



200233000



Becker County Planning & Zoning
915 Lake Ave
Detroit Lakes, MN 56501
(218) 846-7314
www.co.becker.mn.us

Certificate of Compliance Inspection Report - Permit #: SS2020-540

Owner & Property Information

Owner Name:	BCANS ENTERPRISES LLC	Site Address:	38622 CEDAR CREST CIR
Mailing Address:	BCANS ENTERPRISES LLC 29783 387TH ST WAUBUN MN 56589	Township - Sec/Twp/Rng:	MAPLE GROVE - 08/142/040
Parcel #:	200233000	Legal Description:	8-142-40 GOVT LOT 2 LESS 4.61 AC FOR NEMEC BCH, NEMEC 1ST ADDN; TRACTS SOLD, LESS 3.17 AC FOR 20-0233-001, -002, -003.
Secondary Parcel #:		Designer:	Scott's Septic Services LLC, L3947 (Scott Ellingson)
		Installer:	Lunde Blade & Gravel LLC, L1254 (Jason M Lunde)

Inspector Verified Specifications

Insp- Effluent Screen Installed:	Yes	Insp- Tank Nbr/Size:	2/1500 (added septic) and 1000 lift
Insp- Alarm Required:	Yes	Insp- Drainfield Type:	Mound
Insp- Lift Pump in System:	Yes	Insp- Drainfield Size:	10' X 100' rock bed and 26' X 100' soil absorption area = 2600 sq ft
Insp- Number of Bedrooms:	28 (resort)	Insp- Soil Verification:	#1:attached #2:N/A #3:N/A

Inspector Verified Setbacks

Insp- Tank Dist to Road	100+	Insp- Drainfield Dist to Road	100+
Insp- Tank Dist to Nearest Prop Line	500+	Insp- Drainfield Dist to Nearest Prop Line	500+
Insp- Tank Dist to Nearest Structure	20	Insp- Drainfield Dist to Nearest Structure	50
Insp- Tank Dist to Well	1500+	Insp- Drainfield Dist to Well	1500+
Insp- Tank Dist to OHW	2000+	Insp- Drainfield Dist to OHW	2000+
Insp- Tank Dist to Pond/Wetland	500+	Insp- Drainfield Dist to Pond/Wetland	500+
Insp- Tank Dist to Pressure Line		Insp- Drainfield Dist to Pressure Line	

Certificate of Compliance

(Yes) Certificate is hereby granted based upon the application, addendum from, plans, specifications and all other supporting data. With proper maintenance, this system can be expected to function satisfactory, however this is not a guarantee.

Certification Date: 9/17/2020

Zoning Office Signature:

Denise Gubrud

Denise Gubrud - ISTS Inspector

* Certificate of Compliance is not valid unless signed by a Registered Qualified Employee *

Field Review Form

Permit # SS2020-540

Property and Owner

Owner: BCANS ENTERPRISES LLC	Parcel Number: 200233000
Site Address: 38622 CEDAR CREST CIR	Secondary Parcel:

Home Information

TYPE III

Does the structure contain any of the following elements?	Designer submitted	Inspector verified
	Garbage disposal: Yes Dishwasher: Invalid Field Grinder pump: Invalid Field Lift pump in bsmt: Invalid Field	Garbage disposal? <input checked="" type="radio"/> Y <input type="radio"/> N Dishwasher? <input checked="" type="radio"/> Y <input type="radio"/> N Grinder pump? <input type="radio"/> Y <input checked="" type="radio"/> N Lift pump in basement? <input type="radio"/> Y <input checked="" type="radio"/> N
Number of bedrooms: 28	Review - Number of bedrooms: 28	
Effluent screen	Effluent screen installed? <input checked="" type="radio"/> Y <input type="radio"/> N Mfr:	
Alarm: Yes Type:	Review - Alarm? <input checked="" type="radio"/> Y <input type="radio"/> N Type & Mfr: Alderson	
Lift pump in system: Yes	Review - Lift pump in system? <input checked="" type="radio"/> Y <input type="radio"/> N Mfr:	

Component Information

Tank size: 1500, 1000	Review - Tank nbr: 2 size: ^{1000 - sept} 1500 - lift Mfr: Infiltrator
Drainfield type: Mound	Review - Drainfield type: Mound
Drainfield size: Full size - 4000 Reduced/warr. size -	Review - Drainfield status: none <input checked="" type="radio"/> installed next spring Review - Drainfield size: 10' x 100' rock bed
Absorption area size:	Review - Absorption area size: 26' x 100' Soil Absorp. Area <i>2600 sq ft</i>
Chamber type/num: Trench sqft/chamber -	Review - Chamber type: Num: Review - Trench sqft/chamber:
Drainfield rock depth:	Review - Rock depth: 12" = 2" sand left

Soil Verification


Vertical separation verified.	Boring #1: Boring #2: attached - <i>no moved part of old drainfield & filled with sand</i> Boring #3:
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Setback Verification

Distance to...	Designer submitted		Inspector verified	
	Tank	Drainfield	Tank	Drainfield
Road	100ft	100ft	100'	100'
Nearest prop line	500ft	500ft	500'	500'
Nearest structure	50ft	50ft	20	50'
Well	1500ft	1500ft	1500'	1500'
OHW	2000ft	2000ft	2000	2000
Pond/Wetland	500ft	500ft		
Pressure line	n/a	n/a		

Date System Installed: **9/17/2020** Installer: **Jason Lunde** Inspector: **Dwaine Gubone**

System #1 540

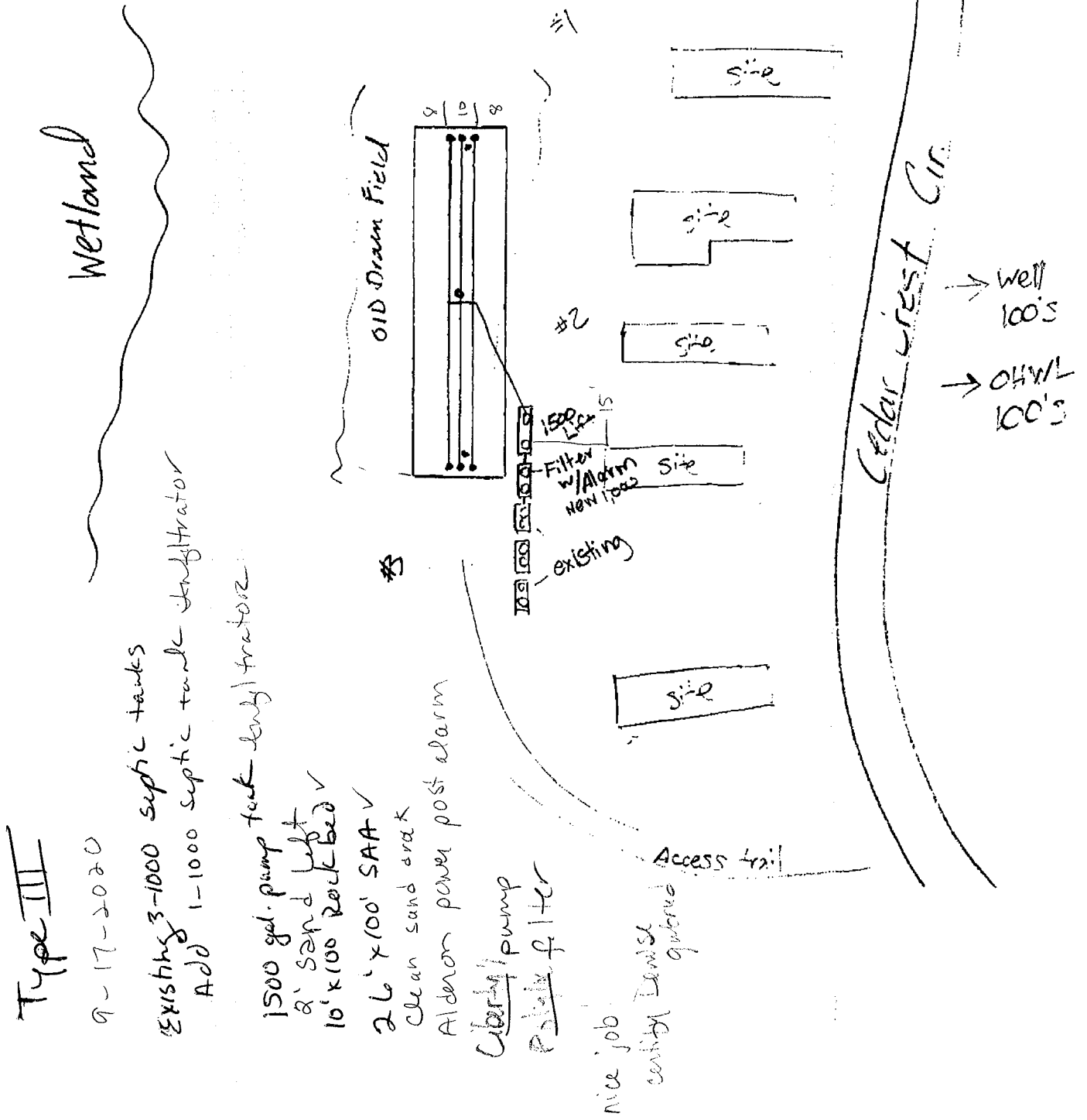


Scott Ellingson
201 Meadow Circle, Ashby, MN 56309
218-205-1667

PARCEL # 200233000
YEAR 2018
SCALE 1" = 40'



SKETCH OF PROPERTY



Becker County Restrictive Layer Verification

Client: Boarns Ent Services Parcel: 200233000 Date: 9-17-2020

Address: 38632 Cedar Crest Circle

Vegetation: wooded

Weather Conditions/Time of Day: 1:30 pt. cldy Observation#/Location/Method: p.t

Depth (in) Texture Matrix Color(s) Mottle Color(s)

17"	C	10yr 4/3	10yr 5/1
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Comments/Notes:

17" - Restrictive Layer - Redox Depletion

Certified Statement: I hereby certify that I have completed this work in accordance with all applicable ordinance, rules and laws.	(Inspector)	(License #)	(Date)
(Designer) <u>Scott Ellingson</u>	<u>Denise Goodrich</u>	<u>08952</u>	<u>9-17-2020</u>

OSTP Soil Observation Log

Project ID: Cedar

v 05.13.14



Client/ Address: _____ Cedar Crest Resort _____ Legal Description/ GPS: _____

Soil parent material(s): (Check all that apply) Outwash Loess Till Alluvium Bedrock Organic Matter

Landscape Position: (check one) Summit Shoulder Back/Side Slope Foot Slope Toe Slope/Slope shape _____ LL

Vegetation: Lawn _____ Soil survey map units: 718C _____ Slope%: 3.0 _____ Elevation: 98.29'

Weather Conditions/Time of Day: Sunny 60°F 8:50 am _____ Date: 09/22/17

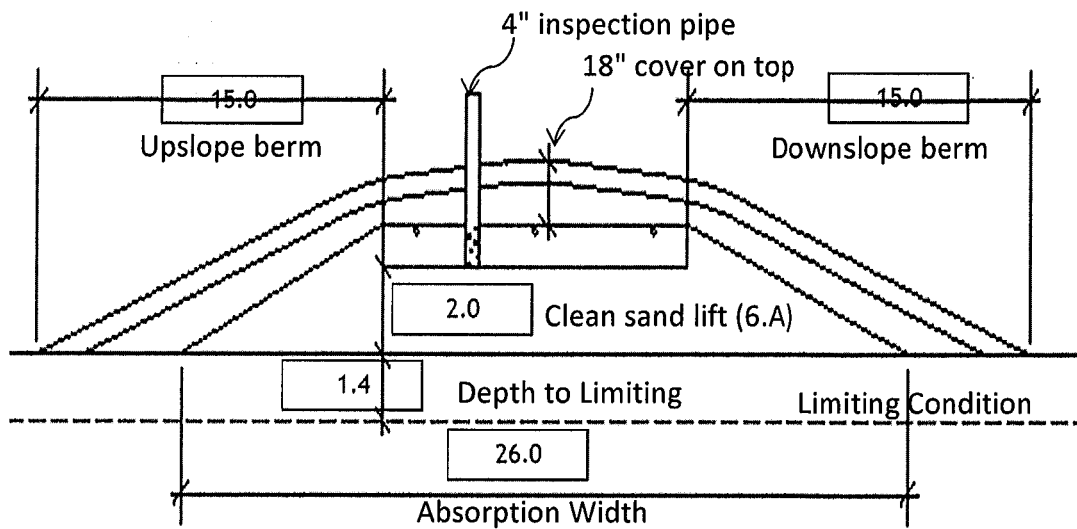
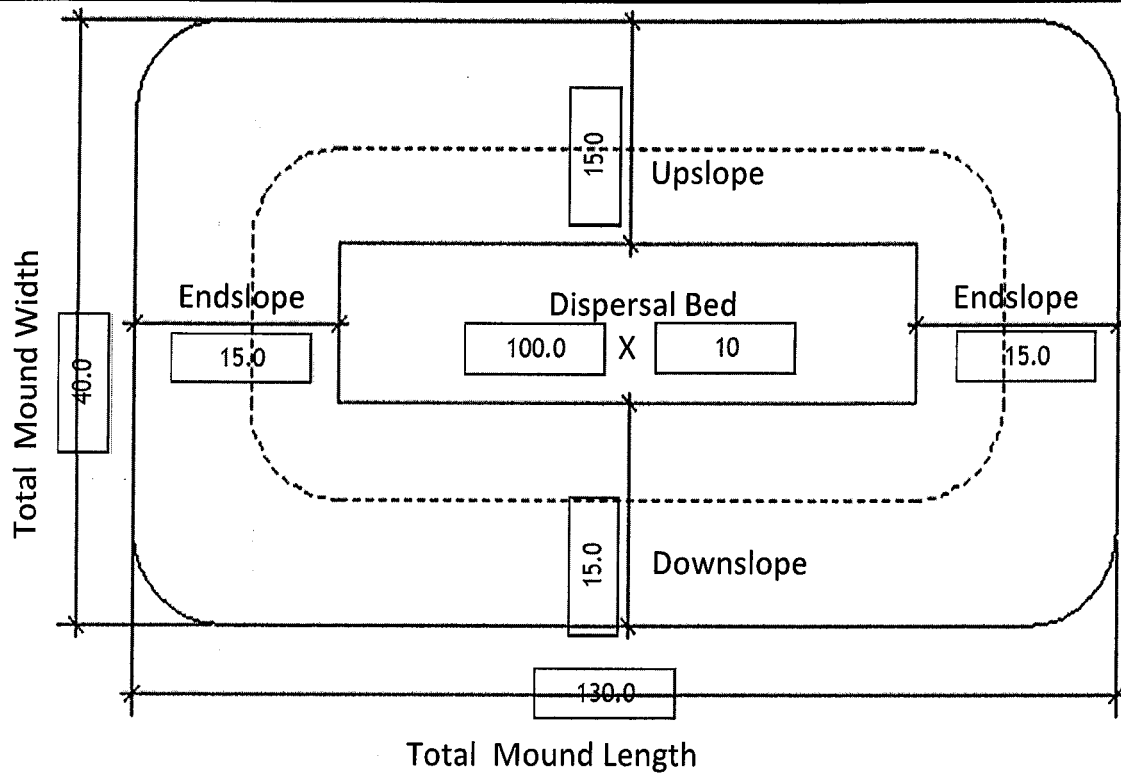
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Observation Type:		
							Shape	Structure	
System One (soil boring #2)							Auger	Consistence	
0-3	Loam	<35%	10Yr 3/1				Granular	Moderate	Friable
3-6	Clay/Loam	<35%	10YR 4/2				Blocky	Moderate	Firm
6-17	Clay	<35%	10YR 4/3				Blocky	Weak	Firm
17-21	Clay	<35%	10YR 4/3	10YR 5/1	Depletions	S2	Blocky	Moderate	Firm
21-35	Sandy Clay Loam	<35%	10YR 4/3	10YR 5/1	Depletions	S2	Platy	Weak	Extremely Firm
35	Clay Loam	<35%	10YR 5/1	10R 3/6	Concentrations	S1	Platy	Moderate	Extremely Firm

Comments: Restricting layer 96, 87.

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

Ken Ramonido _____ L3108 _____ 09/22/2017
 (Designer/Inspector) (Signature) (License #) (Date)

7. MOUND DIMENSIONS



Comments:



Minnesota Pollution Control Agency

OSTP Pressure Distribution Design Worksheet

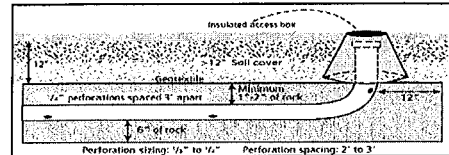
UNIVERSITY OF MINNESOTA



Project ID:

v 04.20.2016

- Media Bed Width: ft
- Minimum Number of Laterals in system/zone = Rounded up number of $[(\text{Media Bed Width} - 4) \div 3] + 1$.
 $[(\text{ } - 4) \div 3] + 1 = \text{ } \text{ laterals}$ *Does not apply to at-grades*
- Designer Selected Number of Laterals: laterals
Cannot be less than line 2 (accept in at-grades)
- Select Perforation Spacing: ft
- Select Perforation Diameter Size: in
- Length of Laterals = Media Bed Length - 2 Feet.



- 2ft = ft *Perforation can not be closer then 1 foot from edge.*

- Determine the Number of Perforation Spaces. Divide the Length of Laterals by the Perforation Spacing and round down to the nearest whole number.

Number of Perforation Spaces = ft \div ft = Spaces

- Number of Perforations per Lateral is equal to 1.0 plus the Number of Perforation Spaces. Check table below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

Perforations Per Lateral = Spaces + 1 = Perfs. Per Lateral

Maximum Number of Perforations Per Lateral to Guarantee < 10% Discharge Variation											
1/4 Inch Perforations						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1 1/4	1 1/2	2	3		1	1 1/4	1 1/2	2	3
2	10	13	18	30	60	2	11	16	21	34	68
2 1/2	8	12	16	28	54	2 1/2	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60
3/16 Inch Perforations						1/8 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1 1/4	1 1/2	2	3		1	1 1/4	1 1/2	2	3
2	12	18	26	46	87	2	21	33	44	74	149
2 1/2	12	17	24	40	80	2 1/2	20	30	41	69	135
3	12	16	22	37	75	3	20	29	38	64	128

- Total Number of Perforations equals the Number of Perforations per Lateral multiplied by the Number of Perforated Laterals.

Perf. Per Lat. X Number of Perf. Lat. = Total Number of Perf.

- Select Type of Manifold Connection (End or Center): End Center

- Select Lateral Diameter (See Table): in



OSTP Pressure Distribution Design Worksheet



12. Calculate the *Square Feet per Perforation*. Recommended value is 4-11 ft² per perforation.

Does not apply to At-Grades

a. *Bed Area* = Bed Width (ft) X Bed Length (ft)

$$\boxed{10} \text{ ft} \times \boxed{100} \text{ ft} = \boxed{1000} \text{ ft}^2$$

b. *Square Foot per Perforation* = Bed Area divided by the Total Number of Perforations.

$$\boxed{1000} \text{ ft}^2 \div \boxed{99} \text{ perforations} = \boxed{10.1} \text{ ft}^2/\text{perforations}$$

13. Select *Minimum Average Head*: $\boxed{1.0}$ ft

14. Select *Perforation Discharge (GPM)* based on Table: $\boxed{0.74}$ GPM per Perforation

15. Determine required *Flow Rate* by multiplying the *Total Number of Perfs.* by the *Perforation Discharge*.

$$\boxed{99} \text{ Perfs} \times \boxed{0.74} \text{ GPM per Perforation} = \boxed{73} \text{ GPM}$$

16. *Volume of Liquid Per Foot of Distribution Piping (Table II)*: $\boxed{0.170}$ Gallons/ft

17. *Volume of Distribution Piping* =

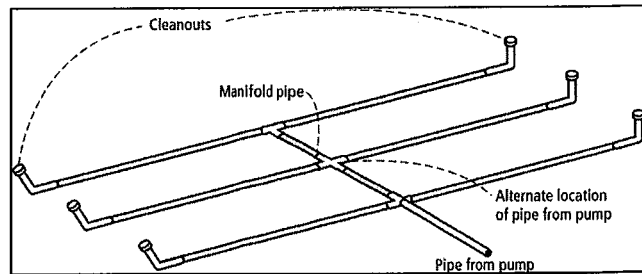
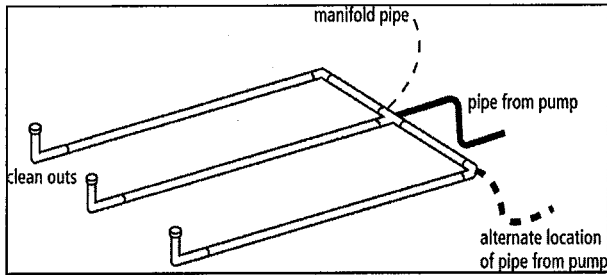
= [Number of Perforated Laterals X Length of Laterals X (Volume of Liquid Per Foot of Distribution Piping)]

$$\boxed{3} \times \boxed{98} \text{ ft} \times \boxed{0.170} \text{ gal/ft} = \boxed{50.0} \text{ Gallons}$$

18. Minimum Delivered Volume = Volume of Distribution Piping X 4

$$\boxed{50.0} \text{ gals} \times 4 = \boxed{199.9} \text{ Gallons}$$

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661



Comments/Special Design Considerations:

Blank area for comments and special design considerations.



OSTP Basic Pump Selection Design Worksheet



1. PUMP CAPACITY Project ID: _____ v 04.20.2016

Pumping to Gravity or Pressure Distribution:

1. If pumping to gravity enter the gallon per minute of the pump: GPM (10 - 45 gpm)

2. If pumping to a pressurized distribution system: GPM

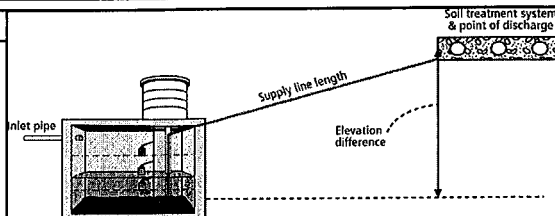
3. Enter pump description:

2. HEAD REQUIREMENTS

A. Elevation Difference ft between pump and point of discharge:

B. Distribution Head Loss: ft

C. Additional Head Loss: ft (due to special equipment, etc.)



Distribution Head Loss	
Gravity Distribution = 0ft	
Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet:	
Minimum Average Head	Distribution Head Loss
1ft	5ft
2ft	6ft
5ft	10ft

Table I. Friction Loss in Plastic Pipe per 100ft

Flow Rate (GPM)	Pipe Diameter (inches)			
	1	1.25	1.5	2
10	9.1	3.1	1.3	0.3
12	12.8	4.3	1.8	0.4
14	17.0	5.7	2.4	0.6
16	21.8	7.3	3.0	0.7
18		9.1	3.8	0.9
20		11.1	4.6	1.1
25		16.8	6.9	1.7
30		23.5	9.7	2.4
35			12.9	3.2
40			16.5	4.1
45			20.5	5.0
50				6.1
55				7.3
60				8.6
65				10.0
70				11.4
75				13.0
85				16.4
95				20.1

D. 1. Supply Pipe Diameter: in

2. Supply Pipe Length: ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = ft per 100ft of pipe

F. Determine Equivalent Pipe Length from pump discharge to soil dispersal area discharge point. Estimate by adding 25% to supply pipe length for fitting loss. Supply Pipe Length (D.2) X 1.25 = Equivalent Pipe Length

ft X 1.25 = ft

G. Calculate Supply Friction Loss by multiplying Friction Loss Per 100ft (Line E) by the Equivalent Pipe Length (Line F) and divide by 100.

Supply Friction Loss = ft per 100ft X ft ÷ 100 = ft

H. Total Head requirement is the sum of the Elevation Difference (Line A), the Distribution Head Loss (Line B), Additional Head Loss (Line C), and the Supply Friction Loss (Line G)

ft + ft + ft + ft = ft

3. PUMP SELECTION

A pump must be selected to deliver at least **73.0** GPM (Line 1 or Line 2) with at least **21.9** feet of total head.

Comments:

OSTP Pump Tank Design Worksheet (Demand Dose)



DETERMINE TANK CAPACITY AND DIMENSIONS Project ID: v 04.20.2016

1. A. Design Flow (Design Sum. 1A): 1135 GPD
 B. Min. required pump tank capacity: 1135 Gal C. Recommended pump tank capacity: 1500 Gal

2. A. Tank Manufacturer: Brown Wilbert B. Tank Model: 1500
 C. Capacity from manufacturer: 1500 Gallons
 D. Gallons per inch from manufacturer: 35.8 Gallons per inch
 E. Liquid depth of tank from manufacturer: 43.0 inches

Note: Design calculations are based on this specific tank. Substituting a different tank model will change the pump float or timer settings. Contact designer if changes are necessary.

DETERMINE DOSING VOLUME

3 Calculate Volume to Cover Pump (The inlet of the pump must be at least 4-inches from the bottom of the pump tank & 2 inches of water covering the pump is recommended)
 (Pump and block height + 2 inches) X Gallons Per Inch (2C or 3E)
 (16 in + 2 inches) X 35.8 Gallons Per Inch = 644 Gallons
 4 Minimum Delivered Volume = 4 X Volume of Distribution Piping:
 - Line 17 of the Pressure Distribution or Line 11 of Non-level 200 Gallons (minimum dose)
 5 Calculate Maximum Pumpout Volume (25% of Design Flow)
 Design Flow: 1135 GPD X 0.25 = 284 Gallons (maximum dose)

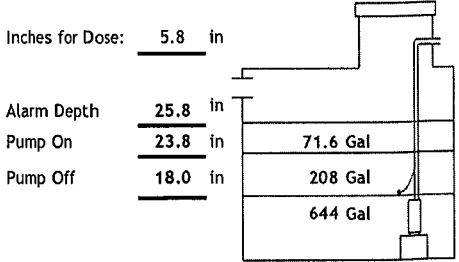
6 Select a pumpout volume that meets both Minimum and Maximum: 200 Gallons
 7 Calculate Doses Per Day = Design Flow ÷ Delivered Volume
1135 gpd ÷ 200 gal = 5 Doses

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

8 Calculate Drainback:
 A. Diameter of Supply Pipe = 2 inches
 B. Length of Supply Pipe = 45 feet
 C. Volume of Liquid Per Lineal Foot of Pipe = 0.170 Gallons/ft
 D. Drainback = Length of Supply Pipe X Volume of Liquid Per Lineal Foot of Pipe
45 ft X 0.170 gal/ft = 7.7 Gallons
 9. Total Dosing Volume = Delivered Volume plus Drainback
200 gal + 7.7 gal = 208 Gallons
 10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank
2 in X 35.8 gal/in = 71.6 Gallons

DEMAND DOSE FLOAT SETTINGS

11. Calculate Float Separation Distance using Dosing Volume.
 Total Dosing Volume / Gallons Per Inch
208 gal ÷ 35.8 gal/in = 5.8 Inches
 12. Measuring from bottom of tank:
 A. Distance to set Pump Off Float = Pump + block height + 2 inches
16 in + 2 in = 18 Inches
 B. Distance to set Pump On Float = Distance to set Pump-Off Float + Float Separation Distance
18 in + 5.8 in = 24 Inches
 C. Distance to set Alarm Float = Distance to set Pump-On Float + Alarm Depth (2-3 inches)
24 in + 2.0 in = 26 Inches





Becker County Planning & Zoning
 915 Lake Ave
 Detroit Lakes, MN 56501
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 www.co.becker.mn.us

11:30
 9-17-2020
 Lunde

Septic Permit

Permit #: SS2020-540

Owner & Property Information	
Owner Name:	BCANS ENTERPRISES LLC
Mailing Address:	BCANS ENTERPRISES LLC 29783 387TH ST WAUBUN MN 56589
Phone #:	2184732116
Lake/River(1000/300):	Yes
Lake/River Name:	White Earth (Maple Grove) [RD]
Pond/Wetland(50):	Yes
Parcel #:	200233000
Secondary Parcel #:	
Site Address:	38622 CEDAR CREST CIR
Township - Sec/Twp/Rng:	MAPLE GROVE - 08/142/040
Designer:	Scott's Septic Services LLC, L3947 (Scott Ellingson)
Installer:	Lunde Blade & Gravel LLC, L1254 (Jason M Lunde)

Specifications	
Tank to be Installed:	Existing Tank with New Additional Tank
Total # Tanks Installed:	2
System Status:	Failing System (Cesspool, Seepage Pit, other)
System Serves:	Commercial Resort
Number of Bedrooms:	28
Design Flow/GPD:	1135
Garbage Disposal?	Yes
Size of Lift Pump:	
Size of Lift Line:	
Soil Sizing Factor:	0.45
Type of Drainfield:	Mound
Full Size of Drainfield:	4000
Reduced/Warrantied Size:	
Absorbtion Area Size:	1000 sq ft
Rock Depth:	
Chamber Type and Number:	
Chamber Trench SqFt/Chamber:	
Is System Pressurized?	No
Alarm?	Yes
Type of Alarm:	

Setbacks	
Road Type:	Private Easement
Tank Dist to Road:	100ft
Tank Dist to Closest Prop Line:	500ft
Tank Dist to Nearest Structure:	50ft
Tank Dist to Well:	1500ft
Tank Dist to OHW:	2000ft
Tank Dist to Pond/Wetland:	500ft
Tank Dist to Pressure Line:	n/a
Right of Way Marked:	Yes
Drainfield Dist to Road:	100ft
Drainfield Dist to Closest Prop Line:	500ft
Drainfield Dist to Nearest Structure:	50ft
Drainfield Dist to Well:	1500ft
Drainfield Dist to OHW:	2000ft
Drainfield Dist to Pond/Wetland:	500ft
Drainfield Dist to Pressure Line:	n/a

Other Information	
Date Approved:	7/9/2020
Permit Fee:	300.00
Receipt Number:	248938857
Date Paid:	7/9/2020
Notes:	Utilize 3 - 1000 gallon existing septic tanks, add 1 - 1000 septic tank and 1 - 1500 gallon lift tank. Construct a mound system with a 2' sand lift, a 10' X 1000' rock bed
Zoning Office Signature:	<u>Denise Gubrud</u>



1. Contact Information

Property Owner/Client: Client Phone Number:
 Mailing Address: Project ID:
 Site Address: Legal Description:
 Parcel ID: Latitude:

2. Flow Information

Client-Provided Information
 Type(s) of use (all that apply) Residential Commercial Other (Specify)
 No. of bedrooms* (if applicable) Unfinished space (ft²)
 No. of residents in home Adults Children Teenagers
 Existing flow measurements Yes (If Yes, attach readings) No

Water-using devices (check all that apply)
 Garbage Disposal Water Softener* Iron Filter*
 Dishwasher Sump Pump* Other (specify)
 Large Bathtub/Jacuzzi High Efficiency Furnace*
 Laundry/Large Tub on 2nd Floor Hot Tub* Clear water source

Water use concerns (check all that apply)
 Faucet/Toilet Leaks Multiple Loads of Laundry/Day Long-Term Prescription Meds Use of Anti-Bacterial Soap
 In-Home Business No Lint Screen Frequent Entertaining of Out-of-Town Guests

Any additional current or future uses on this parcel (specify)
 Any non-sewage discharges to system (specify)
 Sewage ejector or grinder pump in home? Yes No
 I acknowledge the above is complete and accurate (Client(s) signature and date)

Designer-determined Flow Information
 A. Estimated Design Flow (gallons per day)
 Anticipated waste strength values: Domestic Strength High Strength BOD: mg/L
 CBOD: mg/L (TSS): mg/L O&G: mg/L

3. Preliminary Site Information

B(1). Water supply well(s) within 100 ft of absorption area Yes No
 Well(s) were located Direct Observation County Well Index Maps Personal Communication MN Unique Well Id #:
 Depth of well(s) ft Well casing depth(s) ft Source
 Impervious Layer No Yes If Yes, Define & Source: Required Setback: ft
 B(2). Site within 200 ft of noncommunity transient supply well Yes No Source:
 B(3). Site within a drinking water supply management area Yes No Source:
 B(4). Location of all existing and proposed buildings and improvements on lot (see Site Evaluation map)
 B(5). Buried water supply pipes within 50 ft of proposed system Yes No Source:
 C. Location of all easements on lot (see Site Evaluation map) Source:
 D. Elevation of ordinary high water level (OWHL) - MN DNR (if adjacent to parcel)
 E. Floodplain designation and flood elevation Source:
 F. Determine property lines (see Site Evaluation map) Survey Plat Map Other: GIS
 Site located in a shoreland district/area Yes No Shoreland
 G. Distance of setbacks Property Lines OHWL Water Supply Pipes
 Other Buildings Easements Well(s)





H. Soil Survey Information (from web soil survey) • Map Map Units on Parcel

List landforms Slope Range

Parent materials -check all that apply Landform Position (check all that apply)

<input type="checkbox"/> Till	<input type="checkbox"/> Colluvium	<input type="checkbox"/> Lacustrine	<input type="checkbox"/> Alluvium	<input type="checkbox"/> Cut/Fill	<input type="checkbox"/> Summit	<input type="checkbox"/> Shoulder	<input type="checkbox"/> Backslope	<input type="checkbox"/> Foothlope	<input type="checkbox"/> Plain
<input type="checkbox"/> Outwash	<input type="checkbox"/> Loess	<input type="checkbox"/> Bedrock	<input type="checkbox"/> Organic		<input type="checkbox"/> Depression	<input type="checkbox"/> Stream/Terrace	<input type="checkbox"/> Manmade	<input type="checkbox"/> Toe Slope	

Minimum bedrock depth: inches Minimum bedrock depth: inches

Maximum bedrock depth: inches Maximum bedrock depth: inches

Map Unit Ratings

Septic Tank Absorption Field - Trench (MN)

Septic Tank Absorption Field - At-grade (MN)

Septic Tank Absorption Field - Mound (MN)

4. Preliminary Soil Profile Information (from web soil survey - m)

Enter information here or attach map and description.

