

OSE/PE Report For:

☒ Construction Permit
 ☐ Repair Permit
 ☐ Voluntary Upgrade Permit
 ☐ Certification Letter
 ☐ Subdivision Approval

Property Location:

911 Address: Walnut Point Road City: Heathsville
 Lot 4 Section _____ Subdivision Walnut Point Estates
 GPIN or Tax Map # 11-(1)-15C Health Dept ID # _____
 Latitude 37°58'31.0"N Longitude 76°26'43.1"W

Applicant or Client Mailing Address:

Name John W. Warren, Jr.
 Address 5176 Walnut Point Road
 City Heathsville State: VA Zip Code 22473

Prepared by:

OSE Name Davis Onsite Soil Evaluations L.L.C. License # 194000136 Phone (804) 366-1137
 Address P.O. Box 3133 E-mail awdavis272@gmail.com
 City Tappahannock State: VA Zip Code 22560
 PE Name _____ License # _____
 Address _____
 City _____ State: _____ Zip Code _____

Date of Report _____ Date of Revision #1 _____
 OSE/PE Job # _____ Date of Revision #2 _____

Contents/Index of this report (e.g., Site Evaluation Summary, Soil Profile Descriptions, Site Sketch, Abbreviated Design, etc.)

<u>Application</u>	<u>200' Sanitary Survey</u>
<u>Construction/System/Well Specifications</u>	<u>Abbreviated Design Reports</u>
<u>Soil Summary Report</u>	<u>Construction Drawings</u>
<u>Soil Profile Descriptions</u>	<u>Well Addendum</u>
<u>Soil Boring Locations</u>	<u>Pump Specifications</u>

Certification Statement

I hereby certify that the evaluations and/or designs contained herein were conducted in accordance with the *applicable provisions of the Sewage Handling and Disposal Regulations (12 VAC5-610), the Private Well Regulations (12 VAC5-630), the Regulations for Alternative Onsite Sewage Systems (12VAC5-613)* and all other applicable laws, regulations and policies implemented by the Virginia Department of Health. I further certify that I currently possess any professional license required by the laws and regulations of the Commonwealth that have been duly issued by the applicable agency charged with licensure to perform the work contained herein. The potential for both conventional and alternative onsite sewage systems has been discussed with the owner/applicant.

The work attached to this cover page has been conducted under an exemption to the practice of engineering, specifically the exemption in Code of Virginia Section 54.1-402.A.11

I recommend that a (select one): construction permit ☒ certification letter ☐ subdivision approval ☐ be (select one) Issued ☒
 repair permit ☐ voluntary upgrade ☐ Denied ☐

OSE/PE Signature _____ #194000136 Date: _____

Commonwealth of Virginia

 Application for: ☒ Sewage System ☒ Water Supply

VDH Use Only	
Health Department ID#	_____
Due Date	_____

Owner	<u>John W. Warren, Jr.</u>	Phone	<u>(703) 772-6889</u>
Mailing Address	<u>5176 Walnut Point Road</u>	Phone	_____
	<u>Heathsville, VA 22473</u>	Email	<u>jwwarr007@gmail.com</u>
Agent	<u>Davis Onsite Soil Evaluations L.L.C.</u>	Phone	<u>(804) 366-1137</u>
Mailing Address	<u>P.O. Box 3133</u>	Phone	_____
	<u>Tappahannock, VA 22560</u>	Fax	_____
Site Address	<u>Walnut Point Road</u>	Email	<u>awdavis272@gmail.com</u>
	<u>Heathsville, VA 22473</u>		
Directions to Property	<u>L/360; L/630; lot on right</u>		
Subdivision	<u>Walnut Point Estates</u>	Section	_____
		Block	_____
		Lot	<u>4</u>
Tax Map	<u>11-(1)-15C</u>	Other Property ID	_____
		Acreage	<u>13.9 acres</u>

Sewage System

Type of Approval: Applicants for new construction are advised to apply for a certification letter to determine if land is suitable for a sewage system and to apply for a construction permit (valid for 18 months) **only when ready to build.**

☐ Certification Letter
 ☒ Construction Permit
 ☐ Voluntary Upgrade
 ☐ Repair Permit
 ☐ Minor Modification

Proposed Use:

Single Family Home (Number of Bedrooms 4) Multi-Family Dwelling (Total Number of Bedrooms _____)

Other (describe) _____

Basement? ☐ Yes ☒ No Walk-out Basement? ☐ Yes ☒ No Fixtures in Basement ☐ Yes ☒ No

Conditional permit desired? ☐ Yes ☒ No If yes, which conditions do you want?

