

Improvement Permit

A building permit cannot be issued with only an Improvement Permit

ISSUED TO: AVERSBORO BATTLEFIELD Comm SUBDIVISION _____ LOT # _____
PROPERTY LOCATION: NC 82
NEW [X] REPAIR [] EXPANSION []
Type of Structure: 20x34 Bathroom Building
Proposed Wastewater System Type: 25% REDUCTION SYSTEM
Projected Daily Flow: 160 GPD
Number of bedrooms: _____ Number of Occupants: _____ max
Basement [] Yes [X] No
Pump Required: [] Yes [] No [X] May be required based on final location and elevations of facilities
Type of Water Supply: [] Community [X] Public [] Well Distance from well 100 feet
Permit valid for: [X] Five years [] No expiration
Permit conditions: _____

Authorized State Agent: [Signature] RENS Date: 2/11/10 SEE ATTACHED SITE SKETCH
The issuance of this permit by the Health Department in no way guarantees the issuance of other permits. The permit holder is responsible for checking with appropriate governing bodies in meeting their requirements. This site is subject to revocation if the site plan, plat, or the intended use changes. The Improvement Permit shall not be affected by a change in ownership of the site. This permit is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to conditions of this permit.

Construction Authorization

(Required for Building Permit)

The construction and installation requirements of Rules .1950, .1952, .1954, .1955, .1956, .1957, .1958, and .1959 are incorporated by references into this permit and shall be met. Systems shall be installed in accordance with the attached system layout.

ISSUED TO: AVERSBORO BATTLEFIELD Comm PROPERTY LOCATION: NC 82
SUBDIVISION _____ LOT # _____
Facility Type: Bathroom Building [X] New [] Expansion [] Repair
Basement? [] Yes [X] No Basement Fixtures? [] Yes [X] No
Type of Wastewater System** 25% REDUCTION SYSTEM (Initial) Wastewater Flow: 160 GPD
(See note below, if applicable [])
25% REDUCTION SYSTEM (Repair)

Installation Requirements/Conditions
Septic Tank Size 1000 gallons
Pump Tank Size _____ gallons
Number of trenches 2
Exact length of each trench 50 feet
Trench Spacing: 9 Feet on Center
Trenches shall be installed on contour at a
Soil Cover: 6 inches
Maximum Trench Depth of: 12 inches (Maximum soil cover shall not exceed 36" above the trench bottom)
(Trench bottoms shall be level to +/- 1/4" in all directions)
Pump Requirements: _____ ft. TDH vs. _____ GPM
Aggregate Depth: _____ inches below pipe _____ inches above pipe _____ inches total

Conditions: THIS PERMIT BASED ON A PROPOSAL FROM APPLICANTS SOIL CONSULTANTS. A CURB AND DRAIN WILL BE REQUIRED. ALL RECOMMENDATIONS OF THE PROPOSAL ARE NOW CONDITIONS AND REQUIREMENTS OF THIS PERMIT. SEE ALL ATTACHMENTS FOR FURTHER INFORMATION. CONTACT THE

**If applicable: I understand the system type specified is different from the type specified on the application. I accept the specifications of this permit. HCHO WITH ANY QUESTIONS PRIOR TO INSTALLATION.
Owner/Legal Representative Signature: _____ Date: _____

This Construction Authorization is subject to revocation if the site plan, plat, or the intended use changes. The Construction Authorization shall not be transferred when there is a change in ownership of the site. This Construction Authorization is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to the conditions of this permit. SEE ATTACHED SITE SKETCH

Authorized State Agent: [Signature] RENS Date: 2/11/10
Construction Authorization Expiration Date: 2/11/15

HALLOWEN & ASSOCIATE, INC.

SOIL & ENVIRONMENTAL SCIENTISTS

P.O. Box 400, 266 Old Coats Road

Lillington, NC 27546-0400

Phone (910) 893-8743 / Fax (910) 893-3594

E-mail: service@halowensoil.com

18 January 2010

Mr. Jerry Lee
Averasboro Battlefield Commission
Post Office Box 1811
Dunn, NC 28334

Reference: Soil Investigation and Septic System Design
Averasboro Battlefield (1.5 Acres)
NC PIN 0595-72-8087.000

Dear Mr. Lee,

A site investigation was conducted for the above referenced property which is located on the western side of NC 82, Duke Township, Harnett County, North Carolina. The purpose of the investigation was to determine the ability of this lot to support a subsurface sewage waste disposal system and 100 % repair area for an additional bathroom/ comfort station. This report represents my professional opinion but does not guarantee or represent permit approval for any lot by the local Health Department.

