

Preliminary & Field Evaluation Form

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Owner Information			
Date	<u>5/20/2019</u>	Sec / Twp / Rng	<u>S-32, T-47, R-27</u>
Parcel ID	<u>01-0-077712</u>	LUG (county, city, township)	<u>Aitkin Co.</u>
Property Owner:	<u>Lyle Carr</u>	Owners address (if different)	
Property Address:	<u>34918 444th Pl. Aitkin MN 56431</u>	<u>34918 444th PL.</u>	
City / State / Zip:	<u>Aitkin MN 56431</u>		

Flow Information and Waste Type / Strength			
Estimated Design flow	<u>450</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>deep well</u>	
Easements on lot located (see site map)	<input type="checkbox"/> Yes	<input checked="" 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) By Others	<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/NTCWS)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Utilities located & identified (gopher state one call)	<input type="checkbox"/> Yes	<input checked="" 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	<u>Remove old Tank</u>				

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 checked="" type="checkbox"/> No
Soil loading rate (gpd/ft ²)	<u>0.60</u>	Percolation rate (if applicable)	_____	
Depth/elev to SHWT	<u>12"</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>(+24")</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

Brummer Septic LLC.
Company

L-1347
License #

Soil Observation Log

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Owner Information	
Property Owner / project: <u>Lyle Carr</u>	Date <u>5/20/2019</u>
Property Address / PID: <u>34918 444th Pl. Aitkin MN 56431</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 type="checkbox"/> Summit <input checked="" type="checkbox"/> Shoulder <input type="checkbox"/> Side slope <input type="checkbox"/> Toe slope
soil survey map units:	<u>504B & 504C</u> slope <u>4</u> % direction- <u>NE</u>

Soil Log #1							
<input checked="" type="checkbox"/> Boring <input type="checkbox"/> Pit		Elevation <u>97.9'</u>		Depth to SHWT <u>12"</u>			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	Topsoil Sandy Loam	<35	10YR3/2		Loose	Loose	Granular
6 - 12	Silt Loam	<35	10YR4/4	E Horizon	Loose	Loose	Granular
12 - 16	Silt Loam	<35	10YR5/4 mixed with 7.5YR4/4	Start of a limiting layer	Friable	Weak	Blocky
16-20	Clay Loam	<35	7.5YR4/4		Friable	Moderate	Platy
		<35			Loose	Loose	Granular
Comments:							

34918 444th Pl. Aitkin MN 56431

Soil Log #2

<input checked="" type="checkbox"/> Boring <input type="checkbox"/> Pit		Elevation <u>97.8'</u>		Depth to SHWT <u>12"</u>			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	Topsoil Sandy Loam	<35	10YR3/2		Loose	Loose	Granular
6 - 12	Silt Loam	<35	10YR4/4	E Horizon	Loose	Loose	Granular
12 - 16	Silt Loam	<35	10YR5/4 mixed with 7.5yr4/4	Start of a limiting layer	Friable	Weak	Blocky
16-20	Clay Loam	<35	7.5YR4/4		Friable	Moderate	Platy
		<35			Loose	Loose	Granular

34918 444th Pl. Aitkin MN 56431

Soil Log #3

<input type="checkbox"/> Boring <input type="checkbox"/> Pit		Elevation _____		Depth to SHWT _____			
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
		<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.

Designer Signature 

Brummer Septic LLC.
Company

L-1347
License #

Mound Design - Aitkin county

Property Owner: Lyle CarrDate: 5/20/2019Site Address: 34918 444th Pl. Aitkin MN 56431PID: 01-0-077712

