

Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information

Date	<u>9/8/2019</u>	Sec / Twp / Rng	<u>S-24, T-49, R-25</u>
Parcel ID	<u>19-0-041504</u>	LUG (county, city, township)	<u>Aitkin Co.</u>
Property Owner:	<u>James Buranen</u>	Owners address (if different)	
Property Address:	<u>48482 288th Pl. Palisade MN 56469</u>	<u>PO Box 51</u>	
City / State / Zip:	<u></u>	<u>Palisade MN 56469</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:	Type III mound Mottles at 10"	Any Non-Domestic Waste	<input type="checkbox"/> Yes (class V)	<input checked="" type="checkbox"/> No
Atikin Co. Operating Permit required		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	Proposed 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 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>Owner should get a Flood Elevation Bench Mark.</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>0.50</u>	Percolation rate (if applicable)	_____
Depth/elev to SHWT	<u>10"</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>(+36")</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	Aitkin Co. GIS Map shows Flood Elv.= 1216' Aitkin Co. GIS Map shows House Elv.= 1222'	
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: James Buranen Date 9/8/2019
 Property Address / PID: 48482 288th Pl. Palisade MN 56469

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: 292 slope 0 % direction- NE

Soil Log #1 Pit #1

☐ Boring

☒ Pit

Elevation 97'

Depth to SHWT 10"

Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	Topsoil Loam	<35	10YR3/2		Loose	Loose	Granular
6 - 10	Loam	<35	10YR4/3 E Horizon		Friable	Loose	Granular
10 - 14	Loam	<35	10YR5/4	10YR5/6	Friable	Loose	Granular
		<35					
		<35					

Comments: Dug Soil pits with shovel

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Soil Log #2 Pit #2

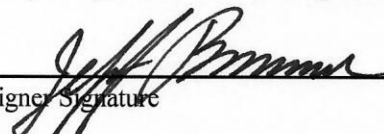
<input type="checkbox"/> Boring <input checked="" type="checkbox"/> Pit		Elevation <u>97'</u>		Depth to SHWT <u>10"</u>			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 6	Topsoil Loam	<35	10YR3/2		Loose	Loose	Granular
6 - 10	Loam	<35	10YR4/3 E Horizon		Friable	Loose	Granular
10 - 14	Loam	<35	10YR5/4	10YR5/6	Friable	Loose	Granular
		<35					
		<35					

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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

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 Company

L-1347
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Mound Design - Aitkin county

Property Owner: James Buranen

Date: 9/8/2019

Site Address: 48482 288th Pl. Palisade MN 56469

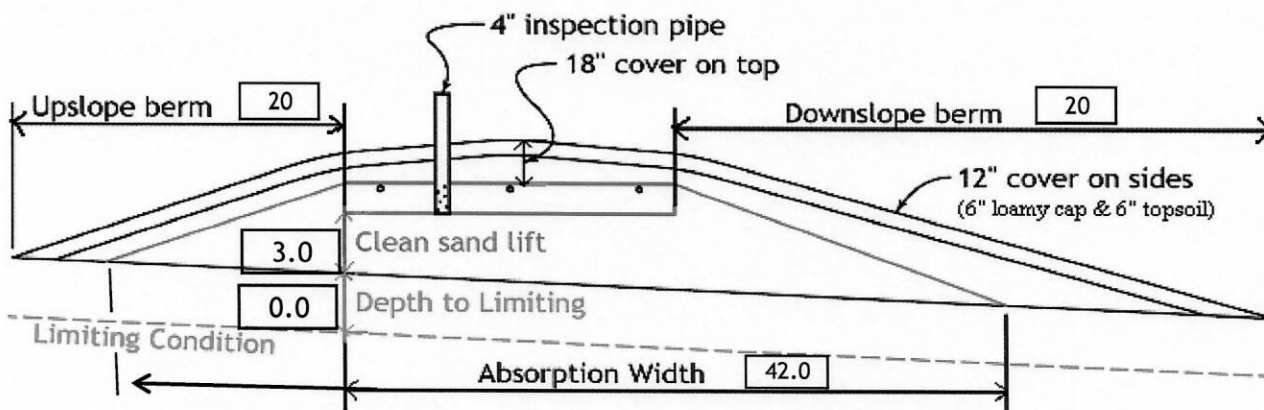
PID: 19-0-041504

Comments: Type III because of soils less than 12" to mottles. Requires Aitkin Co. operating permit.

