SUPERVISOR/ADMINISTRATIVE PROFESSIONAL CHECKLIST

NEW SEPTIC A2

IP & CA

File Number: 4129 A

Assigned Inspector: Heather

☑ IP & CA $180.00: 6/12/24 gm Initial/Date

☐ OP $200.00: _____ Initial/Date

☐ Send IP permit for signature: _____ ☐ Signature received: _____

☐ Floor plans reviewed

☐ Generate CA ☐ Approve as Noted in Winchester

☐ This site is served by septic and well. Verify each is complete before final hold is released

☐ This septic system requires a certified operation contract before final hold is released

☐ Certified operator contract is on file: _____

☐ Septic file complete: _____

☐ Release final hold in Winchester: _____

Comments:

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date: 06/12/24
Receipt #: 149438
Check / Auth #: VISA 00007G
Received By: MOORES

Amount: 180.00
Tendered: 180.00
Returned: 0.00

Account Information

Account #: 200000
Contractor: KATE LEMOND
Attn:
Address:
Address:
City/State/Zip: ,

Item	Description	Quantity	Unit Price	Total Price
0789	A2 Session Law IP/CA Combo 15519 HUBBARD	1	180.00	180.00

Permit#

----------Outstanding Balances----------

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
225.00		2,512.50			

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4129A

MECKLENBURG COUNTY
HEALTH DEPARTMENT

#14737

APPLICATION FOR A RESIDENTIAL SITE IMPROVEMENT PERMIT/ CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER SYSTEM, NEW WELL INSTALLATION, OR REPAIR OF EXISTING WELL

1. **SEPTIC / TYPE APPLICATION:** ○ N/A ○ NEW SYSTEM ☒ ALTERATION ○ REPAIR ○ MODIFIED PLOT PLAN

2. **WELL / TYPE APPLICATION:** ☒ N/A ○ NEW WELL ○ MAJOR REPAIR ○ ABANDONMENT

3. **JOB LOCATION INFORMATION:**
TAX PARCEL NUMBER: 01 314 115
STREET ADDRESS: 15519 HUBBARD RD
CITY: HUNTERSVILLE
STATE: NC ZIP: 28078
SUBDIVISION NAME: _____
LOT #: _____ LOT SIZE (acres): 2.954
TOWNSHIP:
○ MECKLENBURG ○ CORNELIUS ☒ HUNTERSVILLE
○ DAVIDSON ○ CHARLOTTE ○ PINEVILLE
○ MATTHEWS ○ MINT HILL

4. **BUILDING INFORMATION:**
BUILDING TYPE:
○ SINGLE MOBILE HOME ○ MODULAR HOME
○ DOUBLE WIDE ○ MULTIPLE FAMILY
☒ HOUSE ○ OTHER _____
HEATED SQUARE FOOTAGE: 4440
NUMBER OF BEDROOMS: 5
NUMBER OF OCCUPANTS: 5
FOUNDATION TYPE:
○ CONCRETE SLAB ○ BASEMENT WITH PLUMBING
☒ CRAWL SPACE ○ BASEMENT WITH NO PLUMBING

5. **IF PLANNING TO EXPAND OR ALTER THE EXISTING SEPTIC SYSTEM PLEASE COMPLETE THE FOLLOWING SECTION:** ☐ N/A
NUMBER OF BEDROOMS TO BE ADDED: 2 NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE: 0

6. **WATER SUPPLY:** ○ MUNICIPAL ☒ PRIVATE WELL ○ PUBLIC WELL ○ SHARED WELL ○ OTHER _____

7. **PROPOSED USE OF WELL:** ○ N/A ○ IRRIGATION ○ POTABLE (DRINKING WATER) ○ OTHER _____

8. **PLEASE INDICATE AND RANK DESIRED SEPTIC SYSTEM TYPE(S) IN ORDER OF PREFERENCE** *(1-MOST DESIRED 5-LEAST DESIRED)*:
☐ N/A ☐ ANY TYPE ☐ CONVENTIONAL ☒ ACCEPTED ☐ INNOVATIVE ☐ ALTERNATIVE ☒ OTHER 25% reduction Chambers

8A. **RANK:** ___ 1 ___ ___ 2

9. **DO ANY OF THE FOLLOWING APPLY TO THE PROPERTY IN QUESTION? IF "YES" PLEASE ATTACH SUPPORTING DOCUMENTATION.**

BURIED CABLES, LANDFILLS, STUMPHOLES	○ YES ☒ NO	GRADING/SOIL REMOVAL PERFORMED	○ YES ☒ NO
EXISTING WASTEWATER (SEPTIC) SYSTEMS	☒ YES ○ NO	JURISDICTIONAL WETLANDS	○ YES ☒ NO
WELLS, SPRINGS, OR WATER LINES	☒ YES ○ NO	APPROVAL REQUIRED BY ANY OTHER PUBLIC AGENCY	○ YES ☒ NO
EASEMENTS OR RIGHT-OF-WAYS	○ YES ☒ NO	WASTEWATER OTHER THAN DOMESTIC SEWAGE	○ YES ☒ NO
CHEMICAL/PETROLEUM STORAGE TANKS	○ YES ☒ NO	KNOWN UNDERGROUND CONTAMINATION	○ YES ☒ NO
WASTE STORAGE	○ YES ☒ NO	GROUNDWATER USE RESTRICTIONS/VARIANCES	○ YES ☒ NO

10. **WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED?** _____ ☐ UNKNOWN

11. **WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY?** _____ ☒ N/A

12. **PROPERTY OWNER:**
NAME: BRENT & KERAH FARLEY
ADDRESS: 15519 HUBBARD RD
CITY: HUNTERSVILLE
STATE: NC ZIP: 28078
WORK PHONE: _____
MOBILE PHONE: 704 280 7216
FAX: _____
E-MAIL: BRENT@THEFARLEYAGENCY.COM

13. **OWNER'S LEGAL REPRESENTATIVE, IF APPLICABLE:**
**Owner's Authorization form is required if legal representative is submitting application*
NAME: Andrews Roby Inc
ADDRESS: 2000 W Morehead St
CITY: Charlotte
STATE: NC ZIP: 28208
WORK PHONE: 704 401 00059
MOBILE PHONE: 704 330 9898
FAX: _____
E-MAIL: Kate.lemond@andrewsroby.com

MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
3205 Freedom Drive, Suite 8000, Charlotte, NC 28208
OFFICE: 980-314-1680, FAX: 704-336-6894 Email: Wellreg@MecklenburgCountyNC.gov

Revised on: 4/20/17

14. SEPTIC SYSTEM PERMIT APPLICATION:

If the information in this application is falsified, changed, or the site is altered, then the Improvement Permit and Authorization to Construct shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for either sixty (60) months or is non-expiring depending upon the documentation submitted: complete site plan = 60 months, complete plat = non-expiring

_____ (Initial here for septic system applications)

15. WELL PERMIT APPLICATION:

If the information in this application is falsified, changed, or the site is altered, then the Well Permit shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for a period of twelve (12) months from the date of issuance.

_____ (Initial here for well applications)

16. APPLICATION SIGNATURE SECTION:

ONLY COMPLETE APPLICATIONS WILL BE PROCESSED. A proper signature is required in order to process your application. Please review the application carefully and sign in the space provided below. A PROPOSED PLOT PLAN is required to be submitted with each application.

Property Owner's or Owner's Legal Representative Signature

6/11/24
Date

OFFICE USE ONLY

O SURVEY PLAT TO SCALE SUBMITTED O SCALED SITE PLAN SUBMITTED O UN-SCALED SITE PLAN SUBMITTED

SEPTIC APPLICATION FEE RECEIVED: $ _____ DATE FEE RECEIVED: _____

WELL APPLICATION FEE RECEIVED: $ _____ DATE FEE RECEIVED: _____

APPLICATION PROCESSED BY: _____

GWS FILE NUMBER ASSIGNED: _____

APPLICATION ID NUMBER ASSIGNED: _____

COMMENTS:

MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
3205 Freedom Drive, Suite 8000, Charlotte, NC 28208
OFFICE: 980-314-1680, FAX: 704-336-6894 Email: Wellreg@MecklenburgCountyNC.gov

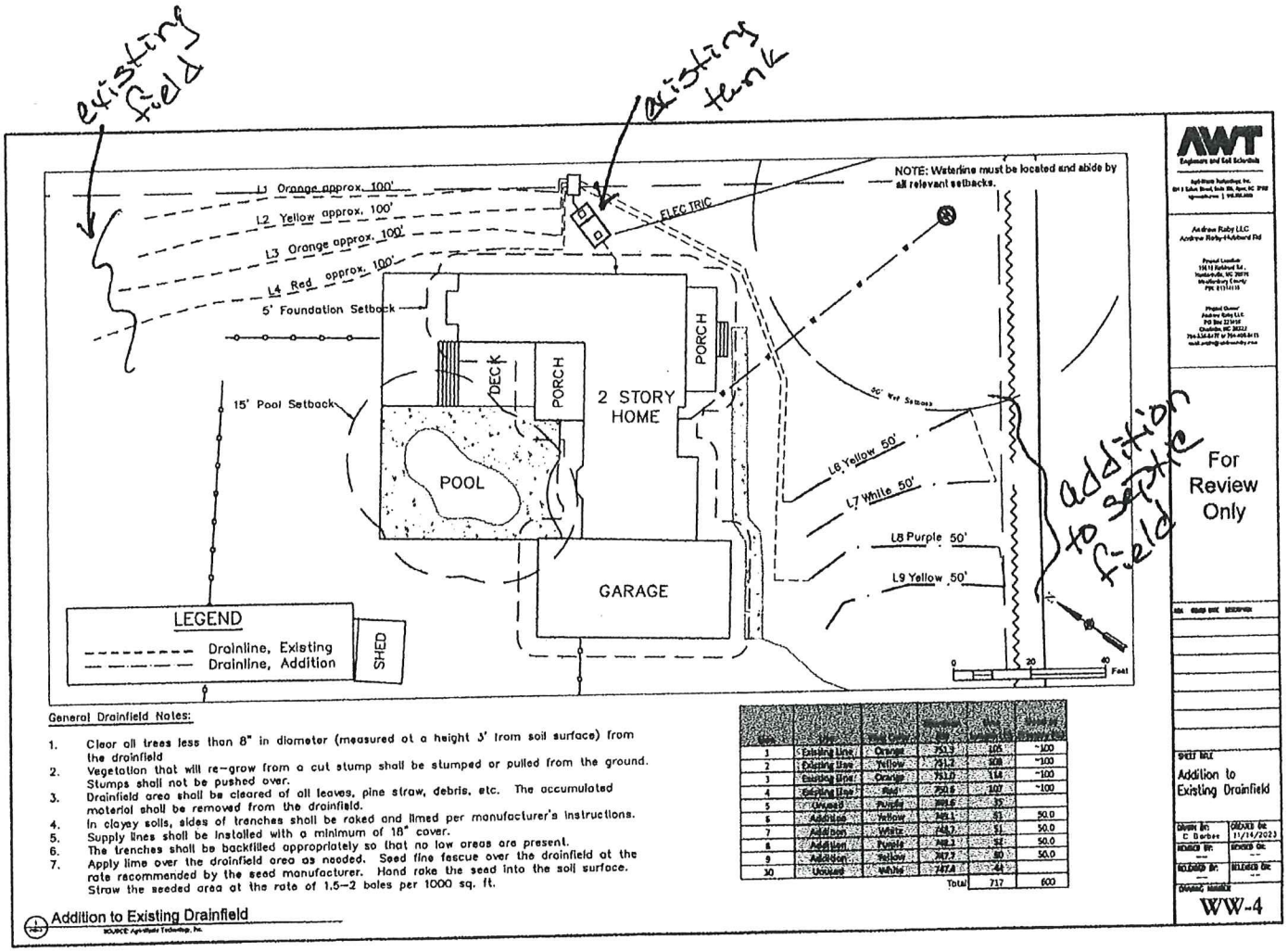
File #: _____

PROPOSED PLOT PLAN

A drawing showing the locations of the following items is required: existing and proposed property lines with dimensions, easements or right-of-ways, proposed building pad(s) or existing building footprint(s), all appurtenances (garage, driveway, deck, pool, etc.), location of existing or proposed well(s), location of existing or proposed sewer lines and sewage disposal systems, surface water bodies, and any aboveground or underground storage tanks. Provide names for all roads that adjoin the property.

Street Address: 15519 HUBBARD RD Tax Parcel #: 01314115

Subdivision Name: _____ Lot #: _____



General Drainfield Notes:

1. Clear all trees less than 8" in diameter (measured at a height 3' from soil surface) from the drainfield
2. Vegetation that will re-grow from a cut stump shall be stumped or pulled from the ground. Stumps shall not be pushed over.
3. Drainfield area shall be cleared of all leaves, pine straw, debris, etc. The accumulated material shall be removed from the drainfield.
4. In clayey soils, sides of trenches shall be raked and limed per manufacturer's instructions.
5. Supply lines shall be installed with a minimum of 18" cover.
6. The trenches shall be backfilled appropriately so that no low areas are present.
7. Apply lime over the drainfield area as needed. Seed fine fescue over the drainfield at the rate recommended by the seed manufacturer. Hand rake the seed into the soil surface. Straw the seeded area at the rate of 1.5–2 bales per 1000 sq. ft.

