version 3.2

Pressure Bed Design

contact Troy Johnson at
www.SepticResource.com
for questions or comments

Property Owner: Thomas Marshall **Date:** 5/19/2022

Site Address: 17594 510th Ln. McGregor MN 55760 **PID:** 29-0-002000

Comments:

instructions: [ ] = req'd input [ ] = input or default [ ] = calculated field *** = installer info

1) 3 bedroom Type I Residential System

2) 450 GPD design flow

3) No Garbage disposal or pumped to septic

Install Jacobson 1650 Compartment tank

4) *** 1000 Gallon septic tank (minimum) Tank options: none

5) 0.78 GPD/ft^2 Soil Loading Rate 577 ft^2 bed req'd, or 577 ft^2 LUG minimum
(must match soil boring log)

6) *** 13.0 ft desired bed width, leads to a 45.0 ft bed length
(25' maximum)

7 *** 3.0 ft lateral spacing 3.0 ft perforation spacing (maximum 3 for both)

end feed manifold connection

8) *** 4 laterals 43.0 feet long 15.0 perfs / lateral 60 perfs total
(1/2 perf means the first perf starts at the middle feed manifold)

9) *** 7/32 inch perfs at 1 feet residual head gives 0.56 gpm flow rate per perforation
(If bed has > 1' of cover, increase residual head for cleanout req's)

for this perf size & spacing, & pipe size on line 12, max perfs/lateral = 19, line #8 must be less --> OK

10) 5 doses per day (4 minimum)

11) 90 gallons per dose (treatment volume)

12) 1.25 inch diameter laterals (or smaller) will meet "5x pipe volume"
*** 1.50 inch diameter laterals (or smaller) must be used to meet "4x pipe volume" requirement
2.00 inch diameter laterals (or smaller) will meet "3x pipe volume"

13) *** 40 feet of 2.0 inch supply line leads to 7 gallons of drainback volume
("top feed" to control the drainback)

14) 97 gallons TOTAL pump out volume (treatment + drainback)

15) 15 feet vertical lift from pump to dispersal area, leads to a

16) *** 34 GPM @ 22 feet of head, Pump requirement
(>50 gpm may require additional 3-6' head allowance for discharge assy)

17) *** 533 gal Dose tank (minimum) at 12.69 gpi

18) *** 7.6 inch swing on Demand float, or Timed dosing of 2.9 min ON (confirm pump rate with drawdown
(<100% of design flow requires a larger OFF time) 4.8 hrs OFF test and adjust as necessary)

19) 12 inches of from bottom of tank to "pump OFF" float, and/or to cover pump

20) *** 20 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float

21) *** 23 inches from bottom of tank to "Hi Level" float (add 5-15 inches if Time Dosed)

22) 241 gallons reserve capacity (after High Level Alarm is activated)

23) 50 inches, or 4.17 ft. to Redox or other limiting condition (This must match the soil boring log)

24) 36 inches, or 3.00 ft. of vertical separation required
leads to bottom of rock no more than:

25) *** 14 inches, or 1.2 ft. Below existing grade **CRITICAL FOR FUTURE CERTIFICATIONS!!!**

26) *** 6 inches of rock below the pipe
3 inches of rock to cover the pipe

27) Overall Dimensions: 13.0 ft. wide by 45.0 ft. long Pressure Bed

28) *** Rock Bed materials:
13 ft. by 45.0 ft. by 9 inches total, plus 20% gives 20 yd^3 or *1.4= 28 ton

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

Designer Signature	Company	License#	Date
	Brummer Septic LLC.	L-1347	5/19/2022

Installer Summary

1000 gallon Septic tank (minimum) none Install Jacobson 1650

533 gallon Dose tank (minimum) at 12.69 gpi

34 GPM @ 22 ft. of head, Pump required

7.6 inch swing on Demand float or 2.9 minutes ON time & 4.8 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" float

