

# Johnson Septic Service

MPCA# 1023  
8291 140<sup>th</sup> Street  
Milaca, MN 56353  
320-983-6622

May 7, 2019

Owner: Mike Remer

Project Address: 13292 270<sup>th</sup> Ave, Isle, MN  
PID: 13-0-028600

## Septic Design

This septic system is designed for a 2 Bedroom Class I home with no garbage disposal or grinder pump in the basement and is in accordance with MPCA Chapter 7080 codes and all codes of Aitkin County. Owners must not exceed 300 gallons per day.

The soils on this site are a loam to silt loam. Mottled soil was located in the proposed treatment area at 14 inches. The primary site will be in the area of soil pit #1, #2 and #3. This will be a type 1 mound system which will need to be 250 sq ft leading to a 10'x25' rockbed, 9" of rock below the pipe and a 24" sand lift. A 1000 gallon septic tank and a 500 gallon lift tank will need to be installed. Pump selected must produce at least 18 gpm at 16 feet of head.

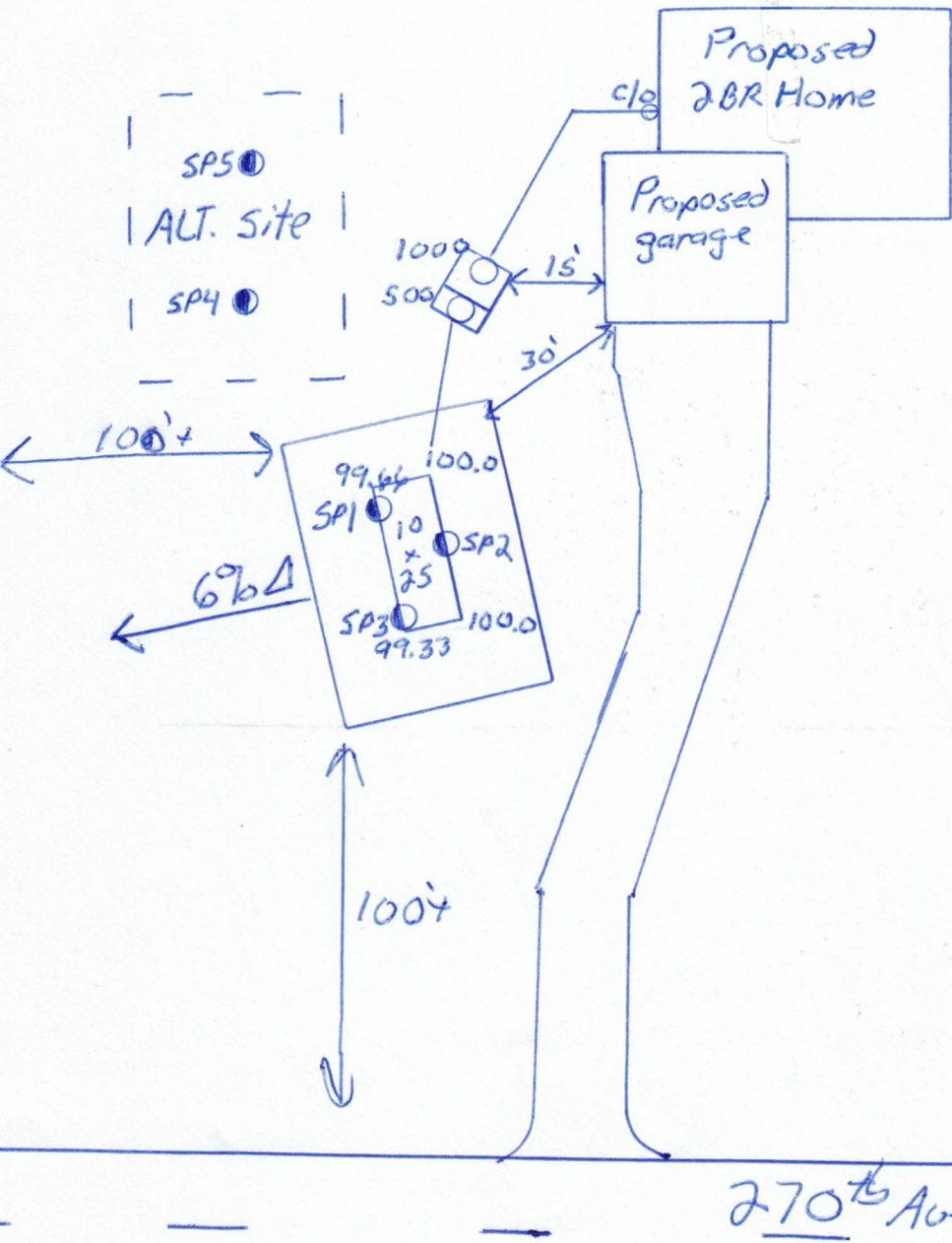
Contractor will need to verify that all setbacks from buildings are met. It will be the responsibility of the homeowner to verify all property lines and wells before construction begins. Keep all heavy equipment off area before and after construction of system.