No.	Line	Type	Elevation	Length	Trench Length
1	Existing Line	Orange	751.3	105	~100
2	Existing Line	Yellow	751.2	108	~100
3	Existing Line	Orange	751.0	114	~100
4	Existing Line	Red	750.6	107	~100
5	Unused	Purple	749.6	39	
6	Addition	Yellow	749.1	51	50.0
7	Addition	White	748.7	51	50.0
8	Addition	Purple	748.3	52	50.0
9	Addition	Yellow	747.9	50	50.0
10	Unused	White	747.4	44	
				Total: 717	600

Addition to Existing Drainfield

Drawn By: C Barbee — Checked By: — — Date: 11/14/2023
Revised By: — — Revised On: — —
Released By: — — Released On: — —
Drawing Number: WW-4

Property Owner's or Owner's Legal Representative Signature

6/11/24
Date

MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
3205 Freedom Drive, Suite 8000, Charlotte, NC 28208
OFFICE: 980-314-1680, FAX: 704-336-6894 Email: Wellreg@MecklenburgCountyNC.gov

DocuSign Envelope ID: E777BE01-0544-4D16-9F79-0CBEC3B023E2

MECKLENBURG COUNTY
Health Department

Raynard Washington, PhD, MPH
Health Director

(704) 336-4700

Addendum to Application for
New Well or Septic System Installation
Abandonment or Repair of Existing Well or Septic System

Your signature below confirms the following:

1. The information on the application is true, complete and accurate.
2. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliances with applicable laws and rules.
3. I acknowledge that __Andrew Roby, Inc_____ is acting as my legal representative (agent) in the submittal of the application for a water supply well or septic permit located at

__15519 Hubbard Rd Huntersville_____.
Number Street Town
(Or Parcel Number)

Brent Farley
Property Owner (print name)

DocuSigned by:
Brent Farley
004A0E03D4454E8...
Property Owner (signature)

6/11/24
Date

DocuSign Envelope ID: E777BE01-0544-4D16-9F79-0CBEC3B023E2

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:
☒ (a2) Improvement Permit ☒ (a2) Construction Authorization ☐ (a2) Repair/Construction Authorization

If applying for a Construction Authorization, please indicate desired system type(s):
☒ Accepted ☐ Conventional ☐ Innovative ☒ Other 25% Reduction Chambers ☐ Any

☐ New Construction ☒ Expansion ☐ System Relocation ☐ Change of Use ☐ Repair
☒ 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 ☒ No

Applicant: Andrew Roby
Mailing Address: P.O. Box 221416
City: Charlotte
State: NC Zip: 28222
Phone #: 704-334-5477 or 704-400-5415
Email: noah.watts@andrewroby.com

Owner: Brent and Kerah Farley
Mailing Address: 15519 Hubbard Rd
City: Huntersville
State: NC Zip: 28078
Phone #: 704-274-5231
Email: brent@thefarleyagency.com

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

☐ Yes	☒ No	Does the site contain any jurisdictional wetlands?
☐ Yes	☒ No	Is any wastewater going to be generated on the site other than domestic sewage?
☐ Yes	☒ No	Is the site subject to approval by any other public agency?
☒ Yes	☐ 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: [DocuSigned by: Andrew Roby] Date: 6/11/24

Owner's Signature: Brent Farley 084A0E03B4454E0... Date: 6/10/24

DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
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MARK BENTON • Chief Deputy Secretary for Health
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Division of Public Health

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☒ Accepted ☐ Conventional ☐ Innovative ☒ Other 25% Reduction Chambers ☐ Any

☐ New Construction ☒ Expansion ☐ System Relocation ☐ Change of Use ☐ Repair
☒ 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 ☒ No

Applicant: Andrew Roby
Mailing Address: P.O. Box 221416
City: Charlotte
State: NC Zip: 28222
Phone #: 704-334-5477 or 704-400-5415
Email: noah.watts@andrewroby.com

Owner: Brent and Kerah Farley
Mailing Address: 15519 Hubbard Rd
City: Huntersville
State: NC Zip: 28078
Phone #: 704-274-5231
Email: brent@thefarleyagency.com

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Applicant Signature: Kate Lemond (DocuSigned by) Date: 5/13/24

Owner's Signature: Brent Farley (004A0E83D4454E8...) Date: 5/13/2024

DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

Permit/File #: _____

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: ☒ (a2) Improvement Permit ☒ (a2) Construction Authorization ☐ Fee $_____

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

County: Mecklenburg
PIN/Lot Identifier: 01314115
Issued To: Brent and Kerah Farley
Property Location: 15519 Hubbard Rd, Huntersville NC 28078
Subdivision (if applicable) N/A Lot #: N/A Block: N/A Section: N/A
LSS Report Provided: Yes ☒ No ☐
If yes, name and license number of LSS: Jeff Vaughan, License number: 1227

New ☐ Expansion ☒ System Relocation ☐ Change of Use ☐
Facility Type: Single Family Residence
Number of bedrooms: 5 Number of Occupants: 10 Other: _____
Design Wastewater Strength: ☒ Domestic ☐ High Strength ☐ Industrial Process Wastewater
Proposed Design Daily Flow: 600 GPD Proposed LTAR (Initial): 0.3 Proposed LTAR (Repair): 0.1
Proposed Wastewater System Type*: Existing + 25% Reduction (Initial) Pump Required: ☒ Yes ☐ No ☐ May be required
Proposed Wastewater System Type*: Anaerobic Subsurface Drip (Repair) Pump Required: ☒ Yes ☐ No ☐ May be required
**Please include system classification for proposed wastewater system types in accordance with Rule .1301 Table XXXII*
Effluent Standard: ☒ DSE ☐ HSE ☐ NSF/ANSI 40 ☐ TS-I ☐ TS-II ☐ RCW
Saprolite System (Initial): ☐ Yes ☒ No Saprolite System (Repair): ☐ Yes ☒ No
Fill System (Initial): ☐ Yes ☒ 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 ☒ 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]: 31" Usable Depth to LC (Repair)[x]: 18" [x] ***Limiting Condition***
Max. Trench Depth (Initial)[‡]: 19" Max. Trench Depth (Repair)[‡]: 6" [‡] ***Measured on the downhill side of the trench***
Artificial Drainage Required: ☐ Yes ☒ No If yes, please specify details: _____
Type of Water Supply: ☒ Private well ☐ Public well ☐ Shared well ☐ Municipal Supply ☐ Spring ☐ Other: _____
Drainfield location meets requirements of Rule .0508: Yes ☒ No ☐ Drainfield location meets requirements of Rule .0601: Yes ☒ No ☐
Permit valid for: ☒ Five years [site plan submitted pursuant to GS 130A-334(13a)] ☐ No expiration [plat submitted pursuant to GS 130A-334(7a)]

Permit conditions:
The area over the drainfield should have soil added in a way that allows water to shed and not collect on top of the drainfield and near the driveway location.
Where the supply line crosses the water line, the supply line should be sleeved in Ductile Iron Pipe for 10' Either side of the crossing point or 18" beneath the water line elevation

Licensed Soil Scientist Print Name: Jeff Vaughan
Licensed Soil Scientist Signature: _____ Date: 5/13/2024

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

See attached site sketch

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HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

This Section for Local Health Department Use Only

Initial submittal received: _____ by _____
Date *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: _____ Date: _____

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: _____

See attached site sketch

DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

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: _____

DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

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

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

PIN/Lot Identifier: 01314115

Issued To: Brent and Kerah Farley

Property Location: 15519 Hubbard Rd, Huntersville NC 28078

AOWE/PE Plans/Evaluations Provided: Yes ☒ No ☐ If yes, name and license number of AOWE/PE: Jeff Vaughan, 10003E

Facility Type: Single Family Residence

Number of bedrooms: 5 Number of Occupants: 10 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* 25% Reduction (Addition to Existing) (Initial) Anaerobic Subsurface Drip (Repair)

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

Design Daily Flow: 600 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: 1500 gallons Total Trench/Bed Length: 254 (addition) feet Trench/Bed Spacing: 9 feet on center

Trench/Bed Width: 36 inches LTAR: 0.3 gpd/ft² Usable Depth to LC (Initial)ˣ: 31" ˣ***Limiting condition***

Soil Cover: 6+ inches Slope Corrected Maximum Trench/Bed Depth‡: 19" inches ‡ ***Measured on the downhill side of the trench***

Pump Tank Size (if applicable): 1500 gallons Requires more than 1 pump? ☐ Yes ☒ No

Pump Requirements: 13.65 ft. TDH vs. 32.95 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: _____

Permit conditions:
The area over the drainfield should have soil added in a way that allows water to shed and not collect on top of the drainfield and the driveway location.
Where the supply line crosses the water line, the supply line should be sleeved in Ductile Iron Pipe for 10' Either side of the crossing point or 18" beneath the water line

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: Jeff Vaughan

AOWE/PE Signature: Jeff V/L Date: 05/13/2024

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

See attached site sketch

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Permit/File #: _____

This Section for Local Health Department Use Only

Initial submittal received: _____ by _____
Date *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: _____ Date of Issuance: _____

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: _____

See attached site sketch

DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

HEALTH AND HUMAN SERVICES
Division of Public Health

Permit/File #: _____

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: _____

DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

Permit/File #: _____

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

County: _____

PIN/Lot Identifier: _____

Issued To: _____

Additional Improvement Permit Conditions:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Additional Construction Authorization Conditions:

_____

_____

_____

_____

_____

_____

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AGRITEC-01 CGARKALNS

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 1/12/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Connie Garkalns	
Hartsfield & Nash Agency, Inc. 10405 Ligon Mill Rd., Ste H Wake Forest, NC 27587	PHONE (A/C, No, Ext): (919) 556-3698	FAX (A/C, No): (919) 556-8758
	E-MAIL ADDRESS: Connie@hartsfield-nash.com	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Agri-Waste Technology Inc 501 N. Salem St Ste 203 Apex, NC 27502	INSURER A : Selective Insurance Company of the Southeast	39926
	INSURER B : ACCIDENT FUND INSURANCE COMPANY OF AMERICA	10166
	INSURER C : Evanston Insurance Company	35378
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			S 2253659	1/18/2024	1/18/2025	EACH OCCURRENCE	$ 2,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 300,000
							MED EXP (Any one person)	$ 10,000
							PERSONAL & ADV INJURY	$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 4,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 4,000,000
	OTHER:							$
A	AUTOMOBILE LIABILITY			S 2253659	1/18/2024	1/18/2025	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
A	UMBRELLA LIAB X OCCUR			S 2253659	1/18/2024	1/18/2025	EACH OCCURRENCE	$ 2,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 2,000,000
	DED RETENTION $							$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			100003072	1/18/2024	1/18/2025	X PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N	N/A					E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
C	Prof & Pollution			MKLV3ENV104078	8/22/2023	8/22/2024	Each Claim	5,000,000
A	Leased / Rented			S 2253659	1/18/2024	1/18/2025	Equipment	25,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

***This is ONLY For Informational Purposes
Contact Agency for Specific Holder info to be added
****

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Connie Garkalns

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Engineers and Soil Scientists

Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27502
agriwaste.com | 919.859.0669





Soil Suitability for Domestic Sewage Treatment and Disposal Systems
15519 Hubbard Rd, Huntersville, NC 28078
(Mecklenburg County, PID: 01314115)

PREPARED FOR: Andrew Roby, LLC – Client

PREPARED BY: Jeff Vaughan, Senior Agronomist & Soil Scientist
Trevor Hackney, Environmental Scientist

DATE: May 13, 2024

Soil suitability for domestic sewage treatment and disposal systems was evaluated on September 25, 2023, for the proposed property located at 15519 Hubbard Rd, Huntersville, NC 28078. Jeff Vaughan and Trevor Hackney of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. This evaluation was done to facilitate permitting for a septic system. This report and attached documents were prepared to meet the requirements for G.S. 130A-335(a2).

A drawing of the site plan, septic layout, and boring locations is included in Attachment 1. Profile descriptions for each boring are included in Attachment 2. Additional documentation about the property is included in Attachment 3.

This property area is approximately 2.9 acres. The property is already developed and has an existing home and system approved for three bedrooms. The property is mostly an open grass field in the front and partially wooded in the back of the lot. The home is located near the front of the property and the existing septic system is located beside the home with four 100' drain-lines running towards the back of the property along the property line. The proposed primary septic system is to use a portion of the existing system plus additional lines in the front yard with two pressure manifolds. The proposed septic system for the repair area system is a subsurface drip dispersal drain field product.

Soil Suitability for Domestic Sewage Treatment and Disposal Systems
The drawing in Attachment 1 details the property boundaries (as proposed by Dedmon Surveys), soil boring locations, and layout of drain field trenches (Completed by AWT). Soil borings were examined to determine soil suitability for on-site sewage disposal systems in accordance with 15A 18E Rules for Wastewater Treatment and Disposal Systems. These borings were advanced with a hand auger.

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A septic layout was performed to demonstrate available space (.0508). The layout in Attachment 1 indicates there is available space for a five-bedroom septic system using a two pressure manifolds to dose a portion of the existing trenches and a 25% reduction distribution drain field product for the expansion of the primary system. There is available space for a five-bedroom system utilizing a subsurface drip dispersal drain field product for the repair area.

The proposed LTAR (Long Term Acceptance Rate) by AWT is 0.3 GPD/ft^2 for the system expansion. The soils on this property are group IV soils within the distribution and treatment zone as used to define the LTAR. Since usable slope corrected soil depths meet or exceed 31" AWT is recommending the use of the 25% reduction dispersal drain-field product. Therefore, the maximum trench bottom should not exceed 19". Based on the 335 linear feet of existing gravel drain field that will be re-used and an LTAR of 0.3 GPD/ft^2 for the expansion, 249 linear feet of new trench are necessary to expand this system to a five-bedroom home initial system. The attached drawing proves that 254 linear feet can be added in the front yard for the primary septic system with the home and well location on the property. The supply line feeding the pressure manifold in the front yard should be sleeved 10' either side as they cross the water line from the well or cross at least 18" beneath the water line. Soil should be added over the drain field area to assist in surface water run off over the drain field area.