☐ Reduced water flow
 ☐ Limited Occupancy
 ☐ Intermittent or seasonal use
 ☐ Temporary use not to exceed 1 year

Do you wish to apply for a betterment loan eligibility letter? ☐ Yes ☒ No *There is a \$50 fee for determination of eligibility.

Water Supply

Will the water supply be ☐ Public or ☒ Private? Is the water supply ☐ Existing or ☒ Proposed?

If proposed, is this a replacement well? ☐ Yes ☒ No If yes, will the old well be abandoned? ☐ Yes ☐ No

Will any buildings within 50' of the proposed well be termite treated? ☐ Yes ☒ No

Well Type (e.g. domestic use, agricultural, irrigation, etc.) Domestic

All Applicants

Is this property intended to serve as your (owners) principal place of residence? ☒ Yes ☐ No

All applications must be accompanied by private sector evaluations and designs, unless a petition for VDH services is approved.

Is a Petition for Service form attached? ☐ Yes ☒ No

In order for VDH to process your application for a sewage system you must attached a plat of the property and a site sketch. For water supplies, a plat of the property is recommended and a site sketch is required. The site sketch should show your property lines, actual and/or proposed buildings and the desired location of your well and/or sewage system. When the site evaluation is conducted the property lines, building location and the proposed well and sewage sites must be clearly marked and the property sufficiently visible to see the topography. I give permission to the Virginia Department of Health to enter onto the property described during normal business hours for the purpose of processing this application and to perform quality assurance checks of evaluations and designs certified by a private sector Onsite Soil Evaluator or Professional Engineer as necessary until the sewage disposal system and/or private water supply has been constructed and approved.

Signature of Owner/Agent _____

Date _____

**Addendum to AOSE/PE Certification Statement
For Private Well Construction Permit**

Instructions: Please check on box in 1-3 below. Statement templates for items #2 and #3 are on the following pages.

The proposed well site shown herein,

- ☒ 1. Is located a minimum of 50 feet from all property lines.

- ☐ 2. Is located within 50 feet of the adjacent property line(s) but I have determined that the adjacent property is not used for an agricultural operation.
 - ☐ i. Written affirmation from the adjacent property owner(s) that their property is not used for an agricultural operation.
 - ☐ ii. Other confirmation that land use is not an agricultural operation, please describe:

- ☐ 3. Is located within 50 feet of an adjacent property line where the property is used for an agricultural operation. For confirmations, I have attached the appropriate documentation pursuant to § 32.1-176.5:2 of the *Code of Virginia*. (check one below)
 - ☐ i. Written permission from the adjacent property owner(s) for the well construction.
 - ☐ ii. I certify that no other site on the property complies with the Board's Regulations for the construction of a private well.

Davis Onsite Soil Evaluations, L.L.C.

Important Septic System Construction Notes **To be Read Carefully by Applicants and Installers**

- Installations shall be in accordance with the most current Virginia Department of Health Sewage Handling and Disposal Regulations.
- No buried utility lines shall be closer than 10' to any component of this system.
- Do not install this sewage disposal system or clear the proposed area during periods of wet weather or when soil conditions are wet. Installers are encouraged to review **State Health Regulation 12 VAC 5-610-700 Site Preparation and Alteration** to determine suitability of soil before installing this system.
- All hydrophilic trees (Weeping Willow, Maple, Gum, Sycamore, Cottonwood, Locust, etc) within 10' of this sewage disposal system should be removed. Grind all tree stumps when proposed system is installed at a depth of less than 24 inches.
- Land clearing resulting in a significant change of the original grade or soil continuity will void this permit.
- Drainfield trenches should be placed on contour; pads should be level.
- Roof drains, basement sump discharges (non-sewage), floor drains, footing drains, etc. are not permitted to be connected to this sewage disposal system.
- Divert all roof drainage and all other surface water runoff away from the primary and reserve drainfield areas.
- CAP AND CROWN: The minimum cover or fill over aggregate is 12 inches. Soil cover must be crowned in a way that promotes surface water drainage away from the drainfield area and prevents ponding of water on or around the drainfield area.
- Immediate seeding and straw application is required over and around the drainfield area to prevent erosion.
- Keep structures, equipment, vehicles, lawn irrigation systems, etc. off of the primary and reserve drainfield areas.
- This sewage disposal system and/or water supply system is to be constructed as specified on this permit, drawing, and specifications. Alwyn W. Davis, Jr., AOSE #194000136, must be notified prior to any necessary changes to the design of this system (804) 366-1137.
- Alwyn W. Davis, Jr., AOSE #194000136, must be notified at least 2 business days prior to final inspection. Voicemail messages must be confirmed in order to establish an inspection appointment. Please call (804) 366-1137 to arrange an inspection appointment.
- All conventional drainfield designs which require a pump to convey effluent to a distribution box and drainfield will require a pump drawdown inspection. Contractors please make arrangements to have the complete system ready for inspection.
- Completion and Inspection Statements will not be released until payment is received for the system inspection and/or design.
- Please contact Alwyn W. Davis, Jr., AOSE #194000136, when using any type of substitute system for AOSE approval. Size reductions for trenches are not recommended.
- The performance of any alternative system used in any permit design is not guaranteed by Davis Onsite Soil Evaluations, L.L.C. Only alternative treatment systems approved by the Virginia Department of Health can be used for onsite septic system designs. Davis Onsite Soil Evaluations L.L.C. assumes their performance based on this approval.
- It is the property owner's responsibility to ensure that the proposed well, primary drainfield, and reserve drainfield area is designed and installed on the applicants property and does not interfere with utilities and easements.

