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 #: SS2023-1728

Owner & Property Information

Owner Name:	GRANT M OHM
Mailing Address:	GRANT M OHM PO BOX 293 AUDUBON MN 56511-0293
Parcel #:	170111000
Secondary Parcel #:	

Site Address:	14412 CO HWY 11
Township - Sec/Twp/Rng:	LAKE EUNICE - 09/138/042
Legal Description:	THAT PT OF NW1/4 OF SW1/4 LYING NLY & WLY OF CAR#11
Designer:	Ohm Excavating, L4032 (Chris Ohm)
Installer:	Ohm Excavating LLC, L4034 (Chris Ohm)

Inspector Verified Specifications

Insp- Effluent Screen Installed:	No
Insp- Alarm Required:	Yes
Insp- Lift Pump in System:	Yes
Insp- Number of Bedrooms:	3

Insp- Tank Nbr/Size:	1/1500 gallon 2 compartment
Insp- Drainfield Type:	Mound
Insp- Drainfield Size:	10' X 38' rock bed and 26' X 38' soil absorption area = 988 square feet
Insp- Soil Verification:	#1:attached #2:N/A #3:N/A

Inspector Verified Setbacks

Insp- Tank Dist to Road	200+
Insp- Tank Dist to Nearest Prop Line	10+
Insp- Tank Dist to Nearest Structure	30
Insp- Tank Dist to Well	50+
Insp- Tank Dist to OHW	
Insp- Tank Dist to Pond/Wetland	
Insp- Tank Dist to Pressure Line	

Insp- Drainfield Dist to Road	200+
Insp- Drainfield Dist to Nearest Prop Line	50+
Insp- Drainfield Dist to Nearest Structure	200+
Insp- Drainfield Dist to Well	100+
Insp- Drainfield Dist to OHW	
Insp- Drainfield Dist to Pond/Wetland	
Insp- Drainfield Dist to Pressure Line	

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: 11/17/2023

Zoning Office Signature:

Denise Gubrud

Denise Gubrud - ISTS Inspector

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

Field Review Form

Permit # SS2023-1728

Property and Owner

Owner: **GRANT M OHM**	Parcel Number: **170111000**
Site Address: **14412 CO HWY 11**	Secondary Parcel:

Home Information

Does the structure contain any of the following elements?	Designer submitted	Inspector verified
	Garbage disposal: No 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: **No** Type:	Review - Alarm? (Y) N Type & Mfr: FS Patrol	
Lift pump in system: **Yes**	Review - Lift pump in system? (Y) N Mfr:	

Component Information

Tank size: **1500 gallon 2 compartment**	Review - Tank nbr: 1 size: 1500/2 Mfr: Brady
Drainfield type: **Mound**	Review - Drainfield type: mound
Drainfield size: Full size - **375** Reduced/warr. size -	Review - Drainfield status: none / installed / next spring Review - Drainfield size: 10' x 38' rock bed
Absorption area size: **12 inches**	Review - Absorption area size: 26 x 38' Soil Absorp. Area
Chamber type/num: Trench sqft/chamber -	Review - Chamber type: Num: Review - Trench sqft/chamber:
Drainfield rock depth: **12 inches**	Review - Rock depth: 12" rock and 22" sand fill

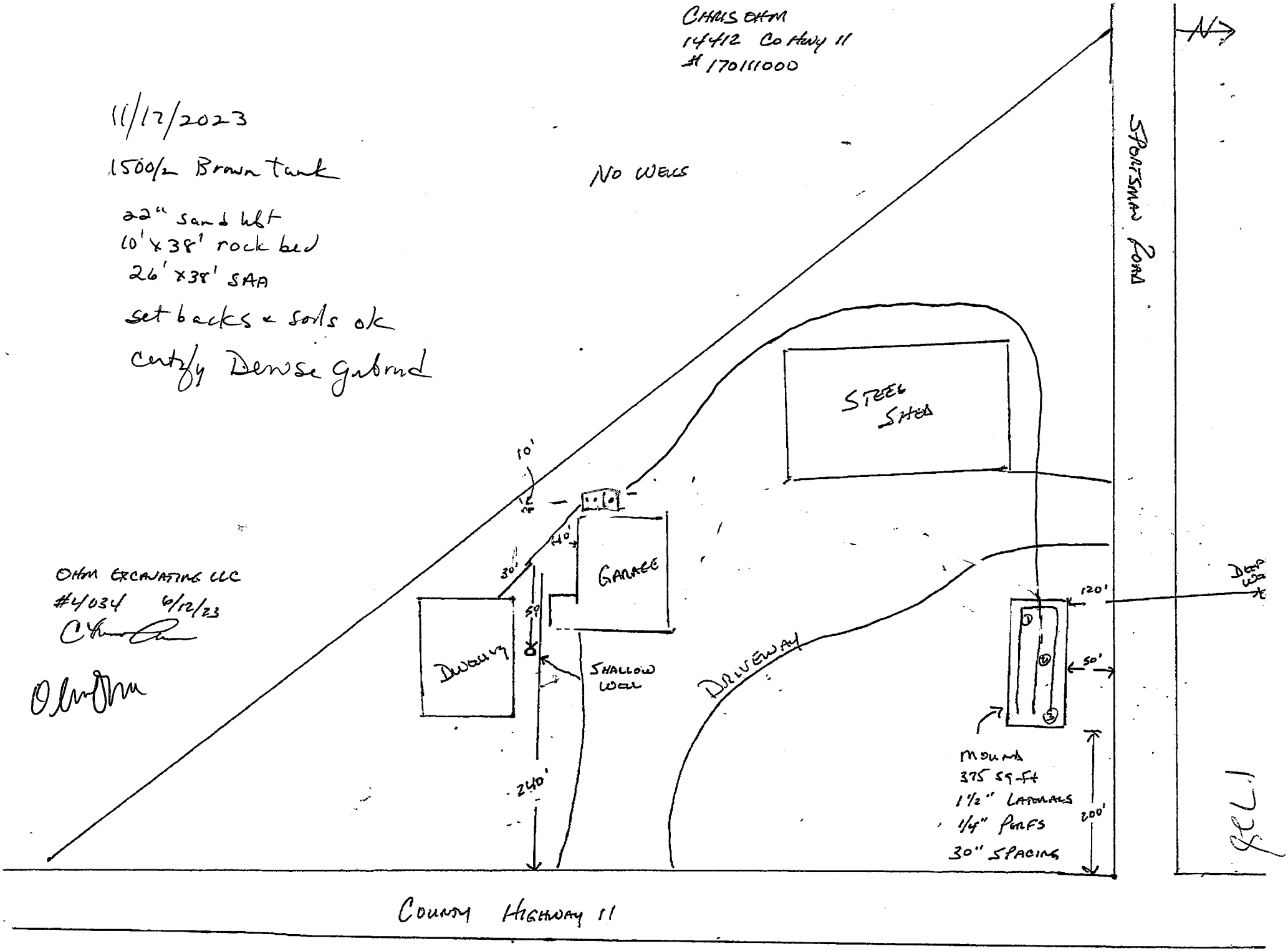
Soil Verification

Vertical separation verified	Boring #1: Boring #2: Boring #3:

Setback Verification

Distance to...	Designer submitted		Inspector verified	
	Tank	Drainfield	Tank	Drainfield
Road	240 ft	200 ft	200+	200+
Nearest prop line	10 ft	50 ft	10+	50+
Nearest structure	30 ft	200 ft	30	200+
Well	50 ft	120 ft	50+	100+
OHW				
Pond/Wetland				
Pressure line	N/A	N/A		