It is strongly recommended to pump the septic tank within 6 months after move in date to ensure that all bacteria killing chemicals are removed from the system. After initial pumping, standard maintenance pumping of septic tank every 2 years will ensure that this septic system will continue to perform as it was designed.

Johnson Septic Service

Jeremiah Johnson

\* Bottom of Rockbed 102.0  
\* No well onsite at time of design



# Soil Observation Log

www.SepticResource.com vers 12.4

## Owner Information

Property Owner / project: Mike Remer

Date 5/7/2019

Property Address / PID: 13292 270th Ave, Isle, MN

## Soil Survey Information

refer to attached soil survey

Parent mat'l's:       Till       Outwash       Lacustrine       Alluvium       Organic       Bedrock

landscape position:       Summit       Shoulder       Side slope       Toe slope

soil survey map units:      736      slope 6 %      direction- downhill

## Soil Log #1

Boring

Pit

Elevation 99.66

Depth to SHWT 98.5

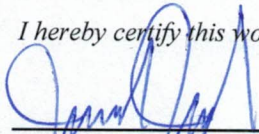
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Loam	<35	10yr 3-2		Friable	Moderate	Granular
8-14	Silt Loam	<35	10yr 5-3		Friable	Moderate	Blocky
14-18	Silt Loam	<35	10yr 5-3	10yr 5-8& 6-1	Friable	Moderate	Blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

Comments: Faint redox at 14"

13292 270th Ave, Isle, MN		Soil Log #2					
		<input type="checkbox"/> Boring	<input checked="" type="checkbox"/> Pit	Elevation <u>100</u>	Depth to SHWT <u>98.67</u>		
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-9	Loam	<35	10yr 3-2		Friable	Moderate	Granular
9-14	Silt Loam	<35	10yr 4-4		Friable	Moderate	Blocky
14-16	Silt Loam	<35	10yr 5-3		Friable	Moderate	Blocky
16-20	Silt Loam	<35	10yr 5-3	10yr 5-8 & 6-1	Friable	Moderate	Blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

13292 270th Ave, Isle, MN		Soil Log #3					
		<input type="checkbox"/> Boring	<input checked="" type="checkbox"/> Pit	Elevation <u>99.33</u>	Depth to SHWT <u>98</u>		
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Loam	<35	10yr 3-2		Friable	Moderate	Granular
8-16	Silt Loam	<35	10yr 5-3		Friable	Moderate	Blocky
16-20	Silt Loam	<35	10yr 5-3	10yr 5-8 & 6-1	Friable	loose weak moderate strong	Blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

I hereby certify this work was completed in accordance with MN 7080 and any local req's.

  
 \_\_\_\_\_  
 Designer Signature

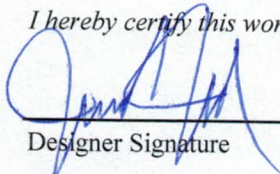
Johnson Septic Service  
 \_\_\_\_\_  
 Company

1023  
 \_\_\_\_\_  
 License #

13292 270th Ave, Isle, MN			Soil Log #4				
<input checked="" type="checkbox"/> Boring		<input type="checkbox"/> Pit		Elevation _____		Depth to SHWT _____	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-6	Loam	<35	10yr 3-2		Friable	Moderate	Granular
6-13	Silt Loam	<35	10yr 5-3		Friable	Moderate	Blocky
13-20	Silt Loam	<35	10yr 5-3	10yr 5-8	Friable	Moderate	Blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

13292 270th Ave, Isle, MN			Soil Log #5				
<input checked="" type="checkbox"/> Boring		<input type="checkbox"/> Pit		Elevation _____		Depth to SHWT _____	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-7	Loam	<35	10yr 3-2		Friable	Moderate	Granular
7-12	Silt Loam	<35	10yr 5-3		Friable	Moderate	Blocky
12-16	Silt Loam	<35	10yr 5-3	10yr 5-8 & 6-1	Friable	Moderate	Blocky
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

I hereby certify this work was completed in accordance with MN 7080 and any local req's.