Map Unit	40B	Depth	Texture(s)	Structure(s)	Consistence	Other Restrictions	Color
Horizon 1		0-3	Loam				
Horizon 2		3-9"	Fine Sandy Loam				
Horizon 3		9-26"	Clay Loam				
Horizon 4		26-79"	Loam				
Horizon 5							

Map Unit		Depth	Texture(s)	Structure(s)	Consistence	Other Restrictions	Color
Horizon 1							
Horizon 2							
Horizon 3							
Horizon 4							
Horizon 5							

Map Unit		Depth	Texture(s)	Structure(s)	Consistence	Other Restrictions	Color
Horizon 1							
Horizon 2							
Horizon 3							
Horizon 4							
Horizon 5							

Map Unit		Depth	Texture(s)	Structure(s)	Consistence	Other Restrictions	Color
Horizon 1							
Horizon 2							
Horizon 3							
Horizon 4							
Horizon 5							

5. Local Government Unit Information

Name of LGU LGU Contact

LGU-specific setbacks

LGU-specific design requirements

LGU-specific installation requirements

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

Shawn Hedlund 2970 09/19/18

(Designer) (Signature) (License #) (Date)

OSTP Soil Observation Log

Project ID: 200233000

v 03.19.15



Client/ Address:

BCANS Enterprises / Kenneth Hunze

Legal Description/ GPS:

Soil parent material(s): (Check all that apply)

- Summit
- Outwash
- Lacustrine
- Loess
- Till
- Alluvium
- Bedrock
- Organic Matter

Landscape Position: (check one)

- Summit
- Shoulder
- Back/Side Slope
- Foot Slope
- Toe Slope
- Slope shape

convex/linear

Vegetation

forest

Soil survey map units 40B

Slope%

2.0

Elevation:

99

Weather Conditions/Time of Day:

afternoon/nice

Date

09/19/18

Observation #/Location:

1

Observation Type:

Soil Pit

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
0-6	Clay Loam	<35%	10YR 2/2				Granular	Moderate	Friable
6-14	Clay Loam	<35%	10YR 4/4				Prismatic	Strong	Friable
14-27	Clay	<35%	10YR 5/4				Platey	Strong	Friable

Comments

redox @ 24"

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

Shawn Hedlund

2970

9/19/2018

(Designer/Inspector)

(Signature)

(License #)

(Date)

Additional Soil Observation Logs

Project ID: 200233000

ONTARIO
SILVAGE
TREATMENT
PROGRAM



Client/ Address: **BCANS Enterprises / Kenneth Hunze** Legal Description/ GPS:

Soil parent material(s): (Check all that apply) Outwash Lacustrine Loess Till Alluvium Bedrock Organic Matter

Landscape Position: (check one) Summit Shoulder Back/Side Slope Foot Slope Toe Slope Slope shape: **convex, linear**

Vegetation: **forest** Soil survey map units: **40B** Slope%: **2.0** Elevation: **99**

Weather Conditions/Time of Day: **afternoon, nice** Date: **09/19/18**

Observation #/Location: **2** Observation Type: **Auger**

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
0-8	Clay Loam	<35%	10YR 2/2				Granular	Moderate	Friable
8-14	Clay Loam	<35%	10YR 4/4				Prismatic	Strong	Friable
14-26	Clay	<35%	10YR 5/4				Platy	Strong	Friable
Comments: redox @ 25"									

Observation #/Location: **3** Observation Type: **Auger**

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
0-6	Clay Loam	<35%	10YR 2/2				Granular	Moderate	Friable
6-14	Clay Loam	<35%	10YR 4/4				Prismatic	Strong	Friable
14-27	Clay	<35%	10YR 5/4				Platy	Strong	Friable

Comments: **redox @ 25"**

1. PROJECT INFORMATION v 04.17.2018

Property Owner/Client: Project ID:
 Site Address: Date:
 Email Address: Phone:

2. DESIGN FLOW & WASTE STRENGTH *Attach data / estimate basis for Other Establishments*

Design Flow: GPD Anticipated Waste Type:
 BOD: mg/L TSS: mg/L Oil & Grease: mg/L
 Treatment Level: *Select Treatment Level C for residential septic tank effluent*

3. HOLDING TANK SIZING

Minimum Capacity: Residential = 400 gal/bedroom, Other Establishment = Design Flow x 5.0, Minimum size 1000 gallons
 Code Minimum Holding Tank Capacity: Gallons in Tanks or Compartments
 Recommended Holding Tank Capacity: Gallons in Tanks or Compartments
 Type of High Level Alarm: (Set @ 75% tank capacity)
 Comments:

4. SEPTIC TANK SIZING

A. Residential dwellings:
 Number of Bedrooms (Residential):
 Code Minimum Septic Tank Capacity: Gallons in Tanks or Compartments
 Recommended Septic Tank Capacity: Gallons in Tanks or Compartments
 Effluent Screen & Alarm (Y/N): Model/Type:

B. Other Establishments:
 Waste received by: GPD x Days Hyd. Retention Time
 = Code Minimum Septic Tank Capacity: Gallons in Tanks or Compartments
 Recommended Septic Tank Capacity: Gallons in Tanks or Compartments
 Effluent Screen & Alarm (Y/N): Model/Type:

5. PUMP TANK SIZING

Pump Tank 1 Capacity (Minimum): <input type="text" value="500"/> Gal Pump Tank 1 Capacity (Recommended): <input type="text" value="0"/> Gal Pump 1 <input type="text" value="29.0"/> GPM Total Head <input type="text" value="15.8"/> ft Supply Pipe Dia. <input type="text" value="2.00"/> in Dose Vol: <input type="text" value="100.0"/> gal	Pump Tank 2 Capacity (Minimum): <input type="text"/> Gal Pump Tank 2 Capacity (Recommended): <input type="text"/> Gal Pump 2 <input type="text"/> GPM Total Head <input type="text"/> ft Supply Pipe Dia. <input type="text"/> in Dose Vol: <input type="text"/> Gal
--	---

6. SYSTEM AND DISTRIBUTION TYPE		Project ID: 200233000
Soil Treatment Type:	<input type="text" value="Mound"/>	Distribution Type: <input type="text" value="Pressure Distribution-Level"/>
Elevation Benchmark:	<input type="text" value="100"/> ft	Benchmark Location: <input type="text" value="road height"/>
MPCA System Type:	<input type="text" value="Type I"/>	Distribution Media: <input type="text" value="Rock"/>
Type III/IV Details:	<input type="text"/>	<input type="text"/>

7. SITE EVALUATION SUMMARY:			
Describe Limiting Condition: <input type="text" value="redox @ 24"/>			
	Depth	Elevation	
Limiting Condition:	<input type="text" value="24"/> inches	<input type="text" value="2.0"/> ft	<input type="text"/>
Minimum Req'd Separation:	<input type="text" value="36"/> inches	<input type="text" value="3.0"/> ft	<i>Critical for system compliance</i>
Code Max System Depth:	<input type="text" value="Mound"/> inches	<input type="text" value="3.0"/> ft	
Soil Texture:	<input type="text" value="Clay Loam"/>	Layers with >35% Rock Fragments? (yes/no)	<input type="text" value="No"/>
Percolation Rate:	<input type="text"/> MPI	If yes, describe below: % rock and layer thickness, amount of soil credit and any additional information for addressing the rock fragments in this design.	
Soil Hyd. Loading Rate:	<input type="text" value="0.45"/> GPD/ft ²		
Contour Loading Rate:	<input type="text" value="12"/>	Note:	<input type="text"/>
Measured Land Slope:	<input type="text" value="2.0"/> %	Note:	<input type="text"/>
Comments:	<input type="text"/>		

8. SOIL TREATMENT AREA DESIGN SUMMARY			
Trench:			
Dispersal Area	<input type="text"/> ft ²	Sidewall Depth	<input type="text"/> in
Total Lineal Feet	<input type="text"/> ft	No. of Trenches	<input type="text"/>
Contour Loading Rate	<input type="text"/> ft	Min. Length	<input type="text"/> ft
		Trench Width	<input type="text"/> ft
		Code Max. Trench Depth	<input type="text"/> in
		Designed Trench Depth	<input type="text"/> in
Bed:			
Dispersal Area	<input type="text"/> ft ²	Sidewall Depth	<input type="text"/> in
Bed Width	<input type="text"/> ft	Bed Length	<input type="text"/> ft
		Maximum Bed Depth	<input type="text"/> in
		Designed Bed Depth	<input type="text"/> in
Mound:			
Dispersal Area	<input type="text" value="375.0"/> ft ²	Bed Length	<input type="text" value="37.5"/> ft
Absorption Width	<input type="text" value="26.0"/> ft	Clean Sand Lift	<input type="text" value="1.0"/> ft
Upslope Berm Width	<input type="text" value="7.8"/> ft	Downslope Berm	<input type="text" value="20.0"/> ft
Total System Length	<input type="text" value="55.2"/> ft	System Width	<input type="text" value="37.8"/> ft
		Bed Width	<input type="text" value="10.0"/> ft
		Berm Width (0-1%)	<input type="text"/>
		Endslope Berm Width	<input type="text" value="8.9"/> ft
		Contour Loading Rate	<input type="text" value="12.0"/> gal/ft

Project ID: 200233000

At-Grade:

Bed Width ft Bed Length ft Finished Height ft
 Contour Loading Rate gal/ft Upslope Berm ft Downslope Berm ft
 Endslope Berm ft System Length ft System Width ft

Level & Equal Pressure Distribution

No. of Laterals Perforation Spacing ft Perforation Diameter in
 Lateral Diameter in Min Dose Volume gal Max Dose Volume gal

Non-Level and Unequal Pressure Distribution

	Elevation (ft)	Pipe Size (in)	Pipe Volume (gal/ft)	Pipe Length (ft)	Perf Size (in)	Spacing (ft)	Spacing (in)	
Lateral 1								Minimum Dose Volume <input type="text"/> gal
Lateral 2								
Lateral 3								
Lateral 4								Maximum Dose Volume <input type="text"/> gal
Lateral 5								
Lateral 6								

9. Additional Info for At-Risk, HSW or Type IV Design

A. Starting BOD Concentration = Design Flow X Starting BOD (mg/L) X 8.35 ÷ 1,000,000
 gpd X mg/L X 8.35 ÷ 1,000,000 = lbs. BOD/day

B. Target BOD Concentration = Design Flow X Target BOD (mg/L) X 8.35 ÷ 1,000,000
 gpd X mg/L X 8.35 ÷ 1,000,000 = lbs. BOD/day

Lbs. BOD To Be Removed:

PreTreatment Technology: *Must Meet or Exceed Target

Disinfection Technology: *Required for Levels A & B

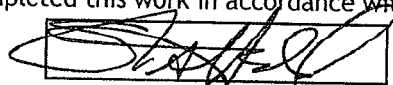
C. Organic Loading to Soil Treatment Area:

mg/L X gpd x 8.35 ÷ 1,000,000 ÷ ft² = lbs./day/ft²

10. Comments/Special Design Considerations:

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

(Designer)


(Signature)

(License #)

(Date)



Mound Design Worksheet

≥1% Slope



1. SYSTEM SIZING: Project ID: 200233000 v 04.17.2018

- A. Design Flow: GPD
- B. Soil Loading Rate: GPD/ft²
- C. Depth to Limiting Condition: ft
- D. Percent Land Slope: %
- E. Design Media Loading Rate: GPD/ft²
- F. Mound Absorption Ratio:

TABLE IXa				
LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA AND ABSORPTION RATIOS USING PERCOLATION TESTS				
Percolation Rate (MPI)	Treatment Level C		Treatment Level A, A-2, B	
	Absorption Area Loading Rate (gpd/ft ²)	Mound Absorption Ratio	Absorption Area Loading Rate (gpd/ft ²)	Mound Absorption Ratio
<0.1	-	1	-	1
0.1 to 5	1.2	1	1.6	1
0.1 to 5 (fine sand and loamy fine sand)	0.6	2	1	1.6
6 to 15	0.78	1.5	1	1.6
16 to 30	0.6	2	0.78	2
31 to 45	0.5	2.4	0.78	2
46 to 60	0.45	2.6	0.6	2.6
61 to 120	-	5	0.3	5.3
>120	-	-	-	-

Table I MOUND CONTOUR LOADING RATES:			
Measured Perc Rate	OR	Texture - derived mound absorption ratio	Contour Loading Rate:
≤ 60mpi	OR	1.0, 1.3, 2.0, 2.4, 2.6	≤ 12
61-120 mpi		5.0	≤ 12
≥ 120 mpi		>5.0'	≤ 6'

*Systems with these values are not Type I systems. Contour Loading Rate (linear loading rate) is a recommended value.

2. DISPERSAL MEDIA SIZING

- A. Calculate Dispersal Bed Area: Design Flow ÷ Design Media Loading Rate = ft²

$$\frac{450 \text{ GPD}}{1.2 \text{ GPD/ft}^2} = 375 \text{ ft}^2$$

If a larger dispersal media area is desired, enter size:
- B. Enter Dispersal Bed Width: ft *Can not exceed 10 feet*
- C. Calculate Contour Loading Rate: Bed Width X Design Media Loading Rate

$$10 \text{ ft} \times 1.2 \text{ GPD/ft}^2 = 12.0 \text{ gal/ft}$$
 Can not exceed Table 1
- D. Calculate Minimum Dispersal Bed Length: Dispersal Bed Area ÷ Bed Width = Bed Length

$$\frac{375 \text{ ft}^2}{10.0 \text{ ft}} = 37.5 \text{ ft}$$

3. ABSORPTION AREA SIZING

- A. Calculate Absorption Width: Bed Width X Mound Absorption Ratio = Absorption Width

$$10.0 \text{ ft} \times 2.6 = 26.0 \text{ ft}$$
- B. For slopes >1%, the Absorption Width is measured downhill from the upslope edge of the Bed.
 Calculate Downslope Absorption Width: Absorption Width - Bed Width

$$26.0 \text{ ft} - 10.0 \text{ ft} = 16.0 \text{ ft}$$

4. DISTRIBUTION MEDIA: ROCK Project ID: #REF!

- A. Rock Media Depth Below Distribution Pipe
 in ft

5. DISTRIBUTION MEDIA: REGISTERED TREATMENT PRODUCTS: CHAMBERS AND EZFLOW

A. Enter Dispersal Media:

B. Enter the Component: Length: ft Width: ft Depth: ft

C. Number of Components per Row = Bed Length divided by Component Length (Round up)

ft ÷ ft = components/row

D. Actual Bed Length = Number of Components/row X Component Length:

components X ft = ft

E. Number of Rows = Bed Width divided by Component Width (Round up)

ft ÷ ft = rows *Adjust width so this is a whole number.*

F. Total Number of Components = Number of Components per Row X Number of Rows

X = components

6. MOUND SIZING

A. Calculate Minimum Clean Sand Lift: 3 feet minus Depth to Limiting Condition = Clean Sand Lift

3.0 ft - 2.0 ft = 1.0 ft Design Sand Lift (optional): ft

B. Upslope Height: Clean Sand Lift + Depth of Media + Depth of Cover cover (1 ft.)

1.0 ft + 0.8 ft + 1.0 ft = 2.8 ft

Land Slope %	0	1	2	3	4	5	6	7	8	9	10	11	12	
Upslope Berm Ratio	3:1	3.00	2.91	2.83	2.75	2.68	2.61	2.54	2.48	2.42	2.36	2.31	2.26	2.21
	4:1	4.00	3.85	3.70	3.57	3.45	3.33	3.23	3.12	3.03	2.94	2.86	2.78	2.70

C. Select Upslope Berm Multiplier (based on land slope):

2.83

D. Calculate Upslope Berm Width: Multiplier X Upslope Mound Height = Upslope Berm Width

2.83 ft X 2.8 ft = 7.8 ft

E. Calculate Drop in Elevation Under Bed: Bed Width X Land Slope ÷ 100 = Drop (ft)

10.0 ft X 2.0 % ÷ 100 = 0.20 ft

F. Calculate Downslope Mound Height: Upslope Height + Drop in Elevation = Downslope Height

2.8 ft + 0.20 ft = 3.0 ft

Land Slope %	0	1	2	3	4	5	6	7	8	9	10	11	12	
Downslope Berm Ratio	3:1	3.00	3.09	3.19	3.30	3.41	3.53	3.66	3.80	3.95	4.11	4.29	4.48	4.69
	4:1	4.00	4.17	4.35	4.54	4.76	5.00	5.26	5.56	5.88	6.25	6.67	7.14	7.69

G. Select Downslope Berm Multiplier (based on land slope):

3.19

H. Calculate Downslope Berm Width: Multiplier X Downslope Height = Downslope Berm Width

3.19 x 3.0 ft = 9.4 ft

I. Calculate Minimum Berm to Cover Absorption Area: Downslope Absorption Width + 4 feet

16.0 ft + 4 ft = 20.0 ft

J. Design Downslope Berm = greater of 4H and 4I:

20.0 ft

K. Select Endslope Berm Multiplier:

3.00

(usually 3.0 or 4.0)

L. Calculate Endslope Berm X Downslope Mound Height = Endslope Berm Width

3.00 ft X 3.0 ft = 8.9 ft

M. Calculate Mound Width: Upslope Berm Width + Bed Width + Downslope Berm Width

7.8 ft + 10.0 ft + 20.0 ft = 37.8 ft

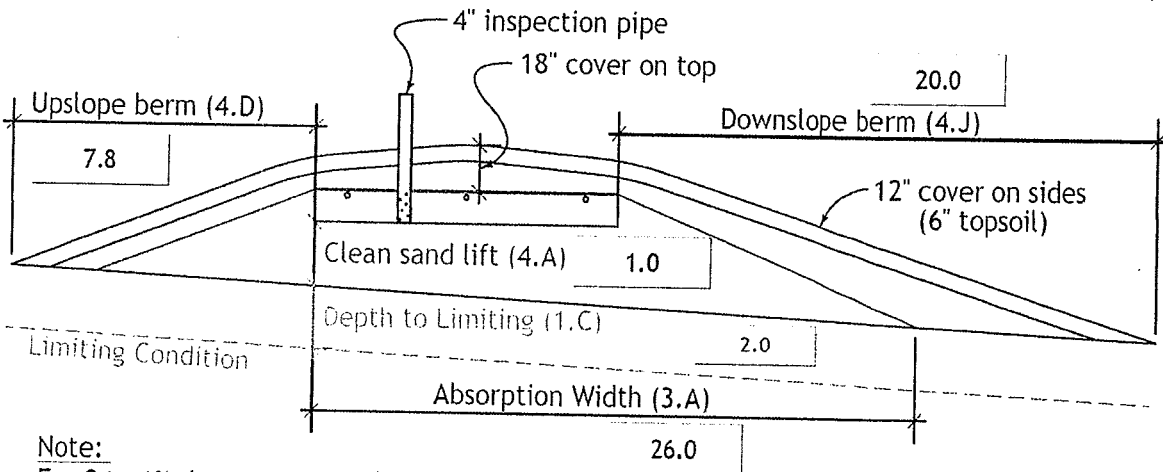
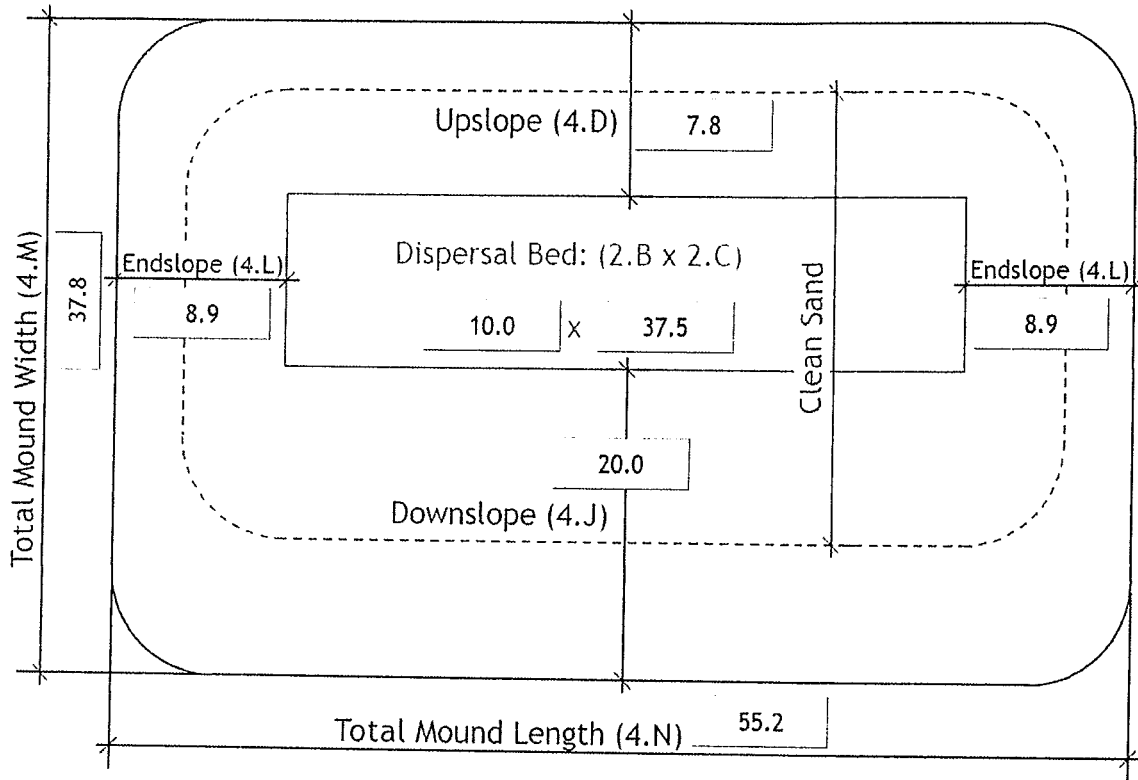
N. Calculate Mound Length: Endslope Berm Width + Bed Length + Endslope Berm Width

8.9 ft + 37.5 ft + 8.9 ft = 55.2 ft

7. MOUND DIMENSIONS

Project ID:

#REF!



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*.

Comments:



Mound Materials Worksheet

m MINNESOTA POLLUTION CONTROL AGENCY

Project ID: 200233000

v 04.17.2018

A. Rock Volume : (Rock Below Pipe + Rock to cover pipe (*pipe outside dia + ~2 inch*)) X Bed Length X Bed Width = Volume

$$(\boxed{6} \text{ in} + \boxed{4} \text{ in}) \div 12 \times \boxed{37.5} \text{ ft} \times \boxed{10.0} \text{ ft} = \boxed{312.5} \text{ ft}^3$$

Divide ft³ by 27 ft³/yd³ to calculate cubic yards: $\boxed{312.5} \text{ ft}^3 \div 27 = \boxed{11.6} \text{ yd}^3$

Add 30% for constructability: $\boxed{11.6} \text{ yd}^3 \times 1.3 = \boxed{15.0} \text{ yd}^3$

B. Calculate Clean Sand Volume:

Volume Under Rock bed : Average Sand Depth x Media Width x Media Length = cubic feet

$$\boxed{0.9} \text{ ft} \times \boxed{10.0} \text{ ft} \times \boxed{37.5} \text{ ft} = \boxed{318.8} \text{ ft}^3$$

For a Mound on a slope from 0-1%

Volume from Length = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Length)

$$\boxed{} \text{ ft} - 1) \times \boxed{} \times \boxed{} \text{ ft} = \boxed{}$$

Volume from Width = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Width)

$$\boxed{} \text{ ft} - 1) \times \boxed{} \times \boxed{} \text{ ft} = \boxed{}$$

Total Clean Sand Volume : Volume from Length + Volume from Width + Volume Under Media

$$\boxed{} \text{ ft}^3 + \boxed{} \text{ ft}^3 + \boxed{} \text{ ft}^3 = \boxed{} \text{ ft}^3$$

For a Mound on a slope greater than 1%

Upslope Volume : ((Upslope Mound Height - 1) x 3 x Bed Length) ÷ 2 = cubic feet

$$((\boxed{2.8} \text{ ft} - 1) \times 3.0 \text{ ft} \times \boxed{37.5}) \div 2 = \boxed{98.4} \text{ ft}^3$$

Downslope Volume : ((Downslope Height - 1) x Downslope Absorption Width x Media Length) ÷ 2 = cubic feet

$$((\boxed{3.0} \text{ ft} - 1) \times \boxed{16.0} \text{ ft} \times \boxed{37.5}) \div 2 = \boxed{585.0} \text{ ft}^3$$

Endslope Volume : (Downslope Mound Height - 1) x 3 x Media Width = cubic feet

$$(\boxed{3.0} \text{ ft} - 1) \times 3.0 \text{ ft} \times \boxed{10.0} \text{ ft} = \boxed{58.5} \text{ ft}^3$$

Total Clean Sand Volume : Upslope Volume + Downslope Volume + Endslope Volume + Volume Under Media

$$\boxed{98.4} \text{ ft}^3 + \boxed{585.0} \text{ ft}^3 + \boxed{58.5} \text{ ft}^3 + \boxed{318.8} \text{ ft}^3 = \boxed{1060.7} \text{ ft}^3$$

Divide ft³ by 27 ft³/yd³ to calculate cubic yards: $\boxed{1060.7} \text{ ft}^3 \div 27 = \boxed{39.3} \text{ yd}^3$

Add 30% for constructability: $\boxed{39.3} \text{ yd}^3 \times 1.3 = \boxed{51.1} \text{ yd}^3$

C. Calculate Sandy Berm Volume:

Total Berm Volume (approx) : ((Avg. Mound Height - 0.5 ft topsoil) x Mound Width x Mound Length) ÷ 2

$$(\boxed{2.9} - 0.5) \text{ ft} \times \boxed{37.8} \text{ ft} \times \boxed{55.2} \div 2 = \boxed{2450.6} \text{ ft}^3$$

Total Mound Volume - Clean Sand volume - Rock Volume = cubic feet

$$\boxed{2450.6} \text{ ft}^3 - \boxed{1060.7} \text{ ft}^3 - \boxed{312.5} \text{ ft}^3 = \boxed{1077.4} \text{ ft}^3$$

Divide ft³ by 27 ft³/yd³ to calculate cubic yards: $\boxed{1077.4} \text{ ft}^3 \div 27 = \boxed{39.9} \text{ yd}^3$

Add 30% for constructability: $\boxed{39.9} \text{ yd}^3 \times 1.2 = \boxed{51.9} \text{ yd}^3$

D. Calculate Topsoil Material Volume: Total Mound Width X Total Mound Length X .5 ft

$$\boxed{37.8} \text{ ft} \times \boxed{55.2} \text{ ft} \times 0.5 \text{ ft} = \boxed{1042.8} \text{ ft}^3$$

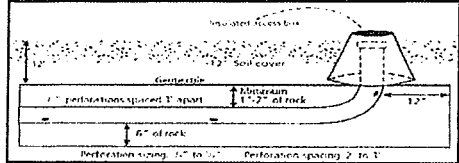
Divide ft³ by 27 ft³/yd³ to calculate cubic yards: $\boxed{1042.8} \text{ ft}^3 \div 27 = \boxed{38.6} \text{ yd}^3$

Add 30% for constructability: $\boxed{38.6} \text{ yd}^3 \times 1.3 = \boxed{50.2} \text{ yd}^3$

Project ID: 200233000

v 04.17.2018

- Media Bed Width: ft
- Minimum Number of Laterals in system/zone = Rounded up number of $[(\text{Media Bed Width} - 4) \div 3] + 1$.
 $[(\text{ } 10 \text{ } - 4) \div 3] + 1 = \text{ } 3 \text{ } \text{ laterals}$ *Does not apply to at-grades*
- Designer Selected Number of Laterals: laterals
Cannot be less than line 2 (except in at-grades)
- Select Perforation Spacing: ft
- Select Perforation Diameter Size: in
- Length of Laterals = Media Bed Length - 2 Feet.



- 2ft = ft *Perforation can not be closer then 1 foot from edge.*

- Determine the Number of Perforation Spaces. Divide the Length of Laterals by the Perforation Spacing and round down to the nearest whole number.

Number of Perforation Spaces = ft \div ft = Spaces

Number of Perforations per Lateral is equal to 1.0 plus the Number of Perforation Spaces. Check table

- below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

Perforations Per Lateral = Spaces + 1 = Perfs. Per Lateral

Maximum Number of Perforations Per Lateral to Guarantee <10% Discharge Variation											
1/4 Inch Perforations						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1 1/4	1 1/2	2	3		1	1 1/4	1 1/2	2	3
2	10	13	18	30	60	2	11	16	21	34	68
2 1/2	8	12	16	28	54	2 1/2	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60
3/16 Inch Perforations						1/8 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1 1/4	1 1/2	2	3		1	1 1/4	1 1/2	2	3
2	12	18	26	46	87	2	21	33	44	74	149
2 1/2	12	17	24	40	80	2 1/2	20	30	41	69	135
3	12	16	22	37	75	3	20	29	38	64	128

- Total Number of Perforations equals the Number of Perforations per Lateral multiplied by the Number of Perforated Laterals.

Perf. Per Lat. X Number of Perf. Lat. = Total Number of Perf.

- Select Type of Manifold Connection (End or Center):

- Select Lateral Diameter (See Table): in

Pressure Distribution Design Worksheet

12. Calculate the *Square Feet per Perforation*. Recommended value is 4-11 ft² per perforation.

Does not apply to At-Grades

a. *Bed Area* = Bed Width (ft) X Bed Length (ft)

ft X ft = ft²

b. *Square Foot per Perforation* = *Bed Area* divided by the *Total Number of Perforations*.

ft² ÷ perforations = ft²/perforations

13. Select *Minimum Average Head*: ft

14. Select *Perforation Discharge* (GPM) based on Table: GPM per Perforation

15. Determine required *Flow Rate* by multiplying the *Total Number of Perfs.* by the *Perforation Discharge*.

Perfs X GPM per Perforation = GPM

16. *Volume of Liquid Per Foot of Distribution Piping* (Table II): Gallons/ft

17. *Volume of Distribution Piping* =

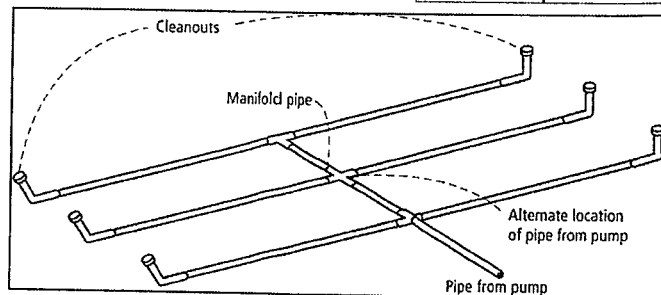
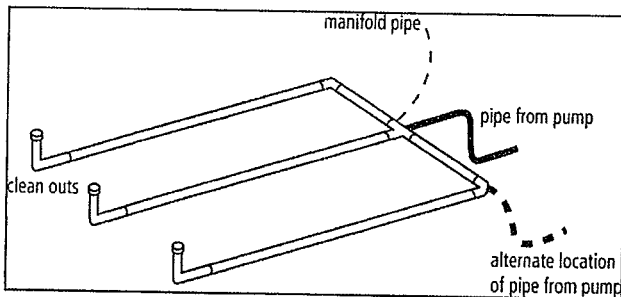
= [Number of Perforated Laterals X Length of Laterals X (Volume of Liquid Per Foot of Distribution Piping)]

 X ft X gal/ft = Gallons

18. Minimum Delivered Volume = Volume of Distribution Piping X 4

gals X 4 = Gallons

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661



Comments/Special Design Considerations:

1. PUMP CAPACITY Project ID: 200233000 v 04.17.2018

Pumping to Gravity or Pressure Distribution:

1. If pumping to gravity enter the gallon per minute of the pump: GPM (10 - 45 gpm)

2. If pumping to a pressurized distribution system: GPM

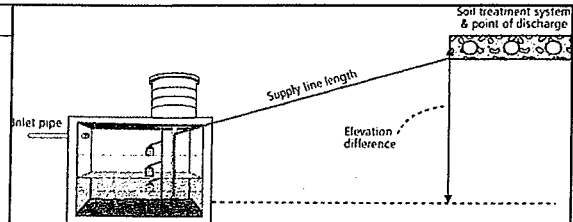
3. Enter pump description:

2. HEAD REQUIREMENTS

A. Elevation Difference ft between pump and point of discharge:

B. Distribution Head Loss: ft

C. Additional Head Loss: ft (due to special equipment, etc.)



Distribution Head Loss	
Gravity Distribution = 0ft	
Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet:	
Minimum Average Head	Distribution Head Loss
1ft	5ft
2ft	6ft
5ft	10ft

Table I. Friction Loss in Plastic Pipe per 100ft

Flow Rate (GPM)	Pipe Diameter (inches)			
	1	1.25	1.5	2
10	9.1	3.1	1.3	0.3
12	12.8	4.3	1.8	0.4
14	17.0	5.7	2.4	0.6
16	21.8	7.3	3.0	0.7
18		9.1	3.8	0.9
20		11.1	4.6	1.1
25		16.8	6.9	1.7
30		23.5	9.7	2.4
35			12.9	3.2
40			16.5	4.1
45			20.5	5.0
50				6.1
55				7.3
60				8.6
65				10.0
70				11.4
75				13.0
85				16.4
95				20.1

D. 1. Supply Pipe Diameter: in

2. Supply Pipe Length: ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = ft per 100ft of pipe

F. Determine Equivalent Pipe Length from pump discharge to soil dispersal area discharge point. Estimate by adding 25% to supply pipe length for fitting loss. Supply Pipe Length (D.2) X 1.25 = Equivalent Pipe Length

ft X 1.25 = ft

G. Calculate Supply Friction Loss by multiplying Friction Loss Per 100ft (Line E) by the Equivalent Pipe Length (Line F) and divide by 100.

