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31 August 2023

NCT Specialty Contracting Inc.
700 Maple Brook Road
Fuquay Varina, NC 27526

Reference: Soil Investigation and Septic System Design
354 Deer Tail Lane, Fuquay Varina, Harnett Co., NC
PIN 0643-36-5782.000 Lot 37 Cotton Farms SD

Dear NCT Contracting Inc.,

A site investigation was conducted on 21 August 2023 for the above referenced property, which is located on the southern side of Deer Tail Lane in Harnett County, North Carolina. The purpose of the investigation was to determine the ability of this lot to support a subsurface sewage waste disposal system and 100% repair area for a typical four-bedroom home. Public water supplies will be utilized for this lot.

All ratings and determinations were made in accordance with "Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A .1900". This report represents my professional opinion but does not guarantee or represent permit approval for any lot by the Local Health Department. The permit you receive from the Local Health Department may contain some modifications or amendments to our submitted design. Please carefully review your permit and adhere to all prescribed requirements.

SOIL AND SITE INVESTIGATION

The soils were evaluated under moist soil conditions through the advancing of auger borings. This evaluation included observations of topography and landscape position, soil morphology (texture, structure, clay mineralogy, organics), soil wetness, soil depth, and restrictive horizons.

Soils in the proposed system area were observed to rate as provisionally suitable for subsurface sewage waste disposal systems. (Figure 1). The subsoils were observed to range from firm sandy clay loams to firm clays and extended to greater than 48 inches below ground surface. Evidence of a soil wetness condition was observed at 37 inches below surface or deeper within the area for the initial system and at 35 inches within the area for the repair system. These soils appear adequate to support long-term acceptance rates of 0.3 gal/day/ft² for chamber drainlines.

SEPTIC SYSTEM DESIGN

A 1000 gallon (at minimum) septic tank and an approved septic effluent filter is required. There appears to be adequate fall from the house to the initial drainfield for a gravity driven system; however, a pump tank (1000 gallon at minimum) should be added if gravity distribution cannot be demonstrated.

The initial septic system is proposed as a gravity driven system to 400 linear feet of Infiltrator Quick4 Plus standard chamber drainlines utilizing a 25% reduction in total drainline length (Figure 2). A long-term application rate (LTAR) of 0.3 gal/day/ft² was used to design the nitrification field. Effluent will be serially distributed to five unequal length drainlines, connected by overflow pipes. The drainlines shall be installed on contour at 19 inches below surface (low side). The maximum trench bottom depth on the high side should not exceed 24 inches.

The repair septic system is proposed as a pump to 268 linear feet of horizontal Prefabricated Permeable Block Panel System (PPBPS) drainlines. The long-term application rate (LTAR) used to design the drainfield was 0.3 gal/day/ft². A pressure manifold is recommended to deliver effluent to three unequal length drainlines installed on contour at 18 inches below surface (low side). The maximum trench bottom depth on the high side should not exceed 23 inches.

All regulatory setbacks for a septic system shall be maintained. Drainlines must be installed at least 9 feet apart on center. The septic system (including tanks) must be at least 10 feet from a property line, 5 feet from a home, 50 feet from a surface water, and 50 feet from an individual well, and 10 feet from a water line.

It is important that you do not disturb the septic areas during site construction. A staked line or protective fence should be placed around the system areas prior to construction to eliminate any potential damage to the soil or the layout of the system. Septic areas should not be used for staging construction materials or subjected to vehicular traffic. Do not cut, grade, fill, install utilities, or otherwise alter the designated septic areas.

CONCLUSION

This report and the attached septic system design information will need to be submitted to the Local Health Department for review and the permitting process. I appreciate the opportunity to provide this service and hope to be allowed to assist you again in the future. If you have any questions or need additional information, please contact me at your convenience.



Sincerely,

A handwritten signature in black ink that reads "Britt Wilson".

