



August 14, 2022

Ben Legg
BHL Group LLC
434-218-1410
ben@bhlgroupllc.com

Re: Soil Evaluation for Septic Permitting on a property located on Old Hwy 21, Elkin, North Carolina

Dear Mr. Legg:

This letter is in reference to a recent soil evaluation that our office conducted on the above referenced property on August 11, 2022. This evaluation was performed at your request in order to determine the feasibility of septic permitting for this lot.

The attached site map shows where soil documentation was finalized for the proposed design of a future septic system, as outlined in the .1900 regulations. In short, our findings showed that the property is **likely suitable** for a conventional septic using alternative aggregate product not to exceed 3 bedroom capacity. It should be noted however, that while this is an advisory opinion, these results are not final until permitting is completed with the local Environmental Health Department.

If you have any questions about these findings and their implications for this property, please don't hesitate to call.

Sincerely,

Tyler Sgro, CPSS, NC LSS #1347
Davis Horizons

Davis Horizons

Email: tyler@davishorizons.com
Phone: 843-754-6307

SOIL REPORT

Legg - Old Hwy 21

August 14, 2022

Prepared By:
Tyler Sgro, L.P.S.C. #119, South Carolina
Davis Horizons
843-754-6307
tyler@davishorizons.com



Site Location and Characteristics

The project site is located at 0 Old Hwy 21 in Surry County, North Carolina, identified by Tax ID number 494401475319. Data was recorded on August 11, 2022, utilizing a soil auger. Elevation data recorded at these locations shows elevations ranging no more than 28 inches between sample points.

Soil Sampling Methodology

In order to measure site elevations, a Trimble R10-2 external GNSS receiver was used to measure elevations at each soil boring location. Fixed real-time kinematic (RTK) positioning was obtained in order to maximize data accuracy. Elevation error was measured to not exceed 1 inch, based on data provided from the GNSS receiver. Orthometric elevation data was recorded at each data point and recorded on the subsequent data sheet. Elevation ranges between the soil borings were obtained by computing the difference between elevation points. In total, 4 data points were recorded for the purposes of finalizing the footprint of the proposed drainfield and associated repair area.

Applicable Regulations

Recorded soil documentation, included suitability considerations, were observed based on criteria found in the North Carolina Administrative Code, Subchapter 18A, Section 1900, titled "Sewage Treatment and Disposal Systems." Soil conditions such as soil texture, soil structure, soil consistency, soil mineralogy, soil color, soil wetness, observed soil depth, saprolite class, restrictive horizon presence, and subsequent loading rates were identified in accordance with this Section.

This report and subsequent design are being submitted for review under North Carolina Session Law 2022-11. As such, the following required statement is included to meet the requirement of the law: **"The LSS Evaluation is being submitted pursuant to and meets the requirements of SL 2022-11."**

Design Criteria and Recommendations

Soil wetness conditions were observed at a depth of >45 inches. No restrictive horizon was observed in the soil profile. A minimum of a twelve inch separation between soil wetness/restrictive horizons and trench bottoms must be maintained. Horizons with more than trace amounts of organic carbon content existed to maximum depths of 4 inches. The aforementioned soil horizons with more than trace amounts of soil organic carbon do not need to be removed. However, the root mat should be removed prior to adding fill material if required.

A long-term acceptance rate (LTAR) of 0.3 gallons per day (GPD)/square foot (SF) will be utilized for the loading rate². At the completion of the construction of the drain field/disposal area, the fill material over this area will be immediately seeded and protected with straw or mulch or sodded to establish a permanent vegetative cover. Any concerns regarding surface water flow and/or improvement of subsurface drainage conditions should be taken into account by the installer prior to system installation. If questions regarding the final drainage plan arise, this office should be notified for consultation prior to the initiation of work.

Based on the observed soil conditions and applicable regulations, it was determined that a IIa. Conventional Septic System (single-family or 480gpd or less) would be applicable for this site. Based on an expected flow rate of 360 gpd, the minimum linear footage required for the system is 400 total linear feet. However, due to the use of alternative aggregate product, a 25% linear footage reduction will be applied.