Supply Friction Loss = ft per 100ft X ft + 100 = ft

H. Total Head requirement is the sum of the Elevation Difference (Line A), the Distribution Head Loss (Line B), Additional Head Loss (Line C), and the Supply Friction Loss (Line G)

ft + ft + ft + ft = ft

3. PUMP SELECTION

A pump must be selected to deliver at least **29.0** GPM (Line 1 or Line 2) with at least **15.8** feet of total head.

Comments:



Pump Tank Design Worksheet (Demand Dose)

DETERMINE TANK CAPACITY AND DIMENSIONS Project ID: 200233000 v 04.17.2018

1. A. Design Flow (Design Sum. 1A): GPD
 B. Min. required pump tank capacity: Gal C. Recommended pump tank capacity: Gal

2. A. Tank Manufacturer: B. Tank Model:
 C. Capacity from manufacturer: Gallons
 D. Gallons per inch from manufacturer: Gallons per inch
 E. Liquid depth of tank from manufacturer: inches

Note: Design calculations are based on this specific tank. Substituting a different tank model will change the pump float or timer settings. Contact designer if changes are necessary.

DETERMINE DOSING VOLUME

3 Calculate Volume to Cover Pump (The inlet of the pump must be at least 4-inches from the bottom of the pump tank & 2 inches of water covering the pump is recommended)

(Pump and block height + 2 inches) X Gallons Per Inch (2C or 3E)
 (in + 2 inches) X Gallons Per Inch = Gallons

4 Minimum Delivered Volume = 4 X Volume of Distribution Piping:
 - Line 17 of the Pressure Distribution or Line 11 of Non-level Gallons (minimum dose)

5 Calculate Maximum Pumpout Volume (25% of Design Flow)
 Design Flow: GPD X 0.25 = Gallons (maximum dose)

6 Select a pumpout volume that meets both Minimum and Maximum: Gallons

7 Calculate Doses Per Day = Design Flow ÷ Delivered Volume
 gpd ÷ gal = Doses

8 Calculate Drainback:
 A. Diameter of Supply Pipe = inches
 B. Length of Supply Pipe = feet
 C. Volume of Liquid Per Lineal Foot of Pipe = Gallons/ft
 D. Drainback = Length of Supply Pipe X Volume of Liquid Per Lineal Foot of Pipe
 ft X gal/ft = Gallons

9. Total Dosing Volume = Delivered Volume plus Drainback
 gal + gal = Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank
 in X gal/in = Gallons

Volume of Liquid in Pipe	
Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

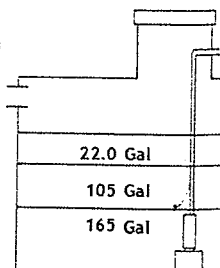
DEMAND DOSE FLOAT SETTINGS

11. Calculate Float Separation Distance using Dosing Volume .
 Total Dosing Volume / Gallons Per Inch
 gal ÷ gal/in = Inches

12. Measuring from bottom of tank:
 A. Distance to set Pump Off Float = Pump + block height + 2 inches
 in + in = Inches
 B. Distance to set Pump On Float = Distance to Set Pump-Off Float + Float Separation Distance
 in + in = Inches
 C. Distance to set Alarm Float = Distance to set Pump-On Float + Alarm Depth (2-3 inches)
 in + in = Inches

Inches for Dose: in

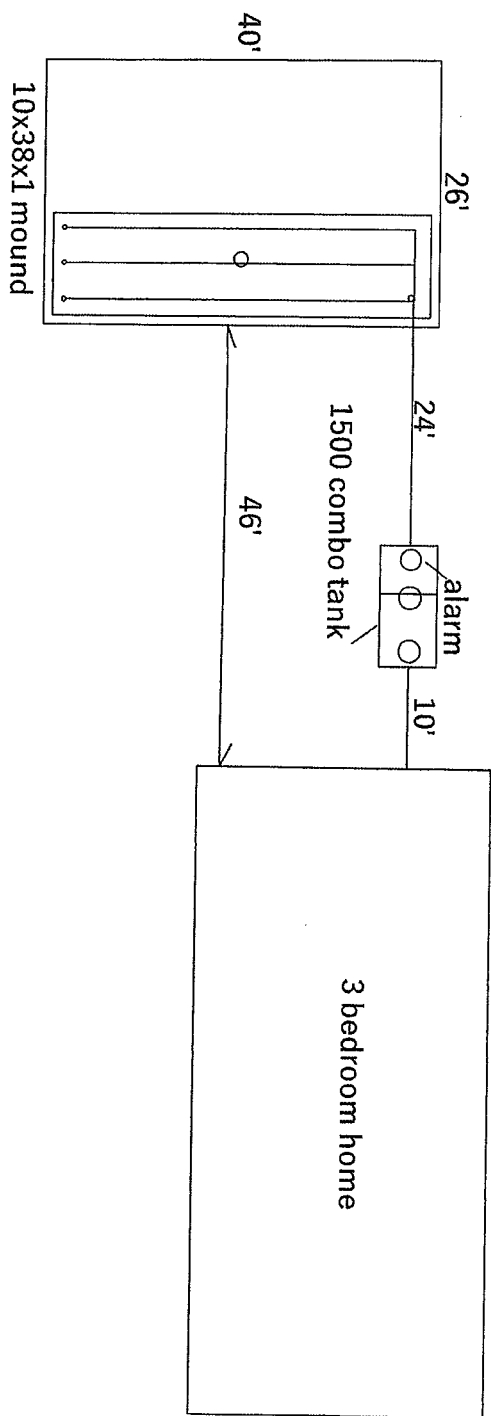
Alarm Depth in
 Pump On in
 Pump Off in



road off of Cedar Crest Circle



← 2% slope



Date of Design: 9/19/2018

County: Becker

Project Parcel ID: 200233000

Designer

GPD: 450
System type: 1, mound
Shoreland: YES

Owner:
Address:

Shawn Hedlund
MPCA license #2970
(218) 791-4613

Hedlund Septic Design
235 Riverside Ave NE
McIntosh, MN 56556

Scale: Each grid equals _____ feet/inches.

GRID PLAN SKETCHING FORM

Application for Building Permit Dated _____ 19 _____

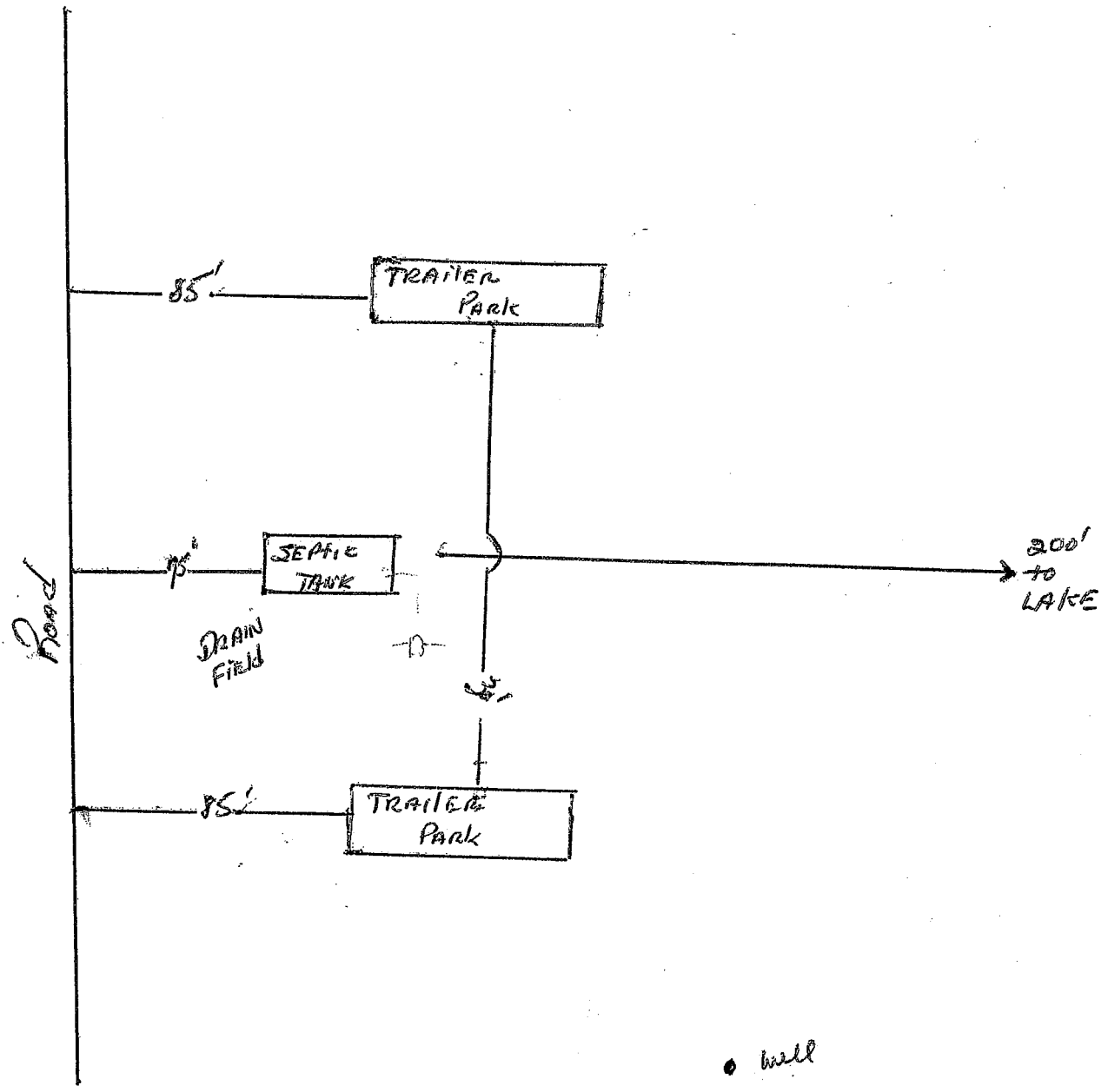
Application for Sewage System Permit Dated 5-4-1973

Building Permit Number _____ Sewage System Permit Number 1108-5

Applicant agrees that this plot plan is a part of application (s) indicated above.

Dated 5-4-1973

Robert D. Weyant
Signature



W — File
Y — Owner
B — Building Inspector

CEDAR CREST RESORT

RESTURANT

each seat 40
x75

3000 gallons per day

each employee 13
x3

39 gallons per day

HOUSE

650 gallons per day

3689 gallons per day

3 1500 gallon septic tanks

01/29/09

Cedar Crest Resort

1981 - the existing resort consisted of 8 cabins, 6 until lodge and 16 trailers, for a total of 30 units.

1981 - a conditional use permit was approved to increase the resort by 30 units, total of 60 units.

1999 - a permit was issued to increase the number of units by 6 for a grand total of 66 units.

Tier calculations to determine whether or not an existing resort could expand would allow

11 in the first tier
17 in the second tier
22 in the third tier
50 total units.

5-5-10 State Dept of Health has resort
licensed as 18 cabins
34 sites
~~21~~ 21 mobile home park

total 73



Minnesota Pollution Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

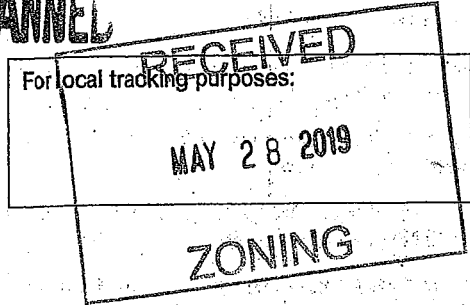
Compliance Inspection Form

Existing Subsurface Sewage Treatment Systems (SSTS)

Doc Type: Compliance and Enforcement



SCANNEL



Inspection requirements

Orig files

on Control Agency (MPCA)
if requirements may also apply.

Submit completed within 15 days

20.0549.000

Environment (LUG) and system owner

System S

System status on date (mm/dd/yyyy):

updated - 5-23-2019 to include all parcels

Compliant - Certificate of Compliance

(Valid for 3 years from report date, unless shorter time frame outlined in Local Ordinance.)

Noncompliant - Notice of Noncompliance

(See Upgrade Requirements on page 3.)

Reason(s) for noncompliance (check all applicable)

- Impact on Public Health (Compliance Component #1) - Imminent threat to public health and safety
- Other Compliance Conditions (Compliance Component #3) - Imminent threat to public health and safety
- Tank Integrity (Compliance Component #2) - Failing to protect groundwater
- Other Compliance Conditions (Compliance Component #3) - Failing to protect groundwater
- Soil Separation (Compliance Component #4) - Failing to protect groundwater
- Operating permit/monitoring plan requirements (Compliance Component #5) - Noncompliant

4-homes Included *200549000*
200548000
200547000
200546000

Property Information

Parcel ID# or Sec/Twp/Range:

Property address: 29730 387th st and others

Reason for inspection: Mandate UK Study

Property owner: Dion Brandt and others

Owner's phone: 210-790-3194

or See parcel info

Owner's representative:

Representative phone:

Local regulatory authority:

Regulatory authority phone:

Brief system description: 4 homes on same system

2-1500 gal tanks with 50k box

Comments or recommendations: chamber drain field

Certification

I hereby certify that all the necessary information has been gathered to determine the compliance status of this system. No determination of future system performance has been nor can be made due to unknown conditions during system construction, possible abuse of the system, inadequate maintenance, or future water usage.

Inspector name: [Signature]

Certification number:

Business name:

License number: 478

Inspector signature: [Signature]

Phone number:

Necessary or Locally Required Attachments

- Soil boring logs
- System/As-built drawing
- Forms per local ordinance

Other information (list):

1. Impact on Public Health – Compliance component #1 of 5

Compliance criteria:

System discharges sewage to the ground surface.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System discharges sewage to drain tile or surface waters.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System causes sewage backup into dwelling or establishment.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is an imminent threat to public health and safety.

Comments/Explanation:

Verification method(s):

- Searched for surface outlet
- Searched for seeping in yard/backup in home
- Excessive ponding in soil system/D-boxes
- Homeowner testimony (See Comments/Explanation)
- "Black soil" above soil dispersal system
- System requires "emergency" pumping
- Performed dye test
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

2. Tank Integrity – Compliance component #2 of 5

Compliance criteria:

System consists of a seepage pit, cesspool, drywell, or leaching pit. <i>Seepage pits meeting 7080.2550 may be compliant if allowed in local ordinance.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sewage tank(s) leak below their designed operating depth. If yes, which sewage tank(s) leaks:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is failing to protect groundwater.

Comments/Explanation:

Verification method(s):

- Probed tank(s) bottom
- Examined construction records
- Examined Tank Integrity Form (Attach)
- Observed liquid level below operating depth
- Examined empty (pumped) tanks(s)
- Probed outside tank(s) for "black soil"
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

3. Other Compliance Conditions – Compliance component #3 of 5

- a. Maintenance hole covers are damaged, cracked, unsecured, or appear to be structurally unsound. Yes* No Unknown
- b. Other issues (electrical hazards, etc.) to immediately and adversely impact public health or safety. Yes* No Unknown
***System is an imminent threat to public health and safety.**

Explain:

- c. System is non-protective of ground water for other conditions as determined by inspector. Yes* No
***System is failing to protect groundwater.**

Explain:

4. Soil Separation – Compliance component #4 of 5

Date of installation: _____ Unknown
 (mm/dd/yyyy)

Shoreland/Wellhead protection/Food beverage lodging? Yes No

Compliance criteria:

For systems built prior to April 1, 1996, and not located in Shoreland or Wellhead Protection Area or not serving a food, beverage or lodging establishment: Yes No
 Drainfield has at least a two-foot vertical separation distance from periodically saturated soil or bedrock.

Non-performance systems built April 1, 1996, or later or for non-performance systems located in Shoreland or Wellhead Protection Areas or serving a food, beverage, or lodging establishment: Yes No
 Drainfield has a three-foot vertical separation distance from periodically saturated soil or bedrock.*

"Experimental", "Other", or "Performance" systems built under pre-2008 Rules; Type IV or V systems built under 2008 Rules (7080.2350 or 7080.2400 (Advanced Inspector License required)) Yes No
 Drainfield meets the designed vertical separation distance from periodically saturated soil or bedrock.

Any "no" answer above indicates the system is failing to protect groundwater.

Verification method(s):

Soil observation does not expire. Previous soil observations by two independent parties are sufficient, unless site conditions have been altered or local requirements differ.

- Conducted soil observation(s) (Attach boring logs)
- Two previous verifications (Attach boring logs)
- Not applicable (Holding tank(s), no drainfield)
- Unable to verify (See Comments/Explanation)
- Other (See Comments/Explanation)

Comments/Explanation:

Indicate depths or elevations

A. Bottom of distribution media	24"
B. Periodically saturated soil/bedrock	60"
C. System separation	36"
D. Required compliance separation*	36"

*May be reduced up to 15 percent if allowed by Local Ordinance.

5. Operating Permit and Nitrogen BMP* – Compliance component #5 of 5 Not applicable

Is the system operated under an Operating Permit? Yes No If "yes", A below is required

Is the system required to employ a Nitrogen BMP? Yes No If "yes", B below is required

BMP = Best Management Practice(s) specified in the system design

If the answer to both questions is "no", this section does not need to be completed.

Compliance criteria

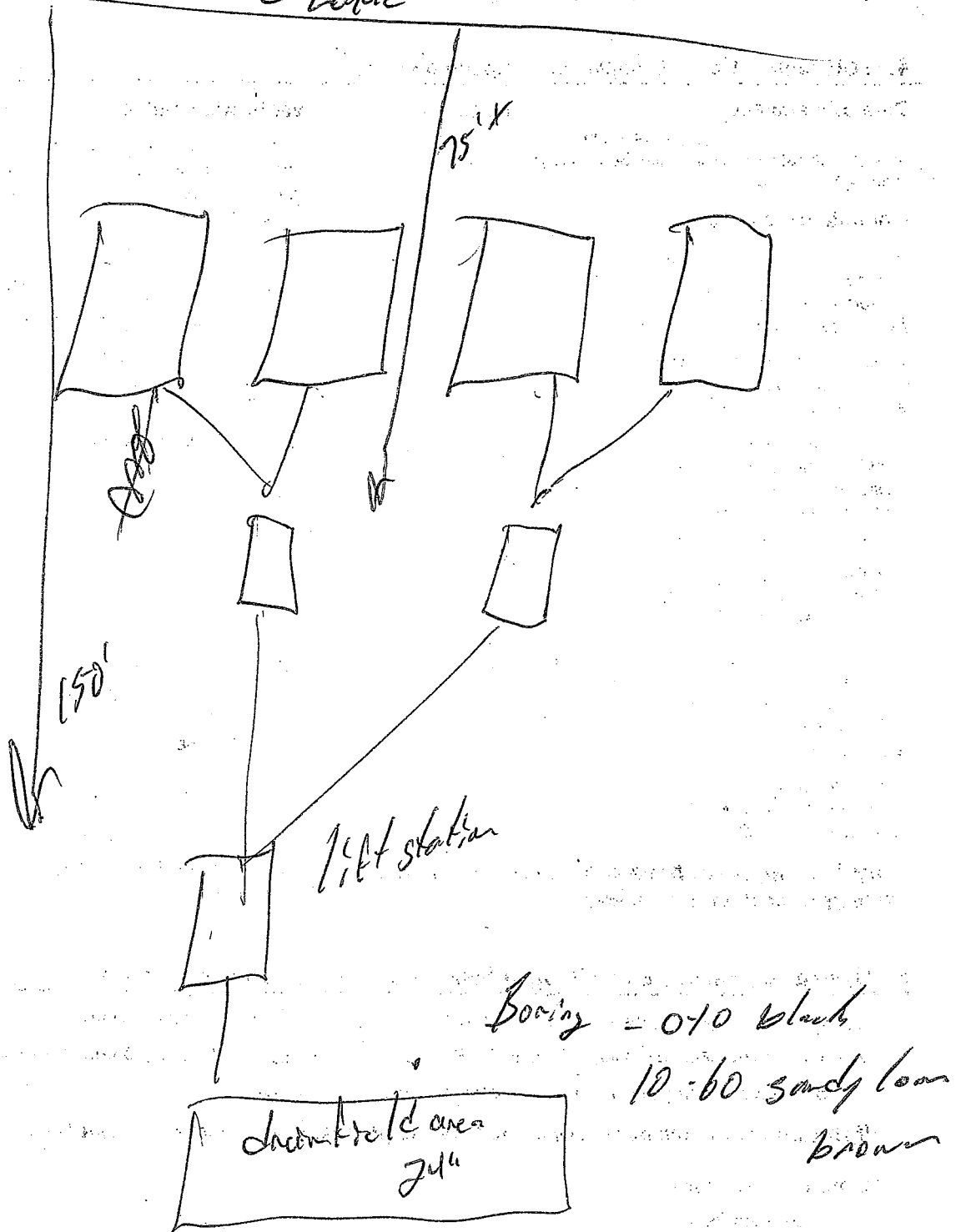
a. Operating Permit number: _____ Yes No
 Have the Operating Permit requirements been met?

b. Is the required nitrogen BMP in place and properly functioning? Yes No

Any "no" answer indicates Noncompliance.

Upgrade Requirements (Minn. Stat. § 115.55) An imminent threat to public health and safety (ITPHS) must be upgraded, replaced, or its use discontinued within ten months of receipt of this notice or within a shorter period if required by local ordinance. If the system is failing to protect ground water, the system must be upgraded, replaced, or its use discontinued within the time required by local ordinance. If an existing system is not failing as defined in law, and has at least two feet of design soil separation, then the system need not be upgraded, repaired, replaced, or its use discontinued, notwithstanding any local ordinance that is more strict. This provision does not apply to systems in shoreland areas, Wellhead Protection Areas, or those used in connection with food, beverage, and lodging establishments as defined in law.

W E Lake



Inspection does not imply or guarantee future hydraulic functioning, only what conditions were found on date of inspection

LEGAL DESCRIPTION AND LOCATION
 FIRE NUMBER _____
 Lake No. _____ Lake Name _____ Lake Classif. _____ Sec. _____ TWP _____ Range _____ TWP Name _____

IDENTIFICATION: Please Print All Information

Owner	Last Name	First	Initial	Mailing Address— No. Street, City and State	Zip No.	Tel. No.	
	THOMPSON						
Contractor	Name	WHITE EARTH INC. SEWER PUMP					

TYPE OF IMPROVEMENT: New Building Alteration Other: One
 RESIDENTIAL PROPOSED USE: One Family Dwelling Multiple Dwelling _____ Units
 NON-RESIDENTIAL PROPOSED USE: Specify: _____ Size: _____

ESTIMATED COST OF IMPROVEMENT \$ _____ Construction Starting Date: ASAP

PRINCIPAL TYPE OF FRAME & BUILDING <input type="checkbox"/> Masonry <input type="checkbox"/> Wood Frame <input type="checkbox"/> Structural Steel <input type="checkbox"/> Other — Specify _____ Year _____ <input type="checkbox"/> New Home <input type="checkbox"/> Garage <input type="checkbox"/> Mobile Home <input type="checkbox"/> Cottage <input type="checkbox"/> Septic System <input type="checkbox"/> Other	TYPE OF SEWAGE DISPOSAL: <input type="checkbox"/> Public <input type="checkbox"/> Individual Septic Tank, etc. WATER SUPPLY: <input type="checkbox"/> Public <input type="checkbox"/> Individual Well Type _____ Depth _____ MECHANICAL EQUIPMENT: Elevator: <input type="checkbox"/> Yes <input type="checkbox"/> No Air Conditioning: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Central <input type="checkbox"/> Unit	DIMENSIONS: Basement: <input type="checkbox"/> Yes <input type="checkbox"/> No Stories above basement: _____ Sq. feet (outside dimension) _____ Bedrooms _____ Baths _____ HEATING: <input type="checkbox"/> Electric <input type="checkbox"/> Gas <input type="checkbox"/> Oil <input type="checkbox"/> Coal <input type="checkbox"/> None Other: <u>TRENCHES</u>
---	---	---

SEWAGE DISPOSAL SYSTEM DATA:	SEPTIC TANK	SEEPAGE PIT	DRAIN FIELD
Capacity	5000 Gls.	Sq. Ft.	Sq. Ft.
Distance from nearest well	EXISTING TANK	Ft.	100 Ft.
Distance from lake or stream	SEPTIC TANK	Ft.	100 Ft.
Distance from occupied building	SEPTIC TANK	Ft.	20 Ft.
Distance from property line	SEPTIC TANK	Ft.	20 Ft.
Distance from bottom to Water Table		Ft.	4 Ft.

CHARACTERISTICS:
 Lot Area is _____ square feet. Water frontage is _____ feet.
 Building set back from high water mark is _____ feet. (Building Line)
 Land height above high water mark at building line is _____ feet
 Building setback from () State - () County - () Township Highway _____ feet from the () Center Line - () Right of Way
 Side yard is _____ and _____ feet. Rear yard is _____ feet.
 Building will be located _____ feet from septic tank (Sewage System Permit must be obtained before installation).
 Building will be located _____ feet from soil absorption system (Cesspool, Drainfield, etc.).

Agreement: I hereby certify that the information contained herein is correct and agree to do the proposed work in accordance with the description above set forth and according to the provisions of the ordinances of Becker County, Minnesota. I further agree that any plans and specifications submitted herewith shall become a part of this permit application. I also understand that this permit is valid for a period of six (6) months. Applicant further agrees that no part of the sewage system shall be covered until it has been inspected and accepted. It shall be the responsibility of the applicant for the permit to notify the County Zoning Administrator, 48 hours before the job is ready for inspection.

Dated 10/28/89
 Signature of Owner _____

When signed and approved by the Zoning Administration this becomes your permit. Permission is hereby granted to the above named applicant to perform the work described in the above statement and/or as shown on the sketch. This permit is granted upon the express condition that the person to whom it is granted, and his agent, employees and workmen shall conform in all respects to the ordinances of Becker County, Minnesota. This permit may be revoked at any time upon violation of said ordinances.

Dated 10-30-89
 Permit Fee \$ 85.00 State Surcharge \$ _____
 Becker County Zoning Administrator
 Cormorant Surcharge \$ _____

Comments: NEW DRAINFIELD
 Total _____

INSPECTOR'S CHECK LIST
Make all measurements and computations

	ACTUAL IS ↓	MINIMUM Shall Be ↓	Sq. Ft.
Building Set Back from High Water Mark	Ft.		Ft.
Building Set Back from State Highway	Ft.		Ft.
Side Yard	& Ft.	& Ft.	
Rear Yard	Ft.		Ft.
Elevation at Building Line above High Water Mark	Ft.		Ft.

SEWAGE DISPOSAL SYSTEM STATISTICS

CATEGORY	SEPTIC TANK		SEEPAGE PIT		DRAIN FIELD	
	Actual	Should be	Actual	Should be	Actual	Should be
Capacity	Gls.	Gls.	S F	S F	S F	S F
Distance from Nearest Well	F	F	F	75	F	50
Distance from Lake or Stream	F	F	F	F	F	F
Distance from Occupied Building	F	10	F	20	F	20
Distance from Property Line	F	10	F	10	F	10
Distance from Bottom to Water Table	F	F	F	4	F	4

Inspector's Comments: _____

has all the records and information
to the public and is available to the
and the public and is available to the
state and the public and is available to the

INTERPRETATION OF ABBREVIATIONS

Gls. — Gallons
SF — Square Feet
F — Linear Feet

Inspection Dated _____ 19____

Inspector's Signature _____
Title _____
Agency _____

INDIVIDUAL SEWAGE TREATMENT SYSTEM WORKSHEET

A. *House* Estimated 450 gpd
 measured 400 x 1.5 = 600 gpd

B. _____ gallons

SOILS (Site evaluation data)

- C. Depth to restricting layer = _____ feet
 D. Maximum depth of system C - 3 ft = _____ feet
 E. Texture _____ Percolation rate _____ MPI
 F. SSF _____ sq ft/gpd
 G. Slope _____%

TRENCH BOTTOM AREA

- H. For trenches with 6 inches of rock below the pipe:
 $A \times F = ___ \times ___ = ___ \text{ sq ft of bottom area}$
 I. For trenches with 12 inches of rock below the pipe:
 $A \times F \times 0.8 = ___ \times ___ \times 0.8 = ___ \text{ sq ft of bottom area}$
 J. For trenches with 18 inches of rock below the pipe:
 $A \times F \times 0.66 = ___ \times ___ \times 0.66 = ___ \text{ sq ft of bottom area}$
 K. For trenches with 24 inches of rock below the pipe:
 $A \times F \times 0.6 = ___ \times ___ \times 0.6 = ___ \text{ sq ft of bottom area}$

BED BOTTOM AREA

- L. For seepage beds with 6 or 12 inches of rock below the pipe;
 $1.5 \times A \times F = 1.5 \times ___ \times ___ = ___ \text{ sq ft of bottom area}$

ROCK VOLUME IN CU FT

- M. Rock depth below distribution pipe plus 0.5 foot times bottom area:
 $M = \text{Rock depth} + 6 \text{ inches} \times \text{Area (H,I,J,L,K)}$
 $(___ + 0.5 \text{ ft}) \times ___ = ___ \text{ cu ft}$

ROCK VOLUME IN CU YDS

- N. Volume in cu ft divided by 27
 $M \div 27 = \text{cu yds } ___ \div 27 = ___ \text{ cu yds}$

ROCK WEIGHT

- O. Cubic yards times 1.4 = tons
 $N \times 1.4 = \text{tons } ___ \times 1.4 = ___ \text{ tons}$

SYSTEM LENGTH

- P. Select trench width = _____ ft
 Q. Divide bottom area by trench width: (H, I, J, or K) + P = lineal feet
 $___ \div ___ = ___ \text{ lineal feet}$
 Q1. Gravelless Design
 $A \times F + (3 \text{ for } 10'' \text{ pipe, } 2 \text{ for } 8'' \text{ pipe, width of the Chamber})$
 $___ \times ___ + ___ = ___ \text{ feet}$

LAWN AREA

- R. Select trench spacing, center to center = _____ feet
 S. Multiply trench spacing by lineal feet R x Q = sq ft of lawn area
 $___ \times ___ = ___ \text{ sq ft}$

Estimated Sewage Flows in Gallons per day (gpd)				
Number of Bedrooms	Type I	Type II	Type III	Type IV
2	300	225	180	60% of the values in Type I, II or III columns
3	450	300	218	
4	600	375	256	
5	750	450	294	
6	900	525	332	
7	1050	600	370	
8	1200	675	408	

Septic Tank Capacities (in gallons)

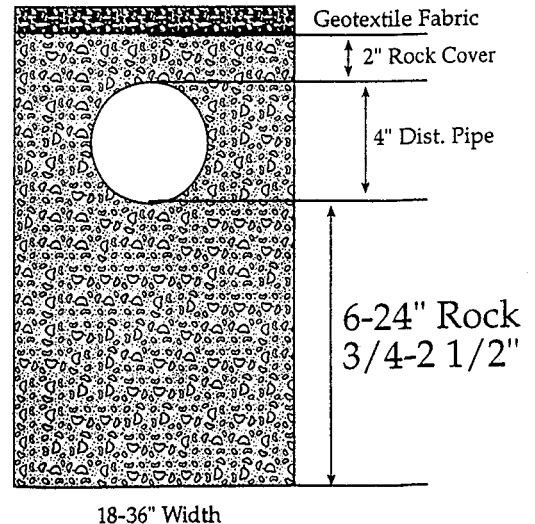
Number of Bedrooms	Minimum Liquid Capacity	Liquid capacity with garbage disposal
2 or less	750	1125
3 or 4	1000	1500
5 or 6	1500	2250
7, 8 or 9	2000	3000

Soil Characteristics and Required Areas for Sewage Treatment

Percolation Rate in Minutes per Inch (MPI)	Soil Texture	Square feet per gallon per day
Faster than 0.1 *	Coarse Sand	-----
0.1 to 5	Sand	0.83
0.1 to 5	Fine Sand **	1.67
6 to 15	Sandy Loam	1.27
16 to 30	Loam	1.67
31 to 45	Silt Loam	2.00
46 to 60	Clay Loam	2.20
Slower than 60***	Clay	-----

* Soil too coarse for sewage treatment. Use systems for rapidly permeable soils.
 ** Soil having 50% or more of fine sand plus very fine sand.
 *** Soil with too high a percentage of clay for installation of an inground standard system.

