BLDR - 2023 - 43775

ICHD - ENVIRONMENTAL HEALTH DIVISION

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

PERMIT # OSWP-2022-5100

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

PIN # 4765-91-4631

APPLICANT / OWNER: Agri-Waste Technology APPLICANT ADDRESS: 501 N Salem St., Apex, NC 27502

SITE ADDRESS: 195 LONE PINE RD, STATESVILLE, NC 28625 PHONE: ALT. PHONE:

SITE DIRECTIONS: SAP CONTROLLED: YES ☐ NO ☒

SUBDIVISION: Carson Creek SECTION: P2 LOT #: FD 12 LOT AREA: 0.75 DESIGN FLOW: 480 L.T.A.R.: -30

Septic Tank: (gal) ~~1250~~ 1000	STB: 760	Date: –	☑ New System ☐ Repair ☐ Expansion	System Type: LPP	☑ Residence	No. Bedrooms: 4	Water Supply: Municipal Water
Pump Tank: (gal)	PT:	Date:	System Description: Gravity - 25% Reduction.		☐ Business	No. Persons: 8	
Pump Make:	Model:	Serial #:	Repair System Description: 50% Reduction.		☐ Other	No. Employees:	
# Nitrification Fields: 1	# Lines: 4	Linear Ft.: 400	Maintenance Agreement Required: ☐ YES ☑ NO		☑ Slab	☐ Crawl Space	
Trench Width: 36in	Trench Bottom Depth (Low side): 33in		Gravel Depth: –	☑ GRAVITY ☐ PRESSURE	☐ Basement w/ Plumbing	☐ Basement w/o Plumbing	

Comments / Conditions:

INITIAL SITE SKETCH

This permit is issued pursuant to G.S. 130A-335 (a2)(a3) & (a4). using the Signed + Sealed LSS/LG Evaluation attached here from:

Agri-Waste Technology Inc.
LSS # 1227.

AS BUILT SKETCH

- ENCROACHMENT AGREEMENT IS RECORDE IN DEED BOOK 3033 PAGES 856-861

See attached email regarding tank size. Installed as drawn.

* Property Line to be marked before OP *

* bottom line too close to PL / must be moved to beginning of 3rd line *

* Drainline mound to meet setbacks to property line

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

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

Owner / Applicant Signature: Date:

IMPROVEMENT PERMIT by: Benjamin A. Batts Date: 10/24/2022

AUTHORIZATION TO CONSTRUCT by: Bryant C. White Date: 12-27-2023

Installed By: Frye Grading

OPERATION PERMIT by: Bryant Batts Date: 6/6/2024

Existing System Inspected By: Date:

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

County: Iredell

This Section for Local Health Department Use Only

Initial submittal received: 10/17/22 (Date) by BB (Initials)

Permit Number: OSWP-2022-5100

G.S. 130A-335(a4) states the following: *'If a local health department fails to act on an application for an improvement permit submitted pursuant to subsection (a3) of the section within 10 business days of receipt of a complete application, the local health department shall issue the improvement permit.'*

In accordance with G.S. 130A-335(a3) the improvement permit application is:

☐ 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 Owner on _____ (Date)

State Authorized Agent: _____ Date: _____

☐ Denied (See attached report.)

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

State Authorized Agent: _____ Date: _____

☑ Complete

State Authorized Agent: Benjamin A. Botts Date of Issuance: 10/24/22

This Improvement Permit is issued pursuant to G.S. 130A-335 (a2), (a3), and (a4) using the signed and sealed LSS/LG evaluation(s) attached here. The issuance of this permit by the Health Department in no way guarantees the issuance of other permits. The permit holder is responsible for checking with appropriate governing bodies in meeting their requirements. This site is subject to revocation if the site plan, plat, or the intended use changes, or if information submitted in the application was falsified, inaccurate or misleading. The Improvement Permit shall not be affected by a change in ownership of the site. This permit is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to conditions of this permit. The location and identification of all property lines, easements, water lines, and other appropriate utilities shall be the responsibility of the owner.

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: 10/24/2027

See attached site sketch

County: Iredell

IMPROVEMENT PERMIT FOR G.S. 130A-335(a2)/SL2022-11

PIN/Lot Identifier: 4765-91-5272

Issued To: Kenson Homes LLC

Property Location: Lot 12, Lone Pine Road, Statesville, NC. 28625

Subdivision: Carson Creek Lot #: 12 Block: _____ Section: _____

LSS Report Provided: Yes ☒ No ☐

If yes, name and license number of LSS: Jeff Vaughan, 1227

New ☒ Repair ☐ Expansion ☐ System Relocation ☐

Proposed Structure: Single family residence

Proposed Wastewater System Type: Gravity 25% Reduction Chamber (Initial) Gravity 50% Reduction Panel Block (Repair)

Fill System: ☐ Yes ☒ No If yes, specify: ☐ New ☐ Existing (when adding more than 6 inches of fill to system area please provide a fill plan)

Proposed Design Daily Flow: 480 GPD Proposed LTAR (Initial): 0.3GPD/ft2 Proposed LTAR (Repair): 0.3 GPD/ft2

Design Wastewater Strength: ☒ domestic ☐ high strength ☐ industrial process

Number of bedrooms: 4 Number of Occupants: 8 Other: _____

Pump Required: ☐ Yes ☒ No ☐ May be required based upon final location and elevations of facilities

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

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

Drainfield location meets requirements of Rule .1945: Yes ☒ No ☐

Drainfield location meets requirements of Rule .1950: 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:

Licensed Soil Scientist Print Name: Jeff Vaughan

Licensed Soil Scientist Signature: Jeff Vaughan Date: 8/12/22

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

See attached site sketch

County: Iredell

CONSTRUCTION AUTHORIZATION FOR G.S. 130A-335(a2)/SL2022-11

PIN/Lot Identifier: 4765-91-5272

Issued To: Kenson Homes LLC

Property Location: Lot 12, Lone Pine Road, Statesville, NC. 28625

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

Facility Type: Single Family Residence

☒ New ☐ Expansion ☐ Repair System Relocation ☐

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

Type of Wastewater System** Gravity 25% Reduction Chambers (Initial) Gravity 50% Reduction Panel Block (Repair)

Design Daily Flow: 480 GPD Wastewater Strength: ☒ domestic ☐ high strength ☐ industrial process

Session Law 2014-120 Section 53, Engineering Design Utilizing Low-flow Fixtures and Low-flow Technologies? ☐ Yes ☒ No

Installation Requirements/Conditions

Septic Tank Size: 1250 gallons Total Trench/Bed Length: 400 feet Trench/Bed Spacing: 9 feet on center

Drainfield square footage: 1200 Trench/Bed Width: 36 inches LTAR: 0.3 gpd/ft²

Soil Cover: 12 inches Slope Adjusted Maximum Trench/Bed Depth: 33 inches

Aggregate Depth: _____inches above pipe _____inches below pipe _____inches total

Pump Tank Size (if applicable): N/A gallons Requires more than 1 pump? ☐ Yes ☐ No

Pump Requirements: _____ ft. TDH vs. _____ GPM Grease Trap Size (if applicable): NA 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 [.1937(h)]: Yes ☐ No ☒

Easement, Right-of-Way, or Encroachment Agreement Required [.1938(j)]: ☐ Yes ☒ No

Declaration of Restrictive Covenants: ☐ Yes ☒ No

****If applicable:**

I understand the system type specified is different from the type specified on the application. I accept the specifications of this permit.

Owner/Legal Representative Print Name: _____

Owner/Legal Representative Signature: _____ Date: _____

Pre-Construction Conference Required: Yes ☐ No ☒

Conditions: _____

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

AOWE/PE Print Name: Jeff Vaughan

AOWE/PE Signature: _____ Date: 8/12/22

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

See attached site sketch

Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N. Salem Street, Suite 203
Apex, North Carolina 27502
919-859-0669
www.agriwaste.com





Soil Suitability for Domestic Sewage Treatment and Disposal Systems
Lot 12, Lone Pine Road, Statesville, NC 28625
Iredell County

PREPARED FOR: Kenson Homes, LLC, Client

PREPARED BY: Jeff Vaughan, Licensed Soil Scientist
Trevor Hackney, Environmental Scientist

DATE: July 18, 2021

Soil suitability for domestic sewage treatment and disposal systems was evaluated from June 23-27, 2022, for the property located on Lone Pine Road (Lot 12), Statesville, NC. Jeff Vaughan and Trevor Hackney of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. This evaluation was done to facilitate permitting for a 4-bedroom home. This report and attached documents were prepared *to this application is to be used to issue an Improvement Permit in accordance with G.S. 130A-335(a2) and (a3). The LSS evaluation is being submitted pursuant to and meets the requirements of 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.

The total property area is approximately 0.75 acres. The property is an open field. The home and pool are proposed near the front of the property with the septic system proposed towards the back of the property. The proposed system is a conventional gravity septic system.

Soil Suitability for Domestic Sewage Treatment and Disposal Systems
The drawing in Attachment 1 details the property boundaries (as surveyed by Blue Ridge Engineering), soil boring locations, and layout of drain field trenches (Completed by AWT). Four soil borings were assessed on the property. Soil borings were examined to determine soil suitability for on-site sewage disposal systems in accordance with 15A 18A .1900 Rules for Sewage Treatment and Disposal Systems. These borings were advanced with a hand auger. All soil borings are being utilized for the drain field area.

A septic layout was performed to demonstrate available space (.1945). The layout in Attachment 1 indicates there is available space for a four-bedroom gravity primary and repair septic system utilizing the 25% reduction of innovative drain field material for the primary system and a 50% reduction using panel block trenches.

The proposed LTAR (Long Term Acceptance Rate) by AWT is 0.3 GPD/ft^2. The soils on this property are group IV soils within the distribution and treatment zone as used to define the LTAR. Since usable soil depths meet or exceed 45" AWT is recommending the use of innovative style trench to utilize the 25% reduction for the initial and repair system. With an LTAR of 0.3 GPD/ft^2, 400 linear feet of innovative trench are necessary to support a four-bedroom home initial system. The repair field will require 267 linear feet of panel block trenches. The maximum trench bottom should not exceed 33". The attached drawing proves that 400 linear feet of trench can be installed for the primary system and 268 linear feet of trench can be installed for the repair system with the proposed home location.

Any disturbances or grading done in the usable area will change the potential of using the area designated for a drain field. Prior to moving forward with building on the property, Iredell County Environmental Health Department should be contacted to complete the necessary review of this documentation to issue an IP (Improvement Permit) for the property and the CA (Construction Authorization).

Conclusions

An IP (Improvement Permit) and CA (Construction Authorization) for this property can be issued with the site plan that is in Attachment 1. A CA permit will be required in order to secure a building permit for the property. The county issues an Operation Permit after the system has been installed to meet the specifications of the Authorization to Construct. Additional septic layouts have been or will be performed as needed. It will be critical to not disturb any of the proposed septic area or there is a risk that the IP and CA will be revoked. The LSS/AOWE Evaluation and attached documents were prepared *to this application is to be used to issue an Improvement Permit in accordance with G.S. 130A-335(a2) and (a3). The LSS/AOWE evaluation is being submitted pursuant to and meets the requirements of G.S. 130A-335(a2)*

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

Sincerely,

Jeff Vaughan

Trevor Hackney

Attachment 1: Site Plan/Drawing

CARSON CREEK LOT 12

Project Location
179 Lone Pine Rd
Statesville, NC 28625
Iredell County
PIN: 4765915272

Project Owner
Kenson Homes, LLC
185 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fkv4@aol.com

Project Consultant
Jeff Vaughan, L.S.S
(919) 367-6313
Rodney L Huffman, PE
(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
Four (4) Bedroom, 480 gpd
Chambers/PPBPS Dispersal System
w/ Serial (Dropbox) Distribution



VICINITY MAP

Sheet Index

Sheet 1	Cover Sheet
Sheet 2	Property Layout
Sheet 3	Component Layout
Sheet 4	Primary Drainfield
Sheet 5	Repair Drainfield
Sheet 6	Detail Sheet
Sheet 7	Excavation Safety

AWT
Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N. Salem Street, Suite 203
Apex, North Carolina 27502
919-859-0669
www.agriwaste.com

Kenson Homes, LLC
Carson Creek Lot 12

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Iredell County
PIN: 4765915272
PID: —

Project Owner:
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Mooresville, NC 28117
760-522-7415
fkv4@aol.com

PROFESSIONAL ENGINEER SEAL

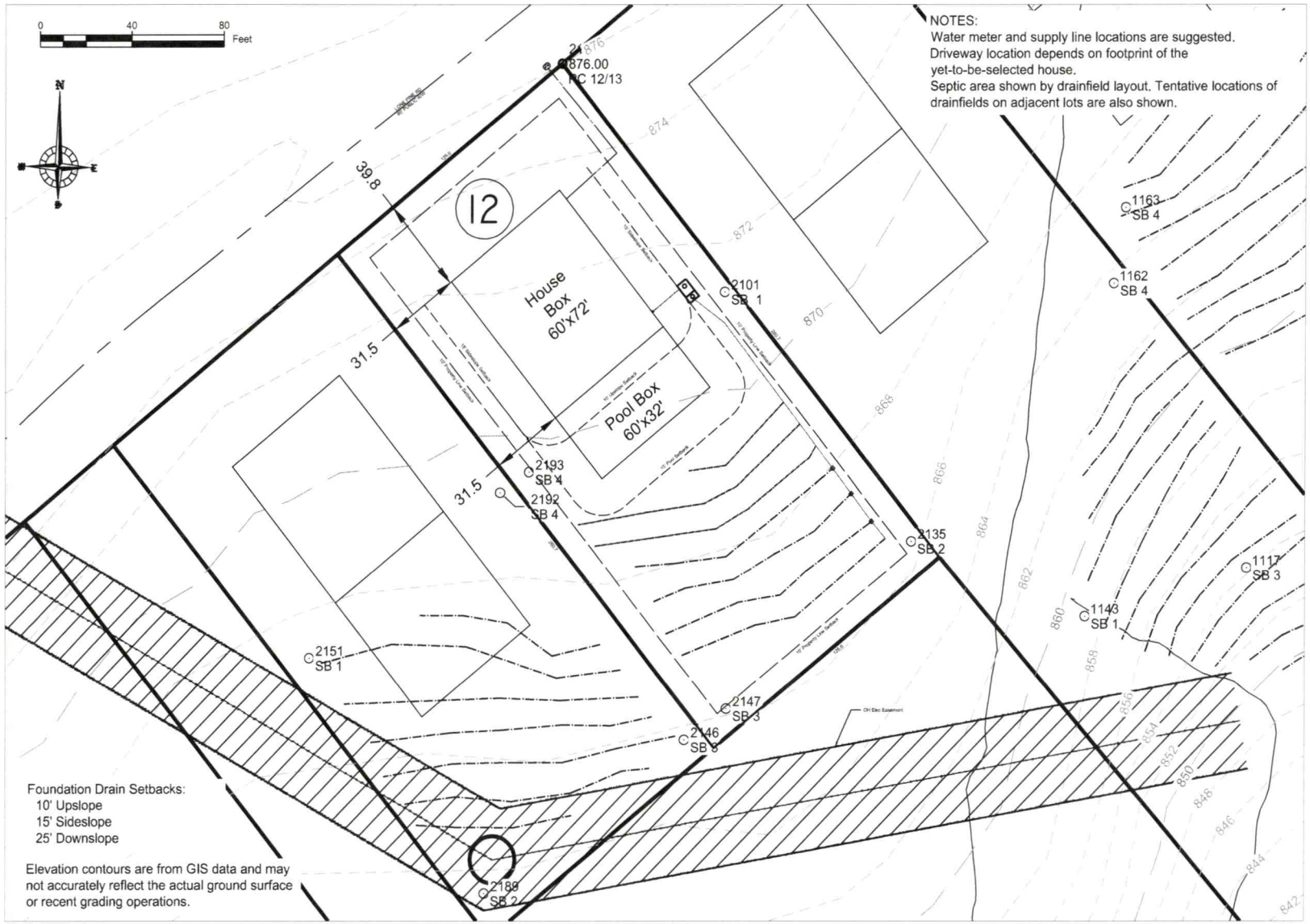
For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Cover Sheet

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER
WW-1



PROPERTY LAYOUT

WW-2 N.T.S. SOURCE: AWT, Inc.

AWT
Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N. Salem Street, Suite 203
Apex, North Carolina 27502
919-859-0668
www.agriwaste.com

Kenson Homes, LLC
Carson Creek Lot 12

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Statesville, NC 28625
Iredell County
PIN: 4765815272
PID: —

Project Owner:
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185 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fv-v4@aol.com

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE

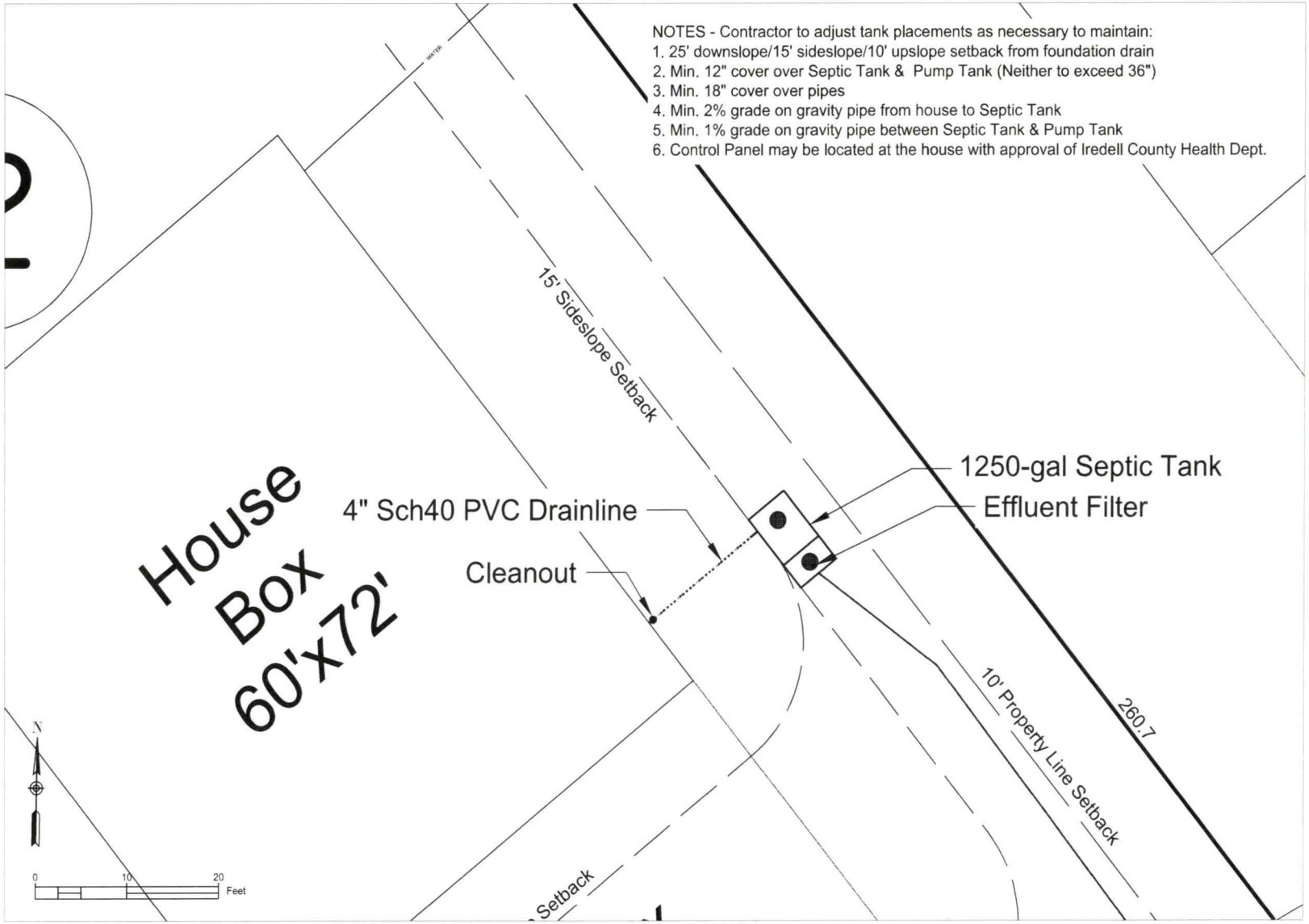
Property Layout

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER

WW-2

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 & Pump Tank (Neither to exceed 36")
3. Min. 18" cover over pipes
4. Min. 2% grade on gravity pipe from house to Septic Tank
5. Min. 1% grade on gravity pipe between Septic Tank & Pump Tank
6. Control Panel may be located at the house with approval of Iredell County Health Dept.



