SEPTIC APPROVED
Christopher Uebe
07/11/2022

Protect the treatment area from disturbance, compaction, or other damage by staking, fencing, etc.

Joseph Olson
Doing Business As
Rusty Olson's Soil and Percolation Testing

Joseph J. Olson--MPCA License # 810
11481 Riverview Rd. NE, Hanover, MN 55341
(763) 498-8779 Cell (612) 296-7715

June 7, 2022
Hendel Homes
Lot 3, Long Bridge
Orono, Hennepin County

This on-site Sewage Treatment System is designed for a Type 1 five-bedroom home in accordance with the Minnesota Pollution Control Agency Chapter 7080 and local ordinances.

The periodically saturated soils were located at 14-28 inches (mottled soil). Due to the periodically saturated soils, a pressurized mound system with 6 inches of rock will need to be installed to treat the septic effluent. The bottom of the treatment area must be located at least 3' above the saturated soils. **This system is designed with 6 inches of rock**

All neighboring wells are greater than 100' from proposed treatment areas.

A 2250-gallon combination septic tank or its equivalent needs to be installed.

All new tanks need to be insulated if there is less than two feet of cover over the top of the tanks. Clean outs must be installed on the end of the laterals for maintenance.

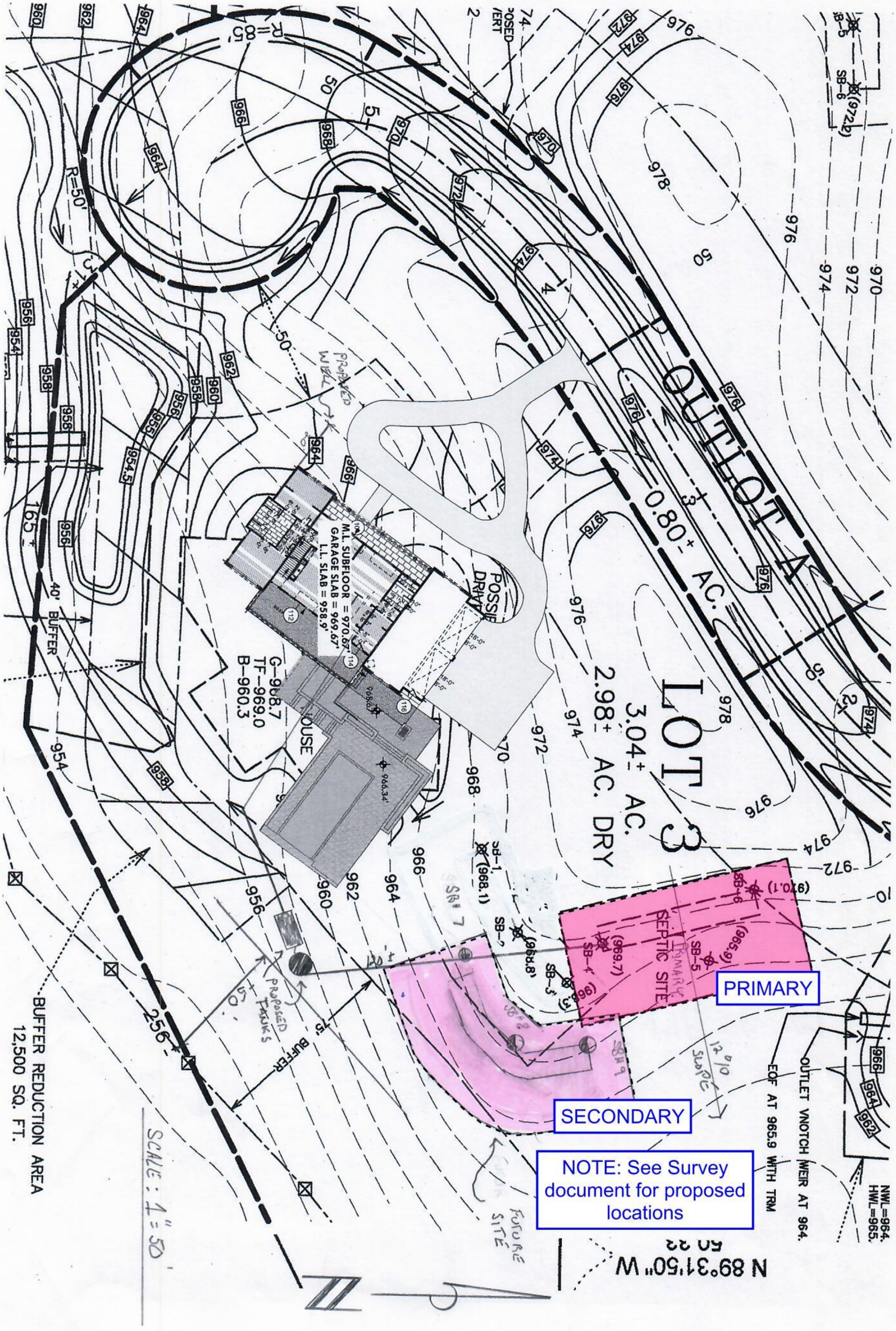
Keep all heavy equipment off of the proposed treatment area before, during and after construction. The area around both sites must be fenced off by the contractor before any construction begins.

