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PLANNERS / ARCHITECTS / ENGINEERS / SURVEYORS

Alternative Onsite Soil Evaluator /Professional Engineer Report for Construction Permit

Property Location:

Subdivision: **NA** Section: **NA** Lot: **NA**

Map Reference: **47-3B & 47-3** Acreage: **33.940** County: **Gloucester**

Other Property ID: **9524 Whittaker Drive**

Applicant / Client and Address:

MPPDC
PO Box 286
Saluda, VA 23149

Prepared by:

David K. Hogan, AOSE #1940001362
Balzer & Associates Inc.
15871 City View Drive, Suite 200
Midlothian, VA 23113
(804) 794-0571

Date of Report: **6/20/2025** AOSE/P.E. Job Number: **59250006.01**

Revisions: Health Dept. ID No.:

Contents/Index of this Report			Page(s):
Site Layout/Construction Drawings	☑ Yes	☐ No	2-4
Soil Summary Report	☑ Yes	☐ No	5
Soil Profile Descriptions	☑ Yes	☐ No	6
Construction Specifications	☑ Yes	☐ No	7-9
Pump Specifications	☑ Yes	☐ No	10-11
Abbreviated Design Form	☑ Yes	☐ No	12
Septic Care and Maintenance	☑ Yes	☐ No	13
Water Supply Design Specs	☐ Yes	☑ No	

Certification Statement:

I hereby certify that the evaluations and/or designs contained herein were conducted in accordance with 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 work attached to this cover page has been conducted under an exemption to the practice of engineering, specifically the exemption in
The Code of Virginia Section 54.1-402.A.11.

I recommend a **Construction Permit** be approved

A.O.S.E. / P.E Stamp Signature & Date

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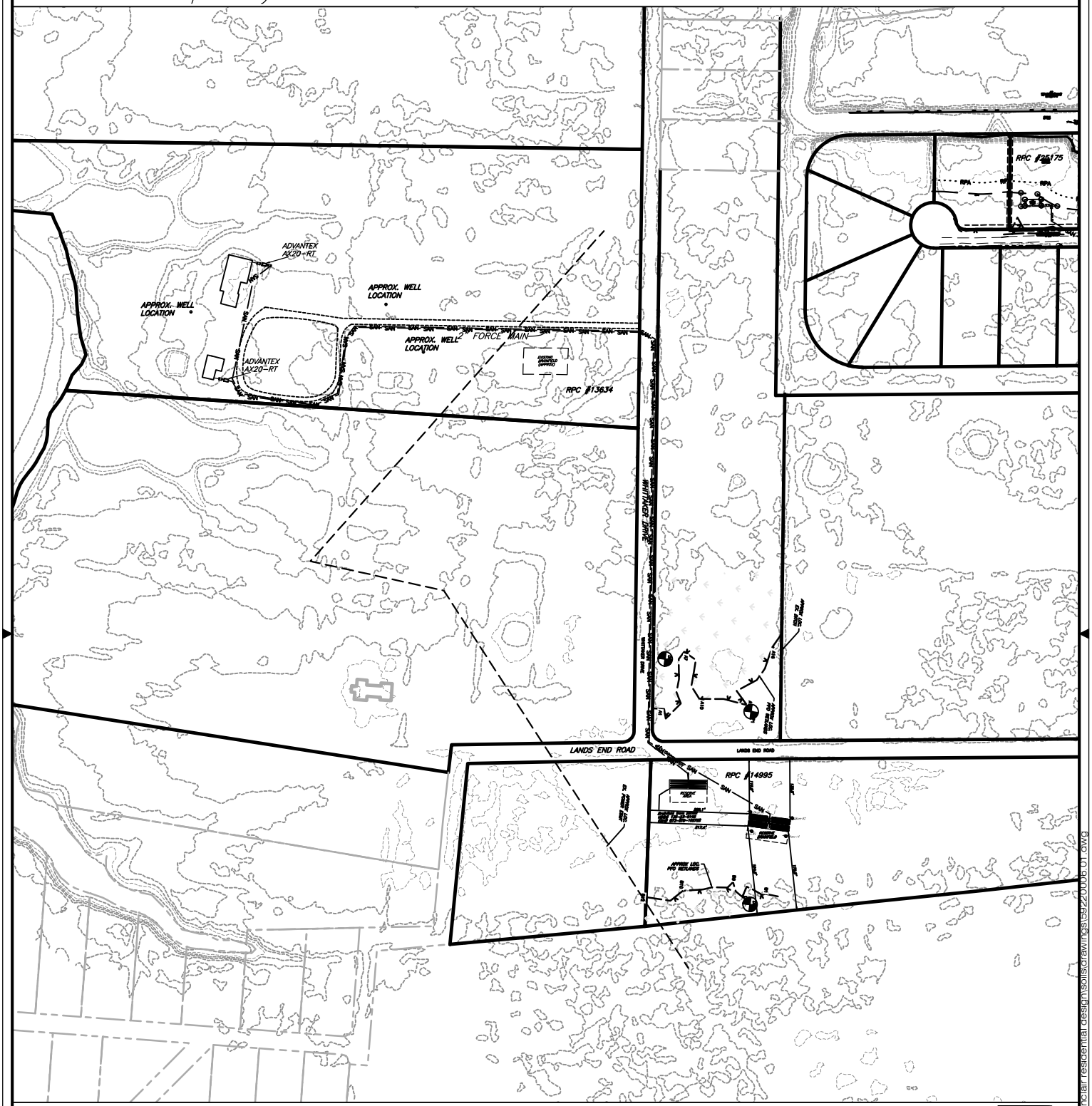