CONSTRUCTION NOTES

Install (1) 1250 gallon top seam septic tank a minimum of 10' from house foundation.

Install Zabel effluent filter in outlet side of septic tank.

Install access riser on outlet side of septic tank.

Install (1) 1000 gallon top seam pump tank a minimum of 10' from house foundation.

Contractor is responsible for ensuring that all tanks are properly sealed and watertight.

Install Liberty 280 Series pump with American Time Dose Panel

Time dose 50 gallons per dose every 2 hours.

All PVC from dwelling to Distribution Box to be Sch. 40 PVC Primed & Glued.

Use 3000 lb Crush Strength PVC for Header Lines.

Install 6 lines 70' long and 3' wide, at 18" depth on contour, 9' center-to-center spacing. Corners have been set with laser level and flagged in field. 5'+ from all property lines which have been recently surveyed.

Install Class IIIB Well, Cased 50'+, Grout 50'+, 50'+ from all potential sources of contamination, i.e. termite treated foundation.

Water line to be a minimum of 10' from all parts of septic system.

KEEP ALL PARTS OF SYSTEM 10'+ FROM UNDERGROUND UTILITIES.

Install System In Dry Conditions Only!

See Additional Construction Notes Attached

COMPLY WITH ALL LOCAL, STATE AND OSHA REGULATIONS.

Contact Alwyn W. Davis Jr. at (804) 366-1137 prior to installation to schedule a construction inspection. No part of this system is to be covered prior to inspection. Recommend calling in advance to insure that I will be available.

INSPECTION FEE SCHEDULE AS FOLLOWS: To be paid by contractor at time of inspection
48 Hours Notice, \$300.00 Per Inspection

ABBREVIATED DESIGN FORM
(PRIMARY)

For use with gravity, pump to gravity, enhanced flow, and low pressure distribution (LPD) sewage system designs and when applying for a construction permit, certification letter or subdivision approval.

Tax Map: 11-(1)-15C

County: Northumberland

Design Basis	
Estimated percolation rate: <u>40 mpi</u>	Number of Bedrooms: <u>4</u>
Proposed Distribution Method (select one):	
Gravity, Pump to Gravity, or Enhanced Flow: <u>Gravity</u>	LPD or drip dispersal: <u>N/A</u>
Square feet of trench bottom required per bedroom (from Table 5.4 of SHDR) based on the distribution method selected above:	
Square feet per bedroom: <u>314</u>	Total square feet required: <u>1256</u>

Area Calculations:	
Number of trenches: <u>6</u>	Length of trenches: <u>70'</u>
Width of trenches: <u>3'</u>	Center to center spacing: <u>9'</u>
Reserve required? <u>Yes</u>	Percent reserve area required: <u>100</u>
Total width of required absorption area: <u>60'</u>	Total square feet proposed: <u>2100</u>
The required width is calculated by multiplying the number of trenches minus 1 by the center to center spacing and adding 1 trench width plus any required reserve area. If the topography is not uniform across the length of the site, the trenches will need to flare apart on one end to maintain contour. When this occurs, it is necessary to use a center-to-center spacing that accounts for the flair or the installer will not be able to fit the system within the approved area. It is perfectly acceptable to have more area available, especially up and down the slope, than is required.	
Length of available area: <u>70'</u>	Total width of available area: <u>60'</u>

ABBREVIATED DESIGN FORM FOR TL-3 SYSTEMS**(RESERVE)**Tax Map: 11-(1)-15CCounty: Northumberland