A 1250-gallon pumping chamber will need to be installed to lift the effluent to the treatment area. The power supply and switches must be located outside the manhole and pumping chamber in a weatherproof enclosure. A warning device must be installed with light and sound devices; this is in case of a pump failure. A flow measurement device must be installed. Including but not limited to a water meter, event counter, running time clocks or electronically controlled dosing.

With proper installation and maintenance, this system should have no problem in treating septic effluent effectively. Nothing other than gray water, (laundry, showers, etc.) Human water and toilet tissue should be disposed of into the septic tanks. **Iron filters and large volume whole house water treatment systems cannot go into the septic system.** Garbage disposals are not recommended. Additives must not be used they may cause harmful damage to your septic system. It is recommended that you pump the septic tanks every two years

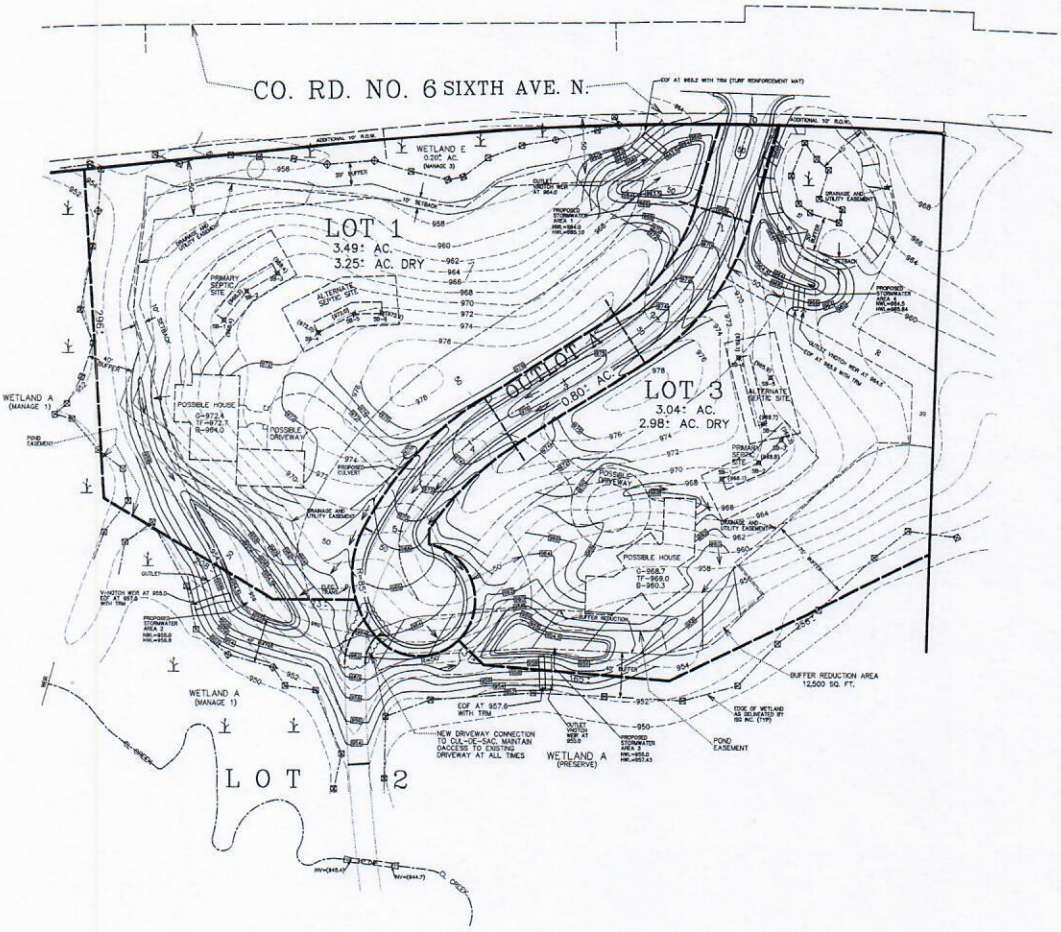
Sincerely,

Joseph J. Olson

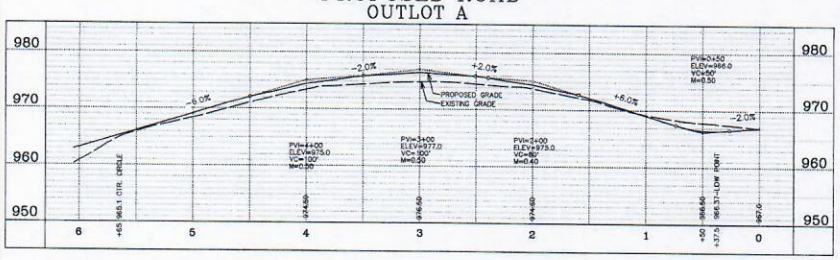

PRIMARY
SECONDARY
NOTE: See Survey document for proposed locations
LOT 3
3.04± AC.
2.98± AC. DRY
OUTLOT A
0.80± AC.
PRIMARY SEPTIC SITE
FUTURE SITE
PROPOSED TANKS
PROPOSED WELL
BUFFER REDUCTION AREA
12,500 SQ. FT.
40' BUFFER
M.L. SUBFLOOR = 970.67
GARAGE SLAB = 969.67
L.L. SLAB = 958.9
G-968.7
TF-969.0
B-960.3
OUTLET VNOTCH WEIR AT 964.
EOF AT 965.9 WITH TRM
NWL=964.
HWL=965.
N 89°31'50" W
R=50'
SCALE: 1" = 50'