  
 \_\_\_\_\_  
 Designer Signature

Johnson Septic Service  
 \_\_\_\_\_  
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## Aitkin County, Minnesota

### 736—Ronneby-Mora complex

#### Map Unit Setting

*National map unit symbol:* gjjk  
*Elevation:* 980 to 1,640 feet  
*Mean annual precipitation:* 25 to 30 inches  
*Mean annual air temperature:* 39 to 45 degrees F  
*Frost-free period:* 120 to 140 days  
*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Ronneby and similar soils:* 50 percent  
*Mora and similar soils:* 40 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Ronneby

##### Setting

*Landform:* Moraines  
*Landform position (two-dimensional):* Footslope, backslope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Parent material:* Loamy till

##### Typical profile

*A - 0 to 5 inches:* fine sandy loam  
*E1,E2,EB - 5 to 28 inches:* sandy loam  
*Bt1,Bt2 - 28 to 37 inches:* sandy loam  
*BC - 37 to 45 inches:* sandy loam  
*Cd - 45 to 60 inches:* sandy loam

##### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* 40 to 60 inches to densic material  
*Natural drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* About 12 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Moderate (about 6.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* C/D  
*Forage suitability group:* Level Swale, Acid (G090AN005MN)  
*Hydric soil rating:* No

**Description of Mora****Setting**

*Landform:* Moraines

*Landform position (two-dimensional):* Backslope, summit

*Down-slope shape:* Linear

*Across-slope shape:* Concave

*Parent material:* Loamy till

**Typical profile**

*A - 0 to 3 inches:* fine sandy loam

*E - 3 to 7 inches:* fine sandy loam

*2Bt - 7 to 25 inches:* sandy loam

*2BC - 25 to 42 inches:* sandy loam

*2Cd - 42 to 60 inches:* sandy loam

**Properties and qualities**

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 40 to 60 inches to densic material

*Natural drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* About 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 15 percent

*Available water storage in profile:* Low (about 5.1 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C

*Forage suitability group:* Sloping Upland, Low AWC, Acid  
(G090AN008MN)