COMPONENT LAYOUT
WW-3 N.T.S. SOURCE: AWT, Inc.

AWT
Engineers and Soil Scientists
Agri-Waste Technology, Inc.
531 N. Salem Street, Suite 203
Apex, North Carolina 27502
919-859-0699
www.agriwaste.com

Kenson Homes, LLC
Carson Creek Lot 12

Project Location:
179 Lone Pine Rd
Statesville, NC 28625
Iredell County
PIN: 4765915272
PID: —

Project Owner:
Kenson Homes, LLC
185 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fluv4@aol.com

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For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Component Layout

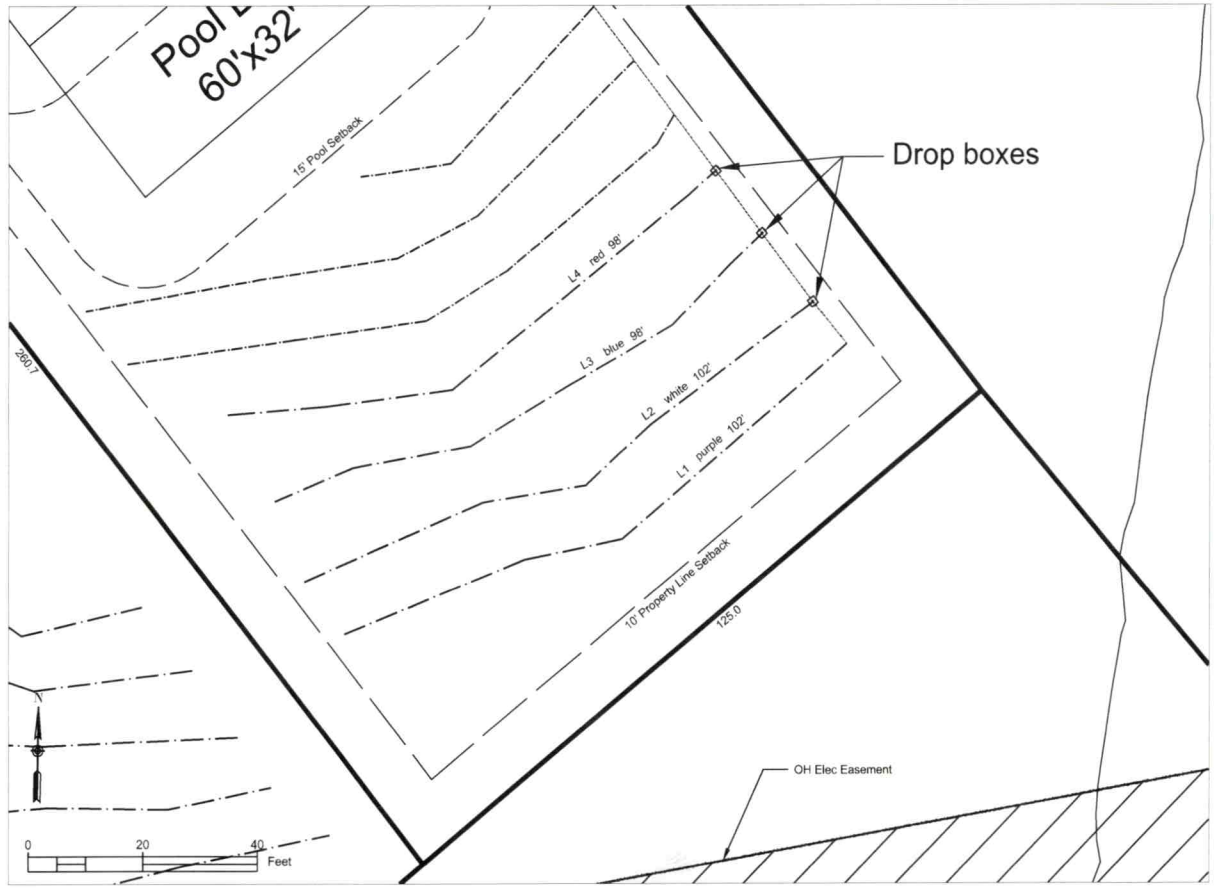
DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

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.

Line	U	Flag Colo	Elevation (ft)	Line Length (	Used as Primary (	Used as Repair (f
1	Layout Line	purple	866.8	109	102	
2	Layout Line	white	867.0	109	102	
3	Layout Line	blue	867.5	109	98	
4	Layout Line	red	867.8	113	98	



1 WW-4 Primary Drainfield

SOURCE: Agri-Waste Technology, Inc.

AWT
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501 N. Salem Street, Suite 203
Apex, North Carolina 27502
919-859-0669
www.agriwaste.com

Kenson Homes, LLC
Carson Creek Lot 12

Project Location:
179 Lone Pine Rd
Statesville, NC 28625
Iredell County
PIN: 4766815272
PID: ---

Project Owner:
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185 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fvv4@aol.com

PROFESSIONAL ENGINEER SEAL

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Primary Drainfield

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
---	---
RELEASED BY:	RELEASED ON:
---	---

DRAWING NUMBER
WW-4

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.

Line	U	Flag Colo	Elevation (ft)	Line Length (	Used as Primary (	Used as Repair (f
5	Layout Line	yellow	868.1	113		108
6	Layout Line	purple	868.5	113		108
7	Layout Line	blue	868.9	68		52



1 WW-5 Repair Drainfield

SOURCE: Agri-Waste Technology, Inc.

AWT
Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N. Salem Street, Suite 203
Apex, North Carolina 27502
919-859-0659
www.agriwaste.com

Kenson Homes, LLC
Carson Creek Lot 12

Project Location:
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Statesville, NC 28625
Iredell County
PIN: 4756915272
PID: ---

Project Owner:
Kenson Homes, LLC
185 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fkv4@aol.com

PROFESSIONAL ENGINEER SEAL

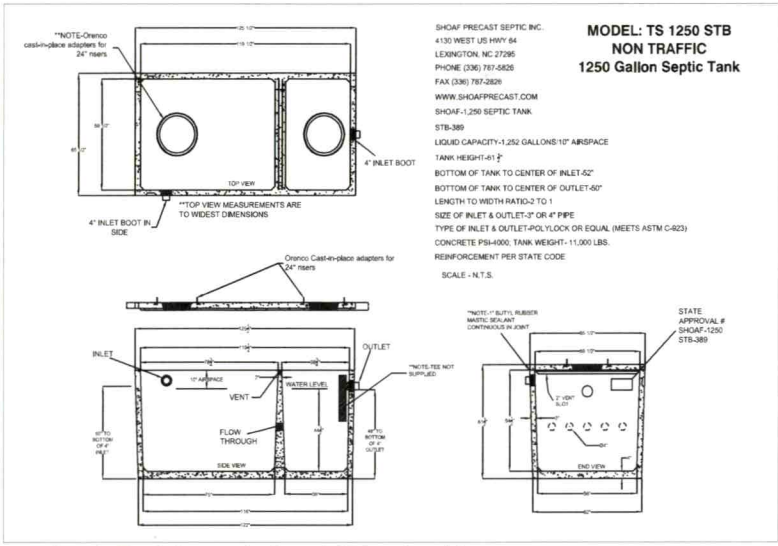
For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Repair Drainfield

DRAWN BY: R. Huffman	CREATED ON: 8/9/2022
REVISED BY: ---	REVISED ON: ---
RELEASED BY: ---	RELEASED ON: ---

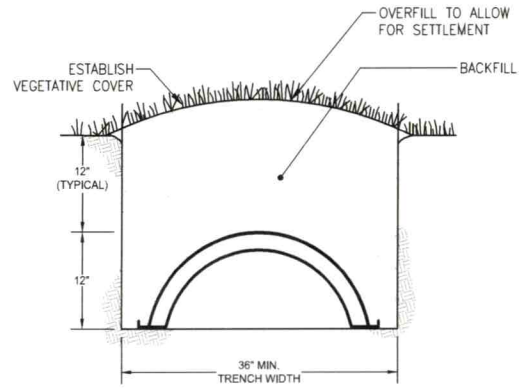
DRAWING NUMBER
WW-5



SHOAF PRECAST SEPTIC INC.
4130 WEST US HWY 64
LEXINGTON, NC 27295
PHONE (336) 787-5826
FAX (336) 787-2826
WWW.SHOAFPRECAST.COM
SHOAF-1,250 SEPTIC TANK
STB-389
LIQUID CAPACITY-1,252 GALLONS/10" AIRSPACE
TANK HEIGHT-61 ½"
BOTTOM OF TANK TO CENTER OF INLET-52"
BOTTOM OF TANK TO CENTER OF OUTLET-50"
LENGTH TO WIDTH RATIO-2 TO 1
SIZE OF INLET & OUTLET-3" OR 4" PIPE
TYPE OF INLET & OUTLET-POLYLOCK OR EQUAL (MEETS ASTM C-923)
CONCRETE PSI-4000, TANK WEIGHT- 11,000 LBS.
REINFORCEMENT PER STATE CODE
SCALE - N.T.S.

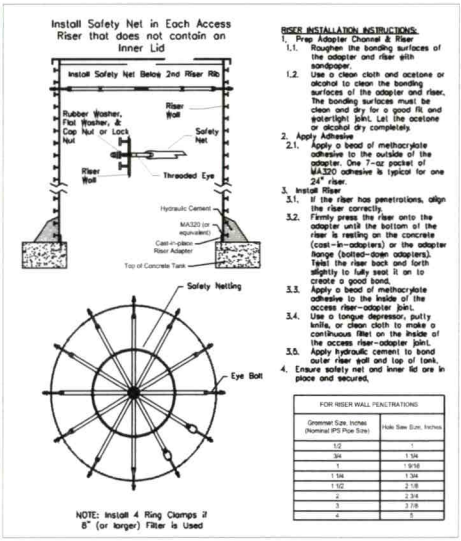
MODEL: TS 1250 STB
NON TRAFFIC
1250 Gallon Septic Tank

1 WW-6 **Septic Tank (or equivalent 1,250-gal tank)**
SOURCE: Shoaf Precast Septic, Inc.



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-6 **Chambers - Trench Cross-Section (Typical)**
INFILTRATOR Water Technologies, LLC



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 water-tight 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.

FOR RISER WALL PENETRATIONS

Grommet Size, Inches (Nominal IPS Pipe Size)	Hole Saw Size, Inches
1/2	1
3/4	1 1/4
1	1 9/16
1 1/4	1 3/4
1 1/2	2 1/8
2	2 3/4
3	3 7/8
4	5

3 WW-6 **Riser Safety Nets**
SOURCE: SIM-TECH, Inc.

NOTES

1. Installation to follow all NC DHHS and Iredell County applicable rules and regulations.
2. Iredell 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. 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.
13. 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.
14. All penetrations to be sealed.
15. Spigot to be located on outside of building within 50' of tanks.
16. Contractor to adjust tank placement to meet site constraints.

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Agri-Waste Technology, Inc.
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Kenson Homes, LLC
Carson Creek Lot 12

Project Location:
179 Lone Pine Rd
Statesville, NC 28625
Iredell County
PIN: 4765815272
PID: ----

Project Owner:
Kenson Homes, LLC
185 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fkv4@aol.com

PROFESSIONAL ENGINEER SEAL

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Detail Sheet

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
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RELEASED BY:	RELEASED ON:
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DRAWING NUMBER
WW-6

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 sidesloped, 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, 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.

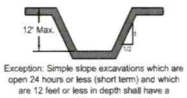
(2) Manual tests. Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

(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.

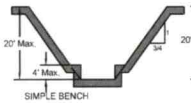
EXCAVATIONS IN TYPE A SOILS

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

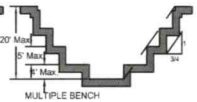




Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1

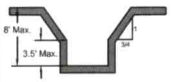


SIMPLE BENCH

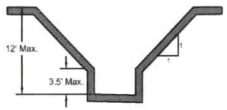


MULTIPLE BENCH

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

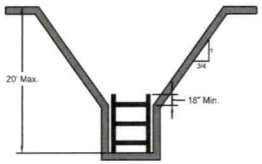


All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet.



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.

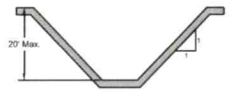
All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side.



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).

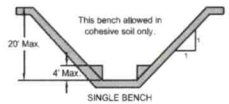
EXCAVATIONS IN TYPE B SOILS

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

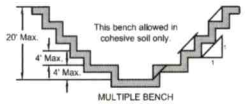


SIMPLE SLOPE

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

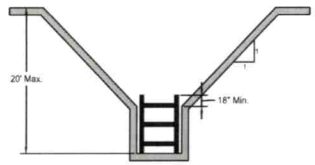


SINGLE BENCH



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.

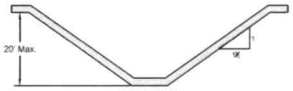


VERTICALLY SIDED LOWER PORTION

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

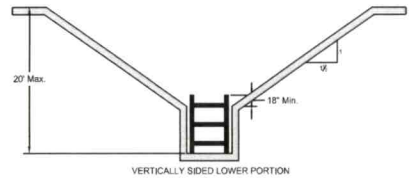
EXCAVATIONS IN TYPE C SOILS

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.

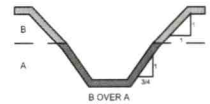


VERTICALLY SIDED LOWER PORTION

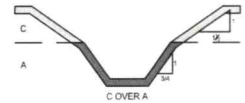
All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

EXCAVATIONS IN LAYERED SOILS

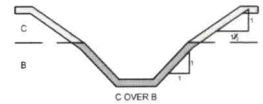
All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



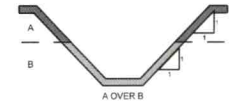
B OVER A



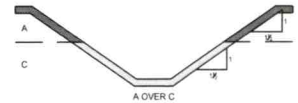
C OVER A



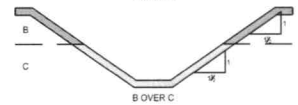
C OVER B



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).

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Kenson Homes, LLC
Carson Creek Lot 12

Project Location
179 Lone Pine Rd
Statesville, NC 28625
Iredell County
PIN: 4765915272
PID: —

Project Owner
Kenson Homes, LLC
186 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fix4@aol.com

PROFESSIONAL ENGINEER SEAL

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Excavation Safety

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER
WW-7

Conventional Gravity System - Design Summary Page

Engineers and Soil Scientists
Agri-Waste Technology, Inc.

Project Manager:
Jeff Vaughan, PhD, LSS
jvaughan@agriwaste.com
919-859-0669
Engineer:
Rodney L. Huffman, PhD, PE
rhuffman@agriwaste.com

Project: Carson Creek Lot 12
Property: 179 Lone Pine Rd
Statesville, NC 28625
Subdiv.: Carson Creek
Lot #: 12

Owner: Kenson Homes, LLC
Address: 185 Shelburne Pl
Mooresville, NC 28117
Phone: 760-522-7415
Email: FKV4@aol.com

EHS:

Date: 8/9/2022
County: Iredell
Permit #:
Type of System: II b
PIN: 4765915272

Soil Parameters

Soil Evaluation By:

Special Conditions/Notes:

LTAR: 0.30 gpd/ft^2

Design Parameters

Type of Establishment: Residence, 5 or fewer bedrooms
Unit: Bedroom
# of Units: 4

Septic Tank Specifications

Min. Tank Capacity: 1,000 gal
Actual Tank Volume: 1,000 gal
Tank Manufacturer: Shoaf
Tank Model: TS 1000 STB

	Exterior	Interior	
Length:	108.0	102.0	in.
Width:	58.0	52.0	in.
Depth:	67.5	60.5	in.

Primary Drainfield Specifications

Type of Distribution: Serial Drop Box
Trench Media: Chambers
Trench Width: 3 ft
Trench Depth: in.
(or as specified on permit)

Trench Bottom Area: 1600 ft^2
Minimum Drain Line: 400 ft
Actual Drain Line: 400 ft
Number of Lines: 4
Minimum Line Spacing: 9 ft O.C.

Wastewater Treatment System Design Calculations

Project: Carson Creek Lot 12
Location: 179 Lone Pine Rd
Statesville, NC 28625
County: Iredell

Septic Tank Sizing

Daily Flow Estimate:

Unit	# of Units	Flow/Unit	Flow/Day
Bedroom	4	120	480
			0
			0
		Q=	480 gpd

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

For individual residences with 4 bedrooms,

Minimum Liquid Capacity (V)= 1,000 gal

Septic Tank Specs:

Manufacturer:	Shoaf	
Model:	TS 1000 STB	
Volume:	1,000	gal
Weight:	9,500	lbs

	Exterior	Interior	
Length:	108.0	102.0	in.
Width:	58.0	52.0	in.
Depth:	67.5	60.5	in.

Shape of Risers: Circular
Diameter: 2.00 ft

ELEVATIONS

Project: Carson Creek Lot 12
Location: 179 Lone Pine Rd
Statesville, NC 28625
County: Iredell

Benchmark Iron pin - N corner of Lot 12
BM Elev 876 ft

Septic Tank	1,000 gal	
Ground Surface		871.37 ft
Depth of Soil Cover	18 in.	1.50 ft
Overall Ht of Tank	67.5 in.	5.63 ft
Elev, Base of Tank		864.25 ft
Ht to 4" Inlet Invert	57 in.	4.75 ft
Elev, 4" Inlet Invert		869.00 ft
Ht to 4" Outlet Invert	55 in.	4.58 ft
Elev, 4" Outlet Invert		868.83 ft
Gravel Base	6 in.	0.50 ft
Elev, Bot of Excavation		863.75 ft

ST Inlet Pipe		
Grade @ Stub-out		871.20 ft
Depth of Stub-out, top		1.5 ft
Elev, Stub-out Invert		869.35 ft
Elev @ ST Inlet Invert		869.00 ft
Length		15 ft
Slope		2.3 %

Drainfield Design

Project	Carson Creek Lot 12
Location	179 Lone Pine Rd
	Statesville, NC 28625
County	Iredell

Drainfield Sizing

Primary

LTAR	0.3 gpd/ft^2		
Daily Design Flow	480 gpd	**Type of Drainfield Media**	Chambers
Req. Drainfield Area	1,600 ft^2	**Required Drainline**	
Trench Width	3 ft	**After 25% Reduction**	400 ft
Required Drainline	533 ft	**Minimum Line Spacing**	9 ft (O.C.)

Repair

LTAR	0.3 gpd/ft^2		
Daily Design Flow	480 gpd	**Type of Drainfield Media**	PPBPS, Vertical
Req. Drainfield Area	1,600 ft^2	**Required Drainline**	
Trench Width	3 ft	**After 25% Reduction**	267 ft
Required Drainline	533 ft	**Minimum Line Spacing**	8 ft (O.C.)

Drainfield Layout

Line	Use	Flag Color	Elevation (ft)	Line Length (ft)	Used as Primary (ft)	Used as Repair (ft)
1	Layout Line	purple	866.8	109	102	
2	Layout Line	white	867.0	109	102	
3	Layout Line	blue	867.5	109	98	
4	Layout Line	red	867.8	113	98	
5	Layout Line	yellow	868.1	113		108
6	Layout Line	purple	868.5	113		108
7	Layout Line	blue	868.9	68		52
			Total	734	400	269
			Count	7	4	3

Note: Line length totals are shown to the nearest foot.
The lengths shown do not include end caps.