The proposed system will utilize 3-foot wide trenches with 12 inch Infiltrator Quick 4 Chambers. The system should be installed at a maximum depth of 33 inches. The system should be installed level and along the contour lines, as referenced in the associated site plan included with this report.

Soil Classification & Site Suitability

The soils in this area formed from metamorphic rock typical of the Piedmont and in relation to the site's geomorphic position on the landscape. Thus, the soil conditions reflect drainage characteristics typical of soils of the mapped series below. This soil classification was based on the observed soil morphology in the excavated soil profile. Descriptions to further depths are not necessary to make interpretations for onsite wastewater disposal systems. The soil observations provided in this report and the below classification are derived by soil conditions in the observed sampled locations/area only. It should be noted that the below classification does not take into account any inclusions that might exist with the sampled area. Based on the recorded soil data, related soil classification below, and applicable suitability parameters listed in Section .1900, it is recommended that this site be considered **Provisionally Suitable (PS)** for the placement of the engineered designed septic system.

Similar to soils of the Fairview series: Fine, Kaolinitic, Mesic Typic Kanhapludults

Other Considerations



Adherence to Report:

The depth to the soil wetness conditions, restrictive horizon(s), trench bottom separation, LTAR, and the land preparation prescriptions outlined in this report are site condition minimums that must be adhered to in the design and installation of an onsite wastewater disposal system. Any expenses incurred due to deviations from the soil prescriptions outlined in this report that result in system malfunctions or repairs will be the liability of the responsible party completing the onsite installation and/or grading work.

Notification Regarding Wetlands:

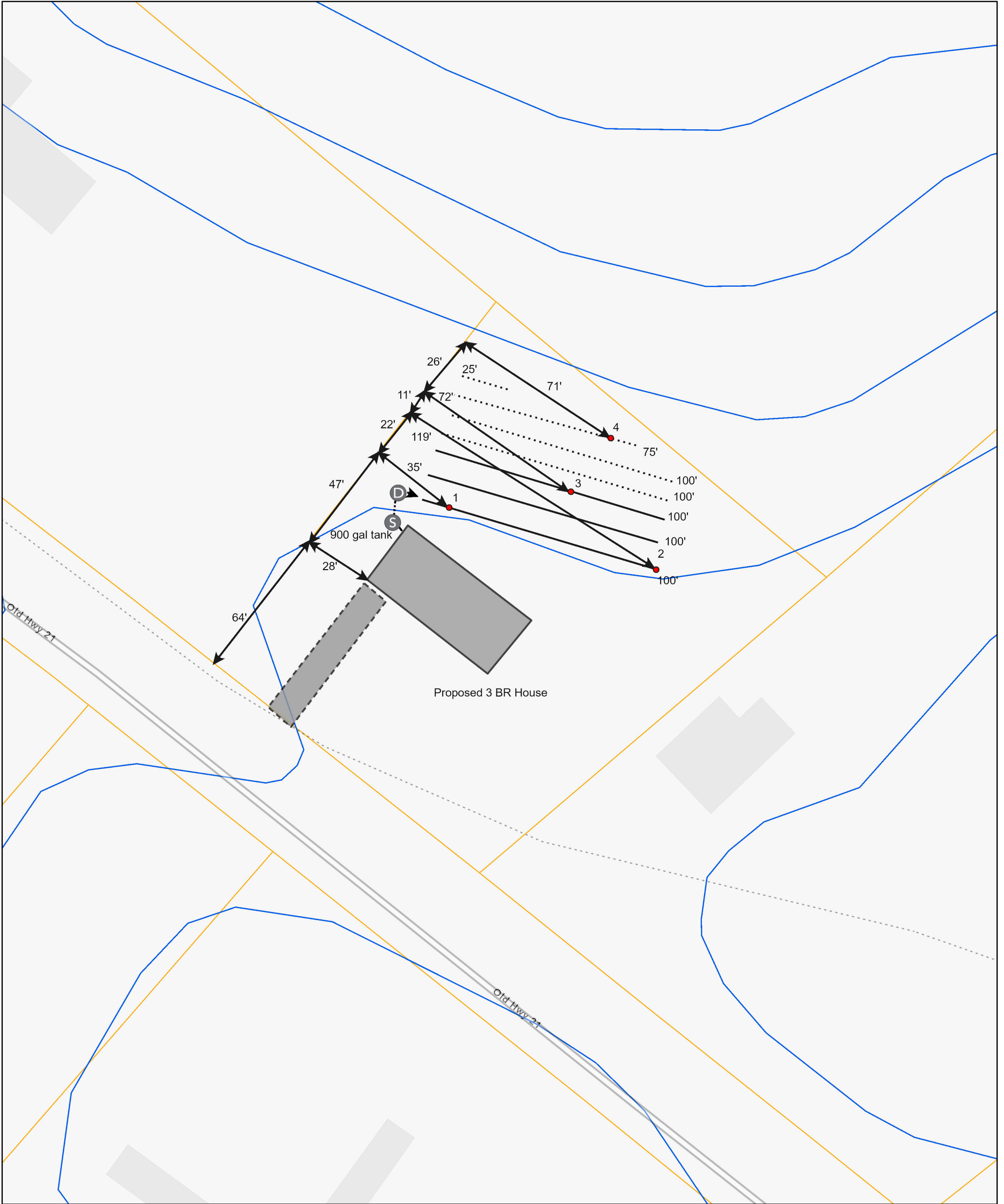
It is the responsibility of the landowner and/or equipment operators to avoid regulated impacts to waters of the United States (WOTUS), including wetlands. Should any part of the proposed onsite wastewater system be located in WOTUS, including wetlands, approval from the appropriate State and/or Federal agency [i.e., US Army Corps of Engineers, NC Div. of Coastal Management, etc.] must accompany the application for an engineered onsite wastewater system. It is recommended that the landowner and/or equipment operators contact the applicable State and/or Federal agencies prior to initiating site work in order to avoid regulated impacts to WOTUS, including wetlands.

