

Preliminary & Field Evaluation Form

www.SepticResource.com vers 12.4

Owner Information			
Date	<u>11/1/2019</u>	Sec / Twp / Rng	<u>S-15, T-49, R-26</u>
Parcel ID	<u>35-1-090300</u>	LUG (county, city, township)	<u>Aitkin Co.</u>
Property Owner:	<u>Kurt Mashuga</u>	Owners address (if different)	
Property Address:	<u>36958 490th Ln. Palisade MN 56469</u>		<u>16151 Ramsey Blvd NW</u>
City / State / Zip:			<u>Ramsey MN 55303</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: No well on Property Shallow Well on Lot North of Property Existing Privy has New Install Inspection installed 2015		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	Proposed deep well	
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 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>Must meet shallow well setback on lot to the North</u> <u>Any Proposed Deep well must meet setbacks to septic system</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>26"</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>(+ 12"</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>Kurt Mashuga</u>	Date <u>11/1/2019</u>
Property Address / PID: <u>36958 490th Ln. 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>625</u> slope <u>7</u> % direction- <u>South</u>

Soil Log #1							
		<input checked="" type="checkbox"/> Boring	<input type="checkbox"/> Pit	Elevation <u>98.3'</u>	Depth to SHWT <u>26"</u>		
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 10	Topsoil Sandy Loam	<35	10YR3/2		Loose	Loose	Granular
10 - 18	Sandy Loam	<35	10YR 5/3		Loose	Loose	Granular
18 - 26	Sandy Loam	<35	10YR5/4		Loose	Loose	Granular
26 - 28	Sandy Loam	<35	10YR5/4	7.5YR5/4	Loose	Loose	Granular
		<35					
Comments:							

36958 490th Ln. Palisade MN 56469

Soil Log #2

<input checked="" type="checkbox"/> Boring <input type="checkbox"/> Pit		Elevation <u>98.5'</u>		Depth to SHWT <u>26"</u>			
Depth (in)	Texture	fragment %	matrix color	redox color	consistence	grade	shape
0 - 10	Topsoil Sandy Loam	<35	10YR3/2		Loose	Loose	Granular
10 - 18	Sandy Loam	<35	10YR 5/3		Loose	Loose	Granular
18 - 26	Sandy Loam	<35	10YR5/4		Loose	Loose	Granular
26 - 28	Sandy Loam	<35	10YR5/4	7.5YR5/4	Loose	Loose	Granular
		<35					

36958 490th Ln. 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.

