



North Carolina Onsite Wastewater Contractor Inspector Certification Board
Authorized Onsite Wastewater Evaluator Permit Option for Non-Engineered Systems
Notice of Intent (NOI) to Construct

☒ New ☐ Expansion ☐ Repair ☐ Relocation ☐ Relocation of Repair Area

Owner or Legal Representative Information:

Name: RiverWILD Homes

Mailing address: 114 W Main St City: Clayton State: NC Zip: 27520

Phone: 919-373-6048 Email: kelley@staywild.com

Authorized Onsite Wastewater Evaluator Information:

Name: Trent Bostic Certification #: 10056E

Mailing address: 501 N Salem St, Ste 203 City: Apex State: NC Zip: 27502

Phone: 919-367-6322 Email: tbostic@agriwaste.com

Site Location Information:

Site address: 3999 Baileys XRDS Rd, Benson, NC

Tax parcel identification number or subdivision lot, block number of property: 1610-58-7692

Stewart Farms - Lot 1 County: Harnett

System Information:

Wastewater System Type: IIIb

Daily Design Flow: 480

Saprolite System: ☐ Yes ☒ No Subsurface Operator Required: ☐ Yes ☒ No

Water Supply Type: ☐ Private Well ☒ Public Water Supply ☐ Spring ☐ Other: _____

Facility Type:

☒ Residential 4 # Bedrooms 8 Maximum # of Occupants

☐ Business Type of Business and Basis for Flow: _____

☐ Public Assembly Type of Public Assembly and Basis for Flow: _____

Required Attachments:

☒ Plat or Site Plan

☒ Evaluation of Soil and Site Features by Licensed Soil Scientist

Attest: On this the 24 day of APR, 2025 by signature below I hereby attest that the information required to be included with this NOI to Construct is accurate and complete to the best of my knowledge. Furthermore, I hereby attest that I have adhered to the laws and rules governing onsite wastewater systems in the state of North Carolina.
This NOI shall expire on 24 day of APR, 2027.

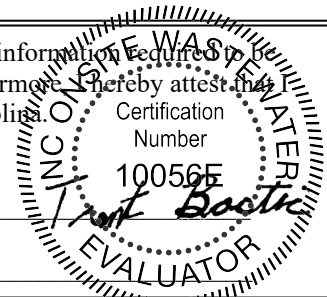
Signature of Authorized Onsite Wastewater Evaluator: Trent Bostic

Signature of Owner or Legal Representative: _____

Disclosure: The owner may apply for a building permit for the project upon submitting a complete NOI to Construct and the fee required (if any) to the local health department. An onsite wastewater system authorized by an authorized onsite wastewater evaluator shall be transferable to a new owner with the consent of the authorized onsite wastewater evaluator.

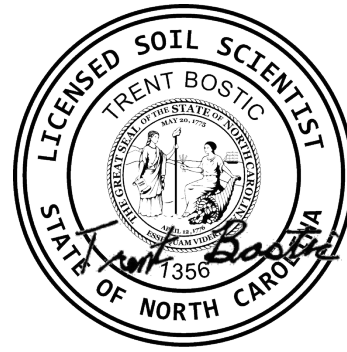
Local Health Department Receipt Acknowledgment:

Signature of Local Health Department Representative: _____ Date: _____





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



**Soil Suitability for Domestic Sewage Treatment and Disposal Systems
3999 Baileys XRDS Rd, Benson, NC 27504
(PIN: 1610-58-7692; Harnett County)**

PREPARED FOR: RiverWILD Homes, c/o Kelley Judd

PREPARED BY: Trent Bostic, Senior Soil Scientist

DATE: April 24, 2025

Soil suitability for domestic sewage treatment and disposal systems was evaluated on April 21, for the property located at 3999 Baileys XRDS Rd in Benson, NC. A layout was performed on April 21, 2025. Trent Bostic and Heath Clapp of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. This evaluation was done to facilitate permitting for a septic system. This report and attached documents were prepared to meet the requirements for an Authorized On-Site Wastewater Evaluator to meet G.S. 130A-336.2

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.

Site Conditions

The total property area is approximately 0.58 acres. The property is an open field. The drawing in Attachment 1 details the property boundaries, house location, boring locations, and layout of drain field trenches (Completed by AWT).

Soil Suitability for Domestic Sewage Treatment and Disposal Systems

Multiple soil borings/pits were assessed on the property. Soil borings/pits were examined to determine soil suitability for on-site sewage disposal systems in accordance with 15A NCAC 18E: Wastewater Treatment and Dispersal Systems. These borings/pits were advanced with a hand auger and excavator. All soil borings/pits shown are provisionally suitable for a conventional style trench. The proposed LTAR (Long Term Acceptance Rate) by AWT is 0.4 GPD/ft². The soils on this property are group III soils within the distribution and treatment zone as used to define the LTAR. The maximum trench bottom should not exceed 24".

Field Layout & System Design

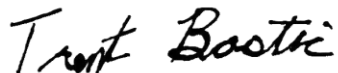
A septic layout was performed to demonstrate available space (.0508). The layout in the included design packet indicates there is available space for a four-bedroom system utilizing a 50% reduction product (primary) and a 50% reduction product (repair). With an LTAR of 0.4 GPD/ft², 200 linear feet of trench is necessary to support a four-bedroom home initial and 200 linear feet of trench is required for the repair system. The attached drawing proves that 400 linear feet of trench can be installed with the proposed home location on the property.

Any disturbances or grading done in the usable soils area may change the potential of using the area designated for a drain field and can result in a revoked permit.

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

Sincerely,

Trent Bostic

A handwritten signature in black ink that reads "Trent Bostic". The signature is written in a cursive, flowing style.

SOIL & SITE EVALUATION for ON-SITE WASTEWATER SYSTEMS

Evaluation Date
PIN/Parcel
Proposed Facility
Water Supply

4/21/2025
1610-58-7692
SFR
Municipal

Site Location
Property Size
Bedrooms
Design Flow (.0400)

3999 Baileys XRDS Rd, Benson, NC
0.58
4
480

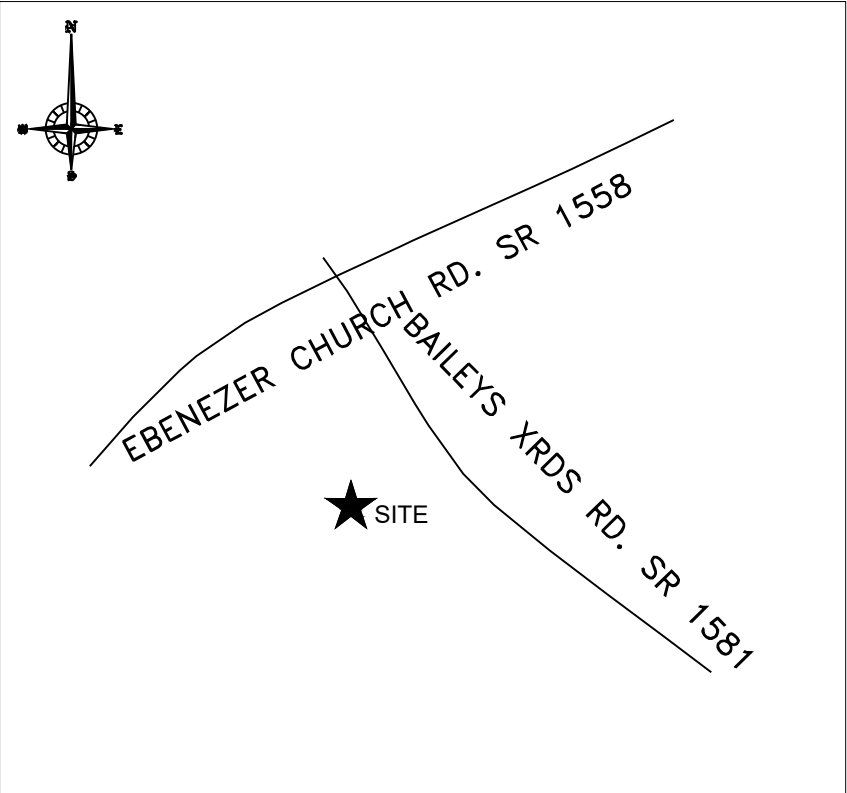
County
Property Recorded
Wastewater Strength
Evaluation Method