Britt Wilson
Licensed Soil Scientist

Figure 1. Soil Map showing Septic Suitability

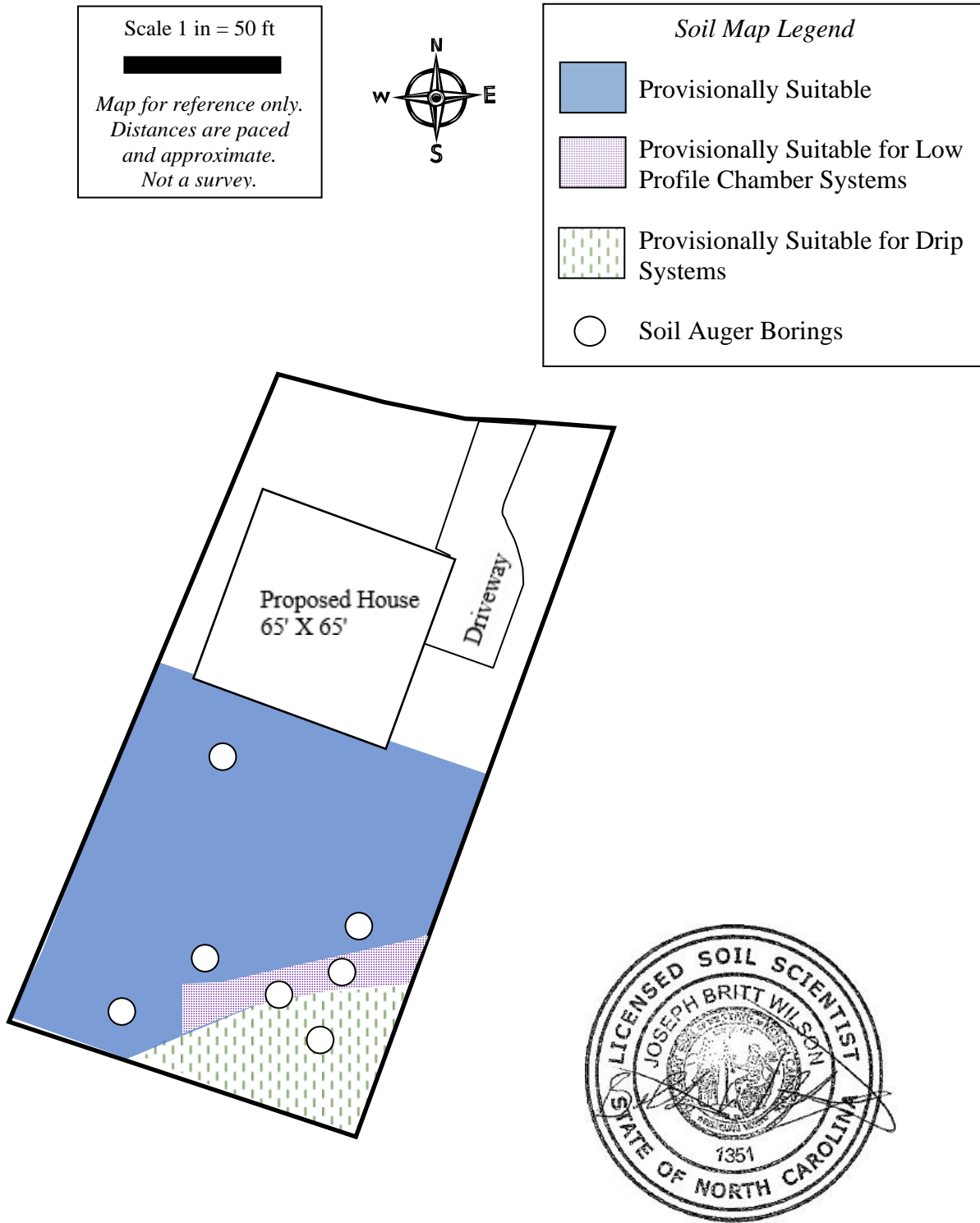


Figure 2. Septic System Layout

Potential Drainlines flagged at site on 9-ft centers.

Line #	Color	Relative Elevation (ft)	Drainline Length(ft)	Field Length(ft)
1	R	94.78	40	50
2	W	93.38	56	59
3	Y	92.11	72	72
4	B	90.89	116	120
5	R	89.96	116	115
6	W	89.17	112	120
7	Y	88.09	108	122
8	B	86.75	48	53
Septic Tank:		96.52		
Reference Elev		100.00		