40 ft. of 2.0 inch supply line with end feed manifold connection

4 laterals 1.50 inch diameter 43.0 feet long 3.0 ft lateral spacing

7/32 inch perfs 3.0 ft perforation spacing

No Effluent filter & alarm
4 clean out & valve box assembly

Pressure Bed:
13.0 ft. wide by 45.0 ft. Long

Bottom of rock no more than:
14 inches, or 1.2 ft. Below existing grade

6 inches of rock below the pipe

Overall Dimensions: 13 ft. wide by 45.0 ft. long Pressure Bed

Rock Bed materials: 20 yd^3 or *1.4= 28 ton

INSPECTOR CHECKLIST - Pressure bed

- [ ] 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: outer ditch, or 33' from center of township road, or 65' from center of cnty road
- [ ] LAKE / BLUFF setback: 20' for bluff. Lakes: gen 50', rec 75', nat 150'. Protected wetland 50'.
- [ ] Building setbacks: 10' for everything, 20' for dispersal area.
- [ ] WATER LINE under pressure 10' to bed,tank & sewer line.

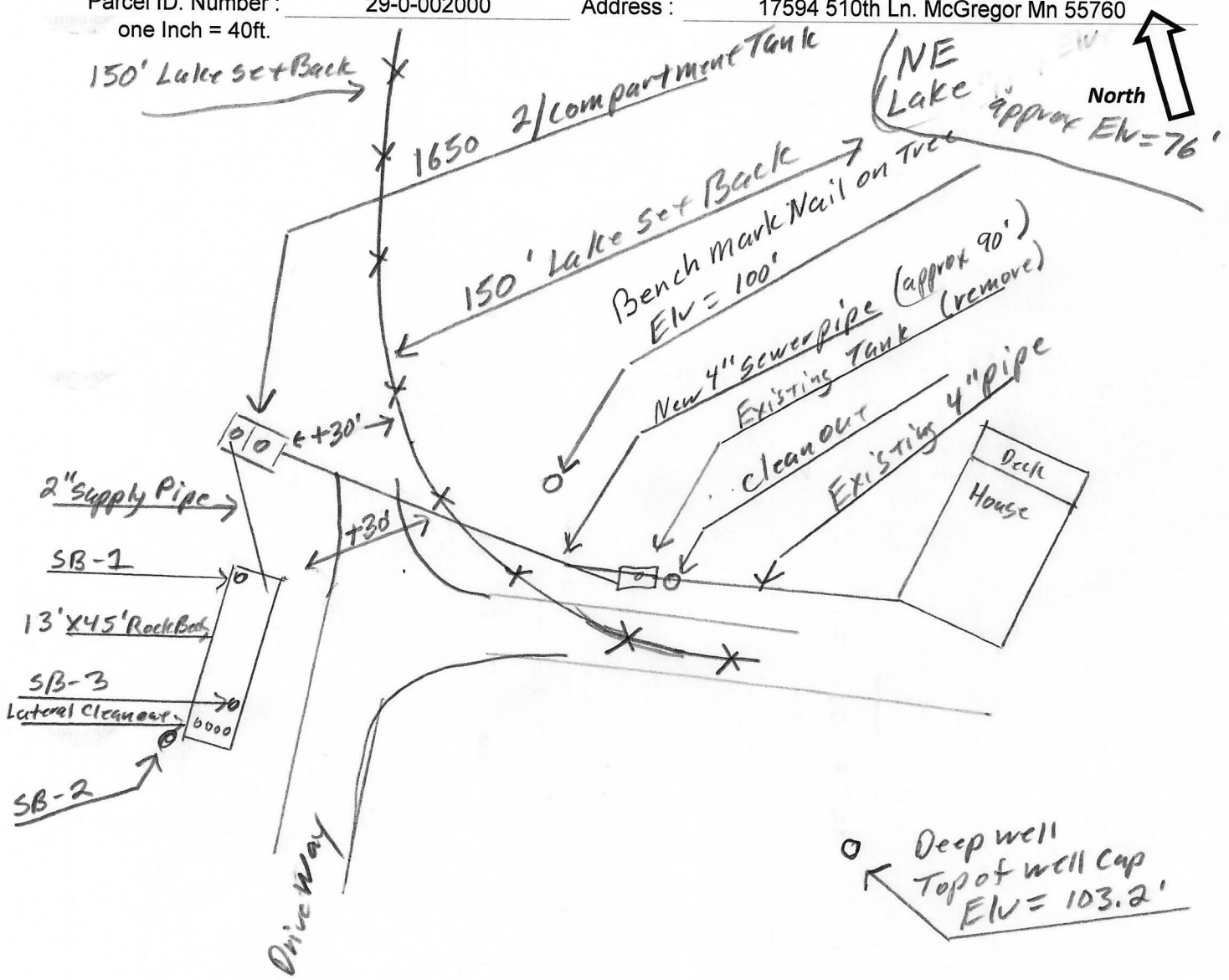
- [ ] Sewer line & baffle connection (no 90's, 3' between 45's, slope of 1/8"/ft, or 1" in 8', or 1' in 96'.
  (no depth req's, clean out every 100', Sch 40 D2665 or F891)
- [ ] Septic tank and risers (water tight, insulated, proper depth, existing verified by pumping)
  mfg_____ 1000 gallons none
- [ ] Riser over outlet, riser over inlet, 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 _____ 34 gpm 22 head VERIFY PUMP CURVE 2.9 M on 4.8 H off
- [ ] float setting drop 7.6 inches
  LABEL pump requirements and drawdown on riser or panel
- [ ] Cam lock, weep hole, supply line access (no hard 90, pipes reachable from grade)
- [ ] supply pipe sloped 1/8"+, supported by sch40 sleeve, and buried 6"+.
- [ ] splice box / control panel / electrical connections
- [ ] Bed dimensions 13 X 45.0
- [ ] Rock depth below pipe 6 inches
- [ ] Rock bottom elevation 14.0 inches from Grade to bottom of rock (max)
- [ ] cover depth of 12"+ VERIFY
- [ ] 4 laterals (1-2' from edge of rock)
- [ ] 1.50 inch pipe size (bigger is ok but do not exceed 4 times pipe volume)
- [ ] 3.0 ft lateral spacing
- [ ] 7/32 inch perforations (smaller is ok)
- [ ] 3.0 ft perforation spacing
- [ ] Air inlet at end of laterals, and at top feed manifold. VERIFY
- [ ] clean outs (deep bed 2' of head) (no hard 90's)
- [ ] 4" inspection pipe to bottom of rock, anchored VERIFY
- [ ] Abandon existing system if necessary
- [ ] monitoring plan and type _____

