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: Mattamy Homes, LLC
Mailing address: 11000 Regency Parkway, Suite 110 City: Cary State: NC Zip: 27518
Phone: 919-625-9546 Email: drew.brody@mattamycorp.com

Authorized Onsite Wastewater Evaluator Information:
Name: Hal Owen Certification #: 10036E
Mailing address: PO Box 400 City: Lillington State: NC Zip: 27546
Phone: 910-893-8743 Email: hal@halowensoil.com

Site Location Information:
Site address: _____
Tax parcel identification number or subdivision lot, block number of property: _____
Lot 13 Ph 1, Riverfall SD PIN 0682-28-1719.000 County: Harnett

System Information:
Wastewater System Type: IIIbg (Pump to Accepted Status 25% reduction)
Daily Design Flow: 480 gpd
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 25 day of January 2024 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 25 day of January, 2025.

Signature of Authorized Onsite Wastewater Evaluator: Hal Owen

Signature of Owner or Legal Representative: Drew Brody

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 Acknowledgement:
Signature of Local Health Department Representative: _____ Date: _____

HALOWE1 OP ID: SGW

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 12/05/2023

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 910-893-5707 INSURANCE SERVICE CTR -LILLING LILLINGTON BRANCH OFFICE PO Box 1565 LILLINGTON, NC 27546 DANIEL L. BABB	CONTACT NAME: SHARON WOODY PHONE (A/C, No, Ext): 910-893-5707 FAX (A/C, No): 910-893-2077 E-MAIL ADDRESS: SWOODY@ISCFAY.COM
	INSURER(S) AFFORDING COVERAGE — NAIC #
	INSURER A : STARSTONE NATIONAL
INSURED HAL OWEN & ASSOCIATES, INC. PO BOX 400 LILLINGTON, NC 27546	INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	CLAIMS-MADE OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	PROFESSIONAL LIAB.			42ESP00143901	01/27/2023	01/27/2024	PER OCC.	1,000,000
							AGGREGATE	2,000,000

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

CERTIFICATE HOLDER

MATTAMY HOMES, LLC
11000 REGENCY PRKWY, STE. 110
CARY, NC 27518

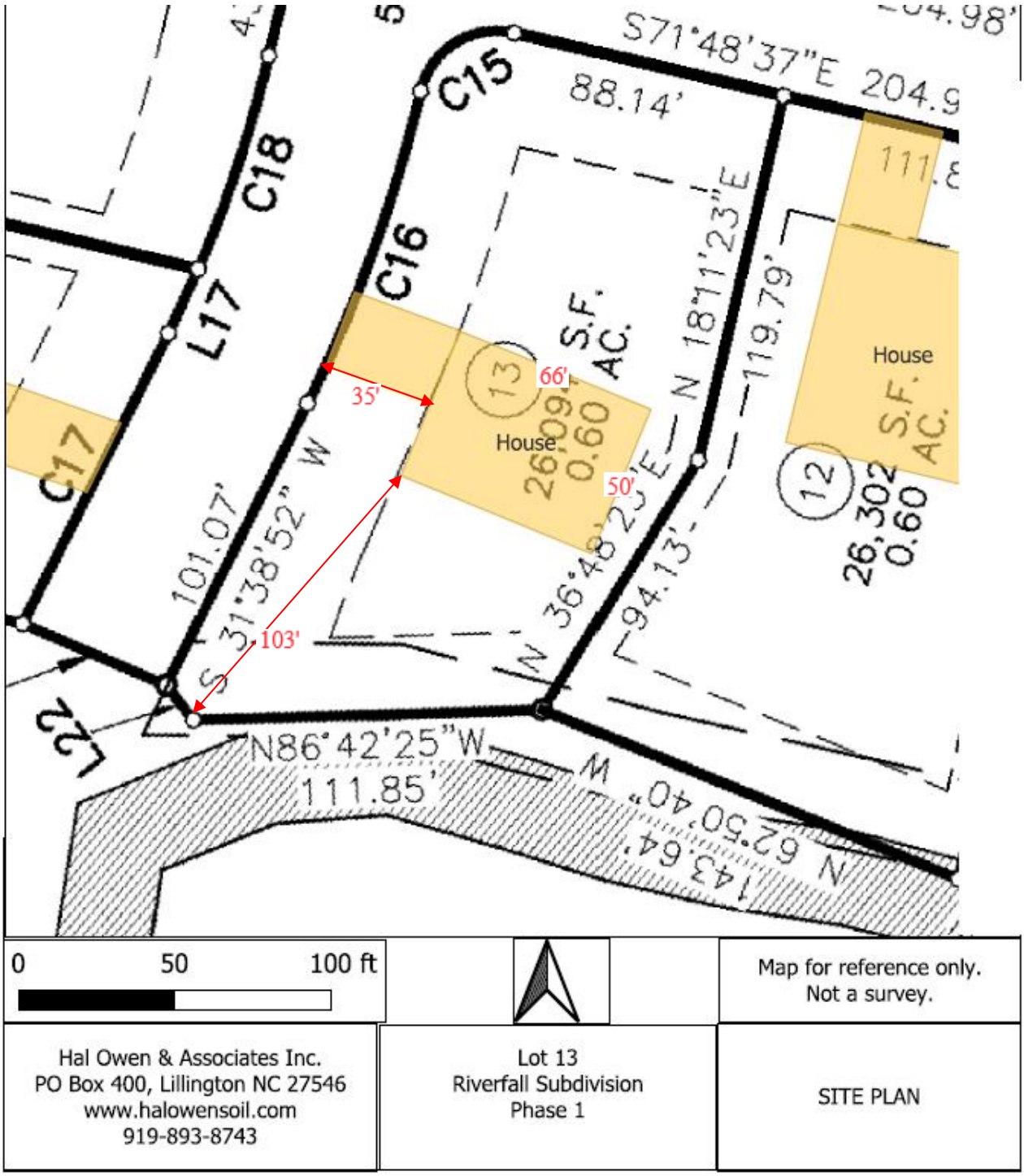
CANCELLATION

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

AUTHORIZED REPRESENTATIVE

Sharon H. Woody

Site Plan-Lot 13



HAL OWEN & ASSOCIATES, INC.

SOIL & ENVIRONMENTAL SCIENTISTS
P.O. Box 400, Lillington NC 27546-0400
Phone (910) 893-8743 / Fax (910) 893-3594
www.halowensoil.com

1 February 2024

Mattamy Homes, LLC
11000 Regency Parkway, Suite 110
Cary, NC 27518

Reference: AOWE Evaluation
Lot 13 Ph 1, Riverfall SD
PIN 0682-28-1719.000

Dear Mattamy Homes LLC,

A soil and site evaluation has been conducted for the above referenced property for the purpose of permitting a subsurface sewage waste disposal system. **This LSS Evaluation is being submitted pursuant to and meets the requirements of G.S.130A-336.2.** This evaluation of soil conditions and site features is provided in accordance with G.S. 130A-335(e), the Rules for "Wastewater Treatment and Dispersal Systems-15A NCAC 18E", and local septic regulations (if any). This report represents my professional opinion as a Licensed Soil Scientist and Authorized Onsite Wastewater Evaluator.

