

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

14 May 2024

John St. Peter
PO Box 246
Spring Lake, NC 28390

Reference: Private Septic Permit
1242 Cool Springs Rd., Lillington. NC 27546
PIN:0611-85-8629

Dear Mr. St. Peter,

A soil and site evaluation has been conducted for the above referenced property for the purpose of permitting a subsurface sewage waste disposal system. The wastewater system may not be installed until an application is filed with the Local Health Department (LHD). You will need to file a septic application with the LHD, pay the filing fee, and provide a signed copy of the AOWE permit package. After filing a complete NOI, you may apply for building permits.

The AOWE permit package includes:

- Notice of Intent (NOI) to Construct Form (**owner must sign NOI**)
- Certificate of Insurance for Hal Owen & Associates, Inc.
- A plat or site plan
- AOWE Evaluation for the subject property

If you file application using the permit portal, please add Hal Owen & Associates (hal@halowensoil) as a contact to allow us access to the project.

WATER SUPPLY

You will need to file an application with the County for a new individual well permit.

SEPTIC SYSTEM INSTALLATION

Hal Owen & Associates Inc. is responsible for inspecting and approving the septic system installation; therefore, it is important for the client to coordinate with us in choosing an installer to ensure a quality installation and to avoid project delays, cost overrun, or permit revocation. The septic system installer shall hold a current certification from the North Carolina Onsite Wastewater Contractor Inspector Certification Board as a **Level II installer or higher**. The installer shall **provide proof of liability insurance** with effective dates of coverage. The installer shall submit a **signed and dated statement of responsibility** to the owner, prior to commencement of work, that contains acknowledgement of the requirements of the onsite wastewater system specified by the AOWE (a sample form is attached).

Hal Owen & Associates Inc should be **contacted at least five days** prior to the anticipated septic installation date in order to schedule a **pre-construction conference and site visit**. The inspector will observe and note current site conditions and verify the locations of the structure, driveway and parking, and septic system layout. If any features are found to be out of compliance with the AOWE Permit, the inspector may delay the start of installation until issues are resolved.

AUTHORIZATION TO OPERATE (ATO)

Hal Owen & Associates Inc. will inspect the septic system prior to the system being covered. A Post-Construction Conference with the installer, owner (or agent), and Hal Owen & Associates staff is required. The conference shall include start-up and any required verification of the system components. Upon determining that the system is properly installed, we will issue an Authorization to Operate (ATO) and include an inspection report, as-built sketch, and system operation and management program. The applicant shall provide a copy of these documents along with the filing fee to the LHD, who will issue the certificate of occupancy for the facility.

I appreciate the opportunity to provide this service. If you have any questions or need additional information, please contact me at your convenience.

Sincerely,

A handwritten signature in cursive script that reads "Hal Owen".

Hal Owen
Licensed Soil Scientist
Authorized Onsite Wastewater Evaluator



**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: John St. Peter
 Mailing address: PO Box 246 City: Spring Lake State: NC Zip: 27546
 Phone: 910-257-4590 Email: stpeterjohn16@gmail.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: 1242 Cool Springs Rd Lillington, NC 27546
 Tax parcel identification number or subdivision lot, block number of property: 0611-85-8629
 County: Harnett

System Information:
 Wastewater System Type: IIIbg - Pump to Other non-conventional system
 Daily Design Flow: 480gpd
 Saprolite System: Yes No Subsurface Operator Required: Yes No
 Water Supply Type: Private Well Public Water Supply Spring Other: _____

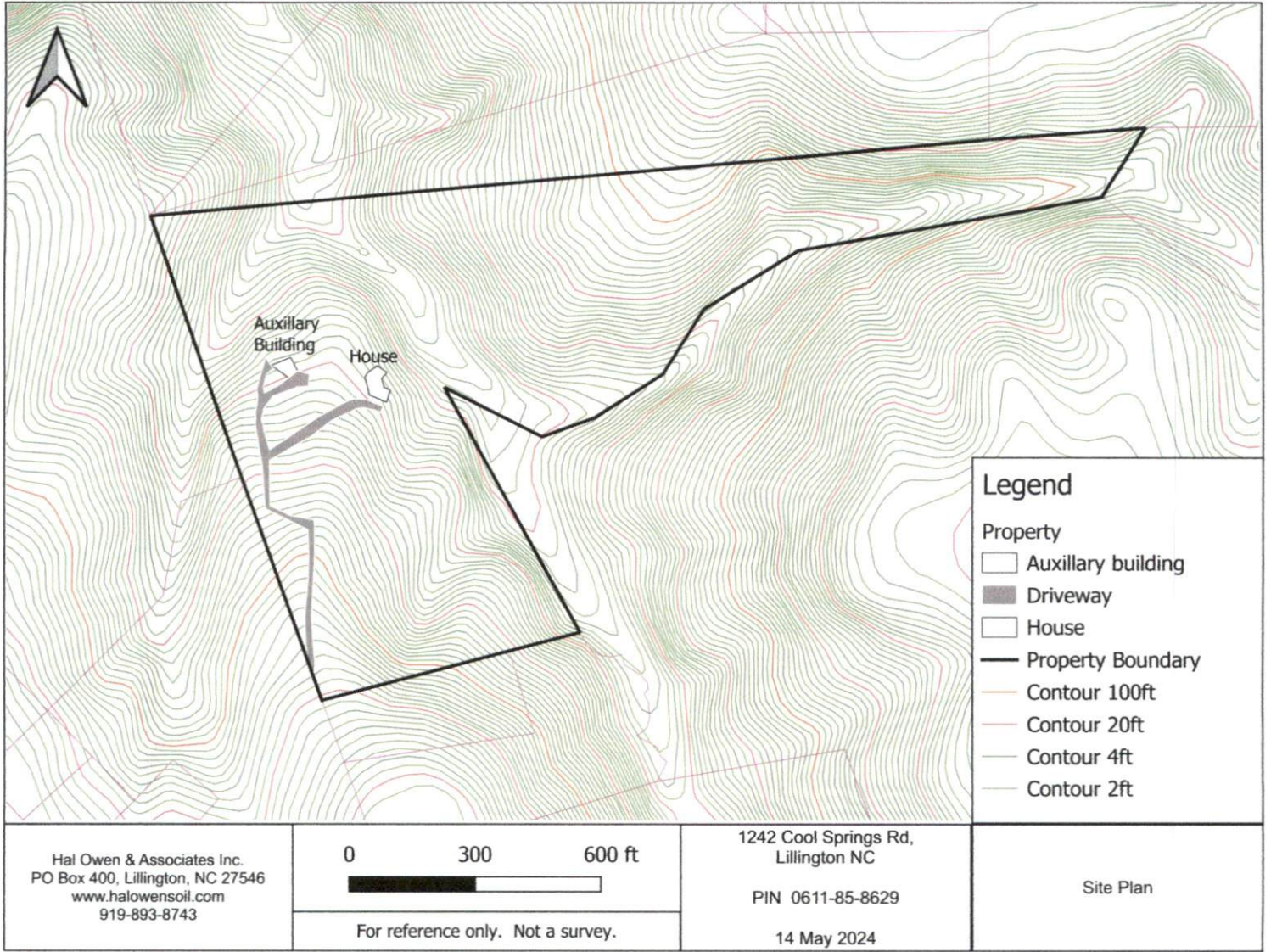
Facility Type:
 Residential 4 # Bedrooms 8 Maximum # of Occupants
 Business Type of Business and Basis for Flow: _____
 Public Assembly Type of Public Assembly and Basis for Flow: _____

