

Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information			
Date	<u>6/25/2019</u>	Sec / Twp / Rng	<u>s-21, T-50, R-26</u>
Parcel ID	<u>50-0-032500</u>	LUG (county, city, township)	<u>Aitkin Co.</u>
Property Owner:	<u>Loren Mathison</u>	Owners address (if different)	
Property Address:	<u>37996 540th St.Palisade Mn 56469</u>	<u>PO Box. 127</u>	
City / State / Zip:		<u>Clearwater MN 55320</u>	

Flow Information and Waste Type / Strength			
Estimated Design flow	<u>600</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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Well casing depth	Existing deep well	
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/NTNCWS)	<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 type="checkbox"/> Yes	<input checked="" 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	<hr/> <hr/>				

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>0.50</u>		Percolation rate (if applicable)	_____	
Depth/elev to SHWT	<u>16"</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

www.SepticResource.com vers 12.4

Owner Information	
Property Owner / project: <u>Loren Mathison</u>	Date <u>6/25/2019</u>
Property Address / PID: <u>37996 540th St.Palisade Mn 56469</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 type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Side slope <input type="checkbox"/> Toe slope
soil survey map units:	<u>204B</u> slope <u>2</u> % direction- <u>South</u>

Soil Log #1							
		<input checked="" type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation <u>97.8'</u>	Depth to SHWT <u>22"</u>		
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	Topsoil Sandy Loam	<35	10YR3/2		Loose	Loose	Granular
6 - 22	Clay Loam	<35	10YR5/4		Friable	Weak	Blocky
22 - 26	Clay Loam	<35	10YR5/4	7.5YR4/4	Friable	Weak	Blocky
26 - 32	Clay	<35	10YR4/4		Friable	Moderate	Blocky
Comments:							

37996 540th St.Palisade Mn 56469

Soil Log #2

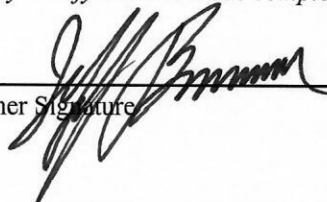
<input checked="" type="checkbox"/> Boring <input type="checkbox"/> Pit		Elevation <u>97.7'</u>		Depth to SHWT <u>16"</u>			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	Topsoil Sandy Loam	<35	10YR3/2		Loose	Loose	Granular
6 - 16	Clay Loam	<35	10YR5/4		Friable	Weak	Blocky
16 - 22	Clay Loam	<35	10YR5/4	7.5YR4/4	Friable	Weak	Blocky
		<35					

37996 540th St.Palisade Mn 56469

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

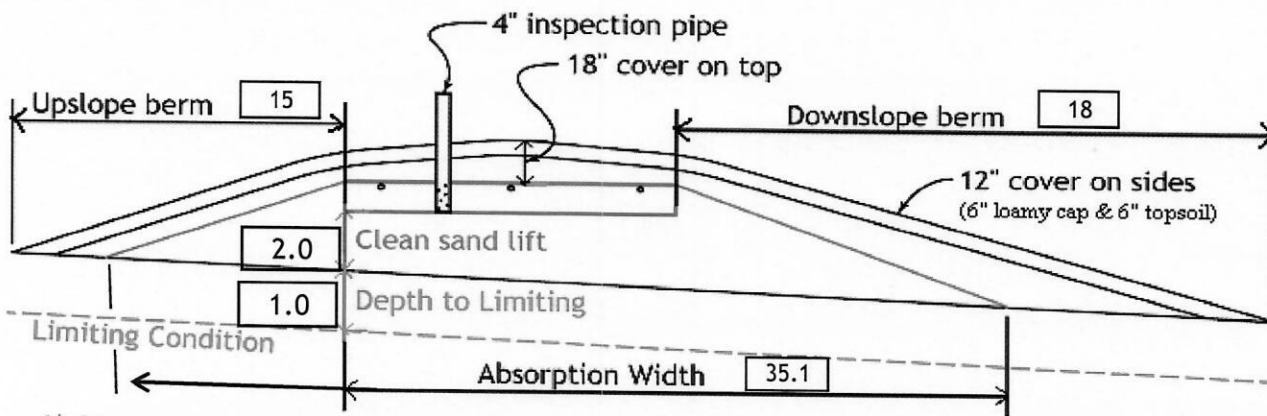
Property Owner: Loren Mathison Date: 6/25/2019
 Site Address: 37996 540th St.Palisade Mn 56469 PID: 50-0-032500
 Comments: Replacing failing system