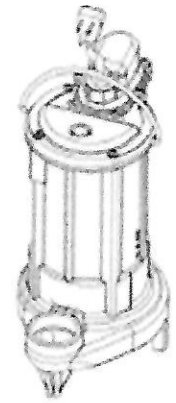
A.	Estimated Percolation Rate (Minutes Per Inch)	<u>40</u>
B.	Loading Rate (gpd per Square Foot) from Table 5.5	<u>0.83</u>
C.	Number of Bedrooms	<u>4</u>
D.	Estimated Daily Flow to Disposal Bed (gpd)	<u>600</u>
E.	Bed Area Required (Square Feet) (D/B)	<u>723</u>
F.	Length of Proposed Bed (feet)	<u>70</u>
G.	Width of Proposed Bed (feet)	<u>12</u>
H.	Area of Proposed Bed (Square Feet)	<u>840</u>
I.	Maximum Elevation Change in Proposed Bed (inches)	<u>1.5</u>
J.	Proposed Installation Range (inches)	<u>18-20</u>

REMARKS:

Table 5.5: Soil Absorption Area Loading Rates for Systems Receiving TL-2 Effluent or TL-3 Effluent

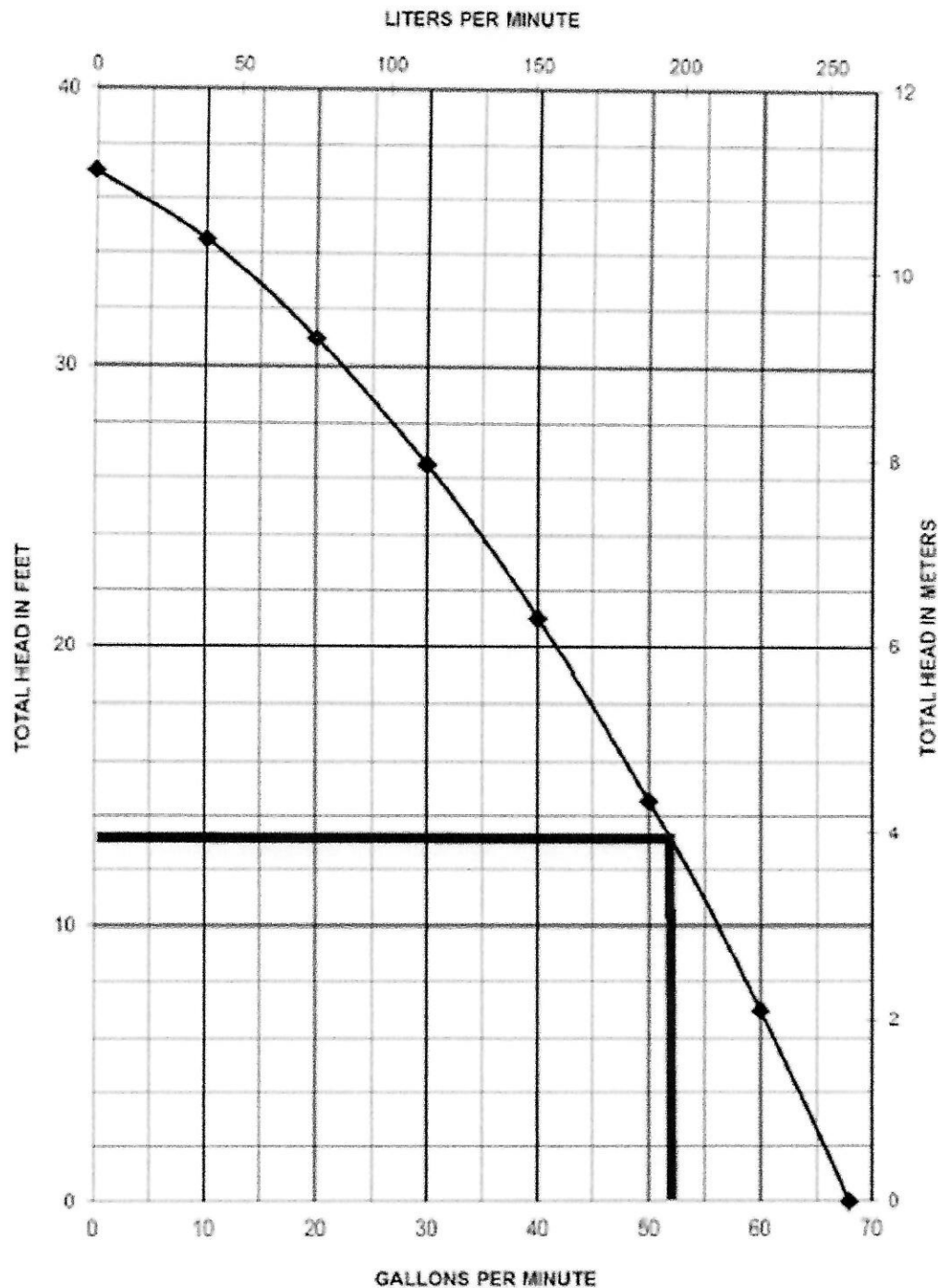
Percolation Rate (mpi)	TL-2 Effluent	TL-3 Effluent	Percolation Rate (mpi)	TL-2 Effluent	TL-3 Effluent
	Pad/Mound (gpd/ft ²)	Pad/Mound (gpd/ft ²)		Pad/Mound Loading (gpd/ft ²)	Pad/Mound (gpd/ft ²)
5	1.2	1.66	65	0.44	0.51
10	1.11	1.66	70	0.41	0.48
15	1.02	1.66	75	0.38	0.44
20	0.93	1.66	80	0.35	0.42
25	0.86	1.33	85	0.33	0.39
30	0.8	1.11	90	0.3	0.37
35	0.73	0.95	95	0.27	0.35
40	0.66	0.83	100	0.25	0.33
45	0.6	0.74	105	0.23	0.32
50	0.53	0.67	110	0.21	0.3
55	0.5	0.61	115	0.19	0.29
60	0.47	0.55	120	0.17	0.28