21-271

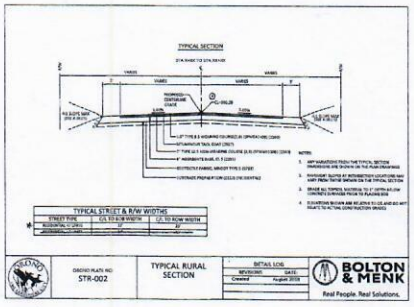
LONG BRIDGE
GRADING & ROAD PLAN AND PROFILE

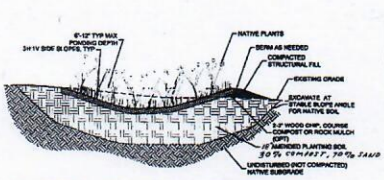


PROPOSED ROAD
OUTLOT A

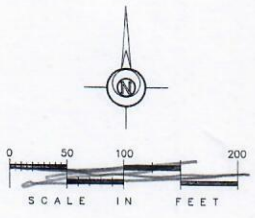


NOT TO SCALE





LID 1.06 Infiltration Rain Garden with Planting Soil
NTS



2

212715\2PROPLAN3.DGN

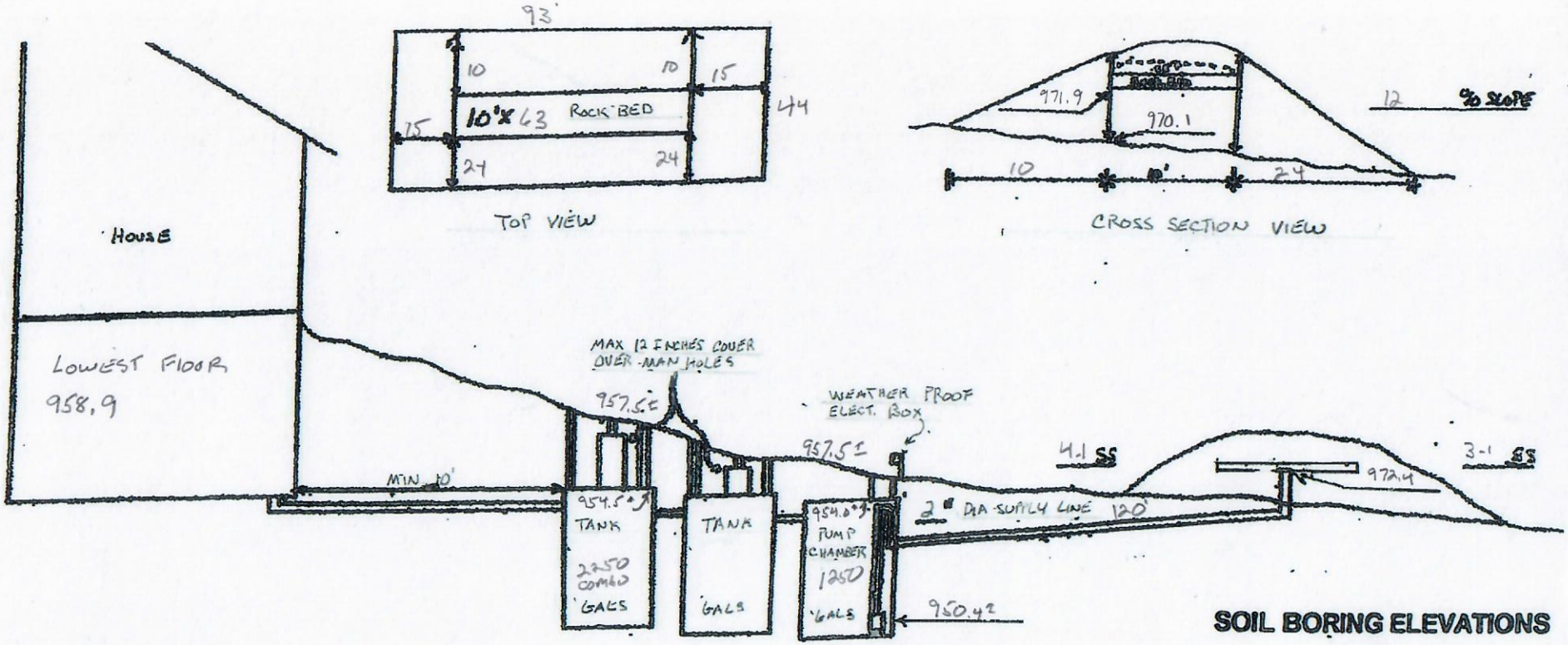
DATE	REVISIONS
4-23-21	
12-30-21	ADDITIONAL INFORMATION
3-25-22	
4-12-22	

I hereby certify that this plan, specification, or report was prepared by me, or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Mark S. Gronberg
Mark S. Gronberg Minnesota License Number 12755

PROJECT

DATE 2-25-21
SCALE 1"=50'
JOB NO 21-271

GRONBERG & ASSOCIATES, INC.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS
445 NORTH WILLOW DRIVE LONG LAKE, MN 55356
952-473-4141



SOIL BORING ELEVATIONS

SB#7 EL. - 966.2
SB#8 EL. - 966.2
SB#9 EL. - 966.2

TH.#1 EL. - 968.1
TH.#2 EL. - 968.8
TH.#3 EL. - 968.3
TH.#4 EL. - 969.7
TH.#5 EL. - 965.9
TH.#6 EL. - 970.1

MOUND SYSTEM DESIGN

Type 1 . 5 Bedroom, Average percolation rate ____

750 gal/day 620 sq.ft. of treatment area 620 (/10 ft. width = 63 ft. length of bed area

Side slope run 3-4 to 1 x 4.0 height = 4.4 ft. x 93 ft. Lawn area.

