BLDR - 2024 - 49470 / 52535

ICHD - ENVIRONMENTAL HEALTH DIVISION

Statesville Office (704) 878-5305 Mooresville Office (704) 660-3625

PERMIT # OSWP-2024-65844

SEPTIC: IMPROVEMENT PERMIT / AUTHORIZATION TO CONSTRUCT / OPERATION PERMIT / EXISTING SYSTEM

PIN # 3774-63-1333

PPLICANT / OWNER: Andy Swartzel APPLICANT ADDRESS: 139 Beacon Ridge Drive Stony Point NC

TE ADDRESS: 139 BEACON RIDGE, STONY POINT, NC 28678 PHONE: ALT. PHONE:

TE DIRECTIONS: SAP CONTROLLED: YES ☐ NO ☑

JBDIVISION: Riverwalk SECTION: 3 LOT #: 14 LOT AREA: .97 DESIGN FLOW: 360 L.T.A.R.: 0.25

ptic Tank: 1000 (gal)	STB:	Date:	☑ New System ☐ Repair ☐ Expansion	System Type: III	☐ Residence	No. Bedrooms: 3	Water Supply: New Well
mp Tank: 1000 (gal)	PT:	Date:	System Description: IIIbe		☐ Business	No. Persons: 6	
mp Make:	Model:	Serial #:	Repair System Description: IIIbe		☐ Other	No. Employees:	
Nitrification Fields: 1	# Lines: 4	Linear Ft.: 240	Maintenance Agreement Required: ☐ YES ☐ NO		☐ Slab	☐ Crawl Space	
ench Width: 24	Trench Bottom Depth (Low side): 25		Gravel Depth:	☐ GRAVITY ☑ PRESSURE	☑ Basement w/ Plumbing	☐ Basement w/o Plumbing	

omments / Conditions:

INITIAL SITE SKETCH

See attached

AS BUILT SKETCH

rmit can be suspended or revoked if any false information is supplied toward securing the permit / any unauthorized changes are made to the site / any unauthorized changes are made in the installation of the system. CONTACT A LOCATOR SERVICE PRIOR TO ANY EXCAVATION

] IMPROVEMENT PERMIT with plat valid without expiration. ☑ IMPROVEMENT PERMIT with site plan valid for 60 mos. ☑ AUTHORIZATION TO CONSTRUCT valid for period equal to IMPROVEMENT PERMIT–not to exceed 60 mo.

wner / Applicant Signature: ☒ Date: Installed By: Lentz Wastewater

IPROVEMENT PERMIT by: Date: 12/4/2024 OPERATION PERMIT by: Date: 11/19/25

UTHORIZATION TO CONSTRUCT by: Date: 12/4/2024. Existing System Inspected By: Date:

FOR SEPTIC FINAL INSPECTION CALL: 704-664-3703 BETWEEN 8am-9am the day the inspection is needed.

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK BENTON • Chief Deputy Secretary for Health
SUSAN KANSAGRA • Assistant Secretary for Public Health
Division of Public Health

Application for Services

This application, in conjunction with the common form established in G.S. 130A-335(a3) and (a5), is optional for local health departments to be used for applications submitted in accordance with G.S. 130A-335(a2), (a3), and (a5).
[hereinafter, G.S. 130A-335(a3) and (a5) permits referred to as (a2) Improvement Permit and (a2) Construction Authorization]

Applying for:
[x] (a2) Improvement Permit [x] (a2) Construction Authorization [ ] (a2) Repair/Construction Authorization

If applying for a Construction Authorization, please indicate desired system type(s):
[x] Accepted [ ] Conventional [ ] Innovative [ ] Other _____ [ ] Any

[x] New Construction [ ] Expansion [ ] System Relocation [ ] Change of Use [ ] Repair
[x] 5-Year Expiration Requested (site plan provided) [ ] Non-Expiring Permit Requested (plat provided, defined in G.S.130A-334(7a)
Requesting DHHS review? (systems >3000 GPD or IPWW) [ ] Yes [x] No

Applicant: _____
Mailing Address: _____
_____
City: _____
State: _____ Zip: _____
Phone #: _____
Email: _____

Owner: Andy Swartzel
Mailing Address: 4411 Republic Ct NW
_____
City: Concord,
State: NC Zip: 28027
Phone #: _____
Email: _____

If the answer to any of the following questions is "yes", applicant must attach supporting documentation.

[ ] Yes	[x] No	Does the site contain any jurisdictional wetlands?
[ ] Yes	[x] No	Is any wastewater going to be generated on the site other than domestic sewage?
[ ] Yes	[x] No	Is the site subject to approval by any other public agency?
[ ] Yes	[x] No	Are there any easements or right of ways on this property?

I understand that the documentation and fees, as required in G.S. 130A-335(a2), (a3), (a5), and (a6), attached to this application are to be used to issue an Improvement Permit and/or Construction Authorization pursuant to G.S. 130A-335(a2),(a3), and (a5). I understand that authorized county and state officials are granted right of entry to the property indicated on this application to conduct necessary inspections to determine compliance with applicable laws and rules. ***I understand that if the information in the application for an Improvements Permit and/or Construction Authorization is falsified, changed, or the site is altered, then the Improvement Permit and Construction Authorization shall become invalid.***

Applicant Signature: _____ Date: _____

Owner's Signature: Andrew Swartzel Digitally signed by Andrew Swartzel DN: C=US, E=swartzela@ithko.com, CN=Andrew Swartzel Date: 2024.11.25 08:57:48-05'00' Date: 11/25/2024

Permit/File #: OSWP-2024 65844

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK BENTON • Chief Deputy Secretary for Health
SUSAN KANSAGRA • Assistant Secretary for Public Health
Division of Public Health

Submittal Includes: [X] (a2) Improvement Permit [X] (a2) Construction Authorization [ ] Fee $_____

IMPROVEMENT PERMIT FOR G.S. 130A-335(a2)

County: Iredell

PIN/Lot Identifier: Parcel: 3774631333

Issued To: Andy Swartzel

Property Location: 139 Beacon Ridge Drive

Subdivision (if applicable) River Walk Lot #: 14 Block: _____ Section: III

LSS Report Provided: Yes [X] No [ ]

If yes, name and license number of LSS: Alan Clapp #1058

New [X] Expansion [ ] System Relocation [ ] Change of Use [ ]

Facility Type: Residential Single Family Dwelling

Number of bedrooms: 3 Number of Occupants: 6 Other: _____

Design Wastewater Strength: [X] Domestic [ ] High Strength [ ] Industrial Process Wastewater

Proposed Design Daily Flow: 360 GPD Proposed LTAR (Initial): .25 Proposed LTAR (Repair): .25

Proposed Wastewater System Type*: IIIbe (Initial) Pump Required: [X] Yes [ ] No [ ] May be required

Proposed Wastewater System Type*: IIIbe (Repair) Pump Required: [X] Yes [ ] No [ ] May be required

**Please include system classification for proposed wastewater system types in accordance with Rule .1301 Table XXXII*

Effluent Standard: [X] DSE [ ] HSE [ ] NSF/ANSI 40 [ ] TS-I [ ] TS-II [ ] RCW

Saprolite System (Initial): [ ] Yes [X] No Saprolite System (Repair): [ ] Yes [X] No

Fill System (Initial): [ ] Yes [X] No If yes, specify: [ ] New [ ] Existing (when adding more than 6 inches of fill to system area provide a fill plan)

Fill System (Repair): [ ] Yes [X] No If yes, specify: [ ] New [ ] Existing (when adding more than 6 inches of fill to system area provide a fill plan)

Usable Depth to LC (Initial)[x]: 40" Usable Depth to LC (Repair)[x]: 40" ***[x] Limiting Condition***

Max. Trench Depth (Initial)[‡]: 25.6" Max. Trench Depth (Repair)[‡]: 25.6" ***[‡] Measured on the downhill side of the trench***

Artificial Drainage Required: [ ] Yes [X] No If yes, please specify details: _____

Type of Water Supply: [X] Private well [ ] Public well [ ] Shared well [ ] Municipal Supply [ ] Spring [ ] Other: _____

Drainfield location meets requirements of Rule .0508: Yes [X] No [ ] Drainfield location meets requirements of Rule .0601: Yes [X] No [ ]

Permit valid for: [X] Five years [site plan submitted pursuant to GS 130A-334(13a)] [ ] No expiration [plat submitted pursuant to GS 130A-334(7a)]

Permit conditions:

Licensed Soil Scientist Print Name: Alan Clapp

Licensed Soil Scientist Signature: Alan Clapp Date: 11/23/24

The LSS evaluation is being submitted pursuant to and meets the requirements of G.S. 130A-335(a2).