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 Install Jaconbson 1650 2/Compartment Tank
- 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 --> ERROR
- 10) doses per day (4 minimum)
- 11) gallons per dose (treatment volume) 1.50 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)

Install Electric alarm on pump tank

- 23) 0.50 gpd/ft² Absorption area Soil Loading Rate, which gives a mound ratio of 2.4 (minimum)
 (this must match the soil boring log) desired mound ratio 2.4
- 24) 2 percent site slope (0-20% range) 2 (% downslope site slope, if different than upslope)
- 25) 12 inches, or 1.0 ft. to Redox or other limiting condition (need at least 12" to be a Type I)
 Treatment zone contains 0 inches of 0% soil credit, and 0 inches of 50% soil credit. Giving a:
- 26) 24 inch, or 2.0 ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 27) 24.0 ft. base absorption width (with sand beyond rockbed as follows):
 35.1 greater of: absorption width OR sand slope
- 28) 0.0 ft. upslope and sideslope sand upslope 11.1
 14.0 ft. Downslope sand down slope 13.9
- Individual slope ratios give BERM widths (topsoil beyond rockbed) of:
- 29) 4:1 upslope ratio 15 ft. upslope berm
- 30) 4:1 sideslope 17 ft. sideslope berms
- 31) 4:1 downslope 18 ft. downslope berm
- 32) Overall Dimensions: 10.0 ft. wide by 50.0 ft. long Rock bed
 43 ft. wide by 84 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 50.0 ft. by 9 inches under pipe, plus 20% gives 23 yd³ or *1.4= 32 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)
 46.9 up + 62.7 downslope + 15.2 ends + 38.9 under rock = 196 yd³ or *1.4= 275 ton
 plus 20%
- 35) Loamy Cap: 39 ft. by 80 ft. 6" deep, plus 20% gives 70 yd³ or *1.4= 98 ton
- 36) Topsoil: 43 ft. by 84 ft. 6" deep, plus 20% gives 81 yd³ or *1.4= 113 ton

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

Jeff Brummer
 Designer Signature

Brummer Septic LLC.
 Company

L-1347
 License#

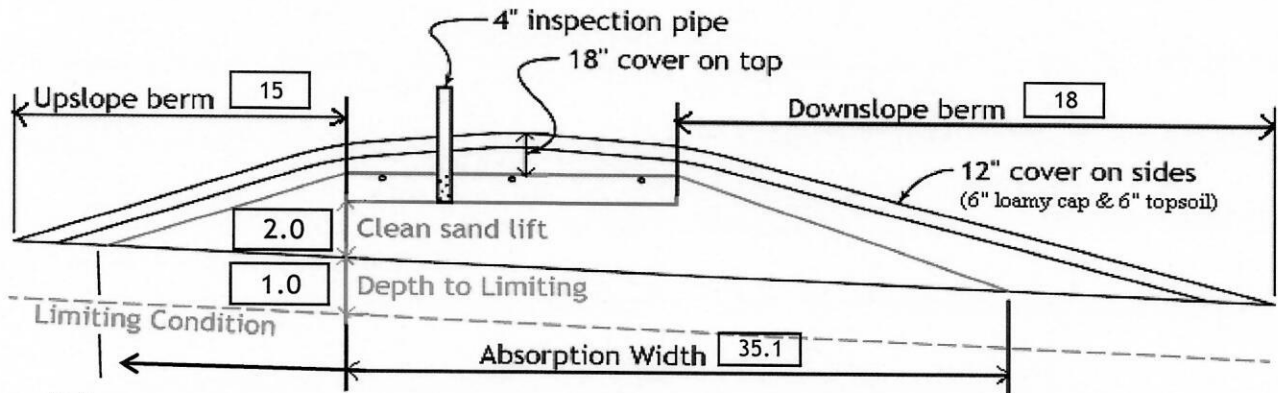
6/25/2019
 Date

Installer Summary

- 1120 gallon Septic tank (minimum) Tank options: none
- 533 gallon Dose tank (minimum) Install Jaconbson 1650 2/Compartment Tank
at 12.69 gpi
- 38 GPM @ 20 ft. of head, Pump required
- 7.5 inch swing on Demand float which translates to roughly 4.8 inches of float tether length
if time dosing is required --> 2.5 minutes ON time & 5.2 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
- 50 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 50.0 ft. long Rock bed
- 3 laterals 1.50 inch diameter 48.0 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
- 35.1 ft. Total sand ABSORPTION width (minimum)
- 11.1 ft. upslope and sideslope (sand beyond rockbed, minimum)
- 14.0 ft. Downslope (sand beyond rockbed, minimum)

