

# PRELIMINARY SOIL & SITE EVALUATION

Yan Tract  
Granville County, NC  
TCG Job # 7440

Prepared For:

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2006 Red Deer Court  
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February 10, 2010



*Michael Callahan*

Michael Callahan

## **INTRODUCTION & SITE DESCRIPTION**

This Preliminary Soil and Site evaluation was performed on approximately 4.5 acres of a 70 acre tract off of Goshen Road in Granville County, North Carolina. The Catena Group, Inc. (TCG) was retained to determine if there is sufficient soil to support a conventional sub-surface septic system for a four bedroom house. The evaluation was performed in accordance with “Laws and Rules for Sewage Treatment and Disposal Systems”, 15A NCAC 18A .1900 (North Carolina Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section) (amended June 2006).

The property has undergone logging in the past evidenced by the varied age of the vegetation and the presences of access roads on the property. No structures were observed on site in the area of investigation.

## **INVESTIGATION METHODOLOGY**

The field survey was conducted on February 8, 2010. Soil borings were made with a hand auger and soil color was determined with a Munsell Soil Color Chart. The topography, vegetation, and site physical conditions were noted in order to determine if any repeating patterns existed. The main limitations were the depth to seasonal wetness, unsuitable clay mineralogy, and/or high rock content.

## **FINDINGS**

The evaluation included 19 auger borings (Figure 1). The evaluation was focused on an area chosen by the client as the ideal house location. Most of the borings indicated that the soils present were not suitable for a conventional septic system. There was an area (green polygon on Figure 2) that had soils with depths between 26-31 inches. Soils in this area are potentially suitable for an ultra-shallow conventional system.

An ultra-shallow conventional septic system is equivalent to a conventional septic system, except the trench is placed starting at the ground surface. A cap of six inches of soil is brought in to cover the trenches. This fill material may induce extra installation and material costs for the system that might not be incurred with a conventional system placed at the normal depth. The area potentially suitable for the ultra-shallow system is depicted in Figure 2 as the “Initial” drainfield area, and comprises approximately 6,400 ft<sup>2</sup>.

To determine final suitability, a field delineation of drain lines will need to be conducted to assure that the system will fit within the potentially suitable soil area. Based on the auger borings conducted so far, it is anticipated that a long term acceptance rate (LTAR) of 0.20 to 0.25 gpd/ft<sup>2</sup> should be assigned to this drain field area.

In addition to the initial area, a portion of the property was identified as potentially suitable for a repair drainfield. This area is shown on Figure 2 as the “Repair” drainfield area (orange polygon), and comprises approximately 12,350 ft<sup>2</sup>. This area is characterized by soils greater than 18 inches, but less than 24 inches. It is possible that either a shallow placed LPP or a subsurface drip irrigation system could potentially be permitted in this area. Further testing and field delineation of drain lines would need to be conducted before final suitability could be determined. Based on the auger borings conducted so far, it is anticipated that a LTAR of 0.10 to 0.15 gpd/ft<sup>2</sup> should be assigned to this drain field area.

At this point, TCG recommends the following:

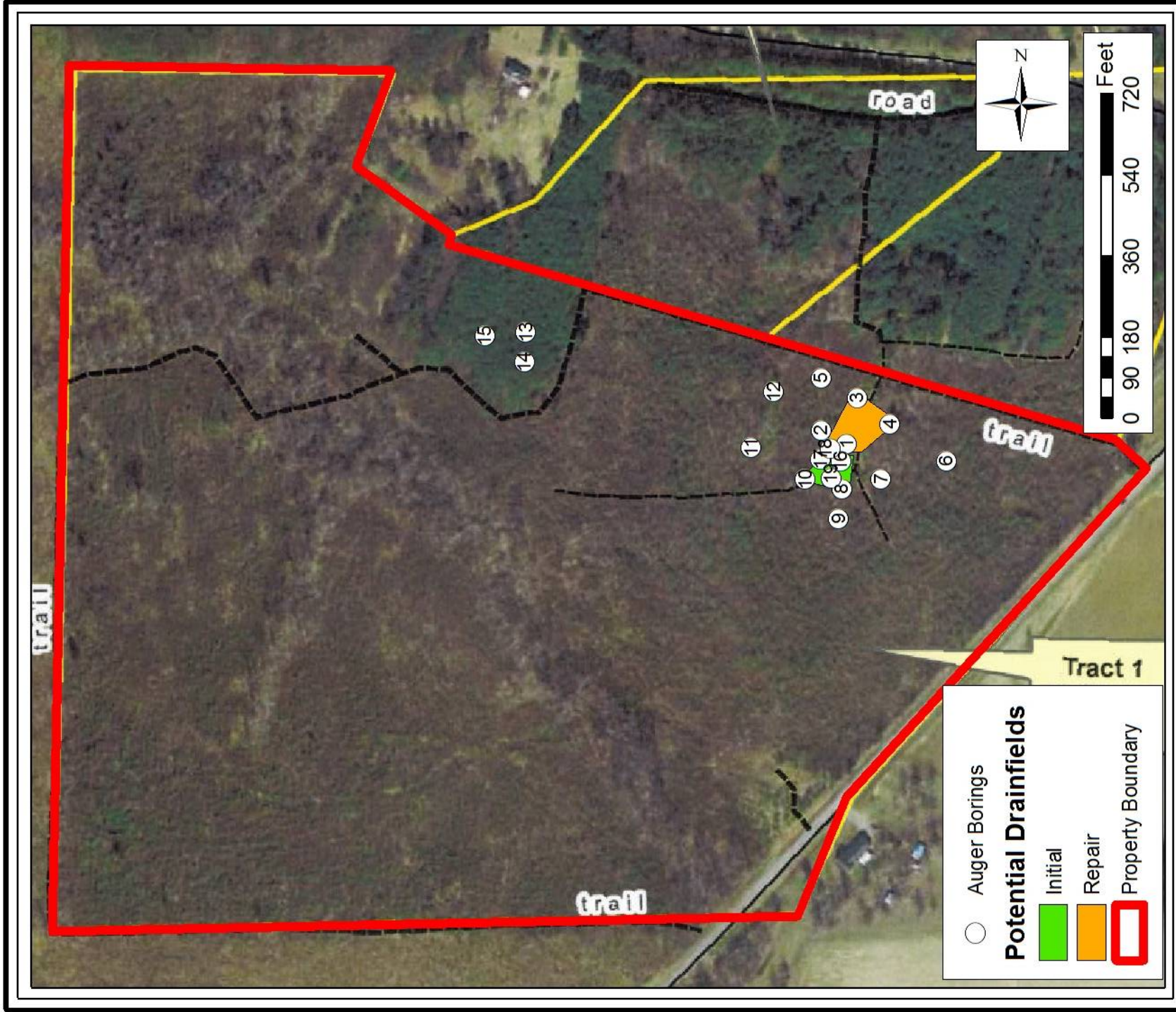
1. The client should call or email to discuss any questions they might have with the findings of this report. The client and TCG can discuss the site specific goals for this project, and how the findings of this investigation affect those goals.
2. Because of the limited area available for the initial drainfield, TCG recommends field delineating the septic drain lines based on utilizing an ultra-shallow conventional septic system for a four bedroom house. In addition, additional auger borings should be conducted to determine the exact extent and system type for the repair area. Field delineation of septic drain lines should be conducted for the repair area as well.
3. A final report detailing the drainfield characteristics gathered to date and from the tasks described in item #2 will be compiled and given to the client. That report should be submitted to the Granville County Environmental Health Department during the Improvement Permit application process.
4. It is recommended that an Improvement Permit be acquired before the property is purchased due to the limited amount of space available for a conventional system.

## **CONCLUSIONS**

The findings presented herein represent TCG's 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. Based on the findings of this investigation, it is the opinion of TCG that the lot is potentially suitable for an ultra-shallow conventional septic system for a four bedroom house, utilizing either a subsurface drip irrigation system or shallow placed LPP system for the repair area. Final suitability will be based on further field work and concurrence by the Granville County Health Department.

This report does not guarantee or represent approval or issuance of an Improvement Permit, which can only be authorized by the Granville County Health Department. Any concurrence with the findings of this, or any future report would be made at that time.

Soils naturally change across a landscape and contain many inclusions. As such, attempts to quantify them are not always precise and exact. Furthermore, this investigation was conducted at a scale that was meant to provide a general guidance as to the applicability of the site for the intended use. As stated before, more detailed testing and design would be required before final suitability can be determined.



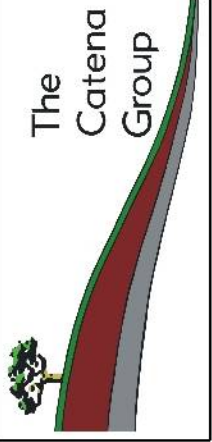
○ Auger Borings

**Potential Drainfields**

■ Initial

■ Repair

□ Property Boundary



**Yan Tract**  
**Preliminary Soil Map**  
**Granville County, NC**

Date:	February 2010
Scale:	As Shown
Job No.:	7440

Figure **1**