Harnett
Yes
Domestic
Auger

Profile #	.0502 Landscape Position Slope %	Horizon Depth (in)	Soil Morphology		Other Factors					.0509 Profile Class LTAR	.0502(d) Slope Correction
			.0503 Struct ure Textur e	.0503 Consistence Mineralogy	.0504 Soil Wetness Color	.0505 Soil Depth (in)	.0506 Saprolite	.0507 Restrictive Horizon			
1	3%	Ap 0-13	SL	NS, NP, VFr	10YR 4/3	36	S	S	0.4	1.2	
		Bt1 13-22	SCL	SS, SP, Fr	10YR 5/8						
		Bt2 22-36+	SCL	SS, SP, Fr	7.5YR 5/8						
								System Type		Conventional	
2	3%	Ap 0-13	SL	NS, NP, VFr	10YR 4/3	36	S	S	0.4	1.2	
		Bt1 13-22	SCL	SS, SP, Fr	10YR 5/8						
		Bt2 22-36+	SCL	SS, SP, Fr	7.5YR 5/8						
								System Type		Conventional	
3	3%	Ap 0-13	SL	NS, NP, VFr	10YR 4/3	36	S	S	0.4	1.2	
		Bt1 13-22	SCL	SS, SP, Fr	10YR 5/8						
		Bt2 22-36+	SCL	SS, SP, Fr	7.5YR 5/8						
								System Type		Conventional	
4	3%	Ap 0-13	SL	NS, NP, VFr	10YR 4/3	36	S	S	0.4	1.2	
		Bt1 13-22	SCL	SS, SP, Fr	10YR 5/8						
		Bt2 22-36+	SCL	SS, SP, Fr	7.5YR 5/8						
								System Type		Conventional	

STEWART FARMS LOT 1

Project Location	3999 Baileys XRDS Rd
	Benson, NC 27504
	Harnett County
	PIN: 1610-58-7692
Project Owner	RiverWILD Homes
	114 W Main St
	Clayton, NC 27520
	919-766-8782
	brittany@staywild.com
Project Consultant	Trent Bostic, AOWE
	(919) 367-6322
	tbostic@agriwaste.com
	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
	Pressure Manifold
	Horizontal T&J Panel Block



VICINITY MAP

Sheet Index

Sheet 1	Cover Sheet
Sheet 2	Property Layout
Sheet 3	Primary Drainfield
Sheet 4	Repair Drainfield
Sheet 5	Detail Sheet 1
Sheet 6	Detail Sheet 2



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

RiverWILD Homes
Stewart Farms Lot 1

Project Location:
3999 Baileys XRDS Rd
Benson, NC 27504
Harnett County
PIN: 1610-58-7692

Project Owner:
RiverWILD Homes
114 W Main St
Clayton, NC 27520
919-766-8782
brittany@staywild.com

NC ONSITE WASTEWATER
EVALUATOR SEAL



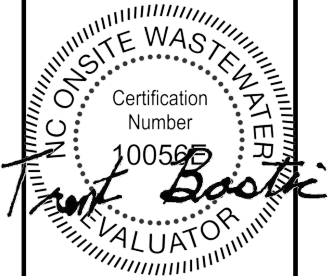
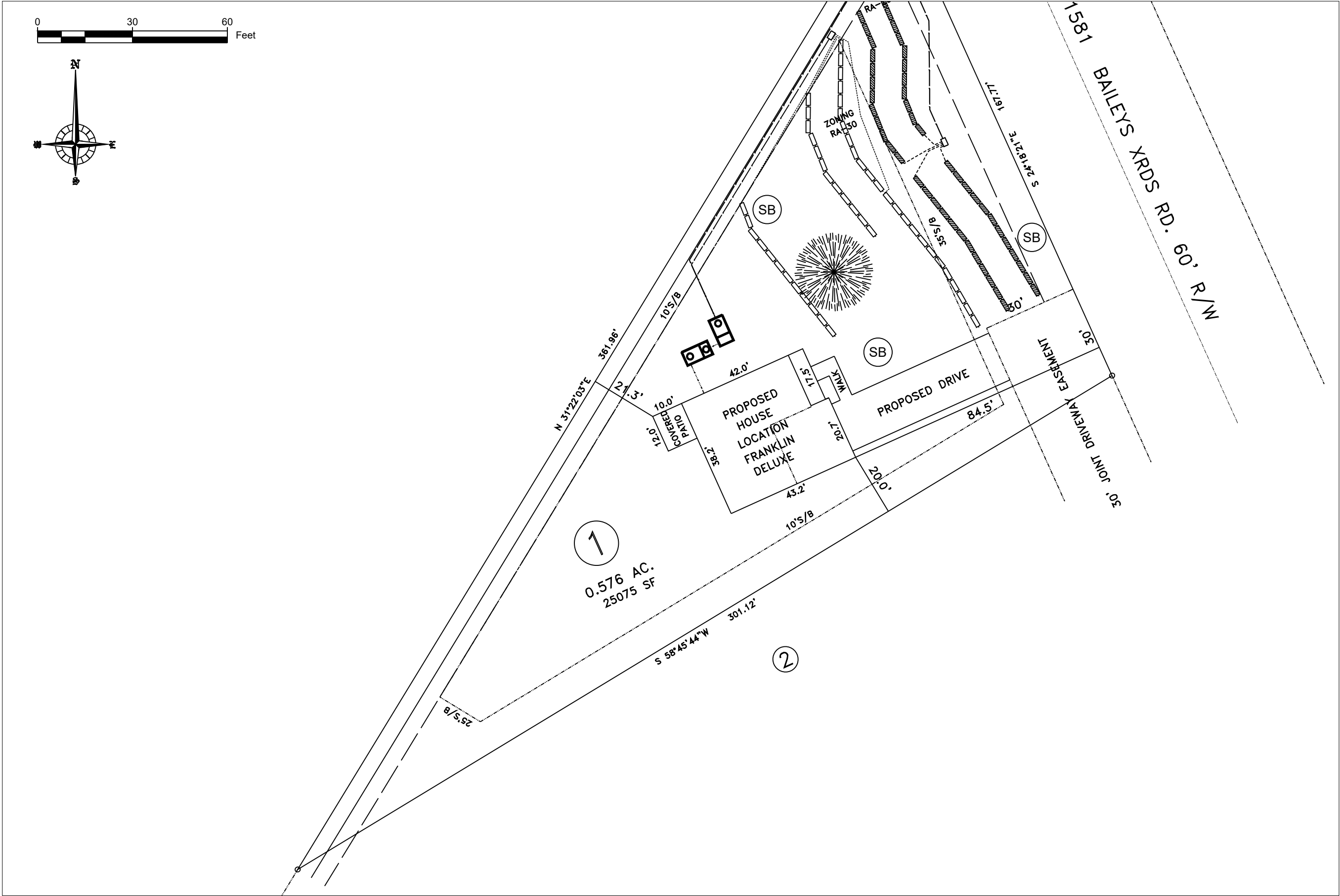
REV.	ISSUED DATE	DESCRIPTION
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SHEET TITLE
Cover Sheet