Water usage data have been obtained from the Harnett County Department of Public Utilities (copy attached). For the period of December 2006 through October 2009 these data indicate an average daily use of 22.16 gallons. However, in February 2007 it is believed that a leak occurred in the building, and an average of 47.8 gallons per day was recorded that month. In March 2008, data show an average of 40 gallons per day was used. The owners are not aware of a leak during that period. Also, in June 2009, 950 gallons were used for an average daily consumption of 30.6 gallons. We believe this number, 30.6 gallons per day, is a good representation of the peak flows that can be expected from this facility. Most of the activities at the battlefield are oriented to the warmer months, and therefore collection of daily readings at this time of year (winter) would not be representative of actual use. With expectations of increasing flows in the future due to more visitors to the museum, this septic proposal utilizes a daily flow of 160 gallons. It is our understanding that during special events held throughout the year the bathrooms will be locked and portable toilets will be utilized.

A soil investigation was conducted and a significant amount of provisionally suitable soils for subsurface sewage waste disposal was observed (see attached map). The provisionally suitable soils exhibit a friable sandy clay loam subsoil with suitable structure and appear adequate to support long term acceptance rate of 0.4 gal/day/sqft. Soil wetness condition in the form of two chroma mottles were observed in the 24 to 30 inch zone below surface.

The initial septic system is proposed as a gravity driven system to two 50ft long, 25%-reduction type drainlines (such as EZ Flow or chamber). The repair system is proposed as the same. Due to soil wetness conditions in the 24 to 30 inch zone below surface, both systems are required to be installed ultra shallow. This requirement will necessitate the addition of at least 6 inches of topsoil to completely cover the system. Additional topsoil, up to approximately one foot of cover, is advisable but not required. A septic system layout and supporting information are attached to this report.

The septic system has been demonstrated with various colored pin flags that are located on the lot. It is important that you do not disturb the septic system area. It is recommended that a staked line or protective fence be placed around the system prior to construction to eliminate any potential damage to the soil or the layout of the system.

A curtain drain above the septic system is recommended. The curtain drain should be installed two and one-half to three feet deep to intercept subsurface water moving laterally through the soil toward the drainfield. A swale and berm along the top edge of the curtain drain should also be installed to catch and divert surface water. At the road, water from the curtain drain should be conveyed by solid pipe just inside the property line and outlet at the stream. See the attached curtain drain schematic for additional detail.

Precautions should be taken to prevent vehicular traffic over the septic system and repair area. Equipment stored in the barn should be transported around the septic system area using a ten-foot wide easement located along the eastern property line or taken around the northern end of the barn and out the back.

The site is serviced by public water supply from Harnett County Public Utilities. The existing well on the northern end of the museum building will need to be abandoned to allow setbacks from the new septic system. An application for well abandonment is attached.