Jeff Brummer
Designer Signature

Brummer Septic LLC.
Company

L-1347
License #

Mound Design - Aitkin county

Property Owner: Kurt Mashuga

Date: 11/1/2019

Site Address: 36958 490th Ln. Palisade MN 56469

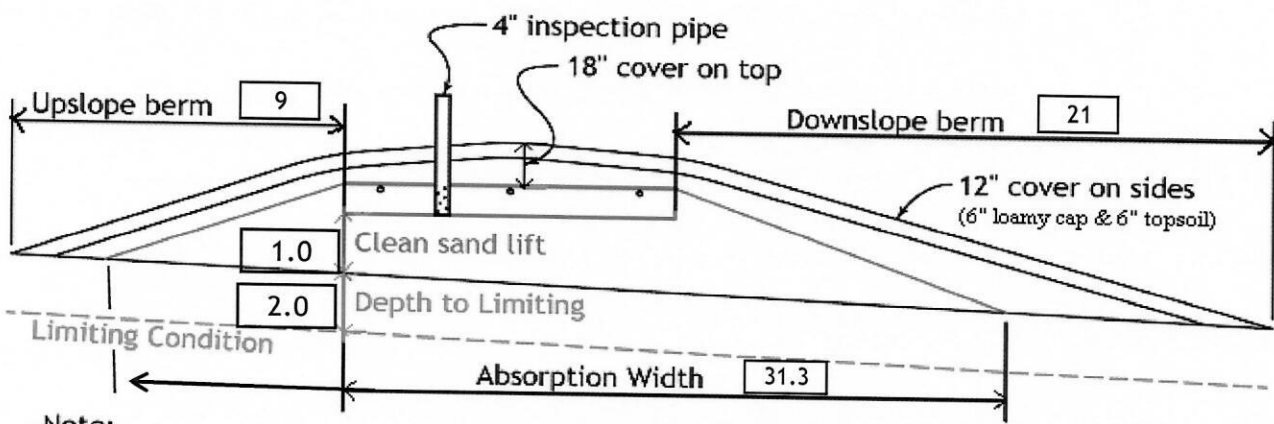
PID: 35-1-090300

Comments: No Well on Lot, Shallow Well on lot to the North

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 1120/ 533
- 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)
- 12) inch diameter laterals must be used to meet "4x pipe volume" requirement 1.50 5x
- 13) feet of inch supply line leads to gallons of drainback volume 2.00 3x
(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) 0.60 gpd/ft² Absorption area Soil Loading Rate, which gives a mound ratio of 2 (minimum)
 (this must match the soil boring log) desired mound ratio 2.0
- 24) 7 percent site slope (0-20% range) 7 (% downslope site slope, if different than upslope)
- 25) 24 inches, or 2.0 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) 12 inch, or 1.0 ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 27) 20.0 ft. base absorption width (with sand beyond rockbed as follows):
 31.3 greater of: absorption width OR sand slope
- 28) 0.0 ft. upslope and sideslope sand upslope 6.2
 10.0 ft. Downslope sand down slope 15.0
- Individual slope ratios give BERM widths (topsoil beyond rockbed) of:
- 29) 4:1 upslope ratio 9 ft. upslope berm
- 30) 4:1 sideslope 15 ft. sideslope berms
- 31) 4:1 downslope 21 ft. downslope berm
- 32) Overall Dimensions: 10.0 ft. wide by 25.0 ft. long Rock bed
 40 ft. wide by 55 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)
 10.9 up + 35.3 downslope + 10.8 ends + 12.5 under rock = 83 yd³ or *1.4= 117 ton
 plus 20%
- 35) Loamy Cap: 36 ft. by 51 ft. 6" deep, plus 20% gives 41 yd³ or *1.4= 57 ton
- 36) Topsoil: 40 ft. by 55 ft. 6" deep, plus 20% gives 49 yd³ or *1.4= 69 ton

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

Brummer Septic LLC.
L-1347
11/1/2019

Designer Signature
Company
License#
Date

INSPECTOR CHECKLIST - mound

36958 490th Ln. 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 20 head VERIFY PUMP CURVE 2.9 min ON 5.1 hr OFF

- float setting drop $\frac{4.2}{53.0}$ inches at 12.7 gpi "DESIGNED" = $\frac{3.1}{\quad}$ inches approx float tether length
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 $\frac{10.0}{12}$ X $\frac{25.0}{\quad}$
- Sand lift depth _____ inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)

- Absorption Sand beyond rock $\frac{6.2}{\quad}$ upslope $\frac{15.0}{\quad}$ downslope

- Bermed topsoil beyond rockbed $\frac{9}{\quad}$ upslope $\frac{15}{\quad}$ sideslope $\frac{21}{\quad}$ downslope

- cover depth of 12-18"+ VERIFY
- $\frac{3}{\quad}$ laterals (1-2' from edge of rock)
- $\frac{1.50}{\quad}$ inch pipe size (Sch40 pipe & fittings)
- $\frac{3.0}{\quad}$ ft lateral spacing