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 Jacobson 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 --> OK
- 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)

- 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) 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) 24.0 ft. base absorption width (with sand beyond rockbed as follows):
42.0 greater of: absorption width OR sand slope
- 28) 7.0 ft. upslope and sideslope sand upslope 16.0
7.0 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 9 inches under pipe, plus 20% gives 12 yd³ or *1.4= 17 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 yd³ or *1.4= 313 ton
plus 20%
- 35) Loamy Cap:
46 ft. by 61 ft. 6" deep, plus 20% gives 63 yd³ or *1.4= 88 ton
- 36) Topsoil:
50 ft. by 65 ft. 6" deep, plus 20% gives 73 yd³ 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

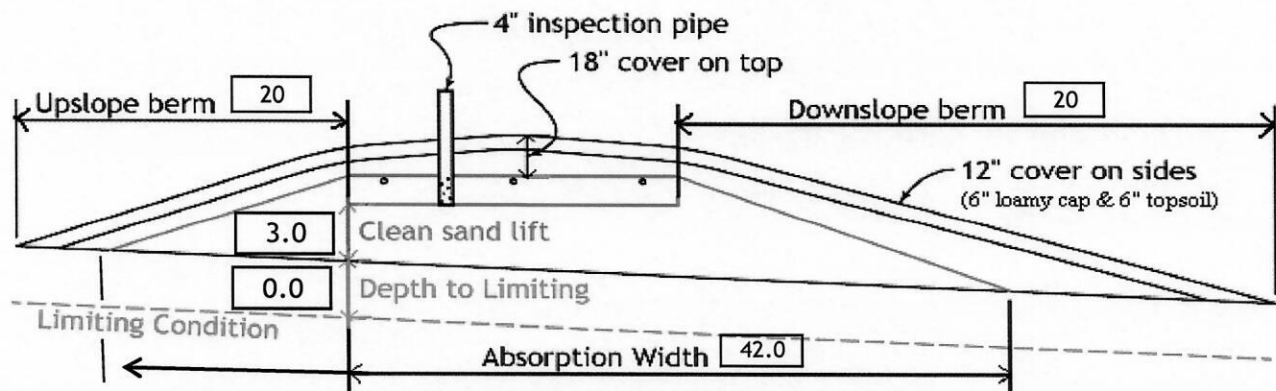
Brummer Septic LLC.
Company

L-1347
License#

9/8/2019
Date

Installer Summary

1120	gallon Septic tank (minimum)	Tank options: none
533	gallon Dose tank (minimum)	Install Jacobson 1650 2/Compartment tank at 12.69 gpi
18	GPM @ 23 ft. of head, Pump required	
4.5	inch swing on Demand float which translates to roughly 3.3 inches of float tether length if time dosing is required -->	3.2 minutes ON time & 5.1 hours OFF time
17	inches from bottom of tank to "pump ON" float, or	12 inches to "timer ON" float
20	inches from bottom of tank to "Hi Level Alarm" or	30 inches to "Hi level alarm" if time dosed
80	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:	12.0 yd ³ or *1.4=	17 ton	9 inches under pipe
Mound Sand:	224 yd ³ or *1.4=	313 ton	calculation based on 3:1/4:1 slope from top of rockbe
Loamy Cap:	63 yd ³ or *1.4=	88 ton	6" deep
Topsoil:	73 yd ³ or *1.4=	102 ton	6" deep