See attached site sketch

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: OSWP-2024 65944.

This Section for Local Health Department Use Only

Initial submittal received: 11/27/2024 (Date) by BB (Initials)

G.S. 130A-335(a3) states the following:

When an applicant for an Improvement Permit submits to a local health department an Improvement Permit application, the permit fee charged by the local health department, the common form developed by the Department, and a soil evaluation pursuant to subsection (a2) of this section, the local health department shall, within five business days of receiving the application, conduct a completeness review of the submittal. A determination of completeness means that the Improvement Permit includes all of the required components. If the local health department determines that the Improvement Permit is incomplete, the local health department shall notify the applicant of the components needed to complete the Improvement Permit. The applicant may submit additional information to the local health department to cure the deficiencies in the Improvement Permit. The local health department shall make a final determination as to whether the Improvement Permit is complete within five business days after the local health department receives the additional information from the applicant. If the local health department fails to act within any period set out in this subsection, the applicant may treat the failure to act as a determination of completeness. The Department shall develop a common form for use as the Improvement Permit.

The review for completeness of this Improvement Permit was conducted in accordance with G.S. 130A-335(a3). This Improvement Permit is determined to be:

☐ Incomplete (If box is checked, information in this section is required.)

The following items are missing:

_____

_____

Copies of this were sent to the LSS and the Applicant on _____ (Date)

State Authorized Agent: _____ Date: _____

☑ Complete

State Authorized Agent: Brijan A Bass Date: 12/4/2024.

This Improvement Permit is issued pursuant to G.S. 130A-335 (a2) and (a3) using the signed and sealed LSS/LG evaluation(s) attached here. The issuance of this permit 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 permit 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 15A NCAC 18E and to the conditions of this permit.

The Department, the Department's authorized agents, and the local health departments shall be discharged and released from any liabilities, duties, and responsibilities imposed by statute or in common law from any claim arising out of or attributed to evaluations, submittals, or actions from a licensed soil scientist or licensed geologist pursuant to GS 130A-335(a2).

Improvement Permit Expiration Date: 12/4/2029

See attached site sketch

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: OSWP-2024 65844.

Re-submittal of Improvement Permit

LHD USE ONLY: This IP resubmittal received: _____ by _____
Date *Initials*

The following items are being resubmitted pursuant to G.S. 130A-335(a3) for issuance of the Improvement Permit:

_____

_____

_____

_____

I, _____ hereby attest that the information required to be included with this re-submittal
Licensed Soil Scientist (Print Name)
is accurate and complete to the best of my knowledge and that the proposed Improvement Permit meets all applicable federal, State, and local laws, regulations, rules, and ordinances.

_____ _____
Signature of Licensed Soil Scientist *Date*

The section below is for Local Health Department use after submittal of items noted as missing above.

LHD Follow-up Completeness Review of Improvement Permit

The review for completeness of this Improvement Permit re-submittal was conducted in accordance with G.S. 130A-335(a3). This Improvement Permit is determined to be:

☐ Incomplete (If box is checked, information in this section is required.)

The following items are missing:

_____

_____

Copies of this were sent to the LSS and the Applicant on _____
Date

State Authorized Agent: _____ Date: _____

☐ Complete

State Authorized Agent: _____ Date: _____

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: Swp-2024 05844

CONSTRUCTION AUTHORIZATION FOR G.S. 130A-335(a2)

County: Iredell **Pre-Construction Conference Required:** Yes ☐ No ☒

PIN/Lot Identifier: Parcel: 3774631333

Issued To: Andy Swartzel

Property Location: 139 Beacon Ridge Drive

AOWE/PE Plans/Evaluations Provided: Yes ☒ No ☐ If yes, name and license number of AOWE/PE: Alan Clapp # 10017E

Facility Type: Residential Single Family Dwelling

Number of bedrooms: 3 Number of Occupants: 6 Other:

☒ New ☐ Expansion ☐ Repair ☐ System Relocation ☐ Change of Use

Basement? ☒ Yes ☐ No Basement Fixtures? ☒ Yes ☐ No

Crawl Space? ☐ Yes ☒ No Slab Foundation? ☐ Yes ☒ No

Type of Wastewater System* IIIbe (Initial) IIIbe (Repair)

**Please include system classification for proposed wastewater system types in accordance with Rule .1301 Table XXXII*

Design Daily Flow: 360 GPD Wastewater Strength: ☒ Domestic ☐ High Strength ☐ Industrial Process WW

Session Law 2014-120 Section 53, Engineering Design Utilizing Low-flow Fixtures and Low-flow Technologies? ☐ Yes ☒ No
(if yes, please provide engineering documentation)

Effluent Standard: ☒ DSE ☐ HSE ☐ NSF/ANSI 40 ☐ TS-I ☐ TS-II ☐ RCW

Type of Water Supply: ☒ Private well ☐ Public well ☐ Shared well ☐ Municipal Supply ☐ Spring ☐ Other:

Installation Requirements/Conditions

Septic Tank Size: 1000 gallons Total Trench/Bed Length: 240 feet Trench/Bed Spacing: 6 feet on center

Trench/Bed Width: 24 inches LTAR: .25 gpd/ft² Usable Depth to LC (Initial)ˣ: 40" ˣ***Limiting condition***

Soil Cover: 6 inches Slope Corrected Maximum Trench/Bed Depth‡: 25.6 inches ‡ ***Measured on the downhill side of the trench***

Pump Tank Size (if applicable): 1000 gallons Requires more than 1 pump? ☐ Yes ☒ No

Pump Requirements: * ft. TDH vs. 30 GPM Grease Trap Size (if applicable): gallons

Distribution Method: ☐ Serial ☐ D-Box or Parallel ☒ Pressure Manifold(s) ☐ LPP ☐ Other:

Artificial Drainage Required: Yes ☐ No ☒ If yes, please specify details:

Legal Agreements *(If the answer is "Yes" to any type of legal agreements, please attach a copy of the agreement.)*

Multi-party Agreement Required [.0204(g)]: ☐ Yes ☒ No Declaration of Restrictive Covenants: ☐ Yes ☒ No

Easement, Right-of-Way, or Encroachment Agreement Required [.0301(b)]: ☐ Yes ☒ No

Management Entity Required: ☐ Yes ☒ No Minimum O&M Requirements: 5 year LHD per .1301

Permit conditions: TDH to be determined based on plumbing stub, tank location and float "on" height

The requirements of 15A NCAC 18E are incorporated by reference into this permit and shall be met. Systems shall be installed in accordance with the attached site sketch. *This Construction Authorization is subject to revocation if the site plan, plat, or the intended use changes.* The Construction Authorization shall not be affected by a change in ownership of the site. This Construction Authorization is subject to compliance with the provisions of 15A NCAC 18E, or 15A NCAC 18A .1900, as applicable, and to the conditions of this permit.

AOWE/PE Print Name: Alan Clapp

AOWE/PE Signature: Alan Clapp Date: 11/23/24

This AOWE/PE submittal is pursuant to and meets the requirements of G.S. 130A-335(a2) and (a5).

See attached site sketch

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: OSWP-2024 65844.