{ Design Drawing }

Property Owner: Thomas Marshall Date: 5/19/22 Designer's Initials : JB

Parcel ID. Number : 29-0-002000 Address : 17594 510th Ln. McGregor Mn 55760

one Inch = 40ft.



	Surface/ SHWT	Nail on Tree = Bench Mark 100'			Existing Grade proposed Pressure Bed
Soil Bore 1	100'/50"	Bench Mark	100'		NW Elv.= 100.1' NE Elv.= 101'
Soil Bore 2	100.9'/60"	Ground Elv. BM	98		SW Elv.= 100.9' SE Elv.= 101.4'
Soil Bore 3	101.4/ 72"	Ground Elv. Tank	98.6'	New	Bottom of Rockbed Elv. = 99'
	Ground at	Existing house	94'	SW corner	Existing tank Inlet Elv.= 96.2'

Please show all that apply (Existing)

Wells within 100ft. Of Drain field.

Water lines within 10 ft. of Drain field.

Drain field Areas:

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

Disturbed/Compacted Areas	Access Route for Tank Maintenance
Component Location	Property Lines
OHW ordinary high water	Structures
Lot Easements	Setbacks

Mound Design Notes - Aitkin county

Property Owner: Thomas Marshall **Date:** 5/19/2022

Site Address: 17594 510th Ln. McGregor MN 55760 **PID:** 29-0-002000

Comments: Type I Pressure Bed / 3 bedroom

1 This is a type I Pressure Bed for a Existing 3 bedroom House.
Small lake is a NE lake with 150 ft setback to septic system.
Install 9 inches of rock in pressure bed (6" under pipe + 3" above pipe)
Soil separation is at 50" with Elevation = 99' as bottom of rockbed.