6 inches = 0% Reduction*
12 inches = 20% Reduction
18 inches = 34% Reduction
24 inches = 40% Reduction
 * sizing for gravelless trench



If the site evaluation determines a mound system, please attach the mound design worksheets.

NA Replacing old Tanks

- PERCOLATION TEST SHEET -

Test hole location _____ Hole # _____ Date test hole was prepared: _____
 Depth of hole bottom: _____ inches Diameter of hole: _____ inches
 Soil Data from test hole: _____ depth, inches _____ soil texture: _____ soil color _____
 Method of scratching sidewall: _____ Depth of pea size gravel in bottom of hole: _____ inches
 Date and hour of initial water filling: _____ Depth of initial water filling: _____ above hole bottom
 Method used to maintain 12" of water depth in hole for 4 hours: _____
 Percolation test conducted by: _____ Percolation test started at _____ (am / pm).
 Maximum water depth above hole bottom during test: _____ inches

TIME	INTERVAL (MINUTES)	WATER DEPTH	WATER DROP (fraction)	WATER DROP (decimal)	PERC RATE CALCULATION	CONVERSIONS
---	START	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC A	1/16 = .06 1/8 = .13 3/16 = .19 1/4 = .25 5/16 = .31 3/8 = .38 7/16 = .44 1/2 = .5 9/16 = .56 5/8 = .63 11/16 = .69 3/4 = .75 13/16 = .81 7/8 = .88 15/16 = .94
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC B	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC C	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC D	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC E	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC F	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC G	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC H	

Ten Percent Calculation *

A, B, C	Largest # of ABC _____ Smallest # of ABC _____ Smallest # of ABC x 0.10 = _____
C, D, E	Largest # of CDE _____ Smallest # of CDE _____ Smallest # of CDE x 0.10 = _____
E, F, G	Largest # of EFG _____ Smallest # of EFG _____ Smallest # of EFG x 0.10 = _____
B, C, D	Largest # of BCD _____ Smallest # of BCD _____ Smallest # of BCD x 0.10 = _____
D, E, F	Largest # of DEF _____ Smallest # of DEF _____ Smallest # of DEF x 0.10 = _____
F, G, H	Largest # of FGH _____ Smallest # of FGH _____ Smallest # of FGH x 0.10 = _____

* If the top number in each set of boxes is larger than the bottom number then take another reading. If the top number is equal or smaller than bottom number, average the three numbers for the perc rate.

- PERCOLATION TEST SHEET -

Test hole location _____ Hole # _____ Date test hole was prepared: _____
 Depth of hole bottom: _____ inches Diameter of hole: _____ inches
 Soil Data from test hole: _____ depth, inches _____ soil texture: _____ soil color _____
 Method of scratching sidewall: _____ Depth of pea size gravel in bottom of hole: _____ inches
 Date and hour of initial water filling: _____ Depth of initial water filling: _____ above hole bottom
 Method used to maintain 12" of water depth in hole for 4 hours: _____
 Percolation test conducted by: _____ Percolation test started at _____ (am / pm).
 Maximum water depth above hole bottom during test: _____ inches

TIME	INTERVAL (MINUTES)	WATER DEPTH	WATER DROP (fraction)	WATER DROP (decimal)	PERC RATE CALCULATION	CONVERSIONS
---	START	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC A	1/16 = .06 1/8 = .13 3/16 = .19 1/4 = .25 5/16 = .31 3/8 = .38 7/16 = .44 1/2 = .5 9/16 = .56 5/8 = .63 11/16 = .69 3/4 = .75 13/16 = .81 7/8 = .88 15/16 = .94
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC B	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC C	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC D	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC E	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC F	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC G	
---	REFILL	---	---	---	TIME $\frac{\text{DROP}}{\text{PERC}}$ PERC H	

Ten Percent Calculation *

A, B, C	Largest # of ABC _____ Smallest # of ABC _____ Smallest # of ABC x 0.10 = _____
C, D, E	Largest # of CDE _____ Smallest # of CDE _____ Smallest # of CDE x 0.10 = _____
E, F, G	Largest # of EFG _____ Smallest # of EFG _____ Smallest # of EFG x 0.10 = _____
B, C, D	Largest # of BCD _____ Smallest # of BCD _____ Smallest # of BCD x 0.10 = _____
D, E, F	Largest # of DEF _____ Smallest # of DEF _____ Smallest # of DEF x 0.10 = _____
F, G, H	Largest # of FGH _____ Smallest # of FGH _____ Smallest # of FGH x 0.10 = _____

* If the top number in each set of boxes is larger than the bottom number then take another reading. If the top number is equal or smaller than bottom number, average the three numbers for the perc rate.

BECKER COUNTY PLANNING & ZONING

829 Lake Avenue, P O Box 787
 Detroit Lakes, MN 56502-0787
 Phone (218) 846-7314, Fax (218) 846-7266

Onsite Septic System Site Evaluation/Design

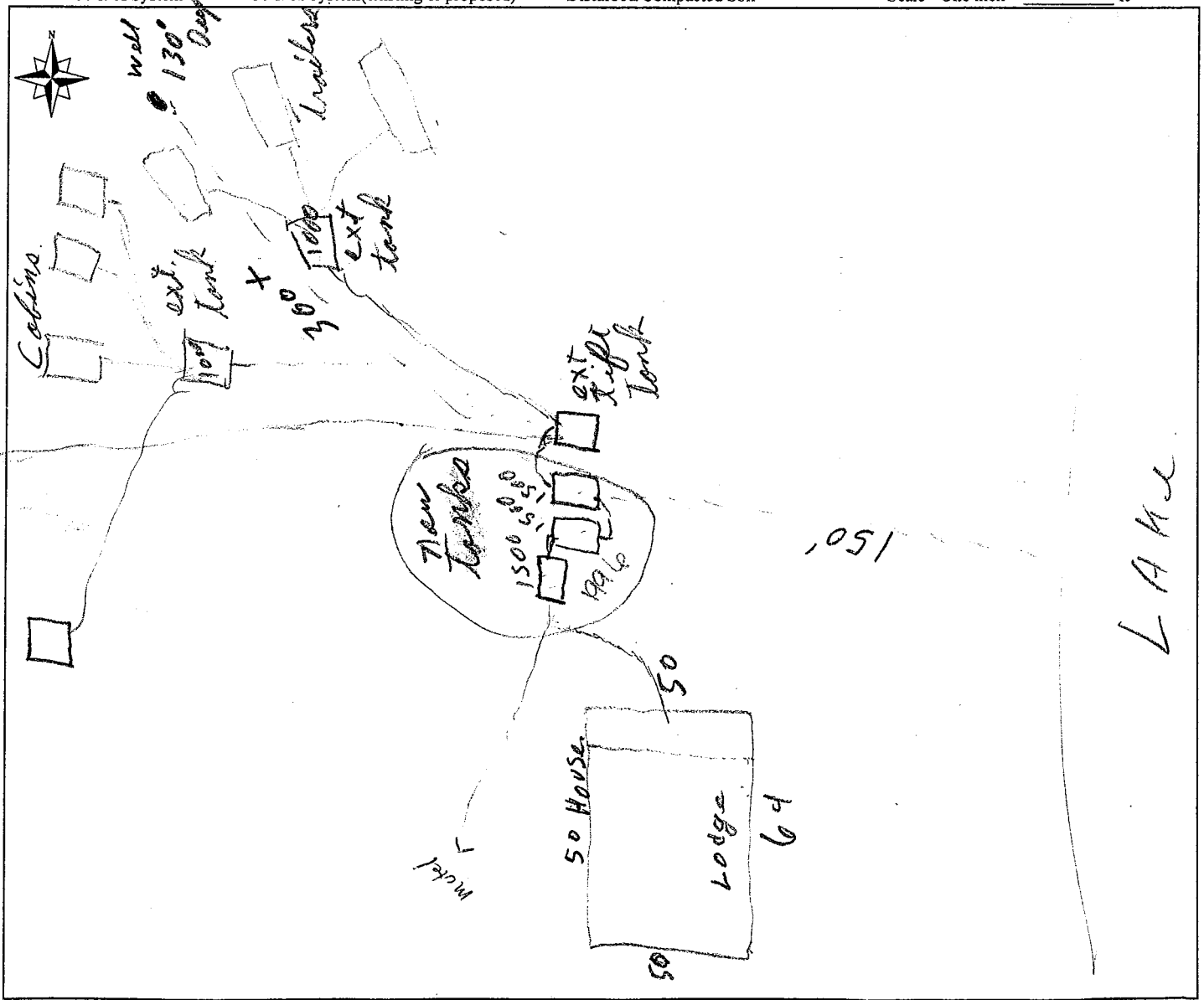
Fire Number _____
 Tax Parcel Number 20.0233.000

Legal Description: <u>Lot 2 Less Platted Part + tracts sold</u>						
Lake/Stream Name	Lake/Stream Class	Section	TWP	Range	Township Name	
<u>White Earth</u>		<u>8</u>	<u>142</u>	<u>40</u>	<u>Maple Grove</u> White Earth	
Property Owner	Address	City, State, Zip Code		Phone Number		
<u>Cedar Crest Resort</u>	<u>Waubun, MN</u>	<u>56589</u>		<u>473-2116</u>		
ISTS Designer I / Designer II	License Number	Address		Phone Number		
<u>Larry Muff</u>	<u>576</u>	<u>R.R. #1, Box 811</u> <u>Ogema, MN 56569</u>		<u>(218) 983-3276</u>		

Site Plan

The site plan must be drawn to dimension or to scale:

- *All Wells within 100 feet of the System
- *Distance from all Wells within 100 ft of System
- *Existing & Proposed Buildings
- *Easements
- *Distance from Water Lines within 50 ft of System (existing & proposed)
- *Distance from OHW
- *Distance from Property Lines
- *Location of any Unsuitable Disturbed/Compacted Soil
- *Soil Boring & Perc Test Locations
- *Dimensions of Lot
- *Tank Access Route
- *Scale - One inch = _____ ft



SOIL INFORMATION

TEST HOLE #.

TEST HOLE #2

DEPTH IN INCHES	SOIL TEXTURE	MUNSELL COLOR	STRUCTURE	DEPTH IN INCHES	SOIL TEXTURE	MUNSELL COLOR	STRUCTURE
			BLOCKY PLATY PRISMATIC NONE				BLOCKY PLATY PRISMATIC NONE
N/A	Replacing old Tanks		BLOCKY PLATY PRISMATIC NONE				BLOCKY PLATY PRISMATIC NONE
	old		BLOCKY PLATY PRISMATIC NONE				BLOCKY PLATY PRISMATIC NONE
			BLOCKY PLATY PRISMATIC NONE				BLOCKY PLATY PRISMATIC NONE
Depth to standing water				Depth to standing water			
Depth to mottling				Depth to mottling			

Describe the surface features (slope, runoff, weather conditions, vegetation type, evidence of compaction, etc.)

SYSTEM IS NEW REPAIR SYSTEM DESIGN GRAVITY FLOW PRESSURE DISTRIBUTION

WATER USES:

- WASHING MACHINE
- DISHWASHER
- WATER SOFTENER
- GARBAGE DISPOSAL

NUMBER OF BEDROOMS 3
 NUMBER OF BATHROOMS 1
 TOTAL SQ. FT OF STRUCTURE 3200 Lodge 2500 House
 TANK SIZE 4500 gal
 LIFT STATION SIZE existing
 SOIL TREATMENT _____
 AREA SIZE existing SQ FT
 DOSE VOLUME existing

DEPTH OF SYSTEM N/A
 SYSTEM DESIGN FLOW 3689 GPD
 SOIL SIZING FACTOR N/A
 PUMP SIZE N/A
 LENGTH OF LIFT LINE N/A
 TOTAL DYNAMIC HEAD N/A

TYPE OF RESIDENCE

- TYPE I TYPE II
- TYPE III TYPE IV

WELL INFORMATION-Property's Well DEPTH OF WELL 120'

TYPE OF WELL deep

Neighboring wells (within 100 ft of system) Depth of Wells _____

Type of Wells _____

Name of Designer I Larry Muff
 Designer II _____

Date of Site Evaluation 10-30-96

MPCA Number 576

Phone (218) 983-3376

I certify that the site evaluation has been completed in accordance with all provisions of ISTS Minnesota Rules Chapter 7080.

Signature of Evaluator Larry Muff Date 11-5-96

For Office Use Only

Date Site Evaluation / Design received 11/12/96 Received by Heidi Moltzen
 Date Site Evaluation approved _____ Approved by _____



Becker County Planning & Zoning
 915 Lake Ave
 Detroit Lakes, MN 56501
 (218) 846-7314
 www.co.becker.mn.us

Certificate of Compliance

Inspection Report - Permit #: SS2019-45

Owner & Property Information

Owner Name: BCANS ENTERPRISES LLC BCANS ENTERPRISES LLC Mailing Address: 29783 387TH ST WAUBUN MN 56589 Parcel #: 200233000 Secondary Parcel #:	Site Address: 29783 387th St Waubun, MN Township - Sec/Twp/Rng: MAPLE GROVE - 08/142/040 Legal Description: 8-142-40 GOVT LOT 2 LESS 4.61 AC FOR NEMEC BCH, NEMEC 1ST ADDN; TRACTS SOLD, LESS 3.17 AC FOR 20-0233-001, -002, -003. Designer: OTHER – Not listed (please add in next field and we will add to our list) Installer: OTHER – Not listed (please add in next field and we will add to our list)
--	--

Inspector Verified Specifications

Insp- Effluent Screen Installed: No Insp- Alarm Required: Yes Insp- Lift Pump in System: Yes Insp- Number of Bedrooms: 3	Insp- Tank Nbr/Size: 1/1500/2 Insp- Drainfield Type: Mound Insp- Drainfield Size: 975 10' X 37.5' rock bed 26' X 37.5 Soil Absorption area Insp- Soil Verification: #1:Checked in tank hole No redox or restrictive layer within 24" #2:N/A #3:N/A
---	---

Inspector Verified Setbacks

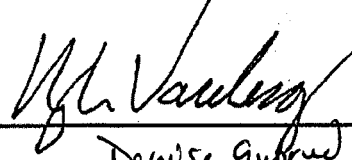
Insp- Tank Dist to Road 75+ Insp- Tank Dist to Nearest Prop Line 200+ lot line per installer Insp- Tank Dist to Nearest Structure 13 Insp- Tank Dist to Well 300+ Insp- Tank Dist to OHW 500+ Insp- Tank Dist to Pond/Wetland Insp- Tank Dist to Pressure Line 20+	Insp- Drainfield Dist to Road 75+ Insp- Drainfield Dist to Nearest Prop Line 175+ lot line per installer Insp- Drainfield Dist to Nearest Structure 33 Insp- Drainfield Dist to Well 300+ Insp- Drainfield Dist to OHW 500+ Insp- Drainfield Dist to Pond/Wetland Insp- Drainfield Dist to Pressure Line 24'
---	---

Certificate of Compliance

(Yes) Certificate is hereby granted based upon the application, addendum from, plans, specifications and all other supporting data. With proper maintenance, this system can be expected to function satisfactory, however this is not a guarantee.

Certification Date: 6/19/2019

Zoning Office Signature:


 Denise Gubrud
 08952
 Kyle Vareberg - ISTS Inspector



Becker County Planning & Zoning
 915 Lake Ave
 Detroit Lakes, MN 56501
 (218) 846-7314
 www.co.becker.mn.us

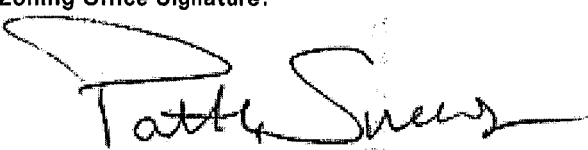
Septic Permit

Permit #: SS2019-45

Owner & Property Information	
Owner Name:	BCANS ENTERPRISES LLC
Mailing Address:	BCANS ENTERPRISES LLC 29783 387TH ST WAUBUN MN 56589
Phone #:	4234431047
Lake/River(1000/300):	Yes
Lake/River Name:	White Earth (Maple Grove) [RD]
Pond/Wetland(50):	No
Parcel #:	200233000
Secondary Parcel #:	
Site Address:	29783 387th St Waubun, MN
Township - Sec/Twp/Rng:	MAPLE GROVE - 08/142/040
Designer:	OTHER – Not listed (please add in next field and we will add to our list)
Installer:	OTHER – Not listed (please add in next field and we will add to our list)

Specifications	
Tank to be Installed:	Compartmented Tank
Total # Tanks Installed:	1
System Status:	Additional system for property
System Serves:	Dwelling
Number of Bedrooms:	3
Design Flow/GPD:	450
Garbage Disposal?	No
Size of Lift Pump:	1/2 HP
Size of Lift Line:	2 inch
Soil Sizing Factor:	0.45
Type of Drainfield:	Mound
Full Size of Drainfield:	975
Reduced/Warrantied Size:	
Absorbtion Area Size:	975 sq ft
Rock Depth:	6 inches
Chamber Type and Number:	
Chamber Trench SqFt/Chamber:	
Is System Pressurized?	Yes
Alarm?	Yes
Type of Alarm:	pedestal audible visual alarm

Setbacks	
Road Type:	Private Easement
Tank Dist to Road:	80'
Tank Dist to Closest Prop Line:	200'
Tank Dist to Nearest Structure:	10'
Tank Dist to Well:	300'+
Tank Dist to OHW:	950'
Tank Dist to Pond/Wetland:	
Tank Dist to Pressure Line:	20'
Right of Way Marked:	Yes
Drainfield Dist to Road:	90'
Drainfield Dist to Closest Prop Line:	200'
Drainfield Dist to Nearest Structure:	35'
Drainfield Dist to Well:	300'+
Drainfield Dist to OHW:	970'
Drainfield Dist to Pond/Wetland:	
Drainfield Dist to Pressure Line:	24'

Other Information	
Date Approved:	6/6/2019
Permit Fee:	150.00
Receipt Number:	247800515
Date Paid:	6/17/2019
Notes:	
Zoning Office Signature:	

PERMIT MUST BE POSTED AT JOB SITE. PERMIT EXPIRES ONE YEAR FROM DATE PAID.
 ** Please schedule for inspection prior to installation! **

3:00
6-19-19
Hedlund Backhoe

Field Review Form **Permit # SS2019-45**

Property and Owner Shawn 218 791 4613

Owner: BCANS ENTERPRISES LLC	Parcel Number: 200233000
Site Address: 29783 387th St Waubun, MN	Secondary Parcel: Brian / Angel

Home Information

Does the structure contain any of the following elements?	Designer submitted	Inspector verified
	Garbage disposal: No	Garbage disposal? Y (N)
	Dishwasher: No	Dishwasher? Y (N)
	Grinder pump: No	Grinder pump? Y (N)
	Lift pump in bsmt: No	Lift pump in basement? Y (N)
Number of bedrooms: 3	Review - Number of bedrooms:	
Effluent screen	Effluent screen installed? Y (N) Mfr:	
Alarm: Yes Type: pedestal audible visual alarm	Review - Alarm? Y (N) Type & Mfr: \$J Electro	
Lift pump in system: Yes	Review - Lift pump in system? Y (N) Mfr: Zeller 152	

Component Information 14" sand - 2" lats 14' 3' spacing

Tank size: 1500 combo ✓	Review - Tank nbr: 1 size: 1500/2 Mfr: Lakes
Drainfield type: Mound	Review - Drainfield type: Mound
Drainfield size: Full size - 975 Reduced/warr. size -	Review - Drainfield status: none / installed / next spring Review - Drainfield size: 10 x 37.5 = 375
Absorption area size: 6 inches	Review - Absorption area size: 26 x 37.5 = 395
Chamber type/num: Trench sqft/chamber -	Review - Chamber type: Review - Trench sqft/chamber: Num:
Drainfield rock depth: 6 inches	Review - Rock depth: -

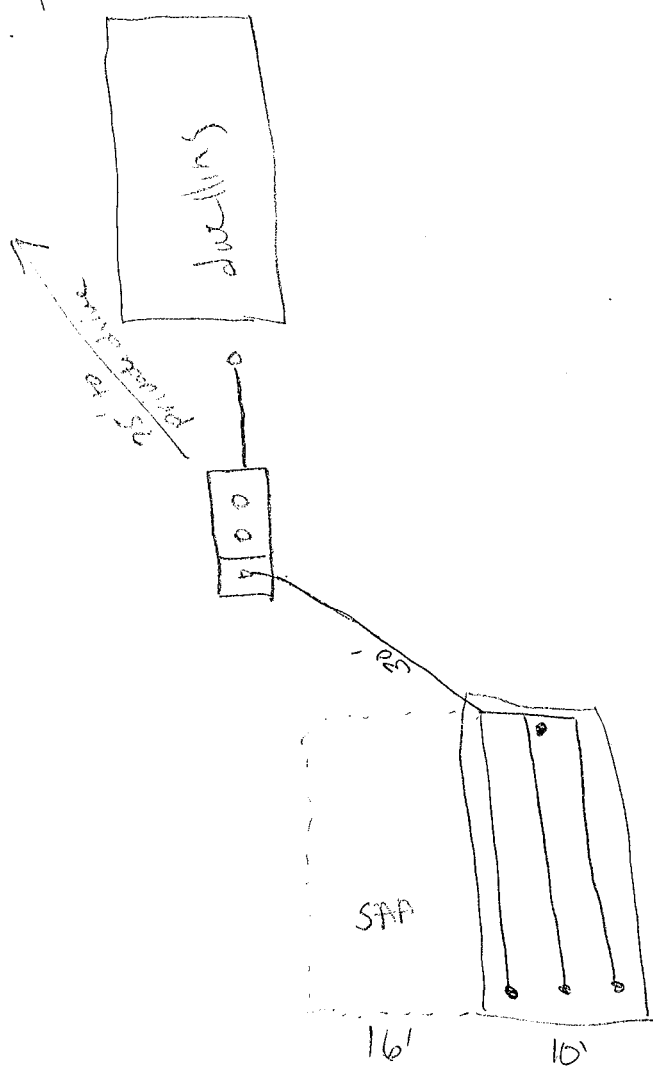
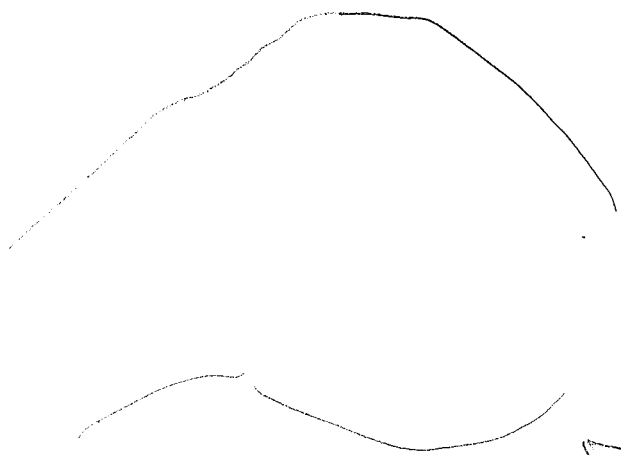
Soil Verification clean sand

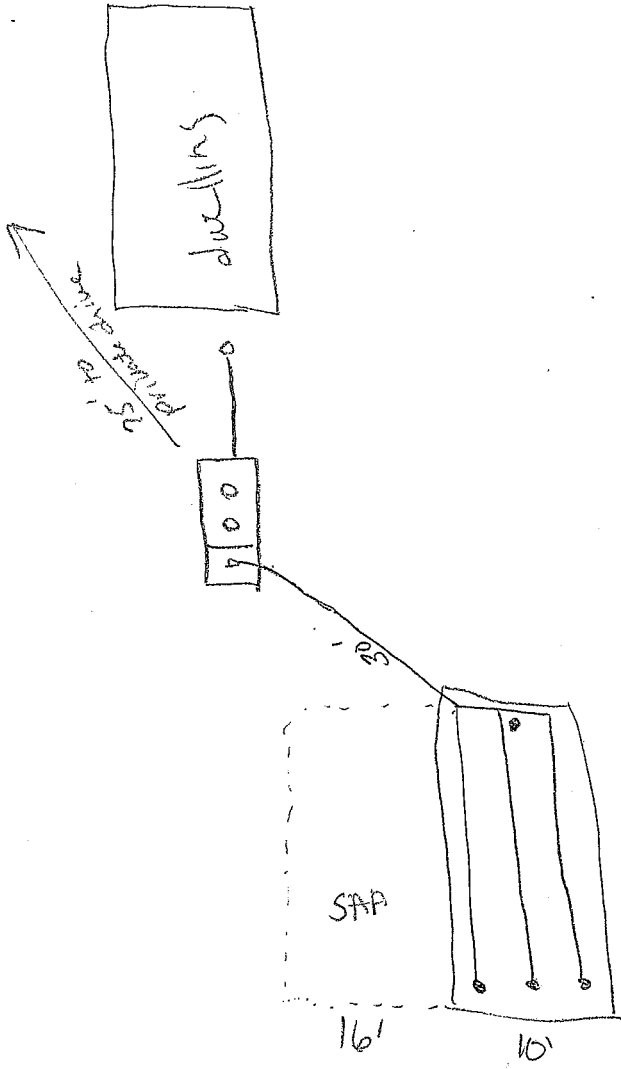
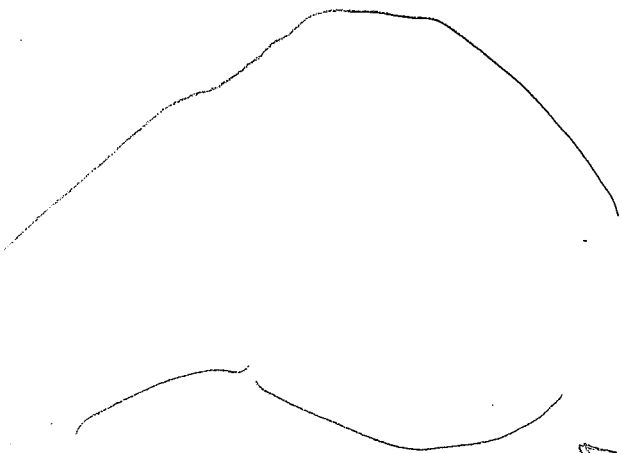
Vertical separation verified	Boring #1: TANK Boring #2: Hole 24" OK Boring #3:
------------------------------	---

Setback Verification very professional job!

Distance to...	Designer submitted		Inspector verified	
	Tank	Drainfield	Tank	Drainfield
Road	80'	90'	75+	75+
Nearest prop line	200'	170'	200+	150+
Nearest structure	10'	35'	13'	33'
Well	300'+	300'+	300+	By the ledge 300+
OHW	950'	970'	500+	500+
Pond/Wetland				
Pressure line	20'	24'	20+	20+

Date System Installed: **6-19-19** Installer: **[Signature]** Inspector: **DeWise Gubrud**
C 8952





System # 2

***** FOR OFFICE USE ONLY *****

Application Approved by: Linda A. Stoll Date: 8/28/18
 Amount Paid: \$300.00 Receipt Number _____ Permit Number _____

NOTES: First # 134803 - 687805 PL
CASH # 135543 - 690545 8/29/18

INSPECTION REPORT

200233000

Home Information

Does the structure contain any of the following elements?

Garbage disposer Yes No Dishwasher Yes No
 Grinder pump Yes No Lift pump in basement Yes No
 Effluent screen installed? Yes No Effluent screen manufacturer PolyTac

Alarm required? Yes No Alarm Type elec Alarm manufacturer Lersalarm

Lift pump in system? Yes No Pump manufacturer Liberty FL61

Number of bedrooms 1765 gpd

Component Information

Type III

Tank size (4) 2000 Tank manufacturer Brown 3-septic tanks
10x151' - rock bed 1-lift tank
 Drainfield size 26x151 - SAP
 Drainfield medium 3' sand lift Medium manufacturer _____
 Drainfield medium size/depth 6" under pipe

Soil Verification

Vertical separation verified for Boring #1 on _____ Depth _____
 Vertical separation verified for Boring #2 on _____ Depth _____
 Vertical separation verified for Boring #3 on _____ Depth _____

Type III
3' sand

Setback Verification

	TANK	DRAINFIELD
Distance to Well	<u>100's</u>	<u>100's</u>
Distance to Building	<u>50'</u>	<u>10'</u>
Distance to Property Line	<u>100's</u>	<u>100's</u>
Distance to OHW of Lake	<u>100's</u>	<u>100's</u>
Distance to Pressure Line	<u>20'</u>	<u>20'</u>
Distance to Wetland/Protected Water	<u>—</u>	<u>—</u>

Date System Installed 12/9-19 - Tanks Installer Jason Lunde Inspector Denise Gabriel

CERTIFICATE OF COMPLIANCE

() Certificate Is Hereby Denied
 (X) Certificate is Hereby Granted Based upon the Application, addendum from, plans, specifications and all other supporting data.
 With property maintenance, this system can be expected to function satisfactory, however, this is not a guarantee.