*Hydric soil rating:* No

**Minor Components****Seelyeville and similar soils**

*Percent of map unit:* 3 percent

*Landform:* Bogs

*Hydric soil rating:* Yes

**Twig and similar soils**

*Percent of map unit:* 3 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

**Giese and similar soils**

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

**Milaca and similar soils**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Data Source Information**

Soil Survey Area: Aitkin County, Minnesota

Survey Area Data: Version 19, Sep 12, 2018



# Mound Design

Property Owner: **Mike Remer**

Date: **5/7/2019**

Site Address: **13292 270th Ave, Isle, MN**

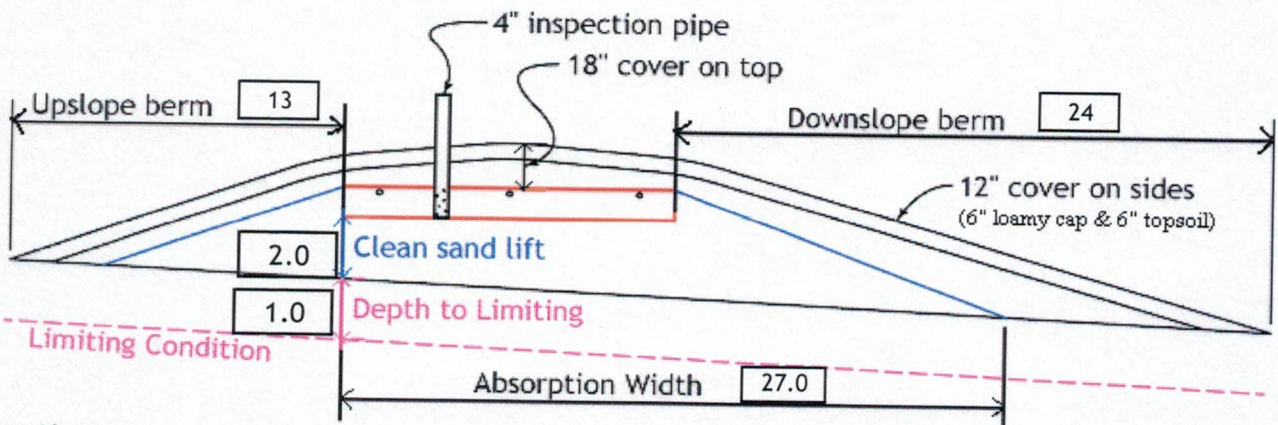
PID: **13-0-028600**

Comments: \_\_\_\_\_

Instructions:      = enter data         = adjust if desired         = computer calculated - DO NOT CHANGE!

- 1) 2 bedroom    Type I    Residential System
- 2) 300 GPD design flow
- 3) No Garbage disposal or pumped to septic
- 4) 1000 Gal Septic tank (code minimum)    1000 Gal Septic tank (design size / LUG req'd)  
Tank options: none
- 5) 1.2 GPD/ft<sup>2</sup> mound sand loading rate    contour loading rate of 12 req's a min    25 ft. long rockbed
- 6) 10.0 ft rockbed width    25.0 ft rockbed length
- 7) 3.0 ft lateral spacing    3.0 ft perforation spacing    (maximum of 3 for both)  
end feed manifold connection
- 8) 3 laterals    23.0 feet long    8.0 perms / lateral    24 perms total  
(1/2 a perf means the first perf starts at the middle feed manifold)
- 9) 1/4" inch perms at 1 feet residual head    gives 0.74 gpm flow rate per perforation  
for this perf size & spacing, & pipe size on line 12, max perms/lateral = 25, line #8 must be less --> OK
- 10) 4.0 doses per day    ( 4 minimum)
- 11) 75 gallons per dose    (treatment volume)
- 12) 2.00 inch diameter laterals must be used to meet "4x pipe volume" requirement
- 13) 40 feet of 2.0 inch supply line    leads to 7 gallons of drainback volume  
(Tip: "top feed" manifold to control the drainback)
- 14) 82 gallons TOTAL pump out volume (treatment + drainback)
- 15) 10 feet vertical lift from pump to mound laterals, leads to a:
- 16) 18 GPM @ 16 feet of head, Pump requirement    (note: >50gpm may require an extra 3-6' of head)
- 17) 500 gal Dose tank (code minimum)    500 gal Dose tank (design size / LUG req'd)    at 10.50 gpi  
leads to a: Optional Time dosing of:
- 18) 7.8 inch swing on Demand float,    (this delivers Average flow, =70% of Peak design flow)
- 19) 12 inches from bottom of tank to "Pump OFF" float    4.6 min ON
- 20) 20 inches from bottom of tank to "Pump ON" float    8.5 hrs OFF
- 21) 23 inches from bottom of tank to "Hi Level" float    12 inches to "Timer ON" float
- 22) 259 gallons reserve capacity (after High Level Alarm is activated-demand dosed)    33 inches to "Hi Level" float

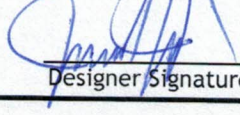
- 23) 0.45 gpd/ft<sup>2</sup> Absorption area Soil Loading Rate, (this must match the soil boring log) which gives a mound ratio of 2.7 (minimum) desired mound ratio 2.7
- 24) 6 percent site slope (0-20% range) 6 (% downslope site slope, if different than upslope)
- 25) 12 inches, or 1.0 ft. to Redox or other limiting condition (need at least 12" to be a Type I) Treatment zone contains 0 inches of 0% soil credit, and 0 inches of 50% soil credit. Giving a:
- 26) 24 inch, or 2.0 ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 27) 27.0 ft. Total ABSORPTION width (with sand beyond rockbed as follows:)
- 28) 0.0 ft. upslope and sideslope  
17.0 ft. Downslope
- Individual slope ratios give BERM widths (topsoil beyond rockbed) of:
- 29) 4:1 upslope ratio 13 ft. upslope berm
- 30) 4:1 sideslope 18 ft. sideslope berms
- 31) 4:1 downslope 24 ft. downslope berm
- 32) Overall Dimensions: 10.0 ft. wide by 25.0 ft. long Rock bed  
47 ft. wide by 61 ft. long Mound footprint



