

# Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

## Owner Information

Date	<u>7/9/2021</u>	Sec / Twp / Rng	<u>S.24 T.49 R.25</u>
Parcel ID	<u>19-0-041702</u>	LUG (county, city, township)	<u>Aitkin County</u>
Property Owner:	<u>Paul Tracy</u>	Owners address (if different)	
Property Address:	<u>48321 285th Ave.</u>		<u>4035 Victoria St. N. Apt. 203</u>
City / State / Zip:	<u>Palisade, MN. 56469</u>		<u>Shoreview, MN. 55126</u>

## Flow Information and Waste Type / Strength

Estimated Design flow	<u>300</u>	Anticipated Waste strength	<input type="checkbox"/> Hi Strength	<input checked="" type="checkbox"/> Domestic
Comments:		Any Non-Domestic Waste	<input type="checkbox"/> Yes (class V)	<input checked="" type="checkbox"/> No
		Sewage ejector/grinder pump	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
		Water softener	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
		Garbage Disposal	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
		Daycare / In home business	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

## Site Information

Existing & proposed lot improvements located (see site map)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Well casing depth	<u>No well yet</u>	
Easements on lot located (see site map)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Drainfield w/in 100' of residential well	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Property lines determined (see site map)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Site w/in 200' of transient noncommunity water supply (TNCWS)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Req'd setbacks determined (see site map)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Site w/in an inner wellhead mgmt zone (CWS/NTNCWS)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities located & identified (gopher state one call)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Buried water supply pipe w/in 50' of system	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Access for system maintenance (shown on site map)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Site located in Shoreland (w/in 1000' of lake, 300' of river)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Soil treatment area protected	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Site map prepared with previous items included	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Construction related issues

\_\_\_\_\_

\_\_\_\_\_

**Soil Information**

Evidence of site:

Cut	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Filled	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Compacted	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Disturbed	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Original soils  Yes  No

Soil logs completed and attached  Yes  No

Perk test completed and attached (if applicable)  Yes  No

Soil loading rate (gpd/ft<sup>2</sup>) 0.45

Percolation rate (if applicable) \_\_\_\_\_

Depth/elev to SHWT 0.00

Flooding or run-on potential  Yes  No  
(comments)

Depth to system bottom maximum (or elev minimum) -36.00

Flood elevation (if applicable) \_\_\_\_\_

Depth/elev to standing water (if applicable) \_\_\_\_\_

Elevation of ordinary high water level (if applicable) \_\_\_\_\_

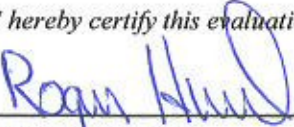
Depth/elev to bedrock (if applicable) \_\_\_\_\_

Floodplain designation and elev - 100 yr/10 yr (if applicable) \_\_\_\_\_

Soil Survey information determined (see attachment)  Yes  No

Differences between soil survey and field evaluation (if applicable) \_\_\_\_\_  
\_\_\_\_\_

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

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

R.H. Inspection & Design  
\_\_\_\_\_  
Company

3847  
\_\_\_\_\_  
License #

## Mound Design - Aitkin county

Property Owner: Paul Tracy

Date: 7/9/2021

Site Address: 48321 285th Ave.

PID: 19-0-041702

Comments:

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

- 1)  bedroom Type  Residential System
- 2)  GPD design flow
- 3)  Garbage disposal or pumped to septic
- 4)  Gal Septic tank (code minimum)  Gal Septic tank (design size / LUG req'd)  
Tank options: Effluent filter & alarm req'd
- 5)  GPD/ft<sup>2</sup> mound sand loading rate contour loading rate of  req's a min  ft. long rockbed
- 6)  ft rockbed width  ft rockbed length
- 7)  ft lateral spacing  ft perforation spacing (maximum of 3 for both)  
 manifold connection
- 8)  laterals  feet long  perfs / lateral  perfs total  
(1/2 a perf means the first perf starts at the middle feed manifold)
- 9)  inch perfs at  feet residual head gives  gpm flow rate per perforation  
for this perf size & spacing, & pipe size on line 12, max perfs/lateral = , line #8 must be less --> OK
- 10)  doses per day (4 minimum)
- 11)  gallons per dose (treatment volume) 2.00 5x
- 12)  inch diameter laterals must be used to meet "4x pipe volume" requirement 2.00 3x
- 13)  feet of  inch supply line leads to  gallons of drainback volume  
(Tip: "top feed" manifold to control the drainback)
- 14)  gallons TOTAL pump out volume (treatment + drainback)
- 15)  feet vertical lift from pump to mound laterals, leads to a:
- 16)  GPM @  feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)
- 17)  gal Dose tank (code minimum)  gal Dose tank (design size / LUG req'd) at  gpi  
leads to a
- 18)  inch swing on Demand float, or timed dosing of  min ON (confirm pump rate with drawdown  
(this delivers Average flow, =70% of Peak design flow)  hrs OFF test and adjust as necessary)
- 19)  inches from bottom of tank to "Pump OFF" float
- 20)  inches from bottom of tank to "Pump ON" float, or  inches to "Timer ON" float if time dosed
- 21)  inches from bottom of tank to "Hi Level" float, or  inches to "Hi Level" float if time dosed
- 22)  gallons reserve capacity (after High Level Alarm is activated)

23) 0.45 gpd/ft<sup>2</sup> Absorption area Soil Loading Rate, which gives a mound ratio of 2.7 (minimum)  
(this must match the soil boring log) desired mound ratio 2.7

24) 0 percent site slope (0-20% range) 0 (% downslope site slope, if different than upslope)

25) 0 inches, or 0.0 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) 36 inch, or 3.0 ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**

27) 27.0 ft. base absorption width (with sand beyond rockbed as follows):

42.0 greater of: absorption width OR sand slope

28) 8.5 ft. upslope and sideslope sand upslope 16.0

8.5 ft. Downslope sand down slope 16.0

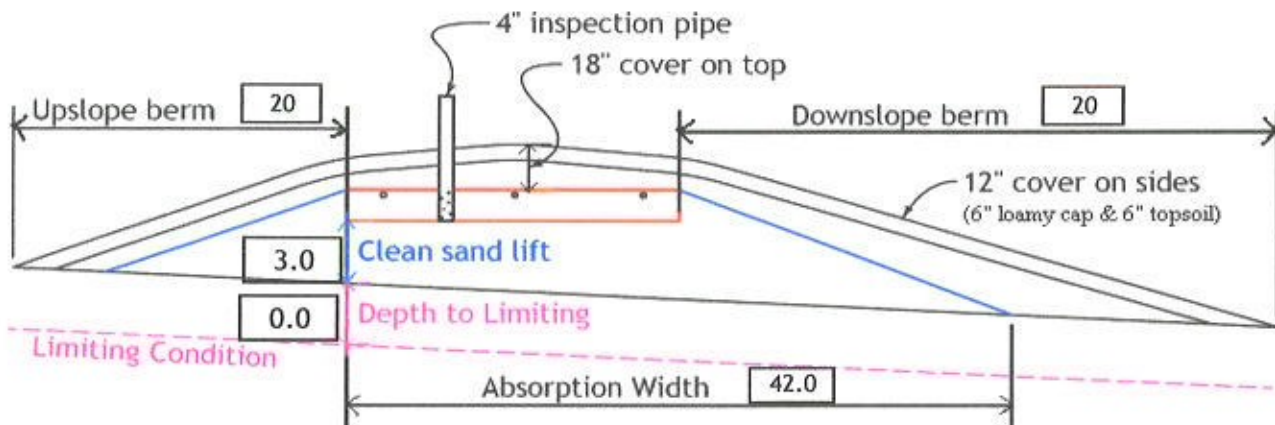
Individual slope ratios give BERM widths (topsoil beyond rockbed) of:

29) 4:1 upslope ratio 20 ft. upslope berm

30) 4:1 sideslope 20 ft. sideslope berms

31) 4:1 downslope 20 ft. downslope berm

32) Overall Dimensions: 10.0 ft. wide by 25.0 ft. long Rock bed  
50 ft. wide by 65 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 6 inches under pipe, plus 20% gives 9 yd<sup>3</sup> or \*1.4= 13 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)  
67.6 up + 67.6 downslope + 23.7 ends + 27.8 under rock = 224 yd<sup>3</sup> or \*1.4= 313 ton  
plus 20%

35) Loamy Cap: 46 ft. by 61 ft. 6" deep, plus 20% gives 63 yd<sup>3</sup> or \*1.4= 88 ton

36) Topsoil: 50 ft. by 65 ft. 6" deep, plus 20% gives 73 yd<sup>3</sup> or \*1.4= 102 ton

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

Designer Signature

R.H. Inspection & Design  
Company

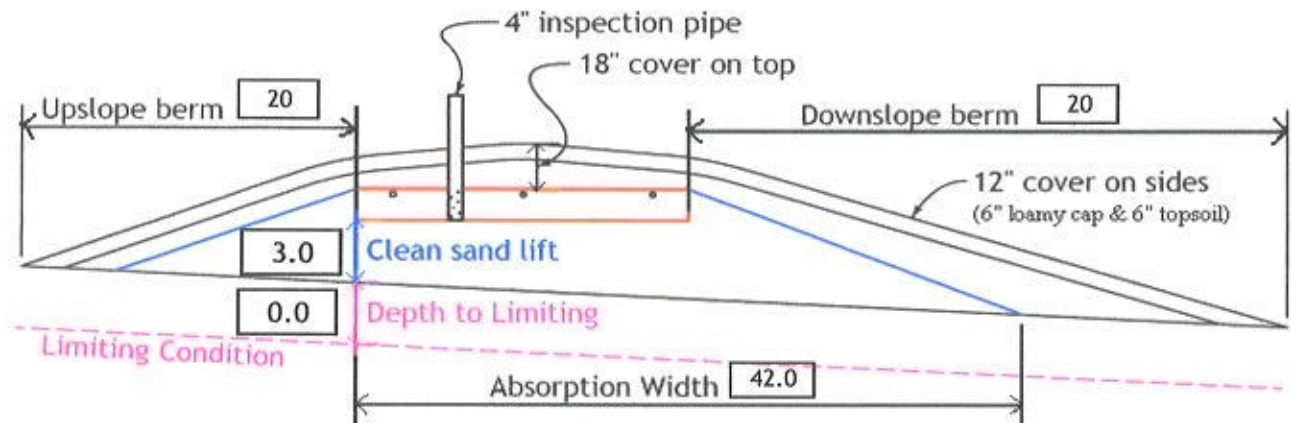
3847  
License#

7/9/2021  
Date

# Installer Summary

- 1000 gallon Septic tank (minimum) Tank options: Effluent filter & alarm req'd
- 500 gallon Dose tank (minimum) at 14.00 gpi
- 18 GPM @ 15 ft. of head, Pump required
- 6.0 inch swing on Demand float which translates to roughly 4.0 inches of float tether length  
if time dosing is required --> 4.7 minutes ON time & 9 hours OFF time
- 18 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float
- 21 inches from bottom of tank to "Hi Level Alarm" or 31 inches to "Hi level alarm" if time dosed
- 50 ft. of 2.0 inch supply line with end feed manifold connection  
(Tip: "top feed" manifold to control drainback)
- 36 inch, or 3.0 ft. Sand Lift Mound
- 10.0 ft. wide by 25.0 ft. long Rock bed
- 3 laterals 1.50 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