This Section for Local Health Department Use Only

Initial submittal received: 11/27/2024 (*Date*) by BB (*Initials*)

G.S. 130A-335(a5) states the following:

When an applicant for a Construction Authorization, or an Improvement Permit and Construction Authorization together, submits a Construction Authorization, or an Improvement Permit and Construction Authorization application together, the permit fee charged by the local health department, the common form developed by the Department, and any necessary signed and sealed plans or evaluations conducted by a person licensed pursuant to Chapter 89C of the General Statutes as a licensed engineer or a person certified pursuant to Article 5 of Chapter 90A of the General Statutes as an Authorized On-Site Wastewater Evaluator, the local health department shall, within five business days of receiving the application, conduct a completeness review of the submittal. A determination of completeness means that the Construction Authorization or Improvement Permit and Construction Authorization includes all of the required components. If the local health department determines that the Construction Authorization or Improvement Permit and Construction Authorization is incomplete, the local health department shall notify the applicant of the components needed to complete the Construction Authorization or Improvement Permit and Construction Authorization. The applicant may submit additional information to the local health department to cure the deficiencies in the Construction Authorization or Improvement Permit and Construction Authorization. The local health department shall make a final determination as to whether the Construction Authorization or Improvement Permit and Construction Authorization is complete within five business days after the local health department receives the additional information from the applicant. If the local health department fails to act within any period set out in this subsection, the applicant may treat the failure to act as a determination of completeness. The applicant may apply for the building permit for the project upon the decision of completeness of the Construction Authorization or Improvement Permit and Construction Authorization by the local health department or if the local health department fails to act within five business days. The Authorized On-Site Wastewater Evaluator or licensed engineer submitting the evaluation pursuant to this subsection may request that the local health department revoke or suspend the Construction Authorization or Improvement Permit and Construction Authorization for cause. Upon written request of the Authorized On-Site Wastewater Evaluator or licensed engineer, the local health department shall suspend or revoke the Construction Authorization or Improvement Permit and Construction Authorization pursuant to G.S. 130A-23. The Department shall develop a common form for use as the Construction Authorization.

The review for completeness of this Construction Authorization was conducted in accordance with G.S. 130A-335(a5). This Construction Authorization is determined to be:

☐ Incomplete (If box is checked, information in this section is required.)

The following items are missing: _____

_____

Copies of this were sent to the AOWE/PE and the Applicant on _____ (*Date*)

State Authorized Agent: _____ Date: _____

☑ Complete

State Authorized Agent: Brijmohan Bansal Date of Issuance: 12/4/2024

This Construction Authorization is issued pursuant to G.S. 130A-335(a2) and (a5) using the signed and sealed plans or evaluations attached here. This Construction Authorization is subject to revocation if the site plan, plat, or the intended use changes. The Construction Authorization shall not be affected by 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.

The Department, the Department's authorized agents, and the local health departments shall be discharged and released from any liabilities, duties, and responsibilities imposed by statute or in common law from any claim arising out of or attributed to plans, evaluations, preconstruction conference findings, submittals, or actions from a person licensed pursuant to Chapter 89C of the General Statutes as a licensed engineer or a person certified pursuant to Article 5 of Chapter 90A of the General Statutes as an Authorized On-Site Wastewater Evaluator in GS 130A-335(a2), (a5), and (a7). The Department, the Department's authorized agents, and the local health departments shall be responsible and bear liability for their actions and evaluations and other obligations under State law or rule, including the issuance of the operations permit pursuant to GS 130A-337.

Construction Authorization Expiration Date: 12/4/2029.

See attached site sketch

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: OSwp-2024 65844

Re-submittal of Construction Authorization

LHD USE ONLY: This CA resubmittal received: _____ by _____
Date *Initials*

The following items are being resubmitted pursuant to G.S. 130A-335(a5) for issuance of the Construction Authorization:

_____

_____

_____

_____

I, _____ hereby attest that the information required to be included with this re-submittal
Authorized Onsite Wastewater Evaluator (Print Name)
is accurate and complete to the best of my knowledge and that the proposed Construction Authorization meets all applicable federal, State, and local laws, regulations, rules, and ordinances.

_____ _____
Signature of Authorized On-Site Wastewater Evaluator *Date*

The section below is for Local Health Department use after submittal of items noted as missing above.

LHD Follow-up Completeness Review of Construction Authorization

The review for completeness of this Construction Authorization re-submittal was conducted in accordance with G.S. 130A-335(a5). This Construction Authorization is determined to be:

☐ Incomplete (If box is checked, information in this section is required.)

The following items are missing:

_____

_____

Copies of this were sent to the AOWE/PE and the Applicant on _____
Date

State Authorized Agent: _____ Date: _____

☐ Complete

State Authorized Agent: _____ Date: _____

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

ADDENDUM TO G.S. 130A-335(a2) SUBMITTAL

County: Iredell

PIN/Lot Identifier: Parcel: 3774631333

Issued To: Andy Swartzel

Additional Improvement Permit Conditions:

1. Install system per 15A 18E .0901 (g) and .0800.
2. Pump system to meet 15A 18E .1100 and .1400.
3. ~~Use septic and pump tanks as required per 15A 18E .0805.~~
4. Vertical PPBPS initial and repair at 6' on center.
5. Make sure property lines are marked prior to installation.
6. ~~Construct protective fencing around the soil area to protect from grading, compaction, and construction traffi~~ Storage of materials, cuts and fill over septic area could result in revocation of the permit.

Additional Construction Authorization Conditions:

7. Contact NC 811 prior to any digging and excavation.
8. ~~Divert all surface water around system and repair area including gutter and foundation drains. Install upslope~~ surface diversion swales.
9. Install system during dry conditions. Install system in area noted at the trench depth specified. Final plumbing stub out elevation will determine final TDH.
10. ~~Straw and seed septic area after installation to establish a stable cover and prevent soil erosion.~~
11. Submit the attached common form, report, and map with signature and an application(if required) to the Heal Department.
12. Revised 11/23/24 to reflect new septic tank, pump tank and supply line location. New layout after ~~preconstruction meeting with Lentz Wastewater.~~

Alan Clapp
Licensed Soil Scientist
405 N. Churton Street
Hillsborough, NC 27278
Phone: 336-202-6808 **alanclapp63@gmail.com**
Soil/Site Evaluations-Septic Systems Layout and Design-Storm Water Assessment-Preliminary Evaluations

November 23, 2024

Andy Swartzel
Lithko Contracting
4411 Republic Ct NW
Concord, NC 28027

RE: Andrew and Jennifer Swartzel Property
139 Beacon Ridge Drive
Parcel: 3774631333
Iredell County, NC

Mr. Swartzel:

On October 16, 2023, and February 9, 2024, the property referenced above in Iredell County was evaluated to facilitate Improvement Permit/Construction Authorization permitting for a septic system to serve a Single-Family Dwelling Unit. This report and attached documents were prepared to meet the requirements for a Licensed Soil Scientist evaluation to meet **SL 2023-90 A2** permitting**.** Well water is to serve as water supply for the dwelling. Well setbacks must meet **15A NCAC 02C .0107** requirements and any Iredell County local well regulations.

Soil bores were made and examined to determine soil suitability for on-site sewage disposal systems in accordance with **15A 18E Wastewater Treatment and Disposal Systems**. These borings were made by a soil auger. The property was traversed, and numerous bores were made in a transect-type sampling pattern to perform the soil/site evaluation. The soil profile descriptions and locations along with the septic layout drawing will be located on a copy of the site plan. Under state regulations, sites for subsurface sewage disposal systems (septic tank systems) are evaluated for landscape position and topography, soil characteristics (structure, mineralogy, and texture), soil depth, soil wetness, restrictive horizons, and available space. This property is in the Piedmont physiographic region and the geologic region of the Milton Terrane.

Any lot in North Carolina recorded after January 1, 1983, requires enough area for an initial and repair field. A septic layout is shown to demonstrate available space (.0508). Lots recorded prior to January 1, 1983, are repair area exempt for dwellings with four bedrooms or less and subject to some reduced setbacks if recorded prior to July 1, 1977.

Project #: 923291

Typical Septic System used in Piedmont of NC:

The most common septic systems used in North Carolina are listed with the corresponding minimum usable soil depth required and any trench length reduction if allowed noted in parentheses: conventional (30"), shallow conventional systems (24" with soil cap), chamber systems (24" with soil cap and 25% drain field reduction), polystyrene systems (24" with soil cap and 25% drain field reduction), vertical panel block systems (requires at least 34" of usable soil and allows 50% drain field reduction), horizontal panel block systems (requires 26" of usable soil depth and allows 50% drain field reduction), large diameter pipe (24"), low pressure pipe (24"), low profile chamber (20"), low pressure fill (18") and drip irrigation (18"). A pump can be used to deliver effluent to the usable soil area if gravity flow cannot be achieved. Also, a pump is required on any system with over 750' of drain field. The percent reduction means the amount of drain field trench length reduction for that product as compared to conventional trenches. Certain models of chamber systems and polystyrene bundle systems are considered accepted trench products. Accepted trench products may be substituted in lieu of conventional gravel trenches.