**Note:**  
For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.  
For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

- 33) Rock Bed: 10.0 ft. by 25.0 ft. by 9 inches under pipe, plus 20% gives 12 yd<sup>3</sup> or \*1.4= 17 ton
- 34) Mound Sand: (note: volume is based on 3:1/4:1 slope from top of rockbed, Exchange sand for loamy cap if desired) 28.5 up + 66.9 downslope + 19.2 ends + 21.3 under rock = 163 yd<sup>3</sup> or \*1.4= 228 ton plus 20%
- 35) Loamy Cap: 43 ft. by 57 ft. 6" deep, plus 20% gives 55 yd<sup>3</sup> or \*1.4= 77 ton
- 36) Topsoil: 47 ft. by 61 ft. 6" deep, plus 20% gives 64 yd<sup>3</sup> or \*1.4= 90 ton

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

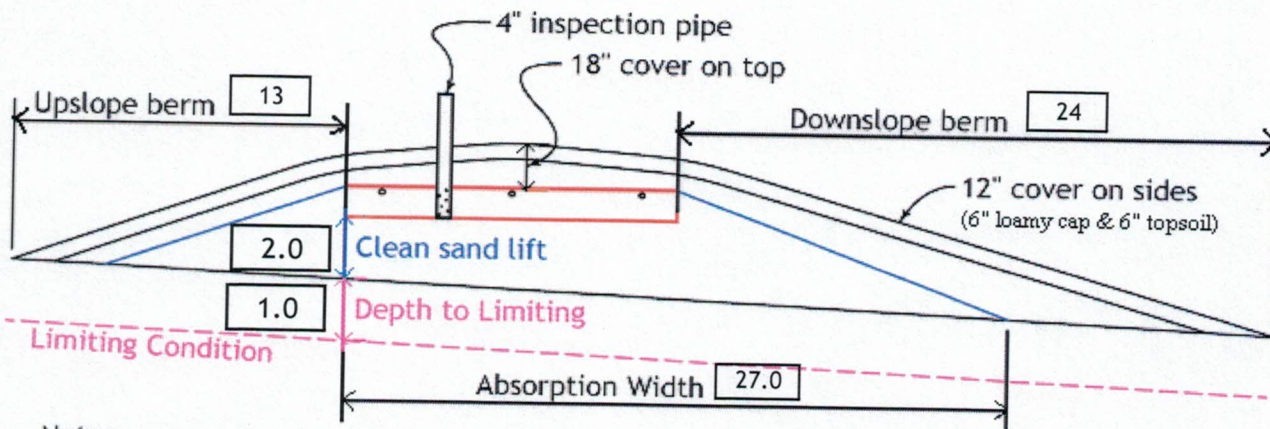
 Designer Signature  
 Johnson Septic Service Company  
 1023 License#  
 5/7/2019 Date

# Installer Summary

- 1000 gallon Septic tank (minimum) Tank options: none
- 500 gallon Dose tank (minimum) at 10.50 gpi
- 18 GPM @ 16 ft. of head, Pump required
- 7.8 inch swing on Demand float which translates to roughly 4.9 inches of float tether length
- Optional Time dosing of:
  - 4.6 minutes ON
  - 8.5 hours OFF
  - 12 inches to "timer ON" float
  - 33 inches to "Hi level" float
- 20 inches from bottom of tank to "pump ON" float, or
- 23 inches from bottom of tank to "Hi Level Alarm" or
- 40 ft. of 2.0 inch supply line with end feed manifold connection  
(Tip: "top feed" manifold to control drainback)
- 24 inch, or 2.0 ft. Sand Lift Mound
- 10.0 ft. wide by 25.0 ft. long Rock bed
- 3 laterals 2.00 inch diameter 23.0 ft. long 3.0 ft. lateral spacing
- 1/4" inch perfs 3.0 ft. perforation spacing
- No Effluent filter & alarm
- 3 clean out & valve box assemblies
- 27.0 ft. Total sand ABSORPTION width (minimum)
  - 0.0 ft. upslope and sideslope (sand beyond rockbed, minimum)
  - 17.0 ft. Downslope (sand beyond rockbed, minimum)