Clean rock needed plus 20% (21) cu.yds. Coarse washed sand (337) cu. Yds. Average sand depth 2.4

Sandy loam (19) cu.yds., Topsoil 6" 76 cu.yds. plus 50% (113) cu. Yds.

Number of tanks 1, 1st tank 2250 gals., 2nd tank ____ gals., Pump chamber capacity 1250 gals.
COMBINATION

17 gals. /100 lineal feet of 2 " dia. Supply pipe, lineal feet needed 120 LALS. 20

Distribution pipe 2 " dia. 183 lineal feet, 7/32 dia. Perforations 36 " apart

Float set at 208 gals., 4 times per day Pump curve 36 / min. 33 feet head pressure.

SET-BACKS
System must be:
Tank ___ ' from property lines
50 ' from wells
10 ' from bldgs.
Treatment area x ' from lakes, ___ ' streams
Treatment area 10 ' from property lines
50 ' from wells
20 ' from bldgs.

PROPERTY OF: HENDEL HOMES
LOT 3 LONG BRIDGE
ORONO, HENNEPIN COUNTY

Date: 6/7/23 Ph. 763-498-8779
Rusty Olson's Soil and Percolation Testing
Designed By

2011 purple code

Mound Design

www.SepticResource.com (vers 15.2)

Property Owner: Hendel Homes **Date:** 6/6/2022

Site Address: Lot 3 Long Bridge **PID:**

Comments: primary site

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

1) 5 bedroom Type I Residential System

2) 750 GPD design flow

3) Yes Garbage disposal or pumped to septic 50% larger tank with multiple comp/tanks

4) 2250 Gal Septic tank (code minimum) 2250 Gal Septic tank (design size / LUG req'd)
Tank options: none

5) 1.2 GPD/ft^2 mound sand loading rate contour loading rate of 12 req's a min 63 ft. long rockbed

6) 9.9 ft rockbed width 63.0 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 61.0 feet long 21.0 perfs / lateral 63 perfs total
(1/2 a perf means the first perf starts at the middle feed manifold)

9) 7/32 inch perfs at 1 feet residual head gives 0.56 gpm flow rate per perforation

for this perf size & spacing, & pipe size on line 12, max perfs/lateral = 30, line #8 must be less --> OK

10) 4.0 doses per day (4 minimum)

11) 188 gallons per dose (treatment volume)

2.00 5x

12) 2.00 inch diameter laterals must be used to meet "4x pipe volume" requirement

2.00 3x

13) 120 feet of 2.0 inch supply line leads to 20 gallons of drainback volume
(Tip: "top feed" manifold to control the drainback)

14) 208 gallons TOTAL pump out volume (treatment + drainback)

15) 22 feet vertical lift from pump to mound laterals, leads to a:

16) 36 GPM @ 33 feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)

17) 750 gal Dose tank (code minimum) 1250 gal Dose tank (design size / LUG req'd) at 25.49 gpi
leads to a

18) 8.2 inch swing on Demand float, or timed dosing of 5.8 min ON (confirm pump rate with drawdown
(this delivers Average flow, =70% of Peak design flow) 9 hrs OFF test and adjust as necessary)

19) 12 inches from bottom of tank to "Pump OFF" float

20) 20 inches from bottom of tank to "Pump ON" float, or 12 inches to "Timer ON" float if time dosed

21) 23 inches from bottom of tank to "Hi Level" float, or 33 inches to "Hi Level" float if time dosed

22) 664 gallons reserve capacity (after High Level Alarm is activated)

23) 0.45 gpd/ft² 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) 12 percent site slope (0-20% range) 12 (% downslope site slope, if different than upslope)

25) 14 inches, or 1.2 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) 22 inch, or 1.8 ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**

27) 26.8 ft.Total ABSORPTION width (with sand beyond rockbed as follows:)

