

# HUNTER DRAINFIELD DESIGN

4302 BRAEBURN DRIVE, FAIRFAX, VA 22032 - Office# (804) 441-4582

## OSE/PE Report For:

- Construction Permit  
  Repair Permit  
  Voluntary Upgrade Permit  
  Certification Letter  
  Minor Modification  
  Subdivision Approval

### Property Location:

911 Address 2730 Maidens Loop City, State, Zip: Maidens, VA 23102

Lot: \_\_\_\_\_ Section: \_\_\_\_\_ Subdivision: \_\_\_\_\_

GPIN or Tax Map #: 6766-07-9586 Health Dept. ID #: \_\_\_\_\_

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

### Applicant or Client Mailing Address:

Name: Cognito Moto LLCAddress: 3 S. Granby Street Richmond, VA 23220

### Prepared by:

OSE Name: Roy M. Hunter License # 1940-001434Address: 8250 Branch Road, Annandale, VA 22003

PE Name: \_\_\_\_\_ License # \_\_\_\_\_

Address: \_\_\_\_\_

Date of Report: 1239CP Date of Revision #1: \_\_\_\_\_OSE/PE Job # 7.5.22 Date of Revision #2: \_\_\_\_\_

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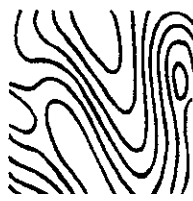
### Certification Statement

I hereby certify 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 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:  Construction Permit    Subdivision Approval   be:  **Issued**  
 Certification Letter    Repair Permit    Voluntary Upgrade    **Denied**

OSE/PE Signature:  Date: 7.12.22



### Sewage System Installation Notes

Call 804-441-4582 for more information about this permit, inspections and fees.

**The AOSE must inspect the drainfield and all components prior to backfilling.** Please notify Hunter Drainfield Design as soon as possible for an inspection. **72 hours is appreciated.** **There will be a \$550 inspection fee to be paid by the septic installer. Each additional inspection trip will be assessed with a minimum fee of \$250.** Please make sure you and the owner are aware of these fees.

**Completion statements will only be issued after all inspection fees are paid and paperwork by the installer/PE/O&M provider are received.**

- The sewage system is to be installed by a DPOR licensed sewage system installer. The sewage system installer must also be compliant with Virginia Department of Health installer license/registration requirements
- All changes/modifications must be approved by the AOSE prior to the inspection- failure to follow permit may result in system not being approved or permit revocation
- The sewage system installation contractor must maintain a copy of all pages of the permit on site during the system installation
- OSHA codes and requirements are to be adhered to during installation of the sewage system.
- All systems to be installed 18" or shallower shall be hand-cleared and stumps shall be ground.
- 12" of soil backfill shall be provided to all systems installed 18" deep or less. Soil backfill shall be measured from the top of the aggregate or drip dispersal tubing
- All site work shall be done in dry weather and soil conditions. Do not install the sewage system in wet weather conditions.
- Tanks and trenches must be left uncovered until inspection is completed. Trenches may be partially covered as long as both ends and the middle are left open to check grade
- Polyurethane risers must be installed and brought to grade on tanks that will have more than 30" of backfill over them
- Water Softener system back flush discharge SHALL NOT be connected to the drainfield
- Roof drains, gutter drains, and foundation drains shall be diverted away from the tanks and the drainfield
- Gravel-less systems are generally approved at a 1:1 ratio, however, please call to confirm the site is suitable for the components you intend to use.
- No parking or driving over the sewage system
- No Trees shall not be located within 10' of the sewage system
- Utilities must not be located within 10' of the sewage system
- Post grading shall be provided to prevent surface water concentration over tanks

# Residential Biotube® Effluent Filters

## Applications

Our patented\* 4-inch (100-mm) Biotube Effluent Filters, Biotube Jr., Biotube Base Inlet Filters, and Biotube Insert Filters are ideal for residential septic tanks and have a lifetime warranty. They prevent large solids from leaving the tank, dramatically improving wastewater quality and extending the life of residential drainfields.

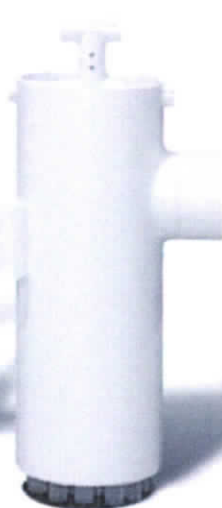
4-inch (100-mm) Biotube Effluent Filter



4-inch (100-mm) Biotube Jr.  
(4-inch Biotube cartridge available separately as Insert Filter)



8-inch (200-mm)  
Base Inlet Filter



4-inch (100-mm)  
Insert Filter



Orenco's superior effluent filters resist clogging better than all other brands. Our standard, full-sized 4-inch (100-mm) Biotube Effluent Filter provides maximum long-term protection in a complete package, with housing. Our 4-inch (100-mm) Biotube Jr., at half the size of our standard model, has more filtering capacity than the full-sized filters sold by other manufacturers. For low-profile tanks, there's the Base Inlet Filter. And for tanks with existing outlet tees, the Biotube Insert Filter is ideal.

\* Covered by patent numbers 5,492,635 and 4,439,323

## To Order

Call your nearest Orenco Systems®, Inc. Distributor. For nearest Distributor, call Orenco at 800-348-9843, or visit [www.orenco.com](http://www.orenco.com) and click on "Where to Buy."

## Standard Features & Benefits

- Has 5-10 times more flow area than other brands, so lasts many times longer between cleanings, increasing homeowner satisfaction
- Installs in minutes inside new or existing tanks; extendible tee handle for easy removal
- Easy to clean by simply hosing off whenever the tank needs pumping
- Removes about two-thirds of suspended solids, on average, extending drainfield life
- Corrosion-proof construction, to ensure long life
- Lifetime warranty

## Optional Features & Benefits

- Alarm available, to signal the need for cleaning
- Flow modulating discharge orifices available to limit flow rate leaving tank, mitigating surges and increasing retention time
- Custom and commercial sizes available

## Biotube Filtering Process

Effluent from the relatively clear zone of the septic tank, between the scum and sludge layers, horizontally enters the Biotube Effluent Filter. Effluent then enters the annular space between the housing and the Biotubes, utilizing the Biotubes' entire surface for filtering. Particles larger than the Biotube's mesh are prevented from leaving the tank.

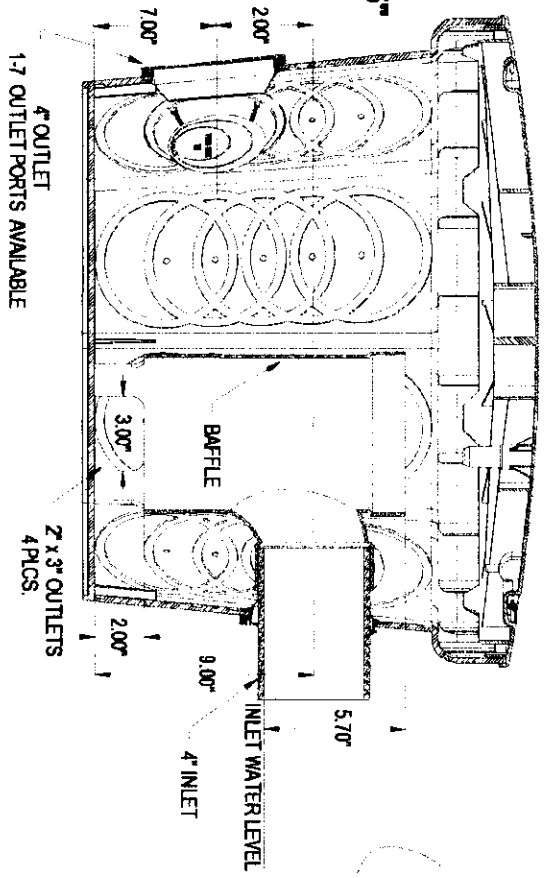
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**POLYLOK 24" BAFFLED D-BOX**  
**PART NO. 3017-B24**  
**MATERIAL - HDPE**  
**NOMINAL WALL THICKNESS - .25"**