Specific slope ratios give BERM widths (topsoil beyond rockbed) of:

4:1 upslope ratio	13 ft. upslope berm
4:1 sideslope	18 ft. sideslope berms
4:1 downslope	24 ft. downslope berm



**Note:**

For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.  
 For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

Rock Bed:	12.0 yd <sup>3</sup> or *1.4=	17 ton	9 inches under pipe
Mound Sand:	163 yd <sup>3</sup> or *1.4=	228 ton	calculation based on 3:1/4:1 slope from top of rockbed
Loamy Cap:	55 yd <sup>3</sup> or *1.4=	77 ton	6" deep
Topsoil:	64 yd <sup>3</sup> or *1.4=	90 ton	6" deep

# INSPECTOR CHECKLIST - mound

13292 2/0th Ave, Isle, MN

- WELL setbacks: 20'- 50' to sewer line req's MDH pressure test form (5 psi for 15 min)  
50' to everything 100' to drainfield with shallow well
- PROPERTY LINES setback: 10' to everything
- Road setback: platted: 10' prop line. Metes & bounds: out of road easement, or outer ditch.
- LAKE / BLUFF setback: 20' for bluff. Lakes: GD \_\_\_\_, RD \_\_\_\_, NE \_\_\_\_. Protected wetland \_\_\_\_.
- Building setbacks: 10' for everything, 20' for dispersal area.
- WATER LINE under pressure 10' to bed, tank & sewer line. (else sewer line > 12" below)

- Sewer line & tank connection (no hard 90's, long sweep 90 or 2-45's, slope minimum 1" in 8' = 1%)  
(no depth req's, clean out every 100', Sch 40 pipe)

- Septic tank and risers (water tight risers, baffles, insulated, proper depth, existing verified by pumping)  
mfg \_\_\_\_\_ 1000 gallons none \_\_\_\_\_

- Riser over outlet, riser over inlet or center, and 6"+ inspection pipe over any remaining baffles.  
No effluent filter & alarm

- Dose tank, risers and piping (water tight risers, insulated, proper depth, drainback)  
mfg \_\_\_\_\_ 500 gallons

- dose pump \_\_\_\_\_ 18 gpm 16 head VERIFY PUMP CURVE
- verify that installed "vertical lift from pump to laterals" is no more than design value of 10 feet
- float setting drop 7.8 inches at 10.5 gpi "DESIGNED" 4.9 inches approx float tether length  
82.0 gal dose divided by \_\_\_\_\_ gpi "INSTALLED" = \_\_\_\_\_ inches float drop (field corrected)

Optional Time dosing of:  
4.6 min ON 8.5 hr OFF

LABEL pump requirements and drawdown on riser or panel

- Cam lock reachable from grade - 30" max. J-hook weep hole. Supply line access (no hard 90's)  
2.0 inch supply pipe: Sch40, sloped 1/8"+, supported by 4" sch40 sleeve or compacted, and buried 6"+.
- splice box / control panel / electrical connections
- flow measurement: CT, ETM, time dosed, home water meter
- mound absorption area rough up
- mound rock dimensions 10.0 X 25.0
- Sand lift depth 24 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)

- Absorption Sand beyond rock 0.0 upslope 17.0 downslope

- Bermed topsoil beyond rockbed 13 upslope 18 sideslope 24 downslope

- cover depth of 12-18"+ VERIFY
- 3 laterals (1-2' from edge of rock)
- 2.00 inch pipe size (Sch40 pipe & fittings)
- 3.0 ft lateral spacing

- 1/4" inch perforations
- 3.0 ft perforation spacing

- Air inlet at end of laterals, and at top feed manifold if necessary. VERIFY
- clean outs (no hard 90's)
- 4" inspection pipe to bottom of rock, anchored VERIFY

- Abandon existing system - if necessary  Re-use existing tank certification
- monitoring plan and type \_\_\_\_\_
- well abandonment form - if necessary