Required Attachments:
 Plat or Site Plan
 Evaluation of Soil and Site Features by Licensed Soil Scientist

Attest: On this the 14th day of May, 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 14 day of May, 2029.
 Signature of Authorized Onsite Wastewater Evaluator: Hal Owen
 Signature of Owner or Legal Representative: John St. Peter

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: _____



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14 May 2024

John St. Peter
PO Box 246
Spring Lake, NC 28390

Reference: AOWE Evaluation
1242 Cool Springs Rd., Lillington, NC 27546
PIN:0611-85-8629

Dear Mr. St. Peter,

A soil and site evaluation has been conducted for the referenced property for the purpose of permitting a subsurface wastewater system. This evaluation was prepared based on information provided by the applicant to include the basis for design flow, proposed structure location(s), and property boundaries. Any false, inaccurate, or incomplete information provided by the applicant, owner, or legal representatives may result in denial or revocation of applications, approvals, or permits.

This AOWE/LSS Evaluation is being submitted pursuant to and meets the requirements of G.S.130A-336.2. 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). The 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 AOWE Evaluation is intended to file a Notice of Intent to construct a wastewater system with the Local Health Department and shall expire in five years.

Sincerely,



Hal Owen
Senior Licensed Soil Scientist
Authorized Onsite Wastewater Evaluator



Steven Boor
Soil Associate III



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TERMS AND CONDITIONS

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 – Prior to commencing or assisting in the construction, siting, relocation, or repair of a wastewater system, a complete Notice of Intent (NOI) to Construct a wastewater system using an AOWE must be submitted to the Local Health Department (LHD). The owner may apply for a building permit for the project upon submitting a complete NOI and the required fee.

Plan Alterations – If there are any changes in the site plan that can impact the wastewater system, such as moving the house or driveway, site alterations, or if the applicant chooses to change the design daily flow prior to wastewater system construction, a new NOI shall be submitted to the LHD. The applicant shall request in writing that the PE or AOWE invalidate the prior NOI with a signed and sealed letter sent to the applicant and LHD.

Site Alterations – The applicant shall be responsible for preventing modifications or alterations of the site for the wastewater system and the system repair area before, during, and after any construction activities for the facility, unless approved by the AOWE.

On-Site Wastewater System Contractor – The AOWE shall assist the owner in the selection of a certified 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 of the wastewater system.

Authorization to Operate (ATO) – Upon determining that the wastewater system has been properly installed and is capable of being operated in accordance with the conditions of the permit, the AOWE shall provide the owner with a report that includes inspection reports, a written operation and management program, any special reports, and an Authorization to Operate. The owner shall sign confirming acceptance and receipt of the report, and then provide a copy 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 Wastewater Treatment and Dispersal Systems (15A NCAC 18E) 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 has been built at the site. The home has a basement. The single-family residence contains four bedrooms with a design wastewater flow of 480 gallons per day. Maximum occupancy of the home is 8 people.

WATER SUPPLY

Water will be provided by public water supply.

EXISTING SITE CONDITIONS

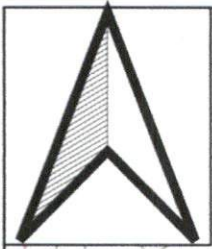
At the time of the investigation, the site had been cleared, lot corners were staked, and the house was built.

No existing wells, streams, or wetlands were observed within 50 feet of the proposed septic system and repair area.