Proposed Improvements on
9524 Whittaker Drive
Tax Maps 47-3B & 47-3
Gloucester County, Virginia

DATE: *6/20/2025*
SCALE: *1"=300'*
JOB NO: *59220006.01*
Pur: MPPDC

CHK: DKH
DWG: BWD

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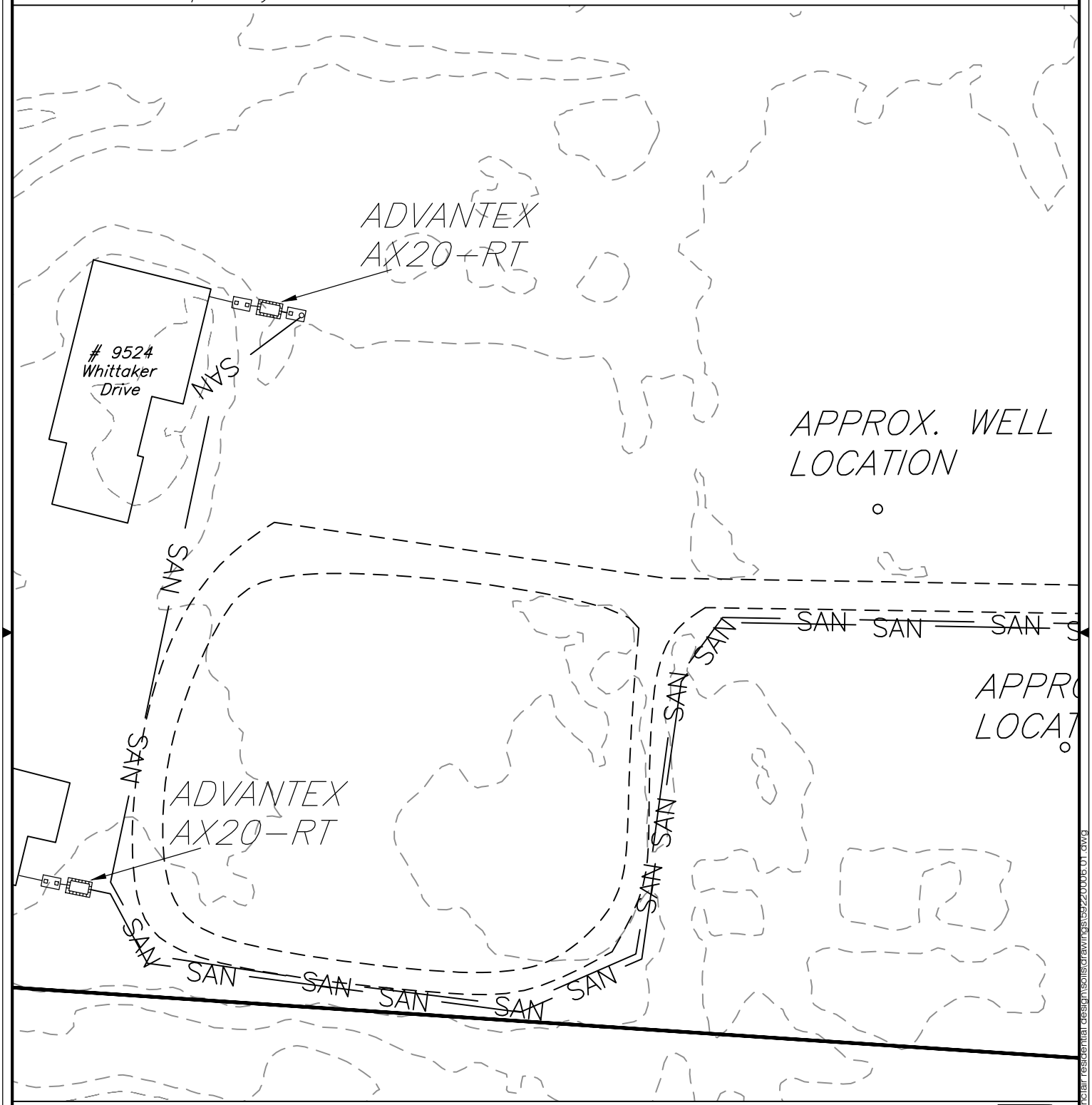

DATE: 6/20/2025
SCALE: 1"=60'
JOB NO: 59220006.01
Pur: MPPDC

CHK: DKH
DWG: BWD

Proposed
Improvements on
9524 Whittaker Drive
Tax Maps 47-3B & 47-3
Gloucester County, Virginia