## 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	Mike Remer	Email	r.remer@yahoo.com
Property Address	13292 270th Ave, Isle, MN	Property ID	13-0-028600
System Designer	Johnson Septic Service	Contact Info	320-983-6622
System Installer	Johnson Septic Service	Contact Info	320-983-6622
Service Provider/Maintainer	Johnson Septic Service	Contact Info	320-983-6622
Permitting Authority	Aitkin County	Contact Info	218-927-7342
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:

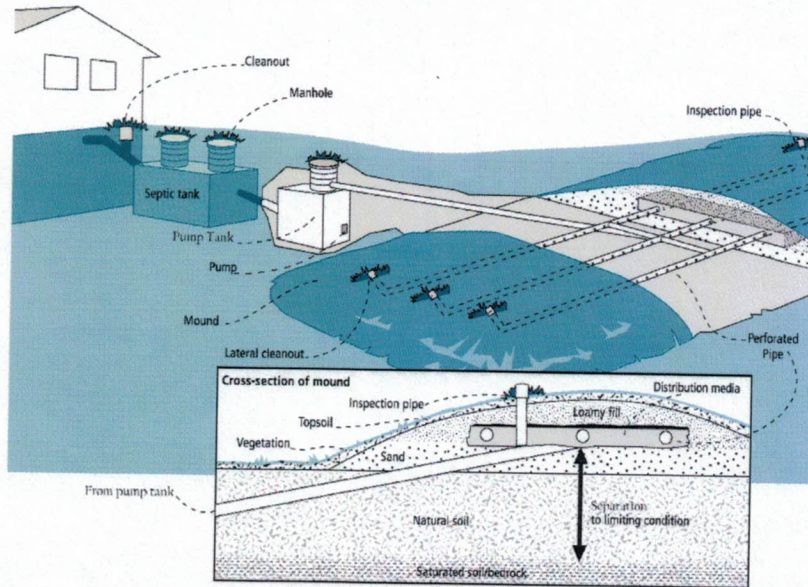
- Attach permit information, designer drawings and as-built of your system, if they are available.
- Keep copies of all pumping records and other maintenance and repair invoices with this document.
- Review this document with your maintenance professional at each visit; discuss any changes in product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

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

**For more information see <http://septic.umn.edu>**



Your Septic System



Septic System Specifics	
System Type: <input checked="" type="radio"/> I <input type="radio"/> II <input type="radio"/> III <input type="radio"/> IV* <input type="radio"/> V* (Based on MN Rules Chapter 7080.2200 – 2400) *Additional Management Plan required	<input type="checkbox"/> System is subject to operating permit* <input type="checkbox"/> System uses UV disinfection unit* Type of advanced treatment unit _____

Dwelling Type	Well Construction
Number of bedrooms: <u>2</u> System capacity/ design flow (gpd): <u>300</u> Anticipated average daily flow (gpd): <u>&lt;210</u> Comments _____ Business? : <input type="radio"/> Y <input checked="" type="radio"/> N What type? _____	Well depth (ft): _____ <input type="checkbox"/> Cased well Casing depth: _____ <input type="checkbox"/> Other (specify): <u>No well at time of design</u> Distance from septic (ft): _____ Is the well on the design drawing? <input type="radio"/> Y <input checked="" type="radio"/> N

Septic Tank	
<input type="checkbox"/> First tank Tank volume: <u>1000</u> gallons Does tank have two compartments? <input type="radio"/> Y <input checked="" type="radio"/> N <input type="checkbox"/> Second tank Tank volume: <u>NA</u> gallons <input type="checkbox"/> Tank is constructed of <u>concrete</u> <input type="checkbox"/> Effluent screen: <input type="radio"/> Y <input checked="" type="radio"/> N Alarm <input type="radio"/> Y <input checked="" type="radio"/> N	<input type="checkbox"/> Pump Tank <u>500</u> gallons <input type="checkbox"/> Effluent Pump make/model: <u>Liberty #253</u> Pump capacity <u>18</u> GPM TDH <u>16</u> Feet of head <input type="checkbox"/> Alarm location <u>in home</u>

Soil Treatment Area (STA)	
Mound/At-Grade area (width x length): <u>47</u> ft x <u>61</u> ft Rock bed size (width x length): <u>10</u> ft x <u>25</u> ft Location of additional STA: <u>NE of primary site</u> Type of distribution media: <u>1.5" washed rock</u>	<input checked="" type="checkbox"/> Inspection ports <input checked="" type="checkbox"/> Cleanouts <input checked="" type="checkbox"/> Surface water diversions <input type="checkbox"/> Additional STA not available