2 There is an existing Deep well to the South of the house. Deep well meets setbacks.

3 Existing septic tank to be pumped and removed, existing drainfield to be abandon, leave drainfield in place.
Bench Mark (Elv. = 100') is nail on tree between house and new tank.

4 Top of deep well Cap is (Elv. = 103.2')

5 The Pressure bed area will be 13 ft. wide and 45 ft. long. Bottom of rock Elv 99'.
The NW corner is the lowest corner, use the excavated soil to build the berm out from NW corner.
Elevation of the bottom of the rock bed should be approx. 99'
The area size of the rock bed is 13' x 45' .
Cover rock bed with fabric and 12" to 18" of soil.

6 Installer to double check bench mark. Installer should confirm bench mark height Elv. with inspector.
Installer should record bench mark Elv. and bottom of rockbed height on installation inspection form.
It is important that the soils do not get compacted, and area stays protected.

7 The Jacobson 1650 Combo tank will be gravity flow from dwelling. Install the pump for 5 demand doses per day. approx. 97 gallons per dose, 7.6 inches of tank level. Install Electric alarm at 3 inches from pump on level.
Install electric alarm Buzzer at house if possible.
Install pump with 34 GPM and 22 Ft. head.
Install all manholes, inspection pipes and clean-outs to grade or above,(recommend 4" above).

8 Install a 2" supply pipe from tank to end manifold in rock bed, install so pipe drains back to tank.

9 Install 1.5" laterals with 6" of rock under them. (Install Lateral clean-outs at far end of laterals. Recommended)

10 **Drill 7/32" perf holes spaced 3 ft. apart.**
Install 4" inspection pipe to bottom of rock bed, secure in rock bed and raise to above final grade.
Install 4" cleanouts every 100' ft. if possible.

11 Owner is responsible to maintain protection of bed area through construction of house and septic system.

Designed to Aitkin Co. and MPCA recommendations and requirements.