Footnotes:

¹. Fill material must be inspected and approved by Tyler Sgro prior to placement of material and system installation, if required.

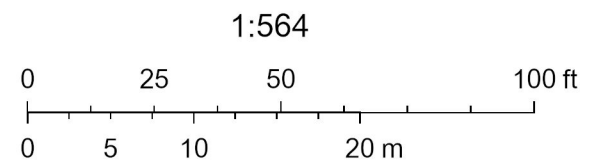
². Long-term acceptance rates (LTAR) are **estimated** using calculations provided in Rules .1901 - .1968 of Title 15A Subchapter 18A of the North Carolina Administrative Code (T15A.18A .1901 - .1968). The long-term acceptance rate is based on the most hydraulically limiting naturally occurring soil texture from the ground surface to 12 inches below the bottom of the proposed absorption trenches/disposal tubing. Estimates on the acceptance rates are based on soil texture and other applicable soil morphology.

Legg - Old Hwy 21



8/14/2022, 11:05:11 PM

- | | | |
|---------------------|---------------------|-----------------------|
| • NC Soil Data Form | Septic_Design_804 | Septic_Design_9782 |
| Septic_Design_8153 | ↔ Distance/Setback | House |
| Ⓢ Septic Tank | — Drain Lines | Driveway |
| Ⓛ Distribution Box | ⋯ Repair Lines | DEM20ft_Contours_2155 |
| | → Distribution Line | NC1Map_Parcels_4875 |



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SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM
 (Complete all fields in full)

PROPERTY ID #: 494401475319
 PROJECT NAME: Legg - Old Hwy 21
 COUNTY: Surry



OWNER: Knowles William M Knowles Lori M
 ADDRESS: 0 Old Hwy 21
 PROPOSED FACILITY: Dwelling
 SITE LOCATION: 0 Old Hwy 21

PROPOSED DESIGN FLOW (.1949): 360 gpd

APPLICATION DATE:
 DATE EVALUATED: August 11, 2022
 PROPERTY SIZE (in acres): 0.688
 PROPERTY RECORDED:

WATER SUPPLY: Private Public Well Spring Other:

EVALUATION METHOD: Auger Boring Pit Cut TYPE OF WASTEWATER: Sewage Industrial Process Mixed

| P R O F I L E # | .1940 LANDSCAPE POSITION/ SLOPE %/MEASURED ELEVATIONS (in ft.) | SOIL HORIZONATION | HORIZON DEPTH (IN.) | SOIL MORPHOLOGY (.1941) | | OTHER PROFILE FACTORS | | | | | PROFILE CLASS & LTAR |
|--|--|-------------------|---------------------|-------------------------|------------------------------|-----------------------|--|------------------|-----------------------|---------------------------|----------------------|
| | | | | .1941 STRUCTURE/TEXTURE | .1941 CONSISTENCE/MINERALOGY | .1942 SOIL COLOR | .1942 SOIL WETNESS (CONCENTRATIONS) (DEPLETIONS) | .1943 SOIL DEPTH | .1956 SAPROLITE CLASS | .1944 RESTRICTIVE HORIZON | |
| 1 | Linear Slope / 0-0.5% / 1,350.30307365295 | A | 0-4 | GR / LS | VFR / SEXP | 10yr 3/3 | | 45 | 45 / PS | / | 0.3 / PS |
| 1 | Linear Slope / 0-0.5% / 1,350.30307365295 | Bt | 4-30 | SBK / C | FR / SEXP | 2.5yr 4/6 | | 45 | 45 / PS | / | 0.3 / PS |
| 1 | Linear Slope / 0-0.5% / 1,350.30307365295 | BC | 30-45 | GR / SiCL | VFR / SEXP | Varigated | | 45 | 45 / PS | / | 0.3 / PS |
| 2 | Linear Slope / 0-0.5% / 1,350 ft. | A | 0-3 | GR / LS | VFR / SEXP | 10yr 3/3 | | 45 | 45 / PS | / | 0.3 / PS |
| 2 | Linear Slope / 0-0.5% / 1,350 ft. | Bt | 3-25 | SBK / C | FR / SEXP | 2.5yr 4/6 | | 45 | 45 / PS | / | 0.3 / PS |
| 2 | Linear Slope / 0-0.5% / 1,350 ft. | BC | 25-45 | GR / SiCL | VFR / SEXP | Varigated | | 45 | 45 / PS | / | 0.3 / PS |
| 3 | Linear Slope / 0-0.5% / 1,349.94874365295 | A | 0-3 | GR / LS | VFR / SEXP | 10yr 3/3 | | 45 | 45 / PS | / | 0.3 / PS |
| 3 | Linear Slope / 0-0.5% / 1,349.94874365295 | Bt | 3-29 | SBK / C | FR / SEXP | 2.5yr 4/6 | | 45 | 45 / PS | / | 0.3 / PS |
| 3 | Linear Slope / 0-0.5% / 1,349.94874365295 | BC | 29-45 | GR / SiCL | VFR / SEXP | Varigated | | 45 | 45 / PS | / | 0.3 / PS |
| 4 | Linear Slope / 0-0.5% / 1,348 ft. | A | 0-2 | GR / LS | VFR / SEXP | 10yr 3/3 | | 45 | 45 / PS | / | 0.3 / PS |
| 4 | Linear Slope / 0-0.5% / 1,348 ft. | Bt | 2-23 | SBK / C | FR / SEXP | 2.5yr 4/6 | | 45 | 45 / PS | / | 0.3 / PS |
| 4 | Linear Slope / 0-0.5% / 1,348 ft. | BC | 23-45 | GR / SiCL | VFR / SEXP | Varigated | | 45 | 45 / PS | / | 0.3 / PS |

| | | | |
|-------------------------|----------------|---------------|--|
| DESCRIPTION | INITIAL SYSTEM | REPAIR SYSTEM | Other Factors (.1946): |
| Available Space (.1945) | yes | yes | Site Classification (.1948): Provisionally Suitable (PS) |

| | | | |
|----------------|---|---|---|
| System Type(s) | IIa. Conventional Septic System (single-family or 480gpd or less) | IIa. Conventional Septic System (single-family or 480gpd or less) | Evaluated By: Tyler Sgro, LSS # 1347 Others Present: |
| Site LTAR | 0.3 | 0.3 | |
| Comments: | | | |