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 system area were observed to rate as suitable for subsurface sewage waste disposal systems. (Figure 1). The subsoils were observed to be firm clays and extended 30 inches below ground surface. Evidence of suitable saprolite was observed at 30 inches below surface or deeper. These soils and saprolite appear adequate to support long-term acceptance rates of 0.35 gal/day/ft² for conventional drainlines.











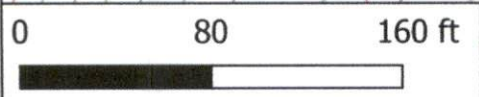
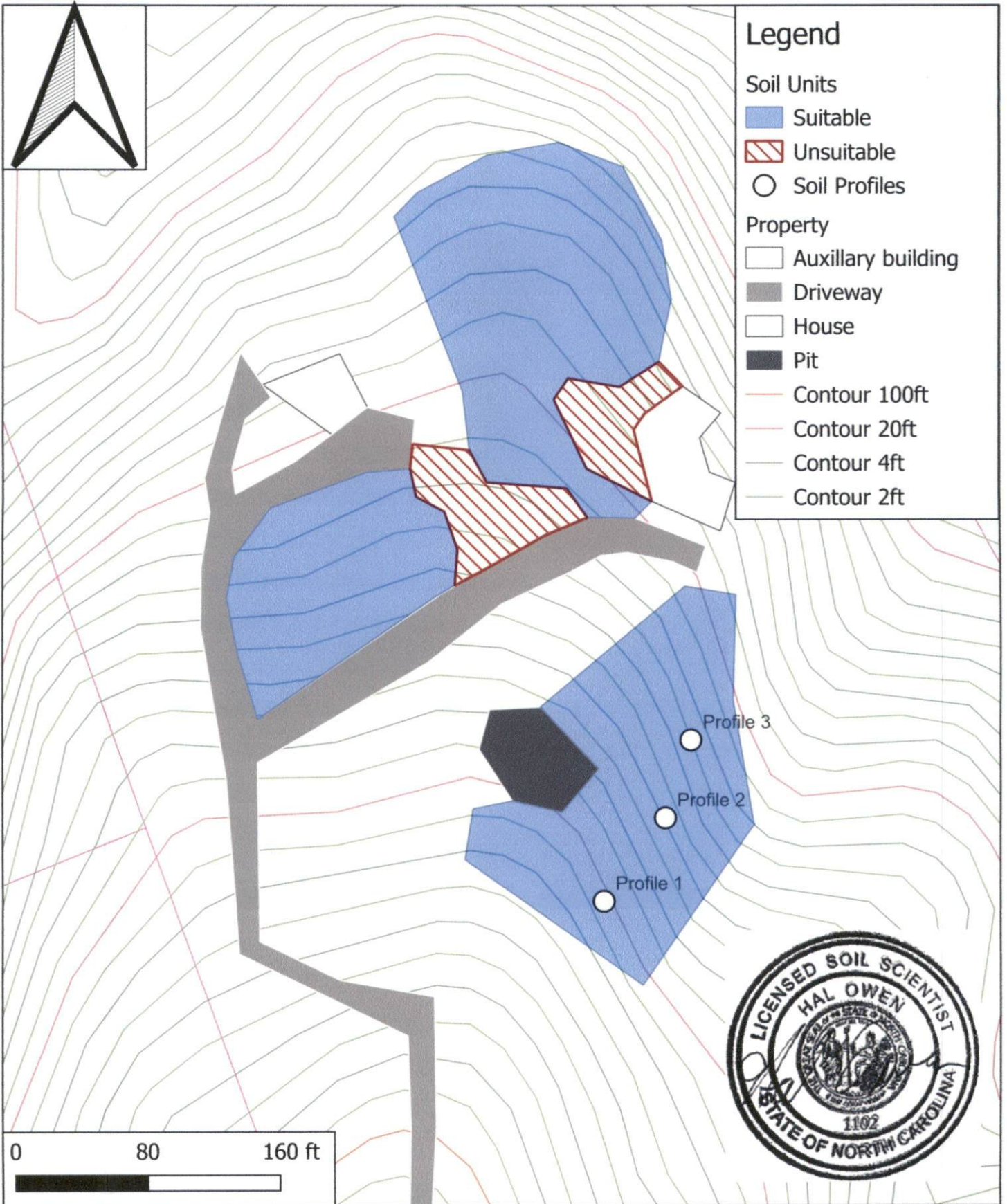
Legend

Soil Units

-  Suitable
-  Unsuitable
-  Soil Profiles

Property

-  Auxillary building
-  Driveway
-  House
-  Pit
-  Contour 100ft
-  Contour 20ft
-  Contour 4ft
-  Contour 2ft



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919-893-8743

John St. Peter
1242 Cool Springs Rd
6 May 2024

Figure 1
Soil Map for Septic Suitability
For reference only. Not a survey.