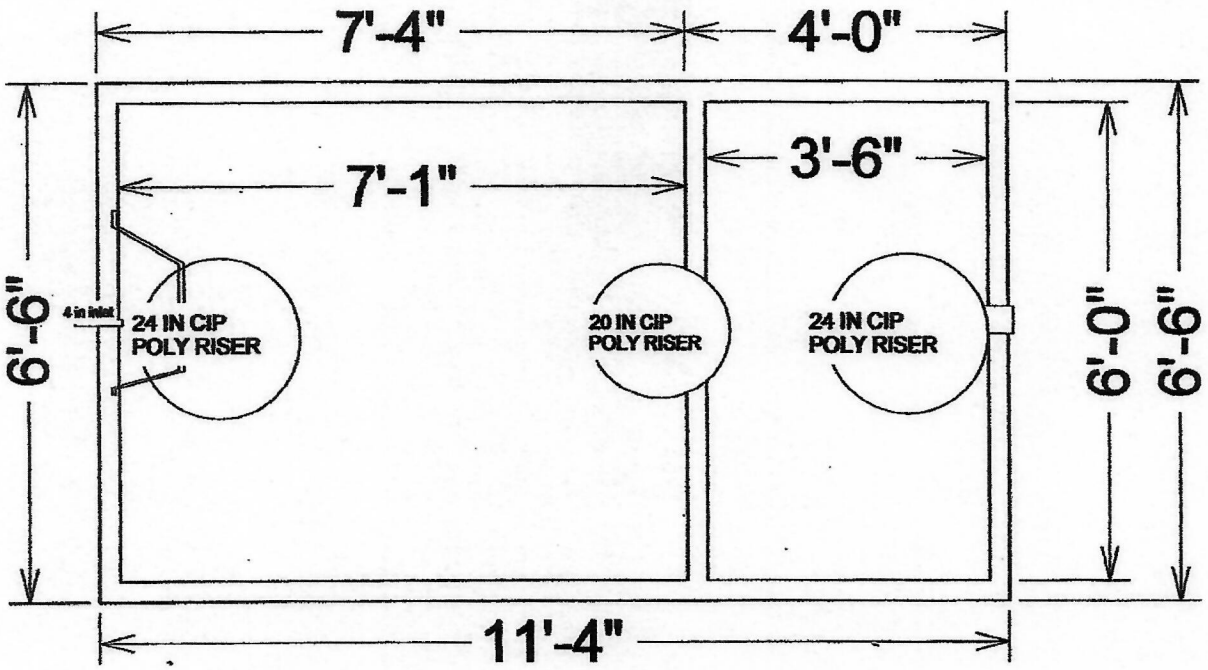
Designer Signature

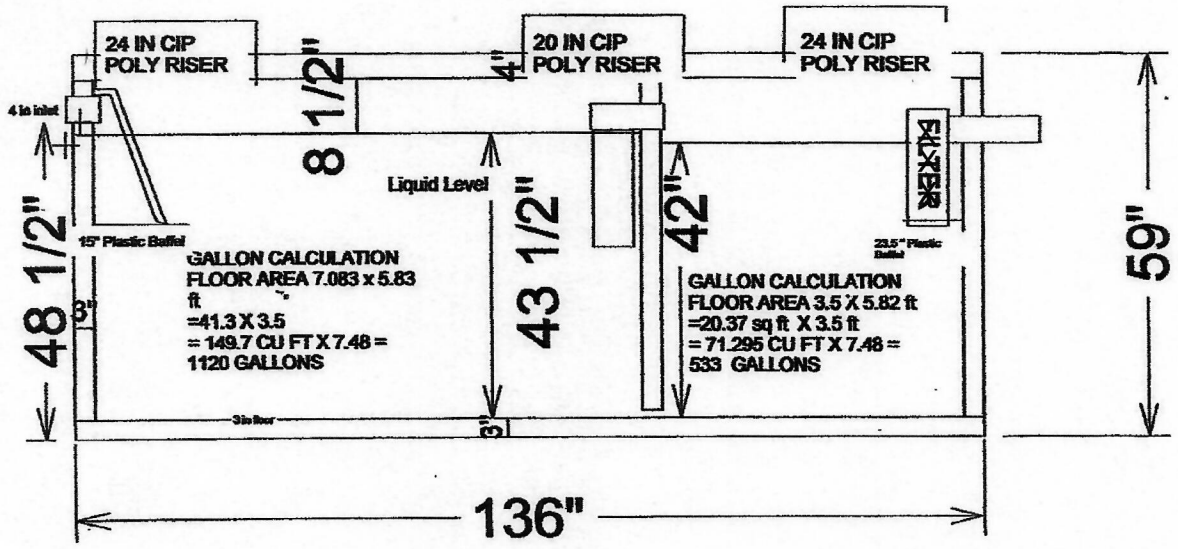
Brummer Septic LLC.
Design Company

L-1347
License#

1650 Gallon 2 Compartment Septic Tank

TOP VIEW





SIDE VIEW

533 / 42" = 12.69 GPI

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

Aitkin County

Detailed Parcel Report

Parcel Number: 29-0-002000

General Information

Township/City:	SHAMROCK TWP		
Taxpayer Name:	MARSHALL, THOMAS & MARY		
Taxpayer Address:	17594 510TH LN MCGREGOR MN 55760		
Property Address:	17594 510th Ln		
Township:	49	**Lake Number:**	0
Range:	23	**Lake Name:**	
Section:	2	**Acres:**	40.00
Green Acres:	No	**School District:**	4.00
Plat:			
Brief Legal Description:	SW OF NE		

Tax Information

Class Code 1:	Residential 1-3 units Previously SRR
Class Code 2:	Rural Vacant Land
Class Code 3:	Unclassified
Homestead:	Owner Homestead
Assessment Year:	2022

Estimated Land Value:	$85,700.00
Estimated Building Value:	$114,000.00
Estimated Total Value:	$199,700.00
Prior Year Total Taxable Value:	$111,820.00
Current Year Net Tax (Specials Not Included):	$864.00
Total Special Assessments:	$0.00
****Current Year Balance Not Including Penalty:**	$432.00
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.**