INSPECTOR CHECKLIST - mound

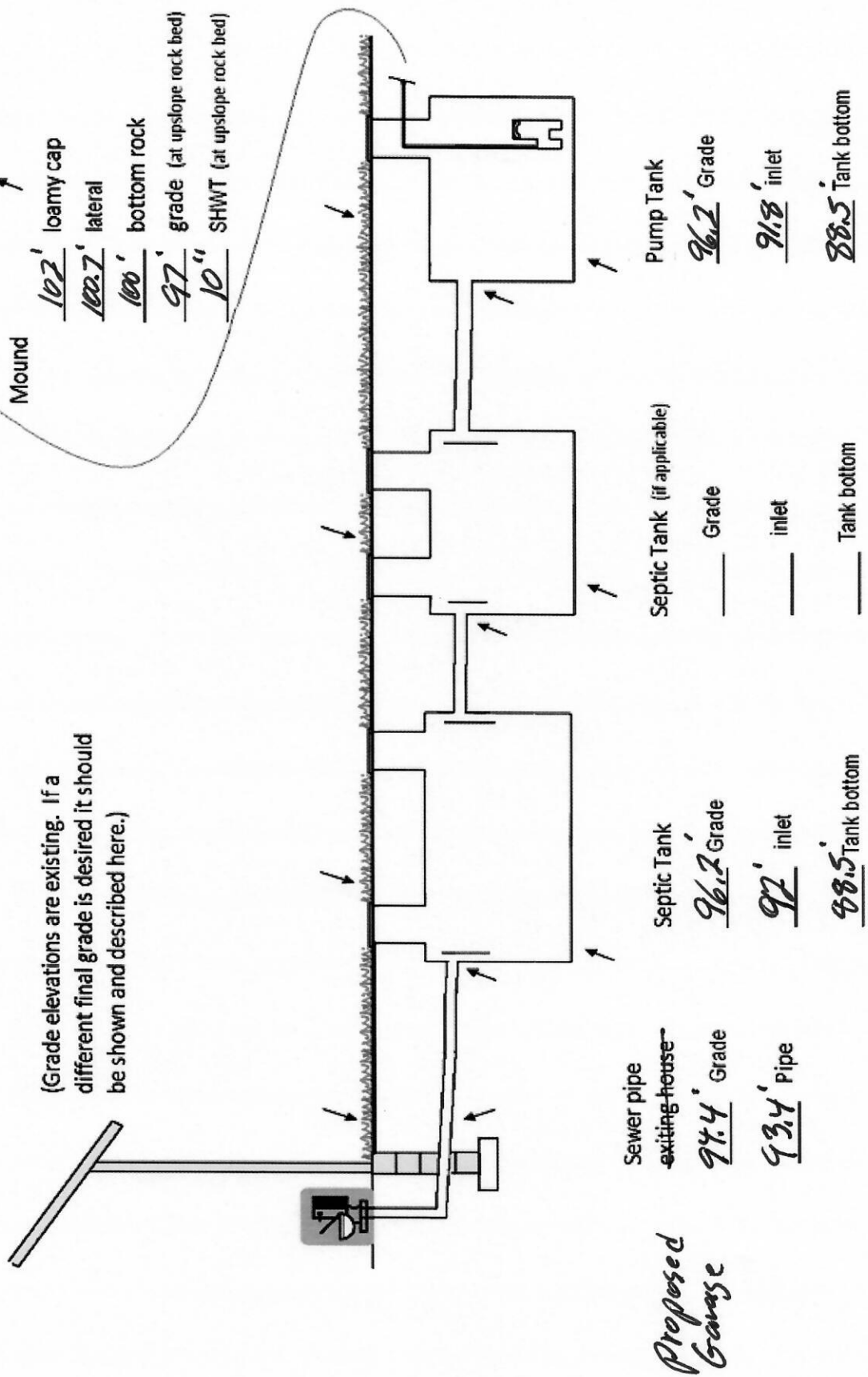
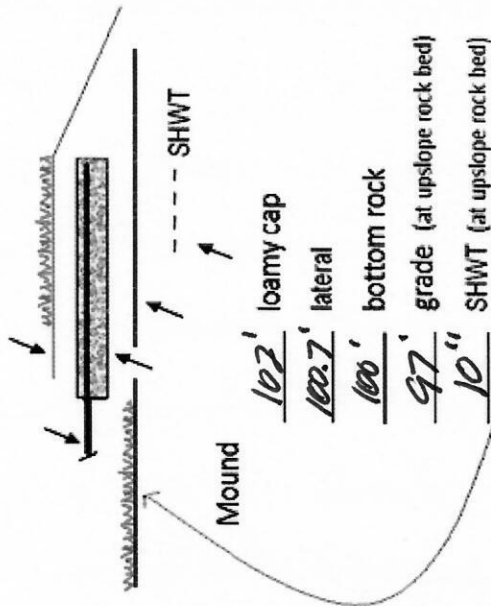
48482 288th Pl. Palisade MN 56469

