PIEDMONT ENVIRONMENTAL ASSOCIATES, P.A.

January 17, 2023 Project # 3040
REVISED 1/16/23

KC2 Enterprises
c/o: Kyler Zadell
910 Windy Rd.
Apex, NC 27502

RE: Preliminary Soil Investigation on Property Located North Pea Ridge Road, Chatham County, Parcel Numbers 17531 & 17473

Mr. Zadell,

This report details the findings of a preliminary site and soil evaluation performed on the tract(s) referenced above. The evaluation was conducted at the clients written request to determine the site's suitability for the installation of sub-surface wastewater disposal systems to serve domestic strength wastewater. This evaluation was for residential wastewater applications. Any other type of use may require additional testing and/or stricter setbacks. This report does not address systems receiving more than 3,000 gallons per day of flow.

The evaluation was conducted by Chris Murray, North Carolina Licensed Soil Scientist in August, 2022. The evaluation was conducted during moist soil conditions with the use of a hand-auger to determine soil suitability for on-site sewage disposal systems in accordance with 15A NCAC 18A .1900 "Laws and Rules for Sewage Treatment and Disposal Systems". Characteristics that affect the suitability of sub-surface systems include soil depth to expansive clay, seasonal high-water table, rock, and unusable saprolite. Topography and slope also affect the suitability of an area for septic systems. The evaluation of these components was conducted on the site. The level of the evaluation was detailed for this tract.

Findings are conveyed by showing areas on the enclosed map that are usable for different system types. Areas suitable for low profile chamber wastewater systems are hatched in orange. These areas have usable topography and a minimum slope-corrected soil depth of 20 inches. Areas suitable for sub-surface drip wastewater systems are hatched in pink. These areas have usable topography and a minimum slope-corrected soil depth of 13 inches. Areas suitable for surface drip wastewater systems are hatched in blue. These areas have usable topography and may need amendment to meet standards set forth by NCDEQ, the agency responsible for the regulation of these systems. All hatched areas are generated using gps technology in the field and are not survey located. The areas are labeled with approximate square footages.

Once the soils map is complete the size of area required for a septic system can be estimated. Residential systems are sized according to the number of bedrooms in the proposed dwelling. Systems are not sized based on the number of bathrooms in the dwelling. Each bedroom in the proposed dwelling is calculated to generate a daily flow of 120 gallons. A four-bedroom dwelling would have a daily calculated flow of 480 gallons. The daily flow is divided by the loading rate based on the soil texture. This site has a clay texture so would have an estimated long-term acceptance rate (LTAR) of 0.25 gallons per square foot of trench bottom per day. The minimum required area or square footage on the ground for the primary septic system and the repair area with this LTAR for the conventional hatched areas would be approximately 12,000 – 15,000 square feet. These areas must meet all setbacks from property lines, wells, water lines and structures as well as any other easement imposed by other entity. All lots will require an application and evaluation by the county health department on an individual basis.

We have reviewed the proposed subdivision plan for this project and have found it to be sufficient from an on-site wastewater perspective. Each lot is shown on the attached soil map with one of the three system types outlined above. Table 1 lists the proposed septic system types for each of the proposed lots:

Table 1 - N. Pea Ridge Rd. Project - Preliminary Septic Information, NOVEMBER, 2022 (revised)

Lot	System Type*	Available Sq Footage
1	Sub-surface Drip	29430
2	Sub-surface Drip	18817
3	Sub-surface Drip	18976
4	Sub-surface Drip	14268
5	Surface Drip	22041
6	Surface Drip	16249
7	Sub-surface Drip	18462
8	Surface Drip	25204
9	Surface Drip	18498
10	Low Profile Chamber	15626
11	Low Profile Chamber	28639
12	Low Profile Chamber	22746
13	Low Profile Chamber+SSD	14773
14	Surface Drip	17904
15	Sub-surface Drip	12018
16	Sub-surface Drip	17201
17	Low Profile Chamber	17649
18	Sub-surface Drip	15205
19	Sub-surface Drip	19035
20	Surface Drip	14819
21	Surface Drip	14473