Gmail **Jeff Brummer <brummerseptic@gmail.com>**

Wetland Info

2 messages

Jeff Brummer <brummerseptic@gmail.com> Thu, May 12, 2022 at 9:02 PM
To: Henry Egland <henry.egland@co.aitkin.mn.us>

Henry I'm doing a design on PID 29-0-002000 Thomas Marshall 17594 510th Ln McGregor MN 55760 Can you tell me if the water to the NE of the cabin has a classification or is just a wetland? Thank you

--
Jeff Brummer
Brummer Septic LLC.
14650 Agate Ridge Rd
Brainerd MN 56401
(218) 821-0704

Henry Egland <henry.egland@co.aitkin.mn.us> Mon, May 16, 2022 at 8:35 AM
To: Jeff Brummer <brummerseptic@gmail.com>

Good Morning Jeff,

Looks like that is going to be classified as a natural environment lake.

Thanks,

Henry Egland

Wetland Specialist/Compliance Officer

henry.egland@co.aitkin.mn.us

307 2nd Street NW, Rm 219, Aitkin, MN 56431

218-927-7313

www.co.aitkin.mn.us

From: Jeff Brummer <brummerseptic@gmail.com>
Sent: Thursday, May 12, 2022 9:03 PM
To: Henry Egland <henry.egland@co.aitkin.mn.us>
Subject: Wetland Info

Minnesota Department of Health

Version 2.0.85. 11/19/21 3:34PM

Minnesota Well Index

General Information

Unique Well ID:	**779873**	*Well Name:*	**MARSHALL, TOM**	*County:*	**Aitkin**	*Aquifer:*	**Quat. buried artes. aquifer**
Well Elevation (msl in feet):	**1254**	*Drilled Depth (ft):*	**100**	*Well Completed (ft):*	**100**	*Date Drilled:*	**10/01/2010**
Township:	**49**	*Range:*	**23**	*Dir:*	**W**	*Section:*	**2**
Subsection:	**ACCAAD**	*Use:*	**domestic**	*Well Status:*	**Active**	*Depth To Bedrock:*	
Driller:	**Hasskamp Bros. Well Drilling**	*Entry Date:*	**12/13/2011**	*Update Date:*	**12/07/2017**		

Related Resources:

Go to MN Well Index Map | Well Log Report | Scanned Record(s) | Stratigraphy Report

More Details | Stratigraphy | Address | Chemical Data | Construction | Pump Test | Static Water | Comments | Location Changes | Overview Map

Description	From(ft)	To(ft)	Color	Hardness	Lith Primary	Lith Secondary	Interpretation
SAND/GRAVEL	0	25	BROWN	SOFT	SAND		sand +larger-brown
CLAY	25	34	BROWN	MEDIUM	CLAY		clay-brown
SAND/CLAY	34	80	GRAY	SOFT	SAND		clay+sand-gray
CLAY/GRAVEL/ROCK	80	96	GRAY	MEDIUM	CLAY	COBL	pebbly sand/silt/clay-gray
SAND	96	100	GRAY	SOFT	SAND		sand-gray

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.