- 42.0 ft. Total sand ABSORPTION width (minimum)
- 16.0 ft. upslope and sideslope (sand beyond rockbed, minimum)
- 16.0 ft. Downslope (sand beyond rockbed, minimum)
- Specific slope ratios give BERM widths (topsoil beyond rockbed) of:
- 4:1 upslope ratio 20 ft. upslope berm
- 4:1 sideslope 20 ft. sideslope berms
- 4:1 downslope 20 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:	9.0 yd <sup>3</sup> or *1.4=	13 ton	6 inches under pipe
Mound Sand:	224 yd <sup>3</sup> or *1.4=	313 ton	calculation based on 3:1/4:1 slope from top of rockbed
Loamy Cap:	63 yd <sup>3</sup> or *1.4=	88 ton	6" deep
Topsoil:	73 yd <sup>3</sup> or *1.4=	102 ton	6" deep

## INSPECTOR CHECKLIST - mound

- 48521 285th Ave.
- 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 set 10' to bed, tank & sewer line. (else sewer line > 12" below, else ok w/pvc)
- 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 \_\_\_\_\_ 1000 gallons Effluent filter & alarm req'd \_\_\_\_\_
- 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 \_\_\_\_\_ 500 gallons
- dose pump \_\_\_\_\_ 18 gpm 15 head VERIFY PUMP CURVE 4.7 min ON 9 hr OFF
- float setting drop 6.0 inches at 14.0 gpi "DESIGNED" 4.0 inches approx float tether length  
84.0 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 10.0 X 25.0
- Sand lift depth 36 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)
- Absorption Sand beyond rock 16.0 upslope 16.0 downslope
- Bermed topsoil beyond rockbed 20 upslope 20 sideslope 20 downslope
- cover depth of 12-18"+ VERIFY
- 3 laterals (1-2' from edge of rock)
- 1.50 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 \_\_\_\_\_

# 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

\_\_\_\_\_ Grade

\_\_\_\_\_ Pipe

100

Septic Tank

\_\_\_\_\_ Grade

\_\_\_\_\_ inlet

\_\_\_\_\_ Tank bottom

100

Septic Tank (if applicable)

\_\_\_\_\_ Grade

\_\_\_\_\_ inlet

\_\_\_\_\_ Tank bottom

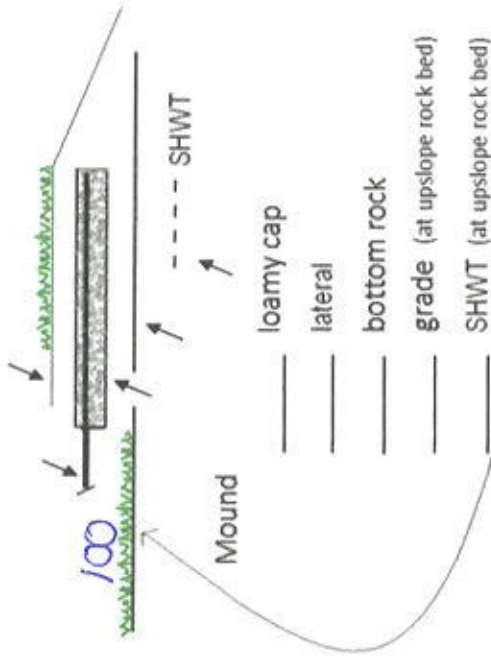
100

Pump Tank

\_\_\_\_\_ Grade

\_\_\_\_\_ inlet

\_\_\_\_\_ Tank bottom



Mound

loamy cap

lateral

bottom rock

grade (at upslope rock bed)

SHWT (at upslope rock bed)

100

SHWT

# Soil Observation Log

www.SepticResource.com vers 12.4

## Owner Information

Property Owner / project: Paul Tracy Date 7/9/2021  
 Property Address / PID: 48321 285th Ave.

