OSE/PE Report for
Construction Permit [ ] Certification Letter [X] Subdivision Approval [ ]

Property Location:
911 Address: _____. City: _____.
Lot ____. Section _____. Subdivision _____.
GPIN or Tax Map # TM 13-3Q . Health Dept. ID # _____.
Latitude _____. Longitude _____.

Applicant or Client Mailing Address:
Name: Lori Foster.
Street: 820 Ridgeview Road.
City: Brightwood. State: Va.. Zip Code: 22715.

Prepared by:
OSE Name Thomas A. Warby. License # 1940-001009.
Address 13235 Matts Ln.
City Culpeper. State Virginia. Zip Code 22701.

P. E. Name Thomas A. Warby. License # 0402018466.
Address 13235 Matts Ln.
City Culpeper. State Virginia. Zip Code 22701.

Date of Report November 27, 2023 Date of Revision #1 _____.
OSE/PE Job Number C2014. Date of Revision #2 _____.

Contents/Index of this report:

Certification Page.	Soil Report/Profiles.	Well Specifications.
Application Page.	Abbreviated Design.	Pad Cross-Sections.
Site Location Map.	Design Calculations.	BioCoir Specifications.
San Survey/Site Dev Plan.	Construction Spec. Page.	Pump Design.

Certification Statement(s)
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), 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 Code of Virginia Section 54.1-402.A.11

I recommend that a (select one) construction permit [ ] certification letter [X] subdivision approval [ ] be (select one) approved [X] denied [ ]

OSE/PE Signature Thomas A. Warby 11-30-23.

VDH Use Only

Health Department ID # _____

Due Date _____

Commonwealth of Virginia

Application for: [X] Sewage System [X] Water Supply

Owner Lori Foster — Phone (540) 272-2898.
Mailing Address 820 Ridgeview Road — Phone _____.
Brightwood, VA 22715 — Fax (540) 727-2342.
Agent Mr. Thomas A. Warby — Phone (540)937-6623 .
Mailing Address 13235 Matts Ln — Phone _____.
Culpeper, VA 22701 — Fax (540)937-6624 .
Site Address _____ — Email _____.

Directions to Property: From Madison take Rte 231 North. Left on 670. Right on Weakley Hollow Rd. Left on Chad Berry Lane. The lot is on the left.

Subdivision _____ Section _____ Block _____ Lot _____.
Tax Map 13-3Q Other Property Identification _____.
Dimension/Acreage of Property 0.649 Acres .

Sewage System (New Construction)

Construction permits are valid for 18-months. Owners are advised to apply for a construction permit if they intend to build within 18 months of completing this application. Certification letters do not expire, may be recorded in the land records, and transfer with a property sale. For which are you applying?
[X] Certification Letter [ ] Construction Permit [ ] Subdivision Approval

Sewage System (Existing Construction)

Check all that apply: [ ] Repair [ ] Modification [ ] Expansion [ ] Replacement [ ] Upgrade
Do you wish to apply for a betterment loan eligibility letter? _____. If yes, there is a $50.00 fee for determination of eligibility.

Sewage System (New or Existing Construction)

[X] Single Family Home (Number of Bedrooms 2) [ ] Multi-Family Dwelling (Total Number of Bedrooms)
[ ] Other (describe) _____.
Basement? No . Walk-out Basement? N/a . Fixtures in Basement? N/a .
Conditional permit desired? No . If yes, which conditions do you want?
[ ] Reduced water flow [ ] Limited occupancy [ ] Intermittent or seasonal use
[ ] Seasonal or temporary use not to exceed 1 year.
Type of System: Pretreated Pad Septic System .

Water Supply

Will the water supply be Public or Private? Private . Is the water supply Existing or Proposed? Proposed .
If proposed, is this a replacement well? No . Will the old well be abandoned? N/A .
Will any buildings within 50' of the proposed well be termite treated? No .
Type of Well: 3B .

All Applicants

Is this property indeed to serve as your (owners) principal place of residence? [ ] Yes [X] 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 [X] No

Note: For sewage systems, a plat of the property may be required and a site sketch is always expected. For water supplies, a plat of the property is not required and a site sketch is always expected. The site sketch should show your property lines, actual and/or proposed buildings and the desire location of your well and/or sewage system. Your property lines, building location and the proposed well and sewage system sites must be clearly marked and sufficiently visible to see the topography.

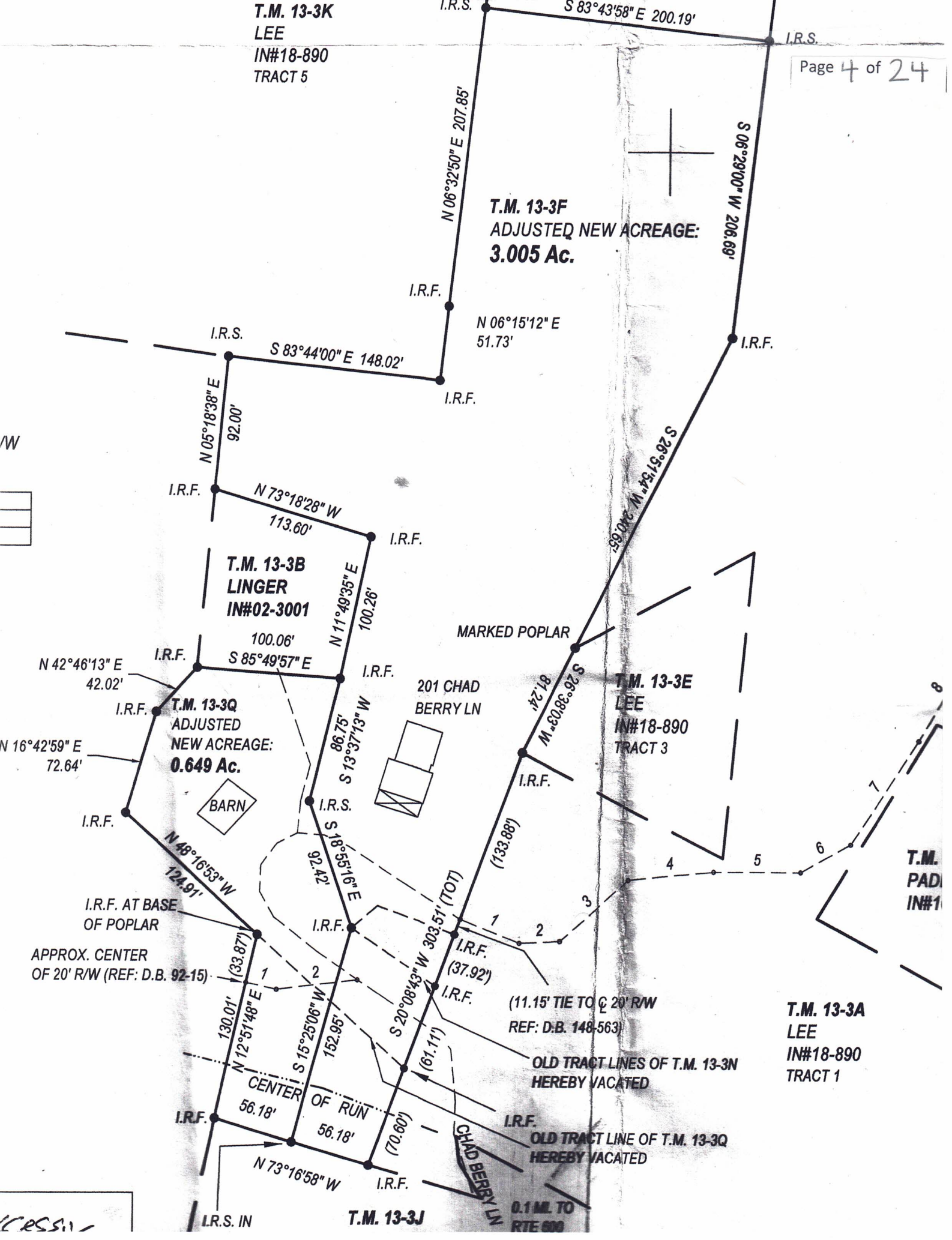
I give permission to the Virginia Department of Health to enter onto the property during normal business hours for the purpose of processing this application and to perform quality assurance checks of evaluations and designs until an operation permit is approved.

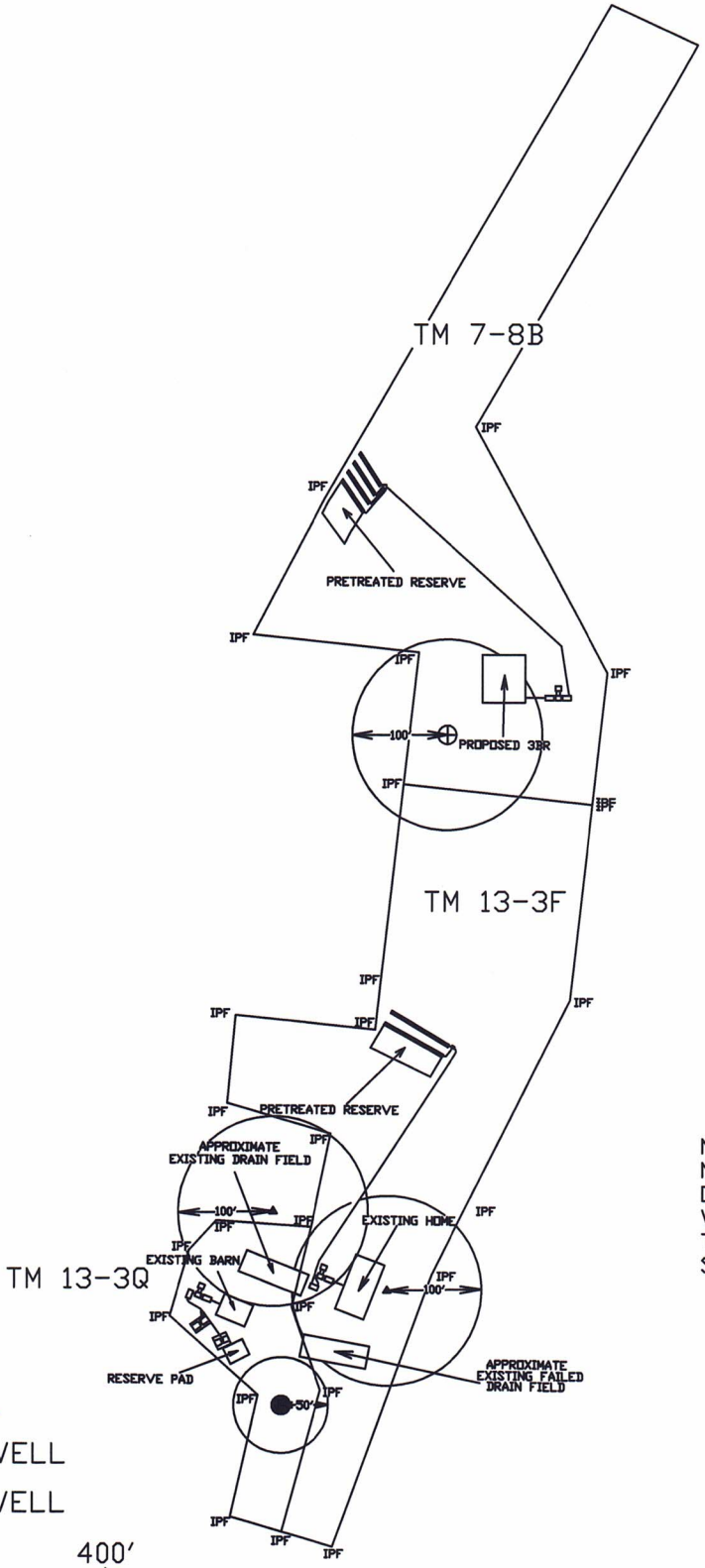
_____ _____
Signature of Owner/Agent Date

SITE

SITE LOCATION MAP
TM 13-3Q
MADISON COUNTY, VIRGINIA

CMW PROJECT NO. C2014


T.M. 13-3K
LEE
IN#18-890
TRACT 5
I.R.S.
S 83°43'58" E 200.19'
I.R.S.
N 06°32'50" E 207.85'
S 06°29'00" W 206.69'
T.M. 13-3F
ADJUSTED NEW ACREAGE:
3.005 Ac.
I.R.F.
N 06°15'12" E
51.73'
I.R.F.
I.R.S.
S 83°44'00" E 148.02'
I.R.F.
N 05°18'38" E
92.00'
I.R.F.
N 73°18'28" W
113.60'
I.R.F.
T.M. 13-3B
LINGER
IN#02-3001
100.06'
S 85°49'57" E
N 11°49'35" E
100.26'
I.R.F.
N 42°46'13" E
42.02'
I.R.F.
T.M. 13-3Q
ADJUSTED
NEW ACREAGE:
0.649 Ac.
N 16°42'59" E
72.64'
I.R.F.
BARN
I.R.S.
S 13°37'13" W
86.75'
201 CHAD
BERRY LN
MARKED POPLAR
S 26°38'03" W
81.24'
T.M. 13-3E
LEE
IN#18-890
TRACT 3
I.R.F.
S 26°51'54" W 240.65'
(133.88')
S 18°55'16" E
92.42'
N 48°16'53" W
124.91'
I.R.F. AT BASE
OF POPLAR
I.R.F.
303.51' (TOT)
I.R.F.
(37.92')
I.R.F.
APPROX. CENTER
OF 20' R/W (REF: D.B. 92-15)
(33.87')
130.01'
N 12°51'48" E
S 15°25'06" W
152.95'
S 20°08'43" W
(61.11')
(11.15' TIE TO ℄ 20' R/W
REF: D.B. 148-563)
OLD TRACT LINES OF T.M. 13-3N
HEREBY VACATED
T.M. 13-3A
LEE
IN#18-890
TRACT 1
CENTER OF RUN
56.18'
56.18'
I.R.F.
(70.60')
I.R.F.
OLD TRACT LINE OF T.M. 13-3Q
HEREBY VACATED
CHAD BERRY LN
N 73°16'58" W
I.R.F.
I.R.S. IN
T.M. 13-3J
0.1 MI. TO
RTE 600



NOTE: THERE ARE NO OTHER WELLS OR DRAIN FIELDS WITHIN 200' OTHER THAN THOSE SHOWN.

CMW SOIL CONSULTANTS, LLC
13235 MATTS LANE
CULPEPER, VIRGINIA 22701
TEL: (540) 937-6623
FAX: (540) 937-6624

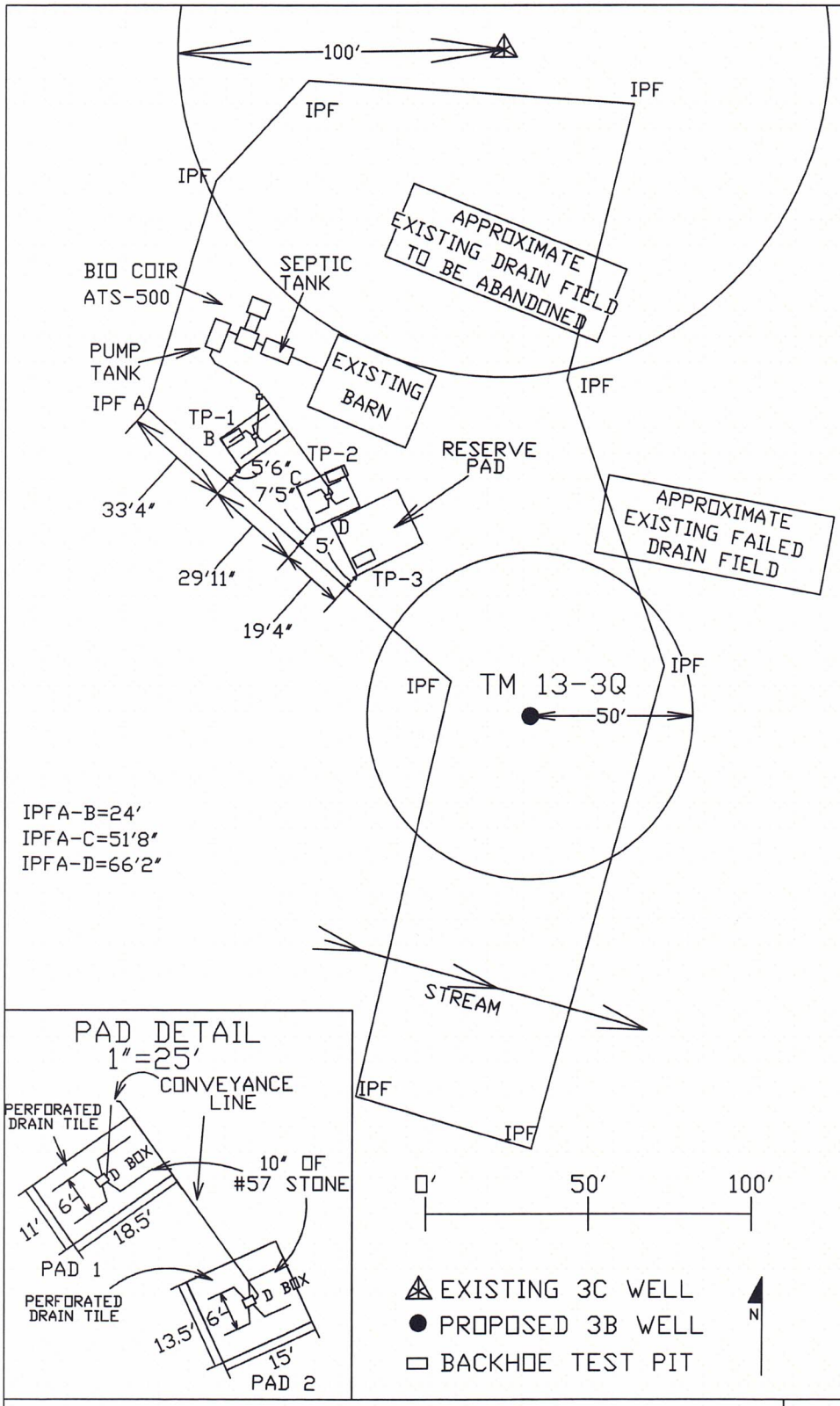
DATE: 11-27-23

SCALE: 1" = 200'

DRWN: JDT | C2014

SANITARY SURVEY
TM 13-3Q - MADISON COUNTY, VIRGINIA

DWG. NO:



NOTES:

1. THE EXISTING BARN IS TO BE CONVERTED INTO A 2 BEDROOM AIR BNB. THE DRAIN FIELD WILL CONSIST OF TWO PADS. PAD 1 IS AN 18.5' X 11' PAD. PAD 2 IS AN 15' X 13.5' PAD. THE PADS ARE LOCATED AS SHOWN ON THE LOT AND ARE STAKED IN THE FIELD.
2. PRETREATMENT WILL BE PROVIDED BY AN BIOCOIR ATS500 ATU. SEWAGE WILL FLOW TO A SEPTIC TANK THEN ON TO THE BIOCOIR ATS500 ATU, ON TO A PUMP TANK THEN ON TO A SPLITTER BOX BEFORE FLOWING TO THE PADS. THE BOTTOM OF PAD 1 IS ON CONTOUR AND THE TOP OF PAD 2 IS ON CONTOUR.
3. FOR PAD 1 START BY LAYING OUT THE PAD. THE BOTTOM OF THE PAD IS TO BE LEVEL AND AT A DEPTH OF 29" FROM THE HIGHEST CORNER OF THE PAD. IN THIS WAY THE PAD WILL BE A MINIMUM OF 22.75" BELOW EXISTING GRADE AT THE SHALLOWEST POINT. AFTER EXCAVATING THE PAD, PLACE 10" OF #57 STONE IN THE BOTTOM OF THE PAD. A DISTRIBUTION BOX IS TO BE PLACED IN THE GRAVEL IN THE CENTER OF THE PAD, AS SHOWN ON THE DETAIL DRAWING. PERFORATED DRAIN TILE IS TO SPREAD THE EFFLUENT THROUGHOUT THE GRAVEL AS SHOWN. PLACE GEOTEXTILE FABRIC OVER THE GRAVEL BEFORE BACKFILLING.
4. FOR PAD 2 START BY LAYING OUT THE PAD. THE BOTTOM OF THE PAD IS TO BE LEVEL AND AT A DEPTH OF 29" FROM THE HIGHEST CORNER OF THE PAD. IN THIS WAY THE PAD WILL BE A MINIMUM OF 20.625" BELOW EXISTING GRADE AT THE SHALLOWEST POINT. AFTER EXCAVATING THE PAD, PLACE 10" OF #57 STONE IN THE BOTTOM OF THE PAD. A DISTRIBUTION BOX IS TO BE PLACED IN THE GRAVEL IN THE CENTER OF THE PAD, AS SHOWN ON THE DETAIL DRAWING. PERFORATED DRAIN TILE IS TO SPREAD THE EFFLUENT THROUGHOUT THE GRAVEL AS SHOWN. PLACE GEOTEXTILE FABRIC OVER THE GRAVEL BEFORE BACKFILLING.
5. THE SYSTEM SHALL BE INSTALLED IN DRY CONDITIONS ONLY. FOLLOW EROSION CONTROL METHODS AS REQUIRED BY THE COUNTY.
6. NO UNDERGROUND UTILITIES ARE TO BE PLACED WITHIN 10' OF THE DRAIN FIELD.
7. THIS DRAWING WAS PREPARED USING THE SURVEY PROVIDED (SEE PAGE 4 OF 24) AND FIELD OBSERVATIONS.

CMW SOIL CONSULTANTS, LLC
13235 MATTS LANE
CULPEPER, VIRGINIA 22701
TEL: (540) 937-6623
FAX: (540) 937-6624

DATE: 11-27-23

SCALE: 1" = 50'

DRWN: JDT | C2014

SITE DEVELOPMENT PLAN
TM 13-3Q - MADISON COUNTY, VIRGINIA

DWG. NO:

VDH Use Only
Health Department ID#: _____.
Due Date: _____.

Site and Soil Evaluation Report
(For certification letters and subdivisions)

General Information
Date: November 29, 2023 . Madison County Health Department
Applicant: Lori Foster .
Telephone Number: (540) 272-2898 .
Address: 820 Ridgeview Road Brightwood, VA 22715 .
Owner: Same . Address: Same .
Location: TM 13-3Q; Madison County, VA .
Subdivision: _____ Block/Section _____ Lot ____.

Soil Information Summary
1. Position in landscape satisfactory? X yes ___ no Describe: Foot Slope .
2. Slope 2-3 %
3. Depth to rock/impervious strata Max. 60" Min. 47" None ___.
4. Free water present? ___ yes X no Range in inches N/A .
5. Depth to seasonal water table (gray mottling or gray color):
___ inches (primary) ___ inches (reserve)
6. Soil percolation rate estimated: Yes X Texture group [ ] I [X] II [ ] III [ ] IV
No ___ Estimated rate 45 min/in.
7. Percolation test performed: Yes ___ Number of percolation test holes ___.
No X Depth of percolation test holes ___.
Average percolation rate ___ mpi.

Name and title of evaluator: Thomas A. Warby, OSE, P.E. .
Signature: Thomas A. Warby 11-30-23

Department Use
___ Site approved: Drainfield trench bottoms to be placed at ___ (inches) depth at site designated on permit.
___ Site disapproved: (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 drainfield, and/or Reserve Area.
6. ___ Proposed system too close to well.
7. ___ Other (Specify) _____.

SOIL EVALUATION REPORT

Date of Evaluation: August 18, 2023 .
Property ID: TM 13-3Q; Madison County, Virginia .

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 of 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 100' of site (See section 4) and reserve site shall be shown on the reserve side of this page or prepared on a separate page and attached to this form.

X See application sketch ___See construction permit ___ See sketch on reverse side or page attached to this form.

Hole	Horizon	Depth, in.	Soil Description	Group
TP-1	A	0-2	10YR4/4 dark yellowish brown sandy loam with 30% rock	2
	E	2-8	10YR3/6 dark yellowish brown sandy loam with 40% rock	2
	Bt	8-41	10YR3/6 dark yellowish brown and 10YR6/6 brownish yellow sandy loam with 40% rock	2
	C	41-54	10YR5/4 yellowish brown, 10YR3/4 dark yellowish brown and 7.5YR4/4 brown sandy loam with 45% rock	2
			50% Rock at 54"	
TP-2	A	0-3	10YR4/4 dark yellowish brown sandy loam with 30% rock	2
	E	3-9	10YR3/6 dark yellowish brown sandy loam with 35% rock	2
	Bt	9-42	10YR3/6 dark yellowish brown and 10YR6/6 brownish yellow sandy loam with 40% rock	2
	C	42-60	10YR5/4 yellowish brown, 10YR3/4 dark yellowish brown and 7.5YR4/4 brown sandy loam with 45% rock	2
			50% rock at 60"	
TP-3	A	0-2	10YR4/4 dark yellowish brown sandy loam with 30% rock	2
	E	2-10	10YR3/6 dark yellowish brown sandy loam with 35% rock	2
	Bt	10-32	10YR3/6 dark yellowish brown and 10YR6/6 brownish yellow sandy loam with 40% rock	2
	C	32-47	10YR5/4 yellowish brown, 10YR3/4 dark yellowish brown and 7.5YR4/4 brown sandy loam with 45% rock	2
			50% rock at 47"	

Note: The rock is ancient alluvial boulders and channers.

Abbreviated Design Form

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

This abbreviated design covers the [ ] primary and reserve, [X] only the primary area, [ ] only the reserve area for TM 13-3Q; Madison County, Va. .

Design basis – Pad 1

Total length of available area: 18.5' . Total width of available area: 11' .

Estimated Perc. Rate: 45 at 22.75"-29" in. (depth) Number of bedrooms (or GPD): 2 (300).

Conveyance method[1]: pump . Distribution method[2]: D Box .

Dispersal system basis[3]: Table 5.5 of SHDR. LGMI required? No .

Effluent quality required: Advanced Secondary (Primary, Secondary, Advanced Secondary)

Square feet per bedroom: 150/.74 = 203 . Total pad area required: 406 .

[1]Gravity, pump, siphon
[2]Enhanced flow, LPD or Drip Dispersal
[3]Table 5.4 of SHDR or identify the GMP used

Area Calculations

Number of pads: 1 . (Note if pad is used) Length of pad: 18.5' .

Width of pad or trenches: 11' . Center to center spacing: N/a .

Reserve required?: Yes . Percent reserve area required: 100% .

Total width of absorption area required: 18.5' . Total pad area provided: 203.5* .

*Pad 1 and Pad 2 are the primary and the sum of the two areas provided is
203.5 sq. ft. + 202.5 sq. ft. = 406 sq. ft.

The required width is calculated by multiplying the center to center spacing by one less than the number of trenches and adding one 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.

Abbreviated Design Form

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

This abbreviated design covers the [ ] primary and reserve, [X] only the primary area, [ ] only the reserve area for TM 13-3Q; Madison County, Va. .

Design basis – Pad 2

Total length of available area: 15' . Total width of available area: 13.5' .

Estimated Perc. Rate: 45 at 20.625"-29" in. (depth) Number of bedrooms (or GPD): 2 (300).

Conveyance method[1]: pump . Distribution method[2]: D Box .

Dispersal system basis[3]: Table 5.5 of SHDR. LGMI required? No .

Effluent quality required: Advanced Secondary (Primary, Secondary, Advanced Secondary)

Square feet per bedroom: 150/.74 = 203 . Total pad area required: 406 .

[1]Gravity, pump, siphon
[2]Enhanced flow, LPD or Drip Dispersal
[3]Table 5.4 of SHDR or identify the GMP used

Area Calculations

Number of pads: 1 . (Note if pad is used) Length of pad: 15' .

Width of pad or trenches: 13.5' . Center to center spacing: N/a .

Reserve required?: Yes . Percent reserve area required: 100% .

Total width of absorption area required: 13.5' . Total pad area provided: 202.5* .

*Pad 1 and Pad 2 are the primary and the sum of the two areas provided is
203.5 sq. ft. + 202.5 sq. ft. = 406 sq. ft.

The required width is calculated by multiplying the center to center spacing by one less than the number of trenches and adding one 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.

Abbreviated Design Form

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

This abbreviated design covers the [ ] primary and reserve, [ ] only the primary area, [X] only the reserve area for TM 13-3Q; Madison County, Va. .

Design basis – Reserve Pad

Total length of available area: 22.5' . Total width of available area: 18' .

Estimated Perc. Rate: 45 at 15.75"-29" in. (depth) Number of bedrooms (or GPD): 2 (300).

Conveyance method[1]: pump . Distribution method[2]: D Box .

Dispersal system basis[3]: Table 5.5 of SHDR. LGMI required? No .

Effluent quality required: Advanced Secondary (Primary, Secondary, Advanced Secondary)

Square feet per bedroom: 150/.74 = 203 . Total pad area required: 406 .

[1]Gravity, pump, siphon
[2]Enhanced flow, LPD or Drip Dispersal
[3]Table 5.4 of SHDR or identify the GMP used

Area Calculations

Number of pads: 1 . (Note if pad is used) Length of pad: 22.5' .

Width of pad or trenches: 18' . Center to center spacing: N/a .

Reserve required?: Yes . Percent reserve area required: 100% .

Total width of absorption area required: 18' . Total pad area provided: 405 .

The required width is calculated by multiplying the center to center spacing by one less than the number of trenches and adding one 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.

Design Calculations

Property ID: TM 13-3Q; Madison County, Va.

Flow Type of use (residential, etc.) residential . No. of bedrooms: 2 . No. of employees: N/A . Square Footage of building space: _____. Daily flow (peak design) in GPD: 300 .	Show Calculations Here[1]

Treatment No. of septic tanks: 1 . Size of septic tank(s): 1000 . Pretreatment required? X yes ___ no If yes, specify type of treatment device: BioCoir ATS500 .	Show Calculations Here[1]

Absorption area design Soil Texture Group: 2 . Reserve area required: X yes ___ no ___ 50% X 100% ___ other Specify other _____.	If pump system, enhanced flow, or LPD show calculations here or on a separate sheet. (dosing volume, head, pump design, etc.)

Water Supply Class of well: 3B . Describe (bored, drilled): drilled. Distance between septic tank(s) and well: 50' . Distance between absorption area and well: 50' .

[1] Information and calculations required for commercial and/or conditional use applications only.

System Specifications

Property ID: TM 13-3Q; Madison County, Va.

Applicant Information Name: Lori Foster . Address: 820 Ridgeview Road . Brightwood, VA 22715 .	Phone: (540) 272-2898 .
Location Information Tax Map No. TM 13-3Q . GPIN No. _____. Directions From Madison take Rte 231 north Left on 670. Right on Weakley Hollow Rd . Left on Chad Berry Lane. The lot is on the . Left.	Property address _____. _____. Subdivision _____. Section _____. Block _____. Lot ___.
General Information System Type Pretreated Pad System. (e.g. septic tank, drainfield) Type of property residential . (e.g. commercial, residential, etc.) Conditions _____.	Number of bedrooms 2 . Daily flow 300 (gpd)
Sewer Line Scheduled 40 PVC, 4" or equivalent (add check or describe equivalent below) _____.	**Septic Tank – Inlet/Outlet Structure** Capacity: 1000 gallons 2nd septic tank N/A gallons Per the 2000 Sewage Handling & Disposal Regulations, Check which option chosen: Septic tank with inspection port X . Septic tank with effluent filter ___. Reduced maintenance septic tank ___.
Conveyance line/force main Information Method pump . (e.g. gravity, pumping, dosing siphon) If pumping, attach Pump Spec Sheet Material PVC . Pipe diameter 1" . Slope of pipe ____ (in inches)	**Distribution box Information** No. of boxes 3 . (1splitter box, 1 per pad) No. of outlets 2(splitter), 4(per pad) . Surge or splitter box required: Yes X No ___.
Header line Information 1500 pound crush strength Yes _. Minimum slope is 2"/100 ft. Yes NA *see page 6 of 24	**Percolation line Information/Absorption Area** Center to center spacing N/a ft. Required spacing NA ft. Installation Depth * inches Aggregate depth 10 inches No. of Laterals * Lateral length * ft. Lateral bottom slope NA inches Lateral width NA inches

Well Specifications

Property ID: TM 13-3Q; Madison County, Va.

Applicant Information
Name: Lori Foster .
Address: 820 Ridgeview Road .
Brightwood, VA 22715 .

Phone: (540) 272-2898 .

Location Information
Tax Map No. TM 13-3Q .
GPIN No. _____ .
Directions From Madison take Rte 231 north Left on 670. Right on Weakley Hollow Rd . Left on Chad Berry Lane. The lot is on the left

Property address _____ .
_____ .
Subdivision _____ .
Section _____ . Block _____ .
Lot ___ .

General Information
Well Purpose (select all that apply: [X] Domestic Drinking Water [ ] Agricultural [ ] Irrigation [ ] Industrial/Commercial [ ] Geothermal

Well Class: 3B .
Minimum Casing Depth: 50 . ft.

Estimated Water Usage: 300 gpd .
Minimum Grouting Depth: 50 ft.

Horizontal Setbacks

Distance from Building Sewer: 50+ . ft.
Distance from Pretreatment Units 50+ ft.

Distance from Conveyance System: 50+ . ft.
Distance from Absorption Area 50+ . ft.

Distance from Property Line: 10+ . ft.
Distance from foundations 50+ ft.

Distance from other sources of contamination: NA . ft.

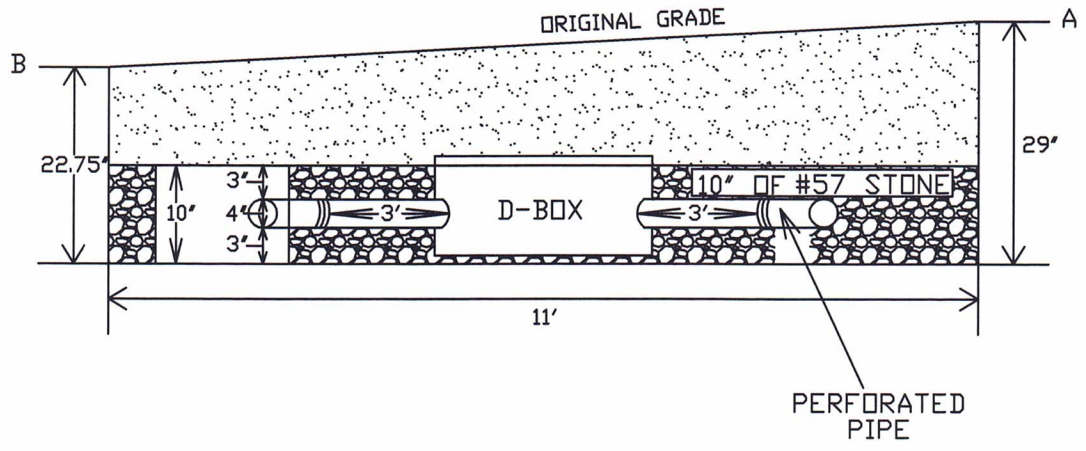
List other sources of contamination: _____ .

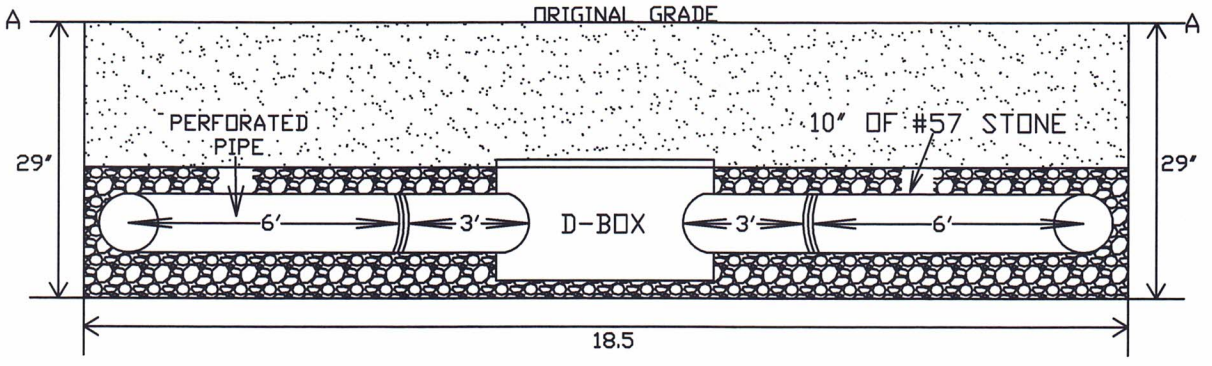
Notes:

The well may be moved 15' in any direction from the point shown on the drawing, as long as the above setbacks are maintained.

CROSS-SECTION OF PAD - 1

ELEVATIONS:
A=1135
B=1134.48





CMW SOIL CONSULTANTS, LLC
13235 MATTS LANE
CULPEPER, VIRGINIA 22701
TEL: (540) 937-6623
FAX: (540) 937-6624

DATE: 11-27-23

SCALE: NTS

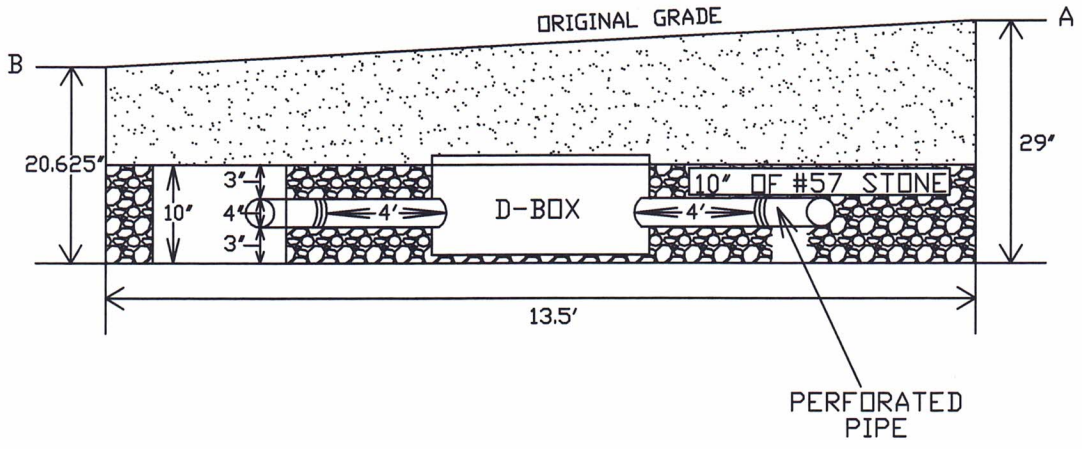
DRWN: JDT | C2014

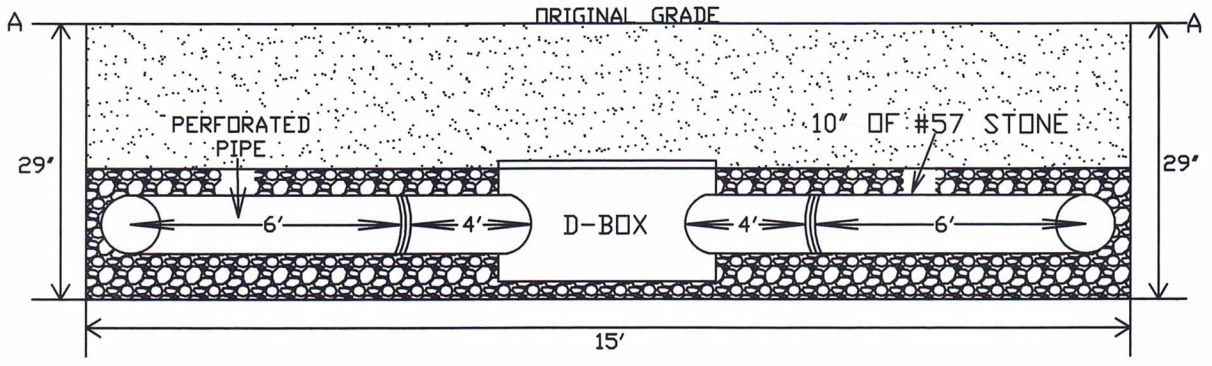
CROSS SECTION DETAIL
TM 13-3Q - MADISON COUNTY, VIRGINIA

DWG. NO:

CROSS-SECTION OF PAD - 2

ELEVATIONS:
A=1134
B=1133.30





CMW SOIL CONSULTANTS, LLC
13235 MATTS LANE
CULPEPER, VIRGINIA 22701
TEL: (540) 937-6623
FAX: (540) 937-6624

DATE: 11-27-23

SCALE: NTS

DRWN: JDT | C2014

CROSS SECTION DETAIL
TM 13-3Q - MADISON COUNTY, VIRGINIA

DWG. NO:

Residential Strength Waste Table

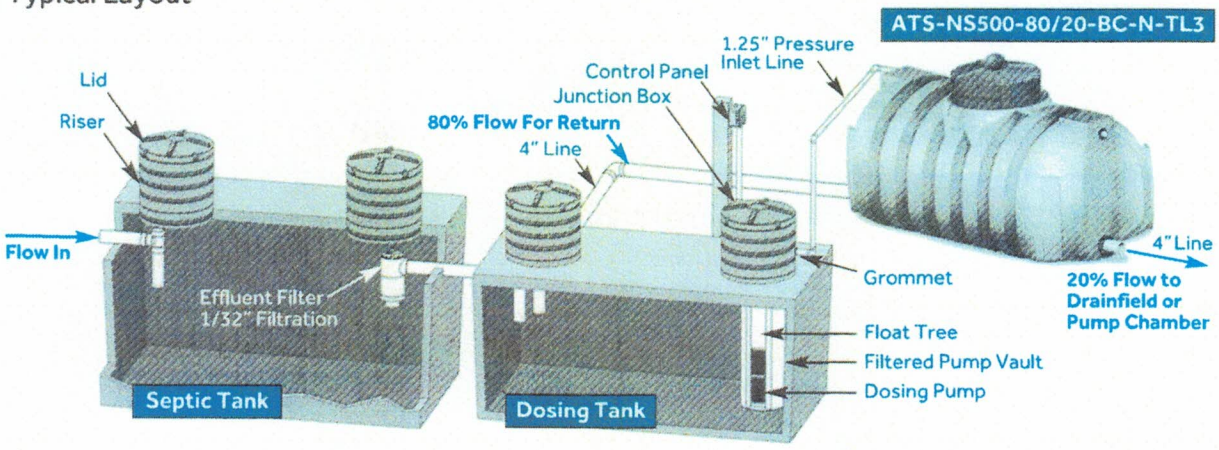
Constituents	Pretreated[1] Max	Primary Treated[2] 30-day Avg	7-day Max	30-day Max
$CBOD_5$ mg/L	≤ 300	150	200	300
TSS mg/L	≤ 350	75	100	150
TN mg/L	≤ 60	60	75	120
FOG mg/L	≤ 30	20	25	25
pH	6.0 to 9.0	6.0 to 9.0		

[1] Pretreated: Raw wastewater prior to entering the septic tank.

[2] Primary treated: Effluent at the discharge of the septic tank.

Note: This is Anua's definition of pretreated/primary treated residential wastewater. If the wastewater exceeds these parameters, treatment goals may not be achieved and may require additional treatment.

Typical Layout



Step 1 Information Gathering

Design Flow (GPD)	Number of Bedrooms	Number of Occupants

Note: Average flow (GPD) is defined as 60% of design flow for 150 GPD per bedroom and 75% of design flow for 120 GPD per bedroom.

Step 2 Size the Septic Tank and Dosing Tank

Model Number	Bedrooms	Flow Rating (GPD)	Septic Tank Minimum Size (Gal)	Dosing Tank Minimum Size (Gal)
ATS-NS500-BC-N-TL3	4	600	1000	500
ATS-NS750-BC-N-TL3	5	750	1250	625
ATS-NS1000-BC-N-TL3	6	900	1500	750
ATS-NS500-80/20-BC-N-TL3	4	600	1000	500
ATS-NS750-80/20-BC-N-TL3	5	750	1250	625
ATS-NS1000-80/20-BC-N-TL3	6	900	1500	750

Step 3 Select an Effluent Filter

Models with 1/32" filtration

- Lifetime Filter LT9-1/32
- Zabel A300
- Polylok PL-625
- BEST GF10-32

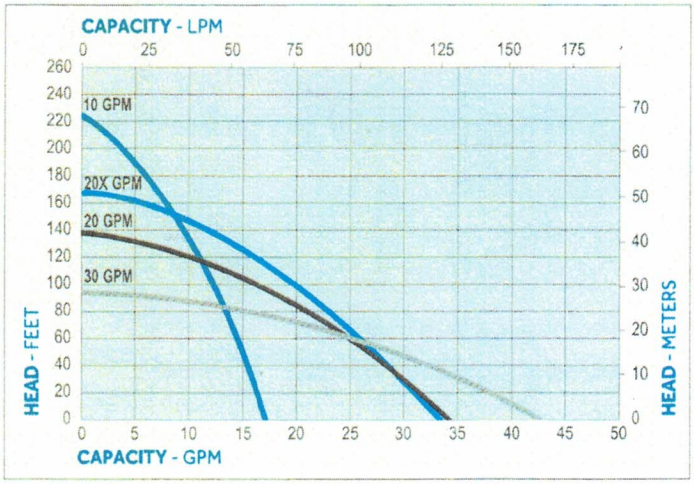
Step 4 Select a Filtered Pump Vault

Available models with heights

Model Number	Height
FPV-H50-4	50"
FPV-H56-4	56"
FPV-H62-4	62"
FPV-H68-4	68"
STF-NV06-30	30"

Step 5 Verify Dosing Pump Based on TDH

Model Number	Total Spray Nozzles
ATS-NS500-BC-N-TL3	3
ATS-NS750-BC-N-TL3	4
ATS-NS1000-BC-N-TL3	4
ATS-NS500-80/20-BC-N-TL3	3
ATS-NS750-80/20-BC-N-TL3	4
ATS-NS1000-80/20-BC-N-TL3	4



Note 1: TF14 spray nozzles = ~2.9 GPM @ 5 PSI and ~3.4 GPM @ 8 PSI
Note 2: The standard model pump is Little Giant C1 20gpm, 115V model. (see pump curve above)

Step 6 Select Treatment Pod per the Engineering and Technical Specifications Sheet for Virginia TL-3

Step 7 Verify Other Components Included in Standard Package

- 1.25" discharge assembly
- Junction box
- Control panel
- Float switches

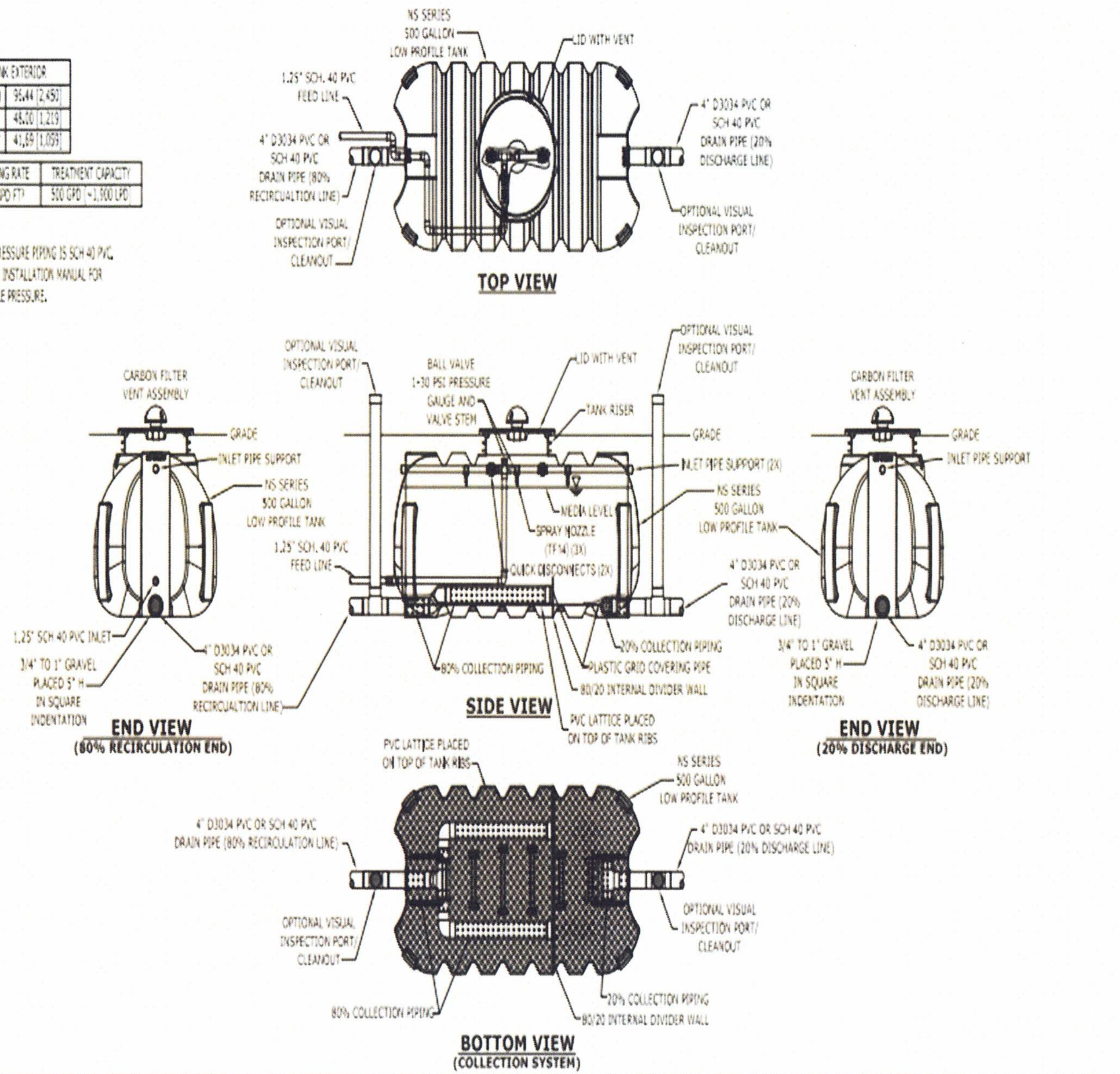
Step 8 Select Any Optional Components

- Access risers
- Access lids
- Tank adapters with mounting hardware
- Tank/riser sealant or adhesive
- Rubber grommets

TANK EXTERIOR	
LENGTH	96.44 [2,450]
WIDTH	48.00 [1,219]
HEIGHT	41.69 [1,059]

LOADING RATE	TREATMENT CAPACITY
6.0 GPD FT²	500 GPD ~1,900 LPD

NOTES:
1. ALL PRESSURE PIPING IS SCH 40 PVC.
2. CHECK INSTALLATION MANUAL FOR NOZZLE PRESSURE.



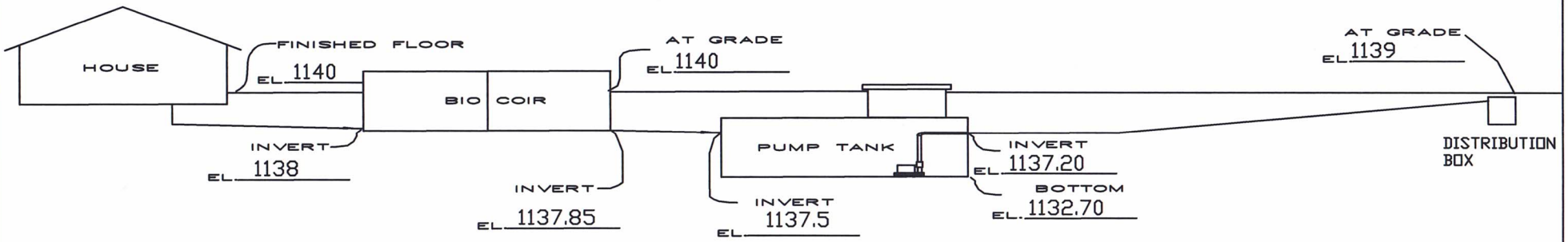
ANUA

DRAWING TITLE: Quanics AeroCell or Quanics BioCell ATS-NS500-80/20-AC-N or ATS-NS500-80/20-BC-N	DWG No: TBD	DRAWN BY: JLN	- DWG STATUS - PLANNING ☒ TENDER ☐ FOR APPROVAL ☐ FOR CONSTRUCTION ☐ AS BUILT ☐
PROJECT: TBD	DATE: 2/26/20	CHECKED: CB	ISSUE: FIRST ISSUE OF DRAWING
CLIENT: ANUA CLIENT	SCALE: N.T.S.	APPROVED: CB	SHT 1 OF 1 PAGE SIZE B

Do not scale directly from drawing. Dimensions are in inches unless stated otherwise. If in doubt, ask!

HYDRAULIC PROFILE
NTS

Note: Elevations are approximate and not intended to be exact.



CMW SOIL CONSULTANTS, LLC
13235 MATTS LANE
CULPEPER, VIRGINIA 22701
TEL: (540) 937-6623
FAX: (540) 937-6624

DATE: 11-29-23

SCALE: NTS

DRWN: JDT | C2014

HYDRAULIC PROFILE
TM 13-3Q - MADISON COUNTY, VIRGINIA

DWG. NO:

HYDRAULIC CALCULATIONS
TM 13-3Q
MADISON COUNTY, VIRGINIA

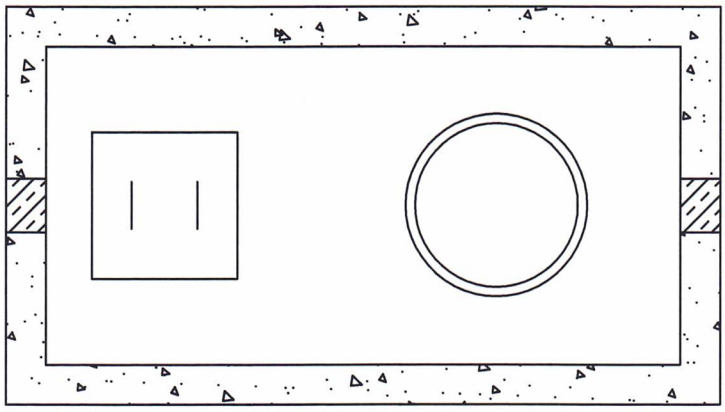
I. Septic Tank Size:
- Daily Flow - 300 GPD
- Detention Time – 48 HR.
- Recommend - 1000 Gal.

II. Pump Tank Float Settings (1000 Gal. Pump Tank from Nice):
- Tank Properties:
  - Liquid Depth - 54"
  - Gallons per inch – 22.52
- Low Water Cut Off Float Level - 24" (To keep fluid above the pump)
- Required Storage above Alarm Float (1/4 day storage) = 1/4(300) = 75 Gallons
- Alarm Float set 10 inches below invert of pump pipe out of tank provides 10"(22.52 Gal./in.) = 225.2 Gal.

III. Pump Sizing and Specifications:
- Static Lift (2' above bottom of tank to the distribution box) 4.8'
- Assume flow of 20 gallons per minute (7.43 feet/sec. for 1" pipe)
- Friction Head Loss
  - 22 feet of 1" dia. pipe
  - Assume 50' extra for minor losses
  - Friction coefficient = 20.2/100 feet of pipe
  - Friction Head Loss = (0.72) (20.2) = 14.54
- Total Head Loss = Static Lift + Friction Head Loss = 4.8 + 14.54 = 19.34
- Use Zoeller Model 98 Pump (see attached pump curve)
- Pump Specifications - See Attached Drawings for Control Panel, Float and Alarm Details. Pump controls to be housed in NEMA 4X weatherproof enclosure. Alarm to be located within the house.

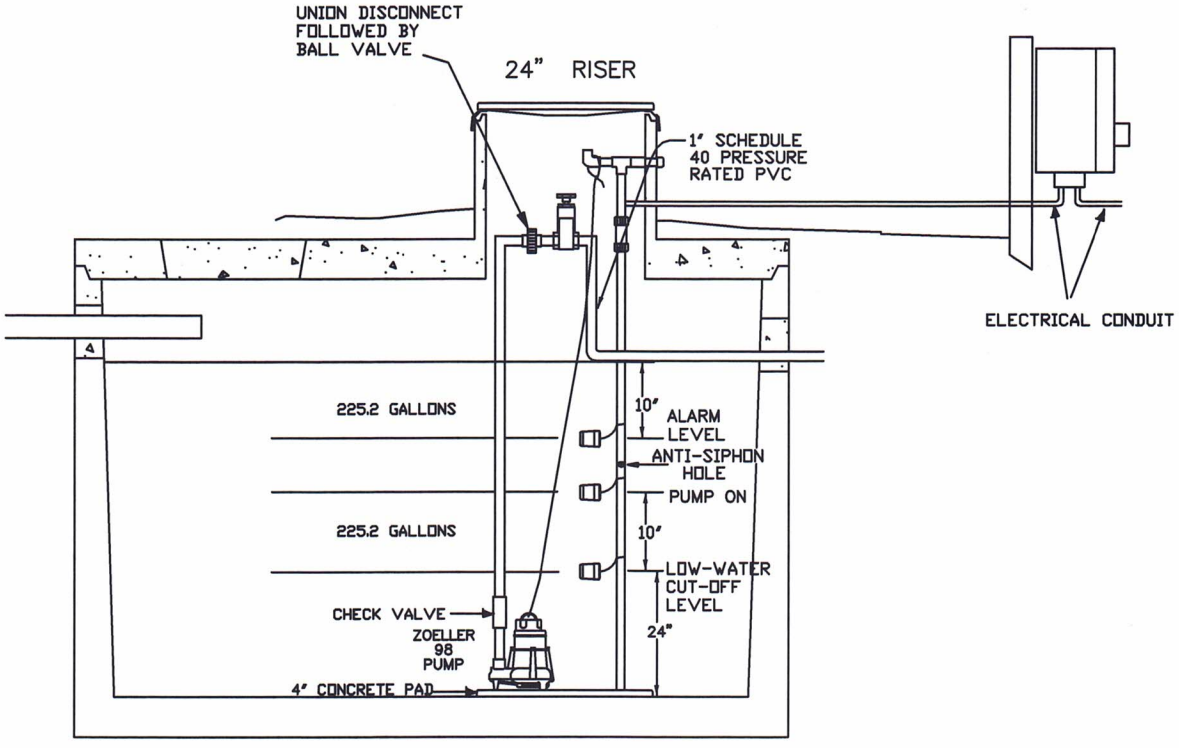
IV. Dosing Requirements (0.25 to 1)(daily flow)= 75 to 300 gal/dose
- 10" draw down provides (10")(22.52 gal/in.)= 225.2 gal/dose

PUMP TANK - 1000 GAL FROM NICE (22.52 GAL/INCH)



PLAN VIEW

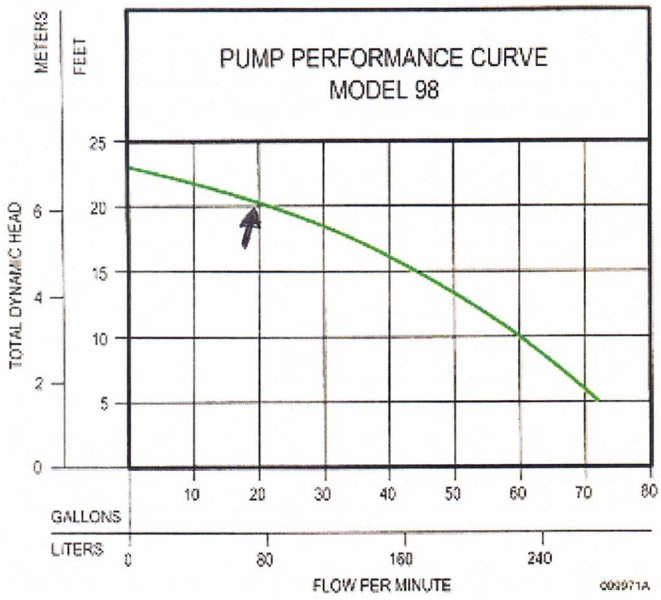
Simplex Control Panel with Alarm. The pump and alarm are to be wired on separate breakers.



SECTION VIEW

NOT TO SCALE

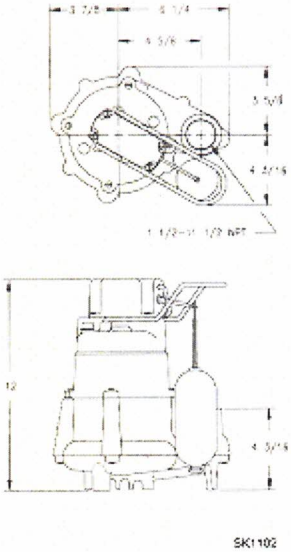
CMW SOIL CONSULTANTS, LLC 13235 MATTS LANE CULPEPER, VIRGINIA 22701 TEL: (540) 937-6623 FAX: (540) 937-6624	DATE: 11-29-23	
	SCALE: NTS	
	DRWN: JDT	C2014
PUMP TANK DETAILS TM 13-3Q - MADISON COUNTY, VIRGINIA	DWG. NO:	



TOTAL DYNAMIC HEAD/FLOW
PER MINUTE
EFFLUENT AND DEWATERING

MODEL		98	
Feet	Meters	Gal.	Liters
5	1.5	72	273
10	3.1	61	231
15	4.6	45	170
20	7.1	25	95
Shut-off Head:		23 ft.(7.0m)	

009971B



CONSULT FACTORY FOR SPECIAL APPLICATIONS

- Electrical alternators, for duplex systems, are available and supplied with an alarm.
- Mechanical alternators, for duplex systems, are available with or without alarm switches.
- Variable level float switches are available for controlling single and three phase systems.
- Double piggyback variable level float switches are available for variable level long cycle controls.
- Refer to FM1922 and FM0806 for temperatures above 130° F.

98 Series				Control Selection	
Model	Volts-Ph	Mode	Amps	Simplex	Duplex
M98	115 1	Auto	9.4	1	4
N98	115 1	Non	9.4	2 or 3	4
D98	230 1	Auto	4.7	1	4
E98	230 1	Non	4.7	2 or 3	4

SELECTION GUIDE

1. Integral float operated mechanical switch, no external control required.
2. For automatic use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
3. See FM1228 for correct model of simplex control panel.
4. See FM0712 for correct model of duplex control panel or FM1663 for a residential alternator system.

For information on additional Zoeller products refer to catalog on Piggyback Variable Level Switches, FM0477; Electrical Alternator, FM0486; Mechanical Alternator, FM0495; Sump/Sewage Basins, FM0487; Single Phase Simplex Pump Control, FM1596; Alarm Systems, FM0732.

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).

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"