Soil/Site Evaluation Form for On-Site Wastewater System

OWNER NAME: John G St. Peter OWNER ADDRESS: P.O. Box 246
 PROPOSED FACILITY Residential PROPOSED DESIGN FLOW: 480 PROPERTY SIZE: 28.42
 LOCATION OF SITE: 1242 Cool Springs Rd Lillington, NC 27546 PIN: 0611-85-8629
 WASTEWATER TYPE: Domestic COUNTY: Harnett
 WATER SUPPLY: Private Well WATER SUPPLY SETBACK: 50
 EVALUATION METHOD: AUGER BORING PIT CUT
 EVALUATED BY: Hal Owen, LSS 1102 and Steven Boor DATE EVALUATED: 4/5/2024

	INITIAL SYSTEM	REPAIR SYSTEM
AVAILABLE SPACE	1028.571 ft ³ trench bottom	1200 ft ³ trench bottom
SYSTEM TYPE	Accepted (25% reduction) System	Accepted (25% reduction) System
SITE LTAR	0.35 gpd/ft ²	0.30 gpd/ft ²
MAX TRENCH DEPTH	14 inches (measured on downhill side)	14 inches (measured on downhill side)
SITE CLASSIFICATION	Suitable	OTHER FACTORS
COMMENTS		

PROFILE 1

HORIZON DEPTH	COLOR	CONSI TENCE	TEXTURE	STRUCTURE	MINERA LOGY	OTHER PROFILE FACTORS	
0-10	10YR 4/1	FR	SL	GR	SEXP	LANDSCAPE POSITION	Linear Slope
10-21	10YR 6/4	FI	C	SBK	SEXP	SOIL WETNESS DEPTH	N/A
21-30	10YR 7/4	FI	CL	ABK	SEXP	SOIL WETNESS COLOR	N/A
30-34	10YR 4/4	FR	L	ABK	SAP	SOIL DEPTH	30 in
						SAPROLITE CLASS	S
						RESTRICTIVE HORIZON	N/A
						SLOPE %	23
PROFILE CLASSIFICATION		Suitable	LTAR gpd/ft ²	0.3	SLOPE CORRECTION (IN)		8.3
COMMENT							

PROFILE 2

HORIZON DEPTH	COLOR	CONSI TENCE	TEXTURE	STRUCTURE	MINERA LOGY	OTHER PROFILE FACTORS	
0-7	10YR 4/2	FR	SL	GR	SEXP	LANDSCAPE POSITION	Linear Slope
7-19	10YR 6/5	FI	C	SBK	SEXP	SOIL WETNESS DEPTH	N/A
19-33	10YR 6/5	FI	CL	ABK	SEXP	SOIL WETNESS COLOR	N/A
33-37	10YR 4/4	FR	L	ABK	SAP	SOIL DEPTH	33 in
						SAPROLITE CLASS	S
						RESTRICTIVE HORIZON	N/A
						SLOPE %	20
PROFILE CLASSIFICATION		Suitable	LTAR gpd/ft ²	0.35	SLOPE CORRECTION (IN)		7.2
COMMENT							

PROFILE 3

HORIZON DEPTH	COLOR	CONSISTENCE	TEXTURE	STRUCTURE	MINERALOGY	OTHER PROFILE FACTORS	
0-6	10YR 4/2	FR	SL	GR	SEXP	LANDSCAPE POSITION	Linear Slope
6-18	10YR 5/6	FI	C	SBK	SEXP	SOIL WETNESS DEPTH	N/A
18-48	10YR 6/6	FI	CL	ABK	SEXP	SOIL WETNESS COLOR	N/A
						SOIL DEPTH	>48 in
						SAPROLITE CLASS	N/A
						RESTRICTIVE HORIZON	N/A
						SLOPE %	20
PROFILE CLASSIFICATION			Suitable	LTAR gpd/ft^2	0.4	SLOPE CORRECTION (IN)	
COMMENT							

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

<p><u>LANDSCAPE POSITION</u></p> <p>CC - Concave Slope CV - Convex Slope DS - Debris Slump D - Depression DW - Drainage Way FP - Flood Plain FS - Foot Slope H - Head Slope L - Linear Slope N - Nose Slope R - Ridge S - Shoulder Slope T - Terrace TS - Toe Slope</p>	<p><u>TEXTURE GROUP</u></p> <p>I</p>	<p><u>TEXTURE CLASS</u></p> <p>S - Sand LS - Loamy Sand</p>	<p><u>LTAR</u> (gal/day/sqft)</p> <p>1.2-0.8</p>
	<p>II</p>	<p>SL - Sandy Loam L - Loam</p>	<p>0.8 – 0.6</p>
	<p>III</p>	<p>SCL - Sandy Clay Loam CL - Clay Loam SiL - Silt Loam Si - Silt SiCL - Silt Clay Loam</p>	<p>0.6 – 0.3</p>
	<p>IV</p>	<p>SC - Sandy Clay C - Clay SiC - Silty Clay</p>	<p>0.4 – 0.1</p>
		<p>O - Organic</p>	<p>none</p>
<p><u>STRUCTURE</u></p> <p>G - Single Grain M - Massive CR - Crumb GR - Granular SBK - Subangular Blocky ABK - Angular Blocky PL - Platy PR - Prismatic</p>	<p><u>MOIST CONSISTENCE</u></p> <p>VFR - Very Friable FR - Friable FI - Firm VFI - Very Firm EFI - Extremely Firm</p>		<p><u>WET CONSISTENCE</u></p> <p>NS - Non Stick SS - Slightly Sticky MS - Moderately Sticky VS - Very Sticky</p>
	<p><u>MINERALOGY</u></p> <p>SEXP - Slightly Expansive EXP - Expansive</p>		<p>NP - Non Plastic SP - Slightly Plastic MP - Moderately Plastic VP - Very Plastic</p>
<p><u>MOTTLES</u></p> <p>f - few 1 - fine F - Faint c - common 2 - medium D - Distinct m - many 3 - coarse P - Prominent</p>			

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 wastewater system layout and design specifications.