SL 2023-90 Conditions, System Specifications and Site Features:

The information below is provided to facilitate the IP/CA issuance. One additional feature I would recommend is to **construct protective fencing around the soil area and septic layout**. No grading, filling, storage, compaction, or disturbance should be allowed over the soil/septic area. No soil removal from septic area during clearing.

Design Flow:	**360** GPD	**Nitrification Field:**	**240** Lin. Ft.
Septic Tank:	**1000** GAL	**# of Lines:**	4
Pump Tank:	**1000** GAL	**Min. Trench Depth:**	24 inches
Soil LTAR:	**0.25** gpd/ft^2	**Max. Trench Depth:**	**26** inches
Usable Soil Depth:	**40"**	**Min. Soil Cover:**	**6** inches
Initial System Type:	Pump to Vertical PPBPS Trench	**Max. Soil Cover:**	**8** inches
Initial System Classification:	**IIIbe**	**Trench Spacing:**	**6** Ft. on Center
Repair System Type:	Pump to Vertical PPBPS Trench	**Trench Width:**	**24** inches
Repair System Classification:	**IIIbe**	**Aggregate Depth:**	Vertical PPBPS Trench
Saprolite System:	No	**Distribution Type:**	Pressure Manifold
Pump Requirements:	30 gpm @ TDH to be determined	**Pre-treatment (Y/N):**	No
Dosing Volume:	**198** Gallons	**Conditions:**	See attached
Installer Level Required:	**II**	**Water Supply:**	**Well**

Location: 139 Beacon Ridge Drive

Project #: 923291

Design and Calculations:

Bedrooms: 3 not to exceed 6 people

Design Flow: 3-bedroom x 120 gpd/bedroom = 360 gpd, domestic strength wastewater

Tankage: (15A NCAC .0801 (a)):

For a 3-bedroom dwelling, the minimum septic tank size is 1000-gallon septic tank (STB) capacity with effluent filter. Use a 1000-gallon septic tank. For a system that also requires a pump use a 1000-gallon pump tank (PT). (.0802 (a)).

Soil/Site Conditions:

Initial and Repair LTAR: .25 gpd/ft²
Trench Bottom Square Footage Required: 360 gpd/.25 gpd/ft² = 1440 ft²
Drainfield Requirement: 1440 ft²/ 3 ft trench = 480 ft.
System Requirement:

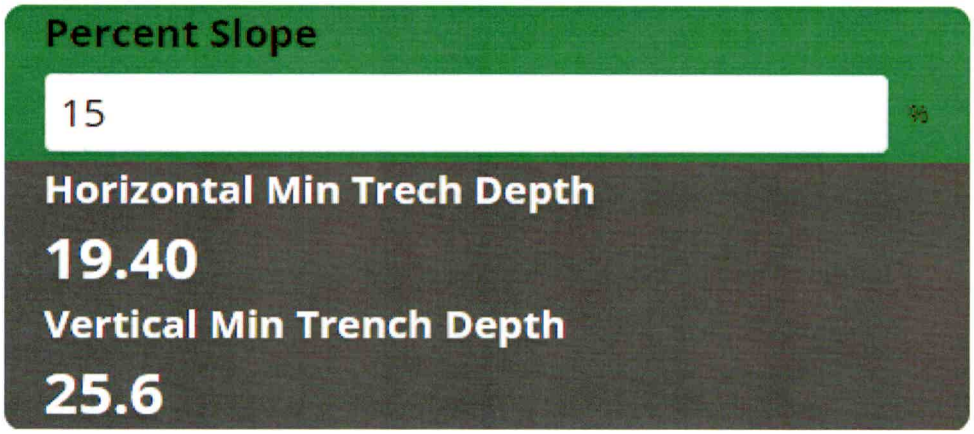
Conventional:	480'
25% Accepted Trench	360'
50% PPBPS Trench	240'



Usable Soil/Saprolite Depth – Initial and Repair: 40" (Based on bores A, B, C, D in the usable soil area and slope corrected)

Minimum Trench Depth Initial and Repair: 26"

Slope Correction Calculator



Initial System Type: Pump to PPBPS trench (IIIbe)

Initial Trench Required: **240' x 2'** of Vertical PPBPS trench product.

Repair System Type: Pump to PPBPS trench (IIIbe)

Septic Layout:

Line	Color	Length
1	White 1	50'
2	White 2	60'
3	White 3	70'
4	Lime 1	70'
5	Lime 2	70'
6	Lime 3	70'
7	White 4	66'
8	White 5	66'
9	White 6	66'
10	Lime 4	42'
Total:		**630'**

1. Initial system - 240' needed PPBPS Trench Lines 1-6
2. Repair system – 240' needed PPBPS Trench.
3. Line lengths measured with Bluebeam Revu Measuring tool.
4. Meets .0508 Available Space requirements.
5. Lines shown at 6' on center at minimum.

Project #: 923291

System Distribution: Pressure Manifold (18E .1106 (a))

Pressure Manifold Tap Requirements:

Line	Layout Length	Length Used	# of panels	Tap Dia.	Tap Sch.	Tap Flow[1]	Flow/Foot
7	66'	66'	15	½	40	7.11	.11
8	66'	66'	15	½	40	7.11	.11
9	66'	66'	15	½	40	7.11	.11
10	42'	42'	10	½	80	5.5	.13
Total:	**360'**	**240'**	**55**			**26.83 gpm**	

1. Tap Flows @ 2' Pressure Head
2. 4-tap manifold
3. The pump shall be sized to deliver 36 gpm @ TDH determined by pump elevation and location and allows for vent hole (2 gpm) flow loss in pump tank.

Manifold, Dosing Volume, Drawdown:

Manifold Size 3 or 4 " **Force Main Size** 2 " PVC

Dosing Volume = 55 (# of Panels) X 3.6 = **198** Gallons (based on PPBPS volume)

Drawdown tether = **198** Gallons / Gallons per Inch of Pump Tank used = * "

Total Dynamic Head = * + * ' + 2' = '*
TDH

Elevation Head + Friction Loss + Pressure Head

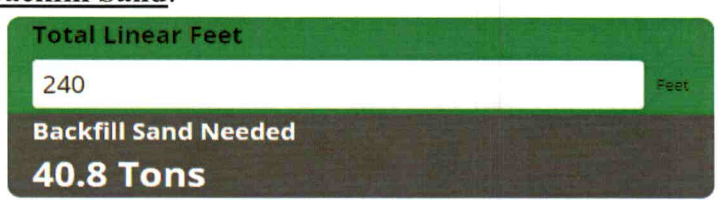
Pump Requirement **29** GPM @ * Head

***To be determined at time of installation based on plumbing stub out elevation**

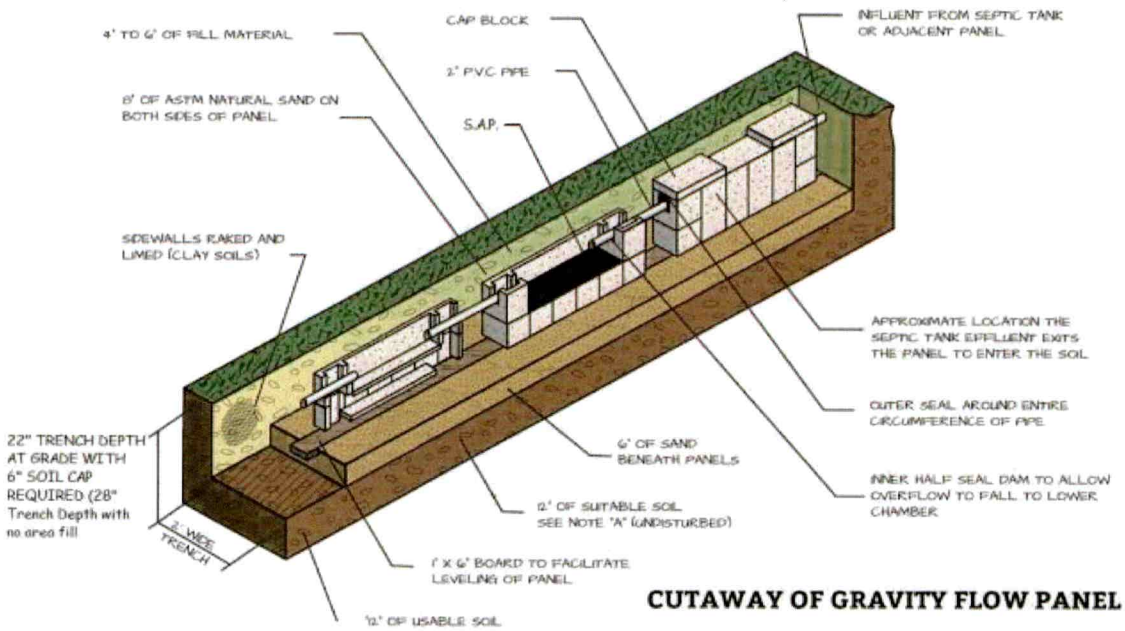
Pump Supply Lines and Force Mains:

Meet .0601 setbacks and .1100 design specifications.