Attachment 2: Soil Boring Description Sheets

COUNTY: Iredell Co.__

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

CLIENT: __Kenson Properties LLC_____ APPLICATION DATE_____
ADDRESS:____ _____Lone Pine rd Statesville, NC (Lot 12) DATE EVALUATED: __6/23/22-6/27/2022 _
PROPOSED FACILITY: _Single Family Residence___PROPOSED DESIGN FLOW (.1949): ___480 GPD____ PROPERTY SIZE: ___0.75 ac.____
LOCATION OF SITE: Lone Pine rd Statesville, NC (Lot 12)_____ 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	5%	0-11"	SCL; WSBK	SS; SP; FR	-	48"	-	-	Provisionally Suitable 0.3
		11-48"	C; SBK	SS; SP; FI					
SB 2	7%	0-14"	SCL;GR	SS; SP; FR	-	48"	-	-	Provisionally Suitable 0.3
		14-48"	C; SBK	SS; SP; FI					
SB 3	5%	0-6"	SCL; GR	SS; SP; FR	-	48"	-	-	Provisionally Suitable 0.3
		6-42"	C; SBK	SS; SP; FI					
		42-48"	CL; WSBK	SS; SP; FR					
SB 4	5%	0-10"	SCL; GR	SS; SP; FR	-	48"			Provisionally Suitable 0.3
		10-48"	C; SBK	SS; SP; FI					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	Provisionally Suitable	Provisionally Suitable
System Type(s)	Conventional Innovative	Conventional Innovative
Site LTAR	0.3 GPD/Ft^2	0.3 GPD/Ft^2

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

EVALUATED BY: ___Jeff Vaughan_____
OTHER(S) PRESENT: _____Trevor Hackney_____

COMMENTS

LEGEND

use the following standard abbreviations

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

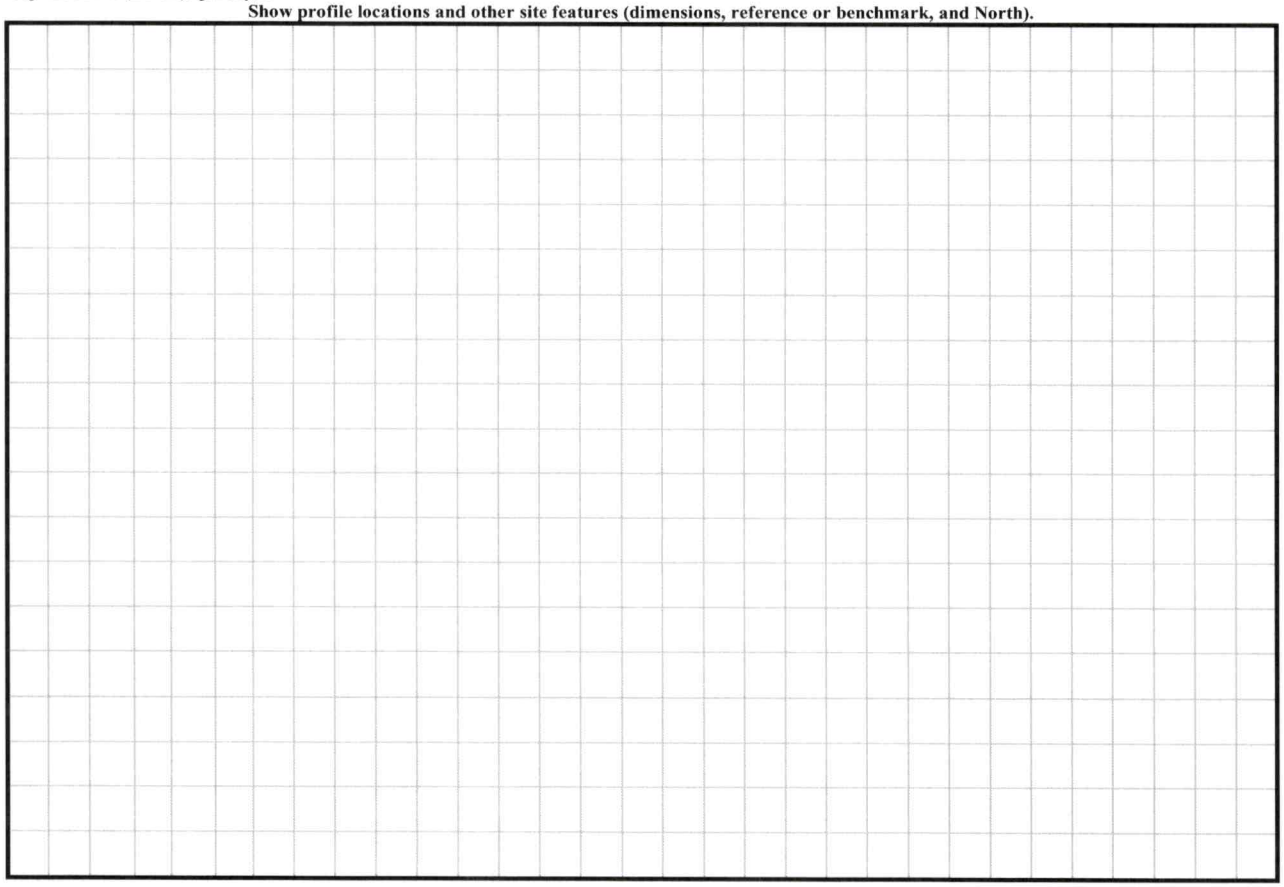
NOTES

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)

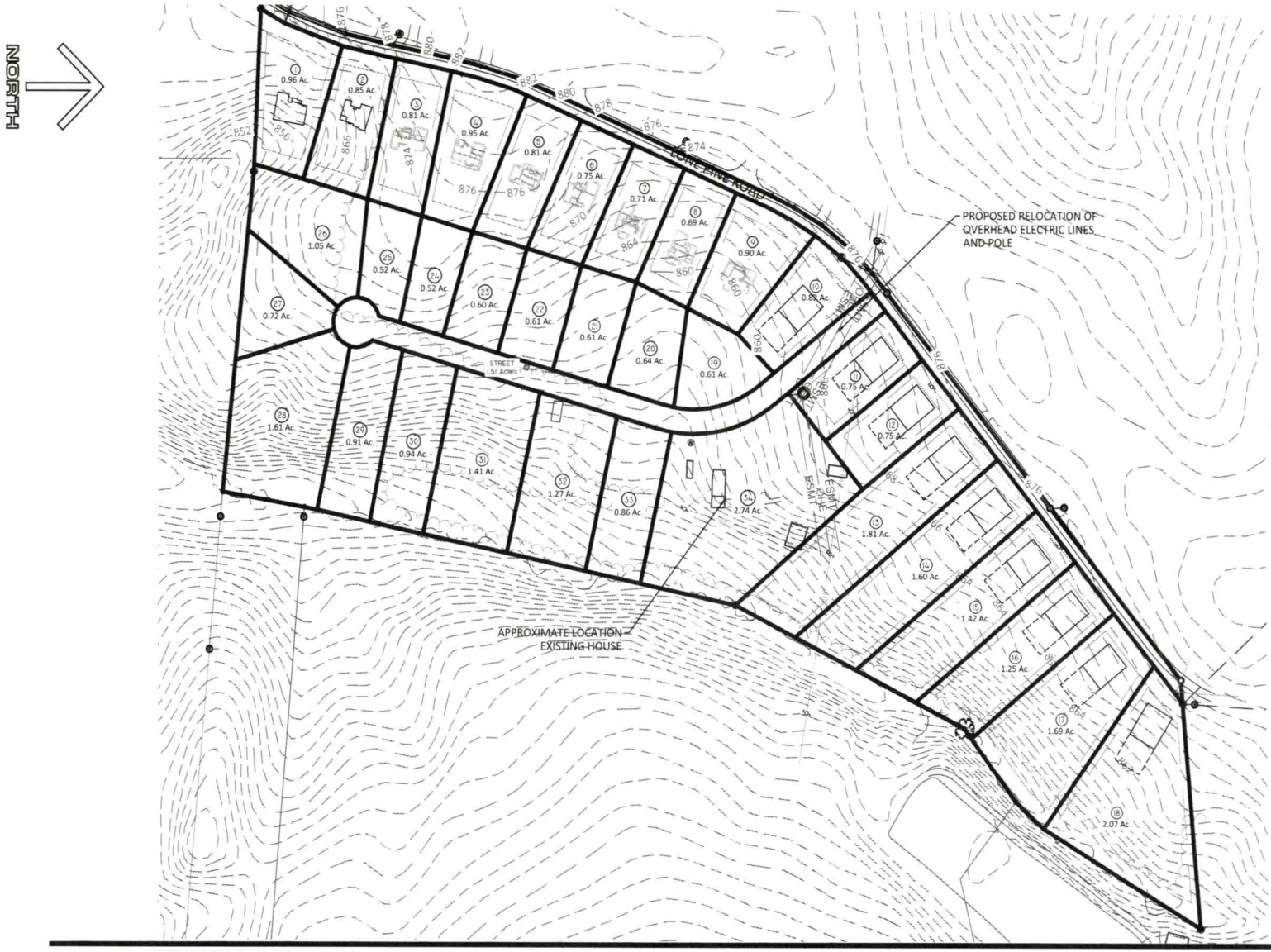
Evaluation of saprolite shall be by pits.

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

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



Attachment 3: Additional Documentation



PRELIMINARY - SKETCH PLAN

THIS IS A PRELIMINARY SKETCH PLAN INTENDED FOR PLANNING AND DESIGN. THIS IS NOT A CONSTRUCTION PLAN. THIS PLAN HAS NOT BEEN APPROVED BY GOVERNING AUTHORITIES. ZONING COMPLIANCE DATA SHOWN HEREON HAS NOT BEEN CONFIRMED BY GOVERNING AUTHORITIES.

Blue Ridge Engineering PLLC
924 Main Street - Suite 200
North Wilkesboro, NC 28659
336.838.2500
www.ridge.blue
Firm #P-0205

HOUSE LAYOUT SKETCH PLAN

JOB #18066
LOTS 1,2, 10-18
March 16, 2021

KENSON PROPERTIES, LLC
PROPOSED RESIDENTIAL SUBDIVISION
LONE PINE ROAD STATESVILLE, NC

CARSON CREEK LOT #12

PERMIT SNAPSHOT REPORT OSWP-2023-36237 FOR IREDELL COUNTY

Permit Type: Environmental Health OSWP
Work Class: EH Septic Permit
Status: Linked
Valuation: $0.00
Project:
District: Iredell County
Square Feet: 0.00
Assigned To: White, Bryant
App Date: 09/09/2023
Exp Date: NOT AVAILABLE
Completed: NOT COMPLETED
Approval Expire Date:
Description: ATC 195 Lone Pine Rd - Lot 12 LINKED TO OSWP-2022-5100 IP ISSUED BY BEN

Parcel: 4765914631.000 Main
Address: 195 Lone Pine Rd Statesville, NC 28625 Main
Zone: R-20(Suburban Residential District)

Project Contact
PECONIC BAY HOMES INC
127 BLUFF MEADOW RD
Mooresville, NC 28115
Business: (704) 235-8489

Applicant/Authorized Agent
PECONIC BAY HOMES INC
127 Bluff Meadow Lane
Mooresville, NC 28115
Business: (704) 235-8489

Property Owner
Kash Vessels
Home: (760) 522-7415
Business: (760) 522-7415
Mobile: (760) 522-7415

Permit Custom Fields

How is your site plan being submitted	Survey Plat	Septic Application/Permit Type	Authorization to Construct	Does the site contain any jurisdictional wetlands	No
Non-domestic Sewage Generated	No	Other Public Agency	No	All proposed structure dimensions	50x 55
What are the proposed structures	New Single-Family Residence - Stick Built	Type of New Single-Family Residence	Stick Built	Maximum Number of Bedrooms	4
If other Addition/Structure, please explain		Number of Occupants	8	Foundation Type	Concrete Slab Foundation
Residential/Business/Other	Residential	Water Supply	Municipal Water	Desired Septic System Type	Conventional (most common)
Additional Unique Setbacks Apply	No				

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Diane_DeNicola_9/9/2023.jpg	09/09/2023 14:16	DeNicola, Diane		Uploaded via CSS
Lot 12 Legal Rep Signed September 2023_v1.pdf	09/11/2023 15:58	Nebel, Barbara	Available Online	Authorize to Act as Agent

Linked Record Relationship	Module	Record Number	Linked Record Type	Linked Record Work Class
Parent	Permit	OSWP-2022-5100	Environmental Health OSWP	EH Septic Permit

Workflow Step / Action Name	Action Type	Start Date	End Date
Application Completeness Check v.1		09/11/2023 15:55	09/11/2023 15:58
Confirm application complete v.1	Generic Action		09/11/2023 15:58
~~**Fees v.1**~~			09/11/2023 15:56
~~Issue Invoice v.1~~	Generic Action		09/11/2023 15:56
~~Fees Paid v.1~~	Generic Action		09/11/2023 15:56
~~**Zoning Review v.1**~~			09/11/2023 15:56
~~Floodplain Admin Overview v.1~~	Task		09/11/2023 15:56
~~Issue Invoice v.1~~	Generic Action		09/11/2023 15:56
~~Fees Paid v.1~~	Generic Action		09/11/2023 15:56
Lot Readiness Verification v.1			
OSWP Septic Preliminary Site Visit v.1	Inspection		
OSWP Site Evaluation v.1	Inspection		
Issue Improvement Permit v.1			

PERMIT SNAPSHOT REPORT (OSWP-2023-36237)

Issue Invoice v.1	Generic Action
Fees Paid v.1	Generic Action
Issue Permit v.1	Generic Action
Permit Completion Process v.1	
Authorization to Construct Permit v.1	Create Sub Permit
Issue Authorization to Construct v.1	Generic Action

ICHD - ENVIRONMENTAL HEALTH DIVISION

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

PERMIT # OSWP-2022-5100

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

PIN # 4765-91-5272

APPLICANT / OWNER: Agri-Waste Technology | APPLICANT ADDRESS: 501 N Salem St., Apex, NC 27502

SITE ADDRESS: 195 LONE PINE RD, STATESVILLE, NC 28625 | PHONE: | ALT. PHONE:

SITE DIRECTIONS: | SAP CONTROLLED: YES ☐ NO ☒

SUBDIVISION: Carson Creek | SECTION: | LOT #: FD 12 | LOT AREA: 0.75 | DESIGN FLOW: 480 | L.T.A.R.: .30

Septic Tank: (gal) 1250	STB:	Date:	☑ New System ☐ Repair ☐ Expansion	System Type: III	☑ Residence	No. Bedrooms: 4	Water Supply: Municipal Water
Pump Tank: (gal)	PT:	Date:	System Description: Gravity - 25% Reduction.		☐ Business	No. Persons: 8	
Pump Make:	Model:	Serial #:	Repair System Description: 50% Reduction.		☐ Other	No. Employees:	
# Nitrification Fields: 1	# Lines: 4	Linear Ft.: 400	Maintenance Agreement Required: ☐ YES ☑ NO		☑ Slab	☐ Crawl Space	
Trench Width: 36in	Trench Bottom Depth (Low side): 33in		Gravel Depth: -	☑ GRAVITY ☐ PRESSURE	☐ Basement w/ Plumbing	☐ Basement w/o Plumbing	

Comments / Conditions:

INITIAL SITE SKETCH

This permit is issued pursuant to G.S. 130A-335 (a2)(a3)+(a4). using the Signed + Sealed LSS/LG Evaluation attached here from:

Agri-Waste Technology Inc.
LSS # 1227.

AS BUILT SKETCH

---IMPROVEMENT PERMIT ONLY---

DO NOT ISSUE BUILDING PERMIT!

FLOOR PLAN STILL NEEDED!

Lot must be recorded prior to issuance of AC

New PIN needed

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

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

Owner / Applicant Signature: | Date:

IMPROVEMENT PERMIT by: Benjamin A. Butts | Date: 10/24/2022

AUTHORIZATION TO CONSTRUCT by: | Date:

Installed By:

OPERATION PERMIT by: | Date:

Existing System Inspected By: | Date:

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

County: Iredell

This Section for Local Health Department Use Only

Initial submittal received: 10/17/22 (Date) by BB (Initials)

Permit Number: OSWP-2022-5100

G.S. 130A-335(a4) states the following: *'If a local health department fails to act on an application for an improvement permit submitted pursuant to subsection (a3) of the section within 10 business days of receipt of a complete application, the local health department shall issue the improvement permit.'*

In accordance with G.S. 130A-335(a3) the improvement permit application is:

☐ 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 Owner on _____ (Date)

State Authorized Agent: _____ Date: _____

☐ Denied (See attached report.)

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

State Authorized Agent: _____ Date: _____

☑ Complete

State Authorized Agent: Benjamin A. Botts Date of Issuance: 10/24/22

This Improvement Permit is issued pursuant to G.S. 130A-335 (a2), (a3), and (a4) using the signed and sealed LSS/LG evaluation(s) attached here. The issuance of this permit by the Health Department in no way guarantees the issuance of other permits. The permit holder is responsible for checking with appropriate governing bodies in meeting their requirements. This site is subject to revocation if the site plan, plat, or the intended use changes, or if information submitted in the application was falsified, inaccurate or misleading. The Improvement Permit shall not be affected by a change in ownership of the site. This permit is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to conditions of this permit. The location and identification of all property lines, easements, water lines, and other appropriate utilities shall be the responsibility of the owner.

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: 10/24/2027

See attached site sketch

County: Iredell

IMPROVEMENT PERMIT FOR G.S. 130A-335(a2)/SL2022-11

PIN/Lot Identifier: 4765-91-5272

Issued To: Kenson Homes LLC

Property Location: Lot 12, Lone Pine Road, Statesville, NC. 28625

Subdivision: Carson Creek Lot #: 12 Block: _____ Section: _____

LSS Report Provided: Yes ☒ No ☐

If yes, name and license number of LSS: Jeff Vaughan, 1227

New ☒ Repair ☐ Expansion ☐ System Relocation ☐

Proposed Structure: Single family residence

Proposed Wastewater System Type: Gravity 25% Reduction Chamber (Initial) Gravity 50% Reduction Panel Block (Repair)

Fill System: ☐ Yes ☒ No If yes, specify: ☐ New ☐ Existing (when adding more than 6 inches of fill to system area please provide a fill plan)

Proposed Design Daily Flow: 480 GPD Proposed LTAR (Initial): 0.3GPD/ft2 Proposed LTAR (Repair): 0.3 GPD/ft2

Design Wastewater Strength: ☒ domestic ☐ high strength ☐ industrial process

Number of bedrooms: 4 Number of Occupants: 8 Other: _____

Pump Required: ☐ Yes ☒ No ☐ May be required based upon final location and elevations of facilities

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

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

Drainfield location meets requirements of Rule .1945: Yes ☒ No ☐

Drainfield location meets requirements of Rule .1950: 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:

Licensed Soil Scientist Print Name: Jeff Vaughan

Licensed Soil Scientist Signature: Jeff Vaughan Date: 8/12/22

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

See attached site sketch

County: Iredell

CONSTRUCTION AUTHORIZATION FOR G.S. 130A-335(a2)/SL2022-11

PIN/Lot Identifier: 4765-91-5272

Issued To: Kenson Homes LLC

Property Location: Lot 12, Lone Pine Road, Statesville, NC. 28625

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

Facility Type: Single Family Residence

☒ New ☐ Expansion ☐ Repair System Relocation ☐

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

Type of Wastewater System** Gravity 25% Reduction Chambers (Initial) Gravity 50% Reduction Panel Block (Repair)

Design Daily Flow: 480 GPD Wastewater Strength: ☒ domestic ☐ high strength ☐ industrial process

Session Law 2014-120 Section 53, Engineering Design Utilizing Low-flow Fixtures and Low-flow Technologies? ☐ Yes ☒ No

Installation Requirements/Conditions

Septic Tank Size: 1250 gallons Total Trench/Bed Length: 400 feet Trench/Bed Spacing: 9 feet on center

Drainfield square footage: 1200 Trench/Bed Width: 36 inches LTAR: 0.3 gpd/ft²

Soil Cover: 12 inches Slope Adjusted Maximum Trench/Bed Depth: 33 inches

Aggregate Depth: _____ inches above pipe _____ inches below pipe _____ inches total

Pump Tank Size (if applicable): N/A gallons Requires more than 1 pump? ☐ Yes ☐ No

Pump Requirements: _____ ft. TDH vs. _____ GPM Grease Trap Size (if applicable): NA 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 [.1937(h)]: Yes ☐ No ☒

Easement, Right-of-Way, or Encroachment Agreement Required [.1938(j)]: ☐ Yes ☒ No

Declaration of Restrictive Covenants: ☐ Yes ☒ No

****If applicable:**
I understand the system type specified is different from the type specified on the application. I accept the specifications of this permit.