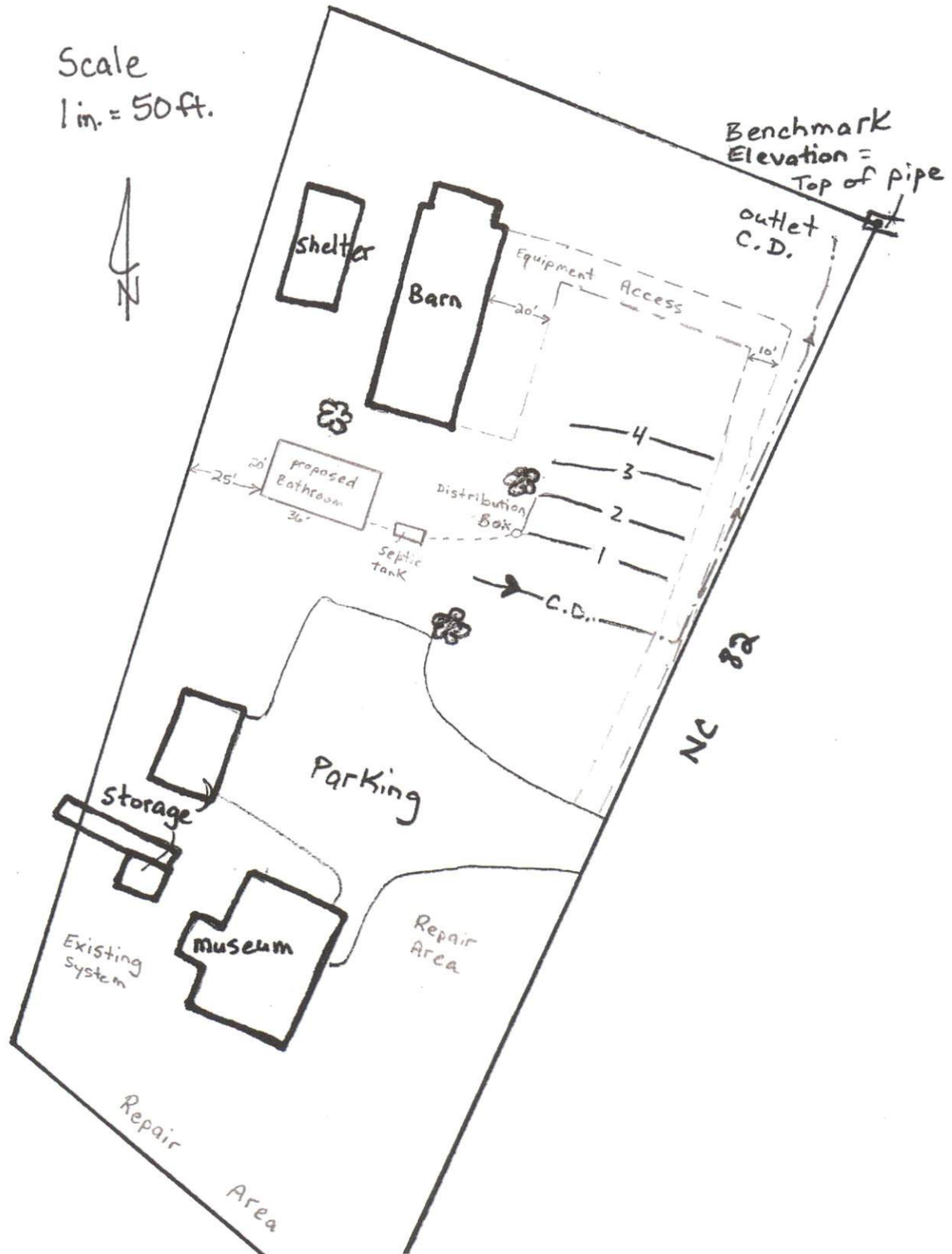
Please forward this report to Harnett County when applying for a permit. I appreciate the opportunity to provide this service and hope to be allowed to assist you again in the future. If you have any questions or need additional information, please contact me at your convenience.