Backfill Sand:

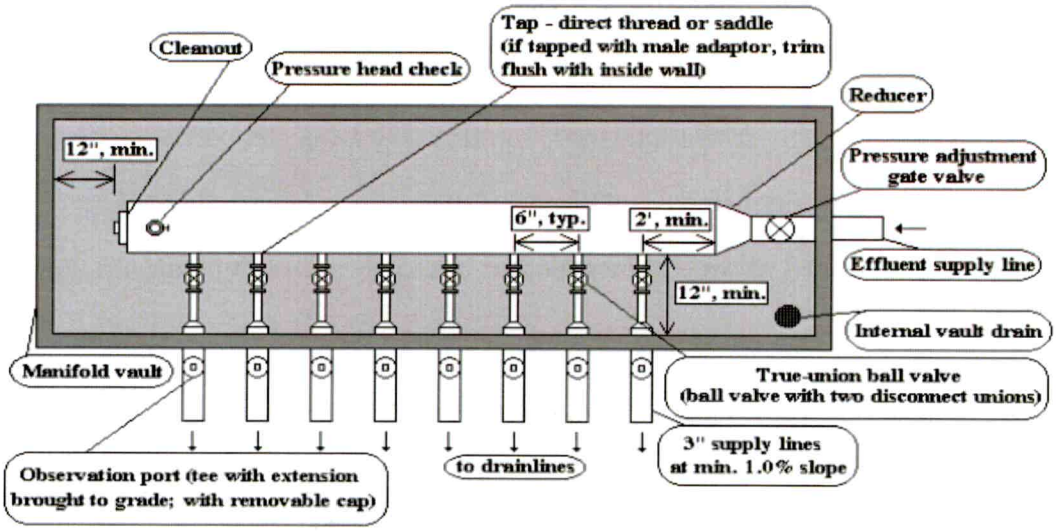


Isometric Drawing of a Segment of T & J Panel Vertical Installation

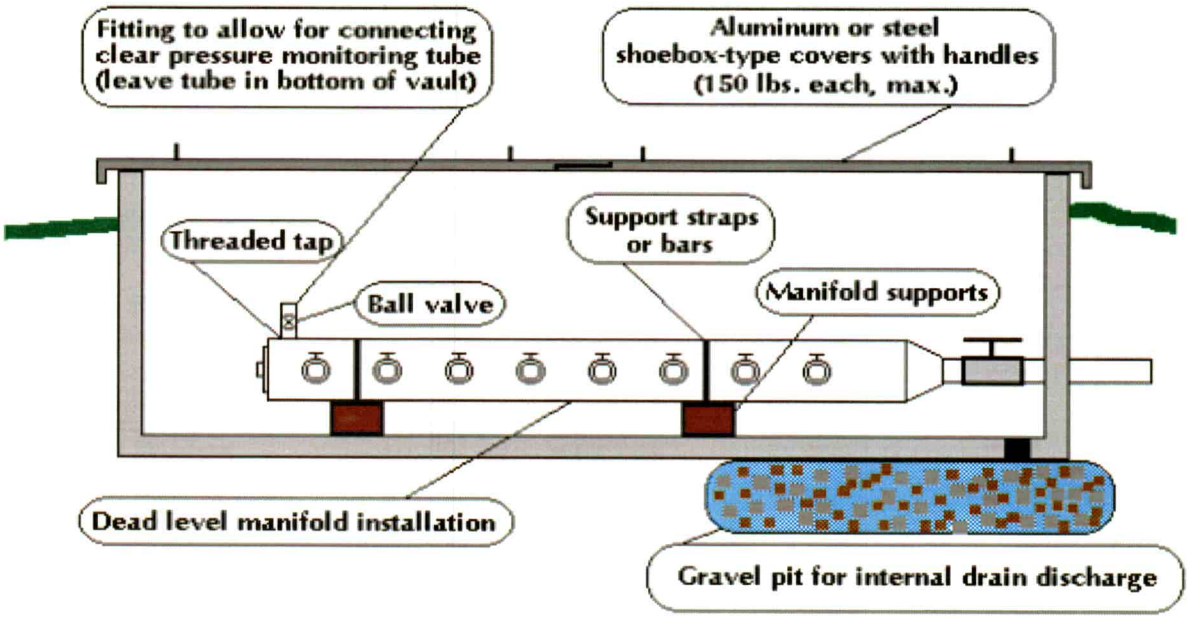


CUTAWAY OF GRAVITY FLOW PANEL

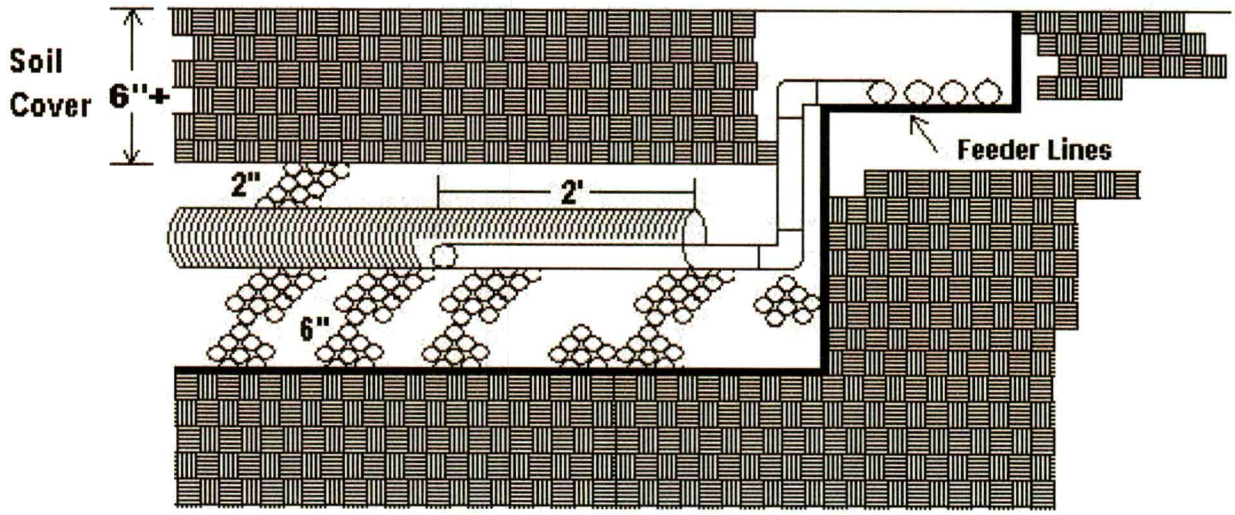
Profile View of Pressure Manifold for Sloping Site Installation (not to scale)