Owner/Legal Representative Print Name: _____

Owner/Legal Representative Signature: _____ Date: _____

Pre-Construction Conference Required: Yes ☐ No ☒

Conditions: _____

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

AOWE/PE Print Name: Jeff Vaughan

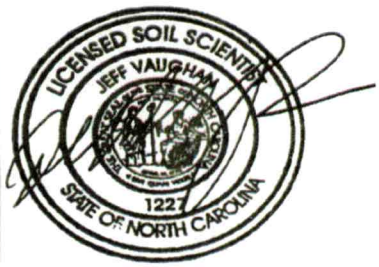
AOWE/PE Signature: Jeff Vaughan Date: 8/12/22

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

See attached site sketch

Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 N. Salem Street, Suite 203
Apex, North Carolina 27502
919-859-0669
www.agriwaste.com





Soil Suitability for Domestic Sewage Treatment and Disposal Systems
Lot 12, Lone Pine Road, Statesville, NC 28625
Iredell County

PREPARED FOR: Kenson Homes, LLC, Client

PREPARED BY: Jeff Vaughan, Licensed Soil Scientist
Trevor Hackney, Environmental Scientist

DATE: July 18, 2021

Soil suitability for domestic sewage treatment and disposal systems was evaluated from June 23-27, 2022, for the property located on Lone Pine Road (Lot 12), Statesville, NC. Jeff Vaughan and Trevor Hackney of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. This evaluation was done to facilitate permitting for a 4-bedroom home. This report and attached documents were prepared *to this application is to be used to issue an Improvement Permit in accordance with G.S. 130A-335(a2) and (a3). The LSS evaluation is being submitted pursuant to and meets the requirements of 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.

The total property area is approximately 0.75 acres. The property is an open field. The home and pool are proposed near the front of the property with the septic system proposed towards the back of the property. The proposed system is a conventional gravity septic system.

Soil Suitability for Domestic Sewage Treatment and Disposal Systems

The drawing in Attachment 1 details the property boundaries (as surveyed by Blue Ridge Engineering), soil boring locations, and layout of drain field trenches (Completed by AWT). Four soil borings were assessed on the property. Soil borings were examined to determine soil suitability for on-site sewage disposal systems in accordance with 15A 18A .1900 Rules for Sewage Treatment and Disposal Systems. These borings were advanced with a hand auger. All soil borings are being utilized for the drain field area.

A septic layout was performed to demonstrate available space (.1945). The layout in Attachment 1 indicates there is available space for a four-bedroom gravity primary and repair septic system utilizing the 25% reduction of innovative drain field material for the primary system and a 50% reduction using panel block trenches.

The proposed LTAR (Long Term Acceptance Rate) by AWT is 0.3 GPD/ft^2. The soils on this property are group IV soils within the distribution and treatment zone as used to define the LTAR. Since usable soil depths meet or exceed 45" AWT is recommending the use of innovative style trench to utilize the 25% reduction for the initial and repair system. With an LTAR of 0.3 GPD/ft^2, 400 linear feet of innovative trench are necessary to support a four-bedroom home initial system. The repair field will require 267 linear feet of panel block trenches. The maximum trench bottom should not exceed 33". The attached drawing proves that 400 linear feet of trench can be installed for the primary system and 268 linear feet of trench can be installed for the repair system with the proposed home location.

Any disturbances or grading done in the usable area will change the potential of using the area designated for a drain field. Prior to moving forward with building on the property, Iredell County Environmental Health Department should be contacted to complete the necessary review of this documentation to issue an IP (Improvement Permit) for the property and the CA (Construction Authorization).

Conclusions

An IP (Improvement Permit) and CA (Construction Authorization) for this property can be issued with the site plan that is in Attachment 1. A CA permit will be required in order to secure a building permit for the property. The county issues an Operation Permit after the system has been installed to meet the specifications of the Authorization to Construct. Additional septic layouts have been or will be performed as needed. It will be critical to not disturb any of the proposed septic area or there is a risk that the IP and CA will be revoked. The LSS/AOWE Evaluation and attached documents were prepared *to this application is to be used to issue an Improvement Permit in accordance with G.S. 130A-335(a2) and (a3). The LSS/AOWE evaluation is being submitted pursuant to and meets the requirements of G.S. 130A-335(a2)*

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

Sincerely,

Jeff Vaughan

Trevor Hackney

Attachment 1: Site Plan/Drawing

CARSON CREEK LOT 12

Project Location
179 Lone Pine Rd
Statesville, NC 28625
Iredell County
PIN: 4765915272

Project Owner
Kenson Homes, LLC
185 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fkv4@aol.com

Project Consultant
Jeff Vaughan, L.S.S
(919) 367-6313
Rodney L Huffman, PE
(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
Four (4) Bedroom, 480 gpd
Chambers/PPBPS Dispersal System
w/ Serial (Dropbox) Distribution



VICINITY MAP

Sheet Index

Sheet 1	Cover Sheet
Sheet 2	Property Layout
Sheet 3	Component Layout
Sheet 4	Primary Drainfield
Sheet 5	Repair Drainfield
Sheet 6	Detail Sheet
Sheet 7	Excavation Safety

AWT
Engineers and Soil Scientists

Kenson Homes, LLC
Carson Creek Lot 12

Project Location
179 Lone Pine Rd
Statesville, NC 28625
Iredell County
PIN: 4765915272
PID: —

Project Owner
Kenson Homes, LLC
185 Shelburne Pl
Mooresville, NC 28117
760-522-7415
fkv4@aol.com

PROFESSIONAL ENGINEER SEAL

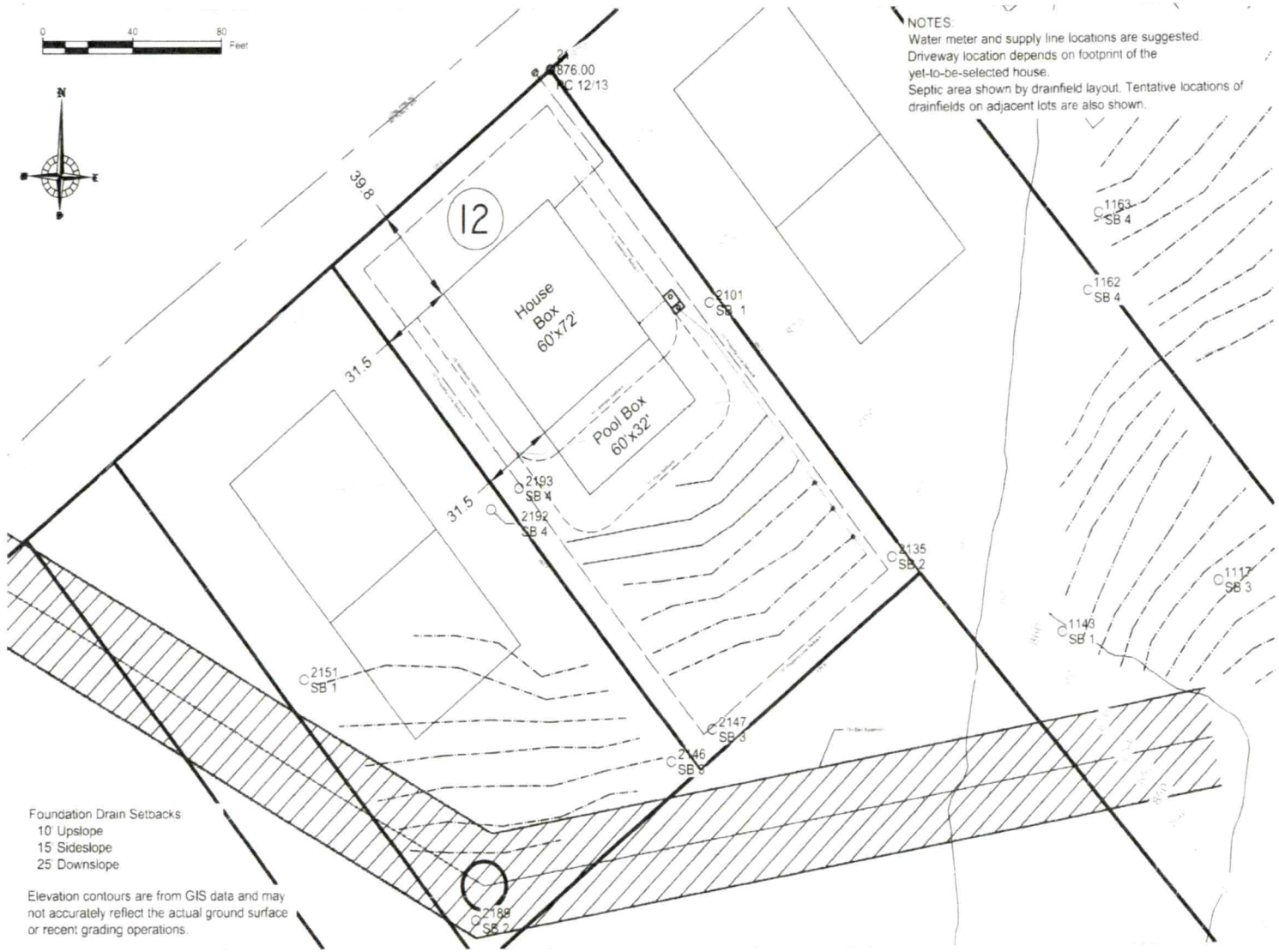
For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Cover Sheet

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER
WW-1



AWT
Engineers and Soil Scientists

Kenson Homes, LLC
Carson Creek Lot 12

For Review Only

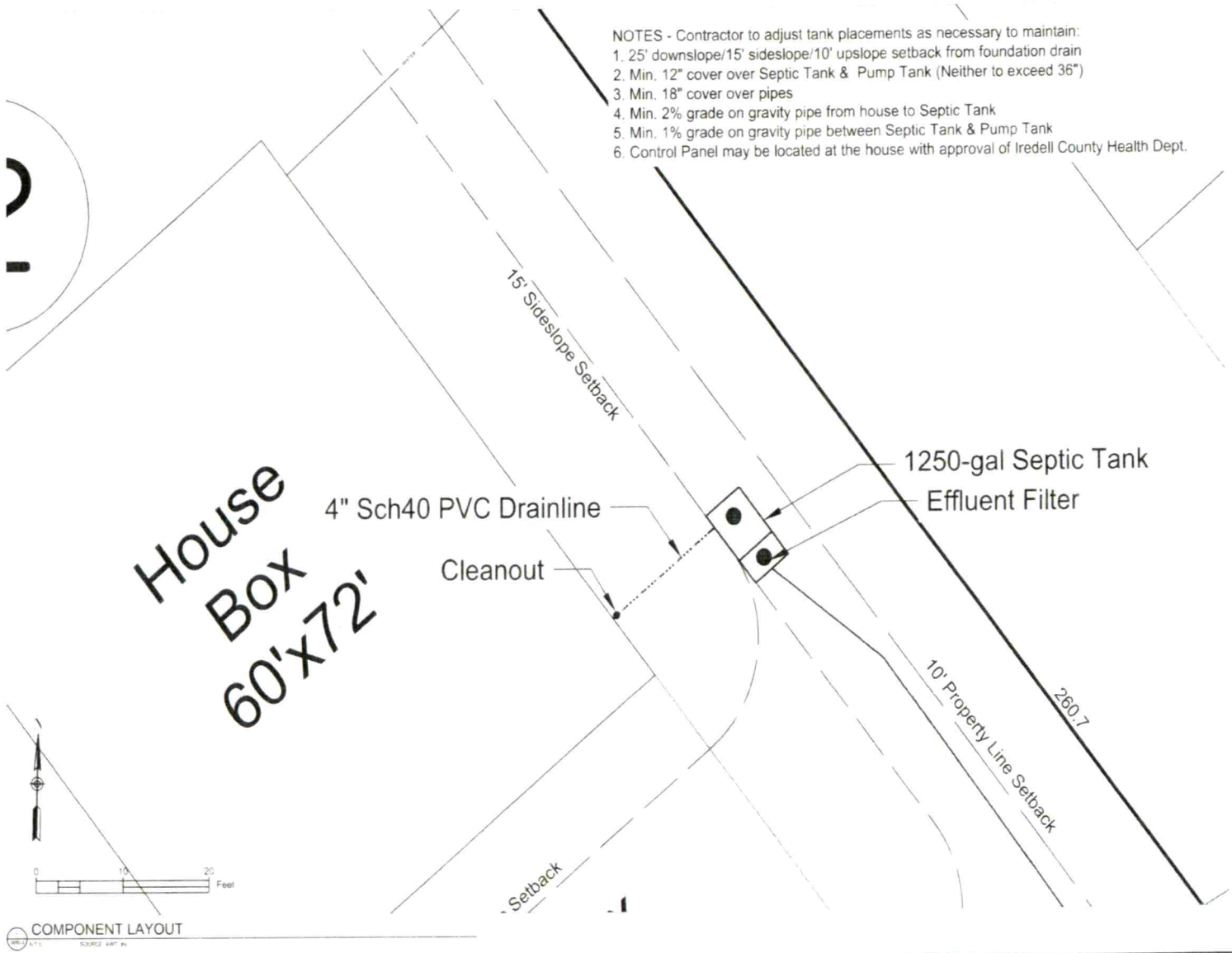
REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Property Layout

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER
WW-2

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 & Pump Tank (Neither to exceed 36")
3. Min. 18" cover over pipes
4. Min. 2% grade on gravity pipe from house to Septic Tank
5. Min. 1% grade on gravity pipe between Septic Tank & Pump Tank
6. Control Panel may be located at the house with approval of Iredell County Health Dept.



COMPONENT LAYOUT

AWT
Engineers and Soil Scientists

Kenson Homes, LLC
Carson Creek Lot 12

PROFESSIONAL ENGINEER SEAL

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Component Layout

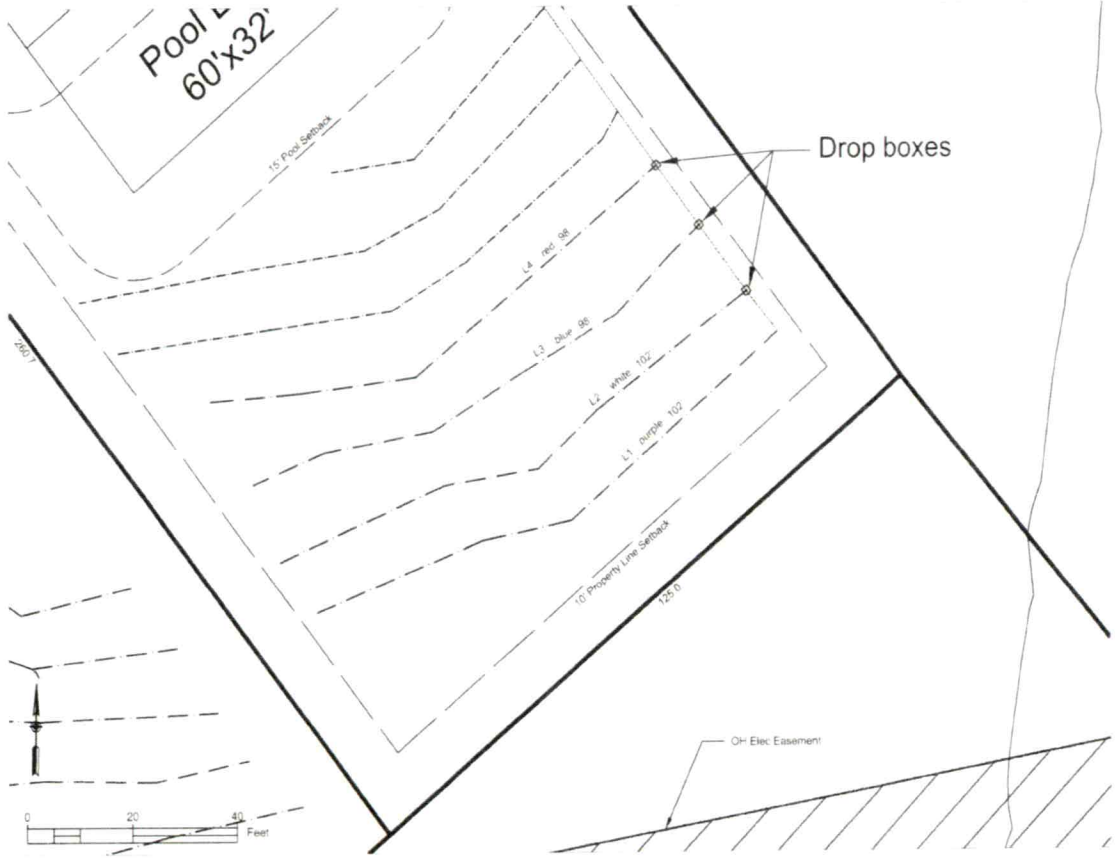
DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

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.

Line	U	Flag Colo	Elevation (ft)	Line Length (	Used as Primary (	Used as Repair (f
1	Layout Line	purple	866.8	109	102	
2	Layout Line	white	867.0	109	102	
3	Layout Line	blue	867.5	109	98	
4	Layout Line	red	867.8	113	98	



Primary Drainfield

SOURCE: Agri-Waste Technology, Inc.

AWT
Engineers and Soil Scientists

Kenson Homes, LLC
Carson Creek Lot 12

PROFESSIONAL ENGINEER SEAL

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Primary Drainfield

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER
WW-4

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.

Line	U	Flag Colo	Elevation (ft)	Line Length (	Used as Primary (	Used as Repair (f
5	Layout Line	yellow	868.1	113		108
6	Layout Line	purple	868.5	113		108
7	Layout Line	blue	868.9	68		52



Repair Drainfield

SOURCE: Agri-Waste Technology, Inc.

AWT
Engineers and Soil Scientists

Kenson Homes, LLC
Carson Creek Lot 12

PROFESSIONAL ENGINEER SEAL

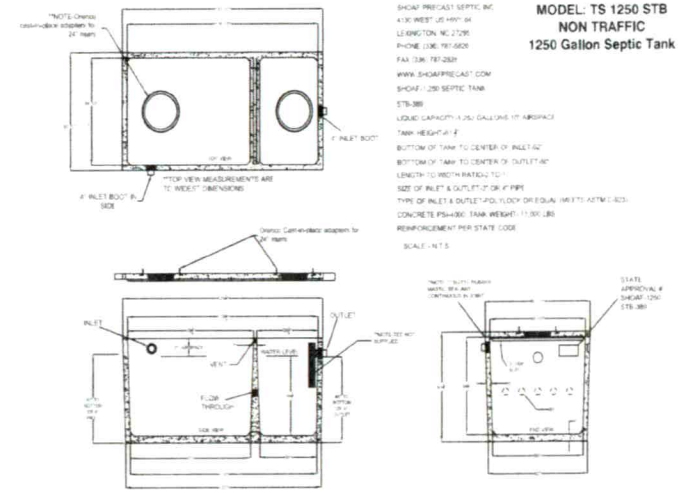
For Review Only

REV. ISSUED DATE DESCRIPTION

SHEET TITLE
Repair Drainfield

DRAWN BY: R. Huffman	CREATED ON: 8/9/2022
REVISED BY: —	REVISED ON: —
RELEASED BY: —	RELEASED ON: —

DRAWING NUMBER
WW-5



SHOAF PRECAST SEPTIC INC.
4130 WEST US HWY 64
LEXINGTON, NC 27295
PHONE (336) 787-5826
FAX (336) 787-2821
WWW.SHOAFPRECAST.COM
SHOAF - 1250 SEPTIC TANK
STB-380
LIQUID CAPACITY: 1,250 GALLONS (1" AIRSPACE)
TANK HEIGHT: 4'
BOTTOM OF TANK TO CENTER OF INLET: 42"
BOTTOM OF TANK TO CENTER OF OUTLET: 40"
LENGTH TO WIDTH RATIO: 2:1
SIZE OF INLET & OUTLET: 6" OR 4" PIPE
TYPE OF INLET & OUTLET: POLYLOCK OR EQUAL (MEETS ASTM C-923)
CONCRETE PSI=4000 TANK WEIGHT: 11,500 LBS
REINFORCEMENT PER STATE CODE
SCALE - N.T.S.