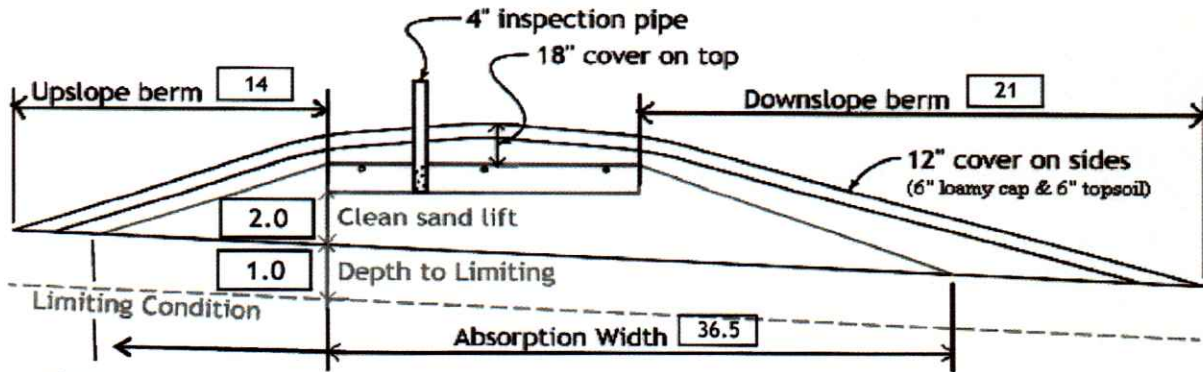
Comments: _____

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

- 1) 3 bedroom Type 1 Residential System
- 2) 450 GPD design flow
- 3) No Garbage disposal or pumped to septic Install Jacobson 1650 compartment tank
- 4) 1000 Gal Septic tank (code minimum) 1120 Gal Septic tank (design size / LUG req'd)
Tank options: Effluent filter & alarm req'd
- 5) 1.2 GPD/ft² mound sand loading rate contour loading rate of 12 req's a min 37.5 ft. long rockbed
- 6) 10.0 ft rockbed width 37.5 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 35.5 feet long 12.0 perfs / lateral 36 perfs total
(1/2 a perf means the first perf starts at the middle feed manifold)
- 9) 1/4" inch perfs at 1 feet residual head gives 0.74 gpm flow rate per perforation
for this perf size & spacing, & pipe size on line 12, max perfs/lateral = 16, line #8 must be less --> OK
- 10) 7.0 doses per day (4 minimum)
- 11) 64 gallons per dose (treatment volume) 1.50 5x
- 12) 1.50 inch diameter laterals must be used to meet "4x pipe volume" requirement 2.00 3x
- 13) 45 feet of 2.0 inch supply line leads to 8 gallons of drainback volume
(Tip: "top feed" manifold to control the drainback)
- 14) 72 gallons TOTAL pump out volume (treatment + drainback)
- 15) 12 feet vertical lift from pump to mound laterals, leads to a:
- 16) 27 GPM @ 19 feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)
- 17) 500 gal Dose tank (code minimum) 533 gal Dose tank (design size / LUG req'd) at 12.69 gpi
leads to a
- 18) 5.7 inch swing on Demand float, or timed dosing of 2.7 min ON (confirm pump rate with drawdown
(this delivers Average flow, =70% of Peak design flow) 5.1 hrs OFF test and adjust as necessary)
- 19) 12 inches from bottom of tank to "Pump OFF" float
- 20) 18 inches from bottom of tank to "Pump ON" float, or 12 inches to "Timer ON" float if time dosed
- 21) 21 inches from bottom of tank to "Hi Level" float, or 31 inches to "Hi Level" float if time dosed
- 22) 267 gallons reserve capacity (after High Level Alarm is activated)

Installer Summary

- 1120 gallon Septic tank (minimum) Tank options: Effluent filter & alarm req'd
 Install Jacobson 1650 compartment tank
 533 gallon Dose tank (minimum) at 12.69 gpi
- 27 GPM @ 19 ft. of head, Pump required
 5.7 inch swing on Demand float which translates to roughly 3.9 inches of float tether length
 if time dosing is required --> 2.7 minutes ON time & 5.1 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
- 45 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 37.5 ft. long Rock bed
 3 laterals 1.50 inch diameter 35.5 ft. long 3.0 ft. lateral spacing
 1/4" inch perfs 3.0 ft. perforation spacing
- Yes Effluent filter & alarm
 3 clean out & valve box assemblies
- 36.5 ft. Total sand ABSORPTION width (minimum)
 10.4 ft. upslope and sideslope (sand beyond rockbed, minimum)
 16.2 ft. Downslope (sand beyond rockbed, minimum)
- Specific slope ratios give BERM widths (topsoil beyond rockbed) of:
- | | |
|--|---|
| <input type="checkbox"/> 4:1 upslope ratio | <input type="checkbox"/> 14 ft. upslope berm |
| <input type="checkbox"/> 4:1 sideslope | <input type="checkbox"/> 18 ft. sideslope berms |
| <input type="checkbox"/> 4:1 downslope | <input type="checkbox"/> 21 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="checkbox"/> 17.0 yd ³ or *1.4=	<input type="checkbox"/> 24 ton	<input type="checkbox"/> 9 inches under pipe
Mound Sand:	<input type="checkbox"/> 183 yd ³ or *1.4=	<input type="checkbox"/> 256 ton	calculation based on 3:1/4:1 slope from top of rockbe
Loamy Cap:	<input type="checkbox"/> 64 yd ³ or *1.4=	<input type="checkbox"/> 90 ton	<input type="checkbox"/> 6" deep
Topsoil:	<input type="checkbox"/> 74 yd ³ or *1.4=	<input type="checkbox"/> 104 ton	<input type="checkbox"/> 6" deep

