020231000-2024

Becker County Planning & Zoning
915 Lake Ave
Detroit Lakes, MN 56501
(218) 846-7314
www.co.becker.mn.us

Certificate of Compliance
Inspection Report - Permit #: SS2024-2081

Owner & Property Information

Owner Name:	DALE A & DIANE B LADWIG
Mailing Address:	DALE A & DIANE B LADWIG 16142 MAPLE RIDGE RD AUDUBON MN 56511
Parcel #:	020231000
Secondary Parcel #:	

Site Address:	16142 MAPLE RIDGE RD
Township - Sec/Twp/Rng:	AUDUBON - 33/139/042
Legal Description:	33-139-042 PT GOVT LOTS 4 & 5 AKA PT FRAC SE1/4 SW1/4: BEG 864' NE OF MC44 TH NE 28' TO CORM LK, NWLY & SWLY AL LAKE TO POINTT 454.3' SW OF BEG, TH SELY, ELY, & NELY AL LAKE TO POINT 25' SW OF BEG & NE 25' TO POB; & 66' STRIP EX 274' TO TWP RD; & PT GOVT LOT 4 BEING LAND ADJ TO RD, SE & ADJACENT TO SCHAFER PROPERTY REF: 02.0238.003 IN 2012
Designer:	Vareberg Backhoe Services, L910 (Richard Vareberg)
Installer:	Vareberg Backhoe Services, L910 (Richard Vareberg)

Inspector Verified Specifications

Insp- Effluent Screen Installed:	No	**Insp- Tank Nbr/Size:**	1/520 PUMP
Insp- Alarm Required:	Yes	**Insp- Drainfield Type:**	Mound
Insp- Lift Pump in System:	Yes	**Insp- Drainfield Size:**	10X37.5 ROCK BED
Insp- Number of Bedrooms:	3	**Insp- Soil Verification:**	#1:24"LL #2:N/A #3:N/A

Inspector Verified Setbacks

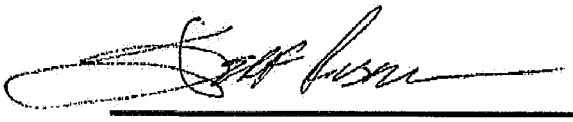
Insp- Tank Dist to Road	10+	**Insp- Drainfield Dist to Road**	10+
Insp- Tank Dist to Nearest Prop Line	10	**Insp- Drainfield Dist to Nearest Prop Line**	10+
Insp- Tank Dist to Nearest Structure	10	**Insp- Drainfield Dist to Nearest Structure**	20
Insp- Tank Dist to Well	50	**Insp- Drainfield Dist to Well**	50
Insp- Tank Dist to OHW	30 BP	**Insp- Drainfield Dist to OHW**	20 BP
Insp- Tank Dist to Pond/Wetland	NA	**Insp- Drainfield Dist to Pond/Wetland**	NA
Insp- Tank Dist to Pressure Line	NA	**Insp- Drainfield Dist to Pressure Line**	NA

Certificate of Compliance

(Yes) Certificate is hereby granted based upon the application, addendum from, plans, specifications and all other supporting data. With proper maintenance, this system can be expected to function satisfactory, however this is not a guarantee.

Certification Date: 07/22/2024

Zoning Office Signature:



Jeff Rusness - ISTS Inspector

*** Certificate of Compliance is not valid unless signed by a Registered Qualified Employee ***

Field Review Form

Permit # SS2024-2081

Property and Owner

Owner: **DALE A & DIANE B LADWIG**	Parcel Number: **020231000**
Site Address: **16142 MAPLE RIDGE RD**	Secondary Parcel:

Home Information

Does the structure contain any of the following elements?	Designer submitted	Inspector verified
	Garbage disposal: Yes Dishwasher: Grinder pump: Lift pump in bsmt:	Garbage disposal? Y (N) Dishwasher? (Y) N Grinder pump? (Y) N Lift pump in basement? (Y) N
Number of bedrooms: **3**	Review - Number of bedrooms: 3	
Effluent screen	Effluent screen installed? Y (N) Mfr:	
Alarm: **Yes** Type: **electric**	Review - Alarm? (Y) N · Type & Mfr: PS Patrol	
Lift pump in system: **Yes**	Review - Lift pump in system? (Y) N Mfr: Zoeller 98	