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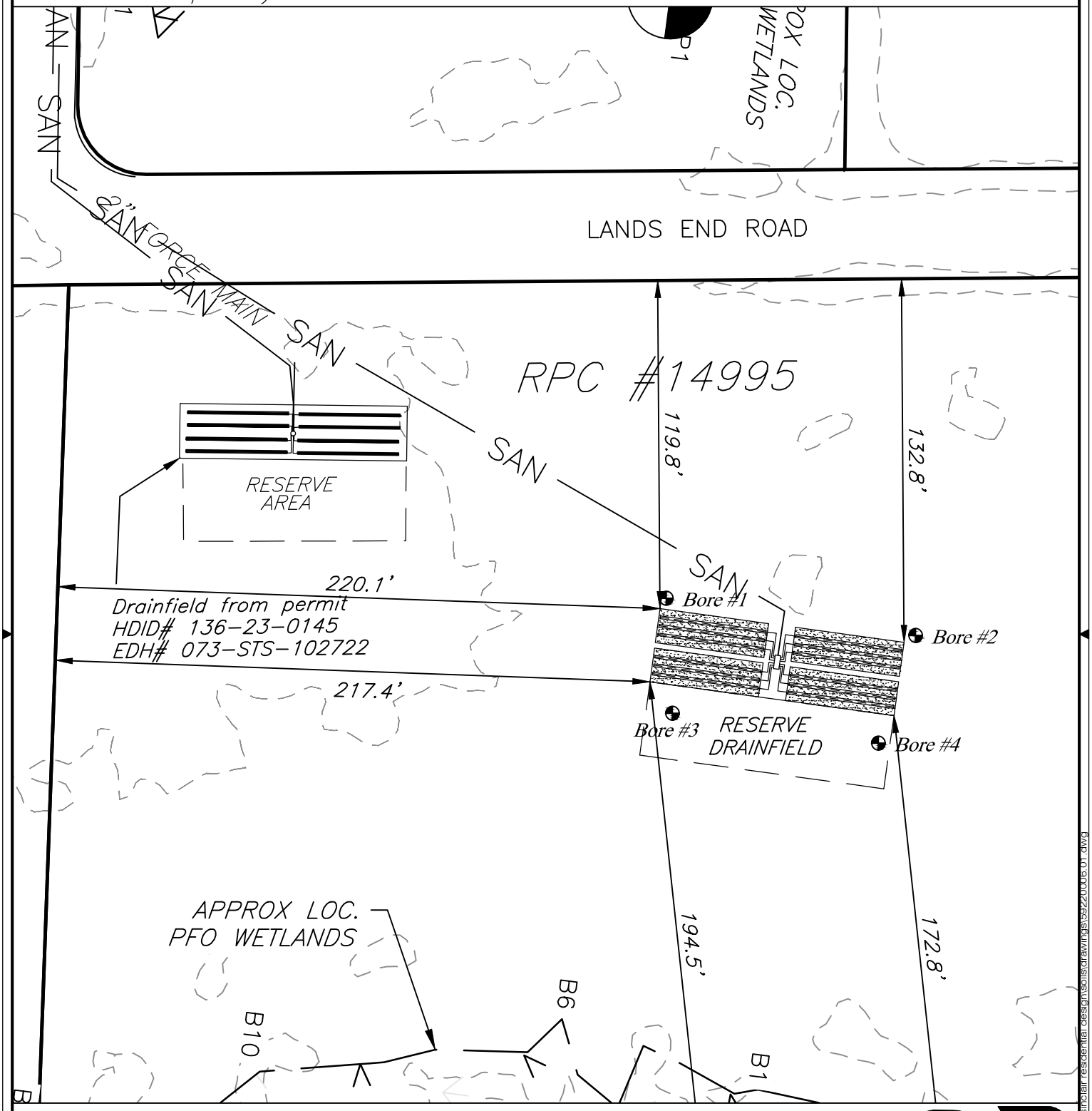

Proposed Improvements on
9524 Whittaker Drive
Tax Maps 47-3B & 47-3
Gloucester County, Virginia

DATE: *6/20/2025*
SCALE: *1"=50'*
JOB NO: *59220006.01*
Pur: MPPDC

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Soil Summary Report

General Information

Date: **6/20/2025** Submitted to: **Gloucester** Health Department

Applicant: **David K. Hogan, AOSE, Balzer and Associates, Inc** Phone: **(804) 794-0571**

Address: **15871 City View Drive, Suite 200; Midlothian, VA 23113**

Owner: **MPPDC**

Address: **PO Box 286** City, State Zip: **Saluda, VA 23149**

Location: **9524 Whittaker Drive** Tax Map: **47-3B & 47-3**

Subdivision: **NA** Section: **NA** Lot: **NA**

Soil Information Summary

1. Position in landscape satisfactory: ☑ Yes ☐ No
   Describe: **Flat**
2. Slope: **0%**
3. Depth to rock or impervious strata: Min. Max. None **X**
4. Depth to seasonal water table (gray mottling or gray color): ☐ No ☑ Yes **4** inches
5. Free water present: ☑ No ☐ Yes _ inches
6. Soil Percolation rate estimated: ☑ Yes ☐ No Texture group **III** Estimated rate of **50** min/inch
7. Permeability test performed: ☐ Yes ☑ No
   If yes, note type of test performed and attach _____

☑ Site Approved: Drainfield to be placed at a depth of **6*** inches at site designated on permit
__ Site Disapproved: 6" above Grade with 10" of sandy topsoil cover
6" sand pad to start at original grade

Reasons for rejection:

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 seasonable water table.
4. ____Rates of absorption to slow.
5. ____Insufficient area of acceptable soil for required drainfield, and/or Reserve Area.
6. ____Proposed system too close to well.
7. ____(attach additional pages if necessary)

SOIL PROFILE DESCRIPTION REPORT

Evaluation Location: NA Section: NA Lot: NA

Map Reference: 47-3B & 47-3 Other Property I.D.: 9524 Whittaker Drive

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 attached to this form.