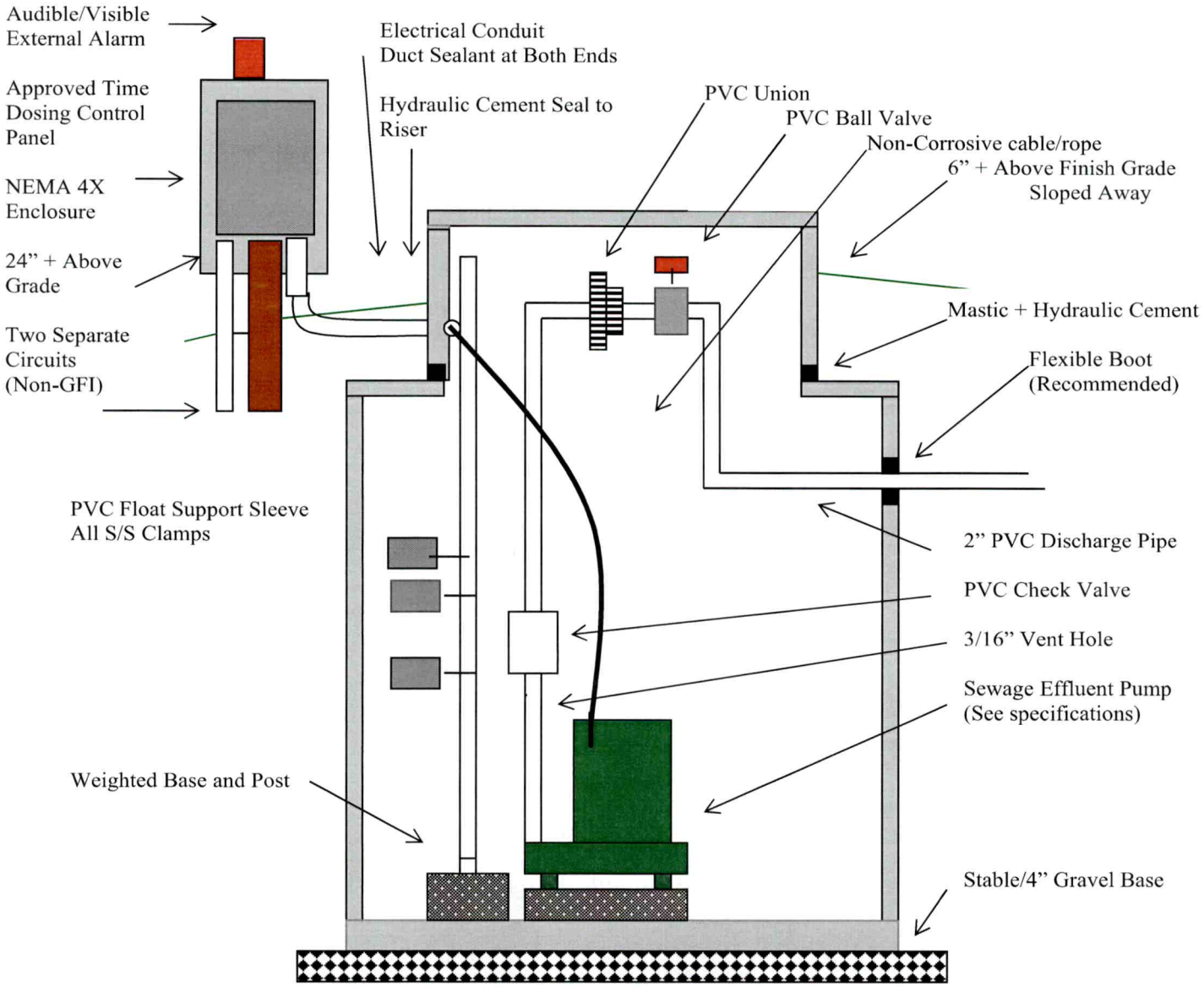
Project #: 923291



Typical Trench Cross Section When Pumping to a Manifold



Feeder lines should be elbowed down to gravel trench, accepted trench, PPBPS trench or other trench product. Feeder line ditch should be higher than trench bottom to prevent backflow into feeder line trench (as shown).



TYPICAL PUMP TANK DETAIL SPECIFICATIONS

Not to Scale

- The Alarm shall be located adjacent to the pump tank and approved for outdoor locations (NEMA 4X or equal)
- The circuit serving the alarm shall be on a separate circuit from the pump.
- The control panel enclosure shall be mounted at least 3-5' above grade on a durable, sturdy, non-corrosive post such as a pressure treated 4X4.
- The floats shall be supported using non-corrosive materials separate from the discharge pipe. The float wire pivot points shall be secured with durable straps such as all stainless-steel clamps or equivalent. The floats should be strapped to a 2" removable PVC pipe sleeve located over a smaller diameter weighted standpipe. The floats shall be adjustable and replaceable without entering the tank or removing the pump. The pump off level shall be set to keep the pump submerged.
- Pipe penetrations shall be through approved flexible boots or sleeves. The riser and conduit shall be sealed to the tank with pliable mastic followed by a troweled coat of hydraulic cement.
- All piping shall be Schedule 40 minimum PVC. All fittings shall be PVC pressure fittings labeled NSF-PW. Valves and unions shall be located within 18" of the riser cover and should be Schedule 80 or equal.

The Control panel is to be mounted adjacent to the pump tank. Recommend at a height to allow the Operator to work controls while standing. (e.g., center of panel to be 3 to 5 feet above finished grade, 2 feet minimum above finished grade) The alarm circuit shall be supplied ahead of the pump circuit overload device (on a separate circuit). The alarm shall be provided with a test button which activates both the light and horn. In the event of a high-water condition, activation of a "silence" switch will bypass the horn and leave the visual alarm on. Any recurrence of the high-water condition will automatically reactivate the horn and light. *Alarm panels that are mounted indoors may be used in addition to, but not instead of the exterior alarm panel.*

PUMP CONTROLS (FLOATS) Electrical control floats or similar devices designed for detecting effluent levels shall be provided to activate and deactivate the pump. The pump-off elevation shall be set to keep the pump always submerged. A separate float to activate the high-water alarm shall be set to activate within 6 inches of the pump-on elevation. Underwriter's Laboratory or an equivalent third party electrical shall list the level sensing devices testing and listing agency.

The floats shall be supported utilizing durable, corrosion resistant material, and shall be adjustable, removable, and replaceable without requiring dewatering, entrance into the tank, or pump removal. An acceptable method would be to provide a PVC vertical weighted pipe with the float cables secured at the proper elevation using **"all stainless steel" clamps at the float pivot points**. *Care must be taken to ensure that the sharp edge of the clamp does not bear on the wire insulation. Plastic tie-wraps alone, or strapping floats to the discharge pipe are not acceptable.*

CONDUCTORS (WIRES) shall be conveyed to the disconnect enclosure through waterproof, gasproof, and corrosion-resistant conduits. Wire grips, duct seal, or other suitable material shall be used to seal around wire and wire conduit openings. There shall be no splices within the pump tank or tank access riser.

When necessary or specified, the tanks and control panels shall be protected from vehicular traffic by constructing guardrails or bollards.

Conclusions:

In North Carolina, two primary options for septic system permitting exist. In the traditional option, the local county health department can evaluate and permit any site. A new version for the traditional permit is now allowed by NC Session Law 2023-90. In this version, a NC Licensed Soil Scientist can evaluate a lot and submit soil information on each lot to the Health Department in lieu of the Health Department evaluation. In the traditional permitting model, the county in the form of an Improvement Permit grants site approval. An Authorization to Construct a Wastewater System is issued once building floor plans are reviewed and the Improvement Permit is issued. The county issues an Operation Permit after the system has been installed to meet the specifications of the Authorization to Construct. Septic layouts and system design can be performed as needed. The private permitting option is the Engineer Option Permit (EOP). A NC Licensed Engineer, an NC Licensed Soil Scientist and a NC Registered Septic Installer can evaluate, design, and install a septic system without Health Department involvement other than record keeping.

The attached soil map and septic layout maps are based on soil boring, property iron and flag locations collected using an EOS Arrow Gold GPS and iCMTGIS Pro app and then overlain with the Iredell County topo shapefiles available from NC OneMap. PCGIS X software was then used to prepare the maps and site plan. The house site was marked with wood stakes and located by GPS. A one inch to 40' version of the map will be provided. The map is scaled to print on 11" x 17" (Tabloid) paper in Landscape format. The GPS locations can be accurate to submeter, but county GIS shapefile layers should not be considered as accurate as survey located features, points, and property lines. Property corners where found were collected and are noted on the soils map.