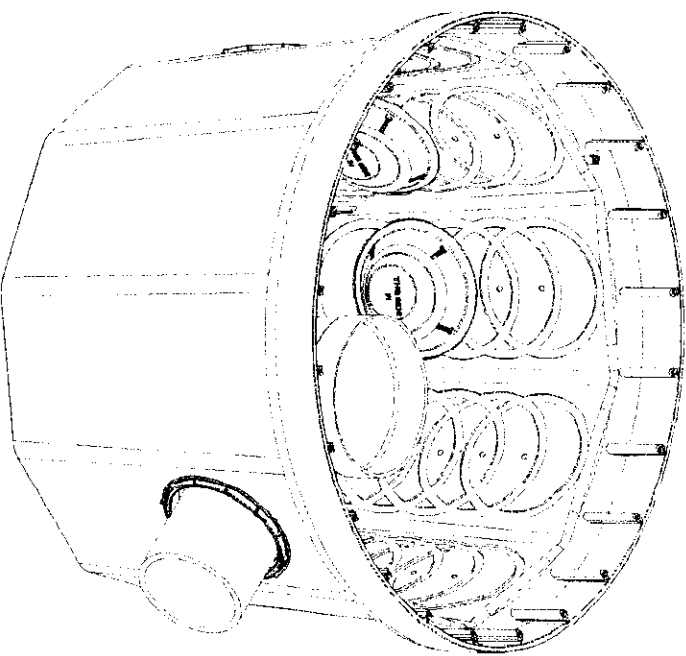
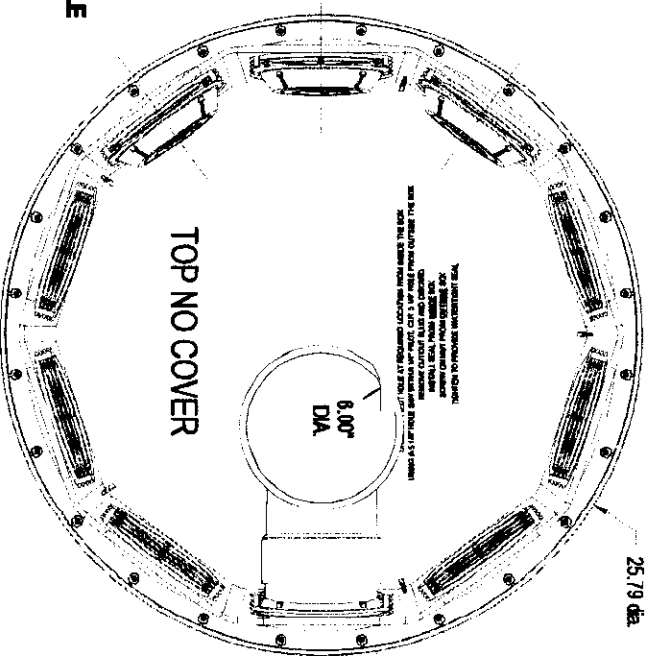
# POLYLOK 24" BAFFLED D-BOX INSTALLATION

## INSTRUCTION FOR ASSEMBLING 24" BAFFLED D-BOX

1. DETERMINE INLET LOCATION (2ND HOLE FROM THE TOP)
2. FROM INSIDE THE BOX, DRILL A 1/4" PILOT HOLE THROUGH THE SIDE WALL AT THE DIPPED LOCATION MARKING THE CENTER
3. USING A 5" 5/16" HOLE SAW CUT OUT HOLE FROM THE OUTSIDE THE BOX
4. DETERMINE WHICH OUTLETS ARE TO BE USED (ANY OF THE ONES 2ND FROM THE BOTTOM)
5. CUT OUT THE OUTLETS USING STEP 2 AND 3
6. INSTALL POLYLOK D-BOX SEALS AT ALL OPENINGS FROM INSIDE THE BOX  
INSTALL NUTS AND TIGHTEN FOR A WATERTIGHT SEAL FROM OUTSIDE THE BOX
7. ON INLET, TEAR OUT 4" TEAR OUT ON SEAL
8. SLIDE INLET PIPE THROUGH SEAL AND GLUE BAFFLE ON THE END
9. TEAR OUT THE REMAINING OUTLET SEALS AS IN STEP 7



SEAL INSTALLED FROM INSIDE BOX  
NUT INSTALLED FROM OUTSIDE BOX



**SYSTEM SPECIFICATIONS**

<b>VDH USE ONLY</b>
HDIN: _____

<b>Application Information</b>	
Name: <u>Cognito Moto LLC</u>	Address: <u>3 S. Granby Street</u>
Phone: <u>804-256-7882</u>	<u>Richmond, VA 23220</u>

<b>Location Information</b>			
Tax Map/GPIN #: <u>6766-07-9586</u>	Property Address: <u>2730 Maidens Loop</u>		
Subdivision _____	Section: _____	Block: _____	Lot: _____
Directions: <u>2730 Maidens Loop Road</u>			

<b>General Information</b>	
Property Type (e.g. residential): <u>Commercial</u>	Number of Bedrooms: <u>n/a</u>
Daily Flow, gpd: <u>146</u>	Conditions: <u>None</u>
Notes: _____	

<b>Sewer Line</b>		
Diameter: <u>4</u> inches	Material: <u>SCH40 PVC</u>	Notes: <u>1/4" per 1' fall minimum</u>

<b>Pretreatment Unit(s)</b>	
Treatment Level: <u>Septic</u>	Septic Tank Capacity <u>1,000</u> gallons
No. of Septic Tanks: <u>1</u>	Size of Septic Tanks <u>1,000</u> gallons
Per the Sewage Handling & Disposal Regulations, check which option(s) have been chosen:	
<input type="checkbox"/> Septic Tank w/Inspection Port <input checked="" type="checkbox"/> Septic Tank w/Effluent Filter <input type="checkbox"/> Reduced maintenance tank	
Secondary Treatment Device(s), if applicable: _____	
Notes: <u>ORENCO 8" BIOTUBE EFFLUENT FILTER FT0822-14B ON OUTLET TEE</u>	

<b>Conveyance Line</b>	<b>Distribution Method &amp; Header Lines</b>
Conveyance Method: <u>Pumped</u>	Distribution Method: <u>Gravity</u>
If pumping, include pump specifications sheet.	# of Boxes: <u>1</u> # of Outlets: <u>10</u>
Material: <u>SCH40</u> Diameter: <u>2"</u>	Surge or splitter box required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Notes: <u>See Pump Specs</u>	Header Line Material: <u>1500# CRUSH MINIMUM</u>

<b>Percolation Lines/Absorption Area</b>			
Dispersal Method (e.g. laterals, pad, mound): <u>Trench Laterals</u>			
If using pressure dispersal (e.g. drip), include pressure dispersal specifications sheet.			
Number laterals/pads: <u>3</u>	Length of lateral(s)/pad(s): <u>38'</u>	Width of laterals/pads: <u>3'</u>	
Center to center spacing: <u>9' o.c.</u>	Installation Depth: <u>60"</u>	Aggregate Depth: <u>12"</u>	"
Type & Size of Aggregate <u>0.5-1.5" of Clean Gravel</u>	Lateral/Pad Slope: <u>2 - 4"</u> in. per <u>100</u> ft.		
Reserve Area Provided: <u>100%</u> Notes: _____			