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

4:1 upslope ratio	15 ft. upslope berm
4:1 sideslope	17 ft. sideslope berms
4:1 downslope	18 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:	23.0 yd ³ or *1.4=	32 ton	9 inches under pipe
Mound Sand:	196 yd ³ or *1.4=	275 ton	calculation based on 3:1/4:1 slope from top of rockbe
Loamy Cap:	70 yd ³ or *1.4=	98 ton	6" deep
Topsoil:	81 yd ³ or *1.4=	113 ton	6" deep

INSPECTOR CHECKLIST - mound

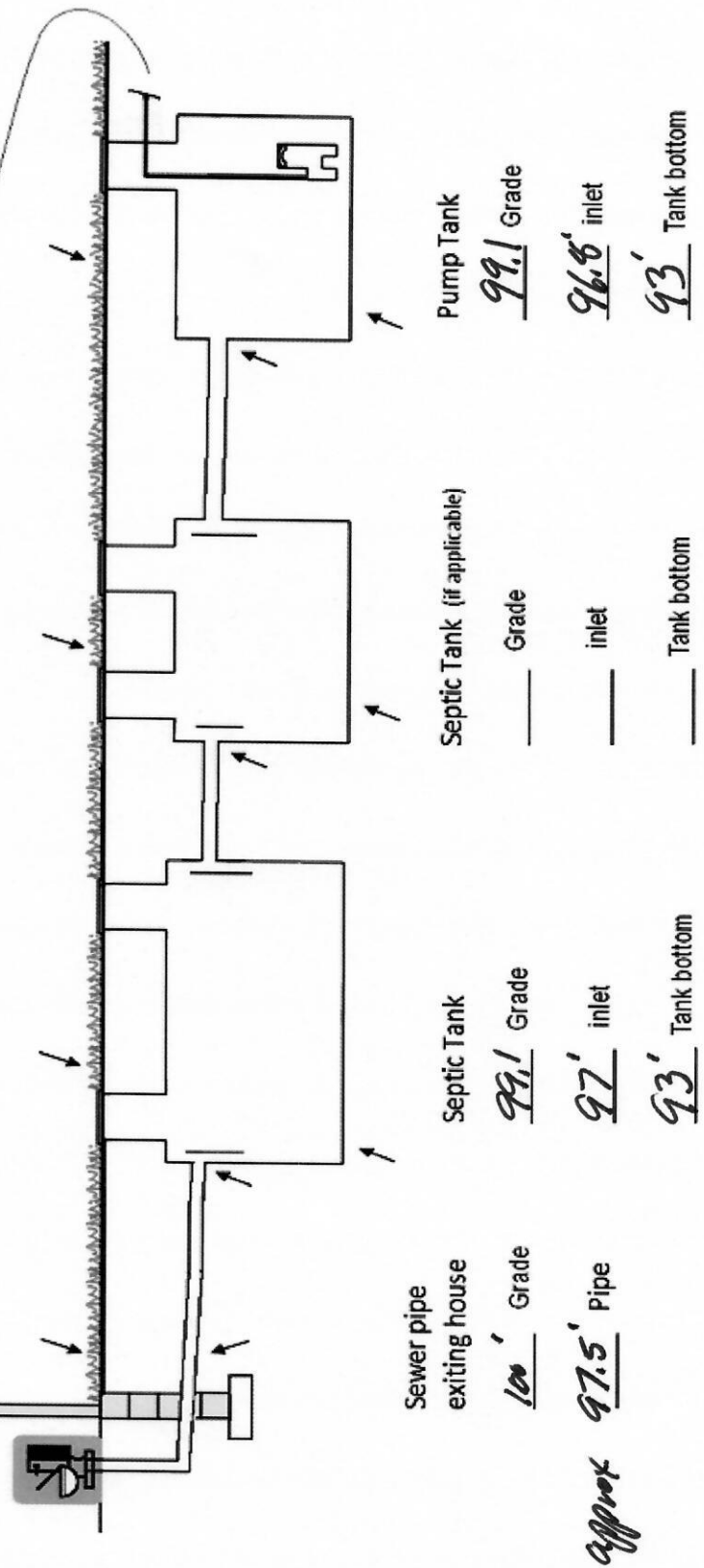
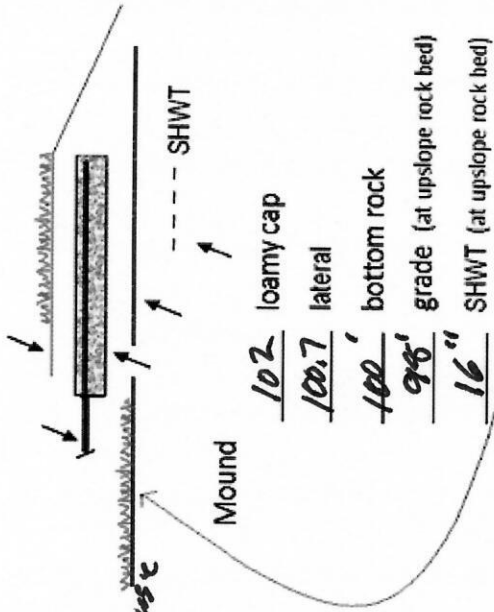
3/996 540th St. Palisade Mn 56469