MODEL: TS 1250 STB
NON TRAFFIC
1250 Gallon Septic Tank

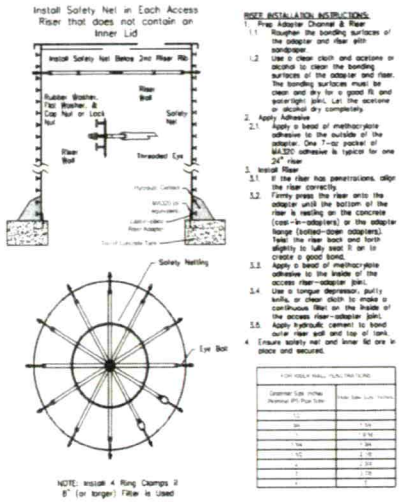
Septic Tank (or equivalent 1,250-gal tank)

SOURCE: Shoaf Precast Septic, Inc.

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.

Chambers - Trench Cross-Section (Typical)

INFILTRATOR Water Technologies, LLC



NOTE: Install 4 Ring Clamps @ 8" (or longer) Filter is Used

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 gas-tight 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 MA300 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 or 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.

FOR WALL THICKNESS	
Concrete Size (Inches) (Nominal ID) Pipe Size	Wall Thickness
12	1
18	1 3/4
21	2
24	2 1/4
30	2 3/4
36	3 1/4
42	3 3/4
48	4 1/4
54	4 3/4
60	5 1/4
66	5 3/4
72	6 1/4

Riser Safety Nets

SOURCE: SBM TECH, Inc.

NOTES

1. Installation to follow all NC DHHS and Iredell County applicable rules and regulations.
2. Iredell 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. 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.
13. 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.
14. All penetrations to be sealed.
15. Spigot to be located on outside of building within 50' of tanks.
16. Contractor to adjust tank placement to meet site constraints.

AWT
Engineers and Soil Scientists
Ag-Waste Technology, LLC

Kenson Homes, LLC
Carson Creek Lot 12

Project Location:
179 Lone Pine Rd.
Statesville, NC 28625
Iredell County
PIN: 4758815272
PID: —

Project Owner:
Kenson Homes, LLC
181 Shelburne Pl
Mooresville, NC 28117
760-822-7415
fl.v4@aol.com

PROFESSIONAL ENGINEER SEAL

For Review Only

REV	ISSUED DATE	DESCRIPTION

SHEET TITLE
Detail Sheet

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER
WW-6

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 into 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 sidewalls, 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 under water or is free seeping.

"Type A" means cohesive soils with an unconfined compressive strength of 1.5 tsf or greater (tsf = 1 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 stepped or tiered 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 stepped, 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 stepped, 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 no 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 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 for identification of 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, 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 or well as qualitative properties of soil and to provide more information in order to classify soil properly.

(i) Plasticity. Moist 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 lumps 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 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 water exposed or 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.

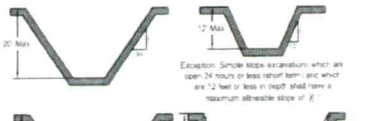
(A) If the sample develops cracks as it dries, significant fissures are indicated.

(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 or 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.

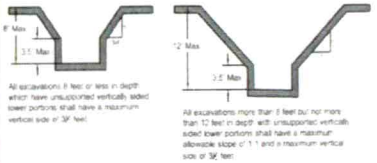
EXCAVATIONS IN TYPE A SOILS

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.

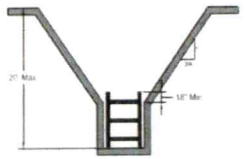
All benched excavations 20 feet or less in depth shall have a maximum allowable slope of ½:1 and maximum bench dimensions as follows.



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.

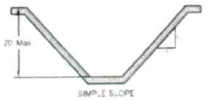
All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ½:1. The support or shield system must extend at least 18 inches above the top of the vertical side.



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).

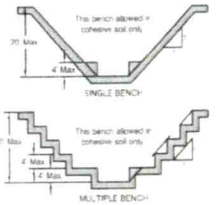
EXCAVATIONS IN TYPE B SOILS

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

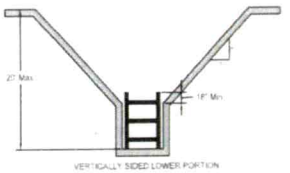


SIMPLE SLOPE

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



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.

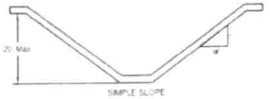


VERTICALLY SIDED LOWER PORTION

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

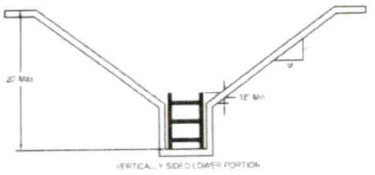
EXCAVATIONS IN TYPE C SOILS

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.

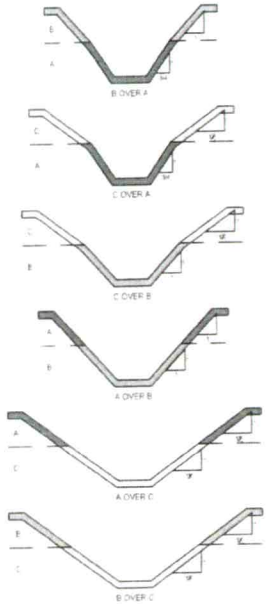


VERTICALLY SIDED LOWER PORTION

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.



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

AWT
Engineers and Soil Scientists
Asheville Technical Office
Kenson Homes, LLC
Carson Creek Lot 12

Project Location
139 Lone Pine Rd
Statesville, NC 28625
Iredell County
Pin: 4786915277
PID: —

Project Owner
Kenson Homes, LLC
139 Shelburne Pl
Mooresville, NC 28117
760-822-7415
tlv4@aol.com

PROFESSIONAL ENGINEER SEAL

For Review Only

REV	ISSUED DATE	DESCRIPTION

SHEET TITLE
Excavation Safety

DRAWN BY:	CREATED ON:
R. Huffman	8/9/2022
REVISED BY:	REVISED ON:
—	—
RELEASED BY:	RELEASED ON:
—	—

DRAWING NUMBER
WW-7

Conventional Gravity System - Design Summary Page

Engineers and Soil Scientists
Agri-Waste Technology, Inc.

Project Manager:
Jeff Vaughan, PhD, LSS
jvaughan@agriwaste.com
919-859-0669
Engineer:
Rodney L. Huffman, PhD, PE
rhuffman@agriwaste.com

Project: Carson Creek Lot 12
Property: 179 Lone Pine Rd
Statesville, NC 28625
Subdiv.: Carson Creek
Lot #: 12

Owner: Kenson Homes, LLC
Address: 185 Shelburne Pl
Mooresville, NC 28117
Phone: 760-522-7415
Email: FKV4@aol.com

EHS:

Date: 8/9/2022
County: Iredell
Permit #:
Type of System: II b
PIN: 4765915272

Soil Parameters

Soil Evaluation By:

Special Conditions/Notes:

LTAR: 0.30 gpd/ft^2

Design Parameters

Type of Establishment: Residence, 5 or fewer bedrooms
Unit: Bedroom
# of Units: 4

Septic Tank Specifications

Min. Tank Capacity: 1,000 gal
Actual Tank Volume: 1,000 gal
Tank Manufacturer: Shoaf
Tank Model: TS 1000 STB

	Exterior	Interior	
Length:	108.0	102.0	in.
Width:	58.0	52.0	in.
Depth:	67.5	60.5	in.

Primary Drainfield Specifications

Type of Distribution: Serial Drop Box
Trench Media: Chambers
Trench Width: 3 ft
Trench Depth: in.
(or as specified on permit)

Trench Bottom Area: 1600 ft^2
Minimum Drain Line: 400 ft
Actual Drain Line: 400 ft
Number of Lines: 4
Minimum Line Spacing: 9 ft O.C.

Wastewater Treatment System Design Calculations

Project: Carson Creek Lot 12
Location: 179 Lone Pine Rd
Statesville, NC 28625
County: Iredell

Septic Tank Sizing

Daily Flow Estimate:

Unit	# of Units	Flow/Unit	Flow/Day
Bedroom	4	120	480
			0
			0
		Q=	480 gpd

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

For individual residences with 4 bedrooms,

Minimum Liquid Capacity (V)= 1,000 gal

Septic Tank Specs:

Manufacturer:	Shoaf	
Model:	TS 1000 STB	
Volume:	1,000	gal
Weight:	9,500	lbs

	Exterior	Interior	
Length:	108.0	102.0	in.
Width:	58.0	52.0	in.
Depth:	67.5	60.5	in.

Shape of Risers: Circular
Diameter: 2.00 ft

ELEVATIONS

Project: Carson Creek Lot 12
Location: 179 Lone Pine Rd
Statesville, NC 28625
County: Iredell

Benchmark Iron pin - N corner of Lot 12
BM Elev 876 ft

Septic Tank	1,000 gal	
Ground Surface		871.37 ft
Depth of Soil Cover	18 in.	1.50 ft
Overall Ht of Tank	67.5 in.	5.63 ft
Elev, Base of Tank		864.25 ft
Ht to 4" Inlet Invert	57 in.	4.75 ft
Elev, 4" Inlet Invert		869.00 ft
Ht to 4" Outlet Invert	55 in.	4.58 ft
Elev, 4" Outlet Invert		868.83 ft
Gravel Base	6 in.	0.50 ft
Elev, Bot of Excavation		863.75 ft

ST Inlet Pipe		
Grade @ Stub-out		871.20 ft
Depth of Stub-out, top		1.5 ft
Elev, Stub-out Invert		869.35 ft
Elev @ ST Inlet Invert		869.00 ft
Length		15 ft
Slope		2.3 %

Drainfield Design

Project	Carson Creek Lot 12
Location	179 Lone Pine Rd
	Statesville, NC 28625
County	Iredell

Drainfield Sizing

Primary

LTAR	0.3 gpd/ft^2		
Daily Design Flow	480 gpd	**Type of Drainfield Media**	Chambers
Req. Drainfield Area	1,600 ft^2	**Required Drainline**	
Trench Width	3 ft	**After 25% Reduction**	400 ft
Required Drainline	533 ft	**Minimum Line Spacing**	9 ft (O.C.)

Repair

LTAR	0.3 gpd/ft^2		
Daily Design Flow	480 gpd	**Type of Drainfield Media**	PPBPS, Vertical
Req. Drainfield Area	1,600 ft^2	**Required Drainline**	
Trench Width	3 ft	**After 25% Reduction**	267 ft
Required Drainline	533 ft	**Minimum Line Spacing**	8 ft (O.C.)

Drainfield Layout

Line	Use	Flag Color	Elevation (ft)	Line Length (ft)	Used as Primary (ft)	Used as Repair (ft)
1	Layout Line	purple	866.8	109	102	
2	Layout Line	white	867.0	109	102	
3	Layout Line	blue	867.5	109	98	
4	Layout Line	red	867.8	113	98	
5	Layout Line	yellow	868.1	113		108
6	Layout Line	purple	868.5	113		108
7	Layout Line	blue	868.9	68		52
			Total	734	400	269
			Count	7	4	3

Note: Line length totals are shown to the nearest foot.
The lengths shown do not include end caps.

Attachment 2: Soil Boring Description Sheets

COUNTY: Iredell Co.

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

CLIENT: Kenson Properties LLC APPLICATION DATE
ADDRESS: Lone Pine rd Statesville, NC (Lot 12) DATE EVALUATED: 6/23/22-6/27/2022
PROPOSED FACILITY: Single Family Residence PROPOSED DESIGN FLOW (.1949): 480 GPD PROPERTY SIZE: 0.75 ac.
LOCATION OF SITE: Lone Pine rd Statesville, NC (Lot 12) PROPERTY RECORDED:
WATER SUPPLY: Private X Public Well Spring Other
EVALUATION METHOD: X Auger Boring Pit Cut TYPE OF WASTEWATER: X Sewage Industrial Process Mixed

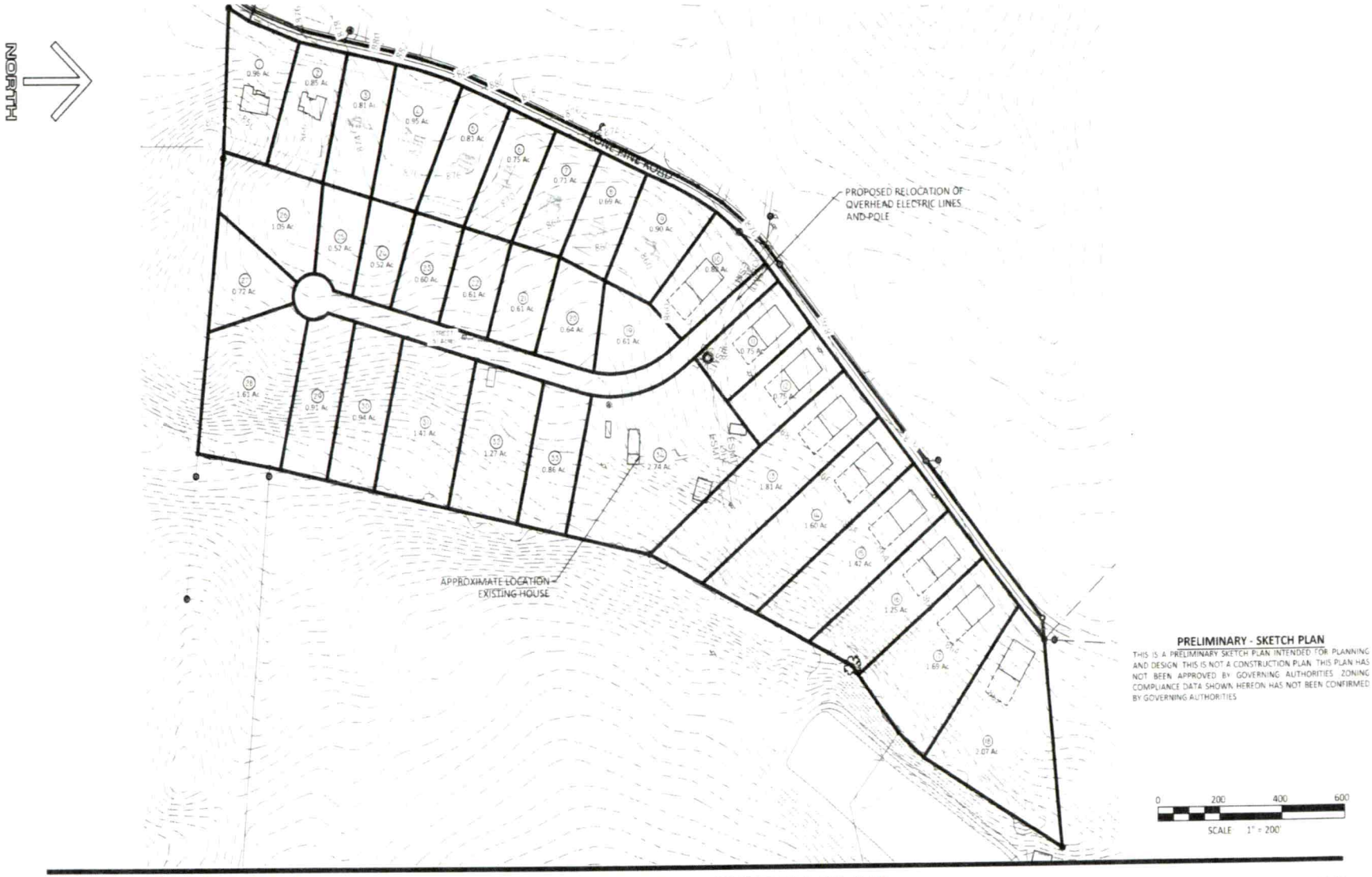
PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
SB 1	5%	0-11"	SCL; WSBK	SS; SP; FR	-	48"	-	-	Provisionally Suitable 0.3
		11-48"	C; SBK	SS; SP; FI					
SB 2	7%	0-14"	SCL;GR	SS; SP; FR		48"	-	-	Provisionally Suitable 0.3
		14-48"	C; SBK	SS; SP; FI					
SB 3	5%	0-6"	SCL; GR	SS; SP; FR	-	48"	-	-	Provisionally Suitable 0.3
		6-42"	C; SBK	SS; SP; FI					
		42-48"	CL; WSBK	SS; SP; FR					
SB 4	5%	0-10"	SCL; GR	SS; SP; FR	-	48"			Provisionally Suitable 0.3
		10-48"	C; SBK	SS; SP; FI					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	Provisionally Suitable	Provisionally Suitable
System Type(s)	Conventional Innovative	Conventional Innovative
Site LTAR	0.3 GPD/Ft^2	0.3 GPD/Ft^2

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

EVALUATED BY: Jeff Vaughan
OTHER(S) PRESENT: Trevor Hackney

COMMENTS



Blue Ridge Engineering PLLC
924 Main Street - Suite 200
North Wilkesboro, NC 28659
336.838.2500
www.ridge.blue
Firm #P-0205

HOUSE LAYOUT SKETCH PLAN

JOB #18066
LOTS 1,2, 10-18
March 16, 2021

KENSON PROPERTIES, LLC
PROPOSED RESIDENTIAL SUBDIVISION
LONE PINE ROAD STATESVILLE, NC

LEGEND

use the following standard abbreviations

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

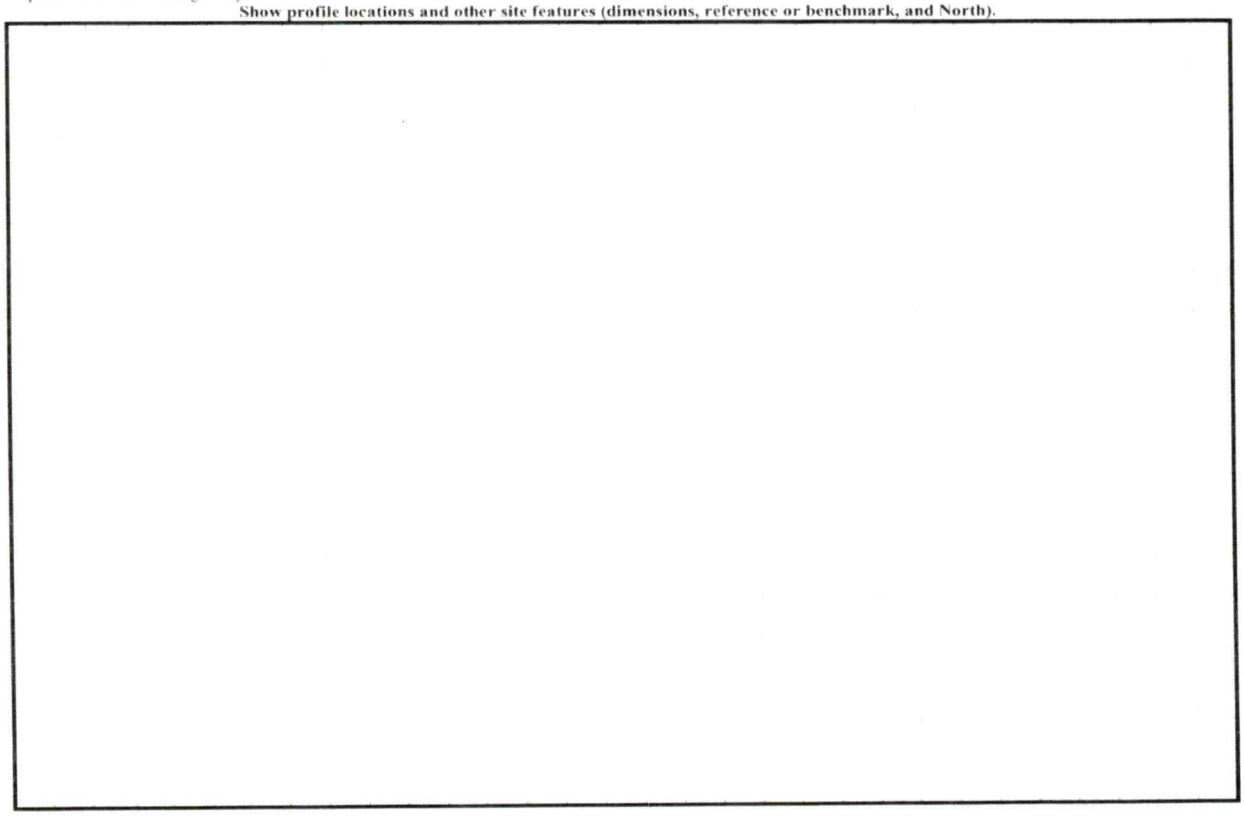
NOTES

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)

