

**Saturday, October 10, 2020**

Kyle Swicegood  
277 N Main St  
Mocksville, NC 27028

Re: Parcel # B700000076 - Preliminary soil investigation

Mr. Swicegood,

Per your request, a soil/site investigation was performed on the above referenced property. This investigation was performed as part of the planning process for the sale of the reference property at auction. Work was conducted to adhere to requirements set forth in Rules .1901-.1968 of Title 15A Subchapter 18A of the North Carolina Administrative Code (T15A.18A.1901-.1968). Fieldwork was completed on Friday, October 9, 2020.

Soil borings were placed on suitable landscape positions across the property and soil characteristics such as texture, structure, mineralogy, wetness conditions, depth to saprolite, etc. were observed. The location of borings was mapped using handheld GPS equipment (Trimble Geo 7x) and borings were flagged, when possible using survey ribbon. All soil was evaluated with a hand auger.

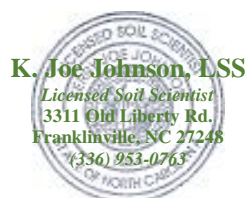
## **SITE DESCRIPTION**

This property is a site of established pasture, mixed hardwood forest, developed areas containing multiple structures. The site has an existing home, septic system, two known wells, and multiple barns, equipment sheds, and outbuildings. It is predominated by gently sloping to moderately sloping landscapes. The predominate soils of this property are weathered from granitic parent material.

## **FINDINGS**

There are three soil area types described in the map attached that were identified for septic system use during the evaluation of this property. The areas shown on the attached map are shaded according to their suitability for septic system types:

Red hatching represents areas, totaling just over 6.5 acres, of soil that are generally suited for conventional (gravel) or accepted system trenches. The predominance of the soils in these areas have suitable depths exceeding 30 inches. Due to greater depth of suitable soil, there are fewer



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limitations for system type allowing the use a less expensive system types as well as the luxury of utilization of space saving trench types like prefabricated permeable block panel systems. The areas shaded in the blue and red cross-hatching pattern are generally suitable for modified system types and total approximately 2/10 of an acre. These may include at-grade conventional and accepted systems, low-profile chamber, and large diameter pipe. Due to the shallow depth of installation of these system types, imported soil for capping of the drainfield may be required, driving up cost of installation.

The area in green stippling occupying approximately 8/10 of an acre is predominated with soils of suitable depths greater than 30 inches. However, due to the development of this area with buildings, driveways, etc. removal of the structures and additional investigation of the site using backhoe pits may be required to determine the final potential of the area. It is likely that this area of soil will render additional suitable septic sites. However, the need for further investigation means site suitability cannot be guaranteed at this time based upon the site and soil evaluation work that has been performed during the evaluation for this report.

Areas on the attached map that are unshaded in one of the above schemes contain areas of unsuitable soil, topography, or other limiting site conditions that would likely prevent permitting of septic sites.

### **SYSTEM DESIGN FOR CONVENTIONAL SEPTIC SYSTEMS**

Residential septic systems are sized according to the number of bedrooms and the value given to the soil in which the system will be installed. The design flow for a bedroom is 120 gallons per day (gpd). This assumes a two-person occupancy allowing 60 gallons per person per day. For example, a four-bedroom house would have a design daily flow of 480 gpd (four bedrooms at 120 gallons per bedroom). The soil is given a value, known as the Long Term Acceptance Rate (LTAR) that is dependent on the soil texture. Group IV soils (clays) have a LTAR range of 0.1-0.4 gallons per day per square foot. This number is an approximation of the amount of sewage effluent that can be absorbed and treated by one square foot of soil per day. The square footage requirement of the septic field is determined by dividing the design daily flow by the assigned LTAR. For example, a four-bedroom house with an LTAR of 0.30 gal/day/ft<sup>2</sup> would require 1600 ft<sup>2</sup> of drain field. The linear footage requirement is determined by dividing the square footage by the trench width (typically 3'). In this example, the four-bedroom house would require 533 linear feet of septic drain line.

The above example discusses the design of a standard conventional septic system. Other systems, such as LPP, LDP, etc, require additional steps for the system design.

### **CONCLUSION**

This property contains three distinct areas of soil suitable for use with septic systems. These areas are delineated on the maps attached to this report. Within any of these mapping units it is



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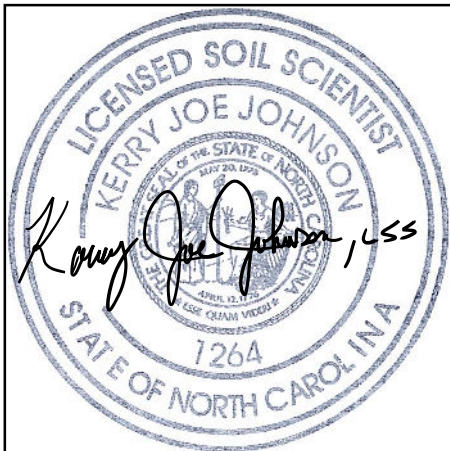
possible to find small inclusions of soil that are more limiting than indicated by the mapping designation. It may also be possible to find small inclusions of suitable soil in the areas mapped as unsuitable. It is my recommendation that further soil investigation be performed on this property before proceeding with any large scale development plans to further delineate the suitable soils into more defined mapping units. This is particularly important in the area designated as "developed" represented with green stippling. As with any preliminary evaluation, this report is no guarantee of the approval or permitting of any system for the sites indicated by this report or soil map. Any areas intended for use with septic systems should not be graded or filled. Failure to protect the soils of this property from disturbance could lead to rendering currently suitable sites unsuitable.