This report shall be used to file a Notice of Intent to Construction a wastewater system with the Local Health Department within one year of the date of this evaluation. Failure to file an NOI before then shall result in the AOWE Evaluation to become void.

Sincerely,

Hal Owen
Senior Licensed Soil Scientist
Authorized Onsite Wastewater Evaluator

CONTENTS

SPECIAL TERMS AND CONDITIONS

This evaluation includes a signed and sealed soil and site evaluation, specifications, plans, and reports for the site layout and construction of a proposed onsite wastewater system by an Authorized On-Site Wastewater Evaluator (AOWE) in accordance with G.S. § 130A-336.2. This evaluation was prepared based on information provided by the owner of the proposed system; to include the basis for design flow, proposed structure location(s), and property boundaries. Any false, inaccurate, or incomplete information provided by the owner may result in denial or revocation of applications, approvals, or permits.

This evaluation is not a permit to develop. The owner and subcontractors will need to abide by all state and local rules and regulations pertaining to planning, zoning, and land use development.

Notice of Intent to Construct – The proposed wastewater system is not "permitted" until the owner files an application with the Local Health Department (LHD) and provides a complete Notice of Intent (NOI) to Construct a wastewater system using an AOWE. The owner may apply for a building permit for the project upon submitting a complete NOI and the required fee.

On-Site Wastewater System Contractor – The AOWE shall assist the owner in the selection of an on-site wastewater system contractor who shall be under contractual obligation to the owner and have sufficient errors and omissions, liability, or other insurance for the system constructed.

Inspections, Construction Observations, and Reports – The AOWE shall make periodic visits to the site to observe the progress and quality of the construction. Upon determining that the system is properly installed and capable of being operated in accordance with the conditions of the permit, the AOWE will issue an Authorization to Operate (ATO) and include an inspection report and a written operation and management program. The owner shall provide a complete ATO package and fee to the LHD, who will issue the certificate of occupancy for the facility.

Operation and Management – The owner shall be responsible for continued adherence to the operations and management program established by the AOWE. This permit shall in no way be taken as a guarantee or implied warranty that the septic system will function satisfactorily for any given period of time.

Change in System Ownership. – An authorized wastewater system shall be transferrable to a new owner with the consent of the AOWE. The new owner and the AOWE shall enter a contract for the wastewater system.

Revocation – The AOWE permit is subject to revocation if the site plan, plat, or the intended use changes. This permit is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to the conditions of this permit.

Repair of Malfunctioning Systems. – The owner may apply for an Improvement Permit and a Construction Authorization from the LHD or obtain a NOI from an AOWE to repair a malfunctioning wastewater system.

PROPOSED USE

A new single-family residence will be built at the site. The home will not have a basement. The proposed single-family residence will contain four bedrooms and have a design wastewater flow of 480 gallons per day. The maximum occupancy of the home is 8 people.

WATER SUPPLY

Public water supplies will be utilized.

EXISTING SITE CONDITIONS

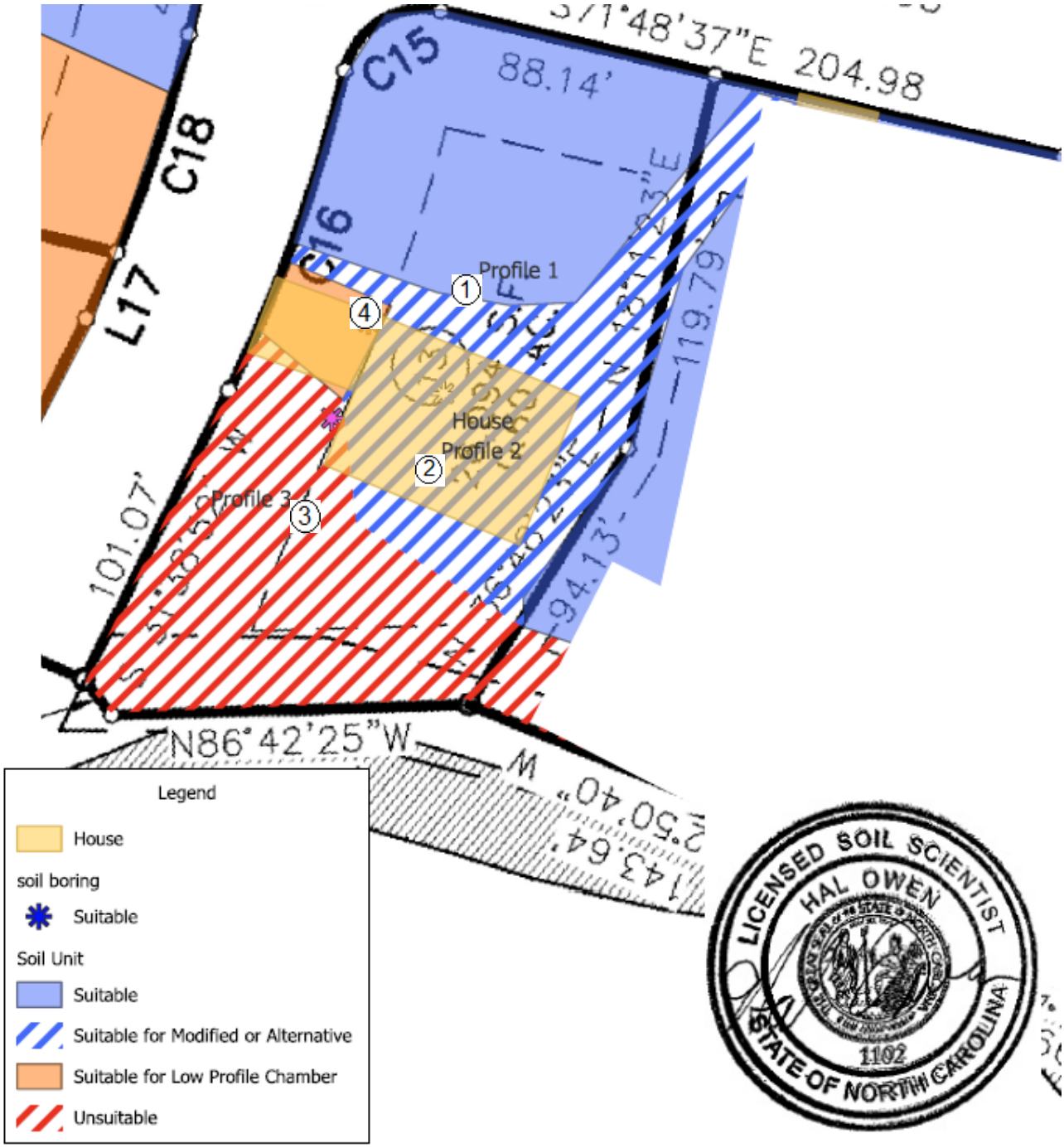
At the time of the investigation, the site had been cleared, lot corners were staked, and the new building footprint was marked. No existing wells, streams, or wetlands were observed within 50 feet of the proposed septic system and repair area. There is a 30-foot drainage easement along the rear of the property.