Date System Installed: 11/17/2023 Installer: ohm. Inspector: Denise Gubrud


CHRIS OHM
14412 Co Hwy 11
170111000
11/17/2023
1500/2 Brown tank
22" sand blt
10' x 38' rock bed
26' x 38' SAA
set backs & soils ok
certfy Denise Gabrud
NO WELLS
STEEL SHED
GARAGE
DWELLING
SHALLOW WELL
DRIVEWAY
SPORTSMAN ROAD
N
10'
40'
30'
50'
240'
120'
50'
200'
MOUND
375 SQ-FT
1½" LATERALS
1/4" PERFS
30" SPACING
OHM EXCAVATING LLC
#4034 6/12/23
COUNTY HIGHWAY 11

ONSITE SEWAGE TREATMENT PROGRAM

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

1. PROJECT INFORMATION

v 03.15.2023

Property Owner/Client:	Grant Ohm / Chris Ohm	Project ID:	170111000
Site Address:	14412 Cty Hwy 11	Date:	06/12/23
Email Address:	chris@ohmexcavating.com	Phone:	218-439-6428

2. DESIGN FLOW & WASTE STRENGTH

Attach waste strength data/estimated strength for Other Establishments

Design Flow: 450 GPD Anticipated Waste Type: Residential

BOD: 170 mg/L TSS: 60 mg/L Oil & Grease: 25 mg/L

Treatment Level: C *Select Treatment Level C for residential septic tank effluent*

3. HOLDING TANK SIZING

Minimum Capacity: Residential =1000 gal or 400 gal/bedroom, Other Establishment = Design Flow x 5.0, Minimum size 1000 gallons

Code Minimum **Holding Tank** Capacity: _____ Gallons with _____ Tanks or Compartments

Recommended **Holding Tank** Capacity: _____ Gallons with _____ Tanks or Compartments

Type of High Level Alarm: _____ (Set @ 75% tank capacity)

Comments: _____

4. SEPTIC TANK SIZING

A. Residential dwellings:

Number of Bedrooms (Residential): 3

Code Minimum **Septic Tank** Capacity: 1000 Gallons with 1 Tanks or Compartments

Recommended **Septic Tank** Capacity: 1500 Gallons with 2 Tanks or Compartments

Effluent Screen & Alarm (Y/N): No Model/Type: _____

B. Other Establishments:

Waste received by: _____ _____ GPD x _____ Days Hyd. Retention Time

Code Minimum **Septic Tank** Capacity: _____ Gallons with _____ Tanks or Compartments

Recommended **Septic Tank** Capacity: _____ Gallons with _____ Tanks or Compartments

Effluent Screen & Alarm (Y/N): _____ Model/Type: _____

*** Other Establishments Require Department of Labor and Industry Approval and Inspection for Building Sewer ***

5. PUMP TANK SIZING

Soil Treatment Dosing Tank				Other Component Dosing Tank:			
Pump Tank Capacity (Minimum):	500	Gal		Pump Tank Capacity (Minimum):		Gal	
Pump Tank Capacity (Recommended):	500	Gal		Pump Tank Capacity (Recommended):		Gal	
Pump Req:	34.0 GPM	Total Head	23.0 ft	Pump Req:	GPM	Total Head	ft
Supply Pipe Dia.	2.00 in	Dose Vol:	90.0 gal	Supply Pipe Dia.	in	Dose Vol:	Gal

*** Flow measurement device must be incorporated for any system with a pump: Elapsed Time Meter and/or Event Counter ***

Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

6. SYSTEM AND DISTRIBUTION TYPE

Project ID: 170111000

Soil Treatment Type:	Mound	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	ft	Benchmark Location:	
MPCA System Type:	Type I	Distribution Media:	Rock
Type III/IV/V Details:			

7. SITE EVALUATION SUMMARY:

Describe Limiting Condition: Redoximorphic Features/Saturated Soils

Layers with >35% Rock Fragments? (yes/no) No If yes, describe below: % rock and layer thickness, amount of soil credit and any additional information for addressing the rock fragments in this design.

Note:

	Depth		Depth		Elevation of Limiting Condition	
Limiting Condition:	16	inches	1.3	ft		ft
Minimum Req'd Separation:	36	inches	3.0	ft	Elevation	
Code Max System Depth*:	Mound	inches	-1.7	ft		ft

Critical for system compliance

Distribution Elevation >Code Max Depth

#VALUE!

*This is the maximum depth to the bottom of the distribution media for required separation. Negative Depth (ft) requires a mound.

Designed Distribution Elevation: #VALUE! ft Minimum Sand Depth: 20.0 inches

A. Soil Texture:	Clay Loam	B. Organic Loading Rate (optional):	lbs/sq.ft/day 0
C. Soil Hyd. Loading Rate:	0.45 GPD/ft^2	D: Percolation Rate:	50.00 MPI
E. Contour Loading Rate:	12	Note:	
F. Measured Land Slope:	0 %	Note:	
Comments:			

8. SOIL TREATMENT AREA DESIGN SUMMARY

Trench:

Dispersal Area	sq.ft	Sidewall Depth	in	Trench Width	ft
Total Lineal Feet	ft	No. of Trenches		Code Max. Trench Depth	in
Contour Loading Rate	ft	Minimum Length	ft	Designed Trench Depth	in

Bed:

Dispersal Area	sq.ft	Sidewall Depth	in	Maximum Bed Depth	in
Bed Width	ft	Bed Length	ft	Designed Bed Depth	in

Mound:

Dispersal Area	375 sq.ft	Bed Length	37.5 ~~0.0~~ ft	Bed Width	10.0 ~~0.0~~ ft
Absorption Width	~~26.0~~ 0.0 ft	Clean Sand Lift	1.7 ft	Berm Width (0-1%)	14.7 ft
Upslope Berm Width	14.7 ft	Downslope Berm	~~0.0~~ 14.7 ft	Endslope Berm Width	14.7 ft
Total System Length	67 ft	System Width	40 ft	Contour Loading Rate	12.0 gal/ft

Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: 170111000

At-Grade:

Dispersal Area		sq.ft	Bed Length		ft	Bed Width	ft
Upslope Berm		ft	Downslope Berm		ft	Finished Height	ft
System Length		ft	Endslope Berm		ft	System Width	ft

Level & Equal Pressure Distribution Soil Treatment Area

No. of Laterals	3		Lateral Diameter	2.00	in	Lateral Spacing	3	ft
Perforation Spacing	2.5	ft	Perforation Diameter	1/4	in	Drainback Volume	41	gal
Min Dose Volume	72	gal	Max Dose Volume	113	gal	Total Dosing Volume	131	gal

Non-Level and Unequal Pressure Distribution Soil Treatment Area

	Elevation (ft)	Pipe Size (in)	Pipe Volume (gal/ft)	Pipe Length (ft)	Perf Size (in)	Spacing (ft)	Spacing (in)
Lateral 1							
Lateral 2							
Lateral 3							
Lateral 4							
Lateral 5							
Lateral 6							

Minimum Dose Volume: gal

Maximum Dose Volume: gal

Total Dosing Volume: gal

9. Organic Loading and Additional Info for At-Risk, HSW or Type IV Design

Organic Loading to Soil Treatment

A. Starting BOD Concentration = Design Flow X 0.7 X Starting BOD (mg/L) X 8.35 ÷ 1,000,000

gpd X mg/L X 8.35 ÷ 1,000,000 = lbs. BOD/day (Organic Loading Design)

B. Organic Loading to Soil Treatment Area: (enter loading value in 7B)

mg/L X gpd X 0.7 X 8.35 ÷ 1,000,000 ÷ sq.ft = lbs./day/sqft

HSW Technology Strength Reduction

A. Starting BOD Concentration = Design Flow X Starting BOD (mg/L) X 8.35 ÷ 1,000,000

gpd X mg/L X 8.35 ÷ 1,000,000 = lbs. BOD/day (HSW Technology Design)