**Please Note:      INSTALL POLYLOK RHINO BOX WITH SANITARY TEE & DIAL-A-FLOWS**

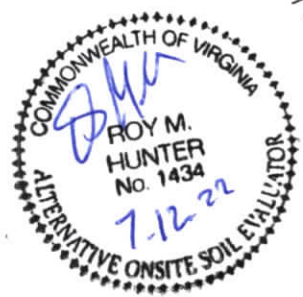
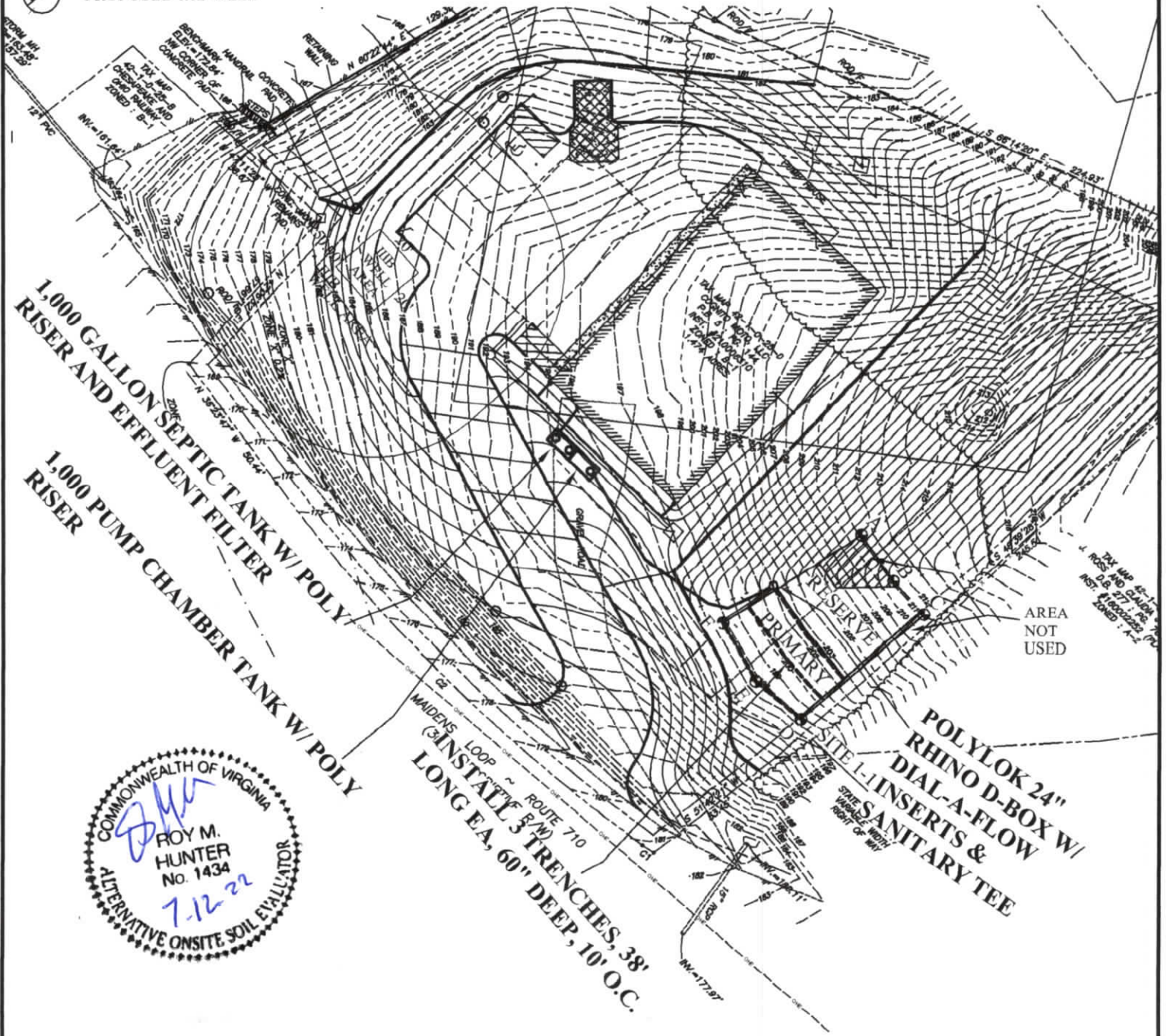
# HUNTER DRAINFIELD DESIGN

8250 BRANCH ROAD, ANNANDALE, VA 22003 - OFFICE# (804) 441-4582

## CONSTRUCTION DRAWING MAIDENS LOOP GOOCHLAND COUNTY, VA

- ⊙ BORE #
- PIT #
- SLOPE DIRECTION
- (A-F) DRAINFIELD CORNERS
- ⊕ PROPOSED IIIB WELL

ALL KNOWN WELLS & DRAINFIELD SITES WITHIN 200' OF THE PROPOSED DRAINFIELDS ARE SHOWN.








JOB NUMBER: 1239 CP  
July 7, 2022  
DRAWN BY: RMH



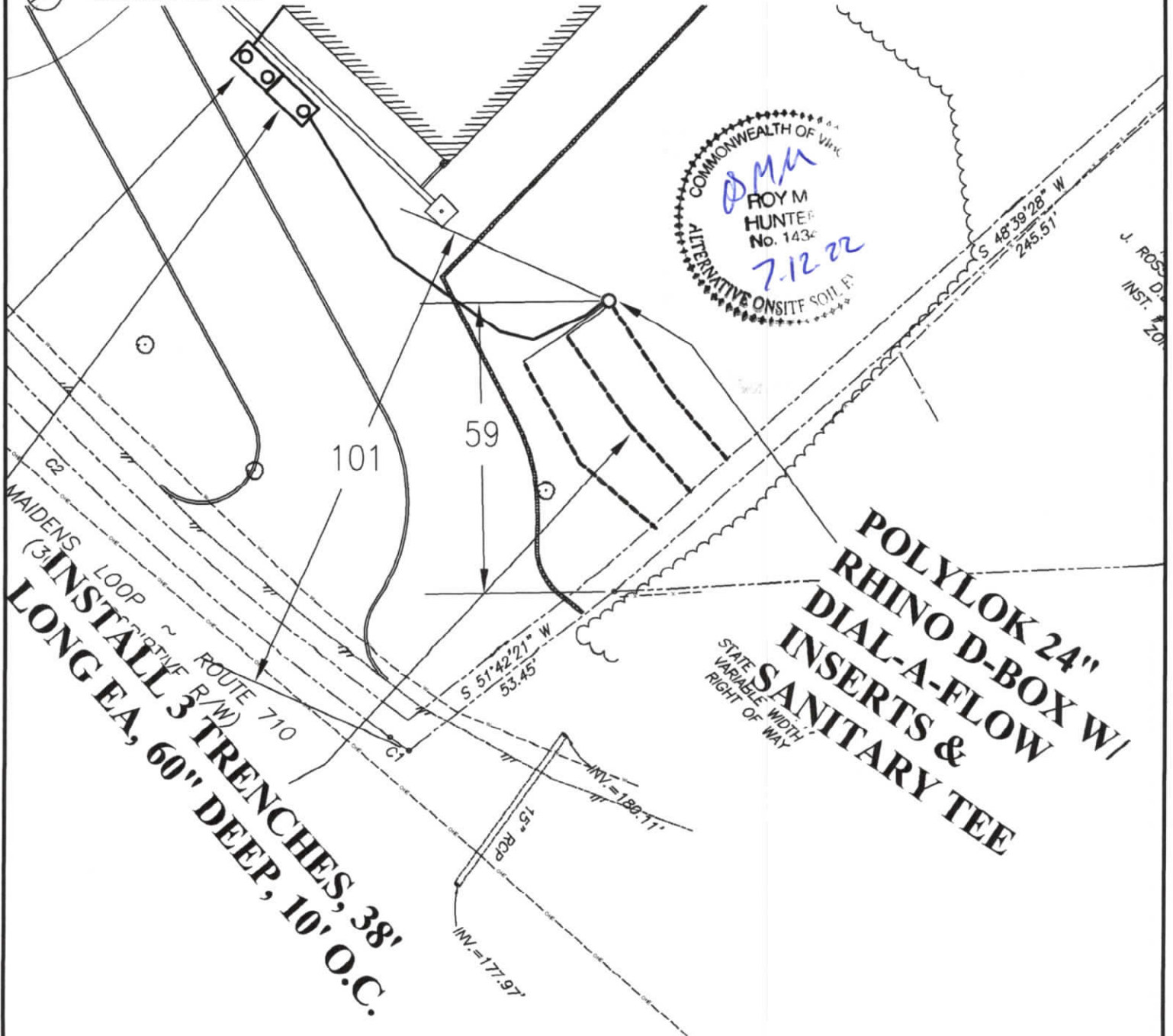
# HUNTER DRAINFIELD DESIGN

8250 BRANCH ROAD, ANNANDALE, VA 22003 - OFFICE# (804) 441-4582

## CONSTRUCTION DRAWING MAIDENS LOOP GOOCHLAND COUNTY, VA

-  BORE #
-  PIT #
-  SLOPE DIRECTION
-  (A-F) DRAINFIELD CORNERS
-  PROPOSED IIIIB WELL

ALL KNOWN WELLS & DRAINFIELD SITES WITHIN 200' OF THE PROPOSED DRAINFIELDS ARE SHOWN.