The repair field is proposed as an anaerobic subsurface drip septic system. The usable soils are Group IV soils and are used to define the LTAR of 0.1 GPD/ft^2. The usable soil depths within the repair area meet or exceed 18". Therefore, the maximum trench bottom should not exceed 6". For a five-bedroom home, typically 6,000 square feet of space is necessary to support a anaerobic subsurface drip septic system. The attached drawing proves that there is 14,945 square feet of space available for the repair system.

Any disturbances or grading done in the usable area or within the proposed setbacks will change the potential of using the area designated for a drain field.

We appreciate the opportunity to assist you in this matter. Please contact us with any questions, concerns, or comments.

Sincerely,

Jeff Vaughan, LSS/AOWE

Jeff Vaughan

Trevor Hackney, Associate Soil Scientist

Trevor Hackney

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Attachment 1: Site Plan/Drawing and Calculations

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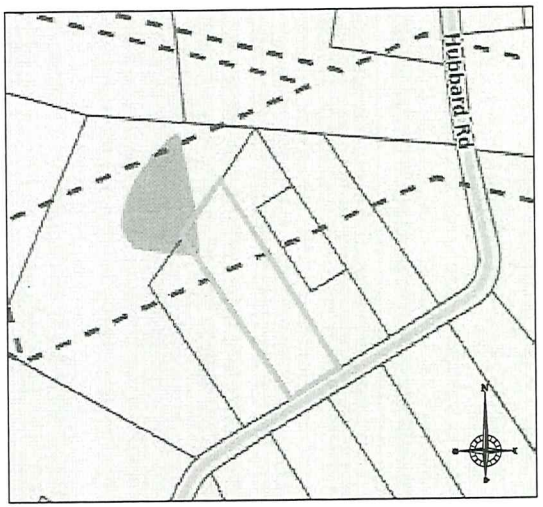
ANDREW ROBY–HUBBARD RD

Project Location
15519 Hubbard Road
Huntersville, NC 28078
Mecklenburg County
PIN: 01314115

Project Owner
Andrew Roby LLC
PO Box 221416
Charlotte, NC 28222
704–334–5477 or
704–400–5415
noah.watts@andrewroby.com

Project Consultant
Jeff Vaughan
(919) 367–6313
Agri–Waste Technology, Inc.
501 N. Salem Street, Suite 203
Apex, NC 27502
(919) 859–0669
(919) 233–1970 Fax

System Overview
Single Family Residence
Five (5) Bedroom, 600 gpd
Gravel Dispersal Primary
Pressure Manifold Distribution
Anaerobic Drip Repair



VICINITY MAP

Sheet Index

Sheet 1	Cover Sheet
Sheet 2	Property Layout
Sheet 2A	Property Layout
Sheet 3	Component Layout
Sheet 4	Existing Drainfield
Sheet 4a	Addition to Exisitng Drainfeild
Sheet 5	Repair Area
Sheet 6	Detail Sheet 1
Sheet 7	Detail Sheet 2
Sheet 8	Excavation Safety

North Carolina 811 www.ncn811.org

AWT Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27
agriwaste.com | 919.859.0669

Andrew Roby LLC
Andrew Roby-Hubbard Rd

Project Location:
15519 Hubbard Road
Huntersville, NC 28078
Mecklenburg County
PIN: 01314115

Project Owner:
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PO Box 221416
Charlotte, NC 28222
704-334-5477 or 704-400-5415
noah.watts@andrewroby.com

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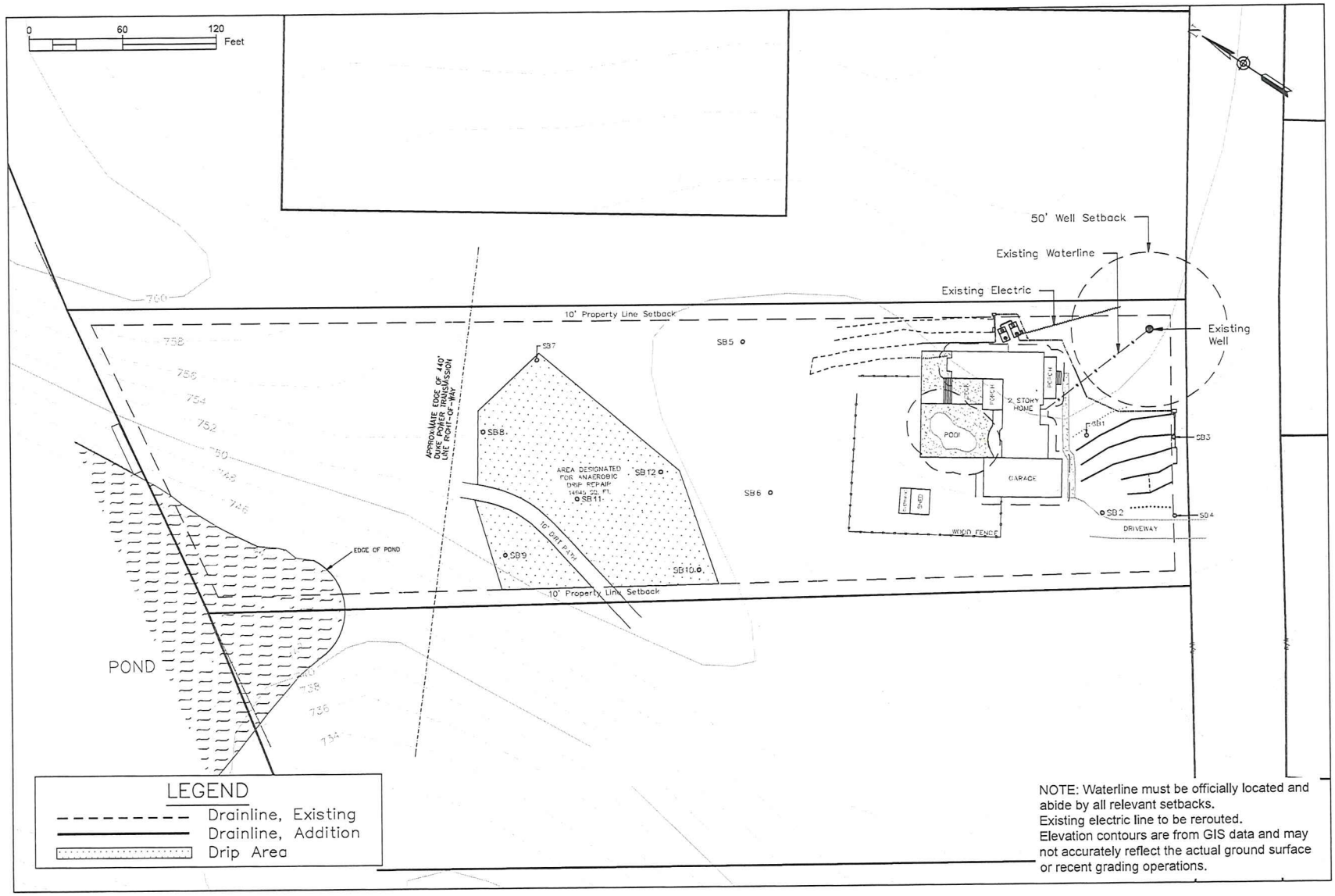
REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Cover Sheet

DRAWN BY:	CREATED ON:
C Barbee	11/14/2023
REVISED BY:	REVISED ON:
C Barbee	4/10/2024
RELEASED BY:	RELEASED ON:
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DRAWING NUMBER
WW-1

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LEGEND

- Drainline, Existing
- Drainline, Addition
- Drip Area

NOTE: Waterline must be officially located and abide by all relevant setbacks.
Existing electric line to be rerouted.
Elevation contours are from GIS data and may not accurately reflect the actual ground surface or recent grading operations.

1 PROPERTY LAYOUT
SOURCE: AWT, Inc.

AWT
Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27
agriwaste.com | 919.859.8669

Andrew Roby LLC
Andrew Roby-Hubbard Rd

Project Location:
15519 Hubbard Road
Huntersville, NC 28078
Mecklenburg County
PIN: 01314115

Project Owner:
Andrew Roby LLC
PO Box 221410
Charlotte, NC 28222
704-334-5477 or 704-400-5415
noah.watts@andrewroby.com

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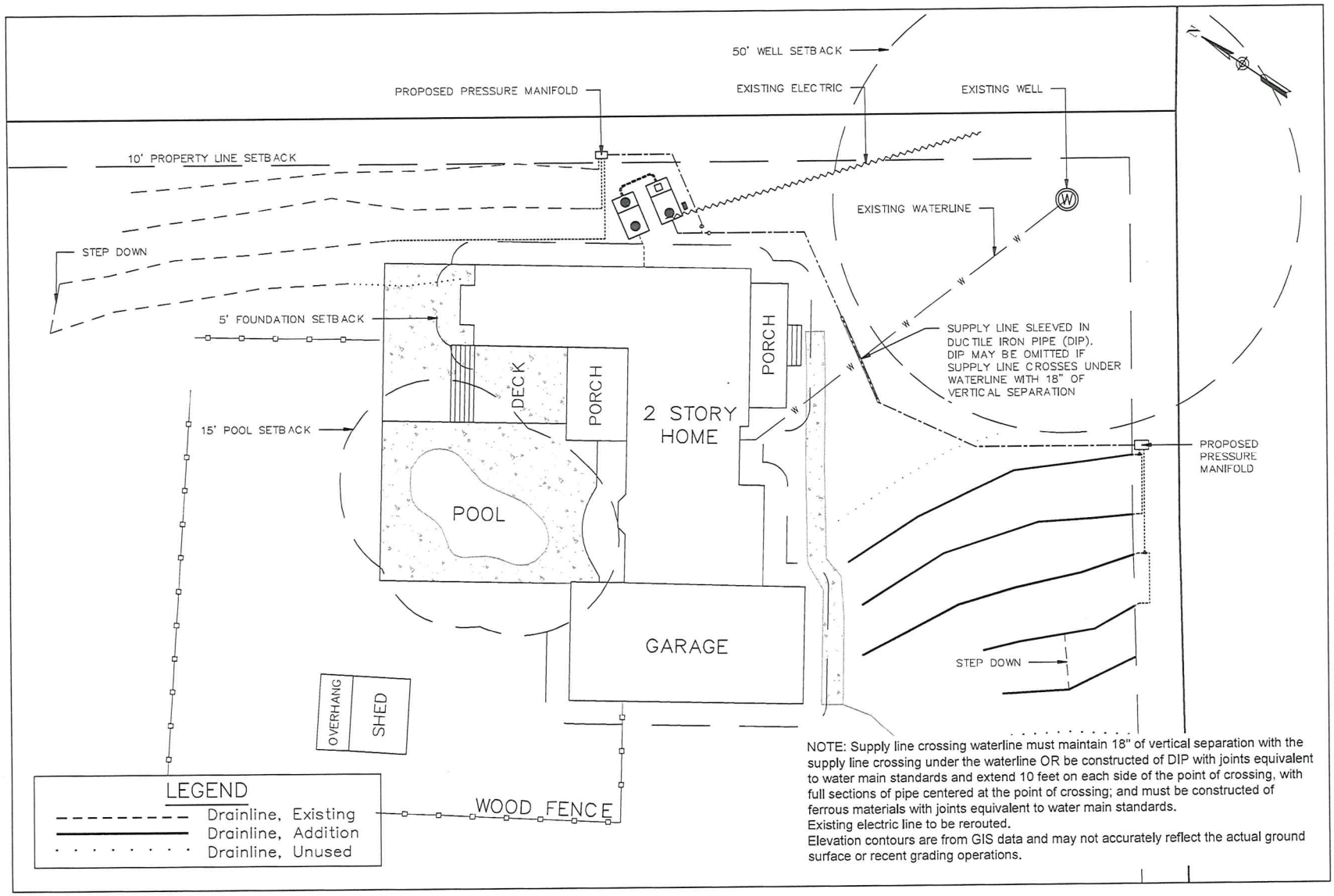
REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Property Layout

DRAWN BY:	CREATED ON:
C Barbee	11/14/2023
REVISED BY:	REVISED ON:
C Barbee	4/10/2024
RELEASED BY:	RELEASED ON:
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DRAWING NUMBER
WW-2

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NOTE: Supply line crossing waterline must maintain 18" of vertical separation with the supply line crossing under the waterline OR be constructed of DIP with joints equivalent to water main standards and extend 10 feet on each side of the point of crossing, with full sections of pipe centered at the point of crossing; and must be constructed of ferrous materials with joints equivalent to water main standards.
Existing electric line to be rerouted.
Elevation contours are from GIS data and may not accurately reflect the actual ground surface or recent grading operations.