Hole #	Horizon	Depth(inches)	Descriptions of color, texture, etc.	Texture Group
Bore #1	A	0-3	10YR 3/2 very dark grayish brown sandy loam	IIA
	E	3-8	2.5Y 4/2 dark grayish brown fine sandy loam	IIA
	B1	8-19	2.5Y 5/3 light olive brown heavy fine sandy loam	IIA
	B2	19-24	10YR 6/1 gray and 10YR 5/8 yellowish brown	
			sandy clay loam, friable, fine weak subangular blocky	IIB
	Bt	24-36	10YR 5/2 grayish brown clay, restrictive,	IV
			10YR 5/8 yellowish brown mottling	
Bore #2	A	0-4	10YR 3/2 very dark grayish brown sandy loam	IIA
	E	4-8	2.5Y 3/2 very dark grayish brown fine sandy loam	IIA
	B1	8-14	2.5Y 5/2 grayish brown fine sandy loam, faint	IIA
			7.5YR 5/8 strong brown mottling	
	B2	14-20	2.5Y 6/2 light brownish gray sandy clay loam with	IIB
			prominent 7.5YR 5/8 strong brown mottling	
	Bt	20-30	2.5Y 6/1 gray sandy clay, restrictive	IV
Bore #3	A	0-5	10YR 3/2 very dark grayish brown sandy loam	IIA
	E	5-16	2.5Y 5/2 grayish brown fine sandy loam	IIA
	Bt	16-30	10YR 4/2 dark grayish brown clay to sandy clay with	IV
			2.5YR 5/8 red mottling	
Bore #4	A	0-4	10YR 3/2 very dark grayish brown sandy loam	IIA
	E	4-8	2.5Y 4/2 dark grayish brown fine sandy loam	IIA
	B1	8-20	2.5Y 5/3 light olive brown heavy fine sandy loam	IIA
	B2	20-25	10YR 6/1 gray and 10YR 5/8 yellowish brown	
			sandy clay loam, friable, fine weak subangular blocky	IIB
	Bt	25-36	10YR 5/2 grayish brown clay, restrictive,	IV
			10YR 5/8 yellowish brown mottling	

Remarks:

Saturated conditions at 5"

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Sewage Disposal System Construction Specifications

General Information

Use:

☑ Residential ☐ Commercial

☑ New ☐ Repair ☐ Modified

☐ Gravity Conventional ☐ Pump Conventional

☑ Alternative: TL-3 to geomat pads

Number of Bedrooms: 6

Termite Treatment: ☑ Yes ☐ No

Basement: ☐ Yes ☑ No

Fixtures in Basement: ☐ Yes ☑ No

Owner: **MPPDC**

Address: **PO Box 286** City, State Zip: **Saluda, VA 23149**

Subdivision: **NA** Section: **NA** Lot: **NA**

Actual or estimated water use: **900** GPD

Design

Water Supply: ☐ Public ☑ Private ☐ New ☑ Existing

To be installed: Class: Cased: Grouted:

Building Sewer:

4" I.D. PVC 40 or equivalent

Slope 1.25" per 10' (minimum)

☐ Other:

Septic Tank: Capacity: **Advantex** gallons (minimum) ☑ With inspection port or filter

☐ Other: **AX20-RT with UV**

Inlet-outlet structure:

PVC 40, 4" tees or equivalent

☐ Other:

Pump and pump station:

☐ No ☑ Yes describe and show design

If Yes: **1000 gallon pump tank, see pump specs pages**

Gravity Mains: 3" or larger I.D., minimum 6" fall per 100', 1500 lb. crush strength or equivalent

☐ Other:

Distribution Box:

Pre-cast concrete with **14** ports

Header Lines:

Material: 4" I.D. 1500 lb. crush strength plastic or equivalent from distribution box to 2' into absorption trench

Slope: 2"/100' minimum

☐ Other:

Percolation Lines:

Gravity 4" plastic 1000 lb. per foot bearing load or equivalent, slope 2"-4" (min.-max.) per 100'

☐ Other:

Absorption Trenches:

Square feet required: **2000 ft²** Depth to geomat system: **6* inches** Pad width: **40.0 feet**

Depth of Sand: **6"** Pad length: **40.0 feet** Number of pads: **4**

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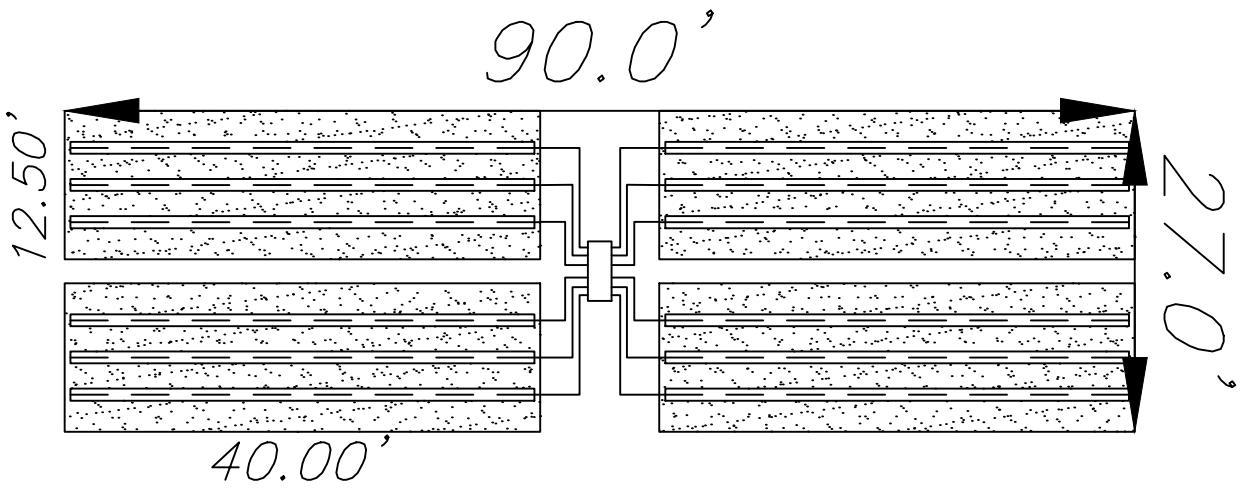