SOIL AND SITE INVESTIGATION

The soils were evaluated under moist soil conditions through the advancing of auger borings. This evaluation included observations of topography and landscape position, soil morphology (texture, structure, clay mineralogy, organics), soil wetness, soil depth, and restrictive horizons. Descriptions of the soil borings located within the investigated portions of the site are provided in the attached Soil/Site Evaluation form.

Soils in the proposed initial system area were observed to rate as suitable for subsurface sewage waste disposal systems (Figure 1). The subsoils were observed to be firm sandy clay loams and extended to greater than 48 inches below ground surface. Evidence of a soil wetness condition was observed at 30 inches below ground surface. These soils appear adequate to support long-term acceptance rates of 0.45 gal/day/ft^2 for conventional drainlines.

Soils in the proposed repair system area were observed to rate as suitable for subsurface sewage waste disposal systems. (Figure 1). The subsoils were observed to be friable sandy loams and extended to greater than 48 inches below ground surface. Evidence of a soil wetness condition was not observed within 48 inches below surface. These soils appear adequate to support long-term acceptance rates of 0.6 gal/day/ft^2 for conventional drainlines.



Hal Owen & Associates Inc. PO Box 400, Lillington NC 27546 www.halowensoil.com 919-893-8743	Lot 13 Riverfall Subdivision Phase 1	Figure 1 Soil Map for Septic Suitability

Soil/Site Evaluation Form for On-Site Wastewater System

OWNER NAME:	Mattamy Homes, LLC	OWNER ADDRESS:	11000 Regency Parkway, Suite 110
PROPOSED FACILITY:	Residential	PROPOSED DESIGN FLOW: 480	ROPERTY SIZE: 0.60
LOCATION OF SITE:		PIN:	0682-28-1719.000
WASTEWATER TYPE:	Domestic	COUNTY:	Harnett
WATER SUPPLY:	Public Water	WATER SUPPLY SETBACK:	10
EVALUATION METHOD:	AUGER BORING [X]	PIT [ ]	CUT [ ]
EVALUATED BY:	Hal Owen, LSS 1102 and Steven Boor	DATE EVALUATED:	10/24/2023

	INITIAL SYSTEM	REPAIR SYSTEM
AVAILABLE SPACE	800 ft^2 trench bottom	400 ft^2 trench bottom
SYSTEM TYPE	Accepted (25% reduction) System	PPBPS, horizontal
SITE LTAR	0.45 gpd/ft^2	0.60 gpd/ft^2
MAX TRENCH DEPTH	15 inches (measured on downhill side)	24 inches (measured on downhill side)

SITE CLASSIFICATION: Suitable OTHER FACTORS:

COMMENTS:

PROFILE 1

HORIZON DEPTH	COLOR	CONSISTENCE	TEXTURE	STRUCTURE	MINERALOGY	OTHER PROFILE FACTORS	
0-7	10YR 5/4	VFR	LS	GR	SEXP	LANDSCAPE POSITION	L
7-20	10YR 7/4	VFR	SL	GR	SEXP	SOIL WETNESS DEPTH	>48"
20-48	10YR 6/6	FR	SL	SBK	SEXP	SOIL WETNESS COLOR	
						SOIL DEPTH	48"
						SAPROLITE CLASS	NA
						RESTRICTIVE HORIZON	NA
						SLOPE %	7
PROFILE CLASSIFICATION			Suitable	LTAR gpd/ft^2	0.6	SLOPE CORRECTION (IN)	2.5
COMMENT							

PROFILE 2

HORIZON DEPTH	COLOR	CONSISTENCE	TEXTURE	STRUCTURE	MINERALOGY	OTHER PROFILE FACTORS	
0-12	10YR 6/4	VFR	LS	GR	SEXP	LANDSCAPE POSITION	FS
12-26	10YR 6/6	FR	SCL	SBK	SEXP	SOIL WETNESS DEPTH	30"
26-36	10YR 6/8	FI	SCL	SBK	SEXP	SOIL WETNESS COLOR	
						SOIL DEPTH	36"
						SAPROLITE CLASS	NA
						RESTRICTIVE HORIZON	NA
						SLOPE %	7
PROFILE CLASSIFICATION			Suitable	LTAR gpd/ft^2	0.45	SLOPE CORRECTION (IN)	2.5
COMMENT							

PROFILE 3

HORIZON DEPTH	COLOR	CONSIS TENCE	TEXTURE	STRUCTURE	MINERA LOGY	OTHER PROFILE FACTORS	
0-9	10YR 6/4	VFR	LS	GR	SEXP	LANDSCAPE POSITION	FS
9-19	10YR 6/8	FI	SCL	SBK	SEXP	SOIL WETNESS DEPTH	19"
					SEXP	SOIL WETNESS COLOR	
						SOIL DEPTH	19"
						SAPROLITE CLASS	NA
						RESTRICTIVE HORIZON	NA
						SLOPE %	8
PROFILE CLASSIFICATION			Suitable	LTAR gpd/ft^2	0.15	SLOPE CORRECTION (IN)	2.9
COMMENT							

PROFILE 4

HORIZON DEPTH	COLOR	CONSIS TENCE	TEXTURE	STRUCTURE	MINERA LOGY	OTHER PROFILE FACTORS	
0-8	10YR 6/4	VFR	LS	GR	SEXP	LANDSCAPE POSITION	FS
8-30	10YR 6/8	FI	SCL	SBK	SEXP	SOIL WETNESS DEPTH	29"
						SOIL WETNESS COLOR	
						SOIL DEPTH	30"
						SAPROLITE CLASS	NA
						RESTRICTIVE HORIZON	NA
						SLOPE %	7
PROFILE CLASSIFICATION			Suitable	LTAR gpd/ft^2	0.425	SLOPE CORRECTION (IN)	2.5
COMMENT							

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

LANDSCAPE POSITION	**TEXTURE GROUP**	**TEXTURE CLASS**	**.1955 LTAR (gal/day/sqft)**
CC - Concave Slope	I	S - Sand	1.2-0.8
CV - Convex Slope		LS - Loamy Sand	
DS - Debris Slump			
D - Depression	II	SL - Sandy Loam	0.8 – 0.6
DW - Drainage Way		L - Loam	
FP - Flood Plain			
FS - Foot Slope	III	SCL - Sandy Clay Loam	0.6 – 0.3
H - Head Slope		CL - Clay Loam	
L - Linear Slope		SiL - Silt Loam	
N - Nose Slope		Si - Silt	
R - Ridge		SiCL - Silt Clay Loam	
S - Shoulder Slope			
T - Terrace	IV	SC - Sandy Clay	0.4 – 0.1
TS - Toe Slope		C - Clay	
		SiC - Silty Clay	
		O - Organic	none