Component Information

Tank size: **520 gal**	Review - Tank nbr: 1 size: 520 Mfr: Jackson Precast
Drainfield type: **Mound**	Review - Drainfield type: mound
Drainfield size: Full size - **375** Reduced/warr. size - **375**	Review - Drainfield status: none / (installed) / next spring Review - Drainfield size: 102 x 37.5 Rock Bed
Absorption area size: **9 inches**	Review - Absorption area size: 9in
Chamber type/num: **na** Trench sqft/chamber - **na**	Review - Chamber type: NA Num: Review - Trench sqft/chamber:
Drainfield rock depth: **9 inches**	Review - Rock depth: 9in

Soil Verification

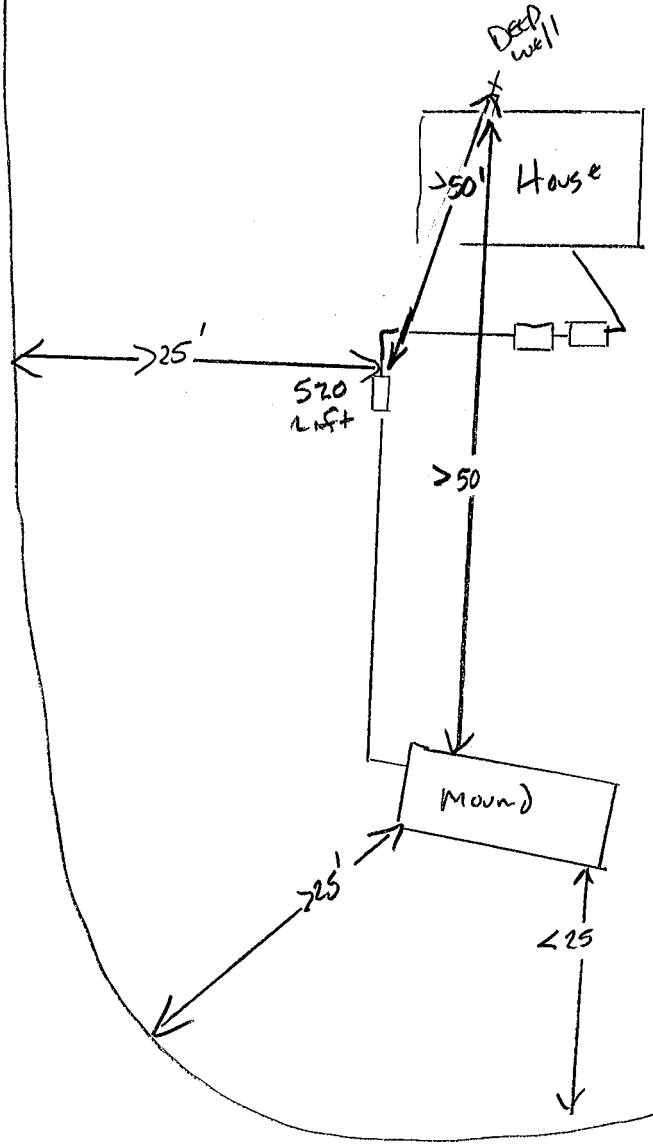
Vertical separation verified	Boring #1: Boring #2: 24" LL Boring #3:

Setback Verification

Distance to...	Designer submitted		Inspector verified	
	Tank	Drainfield	Tank	Drainfield
Road	>100	>100	10	10
Nearest prop line	>10	>10	10	10
Nearest structure	>10	>20	10	20
Well	>50	>50	50	50
OHW	<30	<20	30 BP	20 BP
Pond/Wetland	na	na	NA	NA
Pressure line	>20	>50	NA	NA

Date System Installed: 7-18-2024 Installer: [signature] Inspector: [signature]

Dale Ladwig
16142 Maple Ridge Rd



C-531 7-18-2024

Little Cormorant Lake

MOUND DESIGN WORKSHEET

(For Flows up to 1200 gpd)

A. FLOW

Estimated 450 gpd

or measured _____ x 1.5 = _____ gpd.

Estimated Sewage Flows in Gallons per day (gpd)

Number of Bedrooms	Class I	Class II	Class III	Class IV
2	300	225	180	60% of the values in Type I, II or III columns
3	450	300	218	
4	600	375	256	
5	750	450	294	
6	900	525	332	
7	1050	600	370	
8	1200	675	408	

B. SEPTIC TANK LIQUID VOLUMES

_____ gallons

Septic Tank Capacities (in gallons)

Number of Bedrooms	Minimum Liquid Capacity	Liquid capacity with garbage disposal	Liquid capa with dispos lift inside
2 or less	750	1125	1500
3 or 4	1000	1500	2000
5 or 6	1500	2250	3000
7, 8 or 9	2000	3000	4000

C. SOILS (refer to site evaluation)

1. Depth to restricting layer = >24 inches _____ feet
2. Depth of percolation tests = _____ inches
3. Texture Sand Percolation rate _____ mpi
4. Land slope 0 %

D. ROCK LAYER DIMENSIONS

1. Multiply flow rate by 0.83 to obtain required area of rock layer: A x 0.83 = 450 gpd x 0.83 sq. ft./gpd = 375 sq. ft.
2. Determine width of rock layer = 0.83 sq. ft./gpd x Linear Loading Rate (LLR)
   0.83 sq. ft/gpd x 12 = 10 ft
3. Length of rock layer = area ÷ width =
   375 sq. ft. ÷ 10 ft. = 38 ft.

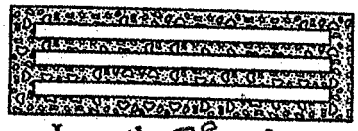
Mound LLR

Perc Rate	LLR
<120 MPI	≤ 1
>120 MPI	≤ 6

Width 10 ft

<120mpi <10'

>120mpi <5'



Length 38 ft

E. ROCK VOLUME

1. Multiply rock area by rock depth to get cubic feet of rock; 375 sq. ft. x 1 ft. = 375 cu. ft.
2. Divide cu. ft. by 27 cu. ft./cu. yd. to get cubic yards;
   375 cu. ft. ÷ 27 = 14 cu. yd.
3. Multiply cubic yards by 1.4 to get weight of rock in tons; _____ cu. yd. x 1.4 ton/

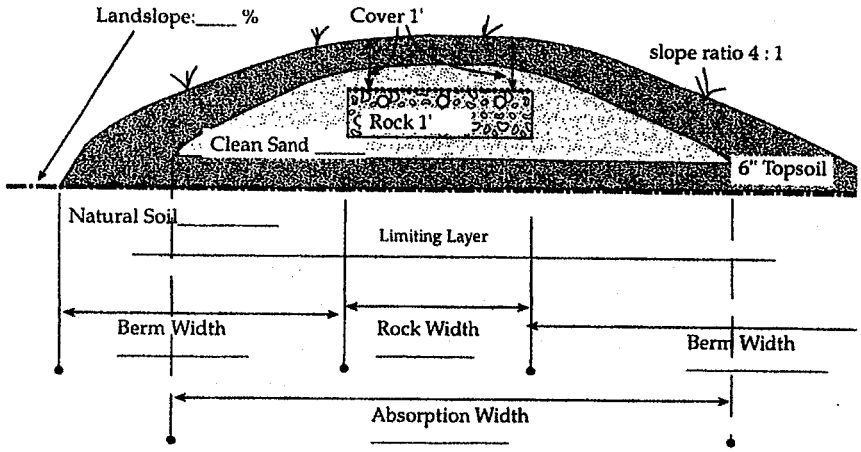
F. ABSORPTION WIDTH

1. Percolation rate in top 12 inches of soil is 5 mpi
   Texture Sand
2. Select allowable soil loading rate from table;
   1.20 gpd/ft²
3. Calculate absorption width ratio by dividing rock layer loading rate of 1.20 gpd/ft² by allowable soil loading rate;
   1.20 gpd/ft² ÷ 1.20 gpd/ft² = 1.
4. Multiply absorption width ratio by rock layer width to get required absorption width;
   10 x 1 ft = 10 ft

Absorption Width Sizing Table

Percolation Rate in Minutes per Inch (MPI)	Soil Texture	Gallons per day per square foot	Ratio of Absorption width to Rock Layer Width
Faster than 0.1	Coarse Sand	1.20	1.00
0.1 to 5	Medium Sand	1.20	1.00
	Loamy Sand		
0.1 to 5	Fine Sand	0.60	2.00
6 to 15	Sandy Loam	0.79	1.52
16 to 30	Loam	0.60	2.00
31 to 45	Silt Loam	0.50	2.40
	Silt		
46 to 60	Clay Loam(CL)	0.45	2.67
	Silty CL		
	Sandy CL		
60 to 120	Clay	0.24	5.00
Slower than 120	Clay	0.20	6.00

G. BERM WIDTH (landslope 1% or less)



1. Absorption width (F.4): 10 feet

2. Calculate minimum mound size

a. Determine depth of clean sand fill at upslope edge of rock layer:
Separation: 3' - 2 ft = 1 **feet**

b. Add depth of clean sand for separation (2a) at upslope edge, depth of rock layer (1 foot) to depth of cover (1 foot) to find the mound height at the upslope edge of rock layer: 1 ft + 1ft + 1ft = 3 **feet**

c. Multiply upslope mound height by 4 to find berm width:
3 x 4 = 12 **feet**

d. The total landscape width is the sum of berm (G.2c) width plus rock layer width (D.2) plus berm width(G.2c): 12 ft + 10 ft + 12 ft = 34 **feet**

e. Subtract the landscape width (G2.d) from the adbsorption width (F.4) to find the additional width necessary for absorption: 10 ft - 24 ft = 0 **feet**

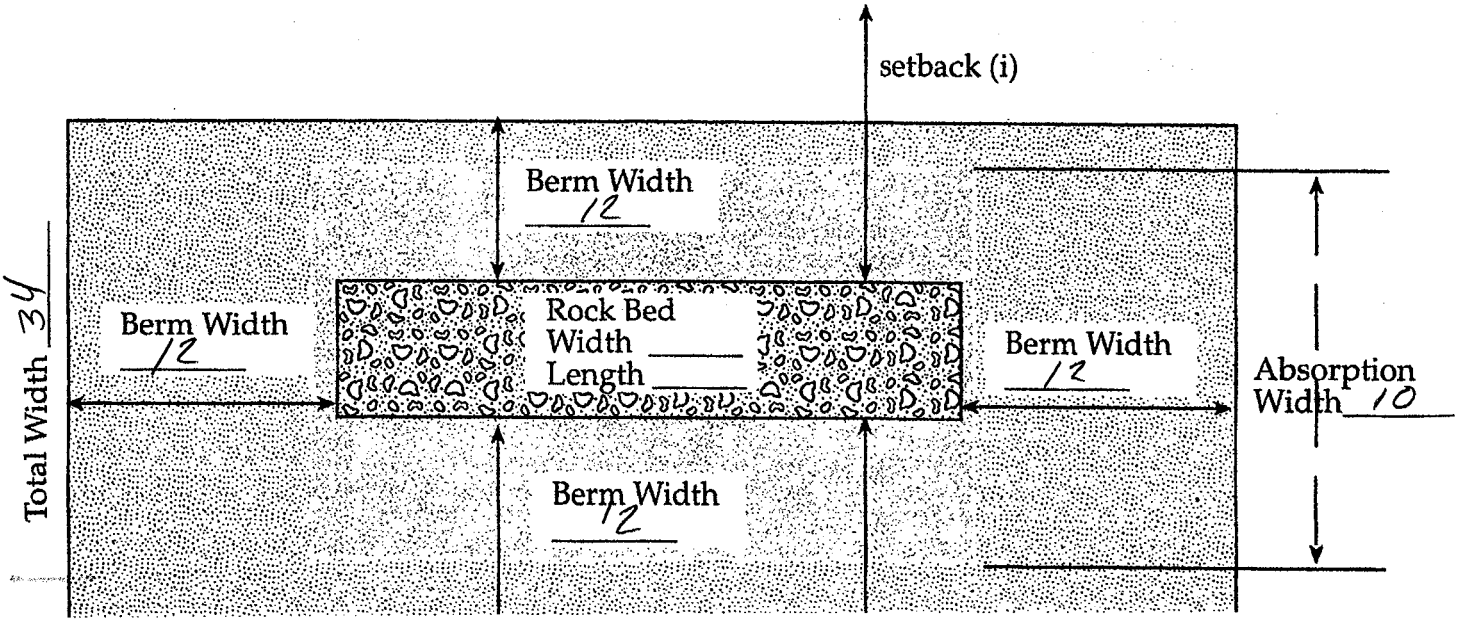
f. Add the additional width (G2.e) to the berm width (G2.c)

Final berm width: 0 ft + 10 ft = 10 **feet**

ɜ. Total mound width is the sum of berm (G.2f) width plus rock layer width (D.2) plus berm width(G.2f): 24 ft + 10 ft + 0 ft = 34 **feet**

h. Total mound length is the sum of berm (G2.f) plus rock layer length (D.3) plus berm (G2.f):
12 ft + 38 ft + 12 ft = 62 **feet**

i. Setbacks from the rockbed are calculated as follows: the absorption width (F.4) minus the rock bed width (D.2) divided by 2: (10 ft - 10 ft) ÷ 2 = 5 **feet**



PUMP SELECTION PROCEDURE

A. Determine pump capacity:

Gravity Distribution

1. Minimum suggested is 20 gpm
2. Maximum suggested is 45 gpm

Pressure Distibution

3. a. Select number of perforated laterals 3
   b. Select perforation spacing = 3 feet.
   c. Subtract 2 ft. from the rock layer length.
   38 Rock layer length - 2 ft. = 36 feet.
   d. Determine the number of spaces between perforations.
   Length perf. spacing = 36 ft. ÷ 3 ft. = 12 spaces
   e. 12 spaces + 1 = 13 perforations/lateral
   f. Multiply perforations per lateral by number of laterals to get total number of perforations. 3 laterals x 13 perforations/lateral = 39 perforations.
   g. 39 gpm x 1 gpm/perf = 29 gpm.

Perforation Discharges in GPM		
Head (feet)	Perforation diameter (inches)	
	7/32	1/4
1.0a	0.56	0.74
1.5	0.69	0.90
2.0b	0.80	1.04

a Use 1.0 foot single homes.
b Use 2.0 feet for anything else.

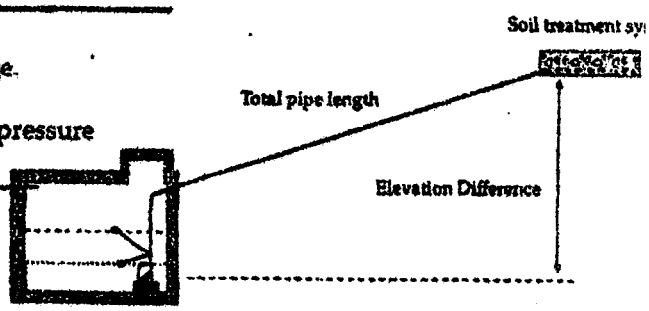
SELECTED PUMP CAPACITY 29 gpm

B. Determine head requirements:

1. Elevation difference between pump and point of discharge.
   5 feet
2. If pumping to a pressure distribution system, five feet for pressure required at manifold if gravity system, zero.
   5 feet
3. Friction loss
   a. Enter friction loss table with gpm and pipe diameter. Read friction loss in feet per 100 feet from table (F-14).
   F.L. = 1.55 ft./100 ft of pipe
   b. Determine total pipe length from pump to discharge point. Estimate by adding 25 percent to pipe length for fitting loss, or use a fitting loss chart (F-15 _____ feet).
   Equivalent pipe length - 1.25 times pipe length =
   85 x 1.25 = 106 feet
   c. Calculate total friction loss by multiplying friction loss in ft/100 ft by equivalent pipe length.
   Total friction loss = 1.55 x 106 ÷100 = 1.6 feet
4. Total head required is the sum of elevation difference, special head requirements, and total friction loss.