- ☐ 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 _____ 18 gpm 23 head VERIFY PUMP CURVE 3.2 min ON 5.1 hr OFF
- ☐ float setting drop 4.5 inches at 12.7 gpi "DESIGNED" 3.3 inches approx float tether length
57.0 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

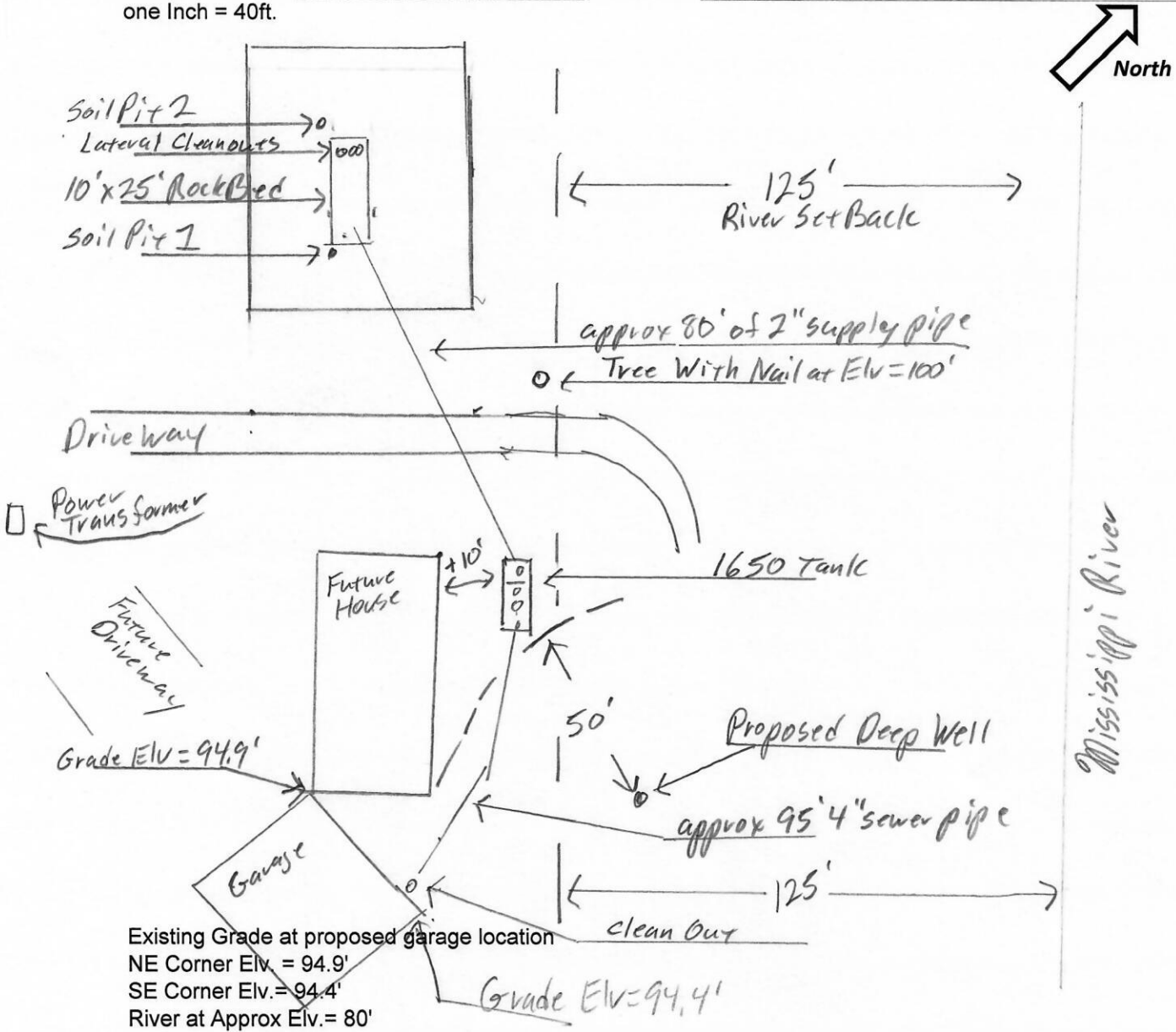
Elv = 100' benchmark Nail on tree near mound