1 WW-2A PROPERTY LAYOUT
SOURCE: AWT, Inc.

AWT
Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27
agriwaste.com | 919.859.0669

Andrew Roby LLC
Andrew Roby-Hubbard Rd

Project Location
15519 Hubbard Road
Huntersville, NC 28078
Mecklenburg County
PIN 01314115

Project Owner
Andrew Roby LLC
PO Box 221410
Charlotte, NC 28222
704-334-5477 or 704-400-5415
noah.watts@andrewroby.com

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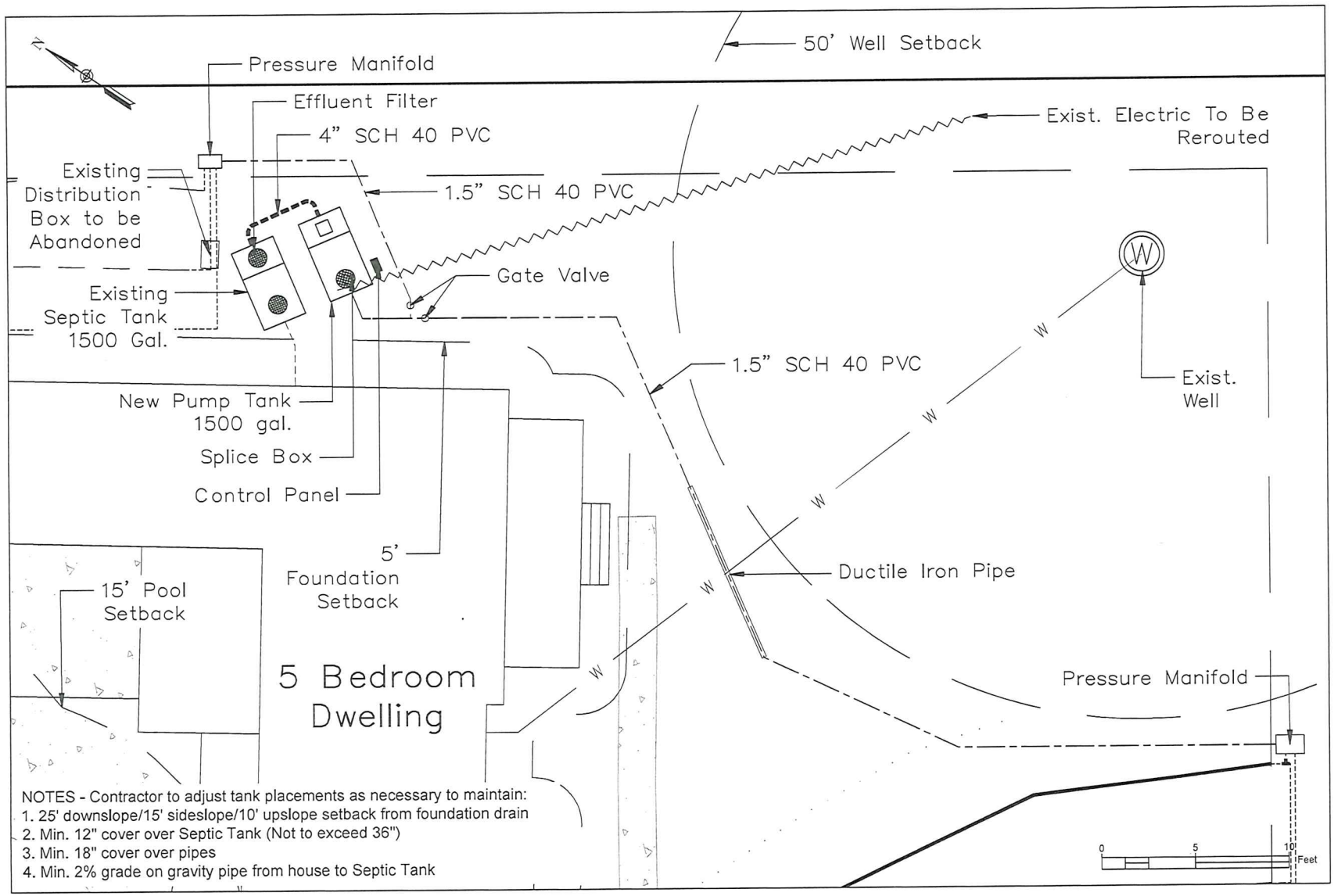
REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Property Layout

DRAWN BY:	CREATED ON:
C Barbee	11/14/2023
REVISED BY:	REVISED ON:
C Barbee	4/10/2024
RELEASED BY:	RELEASED ON:
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DRAWING NUMBER
WW-2A

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NOTES - Contractor to adjust tank placements as necessary to maintain:
1. 25' downslope/15' sideslope/10' upslope setback from foundation drain
2. Min. 12" cover over Septic Tank (Not to exceed 36")
3. Min. 18" cover over pipes
4. Min. 2% grade on gravity pipe from house to Septic Tank

1 WW-3 EXISTING COMPONENT LAYOUT
SOURCE: AWT, Inc.

AWT
Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27
agriwaste.com | 919.859.0669

Andrew Roby LLC
Andrew Roby-Hubbard Rd

Project Location
15519 Hubbard Road
Huntersville, NC 28078
Mecklenburg County
PIN: 0131-41-15

Project Owner
Andrew Roby LLC
PO Box 221410
Charlotte, NC 28222
704-904-5477 or 704-400-5415
noah.watts@andrewroby.com

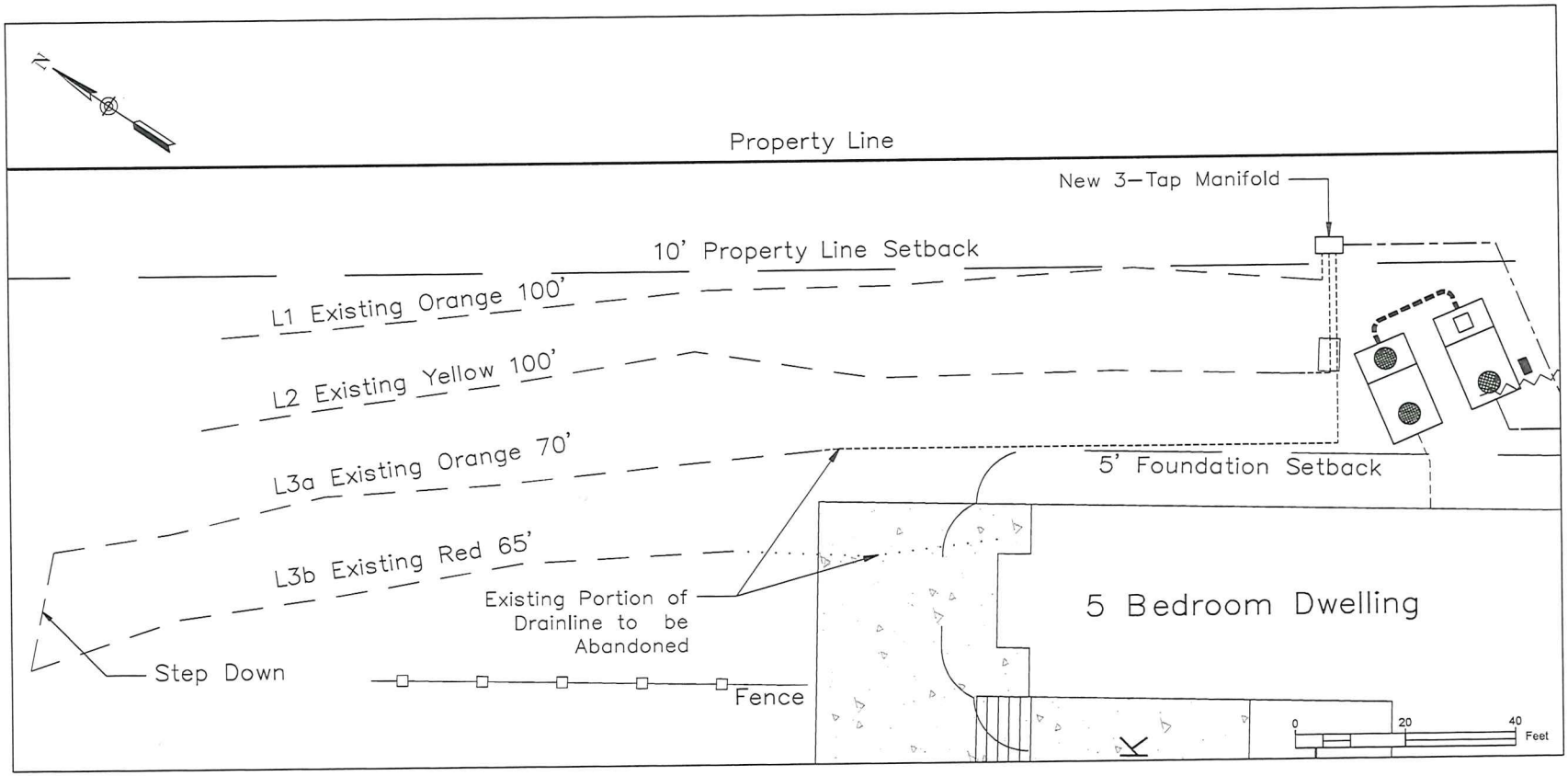
For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Component Layout

DRAWN BY:	CREATED ON:
C Barbee	11/14/2023
REVISED BY:	REVISED ON:
C Barbee	4/10/2024
RELEASED BY:	RELEASED ON:
--	--

DRAWING NUMBER
WW-3



General Drainfield Notes:

1. Clear all trees less than 8" in diameter (measured at a height 3' from soil surface) from the drainfield.
2. Vegetation that will re—grow from a cut stump shall be stumped or pulled from the ground. Stumps shall not be pushed over.
3. Drainfield area shall be cleared of all leaves, pine straw, debris, etc. The accumulated material shall be removed from the drainfield.
4. In clayey soils, sides of trenches shall be raked and limed per manufacturer's instructions.
5. Supply lines shall be installed with a minimum of 18" cover.
6. The trenches shall be backfilled appropriately so that no low areas are present.
7. Apply lime over the drainfield area as needed. Seed fine fescue over the drainfield at the rate recommended by the seed manufacturer. Hand rake the seed into the soil surface. Straw the seeded area at the rate of 1.5—2 bales per 1000 sq. ft.

DRAINFIELD INFO. - **Existing**

Proposed Type of System/Distribution: ***Pump to Pressure Manifold using Gravel***

Design Head 24 in

Line No.	Flag Color	Line Length (ft.)		Flow (gpm)	Flow/Foot (gpm/ft)	Line L.T.A.R.
1	Orange	100	1/2in SCH 80	5.48	0.055	0.303
2	Yellow	100	1/2in SCH 80	5.48	0.055	0.303
3&4	Orange & Red	135	1/2in SCH 80	7.11	0.053	0.291
TOTAL		335		18.07		0.299

1 WW-4 Existing Drainfield

SOURCE: AWT, Inc.

AWT Engineers and Soil Scientists

Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27
agriwaste.com | 919.859.0669

Andrew Roby LLC
Andrew Roby-Hubbard Rd

Project Location:
15519 Hubbard Road
Huntersville, NC 28078
Mecklenburg County
PIN: 01314115

Project Owner:
Andrew Roby LLC
PO Box 221416
Charlotte, NC 28222
704-334-5477 or 704-400-5415
noah.watts@andrewroby.com

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Existing Drainfield

DRAWN BY:	CREATED ON:
C Barbee	11/14/2023
REVISED BY:	REVISED ON:
C Barbee	4/10/2024
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER
WW-4

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General Drainfield Notes:

1. Clear all trees less than 8" in diameter (measured at a height 3' from soil surface) from the drainfield.
2. Vegetation that will re-grow from a cut stump shall be stumped or pulled from the ground. Stumps shall not be pushed over.
3. Drainfield area shall be cleared of all leaves, pine straw, debris, etc. The accumulated material shall be removed from the drainfield.
4. In clayey soils, sides of trenches shall be raked and limed per manufacturer's instructions.
5. Supply lines shall be installed with a minimum of 18" cover.
6. The trenches shall be backfilled appropriately so that no low areas are present.
7. Apply lime over the drainfield area as needed. Seed fine fescue over the drainfield at the rate recommended by the seed manufacturer. Hand rake the seed into the soil surface. Straw the seeded area at the rate of 1.5-2 bales per 1000 sq. ft.

DRAINFIELD INFO. - Addition

Proposed Type of System/Distribution: *Pump to Pressure Manifold using Chambers*

Design Head 24 in

Line No.	Flag Color	Line Length (ft.)		Flow (gpm)	Flow/Foot (gpm/ft)	Line L.T.A.R.
6	Yellow	66	1/2in SCH 80, Split	3.55	0.054	0.379
7	White	62	1/2in SCH 80, Split	3.55	0.057	0.403
8	Purple	62	1/2in SCH 80, Split	3.55	0.057	0.403
9&10	Yellow&White	64	1/2in SCH 80, Split	3.55	0.055	0.391
TOTAL		254		14.2		0.394

1 MW-4A Addition to Existing Drainfield

SOURCE: AWT, Inc.