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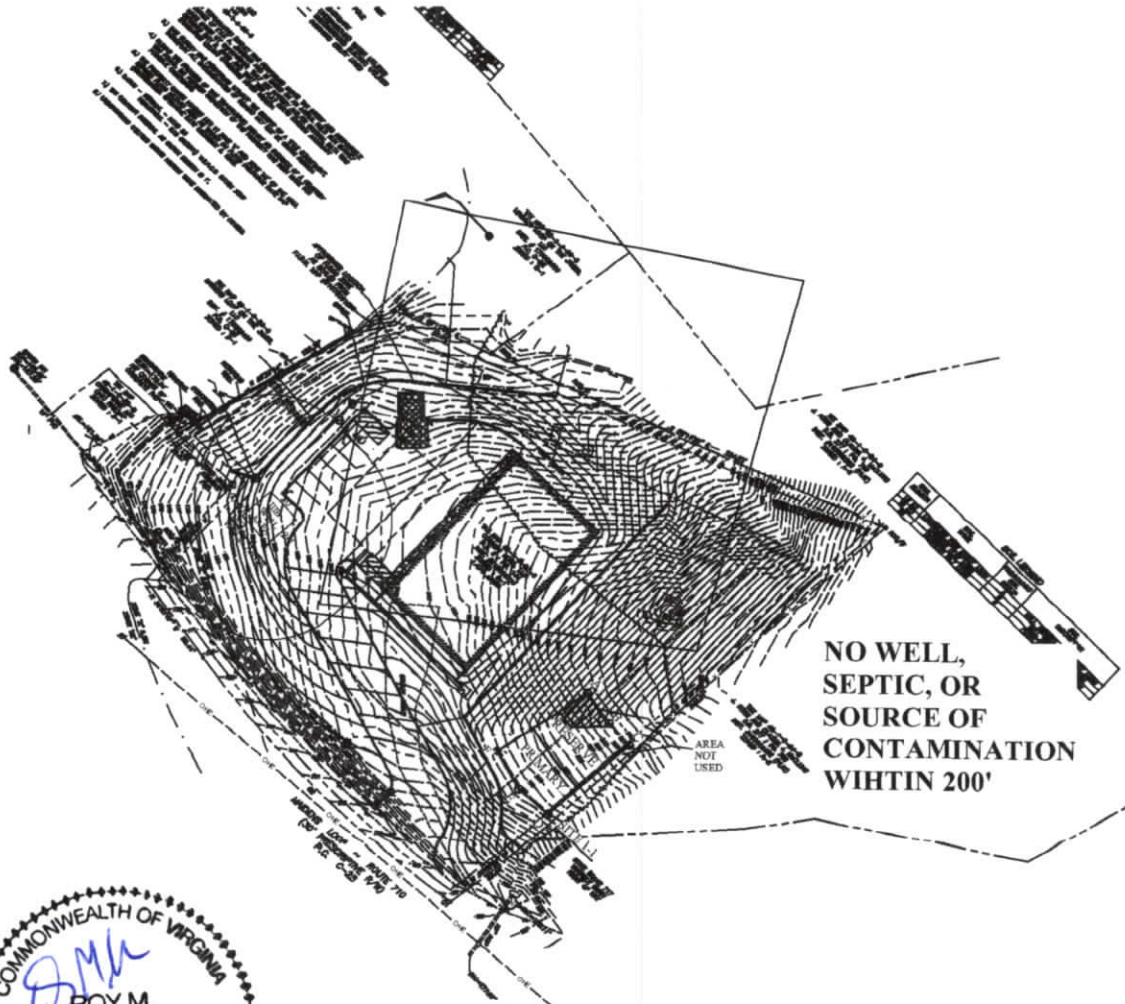
# HUNTER DRAINFIELD DESIGN

8250 BRANCH ROAD, ANNANDALE, VA 22003 - OFFICE# (804) 441-4582

## SANITARY SURVEY MAIDENS LOOP GOOCHLAND COUNTY, VA

- ⊕ BORE #
- PIT #
- SLOPE DIRECTION
- (A-F) DRAINFIELD CORNERS
- ⊕ PROPOSED IIIIB WELL

ALL KNOWN WELLS & DRAINFIELD SITES WITHIN 200' OF THE PROPOSED DRAINFIELDS ARE SHOWN.



NO WELL,  
SEPTIC, OR  
SOURCE OF  
CONTAMINATION  
WITHIN 200'

JOB NUMBER: 1239 CP  
July 7, 2022  
DRAWN BY: RMH



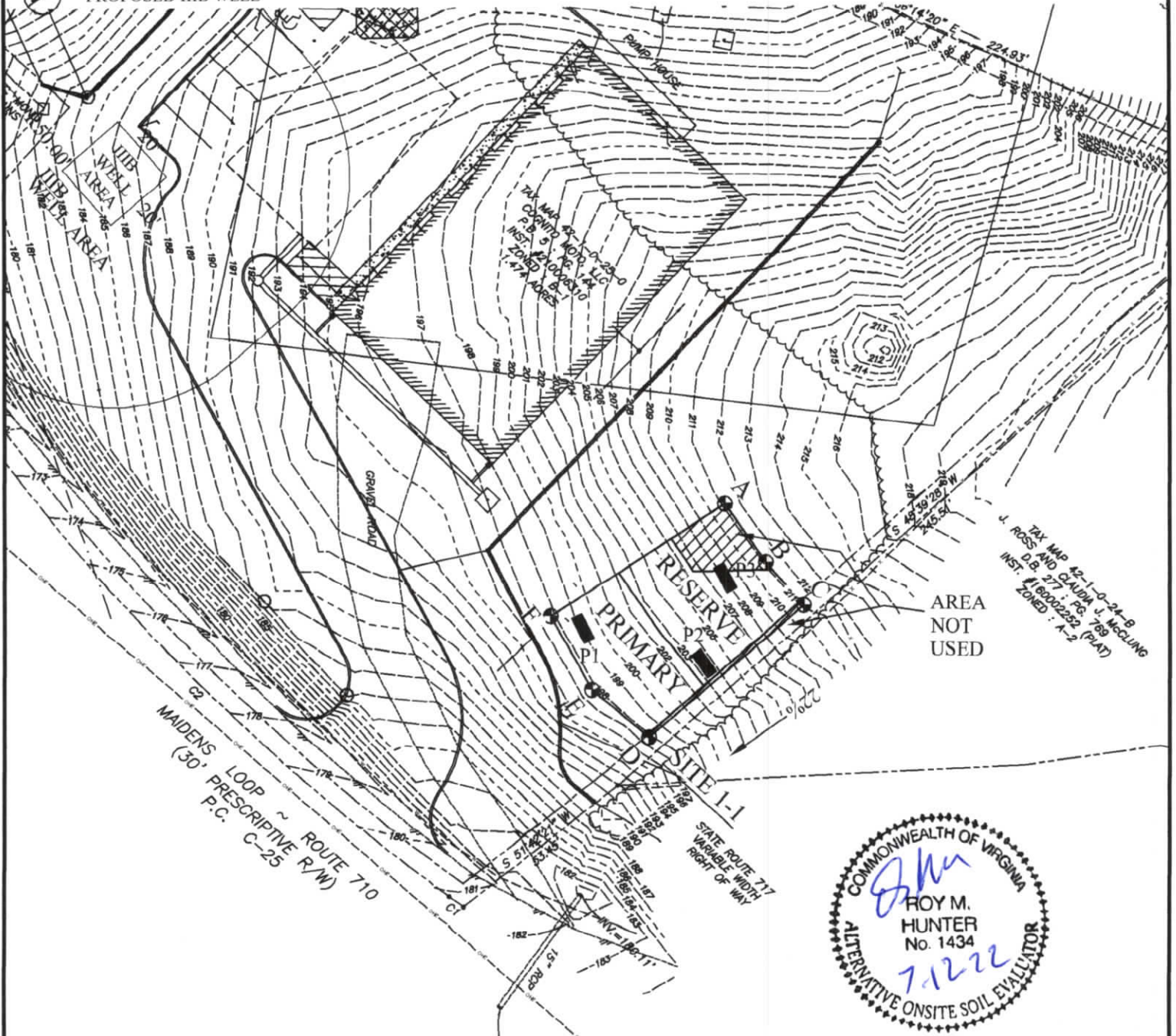
# HUNTER DRAINFIELD DESIGN

8250 BRANCH ROAD, ANNANDALE, VA 22003 - OFFICE# (804) 441-4582

## SITE SKETCH MAIDENS LOOP GOOCHLAND COUNTY, VA

- ⊙ BORE #
- PIT #
- SLOPE DIRECTION
- (A-F) DRAINFIELD CORNERS
- ⊙ PROPOSED IIIB WELL

ALL KNOWN WELLS & DRAINFIELD SITES WITHIN 200' OF THE PROPOSED DRAINFIELDS ARE SHOWN.