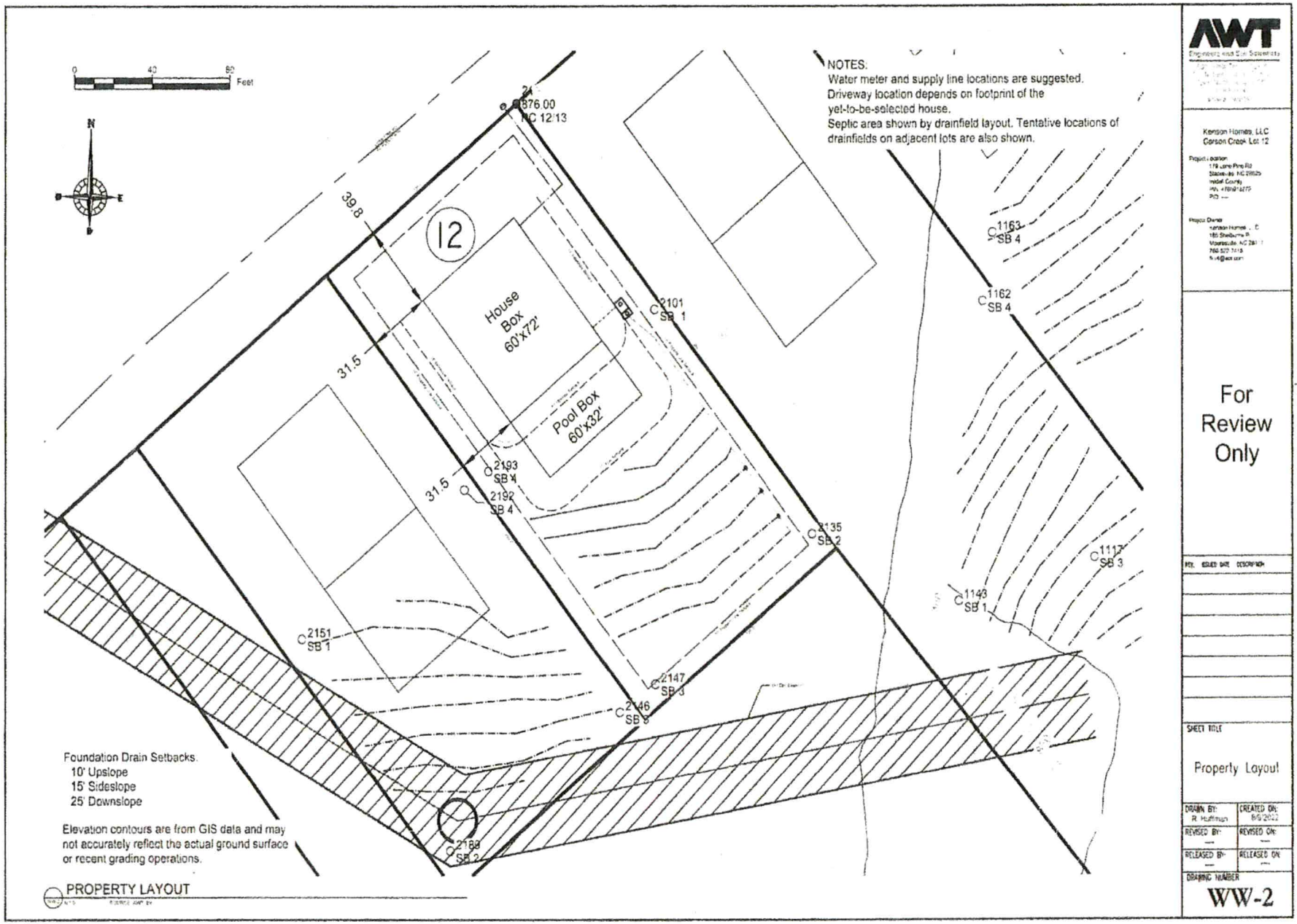
Evaluation of saprolite shall be by pits.

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

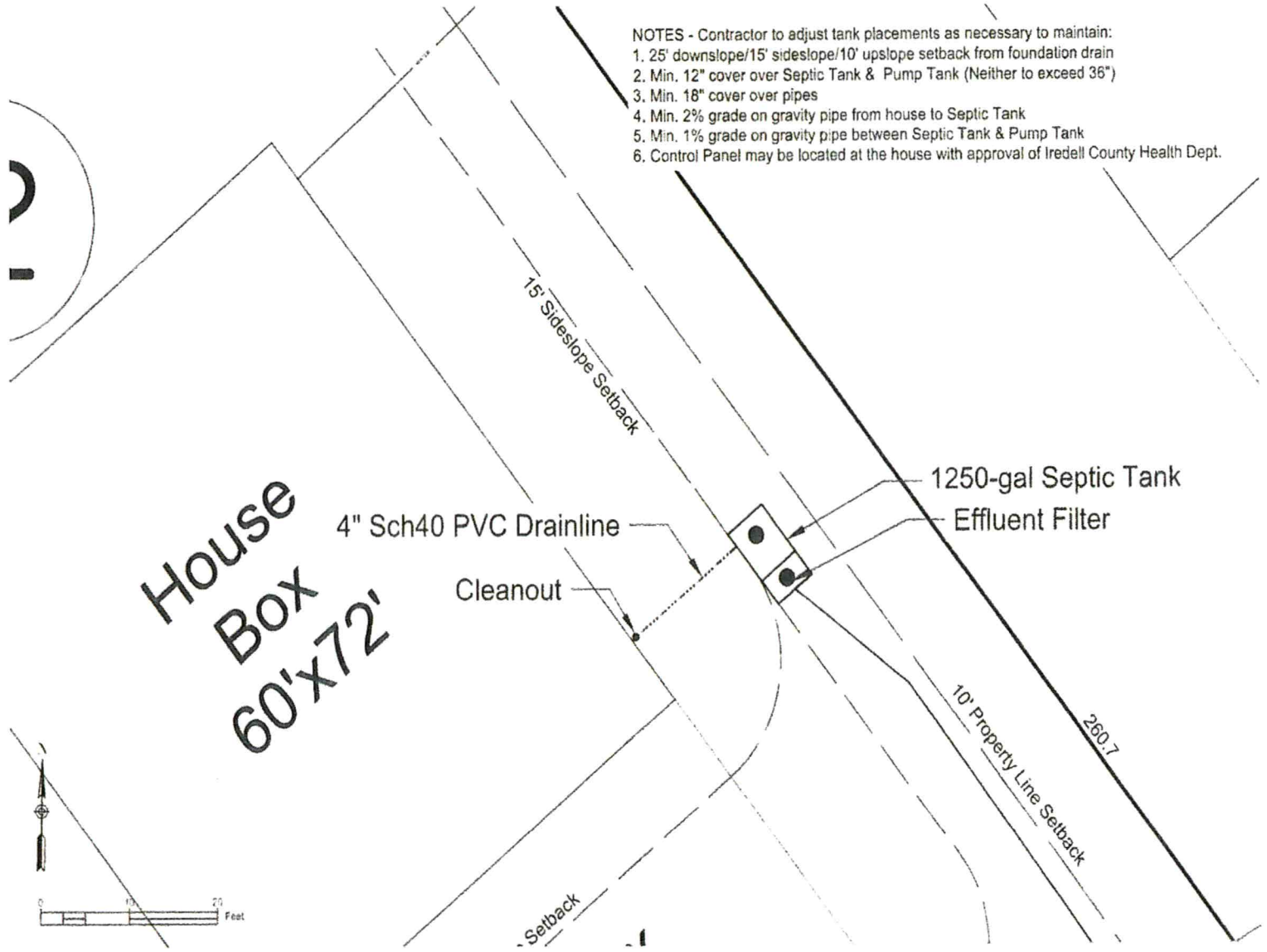
Show profile locations and other site features (dimensions, reference or benchmark, and North).



Attachment 3: Additional Documentation


0
40
80
Feet
N
E
S
W
NOTES:
Water meter and supply line locations are suggested.
Driveway location depends on footprint of the yet-to-be-selected house.
Septic area shown by drainfield layout. Tentative locations of drainfields on adjacent lots are also shown.
12
House Box 60'x72'
Pool Box 60'x32'
39.8
31.5
31.5
2101 SB 1
2193 SB 4
2192 SB 4
2135 SB 2
2151 SB 1
2147 SB 3
2146 SB 3
2168 SB 2
1163 SB 4
1162 SB 4
1117 SB 3
1143 SB 1
Foundation Drain Setbacks.
10' Upslope
15' Sideslope
25' Downslope
Elevation contours are from GIS data and may not accurately reflect the actual ground surface or recent grading operations.
PROPERTY LAYOUT
AWT
Engineering and Soil Scientists
Kenson Homes, LLC
Carson Creek Lot 12
For Review Only
REV. ISSUED DATE DESCRIPTION
SHEET TITLE
Property Layout
DRAWN BY: R. Huffman
CREATED ON: 9/6/2022
REVISED BY:
REVISED ON:
RELEASED BY:
RELEASED ON:
DRAWING NUMBER
WW-2

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 & Pump Tank (Neither to exceed 36")
3. Min. 18" cover over pipes
4. Min. 2% grade on gravity pipe from house to Septic Tank
5. Min. 1% grade on gravity pipe between Septic Tank & Pump Tank
6. Control Panel may be located at the house with approval of Iredell County Health Dept.



COMPONENT LAYOUT

AWT
Engineers and Soil Scientists

Kanson Homes LLC
Carson Creek Lot 12

PROFESSIONAL ENGINEER SEAL

For Review Only

REV.	ISSUED DATE	DESCRIPTION

SHEET TITLE
Component Layout

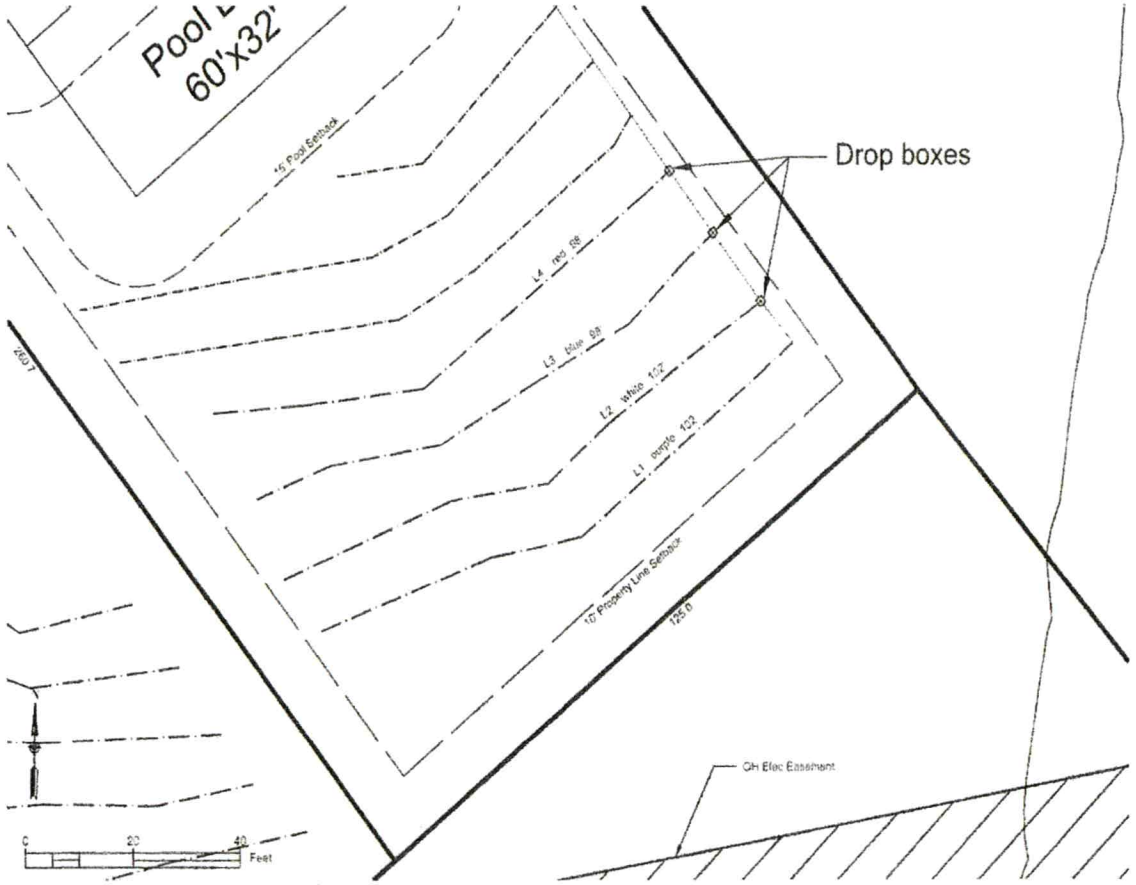
DRAWN BY: R. Huffman	CREATED ON: 8/9/2022
REVISED BY: —	REVISED ON: —
RELEASED BY: —	RELEASED ON: —

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.

Line	U	Flag Colo	Elevation (ft)	Line Length f	Used as Primary f	Used as Repair (f
1	Layout Line	purple	866.8	109	102	
2	Layout Line	white	867.0	109	102	
3	Layout Line	blue	867.5	109	98	
4	Layout Line	red	867.8	113	98	



Primary Drainfield

AWT
Engineers and Soil Scientists

Kanson Homes, LLC
Carson Creek Lot 12

PROFESSIONAL ENGINEER SEAL

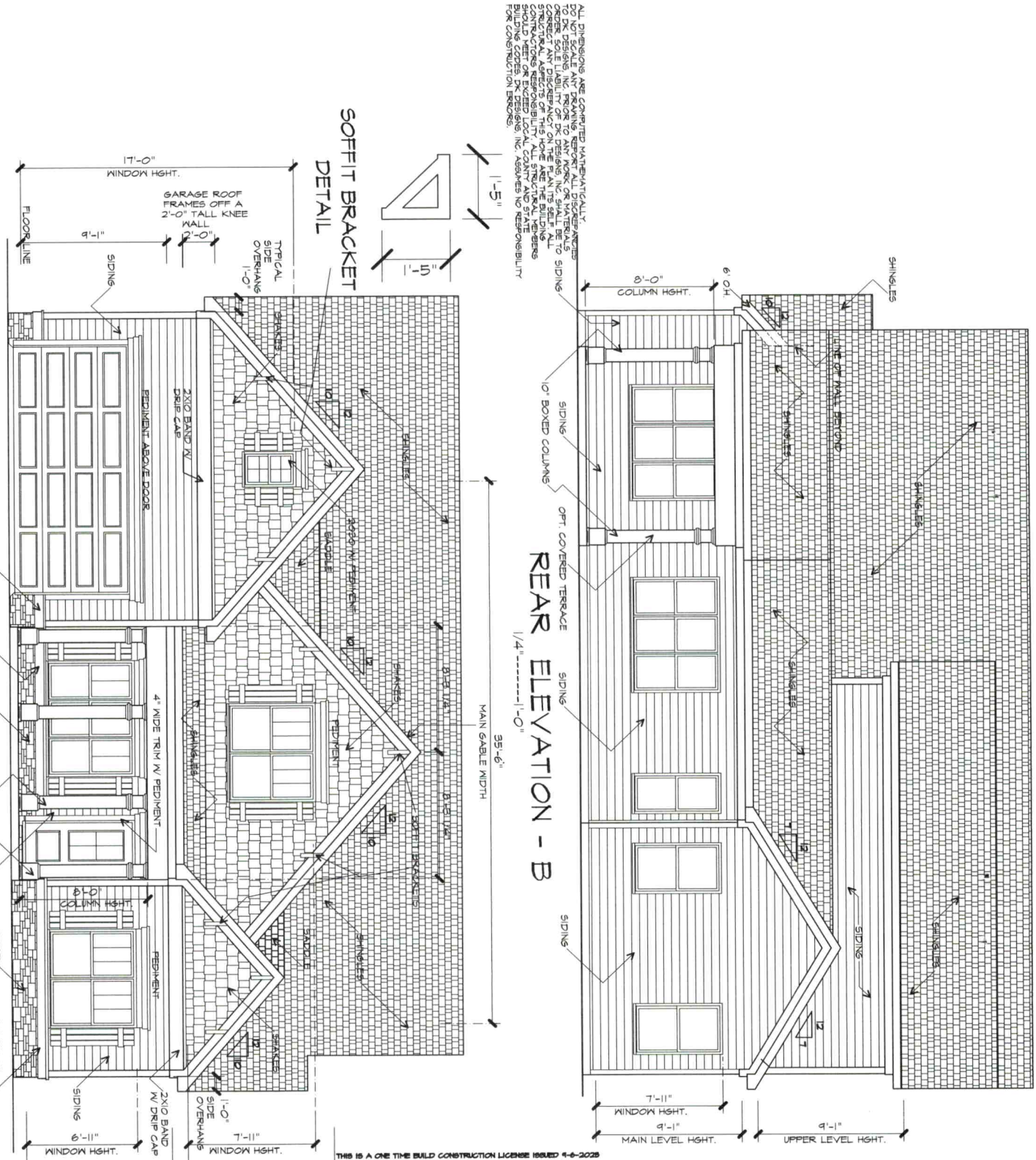
For Review Only

Rv	ISSUED DATE	DESCRIPTION

SHEET TITLE
Primary Drainfield

DRAWN BY: R. Huffman	CREATED ON: 8/9/22
REVISED BY:	REVISED ON:
RELEASED BY:	RELEASED ON:

DRAWING NUMBER
WW-4



THIS IS A ONE TIME BUILD CONSTRUCTION LICENSE ISSUED 9-6-2025
THE CONSTRUCTION LICENSE TO BUILD THIS PLAN WAS ISSUED TO:

KASH VESSELS
185 SHELBURNE PLACE
MOORESVILLE, NC 28117

NO ONE ELSE IS ALLOWED TO BUILD FROM THIS PLAN. A SIGNED CONSTRUCTION LICENSE WAS ISSUED WITH THIS PLAN FOR PROOF OF AUTHENTICITY. ALL BUILDING DEPARTMENTS MUST ASK FOR THE CONSTRUCTION LICENSE BEFORE ISSUING A A BUILDING PERMIT FOR CONSTRUCTION TO BE PROTECTED AGAINST ANY COPYRIGHT VIOLATION