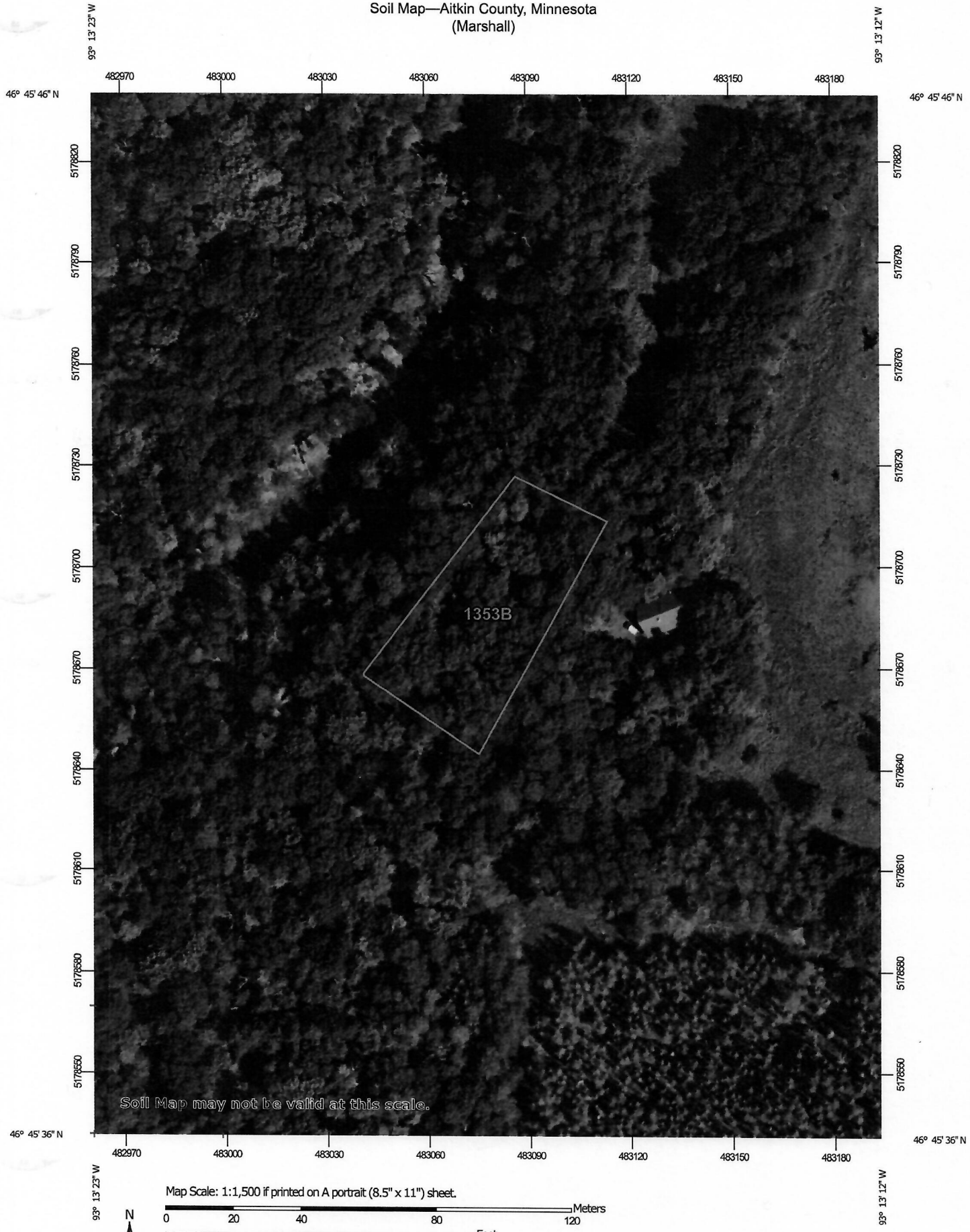
Marshall

1:2,257 | 0 0.01 0.02 mi | 1 inch = 188 feet | Web AppBuilder for ArcGIS

Aitkin County

Date: 5/12/2022

Soil Map—Aitkin County, Minnesota
(Marshall)



Map Scale: 1:1,500 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

Aitkin County, Minnesota

1353B—Cutaway loamy fine sand, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: gjd4
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: Farmland of statewide importance

Map Unit Composition

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

Description of Cutaway

Setting

Landform: Moraines
Landform position (two-dimensional): Summit, backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy outwash over loamy till

Typical profile

A - 0 to 2 inches: loamy fine sand
E,Bw,E' - 2 to 26 inches: loamy sand
2E/B,2B/E - 26 to 49 inches: loam
2C - 49 to 60 inches: loam

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: More than 80 inches
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 41 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B
Forage suitability group: Sloping Upland, Acid (G088XN006MN)

Other vegetative classification: Sloping Upland, Acid (G088XN006MN)
Hydric soil rating: No

Minor Components

Northwood and similar soils
Percent of map unit: 6 percent
Landform: Depressions
Hydric soil rating: Yes

Sandwick and similar soils
Percent of map unit: 6 percent
Landform: Swales
Hydric soil rating: Yes

Dusler 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 22, Sep 10, 2021