Signature Denise Gabriel Title Inspector Date 10/19/19

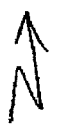
(Certificate of Compliance is not valid unless signed by a Registered Qualified Employee)



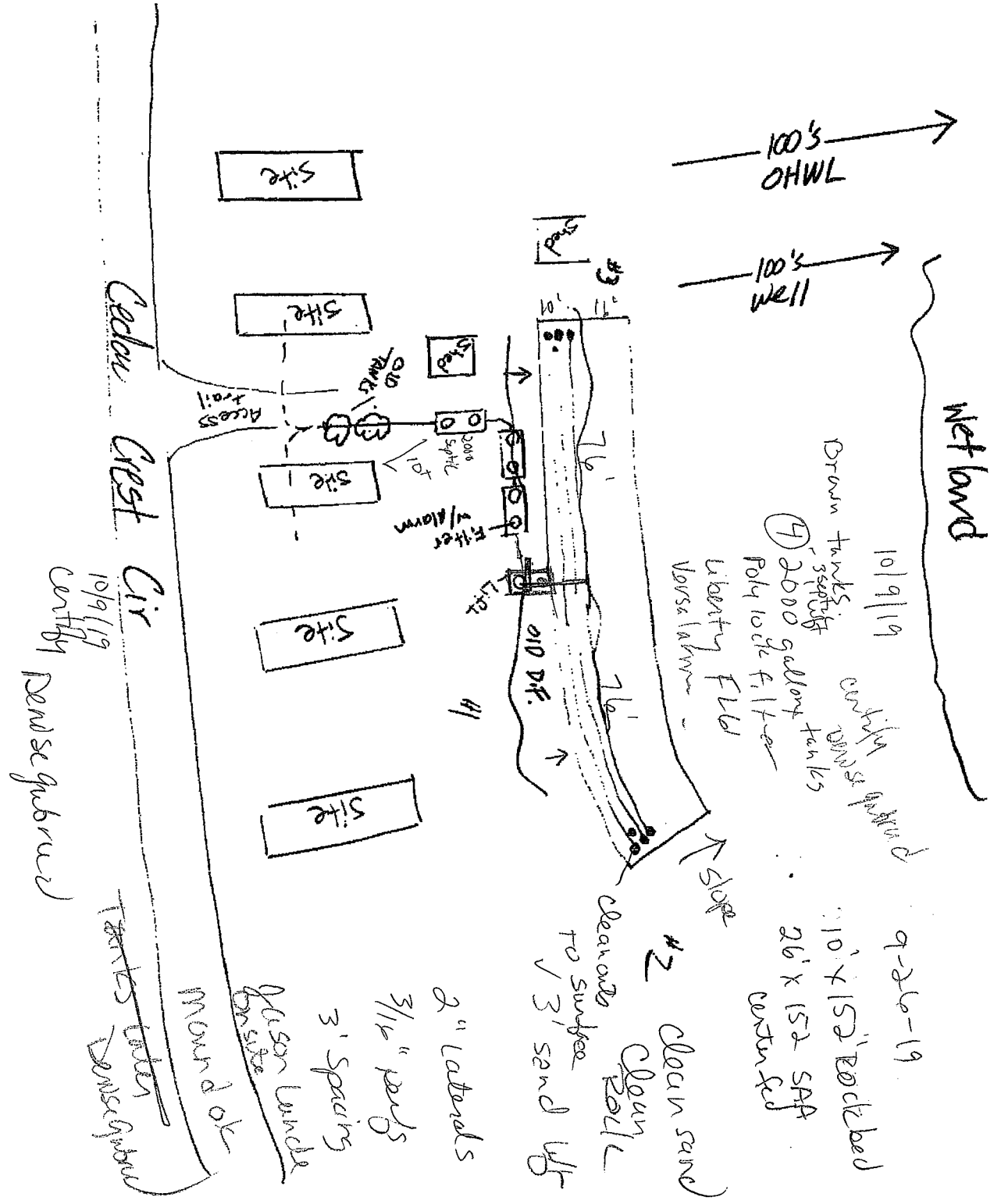
Scott Ellingson
 201 Meadow Circle, Ashby, MN 56309
 218-205-1667

System #2

PARCEL # 200233000
 YEAR 2018
 SCALE 1" = 40'



SKETCH OF PROPERTY



2018 Onsite Septic System Application

Becker County Planning & Zoning
 915 Lake Ave, Detroit Lakes, MN 56501
 Phone (218)-846-7314; Fax (218)-846-7266

PARCEL	200233000
APP	SEPTIC
YEAR	2018
SCANNED	
LAKE	White Earth

849 2088

system # 2 mound ok 9-26-1905
 Tanks 10/9/19 ok pg

1. PROPERTY DATA (as it appears on the tax statement, purchase agreement or deed)

Parcel Number(s) of property where the system will be installed: 200233000

Is this a split of an existing property? Yes No

(If yes and a parcel number has not yet been assigned, indicate the main parcel number from which the new parcel was split.)

Section 8 Township 142 Range 40

Township Name Maple Grove

Lake Name White Earth

Lake Classification RD

AUG 21 2018

Legal Description: Govt lot 2 less 4.01 AC For Nernac BCH..

Project Address: 29783 387th St.

2. PROPERTY OWNER INFORMATION (as it appears on the tax statement, purchase agreement or deed)

Owner's First Name BCANS Enterprises LLC

Owner's Last Name _____

Mailing Address 29783 387th St

City, State, Zip Waubun, MN 56589

Phone Number 218 473 2160

3. DESIGNER/INSTALLER INFORMATION

Designer Name Scott Ellingson

Company Name Scott's Septic Services, LLC License # 3947

Address 201 Meadow Cir. Ashby, MN 56309

Phone Number 218-205-1667

Installer Name Lunde

Company Name Senel Lunde License # L1254

Address PO Box 294
 Flom, MN 56541

Phone Number 218-849 2088

4. SYSTEM DESIGN INFORMATION

System Status

What will new system serve? Check one

- Vacant Lot-No existing system-new structure
- Replacement - structure removed and being rebuilt
- Failing -Replacement- cesspool/seepage pit or other
- Enlargement of system-Undersized
- Repairs Needed to existing
- Additional system on property

- Dwelling
- Resort/Commercial
- Commercial (Non-resort)
- Other - explain below

6-6-18 Date of site evaluation

Design Flow 1765 Gallons Per Day

Well Depth Deep

Original Soil NO Compacted Soil NO

Number of Bedrooms see design summary

Depth of other wells within

Type of Soil Observation

Garbage Disposal Yes No

100 ft of system -

Pit Probe Boring

Dishwasher Yes No

Depth to Restricting Layer 16"
 Maximum Depth of System 3' SAND LIFT

Lift station in House Yes No

Grinder pump in House Yes No

Size of All Tanks to be installed

- 3-2000 gal Single Compartment Septic Tank
- 1-2000 gal Separate Lift Station
- _____ gal Compartmented Tank
- _____ gal Holding Tank
- _____ Pit Privy
- _____ Existing Tank to be used

- _____ Existing tank w/new Additional Tank
- _____ Existing tank w/new Lift Station
- _____ Holding Tank with Privy

Total Number of tanks to be installed in this system 4 (This # will be reported to MPCA at end of year.)

PARCEL	200233000
APP	SEPTIC
YEAR	2018

Type of Drainfield _____ Full Size of Drainfield _____ Reduced/Warrantied size _____

_____ Chamber Trench _____ sq ft _____ sq ft

_____ Rock Trench _____ sq ft _____ sq ft

_____ Gravelless _____ sq ft _____ sq ft

Mound Type III 3902 sq ft ***

_____ Pressure Bed _____ sq ft ***

_____ Seepage Bed _____ sq ft ***

_____ At-grade _____ sq ft ***

_____ Alternative / _____ sq ft ***

Performance

***Attach Worksheets

Type of chamber _____

Depth of Rock 10' + pipe

Alarm? Yes No _____

Type of Alarm on tank

Size of Lift Pump 63 gpm 20.5 #h

Size of Lift Line 2" 1/2"

PROPOSED SETBACKS

	TANK	DRAINFIELD
Distance to Well	<u>100'S</u>	<u>100'S</u>
Distance to Building	<u>10'</u>	<u>20'</u>
Distance to Property Line	<u>100'</u>	<u>100'</u>
Distance to OHW of Lake	<u>100'S</u>	<u>100'S</u>
Distance to Pressure Line	<u>10'</u>	<u>10'</u>
Distance to Wetland/Protected Water	<u>100'/-</u>	<u>70'/-</u>

Perc Rate _____ Soil Sizing Factor .45 *If SSF other than .83, attach Perc Test Data

Soil Borings (three are required)

#1				#3			
Depth	Texture	Color	Structure	Depth	Texture	Color	Structure
<u>0"-6"</u>	<u>CL</u>	<u>10 yr 2/1</u>	<u>B/w/Fri</u>	<u>0"-6"</u>	<u>CL</u>	<u>10 yr 2/1</u>	<u>B/w/Fri</u>
<u>6"-16"</u>	<u>CL</u>	<u>10 yr 4/3</u>	<u>B/w/Firm</u>	<u>6"-16"</u>	<u>CL</u>	<u>10 yr 4/3</u>	<u>B/w/Firm</u>
<u>16"+</u>	<u>SL/SCL</u>	<u>10 yr 4/4</u>	<u>B/w/Fri</u>	<u>16"+</u>	<u>SL/SCL</u>	<u>10 yr 4/4</u>	<u>B/w/Fri</u>
		<u>4/10 yr 5/1</u>				<u>4/10 yr 5/1</u>	

#2							
Depth	Texture	Color	Structure	Depth	Texture	Color	Structure
<u>0"-6"</u>	<u>CL</u>	<u>10 yr 2/1</u>	<u>B/w/Fri</u>				
<u>6"-16"</u>	<u>CL</u>	<u>10 yr 4/3</u>	<u>B/w/Firm</u>				
<u>16"+</u>	<u>SL/SCL</u>	<u>10 yr 4/4</u>	<u>B/w/Fri</u>				
		<u>4/10 yr 5/1</u>					

5. REQUIRED DOCUMENTS

U of MN worksheets are required for mounds, pressure beds, seepage beds, at-grades or Type IV or Type V systems. Are the required worksheets attached? Yes _____ No

6. DESIGNER'S CERTIFIED STATEMENT

I, Scott Ellingson certify that I have completed the preceding design work in accordance with all applicable requirements (including, but not limited to Minnesota Chapter 7080 and the Becker County Individual Sewage Treatment System Ordinance).

Scott Ellingson Signature of Designer 6-15-18 Date

This is a Type III Mound Replacement



Client/ Address:		Cedar Crest Resort		Legal Description/ GPS:					
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope Slope shape: LV									
Vegetation:	Lawn	Soil survey map units: 40C		Slopes:	2.0				
Weather Conditions/Time of Day:		Sunny 60of 10:15 am		Elevation:	97.7				
Observation #/Location:		Treatment System 2 (Soil Boring 1)		Date: 09/22/17					
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Shape	Grade	Consistence
0-6	Clay Loam	<35%	10Yr 2/1				Granular	Weak	Friable
6-16	Clay Loam	<35%	10YR 4/3				Blocky	Weak	Extremely Firm
16-21	Sandy Loam	<35%	10YR 4/4	10YR 5/1	Depletions	S2	Single grain	Structureless	Loose
21-34	Sandy Clay Loam	<35%	10YR 4/4	10R 3/6	Concentrations	S1	Blocky	Weak	Friable
34-37	Sandy Loam	<35%	10YR 5/4	10R 3/4	Concentrations	S1	Single grain	Structureless	Loose
37-60	Sandy Loam	<35%	10YR 6/3	10R 3/6	Concentrations	S1	Blocky	Weak	Loose
Comments: Restricting layer 96.37. Calcium Carbonate (verified with acid) starting at 6" 10YR7/1 dry and observed all the way to 60". I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Ken Ramondo		(Signature)		L3106		9/22/2017		(Date)	
(Designer/Inspector)				(License #)					



Property Owner/Client: Project ID: v 04.20.2016
 Site Address: Date:

1. DESIGN FLOW, STRENGTH OF WASTE, AND TANKS

A. Design Flow: Gallons Per Day (GPD) Number of Bedrooms (Residential):
 Type of Wastewater: Treatment Level: Nutrients:
 Commercial (select method and provide data): Measured Flow: GPD Estimated Flow: GPD
 B. Septic Tanks:
 Minimum Code Required Septic Tank Capacity (Dwellings): Gallons, in Tanks or Compartments
 Minimum Septic Tank Capacity for Other Establishments = Design Flow X 3.0 if received by gravity or 4.0 if received by pressure
 Waste received by: GPD X = Gallons
 Recommended Septic Tank Capacity: Gallons, in Tanks or Compartments
 Effluent Screen & Alarm: Yes No Optional Screen Only Effluent Screen Manufacturer/Model:
 C. Holding Tanks Only: Minimum Capacity: Residential =400 gal/bedroom, Other Establishment = Design Flow x 5.0, Minimum size 1000 gallons
 Minimum Code Required Capacity: Gallons, in Tanks Type of High Level Alarm:
 Designer Recommended Capacity: Gallons, in Tanks
 D. Pump Tank 1 Capacity (Code Minimum): Gallons Pump Tank 2 Capacity (Code Minimum): Gallons
 Pump Tank 1 Capacity (Designer Rec): Gallons Pump Tank 2 Capacity (Designer Rec): Gallons
 Pump 1 GPM Total Head ft Pump 2 GPM Total Head ft
 Supply Pipe Dia. in Dose Volume: gal Supply Pipe Dia. in Dose Volume: gal

2. SYSTEM AND DISTRIBUTION TYPE

Soil Treatment Area Type: Distribution Type:
 Benchmark Reference Elevation: ft Benchmark Location:
 MPCA Type: Type of Distribution Media: Drainfield Rock Registered Treatment Media:
 Comments:

3. SITE EVALUATION:

A. Depth to Limiting Layer: in ft G. Soil Texture:
 B. Elevation of Limiting Layer: H. Soil Hyd. Loading Rate: GPD/ft²
 C. Loc. of Restrictive Elevation: I. Perc Rate: MPI
 D. Minimum Required Separation: in ft J. Soil with >35% Rock Fragments Present? Yes No
 E. Code Maximum Depth of System: in If yes describe below: % rock and layer thickness, amount of soil credit and any additional information for addressing the rock fragments in this design.
 F. Measured Land Slope %: %
 Comments:

4. DESIGN SUMMARY

Trench Design Summary

Dispersal Area ft² Sidewall Depth in Trench Width ft
 Total Lineal Feet ft Number of Trenches Code Maximum Trench Depth in
 Contour Loading Rate ft Min Trench Length ft Designer's Max Trench Depth in



Bed Design Summary

Absorption Area ft² Depth of sidewall in Code Maximum Bed Depth in
 Bed Width ft Bed Length ft Designer's Max Bed Depth in

Mound Design Summary

Absorption Bed Area ft² Bed Length ft Bed Width ft
 Absorption Width ft Clean Sand Lift ft Berm Width (0-1%) ft
 Upslope Berm Width ft Downslope Berm Width ft Endslope Berm Width ft
 Total System Length ft Total System Width ft Contour Loading Rate gal/ft

At-Grade Design Summary

Absorption Bed Width ft Absorption Bed Length ft System Finished Height ft
 Contour Loading Rate gal/ft Upslope Berm Width ft Downslope Berm Width ft
 Endslope Berm Width ft System Length ft System Width ft

Level & Equal Pressure Distribution Summary

No. of Perforated Laterals Perforation Spacing ft Perforation Diameter in
 Lateral Diameter in Min. Delivered Volume gal Maximum Delivered Volume gal

Non-Level and Unequal Pressure Distribution Summary

	Elevation (ft)	Pipe Size (in)	Pipe Volume (gal/ft)	Pipe Length (ft)	Perforation Size (in)	Spacing (ft)	Spacing (in)	
Lateral 1								Minimum Delivered Volume <input type="text"/> gal
Lateral 2								
Lateral 3								
Lateral 4								
Lateral 5								
Lateral 6								
								Maximum Delivered Volume <input type="text"/> gal

5. Additional Info for Type IV/Pretreatment Design

A. Calculate the organic loading

1. Organic Loading to Pretreatment Unit = Design Flow X Estimated BOD in mg/L in the effluent X 8.35 ÷ 1,000,000

gpd X mg/L X 8.35 ÷ 1,000,000 = lbs BOD/day

2. Type of Pretreatment Unit Being Installed:

3. Calculate Soil Treatment System Organic Loading: BOD concentration after pretreatment ÷ Bottom Area = lbs/day/ft²

mg/L X 8.35 ÷ 1,000,000 ÷ ft² = lbs/day/ft²

Comments/Special Design Considerations:

This system is a Type III Mound. We will be using 3 new 2,000 gallon septic tanks with a filter alarm installed onto a single 2,000 gallon Lift tank to a new Type III Mound. First remove all old Drain field and an area of 26' X 151' for a new mound @ 36" deep or as deep as contaminated soil is, replace with cleaned washed sand and then put 2' Sand Lift on that and finish building the mound. Sizing is as follows 27 seasonal sites (10*100+(17*100*.45))=1765gpd. Drain field requirements are 1765/.45=3922sq. ft Drain field will be 26'X151'=3926sq. ft

Handwritten signature and notes

26 151

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

Scott Ellingson
(Designer)

Scott Ellingson
(Signature)

3947
(License #)

06/15/18
(Date)



OSTP Mound Design Worksheet >1% Slope



1. SYSTEM SIZING: Project ID: v 04.20.2016

- A. Design Flow: GPD
- B. Soil Loading Rate: GPD/ft²
- C. Depth to Limiting Condition: ft
- D. Percent Land Slope: %
- E. Design Media Loading Rate: GPD/ft²
- F. Mound Absorption Ratio:

TABLE IXa				
LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA AND ABSORPTION RATIOS USING PERCOLATION TESTS				
Percolation Rate (MPI)	Treatment Level C		Treatment Level A, A-2, B,	
	Absorption Area Loading Rate (gpd/ft ²)	Mound Absorption Ratio	Absorption Area Loading Rate (gpd/ft ²)	Mound Absorption Ratio
<0.1	-	1	-	1
0.1 to 5	1.2	1	1.6	1
0.1 to 5 (fine sand and loamy fine sand)	0.6	2	1	1.6
6 to 15	0.78	1.5	1	1.6
16 to 30	0.6	2	0.78	2
31 to 45	0.5	2.4	0.78	2
46 to 60	0.45	2.6	0.6	2.6
61 to 120	-	5	0.3	5.3
>120	-	-	-	-

Table I MOUND CONTOUR LOADING RATES:			
Measured Perc Rate	← OR →	Texture - derived mound absorption ratio	Contour Loading Rate:
≤ 60mpi		1.0, 1.3, 2.0, 2.4, 2.6	→ ≤12
61-120 mpi	← OR →	5.0	→ ≤12
≥ 120 mpi*		>5.0*	→ ≤6*

*Systems with these values are not Type I systems. Contour Loading Rate (linear loading rate) is a recommended value.

2. DISPERSAL MEDIA SIZING

A. Calculate Dispersal Bed Area: Design Flow ÷ Design Media Loading Rate = ft²

$$\frac{1765 \text{ GPD}}{1.2 \text{ GPD/ft}^2} = 1471 \text{ ft}^2$$

If a larger dispersal media area is desired, enter size: ft²

B. Enter Dispersal Bed Width: ft *Can not exceed 10 feet*

C. Calculate Contour Loading Rate: Bed Width X Design Media Loading Rate

$$10 \text{ ft}^2 \times 1.2 \text{ GPD/ft}^2 = 12.0 \text{ gal/ft} \quad \text{Can not exceed Table 1}$$

D. Calculate Minimum Dispersal Bed Length: Dispersal Bed Area ÷ Bed Width = Bed Length

$$\frac{1510 \text{ ft}^2}{10.0 \text{ ft}} = 151.0 \text{ ft}$$

3. ABSORPTION AREA SIZING

A. Calculate Absorption Width: Bed Width X Mound Absorption Ratio = Absorption Width

$$10.0 \text{ ft} \times 2.6 = 26.0 \text{ ft}$$

B. For slopes >1%, the Absorption Width is measured downhill from the upslope edge of the Bed.

Calculate Downslope Absorption Width: Absorption Width - Bed Width

$$26.0 \text{ ft} - 10.0 \text{ ft} = 16.0 \text{ ft}$$

4. DISTRIBUTION MEDIA: ROCK

A. Rock Media Depth Below Distribution Pipe

ft

estimated volume of rock on mound materials page

5. DISTRIBUTION MEDIA: REGISTERED TREATMENT PRODUCTS: CHAMBERS AND EZFLOW

A. Enter Dispersal Media:

B. Enter the Component: Length: ft Width: ft Depth: ft

C. Number of Components per Row = Bed Length divided by Component Length (Round up)

ft ÷ ft = components/row

D. Actual Bed Length = Number of Components/row X Component Length:

components X ft = ft

E. Number of Rows = Bed Width divided by Component Width (Round up)

ft ÷ ft = rows *Adjust width so this is a whole number.*

F. Total Number of Components = Number of Components per Row X Number of Rows

X = components

6. MOUND SIZING

A. Calculate Minimum Clean Sand Lift: 3 feet minus Depth to Limiting Condition = Clean Sand Lift

3.0 ft - 1.3 ft = 1.7 ft Design Sand Lift (optional): 3 ft

B. Calculate Upslope Height: Clean Sand Lift + media depth + cover (1 ft.) = Upslope Height

3.0 ft + 0.8 ft + 1.0 ft = 4.8 ft

C. Select Upslope Berm Multiplier (based on land slope):

3.70

Land Slope %	0	1	2	3	4	5	6	7	8	9	10	11	12	
Upslope Berm Ratio	3:1	3.00	2.91	2.83	2.75	2.68	2.61	2.54	2.48	2.42	2.36	2.31	2.26	2.21
	4:1	4.00	3.85	3.70	3.57	3.45	3.33	3.23	3.12	3.03	2.94	2.86	2.78	2.70

D. Calculate Upslope Berm Width: Multiplier X Upslope Mound Height = Upslope Berm Width

3.70 ft X 4.8 ft = 17.6 ft

E. Calculate Drop in Elevation Under Bed: Bed Width X Land Slope ÷ 100 = Drop (ft)

10.0 ft X 2.0 % ÷ 100 = 0.20 ft

F. Calculate Downslope Mound Height: Upslope Height + Drop in Elevation = Downslope Height

4.8 ft + 0.20 ft = 5.0 ft

G. Select Downslope Berm Multiplier (based on land slope):

4.35

Land Slope %	0	1	2	3	4	5	6	7	8	9	10	11	12	
Downslope Berm Ratio	3:1	3.00	3.09	3.19	3.30	3.41	3.53	3.66	3.80	3.95	4.11	4.29	4.48	4.69
	4:1	4.00	4.17	4.35	4.54	4.76	5.00	5.26	5.56	5.88	6.25	6.67	7.14	7.69

H. Calculate Downslope Berm Width: Multiplier X Downslope Height = Downslope Berm Width

4.35 x 5.0 ft = 21.5 ft

I. Calculate Minimum Berm to Cover Absorption Area: Downslope Absorption Width + 4 feet

16.0 ft + 4 ft = 20.0 ft

J. Design Downslope Berm = greater of 4H and 4I:

21.5 ft

K. Select Endslope Berm Multiplier:

4.00

(usually 3.0 or 4.0)

L. Calculate Endslope Berm X Downslope Mound Height = Endslope Berm Width

4.00 ft X 5.0 ft = 19.8 ft

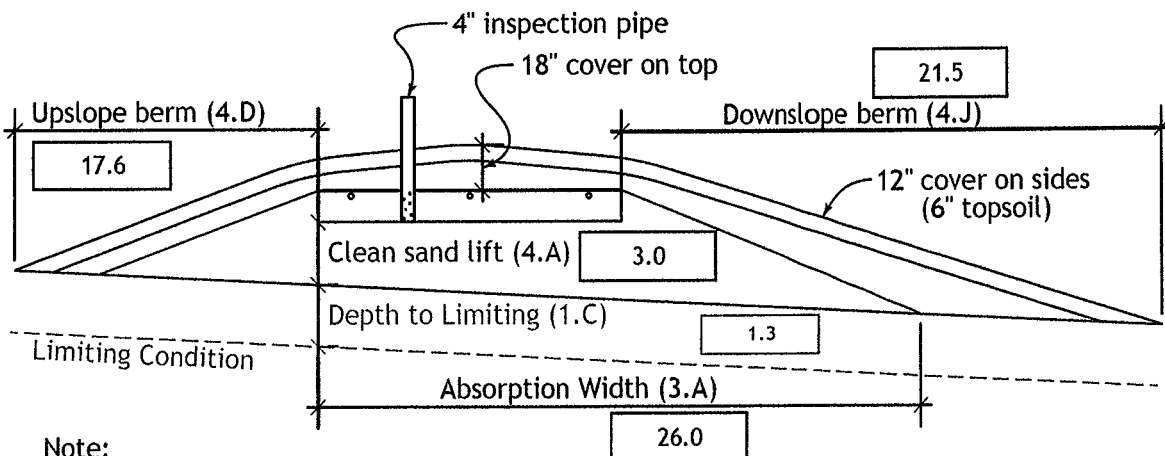
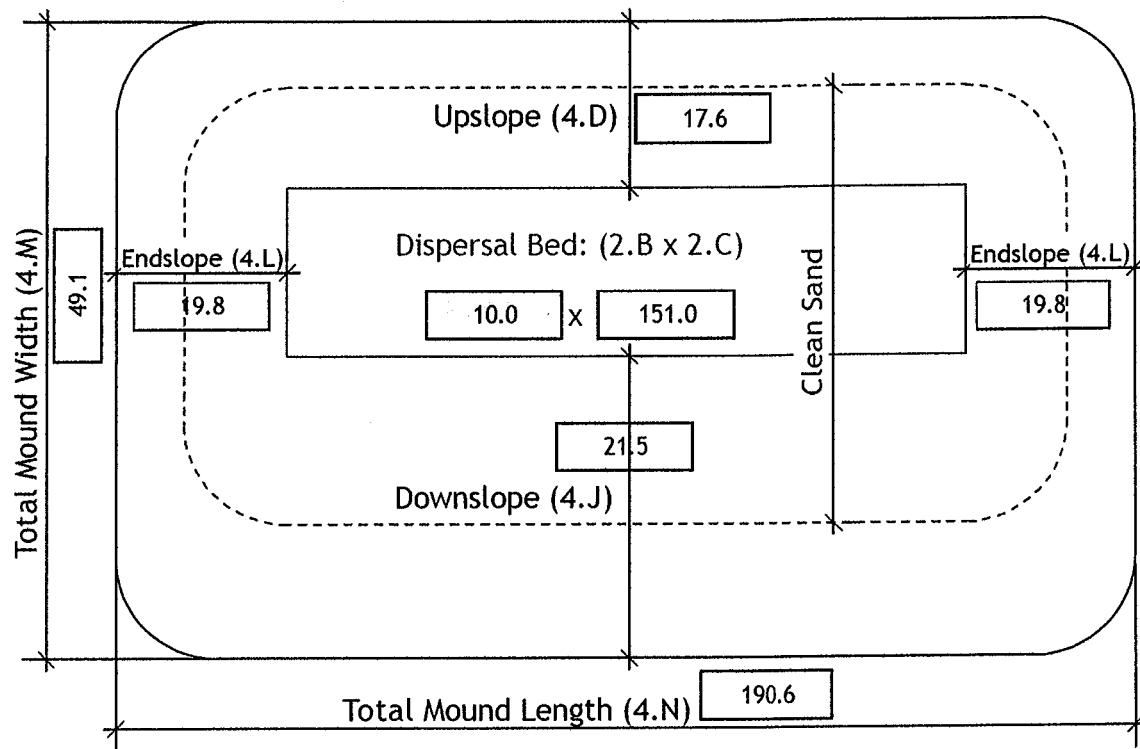
M. Calculate Mound Width: Upslope Berm Width + Bed Width + Downslope Berm Width

17.6 ft + 10.0 ft + 21.5 ft = 49.1 ft

N. Calculate Mound Length: Endslope Berm Width + Bed Length + Endslope Berm Width

19.8 ft + 151.0 ft + 19.8 ft = 190.6 ft

7. MOUND DIMENSIONS



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*.

Comments:



Project ID:

v 04.20.2016

A. Calculate Rock Volume : (Rock Below Pipe + Rock to cover pipe (pipe dia + 1 inch)) X Bed Length (2.D) X Bed Width (2.B) = Volume (ft³)

$$\left(\boxed{6} \text{ in} + \boxed{3} \text{ in} \right) \div 12 \times \boxed{151.0} \text{ ft} \times \boxed{10.0} \text{ ft} = \boxed{1132.5} \text{ ft}^3$$

Divide ft³ by 27 ft³/yd³ to calculate cubic yards:

$$\boxed{1132.5} \text{ ft}^3 \div 27 = \boxed{41.9} \text{ yd}^3$$

Add 20% for constructability:

$$\boxed{41.9} \text{ yd}^3 \times 1.2 = \boxed{50.3} \text{ yd}^3$$

For systems using other distribution media - see product registration for material required

B. Calculate Clean Sand Volume:

Volume Under Rock bed : Average Sand Depth x Media Width x Media Length = cubic feet

$$\boxed{2.9} \text{ ft} \times \boxed{10.0} \text{ ft} \times \boxed{151.0} \text{ ft} = \boxed{4303.5} \text{ ft}^3$$

For a Mound on a slope from 0-1%

Volume from Length = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Length)

$$\boxed{} \text{ ft} - 1) \times \boxed{} \times \boxed{} \text{ ft} = \boxed{}$$

Volume from Width = ((Upslope Mound Height - 1) X Absorption Width Beyond Bed X Media Bed Width)

$$\boxed{} \text{ ft} - 1) \times \boxed{} \times \boxed{} \text{ ft} = \boxed{}$$

Total Clean Sand Volume : Volume from Length + Volume from Width + Volume Under Media

$$\boxed{} \text{ ft}^3 + \boxed{} \text{ ft}^3 + \boxed{} \text{ ft}^3 = \boxed{} \text{ ft}^3$$

For a Mound on a slope greater than 1%

Upslope Volume : ((Upslope Mound Height - 1) x 3 x Bed Length) ÷ 2 = cubic feet

$$\left((\boxed{4.8} \text{ ft} - 1) \times 3.0 \text{ ft} \times \boxed{151.0} \right) \div 2 = \boxed{849.4} \text{ ft}^3$$

Downslope Volume : ((Downslope Height - 1) x Downslope Absorption Width x Media Length) ÷ 2 = cubic feet

$$\left((\boxed{5.0} \text{ ft} - 1) \times \boxed{16.0} \text{ ft} \times \boxed{151.0} \right) \div 2 = \boxed{4771.6} \text{ ft}^3$$

Endslope Volume : (Downslope Mound Height - 1) x 3 x Media Width = cubic feet

$$\left(\boxed{5.0} \text{ ft} - 1) \times 3.0 \text{ ft} \times \boxed{10.0} \text{ ft} = \boxed{118.5} \text{ ft}^3$$

Total Clean Sand Volume : Upslope Volume + Downslope Volume + Endslope Volume + Volume Under Media

$$\boxed{849.4} \text{ ft}^3 + \boxed{4771.6} \text{ ft}^3 + \boxed{118.5} \text{ ft}^3 + \boxed{4303.5} \text{ ft}^3 = \boxed{10043.0} \text{ ft}^3$$

Divide ft³ by 27 ft³/yd³ to calculate cubic yards:

$$\boxed{10043.0} \text{ ft}^3 \div 27 = \boxed{372.0} \text{ yd}^3$$

Add 20% for constructability:

$$\boxed{372.0} \text{ yd}^3 \times 1.2 = \boxed{446.4} \text{ yd}^3$$

C. Calculate Sandy Berm Volume:

Total Berm Volume (approx) : ((Avg. Mound Height - 0.5 ft topsoil) x Mound Width x Mound Length) ÷ 2 = cubic feet

$$\left(\boxed{4.9} - 0.5 \right) \text{ ft} \times \boxed{49.1} \text{ ft} \times \boxed{190.6} \text{ ft} \div 2 = \boxed{20357.8} \text{ ft}^3$$

Total Mound Volume - Clean Sand volume - Rock Volume = cubic feet

$$\boxed{20357.8} \text{ ft}^3 - \boxed{10043.0} \text{ ft}^3 - \boxed{1132.5} \text{ ft}^3 = \boxed{9182.3} \text{ ft}^3$$

Divide ft³ by 27 ft³/yd³ to calculate cubic yards:

$$\boxed{9182.3} \text{ ft}^3 \div 27 = \boxed{340.1} \text{ yd}^3$$

Add 20% for constructability:

$$\boxed{340.1} \text{ yd}^3 \times 1.2 = \boxed{408.1} \text{ yd}^3$$

D. Calculate Topsoil Material Volume: Total Mound Width X Total Mound Length X .5 ft

$$\boxed{49.1} \text{ ft} \times \boxed{190.6} \text{ ft} \times 0.5 \text{ ft} = \boxed{4679.9} \text{ ft}^3$$

Divide ft³ by 27 ft³/yd³ to calculate cubic yards:

$$\boxed{4679.9} \text{ ft}^3 \div 27 = \boxed{173.3} \text{ yd}^3$$

Add 20% for constructability:

$$\boxed{173.3} \text{ yd}^3 \times 1.2 = \boxed{208.0} \text{ yd}^3$$



OSTP Pressure Distribution Design Worksheet



Project ID:

v 04.20.2016

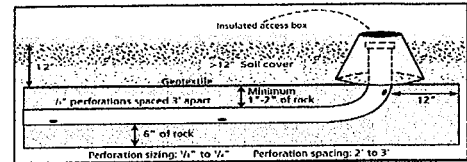
1. Media Bed Width: ft
2. Minimum Number of Laterals in system/zone = Rounded up number of $[(\text{Media Bed Width} - 4) \div 3] + 1$.

$[(\text{ } \boxed{10} \text{ } - 4) \div 3] + 1 = \text{ } \boxed{3} \text{ } \text{laterals}$ *Does not apply to at-grades*

3. Designer Selected Number of Laterals: laterals
Cannot be less than line 2 (accept in at-grades)

4. Select Perforation Spacing: ft

5. Select Perforation Diameter Size: in



6. Length of Laterals = Media Bed Length - 2 Feet.

$\boxed{151} - 2\text{ft} = \boxed{149} \text{ft}$ *Perforation can not be closer than 1 foot from edge.*

7. Determine the Number of Perforation Spaces. Divide the Length of Laterals by the Perforation Spacing and round down to the nearest whole number.

