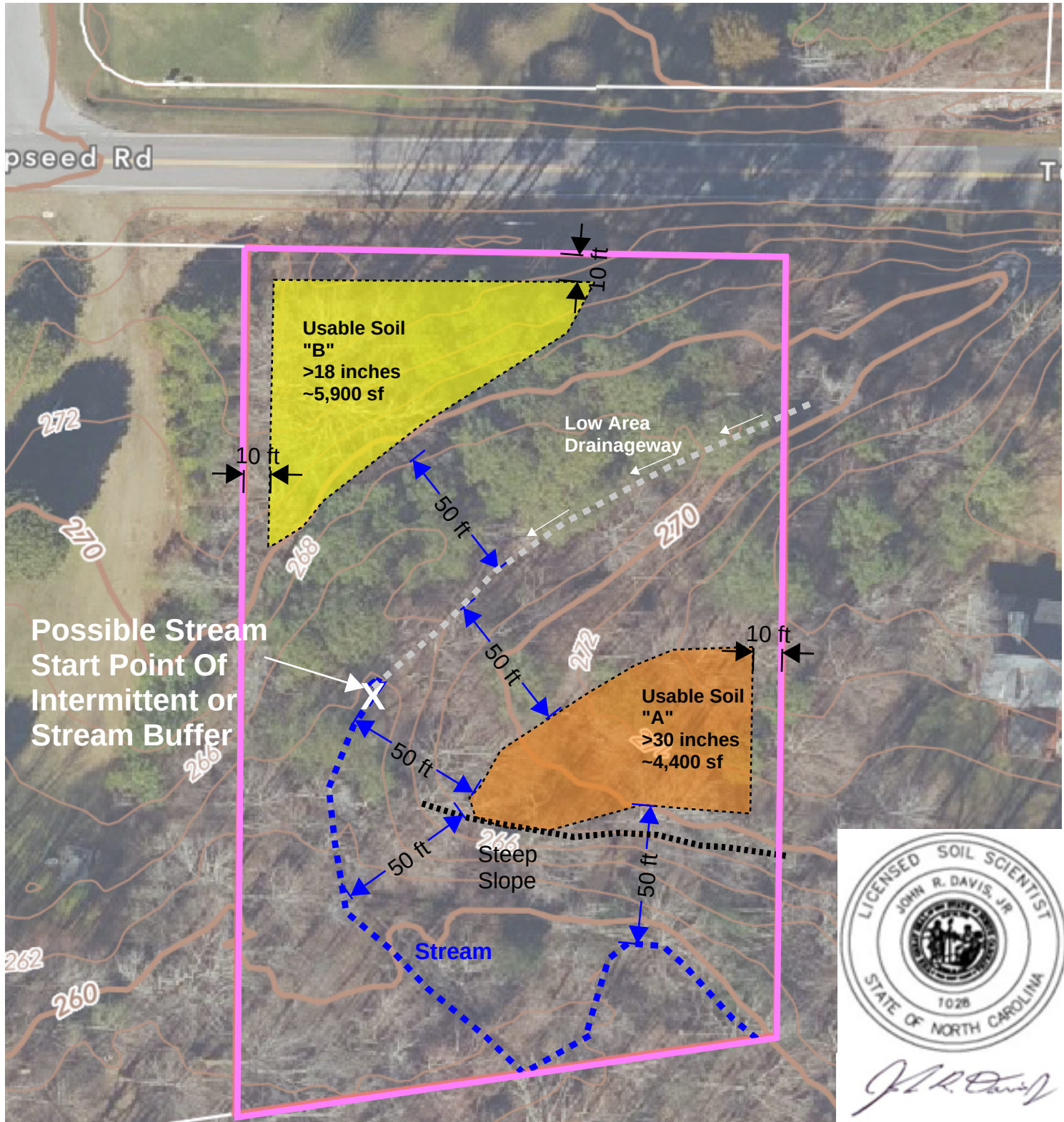
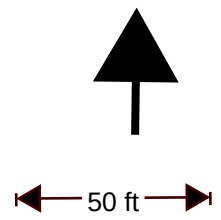


**Preliminary Soil Study for Septic System  
Suitability**  
June, 2026  
John R. Davis, Jr. LSS  
PIN: 1772736575 Turnupseed Road



Two Usable soil areas shown in "Orange" and "Yellow" were found on this property for septic system use. See report for more details. Much of this property has a stream winding through it.