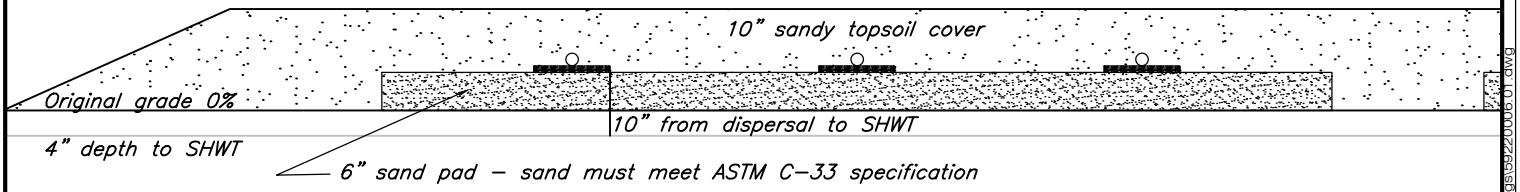

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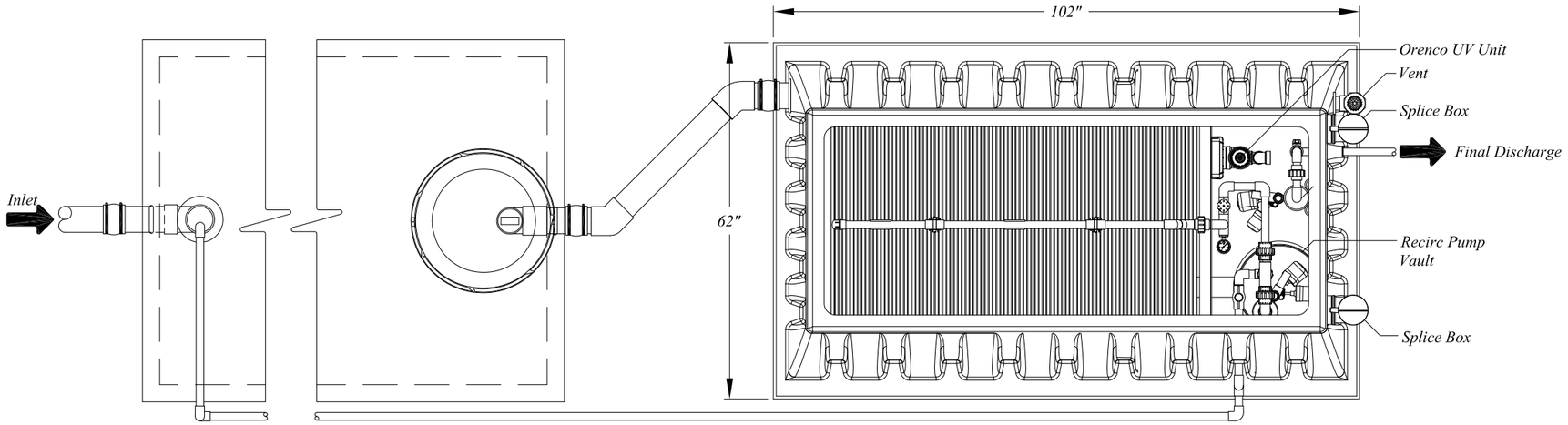
AX20RTUV Treatment System - UV with Pump Discharge (VA)

Filter Tank Dry Weight: 900 lbs

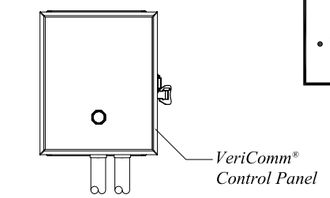
Design and Installation Notes

- For Expected Flows 4 Bedrooms or less
- Installation To Be Performed By An AdvanTex Trained Installer Only
- Start-up And Service To Be Performed By An AdvanTex Trained Service Provider



