

Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information

Date: 6/6/2022 Sec / Twp / Rng 1/51n-27w
 Parcel ID 54-0-000100 LUG (county, city, township) aitkin co
 Property Owner: James Niehoff Owners address (if different) _____
 Property Address: 63609 400th pl _____
 City / State / Zip: hill city minn _____

Flow Information and Waste Type / Strength

Estimated Design flow 300 Anticipated Waste strength Hi Strength Domestic
 Comments: Any Non-Domestic Waste Yes (class V) No
 Sewage ejector/grinder pump Yes No
 Water softener Yes No
 Garbage Disposal Yes No
 Daycare / In home business Yes No

Site Information

Existing & proposed lot improvements located (see site map) Yes No Well casing depth 50+
 Easements on lot located (see site map) Yes No Drainfield w/in 100' of residential well Yes No
 Property lines determined (see site map) Yes No Site w/in 200' of transient noncommunity water supply (TNCWS) Yes No
 Req'd setbacks determined (see site map) Yes No Site w/in an inner wellhead mgmt zone (CWS/NTNCWS) Yes No
 Utilities located & identified (gopher state one call) Yes No Buried water supply pipe w/in 50' of system Yes No
 Access for system maintenance (shown on site map) Yes No Site located in Shoreland (w/in 1000' of lake, 300' of river) Yes No
 Soil treatment area protected Yes No Site map prepared with previous items included Yes 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	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Soil logs completed and attached	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Perk test completed and attached (if applicable)
			<input type="checkbox"/> Yes <input type="checkbox"/> No
Soil loading rate (gpd/ft ²)	<u>0.78</u>		Percolation rate (if applicable)

Depth/elev to SHWT	<u>18.00</u>		Flooding or run-on potential (comments)
			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Depth to system bottom maximum (or elev minimum)	<u>-18.00</u>		
			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)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> 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


Company

1174
License #

Soil Observation Log

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Owner Information	
Property Owner / project: <u>James Niehoff</u>	Date <u>6/6/2022</u>
Property Address / PID: <u>63609 400th pl</u>	

Soil Survey Information	
<input type="checkbox"/> refer to attached soil survey	
Parent mat'l's:	<input checked="" type="checkbox"/> Till <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Alluvium <input type="checkbox"/> Organic <input type="checkbox"/> Bedrock
landscape position:	<input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Side slope <input type="checkbox"/> Toe slope
soil survey map units:	<u>870C</u> slope <u>10</u> % direction- <u>downhill</u>

Soil Log #1							
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
		<input type="checkbox"/> Boring <input checked="" type="checkbox"/> Pit	Elevation <u>100</u>	Depth to SHWT <u>40</u>			
0-6	Loam	<35	10YR 2/1		Loose	Loose	Granular
7-18	Silt Loam	<35	10YR 4/4		Friable	Weak	Granular
19-28	Silt Loam	<35	7.5YR 4/6		Friable	Weak	Granular
29-40	Med Sand	<35	7.5YR 4/4		Loose	Loose	Granular
41	Clay	<35	10YR 4/4		Firm	Strong	Blocky
Comments:							
63609 400th pl				Soil Log #2			

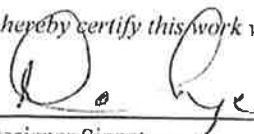
		<input type="checkbox"/> Boring	<input checked="" type="checkbox"/> Pit	Elevation <u>99</u>		Depth to SHWT <u>22</u>			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape		
0-5	Loam	<35	10YR 2/1		Loose	Loose	Granular		
6-18	Silt Loam	<35	10YR 4/4		Friable	Weak	Granular		
19-24	Clay Loam	<35	7.5YR 4/6		Friable	Weak	Granular		
25	Clay	<35	7.5YR 4/6		Firm	loose weak moderate strong	single grain granular blocky prismatic platy massive		
		<35 35 - 50 >50			loose friable firm rigid	Moderate	Platy		

63609 400th pl

Soil Log #3

		<input type="checkbox"/> Boring	<input checked="" type="checkbox"/> Pit	Elevation <u>101</u>		Depth to SHWT <u>23</u>			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape		
0-5	Loam	<35	10YR 2/1		Loose	Loose	Granular		
6-15	Silt Loam	<35	10YR4/4		Friable	Weak	Granular		
16-20	Clay Loam	<35	7.5YR 4/6		Friable	Weak	Granular		
21	Clay	<35	7.5YR4/4		Firm	Moderate	Platy		
		<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

Langes Nursery and Landscap
Company

1174

License #

63609 400th pl

Soil Log #4

		<input type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation _____		Depth to SHWT _____			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape		

Mound Design - Aitkin county

Property Owner: James Niehoff

Date: 6/6/2022

Site Address: 63609 400th pl

PID: 54-0-000100

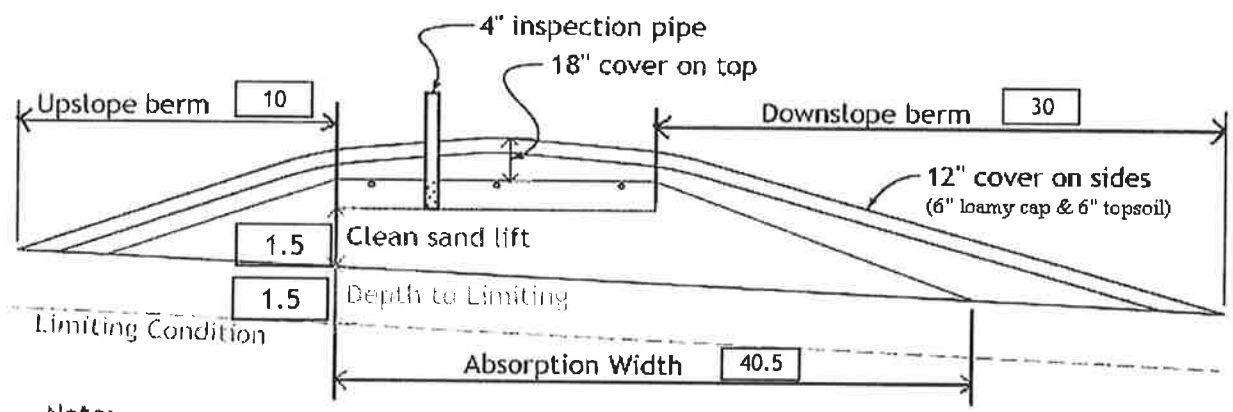
Comments: _____

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: none
- 5) GPD/ft² 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) gpd/ft² Absorption area Soil Loading Rate, which gives a mound ratio of (minimum)

- (this must match the soil boring log) desired mound ratio **1.5**
- 24) **10** percent site slope (0-20% range) **10** (% downslope site slope, if different than upslope)
- 25) **18** inches, or **1.5** 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) **18** inch, or **1.5** ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 27) **15.0** ft. base absorption width (with sand beyond rockbed as follows):
40.5 greater of: absorption width OR sand slope
- 28) **0.0** ft. upslope and sideslope sand upslope **7.2**
5.0 ft. Downslope sand down slope **23.3**
- Individual slope ratios give BERM widths (topsoil beyond rockbed) of:
- 29) **4:1** upslope ratio **10** ft. upslope berm
- 30) **4:1** sideslope **18** ft. sideslope berms
- 31) **4:1** downslope **30** ft. downslope berm
- 32) Overall Dimensions: **10.0** ft. wide by **25.0** ft. long Rock bed
50 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 **6** inches under pipe, plus 20% gives **9** yd³ 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)
17.5 up + **80.2** downslope + **18.1** ends + **18.5** under rock = **161** yd³ or *1.4= **226** ton
plus 20%
- 35) Loamy Cap: **46** ft. by **57** ft. 6" deep, plus 20% gives **59** yd³ or *1.4= **83** ton
- 36) Topsoil: **50** ft. by **61** ft. 6" deep, plus 20% gives **68** yd³ or *1.4= **95** ton

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

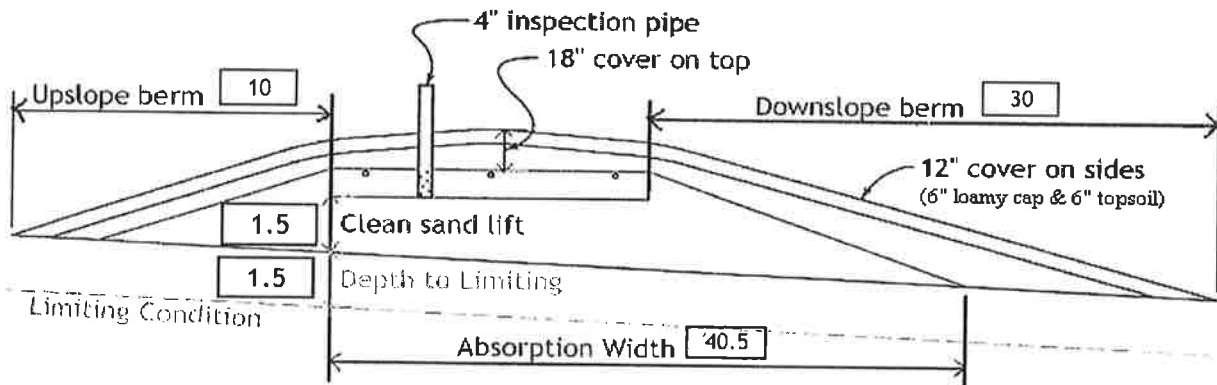
Designer Signature: [Signature]
 Company: Louis Hussey
 License#: 1174
 Date: 6/6/2022

Installer Summary

1000 gallon Septic tank (minimum) Tank options: none

gallon Dose tank (minimum) at gpi
 GPM @ ft. of head, Pump required
 inch swing on Demand float which translates to roughly inches of float tether length
 if time dosing is required --> minutes ON time & hours OFF time
 inches from bottom of tank to "pump ON" float, or inches to "timer ON" float
 inches from bottom of tank to "Hi Level Alarm" or inches to "Hi level alarm" if time dosed
 ft. of inch supply line with manifold connection
 (Tip: "top feed" manifold to control drainback)
 inch, or ft. Sand Lift Mound
 ft. wide by ft. long Rock bed
 laterals inch diameter ft. long ft. lateral spacing
 inch perfs ft. perforation spacing
 Effluent filter & alarm
 clean out & valve box assemblies

ft. Total sand ABSORPTION width (minimum)
 ft. upslope and sideslope (sand beyond rockbed, minimum)
 ft. Downslope (sand beyond rockbed, minimum)
 Specific slope ratios give BERM widths (topsoil beyond rockbed) of:
 upslope ratio ft. upslope berm
 sideslope ft. sideslope berms
 downslope ft. downslope berm



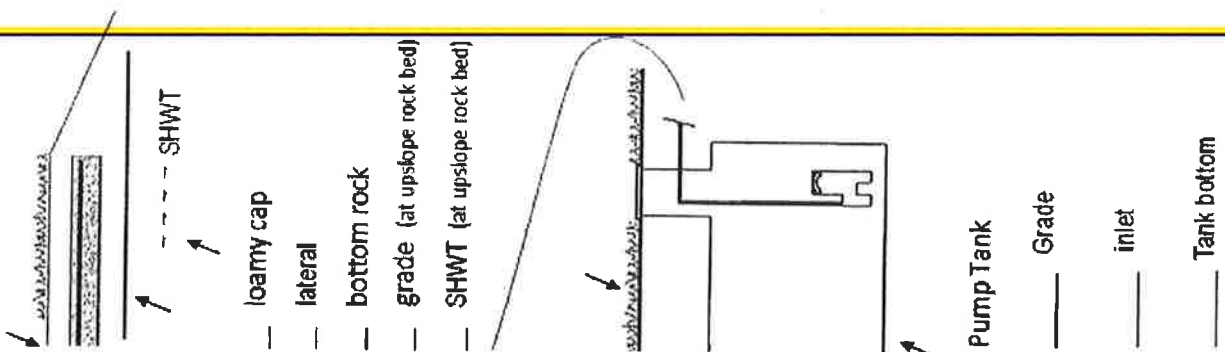
Note:
 For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.
 For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

Rock Bed:	<input type="text" value="9.0"/> yd ³ or *1.4=	<input type="text" value="13"/> ton	<input type="text" value="6"/> inches under pipe
Mound Sand:	<input type="text" value="161"/> yd ³ or *1.4=	<input type="text" value="226"/> ton	calculation based on 3:1/4:1 slope from top of rockbe
Loamy Cap:	<input type="text" value="59"/> yd ³ or *1.4=	<input type="text" value="83"/> ton	<input type="text" value="6"/> " deep
Topsoil:	<input type="text" value="68"/> yd ³ or *1.4=	<input type="text" value="95"/> ton	<input type="text" value="6"/> " deep

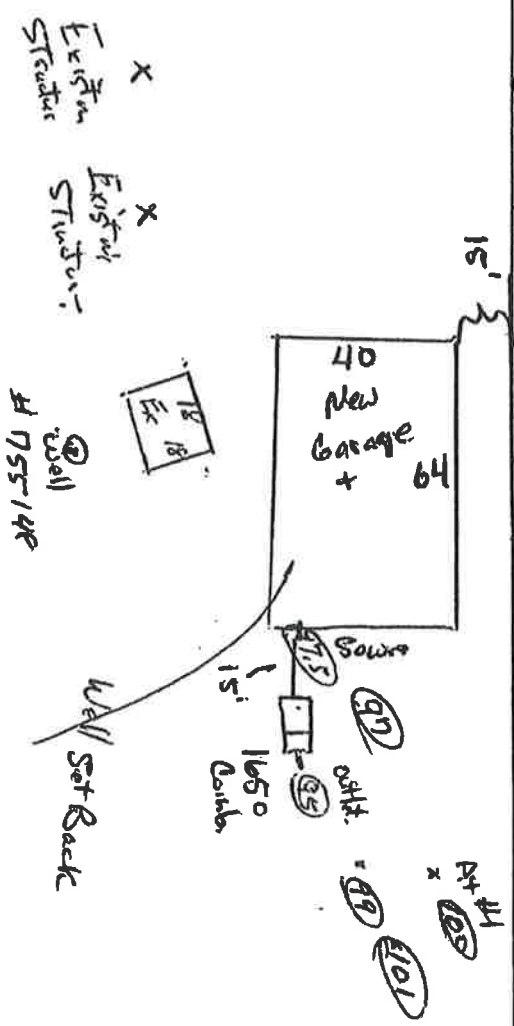
INSPECTOR CHECKLIST - mound

<input type="checkbox"/>	63609 400th pl	
<input type="checkbox"/>	WELL setbacks:	20' to pressure tested sewer line (5 psi for 15 min) 50' to everything 100' to dispersal area with shallow well
<input type="checkbox"/>	PROPERTY LINES setback:	10' to everything
<input type="checkbox"/>	Road setback:	platted: 10' prop line. Metes & bounds: out of road easement, or outer ditch.
<input type="checkbox"/>	LAKE/BLUFF setback:	20' for bluff. Lakes: GD ____, RD ____, NE _____. Protected wetland ____.
<input type="checkbox"/>	Building setbacks:	10' for everything, 20' for dispersal area.

- WATER LINE under pressure sc 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 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 _____ 500 gallons
- dose pump _____ 18 gpm 16 head VERIFY PUMP CURVE 4.6 min ON 9 hr OFF
- float setting drop 6.5 inches at 12.7 gpi "DESIGNED" 4.3 inches approx float tether length
82.0 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 18 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)
- Absorption Sand beyond rock 7.2 upslope 23.3 downslope
- Bermed topsoil beyond rockbed 10 upslope 18 sideslope 30 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 _____



South P.L. Slop Height 100



54-0-000100

James Nicholff
63609 400th place

Dave haye #1174

1" - 40'

Sols 870 <

Pump Height 92
Dis. Pipe 102

North ↑

506 +
P.L. →
500 +