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



{ Design Drawing }

Property Owner: James Buranen Date: 9/8/19 Designer's Initials : JB
Parcel ID. Number : 19-0-041504 Address : 48482 288th Pl. Palisade MN 56469
one Inch = 40ft.



	Surface/ SHWT	Nail on Tree = Bench Mark 100'		Existing Grade	
Soil Pit 1	97'10"	Bench Mark	100'	Upslope Edge of Rockbed Elv. = 97'	
Soil Pit 2	97'10"	Ground Elv. BM		Bottom of Rockbed Elv. = 100'	
Soil Bore 3		Ground Elv. Tank	96.2'	Top of Washed Sand Elv. = 100'	
	Ground at	Proposed house	95	SE Corner	

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: James Buranen

Date: 9/8/19

Site Address: 48482 288th Pl. Palisade MN 56469

PID: 19-0-041504

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

- 1 This is a type III mound , (Soil Separation 10") sized for a 2 bedroom system .
- 2 Proposed deep well location is +50ft. on River side of future house . No Existing well on property.
- 3 Owner will build a garage first with bathroom, than in the future build a 2 bedroom house.
Mound is approx. 150' from river, (setback is 125 ft.).
Tank will meet River and well setback.
- 4 Garage and house Elevations not set, 4" sewer pipe at garage will be approx. Elv.= 93.4'
- 5 Lot is Flat, install 1650 Jacobson compartment tank low enough for drainback from mound.
Insulate tank top, insulate 2" supply pipe under driveway.
- 6 Inlet of septic tank will be Approx. Elv.=92' with grade at 96.2', installer to check tank bury depth chart.
- 7 Elevation contour of rock bed upslope edge is 97' . All berms are more than 20 ft. from property lines.
The area size of the rock bed is 10' x 25' . Absorption area is 25' x 42'.
Sand absorption area is 16 ft. up slope + 10 ft. rockbed + 16 downslope = approx. 42 ft. wide sand base.
Berms are 20ft. Upslope, 20ft. Down slope, 10ft. Rock bed = approx. 50ft. Wide.
Overall mound size is approx. 50' wide x 65' long and approx. 5' high. End Berms are 20 ft. wide.
- 8 The bench mark is the nail on the tree SE of 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.
The top of the sand and bottom of rock bed is Elv. 100'.
- 9 It is important that the soils do not get compacted, and that clean Washed sand is used.
- 10 The Jacobson 1650 tank will be gravity flow from dwelling. Install the pump for 7 demand doses per day. approx. 57 gallons per dose, 4.5 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. (Recommend min. 4" above grade)
Install a 2" supply pipe from tank to end manifold in rock bed, install so pipe drains back to tank.
Insulate 2" supply pipe under driveway, Mark were pipe crosses driveway for future reference.
Install 1.5" laterals with 9" of rock under them. Install clean-outs at far end of laterals.
Drill 1/4" perf holes spaced 3 ft. on center.
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.
- 12 **Install Event counter on Effluent pump, calibrate pump and give gallons per event to Owner.**
- 13 Designer does not guarantee or warranty any Type III systems.
Designed to Aitkin Co. and MPCA recommendations and requirements.