1000 gal. Primary Tank - Top View

AX20 800 gal. Recirc. Tank - Top View



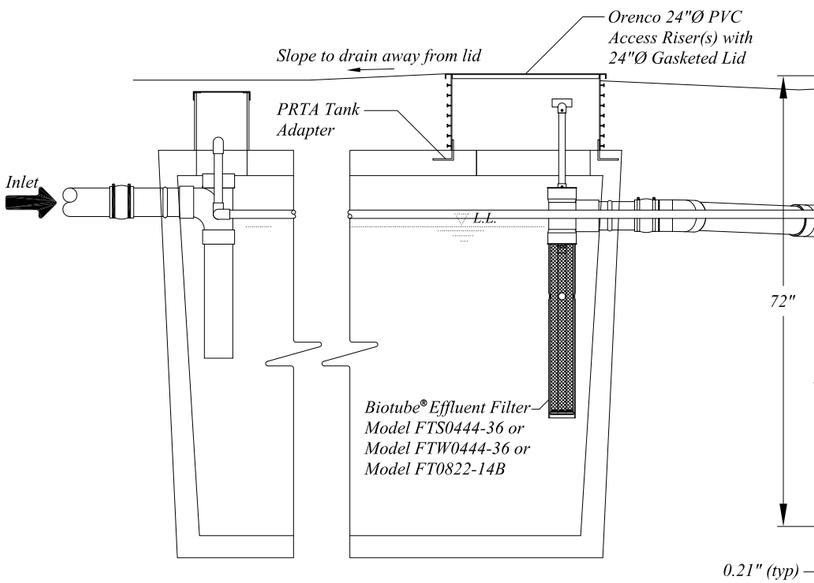
Control Panel Detail

Not To Scale

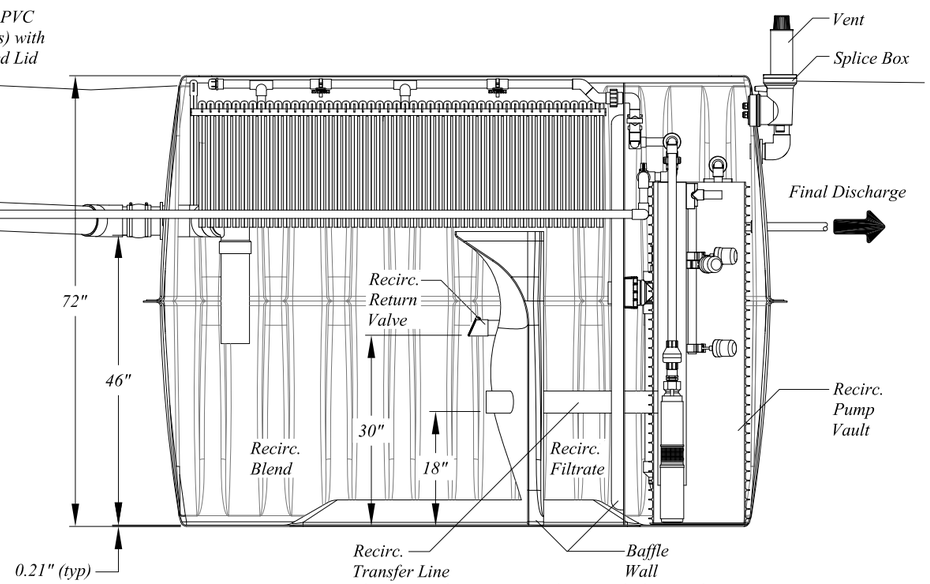
Note: *Only tanks from the manufacturers listed below shall be used.*

Tank Manufacturer	Septic Tank Size	I	D
Orenco Fiberglass Tank	1000 Gal.	11"	65"
C.T. Jamison	1000 Gal.	14"	65"
Hanover Precast	1000 Gal.	16"	66.5"
Rockingham Precast	1000 Gal.	16"	64"
Wrights Ready Mix	1000 Gal.	15"	65"
Beasley Concrete	1000 Gal.	16"	66"
Roth Global Plastics	1000 Gal.	11"	51"

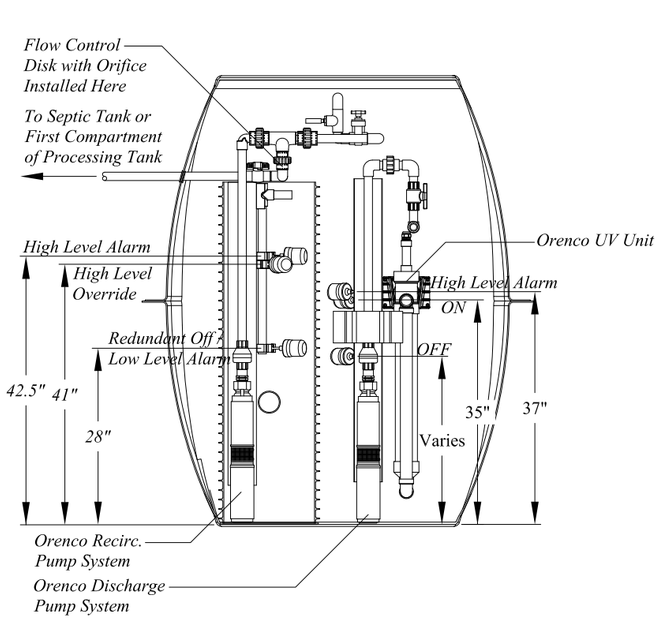
Note: *All tanks shall be tested for watertightness. All concrete tanks shall have PRTA24 cast into tank for acceptance of Model RR24XX Riser.*



1000 gal. Primary Tank - Side View



AX20 800 gal. Recirc. Tank - Side View



Discharge Chamber - End View

0 1' 2' 4'

Graphic Scale

PRODUCT CONFIGURATION DRAWINGS

Orenco Systems® Incorporated
Changing the Way the World Does Wastewater®

Drawn By: DSM	Project: AX20RTUV Mode 3B	Scale: 1" = 2'-0"	
Drawn For:		Sheet: 1 OF 1	
	Title: NDW-ATX-RT-VA-11	Rev: A-01	Date: 02/04/14