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W/ BONUS ROOM

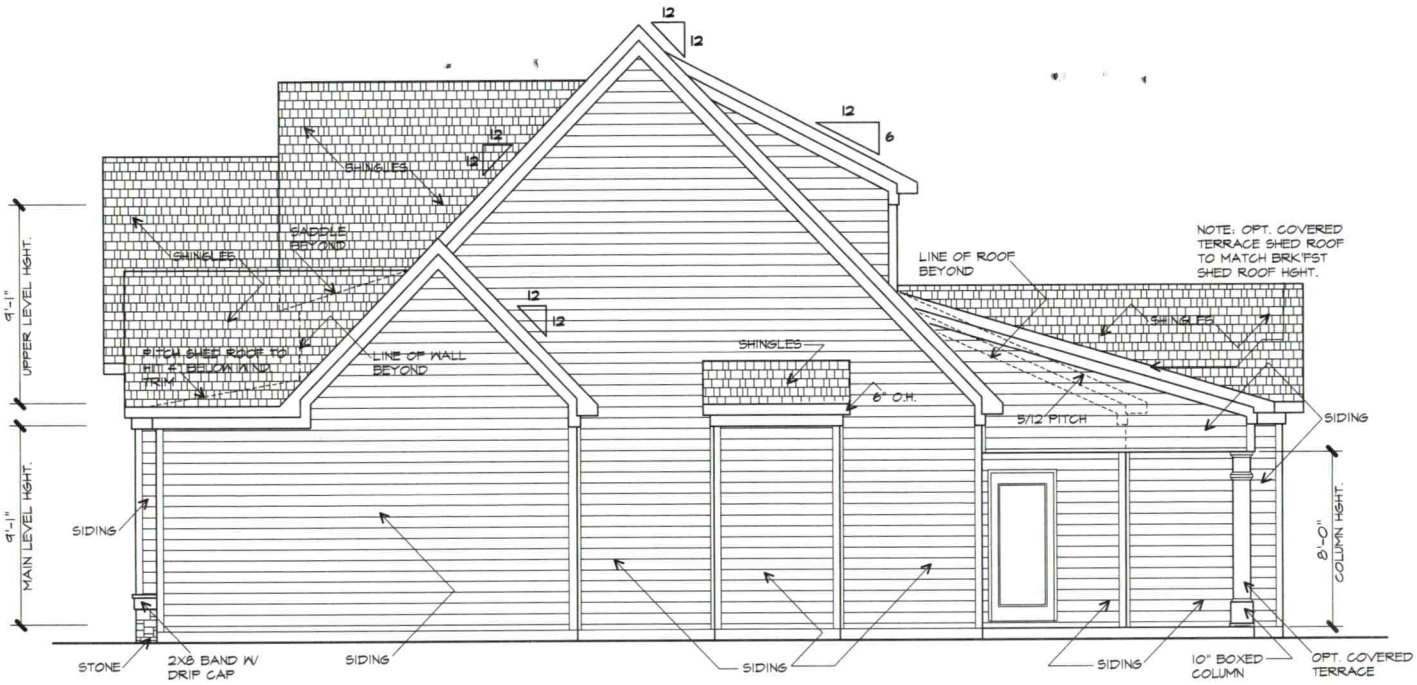
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DK DESIGNS, INC.
ATLANTA, GA.
770-460-9495



RIGHT SIDE ELEVATION - B

1/4"-------1'-0"

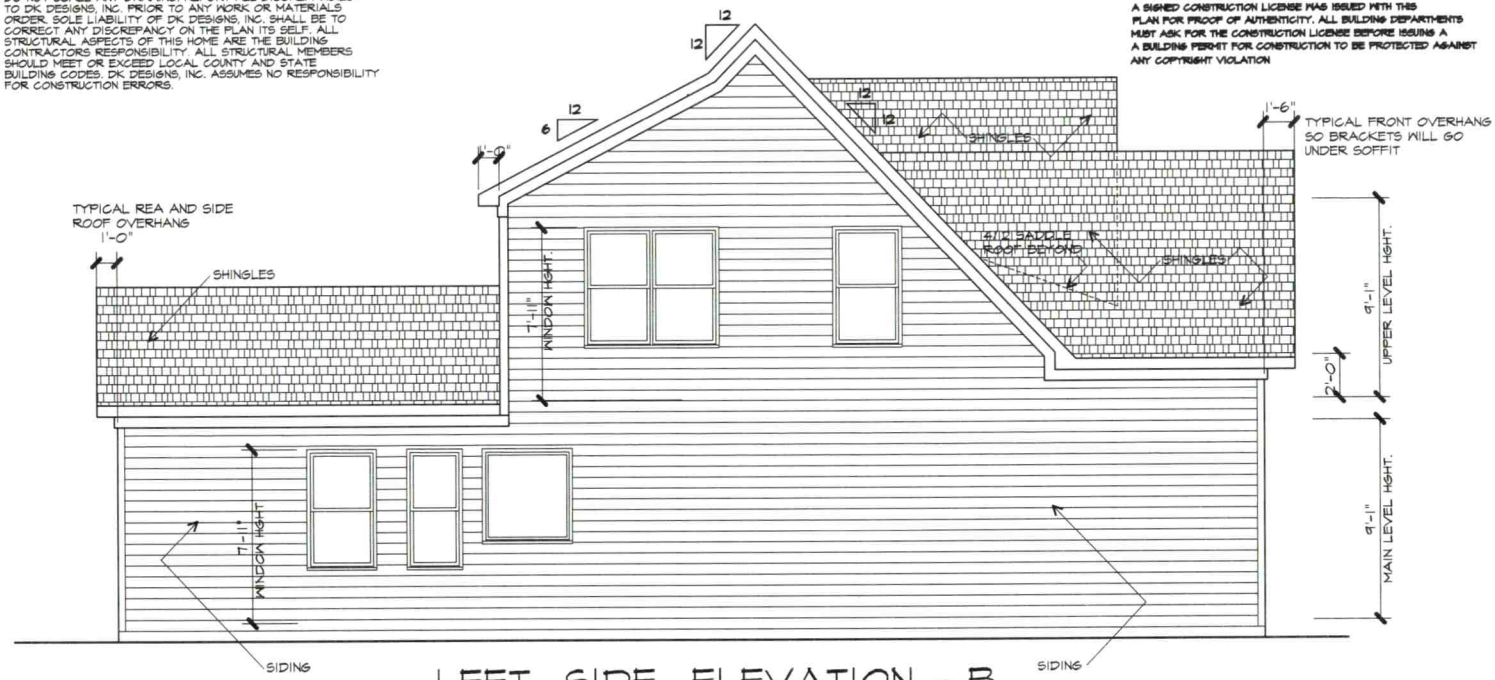
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LEFT SIDE ELEVATION - B

1/4"-------1'-0"

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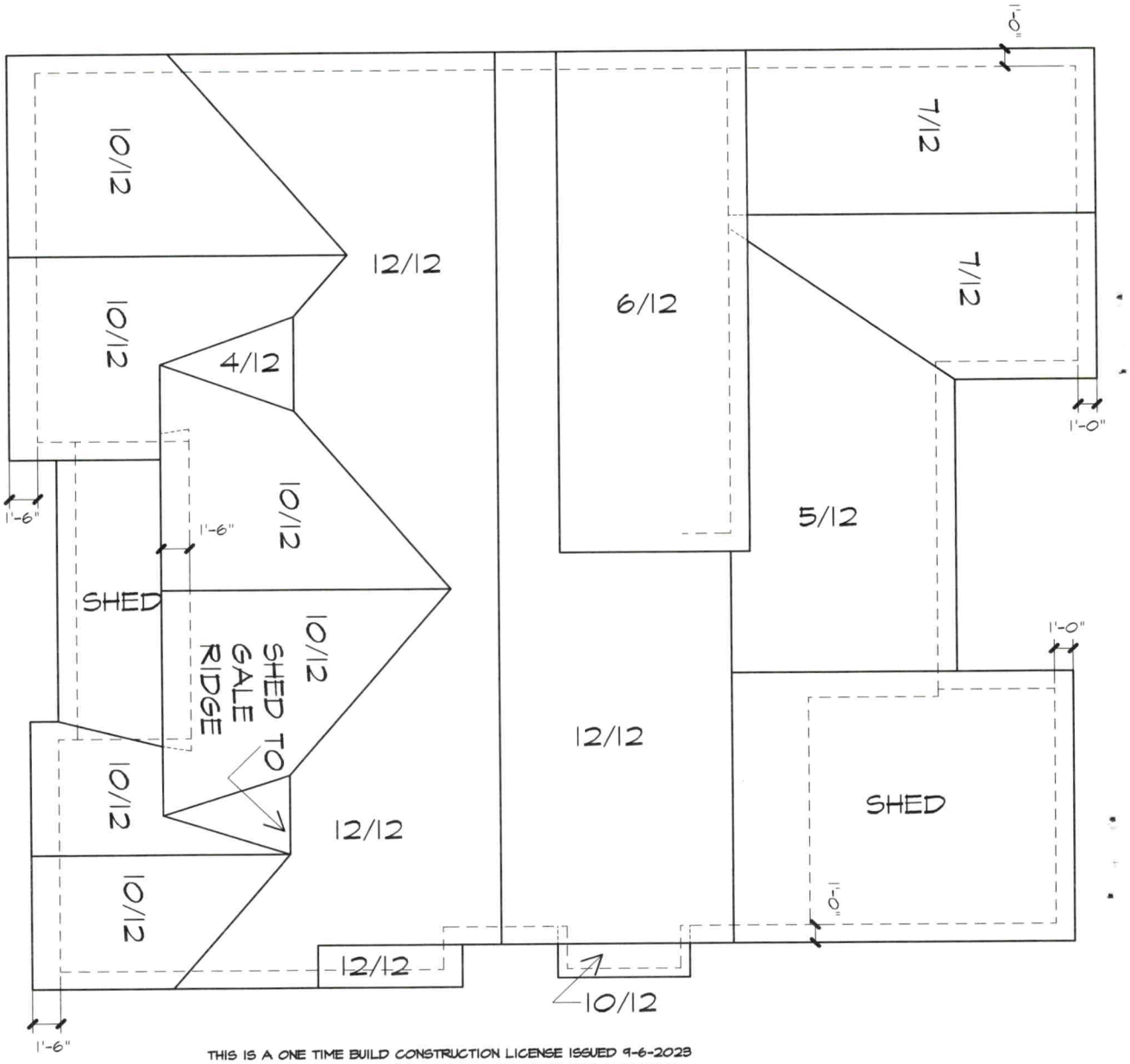
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GROVETOWN
4 BEDROOM
W/ BONUS ROOM



ROOF PLAN - B

1/4"-------1'-0"

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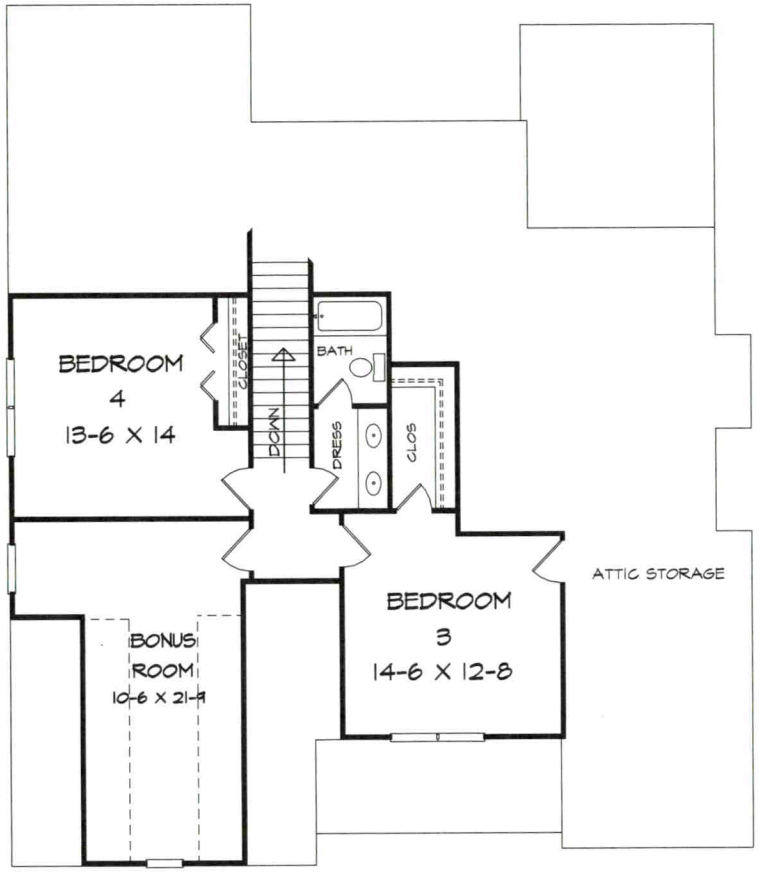
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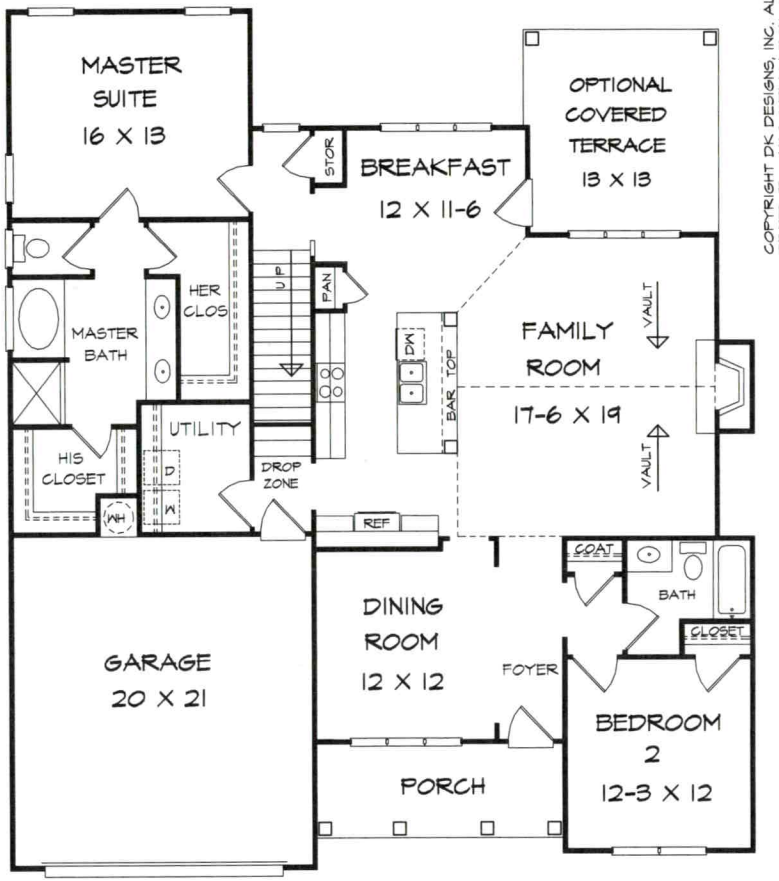
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BONUS ROOM ADDS - 276 SQ. FT.

UPPER LEVEL FLOOR PLAN - B



MAIN LEVEL FLOOR PLAN - B

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MOORESVILLE, NC 28117

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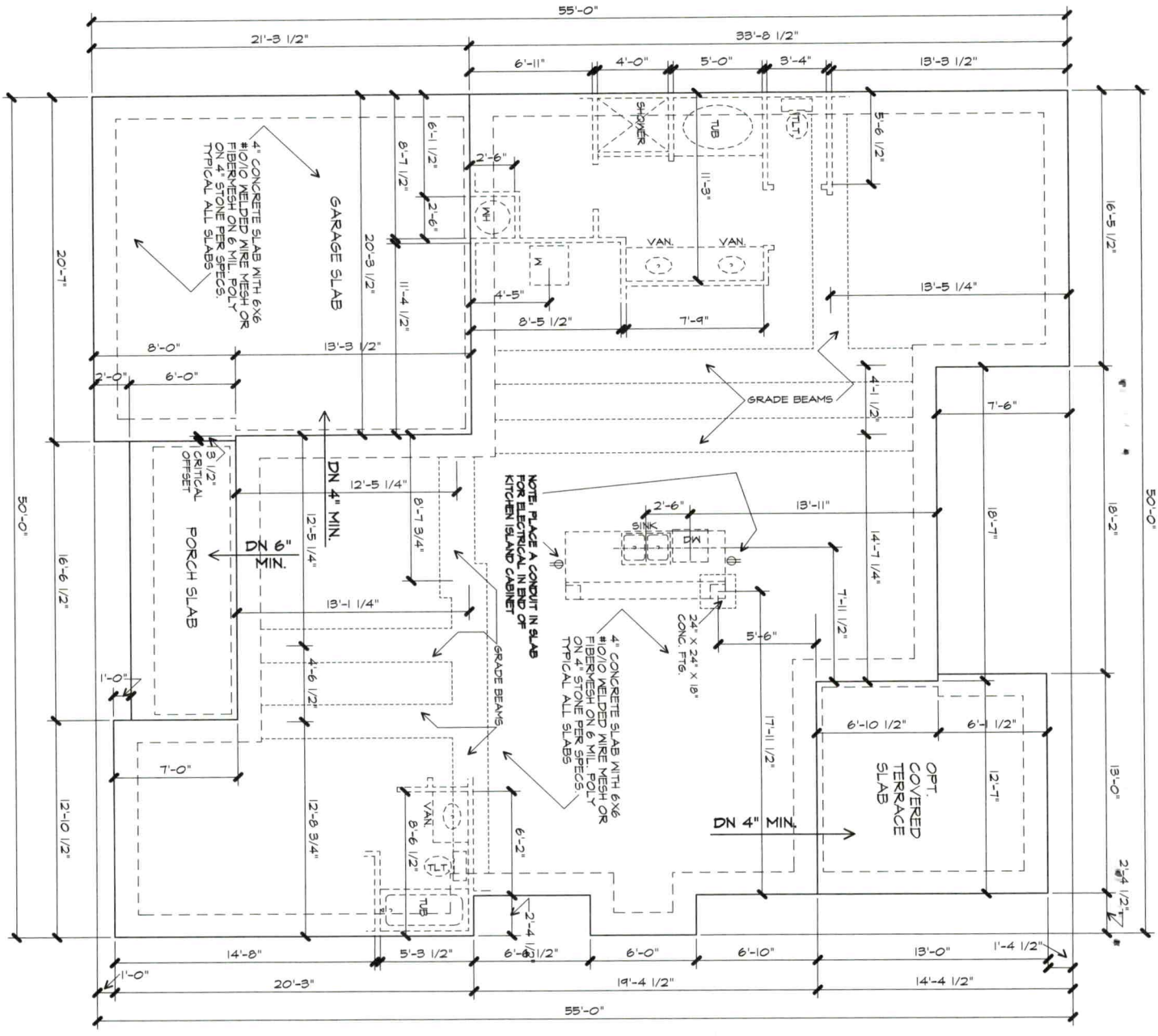
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GROVETOWN
4 BEDROOM
W BONUS ROOM

NOTE: SEE ALL ELEVATIONS FOR STONE LEDGE LOCATIONS

SLAB FOUNDATION PLAN - B

NOTE: SEE BUILDER FOR POSSIBLE STONE OR BRICK LEDGE LOCATIONS



THIS IS A ONE TIME BUILD CONSTRUCTION LICENSE ISSUED 9-6-2023
THE CONSTRUCTION LICENSE TO BUILD THIS PLAN WAS ISSUED TO:

KASH VESSELS
185 SHELBURNE PLACE
MOORESVILLE, NC 28117

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GROVETOWN
4 BEDROOM
W/ BONUS ROOM

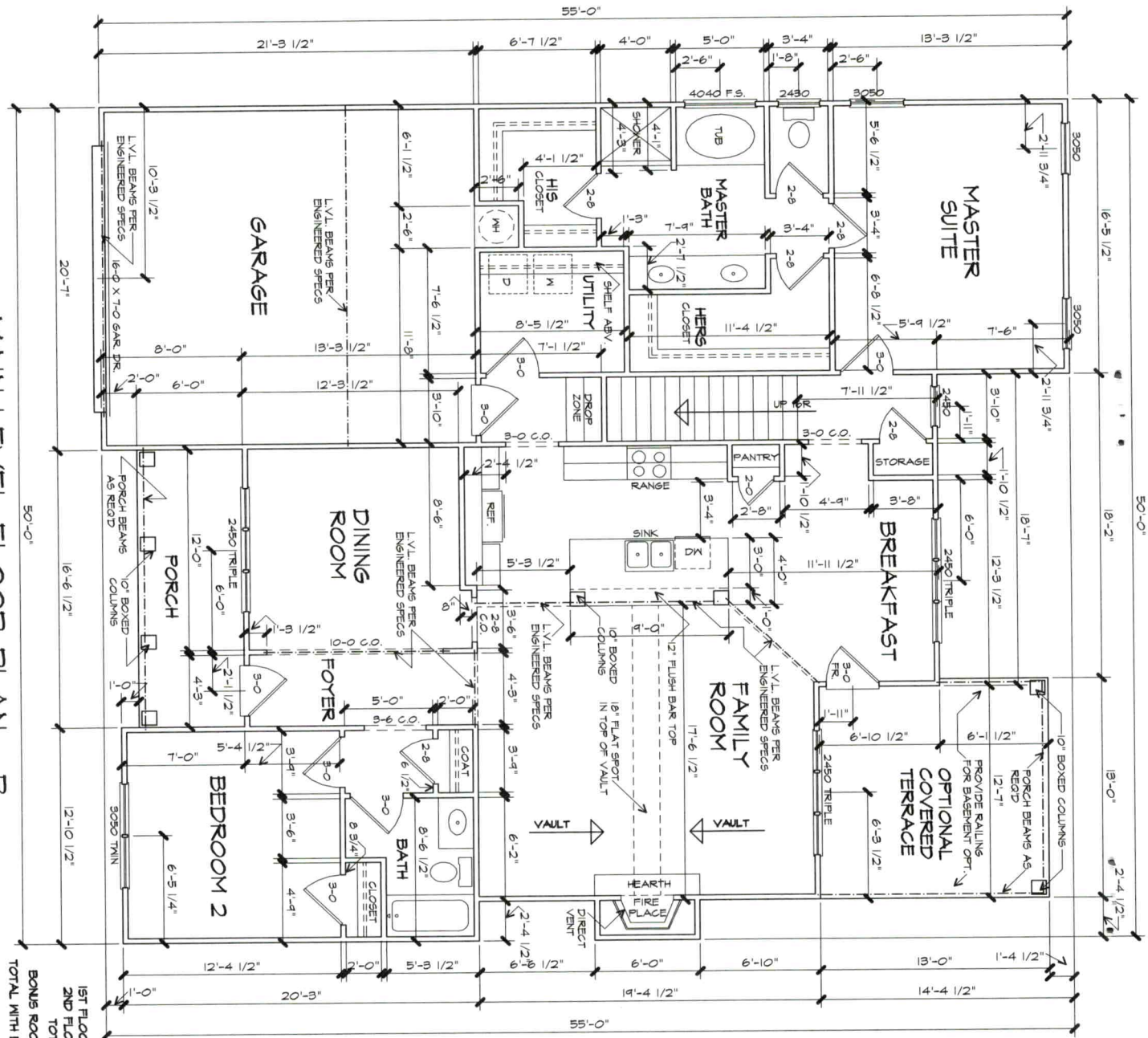
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SHEET OF

REVISION

DK DESIGNS, INC.