It is our understanding that an additional bedroom (#5) may be added to the home in the future. In anticipation of that event, we recommend a 1250 gallon (at minimum) septic tank and an approved septic effluent filter is recommended to allot for a possible addition in the future. A pump tank (1250 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 344 linear feet of accepted status (25% reduction) drainlines. A long-term acceptance rate (LTAR) of 0.35 gal/day/ft² was used to design the nitrification field. A pressure manifold will be used to deliver effluent in parallel distribution to four 86-ft long drainlines. The drainlines shall be installed on contour with maximum trench bottom depths at 14 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.

The repair septic system is proposed as a pump driven system to 400 linear feet of accepted status (25% reduction) drainlines. A long-term acceptance rate (LTAR) of 0.35 gal/day/ft² was used to design the nitrification field. A pressure manifold will be used to deliver effluent in parallel distribution to five 80-ft long drainlines. The drainlines shall be installed on contour with maximum trench bottom depths at 14 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

GENERAL 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.

SPECIAL CONDITIONS:

- To ensure a watertight joint, the inlet and outlet of all tanks shall be equipped with an approved pipe penetration boot.
- The septic and pump tanks must be watertight. The installer shall either provide documentation that the tank has been leak tested by the manufacturer or be prepared to run leak testing (hydrostatic or vacuum testing in the ready- to-use-state) at the site
- The supply line from the septic tank to the drainfield will be conveyed under a driveway and shall be installed as required by .0601(h).

WASTEWATER TREATMENT SYSTEM PLANS

for John St. Peter

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	Yes	Fixtures in basement?	Yes
Crawl Space	Yes	Slab Foundation	No

PROPERTY INFORMATION

County	Harnett
Site Address	1242 Cool Springs Rd Lillington, NC 27546
S/D Name and Lot#	
PIN	0611-85-8629
County PID	130611 0101
Size (Acre)	28.42

APPLICANT INFORMATION

Name	John G St. Peter
Mailing Address	P.O. Box 246
	Spring Lake, NC 28390
Telephone Number	910-257-4590
E-mail Address	stpeterjohn16@gmail.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	Steven Boor, Jacoby Kerr

Septic System Design Specifications

Proposed Design Daily Flow	<u>480</u> gpd	Drainfield Meets Requirements:
Septic Tank Size (minimum)	<u>1250</u> gallons	.0508 Available Space <u>Yes</u>
Pump Tank Size (minimum)	<u>1250</u> gallons, if required	.0601 Setbacks <u>Yes</u>

Initial System *See Detailed Design Parameters

System Type	<u>IIIbg - Pump to Other non-conventional systems</u>		
Pump Required	<u>Yes</u>	<u>25</u> ft TDH at	<u>28</u> GPM
Trenches:	<u>Accepted (25% reduction) System</u>		
Design LTAR	<u>0.35</u> gal/day/ft ²	Saprolite System	<u>Yes</u>
Total Trench/ Bed Length	<u>344</u> feet	Fill System	<u>No</u>
Trench Spacing	<u>9</u> ft on center		
Usable depth to LC	<u>>37</u> inches	Soil Cover	<u>6</u> inches
Maximum Trench Depth	<u>14</u> inches, measured on downhill side of trench		
Artificial Drainage Required	<u>No</u>		