AWT Engineers and Soil Scientists

Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27
agriwaste.com | 919.859.0669

Andrew Roby LLC
Andrew Roby-Hubbard Rd

Project Location:
15519 Hubbard Road
Huntersville, NC 28078
Mecklenburg County
PIN: 01314115

Project Owner
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PO Box 221416
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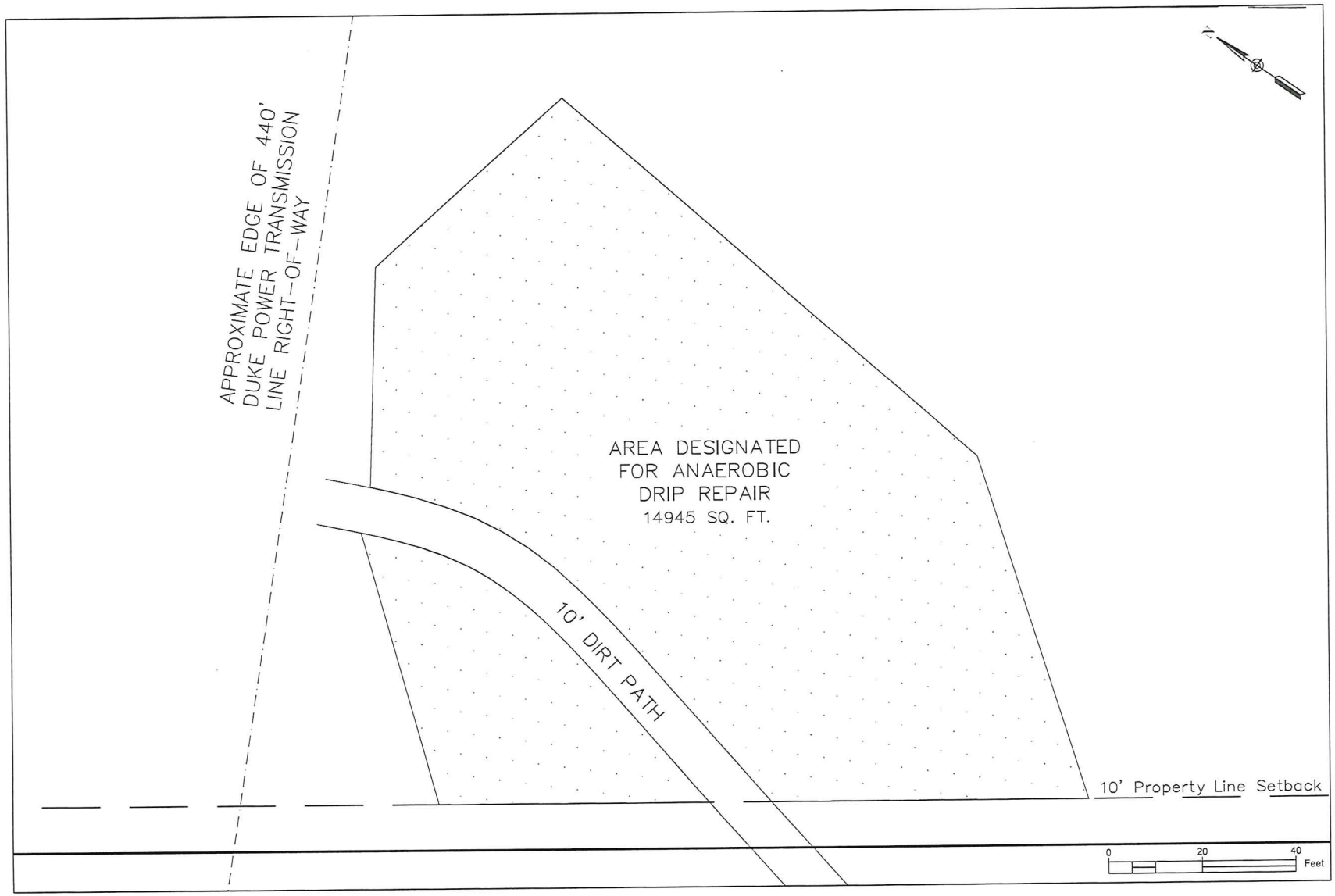
SHEET TITLE
Addition to Existing Drainfield

DRAWN BY: C Barbee	CREATED ON: 11/14/2023
REVISED BY: C Barbee	REVISED ON: 4/10/2024
RELEASED BY: --	RELEASED ON: --

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1 WW-5

Repair Drainfield

SOURCE: AWT, Inc.

AWT
Engineers and Soil Scientists

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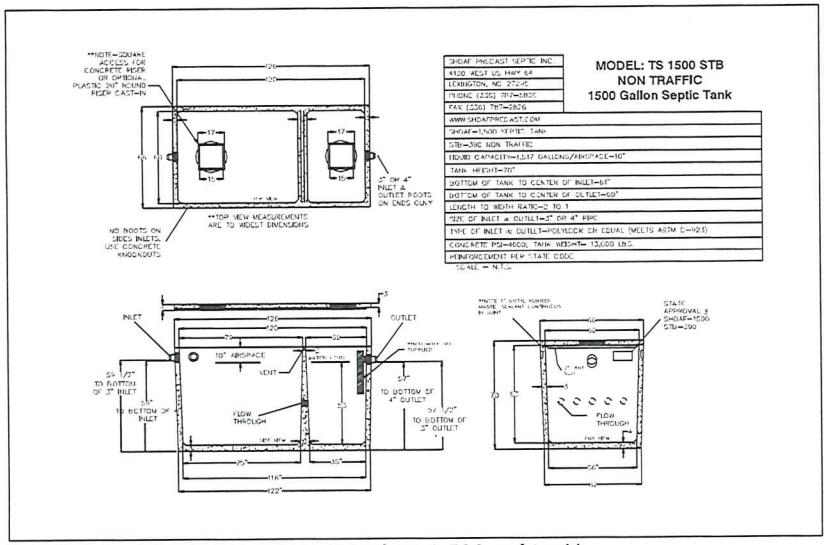
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SHEET TITLE
Repair Drainfield

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C Barbee	11/14/2023
REVISED BY:	REVISED ON:
C Barbee	4/10/2024
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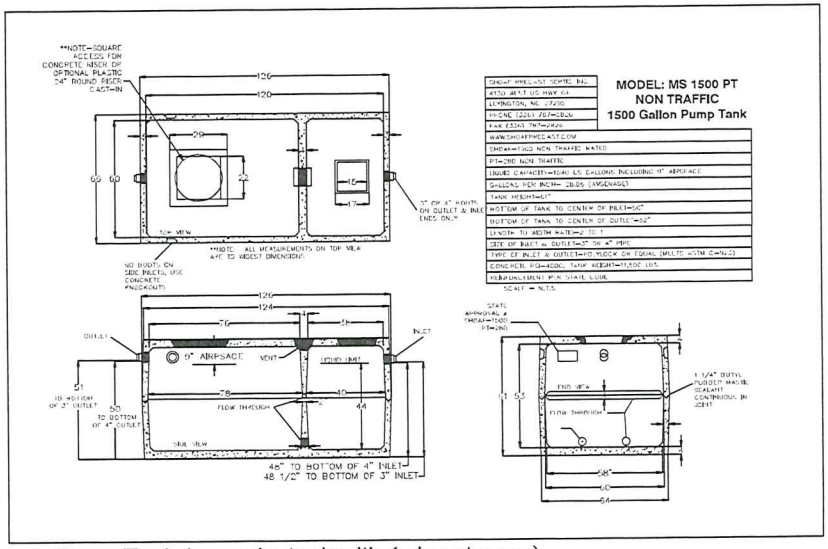
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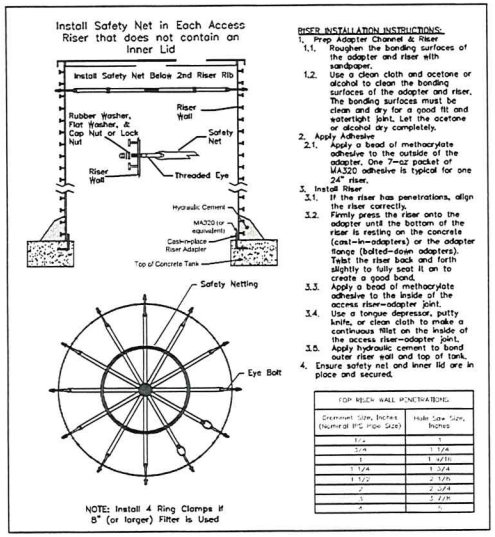
1 WW-6 N.T.S. **Existing Septic Tank (or equivalent 1,500-gal tank)**

SOURCE: Shoaf Precast Septic, Inc.



2 WW-6 N.T.S. **Pump Tank (or equiv. tank with 1-day storage)**

SOURCE: Shoaf Precast Septic, Inc.



RISER INSTALLATION INSTRUCTIONS:

1. Prep Adapter Channel & Riser
   - 1.1. Roughen the bonding surfaces of the adapter and riser with sandpaper.
   - 1.2. Use a clean cloth and acetone or alcohol to clean the bonding surfaces of the adapter and riser. The bonding surfaces must be clean and dry for a good fit and watertight joint. Let the acetone or alcohol dry completely.
2. Apply Adhesive
   - 2.1. Apply a bead of methacrylate adhesive to the outside of the adapter. One 7-oz packet of MA320 adhesive is typical for one 24" riser.
3. Install Riser
   - 3.1. If the riser has penetrations, align the riser correctly.
   - 3.2. Firmly press the riser onto the adapter until the bottom of the riser is resting on the concrete (cast-in-adapters) or the adapter flange (bolted-down adapters). Twist the riser back and forth slightly to fully seat it on to create a good bond.
   - 3.3. Apply a bead of methacrylate adhesive to the inside of the access riser-adapter joint.
   - 3.4. Use a tongue depressor, putty knife, or clean cloth to make a continuous fillet on the inside of the access riser-adapter joint.
   - 3.5. Apply hydraulic cement to bond outer riser wall and top of tank.
4. Ensure safety net and inner lid are in place and secured.

TOP RISER WALL PENETRATIONS

Cleanout Size, Inches (Nominal IPS Pipe Size)	Hole Saw Size, Inches
1	1
1 1/4	1 1/4
1 1/2	1 1/2
2	2
2 1/2	2 3/8
3	2 7/8
4	3

3 WW-6 N.T.S. **Riser Safety Nets**

SOURCE: SIM-TECH, Inc.

NOTES

1. Installation to follow all NC DHHS and Mecklenburg County applicable rules and regulations.
2. Mecklenburg County to perform construction inspections and final system certification.
3. Septic Tank to have approved effluent filter.
4. Contractor to abide by all safety regulations during system installation.
5. Contractor shall backfill around all access areas such that storm water is shed away from potential entry points.
6. Invert elevations of all components to be verified in field by contractor to insure proper operation.
7. All system piping to be SCH40 PVC (except where noted).
8. All gravity elbows to be long radius or long sweeping type elbows.
9. Actual installation and placement of treatment system to be overseen by Contractor.
10. Tanks to be set on 6" minimum gravel base. Use #5 or #57 stone for base.
11. Contractor to seed and/or mulch disturbed areas to coincide with existing landscape. Area shall not be left with uncovered soil.
12. Mount Control Panel a minimum of 24" above grade.
13. Power to panel to be installed by licensed electrician per code. One 15-amp circuit and one 20-amp circuit with individual neutrals to be run from house to control panel.
14. All risers to have cast-in-place tank adapters and be single-piece riser. Risers to extend 6" above soil surface and be designed to prevent surface water inflow.
15. Backfill around tank(s) shall be gravel or tank hole shall be over-excavated a minimum of 2' in all directions to allow for mechanical tamping of backfill.
16. All penetrations to be sealed.
17. Spigot to be located on outside of building within 50' of tanks.
18. All pressure lines to maintain 18" min. cover.
19. Contractor to adjust tank placement to meet site constraints.

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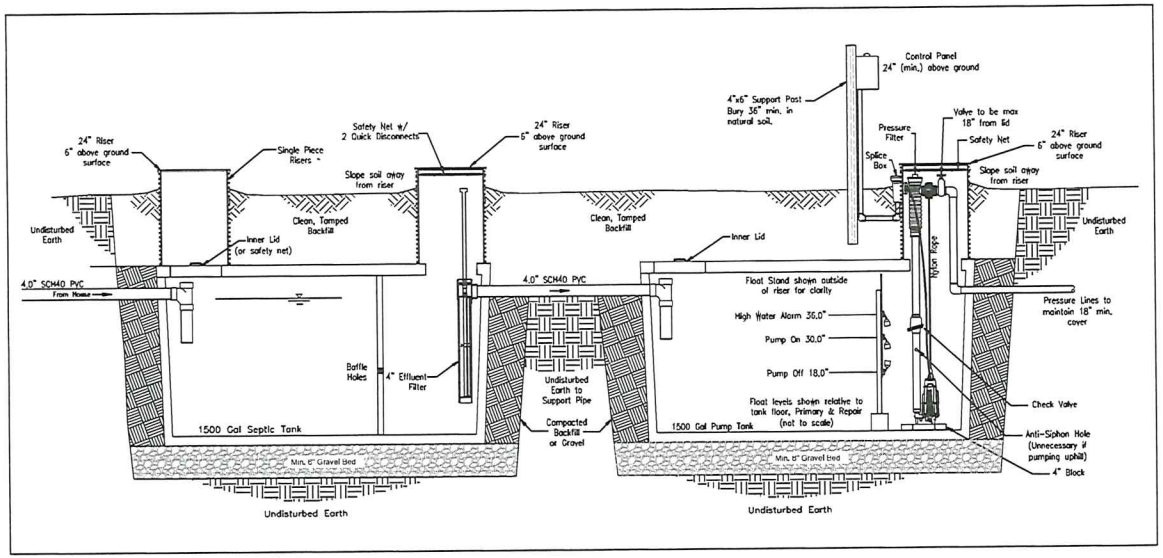
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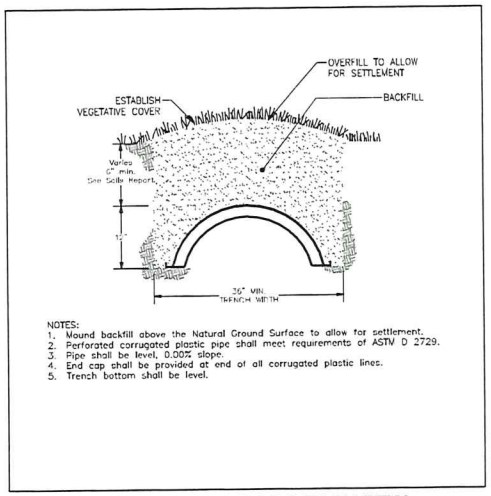
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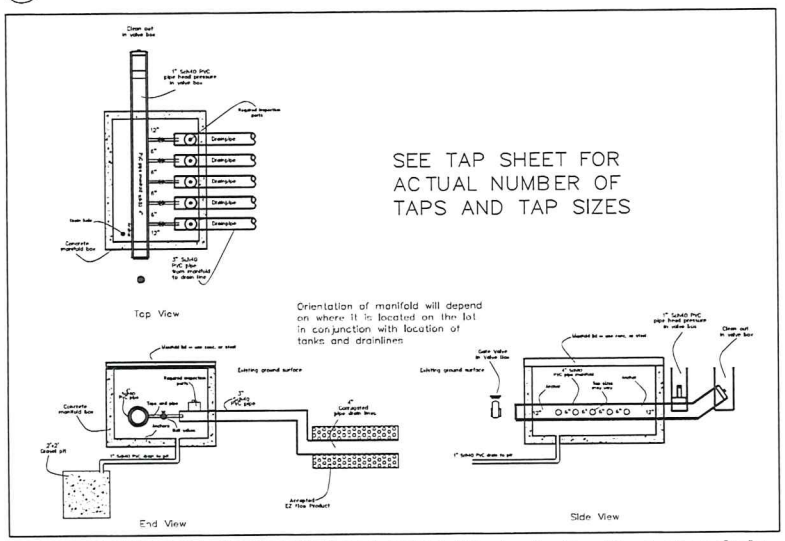