22	Surface Drip	14532
23	Surface Drip	18749
24	Surface Drip	26298
25	Sub-surface Drip	21790
26	Sub-surface Drip	30401
27	Sub-surface Drip	29055
28	Sub-surface Drip	34117
29	Sub-surface Drip	34632
30	Surface Drip	22483

*Surface and sub-surface drip systems will require additional testing per NCDEH and NCDEQ regulations

This report discusses the general location of potentially usable soils for on-site wastewater disposal and the soil and site limitations on the property that exists at the time of the evaluation. Piedmont Environmental Associates, PA ("Piedmont") provides professional consulting specializing in the practice of soil science and wastewater management. Piedmont is therefore hired for its professional opinion regarding these matters. Laws and rules governing wastewater treatment and disposal are forever evolving and subject to the interpretation and opinion of individuals which are employed by local and state agencies that govern these laws and rules. Due to this fact, Piedmont cannot guarantee in any way that any area located in the field, shown on a sketch, or discussed with the client will be permitted by any of these agencies. It is for this reason that **Piedmont strongly recommends to anyone considering a financial commitment on any piece of property be completely aware of all permit requirements on that property before purchase and obtain those permits prior to a final financial commitment.** We are pleased to be of service in this matter. If you have any further questions, please feel free to call (336)662-5487

Sincerely,

Chris Murray
NC Licensed Soil Scientist # Chris Murray
Piedmont Environmental Associates, P.A.

Attachment I

.1950 Location of Sanitary Sewage Systems

(c) Every sanitary sewage treatment and disposal system shall be located at least the minimum horizontal distance from the following:

(1)	Any private water supply source including a well or spring	100 feet
(2)	Any public water supply source	100 feet
(3)	Streams classified as WS-I	100 feet
(4)	Water classified as S.A. from mean high water mark	100 feet
(5)	Other coastal waters from mean high water mark	50 feet
(6)	Any other stream, canal, marsh, or other surface waters	50 feet
(7)	Any Class I or Class II reservoir from normal pool elevation	100 feet
(8)	Any permanent storm water retention pond from flood pool elevation	50 feet
(9)	Any other lake or pond from normal pool elevation	50 feet
(10)	Any building foundation	5 feet
(11)	Any basement	15 feet
(12)	Any property line	10 feet
(13)	Top of slope of embankments or cuts of 2 feet or more vertical height	15 feet
(14)	Any water line	10 feet
(15)	Drainage systems:	
	(A) Interceptor drains, foundation drains and storm water diversions	
	(i) upslope	10 feet
	(ii) sideslope	15 feet
	(iii) downslope	25 feet
	(B) Groundwater lowering ditched and devices	25 feet
(16)	any swimming pool	15 feet
(17)	any other nitrification field (except repair area)	20 feet

(b) Ground absorption, sewage treatment and disposal systems may be located closer than 100 feet from a private well supply, except springs and uncased wells located downslope and used as a source of drinking water, repairs, space limitations and other site-planning considerations but shall be located the maximum feasible distance and, in no case, less than 50 feet.

(c) Nitrification fields and repair areas shall not be located under paved areas or areas subject to vehicular traffic. If effluent is to be conveyed under areas subject to vehicular traffic, ductile iron or its equivalent pipe shall be used. However, pipe specified in Rule .1955 (e) may be used if a minimum of 30 inches of compacted cover is provided over the pipe.

Note: Systems over 3000 GPD or an individual nitrification fields with a capacity of 1500 GPD or more have more restrictive setback requirements, see .1950 (a) (17) (d) for specifics.

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Individual Lot Soil Map - N Pea Ridge Road

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Job# 3040
Date: October, 2022
Client: KC2 Development
County: Chatham