Designer Signature

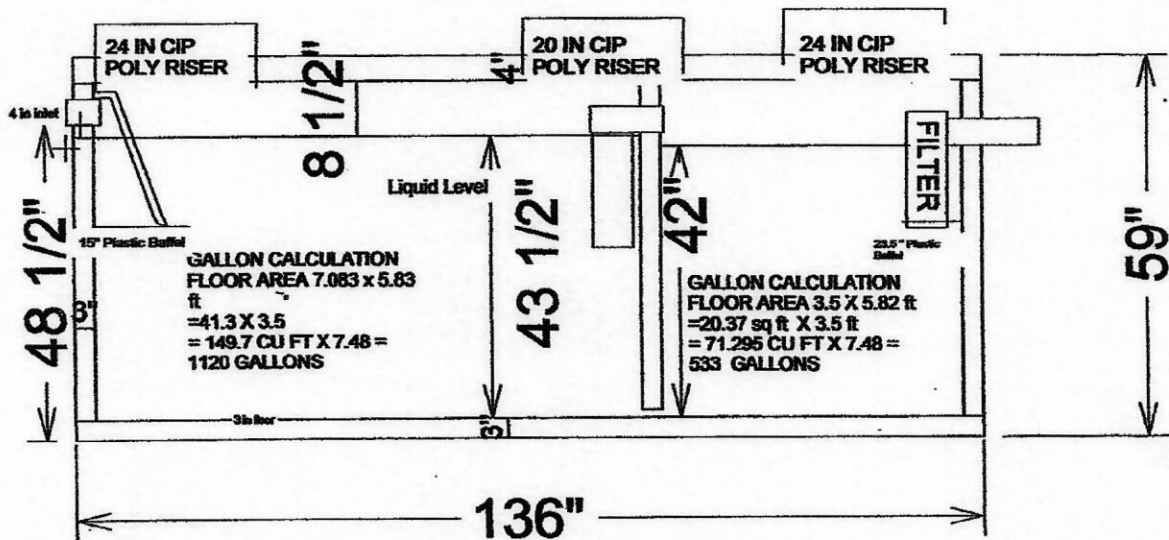
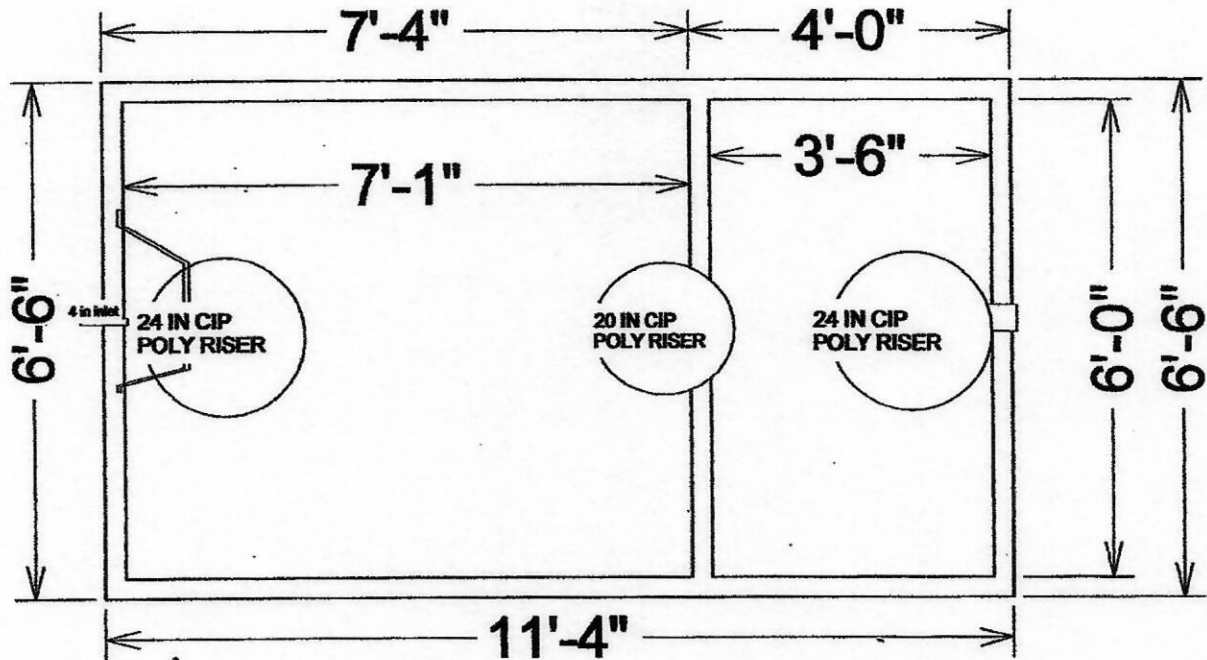
Brummer Septic LLC.
Design Company