I am pleased to be of service in this matter and will be available to provide further assistance in the future if necessary, to aid in the successful completion of this project.

Sincerely,

  
Kerry Joe Johnson, LSS





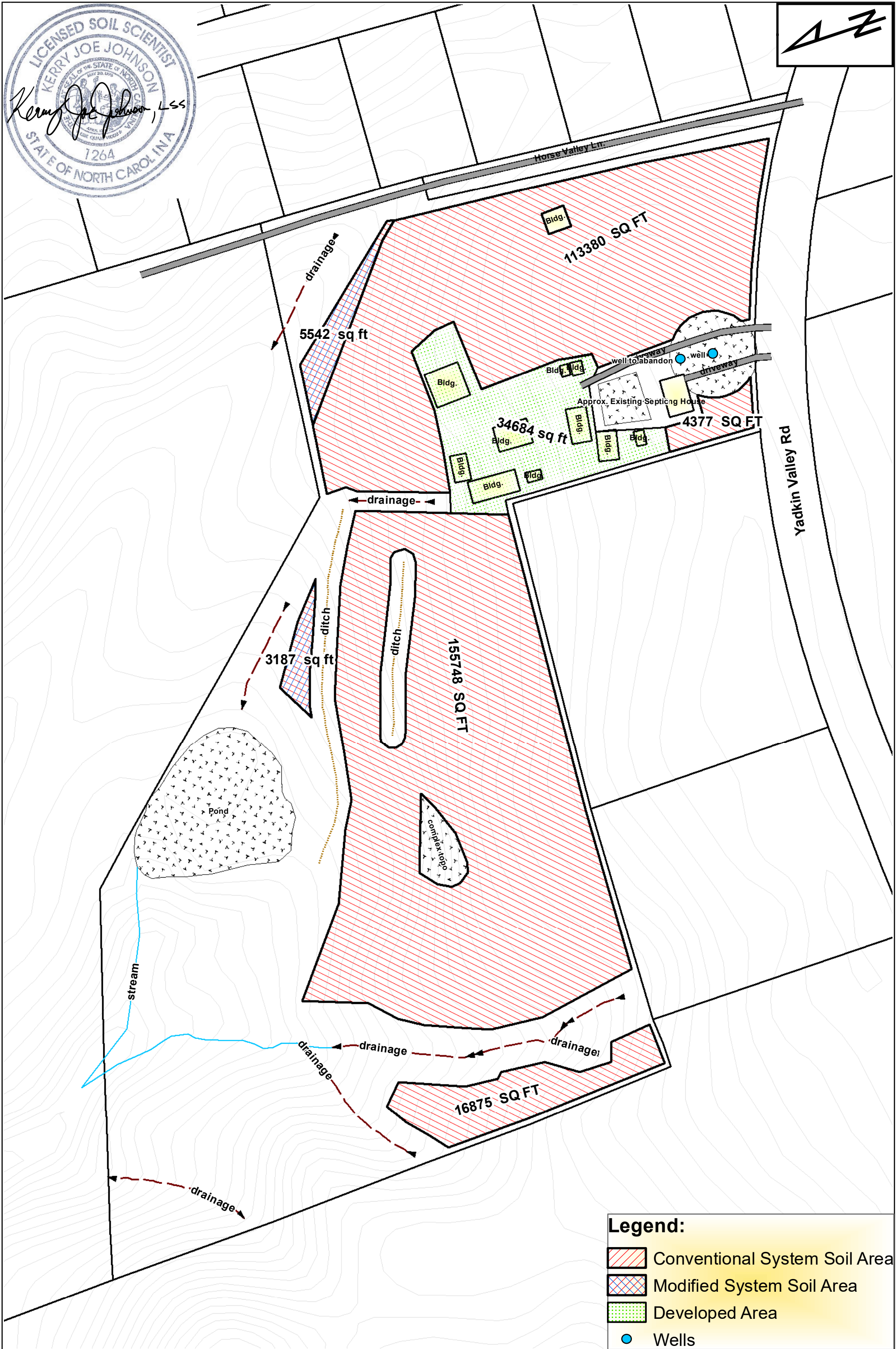
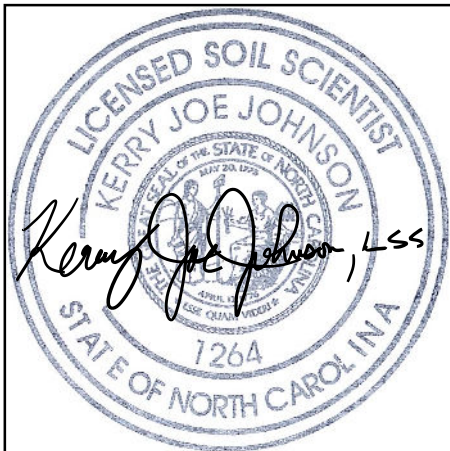
**Legend:**

- Conventional System Soil Area
- Modified System Soil Area
- Developed Area
- Wells

**1 inch = 100 feet**  
Base Map: Davie County GIS

**Swicegood Project**  
Yadkin Valley Rd. Advance, NC  
Davie County Parcel # B70000076

This document is intended for the identification of soil areas for use in development of the property in question and is not intended to substitute for a land survey not should it be used as legal documentation for land transfer. Note soil locations are approximate and do not infer in any way survey accuracy.



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