Liberty Pumps®



Pump Specifications

280 Series 1/2 hp Submersible Effluent Pump



PUMP SYSTEM DESIGN CRITERIA, SPECIFICATIONS, AND CALCULATIONS

A.	Number of bedrooms	<u>4</u>
B.	Gallons per bedroom	<u>150</u>
C.	Design flow in gallons per day (A x B)	<u>600</u>
D.	Minimum pump capacity in gallons per minute (enhance flow distribution)	<u>36 gpm</u>
E.	Maximum pump capacity in gallons per minute using 2" force main	<u>84 gpm</u>
F.	Relative elevation of force main at surge basin/distribution box	<u>-</u>
G.	Relative elevation of pump off float switch	<u>-</u>
H.	Static head in feet (F-G)	<u>5</u>
I.	Equivalent length of 2" pipe in feet for this system (all materials are 2")	
	1. Length of 2" force main	<u>290</u>
	2. <u>4</u> 90 degree bends at <u>9</u> feet per bend =	<u>36</u>
	3. <u>0</u> 45 degree bends at <u>4</u> feet per bend =	<u>0</u>
	4. <u>1</u> check valve	<u>17</u>
	5. <u>1</u> gate valve	<u>2</u>
	Total (1+2+3+4+5)	<u>345</u>
J.	Friction loss in feet per 100' of pipe (2" pipe, C = 140, <u>36</u> GPM)	<u>2.49</u>
K.	Number of 100' pipe increments (I/100)	<u>3.45</u>
L.	Friction head for this system (J x K)	<u>8.59</u>
M.	Total Dynamic Head (H + L)	<u>13.59</u>
N.	Pump chamber volume in gallons	<u>1000 gallons</u>
O.	Gallons per inch in pump chamber (inside length = <u>96</u> ", inside width = <u>48</u> ")	<u>20 gal/in</u>
P.	Number of soil absorption trenches	<u>6</u>
Q.	Length of absorption trenches	<u>70'</u>
R.	Total linear feet of percolation piping (P x Q)	<u>420'</u>
S.	Volume pumped per pump cycle in gallons (R x 0.653 x 60%) (time dosed)	<u>50 gallons</u>
T.	Volume pumped per pump cycle in inches (S/O)	<u>2.5 inches</u>
U.	Minimum emergency storage in gallons (C/4)	<u>150 gallons</u>
V.	Minimum emergency storage in inches (U/O)	<u>7.5 inches</u>
W.	Maximum pump run time in minutes (S/D)	<u>TBD @ inspection</u>
X.	Minimum pump run time in minutes (S/E)	<u>TBD @ inspection</u>

Pump Selection:

Pump must provide a minimum of 36 GPM at a Total Dynamic Head of 13.59 feet.