L-1347
License#

Type III Requires Aitkin Co. Operating Permit

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: 19-0-041504

General Information

Township/City: LOGAN TWP
Taxpayer Name: BURANEN, JAMES & DIANE
Taxpayer Address: PO BOX 51
PALISADE MN 56469
Property Address: 48482 288th Pl
Township: 49 Lake Number: 1060400
Range: 25 Lake Name: Mississippi River
Section: 24 Acres: 5.25
Green Acres: No School District: 1.00
Plat:
Brief Legal Description: PT SW NW (LOT 4) ALSO KNOWN AS TRACT B

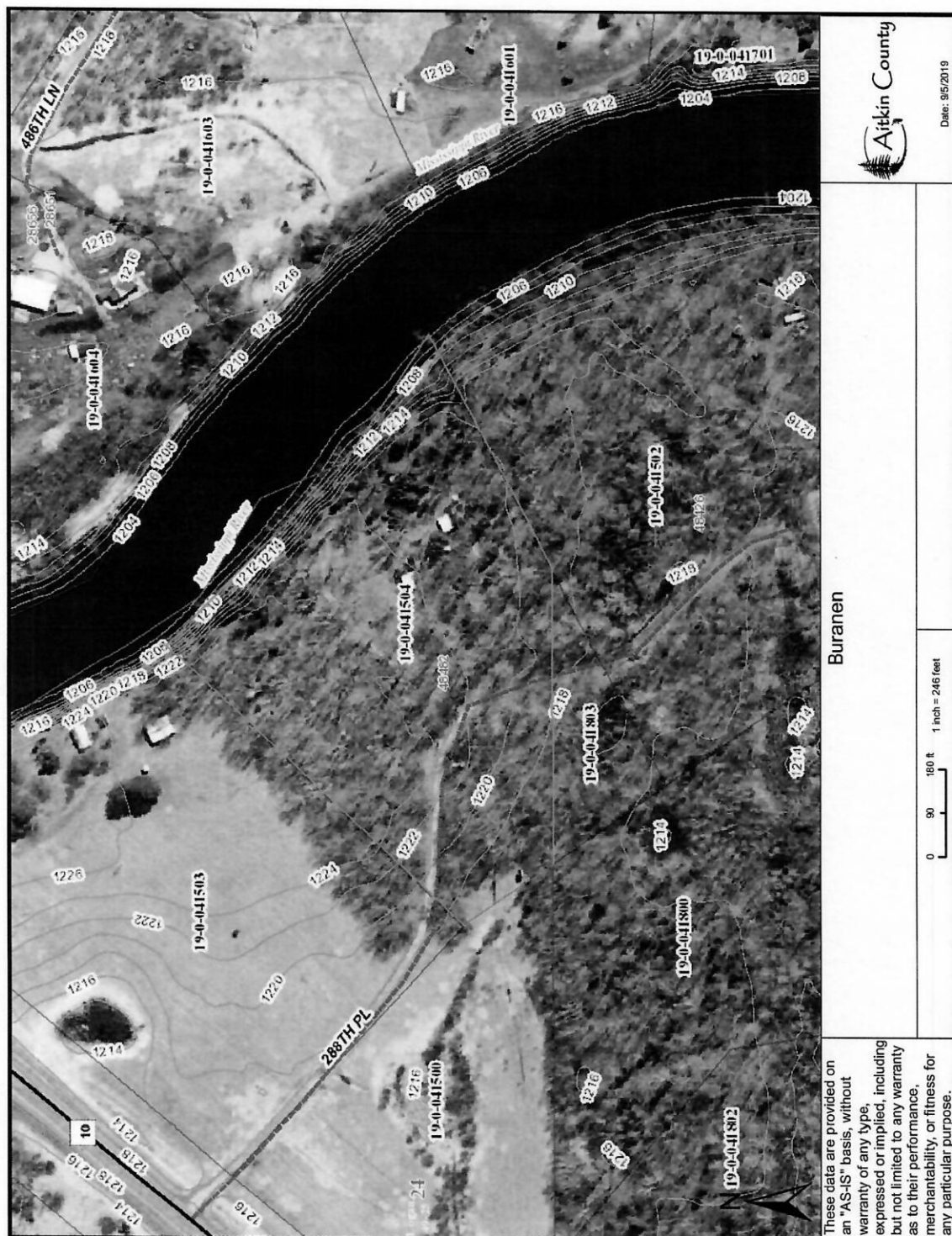
Tax Information

Class Code 1: Non-Comm Seasonal Residential Recreational
Class Code 2: Unclassified
Class Code 3: Unclassified
Homestead: Non Homestead
Assessment Year: 2019

Estimated Land Value:	\$25,100.00
Estimated Building Value:	\$4,000.00
Estimated Total Value:	<u>\$29,100.00</u>
Prior Year Total Taxable Value:	\$29,300.00
Current Year Net Tax (Specials Not Included):	\$270.00
Total Special Assessments:	\$0.00
**Current Year Balance Not Including Penalty:	\$135.00
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.



Search				
Map Unit Legend				
Aitkin County, Minnesota (MN001)				
Aitkin County, Minnesota (MN001)				
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	
292	Alstad loam	0.7	98.9%	
1353B	Cutaway loamy fine sand, 1 to 6 percent slopes	0.0	1.1%	
Totals for Area of Interest		0.7	100.0%	



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

292—Alstad loam

Map Unit Setting

National map unit symbol: gjgk
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: Prime farmland if drained

Map Unit Composition

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

Description of Alstad

Setting

Landform: Flats on moraines
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy till

Typical profile

A - 0 to 4 inches: loam
E - 4 to 14 inches: loam
B/E - 14 to 22 inches: loam
Bt,BC - 22 to 52 inches: loam
C - 52 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly 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 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Forage suitability group: Level Swale, Acid (G090AN005MN)
Hydric soil rating: No

Minor Components

Cathro and similar soils

Percent of map unit: 4 percent

Landform: Bogs

Hydric soil rating: Yes

Hamre and similar soils

Percent of map unit: 4 percent

Landform: Depressions

Hydric soil rating: Yes

Talmoon and similar soils

Percent of map unit: 4 percent

Landform: Swales

Hydric soil rating: Yes

Cushing and similar soils

Percent of map unit: 3 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Aitkin County, Minnesota

Survey Area Data: Version 19, Sep 12, 2018