**Soil Horizons, LLC**  
**PO Box 1063**  
**Youngsville, North Carolina 27596**

DATE            June, 2026

TO               Client, Namee Barakat

FROM           John R. Davis, Jr. LSS, REHS

RE               Summary/Explanation of the Preliminary Soil Study  
PIN: 1772736575 Turnupseed Road Wake County

The purpose of the soil study commonly called “perc test” that was conducted on your property was to determine if the site and soil are **suitable** or **usable** for on-site subsurface septic systems. To make this determination, a licensed soil scientist with more than 30 years of experience made a site visit to walk over the property and observe the landforms such as ridges, side slopes, drains, gullies, ruts etc. and advance hand auger borings into the soil. The auger borings were advanced to approximately 3 feet below the surface to mainly observe the soil layers, texture, structure, color, clay mineralogy, restrictive horizons and soil wetness conditions based on the current regulations governing subsurface septic systems in North Carolina. The attached soil map indicates two areas of Usable or Suitable soil on this property. The best area “A” is shown by the "Orange" shaded area is Suitable for shallow gravelless septic trenches. The soil in this area is sandy loam topsoil over sandy clay loam subsoil with depths greater than 30 inches below the surface. This area is limited in size to approximately 4,400 square feet and is located on a hilltop. This higher landform is most likely going to be the best site for a house so this soil may not have utility for septic systems unless the house can be located in another area.

Another area “B” is shown by the "Yellow" shaded area is **Suitable** for alternative septic systems such as drip systems with or without pretreatment technology. The soil in this area is clay over saprolite with depths greater than 18 inches below the surface. This area has approximately 5,900 square feet and is located near the road right of way and power line easement which may limit utility for septic systems. There are also some big trees in this area which will limit the installation of a drip septic field somewhat. Be advised that alternative drip septic systems are much more costly than standard septic systems but if designated as backup or replacement repair systems they do not need to be installed just available for future use if needed.

Another feature that limits development on this property is the existing drainageway and stream. Septic systems must be at least 50 feet from streams. House sites must be at least 50 feet from riparian buffered streams. My opinion is that this stream may not have a riparian buffer until the flow gets to the white “X” on the map. The actual stream buffer determination will need to be completed by a State or County Regulator for a true representation of where a riparian buffer starts if any on this site to determine possible house building sites.

Once you determine some possible house sites that meet the setbacks to streams or riparian buffers, you may then determine if you have adequate Usable soil available for a complete septic system for 3, 4 or 5 bedroom house. I would recommend to utilize Area “A” for the initial septic field and Area “B” for the backup or replacement repair field. For example, a three bedroom house septic field in Area “A” will require about 3,000 square feet for the initial septic field and an equivalent amount for a backup field, which could be in Area “B”. A septic field layout and design may be required to determine if there is adequate space for all these components so additional stream, buffer and or consulting work will be required.

You may submit this soil report to the local county health department for a septic system permit under the traditional permitting method and discuss your options on this site.

Based on landform observations and hand auger borings, area(s) of **suitable** or **usable** soil, if found, are usually shown on Aerial GIS maps. The soil area(s) indicate the depth of **usable** soil in inches from the surface and the approximate area of the **usable** soil in square feet. The type of septic field that is appropriate for the **usable** soil area is also indicated on the map. The approximate area required for a complete septic field is based on the proposed use such as a 3 or 4 bedroom single family house. The required soil area is based on the soil type and prescribed daily design flow from the facility. For a house, the daily design flow is 120 gallons per bedroom, so the more bedrooms a house has the larger the septic field is required. North Carolina septic system regulations require a backup or replacement (repair) septic field so the soil area must be large enough for two fields, an active and a backup or replacement field. Once a **suitable** soil area is identified with adequate available space, the client may use the report to make purchase decisions, apply for a permit from the local health department or private engineer. Septic system permits require detailed site plans with size and location of the house or building, number of bedrooms or employees for daily design flow determination, proposed drive, water supply well etc. For the simpler, single family house site plans, the local permitting agency or local health department can site a septic system and issue permits that are valid for five years. Sites with more complicated buildings, limited **usable** soil areas, or complex slopes may require an engineer or other designer to create plans for pump septic systems or alternative septic systems with more advanced technology to address soil and site limitations and submit for permitting.

If the preliminary soil study does **not** find any **suitable** soil or limited **usable** soil areas then the client may not wish to pursue purchase of the property. This situation is generally simply expressed as the soil or site “not perking”. Also, a client may not wish to move forward with alternative complex septic designs due the comparative cost to design, permit and install these more advanced septic systems. The preliminary soil study is the first step in determining if and how to develop the property for a particular use. The value in the study is in the findings of the soil scientist’s description of the soil characteristics and quantification of available soil area. This information will greatly aid a regulator in conducting a regulatory assessment and permitting a site. On larger tracts of land with limited **usable** soil areas, the preliminary soil map will direct the regulator to the best soil area to be reviewed and evaluated. Soil assessments or studies are critical on marginal sites for the designer, engineer, architect etc. to create the most effective and economical design as possible for the client. Many times a more detailed soil study is required for a designer to maximize a limited soil area on a site. Soil studies that are entirely **unsuitable** will not require any additional tasks beyond the preliminary soil study and that task is adequate enough to inform to the client, (buyer, seller, builder, developer, etc.) to not pursue development or adjust their offer to purchase accordingly. If you have any questions about this topic, please give me a call to discuss.