1 WW-7 **SYSTEM PROFILE VIEW**
N.T.S.

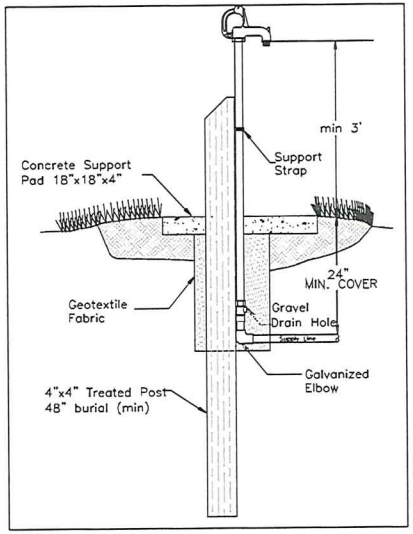


NOTES:
1. Mound backfill above the Natural Ground Surface to allow for settlement.
2. Perforated corrugated plastic pipe shall meet requirements of ASTM D 2729.
3. Pipe shall be level, 0.00% slope.
4. End cap shall be provided at end of all corrugated plastic lines.
5. Trench bottom shall be level.

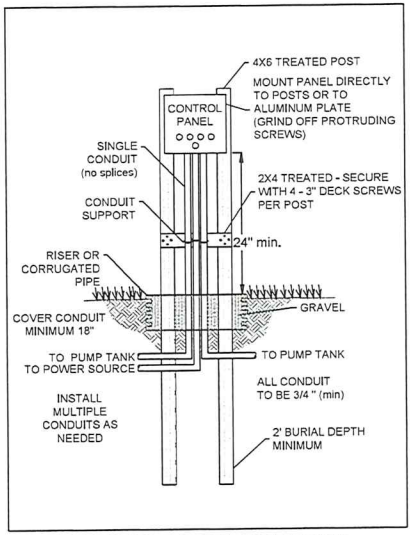
2 WW-7 **ADDITION TRENCH PROFILE VIEW**
N.T.S.



3 WW-7 **PRESSURE MANIFOLD INSTALLATION (Typical) - For Illustration Only**
N.T.S. SOURCE: AWT



4 WW-7 **YARD HYDRANT (if required)**
N.T.S. SOURCE: AWT



5 WW-7 **CONTROL PANEL SUPPORT**
N.T.S. SOURCE: AWT

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SHEET TITLE
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Trenching and Excavation Safety

The employer must comply with the trenching and excavation requirements of 29 CFR 1926.651 and 1926.652 or comparable OSHA-approved state plan requirements.

Inspection of Excavations

OSHA standards require that a competent person inspect trenches daily and as conditions change before worker entry to ensure elimination of excavation hazards. A competent person is an individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to workers, soil types and protective systems required, and who is authorized to take prompt corrective measures to eliminate these hazards and conditions.

Access and Egress

OSHA standards require safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations 4 feet (1.22 meters) or deeper. These devices must be located within 25 feet (7.6 meters) of all workers.

Recommendations

Heavy equipment and trucks should stay as far as possible from the edge of any trench.
Always use pads under stabilizers to minimize ground pressures that could lead to failures.

(b) Definitions

"Cemented soil" means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.
"Cohesive soil" means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical sideslopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.
"Dry soil" means soil that does not exhibit visible signs of moisture content.
"Fissured" means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.
"Granular soil" means gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.
"Layered system" means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.
"Moist soil" means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.
"Plastic" means a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.
"Saturated soil" means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.

"Soil classification system" means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the characteristics of the deposits and the environmental conditions of exposure.
"Stable rock" means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
"Submerged soil" means soil which is underwater or is free seeping.

"Type A" means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A.
However, no soil is Type A if:
(i) The soil is fissured; or
(ii) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
(iii) The soil has been previously disturbed; or
(iv) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater, or
(v) The material is subject to other factors that would require it to be classified as a less stable material.

"Type B" means:
(i) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
(ii) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
(iii) Previously disturbed soils except those which would otherwise be classed as Type C soil.
(iv) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration or
(v) Dry rock that is not stable; or
(vi) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

"Type C" means:
(i) Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or
(ii) Granular soils including gravel, sand and loamy sand; or
(iii) Submerged soil or soil from which water is freely seeping, or
(iv) Submerged rock that is not stable, or
(v) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

"Unconfined compressive strength" means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.
"Wet soil" means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

(c) Requirements

(1) Classification of soil and rock deposits. Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions set forth in paragraph (b) of this appendix.
(2) Basis of classification. The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a competent person using tests described in paragraph (d) below, or in other recognized methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.
(3) Visual and manual analyses. The visual and manual analyses, such as those noted as being acceptable in paragraph (d) of this appendix, shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.
(4) Layered systems. In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.
(5) Reclassification. If after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes shall be evaluated by a competent person. The deposit shall be reclassified as necessary to reflect the changed circumstances.

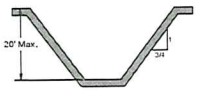
(d) Acceptable visual and manual tests

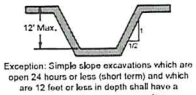
(1) Visual tests. Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.
(i) Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.
(ii) Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.
(iii) Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.
(iv) Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.
(v) Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.
(vi) Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water seeping from the sides of the excavation, or the location of the level of the water table.
(vii) Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

(2) Manual tests. Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.
(i) Plasticity. Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.
(ii) Dry strength. If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.
(iii) Thumb penetration. The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488 - "Standard Recommended Practice for Description of Soils (Visual - Manual Procedure).") Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb, however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.
(iv) Other strength tests. Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.
(v) Drying test. The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:
(A) If the sample develops cracks as it dries, significant fissures are indicated.
(B) Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength should be determined.
(C) If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

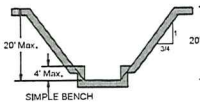
EXCAVATIONS IN TYPE A SOILS

All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of ¾:1.

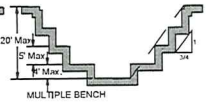




Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1

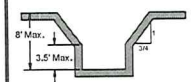


SIMPLE BENCH

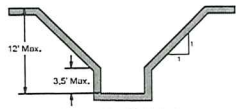


MULTIPLE BENCH

All benched excavations 20 feet or less in depth shall have a maximum allowable slope of ¾:1 and maxium bench dimensions as follows:

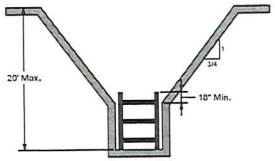


All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet.



All excavations more than 8 feet but not more than 12 feet in depth with unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet.

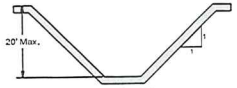
All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side.



All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under § 1926.652(b).

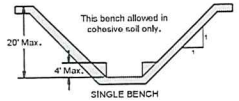
EXCAVATIONS IN TYPE B SOILS

All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

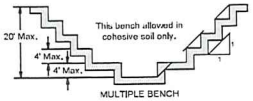


SIMPLE SLOPE

All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maxium bench dimensions as follows:

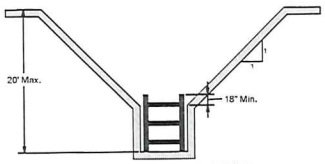


SINGLE BENCH



MULTIPLE BENCH

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of 1:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

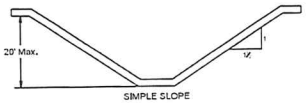


VERTICALLY SIDED LOWER PORTION

All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

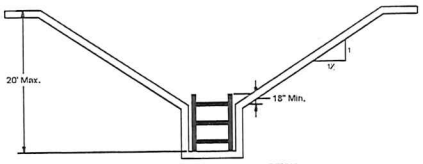
EXCAVATIONS IN TYPE C SOILS

All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1.



SIMPLE SLOPE

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of 1½:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

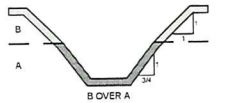


VERTICALLY SIDED LOWER PORTION

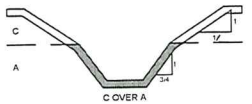
All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

EXCAVATIONS IN LAYERED SOILS

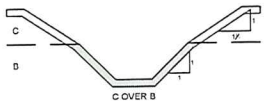
All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



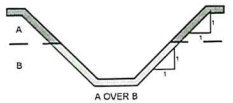
B OVER A



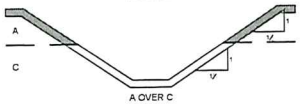
C OVER A



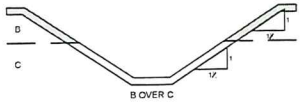
C OVER B



A OVER B



A OVER C



B OVER C

All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

AgriWaste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27
agriwaste.com | 919.859.0669

Andrew Roby LLC
Andrew Roby-Hubbard Rd

Project Location
15519 Hubbard Road
Huntersville, NC 28078
Mecklenburg County
PIN: 01314115

Project Owner
Andrew Roby LLC
PO Box 221416
Charlotte, NC 28222
704-334-5477 or 704-400-5415
noah.watts@andrewroby.com

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Excavation Safety

DRAWN BY:	CREATED ON:
C Barbee	11/14/2023
REVISED BY:	REVISED ON:
C Barbee	4/10/2024
RELEASED BY:	RELEASED ON:
--	--

DRAWING NUMBER
WW-8

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DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

Conventional PM System - Design Summary Page

Engineers and Soil Scientists
Agri-Waste Technology, Inc.

Project Managers:
Jeff Vaughan
(919) 367-6313

Catherine Barbee
(919) 729-5722
cbarbee@agriwaste.com

Project: Andrew Roby-Hubbard Rd
Property: 15519 Hubbard Rd
Huntersville, NC 28078
Subdiv.:
Lot #:

Owner: Andrew Roby LLC
Address: PO Box 221416
Charlotte, NC 28222
Phone: 704-334-5477 or 704-400-5415
Email: noah.watts@andrewroby.com

EHS:

Date:
5/9/2024
County:
Mecklenburg
Permit #:
0

P.I.N. #:
1314115

Soil Parameters

Soil Evaluation By:

Special Conditions/Notes:

Anaerobic Drip Repair

LTAR: 0.3 gpd/ft^2

Design Parameters

Type of Establishment: Residence (less than 6 bedrooms)
Unit: Bedroom
# of Units: 5

Septic Tank Specifications (Existing)

Min. Tank Capacity: 1,250 gal
Actual Tank Volume: 1,517 gal
Tank Manufacturer: N/A
Tank Model: Existing

	Exterior	Interior	
Length:	10.50	10.00	ft
Width:	5.50	5.00	ft
Depth:	5.83		ft

Primary Drainfield Specifications

Type of Distribution: Parallel
Trench Media: EZ-Flow
Trench Width: 3 ft
Trench Depth: 18 in
(or as specified on permit)

Trench Bottom Area: 2000 ft^2
Existing Gravel Drain Line: 335 ft
Additon Drain Line: 254 ft
Number of Lines: 9
Minimum Line Spacing: 9 ft O.C.

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Wastewater Treatment System Design Calculations

Project: Andrew Roby-Hubbard Rd
Location: 15519 Hubbard Rd
Huntersville, NC 28078

Date: 5/9/2024
County: Mecklenburg

Septic Tank Sizing

Daily Flow Estimate:

Unit	# of Units	Flow/Unit	Flow/Day
Bedroom	5	120	600
			0
			0
			0
			0
			0
		Q=	600 gpd

Septic Tank Minimum Capacity: Per NCAC T15A:18A .1952(b)(1):

For individual residences with 5 bedrooms,

V = 1250

Minimum Liquid Capacity (V)= 1,250 gal

Septic Tank Specs:
(Existing Tank)

Manufacturer: Existing
Model: TS 1500 STB-390
Volume: 1,517 gal
Weight: 13,000 lbs

	Exterior		Interior	
Length:	10.25	ft	10.00	ft
Width:	5.25	ft	4.75	ft
Depth:	5.83	ft		

Shape of Risers: Existing
2.00 ft

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Drainfield Design

Project: Andrew Roby-Hubbard Rd
Location: 15519 Hubbard Rd
Huntersville, NC 28078

Date: 5/9/2024
County: Mecklenburg

Drainfield Sizing

LTAR:	0.3 gpd/ft^2	Type of Drainfield Media - Exisitng :	Gravel
Daily Design Flow Existing:	300 gpd	Type of Drainfield Media Addition:	Chambers
Drainfield Area - Existing:	1,000 ft^2	Required Drainline- Addition:	333 ft
Trench Width:	3 ft	After 25% Reduction- Addition:	250 ft
Required Drainline - Exisiting:	333 ft	Minimum Line Spacing:	9 ft (O.C.)

Drainfield Layout

Benchmark Description: Well

Benchmark Elevation: 100.0 ft

Line	Use	Flag Color	Elevation (ft)	Layout Length (ft)	Utilized Primary Length (ft)	Utilized Addition Length
1	Layout Line	Existing Orange	751.4	100	100	
2	Layout Line	Existing Yellow	751.0	100	100	
3	Layout Line	Existing Orange	750.3	70	70	
4	Layout Line	Existing Red	749.6	65	65	
5	Layout Line	Purple	749.4	35		
6	Layout Line	Yellow	748.9	60		66
7	Layout Line	White	748.5	60		62
8	Layout Line	Purple	748.0	60		62
9	Layout Line	Yellow	747.6	55		34
10	Layout Line	White	747.4	40		30
11	Layout Line	Purple	747.2	25		
				Total:	335	254
				Count:	4	5

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CONVENTIONAL SEPTIC SYSTEM DESIGN (EXISITING FIELD)

Designed by: CB
Revised: 5/9/2024

Site Information

Project: Andrew Roby-Hubbard Rd
Site Address: PO Box 221416
Charlotte, NC 28222
County: Mecklenburg

Design Information Repair Field #1 - West

Estimated Daily Flow:	300	gal/day
L.T.A.R.:	0.3	gal/day/ft^2
L.T.A.R. + 5%:	0.315	gal/day/ft^2
Trench Width:	3	ft.
Line Length Required:	333	ft.

DRAINFIELD INFO. - **Existing**

Proposed Type of System/Distribution: ***Pump to Pressure Manifold using Gravel***

Design Head 24 in

Line No.	Flag Color	Line Length (ft.)		Flow (gpm)	Flow/Foot (gpm/ft)	Line L.T.A.R.
1	Orange	100	1/2in SCH 80	5.48	0.055	0.303
2	Yellow	100	1/2in SCH 80	5.48	0.055	0.303
3&4	Orange & Red	135	1/2in SCH 80	7.11	0.053	0.291
TOTAL		335		18.07		0.299

Total Run Time =	16.6 min.	
% of Dose Volume =	66%	(Req. Range 66% - 75%)
Dose Volume =	145.3 gal/dose	
Run Time/Dose =	**8.0 min**	
Volume/depth =	21.67 gal/in	(Dependent upon tank manufacturer, to be field verified)
Estimated Drawdown =	6.70 in.	

Manifold Box #1

Number of Taps =	3	
Manifold Length =	3.0 ft.	(approximate)

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CONVENTIONAL SEPTIC SYSTEM DESIGN (ADDITION FIELD)

Designed by: CB
Revised: 5/9/2024

Site Information

Project: Andrew Roby-Hubbard Rd
Site Address: PO Box 221416
Charlotte, NC 28222
County: Mecklenburg

Design Information Repair Field #2 - East

Estimated Daily Flow:	300	gal/day
L.T.A.R.:	0.3	gal/day/ft^2
L.T.A.R. + 5%:	0.315	gal/day/ft^2
Trench Width:	3	ft.
Line Length Required:	250	ft.
LTAR Reduced	0.40	
L.T.A.R. Reduced + 5%:	0.420	gal/day/ft^2

DRAINFIELD INFO. - **Addition**

Proposed Type of System/Distribution: ***Pump to Pressure Manifold using Chambers***

Design Head 24 in

Line No.	Flag Color	Line Length (ft.)		Flow (gpm)	Flow/Foot (gpm/ft)	Line L.T.A.R.
6	Yellow	66	1/2in SCH 80, Split	3.55	0.054	0.379
7	White	62	1/2in SCH 80, Split	3.55	0.057	0.403
8	Purple	62	1/2in SCH 80, Split	3.55	0.057	0.403
9&10	Yellow&White	64	1/2in SCH 80, Split	3.55	0.055	0.391
TOTAL		**254**		**14.2**		0.394

Total Run Time =	21.1	min.	
% of Dose Volume =	69%		(Req. Range 66% - 75%)
Dose Volume =	113.8	gal/dose	
Run Time/Dose =	**8.0**	**min**	
Volume/depth =	21.67	gal/in	(Dependent upon tank manufacturer, to be field verified)
Estimated Drawdown =	5.25	in.	

Manifold Box #2

Number of Taps =	2		
Manifold Length =	2.5	ft.	(approximate)

Full System Summary

Total Run Time =	18.6	min.	
% of Dose Volume =	68%		(Req. Range 66% - 75%)
Dose Volume =	259.0	gal/dose	
Run Time/Dose =	**8.0**	**min**	
Volume/depth =	21.67	gal/in	(Dependent upon tank manufacturer, to be field verified)
Estimated Drawdown =	12.0	in.	

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PUMP DESIGN

Project: Andrew Roby-Hubbard Rd
Site Address: 15519 Hubbard Rd
Charlotte, NC 28222
County: Mecklenburg

Friction Losses

	Suction Head	0 ft.		*(submersible 0)*
Elev. Difference (highest point from pump)		5.00 ft.		
Design Pressure At Outlet		2 ft.		
Supply Line - 2.0" *Schedule 40 PVC* (from pump)				
Pipe Diameter, Nominal	2 in.			
Pipe Diameter (ID)	2.047 in.	Flow	32.27	gpm
Pipe Length	10 ft	Velocity	3.15	ft/sec
Pipe Length for Fittings	1 ft			
Equivalent Length	11 ft			
Estimated Friction Loss in Supply Line		0.21 ft		
Supply Line - 1.5" *Schedule 40 PVC* (most restrictive)				
Pipe Diameter, Nominal	1.5 in.			
Pipe Diameter (ID)	1.59 in.	Flow	14.20	gpm
Pipe Length	120 ft	Velocity	2.29	ft/sec
Pipe Length for Fittings	1 ft			
Equivalent Length	121 ft			
Estimated Friction Loss in Supply Line		1.69 ft		
Pressure Filter Friction Loss		1.25 ft.		*(from manufacturer)*
Friction Loss - Taps/Special Fittings		3.5 ft.		
	TOTAL	**13.65 ft.**		

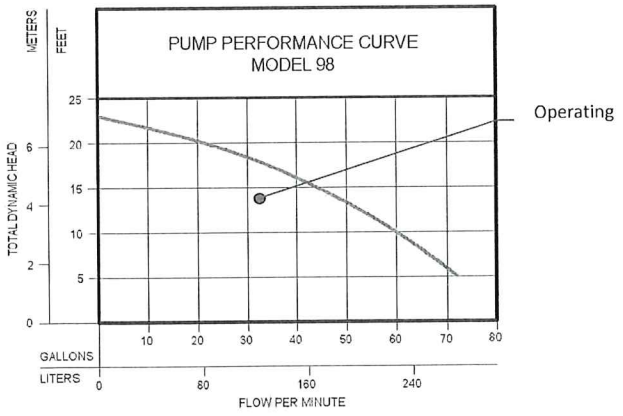
Flow for Anti-Siphon Hole

Hole Diameter	1/8 in.
Hole Flowrate	0.68 gpm

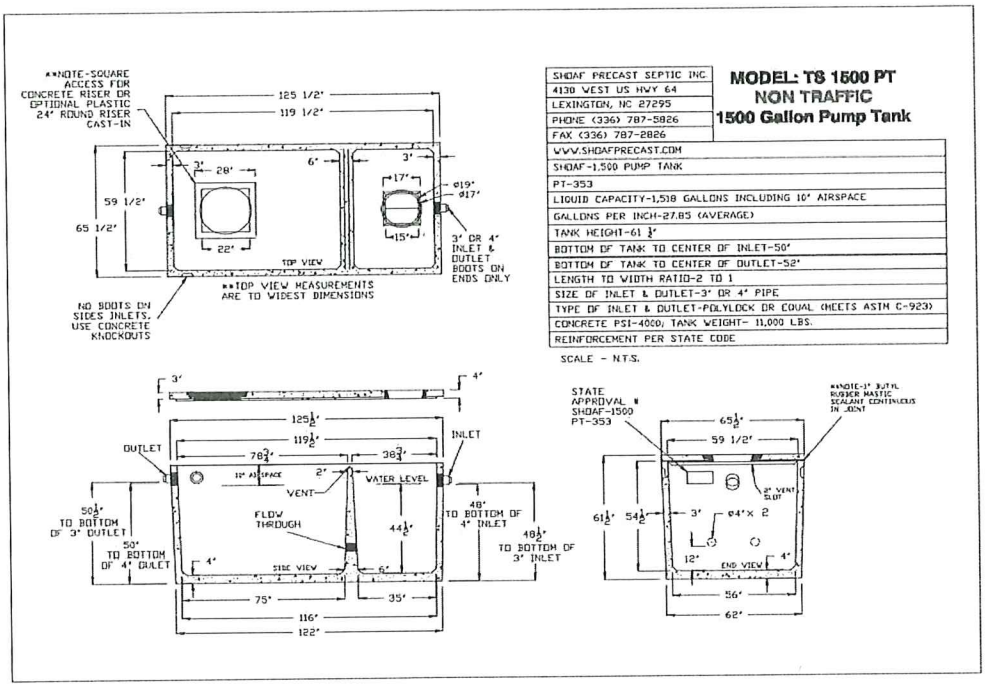
Pump Efficiency	0.7 *(assumed, typical)*
Motor Efficiency	0.9 *(assumed for electric pumps)*
Flow	**32.95 gpm**
Required Horsepower	0.18 hp
TDH	**13.65 ft.**

Pump Selection

Manufacturer: **Zoeller**
Model: **98**
Horsepower: **1/2**



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Interior Height (in.)	**54.5**
Avg. Gals/Inch	**27.85**

Repair System

Elevations, measured from bottom towards top (0 = Interior Bottom of Tank):

Top of pump (including 4" block)	16.1 in.	(Pump approx. 12 1/16" tall)
Pump Off	18.0 in.	(allows pump to remain submerged)
Pump On	30.0 in.	(set for dose volume)
Alarm on	36.0 in.	(6" above ON Float)

Emergency Storage Available

Pump Tank	515.2 gal
Days of Storage	1.00 days

(determined from interior top of tank - "High Water Alarm")

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Attachment 2: Soil Boring Description Sheets

DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

COUNTY: Mecklenburg Co.
PROPERTY ID #: 01314115

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

CLIENT: Andrew Roby, LLC
ADDRESS: 15519 Hubbard Rd, Huntersville NC 28078
PROPOSED FACILITY: Single Family Residence
LOCATION OF SITE: 15519 Hubbard Rd, Huntersville NC 28078

APPLICATION DATE
DATE EVALUATED: 09/25/2023
PROPOSED DESIGN FLOW (.1949): 600 GPD
PROPERTY SIZE: 2.9 ac.
PROPERTY RECORDED:

WATER SUPPLY: ☐ Private ☐ Public ☒ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☒ Auger Boring ☐ Pit ☐ Cut
TYPE OF WASTEWATER: ☒ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
SB 1	3%	0-8"	ABK; SCL	SS; SP; FI	Chroma 2 Observed	32"	-	-	0.3 Compact 0-8"
		8-32"	ABK; C	SS; SP; FI					
		32+"	ABK; C	SS; SP; FI					
SB 2	3%	0-8"	WSBK SCL	SS; SP; FR	Chroma 2 Observed	33"	-	-	0.3
		8-33"	ABK; C	SS: SP; FI					
		33+"	ABK; C	SS; SP; FI					
SB 3	3%	0-10"	SCL; WSBK	SS; SP; FR	-	36"	-	-	0.3
		10-36+"	C; SBK	SS; SP; FI					
SB 4	3%	0-8"	SCL; ABK	SS; SP; FR	-	36"	-	-	0.3 Compact 0-8"
		8-28"	C; ABK	SS; SP; FI					
		28-36"	CL; WSBK	SS; SP; FR					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	Provisionally Suitable	Provisionally Suitable
System Type(s)	25% Reduction (Expansion)	Anaerobic Subsurface Drip
Site LTAR	0.3 GPD/Ft^2	0.1 GPD/Ft^2

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948):

EVALUATED BY: Trevor Hackney
OTHER(S) PRESENT:

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LEGEND

use the following standard abbreviations

LANDSCAPE POSITION	GROUP	SOIL TEXTURE	CONVENTIONAL .1955 LTAR*	LPP .1957 LTAR*	MINERALOGY/ CONSISTENCE	STRUCTURE
CC (Concave Slope) CV (Convex Slope) D (Drainage Way) DS (Debris Slump) FP (Flood Plain) FS (Foot Slope) H (Head Slope) L (Linear Slope) N (Nose Slope) R (Ridge) S (Shoulder Slope) T (Terrace)	I	S (Sand) LS (Loamy Sand)	1.2 - 0.8	0.6 - 0.4	SEXP (Slightly Expansive) EXP (Expansive)	G (Single Grain) M (Massive) CR (Crumb) GR (Granular) SBK (Subangular Blocky) ABK (Angular Blocky) PL (Platy) PR (Prismatic)
	II	SL (Sandy Loam) L (Loam)	0.8 - 0.6	0.4 - 0.3		
	III	Si (Silt) SiCL (Silty Clay Loam) CL (Clay Loam) SCL (Sandy Clay Loam) SiL (Silt Loam)	0.6 - 0.3	0.3 - 0.15		
	IV	SC (Sandy Clay) SiC (Silty Clay) C (Clay)	0.4 - 0.1	0.2 - 0.05		
		O (Organic)	None	None		

MOIST	WET
VFR (Very Friable)	NS (Non-sticky)
FR (Friable)	SS (Slightly Sticky)
FI (Firm)	S (Sticky)
VFI (Very Firm v. Very Sticky)	VS (Very Sticky)
EFI (Extremely Firm)	NP (Non-plastic)
	SP (Slightly Plastic)
	P (Plastic)
	VP (Very Plastic)

*Adjust LTAR due to depth, consistence, structure, soil wetness, landscape, position, wastewater flow and quality.

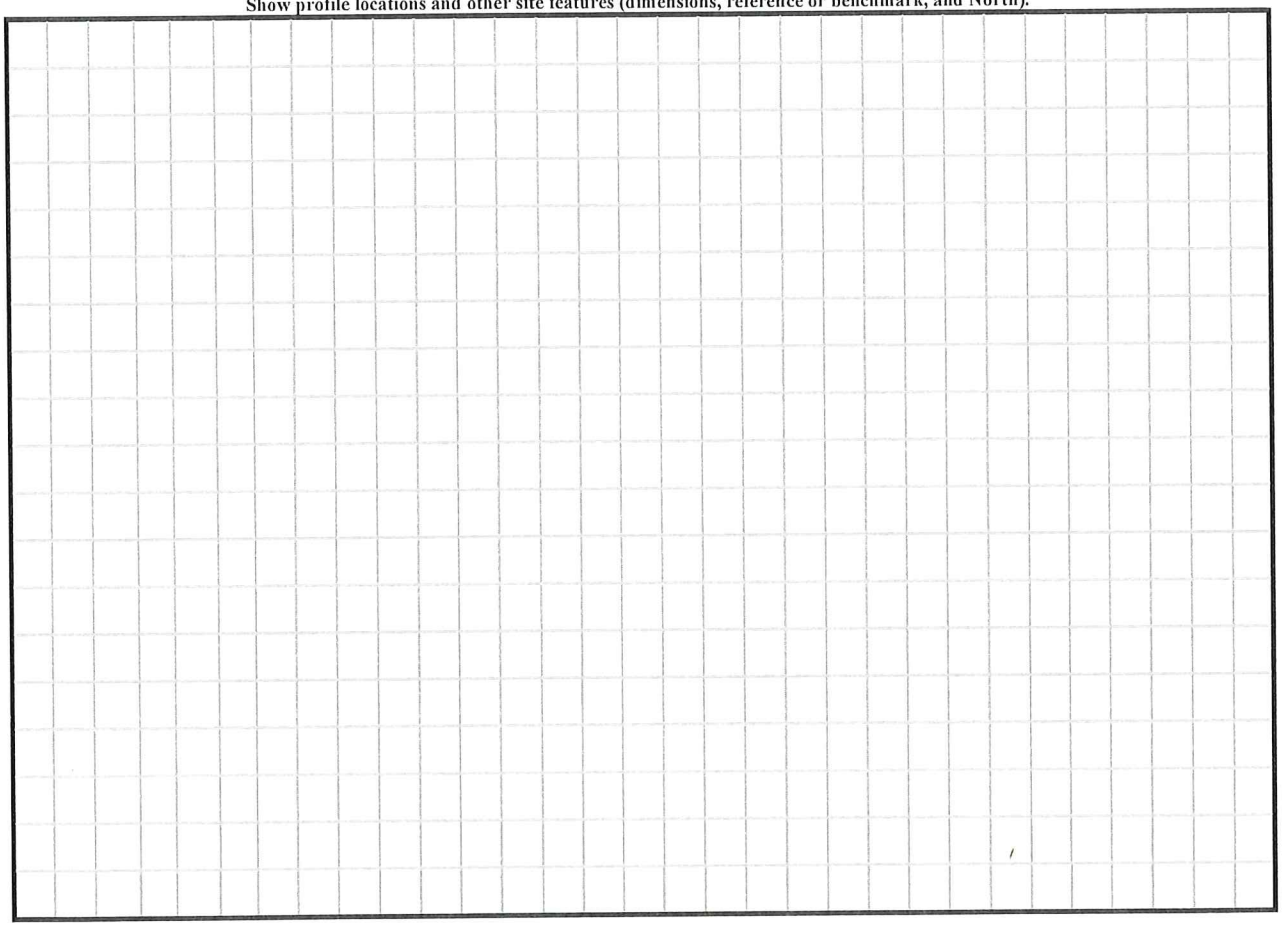
NOTES

HORIZON DEPTH	In inches below natural soil surface
DEPTH OF FILL	In inches from land surface
RESTRICTIVE HORIZON	Thickness and depth from land surface
SAPROLITE	S(suitable) or U(unsuitable)
SOIL WETNESS	Inches from land surface to free water or inches from land surface to soil colors with chroma 2 or less - record Munsell color chip designation
CLASSIFICATION	S (Suitable), PS (Provisionally Suitable), or U (Unsuitable)

Evaluation of saprolite shall be by pits.

Long-term Acceptance Rate (LTAR): gal/day/ft^2

Show profile locations and other site features (dimensions, reference or benchmark, and North).



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SOIL/SITE EVALUATION

COUNTY: _ Mecklenburg Co.__
PROPERTY ID #: 01314115

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
SB 5	5%	0-6"	SCL; GR	SS; SP; FR	Chroma 2 Observed	15"	-	-	Unsuitable
		6-15"	C; SBK	SS; SP; FI					
		15+"	C; MA	VS; VP; FI					
SB 6	5%	0-8"	SCL; GR	SS; SP; FR	Chroma 2 Observed	14""	-	-	Unsuitable
		8-14"	C; SBK	SS: SP; FI					
		14+"	C; MA	VS; VP; FI					
SB 7	3%	0-8"	WSBK; SCL	SS; SP; FR	-	18"	-	Saprolite	0.1 Drip
		8-18"	ABK; C	SS; SP; FI					
		18+"	MA; SCL	SS; SP; FR					
SB 8	3%	0-8"	WSBK; SCL	SS; SP; FR	-	23"	-	Saprolite	0.1 Drip
		8-23"	ABK; C	SS: SP; FI					
		23+"	MA; SCL	SS; SP; FR					
SB 9	3%	0-8"	WSBK; SCL	SS: SP; FR	-	36"	-	-	0.3
		8-32"	ABK; C	SS: SP; FI					
		32-36"	WSBK; CL	SS: SP; FR					

COMMENTS:

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SOIL/SITE EVALUATION

(Continuation Sheet-Complete all field in full)

COUNTY: _ Mecklenburg Co.__
PROPERTY ID #: 01314115

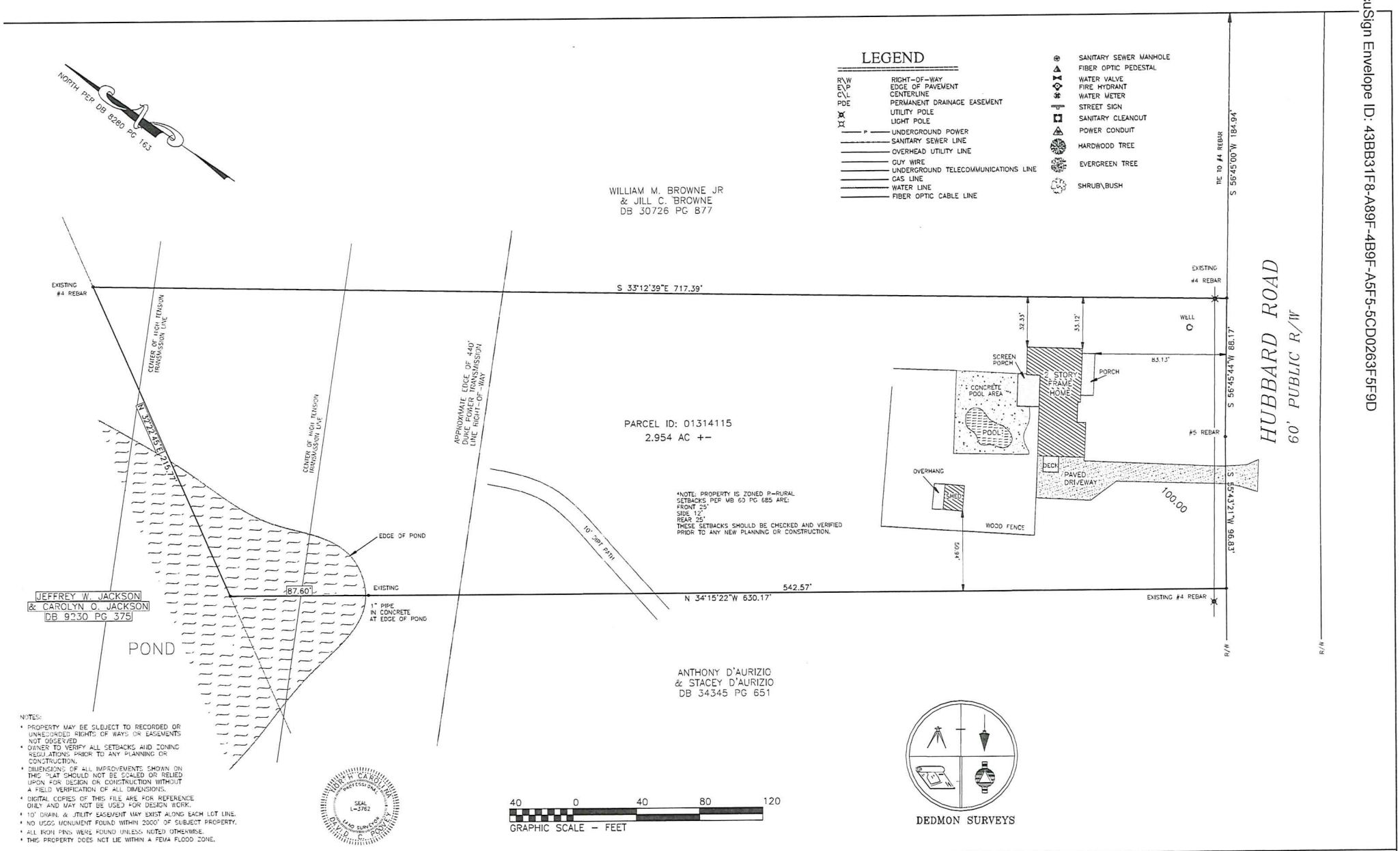
PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
SB 10	3%	0-10"	WSBK; SCL	SS; SP; FR	-	34"	-	Saprolite	0.3
		10-34"	ABK; C	SS; SP; FI					
		34"	MA; SCL	SS; SP; FR					
SB 11	3%	0-8"	WSBK; SCL	SS; SP; FR	-	36"	-	-	0.3
		8-32"	ABK; C	SS: SP; FI					
		32-36"	WSBK; CL	SS; SP; FR					
SB 12	7%	0-12"	WSBK; SCL	SS; SP; FR	-	29"	-	Saprolite	0.3
		12-29"	ABK; C	SS: SP; FI					
		29+"	WSBK; CL	SS; SP; FR					

COMMENTS:

DocuSign Envelope ID: 43BB31F8-A89F-4B9F-A5F5-5CD0263F5F9D

Attachment 3: Additional Documentation

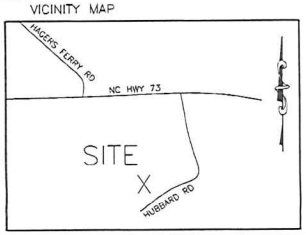
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NOTES:
- PROPERTY MAY BE SUBJECT TO RECORDED OR UNRECORDED RIGHTS OF WAYS OR EASEMENTS NOT OBSERVED
- OWNER TO VERIFY ALL SETBACKS AND ZONING REGULATIONS PRIOR TO ANY PLANNING OR CONSTRUCTION.
- DIMENSIONS OF ALL IMPROVEMENTS SHOWN ON THIS PLAT SHOULD NOT BE SCALED OR RELIED UPON FOR DESIGN OR CONSTRUCTION WITHOUT A FIELD VERIFICATION OF ALL DIMENSIONS.
- DIGITAL COPIES OF THIS FILE ARE FOR REFERENCE ONLY AND MAY NOT BE USED FOR DESIGN WORK.
- 10' DRAIN. & UTILITY EASEMENT MAY EXIST ALONG EACH LOT LINE.
- NO USGS MONUMENT FOUND WITHIN 2000' OF SUBJECT PROPERTY.
- ALL IRON PINS WERE FOUND UNLESS NOTED OTHERWISE.
- THIS PROPERTY DOES NOT LIE WITHIN A FEMA FLOOD ZONE.

NORTH CAROLINA PROFESSIONAL SEAL L-3762 LAND SURVEYOR DAVID C. POOVEY

VICINITY MAP



I, DAVID C. POOVEY, CERTIFY THAT THIS PLAT WAS DRAWN FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DB 8280, PG 163)(PB , PG); THAT THE RATIO OF PRECISION AS CALCULATED EXCEEDS 1:10000; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH GS 47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 25TH DAY OF JUNE, AD 2021.

PROFESSIONAL LAND SURVEYOR — L-3762 LICENSE NO.

DEDMON SURVEYS

CHUCK POOVEY, PLS #3762
ROBERT DEDMON, PLS #3899

3704 NC HIGHWAY #16 BUSINESS NORTH
P.O. BOX 494 - DENVER, NC 28037
PHONE: 704/483/4908
FIRM C-0453

DATE: 6/25/2021
SCALE: 1" = 40'

DB: 8280 PG: 163
DB: PG:
PB: XXXX PG: XXXX

TOWN OF HUNTERSVILLE

Foundation Drain Setbacks:
10' Upslope
15' Sideslope
25' Downslope

SURV. BY: KPJ | DRAWN: KPJ | JOB# HUBB

PHYSICAL SURVEY
FOR
BRENT FARLEY
& KERAH FARLEY

PARCEL ID: 01314115
@ 15519 HUBBARD RD, HUNTERSVILLE, NC