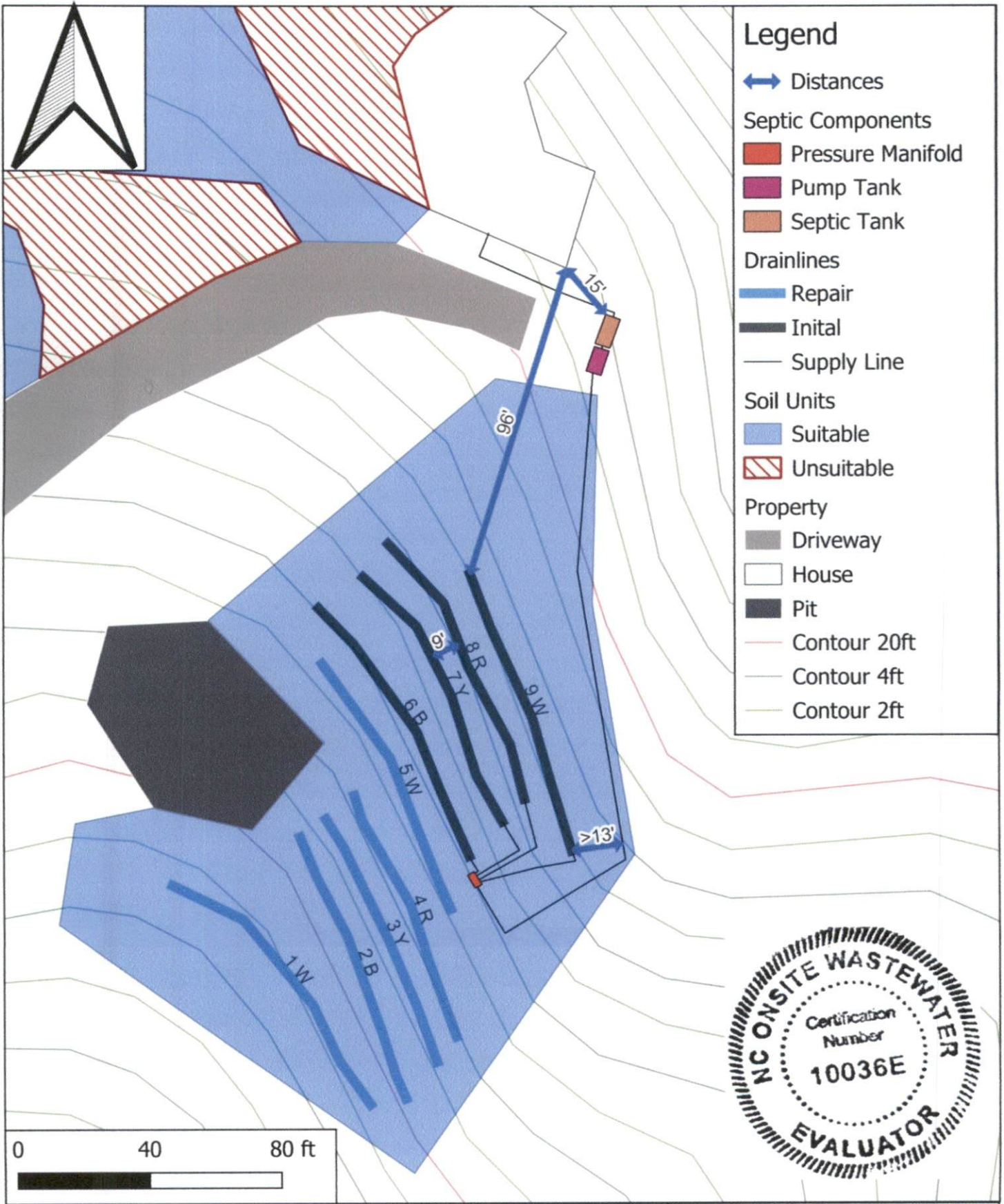
Repair System

System Type:	<u>IIIbg - Pump to Other non-conventional systems</u>		
Trenches:	<u>Accepted (25% reduction) System</u>		
Design LTAR	<u>0.30</u> gal/day/ft ²	Saprolite System	<u>Yes</u>
Total Trench/ Bed Length	<u>400</u> feet	Fill System	<u>No</u>
Trench Spacing	<u>9</u> ft on center		
Usable depth to LC	<u>>34</u> inches		
Maximum Trench Depth	<u>14</u> inches, measured on downhill side of trench		
Pump Required	<u>Yes</u>		

Potential Drainlines flagged at site on 9-ft centers.

Line #	Color	Relative Elevation (ft)	Drainline Length(ft)	Field Length(ft)			
1	W	101.72	80	94	}		
2	B	99.76	80	80		} repair	
3	Y	97.55	80	81			}
4	R	95.82	80	80			
5	W	93.52	80	85	}		
6	B	91.45	86	104		} initial	
7	Y	89.63	86	103			}
8	R	87.89	86	91			
9	W	86.07	86	90	}		
Septic Tank:		78.62					
Pump Tank:		78.62					
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



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John St. Peter
 1242 Cool Springs Rd
 8 May 2024

Figure 2
 Septic System Design Map
 For reference only. Not a survey.

Initial System Specifications

Pressure Manifold Design Criteria

DESIGN DAILY FLOW 480 gallons/day SOIL LTAR: 0.35 gpd/ft²
 TANKS (min) Septic Tank: 1250 gallons Pump Tank: 1250 gallons
 SUPPLY LINE Length: 205 ft Diameter: 2 " SCH 40 PVC
 Minimum flow (gpm) to maintain 2fps scour velocity: 20.9 gpm
 Supply Pipe Volume 36 gallons

TRENCHES Drainline Type: Accepted (25% reduction) System
 Maximum Trench Depth of 14 inches, measured on low side of trench
 Trench width: 3 feet Effective Trench Width: 4 ft
 Absorption Area: 1029 ft² Minimum Linear Length: 343 ft

MANIFOLD Length (ft): 3.5 Diameter: 4" sch 80 pvc Elevation: 92.45
 # Taps 4 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)
6	B	91.45	86	1/2"sch 40	7.11	1.395	0.465
7	Y	89.63	86	1/2"sch 40	7.11	1.395	0.465
8	R	87.89	86	1/2"sch 40	7.11	1.395	0.465
9	W	86.07	86	1/2"sch 40	7.11	1.395	0.465
Total Drainline:			344	Total Flow:	28.44		

Target LTAR: 0.47

LTAR + 5%: 0.490

PUMP CALCULATIONS

Dose Volume: 168.47 gallons, with Pipe Volume at 75 % *65.3gal/100ft pipe
 Dose Pump Run Time (min): 5.92 Daily Pump Run Time (min): 16.88
 Drawdown (in.): 168 gallons ÷ 28 gal/ inch = 6.02 inches
 Pump Tank Elevation (ft): 78.62 Pump Elevation (ft): 73.62
 Friction Head: 4.43 *Hazen Williams Formula (use supply line length+70' for fittings in pump tank)
 Elevation Head: 18.8 Design Head: 2.0 Total Head: 25.26 ft
 Pump to Deliver: 28.4 gpm @ 25.3 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 1250 STB-323