STRUCTURE	**MOIST CONSISTENCE**	**WET CONSISTENCE**
G - Single Grain	VFR - Very Friable	NS - Non Stick
M - Massive	FR - Friable	SS - Slightly Sticky
CR - Crumb	FI - Firm	MS - Moderately Stick
GR - Granular	VFI - Very Firm	VS - Very Sticky
SBK - Subangular Blocky	EFI - Extremely Firm	
ABK - Angular Blocky		NP - Non Plastic
PL - Platy	**MINERALOGY**	SP - Slightly Plastic
PR - Prismatic	SEXP - Slightly Expansive	MP - Moderately Plastic
	EXP - Expansive	

MOTTLES		
f – few	1 - fine	F - Faint
c – common	2 - medium	D - Distinct
m – many	3 - coarse	P - Prominent

Give Horizon Depth in inches below natural soil surface and Fill Depth in inches above land surface.
Depth to Soil Wetness: inches below land surface to free water or to soil colors with chroma 2 or less.
Classification: S – Suitable U – Unsuitable

SEPTIC SYSTEM DESIGN

See section *Wastewater Treatment System Plans* and Figure 2 for a diagram of the septic system layout and design specifications.

A 1000 gallon (at minimum) septic tank and an approved septic effluent filter is required. A pump tank (1000 gallon at minimum) is required to lift effluent to the nitrification field. The pump tank may be eliminated if gravity distribution can be demonstrated.

The initial septic system is proposed as a pump driven system to 270 linear feet of Accepted Status drainlines utilizing a 25% reduction in total drainline length (Figure 2). A long-term application rate (LTAR) of 0.45 gal/day/ft^2 was used to design the nitrification field. A pressure manifold will be used to deliver effluent in parallel distribution to three 90-ft long drainlines. The drainlines shall be installed on contour with maximum trench bottom depths at 24 inches below surface (as measured on low side).

The repair septic system is proposed as a pump driven system to 136 linear feet of horizontal Permeable Panel Block drainlines utilizing a 50% reduction in total drainline length (Figure 2). A long-term application rate (LTAR) of 0.6 gal/day/ft^2 was used to design the nitrification field. A pressure manifold will be used to deliver effluent in parallel distribution to two 68-ft long drainlines. The drainlines shall be installed on contour with maximum trench bottom depths at 15 inches below surface (as measured on low side). Due to the ultra-shallow trench depth, it will be necessary to add approved soil material over the nitrification field to provide at least six inches of cover over the drainlines.

SEPTIC AREA PREPARATION

It is important that you do not disturb the septic areas during site construction. A staked line or protective fence should be placed around the system areas prior to construction to eliminate any potential damage to the soil or the layout of the system. Septic areas should not be used for staging construction materials or subjected to vehicular traffic. Do not cut, grade, fill, install utilities, or otherwise alter the designated septic areas.

Care should be taken when clearing vegetation from the septic area. Work should only occur when the soil is at the appropriate moisture content to limit the impact to the soil structure in the soil treatment area. Do not scrape the ground inside the drainfield. **Any clearing or preparation of the septic areas shall be done without removal, disturbance, or compaction of the soil.**

PERMIT CONDITIONS

Standard Conditions

The requirements of 15A NCAC 18E are incorporated by reference into this permit and shall be met.

System shall be installed in accordance with the attached *Wastewater Treatment System Plans*.

Any changes to the site plan or intended use must be approved by Hal Owen & Associates. Permit modification and resubmittal to the LHD may be necessary to ensure regulatory compliance.

Conformance to all regulatory setbacks shall be maintained. Local regulations (such as well or riparian buffer ordinances) may require more stringent setbacks.

Minimum soil cover of six inches shall be established over nitrification field. Soil cover above the original grade shall be placed at a uniform depth over the entire nitrification and shall extend laterally five feet beyond the nitrification trench. Site shall be graded to shed water away from field and a vegetative cover established to prevent erosion.

The nitrification field and repair area shall not be subject to vehicular traffic. Vehicular traffic can damage soils, pipes, and valve boxes. Do not use septic areas for parking.

Do not allow underground utilities, water lines, or sprinkler systems to be installed in the septic areas. Damage to the septic areas could result in the septic permit being revoked.

The wastewater system shall not be covered until inspected by Hal Owen & Associates and shall not be placed into use until an Authorization to Operate is issued.

Specific Conditions:

- To ensure a watertight joint, the inlet and outlet of all tanks shall be equipped with an approved pipe penetration boot.
- No foundation drain.
- Waterline must be installed no more than 1 ft from the eastern property line to maintain a minimum 10 ft setback to any tanks, supply lines, pressure manifold and nitrification field.

WASTEWATER TREATMENT SYSTEM PLANS

PROJECT INFORMATION

Wastewater System	New		.0403 Eng Low Flow	No
Wastewater Strength	Domestic			
Effluent Standard	DSE			
Water Supply	Public Water			
Facility Type	Residential			
Design Wastewater Flow	480	gpd	gal/unit	120
Basis for Flow	4	bedrooms	max occupancy	8
Basement	No		Fixtures in basement?	No
Crawl Space	No		Slab Foundation	Yes

PROPERTY INFORMATION

County	Harnett
Site Address	
S/D Name and Lot#	Lot 13 Ph 1 Riverfall SD
PIN	0682-28-1719.000
County PID	040682 0131 15
Size (Acre)	0.60

APPLICANT INFORMATION

Name	Mattamy Homes, LLC
Mailing Address	11000 Regency Parkway, Suite 110
	Cary, NC 27518
Telephone Number	919-625-9546
E-mail Address	Drew.Brody@mattamycorp.com

CONSULTANT INFORMATION

Company Name	Hal Owen & Associates, Inc.
Mailing Address	PO Box 400, Lillington, NC 27546
Telephone Number	910-893-8743 Fax: 910-893-3594
E-mail Address	hal@halowensoil.com
Licensed Soil Scientist	Hal Owen, LSS #1102 and AOWE# 10036E
System Designer	Jocelyn Proulx

Septic System Design Specifications

Proposed Design Daily Flow	480	gpd	Drainfield Meeets Requirements:	
Septic Tank Size (minimum)	1000	gallons	.0508 Available Space	Yes
Pump Tank Size (minimum)	1000	gallons, if required	.0601 Setbacks	Yes

Initial System *See Detailed Design Parameters

System Type	IIIbg –Pump to Other non-conventional systems				
Pump Required	Yes	12.3	ft TDH at	30.3	GPM
Trenches:	Accepted (25% reduction) System				
Design LTAR	0.45	gal/day/ft^2	Saprolite System	No	
Total Trench/ Bed Length	270	feet	Fill System	No	
Trench Spacing	9	ft on center			
Usable soil depth to LC	48	inches	Soil Cover	6	inches
Maximum Trench Depth	15	inches, measured on downhill side of trench			
Artificial Drainage Required	No				

Repair System

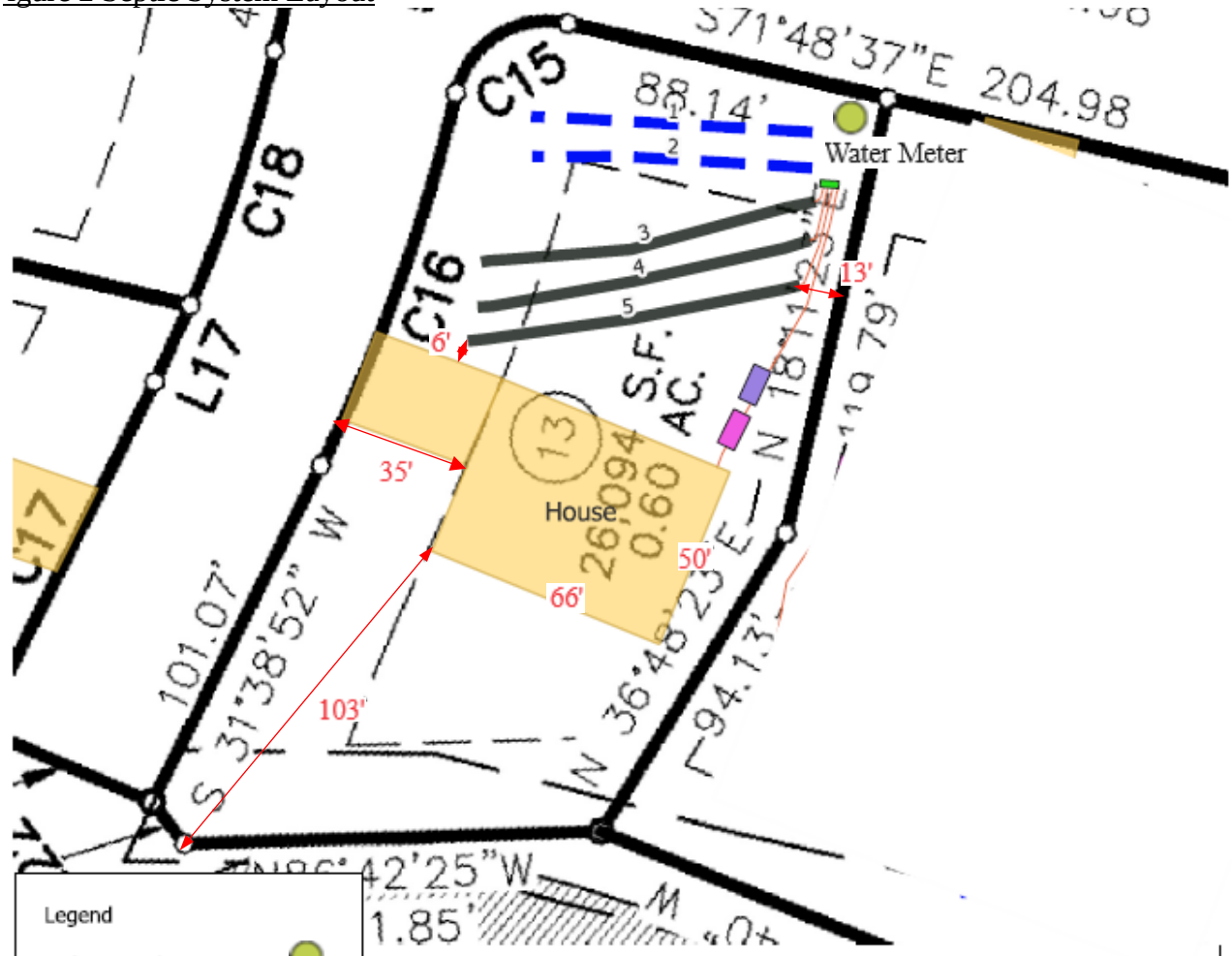
System Type:	IIIbe – Pump to PPBPS system			
Trenches:	PPBPS, horizontal			
Design LTAR	0.60	gal/day/ft^2	Saprolite System	No
Total Trench/ Bed Length	136	feet	Fill System	No
Trench Spacing	9	ft on center		
Usable soil depth to LC	30	inches		
Maximum Trench Depth of	24	inches, measured on downhill side of trench		
Pump Required	Yes			

Potential Drainlines flagged at site on 9-ft centers.

Line #	Color	Relative Elevation (ft)	Drainline Length(ft)	Field Length(ft)
1		101.02	68	96
2	Y	100.61	68	86
3	B	100.20	90	94
4	W	99.64	90	98
5	R	99.11	90	100
Septic Tank:		97.77		
Pump Tank:		98.12		
Reference Elev:		**100.00**		

Notes:
*No grading or removal of soil in initial or repair areas
*Property lines per owner
*Trench bottoms shall be level to +/- 1/4" in 10ft
*All parts of septic system must meet minimum setbacks

Figure 2 Septic System Layout



Legend

Reference Elevation

House

drainlines

Intial

Repair

supply/conveyance

Septic Components

PM

Pump Tank

Septic Tank

Notes:
*No grading or removal of soil in initial or repair areas
*Property lines per owner
*Trench bottoms shall be level to +/- 1/4" in 10ft
*All parts of septic system must meet minimum setbacks:
10' from property line
5' from foundation (15' from basement)
10' from water line
1ft from sidewalks and driveway

NC ONSITE WASTEWATER EVALUATOR
Certification Number
10036E

0 50 100 ft

Map for reference only.
Not a survey.

Hal Owen & Associates Inc.
PO Box 400, Lillington NC 27546
www.halowensoil.com
919-893-8743

Lot 13
Riverfall Subdivision
Phase 1

Figure 2

Septic System Layout

Initial System Specifications

Pressure Manifold Design Criteria

DESIGN DAILY FLOW 480 gallons/day **SOIL LTAR:** 0.45 gpd/ft^2

TANKS (min) Septic Tank: 1000 gallons Pump Tank: 1000 gallons

SUPPLY LINE Length: 52 ft Diameter: 2 " SCH 40 PVC

Minimum flow (gpm) to maintain 2fps scour velocity: 20.9 gpm

Supply Pipe Volume 9 gallons

TRENCHES Drainline Type: Accepted (25% reduction) System

Maximum Trench Depth of 24 inches, measured on low side of trench

Trench width: 3 feet Effective Trench Width: 4 ft

Absorption Area: 800 ft^2 Minimum Linear Length: 267 ft

MANIFOLD Length (ft): 3 Diameter: 4" sch 80 pvc Elevation: 101.2

Taps 3 Tap Configuration: 6in. spacing, 1 side of manifold

TAP CHART

Line	Color	Relative Elevation	Length(ft)	Tap Size/ Schedule	flow/tap gpm	gpd/ft	LTAR (gpd/ft^2)
3	B	100.2	90	3/4"sch 80	10.10	1.778	0.593
4	W	99.64	90	3/4"sch 80	10.10	1.778	0.593
5	R	99.11	90	3/4"sch 80	10.10	1.778	0.593
	Total Drainline:		270	Total Flow:	30.30		

Target LTAR:* 0.60

LTAR + 5%: 0.630

PUMP CALCULATIONS

Dose Volume: 132.23 gallons, with Pipe Volume at 75 % *65.3gal/100ft pipe

Dose Pump Run Time (min): 4.36 Daily Pump Run Time (min): 15.84

Drawdown (in.): 132 gallons ÷ 20.25 gal/ inch = 6.53 inches

Pump Tank Elevation (ft): 98.12 Pump Elevation (ft): 93.12

Friction Head: 2.21 *Hazen Williams Formula (use supply line length+70' for fittings in pump tank)

Elevation Head: 8.1 Design Head: 2.0 Total Head: 12.29 ft

Pump to Deliver: **30.3** gpm @ **12.3** ft head

NEMA 4X Simplex Control Panel with elapsed time meter, event counter, audible and visible alarm (w/ silence button), hand-off-automatic (HOA) switch, pump run light, and pump on separate circuits is required Control panel bottom shall be mounted a minimum of 24 in. above finished grade within 50 ft of pump tank. A septic tank filter is required. Floats to be determined by type of pump tank used.

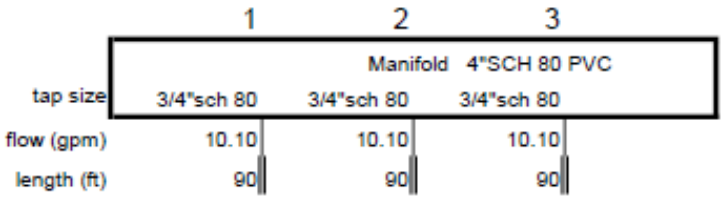
Possible Septic Tank: Brantley 1000 STB-499 *Possible Septic Filter:*

Possible Pump Tank: Brantley 1000_PT-237 *Vol(gal):* 1000 *GPI:* 20.25

Possible Pump: Ashland EPF30 (0.3HP) *pump height (in) =* 13.6

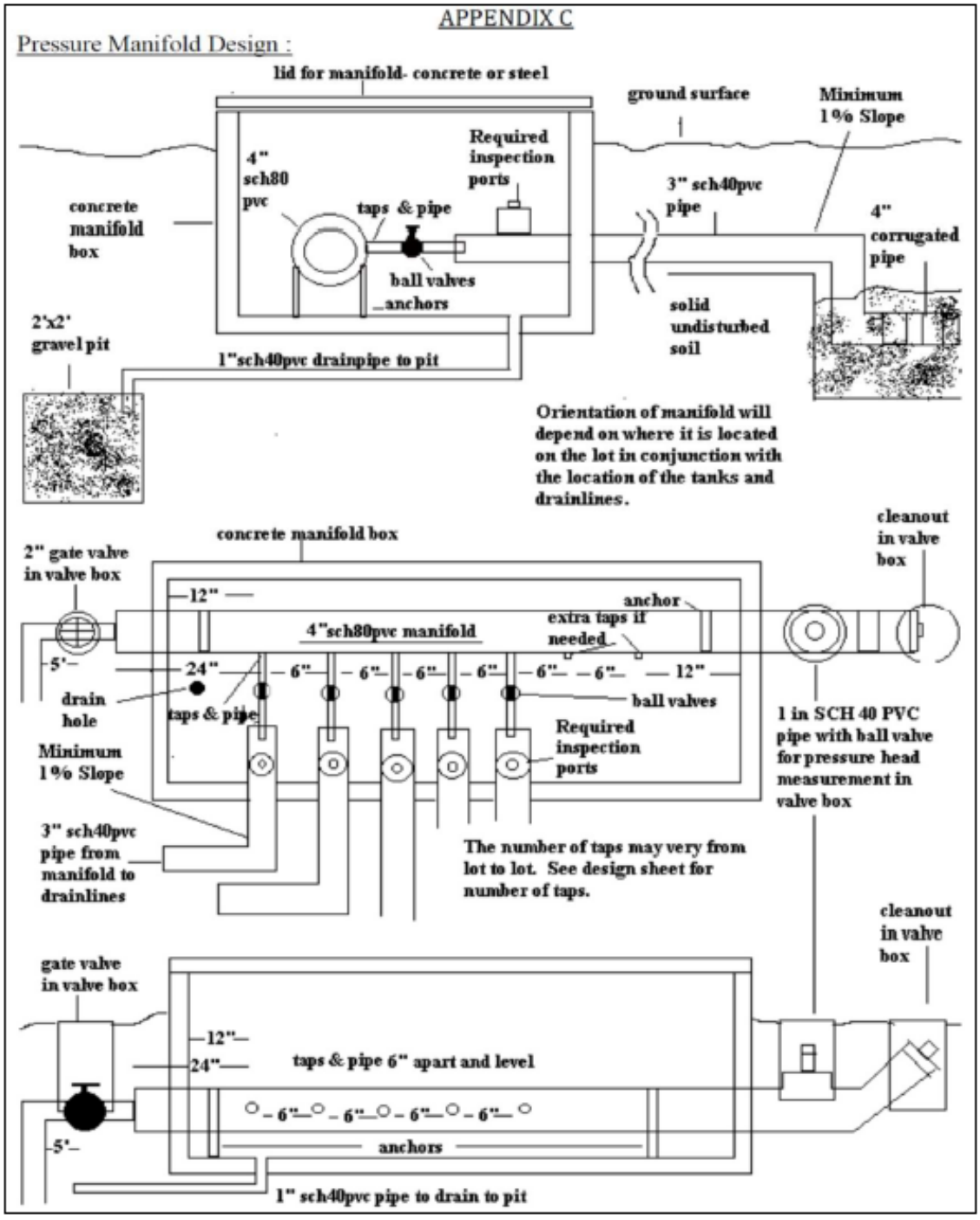
Possible Control Panel:

Pressure Manifold Diagram

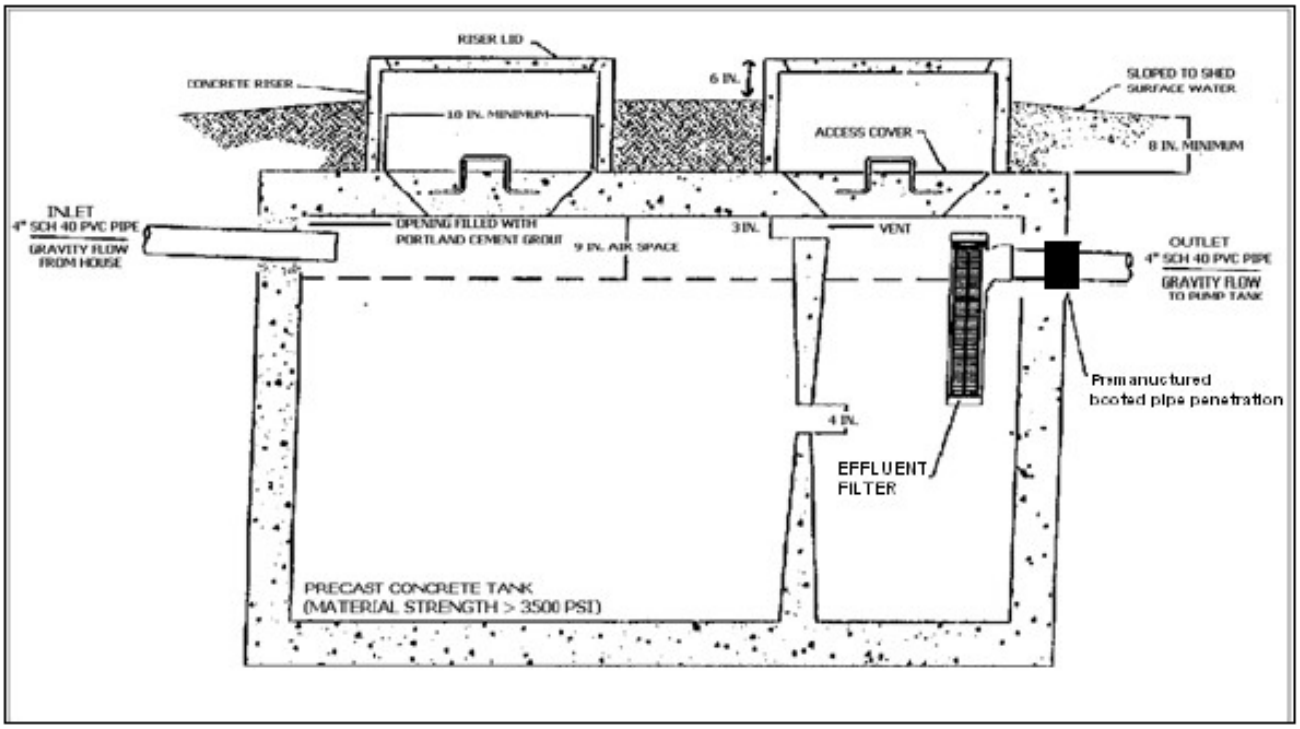


APPENDIX C

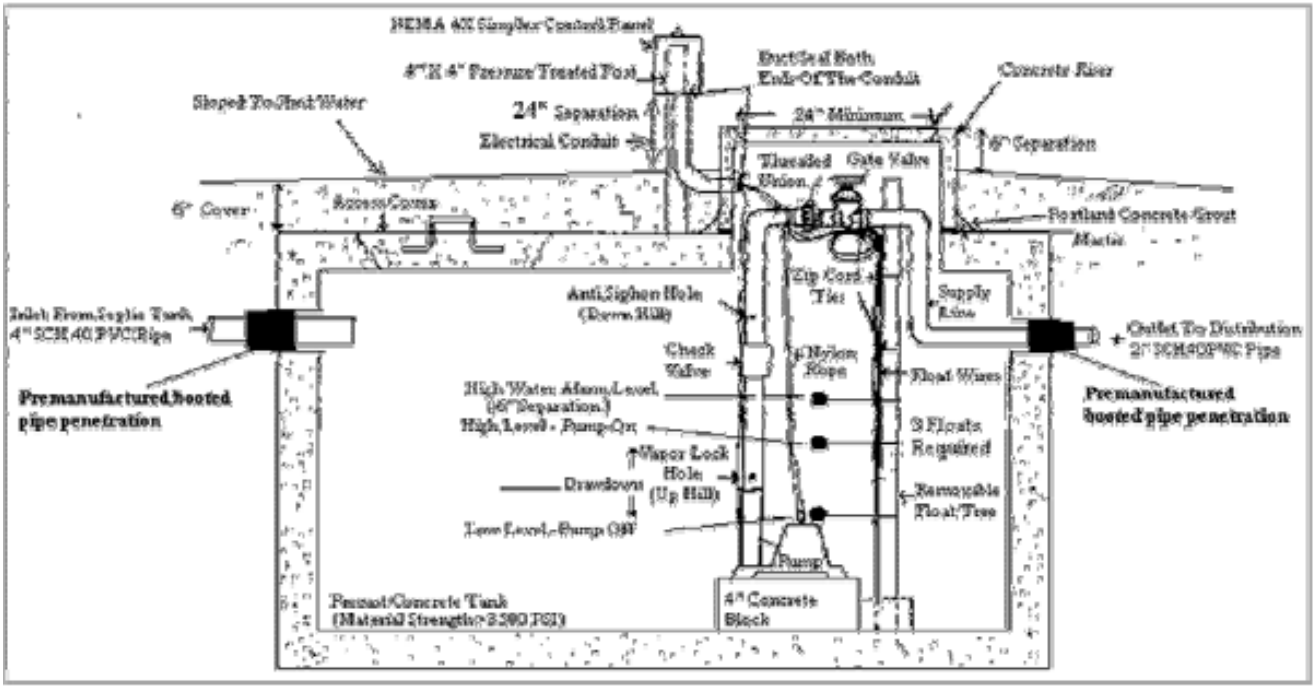
Pressure Manifold Design :



Typical Septic Tank **1000 GALLON SEPTIC TANK, minimum**



Typical Pump Tank **1000 GALLON PUMP TANK, minimum**

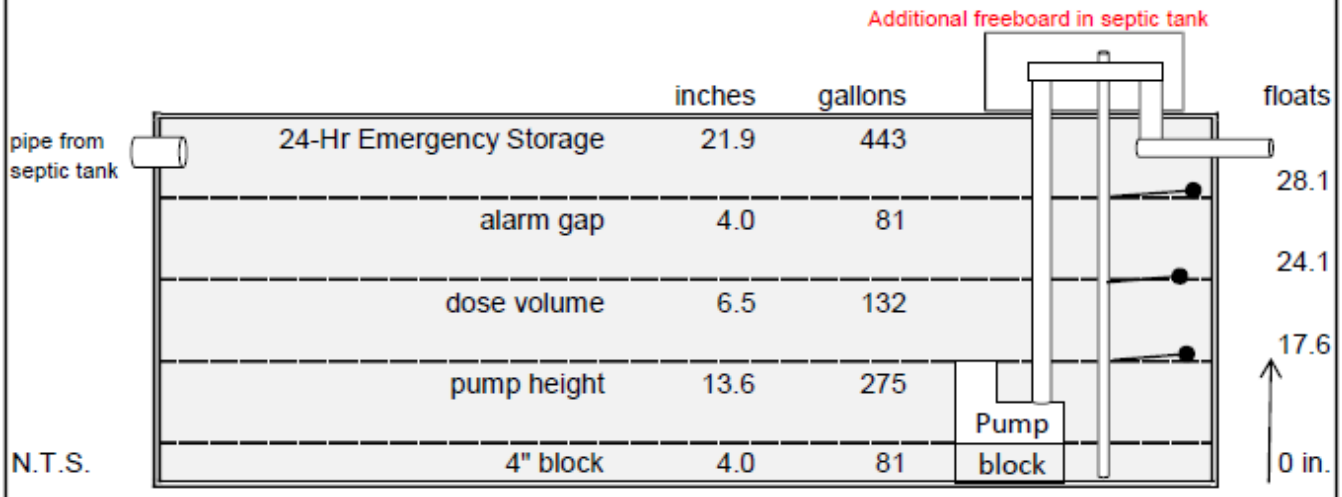


Pump Tank Calculations:

Possible pump tank: Brantley 1000_PT-237
tank GPI (gal/in): 20.25 calculated
tank volume (gal): 1000 per manufacturer
tank height (in): 50.0 *per manufacturer*

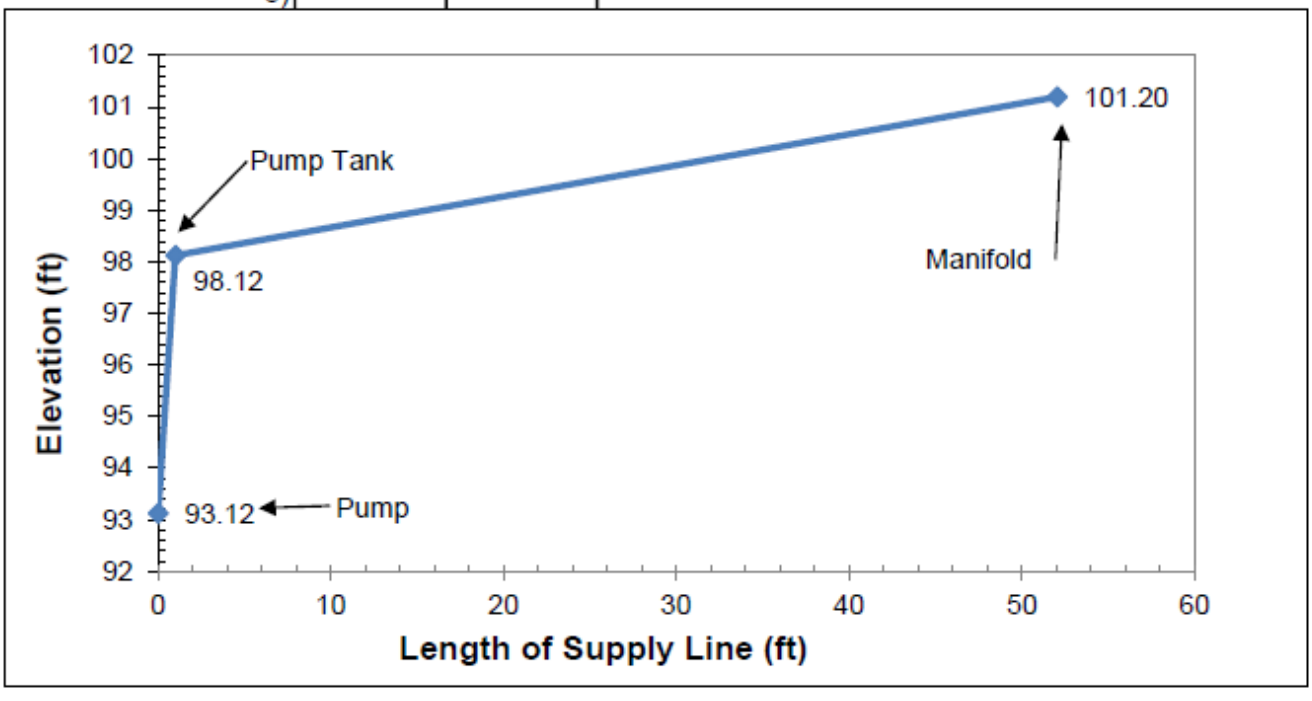
Possible Pump: Ashland EPF30 (0.3HP)
height: 13.6 in

minimum emergency storage: 480 gal



Supply Line Profile:

	Distance	Elevation
Pump	0	93.12
pump tank	1	98.12
Pressure manifold	52	101.20
4)		
5)		



Repair System Specifications

DESIGN DAILY FLOW 480 gallons/day **SOIL LTAR:** 0.60 gpd/ft^2

TANKS (minimum) Septic Tank 1000 gallons Pump Tank 1000 gallons

SUPPLY LINE Length (ft): 68 Diameter: 2 " sch 40 pvc

Min total flow (gpm) to maintain 2 fps scour velocity = 20.89

Supply Pipe Volume 11.9 gallons

TRENCHES Drainline Type: PPBPS, horizontal

Maximum Trench Depth of 15 inches, measured on low side of trench

Trench width: 3 feet Effective Trench Width: 6 ft

Absorption Area: 400 ft^2 Minimum Linear Length: 133 ft

÷ 4.33 ft per panel : 31 panels

PRESSURE MANIFOLD

Taps 2 Tap Configuration: 6in. spacing, 1 side of manifold

Length (ft): 2.5 Diameter: 4" sch 80 pvc Elevation: 102.02

TAP CHART

Tap #	Line #	Color	Elevation (ft)	Drainline Length(ft)	Number of Panels	Tap Size/ Schedule	Flow/tap (gpm)	LTAR (gpd/ft^2)
1	1		101.02	68	16	3/4"sch 40	12.50	1.176
2	2	Y	100.61	68	16	3/4"sch 40	12.50	1.176
			Totals:	136	32	Total Flow:	25.00	

Target LTAR*: 1.20

LTAR + 5%: 1.260

Pump Calculations:

Number of Panels: 32

Dose Volume: 115.2 gallons # of panels * 3.6 gallons/ panel

Dose Pump Run Time: 4.61 minutes Dose volume/total flow

Daily Pump Run Time: 19.20 minutes Daily Flow/total flow

Drawdown (in.): 115 gallons ÷ 20.25 gal/ inch = 5.69 inches

Pump Tank Elevation (ft): 98.12 Pump Elevation (ft): 93.12

Friction Head: 1.75 *Hazen Williams Formula (use supply line length+70' for fittings in pump tank)

Elevation Head: 8.9 Design Head: 2.0 Total Head: 12.65 feet

Pump to Deliver: **25.00** gpm @ **12.65** ft head

NEMA 4X Simplex Control Panel with elapsed time meter, event counter, audible and visible alarm (w/ silence button), hand-off-automatic (HOA) switch, pump run light, and pump on separate circuits is required. Control panel bottom shall be mounted a minimum of 24 in. above finished grade within 50 ft of pump tank. A septic tank filter is required. Floats to be determined by type of pump tank used.

Possible Septic Tank: Brantley 1000 STB-499 *Septic Filter:*

Possible Pump Tank: *Brantley 1000_PT-237* *Vol(gal):* 1000 *GPI:* 20.25

Possible Pump: Ashland EPF30 (0.3HP) *pump height (in) =* 13.6

Possible Control Panel: