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

280278000-2024

Certificate of Compliance
Inspection Report - Permit #: SS2024-1974

Owner & Property Information

Owner Name:	ANDREW COOK
Mailing Address:	ANDREW COOK 41248 CO RD 126 DETROIT LAKES MN 56501
Parcel #:	280278000
Secondary Parcel #:	

Site Address:	41268 CO RD 126
Township - Sec/Twp/Rng:	SHELL LAKE - 30/140/038
Legal Description:	GRANNER SHORES|LOTS 2 & 3
Designer:	Cubed B LLC, L4142 (Brant Bigger)
Installer:	Stenger Excavating LLC, L553 (Timothy Stenger)

Inspector Verified Specifications

Insp- Effluent Screen Installed:	Yes
Insp- Alarm Required:	Yes
Insp- Lift Pump in System:	Yes
Insp- Number of Bedrooms:	3

Insp- Tank Nbr/Size:	2/1500/2-500
Insp- Drainfield Type:	Mound
Insp- Drainfield Size:	10X38 ROCK BED
Insp- Soil Verification:	#1:SEE ATTACHED #2:N/A #3:N/A

Inspector Verified Setbacks

Insp- Tank Dist to Road	10+
Insp- Tank Dist to Nearest Prop Line	PLA CLOSER THAN 10'
Insp- Tank Dist to Nearest Structure	10
Insp- Tank Dist to Well	50
Insp- Tank Dist to OHW	75+
Insp- Tank Dist to Pond/Wetland	NA
Insp- Tank Dist to Pressure Line	NA

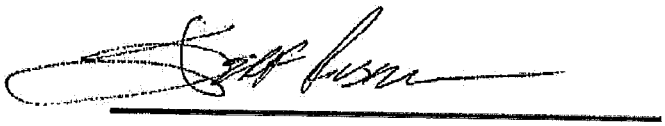
Insp- Drainfield Dist to Road	10+
Insp- Drainfield Dist to Nearest Prop Line	10
Insp- Drainfield Dist to Nearest Structure	20
Insp- Drainfield Dist to Well	50+
Insp- Drainfield Dist to OHW	75+
Insp- Drainfield Dist to Pond/Wetland	NA
Insp- Drainfield Dist to Pressure Line	NA

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: 08/15/2024

Zoning Office Signature:



Jeff Rusness - ISTS Inspector

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

Field Review Form

Permit # SS2024-1974

Property and Owner

Owner: **ANDREW COOK**	Parcel Number: **280278000**
Site Address: **41268 CO RD 126**	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: PL [redacted] 122	
Alarm: **Yes** Type: **electronic**	Review - Alarm? (Y) N Type & Mfr: PS Pump SJE	
Lift pump in system: **Yes**	Review - Lift pump in system? (Y) N Mfr: Goulds PE51	

Component Information

Tank size: **1500-gallon, 2-compartment septic tank & 500-gallon pump tank**	Review - Tank nbr: 2 size: 1500/500 Mfr: Brown Wipell
Drainfield type: **Mound**	Review - Drainfield type: mound
Drainfield size: Full size - **380** Reduced/warr. size -	Review - Drainfield status: none / (installed) / next spring Review - Drainfield size: 10x38
Absorption area size: **9" under pipe**	Review - Absorption area size: 15x38
Chamber type/num: Trench sqft/chamber -	Review - Chamber type: NA Num: Review - Trench sqft/chamber:
Drainfield rock depth: **9" under pipe**	Review - Rock depth: 9/15"

Soil Verification

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

Setback Verification

	Designer submitted		Inspector verified	
Distance to...	Tank	Drainfield	Tank	Drainfield
Road	>75'	>75'	10+	10
Nearest prop line	>20'	>10'	[redacted] Prop	10
Nearest structure	>10'	>50'	10	20+
Well	>50'	>50'	50+	50+
OHW	>100'	>100'	75	75
Pond/Wetland	N/A	N/A	NA	NA
Pressure line	>50'	>50'	NA	NA

Date System Installed: Installer: Stenger ERC. Inspector: [signature]

BRANT B. BIGGER
Owner

Cubed B LLC
SEPTIC SYSTEM DESIGN & INSPECTION

13248 US Hwy 10
Lake Park, MN 56554
218-234-6906
brant.bigger@gmail.com
cubedbllc.com

Parcel # 280278000
Dale Cook
09 Mar 2024

- 3 bedroom residence
- no garbage disposal
- no lift pump in basement
- 1,500 gal 2-compartment septic tank
- 500 gal pump tank w/ electronic alarm
- Polylok PL-122 effluent screen or equiv.

Type I Mound
- 10' x 38' rock bed
- 15' x 38' STA
- 12" sand lift (top of sand = 94' 10")
- 2" supply line (30')
- 3 2" laterals with 3' spacing
- ¼ " hole size with 3' spacing

Pump
- Goulds EP05 or equiv.
- 29 gpm with 18.8 tdh
- 9" per dose
- 28" alarm depth
- 25" pump on
- 16" pump off

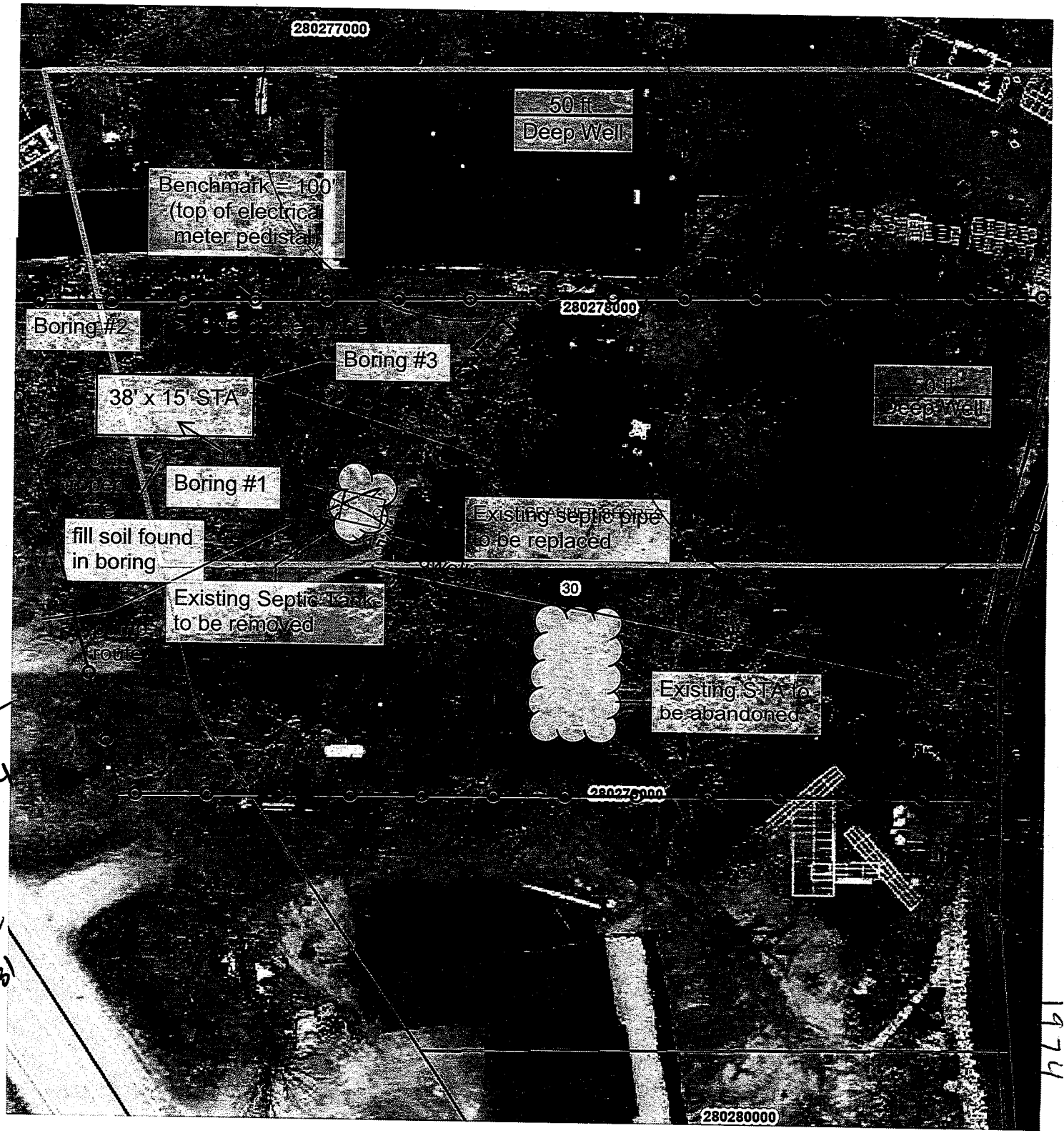
Scale: 1" = 32'

N

6-27-2024

System Corner
NW = 93' 10" NE = 93' 10"
SW = 93' 3" SE = 92' 8"

Soil Boring
#1 93' 8".....Limiting Layer 91' 5"
#2 93' 10".....91' 6"
#3 93' 10".....91' 4"



University of Minnesota Onsite Sewage Treatment Program

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

v 03.15.2023

1. Contact Information

Property Owner/Client: ANDREW COOK ET AL | Date Completed: 3/3/2024

Site Address: 41268 CO RD 126, DETROIT LAKES MN 56501 | Project ID:

Email: vkgfan@gmail.com | Phone: 701-306-4852

Mailing Address: 41248 CO RD 126, DETROIT LAKES MN 56501 | Alt Phone:

Legal Description: GRANNER SHORES, LOTS 2 & 3

Parcel ID: 280278000 | SEC: 30 | TWP: 140 | RNG: 038

2. Flow and General System Information

A. Client-Provided Information

Project Type: ☐ New Construction ☑ Replacement ☐ Expansion ☐ Repair

Project Use: ☑ Residential ☐ Other Establishment:

Residential use: # Bedrooms: 3 | Dwelling sq.ft.: 2 | Unfinished sq.ft.:

Adults: | # Children: | # Teenagers:

In-home business (Y/N): Yes | If yes, describe:

Water-using devices (*check all that apply*):

- ☐ Garbage Disposal/Grinder
- ☐ Dishwasher
- ☐ Hot Tub*
- ☐ Sewage pump in basement
- ☐ Water Softener*
- ☐ Sump Pump*
- ☐ Large Bathtub >40 gallons
- ☐ Iron Filter*
- ☐ Self-Cleaning Humidifier*
- ☐ Clothes Washing Machine
- ☐ High Eff. Furnace*
- ☐ Other:

* Clear water source - should not go into system

Additional current or future uses:

Anticipated non-domestic waste:

The above is complete & accurate: spoke with property owner/agen on 16 Nov 2023

Client signature & date

B. Designer-determined Flow and Anticipated Waste Strength Information

Attach additional information as necessary.

Design Flow: 450 GPD | Anticipated Waste Type: Residential

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

3. Preliminary Site Information

A. Water Supply Wells

#	Description	Mn. ID#	Well Depth (ft.)	Casing Depth (ft.)	Confining Layer	STA Setback	Source
1	property's new deep well	882182				50'	
2	neighbor's existing deep well					50'	
3							
4							

Additional Well Information:

University of Minnesota Onsite Sewage Treatment Program

Preliminary Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Site within 200' of noncommunity transient well (Y/N)	No	Yes, source:	
Site within a drinking water supply management area (Y/N)	No	Yes, source:	
Site in Well Head Protection inner wellhead management zone (Y/N)	No	Yes, source:	
Buried water supply pipes within 50 ft of proposed system (Y/N)	No		
B. Site located in a shoreland district/area?	Yes	Yes, name:	Island Lake
Elevation of ordinary high water level:	ft	Source:	
Classification: Lake- Recreational	Tank Setback: 75 ft.	STA Setback: 75 ft.	
C. Site located in a floodplain?	No	Yes, Type(s):	N/A
Floodplain designation/elevation (10 Year):	N/A ft	Source:	N/A
Floodplain designation/elevation (100 Year):	N/A ft	Source:	N/A

D. Property Line Id / Source: ☑ Owner ☐ Survey ☑ County GIS ☐ Plat Map ☐ Other:

E. ID distance of relevant setbacks on map: ☑ Water ☐ Easements ☑ Well(s) ☑ Building(s) ☑ Property Lines ☐ OHWL ☐ Other:

4. Preliminary Soil Profile Information From Web Soil Survey (attach map & description)

Map Units: 267B—Snellman sandy loam Slope Range: 1-8 %

List landforms: Moraines

Landform position(s): Shoulder, summit

Parent materials: Coarse-loamy till

Depth to Bedrock/Restrictive Feature: >80 in Depth to Watertable: >80 in

Map Unit Ratings

Septic Tank Absorption Field- At-grade:	Not Limited
Septic Tank Absorption Field- Mound:	Slightly Limited
Septic Tank Absorption Field- Trench:	Not Limited

5. Local Government Unit Information

Name of LGU: Becker County

LGU Contact: Kyle Vareberg

LGU-specific setbacks:

LGU-specific design requirements:

LGU-specific installation requirements:

Notes:

University of Minnesota Onsite Sewage Treatment Program

Field Evaluation Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. Project Information

v 03.15.2023

Property Owner/Client: ANDREW COOK ET AL | Project ID:

Site Address: 41268 CO RD 126, DETROIT LAKES MN 56501 | Date Completed: 11/17/2023

2. Utility and Structure Information

Utility Locations Identified ☐ Gopher State One Call # ☐ Any Private Utilities:

Locate and Verify (*see Site Evaluation map*) ☑ Existing Buildings ☐ Improvements ☐ Easements ☐ Setbacks