$\text{Number of Perforation Spaces} = \boxed{149} \text{ft} \div \boxed{3} \text{ft} = \boxed{49} \text{Spaces}$

8. Number of Perforations per Lateral is equal to 1.0 plus the Number of Perforation Spaces. Check table below to verify the number of perforations per lateral guarantees less than a 10% discharge variation. The value is double with a center manifold.

$\text{Perforations Per Lateral} = \boxed{49} \text{Spaces} + 1 = \boxed{50} \text{Perfs. Per Lateral}$

Maximum Number of Perforations Per Lateral to Guarantee <10% Discharge Variation											
1/4 Inch Perforations						7/32 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1 1/4	1 1/2	2	3		1	1 1/4	1 1/2	2	3
2	10	13	18	30	60	2	11	16	21	34	68
2 1/2	8	12	16	28	54	2 1/2	10	14	20	32	64
3	8	12	16	25	52	3	9	14	19	30	60
3/16 Inch Perforations						1/8 Inch Perforations					
Perforation Spacing (Feet)	Pipe Diameter (Inches)					Perforation Spacing (Feet)	Pipe Diameter (Inches)				
	1	1 1/4	1 1/2	2	3		1	1 1/4	1 1/2	2	3
2	12	18	26	46	87	2	21	33	44	74	149
2 1/2	12	17	24	40	80	2 1/2	20	30	41	69	135
3	12	16	22	37	75	3	20	29	38	64	128

9. Total Number of Perforations equals the Number of Perforations per Lateral multiplied by the Number of Perforated Laterals.

$\boxed{50} \text{Perf. Per Lat.} \times \boxed{3} \text{Number of Perf. Lat.} = \boxed{150} \text{Total Number of Perf.}$

10. Select Type of Manifold Connection (End or Center): End Center

11. Select Lateral Diameter (See Table): in



OSTP Pressure Distribution Design Worksheet



12. Calculate the *Square Feet per Perforation*. Recommended value is 4-11 ft² per perforation.

Does not apply to At-Grades

a. *Bed Area* = Bed Width (ft) X Bed Length (ft)

ft X ft = ft²

b. *Square Foot per Perforation* = *Bed Area* divided by the *Total Number of Perforations*.

ft² ÷ perforations = ft²/perforations

13. Select *Minimum Average Head*: ft

14. Select *Perforation Discharge* (GPM) based on Table: GPM per Perforation

15. Determine required *Flow Rate* by multiplying the *Total Number of Perfs.* by the *Perforation Discharge*.

Perfs X GPM per Perforation = GPM

16. *Volume of Liquid Per Foot of Distribution Piping* (Table II): Gallons/ft

17. *Volume of Distribution Piping* =

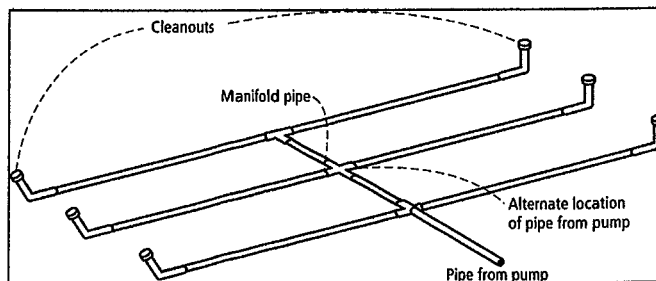
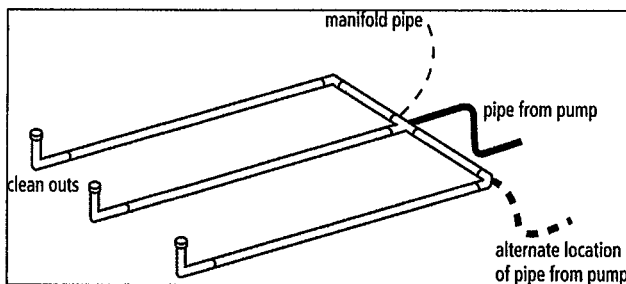
= [Number of Perforated Laterals X Length of Laterals X (Volume of Liquid Per Foot of Distribution Piping)]

X ft X gal/ft = Gallons

Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

18. Minimum Delivered Volume = Volume of Distribution Piping X 4

gals X 4 = Gallons



Comments/Special Design Considerations:

Blank area for comments and special design considerations.



OSTP Basic Pump Selection Design Worksheet



1. PUMP CAPACITY

Project ID:

v 04.20.2016

Pumping to Gravity or Pressure Distribution:

1. If pumping to gravity enter the gallon per minute of the pump: GPM (10 - 45 gpm)

2. If pumping to a pressurized distribution system: GPM

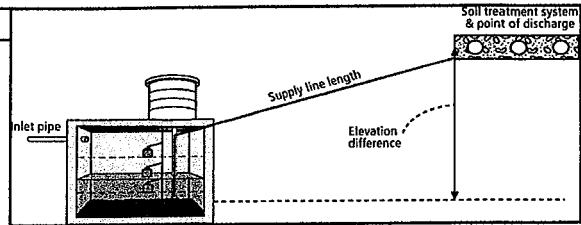
3. Enter pump description:

2. HEAD REQUIREMENTS

A. Elevation Difference ft between pump and point of discharge:

B. Distribution Head Loss: ft

C. Additional Head Loss: ft (due to special equipment, etc.)



Distribution Head Loss	
Gravity Distribution = 0ft	
Pressure Distribution based on Minimum Average Head Value on Pressure Distribution Worksheet:	
Minimum Average Head	Distribution Head Loss
1ft	5ft
2ft	6ft
5ft	10ft

Table I. Friction Loss in Plastic Pipe per 100ft

Flow Rate (GPM)	Pipe Diameter (inches)			
	1	1.25	1.5	2
10	9.1	3.1	1.3	0.3
12	12.8	4.3	1.8	0.4
14	17.0	5.7	2.4	0.6
16	21.8	7.3	3.0	0.7
18		9.1	3.8	0.9
20		11.1	4.6	1.1
25		16.8	6.9	1.7
30		23.5	9.7	2.4
35			12.9	3.2
40			16.5	4.1
45			20.5	5.0
50				6.1
55				7.3
60				8.6
65				10.0
70				11.4
75				13.0
85				16.4
95				20.1

D. 1. Supply Pipe Diameter: in

2. Supply Pipe Length: ft

E. Friction Loss in Plastic Pipe per 100ft from Table I:

Friction Loss = ft per 100ft of pipe

F. Determine *Equivalent Pipe Length* from pump discharge to soil dispersal area discharge point. Estimate by adding 25% to supply pipe length for fitting loss. *Supply Pipe Length (D.2) X 1.25 = Equivalent Pipe Length*

ft X 1.25 = ft

G. Calculate *Supply Friction Loss* by multiplying *Friction Loss Per 100ft* (Line E) by the *Equivalent Pipe Length* (Line F) and divide by 100.

Supply Friction Loss = ft per 100ft X ft ÷ 100 = ft

H. *Total Head* requirement is the sum of the *Elevation Difference* (Line A), the *Distribution Head Loss* (Line B), *Additional Head Loss* (Line C), and the *Supply Friction Loss* (Line G)

ft + ft + ft + ft = ft

3. PUMP SELECTION

A pump must be selected to deliver at least **63.0** GPM (Line 1 or Line 2) with at least **20.5** feet of total head.

Comments:

Blank area for user comments.



OSTP Pump Tank Design Worksheet (Demand Dose)



DETERMINE TANK CAPACITY AND DIMENSIONSProject ID:v 04.20.2016

1. A. Design Flow (Design Sum. 1A): GPD

B. Min. required pump tank capacity: Gal C. Recommended pump tank capacity: Gal

2. A. Tank Manufacturer: B. Tank Model:

C. Capacity from manufacturer: Gallons

D. Gallons per inch from manufacturer: Gallons per inch

E. Liquid depth of tank from manufacturer: inches

Note: Design calculations are based on this specific tank. Substituting a different tank model will change the pump float or timer settings. Contact designer if changes are necessary.

DETERMINE DOSING VOLUME

3 Calculate Volume to Cover Pump (The inlet of the pump must be at least 4-inches from the bottom of the pump tank & 2 inches of water covering the pump is recommended)

(Pump and block height + 2 inches) X Gallons Per Inch (2C or 3E)

(in + 2 inches) X Gallons Per Inch = Gallons

4 Minimum Delivered Volume = 4 X Volume of Distribution Piping:

- Line 17 of the Pressure Distribution or Line 11 of Non-level Gallons (minimum dose)

5 Calculate Maximum Pumpout Volume (25% of Design Flow)

Design Flow: GPD X 0.25 = Gallons (maximum dose)

6 Select a pumpout volume that meets both Minimum and Maximum: Gallons

7 Calculate Doses Per Day = Design Flow ÷ Delivered Volume

gpd ÷ gal = Doses

8 Calculate Drainback:

A. Diameter of Supply Pipe = inches

B. Length of Supply Pipe = feet

C. Volume of Liquid Per Lineal Foot of Pipe = Gallons/ft

D. Drainback = Length of Supply Pipe X Volume of Liquid Per Lineal Foot of Pipe

ft X gal/ft = Gallons

9. Total Dosing Volume = Delivered Volume plus Drainback

gal + gal = Gallons

10. Minimum Alarm Volume = Depth of alarm (2 or 3 inches) X gallons per inch of tank

in X gal/in = Gallons

Volume of Liquid in Pipe	
Pipe Diameter (inches)	Liquid Per Foot (Gallons)
1	0.045
1.25	0.078
1.5	0.110
2	0.170
3	0.380
4	0.661

DEMAND DOSE FLOAT SETTINGS

11. Calculate Float Separation Distance using Dosing Volume.

Total Dosing Volume / Gallons Per Inch

gal ÷ gal/in = Inches

12. Measuring from bottom of tank:

A. Distance to set Pump Off Float = Pump + block height + 2 inches

in + in = Inches

B. Distance to set Pump On Float = Distance to Set Pump-Off Float + Float Separation Distance

in + in = Inches

C. Distance to set Alarm Float = Distance to set Pump-On Float + Alarm Depth (2-3 inches)

in + in = Inches

Inches for Dose: 6.5 in

Alarm Depth: 26.5 in

Pump On: 24.5 in

Pump Off: 18.0 in



Minnesota Pollution Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

Compliance Inspection Form

Existing Subsurface Sewage Treatment Systems (SSTs)

Doc Type: Compliance and Enforcement

Inspection results based on Minnesota Pollution Control Agency (MPCA) requirements and attached forms – additional local requirements may also apply.

Submit completed form to Local Unit of Government (LUG) and system owner within 15 days

For local tracking purposes:

System Status

System status on date (mm/dd/yyyy): 9/22/2017

Compliant – Certificate of Compliance
(Valid for 3 years from report date, unless shorter time frame outlined in Local Ordinance.)

Noncompliant – Notice of Noncompliance
(See Upgrade Requirements on page 3.)

Reason(s) for noncompliance (check all applicable)

- Impact on Public Health (Compliance Component #1) – Imminent threat to public health and safety
- Other Compliance Conditions (Compliance Component #3) – Imminent threat to public health and safety
- Tank Integrity (Compliance Component #2) – Failing to protect groundwater
- Other Compliance Conditions (Compliance Component #3) – Failing to protect groundwater
- Soil Separation (Compliance Component #4) – Failing to protect groundwater
- Operating permit/monitoring plan requirements (Compliance Component #5) – Noncompliant

Property Information

Parcel ID# or Sec/Twp/Range: 200233000

Property address: Cedar Crest Resort 29783 387th St Waubun, MN 56589

Reason for inspection: Selling

Property owner: Fred & Karen Brower

Owner's phone: 218-473-2116

Owner's representative: _____

Representative phone: _____

Local regulatory authority: Becker County

Regulatory authority phone: _____

Brief system description: 5-1,000-gallon concrete septic tanks, 3-1,500 gallon concrete septic tanks, 1- lift stations, and 560 lineal feet of rock drainfield.

Comments or recommendations:

This inspection form is for system 3 (see attached map). All septic tanks need to be pumped. No trench inspection pipes.

Certification

I hereby certify that all the necessary information has been gathered to determine the compliance status of this system. No determination of future system performance has been nor can be made due to unknown conditions during system construction, possible abuse of the system, inadequate maintenance, or future water usage.

Inspector name: Ken Ramondo

Certification number: C4737

Business name: H&R Septic Design

License number: L3106

Inspector signature:

Phone number: 218-759-0408

Necessary or Locally Required Attachments

- Soil boring logs System/As-built drawing Forms per local ordinance

Other information (list): _____

Property address: Cedar Crest Resort 29783 387th St Waubun, MN 56589 Inspector initials/Date: kr | 9/22/2017
(mm/dd/yyyy)

1. Impact on Public Health – Compliance component #1 of 5

Compliance criteria:	
System discharges sewage to the ground surface.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System discharges sewage to drain tile or surface waters.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System causes sewage backup into dwelling or establishment.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is an imminent threat to public health and safety.

Comments/Explanation:
Owner stated no problems.

Verification method(s):

- Searched for surface outlet
- Searched for seeping in yard/backup in home
- Excessive ponding in soil system/D-boxes
- Homeowner testimony (See Comments/Explanation)
- "Black soil" above soil dispersal system
- System requires "emergency" pumping
- Performed dye test
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

2. Tank Integrity – Compliance component #2 of 5

Compliance criteria:	
System consists of a seepage pit, cesspool, drywell, or leaching pit. <i>Seepage pits meeting 7080.2550 may be compliant if allowed in local ordinance.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sewage tank(s) leak below their designed operating depth. If yes, which sewage tank(s) leaks:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is failing to protect groundwater.

Comments/Explanation:

Verification method(s):

- Probed tank(s) bottom
- Examined construction records
- Examined Tank Integrity Form (Attach)
- Observed liquid level below operating depth
- Examined empty (pumped) tanks(s)
- Probed outside tank(s) for "black soil"
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

3. Other Compliance Conditions – Compliance component #3 of 5

- a. Maintenance hole covers are damaged, cracked, unsecured, or appear to be structurally unsound. Yes* No Unknown
- b. Other issues (electrical hazards, etc.) to immediately and adversely impact public health or safety. Yes* No Unknown
***System is an imminent threat to public health and safety.**

Explain:

- c. System is non-protective of ground water for other conditions as determined by inspector. Yes* No
***System is failing to protect groundwater.**

Explain:

Property address: Cedar Crest Resort 29783 387th St Waubun, MN 56589 Inspector initials/Date: kr | 9/22/2017
(mm/dd/yyyy)

4. Soil Separation – Compliance component #4 of 5

Date of installation: _____ Unknown
(mm/dd/yyyy)

Shoreland/Wellhead protection/Food beverage lodging? Yes No

Compliance criteria:

For systems built prior to April 1, 1996, and not located in Shoreland or Wellhead Protection Area or not serving a food, beverage or lodging establishment: Yes No

Drainfield has at least a two-foot vertical separation distance from periodically saturated soil or bedrock.

Non-performance systems built April 1, 1996, or later or for non-performance systems located in Shoreland or Wellhead Protection Areas or serving a food, beverage, or lodging establishment: Yes No

Drainfield has a three-foot vertical separation distance from periodically saturated soil or bedrock.*

"Experimental", "Other", or "Performance" systems built under pre-2008 Rules; Type IV or V systems built under 2008 Rules (7080, 2350 or 7080.2400 (Advanced Inspector License required) Yes No

Drainfield meets the designed vertical separation distance from periodically saturated soil or bedrock.

Verification method(s):

Soil observation does not expire. Previous soil observations by two independent parties are sufficient, unless site conditions have been altered or local requirements differ.

- Conducted soil observation(s) (Attach boring logs)
- Two previous verifications (Attach boring logs)
- Not applicable (Holding tank(s), no drainfield)
- Unable to verify (See Comments/Explanation)
- Other (See Comments/Explanation)

Comments/Explanation:

Indicate depths or elevations

A. Bottom of distribution media	96.01'
B. Periodically saturated soil/bedrock	92.46'
C. System separation	3.55'
D. Required compliance separation*	3'

*May be reduced up to 15 percent if allowed by Local Ordinance.

Any "no" answer above indicates the system is failing to protect groundwater.

5. Operating Permit and Nitrogen BMP* – Compliance component #5 of 5 **Not applicable**

Is the system operated under an Operating Permit? Yes No **If "yes", A below is required**

Is the system required to employ a Nitrogen BMP? Yes No **If "yes", B below is required**

BMP = Best Management Practice(s) specified in the system design

If the answer to both questions is "no", this section does not need to be completed.

Compliance criteria

- a. Operating Permit number: _____ Yes No
 Have the Operating Permit requirements been met?
- b. Is the required nitrogen BMP in place and properly functioning? Yes No

Any "no" answer indicates Noncompliance.

Upgrade Requirements (Minn. Stat. § 115.55) *An imminent threat to public health and safety (ITPHS) must be upgraded, replaced, or its use discontinued within ten months of receipt of this notice or within a shorter period if required by local ordinance. If the system is failing to protect*

ground water, the system must be upgraded, replaced, or its use discontinued within the time required by local ordinance. If an existing system is not failing as defined in law, and has at least two feet of design soil separation, then the system need not be upgraded, repaired, replaced, or its use discontinued, notwithstanding any local ordinance that is more strict. This provision does not apply to systems in shoreland areas, Wellhead Protection Areas, or those used in connection with food, beverage, and lodging establishments as defined in law.



Client/ Address:		Cedar Crest Resort		Legal Description/ GPS:			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter							
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope Slope shape LV							
Vegetation	Lawn	Soil survey map units	40C	Slope%	2.0	Elevation:	97.16'
Weather Conditions/Time of Day:		Sunny 60oF 12:15 pm		Date		09/22/17	
Observation #/Location:		System 3 (Soil Boring 1)					
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure----- Shape Grade Consistence
0-47	Sandy Loam	<35%	10yr 4/3				Blocky Weak Friable
47-52	Loamy Coarse Sand	<35%	10YR 5/4				Single grain Structureless Loose
52-56	Sandy Loam	<35%	10YR 6/3				Blocky Weak Firm
56	Sandy Clay Loam	<35%	10YR 5/1	7.5YR 4/6	Depletions	S2	Platey Weak Firm
Comments Restricting layer 92.49'.							
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.							
Ken Ramondo				L-3106		9/22/2017	
(Designer/Inspector)		(Signature)		(License #)		(Date)	

Schedule: Resort is open from May 1st to October 1st. After October 1st, the lodge is open on weekends from January 1st to February 28.

SYSTEM 1: FLOW & SIZING CALCULATION:

13 Seasonal Mobile Homes
 $10*100+(3*100*0.45) = 1,135$ gpd
 Clay Loam, Need 10' x 95' rock bed mound
 Existing system: 732 LF of drainfield

System 2:

21 seasonal mobile homes
 6 RV sites
 $10*100+((11*100+6*100))*0.45 = 1,765$ gpd
 Clay Loam, Need 10' x 302' rock bed mound
 Existing system: 390 LF of drainfield

System 3:

8 cabins (50 people)
 15 seasonal mobile homes
 4 RV sites
 1 permanent 3 bedroom home
 Lodge: 45 seats with alcohol
 $2250+(10*100+((5*100+50*50+400+450))*0.45 = 4,983$ gpd
 Sandy Loam, 0.68 gpd/sq ft, need 7,328 sq ft (2,443 LF)
 Existing system: 560 LF of drainfield

Swing Ties

System 1

A-C	27'	B-C	41'
A-D	30.5'	B-D	44.5'
A-E	33'	B-E	47.5'
A-F	35'	B-F	50'
A-G	39.5'	B-G	53.5'
A-H	42.5'	B-H	57'
A-I	45'	B-I	58.5'
A-J	52'	B-J	66'
A-K	60.5'	B-K	75'
A-L	62'	B-L	75'
A-M	62'	B-M	75'
A-N	61.5'	B-N	74'
A-O	61.5'	B-O	72.5'
A-P	157'	B-P	171'
A-Q	156'	B-Q	170'
A-R	157'	B-R	171'
A-S	171'	B-S	171'
A-T	181'	B-T	195'
A-U	180'	B-U	193'
A-V	147'	B-V	160'
A-SB1	166'	B-SB1	180'
A-SB2	81'	B-SB2	95'

System 2

A-C	30'	B-C	19'
A-D	21'	B-D	30'
A-SB1	63'	B-SB1	104'
A-trench	40'	B-Trench	70'

System 3

A-BM	17'	C-BM	18'
A-SB1	21'	B-SB1	84'
A-Trench	23'	B-Trench	83'

Hotel North Septic Tank

A-C	19'	B-C	28'
A-D	16.5'	B-D	9.5'
A-E	17'	B-E	14.5'
A-F	19'	B-F	18.5'

Hotel South Septic Tank

A-C	12.5'	B-C	24'
A-D	14'	B-D	24.5'
A-E	19'	B-E	27.5'

Septic Tank Between Blue Mobile Home and RV

A-C	22'	B-C	27'
-----	-----	-----	-----

Tank between cabins

A-C	18'	B-C	17'
A-D	28'	B-D	27'

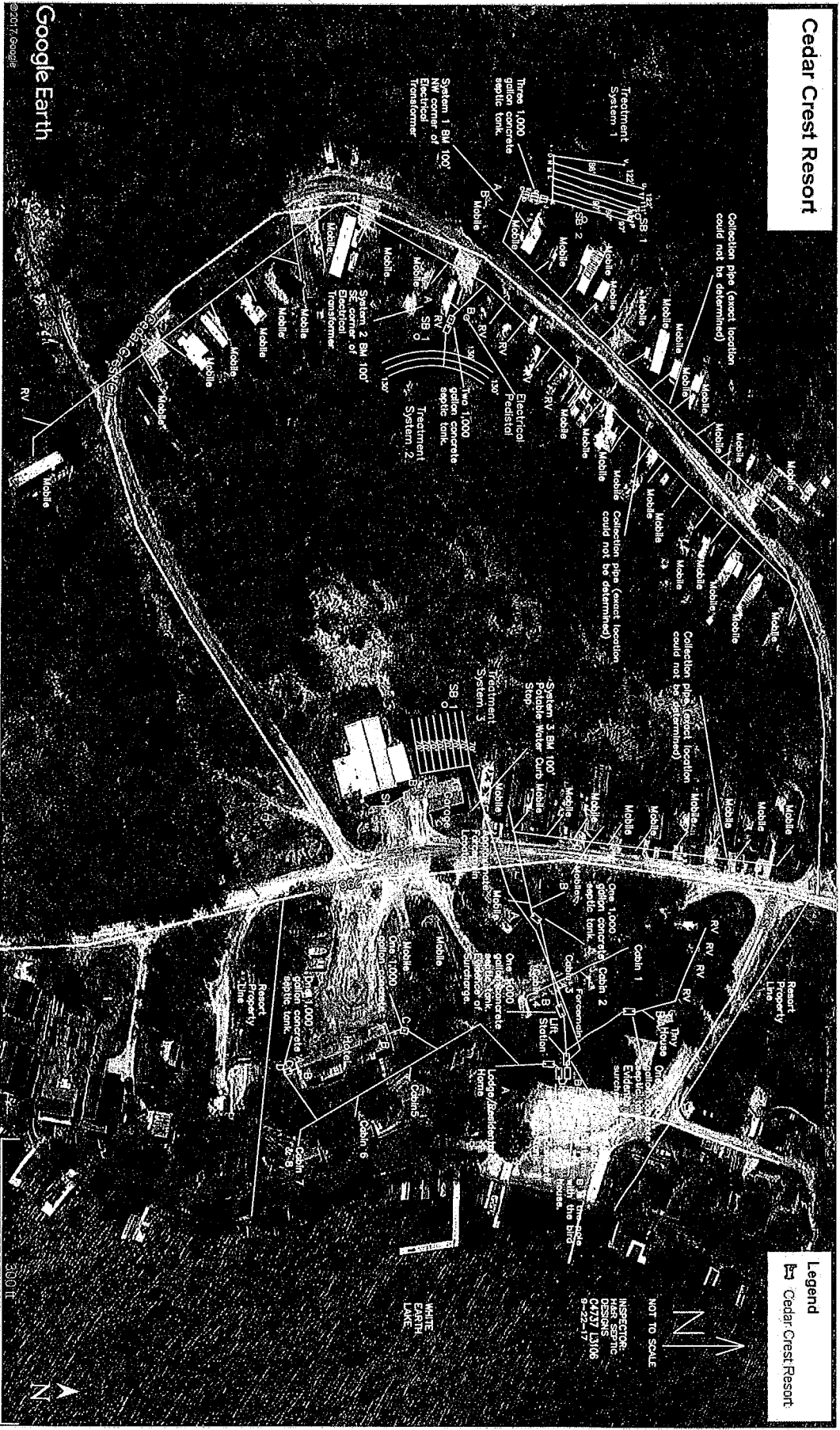
Septic Tank by Tiny House

A-C	67'	B-C	66.5'
-----	-----	-----	-------

Septic Tanks/Lift Station by Lodge

A-C	42'	B-C	22'
A-D	48'	B-D	17'
A-E	52.5'	B-E	11'
A-F	57'	B-F	20'
A-G	61'	B-G	11'
A-H	61.5'	B-H	24.5'
A-I	63'	B-I	18.5'

Cedar Crest Resort



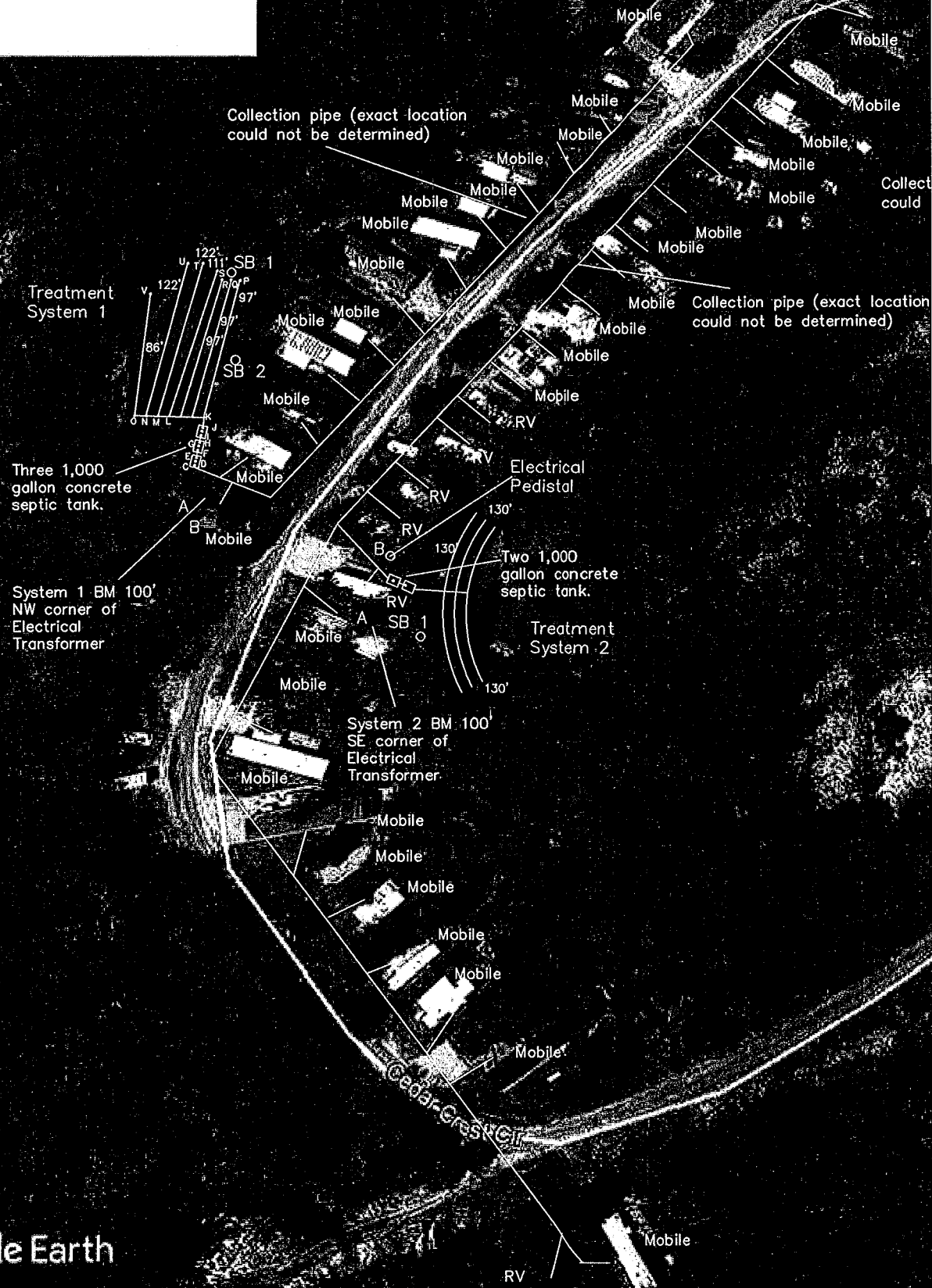
Legend
 Cedar Crest Resort

NOT TO SCALE
 INSPECTOR'S
 HAS SEPTIC
 DECISIONS
 04/17/10
 9-22-17

WHITE
 DARTON
 LANE

300 FT

Cedar Crest Resort



Google Earth

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Treatment System 1.



Treatment system 1 septic tanks.



Treatment system 2 (North).



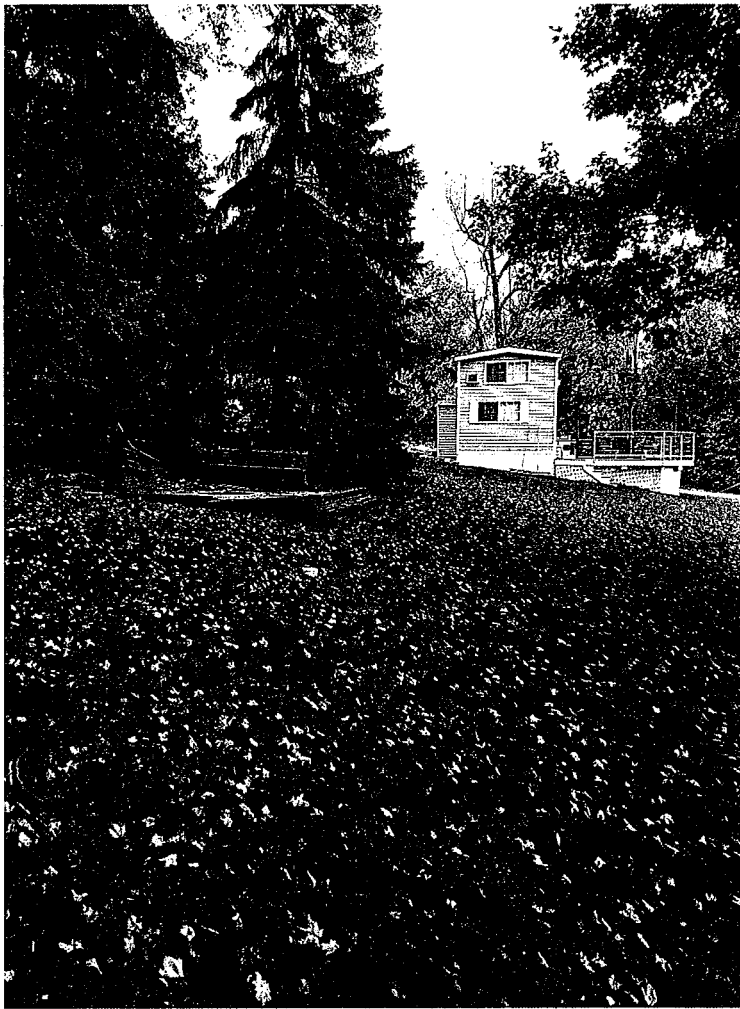
Treatment system 2 (south).



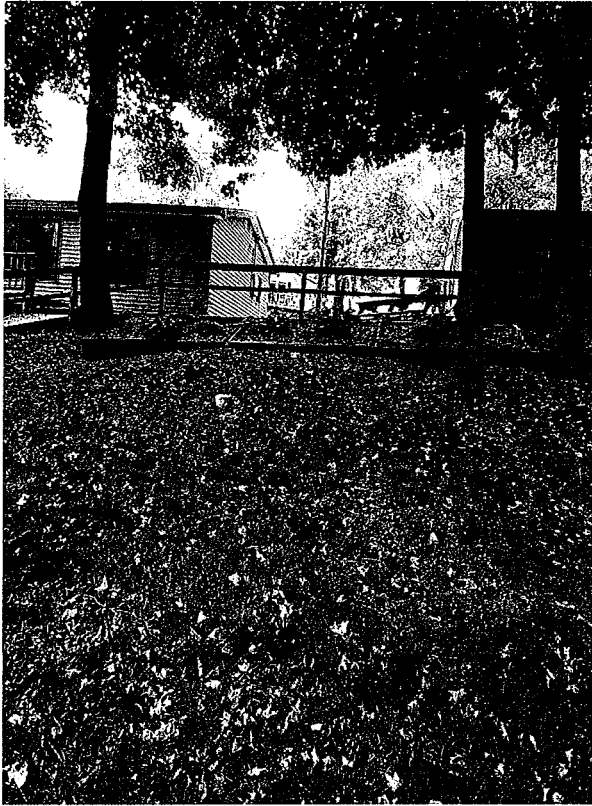
Treatment system 2 Septic Tanks.