- 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 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 _____ 533 gallons
- dose pump _____ 38 gpm 20 head VERIFY PUMP CURVE 2.5 min ON 5.2 hr OFF
- float setting drop 7.5 inches at 12.7 gpi "DESIGNED" 4.8 inches approx float tether length
95.0 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 50.0
- Sand lift depth 24 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)
- Absorption Sand beyond rock 11.1 upslope 14.0 downslope
- Bermed topsoil beyond rockbed 15 upslope 17 sideslope 18 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

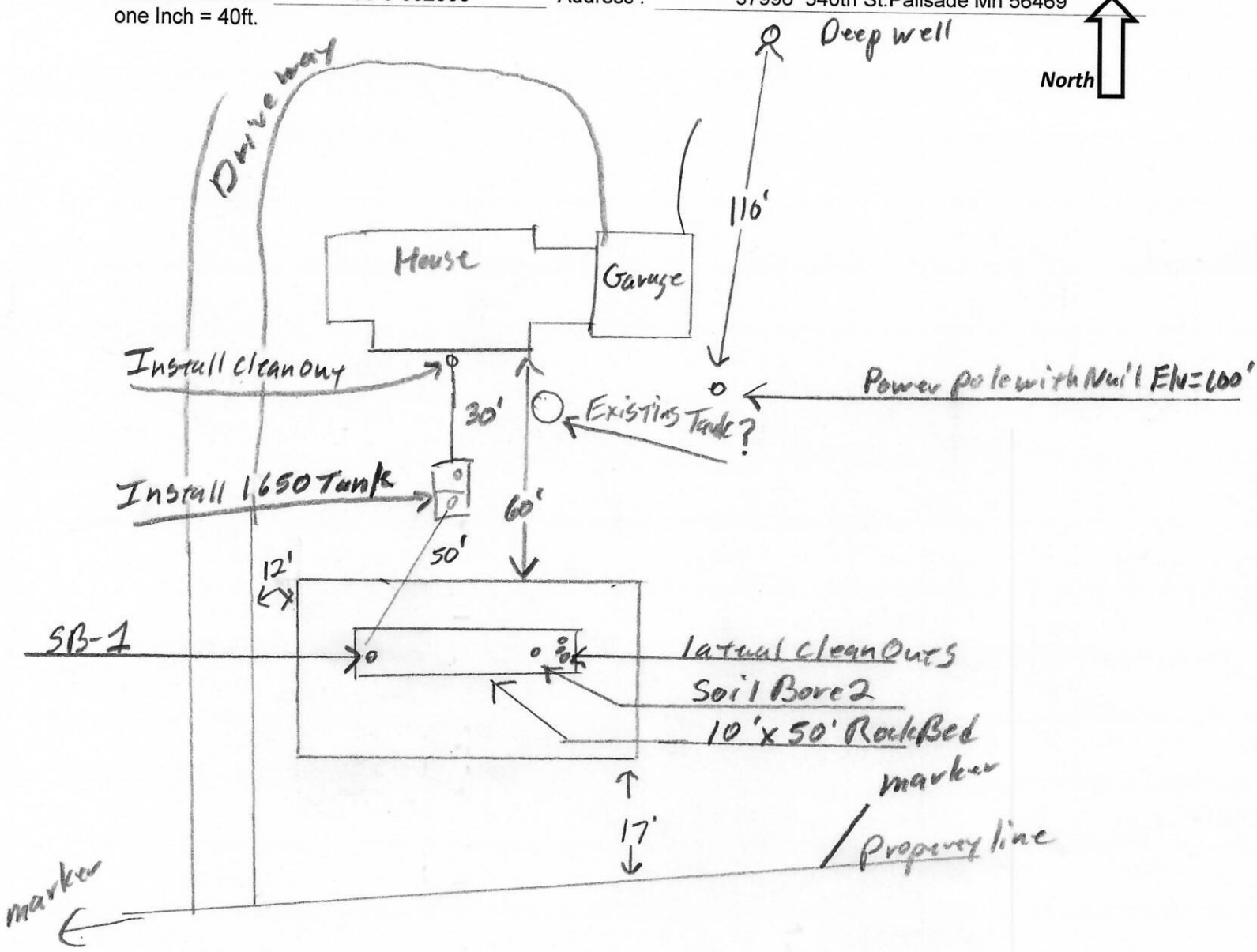
Elv = 100' benchmark Nail on power pole near House
 Top of well cap Elv = 98.2'