## 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:      \_\_\_\_\_      slope 0 %      direction- downhill

## Soil Log #1

Boring

Pit

Elevation \_\_\_\_\_

Depth to SHWT 0"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR2.5/2		Friable	Weak	Blocky
8+	Clay Loam	<35	10YR4/2		Firm	Moderate	Platy
		<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
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

Comments:



48321 285th Ave.		Soil Log #2					
		<input type="checkbox"/> Boring	<input checked="" type="checkbox"/> Pit	Elevation _____		Depth to SHWT <u>0"</u>	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR2.5/2		Friable	Weak	Blocky
8+	Clay Loam	<35	10YR4/2		Firm	Moderate	Platy
		<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
		<35 35 - 50 >50			loose friable firm rigid	loose weak moderate strong	single grain granular blocky prismatic platy massive

48321 285th Ave.		Soil Log #3					
		<input type="checkbox"/> Boring	<input checked="" type="checkbox"/> Pit	Elevation _____		Depth to SHWT <u>0"</u>	
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0-8	Topsoil	<35	5YR2.5/2		Friable	Weak	Blocky
8+	Clay Loam	<35	10YR4/2		Firm	Moderate	Platy
		<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
		<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.

Roan Huel  
Designer Signature

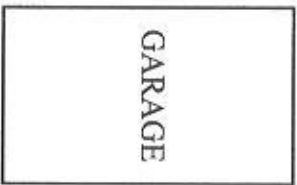
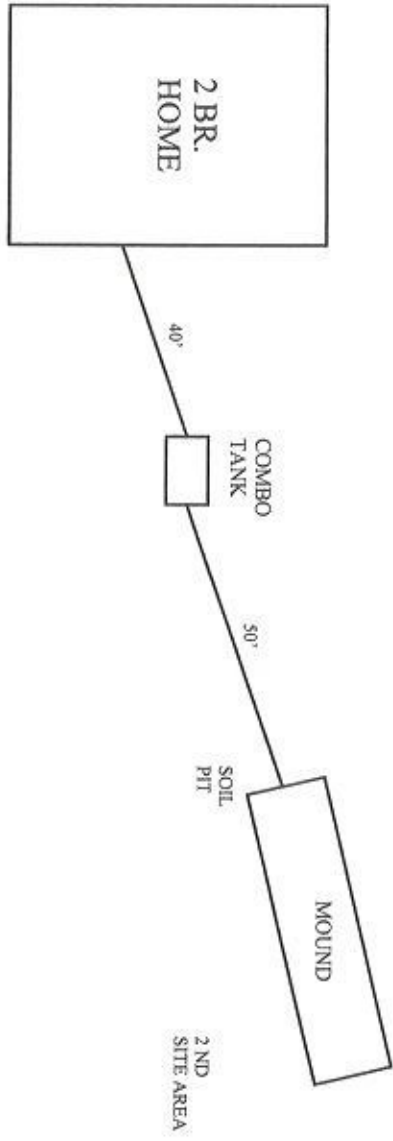
R.H. Inspection & Design  
Company

3847  
License #

48321 285TH AVE.  
PALISADE, MN. 56469



WELL  
SITE



# Subsurface Sewage Treatment System Management Plan

Property Owner: PAUL TRACY Phone: 218-343-7342 Date: 9 JUL 21  
Mailing Address: 4035 VICTORIA ST. N. City: SHOREVIEW Zip: 55126  
Site Address: 48321 285TH AVE. City: PALISADE Zip: 56469

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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 service provider or maintenance provider.

System Designer: Recommends SSTS check every 36 months.  
Local Government: Recommends SSTS check every 36 months.  
State Requirement: Requires SSTS check every 36 months.  
*(State requirements are based on MN Rules Chapter 7080.2450, Subp. 2 & 3)*

**My System needs to be checked  
every 36 months.**

## Homeowner Management Tasks:

*Leaks* – Check (look, listen) for leaks in toilets and dripping faucets. Repair leaks promptly.