3. Site Information

Vegetation type(s): Lawn | Landscape position: Back/ Side Slope

Percent slope: 6 % | Slope shape: Linear, Linear | Slope direction: south

Describe the flooding or run-on potential of site: low risk

Describe the need for Type III or Type IV system:

Note:

Proposed soil treatment area protected? (Y/N): Yes | If yes, describe: flagged

4. General Soils Information

Filled, Compacted, Disturbed areas (Y/N): No

If yes, describe:

Soil observations were conducted in the proposed system location (Y/N): Yes

A soil observation in the most limiting area of the proposed system (Y/N): Yes

Number of soil observations: 3 | Soil observation logs attached (Y/N): Yes

Percolation tests performed & attached (Y/N): No

5. Phase I. Reporting Information

	Depth		Elevation	
Limiting Condition*:	27	in	91.4	ft
Periodically saturated soil:	27	in	91.4	ft
Standing water:		in		ft
Bedrock:		in		ft
Benchmark Elevation:	100.0	ft		

*Most Restrictive Depth Identified from List Below

Soil Texture: Medium Sandy Loam

Percolation Rate: min/inch

Soil Hyd Loading Rate: 0.78 gpd/sq.ft

Elevations and Benchmark on map? (Y/N): Yes

Benchmark Elevation Location: top of electrical meter pedistal

Differences between soil survey and field evaluation:

Site evaluation issues / comments:

Anticipated construction issues: existing tank will needto be removed and some trees will need to be removed for mound & to place new tanks.

University of Minnesota Onsite Sewage Treatment Program

Soil Observation Log

Project ID:

v 03.15.2023

Client:	ANDREW COOK ET AL	Location / Address:	41268 CO RD 126, DETROIT LAKES MN 56501

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

Landscape Position:	Back/Side Slope	Slope %:	6.0	Slope shape:	Linear, Linear	Flooding/Run-On potential:	No
Vegetation:	Lawn	Soil survey map units:	267B—Snellman sandy loam			Surface Elevation-Relative to benchmark:	93' 8"
Date/Time of Day/Weather Conditions:		11/17/2023	8:00	overcast		Limiting Layer Elevation:	91' 5"
Observation #/Location:	#1	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
0-6	Medium Sandy Loam	10	7.5YR	2/2			None	None	Blocky	Weak	Friable
6-24	Medium Sandy Loam	10	7.5YR	3/4			None	None	Blocky	Weak	Friable
24-27	Medium Sandy Loam	10	10YR	4/4			None	None	Blocky	Moderate	Friable
27-30	Medium Sandy Loam	10	10YR	5/4	7.5YR	5/8	Concentrations	S2	Blocky	Moderate	Friable

Comments:

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

Brant Bigger	Brant Bigger (Signature)	L4142	12/30/2023
(Designer/Inspector)		(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:

v 03.15.2023

Client:	ANDREW COOK ET AL			Location / Address:	41268 CO RD 126, DETROIT LAKES MN 56501
Soil parent material(s): (Check all that apply)	☐ Outwash ☐ Lacustrine ☐ Loess ☑ Till ☐ Alluvium ☐ Bedrock ☐ Organic Matter ☐ Disturbed/Fill				
Landscape Position:	Back/Side Slope	Slope %: 6.0	Slope shape:	Linear, Linear	Flooding/Run-On potential: No
Vegetation:	Lawn	Soil survey map units:	267B—Snellman sandy loam		Surface Elevation-Relative to benchmark: 93' 10"
Date/Time of Day/Weather Conditions:	11/17/2023	8:15	overcast		Limiting Layer Elevation: 91' 6"
Observation #/Location:	#2	NW corner of STA		Observation Type:	Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
0-4	Medium Sandy Loam	20	7.5YR 2/2		None	None	Blocky	Weak	Friable
4-28	Medium Sandy Loam	20	7.5YR 3/4		None	None	Blocky	Weak	Friable

Comments:

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

Brant Bigger	Brant Bigger (Signature)	L4142	12/30/2023
(Designer/Inspector)		(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:

v 03.15.2023

Client:	ANDREW COOK ET AL			Location / Address:	41268 CO RD 126, DETROIT LAKES MN 56501		
Soil parent material(s): (Check all that apply)	☐ Outwash	☐ Lacustrine	☐ Loess	☑ Till	☐ Alluvium	☐ Bedrock	☐ Organic Matter	☐ Disturbed/Fill
Landscape Position:	Back/Side Slope	Slope %:	6.0	Slope shape:	Linear, Linear	Flooding/Run-On potential:	No
Vegetation:	Lawn	Soil survey map units:	267B—Snellman sandy loam			Surface Elevation-Relative to benchmark:	93' 10"
Date/Time of Day/Weather Conditions:	11/17/2023	8:45	overcast			Limiting Layer Elevation:	91' 4"
Observation #/Location:	#3	NE corner 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
0-6	Medium Sandy Loam	10	10YR 2/2		None	None	Blocky	Weak	Friable
6-20	Medium Sandy Loam	10	10YR 3/4		None	None	Blocky	Weak	Friable
20-30	Medium Sandy Loam	20	10YR 4/4		None	None	Blocky	Moderate	Friable

Comments:

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

Brant Bigger	R Bigger (Signature)	L4142	12/30/2023
(Designer/Inspector)		(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:

v 03.15.2023

Client: ANDREW COOK ET AL

Location / Address: 41268 CO RD 126, DETROIT LAKES MN 56501

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

Landscape Position:	Slope %:	Slope shape:	Flooding/Run-On potential:
Vegetation:	Soil survey map units:		Surface Elevation-Relative to benchmark:
Date/Time of Day/Weather Conditions:			Limiting Layer Elevation:
Observation #/Location:		Observation Type:	

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I-------- Structure----------I		
							Shape	Grade	Consistence

Comments:

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

Brant Bigger (Designer/Inspector) — Brant Bigger (Signature) — L4142 (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)

Textures:	
C	Clay
SiC	Silty Clay
SC	Sandy Clay
CL	Clay Loam
SiCL	Silty Clay Loam
SCL	Sandy Clay Loam
Si	Silt
SiL	Silt Loam
L	Loam
SL	Sandy Loam*
LS	Loamy Sand*
S	Sand*

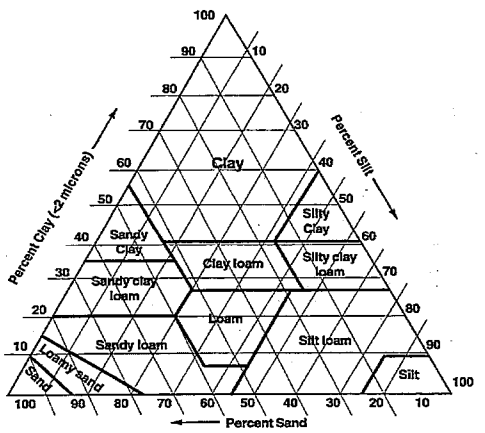
*Sand Modifiers:	
Co	Coarse
M	Medium
F	Fine
VF	Very Fine

Topsoil Indicator(s) of Saturation:

T1. Wetland Vegetation
T2. Depressional Landscape
T3. Organic texture or organic modifiers
T4. N 2.5/ 0 color
T5. Redox features in topsoil
T6. Hydraulic indicators

Subsoil Indicator(s) of Saturation:

S1. Depleted matrix (value >/=4 and chroma </=2)
S2. Distinct gray or red redox features (any Matrix Hue)
S3. Matrix Hue of 5Y with a chroma </= 3
S4. Matrix Hue of 7.5 YR or redder with faint redox concentrations or redox depletions



Shape:

Granular	The peds are approximately spherical or polyhedral and are commonly found in topsoil. These are the small, rounded peds that hang onto roots when soil is turned over.
Platy	The peds are flat and plate like. They are oriented horizontally and are usually overlapping. Platy structure is commonly found in forested areas just below the leaf litter or shallow topsoil.
Blocky	The peds are block-like or polyhedral, and are bounded by flat or slightly rounded surface that are castings of the faces of surrounding peds. Blocky structure is commonly found in the lower topsoil and subsoil.
Prismatic	Flat or slightly rounded vertical faces bound the individual peds. Peds are distinctly longer vertically, and faces are typically casts or molds of adjoining peds. Prismatic structure is commonly found in the lower subsoil.
Single Grain	The structure found in a sandy soil. The individual particles are not held together.

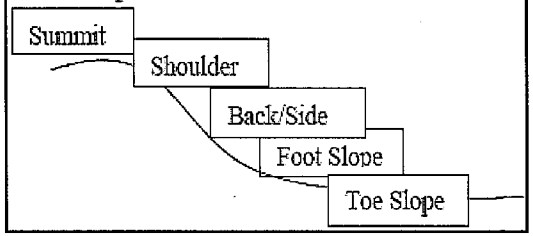
Grade:

Loose	No peds, sandy soil
Weak	Poorly formed, indistinct peds, barely observable in place
Moderate	Well formed, distinct peds, moderately durable and evident, but not distinct in undisturbed soil
Strong	Durable peds that are quite evident in un-displaced soil, adhere weakly to one another, withstand displacement, and become separated when soil is disturbed
Massive	No observable aggregates, or no orderly arrangement of natural lines of weakness

Consistence:

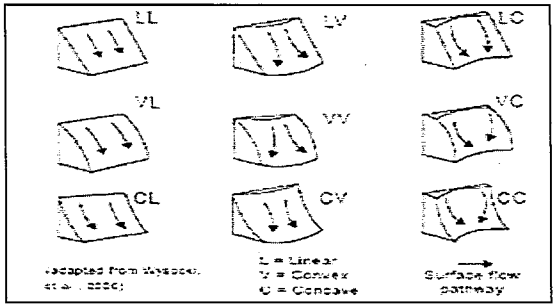
Loose	Intact specimen not available
Friable	Slight force between fingers
Firm	Moderate force between fingers
Extremely Firm	Moderate force between hands or slight foot pressure
Rigid	Foot pressure

Landscape Position:



Slope Shape:

Slope shape is described in two directions:
up and down slope (perpendicular to the contour),
and across slope (along the horizontal contour);
e.g. Linear, Convex or LV'.



University of Minnesota Onsite Sewage Treatment Program

Mound Design Worksheet
≥1% Slope

MINNESOTA POLLUTION CONTROL AGENCY

1. SYSTEM SIZING: Project ID: v 03.15.2023

A. Design Flow:	450	GPD
B. Soil Loading Rate:	0.78	GPD/sqft
C. Depth to Limiting Condition	2.3	ft
D. Percent Land Slope:	6.0	%
E. Media (Sand) Loading Rate:	1.2	GPD/sqft
F. Mound Absorption Ratio:	1.50	

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	0.5	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: 380 sq.ft *Optional upsizing of area to be larger than 2C*

B. Enter Dispersal Bed Width: 10.0 ft *Can not exceed 10 feet*

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

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

D. Calculate Minimum Dispersal Bed Length: Dispersal Bed Area(2A) ÷ Bed Width(2B)

380 sqft ÷ 10.0 ft = 38.0 ft

If a larger dispersal media Length is desired, enter size: 38 ft

3. ABSORPTION AREA SIZING

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

10.0 ft X 1.5 = 15.0 ft

B. For slopes >1%, the Absorption Width is measured downhill from the upslope edge of the Bed.

Calculate Downslope Absorption Width: Absorption Width(1F) - Bed Width(2B)

15.0 ft - 10.0 ft = 5.0 ft

4. DISTRIBUTION MEDIA:

Project ID:

Select Dispersal Media: Rock — Enter Either 4A or 4B

A. Rock Depth Below Distribution Pipe

9 in

B. Registered Media

Registered Media Depth in

Check registered product information for specific application details and design

Specific Media Comments:

5. MOUND SIZING

Project ID:

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

3.0 ft - 2.3 ft = 1.0 ft Design Sand Lift (optional): 1 ft

B. Upslope Height: Clean Sand Lift(6A) + Depth of Media(4AorB) +Depth to Cover Pipe+ Depth of Cover (1 ft)

1.0 ft + 0.75 ft + 0.25 ft + 1.0 ft = 3.0 ft

Land Slope %		0	1	2	3	4	5	6	7	8	9	10	11	12
Upslope Berm Ratio	3:1	3.00	2.91	2.83	2.75	2.68	2.61	2.54	2.48	2.42	2.36	2.31	2.26	2.21
	4:1	4.00	3.85	3.70	3.57	3.45	3.33	3.23	3.12	3.03	2.94	2.86	2.78	2.70

C. Select Upslope Berm Multiplier (based on land slope): 3.23

D. Calculate Upslope Berm Width: Multiplier (5C) X Upslope Mound Height (5B)

3.23 X 3.0 ft = 9.7 ft

E. Calculate Drop in Elevation Under Bed: Bed Width(2B) X Land Slope(1D) ÷ 100 = Drop (ft)

10.0 ft X 6.0 % ÷ 100 = 0.60 ft

F. Calculate Downslope Mound Height: Upslope Height(5B) + Drop in Elevation(5E)

3.0 ft + 0.60 ft = 3.6 ft

Land Slope %		0	1	2	3	4	5	6	7	8	9	10	11	12
Downslope Berm Ratio	3:1	3.00	3.09	3.19	3.30	3.41	3.53	3.66	3.80	3.95	4.11	4.29	4.48	4.69
	4:1	4.00	4.17	4.35	4.54	4.76	5.00	5.26	5.56	5.88	6.25	6.67	7.14	7.69

G. Select Downslope Berm Multiplier (based on land slope): 3.66

H. Calculate Downslope Berm Width: Downslope Multiplier(5G) X Downslope Height (5F)

3.66 x 3.6 ft = 13.2 ft

I. Calculate Minimum Berm to Cover Absorption Area: Downslope Absorption Width(3A) + 4 feet

5.0 ft + 4 ft = 9.0 ft

J. Design Downslope Berm = greater of 5H and 5I: 13.2 ft

K. Select Endslope Berm Multiplier: 4.00 *(usually 3.0 or 4.0)*

L. Calculate Endslope Berm Width = Endslope Berm Multiplier(5K) X Downslope Mound Height(5F)

4.00 X 3.6 ft = 14.4 ft

M. Calculate Mound Width: Upslope Berm Width(5D) + Bed Width(2B) + Downslope Berm Width(5J)

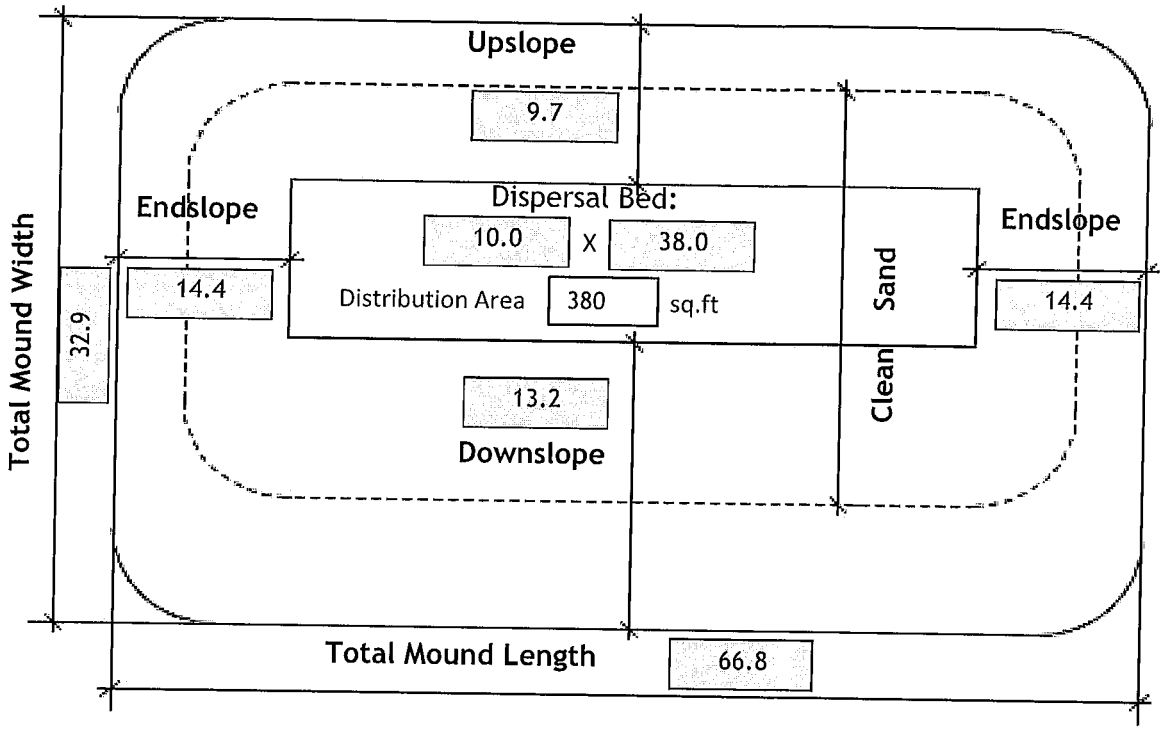
9.7 ft + 10.0 ft + 13.2 ft = 32.9 ft

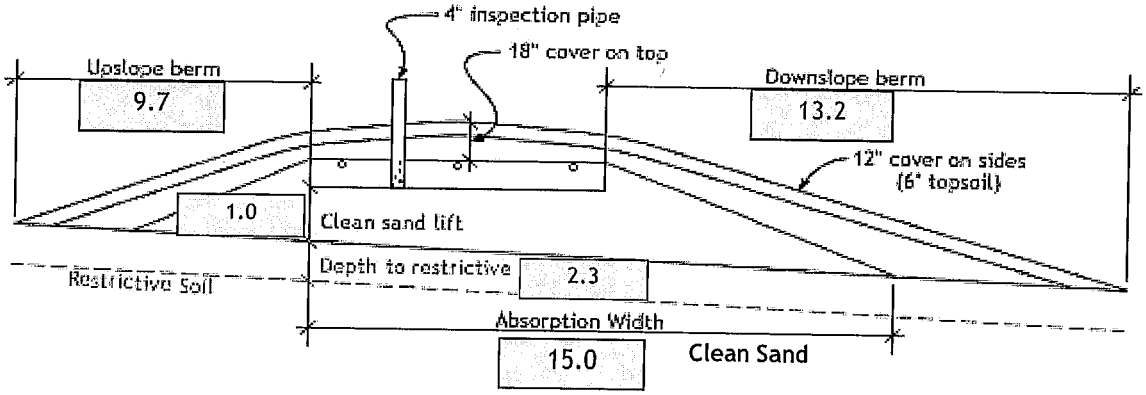
N. Calculate Mound Length: Endslope Berm Width (5L) + Bed Length(2D) + Endslope Berm Width(5L)

14.4 ft + 38.0 ft + 14.4 ft = 66.8 ft

6. MOUND DIMENSIONS (Feet)

Project ID:





Required Separation:	36 (in)	Elevation to Benchmark	
Distribution Media:	Rock	Elevation Limiting Layer:	91.4 ft
Media Depth:	9.0 (in)	Elevation required Separation:	94.4 ft
Manifold Connection:	End	Elevation Distribution Media Bottom:	95.7 ft
Lateral Pipe Diameter:	2.00 (in)	Elevation Top of Media(min):	96.7 ft
Perforation Size:	1/4 (in)	Elevation Top of System(min):	97.7 ft
		Perforation Spacing:	36.0 (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

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: 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 38.0 ft X 10.0 ft = 380.0 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 380.0 cu.ft ÷ 27 = 14.1 cu.yd

Add 30% for constructability: 14.1 cu.yd X 1.3 = 18.3 cu.yd

B. Calculate *Clean Sand Volume:*

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

1.3 ft X 10.0 ft X 38 ft = 494 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)

ft - 1) X X ft =

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

ft - 1) X X ft =

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

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

((3.0 ft - 1) X 3.0 ft X 38.0) ÷ 2 = 114.0 cu.ft

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

((3.6 ft - 1) X 5.0 ft X 38.0) ÷ 2 = 247.0 cu.ft

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

(3.6 ft - 1) X 3.0 ft X 10.0 ft = 78.0 cu.ft

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

114.0 cu.ft + 247.0 cu.ft + 78.0 cu.ft + 494.0 cu.ft = 933.0 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 933.0 cu.ft ÷ 27 = 34.6 cu.yd

Add 30% for constructability: 34.6 cu.yd X 1.3 = 44.9 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

(3.3 - 0.5)ft X 32.9 ft X 66.8) ÷ 2 = 3073.6 cu.ft

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

3073.6 cu.ft - 933.0 cu.ft - 380.0 cu.ft = 1760.6 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1760.6 cu.ft ÷ 27 = 65.2 cu.yd

Add 30% for constructability: 65.2 yd^3 x 1.3 = 84.8 cu.yd

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

32.9 ft X 66.8 ft X 0.5 ft = 1097.7 cu.ft

Divide cu.ft by 27 cu.ft/cu.yd to calculate cubic yards: 1097.7 cu.ft ÷ 27 = 40.7 cu.yd

Add 30% for constructability: 40.7 cu.yd X 1.3 = 52.9 cu.yd

University of Minnesota Onsite Sewage Treatment Program

Pressure Distribution Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

Project ID: v 03.15.2023

1. Media Bed Width: 10 ft

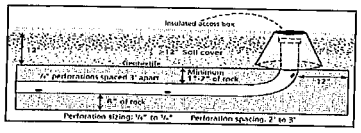
2. Minimum Number of Laterals in system/zone = Rounded up number of [(Media Bed Width - 4) ÷ 3] + 1.