B. Target BOD Concentration = Design Flow X Target BOD (mg/L) X 8.35 ÷ 1,000,000

gpd X mg/L X 8.35 ÷ 1,000,000 = lbs. BOD/day (HSW Technology Design)

Lbs. BOD To Be Removed: lbs. BOD/day (HSW Technology Design)

Pretreatment Technology: *Must Meet or Exceed Target

Disinfection Technology: *Required for Levels A & B

10. Comments/Special Design Considerations:

Brown Wilbert 1500 - 2 compartment tank. 2nd compartment for lift pump

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Ohm Excavating LLC / Chris Ohm		L4034/C1138	6/12/2023
(Designer)	(Signature)	(License #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Mound Design Worksheet
<1% Slope

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: 170111000 v 03.15.2023

A. Design Flow :	450	GPD
B. Soil Loading Rate:	0.45	GPD/sqft
C. Depth to Limiting Condition:	1.3	ft
D. Percent Land Slope:	0	%
E. Media (Sand) Loading Rate:	1.2	GPD/sqft
F. Mound Absorption Ratio:	2.60	

Table I
MOUND CONTOUR LOADING RATES:

Measured Perc Rate	← OR →	Texture - derived mound absorption ratio		Contour Loading Rate:
≤ 60mpi		1.0, 1.3, 2.0, 2.4, 2.6	→	≤12
61-120 mpi	← OR →	5.0	→	≤12
≥ 120 mpi*		>5.0*	→	≤6*

TABLE IXa
LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA AND ABSORPTION RATIOS USING PERCOLATION TESTS

Percolation Rate (MPI)	Treatment Level C		Treatment Level A, A-2, B,	
	Absorption Area Loading Rate (gpd/ft²)	Mound Absorption Ratio	Absorption Area Loading Rate (gpd/ft²)	Mound Absorption Ratio
<0.1	-	1	-	1
0.1 to 5	1.2	1	1.6	1
0.1 to 5 (fine sand and loamy fine sand)	0.6	2	1	1.6
6 to 15	0.78	1.5	1	1.6
16 to 30	0.6	2	0.78	2
31 to 45	0.6	2.4	0.78	2
46 to 60	0.45	2.6	0.6	2.6
61 to 120	-	5	0.3	5.3
>120	-	-	-	-

*Systems with these values are not Type I systems. Contour Loading Rate (linear loading rate) is a recommended value.

2. DISPERSAL MEDIA SIZING

A. Hydraulic Absorption Required Bottom Area: Design Flow (1A) ÷ Design Media Loading Rate(1E)

450 GPD ÷ 1.2 GPD/sqft = 375 sq.ft

Organic Sizing (OPTIONAL)

B. Organic Absorption Bed Area = Organic Loading (Summary 9A) ÷ Organic Soil Loading Rate (Summary 7B)

_____ lbs BOD ÷ _____ lbs BOD/sq.ft = _____ sq.ft

C. Required Bed Area = Greater of Hydraulic (1D) or Organic Bed Area (1E) 375 sq.ft

D. Designed Dispersal Media Area: 375 sq.ft *Optional upsizing of area to be larger than 2C*

E. Enter Dispersal Bed Width: 10 ft *Can not exceed 10 feet.*

F. Calculate Contour Loading Rate: Bed Width(2E) X Design Media Loading Rate (1E)

10 ft X 1.2 GPD/sq.ft = 12.0 gal/ft *Can not exceed Table 1*

G. Calculate Minimum Dispersal Bed Length: Dispersal Media Area(2D) ÷ Bed Width (2E)

375 sqft ÷ 10 ft = 37.5 ft

If a larger dispersal media Length is desired, enter size: _____ ft

3. ABSORPTION AREA SIZING

A. Calculate Absorption Width: Bed Width(2B) X Mound Absorption Ratio(1F)

10.0 ft X 2.6 = 26.0 ft

B. For slopes from 0 to 1%, the Absorption Width is measured from the bed equally in both directions.

Absorption Width Beyond the Bed: Absorption Width(3A) - Bed Width(2E) ÷ 2

(26.0 ft - 10.0 ft) ÷ 2 = 8.0 ft

4. DISTRIBUTION MEDIA

Project ID: 170111000

Select Dispersal Media: Rock

Enter Either 4A or 4B

A. Rock Depth Below Distribution Pipe

9 in

B. Registered Media 0

Registered Media Height in

Check registered product information for specific application details and design

Specific Media Comments:

5. MOUND SIZING

A. Clean Sand Lift: Required Separation - Depth to Limiting Condition = Clean Sand Lift (1 ft minimum)

3.0 ft - 1.3 ft = 1.7 ft Design Sand Lift (optional): ft

B. Upslope Height = Clean Sand Lift(5A) + Depth of Media(4AorB) + Depth to Cover Pipe + Depth of Cover (1 ft)

1.7 ft + 0.75 ft + 0.25 ft + 1.00 ft = 3.7 ft

C. Berm Width = Upslope Mound Height(5B) X 4 (4 is recommended, but could be 3-12)

3.7 ft X 4.0 = 14.7 ft

D. Total Landscape Width = Berm Width(5C) + Dispersal Bed Width(2B) + Berm Width(5C)

14.7 ft + 10.0 ft + 14.7 ft = 39.3 ft

E. Additional Berm Width if necessary for absorption area - Absorption Width(2A) -Total Landscape Width(5D)

26.0 ft - 39.3 ft = 0 ft if number is negative (<0), value is **ZERO**

F. Final Berm Width = Additional Berm Width(5E) + Berm Width(5C)

0 ft + 14.7 ft = 14.7 ft

G. Total Mound Width = Final Berm Width(5F) + Dispersal Bed Width(2B) + Final Berm Width(5F)

14.7 ft + 10.0 ft + 14.7 ft = 39.3 ft

H. Total Mound Length = Final Berm Width(5F) + Dispersal Bed Length(2D) + Final Berm Width(5F)

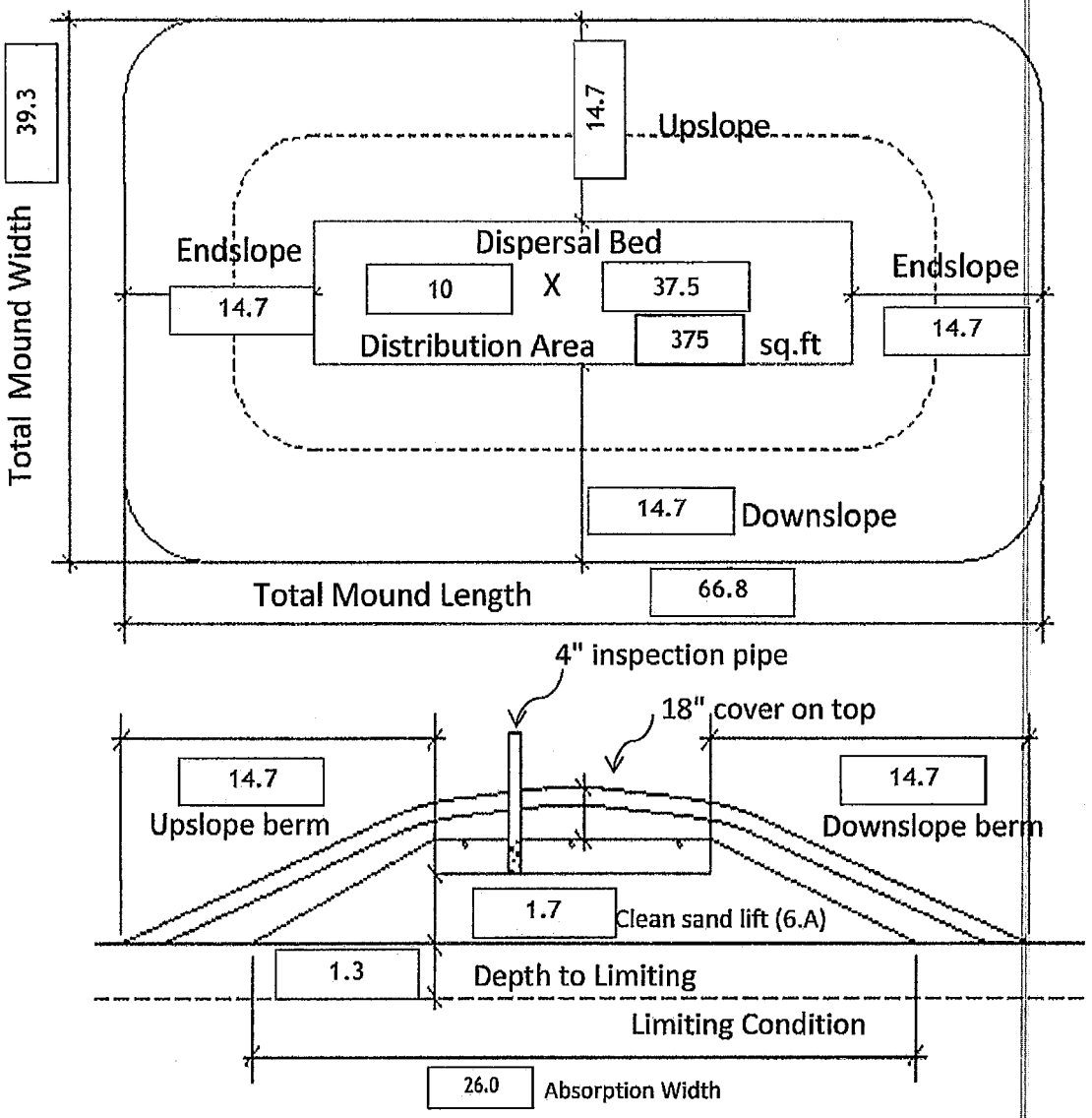
14.7 ft + 37.5 ft + 14.7 ft = 66.8 ft

I. Setbacks from the Bed: Absorption Width (3A) - Dispersal Bed Width(2B) divided by 2

(26.0 ft - 10.0) / 2 = 8.0 ft

6. MOUND DIMENSIONS (Feet)

Project ID: 170111000



Elevation to Benchmark

Required Separation	36 (in)	Elevation Limiting Layer:	ft
Distribution Media	Rock	Elevation required Separation:	#VALUE! ft
Media Depth	9.0 (in)	Elevation Distribution Media Bottom:	#VALUE! ft
Manifold Connection	End	Elevation Top of Media(min):	#VALUE! ft
Lateral Pipe Diameter:	2.00 (in)	Elevation Top of System(min):	#VALUE! ft
Perforation Size:	1/4 (in)	Perforation Spacing:	30.0 (in)

If Split and Non-Level Pressure Distribution Used: See Non-Level Pressure Distribution Form

Comments:

University of Minnesota Onsite Sewage Treatment Program

Mound Materials Worksheet

8.4

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: 170111000 v 03.15.2023

A. Rock *Volume*: (Rock Below Pipe + Rock to cover pipe (*pipe outside dia + ~2 inch*)) X *Bed Length* X *Bed Width* = *Volume*

(9 in + 3.0 in) ÷ 12 X 37.5 ft X 10.0 ft = 375.0 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 375.0 cu.ft ÷ 27 = 13.9 cu.yd

Add 30% for constructability: 13.9 cu.yd X 1.3 = 18.1 cu.yd

B. Calculate *Clean Sand Volume:*

Volume Under Rock bed: *Average Sand Depth* x *Media Width* x *Media Length* = cubic feet

1.7 ft X 10.0 ft X 37.5 ft = 625 cu.ft

For a Mound on a slope from 0-1%

Volume from Length = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Length)

3.67 ft - 1) X 8.00 X 37.5 ft = 800.0

Volume from Width = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Width)

3.67 ft - 1) X 8.00 X 10 ft = 213.3

Total Clean Sand Volume: *Volume from Length + Volume from Width + Volume Under Media*

800.0 cu.ft + 213.3 cu.ft + 625.0 cu.ft = 1638.3 cu.ft

For a Mound on a slope greater than 1%

Upslope Volume: ((*Upslope Mound Height - 1*) x 3 x *Bed Length*) ÷ 2 = cubic feet

((ft - 1) X 3.0 ft X) ÷ 2 = cu.ft

Downslope Volume: ((*Downslope Height - 1)* x Downslope Absorption Width x *Media Length*) ÷ 2 = cubic feet

((ft - 1) X ft X) ÷ 2 = cu.ft

Endslope Volume: (*Downslope Mound Height - 1)* x 3 x *Media Width* = cubic feet

(ft - 1) X 3.0 ft X ft = cu.ft

Total Clean Sand Volume: *Upslope Volume + Downslope Volume + Endslope Volume + Volume Under Media*

cu.ft + cu.ft + cu.ft + cu.ft = cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1638.3 cu.ft ÷ 27 = 60.7 cu.yd

Add 30% for constructability: 60.7 cu.yd X 1.3 = 78.9 cu.yd

C. Calculate *Sandy Berm Volume:*

Total Berm Volume (approx.): ((Avg. Mound Height - 0.5 ft topsoil) x Mound Width x Mound Length) ÷ 2

(3.7 - 0.5)ft X 39.3 ft X 66.8) ÷ 2 = 4162.2 cu.ft

Total Mound Volume - Clean Sand volume -Rock Volume = cubic feet

4162.2 cu.ft - 1638.3 cu.ft - 375.0 cu.ft = 2148.9 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 2148.9 cu.ft ÷ 27 = 79.6 cu.yd

Add 30% for constructability: 79.6 yd^3 x 1.3 = 103.5 cu.yd

D. Calculate *Topsoil Material Volume: Total Mound Width X Total Mound Length X .5 ft*

39.3 ft X 66.8 ft X 0.5 ft = 1314.4 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1314.4 cu.ft ÷ 27 = 48.7 cu.yd

Add 30% for constructability: 48.7 cu.yd X 1.3 = 63.3 cu.yd

ONSITE SEWAGE TREATMENT PROGRAM

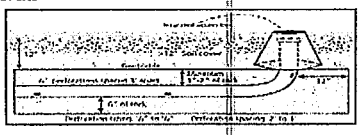
Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: 170111000 | v 03.15.2023

1. Media Bed Width: **10** ft
2. Minimum Number of Laterals in system/zone = Rounded up number of [(Media Bed Width - 4) ÷ 3] + 1.

   [(**10** - 4) ÷ 3] + 1 = **3** laterals *Does not apply to at-grades*
3. Designer Selected *Number of Laterals*: **3** laterals
   Cannot be less than line 2 (Except in at-grades)
4. Select *Perforation Spacing*: **2.50** ft
5. Select *Perforation Diameter Size*: **1/4** in



6. *Length of Laterals* = Media Bed Length(1.) - 2 Feet.

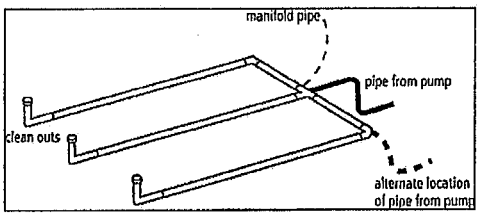
   37.5 - 2ft = **35.5** ft *Perforation can not be closer then 1 foot from edge.*
7. Determine the *Number of Perforation Spaces*. Divide the *Length of Laterals(6.)* by the *Perforation Spacing* (4.) and round down to the nearest whole number.

   Number of Perforation Spaces = **35.5** ft ÷ **2.5** ft = **14** Spaces
8. *Number of Perforations per Lateral* is equal to 1.0 plus the *Number of Perforation Spaces(7.)*. Check table below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

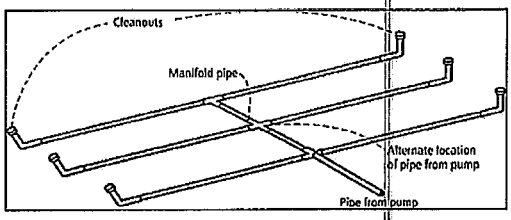
   Perforations Per Lateral = **14** Spaces + 1 = **15** Perfs. Per Lateral

Maximum Number of Perforations Per Lateral to Guarantee <10% Discharge Variation

1/4 Inch Perforations						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	10	13	18	30	60	2	11	16	21	34	68
2½	8	12	16	28	54	2½	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60
3/16 Inch Perforations						1/8 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3		1	1¼	1½	2	3
2	12	18	26	46	87	2	21	33	44	74	149
2½	12	17	24	40	80	2½	20	30	41	69	135
3	12	16	22	37	75	3	20	29	38	64	128



END Connection



CENTER Connection

Perf Per Lateral: 15

Perf Per Lateral Equal Split: 8 | 7

OPTIONAL Perf Per Lateral Non-Equal Split*: ____ | ____

* must not exceed maximum number perfs per lateral in table

9. *Total Number of Perforations* equals the *Number of Perforations per Lateral (8.)* multiplied by the *Number of Perforated Laterals.(3.)*

   15 Perf. Per Lat. X **3** Number of Perf. Lat. = **45** Total Number of Perf.
10. Spacing of laterals; Must be greater than 1 foot and no more than 3 feet: **3.0** ft
11. Select *Type of Manifold Connection* (End or Center): **End**
12. *Select Lateral Diameter (See Table)*: **2.00** in

If Center Manifold Connection the max number of perfs per lateral in the table can be doubled.

ONSITE SEWAGE TREATMENT PROGRAM

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

13. Calculate the *Square Feet per Perforation.*

Recommended value is 4-11 ft2 per perforation, Does not apply to At-Grades

a. *Bed Area* = Bed Width (ft) X Bed Length (ft)

10 ft X 38 ft = 375 sq.ft

b. *Square Foot per Perforation = Bed Area* ÷ by the *Total Number of Perfs*

375 sqft ÷ 45 perf = 8.3 sq.ft/perf

14. Select *Minimum Average Head*: 1.0 ft

15. Select *Perforation Discharge* based on Table: 0.74 GPM per Perf

16. *Flow Rate = Total Number of Perfs(9.) X Perforation Discharge(15.)*

45 Perfs X 0.74 GPM per Perforation = 34 GPM

17. *Volume of Liquid Per Foot of Distribution Piping (Table II)*: 0.170 Gallons/ft

18. *Volume of Distribution Piping = Number of Perforated Laterals(3.) X Length of Laterals(6.) X Volume of Liquid Per Foot of Distribution Piping (17.)*

3 X 36 ft X 0.170 gal/ft = 18.1 Gallons

19. Minimum Delivered Volume = Volume of Distribution Piping X 4

18.1 gals X 4 = 72.4 Gallons

20. Maximum Delivered Volume = Design flow x 25%

450.0 gpd X 25% = 112.5 Gallons

21. Minimum Delivered vs Maximum Delivered evaluation: Volume ratio correct

Perforation Discharge (GPM)				
Head (ft)	Perforation Diameter			
	1/4	5/16	7/32	1/4
1.0'	0.18	0.41	0.56	0.74
1.5	0.22	0.51	0.69	0.9
2.0'	0.26	0.59	0.80	1.04
2.5	0.29	0.65	0.89	1.17
3.0	.0.32	0.72	0.98	1.28
4.0	0.37	0.83	1.13	1.47
5.0'	0.41	0.93	1.26	1.65
1 foot	Dwellings with 3/16 inch to 1/4 inch perforations			
2 feet	Dwellings with 1/8 inch perforations			
	Other establishments and MSTS with 3/16 inch to 1/4 inch perforations			
5 feet	Other establishments and MSTS with 1/8 inch perforations			

Table II Volume of Liquid in Pipe

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

Comments/Special Design Considerations:

ONSITE SEWAGE TREATMENT PROGRAM

Basic STA Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY Project ID: 170111000 v 03.15.2023

Pumping to Gravity or Pressure Distribution: Pressure

A. If pumping to gravity enter the gallon per minute of the pump: _____ GPM *(10 - 45 gpm)*

B. If pumping to a pressurized distribution system: 34.0 GPM

C. Enter pump description: Demand Dosing

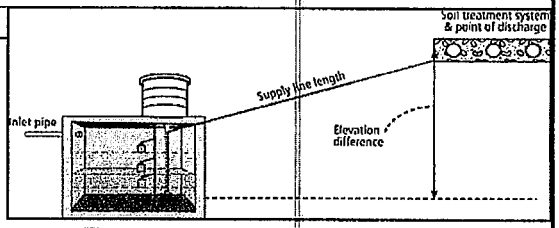
2. HEAD REQUIREMENTS

A. Elevation Difference between pump and point of discharge: 9 ft

B. Distribution Head Loss: 5 ft

C. Additional Head Loss*: _____ ft (due to special equipment, etc.)

* Common additional head loss: gate valve = 1 ft each, globe valve = 1.5 ft each, splitter valve = see manufacturers details



Distribution Head Loss	
Gravity Distribution = 0ft	
Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet:	
Minimum Average Head	**Distribution Head Loss**
1ft	5ft
2ft	6ft
5ft	10ft

D. 1. Supply Pipe Diameter: 2.0 in

2. Supply Pipe Length: 240 ft

E. **Friction Loss in Plastic Pipe per 100ft** from Table I:

Friction Loss = 2.99 ft per 100ft of pipe

F. Determine *Equivalent Pipe Length* from pump discharge to soil dispersal area discharge point. Estimate by adding 25% to supply pipe length for fitting loss.
Supply Pipe Length X 1.25 = *Equivalent Pipe Length*

240 ft X 1.25 = 300.0 ft

Table I.Friction Loss in Plastic Pipe per 100ft

Flow Rate (GPM)	Pipe Diameter (inches)			
	1	1.25	1.5	2
10	9.1	3.1	1.3	0.3
12	12.8	4.3	1.8	0.4
14	17.0	5.7	2.4	0.6
16	21.8	7.3	3.0	0.7
18		9.1	3.8	0.9
20		11.1	4.6	1.1
25		16.8	6.9	1.7
30		23.5	9.7	2.4
35			12.9	3.2
40			16.5	4.1
45			20.5	5.0
50				6.1
55				7.3
60				8.6
65				10.0
70				11.4
75				13.0
85				16.4
95				20.1

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft(E.)* by the *Equivalent Pipe Length(F.)* and divide by 100.

Supply Friction Loss =

2.99 ft per 100ft X 300.0 ft ÷ 100 = 9.0 ft

H. *Total Head* requirement is the sum of the *Elevation Difference(2A)* + Distribution Head Loss(2B) + Additional Head Loss(2C) + Supply Friction Loss(2G)

9.0 ft + 5.0 ft + _____ ft + 9.0 ft = 23.0 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **34.0** GPM with at least **23.0** feet of total head.