28) 0.0 ft. upslope and sideslope

16.9 ft. Downslope

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

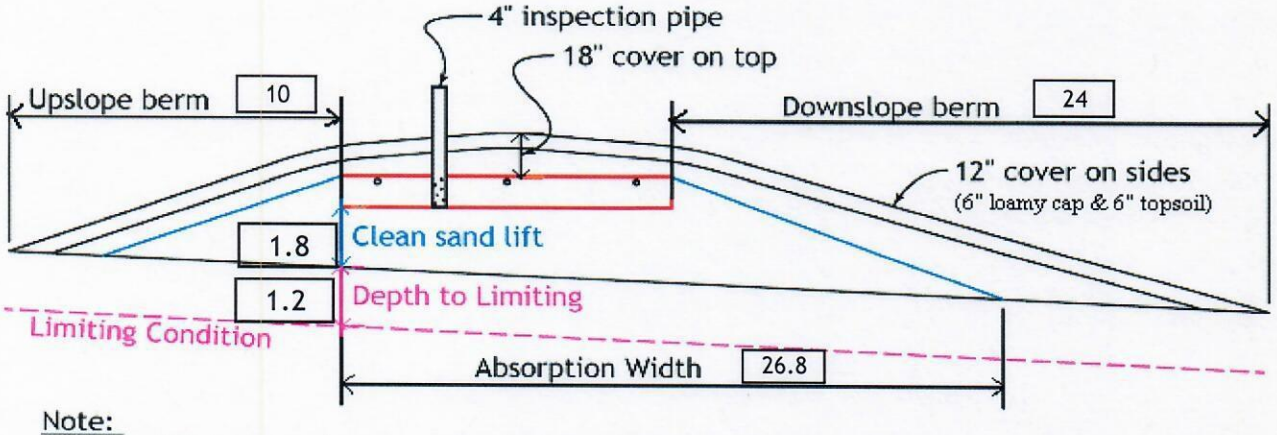
29) 4:1 upslope ratio 10 ft. upslope berm

30) 3:1 sideslope 15 ft. sideslope berms

31) 3:1 downslope 24 ft. downslope berm

32) Overall Dimensions: 9.9 ft. wide by 63.0 ft. long Rock bed

44 ft. wide by 93 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:

9.9 ft. by 63.0 ft. by 6 inches under pipe, plus 20% gives 21 yd³ or *1.4= 29 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)

34.1 up + 122.3 downslope + 17.8 ends + 56.2 under rock = 277 yd³ or *1.4= 387 ton
plus 20%

35) Loamy Cap:

40 ft. by 89 ft. 6" deep, plus 20% gives 79 yd³ or *1.4= 111 ton

36) Topsoil:

44 ft. by 93 ft. 6" deep, plus 20% gives 91 yd³ or *1.4= 127 ton

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

Designer Signature	Company	License#	Date
	Rusty Olson"s Soil & Perc	810	6/6/2022

Installer Summary

2250 gallon Septic tank (minimum)

Tank options: none
50% larger tank with multiple comp/ tanks
at 25.49 gpi

1250 gallon Dose tank (minimum)

36 GPM @ 33 ft. of head, Pump required
8.2 inch swing on Demand float which translates to roughly 5.1 inches of float tether length
if time dosing is required --> 5.8 minutes ON time & 9 hours OFF time
20 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float
23 inches from bottom of tank to "Hi Level Alarm" or 33 inches to "Hi level alarm" if time dosed

120 ft. of 2.0 inch supply line with end feed manifold connection
(Tip: "top feed" manifold to control drainback)

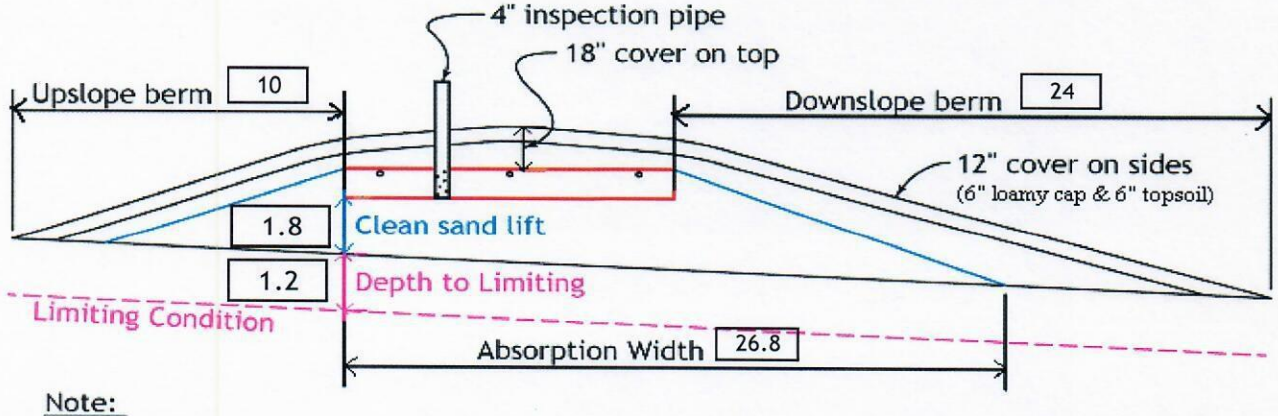
22 inch, or 1.8 ft. Sand Lift Mound
9.9 ft. wide by 63.0 ft. long Rock bed
3 laterals 2.00 inch diameter 61.0 ft. long 3.0 ft. lateral spacing
7/32 inch perfs 3.0 ft. perforation spacing

No Effluent filter & alarm
3 clean out & valve box assemblies

26.8 ft.Total sand ABSORPTION width (minimum)
0.0 ft. upslope and sideslope (sand beyond rockbed, minimum)
16.9 ft. Downslope (sand beyond rockbed, minimum)

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

4:1 upslope ratio 10 ft. upslope berm
3:1 sideslope 15 ft. sideslope berms
3:1 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:	21.0 yd^3 or *1.4=	29	ton	6 inches under pipe
Mound Sand:	277 yd^3 or *1.4=	387	ton	calculation based on 3:1/4:1 slope from top of rockbe
Loamy Cap:	79 yd^3 or *1.4=	111	ton	6" deep
Topsoil:	91 yd^3 or *1.4=	127	ton	6" deep