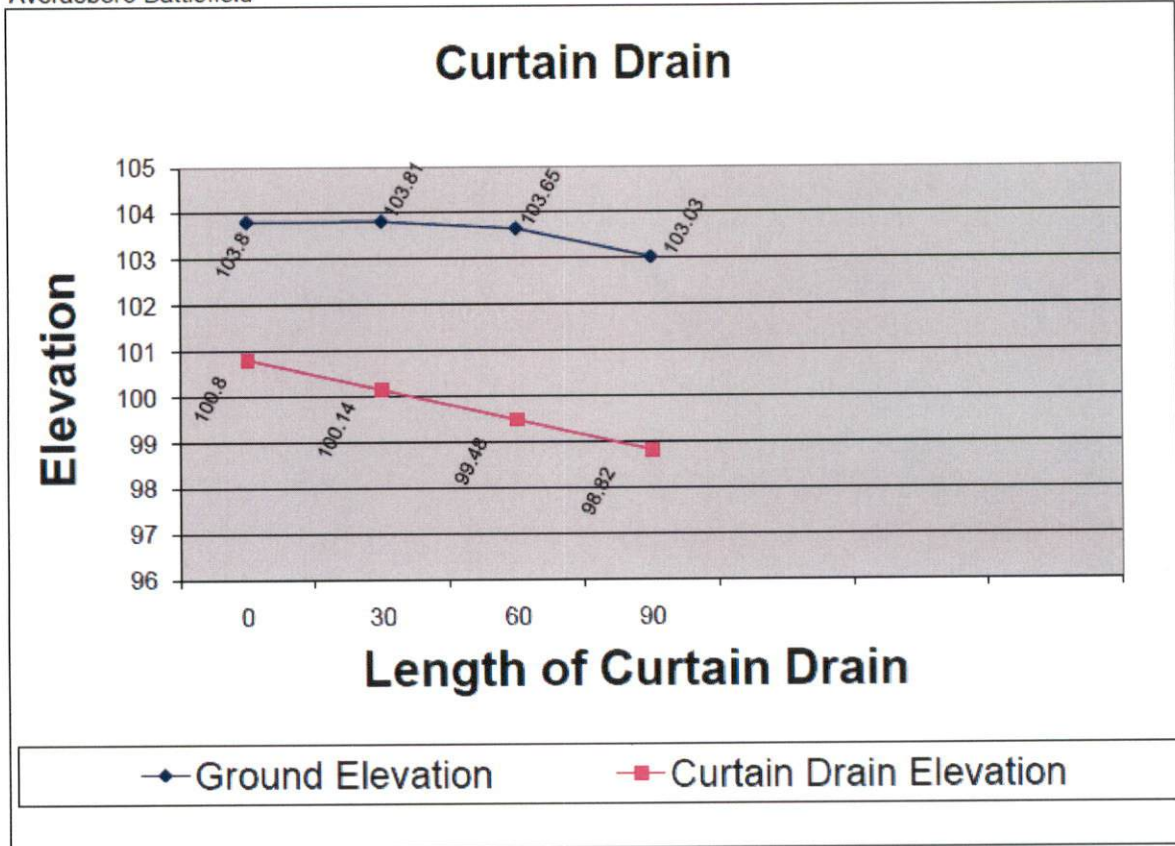
Sincerely,

Hal Owen
Licensed Soil Scientist

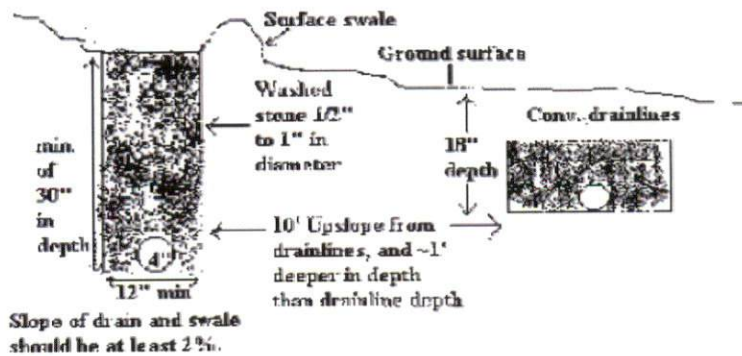
CC: Harnett County Environmental Health



Averasboro Battlefield



FRENCH DRAIN DETAILS



SEPTIC SYSTEM LAYOUT DESIGN

Applicant: Averasboro Battlefield Commission Phone #: _____
 mailing address: Post Office Box 1811, Dunn NC 28334
 Site Address: 3300 NC Hwy 82, Dunn P.I.N.: 0595-72-8087.000
 Daily Flow: 160 gallons

Lines flagged at site on 9 ft centers.

Initial / Repair	Line #	Line color	Drainline Length(ft)	Measured Field Line Length(ft)	Relative Elevation(ft)
Initial	1	B	50	110	103.02
Initial	2	Y	50	51	102.71
Repair	3	R	50	116	102.68
Repair	4	Y	50	85	102.25
					EIP=100.00

PROPOSED SYSTEM:

Initial System

2 X 50ft (X3ft) accepted status drainline
 installed on contour @ 12 in.
 LTAR 0.4 gal/day/sqft

Repair System

2 X 50ft (X3ft) accepted status drainline
 installed on contour @ 12 in.
 LTAR 0.4 gal/day/sqft

– See map on following page –