INSPECTOR CHECKLIST - mound

34918 444th Pl. Aitkin MN 56431

- 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 _____ 1120 gallons Effluent filter & alarm req'd _____

- Riser over outlet, riser over inlet or center, and 6"+ inspection pipe over any remaining baffles.
Yes _____ effluent filter & alarm
- Dose tank risers and piping (water tight, insulated, proper depth, drainback)
mfg _____ 533 gallons

- dose pump _____ 27 gpm 19 head VERIFY PUMP CURVE 2.7 min ON 5.1 hr OFF

- float setting drop 5.7 inches at 12.7 gpi "DESIGNED" 3.9 inches approx float tether length
72.0 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 37.5
- Sand lift depth 24 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)

- Absorption Sand beyond rock 10.4 upslope 16.2 downslope

- Bermed topsoil beyond rockbed 14 upslope 18 sideslope 21 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

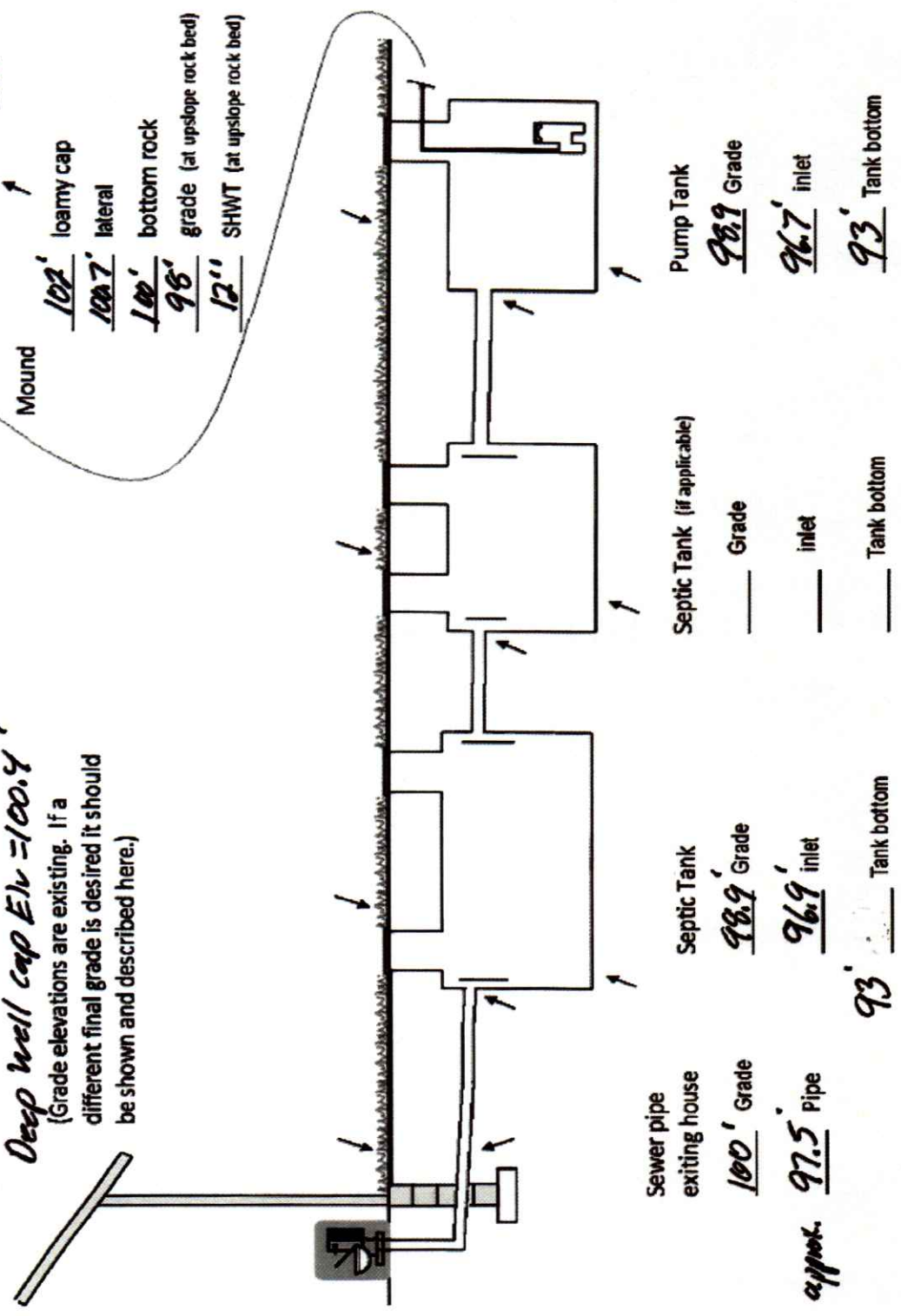
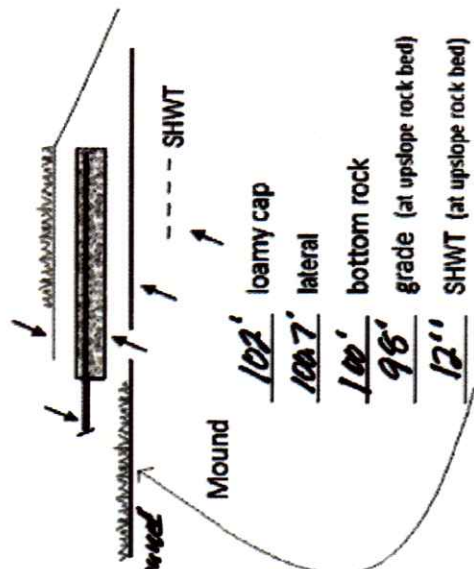
- Air inlet at end of laterals, and at top feed manifold if necessary. VERIFY
- clean outs (no hard 90's)
- 4" inspection pipe to bottom of rock, anchored VERIFY