INSPECTOR CHECKLIST - mound

Lot 3 Long Bridge

☐ WELL setbacks:

20' to pressure tested sewer line (5 psi for 15 min)
50' to everything 100' to dispersal area 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 se 10' to bed,tank & sewer line. (else sewer line > 12" below)

☐ Sewer line & baffle connection (no 90's, 3' between 45's, slope min 1" in 8', max 2" in 8')
(no depth req's, clean out every 100', Sch 40 pipe)

☐ Septic tank and risers (water tight, insulated, proper depth, existing verified by pumping)
mfg_____ 2250 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, insulated, proper depth, drainback)
mfg_____ 1250 gallons

☐ dose pump _____ 36 gpm 33 head VERIFY PUMP CURVE 5.8 min ON 9 hr OFF

☐ float setting drop 8.2 inches at 25.5 gpi "DESIGNED" 5.1 inches approx float tether length
208.0 gal dose divided by _____ gpi "INSTALLED" = _____ inches float drop (field corrected
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 9.9 X 63.0
☐ Sand lift depth 22 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)

☐ Absorption Sand beyond rock 0.0 upslope 16.9 downslope

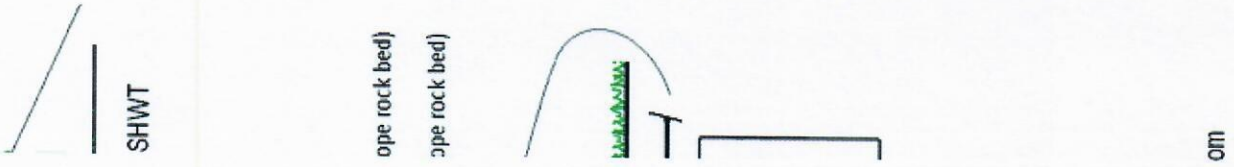
☐ Bermed topsoil beyond rockbed 10 upslope 15 sideslope 24 downslope

☐ 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

☐ 7/32 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

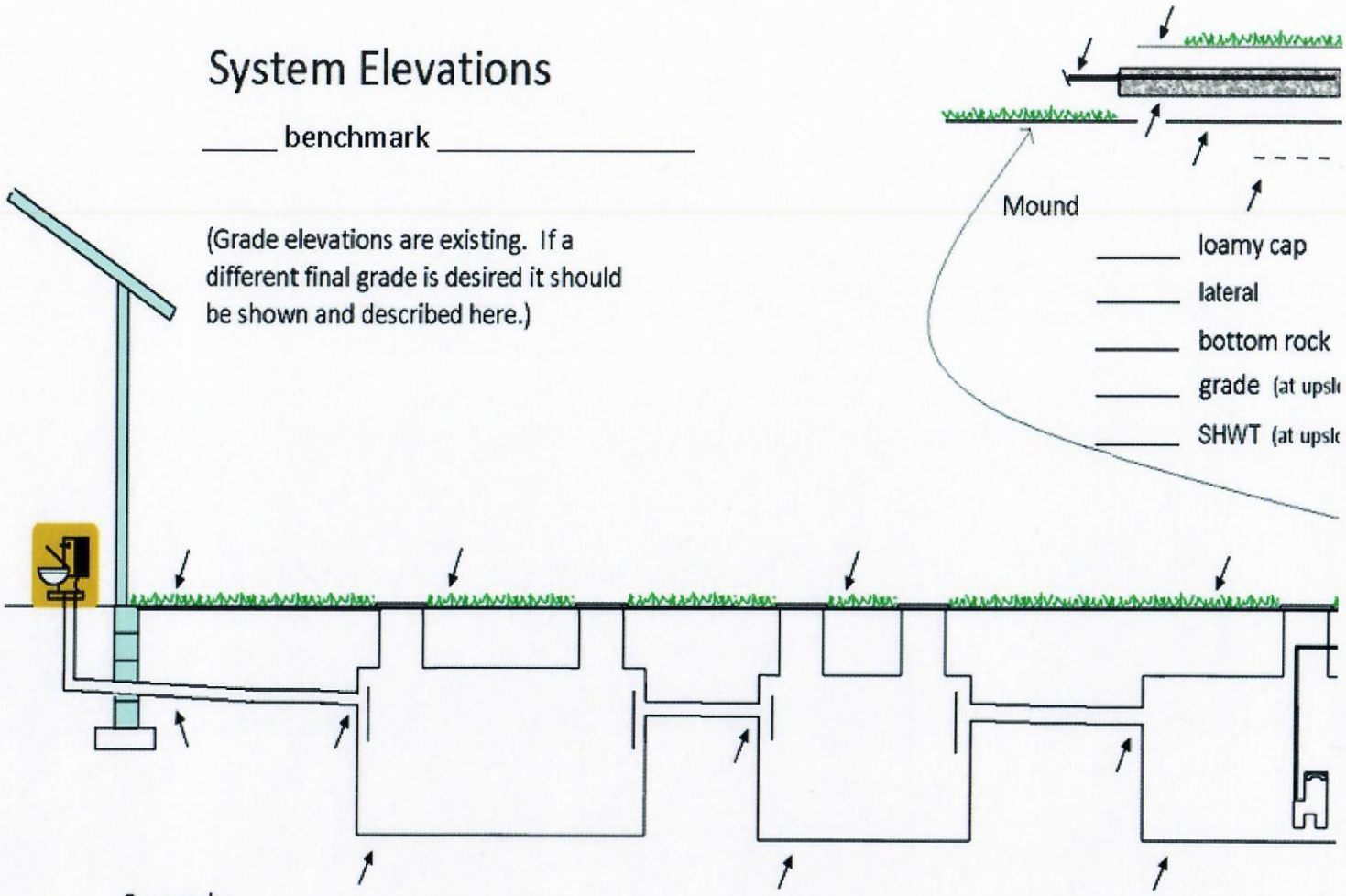
☐ Abandon existing system - if necessary ☐ Re-use existing tank certification
☐ monitoring plan and type _____
☐ well abandonment form - if necessary