Pump: Liberty Model #: 280 Series Horsepower: 1/2 HP

Control Panel: American Time Dose Panel

Additional Information: Time dosed system – 600 gpd/12 cycles = 50 gallons per dose

Site and Soil Evaluation Report

VDH Use Only

HDIN: _____

General Information

Date: January 11, 2023 Northumberland County Health Department
 Owner: John W. Warren, Jr. Phone: (703) 772-6889
 Owner Address: 5176 Walnut Point Road, Heathsville, VA 22473
 Property Address: Walnut Point Road, Heathsville, VA 22473
 Tax Map/GPIN #: 11-(1)-15C
 Subdivision: Walnut Point Estates Section: _____ Block: _____ Lot: 4

Soil Information Summary

1. Position in landscape satisfactory: ☒ Yes ☐ No Describe landscape position: Broad Flat
 2. Slope: 0-1 % Lower Terrace on Cod Creek
 3. Depth to rock/impervious strata: Max. _____ in. Min. _____ in. ☒ Not observed
 4. Free Water Present: ☐ Yes ☒ No Range in inches: _____
 5. Depth to seasonal water table (gray mottling or gray color): 38 Inches (few) ☐ Not observed
 6. Soil percolation rate estimated: ☒ Yes ☐ No Estimated rate: 40 min/in at 18 inches depth
 Texture Group: ☐ I ☒ IIb ☐ III ☐ IV
 7. Percolation test performed: ☐ Yes ☒ No If yes, provide additional data on percolation test results.
 Name and title of evaluator: Alwyn W. Davis Jr., AOSE #194000136
 Signature: _____

☒ Site Approved: Absorption trenches (describe dispersal area, e.g. absorption trenches) dispersing
Septic Tank Effluent (proposed level of treatment at time of evaluation) to be placed at 18 (inches) depth
 at site designated on permit. Site provides a total of 2100 square feet of absorption area for primary and
 reserve (if applicable).

☐ Site disapproved: Reasons for rejection (check all that apply)

1. ☐ Position in landscape subject to flooding or periodic saturation.
2. ☐ Insufficient depth of suitable soil over hard rock.
3. ☐ Insufficient depth of suitable soil to seasonal water table.
4. ☐ Rates of absorption too slow.
5. ☐ Insufficient area of acceptable soil for required absorption area, and/or reserve area.
6. ☐ Proposed system too close to well.
7. ☐ Other (specify) _____