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



{ Design Drawing }

Property Owner: Loren Mathison Date: 6/25/19 Designer's Initials: JB
 Parcel ID. Number: 50-0-032500 Address: 37996 540th St. Palisade Mn 56469
 one Inch = 40ft.



Top of Well Cap Elv. = 98.2'

	Surface/ SHWT	Nail on power pole = Bench Mark 100'		Existing Grade	
Soil Bore 1	97.8'/22"	Bench Mark	100'	Upslope Edge Rockbed Elv. = 98'	
Soil Bore 2	97.7'/16"	Ground Elv. BM	98.3'	Bottom of Rockbed Elv. = 100'	
Soil Bore 3		Ground Elv. Tank	99.1'	Top of Washed Sand Elv. = 100'	
	Ground at	Existing house	100	Sewer pipe at house Elv. = 97.5'	

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.

Disturbed/Compacted Areas

Access Route for Tank Maintenance

Water lines within 10 ft. of Drain field.

Component Location

Property Lines

Drain field Areas:

OHW ordinary high water

Structures

Lot Easements

Setbacks

Mound Design Notes - Aitkin county

Property Owner: Loren Mathison

Date: 6/25/19

Site Address: 37996 540th St.Palisade Mn 56469

PID: 50-0-032500

Comments: **Mound design may not follow Aitkin co. Auto fill form for mound design.**

- 1 This is a type I mound for a 4 bedroom House. Existing deep well location NE of House.
- 2 Existing tank/tanks? Will be pumped, collapsed, filled or removed. Existing drainfield to be abandon.
- 3 South property line has Markers, it is not the road.
- 4 Bench Mark Elevation is a nail on a power pole near NE corner of mound area.
- 5 Install Jacobson 1650 Compartment tank for gravity flow from crawl space of house (approx. Elv.=97.5')
Install Electric alarm on pump tank.
- 6 Elevation contour of rock bed upslope edge is 98'.
The area size of the rock bed is 10' x 50' . Absorption area is 50' x 35.1'.
Sand absorption area is 11.1 ft. up slope + 10 ft. rockbed + 13.9 downslope = approx. 35.1 ft. wide sand base.
Berms are 15ft. Upslope, 18ft. Down slope, 10ft. Rock bed = approx. 43ft. Wide. End Berms are 17 ft.
Overall mound size is approx. 43' wide x 84' long and approx. 4' high.
- 7 The bench mark is the nail on the power pole near mound area, BM = Elv. 100'.
Installer to double check bench mark. Installer should confirm bench mark and sand height Elv. with inspector.
Installer should record bench mark Elv. and sand height on installation inspection form.
- 8 The top of the washed sand and bottom of rock bed is Elv. 100'.
It is important that the soils do not get compacted, and that clean washed sand is used.
- 9 The Jacobson 1650 compartment tank will be gravity flow from dwelling. Install the pump for 7 demand doses per day. approx. 95 gallons per dose, 7.5 inches of tank level. Install alarm at 3 inches from pump on level.
Install all manholes, inspection pipes and clean-outs to grade or above, insulate top of tank.
Install a 2" supply pipe from tank to end manifold in rock bed, install so pipe drains back to tank.
Install 1.5" laterals with 9" of rock under them. Install clean-outs at far end of laterals.
Drill 1/4" holes for Perf sizing, 36" on centers.
Install inspection pipe to bottom of rock bed, secure in rock bed and raise to above final grade.
- 11 Installer will pressure test and squirt height laterals when finished.