System Elevations

_____ benchmark _____

(Grade elevations are existing. If a different final grade is desired it should be shown and described here.)



Sewer pipe exiting house	Septic Tank	Septic Tank (if applicable)	Pump Tank
_____ Grade	_____ Grade	_____ Grade	_____ Grade
_____ Pipe	_____ inlet	_____ inlet	_____ inlet
	_____ Tank bottom	_____ Tank bottom	_____ Tank bott

Soil Observation Log

www.SepticResource.com vers 12.4

Owner Information

Property Owner / project: Long Bridge Date 12/7/2019

Property Address / PID: Proposed Lot 3

Soil Survey Information

☐ refer to attached soil survey

Parent matl's: ☑ Till ☐ Outwash ☐ Lacustrine ☐ Alluvium ☐ Organic ☐ Bedrock

landscape position: ☐ Summit ☐ Shoulder ☑ Side slope ☐ Toe slope

soil survey map units: L22D slope 12 % direction- Linear, Convex

Soil Log #1

☑ Boring ☐ Pit Elevation 968.1 Depth to SHWT 26 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-6	Loam	<35	10yr3/2		Friable	Strong	Blocky
6-12	Sandy Loam	<35	10yr4/3		Friable	Strong	Blocky
12-26	Sandy Loam	<35	10yr5/4		Friable	Moderate	Blocky
26-30	Loamy Sand	<35	10yr5/3	10y4/8	Loose	Weak	Granular
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

Comments:

Proposed Lot 3

Soil Log #2

☑ Boring ☐ Pit Elevation 968.8 Depth to SHWT 18 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-6	Loam	<35	10yr3/2		Friable	Strong	Blocky
6-12	Sandy Loam	<35	10yr4/3		Friable	Strong	Blocky
12-18	Sandy Clay Loam	<35	10yr5/4		Friable	Strong	Blocky
18-24	Sandy Clay Loam	<35	10yr5/4	10y4/8,1-6/10y	Friable	Strong	Blocky

Proposed Lot 3

Soil Log #3

☑ Boring ☐ Pit Elevation 968.3 Depth to SHWT 18 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-6	Loam	<35	10yr3/2		Friable	Strong	Blocky
6-12	Sandy Loam	<35	10yr4/3		Friable	Strong	Blocky
12-18	Sandy Clay Loam	<35	10yr5/4		Friable	Strong	Blocky
18-24	Sandy Clay Loam	<35	10yr5/4	10y4/8,1-6/10y	Friable	Strong	Blocky

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

Designer Signature

Rusty Olson's Soil & Perc.
Company

810
License #

Proposed Lot 3

Soil Log #4

☐ Boring ☐ Pit Elevation 969.7 Depth to SHWT 18 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-6	Loam	<35	10yr3/2		Friable	Strong	Blocky
6-14	Loam	<35	10yr4/3		Friable	Strong	Blocky
14-18	Sandy Loam	<35	10yr5/4		Friable	Strong	Blocky
18-30	Loamy Sand	<35	10yr6/3	10y4/8	Loose	Weak	Granular
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

Proposed Lot 3

Soil Log #5

☐ Boring ☐ Pit Elevation 965.9 Depth to SHWT 16 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-6	Loam	<35	10yr3/2		Friable	Strong	Blocky
6-16	Loam	<35	10yr4/3		Friable	Strong	Blocky
16-24	Sandy Clay Loam	<35	10yr5/4	10y4/8,1-6/10y	Friable	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

Rusty Olson's Soil & Perc.
Company

810
License #

Soil Observation Log

www.SepticResource.com vers 12.4

Owner Information

Property Owner / project: Long Shadows Date 12/7/2019

Property Address / PID: Proposed Lot 3

Soil Survey Information

☐ refer to attached soil survey

Parent matl's: ☑ Till ☐ Outwash ☐ Lacustrine ☐ Alluvium ☐ Organic ☐ Bedrock

landscape position: ☐ Summit ☐ Shoulder ☑ Side slope ☐ Toe slope

soil survey map units: L22D slope 12 % direction- Linear, Convex

Soil Log #6

☑ Boring ☐ Pit Elevation 970.1 Depth to SHWT 14 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-4	Loam	<35	10yr3/2		Friable	Strong	Blocky
4-14	Loam	<35	10yr4/3		Friable	Strong	Blocky
14-22	Clay Loam	<35	10yr5/4	10y4/8,1-6/10y	Friable	Strong	Blocky
22-26	Loamy Sand	<35	10yr5/3	10y4/8,	Loose	Weak	Granular
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