$$\frac{5}{(1)} + \frac{5}{(2)} + \frac{1.6}{(3c)}$$

TOTAL HEAD 12 feet



Friction Loss in Plastic Pipe			
Flow Rate gpm	Nominal pipe dia. 1.5"	2"	3"
20	2.47	0.73	0.11
25	3.73	1.11	0.16
30	5.23	1.55	0.23
35	6.96	2.06	0.30
40	8.91	2.64	0.39
45	11.07	3.28	0.48
50	13.46	3.99	0.58
55		4.76	0.70
60		5.60	0.82
65		6.48	0.95
70		7.44	1.09

C. Pump selection

1. A pump must be selected to deliver at least 29 gpm (Step A) with at least 12 feet of total head (Step B).

MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North
St. Paul, MN 55155-4194

Sewage tank integrity assessment form

Subsurface Sewage Treatment Systems (SSTS) Program

Purpose: This form **may** be used to certify the compliance status of the sewage tank components of the SSTS. **This form is not a complete SSTS inspection report, only a tank integrity assessment, and may only certify sewage tank compliance status when entirely completed and signed by a qualified professional.** SSTS compliance inspection report forms can be found at:

Instructions: This form may be completed, and signed, by a Designated Certified Individual (DCI) of a licensed SSTS inspection, maintenance, installation, or service provider business who personally conducts the necessary procedures to assess the compliance status of each sewage tank in the system. A copy of this information should be submitted to the system owner and be maintained by the licensed SSTS business for a period of five (5) years from the assessment date.

When this form is signed by a qualified certified professional, it becomes *necessary supporting documentation* to an Existing System Compliance Inspection Report: . *This form can be found on* the MPCA website at

The information and certified statement on this form is **required** when existing septic tank compliance status is determined by an individual other than the SSTS Inspector that submits an inspection report. This form represents a third party assessment of SSTS component compliance and is allowable under Minn. R. 7082.0700, subp. 4 Item (B) subitem (1). This form is valid for a period of three years beyond the signature date on this form unless a new evaluation is requested by the owner or owner's agent or is required according to local regulations. Additional Administrative Rule references for this activity can be found at Minn. R. 7082.0700, subp. 4 Items B, C, and D; 7083.0730 Item C.

☒ **Certificate of sewage tank compliance**

Affirm all three statements:

- ☒ The SSTS does not contain a seepage pit, cesspool, drywell, leaching pit, or other pit.
- ☒ It does not contain a sewage tank that was designed to be watertight, but subsequently leaks below the designed operating depth.
- ☒ It does not represent an imminent safety threat by reason of unsecured, damaged, or weak maintenance hole cover(s) or other unsafe condition.

☐ **Notice of sewage tank non-compliance**

Select all that apply:

- ☐ The SSTS has a seepage pit, cesspool, drywell, leaching pit, or other pit – **"Failure to Protect Groundwater."**
- ☐ It has a sewage tank that was designed to be watertight, but subsequently leaks below the designed operating depth – **"Failure to Protect Groundwater."**
- ☐ It presents a threat to public safety by reason of unsecured, damaged, or weak maintenance hole cover(s) or other unsafe condition – w**"Imminent Threat to Public Health or Safety."**

Company information

Company name: Vareberg Backhoe

Business license number: 1910

Designated Certified Individual (DCI) information

Print name: Richard Vareberg

Certification number: _____

I personally conducted the work described above as a Designated Certified Individual of a Minnesota-licensed SSTS inspection, maintenance, installation, or service provider Business. I personally conducted the necessary procedures to assess the compliance status of each sewage tank in this SSTS.

***By typing/signing my name below,** I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing this form.*

Designated Certified Individual's signature: _____ Date (mm/dd/yyyy): 7-18-24

(This document has been electronically signed.)

Becker County Restrictive Layer Verification

Client: Duke - LADW19	Parcel: -	Date: 7-17-2023
Address: 16142 Maple Ridge		
Vegetation:		
Weather Conditions/Time of Day:	Observation#/Location/Method: Mid day - Auger	

Depth (in)	Texture	Matrix Color(s)	Mottle Color(s)
24" LL			

Comments/Notes:

Certified Statement: I hereby certify that I have completed this work in accordance with all applicable ordinace, rules and laws.

(Designer)	(Inspector)	(License #)	(Date)
[signature]	[signature]	C-531	7-17-2023