Designed to Aitkin Co. and MPCA recommendations and requirements.

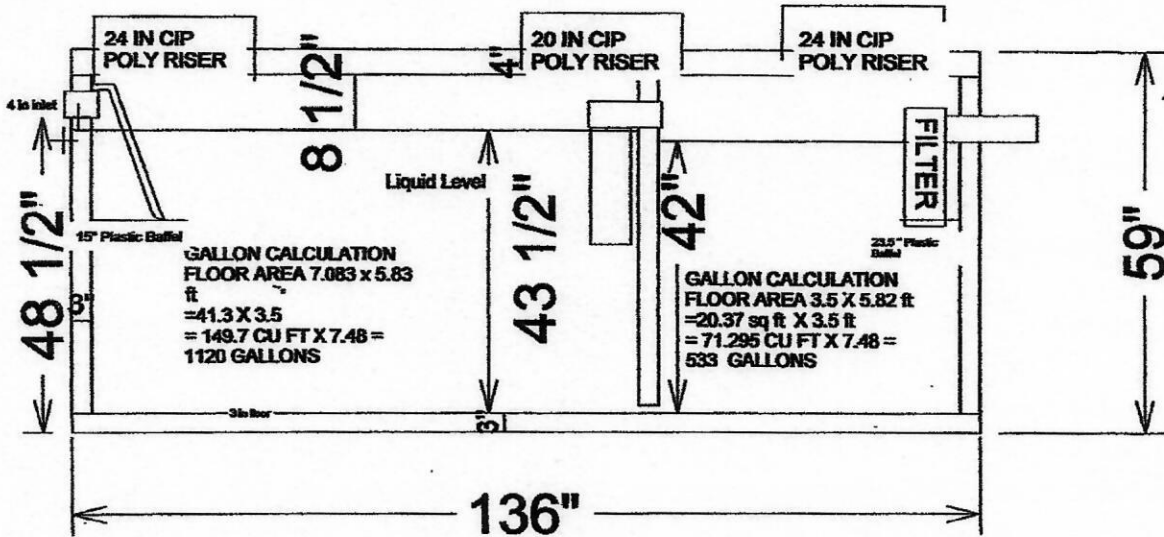
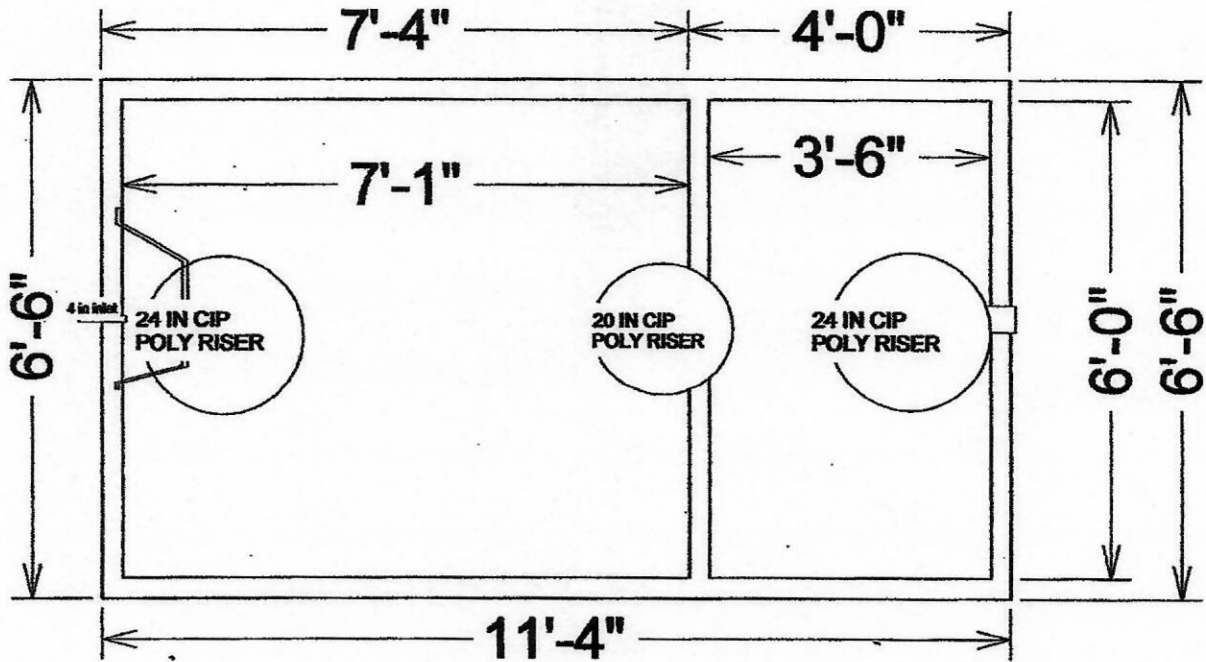