DK DESIGNS, INC.
ATLANTA, GA.
770-460-9495



1ST FLOOR = 1764 SQ. FT.
2ND FLOOR = 603 SQ. FT.
TOTAL = 2367 SQ. FT.
BONUS ROOM ADDS = 276 SQ. FT.
TOTAL WITH BONUS ROOM = 2643 SQ. FT.

THIS IS A ONE TIME BUILD CONSTRUCTION LICENSE ISSUED 9-6-2023
THE CONSTRUCTION LICENSE TO BUILD THIS PLAN WAS ISSUED TO:

KASH VESSELS
185 SHELBURNE PLACE
MOORESVILLE, NC 28117

NO ONE ELSE IS ALLOWED TO BUILD FROM THIS PLAN.
A SIGNED CONSTRUCTION LICENSE WAS ISSUED WITH THIS PLAN FOR PROOF OF AUTHENTICITY. ALL BUILDING DEPARTMENTS MUST ASK FOR THE CONSTRUCTION LICENSE BEFORE ISSUING A A BUILDING PERMIT FOR CONSTRUCTION TO BE PROTECTED AGAINST ANY COPYRIGHT VIOLATION

ALL DIMENSIONS ARE COMPUTED MATHEMATICALLY. DO NOT SCALE ANY DRAWING. REPORT ALL DISCREPANCIES TO DK DESIGNS, INC. PRIOR TO ANY WORK OR MATERIALS ORDER. SOLE LIABILITY OF DK DESIGNS, INC. SHALL BE TO CORRECT ANY DISCREPANCY ON THE PLAN ITS SELF. ALL STRUCTURAL ASPECTS OF THIS HOME ARE THE BUILDING CONTRACTORS RESPONSIBILITY. ALL STRUCTURAL MEMBERS SHOULD MEET OR EXCEED LOCAL COUNTY AND STATE BUILDING CODES. DK DESIGNS, INC. ASSUMES NO RESPONSIBILITY FOR CONSTRUCTION ERRORS.

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GROVETOWN
4 BEDROOM
W/ BONUS ROOM

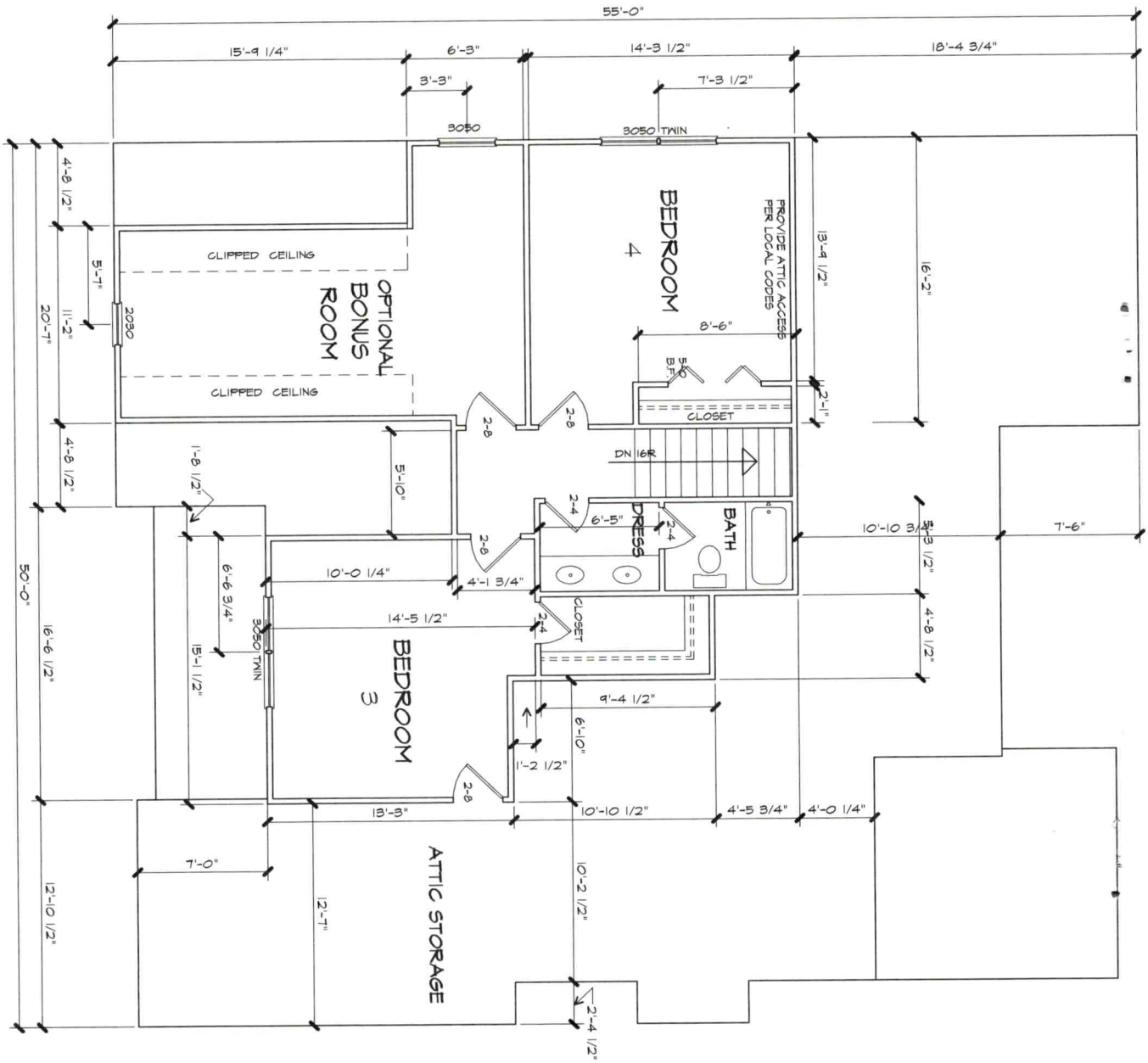
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4 BEDROOM WITN BONUS ROOM

UPPER LEVEL FLOOR PLAN - B

1/4"--------1'-0"

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GROVETOWN
4 BEDROOM
W BONUS ROOM

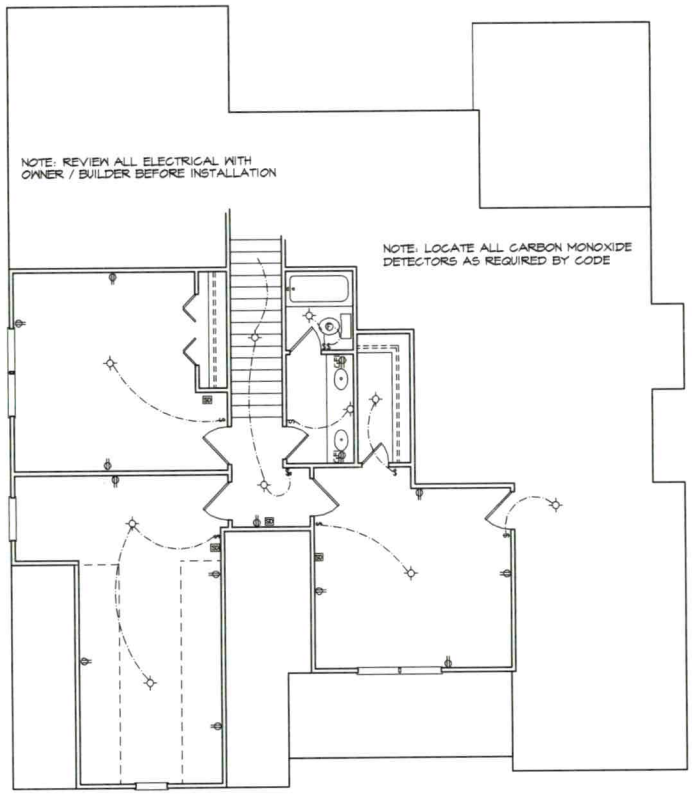
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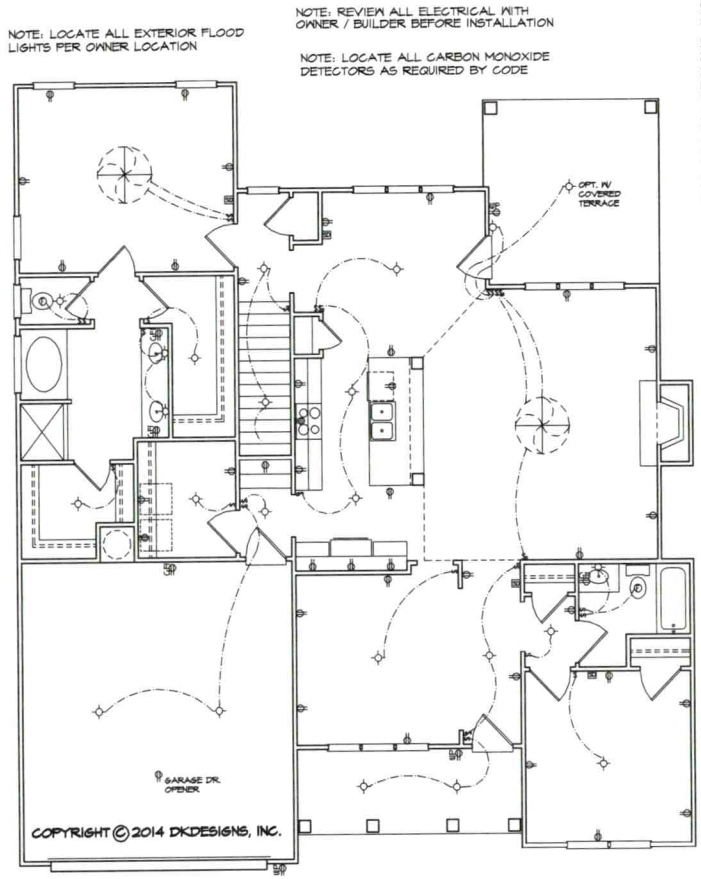
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4 BEDROOM OPT. W/ BONUS ROOM

UPPER LEVEL ELECTRICAL FLOOR PLAN



MAIN LEVEL ELECTRICAL FLOOR PLAN

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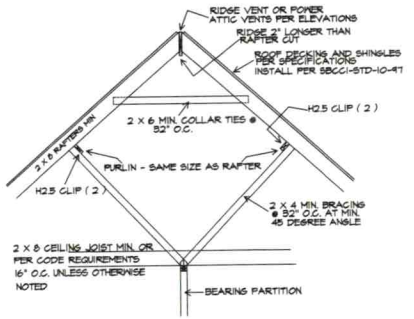
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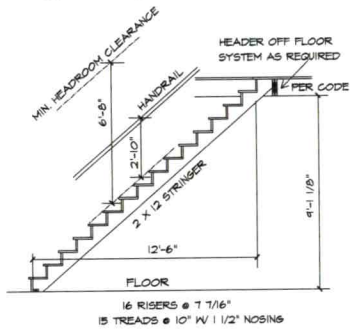
DK DESIGNS, INC.

GROVETOWN
4 BEDROOM
W/ BONUS ROOM



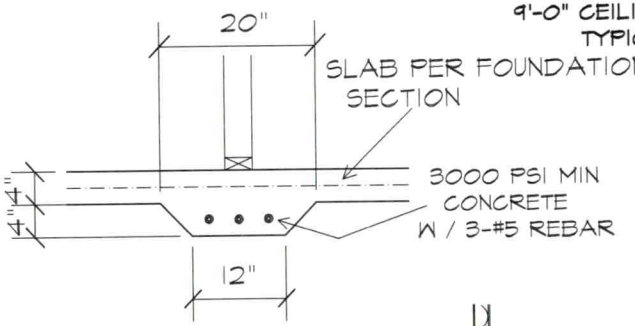
TYPICAL ROOF BRACING DETAIL

NOTE: IF TRUSS TYPE FLOOR SYSTEM IS USED, RISERS MAY HAVE TO BE ADDED TO THE STAIR SYSTEM TO CONFORM TO BUILDING CODES. CONSULT WITH BUILDER OR CODE OFFICAL BEFORE CONSTRUCTION BEGINS.

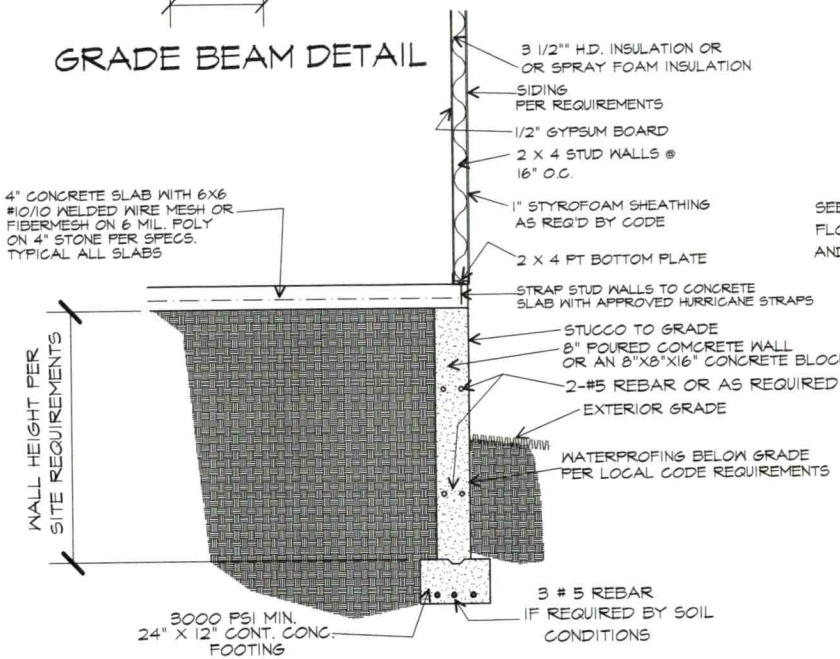


16 RISERS @ 7 7/16"
15 TREADS @ 10" W/ 1 1/2" NOSING

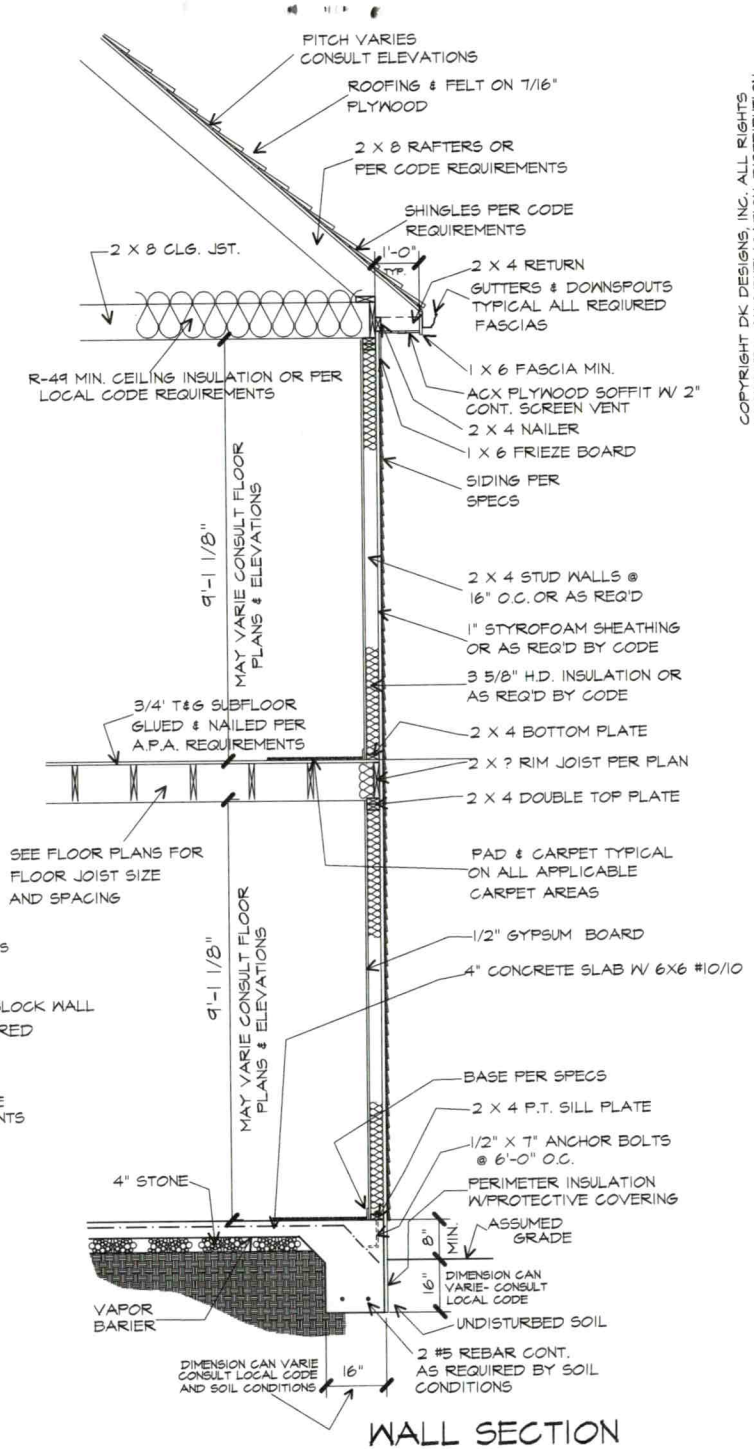
9'-0" CEILING STAIR TYPICAL



GRADE BEAM DETAIL



OPTIONAL STEM WALL FOUNDATION SECTION



WALL SECTION

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CONSTRUCTION DETAIL SHEET

195 and 201 lone pine

Trevor Hackney <thackney@agriwaste.com>

Fri 3/8/2024 1:28 PM

To:Cory Whicker <cory.whicker@iredellcountync.gov>

This Message Is From an External Sender
This message came from outside your organization.

Report Suspicious

Hey Cory,

We specified 1250 gallon septic tanks on these properties. This was an over specification for a 4 bedroom home. It can be installed as a 1000 gallon tank per the minimum state requirements for tank sizing.

Thank you

Trevor Hackney

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