Treatment system 3.



Treatment system 3 (Tank by Tiny House).



Treatment system 3 septic tank between cabins.



Treatment system 3 septic tanks/lift station by lodge.



Treatment system 3 Septic tank.



Treatment system 3 Hotel septic tank (north)



Treatment system 3 Hotel septic tank (South)



Treatment system 3 septic tank (south) baffle.



Treatment system 3 septic tank (south) baffle.



Minnesota Pollution Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

Compliance Inspection Form

Existing Subsurface Sewage Treatment Systems (SSTS)

Doc Type: Compliance and Enforcement

SEP 20 2017

Inspection results based on Minnesota Pollution Control Agency (MPCA) requirements and attached forms – additional local requirements may also apply.

Submit completed form to Local Unit of Government (LUG) and system owner within 15 days

For local tracking purposes:

System Status

System status on date (mm/dd/yyyy): 9/22/2017

Compliant – Certificate of Compliance
(Valid for 3 years from report date, unless shorter time frame outlined in Local Ordinance.)

Noncompliant – Notice of Noncompliance
(See Upgrade Requirements on page 3.)

Reason(s) for noncompliance (check all applicable)

- Impact on Public Health (Compliance Component #1) – Imminent threat to public health and safety
- Other Compliance Conditions (Compliance Component #3) – Imminent threat to public health and safety
- Tank Integrity (Compliance Component #2) – Failing to protect groundwater
- Other Compliance Conditions (Compliance Component #3) – Failing to protect groundwater
- Soil Separation (Compliance Component #4) – Failing to protect groundwater
- Operating permit/monitoring plan requirements (Compliance Component #5) – Noncompliant

Property Information

Parcel ID# or Sec/Twp/Range: 200233000

Property address: Cedar Crest Resort 29783 387th St Waubun, MN 56589

Reason for inspection: Selling

Property owner: Fred & Karen Brower

Owner's phone: 218-473-2116

or

Owner's representative: _____

Representative phone: _____

Local regulatory authority: Becker County

Regulatory authority phone: _____

Brief system description: 3-1,000-gallon concrete septic tanks and 732 lineal feet of rock drainfield.

Comments or recommendations:

This inspection form is for system 1(see attached map). All septic tanks need to be pumped. Water was observed in the inspection pipes in trenches 1, 2 and 3.

Certification

I hereby certify that all the necessary information has been gathered to determine the compliance status of this system. No determination of future system performance has been nor can be made due to unknown conditions during system construction, possible abuse of the system, inadequate maintenance, or future water usage.

Inspector name: Ken Ramondo

Certification number: C4737

Business name: H&R Septic Designs

License number: L3106

Inspector signature:

Phone number: 218-759-0408

Necessary or Locally Required Attachments

- Soil boring logs
- System/As-built drawing
- Forms per local ordinance
- Other information (list): _____

1. Impact on Public Health – Compliance component #1 of 5

Compliance criteria:

System discharges sewage to the ground surface.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System discharges sewage to drain tile or surface waters.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System causes sewage backup into dwelling or establishment.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is an imminent threat to public health and safety.

Comments/Explanation:

Owner stated no problems.

Verification method(s):

- Searched for surface outlet
- Searched for seeping in yard/backup in home
- Excessive ponding in soil system/D-boxes
- Homeowner testimony (See Comments/Explanation)
- "Black soil" above soil dispersal system
- System requires "emergency" pumping
- Performed dye test
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

2. Tank Integrity – Compliance component #2 of 5

Compliance criteria:

System consists of a seepage pit, cesspool, drywell, or leaching pit. <i>Seepage pits meeting 7080.2550 may be compliant if allowed in local ordinance.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sewage tank(s) leak below their designed operating depth. If yes, which sewage tank(s) leaks:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is failing to protect groundwater.

Comments/Explanation:

Verification method(s):

- Probed tank(s) bottom
- Examined construction records
- Examined Tank Integrity Form (Attach)
- Observed liquid level below operating depth
- Examined empty (pumped) tanks(s)
- Probed outside tank(s) for "black soil"
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

3. Other Compliance Conditions – Compliance component #3 of 5

- a. Maintenance hole covers are damaged, cracked, unsecured, or appear to be structurally unsound. Yes* No Unknown
- b. Other issues (electrical hazards, etc.) to immediately and adversely impact public health or safety. Yes* No Unknown
***System is an imminent threat to public health and safety.**

Explain:

- c. System is non-protective of ground water for other conditions as determined by inspector. Yes* No
***System is failing to protect groundwater.**

Explain:

4. Soil Separation – Compliance component #4 of 5

Date of installation: _____ Unknown
(mm/dd/yyyy)

Shoreland/Wellhead protection/Food beverage lodging? Yes No

Compliance criteria:

For systems built prior to April 1, 1996, and not located in Shoreland or Wellhead Protection Area or not serving a food, beverage or lodging establishment: Yes No
Drainfield has at least a two-foot vertical separation distance from periodically saturated soil or bedrock.

Non-performance systems built April 1, 1996, or later or for non-performance systems located in Shoreland or Wellhead Protection Areas or serving a food, beverage, or lodging establishment: Yes No
Drainfield has a three-foot vertical separation distance from periodically saturated soil or bedrock.*

"Experimental", "Other", or "Performance" systems built under pre-2008 Rules; Type IV or V systems built under 2008 Rules (7080.2350 or 7080.2400 (Advanced Inspector License required) Yes No
Drainfield meets the designed vertical separation distance from periodically saturated soil or bedrock.

Verification method(s):

Soil observation does not expire. Previous soil observations by two independent parties are sufficient, unless site conditions have been altered or local requirements differ.

- Conducted soil observation(s) (Attach boring logs)
- Two previous verifications (Attach boring logs)
- Not applicable (Holding tank(s), no drainfield)
- Unable to verify (See Comments/Explanation)
- Other (See Comments/Explanation)

Comments/Explanation:

Indicate depths or elevations

A. Bottom of distribution media	93.95'
B. Periodically saturated soil/bedrock	96.37'
C. System separation	-2.42
D. Required compliance separation*	3'

*May be reduced up to 15 percent if allowed by Local Ordinance.

Any "no" answer above indicates the system is failing to protect groundwater.

5. Operating Permit and Nitrogen BMP* – Compliance component #5 of 5 Not applicable

Is the system operated under an Operating Permit? Yes No **If "yes", A below is required**

Is the system required to employ a Nitrogen BMP? Yes No **If "yes", B below is required**

BMP = Best Management Practice(s) specified in the system design

If the answer to both questions is "no", this section does not need to be completed.

Compliance criteria

- a. Operating Permit number: _____
Have the Operating Permit requirements been met? Yes No
- b. Is the required nitrogen BMP in place and properly functioning? Yes No

Any "no" answer indicates Noncompliance.

Upgrade Requirements (Minn. Stat. § 115.55) An imminent threat to public health and safety (ITPHS) must be upgraded, replaced, or its use discontinued within ten months of receipt of this notice or within a shorter period if required by local ordinance. If the system is failing to protect ground water, the system must be upgraded, replaced, or its use discontinued within the time required by local ordinance. If an existing system is not failing as defined in law, and has at least two feet of design soil separation, then the system need not be upgraded, repaired, replaced, or its use discontinued, notwithstanding any local ordinance that is more strict. This provision does not apply to systems in shoreland areas, Wellhead Protection Areas, or those used in connection with food, beverage, and lodging establishments as defined in law.



Client/ Address:		Cedar Crest Resort		Legal Description/ GPS:	
Soil parent material(s): (Check all that apply)		<input type="checkbox"/> Outwash	<input type="checkbox"/> Lacustrine	<input type="checkbox"/> Loess	<input checked="" type="checkbox"/> Till
Landscape Position: (check one)		<input type="checkbox"/> Summit	<input type="checkbox"/> Shoulder	<input checked="" type="checkbox"/> Back/Side Slope	<input type="checkbox"/> Toe Slope
Vegetation	Lawn	Soil survey map units 40C		Slope%	2.0
Weather Conditions/Time of Day:		Sunny 60oF 10:15 am		Elevation:	97.7
Observation #/Location:		Treatment System 2 (Soil Boring 1)		Date	09/22/17
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)
0-6	Clay Loam	<35%	10yr 2/1		
6-16	Clay Loam	<35%	10YR 4/3		
16-21	Sandy Loam	<35%	10YR 4/4	10YR 5/1	Depletions
21-34	Sandy Clay Loam	<35%	10YR 4/4	10R 3/6	Concentrations
34-37	Sandy Loam	<35%	10YR 5/4	10R 3/4	Concentrations
37-60	Sandy Loam	<35%	10YR 6/3	10R 3/6	Concentrations
Comments Restricting layer 96.37. Calcium Carbonate (verified with acid) starting at 6" 10YR7/1 dry and observed all the way to 60".					
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.					
Ken Ramondo				L-3106	9/22/2017
(Designer/Inspector)		(Signature)		(License #)	(Date)



Minnesota Pollution Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

Compliance Inspection Form

Existing Subsurface Sewage Treatment Systems (SSTs)

Doc Type: Compliance and Enforcement

Inspection results based on Minnesota Pollution Control Agency (MPCA) requirements and attached forms – additional local requirements may also apply.

Submit completed form to Local Unit of Government (LUG) and system owner within 15 days

For local tracking purposes:

SEP 20 2017

System Status

System status on date (mm/dd/yyyy): 9/22/2017

Compliant – Certificate of Compliance
(Valid for 3 years from report date, unless shorter time frame outlined in Local Ordinance.)

Noncompliant – Notice of Noncompliance
(See Upgrade Requirements on page 3.)

Reason(s) for noncompliance (check all applicable)

- Impact on Public Health (Compliance Component #1) – Imminent threat to public health and safety
- Other Compliance Conditions (Compliance Component #3) – Imminent threat to public health and safety
- Tank Integrity (Compliance Component #2) – Failing to protect groundwater
- Other Compliance Conditions (Compliance Component #3) – Failing to protect groundwater
- Soil Separation (Compliance Component #4) – Failing to protect groundwater
- Operating permit/monitoring plan requirements (Compliance Component #5) – Noncompliant

Property Information

Parcel ID# or Sec/Twp/Range: 200233000

Property address: Cedar Crest Resort 29783 387th St Waubun, MN 56589

Reason for inspection: Selling

Property owner: Fred & Karen Brower

Owner's phone: 218-473-2116

Owner's representative: _____

Representative phone: _____

Local regulatory authority: Becker County

Regulatory authority phone: _____

Brief system description: 2-1,000-gallon concrete septic tanks and 390 lineal feet of rock drainfield.

Comments or recommendations:

This inspection form is for system 2 (see attached map). All septic tanks need to be pumped.

Certification

I hereby certify that all the necessary information has been gathered to determine the compliance status of this system. No determination of future system performance has been nor can be made due to unknown conditions during system construction, possible abuse of the system, inadequate maintenance, or future water usage.

Inspector name: Ken Ramondo

Certification number: C4737

Business name: H&R Septic Design

License number: L3106

Inspector signature:

Phone number: 218-759-0408

Necessary or Locally Required Attachments

- Soil boring logs
- System/As-built drawing
- Forms per local ordinance
- Other information (list): _____

1. Impact on Public Health – Compliance component #1 of 5

Compliance criteria:

System discharges sewage to the ground surface.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System discharges sewage to drain tile or surface waters.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System causes sewage backup into dwelling or establishment.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is an imminent threat to public health and safety.

Comments/Explanation:

Owner stated no problems.

Verification method(s):

- Searched for surface outlet
- Searched for seeping in yard/backup in home
- Excessive ponding in soil system/D-boxes
- Homeowner testimony (See Comments/Explanation)
- "Black soil" above soil dispersal system
- System requires "emergency" pumping
- Performed dye test
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

2. Tank Integrity – Compliance component #2 of 5

Compliance criteria:

System consists of a seepage pit, cesspool, drywell, or leaching pit. <i>Seepage pits meeting 7080.2550 may be compliant if allowed in local ordinance.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sewage tank(s) leak below their designed operating depth. If yes, which sewage tank(s) leaks:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is failing to protect groundwater.

Comments/Explanation:

Verification method(s):

- Probed tank(s) bottom
- Examined construction records
- Examined Tank Integrity Form (Attach)
- Observed liquid level below operating depth
- Examined empty (pumped) tanks(s)
- Probed outside tank(s) for "black soil"
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

3. Other Compliance Conditions – Compliance component #3 of 5

- a. Maintenance hole covers are damaged, cracked, unsecured, or appear to be structurally unsound. Yes* No Unknown
- b. Other issues (electrical hazards, etc.) to immediately and adversely impact public health or safety. Yes* No Unknown
***System is an imminent threat to public health and safety.**

Explain:

- c. System is non-protective of ground water for other conditions as determined by inspector. Yes* No
***System is failing to protect groundwater.**

Explain:

4. Soil Separation – Compliance component #4 of 5

Date of installation: _____ Unknown
(mm/dd/yyyy)

Shoreland/Wellhead protection/Food beverage lodging? Yes No

Compliance criteria:

For systems built prior to April 1, 1996, and not located in Shoreland or Wellhead Protection Area or not serving a food, beverage or lodging establishment: Yes No
Drainfield has at least a two-foot vertical separation distance from periodically saturated soil or bedrock.

Non-performance systems built April 1, 1996, or later or for non-performance systems located in Shoreland or Wellhead Protection Areas or serving a food, beverage, or lodging establishment: Yes No
Drainfield has a three-foot vertical separation distance from periodically saturated soil or bedrock.*

"Experimental", "Other", or "Performance" systems built under pre-2008 Rules; Type IV or V systems built under 2008 Rules (7080.2350 or 7080.2400 (Advanced Inspector License required) Yes No
Drainfield meets the designed vertical separation distance from periodically saturated soil or bedrock.

Any "no" answer above indicates the system is failing to protect groundwater.

Verification method(s):

Soil observation does not expire. Previous soil observations by two independent parties are sufficient, unless site conditions have been altered or local requirements differ.

- Conducted soil observation(s) (Attach boring logs)
- Two previous verifications (Attach boring logs)
- Not applicable (Holding tank(s), no drainfield)
- Unable to verify (See Comments/Explanation)
- Other (See Comments/Explanation)

Comments/Explanation:

Conducted two soil borings, see enclosed soil boring logs.

Indicate depths or elevations

A. Bottom of distribution media	94.07'
B. Periodically saturated soil/bedrock	93.45'
C. System separation	0.62'
D. Required compliance separation*	3'

*May be reduced up to 15 percent if allowed by Local Ordinance.

5. Operating Permit and Nitrogen BMP* – Compliance component #5 of 5 Not applicable

Is the system operated under an Operating Permit? Yes No **If "yes", A below is required**

Is the system required to employ a Nitrogen BMP? Yes No **If "yes", B below is required**

BMP = Best Management Practice(s) specified in the system design

If the answer to both questions is "no", this section does not need to be completed.

Compliance criteria

- a. Operating Permit number: _____
Have the Operating Permit requirements been met? Yes No
- b. Is the required nitrogen BMP in place and properly functioning? Yes No

Any "no" answer indicates Noncompliance.

Upgrade Requirements (Minn. Stat. § 115.55) An imminent threat to public health and safety (ITPHS) must be upgraded, replaced, or its use discontinued within ten months of receipt of this notice or within a shorter period if required by local ordinance. If the system is failing to protect ground water, the system must be upgraded, replaced, or its use discontinued within the time required by local ordinance. If an existing system is not failing as defined in law, and has at least two feet of design soil separation, then the system need not be upgraded, repaired, replaced, or its use discontinued, notwithstanding any local ordinance that is more strict. This provision does not apply to systems in shoreland areas, Wellhead Protection Areas, or those used in connection with food, beverage, and lodging establishments as defined in law.

OSTP Soil Observation Log

Project ID: Cedar v 05.13.14



Client/ Address: Cedar Crest Resort		Legal Description/ GPS:							
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope									
Vegetation: Lawn		Soil survey map units: 718C	Elevation: 95.95'						
Weather Conditions/Time of Day: Sunny 60oF 8:40 am		Date: 09/22/17							
Observation #/Location: System One (soil boring #1)		Observation Type: Auger							
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
0-6	Clay Loam	<35%	10yr 3/2				Shape	Grade	Consistence
6-15	Clay Loam	<35%	10YR 4/2				Blocky	Moderate	Firm
15-20	Clay	<35%	10YR 4/4				Blocky	Moderate	Firm
20-30	Clay	<35%	10YR 4/3	10YR 4/4			Blocky	Weak	Extremely Firm
30-37	Sandy Clay Loam	<35%	10YR 4/6	10YR 5/1	Depletions	S2	Massive	Weak	Extremely Firm
37-42	Clay Loam	<35%	10YR 5/1	10R 3/6	Concentrations	S1	Platy	Moderate	Firm
Comments: Restricting layer 93.45'.									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Ken Ramondo		L3106		9/22/2017					
(Designer/Inspector)		(License #)		(Date)					

Ken Ramondo
(Signature)



UNIVERSITY OF MINNESOTA

OSTP Soil Observation Log

Project ID: Cedar v 05.13.14

Client/ Address: Cedar Crest Resort Legal Description/ GPS: _____

Soil parent material(s): (Check all that apply) Outwash Lacustrine Loess Till Alluvium Bedrock Organic Matter

Landscape Position: (check one) Summit Shoulder Back/Side Slope Foot Slope Toe Slope Slope shape LL

Vegetation: Lawn Soil survey map units 718C Slope% 3.0 Elevation: 98.29'

Weather Conditions/Time of Day: Sunny 60oF 8:50 am Date: 09/22/17

Observation #/Location: System One (soil boring #2) Observation Type: Auger

Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	Structure		
							Shape	Grade	Consistence
0-3	Loam	<35%	10yr 3/1				Granular	Moderate	Friable
3-6	Clay Loam	<35%	10YR 4/2				Blocky	Moderate	Firm
6-17	Clay	<35%	10YR 4/3				Blocky	Weak	Firm
17-21	Clay	<35%	10YR 4/3	10YR 5/1	Depletions	S2	Blocky	Moderate	Firm
21-35	Sandy Clay Loam	<35%	10YR 4/3	10YR 5/1	Depletions	S2	Platy	Weak	Extremely Firm
35	Clay Loam	<35%	10YR 5/1	10R 3/6	Concentrations	S1	Platy	Moderate	Extremely Firm

Comments: Restricting layer 96.87.

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

Ken Ramondo (Designer/Inspector) Signature: *Ken Ramondo* License #: L3106 Date: 9/22/2017

Rachel D. Bartee

From: Kenneth Ramondo <kjramondo@gmail.com>
Sent: Wednesday, September 27, 2017 2:42 PM
To: Rachel D. Bartee; Jeff D. Rusness
Subject: H&R Septic Designs
Attachments: Existing Compliance Inspection Cedar Crest-signed.pdf

Hello,

I am not sure who to send subsurface sewage treatment system existing compliance inspections too? I have attached a compliance inspection that was conducted at Cedar Crest Resort Waubun, MN. Could you please let me know who receives this information? I could not locate anyone on the Becker County Website. Thanks

--

Ken Ramondo
H&R Septic Designs
(218) 759-0408

County copy



MINNESOTA POLLUTION

Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

Compliance Inspection Form

Existing Subsurface Sewage Treatment Systems (SSTS)

Doc Type: Compliance and Enforcement

Inspection results based on Minnesota Pollution Control Agency (MPCA) requirements and attached forms – additional local requirements may also apply.

Submit completed form to Local Unit of Government (LUG) and system owner within 15 days

For local tracking purposes
RECEIVED
MAY 10 2018
ZONING

System Status

System status on date (mm/dd/yyyy): 5-8-2018

Compliant – Certificate of Compliance
(Valid for 3 years from report date, unless shorter time frame outlined in Local Ordinance.)

Noncompliant – Notice of Noncompliance
(See Upgrade Requirements on page 3.)

Reason(s) for noncompliance (check all applicable)

- Impact on Public Health (Compliance Component #1) – Imminent threat to public health and safety
- Other Compliance Conditions (Compliance Component #3) – Imminent threat to public health and safety
- Tank Integrity (Compliance Component #2) – Failing to protect groundwater
- Other Compliance Conditions (Compliance Component #3) – Failing to protect groundwater
- Soil Separation (Compliance Component #4) – Failing to protect groundwater
- Operating permit/monitoring plan requirements (Compliance Component #5) – Noncompliant.

Property Information

Parcel ID# or Sec/Twp/Range: 200549000

Property address: 29730 387th St. Wabner Reason for inspection: Mandate

Property owner: Dion Brandt Owner's phone: 218-790-3194

Owner's representative: _____ Representative phone: _____

Local regulatory authority: _____ Regulatory authority phone: _____

Brief system description: 3-homes on same system - 2-1500gal tanks - lift station

Comments or recommendations:
chamber disalbe 113463 190th Ln NE
Wyoming, MN 55092

Certification

I hereby certify that all the necessary information has been gathered to determine the compliance status of this system. No determination of future system performance has been nor can be made due to unknown conditions during system construction, possible abuse of the system, inadequate maintenance, or future water usage.

Inspector name: David Beget Certification number: _____

Business name: _____ License number: 478

Inspector signature: David Beget Phone number: _____

Necessary or Locally Required Attachments

- Soil boring logs
- System/As-built drawing
- Forms per local ordinance
- Other information (list): _____

2,34 cabins North of Cedar Crest co 112

1. Impact on Public Health – Compliance component #1 of 5

Compliance criteria:

System discharges sewage to the ground surface.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System discharges sewage to drain tile or surface waters.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System causes sewage backup into dwelling or establishment.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is an imminent threat to public health and safety.

Comments/Explanation:

Verification method(s):

- Searched for surface outlet
- Searched for seeping in yard/backup in home
- Excessive ponding in soil system/D-boxes
- Homeowner testimony (See Comments/Explanation)
- "Black soil" above soil dispersal system
- System requires "emergency" pumping
- Performed dye test
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

2. Tank Integrity – Compliance component #2 of 5

Compliance criteria:

System consists of a seepage pit, cesspool, drywell, or leaching pit. <i>Seepage pits meeting 7080.2550 may be compliant if allowed in local ordinance.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sewage tank(s) leak below their designed operating depth. If yes, which sewage tank(s) leaks:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is failing to protect groundwater.

Comments/Explanation:

Verification method(s):

- Probed tank(s) bottom
- Examined construction records
- Examined Tank Integrity Form (Attach)
- Observed liquid level below operating depth
- Examined empty (pumped) tanks(s)
- Probed outside tank(s) for "black soil"
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

3. Other Compliance Conditions – Compliance component #3 of 5

- a. Maintenance hole covers are damaged, cracked, unsecured, or appear to be structurally unsound. Yes* No Unknown
- b. Other issues (electrical hazards, etc.) to immediately and adversely impact public health or safety. Yes* No Unknown
***System is an imminent threat to public health and safety.**

Explain:

- c. System is non-protective of ground water for other conditions as determined by inspector. Yes* No
***System is failing to protect groundwater.**

Explain:

City address: _____

Inspector initials/Date: _____
(mm/dd/yyyy)

4. Soil Separation – Compliance component #4 of 5

Date of installation: _____ Unknown
(mm/dd/yyyy)

Shoreland/Wellhead protection/Food beverage lodging? Yes No

Compliance criteria:

For systems built prior to April 1, 1996, and not located in Shoreland or Wellhead Protection Area or not serving a food, beverage or lodging establishment: Yes No
Drainfield has at least a two-foot vertical separation distance from periodically saturated soil or bedrock.

Non-performance systems built April 1, 1996, or later or for non-performance systems located in Shoreland or Wellhead Protection Areas or serving a food, beverage, or lodging establishment: Yes No
Drainfield has a three-foot vertical separation distance from periodically saturated soil or bedrock.*

"Experimental", "Other", or "Performance" systems built under pre-2008 Rules; Type IV or V systems built under 2008 Rules (7080.2350 or 7080.2400 (Advanced Inspector License required) Yes No
Drainfield meets the designed vertical separation distance from periodically saturated soil or bedrock.

Any "no" answer above indicates the system is failing to protect groundwater.

Verification method(s):

Soil observation does not expire. Previous soil observations by two independent parties are sufficient, unless site conditions have been altered or local requirements differ.

- Conducted soil observation(s) (Attach boring logs)
- Two previous verifications (Attach boring logs)
- Not applicable (Holding tank(s), no drainfield)
- Unable to verify (See Comments/Explanation)
- Other (See Comments/Explanation)

Comments/Explanation:

Indicate depths or elevations

A. Bottom of distribution media	24"
B. Periodically saturated soil/bedrock	60"
C. System separation	38"
D. Required compliance separation*	38"

*May be reduced up to 15 percent if allowed by Local Ordinance.

5. Operating Permit and Nitrogen BMP* – Compliance component #5 of 5 Not applicable

Is the system operated under an Operating Permit? Yes No If "yes", A below is required

Is the system required to employ a Nitrogen BMP? Yes No If "yes", B below is required

BMP = Best Management Practice(s) specified in the system design

If the answer to both questions is "no", this section does not need to be completed.

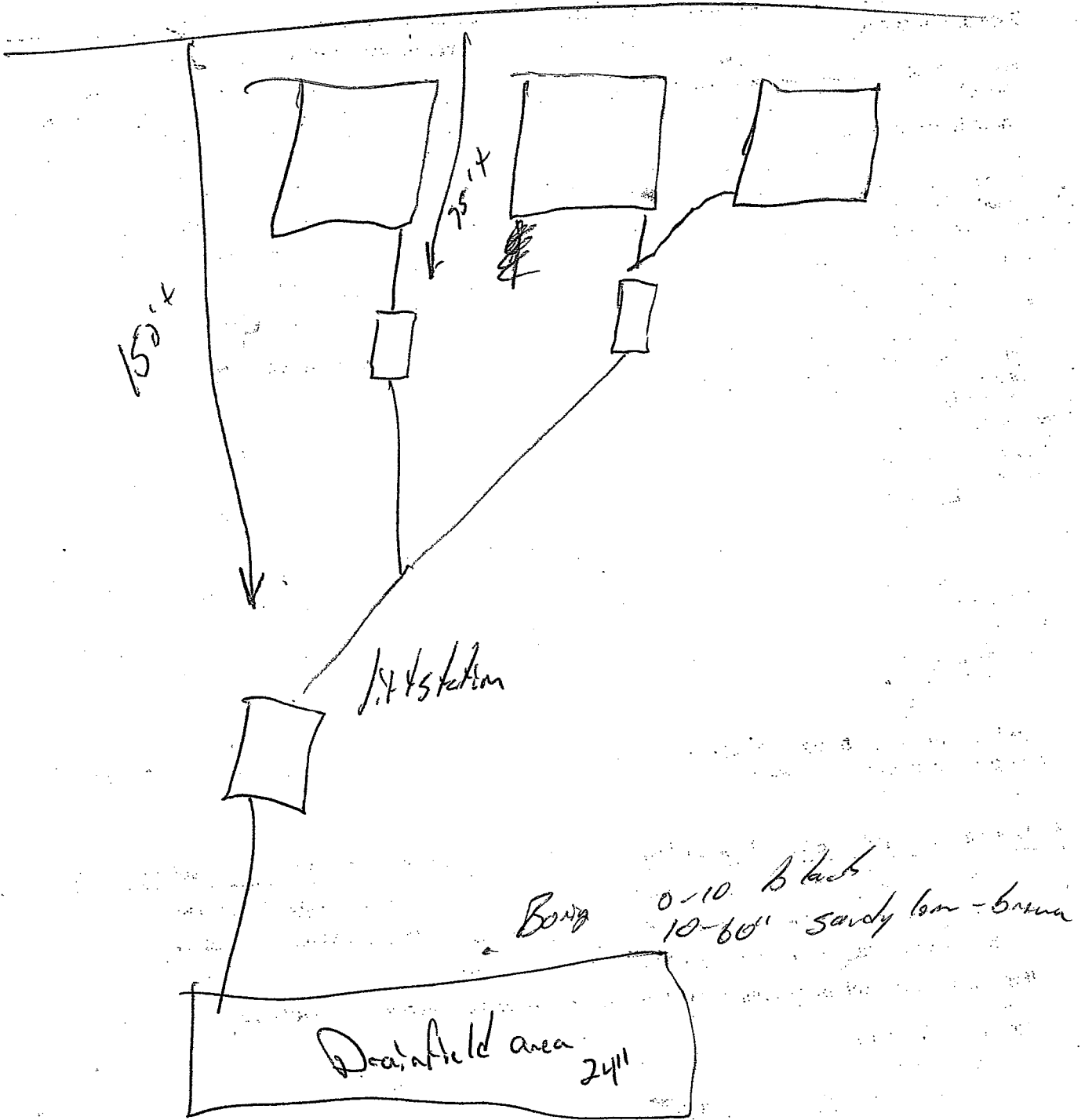
Compliance criteria

a. Operating Permit number: _____ Have the Operating Permit requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Is the required nitrogen BMP in place and properly functioning?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Any "no" answer indicates Noncompliance.

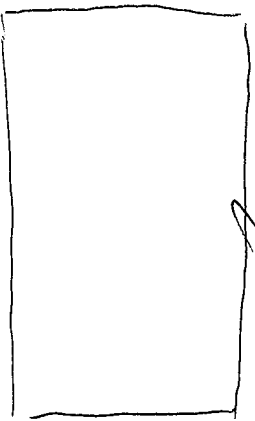
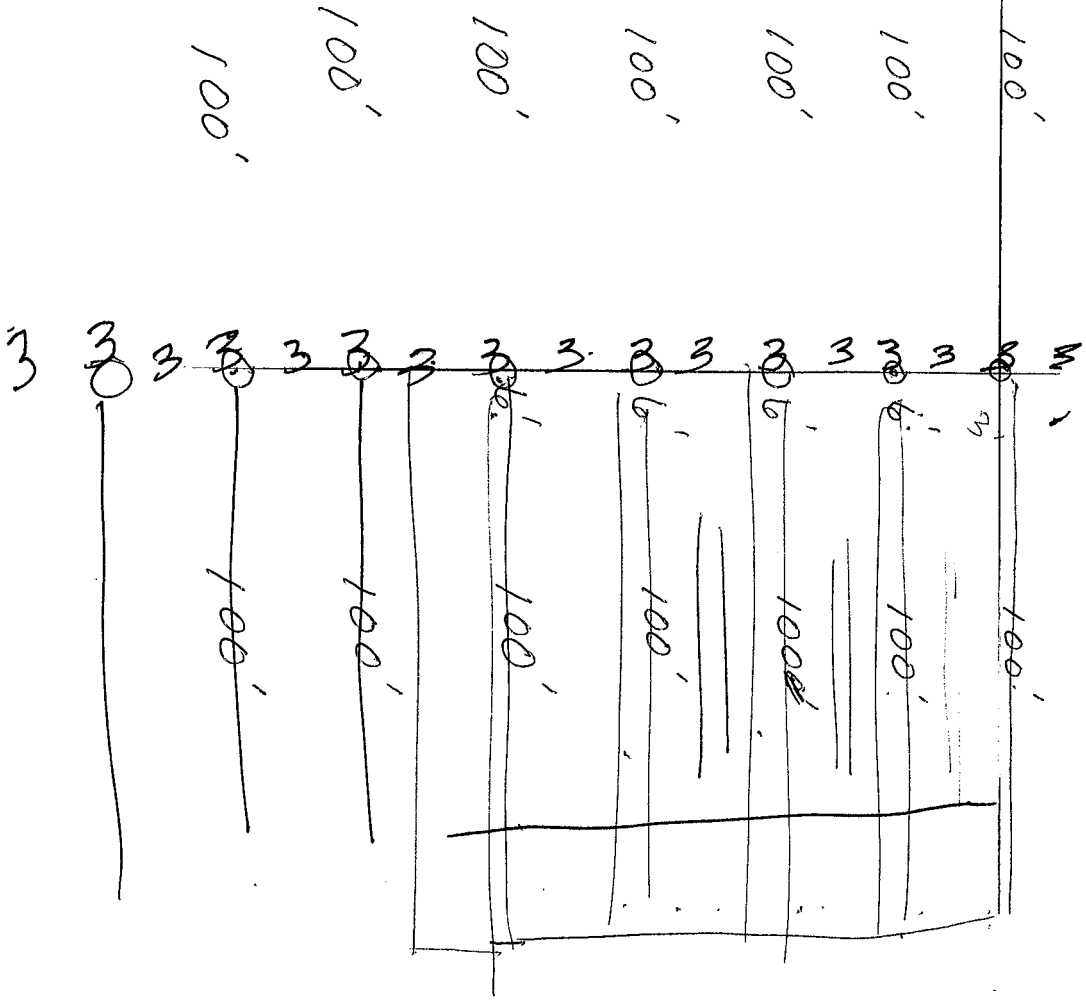
Upgrade Requirements (Minn. Stat. § 115.55) An imminent threat to public health and safety (ITPHS) must be upgraded, replaced, or its use discontinued within ten months of receipt of this notice or within a shorter period if required by local ordinance. If the system is failing to protect ground water, the system must be upgraded, replaced, or its use discontinued within the time required by local ordinance. If an existing system is not failing as defined in law, and has at least two feet of design soil separation, then the system need not be upgraded, repaired, replaced, or its use discontinued, notwithstanding any local ordinance that is more strict. This provision does not apply to systems in shoreland areas, Wellhead Protection Areas, or those used in connection with food, beverage, and lodging establishments as defined in law.