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

System Elevations

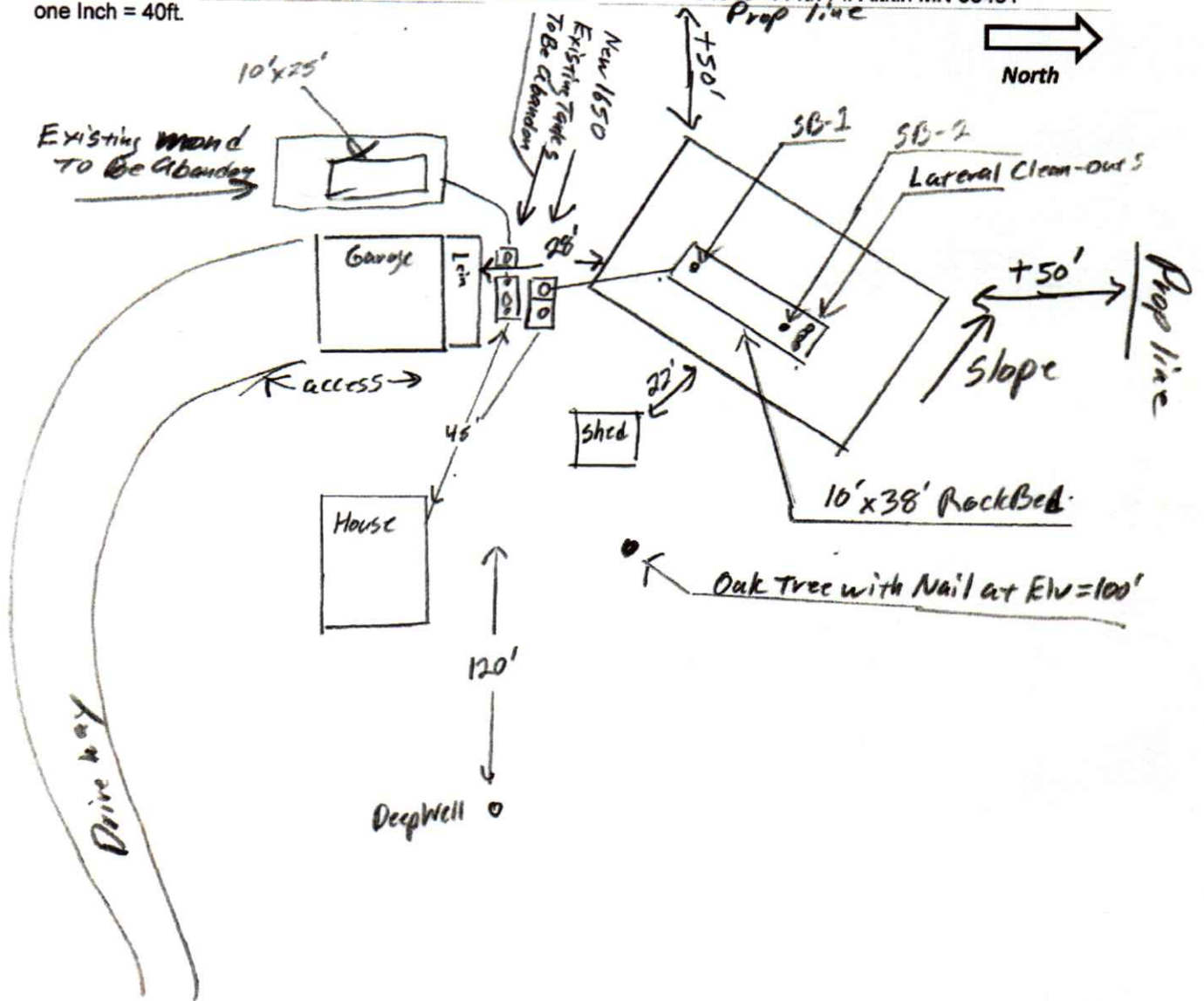
Elv = 100' benchmark Nail on Oak Tree south of Mound