## Homeowner Management Tasks

These *operation and maintenance* activities 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 24 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: <sup>75</sup> \_\_\_\_\_ 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	<ul style="list-style-type: none"> <li>• Uses additional water.</li> <li>• Adds solids to the tank.</li> <li>• Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.</li> </ul>	<ul style="list-style-type: none"> <li>• Use of a garbage disposal is not recommended.</li> <li>• Minimize garbage disposal use. Compost instead.</li> <li>• To prevent solids from exiting the tank, have your tank pumped more frequently.</li> <li>• Add an effluent screen to your tank.</li> </ul>
Washing machine	<ul style="list-style-type: none"> <li>• Washing several loads on one day uses a lot of water and may overload your system.</li> <li>• Overloading your system may prevent solids from settling out in the tank. Unsettled solids can exit the tank and enter the soil treatment area.</li> </ul>	<ul style="list-style-type: none"> <li>• Choose a front-loader or water-saving top-loader, these units use less water than older models.</li> <li>• 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.</li> <li>• Install a lint filter after the washer and an effluent screen to your tank</li> <li>• Wash only full loads and think even – spread your laundry loads throughout the week.</li> </ul>
Dishwasher	<ul style="list-style-type: none"> <li>• Powdered and/or high-phosphorus detergents can negatively impact the performance of your tank and soil treatment area.</li> <li>• New models promote “no scraping”. They have a garbage disposal inside.</li> </ul>	<ul style="list-style-type: none"> <li>• Use gel detergents. Powdered detergents may add solids to the tank.</li> <li>• Use detergents that are low or no-phosphorus.</li> <li>• Wash only full loads.</li> <li>• Scrape your dishes anyways to keep undigested solids out of your septic system.</li> </ul>
Grinder pump (in home)	<ul style="list-style-type: none"> <li>• Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.</li> </ul>	<ul style="list-style-type: none"> <li>• Expand septic tank capacity by a factor of 1.5.</li> <li>• Include pump monitoring in your maintenance schedule to ensure that it is working properly.</li> <li>• Add an effluent screen.</li> </ul>
Large bathtub (whirlpool)	<ul style="list-style-type: none"> <li>• Large volume of water may overload your system.</li> <li>• Heavy use of bath oils and soaps can impact biological activity in your tank and soil treatment area.</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid using other water-use appliances at the same time. For example, don’t wash clothes and take a bath at the same time.</li> <li>• Use oils, soaps, and cleaners in the bath or shower sparingly.</li> </ul>
<b>Clean Water Uses</b>	<b>Impacts on System</b>	<b>Management Tips</b>
High-efficiency furnace	<ul style="list-style-type: none"> <li>• Drip may result in frozen pipes during cold weather.</li> </ul>	<ul style="list-style-type: none"> <li>• Re-route water directly out of the house. Do not route furnace discharge to your septic system.</li> </ul>
Water softener Iron filter Reverse osmosis	<ul style="list-style-type: none"> <li>• Salt in recharge water may affect system performance.</li> <li>• Recharge water may hydraulically overload the system.</li> </ul>	<ul style="list-style-type: none"> <li>• These sources produce water that is not sewage and should not go into your septic system.</li> <li>• Reroute water from these sources to another outlet, such as a dry well, draitile or old drainfield.</li> </ul>
Surface drainage Footing drains	<ul style="list-style-type: none"> <li>• Water from these sources will overload the system and is prohibited from entering septic system.</li> </ul>	<ul style="list-style-type: none"> <li>• When replacing, consider using a demand-based recharge vs. a time-based recharge.</li> <li>• Check valves to ensure proper operation; have unit serviced per manufacturer directions</li> </ul>



Homeowner Maintenance Log

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

Activity	Date accomplished									
<b>Check frequently:</b>										
Leaks: check for plumbing leaks*										
Soil treatment area check for surfacing**										
Lint filter: check, clean if needed*										
Effluent screen (if owner-maintained)***										
Alarm**										
<b>Check annually:</b>										
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: **Jeremiah johnson** Certification # **1023**

Permitting Authority: \_\_\_\_\_