   [(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*: 3.00 ft

5. Select *Perforation Diameter Size*: 1/4 in



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

   38.0 - 2ft = 36.0 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 = 36.0 ft ÷ 3.0 ft = 12 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 = 12 Spaces + 1 = 13 Perfs. Per Lateral

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

1/4 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	10	13	18	30	60
2½	8	12	16	28	54
3	8	12	16	25	52

7/32 Inch Perforations

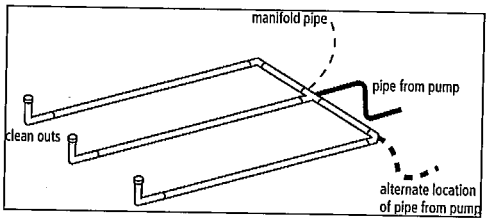
Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	11	16	21	34	68
2½	10	14	20	32	64
3	9	14	19	30	60

3/16 Inch Perforations

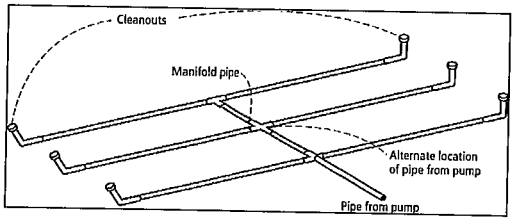
Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	12	18	26	46	87
2½	12	17	24	40	80
3	12	16	22	37	75

1/8 Inch Perforations

Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1¼	1½	2	3
2	21	33	44	74	149
2½	20	30	41	69	135
3	20	29	38	64	128



END Connection



CENTER Connection

Perf Per Lateral: 13

Perf Per Lateral Equal Split: 7 | 6

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.)*

   13 Perf. Per Lat. X 3 Number of Perf. Lat. = 39 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.

University of Minnesota 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 = 380 sq.ft

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

380 sqft ÷ 39 perf = 9.7 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.)*

39 Perfs X 0.74 GPM per Perforation = 29 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 = 18.4 Gallons

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

18.4 gals X 4 = 73.4 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			
	1/8	3/16	7/32	1/4
1.0[a]	0.18	0.41	0.56	0.74
1.5	0.22	0.51	0.69	0.9
2.0[b]	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[c]	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:

University of Minnesota Onsite Sewage Treatment Program

Basic STA Pump Selection Design Worksheet

MINNESOTA POLLUTION CONTROL AGENCY

1. PUMP CAPACITY

Project ID:

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: 29.0 GPM

C. Enter pump description: Demand Dosing

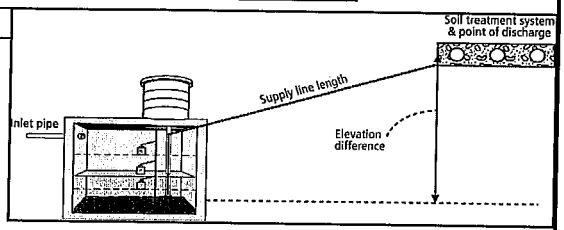
2. HEAD REQUIREMENTS

A. Elevation Difference between pump and point of discharge: 13 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

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

D. 1. Supply Pipe Diameter: 2.0 in

2. Supply Pipe Length: 30 ft

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

Friction Loss = 2.23 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*

30 ft X 1.25 = 37.5 ft

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 =

2.23 ft per 100ft X 37.5 ft ÷ 100 = 0.8 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)

13.0 ft + 5.0 ft + _____ ft + 0.8 ft = 18.8 ft

3. PUMP SELECTION

A pump must be selected to deliver at least **29.0** GPM with at least **18.8** feet of total head.

Comments:

University of Minnesota Onsite Sewage Treatment Program

STA Dosing Pump Tank Design Worksheet (Demand Dose)

MINNESOTA POLLUTION CONTROL AGENCY

DETERMINE TANK CAPACITY AND DIMENSIONS | Project ID: | 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: Wipler Precast — B. Tank Model: 500
   C. Capacity from manufacturer: 500 Gallons
   D. Gallons per inch from manufacturer: 11.9 Gallons per inch
   E. Liquid depth of tank from manufacturer: 42.0 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)

   (14 in + 2 inches) X 11.9 Gallons Per Inch = 190 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 73 Gallons (Minimum dose) 6.2 inches/dose

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

   Design Flow: 450 GPD X 0.25 = 113 Gallons (Maximum dose) 9.5 inches/dose

6. *Select a pumpout volume that meets both Minimum and Maximum:* 102 Gallons

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

   450 gpd ÷ 102 gal = 4.41 *Doses**

   * Doses need to be equal to or greater than 4

8. Calculate Drainback:

   A. *Diameter of Supply Pipe* = 2 inches
   B. Length of Supply Pipe = 30 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)*

   30 ft X 0.170 gal/ft = 5.1 Gallons

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

   102 gal + 5.1 gal = 107 Gallons

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

    3 in X 11.9 gal/in = 35.7 Gallons

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

    [42.0 in - 28.0 in] X 11.9 gal/in = 166.6 Gallons

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

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)

    107 gal ÷ 11.9 gal/in = 9.0 inches

13. Measuring from bottom of tank:

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

    14 in + 2 in = 16 inches

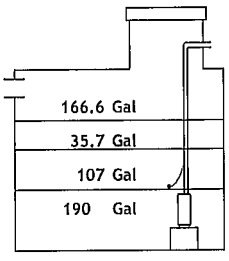
    B. *Distance to set Pump On Float=Distance to Set Pump-Off Float(13A) + Float Separation Distance(12.)*

    16 in + 9.0 in = 25 inches

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

    25 in + 3.0 in = 28 inches

Inches for Dose:	9.0	in
Alarm Depth	28.0	in
Pump On	25.0	in
Pump Off	16.0	in



University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

1. PROJECT INFORMATION

v 03.15.2023

Property Owner/Client: ANDREW COOK ET AL
Project ID:
Site Address: 41268 CO RD 126, DETROIT LAKES MN 56501
Date: 03/09/24
Email Address: vkgfan@gmail.com
Phone: 701-306-4852

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: *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): Yes
Model/Type: Polylok PL-122 w/ electronic alarm or equ.