*Surfacing sewage* – Regularly check for wet or spongy soil around your soil treatment area.

*Effluent filter* – *Inspect and clean twice a year or more.*

*Alarms* – Alarm signals when there is a problem. Contact a service or maintenance provider any time an alarm signals.

*Event counter or water meter* – Record your water use.

-recommend meter readings be conducted (circle one: DAILY WEEKLY MONTHLY N/A)

## Licensed septic service provider or maintenance provider (Check all that apply):

- Check to make sure tank is not leaking
- Check and clean the in-tank effluent filter (if exists)
- Check the sludge/scum layer levels in all septic tanks
- Recommend if tank should be pumped
- Check inlet and outlet baffles
- Check the drainfield effluent levels in the rock layer
- Check the pump and alarm system functions
- Check wiring for corrosion and function
- Check dissolved oxygen and effluent temperature in tank
- Provide homeowner with list of results and any action to be taken
- Flush and clean laterals if cleanouts exist

"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 the 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: \_\_\_\_\_

Designer Signature: Roger Hurd Date: 9 JUL 21

See Reverse Side for Management Log

## Maintenance Log

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										
Water usage rate (monitor frequency _____)										
<b>Check annually:</b>										
Caps: inspect, replace if needed										
Sludge & Scum/Pump										
Inlet & Outlet baffles										
Drainfield effluent leaks										
Pump, alarm, wiring										
Flush & clean laterals if cleanouts exists										
Other: _____										
Other: _____										

Notes: \_\_\_\_\_

\_\_\_\_\_

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# AITKIN COUNTY ENVIRONMENTAL SERVICES

## APPLICATION for an OPERATING PERMIT FOR WASTEWATER TREATMENT AND DISPERSAL

PERMITTEE PAUL TRACY PARCEL NUMBER 19-0-04170Z

ADDRESS 48321 285TH AVE. PALISADE

LEGAL DESCRIPTION T.49 R.25 S.24

TELEPHONE # 218-343-7342 GIS LOCATION \_\_\_\_\_

**A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM:**  
(Attach ISTS site evaluation and design; estimated cost of system construction, operation, monitoring, service, component replacement, and management; anticipated system life, hydraulic and organic loading rates)

CLAY SOILS @ 8" - TREATMENT WITH 3' SAND LIFT MOUND.

**B. MONITORING PLAN AND REPORTING FREQUENCY:**

PARAMETER	COMPLIANCE LIMIT	SAMPLE LOCATION	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTING FREQUENCY
FLOW	<u>300 GPD</u>	<u>EVENT COUNTER</u>	<u>MONTHLY</u>		<u>YEARLY TO COUNTY</u>
5-DAY BOD					
TOTAL NITROGEN					
TOTAL PHOSPHORUS					
TSS					
FATS, OILS AND GREASE					
FECAL COLIFORM					
SEPARATION DISTANCE	<u>3'</u>	<u>MOUND</u>	<u>YEARLY</u>	<u>PIT</u>	<u>YEARLY TO COUNTY</u>

HOME OWNER RECORDS EVENT COUNTER MONTHLY AND REPORTS TO COUNTY

HOME OWNER will perform the monitoring of this septic system.

**C. MAINTENANCE PLANS**

PARAMETER	LOCATION	FREQUENCY
300 GPD	EVENT COUNTER AT PUMP TANK	MONTHLY

**D. MITIGATION PLAN:**

INSPECT SYSTEM 1 YEAR AFTER INSTALL.

I hereby certify with my signature as the designer, that all data for the operating permit application is true and correct to the best of my knowledge. I agree to indemnify and hold Aitkin County harmless from loses, damages, costs and charges that may be incurred by the County because of the information submitted with this application.

Roger Hurd  
Signature

3847  
License Number

10 JUL 21  
Date

ROGER HURD  
Name (please print)

2169 SCHELINDER RD.  
Address CARLTON, MN.  
55718

218-391-0510  
Telephone #