Date of Evaluation: Jan. 11, 2023 Profile Description

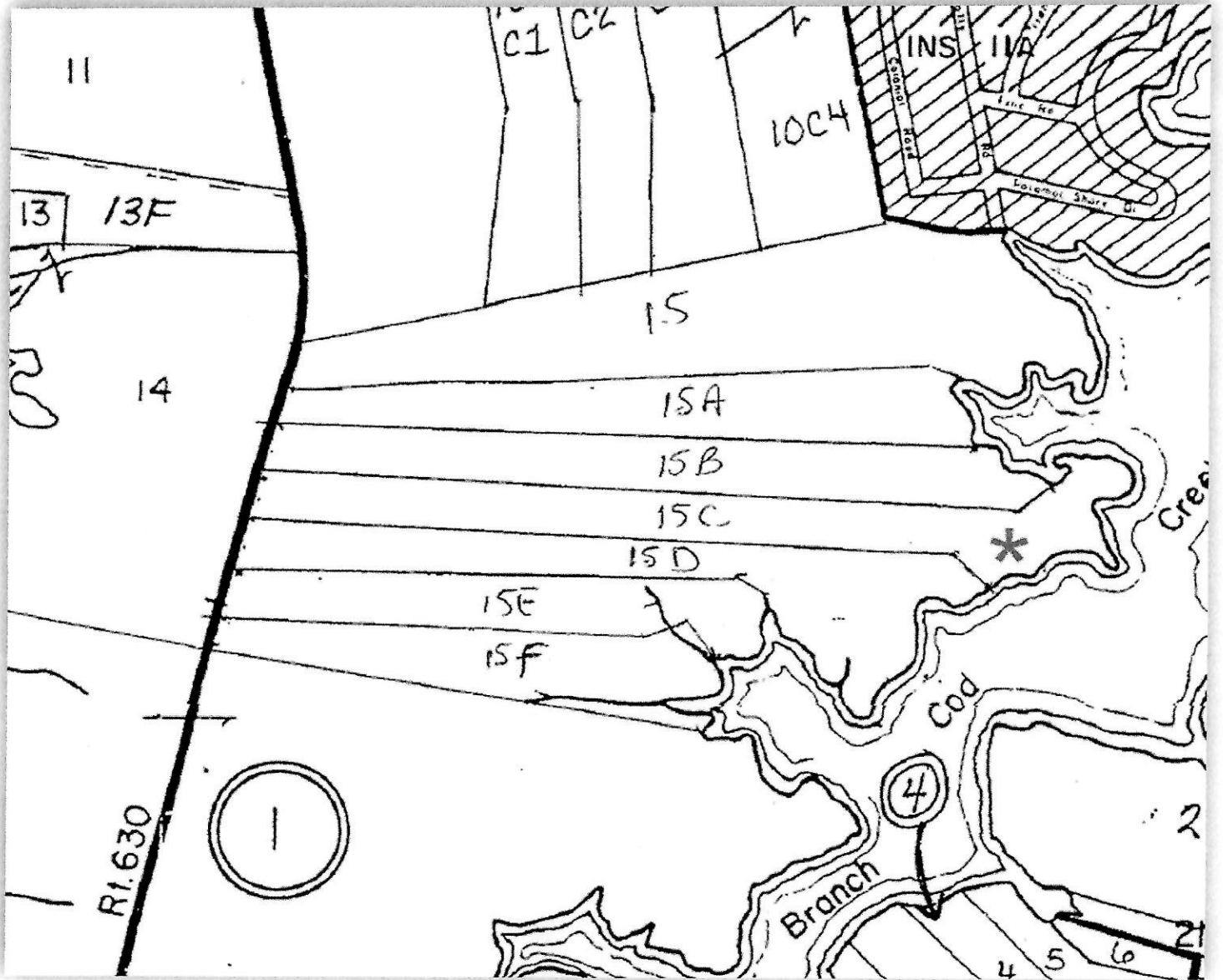
SOIL EVALUATION REPORT

Property ID: 11-(1)-15C

Where the local health department conducts the soil evaluation the location of profile holes may be shown on the schematic drawing on the construction permit or the sketch submitted with the application. If soil evaluations are conducted by a private Onsite Soil Evaluator or Professional Engineer, location of profile holes and sketch of the area investigated including all structural features (i.e. sewage disposal systems, wells, etc.) within 200 feet of the site and reserve site shall be shown on the reverse side of this page or prepared on a separate page and attached to this form.

☐ See application sketch ☐ See Construction Permit ☒ See sketch on reverse side or page attached to this form.[illegible]

REMARKS: 4 BDRM, 40mpi = 1256sf required. 6 x 70' = 1260sf design; 12' x 70' BED, TL-3 treatment for Reserve



Well Specifications

VDH Use Only

HDIN: _____

Applicant Information

Name: John W. Warren, Jr. Address: 5176 Walnut Point Road
 Phone: (703) 772-6889 Heathsville, VA 22473

Location Information

Tax Map/GPN #: 11-(1)-15C Property Address: Walnut Point Road
 Subdivision: Walnut Point Estates Section: _____ Block: _____ Lot: 4
 Directions: L/360; L/630; lot on right

General Information

Well Purpose (select all that apply):
☒ Domestic Drinking Water ☐ Agricultural
☐ Irrigation ☐ Industrial/Commercial ☐ Geothermal
 Well Class: IIIB Minimum Casing Depth: 50 ft.
 Estimated Water Usage: 600gpd Minimum Grout Depth: 50 ft.

Horizontal Setbacks

Distance from Building Sewer: 50'+ ft. Distance from Pretreatment Unit(s): 50'+ ft.
 Distance from Conveyance System: 50'+ ft. Distance from Absorption Area: 50'+ ft.
 Distance from Property Line: 50'+ ft. Distance from foundations: 50'+ ft.
 Distance from other source(s) of contamination: 50'+ ft.
 List other source(s): _____