- $\frac{1/4"}{3.0}$ inch perforations
ft perforation spacing

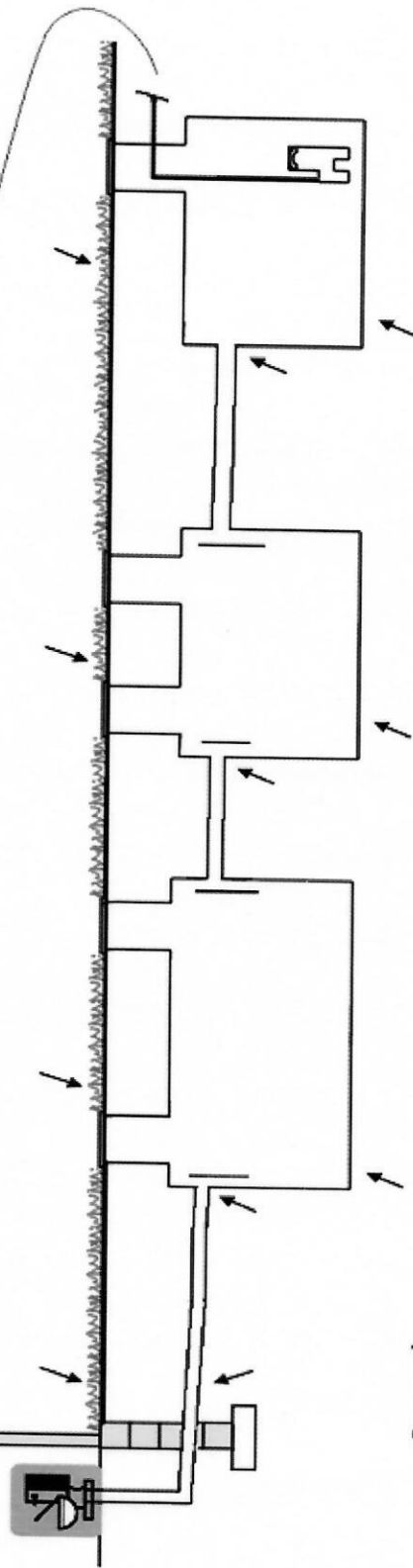
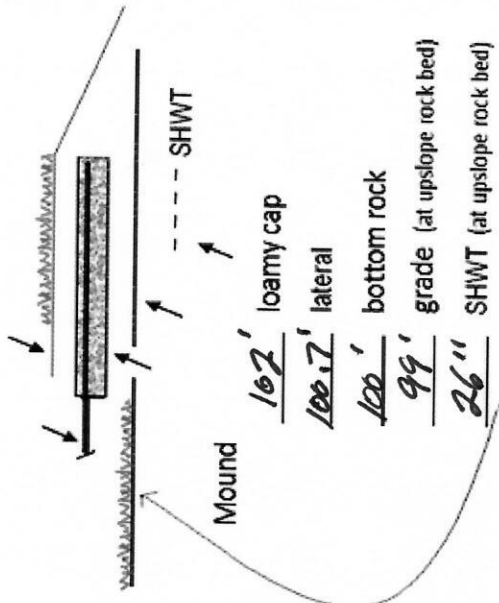
- Air inlet at end of laterals, and at top feed manifold if necessary. VERIFY
- clean outs (no hard 90's)
- 4" inspection pipe to bottom of rock, anchored VERIFY