Comments:

Proposed Lot 3

Soil Log #7

☑ Boring ☐ Pit Elevation 966.2 Depth to SHWT 28 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-12	Loam	<35	10yr3/1		Friable	Strong	Blocky
12-22	Clay Loam	<35	10yr4/3		Friable	Strong	Blocky
22-28	Clay	<35	10yr5/4		Friable	Strong	Blocky

Proposed Lot 3

Soil Log #8

☑ Boring ☐ Pit Elevation 966.2 Depth to SHWT 26 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Loam	<35	10yr3/1		Friable	Strong	Blocky
8-12	Loam	<35	10yr4/3		Friable	Strong	Blocky
12-26	Loam	<35	10yr5/4		Friable	Strong	Blocky
26-30	Loam	<35	10yr5/3	10y4/8,1-6/10y	Friable	Strong	Blocky

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

Designer Signature

Rusty Olson's Soil & Perc.
Company

810
License #

Proposed Lot 3

Soil Log #9

☑ Boring ☐ Pit Elevation 966.2 Depth to SHWT 14 Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-6	Loam	<35	10yr3/2		Friable	Strong	Blocky
6-14	Clay Loam	<35	10yr5/4		Friable	Strong	Blocky
14-18	Clay Loam	<35	10yr5/3	10y4/8,1-6/10y	Firm	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

☐ Boring ☐ Pit Elevation _____ Depth to SHWT _____ Inches

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
		<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

Rusty Olson's Soil & Perc.
Company

810
License #

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Septic System Management Plan for Above Grade Systems

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

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

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

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

Property Owner	Email
Property Address	Property ID
System Designer Joseph J. Olson	Contact Info 763-498-8779
System Installer	Contact Info
Service Provider/Maintainer	Contact Info
Permitting Authority	Contact Info
Permit #	Date Inspected

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

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

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

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

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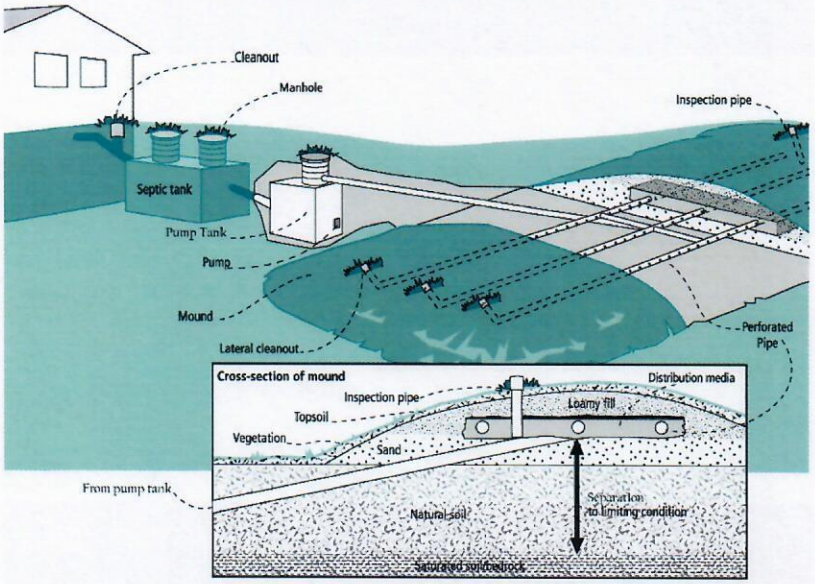
Septic System Management Plan for Above Grade Systems

Your Septic System



Septic System Specifics

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

(Based on MN Rules Chapter 7080.2200 – 2400)

**Additional Management Plan required*

☐ System is subject to operating permit*

☐ System uses UV disinfection unit*

Type of advanced treatment unit _____

Dwelling Type

Number of bedrooms: 5

System capacity/ design flow (gpd): 750

Anticipated average daily flow (gpd): 500

Comments _____

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

Well Construction

Well depth (ft): _____

- ☐ Cased well Casing depth: _____
- ☐ Other (specify): _____

Distance from septic (ft): _____

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

Septic Tank

- ☐ First tank *Tank volume:* _____ *gallons*
  Does tank have two compartments? (●) Y ( ) N
- ☐ Second tank *Tank volume:* _____ *gallons*
- ☐ Tank is constructed of _____
- ☐ Effluent screen: ( ) Y (●) N Alarm ( ) Y (●) N

- ☐ Pump Tank _____ *gallons*
- ☐ Effluent Pump *make/model*: _____
  Pump capacity _____ GPM
  TDH _____ Feet of head
- ☐ Alarm location _____

Soil Treatment Area (STA)

Mound/At-Grade area (width x length): 44 ft x 93 ft

Rock bed size (width x length): 10 ft x 63 ft

Location of additional STA: See drawing

Type of distribution media: Rock

☐ Inspection ports ☐ Cleanouts

☐ Surface water diversions

☐ Additional STA not available

Homeowner Management Tasks

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

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

The system and septic tanks needs to be checked every 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: _____ 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: Joseph J. Olson Certification # C1255

Permitting Authority: _____