JOB NUMBER: 1239 CP  
July 7, 2022  
DRAWN BY: RMH



**Timed Dosed Flow Pump System Design  
Information & Calculations**

A. Pump Capacity in gallons per minute (21 gpm for 2" pipe)	<b>21</b>
B. Relative Elevation of Distribution Box or Catch Basin (per site plan)	<b>202</b>
C. Relative Elevation of Ground Surface at the Pump Chamber (per site plan)	<b>187</b>
D. Static Head in feet {B-C + C-relative elevation to min. water level in chamber}	<b>21</b>
E. Length of discharge pipe from pump chamber to distribution box in feet	<b>100</b>
F. Equivalent pipe length due to fittings ft. (* 3-90 elbows, check valve, gate valve, & couplings)	<b>47.9</b>
G. Equivalent length of Transport Line in feet (E+F)	<b>147.9</b>
H. Hanover Precast (top seam) Pump Chamber size (volume in gal.)	<b>1000</b>
I. Number of drainfield lines in system	<b>3</b>
J. Length of drainfield lines	<b>38</b>
K. Linear feet of drainage pipe in system (I x J) (must be less than 1200 feet)	<b>114</b>
L. Pumping volume per cycle (in gallons)	<b>73</b>
M. Cycle interval in hours	<b>12</b>
N. Gallons per inch of pump chamber depth	<b>21.84</b>
O. Pump Control Differential, number of inches per pumping cycle (M/N)	<b>3.34</b>
P. Pump cycle time in minutes	<b>3.48</b>
Q. Total design flow of system (gallons per day) (MAXIMUM OF 205 GPD)	<b>146</b>
R. Emergency Storage Volume in inches required for ¼ day capacity ((Q x.25)/N)	<b>2.35</b>
S. Emergency Storage Volume in gallons required for ¼ day capacity (Q x.25)	<b>51.3</b>

THE SYSTEM DESIGNER SHALL BE CONSULTED BEFORE ADDITIONAL FITTINGS OR ALTERNATE TANKS ARE USED

**Pump Selection:** Zoeller 152 or equivalent

**Control Panel Selection:** Orenco MVP TIME-DOSED PANEL

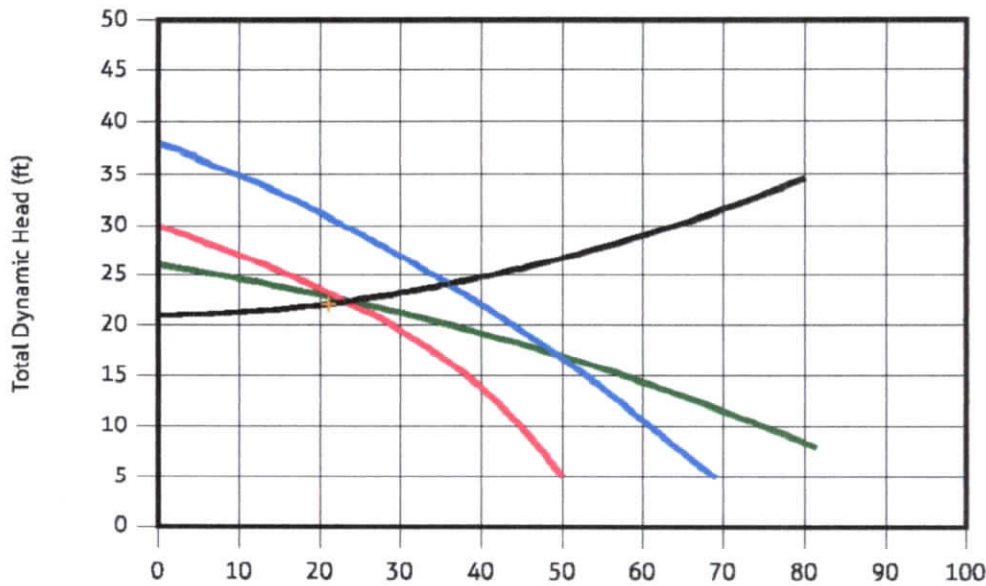
# Known Flow

Effluent

Sizing ID: K54-EYV-FML



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### System Curve

GPM	TDH (ft)
0.00	21.00
16.00	21.69
32.00	23.48
48.00	26.26
64.00	29.97
80.00	34.56
96.00	40.00

### Fittings

45° Elbows	3
90° Elbows	3
Gate Valves	1
Check Valves	1

Flow (GPM)\*: 21.00  
 TDH (ft)\*: 22.14

\*Per user data

Curve Models	Eq. Flow	Eq. Head
151	23.21	22.37
137	23.62	22.42
152	35.91	24.08

Flow (GPM)

### Pump Specs

<b>Electrical</b>	115 volt, 1 phase, 60 Hertz
<b>Physical</b>	
<b>Discharge Size</b>	1.50" NPT
<b>Pipe Size</b>	2.00"
<b>Pipe Length (ft)</b>	100.0000
<b>Pipe Type</b>	Plastic
<b>Solids Handling (in.)</b>	0.5
<b>Static Head (ft)</b>	21.0000
<b>Discharge Pressure</b>	0 PSI

By registering on this site, user acknowledges that Zoeller Company is not responsible for inaccurate pump sizing or misapplication due to incorrect information entered by the user. For sizing assistance, please contact Zoeller's Product Support Department at [1-800-928-7867](tel:1-800-928-7867) (or [+1-502-778-2731](tel:+1-502-778-2731)), extension 6, or email [zocotecnical@zoeller.com](mailto:zocotecnical@zoeller.com)

*"QUALITY PUMPS SINCE 1939"***ZOELLER**  
PUMP CO.

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347  
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961  
(502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624

visit our web site:  
[www.zoeller.com](http://www.zoeller.com)

# ZOELLER ON-SITE WASTEWATER PRODUCTS

## INTRODUCING ZOELLER ON-SITE "DOSE-MATE" PUMPS

### COMPARE THESE FEATURES

- Durable cast iron construction.
- Model 151 comes standard with a glass-filled polypropylene base.
- Corrosion resistant powder coated epoxy finish.
- Stainless steel lifting handle.
- Assembled with stainless steel bolts.
- Non-clogging engineered thermoplastic vortex impeller design.
- Model 151 - 1/3 HP passes 1/2" spherical solids.
- Model 152 - .4 HP passes 3/4" spherical solids.
- Model 153 - 1/2 HP passes 3/4" spherical solids.
- Motor - 60 Hz, 3450 RPM, oil-filled, hermetically sealed, automatic reset thermal overload protected.
- Carbon/Ceramic seals.
- Upper sleeve bearing and lower ball bearing running in bath of oil.
- 20 ft. UL Listed power cord with molded 3-wire plug.
- 1 1/2" NPT vertical discharge.
- BN and BE standard models include a 20 ft. variable level float switch.
- Operates at temperatures to 130°F (54°C) in effluent applications.
- All models include a 1 1/2" x 2" PVC adapter fitting.

**Note:** The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

**ZOELLER**  
PUMP CO.

Manufacturers of . . .

*"QUALITY PUMPS SINCE 1939"*

### 151/152/153 EFFLUENT SERIES

(For Pump Prefix Identification see News & Views 0052)

## "DOSE-MATE"

FOR SEPTIC TANK - LOW PRESSURE PIPE (LPP)  
AND ENHANCED FLOW STEP SYSTEMS

**EFFLUENT**  
SUBMERSIBLE  
1 1/2" NPT DISCHARGE



Tested to UL Standard UL778  
and Certified to CSA  
Standard CSA22.2 No. 108

Model N152/N153  
High Head  
Effluent



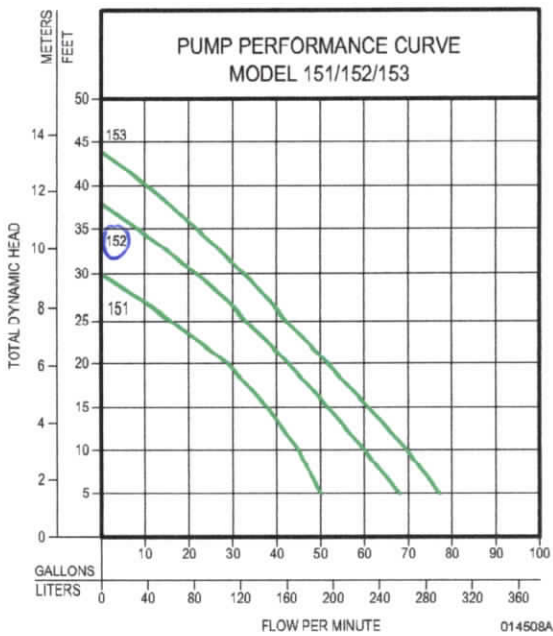
#### MODELS AVAILABLE

- N151/N152/N153 & E151/E152/E153 nonautomatic
- BN151/BN152/BN153 & BE151/BE152/BE153 packaged with Piggyback Variable Level Float Switch
- 1/3, .4 & 1/2 HP, 1Ph 115V or 230V



POWDER  
COATED  
**TOUGH™**

Model BN152/BN153  
High Head  
Effluent



TOTAL DYNAMIC HEAD/FLOW  
PER MINUTE  
EFFLUENT AND DEWATERING

MODEL		151		152		153	
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	50	189	69	261	77	291
10	3.0	45	170	61	231	70	265
15	4.6	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.6	16	61	34	129	42	159
30	9.1	—	—	23	87	33	125
35	10.7	—	—	—	—	22	85
40	12.2	—	—	—	—	11	42
Shut-off Head:		30 ft. (9.1m)		38 ft. (11.6m)		44 ft. (13.4m)	

014508B

### CONSULT FACTORY FOR SPECIAL APPLICATIONS

- Timed dosing panels available.
- Electrical alternators, for duplex systems, are available and supplied with an alarm.
- Variable level control switches are available for controlling single phase systems.
- Double piggyback variable level float switches are available for variable level long and short cycle controls.
- Sealed Qwik-Box available for outdoor installations. See FM1420.
- Over 130°F. (54°C.) special quotation required.

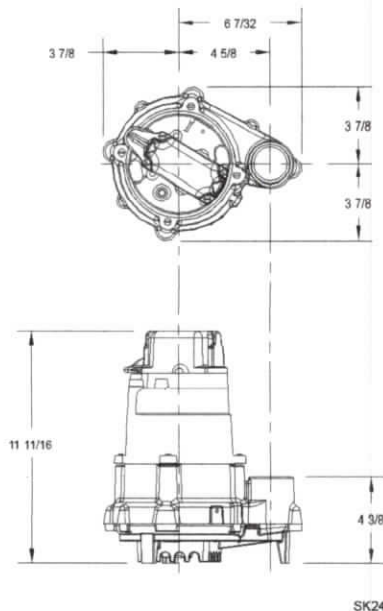
#### 151/152/153 Series

151/152/153 MODELS				Control Selection		
Model	Volts-Ph	Mode	Amps	Simplex	Duplex	
N151	115	1	Non	6.0	1	2 or 3
BN151	115	1	Auto	6.0	Included	2 or 3
E151	230	1	Non	3.2	1	2 or 3
BE151	230	1	Auto	3.2	Included	2 or 3
N152	115	1	Non	8.5	1	2 or 3
BN152	115	1	Auto	8.5	Included	2 or 3
E152	230	1	Non	4.3	1	2 or 3
BE152	230	1	Auto	4.3	Included	2 or 3
N153	115	1	Non	10.5	1	2 or 3
BN153	115	1	Auto	10.5	Included	2 or 3
E153	230	1	Non	5.3	1	2 or 3
BE153	30	1	Auto	5.3	Included	2 or 3

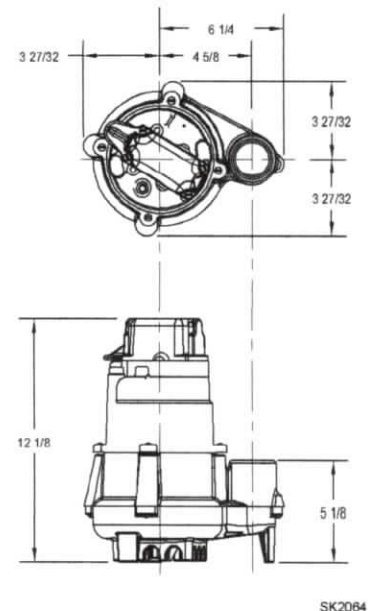
**CAUTION**

All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electric Code (NEC) and the Occupational Safety and Health Act (OSHA).

#### Model 151



#### Models 152/153



#### SELECTION GUIDE

1. Single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
2. See FM0712 for correct model of Electrical Alternator E-Pak.
3. Variable level control switch 10-0225 used as a control activator, specify duplex (3) or (4) float system.

### RESERVE POWERED DESIGN

For unusual conditions a reserve safety factor is engineered into the design of every Zoeller pump.



<http://www.zoeller.com>

**ZOELLER**  
PUMP CO.

MAIL TO: P.O. BOX 16347  
Louisville, KY 40256-0347  
SHIP TO: 3649 Cane Run Road  
Louisville, KY 40211-1961  
(502) 778-2731 • 1 (800) 928-PUMP  
FAX (502) 774-3624

Manufacturers of .

"QUALITY PUMPS SINCE 1939"

# Hunter Drainfield Design

8250 Branch Road Annandale, VA 22003 Office # (804) 441-4582

## PUMP DESIGN SCHEMATIC FOR TIME-DOSING

[HDD WILL PROGRAM CONTROL PANEL AT TIME OF DRAW DOWN INSPECTION]

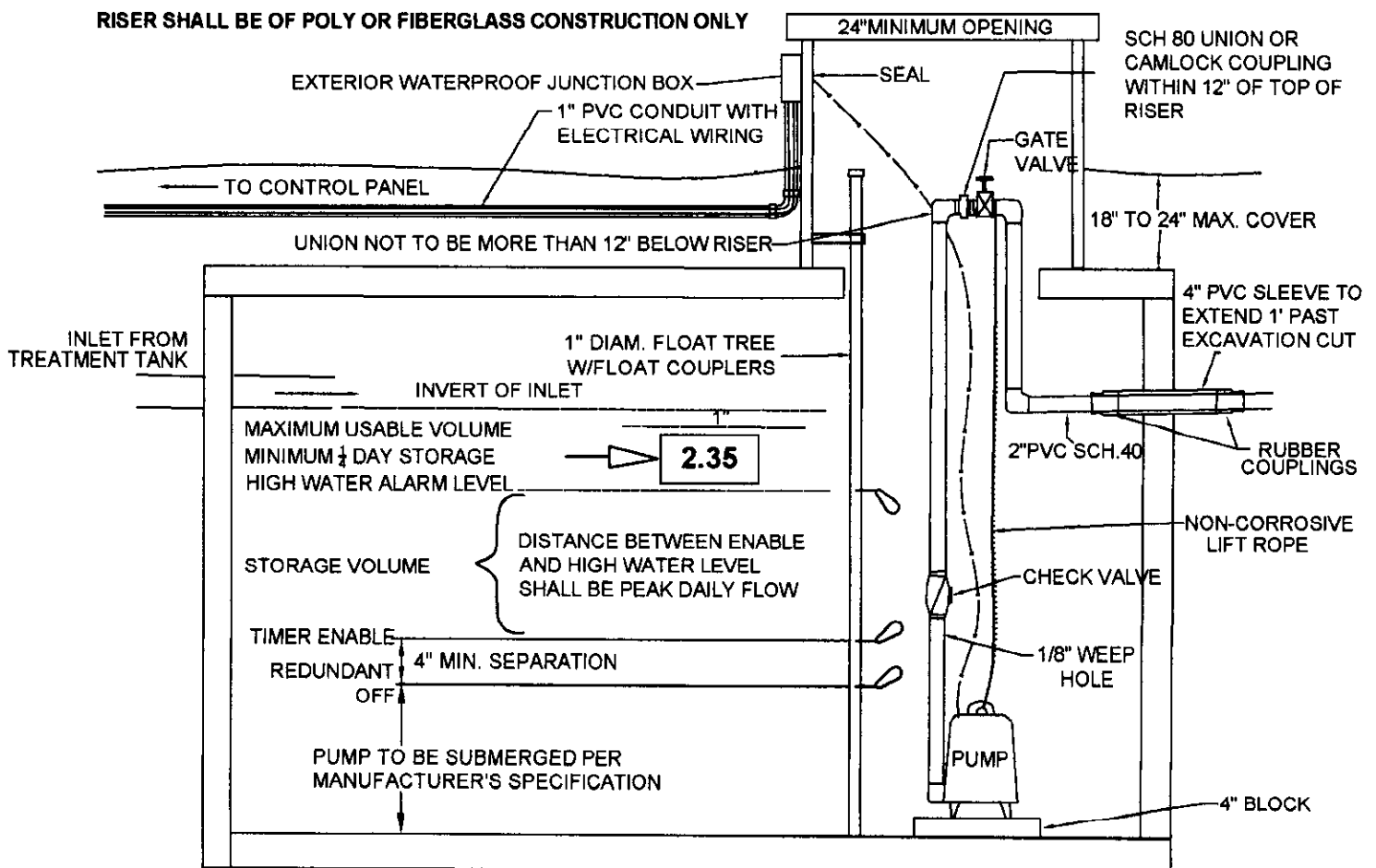
**Notes:**

1. ALL ELECTRICAL WIRING SHALL BE IN WATER PROOF CONDUIT WITH AT LEAST 50% FREE OF WIRE.
2. ALL WEATHER CONTROL PANEL SHALL BE MOUNTED OUTDOORS 48" ABOVE FINAL GRADE .
3. THE ALARM, CONTROL, AND PUMP SHALL BE ON INDIVIDUAL BREAKERS.
4. Force main shall be a 2.0" diameter Sch. 40 PVC pressure pipe with pressure fittings.
5. Pump must provide 21 gallons per minute minimum.
6. Pump shall be of open face centrifugal type designed to pump sewage.
7. The pump station must be provided with controls for automatically starting & stopping the pump.
8. The electrical motor control center & master disconnect switch shall be placed in a secure location above grade and remote from the pump station.
9. Each motor control shall be provided with a manual override switch.
10. A high water alarm with remote sensing and electrical circuitry separate from the motor control center circuitry shall be provided.
11. The alarm shall be audiovisual and shall alarm in an area where it may be easily monitored.
12. All electrical connections must be hard wired in the electrical connection/junction box.
13. Do not use compression fittings.
14. Force main shall be deep enough to prevent freezing.
15. The pump chamber shall be level and watertight.
16. The AOSE shall be consulted before additional fittings or alternate tanks are used.

**FLOAT SENSORS REQUIRED.**

INSTALL ORENCO MVP TIME-DOSED PANEL CONTROL PANEL PER STATE REGULATIONS AND LOCAL CODE REQUIREMENTS.

THE RECOMMENDED PUMP FOR THIS SYSTEM IS A ZOELLER 152 OR EQUIVALENT.



1,000 GALLON TS HANOVER PRECAST PUMP TANK, 21.84GPI

15 of 23

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Average Daily Use (GPD)
# of Employees	7	7	7	7	7	0	0	
Total GPD @ 25 gpd/employee	175	175	175	175	175	0	0	125
# of Visitors	6	6	6	6	6	0	0	
Total GPD @ 5 gpd/visitor	30	30	30	30	30	0	0	21
								<b>Total Average (GPD)</b>
								<b>146</b>

Sewage flows used from table S.1 in VA Sewage Handling and Disposal Regulations

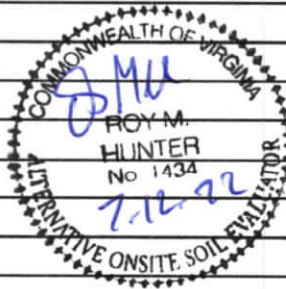
### Wastewater Characterization

This facility is considered residential wastewater strength due to the number of employees and hours of operation.



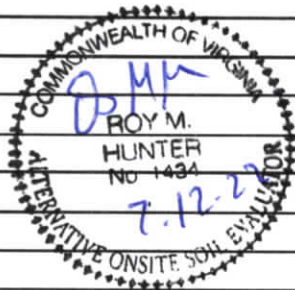
**Abbreviated Design - Conventional  
Maidens Loop - Primary Drainfield**

A.	a. Estimated percolation rate. (minutes per inch)		40		
	b. Recommended trench bottom. (inches)		60		
	c. Depth to impervious strata/ or water table/ or limit of evaluation. (inches)	96	96	96	
	d. Minimum separation distance required. (inches)	18	18	24	
	e. Separation distances in inches provided in design.	28	28	28	
	f. Slope (percentage)	22			
	g. Minimum trench bottom due to slope. (inches)		25		
	h. Minimum uphill trench bottom due to slope (in)	67.92			
	i. Is the slope greater than or equal to 10%?	Yes			
	j. If Ai is Yes, does 24 inches or greater to rock/impervious strata exist below Ab?	Yes			
	k. If yes to Aj, add 1 ft. to the minimum center-to-center spacing beginning at 20% slope and continue for each 10% slope increase above 20%. If no to Aj, add 1 ft. to the minimum center-to-center spacing beginning at 10% slope and continue for each 10% slope increase above 10%. (Report the value, in feet, of the increase in center-to-center spacing above the minimum).	1			
B.	Trench bottom square feet required per bedroom (Table 5.4)	314			
C.	a. Number of bedrooms. Commercial Property	1			
	b. Gallons per day in design	146			
D.	a. Length of trench. (feet)	38			
	b. Length of available area. (feet)	38			
E.	Width of trench. (feet)	3			
F.	Number of trenches.	3			
G.	Center-to-center spacing. (feet)	10			
H.	a. Width required. (feet)	24			
	b. Width of available area. (feet)	24			
I.	Trench bottom square footage required.	306			
J.	Trench bottom square footage in design.	342			
K.	Is a reserve area required? <span style="float:right">Yes</span>	x	No		
	a. Percent required?	100%			
	b. Percent available:	100%			
	<b>Notes:</b> *See attached abbreviated design form for reserve**				



**Abbreviated Design - TL3 Effluent with Trenches  
Maidens Loop - Reserve Drainfield**

A.	a. Estimated percolation rate. (minutes per inch)	40		
	b. Recommended trench bottom. (inches)	60		
	c. Depth to impervious strata/ or water table/ or limit of evaluation. (inches)	96	96	96
	d. Minimum separation distance required. (inches)	18	12	24
	e. Separation distances in inches provided in design.	28	28	28
	f. Slope (percentage)	22		
	g. Minimum trench bottom due to slope . (inches)		19	
	h. Minimum uphill trench bottom due to slope (in)	68		
	i. Is the slope greater than or equal to 10%?	Yes		
	j. If Ai is Yes, does 24 inches or greater to rock/impervious strata exist below Ab?	Yes		
	k. If yes to Aj, add 1 ft. to the minimum center-to-center spacing beginning at 20% slope and continue for each 10% slope increase above 20%. If no to Aj, add 1 ft. to the minimum center-to-center spacing beginning at 10% slope and continue for each 10% slope increase above 10%. (Report the value, in feet, of the increase in center-to-center spacing above the minimum).	1		
B.	a.Design Type?	TL3		
	b.Trench bottom square feet required loading rate, gpd/ft2	1.05		
C.	a. Number of bedrooms. Commercial Property	0		
	b. Gallons per day in design	146		
D.	a. Length of trench. (feet)	38		
	b. Length of available area. (feet)	38		
E.	Width of trench. (feet)	3		
F.	Number of trenches.	2		
G.	Center-to-center spacing. (feet)	10		
H.	a. Width required. (feet)	13		
	b. Width of available area. (feet)	13		
I.	Trench bottom square footage required.	139		
J.	Trench bottom square footage in design.	228		
K.	a. Is a reserve area required?	Yes	No	
	b. Percent required			
	c. Percent available			
	Notes:			



**SOIL SUMMARY REPORT****GENERAL INFORMATION**

Date: 4.21.22 Submitted to: Goochland County Health Department  
 Agent: Roy Hunter, AOSE Telephone Number: (804) 441-4582  
 Address: 8250 Branch Road Annandale, VA 22003  
 Owner: Cognito Moto LLC Address: 3 S. Granby Street Richmond, VA 23220  
 Property Location: 2730 Maidens Loop Tax Map/GPIN: 6766-07-9586  
 Subdivision: \_\_\_\_\_ Blk/Sec: \_\_\_\_\_ Lot: \_\_\_\_\_

1. Position in Landscape Satisfactory:  Yes  No  
 Describe: Backslope
2. Slope: 22 %
3. Depth to Rock or Impervious Strata: Max. \_\_\_\_\_ Min. >96" None
4. Depth to seasonal water table (gray mottling or gray color): Not Observed  Yes
5. Free Water Present?  No  Yes Range: \_\_\_\_\_ inches
6. Soil Percolation rate estimated:  Yes  No Texture Group: I  II  III  IV   
 Estimated rate: 40 mpi
7. Permeability Test Performed?  No  Yes  
 If yes, note type of test performed and attached results. Test Type: NA

- Site Approved. Drainfield to be placed at 60" " depth at site designated on permit.  
 Site Disapproved. See reasons for rejection.

## 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 seasonal water table.  
 4  Rates of absorption too slow.  
 5  Insufficient area of suitable soil for drainfield and/or reserve area.  
 6  Proposed system too close to well.  
 7  Other (Specify Below. Add additional pages if necessary)

Additional Notes: Site # 1-1 PRIMARY DRAINFIELD & RESERVE DRAINFIELD

# HUNTER DRAINFIELD DESIGN

T: (804) 441-4582

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## SOIL PROFILE DESCRIPTION REPORT

Date of Evaluation 4.21.22 Job. No. 1239 Site Number 1-1

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 soil scientist, 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 site (See Section 4 ) and reserve site shall be shown on the reverse side of the this page or prepared on a separate page and attached on this form.

See application sketch

See construction permit

(X) See sketch on reverse side or page attached to this form.

Hole #	Horizon	Depth (inches)	Description of color, texture, etc	Texture Group
P1	Ap	0-9	10YR 3/2 (very dark grayish brown), weak coarse subangular blocky structure, fine sandy loam, few fine mica, friable	IIa
	Bt	9-17	10YR 4/3 (brown) with common medium distinct 5YR 5/6 (yellowish red) parent material, heavy sandy loam, moderate coarse subangular blocky structure, common fine mica, friable	IIa
	BCt	17-31	5YR 5/6 (yellowish red) w/ common fine distinct 10YR 2/1 (black) parent material & 7.5YR 6/6 (reddish yellow) parent material, heavy sandy loam, weak coarse subangular blocky structure, common fine mica, friable	IIa
	Ct	31-41	7.5YR 5/6 (strong brown) & 10YR 5/4 (yellowish brown) mixed matrix w/ common medium distinct 10YR 8/1 (white) feldspar parent material, sandy loam, massive (structureless), many fine mica, very friable	IIa
	Ct2	41-96	7.5YR 5/6 (strong brown) & 10YR 5/4 (yellowish brown) mixed matrix with many coarse distinct 10YR 8/1 (white) feldspar parent material, sandy loam, massive (structureless), many fine mica, very friable	IIa
P2	Fill	0-34	Mixture of Bt and Ap from pit 1 with organics (blue flagging tape found at 30" in pit sidewall)	
	Ct	34-96	7.5YR 5/6 (strong brown) & 10YR 5/4 (yellowish brown) mixed matrix w/ common medium distinct 10YR 8/1 (white) feldspar parent material, sandy loam, massive (structureless), many fine mica, very friable	IIa
P3	Fill	0-8	Mixture of Bt and Ap from pit 1 with organics	
	Bt	8-22	5YR 5/6 (yellowish red) & 7.5YR 6/6 (reddish yellow) mixed matrix, heavy sandy loam, weak coarse subangular blocky structure, many fine mica, friable	IIa
	Ct	22-44	7.5YR 5/6 (strong brown) & 10YR 5/4 (yellowish brown) mixed matrix w/ common medium distinct 10YR 8/1 (white) feldspar parent material, sandy loam, massive (structureless), many fine mica, very friable	IIa
	Ct2	44-96	7.5YR 5/6 (strong brown) & 10YR 5/4 (yellowish brown) mixed matrix with many coarse distinct 10YR 8/1 (white) feldspar parent material, sandy loam, massive (structureless), many fine mica, very friable	IIa







<b>WELL SPECIFICATIONS</b>	<b>VDH USE ONLY</b> HDIN: _____
<b>Application Information</b>	
Name: <u>Cognito Moto LLC</u>	Address: <u>3 S. Granby Street</u>
Phone: <u>804-256-7882</u>	<u>Richmond, VA 23220</u>
<b>Location Information</b>	
Tax Map/GPIN #: <u>6766-07-9586</u>	Property Address: <u>2730 Maidens Loop</u>
Subdivision: _____	Section: _____ Block: _____ Lot: _____
Directions: <u>2730 Maidens Loop Road</u>	
<b>General Information</b>	
Well Purpose (select all that apply):	<input checked="" type="checkbox"/> Domestic Drinking Water <input type="checkbox"/> Agricultural <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial/Commercial <input type="checkbox"/> Geothermal
Well Class: <u>3B</u>	Minimum Casing Depth: <u>50</u> ft.
Estimated Water Usage: <u>146</u> gpd	Minimum Grout Depth: <u>50</u> ft.
<b>Horizontal Setbacks</b>	
Distance from Building Sewer: <u>50</u> ft., min.	Distance from Pretreatment Unit(s) <u>50</u> ft., min.
Distance Conveyance System: <u>50</u> ft., min.	Distance to Absorption Area: <u>50</u> ft., min.
Distance from Property Line: <u>50</u> ft., min.	Distance from Foundations: <u>50</u> ft., min.
Distance from other source(s) of contamination: <u>100</u> ft., min	
List other sources: _____	
Notes: <u>20' X 20' IIIB Well Area</u>	

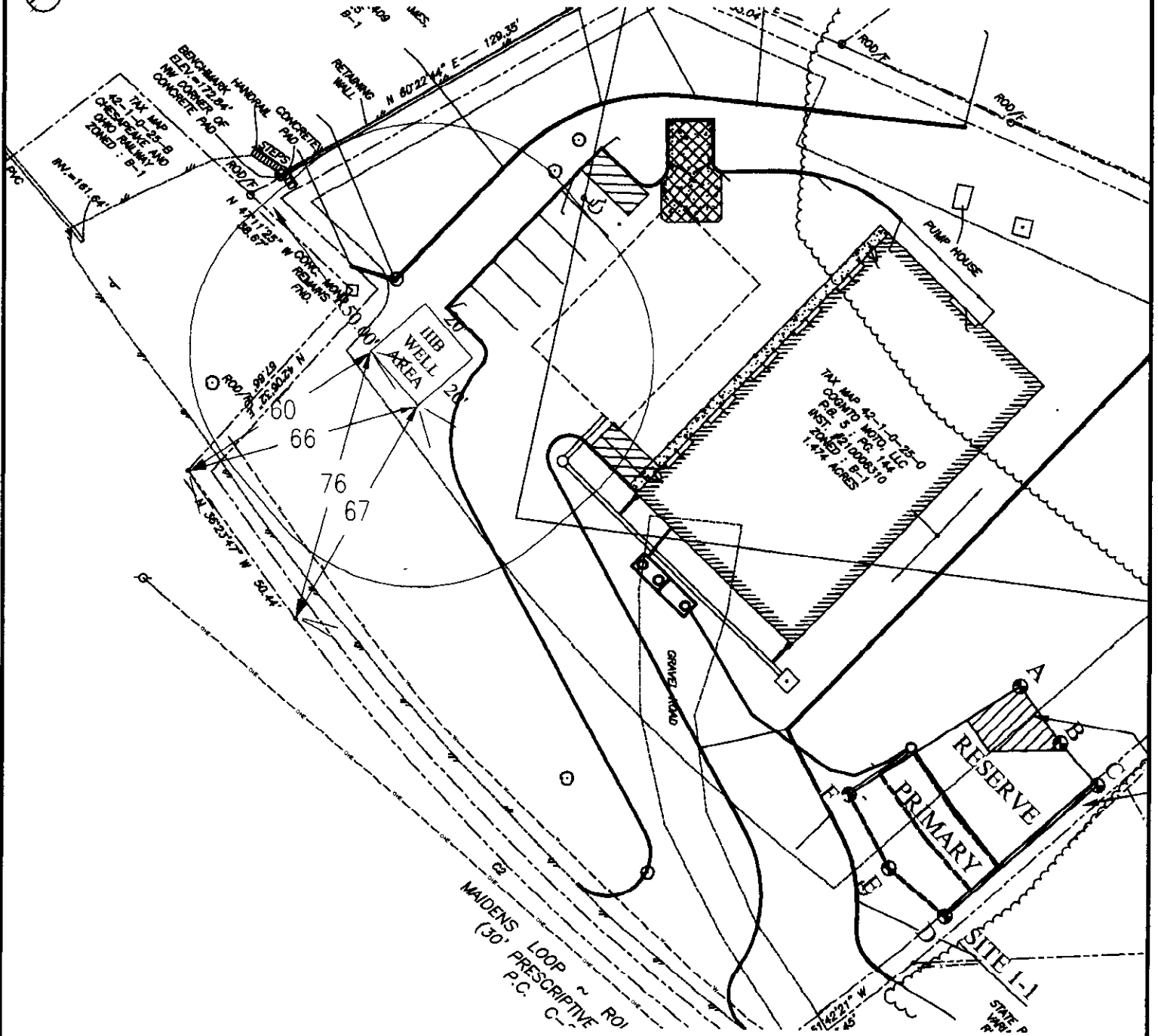
# HUNTER DRAINFIELD DESIGN

8250 BRANCH ROAD, ANNANDALE, VA 22003 - OFFICE# (804) 441-4582

## WELL DESIGN SKETCH MAIDENS LOOP GOOCHLAND COUNTY, VA

-  BORE #
-  PIT #
-  SLOPE DIRECTION
- (A-F)** DRAINFIELD CORNERS
-  PROPOSED IIIB WELL

ALL KNOWN WELLS & DRAINFIELD SITES WITHIN 200' OF THE PROPOSED DRAINFIELDS ARE SHOWN.



JOB NUMBER: 1239 CP  
 July 7, 2022  
 DRAWN BY: RMH



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

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 the adjacent property line where the property is used for an agricultural operation. For confirmation, 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.

---

Proposed Well Site is located within 50 feet of an Adjacent Property Line(s)

Property is not used for an Agricultural Operation

Statement for Adjacent Property Owner(s):

I affirm that my property is not used for an Agricultural Operation as defined in § 3.1-22.29 of the *Code of Virginia*.

\_\_\_\_\_  
Signature of Property Owner

\_\_\_\_\_  
Date

---

Proposed Well Site is located within 50 feet of an Adjacent Property Line

Property is is used for an Agricultural Operation

Appropriate documentation to comply with § 32.1-176.5:2 of the *Code of Virginia*:

Written Permission

I grant permission for the construction of the proposed private well described herein which is within 50 feet of my property line.

\_\_\_\_\_  
Signature of Property Owner

\_\_\_\_\_  
Date