area 3
- Area 4
- Unsuitable Topo
- Req. Eval Area

Drawn By: Julie Davidson  
Reviewed By: Trevor Hackney  
Date: 11/22/2024

**Battley Dairy Rd**





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**Preliminary Soil Evaluation**

Patty Conner  
Richmond Co., NC  
PIN: 746000930006

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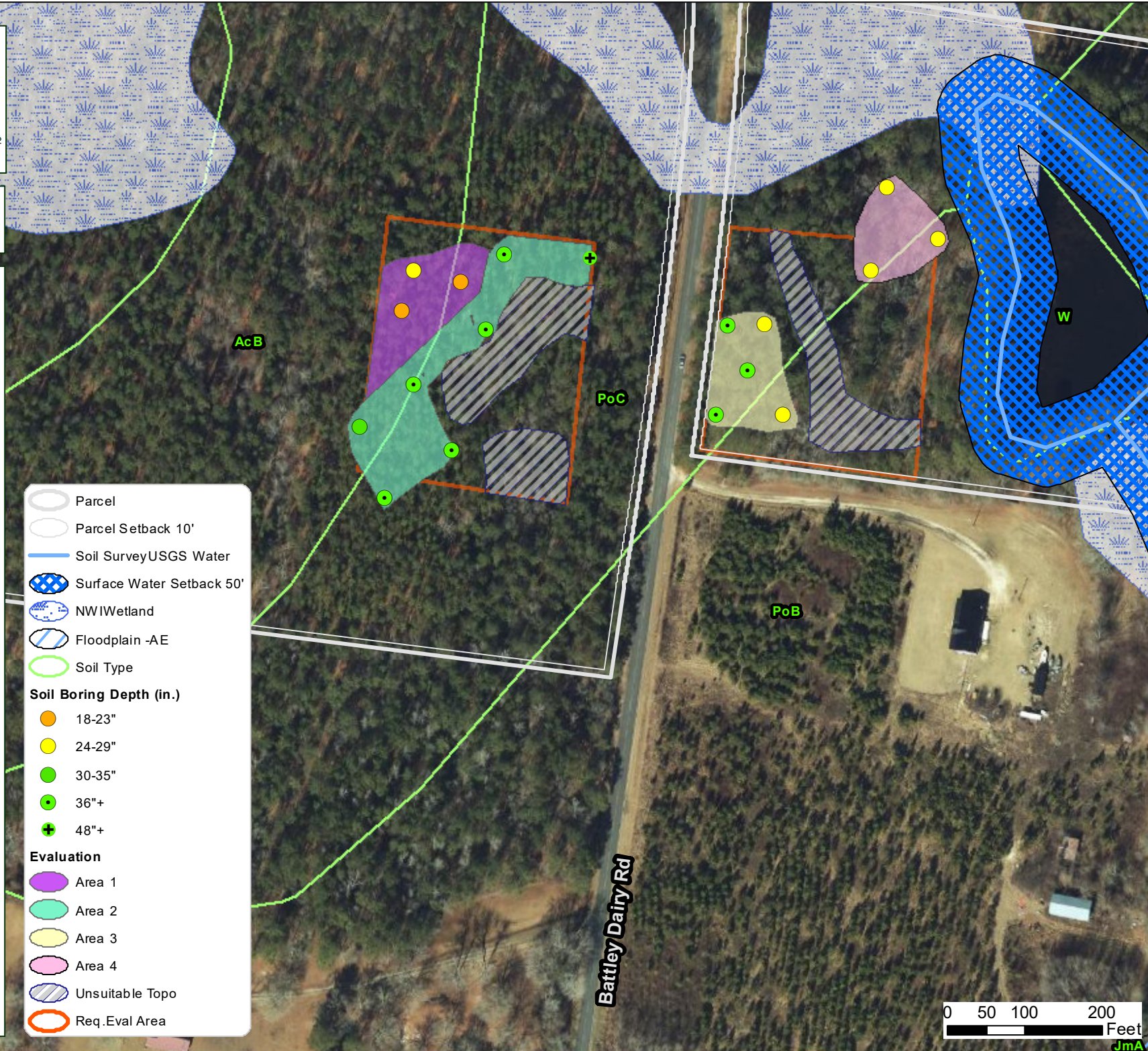
- AcB-Ailey loamy sand
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Note:

Not in Riparian Buffer

Drawn By: Julie Davidson  
Reviewed By: Trevor Hackney  
Date: 11/22/2024

	Parcel
	Parcel Setback 10'
	Soil Survey/USGS Water
	Surface Water Setback 50'
	NWI Wetland
	Floodplain -AE
	Soil Type
<b>Soil Boring Depth (in.)</b>	
	18-23"
	24-29"
	30-35"
	36"+
	48"+
<b>Evaluation</b>	
	Area 1
	Area 2
	Area 3
	Area 4
	Unsuitable Topo
	Req. Eval Area



\*Surface water and/or bad topo areas have not been officially evaluated for stream ID according to local regulatory requirements. This map is intended for preliminary purposes only and not to be used as a plat/survey or can it be assumed all streams are identified on this property.\*

**Attachment 2: Soil Boring Description Sheets**



**SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM**

BUYER: Patty Conner APPLICATION DATE: \_\_\_\_\_  
 ADDRESS: Battery Dairy Road, Rockingham, NC. 28379 EVALUATION DATE: 11/14/2024  
 PROPERTY ID: 746000930006 COUNTY: Richmond  
 PROPOSED FACILITY: Multiple SFR PROPOSED DESIGN FLOW (.0400): TBD PROPERTY SIZE: 56 ac.  
 LOCATION OF SITE: Battery Dairy Road, Rockingham, NC. 28379 PROPERTY RECORDED: \_\_\_\_\_  
 WATER SUPPLY:  Public  Single Family Well  Shared Well  Spring  Other \_\_\_\_\_ WATER SUPPLY SETBACK: 50'  
 EVALUATION METHOD:  Auger Boring  Pit  Cut TYPE OF WASTEWATER:  Domestic  High Strength  IPWW

P R O F I L E #	.0502 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY		OTHER PROFILE FACTORS				.0509 PROFILE CLASS & LTAR*	.0502(d) SLOPE CORRE CTION
			.0503 STRUCTURE/ TEXTURE	.0503 CONSISTENCE/ MINERALOGY	.0504 SOIL WETNESS/ COLOR	.0505 SOIL DEPTH	.0506 SAPRO CLASS	.0507 RESTR HORIZ		
1	5-10%	0-18"	GR; SL	SS; SP; FR	-	36"	-	-	-	-
		18-36"	WSBK; SCL	SS; SP; FR						
2	5-10%	0-10"	GR; S	SS; SP; FR	Chroma 2 Observed	28"	-	-	-	-
		10-28"	WSBK; SCL	SS; SP; FR						
		28+"	WSBK; SCL	SS; SP; FR						
3										
4										

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM	SITE CLASSIFICATION (.0509): _____ EVALUATED BY: <u>Trevor Hackney</u> OTHER(S) PRESENT: _____
Available Space (.0508)			
System Type(s)			
Site LTAR			
Maximum Trench Depth			

Comments: \_\_\_\_\_



# LEGEND

LANDSCAPE POSITION	SOIL GROUP	SOIL TEXTURE	CONVENTIONAL LTAR (gpd/ft <sup>2</sup> )	SAPROLITE LTAR (gpd/ft <sup>2</sup> )	LPP LTAR (gpd/ft <sup>2</sup> )	MINERALOGY/ CONSISTENCE		STRUCTURE
						MOIST	WET	
CC (Concave slope)	I	S (Sand)	0.8 - 1.2	0.6 - 0.8	0.4 - 0.6	MOIST	WET	SG (Single grain)
CV (Convex Slope)		LS (Loamy sand)		0.5 - 0.7		Lo (Loose)	NS (Non-sticky)	M (Massive)
D (Drainage way)	II	SL (Sandy loam)	0.6 - 0.8	0.4 - 0.6	0.3 - 0.4	VFR (Very friable)	SS (Slightly sticky)	GR (Granular)
FP (Flood plain)		L (Loam)		0.2 - 0.4		FR (Friable)	S (Sticky)	SBK (Subangular blocky)
FS (Foot slope)	III	SiL (Silt loam)	0.3 - 0.6	0.1 - 0.3	0.15 - 0.3	FI (Firm)	VS (Very sticky)	ABK (Angular blocky)
H (Head slope)		SCL (Sandy clay loam)		0.05 - 0.15**		VFI (Very firm)	NP (Non-plastic)	PR (Prismatic)
L (Linear Slope)		CL (Clay loam)		None		EFL (Extremely firm)	SP (Slightly plastic)	PL (Platy)
N (Nose slope)		SiCL (Silty clay loam)					P (Plastic)	VP (Very plastic)
R (Ridge/summit)		Si (Silt)						
S (Shoulder slope)	IV	SC (Sandy clay)	0.1 - 0.4	0.05 - 0.2	SEXP (Slightly expansive)			
T (Terrace)		SiC (Silty clay)			EXP (Expansive)			
TS (Toe Slope)		C (Clay)						
		O (Organic)	None					

\* Adjust LTAR due to depth, consistence, structure, soil wetness, landscape, position, wastewater flow and quality.

\*\*Sandy clay loam saprolite can only be used with advanced pretreatment in accordance with 15A NCAC 18E .1200.

**HORIZON DEPTH** In inches below natural soil surface

**DEPTH OF FILL** In inches from land surface

**RESTRICTIVE HORIZON** Thickness and depth from land surface

**SAPROLITE** S(suitable) or U(unsuitable); Evaluation of saprolite shall be by pits.

**SOIL WETNESS CLASSIFICATION** Inches from land surface to free water or inches from land surface to soil colors with chroma 2 or less - record Munsell color chip designation

S (Suitable) or U (Unsuitable)

**Show profile locations and other site features (dimensions, reference or benchmark, and North).**