Possible Septic Filter: Polylock PL-122

Possible Pump Tank: Brantley 1300 PT-459

Vol(gal): 1300 GPI: 28

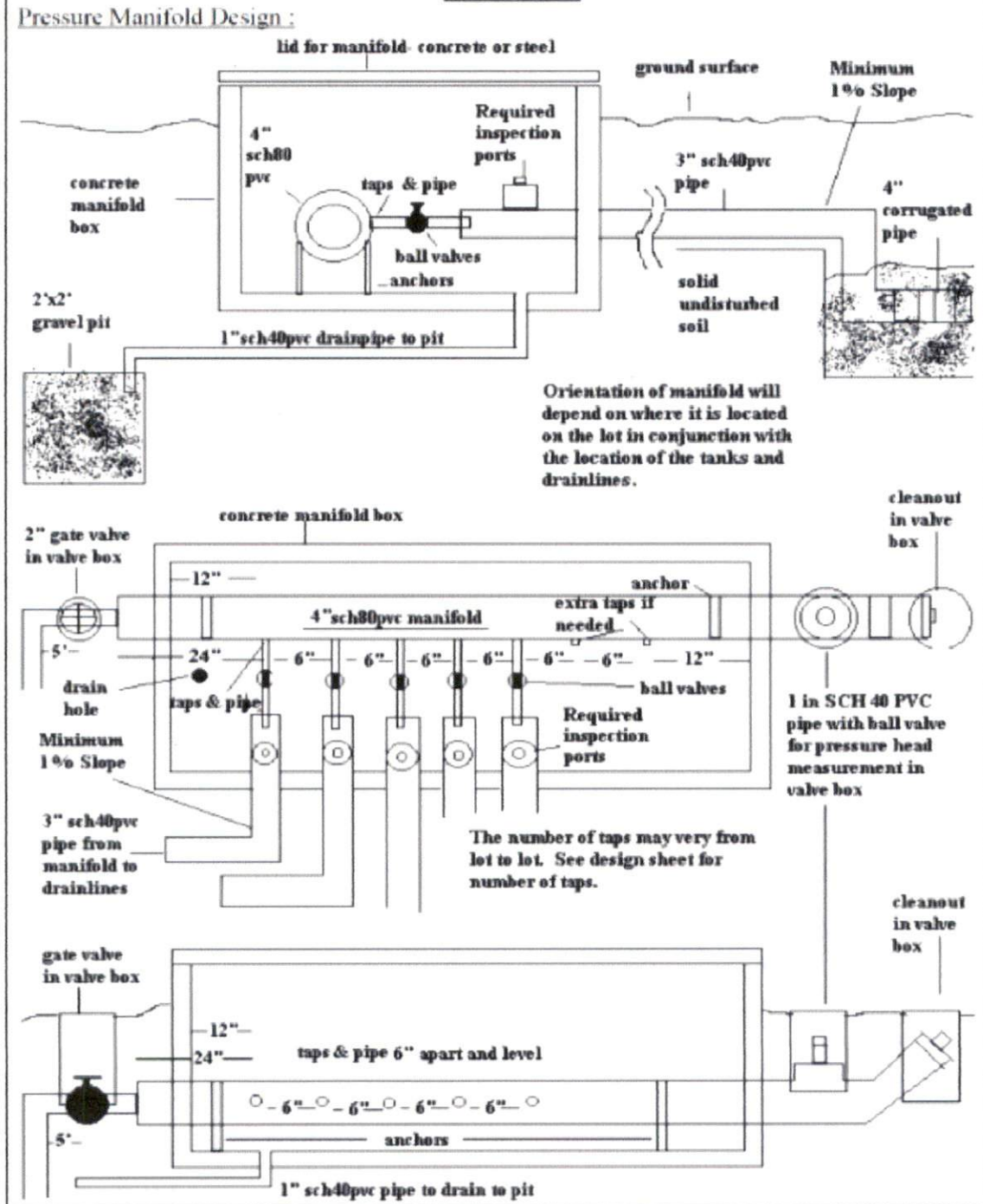
Possible Pump: Zoeller 150 series

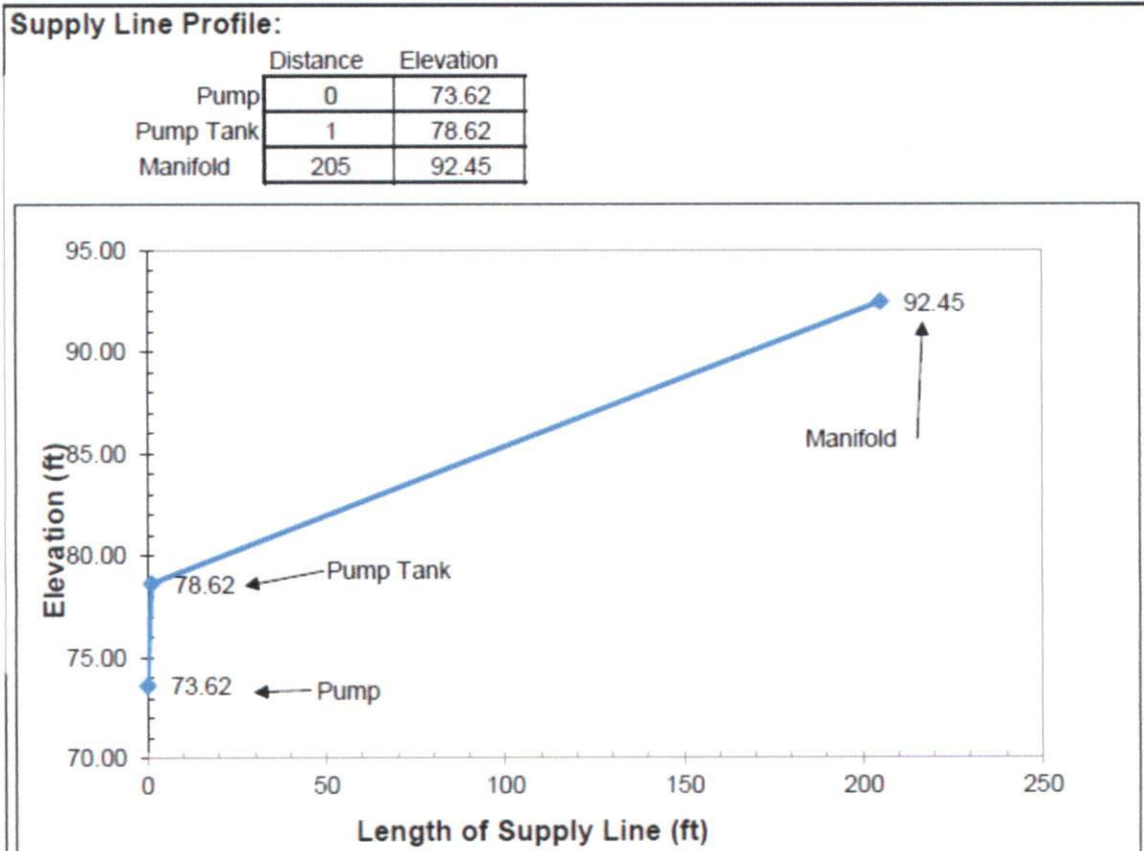
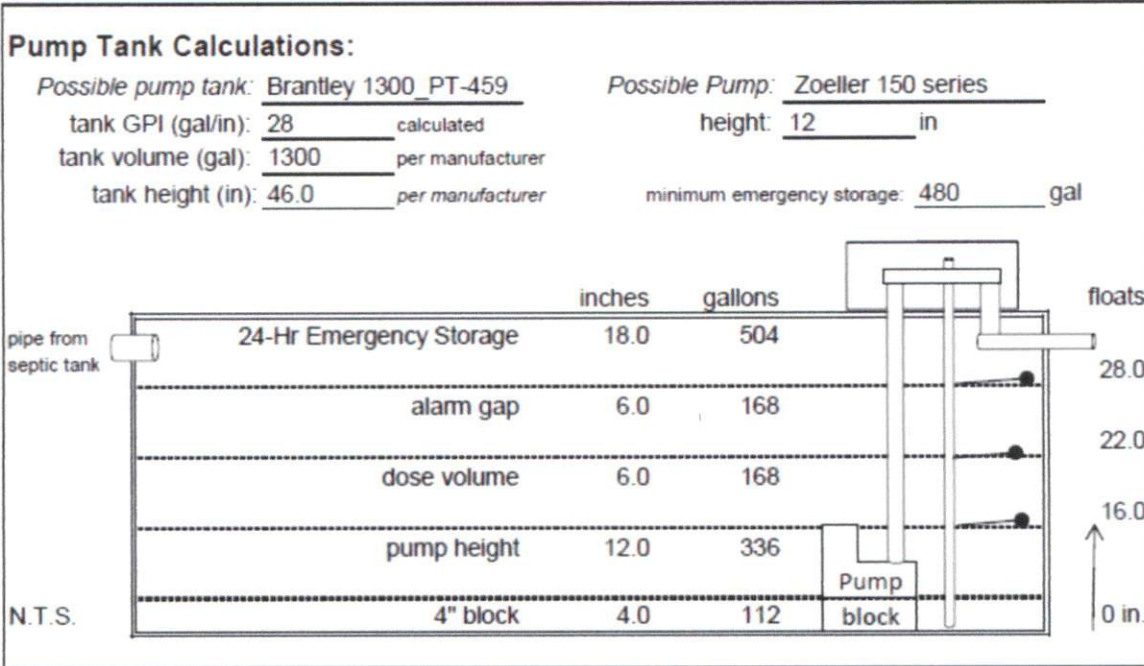
pump height (in) = 12

Pressure Manifold Diagram

	1	2	3	4
Manifold	4" SCH 80 PVC			
tap size	1/2" sch 40	1/2" sch 40	1/2" sch 40	1/2" sch 40
flow (gpm)	7.11	7.11	7.11	7.11
length (ft)	86	86	86	86

APPENDIX C





Repair System Specifications

DESIGN FLOW 480 gal/day

SOIL LTAR: 0.30 gpd/ft²

TANKS (minimum) Septic Tank: 1250 gallons Pump Tank: 1250 gallons

TRENCHES Drainline Type: Accepted (25% reduction) System

Maximum Trench Depth of 14 inches, measured on low side of trench

Trench width: 3 feet Effective Trench Width: 4 ft

Absorption Area: 1200 ft² Minimum Linear Length: 400 ft

PRESSURE MANIFOLD DESIGN CRITERIA