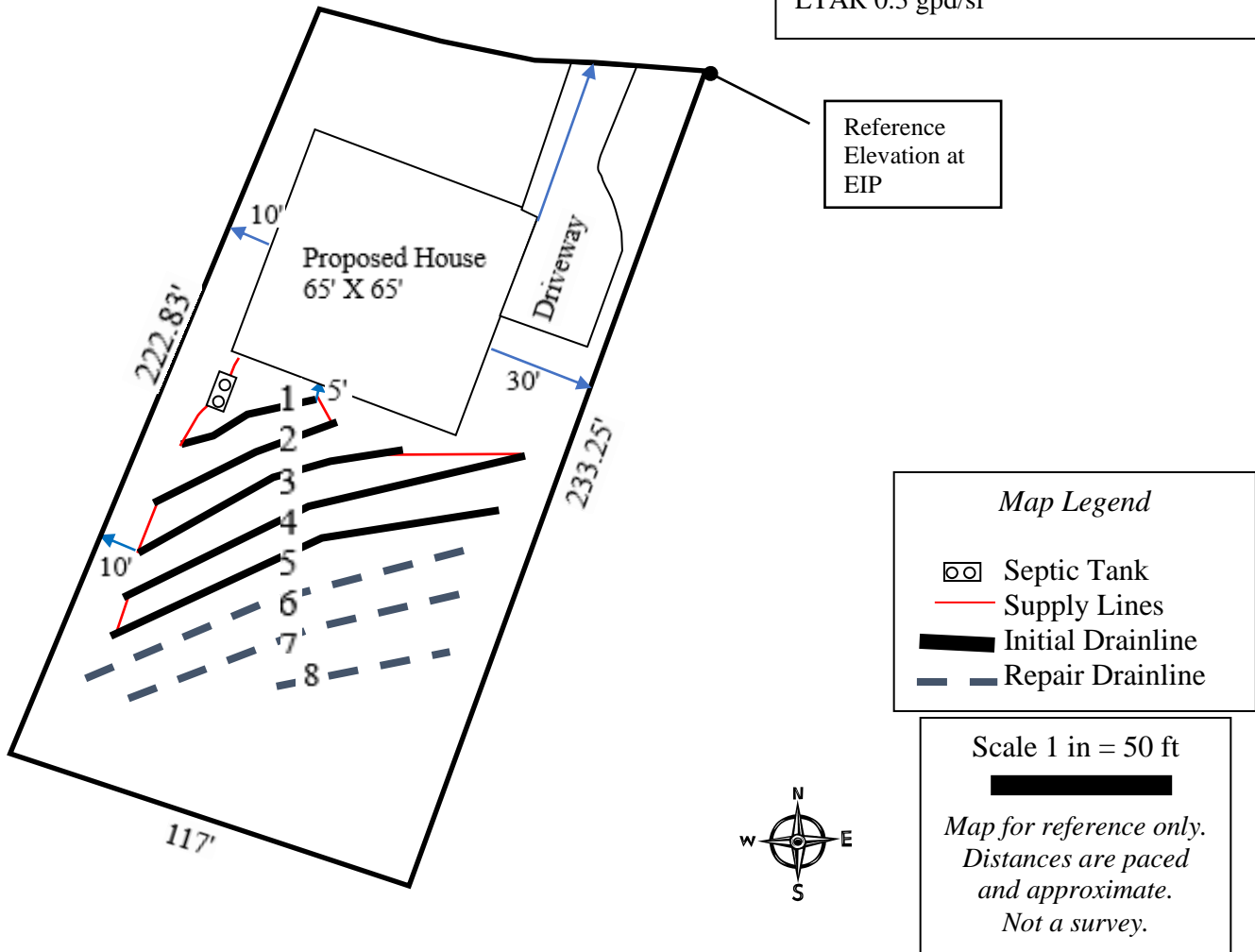
Initial System

Gravity to 1 X 400ft (3ft)
 Quick4 Standard Plus Chambers
 Installed on contour, at 19 inches.
 LTAR 0.3 gpd/sf

*Initial drainlines must be at least 9ft on center, 10ft from property line, 5ft from home, and 10ft from a water line

Repair System

Pump to 1 X 268ft (3ft)
 Horizontal Permeable Panel Block
 Installed on contour, at 18 inches.
 LTAR 0.3 gpd/sf



Reference Elevation at EIP

Map Legend

- Septic Tank
- Supply Lines
- Initial Drainline
- Repair Drainline

Scale 1 in = 50 ft

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*Map for reference only.
 Distances are paced and approximate.
 Not a survey.*