Site Conditions for Improvement Permit and Construction Authorization:

1. Install system per 15A 18E .0901 (g) and .0800.
2. Pump system to meet 15A 18E .1100 and .1400.
3. Use septic and pump tanks as required per 15A 18E .0805.
4. Vertical PPBPS initial and repair at 6' on center.
5. Make sure property lines are marked prior to installation.
6. Construct protective fencing around the soil area to protect from grading, compaction, and construction traffic. Storage of materials, cuts and fill over septic area could result in revocation of the permit.
7. Contact NC 811 prior to any digging and excavation.
8. Divert all surface water around system and repair area including gutter and foundation drains. Install upslope surface diversion swales.
9. Install system during dry conditions. Install system in area noted at the trench depth specified. Final plumbing stub out elevation will determine final TDH.
10. Straw and seed septic area after installation to establish a stable cover and prevent soil erosion.
11. Submit the attached common form, report, and map with signature and an application(if required) to the Health Department.
12. Revised 11/23/24 to reflect new septic tank, pump tank and supply line location. New layout after preconstruction meeting with Lentz Wastewater.

NC Licensed Soil Scientist statement:

This LSS Evaluation is being submitted pursuant to and meets the requirements of GS. 130A-335 (a2).

NC Onsite Wastewater Evaluator statement (AOWE):

This AOWE submittal is pursuant to and meets the requirements of G.S. 130A-335(a2) and (a5).

Please feel free to contact me if you have any further questions.

Alan Clapp

Alan Clapp

NC Licensed Soil Scientist #1058
NC Registered Environmental Health Specialist #1118
NC Subsurface Wastewater Operator #1009092
NC Authorized Onsite Wastewater Evaluator #10017E





Project #: 923291

Septic System Setbacks - *15A NCAC 18E .0601 Location of Sanitary Sewage Systems*:

TABLE IX. Minimum setbacks from all wastewater systems to site features

Site Features	Setback in feet
Any transient or non-transient non-community water supply well, community well, shared water supply well, well that complies with 15A NCAC 18A .1700, or water supply spring	100
A private drinking water well or upslope spring serving a single family dwelling unit	50
Any other well or source not listed in this table, excluding monitoring wells	50
Surface waters classified WS-I, from ordinary high-water mark	100
Waters classified SA, from mean high-water mark	100
Any Class I or Class II reservoir, from normal water level	100
Lake or pond, from normal water level	50
Any other stream, non-water supply spring, or other surface waters, from the ordinary high-water mark	50
Tidal influenced waters, such as marshes and coastal waters, from mean high-water mark	50
Permanent stormwater retention basin, from normal water level	50
Any water line, unless the requirements of Paragraph (i) have been met	10
Closed loop geothermal wells	15
Building foundation and deck supports	5
Patio, porch, stoop, lighting fixtures, or signage, including supporting structures such as posts or pilings	1
Any basement, cellar, or in-ground swimming pool	15
Buried storage tank or basin, except stormwater	10
Above ground swimming pool and appurtenances that require a building permit	5
Top of slope of embankment or cuts of two feet or more vertical height with a slope greater than 50 percent	15
Top of slope of embankment or cuts of two feet or more vertical height with a slope greater than 33 percent and less than or equal to 50 percent	15 If the site has suitable soil depth that extends for a minimum horizontal distance of 15 feet from the edge of the dispersal field, no minimum setback is required.
Top of slope of embankment or cuts of two feet or more vertical height with a slope less than 33 percent	0
Groundwater lowering system, as measured on the ground surface from the edge of the feature	25
Downslope interceptor drains and surface water diversions with a vertical cut of more than two feet, as measured on the ground surface from the edge of the feature	15

Upslope and sideslope interceptor drains and surface water diversions with a vertical cut of more than two feet, as measured on the ground surface from the edge of the feature	10
A stormwater collection system as defined in 15A NCAC 02H .1002(48), excluding gutter drains that connect to a stormwater collection system, with a vertical cut of more than two feet as measured from the center of the collection system	10
Bio-retention area, injection well, infiltration system, or dry pond	25
Any other dispersal field, except designated dispersal field repair area for project site	20
Any property line	10
Burial plot or graveyard boundary	10
Above ground storage tank from dripline or foundation pad, whichever is more limiting	5
Utility transmission and distribution line poles and towers, including guy wires, unless a greater setback is required by the utility company	5
Utility transformer, ground-surface mounted	5
Underground utilities	5

GENERAL DRAINFIELD REQUIREMENTS AND BEST CONSTRUCTION PRACTICES

1. Any clearing or preparation of the nitrification field shall be done without removal, disturbance, or compaction of soil. The contractor shall establish and stake the contour lines of the drainfield area before the installation and before the preconstruction conference, when required. **Tree or sediment protective fencing shall be installed around septic area to eliminate construction traffic and soil compaction on septic area.**

2. Drainfield trenches shall be installed level and shall follow the ground contours. An engineer's level or laser shall be used in staking and constructing the lines. Trench depth shall not exceed the maximum specified by the Construction Authorization, unless otherwise specified, (i.e., ultra-shallow systems). Trench installation specifications from product manufacturers shall be followed.

3. No construction or backfilling shall be done when soil conditions are wet enough to cause a smearing or compaction of the soil in the drainfield or repair area.

4. The pipe between the septic tank and drainfield, or between the septic tank and pump tank shall be a minimum of 3" schedule 40 PVC or equivalent, with a minimum fall of 1/8" per foot. All joints from the septic tank to the drainfield shall be watertight. The pipe shall be on a firm, stable surface and secured. There shall be a 2' dam of undisturbed earth before a gravel trench begins. All other trench types per manufacturer. The pipe shall then be inserted at least 2' into the corrugated pipe. A cleanout to the ground surface shall be located at the end of the gravity pipe (the beginning of the drainfield) when the drainfield is over 50' from the tank.

5. The trench bottoms shall be smoothed and level with loose soil removed.

6. When necessary to change to a new contour, a step-down shall be constructed of a 2' **undisturbed** earth dam, which is raised to an elevation equal to the upstream gravel surface. However, precautions shall be taken to prevent raising the level of the effluent in the tank. Schedule 40 pipe (3" minimum) shall be used in crossing dams. Fittings will be needed to make the turns. The rigid pipe shall extend at least 2 feet into the level portion of the corrugated pipe. Area taken up by dams and step-downs shall not count as part of the footage required. *For accepted trench products and Panel Block products, use manufacturer's specifications.*

7. The soil cover over the drainfield shall be to a depth of at least 6". Boulders should be removed from the backfill material to prevent damage to the pipe. The finished grade shall be smoothed to prevent ponding of surface water over the drainfield. Surface water from upslope, including foundation and gutter drains, shall be effectively diverted away.

8. A vegetative cover of grass over the drainfield shall be established after final grading to prevent soil erosion. Divert all surface water and gutter drainage around system.

Installation and Testing Recommendations and Best Practices:

1. A pre-construction conference is recommended to be attended by the installer and health department prior to beginning construction of the system.
2. For Accepted trench products use manufacturer's specifications for installation. The Installer should be certified in writing by the manufacturer.
3. The septic tank, dosing tank, risers and pipe penetrations shall be demonstrated to be watertight by a 24-hour leak test (no measurable leakage in 24 hours). The test shall be run with riser's inlet/outlet pipes installed.
4. Care shall be taken during installation to prevent extraneous debris from entering tanks, supply lines or distribution network. Supply lines and manifold shall be flushed prior to system start-up.
5. For pump dosed systems, a pump delivery rate shall be measured, and the floats adjusted according to the measured delivery rate to achieve the design flow at design head. All other mechanical components, pump(s), pump cycling, filters, etc., as applicable must be demonstrated to be fully operable in accordance with their design.
6. Install water line, electrical lines, and other buried utilities around septic and repair areas.
7. Keep repair areas free of parking and any future construction. Maintain grass cover over drainfield and repair areas.
8. Any proposed Septic Tank, Pump Tank and Pressure Manifold locations are at the discretion of the Health Department at the time of the preconstruction conference.
9. Call NC 811 to mark any utilities prior to digging.
10. Estimated Septic Tank pumping frequency:

Table I. Septic Tank Pumping Frequency in Years										
Septic Tank Size Gallons / Liters	Household size - Number of Occupants									
	1	2	3	4	5	6	7	8	9	10
	Septic Tank Pumping Frequency in Years									
500 gallons * / 1890 liters	5.8	2.6	1.5	1.0	0.7	0.4	0.3	0.2	0.1	--
750 * / 2840	9.1	4.2	2.6	1.8	1.3	1.0	0.7	0.6	0.4	0.3
900 / 3400	11.0	5.2	3.3	2.3	1.7	1.3	1.0	0.8	0.7	0.5
1000 / 3800	12.4	5.9	3.7	2.6	2.0	1.5	1.2	1.0	0.8	0.7
1250 / 5000	15.6	7.5	4.8	3.4	2.6	2.0	1.7	1.4	1.2	1.0
1500 / 5500	18.9	9.1	5.9	4.2	3.3	2.6	2.1	1.8	1.5	1.3