Note: _____

PUMP SYSTEM PLANS AND SPECIFICATIONS

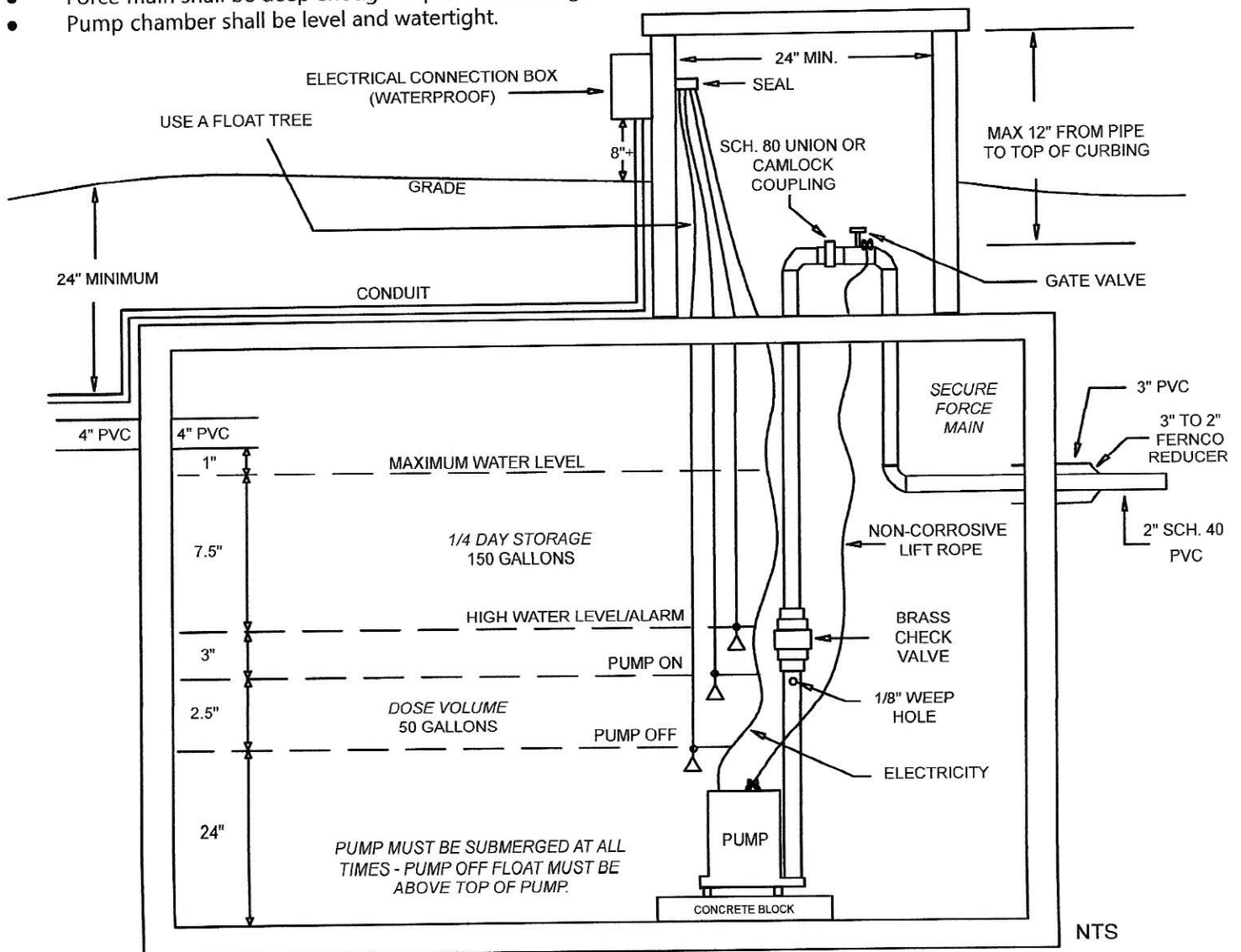
Pump Chamber Size in Gallons:	1000 gallons
Drawdown in Gallons (Each Pump Cycle):	50 gallons
Drawdown in Inches (Each Pump Cycle):	2.5 inches
¼ Day Storage Volume in Gallons:	150 gallons
¼ Day Storage Volume in Inches:	7.5 inches

Force Main shall be 2" Diameter SCH 40 PVC pressure pipe with pressure fittings.
 Pump must provide 36 Gallons per minute minimum and 84 gallons per minute maximum at system head.

Maximum Pump Cycle Time (Drawdown in Gallons 36 GPM = * mins. * secs.
 Minimum Pump Cycle Time (Drawdown in Gallons 84 GPM = * mins. * secs.

To be determined at time of drainfield inspection.

- Pump shall be of the open face centrifugal type designed to pump sewage.
- The pump station must be provided with controls for automatically starting and stopping the pump based on water level.
- The electrical motor control center and master disconnect switch shall be placed in a secure location above grade and remote from the pump station.
- Each motor control center shall be provided with a manual override switch.
- A high water alarm with remote sensing and electrical circuitry separate from the motor control center circuitry shall be provided.
- The alarm shall be audiovisual and shall alarm in an area where it may be easily monitored.
- All electrical connections shall be hardwired.
- Do not use compression fittings.
- Force main shall be deep enough to prevent freezing.
- Pump chamber shall be level and watertight.



SDS/WELL CONSTRUCTION DRAWING
200' SANITARY SURVEY
SOIL BORING LOCATIONS
JANUARY 11, 2023

NO OTHER KNOWN SDS/WELLS WITHIN
200' OF PROPOSED SDS/WELL.

Alwyn W. Davis Jr.
AOSE #194000136

JOHN W. WARREN, JR.
NORTHUMBERLAND TM#: 11-(1)-15C
WALNUT POINT RD
WALNUT POINT ESTATES S/D, LOT 4