MANIFOLD # Taps 5 Tap Configuration: 6in. spacing, 1 side of manifold

Length (ft): 4 Diameter: 4" sch 80 pvc Elevation: 102.72

TAP CHART

Tap #	Line Number	Color	Relative Elevation	Drainline Length(ft)	Tap Size/Schedule	Flow/tap (gpm)	LTAR (gpd/ft ²)
1	1	W	101.72	80	1/2"sch 80	5.48	0.400
2	2	B	99.76	80	1/2"sch 80	5.48	0.400
3	3	Y	97.55	80	1/2"sch 80	5.48	0.400
4	4	R	95.82	80	1/2"sch 80	5.48	0.400
5	5	W	93.52	80	1/2"sch 80	5.48	0.400

Total Drainline: 400 Total Flow: 27.40

Target LTAR*: 0.40

LTAR + 5%: 0.420

PUMP CALCULATIONS

Total Flow: 27.40 gpm Design Head (ft): 2.0

Daily Pump Run Time: 17.52 min (Daily Flow/Total Flow)

Dose Volume: 195.90 gallons with Pipe Volume at 75 % (65.3gal/100ft pipe)

Dose Pump Run 7.15 minutes (Dose Volume/Total Flow)

* Target LTAR: Convert LTAR for non-conventional drainline types by dividing by trench length factor

MANIFOLD DIAGRAM:

