

# RECONNAISSANCE SOIL & SITE EVALUATION

Franklin Tract  
Franklin Road  
Hillsborough, NC 27278  
Job Number: 8122

Prepared For:

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July 24, 2022

*Michael G. Wood*



Michael G. Wood, LSS

## INTRODUCTION AND SITE DESCRIPTION

A Reconnaissance Soil & Site Evaluation was performed on approximately 10-acres of the 17.21-acre Franklin Tract located at 2912 Franklin Road, Hillsborough, Orange County, NC (PIN# 9884641077). Michael Wood, LSS was retained to evaluate the soil and site conditions and identify suitable areas for placement of on-site subsurface wastewater systems for a single-family residence. The property was evaluated in accordance with the “Laws and Rules for Sewage Treatment and Disposal Systems”, amended December 6, 2018.

The study area is a mix of open field and woods. The open field shows evidence of past manipulation; cut and fill areas. Septic system drainfields need to be placed in non-disturbed native soils, as such the field was deemed Unsuitable. There are several areas of surface rock outcrops/ boulder fields that will also partially compromise the utility of the some of the wooded sections. The study area will be served by a private well.

## INVESTIGATION METHODOLOGY

The field survey was conducted on July 22 and 24, 2022, by Michael G. Wood, LSS and Ethan T. Wood. Soil borings were advanced with hand-augers and soil color determined using a Munsell Soil Color Chart. Observations of the landscape as well as soil properties (depth, texture, structure, soil wetness, restrictive horizons, etc.) were recorded. Soil borings were described per the USDA-NRCS, *Field Book for Describing and Sampling Soils, Version 3.0*. Soil borings and site features are noted in Figure 1.

## FINDINGS

Seventeen (17) soil borings were advanced their placements located on Figure 1.

**Provisionally Suitable for Conventional Type Systems.** Borings Provisionally Suitable for Conventional Systems may include Gravel, Accepted, Alternative, Shallow-Placed, and prefabricated permeable block panel systems. While the particulars and costs between the system types can vary considerably, these are generally the preferred system types. The Provisionally Suitable borings ranged in depth from 26 to 32”. This soil appeared adequate to support a long-term acceptance rate (LTAR) of 0.25 to 0.275 GPD/sq-ft.

**Provisionally Suitable for Low-profile Chamber Systems.** Low-Profile Chamber systems are designed similarly to Conventional Type systems but are not allotted any reduction in drainfield size, thus will require more space than the typical Conventional Type systems. These soils require a minimum of 20” of suitable soil when factoring in slope corrections. This soil appeared adequate to support a LTAR of 0.25 GPD/sq-ft.

**Provisionally Suitable for Subsurface Drip Systems.** Subsurface Drip systems require a minimum of 13” of suitable soil. Soil with a restriction less than 17” will require the septic system to include a pretreatment unit that treats the wastewater to Treatment Standards II. Subsurface Drip systems are substantially more costly to install than Conventional Type and Low-Profile Chamber Systems. LTAR often need to be confirmed via in-situ hydraulic conductivity measurements, but these are expected to support an LTAR of 0.15 GPD/sq-ft.

**Unsuitable.** Borings classified as Unsuitable are due to a soil restriction within 12” of the soil surface.

## **DISCUSSION**

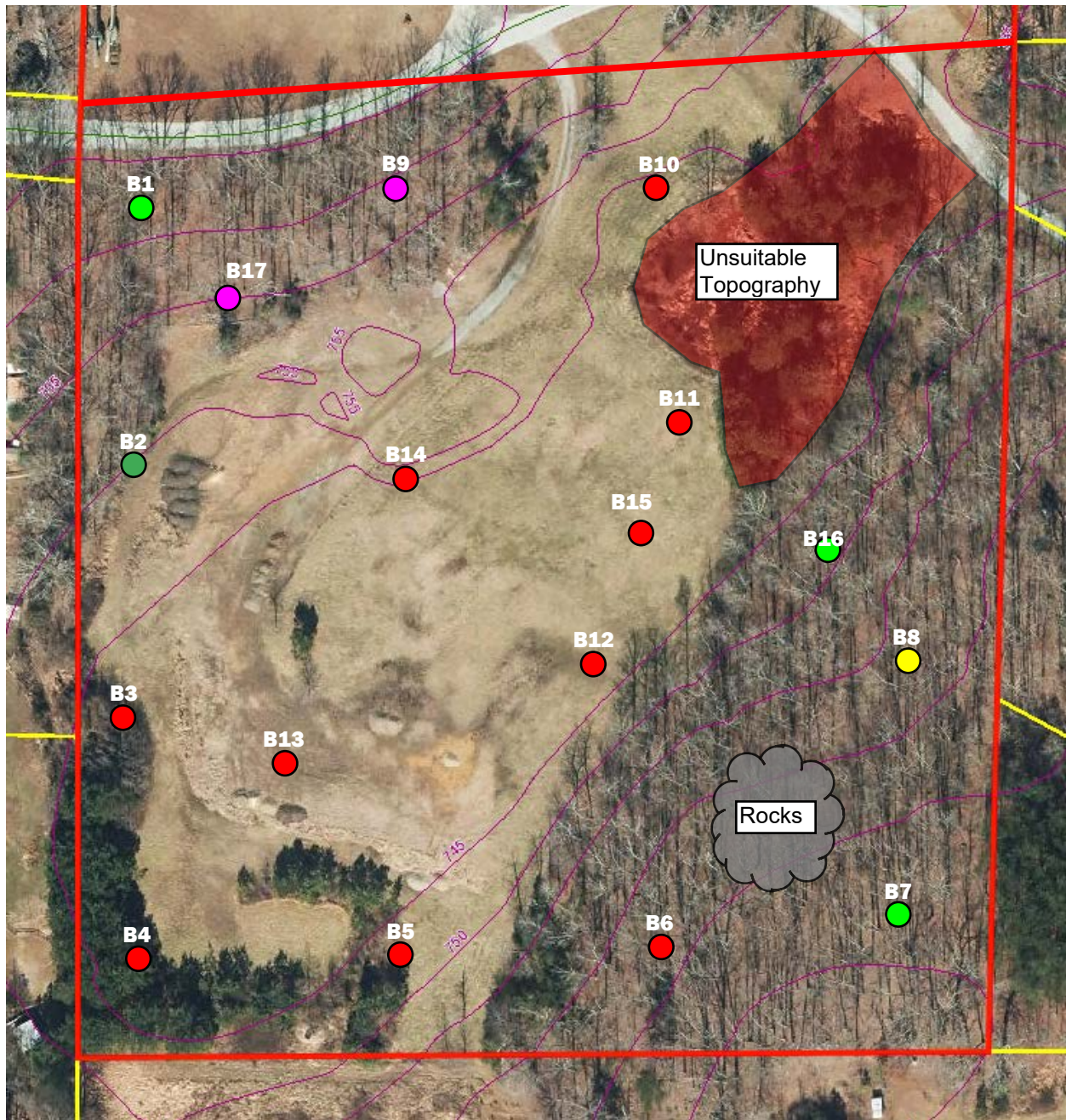
The wooded areas, particularly along the eastern property line, should be targeted for future subsurface septic systems. While several of the borings were classified as Provisionally Suitable for Conventional Type systems, they are relatively shallow to a soil restriction and additional borings in the vicinity may classify to a shallower type system (i.e. Low-Profile Chamber and/or Drip). There are also many areas with surface boulders and/or rock outcrops that may further constrain the septic drainfield. If these areas are to be used for drainfields, it is recommended that the system be field delineated to determine the system size, LTAR, and number of bedrooms it can support.

The open fields have fill material. There may be suitable soil below the fill, however auger borings did not reveal natural soil. The area could be evaluated via backhoe pits.

## **CONCLUSION**

The findings presented herein represent our professional opinion based on our Preliminary Soil and Site Evaluation and knowledge of the current laws and rules governing on-site wastewater systems in North Carolina. Soils naturally change across a landscape and contain many inclusions. As such, attempts to quantify them are not always precise and exact. Due to this inherent variability of soils and the subjectivity when determining limiting factors, there is no guarantee that a regulating authority will agree with the findings of this report.