DRAWN BY: T. Bostic	CREATED ON: 1/18/2025
REVISED BY: ####	REVISED ON: ####
RELEASED BY: ####	RELEASED ON: ####

DRAWING NUMBER

WW-1



REV. ISSUED DATE DESCRIPTION

SHEET TITLE

Property Layout

DRAWN BY: T. Bostic	CREATED ON: 1/18/2025
REVISED BY: ####	REVISED ON: ####
RELEASED BY: ####	RELEASED ON: ####

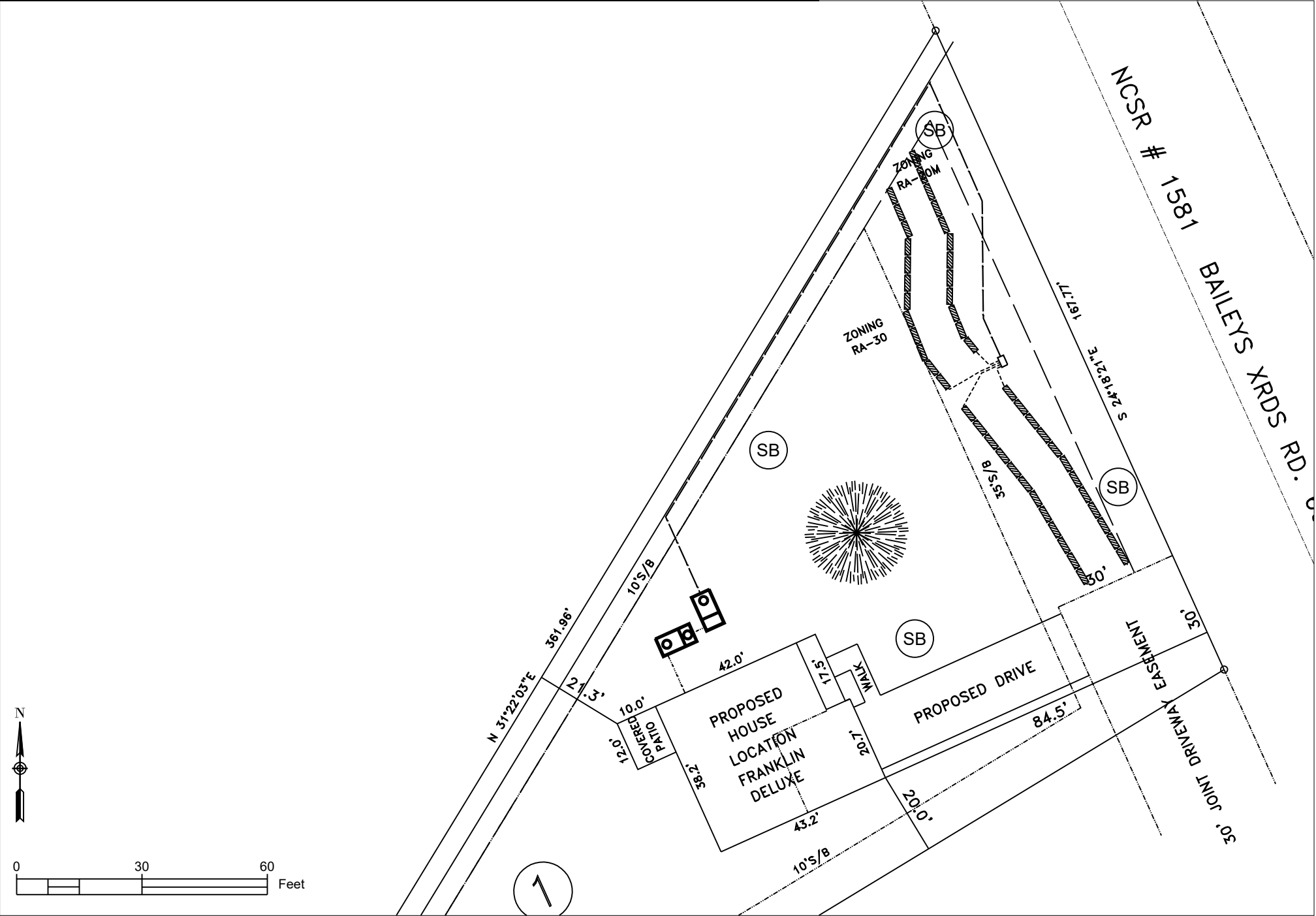
DRAWING NUMBER
WW-2

General Drainfield Notes:

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

DRAINFIELD INFO. - Primary						
Proposed Type of System/Distribution: <i>Pump to Pressure Manifold using PPBPS, Horizontal</i>						
Line No.	Flag Color	Line Length (ft)	Tap	Flow (gpm)	Flow/Foot (gpm/ft)	Line L.T.A.R.
1	red	52	1/2in SCH 80	5.48	0.105	0.769
2	white	52	1/2in SCH 80	5.48	0.105	0.769
3	blue	52	1/2in SCH 80	5.48	0.105	0.769
4	yellow	52	1/2in SCH 80	5.48	0.105	0.769
Total		208	Total	21.92	Avg.	0.77

Note:
Primary distribution is pressure manifold utilizing T&J Panel.



1 Primary Drainfield
SOURCE: Agri-Waste Technology, Inc.



REV. ISSUED DATE DESCRIPTION

SHEET TITLE
Primary Drainfield

DRAWN BY: T. Bostic	CREATED ON: 1/18/2025
REVISED BY: ####	REVISED ON: ####
RELEASED BY: ####	RELEASED ON: ####

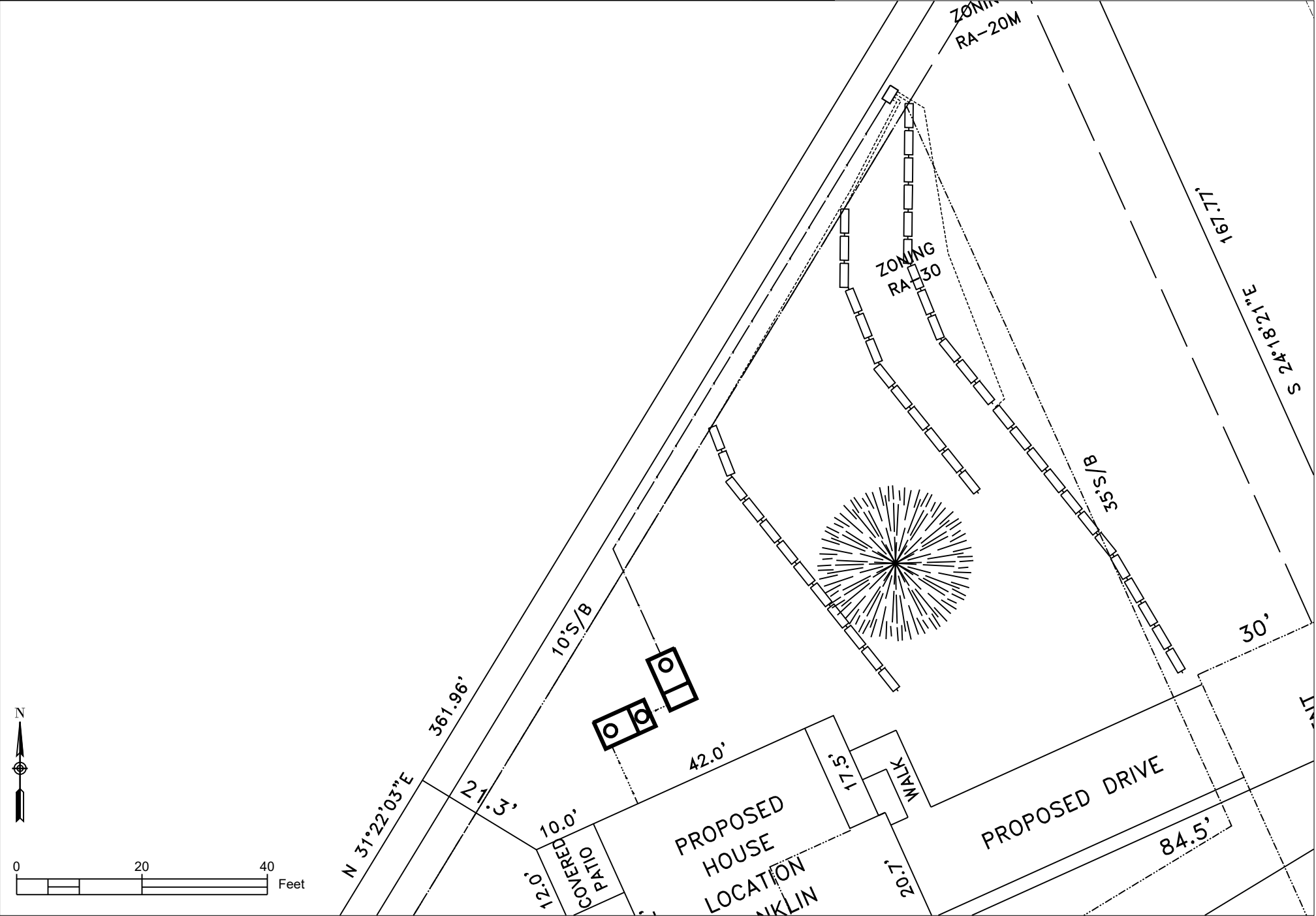
DRAWING NUMBER
WW-3

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.

DRAINFIELD INFO. - Repair						
Proposed Type of System/Distribution: Pump to Pressure Manifold using PPBPS, Horizontal						
Line No.	Flag Color	Line Length (ft.)		Flow (gpm)	Flow/Foot (gpm/ft)	Line L.T.A.R.
5	purple	52	1/2in SCH 80	5.48	0.105	0.769
6	red	52	1/2in SCH 80	5.48	0.105	0.769
7	white	52	1/2in SCH 80	5.48	0.105	0.769
8	blue	52	1/2in SCH 80	5.48	0.105	0.769
Total		208	Total	21.92	Avg.	0.77

Note:
Repair distribution is pressure manifold utilizing T&J Panel Block.