Comments:

Onsite Sewage Treatment Program

STA Dosing Pump Tank Design Worksheet (Demand Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS Project ID: 170111000 v 03.15.2023

1. A. *Design Flow (Design Sum.1A)*: 450 GPD C. Tank Use: Dosing
   B. Min. required pump tank capacity: 500 Gal D. Recommended pump tank capacity: 500 Gal

2. A. Tank Manufacturer: Brown Wilbert B. Tank Model: BW-1500-2
   C. Capacity from manufacturer: 500 Gallons
   D. Gallons per inch from manufacturer: 10.9 Gallons per inch
   E. Liquid depth of tank from manufacturer: 46.0 inches

Note: Design calculations are based on this specific tank. Substituting a different tank model will change the pump float or timer settings. Contact designer if changes are necessary.

DETERMINE DOSING VOLUME

3. Calculate *Volume to Cover Pump* (The inlet of the pump must be at least 4-inches from the bottom of the pump tank & 2 inches of water covering the pump is recommended)

   (Pump and block height + 2 inches) X *Gallons Per Inch* (2D)

   (17 in + 2 inches) X 10.9 Gallons Per Inch = 207 Gallons

4. *Minimum Delivered Volume* = 4 X Volume of Distribution Piping:

   -Item 19 of the Pressure Distribution STA or Item 11 of Non-level STA 72 Gallons (Minimum dose) 6.7 inches/dose

5. Calculate *Maximum Pumpout Volume* (25% of Design Flow(1A))

   Design Flow: 450 GPD X 0.25 = 113 Gallons (Maximum dose) 10.3 inches/dose

6. *Select a pumpout volume that meets both Minimum and Maximum:* 90 Gallons

7. Calculate *Doses Per Day* = Design Flow(1A) ÷ *Delivered Volume(6.)*

   450 gpd ÷ 90 gal = 5.00 *Doses**

   * Doses need to be equal to or greater than 4

Volume of Liquid in Pipe	
Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

8. Calculate Drainback:

   A. *Diameter of Supply Pipe* = 2 inches

   B. Length of Supply Pipe = 240 feet

   C. *Volume of Liquid Per Lineal Foot of Pipe* = 0.170 Gallons/ft

   D. *Drainback* = *Length of Supply Pipe(8B)* X *Volume of Liquid Per Lineal Foot of Pipe(8C)*

   240 ft X 0.170 gal/ft = 40.8 Gallons

9. *Total Dosing Volume* = *Delivered Volume(6.)* + *Drainback* (8D)

   90 gal + 40.8 gal = 131 Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank(2D)

    3 in X 10.9 gal/in = 32.7 Gallons

11. Reserve Capacity Volume = [Tank Liquid Depth(2E) - Alarm Float Depth(10.)] x gallons per inch of tank(2D)

    [46.0 in - 34.0 in] X 10.9 gal/in = 130.6 Gallons

DEMAND DOSE FLOAT SETTINGS **Alarm and Pump are to be wired on separate circuits and inspected by the electrical inspector**

12. Calculate *Float Separation Distance* using *Dosing Volume*.

    Total Dosing Volume(9.) ÷ *Gallons Per Inch(2D)*

    131 gal ÷ 10.9 gal/in = 12.0 inches

13. Measuring from bottom of tank:

    A. *Distance to set Pump Off Float* = Pump + block height + 2 inches

    17 in + 2 in = 19 inches

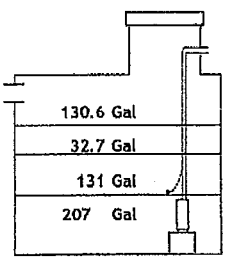
    B. *Distance to set Pump On Float=Distance to Set Pump-Off Float(13A) + Float Separation Distance(12.)*

    19 in + 12.0 in = 31 inches

    C. *Distance to set Alarm Float = Distance to set Pump-On Float(13B) + Alarm Depth* (2-3 inches)(10.)

    31 in + 3.0 in = 34 inches

Inches for Dose:	12.0	in
Alarm Depth	34.0	in
Pump On	31.0	in
Pump Off	19.0	in



University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID: 170111000 v 03.15.2023

Client:	Grant Ohm / Chris Ohm	Location / Address:	14412 Cty Hwy 11

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill

Landscape Position: Summit	Slope %: 0.0	Slope shape: Linear, Linear	Flooding/Run-On potential:
Vegetation: Grass	Soil survey map units:		Surface Elevation-Relative to benchmark:
Date/Time of Day/Weather Conditions:	6/9/2023	Afternoon	Sunny
Observation #/Location: 1	West end of STA	Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-2	Clay Loam		10YR 2/1				Blocky	Weak	Friable
2-12	Clay Loam		10YR 3/2				Blocky	Moderate	Friable
12-16	Clay Loam		10YR 4/3				Blocky	Moderate	Friable
16+	Clay Loam		10YR 4/3	10YR 5/8			Blocky	Moderate	Friable

Comments: Limiting condition at 16 inches

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Ohm Excavating LLC / Chris Ohm		L4034/C1138	6/9/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID: 170111000 v 03.15.2023

Client: Grant Ohm / Chris Ohm | Location / Address: 14412 Cty Hwy 11

Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill

Landscape Position: Summit | Slope %: 0.0 | Slope shape: Linear, Linear | Flooding/Run-On potential:

Vegetation: Grass | Soil survey map units: | Surface Elevation-Relative to benchmark:

Date/Time of Day/Weather Conditions: 6/9/2023 | Afternoon | Sunny | Limiting Layer Elevation:

Observation #/Location: 2 | Center of STA | Observation Type: Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-4	Clay Loam		10YR 2/1				Blocky	Weak	Friable
4-11	Clay Loam		10YR 3/2				Blocky	Moderate	Friable
11-18	Clay Loam		10YR 4/3				Blocky	Moderate	Friable
18+	Clay Loam		10YR 4/3	10YR 5/8			Blocky	Moderate	Friable

Comments: Limiting condition at 18 inches

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Ohm Excavating LLC / Chris Ohm (Designer/Inspector) | (Signature) | L4034/C1138 (License #) | 6/9/2023 (Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector) | (Signature) | (Cert #) | (Date)

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID: 170111000 v 03.15.2023

Client: Grant Ohm / Chris Ohm		Location / Address: 14412 Cty Hwy 11	
Soil parent material(s): (Check all that apply) ☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill			
Landscape Position: Summit	Slope %: 0.0	Slope shape: Linear, Linear	Flooding/Run-On potential:
Vegetation: Grass	Soil survey map units:		Surface Elevation-Relative to benchmark:
Date/Time of Day/Weather Conditions:	6/9/2023	Afternoon	Sunny / Limiting Layer Elevation:
Observation #/Location: 3	East end of STA	Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure: Shape	Structure: Grade	Structure: Consistence
0-4	Clay Loam		10YR 2/1				Blocky	Weak	Friable
4-12	Clay Loam		10YR 3/2				Blocky	Moderate	Friable
12-18	Clay Loam		10YR 4/3				Blocky	Moderate	Friable
18+	Clay Loam		10YR 4/3	10YR 5/8			Blocky	Moderate	Friable

Comments: Limiting condtion at 18 inches

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

Ohm Excavating LLC / Chris Ohm		L4034/C1138	6/9/2023
(Designer/Inspector)	(Signature)	(License #)	(Date)

Optional Verification: I hereby certify that this soil observation was verified according to Minn. R. 7082.0500 subp. 3 A. The signature below represents an infield verification of the periodically saturated soil or bedrock at the proposed soil treatment and dispersal site.

(LGU/Designer/Inspector)	(Signature)	(Cert #)	(Date)

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Septic System Management Plan for Above Grade Systems

The goal of a septic system is to protect human health and the environment by properly treating wastewater before returning it to the environment. Your septic system is designed to kill harmful organisms and remove pollutants before the water is recycled back into our lakes, streams and groundwater.

This **management plan** will identify the operation and maintenance activities necessary to ensure long-term performance of your septic system. Some of these activities must be performed by you, the homeowner. Other tasks must be performed by a licensed septic maintainer or service provider. However, it is **YOUR** responsibility to make sure all tasks get accomplished in a timely manner.