# Figure 1. Franklin Tract



- Conventional Type
- Low-Profile Chamber
- Drip
- Unsuitable



# Soil Evaluation Form

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FRANKLIN TRACT

Sheet 1 of 2  
 Job: 8122  
 County: ORANGE  
 Date: 7/21/22

### Soil Borings

	1	2	3	4	5	6	7	8	9	10
Landscape Position	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
Slope (%)	50%	40%	2	40%	50%	10%	11%	13	12	4
Horizon 1 Depth	0-13	0-15	0-7	0-6	0-8	0-12	0-9	0-26	0-14	0-10
Texture	SIL	SIL	SICL	SIL	L	SL	SIL	SICL	SICL	CL
Consistence	FR	FR	FR	FR	FR	VFR	FR	VFR	VFR	FR
Structure	GR	GR	GR	GR	GR	GR	GR	GR	GR	SBK
Clay Mineralogy	N	N	N	N	N	N	N	S	S	S
Horizon 2 Depth	13-26	13-34	7+	6+	8+	12+	9-28	26+		
Texture	SIL	SIL	CR	CL	CL	CR	SL	CA		
Consistence	FR	FR	FR	FR	FR	FR	FR	FR		
Structure	SBK	SBK	M	M	M	M	SBK	M		
Clay Mineralogy	S	S	N	N	S	S	S			
Horizon 3 Depth	26+									
Texture	SICL									
Consistence	FR									
Structure	M									
Clay Mineralogy										
Horizon 4 Depth										
Texture										
Consistence										
Structure										
Clay Mineralogy										
Horizon 5 Depth										
Texture										
Consistence										
Structure										
Clay Mineralogy										
Soil Wetness										
Restrictive Horizon			FILL	FILL	FILL	12cr	28 AR	26cr	14 AR	FILL
Saprolite	26							26		
Other		231								
CLASSIFICATION	PS	PS	N	N	N	N	PS	LPC	DRIP	N
LTAR (gpd/ft <sup>2</sup> )	0.25	0.275					0.275	0.25		

Comments:

Evaluated by: M. Wood, E. Wood

# Soil Evaluation Form

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FRANKLIN TRACT

Sheet 2 of 2  
 Job: 8122  
 County: ORANGE  
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7/24/22  
 Soil Borings

	11	12	13	14	15	16	17			
Landscape Position	LS	LS	LS	LS	LS	LS	CS			
Slope (%)	2	1	1	1	1	1	8			
Horizon 1 Depth	0-18	0-0	0-7	0-17	0-12	0-8	0-5			
Texture	CL	SCL	SIL	SCL	Fill	G/SIL	SIL			
Consistence	Fr	Fr	Fr	Fr	Fr	Fr	Fr			
Structure	SBk	SBk	SBk	SBk	M	Gr	Gr			
Clay Mineralogy	S	S	S	S	S	S	S			
Horizon 2 Depth	18-20	0+	7+	17+		8-14	5-19			
Texture	CL	S.L	CH	S.L		SCL	SCL			
Consistence	Fr	Fr	Fr	Fr		Fr	Fr			
Structure	M	M	M	M		SBk	SBk			
Clay Mineralogy	S	S	S	S		S	S			
Horizon 3 Depth						14-22	19+			
Texture						S	AR			
Consistence						Fr				
Structure						SBk				
Clay Mineralogy						S				
Horizon 4 Depth						32+				
Texture						Cr				
Consistence						Fr				
Structure						Nb				
Clay Mineralogy						N				
Horizon 5 Depth										
Texture										
Consistence										
Structure										
Clay Mineralogy										
Soil Wetness										
Restrictive Horizon	FLU	FIL	FIL	FSL	FIL					
Saprolite							32	19AR		
Other										
CLASSIFICATION	U	U	U	U	U	RS	DRIP			
LTAR (gpd/ft <sup>2</sup> )										

Comments:

Evaluated by: M. Wood, E. Wood