Deep well cap Elv = 100.4'
 (Grade elevations are existing. If a different final grade is desired it should be shown and described here.)



{ Design Drawing }

Property Owner: Lyle Carr Date: 5/20/19 Designer's Initials: JB
 Parcel ID. Number: 01-0-077712 Address: 34918 444th Pl. Aitkin MN 56431
 one Inch = 40ft.



Deep Well Cap Elv. = 100.4'

Surface/ SHWT	Nail on Tree = Bench Mark 100'		Existing Grade
Soil Bore 1 97.9'/12"	Bench Mark	100'	Upslope Edge Elv. = 98'
Soil Bore 2 97.8'/12"	Ground Elv. BM	99.2'	Bottom of rockbed Elv. = 100'
Soil Bore 3	Ground Elv. Tank	98.9'	Top of Washed Sand Elv. = 100'
Ground at	Existing house	100'	Inlet Existing Tank Elv. = 96.9'

Please show all that apply (Existing)

Please Draw to Scale with North to Top or Left Side of Page:

- Wells within 100ft. Of Drain field.
- Water lines within 10 ft. of Drain field.
- Drain field Areas:

- Disturbed/Compacted Areas
- Component Location
- OHW ordinary high water
- Lot Easements

- Access Route for Tank Maintenance
- Property Lines
- Structures
- Setbacks

Subsurface Sewage Treatment System Management Plan

Property Owner: Lyle Carr Phone: (218) 831-4038 Date: 5/20/2019
Mailing Address: 34918 444 PL. City: Aitkin MN Zip: 56431
Site Address: 34918 444th Pl. City: Aitkin MN Zip: 56431

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.

System Designer: check every 12 months.
Local Government: check every _____ months.
State Requirement: check every 36 months.

**My System needs to be checked
every 12 months.**

(State requirements are based on MN Rules Chapter 7080.2450, Subp. 2 & 3)

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 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)

Professional Management Tasks

- Check to make sure tank is not leaking
- Check and clean the in-tank effluent filter
- 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: Jeff Brummer Date: 5/20/2019

See Reverse Side for Management Log

Maintenance Log

Activity	Date Accomplished									
<i>Check frequently:</i>										
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 _____)										
<i>Check annually:</i>										
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: Check & Clean Effluent filter at least twice a year. Check all alarms at least once a year.

Pump septic & pump tanks at least once every three years.

Mow Mound area at least once a year to keep trees and brush from growing in mound area.

No Traffic on mound area, No Snowmobiles, No ATV's, No Parking.

Mitigation/corrective action plan: _____