- 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 Privy
 NW lot Corner

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

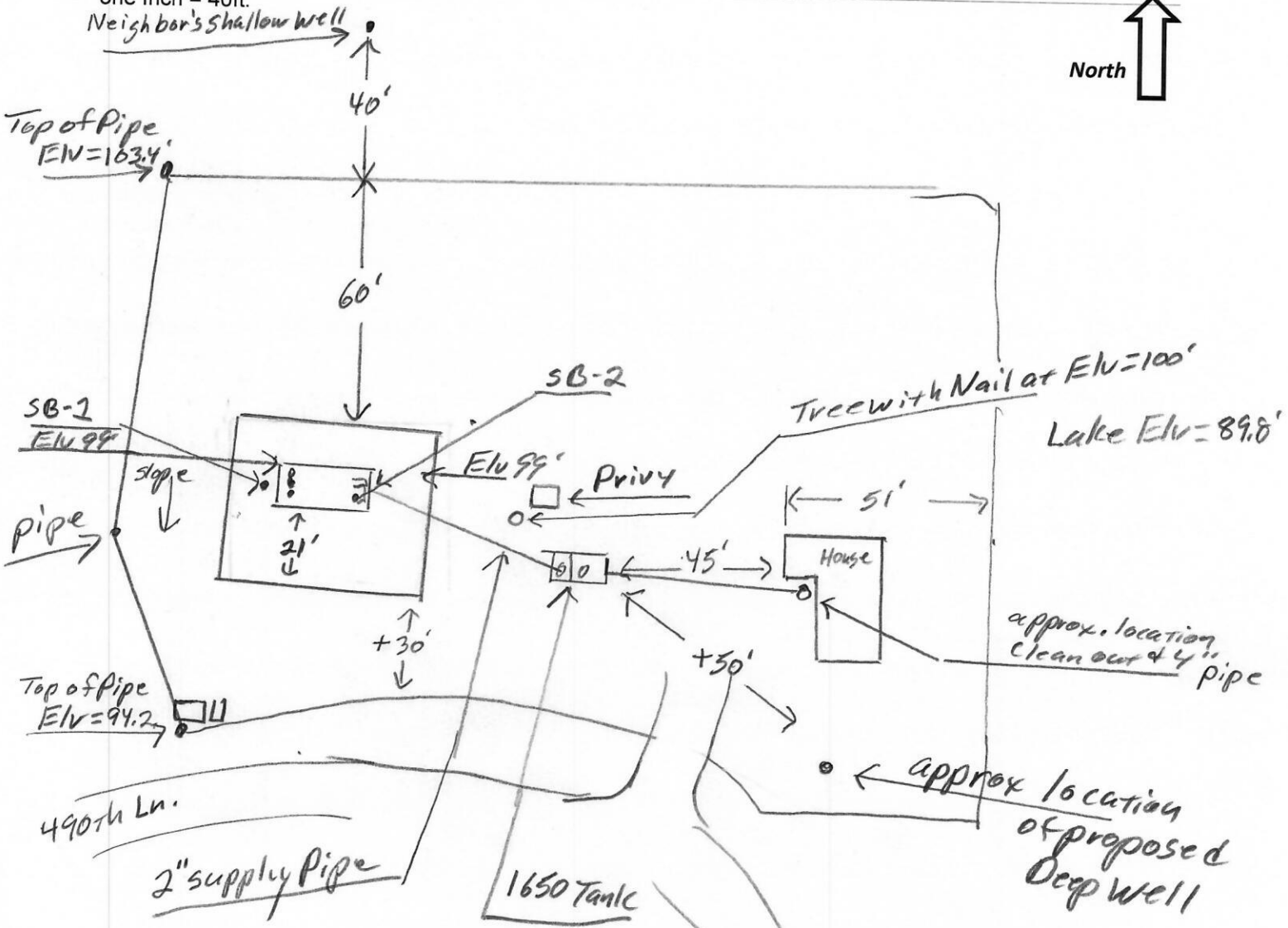


Sewer pipe exiting house	94' Grade	Septic Tank	93' Grade	Septic Tank (if applicable)	Grade	Pump Tank	93' Grade
Estimated	93' Pipe	92' inlet	Estimated	inlet	91.7' inlet	88' Tank bottom	88' Tank bottom

Lake Elv = 89.9 - 11-1-2019

{ Design Drawing }

Property Owner: Kurt Mashuga Date: 11/1/19 Designer's Initials: JB
 Parcel ID. Number: 35-1-090300 Address: 36958 490th Ln. Palisade MN 56469
 one Inch = 40ft.



Estimated Sewer pipe at house $Elv. = 93'$
 Estimated New Tank Inlet $Elv. = 92'$
 Lake $Elv. = 89.8'$ on 11-1-2019 Shore $Elv. = 91.9'$

	Surface/ SHWT	Nail on Tree near Privy = Bench Mark 100'		Existing Grade	
Soil Bore 1	98.3' / 26"	Bench Mark	100'		Upslope Edge $Elv. = 99'$
Soil Bore 2	98.5' / 26"	Ground $Elv.$ BM	97.9'		Bottom of Rockbed $Elv. = 100'$
Soil Bore 3		Ground $Elv.$ Tank	93'		Top of Washed Sand $Elv. = 100'$
	Ground at	Existing house	94'	West side	Top of Pipe at NW lot $Elv. = 103.4'$

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

Mound Design Notes - Aitkin county

Property Owner: Kurt Mashuga

Date: 11/1/19

Site Address: 36958 490th Ln. Palisade MN 56469

PID: 35-1-090300

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

- 1 This is a type I mound for a 2 bedroom House. Proposed deep well location will be SE of House.
- 2 There is no well on this lot, there is a shallow well on the lot to the North.
- 3 West property line has pipes on corners, NW corner pipe Elv. =103.4', SW corner Elv.= 94.2'
- 4 Bench Mark Elv.= 100' is nail on tree near Privy.
- 5 Install Jacobson 1650 Compartment tank for gravity flow from on grade house (Sewer pipe Elv. not set)
Tank may be in water, recommend waterproof the tank.
- 6 Elevation contour of rock bed upslope edge is 99'.
The area size of the rock bed is 10' x 25' . Absorption area is 25' x 31.2'.
Sand absorption area is 6.2 ft. up slope + 10 ft. rockbed + 15 downslope = approx. 31.2 ft. wide sand base.
Berms are 9ft. Upslope, 21ft. Down slope, 10ft. Rock bed = approx. 40ft. Wide.
Overall mound size is approx. 40' wide x 55' long and approx. 3' high. End Berms are 15 ft. wide.
- 7 The bench mark is the nail on the tree 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. 53 gallons per dose, 4.2 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.
- 10 Install an alarm on pump 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.

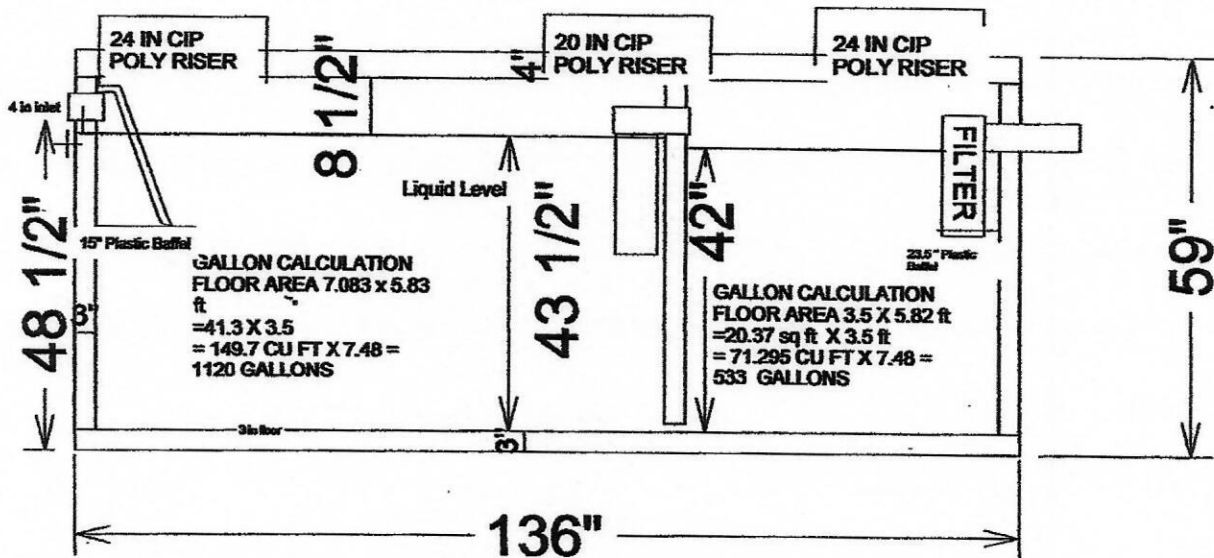
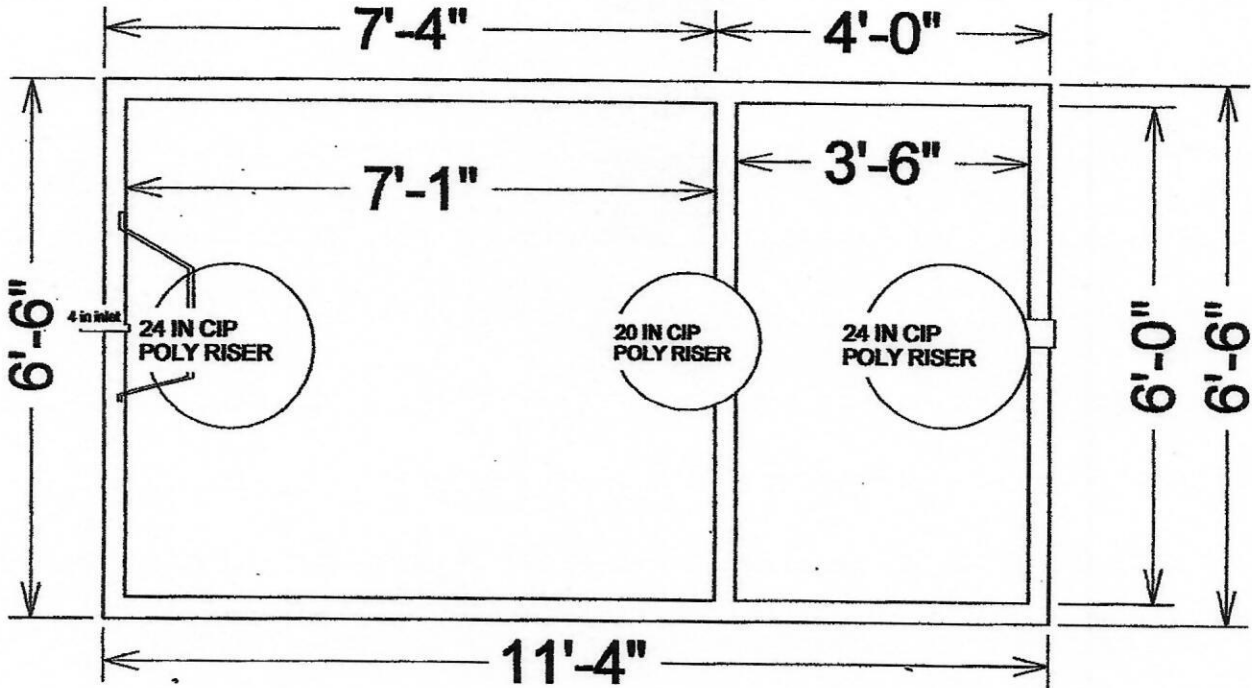