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

Pump Tank Capacity (Minimum): 500 Gal
Pump Tank Capacity (Recommended): 500 Gal
Pump Req: 29.0 GPM Total Head 18.8 ft
Supply Pipe Dia. 2.00 in Dose Vol: 102.0 gal

Other Component Dosing Tank:

Pump Tank Capacity (Minimum): Gal
Pump Tank Capacity (Recommended): Gal
Pump Req: GPM Total Head ft
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 *

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

6. SYSTEM AND DISTRIBUTION TYPE

Project ID:

Soil Treatment Type:	Mound	Distribution Type:	Pressure Distribution-Level
Elevation Benchmark:	100.0 ft	Benchmark Location:	top of electrical meter pedistal
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:	27	inches	2.3	ft	91.40	ft	***Critical for system compliance***
Minimum Req'd Separation:	36	inches	3.0	ft			*Distribution Elevation >Code Max Depth*
					Elevation		
Code Max System Depth*:	Mound	inches	-0.8	ft	94.40	ft	**Elevation OK**

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

Designed Distribution Elevation: 94.7 ft Minimum Sand Depth: 12.0 inches

A. Soil Texture: Medium Sandy Loam B. Organic Loading Rate (optional): lbs/sq.ft/day 0

C. Soil Hyd. Loading Rate: 0.78 GPD/ft^2 D: Percolation Rate: MPI

E. Contour Loading Rate: 12 Note:

F. Measured Land Slope: 6.0 % 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	380.0	sq.ft	Bed Length	38.0	ft	Bed Width	10.0 ft
Absorption Width	15.0	ft	Clean Sand Lift	1.0	ft	Berm Width (0-1%)	ft
Upslope Berm Width	9.7	ft	Downslope Berm	13.2	ft	Endslope Berm Width	14.4 ft
Total System Length	66.8	ft	System Width	32.9	ft	Contour Loading Rate	12.0 gal/ft

University of Minnesota Onsite Sewage Treatment Program

Design Summary Page

MINNESOTA POLLUTION CONTROL AGENCY

Project ID:

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	3 ft	Perforation Diameter	1/4 in	Drainback Volume	5 gal
Min Dose Volume	73 gal	Max Dose Volume	113 gal	Total Dosing Volume	107 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:

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

Brant Bigger	Brant Bigger	L4142	9-Mar
(Designer)	(Signature)	(License #)	(Date)

UNIVERSITY
OF MINNESOTA

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 ANDREW COOK ET AL	Email vkgfan@gmail.com
Property Address 41268 CO RD 126, DETROIT LAKES MN 56501	Property ID 280278000
System Designer Cubed B LLC	Contact Info 218-234-6906
System Installer Stenger Excavating LLC	Contact Info 218-847-2912
Service Provider/Maintainer	Contact Info
Permitting Authority Becker County	Contact Info 218-846-7314
Permit # SS2024-230996	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.

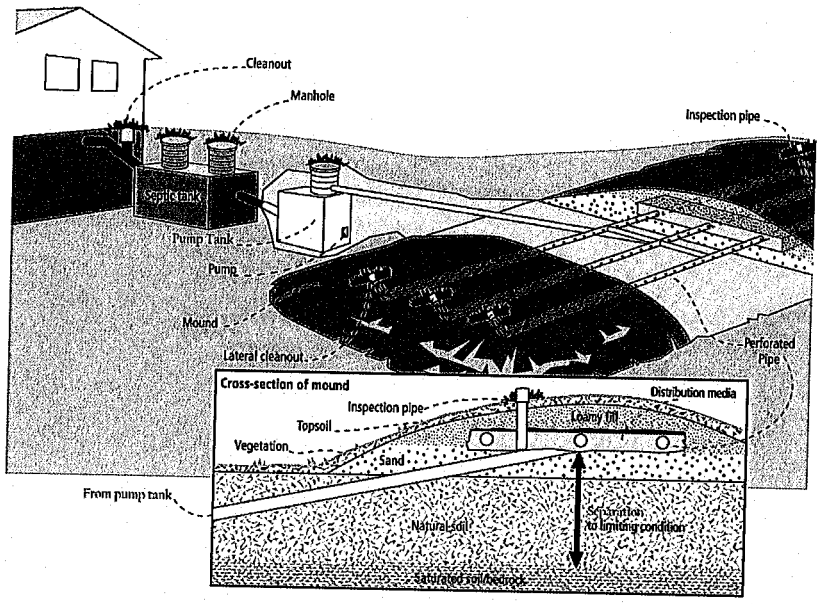
For more information see http://septic.umn.edu

Version: August 2015

UNIVERSITY OF MINNESOTA

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): _____

Comments _____

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

Well Construction

Well depth (ft): deep

☐ Cased well Casing depth: new well, not online

☐ Other (specify): _____

Distance from septic (ft): >50'

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

Septic Tank

☐ First tank *Tank volume:* 1500 *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:* Goulds EP05

Pump capacity 29 GPM

TDH 18.8 Feet of head

☐ Alarm location _____

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 38 ft x 15 ft

Rock bed size (width x length): 38 ft x 10 ft

Location of additional STA: _____

Type of distribution media: rock

☑ Inspection ports ☑ Cleanouts

☑ Surface water diversions

☐ Additional STA not available

Homeowner Management Tasks

These o*peration and maintenance a*ctivities 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 36 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:

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 _____

Management Plan Prepared By: Brant Bigger Certification # 1835

Permitting Authority: Becker County

Becker County, Minnesota

267B—Snellman sandy loam, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2v0lj
Elevation: 590 to 2,030 feet
Mean annual precipitation: 24 to 30 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 110 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Snellman and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Snellman

Setting

Landform: Moraines
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Coarse-loamy till

Typical profile

A - 0 to 2 inches: sandy loam
E - 2 to 16 inches: loamy sand
Bt - 16 to 31 inches: sandy clay loam
C - 31 to 79 inches: sandy loam

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B
Ecological site: F057XY023MN - Dry Sandy Upland Coniferous Forest
Forage suitability group: Sloping Upland, Acid (G057XN006MN)
Other vegetative classification: Sloping Upland, Acid (G057XN006MN)
Hydric soil rating: No

Minor Components

Wykeham

Percent of map unit: 10 percent
Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F057XY021MN - Loamy Upland Mesic Hardwood Forest
Other vegetative classification: Sloping Upland, Acid (G057XN006MN)
Hydric soil rating: No

Leaflake

Percent of map unit: 5 percent
Landform: Moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F057XY023MN - Dry Sandy Upland Coniferous Forest
Other vegetative classification: Sloping Upland, Neutral (G057XN002MN)
Hydric soil rating: No

Egglake

Percent of map unit: 5 percent
Landform: Moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F057XY015MN - Wet Mixed Forest
Other vegetative classification: Level Swale, Neutral (G057XN001MN)
Hydric soil rating: Yes

Snellman, rolling

Percent of map unit: 3 percent
Landform: Moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope

Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F057XY023MN - Dry Sandy Upland Coniferous Forest
Other vegetative classification: Sloping; Fine Texture (G057XN023MN)
Hydric soil rating: No

Cathro, frequently ponded

Percent of map unit: 2 percent
Landform: Depressions on moraines
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY037SD - Deep Marsh
Other vegetative classification: Not Suited (G057XN024MN)
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Becker County, Minnesota
Survey Area Data: Version 18, Sep 6, 2022

PROPERTY LINE AGREEMENT

I, Dale Cook, owner of the property described as:

That part of Government Lot 3 in Section 30, Township 140 N, Range 38 W

described as follows:

Commencing at the northwesterly corner of Lot 1, Granner Shores, proceeding easterly on and along the North line of Lot 1, Granner Shores, a distance of 100 feet more or less, to the intersection of this line with the west line of Government Lot 3 in Section 30, Township 140 N, Range 38 W, which is the point of beginning, thence proceeding north on and along the said west line of Government Lot 3 a distance of 19 feet more or less to the intersection of this line with the north line of Government Lot 3; thence proceeding easterly on and along the north line of said Government Lot 3 a distance of 209 feet more or less to the intersection with the water's edge of Island Lake; thence proceeding southwesterly along the water's edge of Island Lake a distance of 20 feet more or less to the intersection with the northerly line of Lot 1, Granner Shores, thence proceeding westerly on and along the North line of Lot 1, Granner Shores, a distance of 185 feet more or less to the point of beginning and there terminating,

Parcel Number: 280277000 give Andrew Cook, Matthew Cook, Dale E. Cook, and Joan I. Cook, owner of the property described as:

Lots Two (2) and Three (3) of Granner Shores according to the certified plat thereof, in Section Thirty (30), Township One Hundred Forty (140), Range Thirty-eight (38), Becker County, Minnesota,

Parcel Number: 280278000 permission to have their sewer system closer than the required 10 feet to the lot line.

Signed: Dale Cook

Dated: 8/15/2024

Subscribed and sworn to before me this 15th day of August, 2024,

Trishta Malone

TRISHTA RAE MALONE
NOTARY PUBLIC - MINNESOTA
MY COMMISSION EXPIRES 01/31/2026

Notary

PROPERTY LINE AGREEMENT

I, Joan Cook, owner of the property described as:

That part of Government Lot 3 in Section 30, Township 140 N, Range 38 W

described as follows:

Commencing at the northwesterly corner of Lot 1, Granner Shores, proceeding easterly on and along the North line of Lot 1, Granner Shores, a distance of 100 feet more or less, to the intersection of this line with the west line of Government Lot 3 in Section 30, Township 140 N, Range 38 W, which is the point of beginning, thence proceeding north on and along the said west line of Government Lot 3 a distance of 19 feet more or less to the intersection of this line with the north line of Government Lot 3; thence proceeding easterly on and along the north line of said Government Lot 3 a distance of 209 feet more or less to the intersection with the water's edge of Island Lake; thence proceeding southwesterly along the water's edge of Island Lake a distance of 20 feet more or less to the intersection with the northerly line of Lot 1, Granner Shores, thence proceeding westerly on and along the North line of Lot 1, Granner Shores, a distance of 185 feet more or less to the point of beginning and there terminating,

Parcel Number: 280277000 give Andrew Cook, Matthew Cook, Dale E. Cook, and Joan I. Cook, owner of the property described as:

Lots Two (2) and Three (3) of Granner Shores according to the certified plat thereof, in Section Thirty (30), Township One Hundred Forty (140), Range Thirty-eight (38), Becker County, Minnesota,

Parcel Number: 280278000 permission to have their sewer system closer than the required 10 feet to the lot line.

Signed: Joan Cook

Dated: August 15, 2024

Subscribed and sworn to before me this 15th day of August, 2024,

Trishta Malone

TRISHTA RAE MALONE
NOTARY PUBLIC - MINNESOTA
MY COMMISSION EXPIRES 01/31/2026

Notary

PROPERTY LINE AGREEMENT

I, Matthew Cook, owner of the property described as:

That part of Government Lot 3 in Section 30, Township 140 N, Range 38 W

described as follows:

Commencing at the northwesterly corner of Lot 1, Granner Shores, proceeding easterly on and along the North line of Lot 1, Granner Shores, a distance of 100 feet more or less, to the intersection of this line with the west line of Government Lot 3 in Section 30, Township 140 N, Range 38 W, which is the point of beginning, thence proceeding north on and along the said west line of Government Lot 3 a distance of 19 feet more or less to the intersection of this line with the north line of Government Lot 3; thence proceeding easterly on and along the north line of said Government Lot 3 a distance of 209 feet more or less to the intersection with the water's edge of Island Lake; thence proceeding southwesterly along the water's edge of Island Lake a distance of 20 feet more or less to the intersection with the northerly line of Lot 1, Granner Shores, thence proceeding westerly on and along the North line of Lot 1, Granner Shores, a distance of 185 feet more or less to the point of beginning and there terminating,

Parcel Number: 280277000 give Andrew Cook, Matthew Cook, Dale E. Cook, and Joan I. Cook, owner of the property described as:

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Parcel Number: 280278000 permission to have their sewer system closer than the required 10 feet to the lot line.

Signed: _____

Dated: 8/8/24

Subscribed and sworn to before me this 8th day of August, 2024,

Brandi E. Weverink

Notary

BRANDI E WEVERINK
Notary Public
State of North Dakota
My Commission Expires April 9, 2028

PROPERTY LINE AGREEMENT

I, Andrew Cook, owner of the property described as:

That part of Government Lot 3 in Section 30, Township 140 N, Range 38 W

described as follows:

Commencing at the northwesterly corner of Lot 1, Granner Shores, proceeding easterly on and along the North line of Lot 1, Granner Shores, a distance of 100 feet more or less, to the intersection of this line with the west line of Government Lot 3 in Section 30, Township 140 N, Range 38 W, which is the point of beginning, thence proceeding north on and along the said west line of Government Lot 3 a distance of 19 feet more or less to the intersection of this line with the north line of Government Lot 3; thence proceeding easterly on and along the north line of said Government Lot 3 a distance of 209 feet more or less to the intersection with the water's edge of Island Lake; thence proceeding southwesterly along the water's edge of Island Lake a distance of 20 feet more or less to the intersection with the northerly line of Lot 1, Granner Shores, thence proceeding westerly on and along the North line of Lot 1, Granner Shores, a distance of 185 feet more or less to the point of beginning and there terminating,

Parcel Number: 280277000 give Andrew Cook, Matthew Cook, Dale E. Cook, and Joan I. Cook, owner of the property described as:

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Parcel Number: 280278000 permission to have their sewer system closer than the required 10 feet to the lot line.

Signed: _____

Dated: August 8, 2024

Subscribed and sworn to before me this 8th day of August, 2024,

_____

Notary

BRANDI E WEVERINK
Notary Public
State of North Dakota
My Commission Expires April 9, 2028