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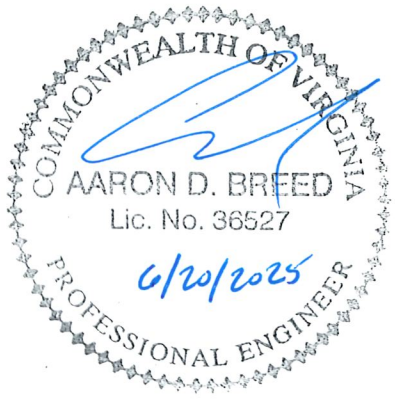
Pump System Design Criteria, Specifications, and Calculations

A.	Number of bedrooms					6	
B.	Gallons per bedroom					150	Gal
C.	Design flow in gallons per day (A x B)					900	GPD
D.	Minimum pump capacity in gallons per minute (enhanced flow distribution)					36	GPM
E.	Maximum pump capacity in gallons per minute using 2" force main					84	GPM
F.	Relative elevation of force main at surge basin / distribution box					6	ft
G.	Relative elevation of pump off float switch					-4	ft
H.	Static head in feet (F-G)					10	ft
I.	Equivalent length of 2" pipe in feet for this system (all materials are 2"):						
	1	Length of 2" force main			2600 ft		
	2	4	90 degree bends at	5.2	feet per bend = 20.8 ft		
	3	11	45 degree bends at	2.8	feet per bend = 30.8 ft		
	4	1	Check valve	1.4	feet per valve = 1.4 ft		
	5	1	Gate valve	17.2	feet per valve = 17.2 ft		
		Total (1+2+3+4+5)				2670.2	ft
J.	Friction loss in feet per 100' of pipe (2" pipe, C=150, 36 GPM)					2.19	ft
K.	Number of 100' pipe increments (I/100)					26.702	ft
L.	Friction head for this system (J x K)					58.48	ft
M.	Total Dynamic Head (H + L)					68.48	ft
N.	Pump chamber volume in gallons					1000	Gal
O.	Gallons per inch in pump chamber					21.64	Gal
	(inside length = ____ ", inside width= ____ ")						
P.	Number of soil absorption pads					4	
Q.	Length of soil absortion pads					40	ft
R.	Total linear feet of geomat line					468	ft
S.	Volume pumped per pump cycle in gallons (C/X)					225	Gal
T.	Volume pumped per pump cycle in inches (S/O) (Working Volume)					10.40	in.
U.	Minimum emergency storage in gallons (C)					900	Gal
V.	Minimum emergency storage in inches (U/O)					41.59	in.
W.	Maximum pump run time in minutes (S/D)					6.25	min.
X.	Doses per Day (C/(R*0.50)) (minimum of 4, round to whole number)					4.00	Doses

Pump Selection:

Pump must provide a minimum of 36 GPM at a Total Dynamic Head of 68.47738 feet.