Designer Signature

Brummer Septic LLC.
Design Company

L-1347
License#

1650 Gallon 2 Compartment Septic Tank

TOP VIEW



$533 / 42" = 12.69 \text{ GPI}$

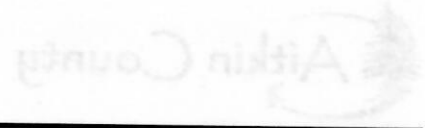
SIDE VIEW

Drawings Owned BY Jacobson Precast, Inc.
36641 HWY 169, Aitkin, Mn 56431



Detailed Parcel Report

Parcel Number: 50-0-032500



General Information

Township/City: 50-26 UNORG
Taxpayer Name: MATHISON, LOREN TRUSTEE
Taxpayer Address: PO BOX 127
CLEARWATER MN 55320
Property Address: 37996 540th St
Township: 50
Range: 26
Section: 21
Green Acres: No
Plat:
Brief Legal Description: SW-SW LESS THE W 446 FT EXCEPT THE E 246 OF THE S 720 FT

Lake Number: 0
Lake Name:
Acres: 30.00
School District: 1.00

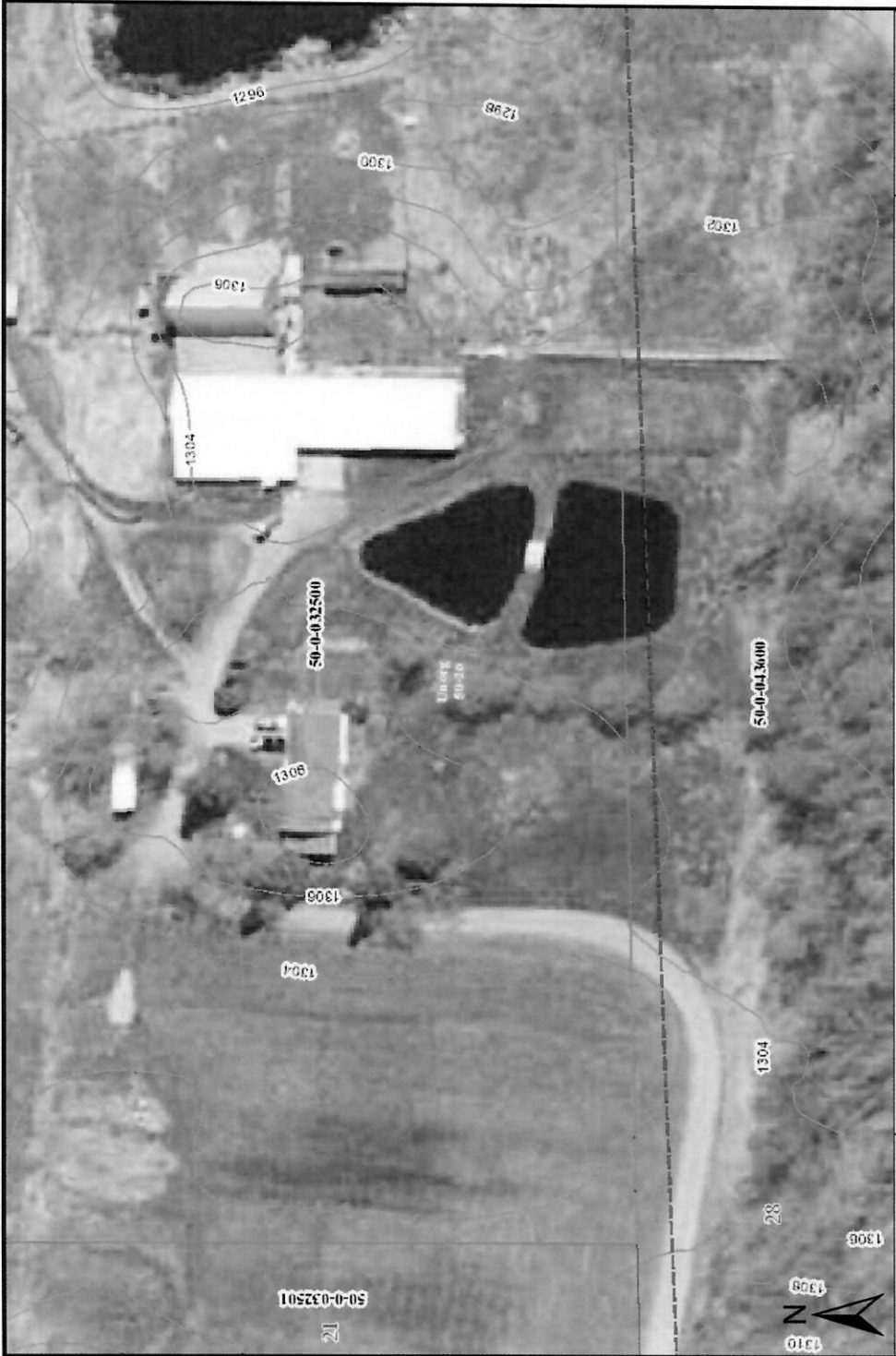
Tax Information

Class Code 1: Non-Homestead Qualifying Single Res Unit
Class Code 2: Non-Homestead Agricultural Land
Class Code 3: Non-Homestead Agricultural Land
Homestead: Non Homestead
Assessment Year: 2019

Estimated Land Value:	\$58,000.00
Estimated Building Value:	\$71,100.00
Estimated Total Value:	<u>\$129,100.00</u>
Prior Year Total Taxable Value:	\$125,100.00
Current Year Net Tax (Specials Not Included):	\$876.00
Total Special Assessments:	\$0.00
**Current Year Balance Not Including Penalty:	\$438.00
Delinquent Taxes:	No

* For more information on delinquent taxes, please call the Aitkin County Treasurer's Office at 218-927-7325.

** Balance Due on a parcel does not include late payment penalties.



Date: 6/26/2019

Mathison

0 40 80 ft 1 inch = 105 feet

These data are provided on an "AS-IS" basis, without warranty of any type, expressed or implied, including but not limited to any warranty as to their performance, merchantability, or fitness for any particular purpose.



[Contact Us](#) |
 [Subscribe](#) |
 [Archived Soil Surveys](#) |
 [Soil Survey Status](#) |
 [Glossary](#) |
 [Preferences](#) |
 [Link](#) |
 [Logout](#) |
 [Help](#)

