

HAL OWEN & ASSOCIATES, INC.

SOIL & ENVIRONMENTAL SCIENTISTS

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27 September 2018

Mr. William Geist
The Madison Energy Group
5 West Hargett Street
Raleigh, NC 27601

Reference: Preliminary Soil Investigation
Lot 10 Cedar Rock (10.09 Acres); NC PIN 0633-05-3243

Dear Mr. Geist,

A site investigation has been conducted for the above referenced property, located on the southern side of Cedar Rock Trail in Harnett County, North Carolina. The purpose of this investigation was to determine the site's ability to support subsurface sewage waste disposal systems. All sewage disposal 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 as a Licensed Soil Scientist but does not guarantee or represent permit approval for any lot by the local Health Department. An improvement permit for all residences will need to be obtained from the Health Department that specifies the proposed home size and location, and the design and location of the septic system to be installed.

This property is composed of a mixture of soils that range from provisionally suitable to unsuitable for subsurface sewage waste disposal (see attached map). Much of this property is underlain by very thin soil layers above hard bedrock and is rated as unsuitable for subsurface sewage waste disposal. Some of the bedrock, likely granite, is exposed at the surface and appears very hard and resistant to weathering.

The soils adjacent to the bedrock formation were observed to be very rocky and significantly complex in nature. Three areas of usable soils were observed at the property. These areas appear to be adequate to support the septic disposal needs of a five or six bedroom home. The area in the southeastern corner appears adequate to support the septic system for the shop/office that you mentioned, if you decide to separate it from the home. The soils in this area appear adequate to support conventional type drainlines installed at 18 to 24 inches below surface. The larger area in the west central portion of the site appears adequate to support the septic disposal needs of the home. The soils in this area also appear adequate to support conventional type drainlines installed at 18 to 24 inches below surface. Blue flags were placed near the borings when these better quality soils were observed. Both of these areas will adequately function as sewage waste disposal sites but will require additional drainline due to clayey textured subsoil characteristics. You should expect that 75-100 feet of conventional drainline would be required for each bedroom in the proposed home.

The provisionally suitable soil area at the front to the property is complex in nature and contains areas that will require ultra shallow drainline placement and the addition of topsoil to cover the drainlines. Some of this area may require specially designed systems to accommodate shallow soil depths on steep slopes. White flags were placed near the borings when these more limited soils were observed. You will likely want to reserve this area for repairs to the systems that could be needed in the future. The regulations require that you have a repair area.

The unsuitable soil area is so rated due to inadequate soil depth. The ability to utilize alternative systems or make modifications to this area to allow for septic systems is minimal. Some of this area will likely support building foundations, and the home could be sited in this area.

I appreciate the opportunity to provide this service and trust that you will feel free to call on me 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 "Hal Owen".

Hal Owen
Licensed Soil Scientist