The University of Minnesota's *Septic System Owner's Guide* contains additional tips and recommendations designed to extend the effective life of your system and save you money over time.

Proper septic system design, installation, operation and maintenance means safe and clean water!

Property Owner Chris Ohm	Email chris@ohmexcavating.com
Property Address 14412 Co Hwy 11	Property ID 170111000
System Designer Ohm Excavating LLC	Contact Info 218-439-6428
System Installer Ohm Excavating LLC	Contact Info 218-439-6428
Service Provider/Maintainer Ohm Excavating LLC	Contact Info 218-439-6428
Permitting Authority Becker County	Contact Info 218-846-7314
Permit #	Date Inspected

Keep this Management Plan with your Septic System Owner's Guide. The Septic System Owner's Guide includes a folder to hold maintenance records including pumping, inspection and evaluation reports. Ask your septic professional to also:

- Attach permit information, designer drawings and as-built of your system, if they are available.
- Keep copies of all pumping records and other maintenance and repair invoices with this document.
- Review this document with your maintenance professional at each visit; discuss any changes in product use, activities, or water-use appliances.

For a copy of the *Septic System Owner's Guide*, visit www.bookstores.umn.edu and search for the word "septic" or call 800-322-8642.

For more information see http://septic.umn.edu

Version: August 2015

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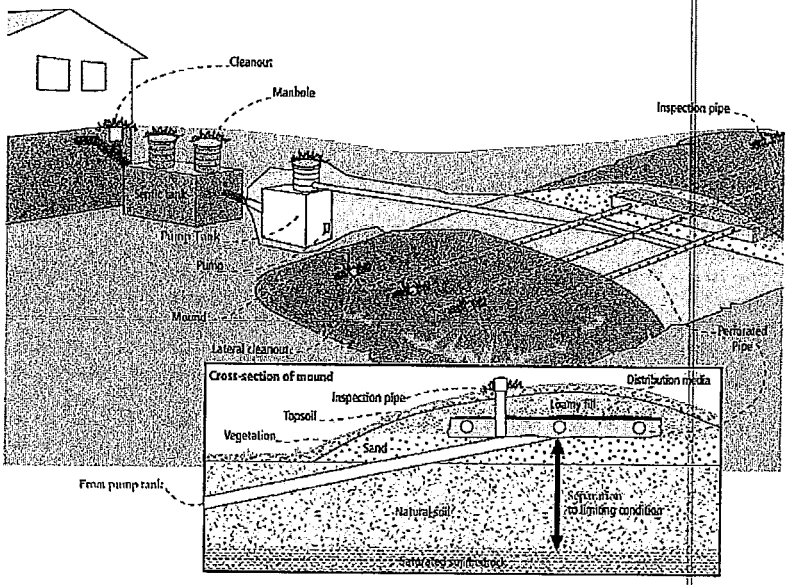
Septic System Management Plan for Above Grade Systems

Your Septic System



Septic System Specifics

System Type: (●) I ( ) II ( ) III ( ) IV* ( ) V*

(Based on MN Rules Chapter 7080.2200 – 2400)

**Additional Management Plan required*

☐ System is subject to operating permit*

☐ System uses UV disinfection unit*

Type of advanced treatment unit _____

Dwelling Type

Number of bedrooms: 3

System capacity/ design flow (gpd): 450

Anticipated average daily flow (gpd): 450

Comments _____

Business? : ( ) Y (●) N What type? _____

Well Construction

Well depth (ft): 38'

☐ Cased well Casing depth: _____

☐ Other (specify): _____

Distance from septic (ft): 50 ft

Is the well on the design drawing? (●) Y ( ) N

Septic Tank

☐ First tank *Tank volume:* 1000 *gallons*

Does tank have two compartments? (●) Y ( ) N

☐ Second tank *Tank volume:* _____ *gallons*

☐ Tank is constructed of Concrete

☐ Effluent screen: ( ) Y (●) N Alarm ( ) Y (●) N

☐ Pump Tank 500 *gallons*

☐ Effluent Pump *make/model:* _____

Pump capacity 34 GPM

TDH 23 Feet of head

☐ Alarm location Indoor Alert

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 67 ft x 40 ft

Rock bed size (width x length): 10 ft x 37.5 ft

Location of additional STA: South of Design

Type of distribution media: Rock

☑ Inspection ports ☐ Cleanouts

☐ Surface water diversions

☐ Additional STA not available

Homeowner Management Tasks

These op*eration and maintenance ac*tivities are your responsibility. *Chart on page 6 can help track your activities.*

Your toilet is not a garbage can. Do not flush anything besides human waste and toilet paper. No wet wipes, cigarette butts, disposal diapers, used medicine, feminine products or other trash!

The system and septic tanks needs to be checked every 12 months

Your service provider or pumper/maintainer should evaluate if your tank needs to be pumped more or less often.

Seasonally or several times per year

- *Leaks.* Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.
- *Soil treatment area.* Regularly check for wet or spongy soil around your soil treatment area. If surfaced sewage or strong odors are not corrected by pumping the tank or fixing broken caps and leaks, call your service professional. *Untreated sewage may make humans and animals sick.* Keep bikes, snowmobiles and other traffic off and control borrowing animals.
- *Alarms.* Alarms signal when there is a problem; contact your service professional any time the alarm signals.
- *Lint filter.* If you have a lint filter, check for lint buildup and clean when necessary. If you do not have one, consider adding one after washing machine.
- *Effluent screen.* If you do not have one, consider having one installed the next time the tank is cleaned along with an alarm.

Annually

- *Water usage rate.* A water meter or another device can be used to monitor your average daily water use. Compare your water usage rate to the design flow of your system (listed on the next page). Contact your septic professional if your average daily flow over the course of a month exceeds 70% of the design flow for your system.
- *Caps.* Make sure that all caps and lids are intact and in place. Inspect for damaged caps at least every fall. Fix or replace damaged caps before winter to help prevent freezing issues.
- *Water conditioning devices.* See Page 5 for a list of devices. When possible, program the recharge frequency based on *water demand (gallons)* rather than *time (days).* Recharging too frequently may negatively impact your septic system. Consider updating to demand operation if your system currently uses time,
- *Review your water usage rate.* Review the Water Use Appliance chart on Page 5. Discuss any major changes with your service provider or pumper/maintainer.

During each visit by a service provider or pumper/maintainer

- Make sure that your service professional services the tank through the manhole. (NOT though a 4" or 6" diameter inspection port.)
- Ask how full your tank was with sludge and scum to determine if your service interval is appropriate.
- Ask your pumper/maintainer to accomplish the tasks listed on the Professional Tasks on Page 4.

Professional Management Tasks

These are the operation and maintenance activities that a pumper/maintainer performs to help ensure long-term performance of your system. At each visit a written report/record must be provided to homeowner.

Plumbing/Source of Wastewater

- Review the Water Use Appliance Chart on Page 5 with homeowner. Discuss any changes in water use and the impact those changes may have on the septic system.
- Review water usage rates (if available) with homeowner.

Septic Tank/Pump Tanks

- *Manhole lid.* A riser is recommended if the lid is not accessible from the ground surface. Insulate the riser cover for frost protection.
- *Liquid level.* Check to make sure the tank is not leaking. The liquid level should be level with the bottom of the outlet pipe. (If the water level is below the bottom of the outlet pipe, the tank may not be watertight. If the water level is higher than the bottom of the outlet pipe of the tank, the effluent screen may need cleaning, or there may be ponding in the soil treatment area.)
- *Inspection pipes.* Replace damaged or missing pipes and caps.
- *Baffles.* Check to make sure they are in place and attached, and that inlet/outlet baffles are clear of buildup or obstructions.
- *Effluent screen.* Check to make sure it is in place; clean per manufacturer recommendation. Recommend retrofitted installation if one is not present.
- *Alarm.* Verify that the alarm works.
- *Scum and sludge.* Measure scum and sludge in each compartment of each septic and pump tank, pump if needed.