Pump Zoeller Model # 186/4186



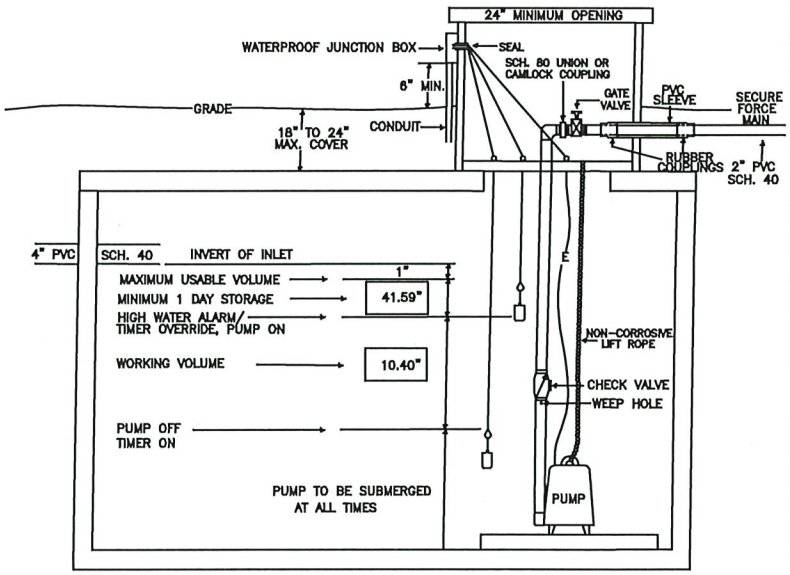
PUMP SYSTEM PLANS AND SPECIFICATIONS

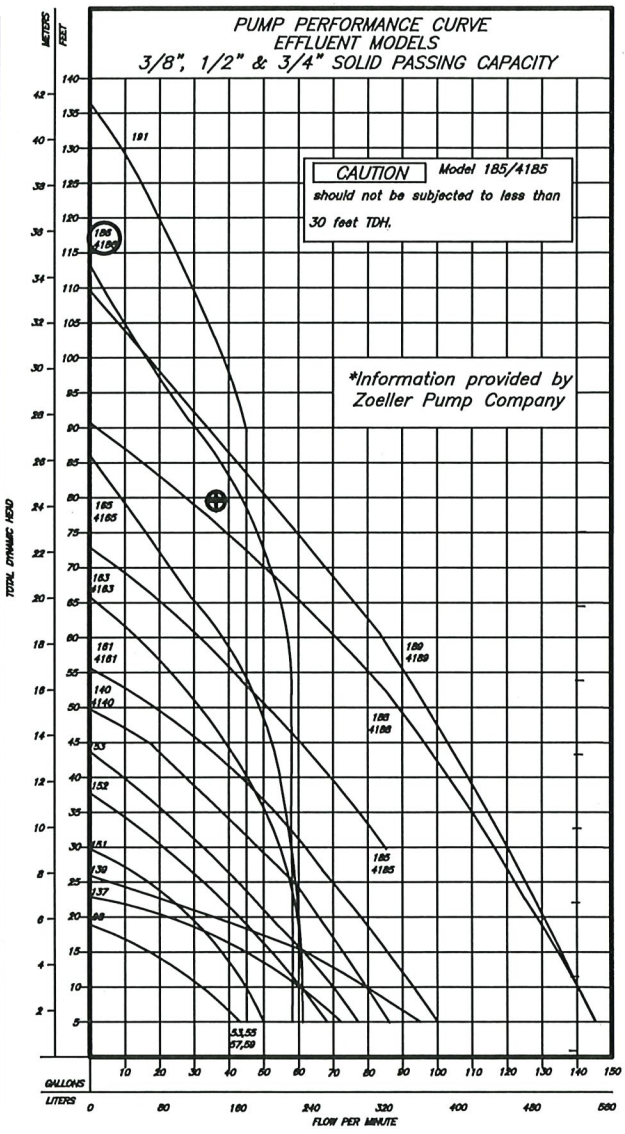
Pump Chamber Size in Gallons	1000
Drawdown in Gallons (Each Pump Cycle)	225
Drawdown in Inches (Each Pump Cycle)	10.40

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) = 6.25" Minutes,

Pump shall be of the open face centifugal 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 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.





PUMP TANK SPECIFICATIONS FOR
9524 Whittaker Drive

Gloucester County, Virginia

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Abbreviated Design Form

Geomat Design

For use with gravity and pump drainfields, enhanced flow systems and low-pressure distribution systems when applying for a certification letter or subdivision approval.

Design Basis: **TL-2 to geomat**

A. Estimated Percolation Rate: **50 min/inch**

B. Hydraulic Loading Rate: **0.53 GPD/ft²**
(Table 5.1 Regulations for Alternative Onsite Sewage Systems)

C. Number of Bedrooms: **6**

D. Peak Daily Flow: **900**
(150 GPD*C)

Area Calculations

E. Length of pad: **40.0 feet**

F. Width of pad: **12.5 feet**

G. Number of pads: **4**

H. Pad spacing: **2 feet**

I. Length Required: **90 feet**
=(E*2)+10

J. Width Required: **27 feet**
=F*(G/2)+(G-2)

K. Total square footage required: **1698 ft²**
(line D/line B)

L. Square footage design: **2000 ft²**
(E*F*G)

M. Linear feet geomat line required: **450 feet**
75 linear feet per bedroom

N. Linear feet design: **468 feet**

O. Is reserve area required? ☑ Yes ☐ No

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Important Factors to Consider When Installing and Maintaining Onsite Sewage Disposal Systems

DRAINFIELD DISTURBANCE: The designated drainfield area (primary and reserve), must remain undisturbed until installation. The client is responsible for all parties that are involved in the home construction process and any destruction to the restricted area. The drainfield area is not to be driven on, parked on, or disturbed in anyway (i.e. soil compaction). Vehicles (trucks, tractors, and heavy equipment) especially should avoid this area. Our design package is final and cannot be deviated from without permission from our department. If the area is disturbed to a point where the area is no longer feasible as a drainfield site, the additional costs will fall on the client for our company or another AOSE to find another appropriate drainfield area.

LOGGING AND CLEARING: The clearing of a drainfield area is sometimes necessary, but must be followed according to the AOSE's specifications. The area must be hand-cleared when an engineered or alternative system has been specified with an install depth of 24 inches or less. Logging on or around the drainfield area is prohibited without permission from the AOSE. Heavy logging traffic and logging decks must be kept at least 50' feet away from the designated area (primary and reserve). If the area is disturbed to a point where the area is no longer feasible as a drainfield site, the additional costs will fall on the client for our company or another AOSE to find another appropriate drainfield area.

MULCH / IRRIGATION: We do not recommend the use of bark, sawdust, or plastic sheeting on drainfield sites. The purpose of these mulch beds is to prevent evaporation and retain water, while the primary function of a drainfield is to percolate water through the soil system with evapo-transpiration being an integral part of that process. Mulch can lead to an early failing of your septic system. Yard irrigation systems are not recommended for use on or within 25 feet of the drainfield trenches. Additional water added to the drainfield area can increase the likelihood of premature drainfield failure. The drainfield should be graded and seeded and maintained as a lawn for optimal performance. Consult your local Extension Service office for seed, lime, and fertilizer recommendations.

GARBAGE DISPOSERS AND KITCHEN WASTE: If a garbage disposal unit is installed within a home, the kitchen plumbing should be plumbed to a separate outlet and a 1250/1500-gallon septic tank/grease trap installed to receive only kitchen effluent. This effluent can then flow to the primary or a separate drainfield site. We do not recommend garbage disposal units with conventional drainfields that do not have a dedicated septic tank/grease trap. Grease/kitchen waste build-up can lead to premature failure of your septic system.

The client is responsible for maintaining the drainfield site and minimizing the disturbance on or around our designated area. It is also the responsibility of the client to ensure that the installer is supplied with the most updated version of all drawings and specifications, including a current Health Department approval letter. It is also your responsibility to pass care and maintenance information on to the eventual homeowner. We assume no liability outside of our specifications and design package. If any questions arise, do not hesitate to call for any advice or consultation.

David K. Hogan, AOSE CPSS