[A](#) |
 [A](#) |
 [A](#)

Area of Interest (AOI) |
 Soil Map |
 Soil Data Explorer |
 Download Soils Data |
 Shopping Cart (Free) |
 [Printable Version](#) |
 [Add to Shopping Cart](#)

Map Unit Legend			
Aitkin County, Minnesota (MN0001)			
Aitkin County, Minnesota (MN0001)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
204B	Branstad loam, 2 to 6 percent slopes	0.6	100.0%
Totals for Area of Interest		0.6	100.0%

Soil Map

[Home](#) |
 [Map](#) |
 [Legend](#) |
 [Scale](#) |
 [Scale](#) (not to scale)

Warning: Soil Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:20,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Aitkin County, Minnesota

204B—Branstad loam, 2 to 6 percent slopes

Map Unit Setting

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

Map Unit Composition

Branstad and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Branstad

Setting

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

Typical profile

A - 0 to 2 inches: loam
E, Bw, E', E/B - 2 to 17 inches: fine sandy loam
Bt1, Bt2 - 17 to 36 inches: loam
Bt3 - 36 to 43 inches: loam
C - 43 to 60 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Forage suitability group: Sloping Upland, Neutral (G090AN002MN)
Hydric soil rating: No

Minor Components

Alstad and similar soils

Percent of map unit: 3 percent

Hydric soil rating: No

Cromwell and similar soils

Percent of map unit: 3 percent

Hydric soil rating: No

Cutaway and similar soils

Percent of map unit: 3 percent

Hydric soil rating: No

Hamre and similar soils

Percent of map unit: 2 percent

Landform: Depressions

Hydric soil rating: Yes

Seelyville and similar soils

Percent of map unit: 2 percent

Landform: Bogs

Hydric soil rating: Yes

Talmoon and similar soils

Percent of map unit: 2 percent

Landform: Swales

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Aitkin County, Minnesota
Survey Area Data: Version 19, Sep 12, 2018