Designer Signature

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: 35-1-090300

General Information

Township/City: WAUKENABO TWP
Taxpayer Name: MASHUGA, KURT & CINDY
Taxpayer Address: 16151 RAMSEY BLVD NW
 RAMSEY MN 55303
Property Address: 36958 490th Ln
Township: 49 **Lake Number:** 1013600
Range: 26 **Lake Name:** WAUKENABO LAKE
Section: 15 **Acres:** 0.00
Green Acres: No **School District:** 1.00
Plat: WAUKENABO HOMESITES
Brief Legal Description: LOT 1 BLK 1 & PT OUTLOT A AS IN DOC 345452

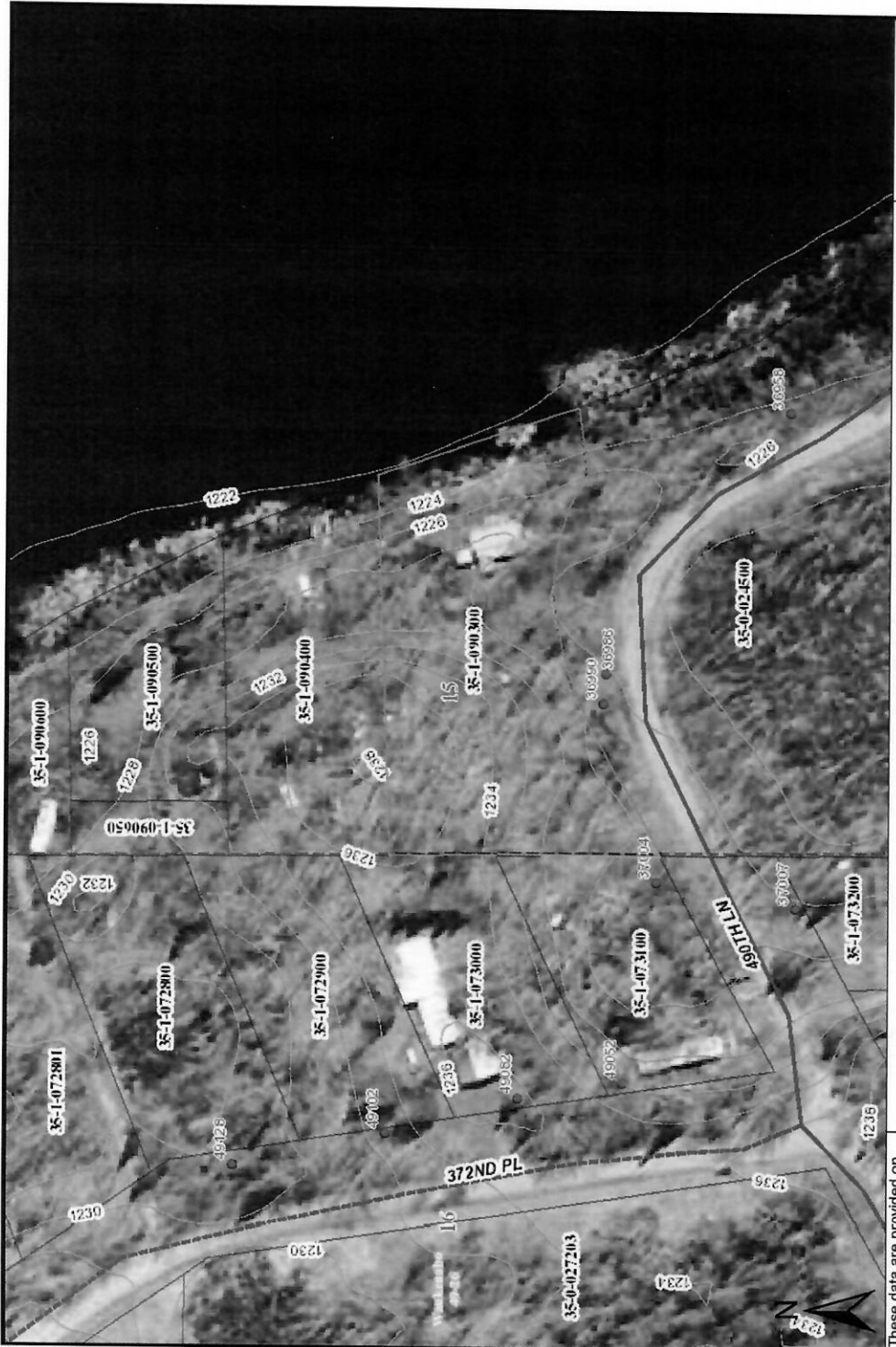
Tax Information

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:	\$56,200.00
Estimated Building Value:	\$15,900.00
Estimated Total Value:	<u>\$72,100.00</u>
Prior Year Total Taxable Value:	\$60,000.00
Current Year Net Tax (Specials Not Included):	\$452.00
Total Special Assessments:	\$0.00
**Current Year Balance Not Including Penalty:	\$0.00
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.



Mashuga

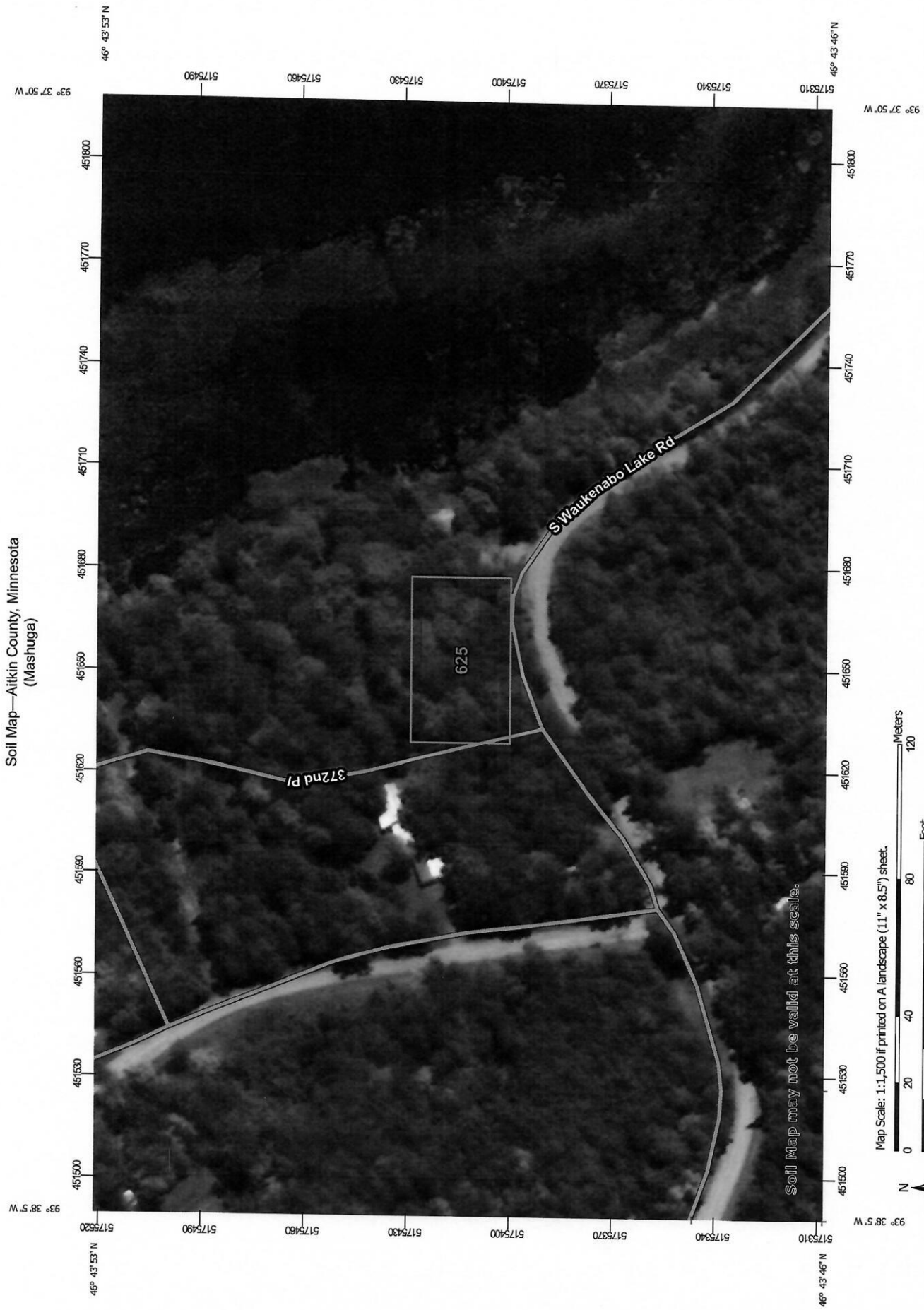
Aitkin County

Date: 10/31/2019

0 45 90 ft 1 inch = 125 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.

Soil Map—Aitkin County, Minnesota
(Mashuga)



Aitkin County, Minnesota

625—Sandwich loamy sand

Map Unit Setting

National map unit symbol: gjj4
Elevation: 980 to 1,310 feet
Mean annual precipitation: 20 to 27 inches
Mean annual air temperature: 37 to 41 degrees F
Frost-free period: 95 to 105 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Sandwich

Setting

Landform: Swales on moraines
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Sandy outwash over loamy till

Typical profile

E - 0 to 6 inches: loamy sand
Bw,E' - 6 to 34 inches: sand
2E/B,2Btg - 34 to 55 inches: loam
2Cg - 55 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Forage suitability group: Level Swale, Low AWC, Acid
(G088XN007MN)
Hydric soil rating: Yes

Minor Components

Alstad and similar soils

Percent of map unit: 3 percent

Hydric soil rating: No

Dusler and similar soils

Percent of map unit: 3 percent

Hydric soil rating: No

Northwood and similar soils

Percent of map unit: 3 percent

Landform: Depressions

Hydric soil rating: Yes

Cutaway and similar soils

Percent of map unit: 3 percent

Hydric soil rating: No

Stuntz 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 20, Sep 16, 2019