1 Repair Drainfield
SOURCE: Agri-Waste Technology, Inc.

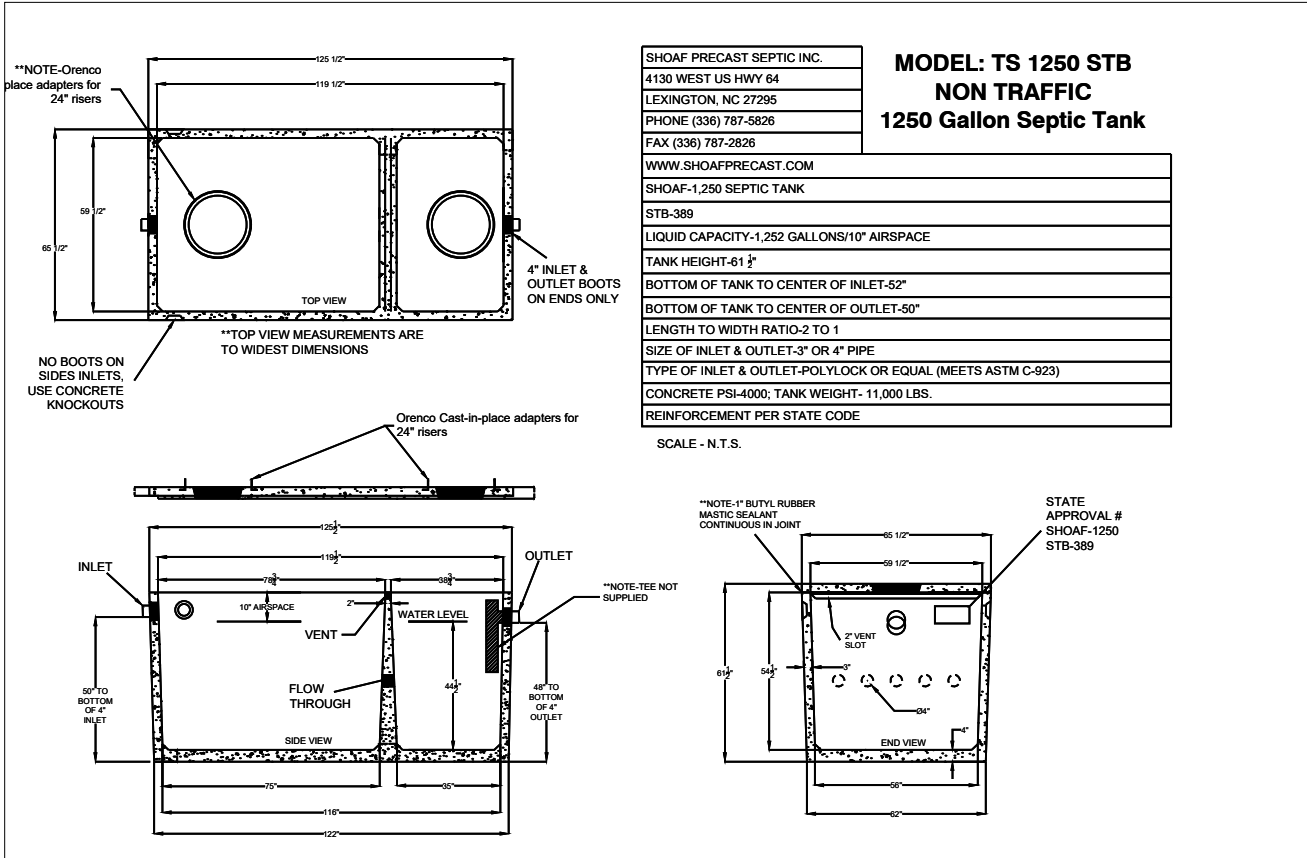


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SHEET TITLE
Repair Drainfield

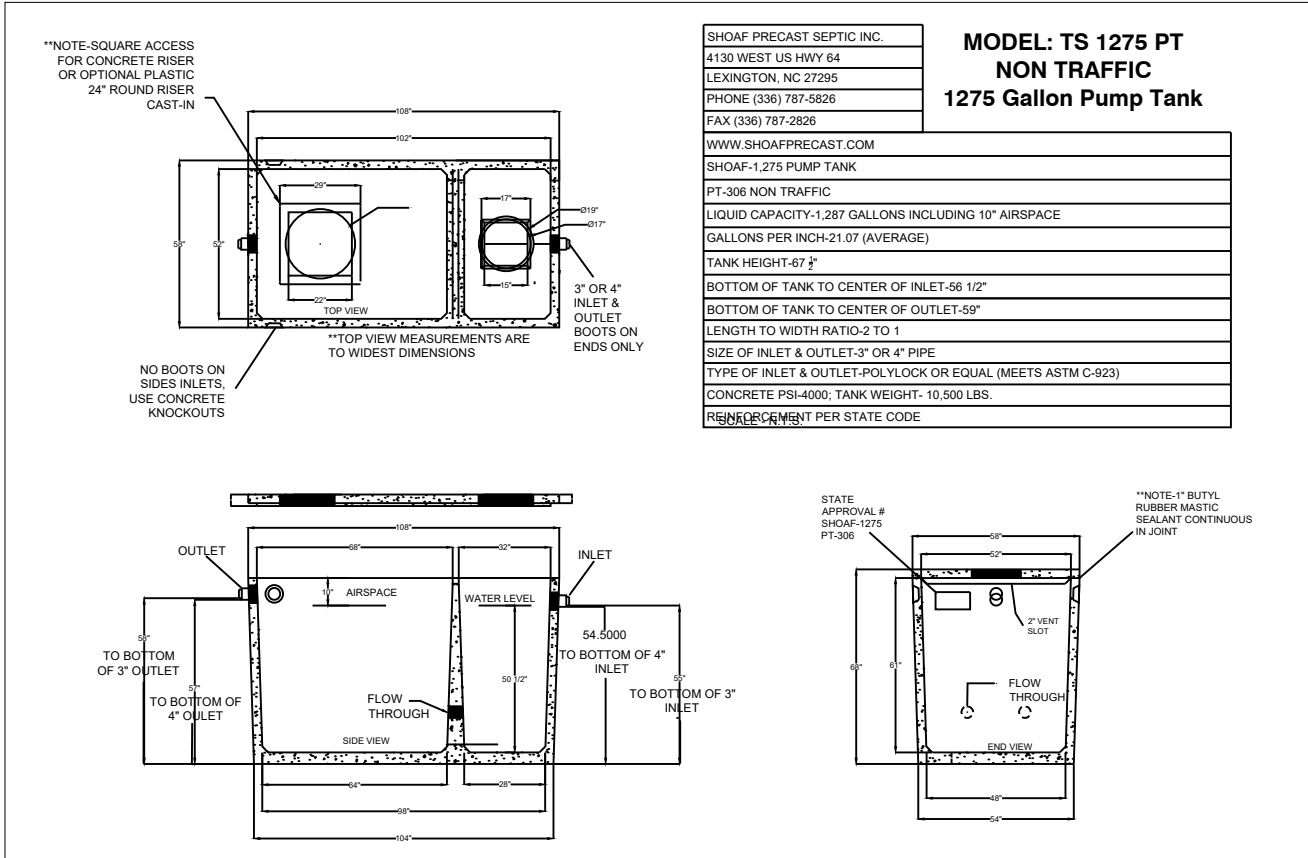
DRAWN BY: T. Bostic	CREATED ON: 1/18/2025
REVISED BY: ####	REVISED ON: ####
RELEASED BY: ####	RELEASED ON: ####

DRAWING NUMBER
WW-4



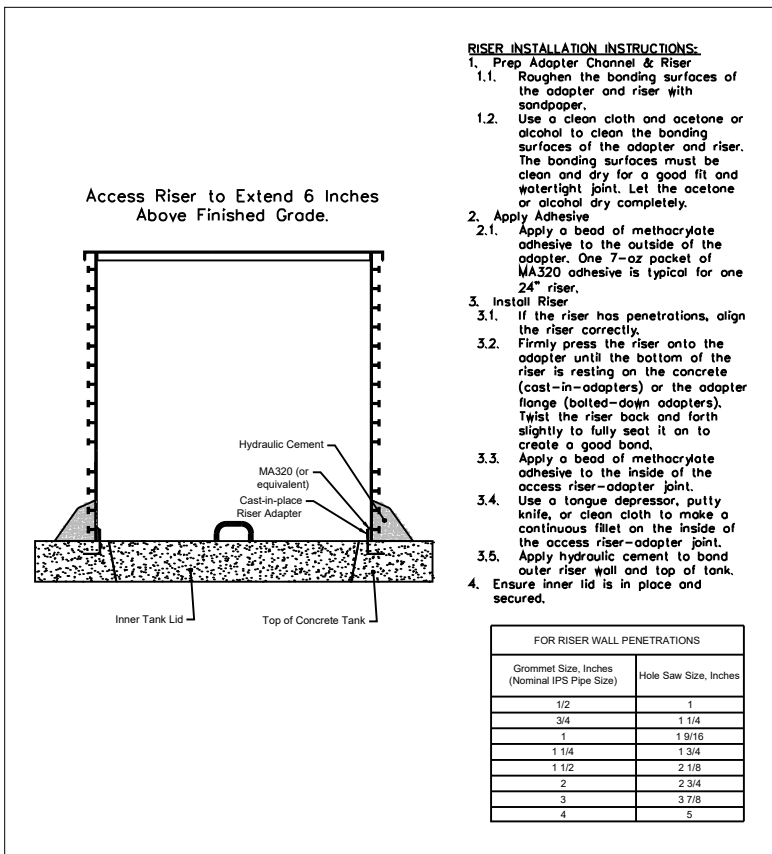
1 Septic Tank

SOURCE: Shoaf Precast Septic, Inc.



2 Pump Tank (or equiv. tank with 1-day storage)

SOURCE: Shoaf Precast Septic, Inc.



3 Riser Installation

NOTES

1. Installation to follow all NC DHHS and Harnett County applicable rules and regulations.
2. AWT to perform construction inspections and final system certification.
3. Septic Tank to have approved effluent filter.
4. Contractor to abide by all safety regulations during system installation.
5. Contractor shall backfill around all access areas such that storm water is shed away from potential entry points.
6. Invert elevations of all components to be verified in field by contractor to insure proper operation.
7. All system piping to be SCH40 PVC (except where noted).
8. All gravity elbows to be long radius or long sweeping type elbows.
9. Actual installation and placement of treatment system to be overseen by Contractor.
10. Tanks to be set on 6\" minimum gravel base. Use #5 or #57 stone for base.

11. Contractor to seed and/or mulch disturbed areas to coincide with existing landscape. Area shall not be left with uncovered soil.
12. Mount Control Panel a minimum of 24\" above grade.
13. Power to panel to be installed by licensed electrician per code. One 15-amp circuit and one 20-amp circuit with individual neutrals to be run from house to control panel.
14. All risers to have cast-in-place tank adapters and be single-piece riser. Risers to extend 6\" above soil surface and be designed to prevent surface water inflow.
15. Backfill around tank(s) shall be gravel or tank hole shall be over-excavated a minimum of 2' in all directions to allow for mechanical tamping of backfill.
16. All penetrations to be sealed.
17. All pressure lines to maintain 18\" min. cover.
18. Contractor to adjust tank placement to meet site constraints.



Engineers and Soil Scientists

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RiverWILD Homes
Stewart Farms Lot 1

Project Location:
3999 Baileys XRDS Rd
Benson, NC 27504
Harnett County
PIN: 1610-58-7692

Project Owner:
RiverWILD Homes
114 W Main St
Clayton, NC 27520
919-766-8782
brittany@staywild.com

NC ONSITE WASTEWATER
EVALUATOR SEAL



REV. ISSUED DATE DESCRIPTION

SHEET TITLE

Detail Sheet 1

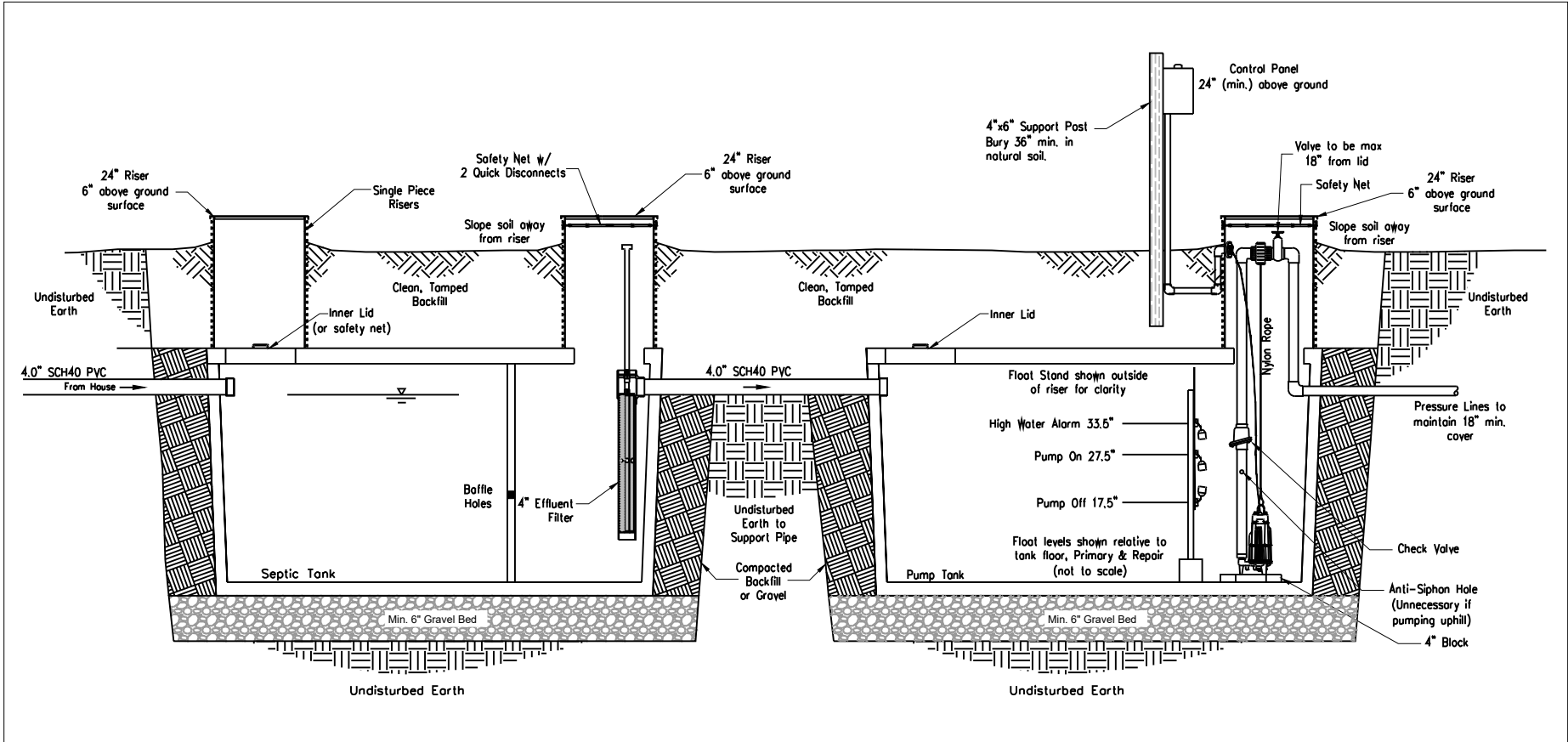
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CREATED ON: 1/18/2025

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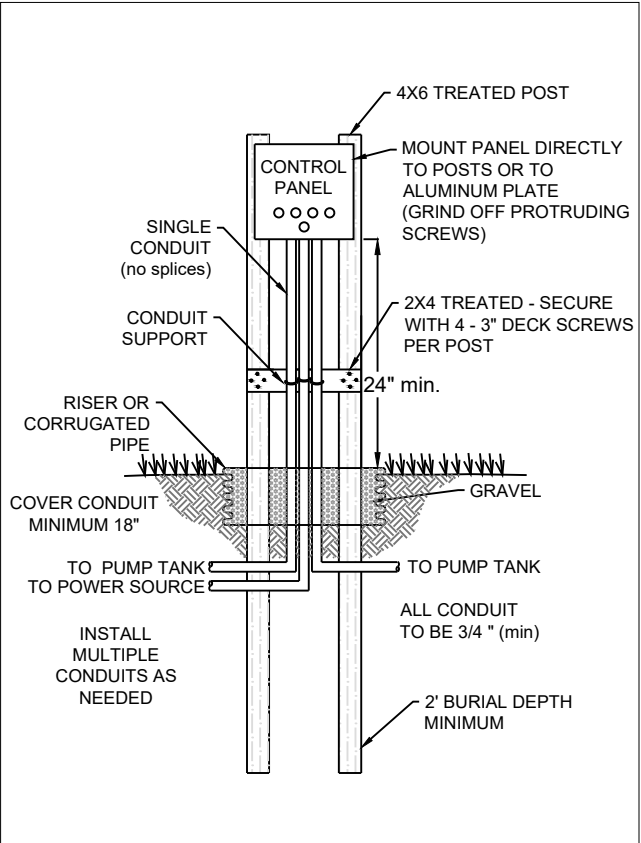
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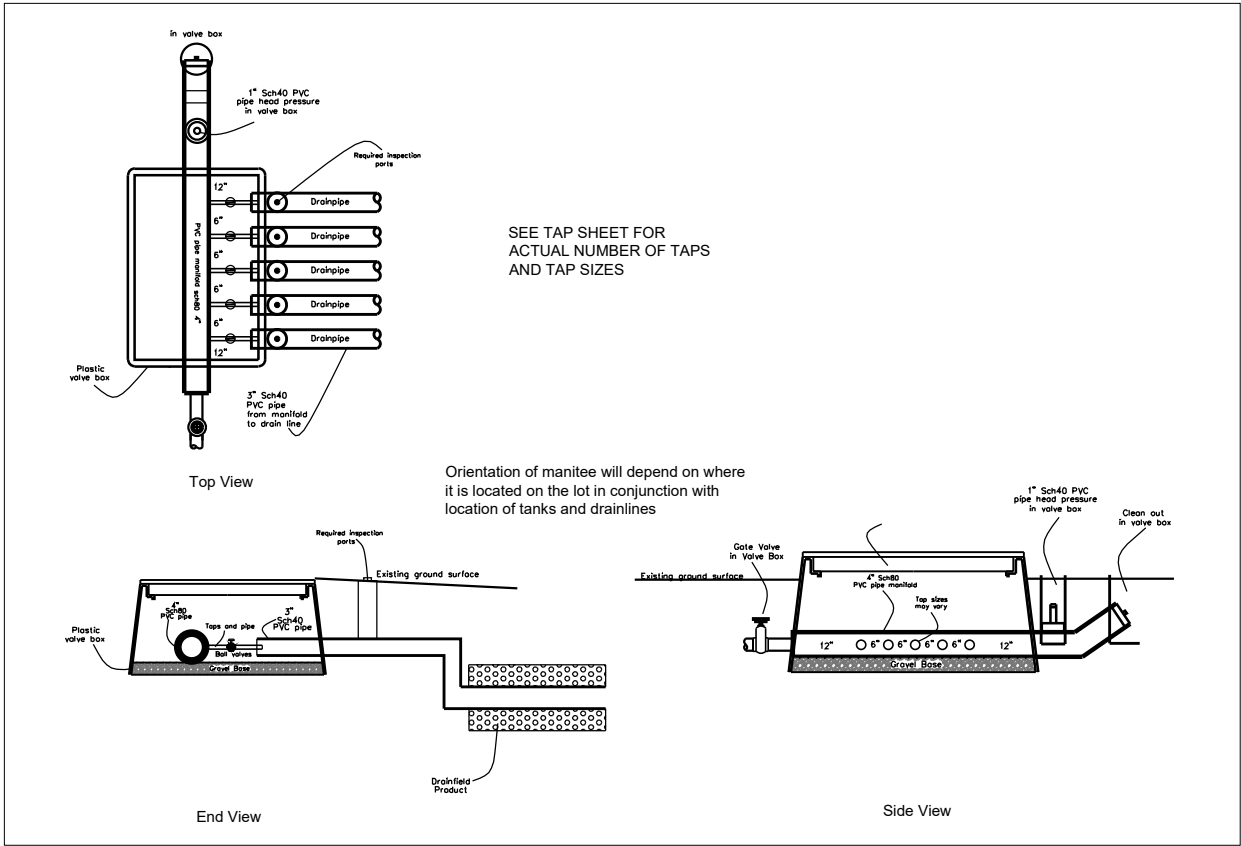
WW-5



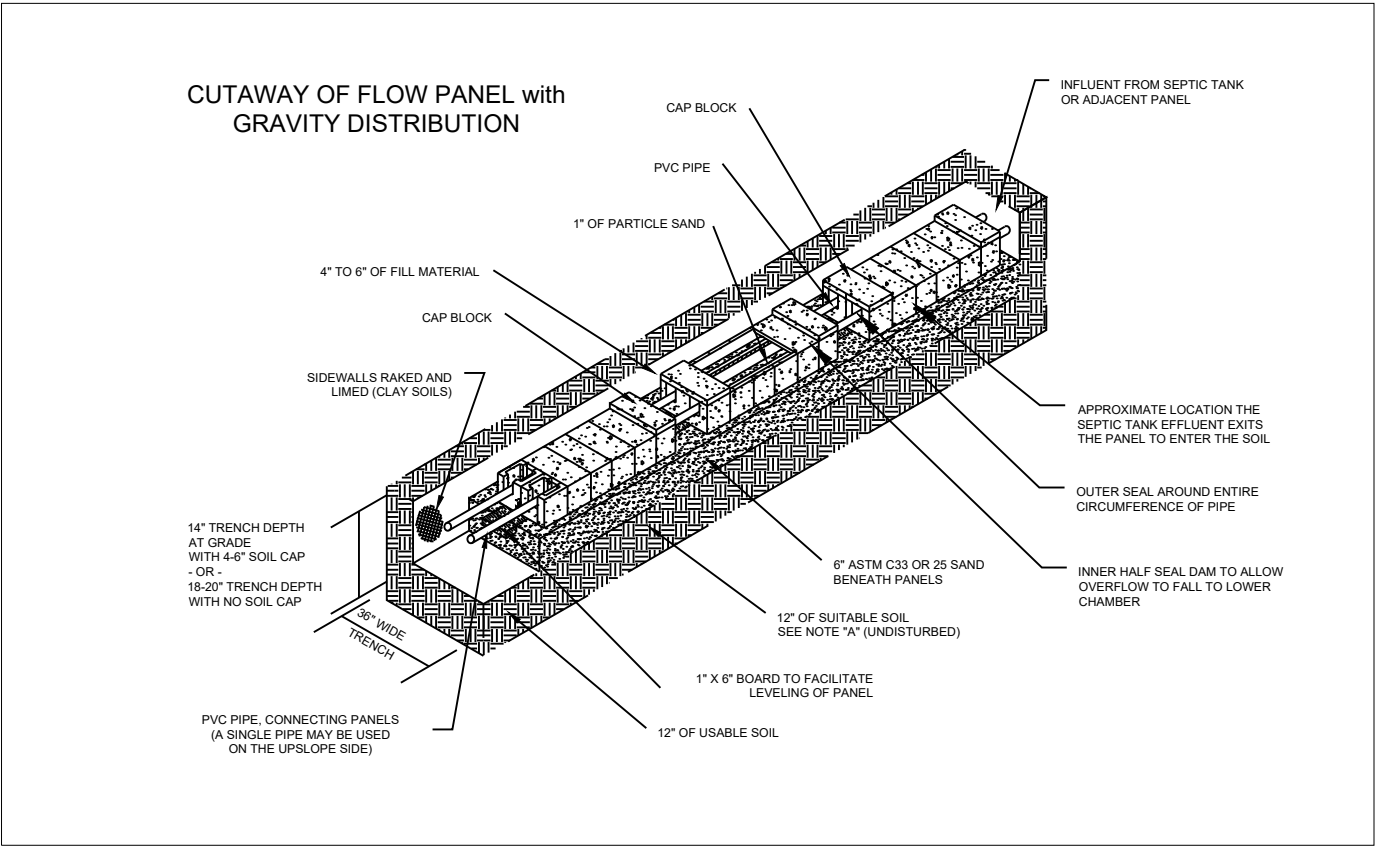
1 SYSTEM PROFILE VIEW
 WW-6 N.T.S.



6 CONTROL PANEL SUPPORT
 WW-6 N.T.S. SOURCE: AWT



4 PRESSURE MANIFOLD INSTALLATION (Manatee) - For Illustration Only
 WW-6 N.T.S. SOURCE: AWT



2 TRENCH X-SECTION (Typical)
 WW-6 N.T.S. Source: AWT



REV.	ISSUED DATE	DESCRIPTION
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SHEET TITLE
 Detail Sheet 2

DRAWN BY: T. Bostic	CREATED ON: 1/18/2025
REVISED BY: ####	REVISED ON: ####
RELEASED BY: ####	RELEASED ON: ####

DRAWING NUMBER
WW-6

Septic System Design - Summary Page



Agri-Waste Technology, Inc.
501 N Salem Street, Suite 203, Apex, NC 27502
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Project Manager:

Trent Bostic, AOWE
tbostic@agriwaste.com
919-367-6322

Designer:

Trent Bostic, AOWE
tbostic@agriwaste.com

Project: Stewart Farms
Property: 3999 Baileys XRDS Rd
Benson, NC 27504

Subdiv.: Stewart Farms
Lot #: 1

Owner: RiverWILD Homes
Address: 114 W Main St
Clayton, NC 27520

Phone: 919-373-6048

Email: kelley@staywild.com

EHS:

Date: 4/24/2025

County: Harnett

Permit #:

Type of System: III b

PIN: 1610-58-7692

Soil Parameters

Soil Evaluation By:

Special Conditions/Notes:

LTAR: 0.40 gpd/ft²

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: 1,250 gal

Tank Manufacturer: Shoaf

Tank Model: TS 1250 STB

	Exterior	Interior
Length:	125.5	119.5 in.
Width:	65.5	59.5 in.
Depth:	62.0	54.5 in.

Primary Drainfield Specifications

Type of Distribution: Parallel Distribution Box

Trench Media: PPBPS, Horizontal

Trench Width: 3 ft

Trench Depth: 24 in.

(or as specified on permit)

Trench Bottom Area: 1200 ft²

Minimum Drain Line: 200 ft

Actual Drain Line: 208 ft

Number of Lines: 4

Minimum Line Spacing: 8 ft O.C.

Wastewater Treatment System Design Calculations

Project: Stewart Farms
Location: 3999 Baileys XRDS Rd
Benson, NC 27504
County: Harnett

Septic Tank Sizing

Daily Flow Estimate:

Unit	# of Units	Flow/Unit	Flow/Day
Bedroom	4	120	480

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 1250 STB
Volume: 1,250 gal
Weight: 11,000 lbs

	Exterior	Interior	
Length:	125.5	119.5	in.
Width:	65.5	59.5	in.
Depth:	62.0	54.5	in.

Shape of Risers: Circular

Diameter: 2.00 ft

Pump Tank Storage & Float Settings

Project: Stewart Farms
Location: 3999 Baileys XRDS Rd
Benson, NC 27504
County: Harnett

Tank Manufacturer Shoaf
Tank Model TS 1275 PT

Interior Height (in.)	60.5 in.
Avg. Storage	21.07 gal/in.

Primary System

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

Top of pump (including 4" block)	15.7 in.	(Pump height = 11 11/16")
Pump Off	17.5 in.	
Pump On	27.5 in.	(set for dose volume)
Alarm On	33.5 in.	(6 in. above On Float)

Emergency Storage Available

Pump Tank 569 gal

Days of Storage 1.19 days

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

Repair System

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

Top of pump (including 4" block)	15.7 in.	(Pump height = 11 11/16")
Pump Off	17.5 in.	
Pump On	27.5 in.	(set for dose volume)
Alarm On	33.5 in.	(6 in. above On Float)

Emergency Storage Available

Pump Tank 569 gal

Days of Storage 1.19 days

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

ELEVATIONS

Project: Stewart Farms

Location: 3999 Baileys XRDS Rd
Benson, NC 27504

County: Harnett

Benchmark 0
BM Elev 0 ft

Septic Tank 1,250 gal

Ground Surface		303.00 ft
Depth of Soil Cover	14 in.	1.17 ft
Overall Ht of Tank	61.5 in.	5.13 ft
Elev, Base of Tank		296.71 ft
Ht to 4" Inlet Invert	50 in.	4.17 ft
Elev, 4" Inlet Invert		300.88 ft
Ht to 4" Outlet Invert	48 in.	4.00 ft
Elev, 4" Outlet Invert		300.71 ft
Gravel Base	6 in.	0.50 ft
Elev, Bot of Excavation		296.21 ft

Pump Tank 1275 gal

Ground Surface		303.00 ft
Depth of Soil Cover	16 in.	1.33 ft
Overall Ht of Tank	67.5 in.	5.63 ft
Elev, Base of Tank		296.04 ft
Ht to 4" Inlet Invert	55 in.	4.58 ft
Elev, 4" Inlet Invert		300.63 ft
Ht to 2" Outlet Invert	57 in.	4.75 ft
Elev, 2" Outlet Invert		300.79 ft
Gravel Base	6 in.	0.50 ft
Elev, Bot of Excavation		295.54 ft

ST Inlet Pipe

Grade @ Stub-out		303 ft
Depth of Stub-out, top		1.5 ft
Elev, Stub-out Invert		301.15 ft
Elev @ ST Inlet Invert		300.88 ft
Length		10 ft
Slope		2.7 %

Pipe, ST to PT

ID	4 in.	0.33 ft
OD	4.5 in.	0.38 ft
Elev, ST Outlet Invert		300.71 ft
Elev, PT Inlet Invert		300.63 ft
Length		5 ft
Slope		1.7 %
Cover over inlet pipe		1.77 ft

Pump Reqmt.

Floor Thickness	4 in.	0.33 ft
Elev, Pump Tank Floor		296.38 ft
Pump Block Ht.	4 in.	0.33 ft
Elev, Pump Intake		296.71 ft

Grade @ Primary D-box		305.00 ft
Grade @ Repair Manifold		305.00 ft
Min. Cover	18 in.	1.50 ft
Max Elev, Primary		303.50 ft
Max Elev, Repair		303.50 ft
Elev Diff, Primary		6.79 ft
Elev Diff, Repair		6.79 ft

Drainfield Design

Project Stewart Farms
Location 3999 Baileys XRDS Rd
Benson, NC 27504
County Harnett

Drainfield Sizing

Primary			
LTAR	0.4 gpd/ft ²		
Daily Design Flow	480 gpd	Type of Drainfield Media	PPBPS, Horizontal
Req. Drainfield Area	1,200 ft ²	Required Drainline	
Trench Width, Eff.	3 ft	After 50% Reduction	200 ft
Required Drainline	400 ft	Minimum Line Spacing	8 ft (O.C.)

Repair			
LTAR	0.4 gpd/ft ²		
Daily Design Flow	480 gpd	Type of Drainfield Media	PPBPS, Horizontal
Req. Drainfield Area	1,200 ft ²	Required Drainline	
Trench Width, Eff.	3 ft	After 50% Reduction	200 ft
Required Drainline	400 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	red		100	52.0	
2	Layout Line	white		100	52.0	
3	Layout Line	blue		100	52.0	
4	Layout Line	yellow		100	52.0	
5	Layout Line	purple		100		52.0
6	Layout Line	red		100		52.0
7	Layout Line	white		100		52.0
8	Layout Line	blue		100		52.0
9	Layout Line					
10	Layout Line					
11	Layout Line					
12	Layout Line					
13	Layout Line					
14	Layout Line					
15	Layout Line					
16	Layout Line					
17	Layout Line					
18	Layout Line					
19	Layout Line					
20	Layout Line					
Total				800	208	208
Count				8	4	4

Note: Line length totals are shown to the nearest foot.

PRESSURE MANIFOLD DESIGN (Primary)

Site Information

Project: Stewart Farms
Location: 3999 Baileys XRDS Rd
 Benson, NC 27504
County: Harnett

Design Information

Estimated Daily Flow	480 gal/day
L.T.A.R. (from Harnett Co.)	0.4 gal/day/ft ²
L.T.A.R. + 5%	0.420 gal/day/ft ²
Trench Width	3 ft.
Line Length Required	400 ft.
Length after 50% Reduction	200 ft
L.T.A.R. Reduced	0.800 gal/day/ft ²
L.T.A.R. Reduced + 5%	0.840 gal/day/ft ²

DRAINFIELD INFO. - Primary						
Proposed Type of System/Distribution: Pump to Pressure Manifold using PPBPS, Horizontal						
Line No.	Flag Color	Line Length (ft)	Tap	Flow (gpm)	Flow/Foot (gpm/ft)	Line L.T.A.R.
1	red	52	1/2in SCH 80	5.48	0.105	0.769
2	white	52	1/2in SCH 80	5.48	0.105	0.769
3	blue	52	1/2in SCH 80	5.48	0.105	0.769
4	yellow	52	1/2in SCH 80	5.48	0.105	0.769
Total		208	Total	21.92	Avg.	0.77
<i>Note: Line lengths are calculated in 4'4" increments to reflect use of PPBPS product.</i>						
Total Run Time	21.90 min.					
Drainfield Capacity	345.6 gal					
% of Drainfield Cap	61.0% (Max. 104.0% to not exceed 7.2 gal/panel)					
Dose Volume	210.6 gal/dose					
Run Time/Dose	9.6 minutes Time to deliver max. 7.2 gal/panel					
Volume/depth	21.07 gal/in. (Per tank manufacturer's specifications)					
Estimated Drawdown	10.00 in.					
Manifold Box						
Number of Taps	4	with	0	Split(s)		
Manifold Length	3.5	ft.	(approximate)			

PRESSURE MANIFOLD SYSTEM DESIGN (Repair)

Site Information

Project: Stewart Farms
Location: 3999 Baileys XRDS Rd
 Benson, NC 27504
County: Harnett

Design Information

Estimated Daily Flow	480 gal/day
L.T.A.R. (from Harnett Co.)	0.4 gal/day/ft ²
L.T.A.R. + 5%	0.420 gal/day/ft ²
Trench Width	3 ft.
Line Length Required	400 ft.
Length after 50% Reduction	200 ft
L.T.A.R. Reduced	0.800 gal/day/ft ²
L.T.A.R. Reduced + 5%	0.840 gal/day/ft ²

DRAINFIELD INFO. - Repair						
Proposed Type of System/Distribution: Pump to Pressure Manifold using PPBPS, Horizontal						
Line No.	Flag Color	Line Length (ft.)		Flow (gpm)	Flow/Foot (gpm/ft)	Line L.T.A.R.
5	purple	52	1/2in SCH 80	5.48	0.105	0.769
6	red	52	1/2in SCH 80	5.48	0.105	0.769
7	white	52	1/2in SCH 80	5.48	0.105	0.769
8	blue	52	1/2in SCH 80	5.48	0.105	0.769
Total		208	Total	21.92	Avg.	0.77
Note: Line lengths are calculated in 4'4" increments to reflect use of PPBPS product.						

Total Run Time	21.90 min.	
Drainfield Capacity	345.6 gal	
% of Drainfield Cap	61.0%	(Max. 104.0% to not exceed 7.2 gal/panel)
Dose Volume	210.6 gal/dose	
Run Time/Dose	9.6 minutes	Time to deliver max. 7.2 gal/panel
Volume/depth	21.07 gal/in.	(Per tank manufacturer's specifications)
Estimated Drawdown	10.00 in.	

Manifold Box			
Number of Taps	4	with	0 Split(s)
Manifold Length	3.5	ft.	(approximate)

PUMP DESIGN

System (initial/repair): **Primary**

Project: Stewart Farms
Location: 3999 Baileys XRDS Rd
Benson, NC 27504
County: Harnett

Friction Losses

Suction Head	0 ft	(submersible 0)
Elev. Difference (highest point from pump)	6.79 ft	
Design Pressure At Outlet	2 ft	

Supply Line - 1.5" Schedule 40 PVC

Pipe Diameter, Nominal	1.5 in.	
Pipe Diameter (ID)	1.59 in.	
Pipe Length	200 ft	
Pipe Length for Fittings	20 ft	
Equivalent Length	220 ft	
Estimated Friction Loss in Supply Line	6.87 ft	
Friction Loss - Taps/Special Fittings	3.5 ft	

Flow 21.92 gpm
Velocity 3.54 ft/sec
Meets requirement that $2 \text{ ft/s} < v < 5 \text{ ft/s}$.

TOTAL 19.16 ft.

Flow for Anti-Siphon Hole

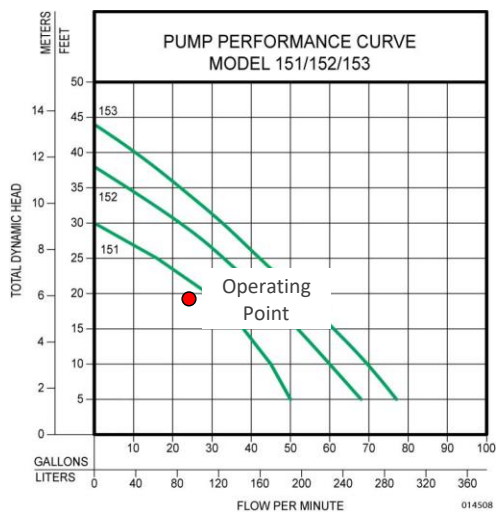
Hole Diameter 3/16 in.
Hole Flowrate 1.81 gpm

Pump Efficiency 0.7 (assumed, typical)
Motor Efficiency 0.9 (assumed for electric pumps)
Flow 23.73 gpm

Required Horsepower 0.18 hp
TDH 19.16 ft

Pump Selection

Manufacturer:	Zoeller
Model:	N151
Horsepower:	0.33



PUMP DESIGN

System (initial/repair): **Repair**

Project: Stewart Farms
Location: 3999 Baileys XRDS Rd
Benson, NC 27504
County: Harnett

Friction Losses

Suction Head	0	ft	(submersible 0)
Elev. Difference (highest point from pump)	6.79	ft	
Design Pressure At Outlet	2	ft	

Supply Line - 1.5" Schedule 40 PVC

Pipe Diameter, Nominal	1.5	in.	
Pipe Diameter (ID)	1.59	in.	
Pipe Length	100	ft	
Pipe Length for Fittings	10	ft	
Equivalent Length	110	ft	
Estimated Friction Loss in Supply Line	3.44	ft	
Friction Loss - Taps/Special Fittings	3.5	ft	

TOTAL 15.73 ft.

Flow for Anti-Siphon Hole

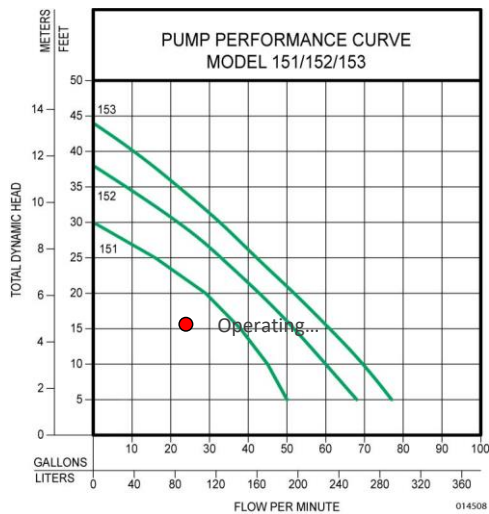
Hole Diameter 3/16 in.
Hole Flowrate 1.64 gpm

Pump Efficiency 0.7 (assumed, typical)
Motor Efficiency 0.9 (assumed for electric pumps)
Flow 23.56 gpm

Required Horsepower 0.15 hp
TDH 15.73 ft.

Pump Selection

Manufacturer:	Zoeller
Model:	N151
Horsepower:	0.33



Septic Tank Buoyancy Calculation

Project: Stewart Farms
Location: 3999 Baileys XRDS Rd
 Benson, NC 27504
County: Harnett

Tank Size (nominal) 1250 gal

Properties/Assumptions:

Min. liquid level to be maintained in tank at all times after initial installation.

Min. depth to water table	12.0 in.	from ground surface
Effluent Density	62.4 lb/ft ³	(Specific Weight of Water)
Concrete Density	142.6 lb/ft ³	
Soil App. Sp. Grav.	1.3	(typical value)
Soil Cover Over Tank	12 in.	(minimum)
Additional Cover	2 in.	for pipe grade
Unsubmerged wt of soil	81.1 lb/ft ³	
Submerged wt of soil	49.9 lb/ft ³	50% Porosity Assumed

Tank Dimensions (from supplier):

		<u>Exterior</u>		<u>Interior</u>	
		Top	Bottom	Top	Bottom
Tank	Length	125.5	122.0	119.5	116.0 in.
	Width	65.5	62.0	59.5	56.0 in.
	Height	58.5	(w/o lid)	54.5	in.
Lid	Length	125.5 in.			
	Width	65.5 in.			
	Height	3.0 in.			
Area of Riser Openings		6.28 ft ²			
Permanent Liquid Depth in Tank		0.0 in.		0.00 ft	
Tank Weight		11,000 lb		(per manufacturer)	

Buoyancy Force Calculation:

Buoyancy Force Specific Weight of Water x Displaced Volume

Displaced Volume	282.4 ft ³ *
Buoyancy Force	17,624 lb.

Weight Calculation:

Tank Weight	11000 lb		
Water Weight in Tank	0 lb	Volume	0.0 ft ³ *
Soil Weight Over Tank	4544 lb		
Soil Friction Force	4037 lb		
Total Weight	19,581 lb		

Factor of Safety = 1.11

Note: Total weight must be greater than buoyancy force so that tank will not float during high water table conditions.

* Volume calculated by the prismoidal formula.

Pump Tank Buoyancy Calculation

Project: Stewart Farms
Location: 3999 Baileys XRDS Rd
 Benson, NC 27504
County: Harnett

Tank Size (nominal) 1275 gal

Properties/Assumptions:

Min. liquid level to be maintained in tank at all times after initial installation.

Min. depth to water table	12 in.	from ground surface
Effluent Density	62.4 lb/ft ³	(Specific Weight of Water)
Concrete Density	142.6 lb/ft ³	
Soil App. Sp. Grav.	1.3	(typical value)
Soil Cover Over Tank	12 in.	(minimum)
Additional Cover	4 in.	for pipe grade
Unsubmerged wt of soil	81.1 lb/ft ³	
Submerged wt of soil	49.9 lb/ft ³	50% porosity assumed

Tank Dimensions (from supplier):

		<u>Exterior</u>		<u>Interior</u>	
		Top	Bottom	Top	Bottom
Tank	Length	108.0	104.0	102.0	98.0 in.
	Width	58.0	54.0	52.0	48.0 in.
	Height	64.5	(w/o lid)	60.5	in.
Lid	Length	108.0 in.			
	Width	58.0 in.			
	Height	3.0 in.			
Area of Riser Openings		3.14 ft ²			
Permanent Liquid Depth in Tank		0.0 in.			0.00 ft
Tank Weight		10500 lb		(per manufacturer)	

Buoyancy Force Calculation:

Buoyancy Force Specific Weight of Water x Displaced Volume

Displaced Volume	233.5 ft ³ *
Buoyancy Force	14,573 lb

Weight Calculation:

Tank Weight	10500 lb		
Water Weight in Tank	0 lb	Volume	0.0 ft ³ *
Soil Weight Over Tank	3945 lb		
Soil Friction Force	4227 lb		
Total Weight	18,672 lb		

Factor of Safety = 1.28

Note: Total weight must be greater than buoyancy force
 so that tank will not float during high water table conditions.

* Volume calculated by the prismatic formula.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

1/20/2025

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

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

PRODUCER Hartsfield & Nash Agency, Inc. 10405 Ligon Mill Rd., Ste H Wake Forest NC 27587	CONTACT NAME: Connie Garkalns PHONE (A/C, No, Ext): 984-235-4273 FAX (A/C, No): 919-556-8758 E-MAIL ADDRESS: connie@hartsfield-nash.com
INSURED Agri-Waste Technology Inc 501 N. Salem St Ste 203 Apex NC 27502	INSURER(S) AFFORDING COVERAGE NAIC # INSURER A: Selective Insurance Company of 39926 INSURER B: Accident Fund 10166 INSURER C: Evanston Insurance Company 35378 INSURER D: INSURER E: INSURER F:

License#: 1000009111
AGRITEC-01**COVERAGES****CERTIFICATE NUMBER:** 1304989694**REVISION NUMBER:**

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			S 2253659	1/18/2025	1/18/2026	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$300,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$2,000,000 GENERAL AGGREGATE \$4,000,000 PRODUCTS - COMP/OP AGG \$4,000,000 \$
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			S 2253659	1/18/2025	1/18/2026	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$			S 2253659	1/18/2025	1/18/2026	EACH OCCURRENCE \$2,000,000 AGGREGATE \$2,000,000 \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	100003072	1/18/2025	1/18/2026	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
C	Prof & Pollution Liability Leased & Rented			MKLV3ENV104794 S 2253659	8/22/2024 1/18/2025	8/22/2025 1/18/2026	Each Claim 5,000,000 Equipment 25,000

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

CERTIFICATE HOLDER**CANCELLATION**Artisan Custom Homes
21016 Catawba Avenue
Cornelius NC 28031
USA

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

AUTHORIZED REPRESENTATIVE

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