Pump

- *Pump and controls.* Check to make sure the pump and controls are operating correctly.
- *Pump vault.* Check to make sure it is in place; clean per manufacturer recommendations.
- *Alarm.* Verify that the alarm works.
- *Drainback.* Check to make sure it is draining properly.
- *Event counter or elapsed time meter.* Check to see if there is an event counter or elapsed time meter for the pump. If there is one or both, calculate the water usage rate and compare to the anticipated use listed on Design and Page 2. Dose Volume: _____ gallons: Pump run time: _____ Minutes

Soil Treatment Area

- *Inspection pipes.* Check to make sure they are properly capped. Replace caps and pipes that are damaged.
- *Surfacing of effluent.* Check for surfacing effluent or other signs of problems.
- *Lateral flushing.* Check lateral distribution; if cleanouts exist, flush and clean at recommended frequency.
- *Vegetation* - Check to see that a good growth of vegetation is covering the system.

All other components – evaluate as listed here:

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Septic System Management Plan for Above Grade Systems

Water-Use Appliances and Equipment in the Home

Appliance	Impacts on System	Management Tips
Garbage disposal	• Uses additional water. • Adds solids to the tank. • Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Use of a garbage disposal is not recommended. • Minimize garbage disposal use. Compost instead. • To prevent solids from exiting the tank, have your tank pumped more frequently. • Add an effluent screen to your tank.
Washing machine	• Washing several loads on one day uses a lot of water and may overload your system. • Overloading your system may prevent solids from settling out in the tank. Unsettled solids can exit the tank and enter the soil treatment area.	• Choose a front-loader or water-saving top-loader, these units use less water than older models. • Limit the addition of extra solids to your tank by using liquid or easily biodegradable detergents. Limit use of bleach-based detergents and fabric softeners. • Install a lint filter after the washer and an effluent screen to your tank • Wash only full loads and think even – spread your laundry loads throughout the week.
Dishwasher	• Powdered and/or high-phosphorus detergents can negatively impact the performance of your tank and soil treatment area. • New models promote "no scraping". They have a garbage disposal inside.	• Use gel detergents. Powdered detergents may add solids to the tank. • Use detergents that are low or no-phosphorus. • Wash only full loads. • Scrape your dishes anyways to keep undigested solids out of your septic system.
Grinder pump (in home)	• Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Expand septic tank capacity by a factor of 1.5. • Include pump monitoring in your maintenance schedule to ensure that it is working properly. • Add an effluent screen.
Large bathtub (whirlpool)	• Large volume of water may overload your system. • Heavy use of bath oils and soaps can impact biological activity in your tank and soil treatment area.	• Avoid using other water-use appliances at the same time. For example, don't wash clothes and take a bath at the same time. • Use oils, soaps, and cleaners in the bath or shower sparingly.
Clean Water Uses	**Impacts on System**	**Management Tips**
High-efficiency furnace	• Drip may result in frozen pipes during cold weather.	• Re-route water directly out of the house. Do not route furnace discharge to your septic system.
Water softener Iron filter Reverse osmosis	• Salt in recharge water may affect system performance. • Recharge water may hydraulically overload the system.	• These sources produce water that is not sewage and should not go into your septic system. • Reroute water from these sources to another outlet, such as a dry well, draintile or old drainfield. • When replacing, consider using a demand-based recharge vs. a time-based recharge. • Check valves to ensure proper operation; have unit serviced per manufacturer directions
Surface drainage Footing drains	• Water from these sources will overload the system and is prohibited from entering septic system.	

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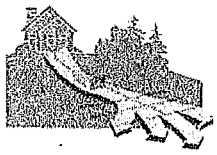
Septic System Management Plan for Above Grade Systems



Homeowner Maintenance Log

Track maintenance activities here for easy reference. See list of management tasks on pages 3 and 4.

Activity	Date accomplished									
Check frequently:										
Leaks: check for plumbing leaks*										
Soil treatment area check for surfacing**										
Lint filter: check, clean if needed*										
Effluent screen (if owner-maintained)***										
Alarm**										
Check annually:										
Water usage rate (maximum gpd _____)										
Caps: inspect, replace if needed										
Water use appliances – review use										
Other:										

*Monthly

**Quarterly

***Bi-Annually

Notes:

"As the owner of this SSTS, I understand it is my responsibility to properly operate and maintain the sewage treatment system on this property, utilizing the Management Plan. If requirements in this Management Plan are not met, I will promptly notify the permitting authority and take necessary corrective actions. If I have a new system, I agree to adequately protect the reserve area for future use as a soil treatment system."

Property Owner Signature: _____ Date 6/12/2023

Management Plan Prepared By: Chris Ohm Certification # 1138

Permitting Authority: Becker County

Thursday
11-16-2023
10:00

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

Septic Permit

Permit #: SS2023-1728

Owner & Property Information

Owner Name:	GRANT M OHM
Mailing Address:	GRANT M OHM PO BOX 293 AUDUBON MN 56511-0293
Phone #:	218-439-6428
Lake/River(1000/300):	No
Lake/River Name:	
Pond/Wetland(50):	No

Parcel #:	170111000
Secondary Parcel #:	
Site Address:	14412 CO HWY 11
Township - Sec/Twp/Rng:	LAKE EUNICE - 09/138/042
Designer:	Ohm Excavating, L4032 (Chris Ohm)
Installer:	Ohm Excavating LLC, L4034 (Chris Ohm)

Specifications

Tank to be Installed:	Compartmented Tank
Total # Tanks Installed:	1
System Status:	Replacement System
System Serves:	Full-Time Dwelling
Number of Bedrooms:	3
Design Flow/GPD:	450
Garbage Disposal?	No
Size of Lift Pump:	3/4 HP
Size of Lift Line:	2 inch
Soil Sizing Factor:	0.45

Type of Drainfield:	Mound
Full Size of Drainfield:	375
Reduced/Warrantied Size:	
Absorbtion Area Size:	26 ft x 38 ft
Rock Depth:	12 inches
Chamber Type and Number:	
Chamber Trench SqFt/Chamber:	
Is System Pressurized?	Yes
Alarm?	No
Type of Alarm:	

Setbacks

Road Type:	County
Tank Dist to Road:	240 ft
Tank Dist to Closest Prop Line:	10 ft
Tank Dist to Nearest Structure:	30 ft
Tank Dist to Well:	50 ft
Tank Dist to OHW:	
Tank Dist to Pond/Wetland:	
Tank Dist to Pressure Line:	N/A

Right of Way Marked:	Yes
Drainfied Dist to Road:	200 ft
Drainfied Dist to Closest Prop Line:	10 ft
Drainfield Dist to Nearest Structure:	200 ft
Drainfield Dist to Well:	120 ft
Drainfield Dist to OHW:	
Drainfield Dist to Pond/Wetland:	
Drainfield Dist to Pressure Line:	N/A

Other Information

Date Approved:	06/14/2023
Permit Fee:	$225.00
Receipt Number:	253075251
Date Paid:	06/28/2023 3:47 PM CDT

Notes: Install a 1500/2 septic/lift tank and a mound system with a 20.4" sand lift, a 10' X 38' rock bed and a 26' X 38' soil absorption area

Zoning Office Signature:

Denise Gubrud

PERMIT MUST BE POSTED AT JOB SITE. PERMIT EXPIRES ONE YEAR FROM DATE PAID.

**** Please schedule for inspection prior to installation! ****