NC DHHS Division of Public Health Onsite Water Protection:
Understanding and Protecting Septic Systems

Septic System Resources form NC State Agricultural Extension:
https://content.ces.ncsu.edu/septic-systems-and-their-maintenance
https://content.ces.ncsu.edu/septic-system-owners-guide

Accepted Trench Products: https://ehs.ncpublichealth.com/oswp/approvedproducts.htm

T and J Panel Resources: http://www.tjpanel.com/installation-manual.html

Sheet ___ of ___
PROPERTY ID #: ___
COUNTY: IREDELL

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

OWNER: ANDI SWARTZEL — APPLICATION DATE: ___
ADDRESS: ___ — DATE EVALUATED: ___
PROPOSED FACILITY: ___ — PROPOSED DESIGN FLOW (0400): 360 gpd — PROPERTY SIZE: .937±
LOCATION OF SITE: BEACON RIDGE DR RIVER WALK SECT III LOT 14 — PROPERTY RECORDED: ___
WATER SUPPLY: ☐ Private ☐ Public ☐ Well ☐ Spring ☐ Other ___
EVALUATION METHOD: ☐ Auger Boring ☐ Pit ☐ Cut — TYPE OF WASTEWATER: ☐ Sewage ☐ Industrial Process ☐ High Strength

Boring/Pit/Cut #	A	B	C	D	E	F	G	H
Landscape position (.0502)	L	L	L	L				
Slope % (.0502)	12	15	10	15				
H1 depth (.0505)	0-8	0-5	0-10	0-6				
H1 texture (.0503)	scl	sc	scl	scl				
H1 consistence (.0503)	fr	fr	fr	fr				
H1 structure (.0503)	gr	gr	gr	gr				
H1 mineralogy (.0503)	se	se	se	se				
H2 depth (.0505)	8-30	5-36	10-29	6-31				
H2 texture (.0503)	c	c	c	c				
H2 consistence (.0503)	fi	fi	fi	fi				
H2 structure (.0503)	sbk	m sbk	msbk	sbk				
H2 mineralogy (.0503)	se	se		se				
H3 depth (.0503)	30-44	36-48	29-44	31-45				
H3 texture (.0503)	cl	cl	cl	cl				
H3 consistence (.0503)	fi	fi	fr	fi				
H3 structure (.0503)	gr	w sbk	w sbk	gr				
H3 mineralogy (.0503)	se	se	se	se				
H4 depth (.0503)	44		44	45				
H4 texture (.0503)	SAP		HIT	HIT				
H4 consistence (.0503)			Rock	Rock				
H4 structure (.0503)								
H4 mineralogy (.0503)								
Soil wetness (.0504)								
Saprolite (.0506)								
Notes:	x-4	x-5	x-4	x-5				
Usable soil depth (.0503)	40	43	40	40"				
Profile Class (.0509)	S	S	S	S				
LTAR (.0509)	.25	.3	.25	.25				
Evaluation Date	10-16-23	10-16-23	10-16-23	2-9-24				

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.0508)	S	S
System Type(s) (.1301)	IIIbe	IIIbc
Site LTAR (.0509)	.25	.25

OTHER FACTORS
SITE CLASSIFICATION (.0509): S
EVALUATED BY: Alan Clapp, LSS, REHS, AOWE
OTHER(S) PRESENT: KIP LEDBETTER

COMMENTS: ___

Updated February 2014

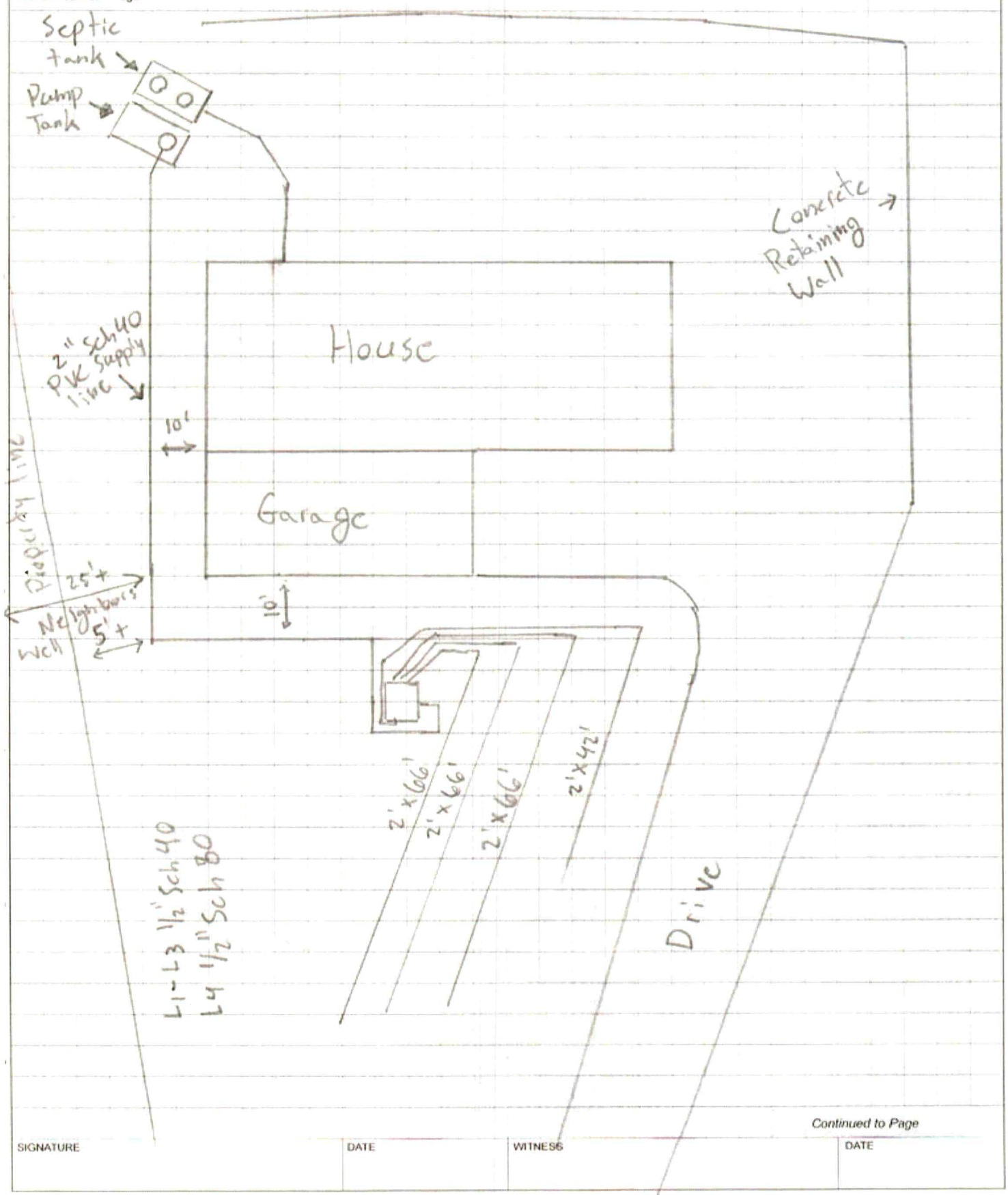
x = slope correction per .0502(d)

reclassified using .0901-.0910

Revised Layout sketch from Lentz Wastewater

TITLE **PROJECT** **DATE**

Continued from Page



Continued to Page

SIGNATURE	DATE	WITNESS	DATE

139 Beacon Ridge Road



NC ONSITE WASTEWATER EVALUATOR
Certification Number 10017E
Alan Clapp

LICENSED SOIL SCIENTIST
ALAN CLAPP
Alan Clapp
1058
STATE OF NORTH CAROLINA

40 0 40 US Feet

Scale = 1 : 40.00 (In : US Feet)

11/23/2024