W E Lake



Inspection does not imply or guarantee
future hydraulic functioning, only what
was found on date of inspection

Trenches



$$\begin{array}{r}
 8-600 \\
 3 \times 8 \\
 \hline
 1440
 \end{array}$$

$$\begin{array}{r}
 60 \\
 60 \\
 \hline
 3600
 \end{array}$$

$$\begin{array}{r}
 16 \\
 48 \\
 \hline
 64
 \end{array}$$

$$\begin{array}{r}
 60 \\
 5 \\
 \hline
 3060
 \end{array}$$

LEGAL DESCRIPTION AND LOCATION		FIRE NUMBER
Lake No.	<u>WHITE EARTH</u>	<u>RECD 8 142 40</u>
Lake Name	<u>MAPLE GROVE</u>	TWP Name

IDENTIFICATION: Please Print All Information

2963

Owner	Last Name	First	Initial	Mailing Address - No. Street, City and State	Zip No.	Tel. No.
	<u>THOMPSON</u>	<u>LOREN</u>	<u>P.</u>	<u>RTZ BOX 92 WAUBUN MN</u>	<u>56589</u>	<u>473-2116</u>
Contractor	Name	<u>WHITE EARTH WATER & SEWER DEPT.</u>		<u>WHITE EARTH, MN</u>	<u>Need - Installer & Bond City</u>	

TYPE OF IMPROVEMENT:	RESIDENTIAL PROPOSED USE:	NON-RESIDENTIAL PROPOSED USE:
<u>One New Drainfield</u> <input type="checkbox"/> New Building <input checked="" type="checkbox"/> Alteration <input type="checkbox"/> Other	<input type="checkbox"/> Single Family Dwelling <input type="checkbox"/> Multiple Dwelling _____ Units	Specify: _____ Size: _____

ESTIMATED COST OF IMPROVEMENT \$	Construction Starting Date: <u>ASAP</u>	
PRINCIPAL TYPE OF FRAME & BUILDING	TYPE OF SEWAGE DISPOSAL:	DIMENSIONS:
<input type="checkbox"/> Masonry <input type="checkbox"/> Wood Frame <input type="checkbox"/> Structural Steel <input type="checkbox"/> Other - Specify _____ Year _____	<input type="checkbox"/> Public <input type="checkbox"/> Individual Septic Tank, etc. WATER SUPPLY: <input type="checkbox"/> Public <input type="checkbox"/> Individual Well Type _____ Depth _____	Basement: <input type="checkbox"/> Yes <input type="checkbox"/> No Stories above basement: _____ Sq. feet (outside dimension) _____ Bedrooms _____ Baths _____
Type of Roof: <input type="checkbox"/> Other _____	MECHANICAL EQUIPMENT: Elevator: <input type="checkbox"/> Yes <input type="checkbox"/> No Air Conditioning: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Central <input type="checkbox"/> Unit	HEATING: <input type="checkbox"/> Electric <input type="checkbox"/> Gas <input type="checkbox"/> Oil <input type="checkbox"/> Coal <input type="checkbox"/> None Other: <u>TRENCHES</u>

SEWAGE DISPOSAL SYSTEM DATA:	SEPTIC TANK	SEEPAGE PIT	DRAIN FIELD
Capacity	<u>5000</u> Gls.	Sq. Ft.	<u>5850</u> Sq. Ft.
Distance from nearest well	<u>EXISTING TANK</u> Ft.	Ft.	<u>+100</u> Ft.
Distance from lake or stream	Ft.	Ft.	<u>+100</u> Ft.
Distance from occupied building	<u>SEPTIC (DRAINFIELD REPLACING</u> Ft.	Ft.	<u>20</u> Ft.
Distance from property line	<u>EXISTING SEEPAGE PIT)</u> Ft.	Ft.	<u>20</u> Ft.
Distance from bottom to Water Table	Ft.	Ft.	<u>+4</u> Ft.

All distances are shortest distance between nearest points

CHARACTERISTICS:

Lot Area is _____ square feet. Water frontage is _____ feet.

Building set back from high water mark is _____ feet. (Building Line)

Land height above high water mark at building line is _____ feet

Building setback from () State - () County - () Township Highway _____ feet from the () Center Line - () Right of Way

Side yard is _____ and _____ feet. Rear yard is _____ feet.

Building will be located _____ feet from septic tank (Sewage System Permit must be obtained before installation).

Building will be located _____ feet from soil absorption system (Cesspool, Drainfield, etc.).

EXISTING & APPROVED

Agreement: I hereby certify that the information contained herein is correct and agree to do the proposed work in accordance with the description above set forth and according to the provisions of the ordinances of Becker County, Minnesota. I further agree that any plans and specifications submitted herewith shall become a part of this permit application. I also understand that this permit is valid for a period of six (6) months. Applicant further agrees that no part of the sewage system shall be covered until it has been inspected and accepted. It shall be the responsibility of the applicant for the permit to notify the County Zoning Administrator, 48 hours before the job is ready for inspection.

Dated 10/28/89

Loren Thompson
 Signature of Owner

When signed and approved by the Zoning Administration this becomes your permit. Permission is hereby granted to the above named applicant to perform the work described in the above statement and/or as shown on the sketch. This permit is granted upon the express condition that the person to whom it is granted, and his agent, employees and workmen shall conform in all respects to the ordinances of Becker County, Minnesota. This permit may be revoked at any time upon violation of said ordinances.

Dated 10-30-89

Permit Fee \$ 85.50 State Surcharge \$ _____ Cormorant Surcharge \$ _____

Comments: NEW DRAINFIELD IS REPLACING EXISTING SEEPAGE PIT.

75.50
 10.00
\$85.50 total

INSPECTOR'S CHECK LIST
Make all measurements and computations

	ACTUAL IS ↓	MINIMUM Shall Be ↓	Sq. Ft.
Building Set Back from High Water Mark	Ft.		Ft.
Building Set Back from State Highway	Ft.		Ft.
Side Yard	_____ & _____ Ft.	_____ & _____ Ft.	
Rear Yard	Ft.		Ft.
Elevation at Building Line above High Water Mark	Ft.		Ft.

SEWAGE DISPOSAL SYSTEM STATISTICS

CATEGORY	SEPTIC TANK		SEEPAGE PIT		DRAIN FIELD	
	Actual	Should be	Actual	Should be	Actual	Should be
Capacity	Gls.	Gls.	SF	SF	SF	SF
Distance from Nearest Well	F	F	F	75	F	50
Distance from Lake or Stream	F	F	F		F	F
Distance from Occupied Building	F	10	F	20	F	20
Distance from Property Line	F	10	F	10	F	10
Distance from Bottom to Water Table	---	---	F	4	F	4

Inspector's Comments: _____

**INTERPRETATION
OF ABBREVIATIONS**

Gls — Gallons
 SF — Square Feet
 F — Linear Feet

Inspection
 Dated _____ 19____

 Inspector's Signature

 Title

 Agency

February 15, 1990

C.B. Schneider
Environmental Field Services
MN Dept Of Health
717 Delaware St SE
PO Box 9441
MPLS, MN 55440

Subject: Plan No. 00672

Dear Mr. Schneider:

Enclosed find plan and forms re subject.

We are replacing an existing seepage pit with a new drain field only: there are no additions to the system which was completed in 1973. The description and approvals for the system are on file at the Becker County Zoning Administrator. (We do not have copies at hand, except for the site plan which is attached.)

The calculations for sewage flow were done by M. Kuehn, the Zoning Office expert and I dont have his calculations. However, I am enclosing the application for Permit 12-18316-4 which includes his estimate of drain field requirements based on his files re the existing system and his intimate knowledge of the original installation. I have also included the completed forms as sent to me by Mr Barber, your field representative in Fergus Falls.

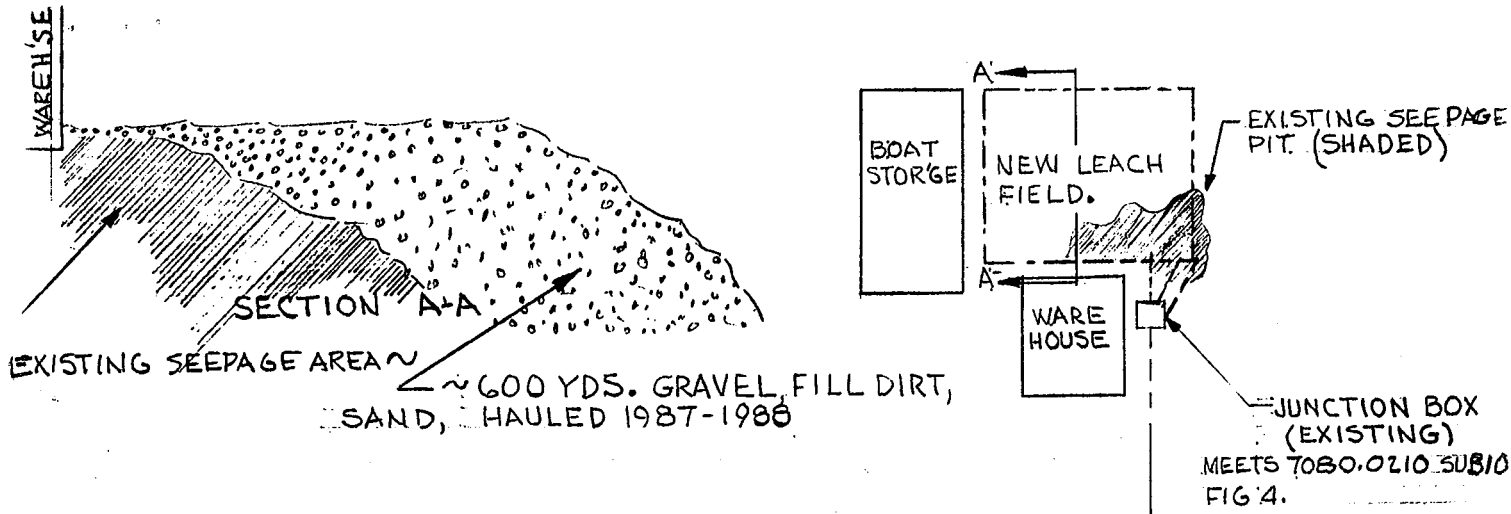
I trust this will be adequate for your purposes. If additional information is required please let me know as soon as possible as we may again have a rather small window between thaw and opening of the season.

Why dont you come out and inspect this one personally?

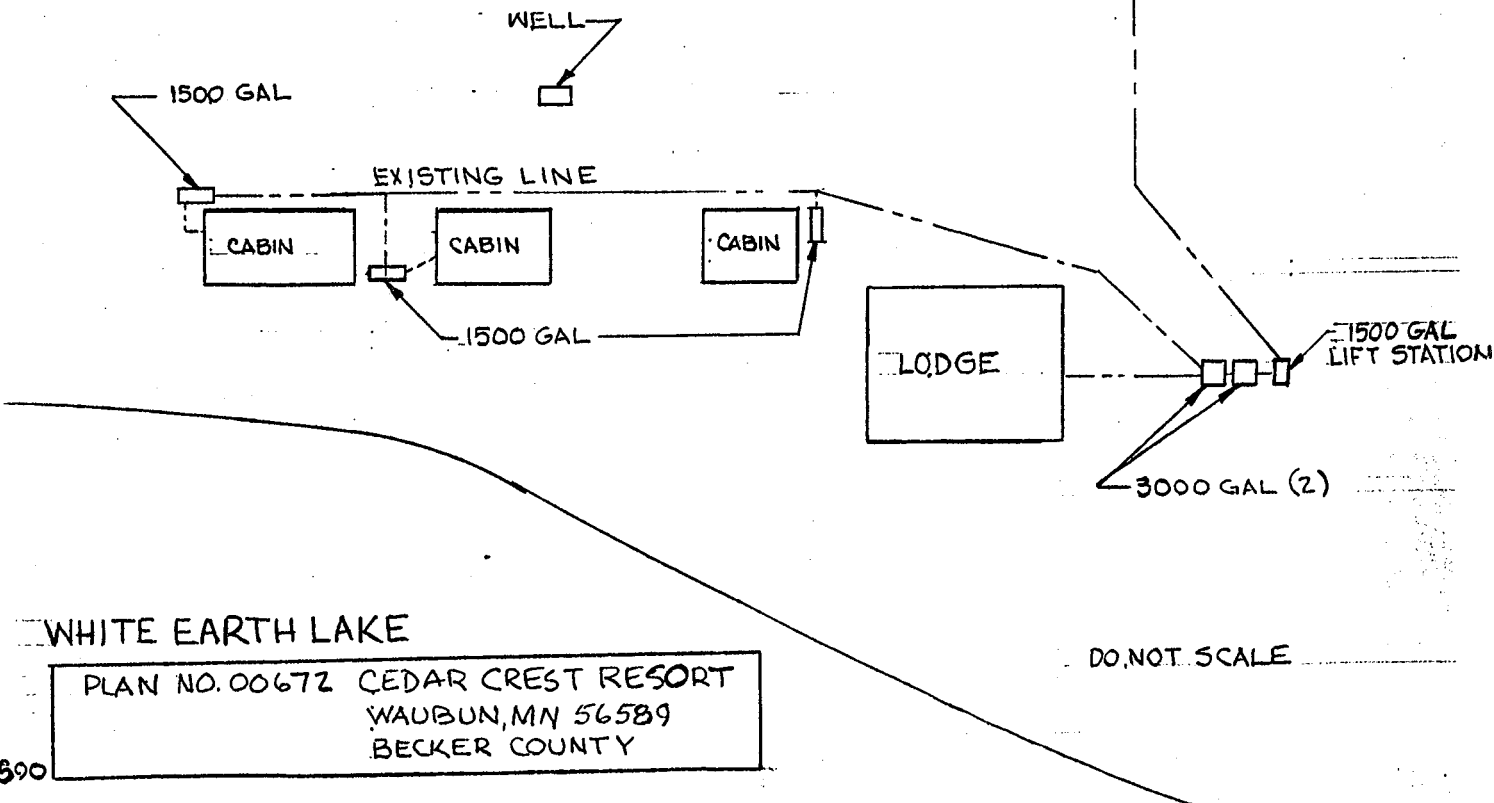
Sincerely,


Loren Thompson

CC FLOYD SVENBY



- NOTE:**
- ALL COMPONENTS EXISTING EXCEPT NEW FIELD.
 - EXISTING SYSTEM INSTALLED, INSPECTED CIRCA 1973.
 - EXISTING SYSTEM IS PERFORMING.
 - SEWAGE FLOW REQUIREMENTS CALCULATED BY M. KUEHN, BECKER CTY. ZONING OFFICE, (INSPECTOR) BASED ON PERSONAL INSPECTIONS OF SITE AND RECORDS ON FILE DEFINING EXISTING SYSTEM. (COPY OF M. KUEHN'S FIGURES ARE INCLOSED ON APPLICATION.) PERMIT 12-18316-4 ISSUED.
 - AN APPROVED CONTRACTOR WILL INSTALL THE DRAIN FIELD TO ALL RQTS. OF 7080.0100. INSPECTIONS WILL BE PERFORMED AS RQD.
 - PERCOLATION TEST DATA ENCLOSED.



2.1590

BECKER COUNTY

SEWAGE SYSTEM PERMIT APPLICATION

Name Robert Wyszuph Address WABUN, MN Zip 56589

1. Location of property: Lake 328 Sec. 8 Twp 142 Range 40

Legal description _____

2. Lot length _____ Width _____ Lot size area 5.5 AC.

3. Contour of property: Approximate elevation above water table at building site 30' sewage system site 30' adjacent property _____

4. Type of building: Residential _____ Commercial Accessory _____

5. Location of roads: County _____ Township State _____

6. Type of sewage system planned: Tank size 2,200 gal.

Number of tanks 2 Drainfield 2 Lineal feet 200'

7. Type of Soil: Sand _____ Clay Other _____

8. Location of sewage system on adjacent property None
Number of feet _____

9. Location of well on your property 80' From Septic Sketch on reverse side). On adjacent property None

10. Name of sewage system contractor BERRY OR KRUGER

well drilling contractor _____

Note: If making either of the above installations yourself indicate.

11. Minimum set back:	Building	Sewage System
From Road R.O.W.	<u>150'</u>	<u>150'</u>
Adjacent Property	<u>100'</u>	<u>100'</u>
Lakeshore (High Water Mark)	<u>110'</u>	<u>110'</u>

12. Any other information: _____

Dated 9-25-72

Applicants Signature Robert Wyszuph

Permit No. 855

Permit Fee _____

THE STATE OF TEXAS,
 COUNTY OF [illegible]
 I, [illegible], County Clerk of said County, do hereby certify that the within and foregoing is a true and correct copy of the original as the same appears in the records of said County.

IN WITNESS WHEREOF, I have hereunto set my hand and the seal of said County at [illegible] this [illegible] day of [illegible] 19[illegible].

[illegible]
 County Clerk



APPLICATION FOR SEWAGE SYSTEM CERTIFICATE OF COMPLIANCE

With The Becker County Zoning Ordinance

Application Number
Tax Parcel Number 20.0233.000
Fire Number of Project Location

A. GENERAL INFORMATION

1. Applicant's Name (Last, First, M.I.) Cedar Crest Resort		2. Authorized Agent (if applicable)	
3. Mailing Address (Street, RFD, Box Number, City, State, Zip Code) Waubesa, MN. 56589			
4. Day Phone	5. Evening Phone	6. Section 8	7. Township Maple Grove

B. PROPERTY DESCRIPTION

1. Lot(s), Block, Subdivision Name
lot 2 less platted part + tracts sold

<p>SEWAGE SYSTEM DATA</p> <p>Anticipated Use</p> <p>a. <input type="checkbox"/> Single Family</p> <p>b. <input type="checkbox"/> Multiple Family</p> <p>c. <input checked="" type="checkbox"/> Commercial</p> <p>d. <input type="checkbox"/> Other (specify)</p> <p>Type of Installation</p> <p>a. <input checked="" type="checkbox"/> Septic Tank Only (B)</p> <p>b. <input type="checkbox"/> Drainfield Only</p> <p>c. <input type="checkbox"/> Septic Tank & Drainfield</p> <p>d. <input type="checkbox"/> Holding Tank</p> <p>e. <input type="checkbox"/> Septic Tank/Drainfield Lift Station</p> <p>Type of Drainfield</p> <p>a. <input checked="" type="checkbox"/> Standard System</p> <p>b. <input type="checkbox"/> Mound (pressure distribution)</p> <p>Well Data ?</p> <p>a. Depth _____</p> <p>b. Diameter _____</p> <p>Type of Well</p> <p>a. <input checked="" type="checkbox"/> Drilled</p> <p>b. <input type="checkbox"/> Sand Point</p>	<p>1 Inch Equals _____</p> <p>DESIGN</p> <p>3 1500 gallon tanks installed From lodge</p> <p>2 1500 gallon tanks installed From cabins</p> <p>1 1500 gallon tank installed From Trailer</p> <p>see large resort drawing</p>
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Show Distance Between Sewage System And Buildings, Property Lines, Lake, Road And All Wells Within 125 Feet.

	Tank	Drainfield		Tank	Drainfield
Distances to Well:	= <u>50'</u>	= <u>50'</u>	Distance to Pressure Line:	= <u>50'</u>	= <u>50'</u>
Distance to Building:	= <u>10'</u>	= <u>20'</u>	Tank Capacity (gal. & Area of Drainfield (ft 2))	= <u>(6) 1500 existing</u>	
Distance to Property Line:	= <u>10'</u>	= <u>10'</u>	Distance to Ordinary High Water Level:	= <u>75'</u>	= <u>75'</u>
Drainfield separation from Highest Known Ground Water Level, Impervious Lens or Soil Mottling:				=	<u>NA</u>

I hereby certify with my signature that all data on my application forms, plans and specifications are true and correct:

Signature of Applicant	Date
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TO BE COMPLETED BY PLANNING AND ZONING

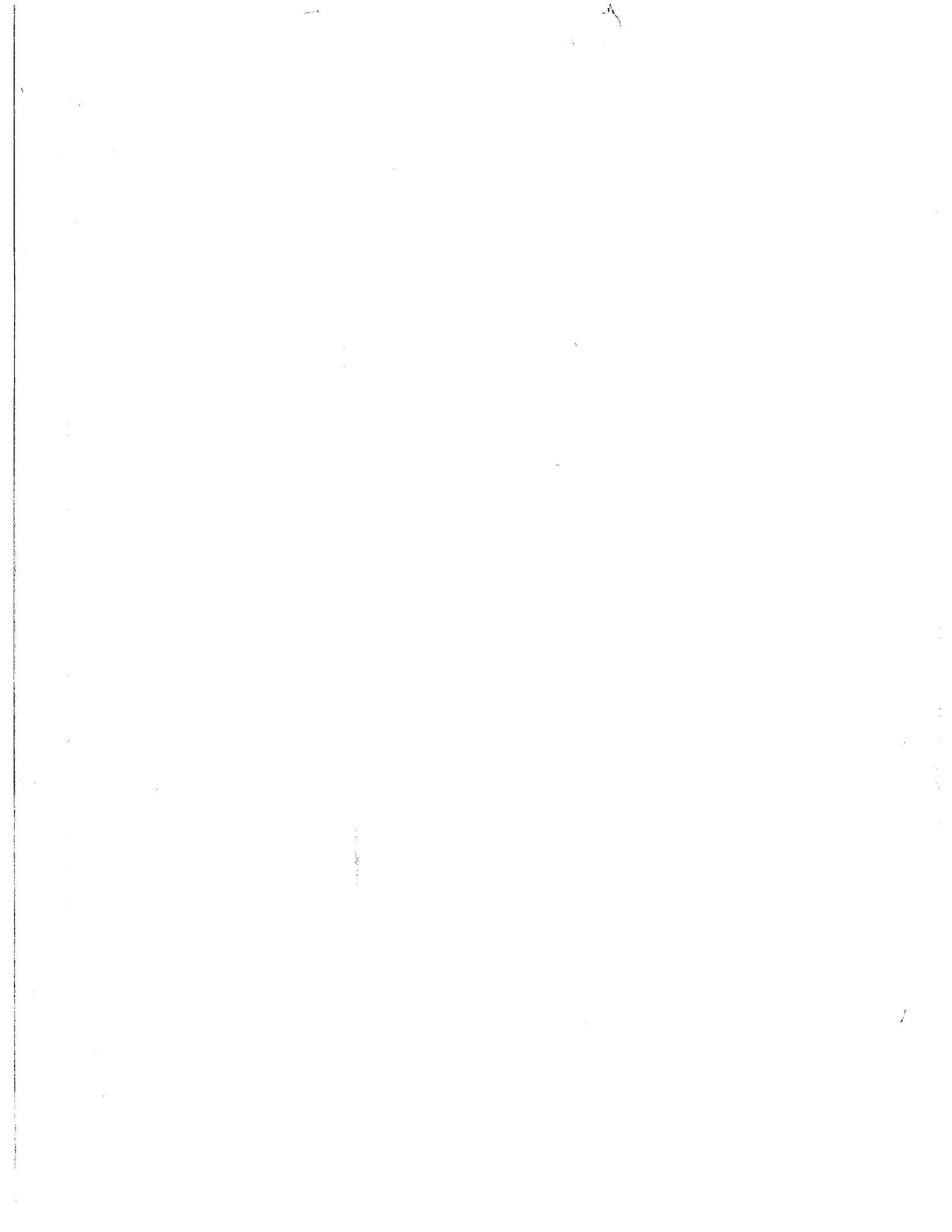
CERTIFICATE IS HEREBY DENIED: (See back For Reasons)

CERTIFICATE IS HEREBY GRANTED: Based upon the application, addendum from, plans, specifications and all other supporting data. With proper maintenance this system can be expected to function satisfactory, however this is not a guarantee.

BECKER COUNTY PLANNING AND ZONING

Jay D. Hanson
Signature

Inspector 06 Oct. 97
Date



White - Office
 Yellow - Owner
 Pink - Assessor
 Goldenrod - Inspector

BECKER COUNTY ZONING ADMINISTRATION

12-10,904-4
 Date 8/25/81

COUNTY COURT HOUSE - Phone 218-847-3938 - Detroit Lakes, Minn. 56501

APPLICATION FOR BUILDING OR SEWAGE PERMIT AND CERTIFICATE OF OCCUPANCY

6976

LEGAL DESCRIPTION AND LOCATION: (7964) Lot 2, Less Platted Part and Tracts Sold GOVERNMENT LOT 2
 328 WHITE EARTH RD S T142N R40W MAPLE GROVE
 Lake No. Lake Name Lake Classif. Sec. TWP Range TWP Name

IDENTIFICATION: Please Print All Information
 Owner: THOMPSON LOREN P CEDAR CREST RESORT WAUBUN MN 56589 4732116
 Contractor Name: LARRY

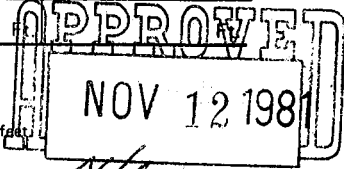
TYPE OF IMPROVEMENT: () New Building () Alteration () One Family Dwelling () Multiple Dwelling
 Other: Sewer System
 RESIDENTIAL PROPOSED USE: () One Family Dwelling () Multiple Dwelling
 NON-RESIDENTIAL PROPOSED USE: Specify: REC CAMPGROUND Size: THIRTY SITES

ESTIMATED COST OF IMPROVEMENT \$ Construction Starting Date:
 PRINCIPAL TYPE OF FRAME: () Masonry () Wood Frame () Structural Steel () Other - Specify N/A
 TYPE OF SEWAGE DISPOSAL: () Public () Individual Septic Tank, etc. () Individual Well
 WATER SUPPLY: () Public () Individual Well
 MECHANICAL EQUIPMENT: Elevator: () Yes () No N/A Air Conditioning: () Yes () No
 DIMENSIONS: Basement: () Yes () No Stories above basement: N/A Sq. feet (outside dimension) Bedrooms Baths
 HEATING: () Electric () Gas () Oil () Coal () None N/A Other:

SEWAGE DISPOSAL SYSTEM DATA:	SEPTIC TANK	SEEPAGE PIT	DRAIN FIELD
Capacity	5000	6000 Gls.	4000 Sq. Ft.
Distance from nearest well	200 Ft.		75 Ft.
Distance from lake or stream	600 Ft.	600 Ft.	500 Ft.
Distance from occupied building	300 Ft.	300 Ft.	200 Ft.
Distance from property line	200 Ft.	200 Ft.	100 Ft.
Distance from bottom to Water Table			

All distances are shortest distance between nearest points

CHARACTERISTICS: 36.38 acres
 Lot Area is 40 acres square feet. Water frontage is feet.
 Building set back from high water mark is feet. (Building Line)
 Land height above high water mark at building line is 30 feet.
 Building set back from State highway is 100 feet - system will be 300 feet from Roadway
 Side yard is 100 and 100 feet. Rear yard is 100 feet.
 Building will be located 300 feet from septic tank (Sewage System Permit must be obtained before installation).
 Building will be located 300 feet from soil absorption system (Cesspool, Drainfield, etc.).



Agreement: I hereby certify that the information contained herein is correct and agree to do the proposed work in accordance with the description above set forth and according to the provisions of the ordinances of Becker County, Minnesota. I further agree that any plans and specifications submitted herewith shall become a part of this permit application. I also understand that this permit is valid for a period of six (6) months. Applicant further agrees that no part of the sewage system shall be covered until it has been inspected and accepted. It shall be the responsibility of the applicant for the permit to notify the County Zoning Administrator, 48 hours before the job is ready for inspection.

Dated August 24 1981
 Signature of Owner: Loren Blomquist

When signed and approved by the Zoning Administration this becomes your permit. Permission is hereby granted to the above named applicant to perform the work described in the above statement and/or as shown on the sketch. This permit is granted upon the express condition that the person to whom it is granted, and his agent, employees and workmen shall conform in all respects to the ordinances of Becker County, Minnesota. This permit may be revoked at any time upon violation of said ordinances.

MUST BE POSTED AT THE BUILDING SITE
 Dated 8-30-81
 Signature of Zoning Administrator: Floyd Swenly
 Permit Fee \$ 10.00 State Surcharge \$.50

Comments: Size of Drain field will be determined after the percolation test has been completed.

INSPECTOR'S CHECK LIST
Make all measurements and computations

	ACTUAL IS ↓	MINIMUM Shall Be ↓	Sq. Ft.
Building Set Back from High Water Mark	Ft.		Ft.
Building Set Back from State Highway	Ft.		Ft.
Side Yard	_____ & _____ Ft.	_____ & _____ Ft.	
Rear Yard	Ft.		Ft.
Elevation at Building Line above High Water Mark	Ft.		Ft.

SEWAGE DISPOSAL SYSTEM STATISTICS

CATEGORY	SEPTIC TANK		SEEPAGE PIT		DRAIN FIELD					
	Actual	Should be	Actual	Should be	Actual	Should be				
Capacity		Gls.		Gls.		SF		SF		SF
Distance from Nearest Well	F		F		F	75	F	F	50	F
Distance from Lake or Stream	F		F		F		F	F		F
Distance from Occupied Building	F	10	F		F	20	F	F	20	F
Distance from Property Line	F	10	F		F	10	F	F	10	F
Distance from Bottom to Water Table	---	F	---	F	F	4	F	F	4	F

Inspector's Comments: _____

**INTERPRETATION
OF ABBREVIATIONS**
 Gl. — Gallons
 SF — Square Feet
 F — Linear Feet

Inspection
 Dated _____ 19____

 Inspector's Signature

 Title

 Agency

White - Office
 Yellow - Inspector
 Pink - Owner

BECKER COUNTY ZONING ADMINISTRATOR

COUNTY COURT HOUSE
 Phone 218-847-7721 - Detroit Lakes, MN 56501

APPLICATION FOR PERMIT TO INSTALL SEWAGE DISPOSAL SYSTEM

LEGAL DESCRIPTION AND LOCATION	Permit No. <u>1108-5</u>
	Date <u>5-4-73</u>
Lake No. <u>328</u> Lake Name <u>White Earth</u> Lake Classif. <u>RD</u> Sec. <u>8</u> TWP <u>R42</u> Range <u>40</u> TWP Name <u>Maple Grove</u>	

IDENTIFICATION: Please Print All Information.

OWNER	Last Name	First	Initial	Mailling Address - No. Street, City and State	Zip No.	Tel. No.
	Wysuph,	Robert		Wauburn, MN.		
SEWAGE SYSTEM INSTALLER	Name					
	Don Barry					

This System will be ready for inspection on May 9, 1973

This space for office use only

Date Rec'd _____ 19____ Time Rec'd _____ M Phone Call Rec'd By _____

Owner or Agent Signature

SEWAGE DISPOSAL SYSTEM DATA:

	SEPTIC TANK	SEEPAGE PIT	DRAIN FIELD
Capacity	1200 Gls.	Sq. Ft.	100 Sq. Ft.
Distance from nearest well	100 Ft.	Ft.	100 Ft.
Distance from lake or stream	200 Ft.	Ft.	200 Ft.
Distance from occupied building	15 Ft.	Ft.	15 Ft.
Distance from property line	75 Ft.	Ft.	75 Ft.
Distance from bottom to Water Table	over 4 Ft.	Ft.	over 4 Ft.

All distances are shortest distance between nearest points

RECORD OF TESTS:

Inspection was made on _____, 19____, Time _____ M By _____

PERCOLATION TEST DATA: Date of First Test _____, 19____, Rate _____

Date of Second Test _____, 19____, Rate _____

1st Test Taken By _____

2nd Test Taken By _____ First Test _____ + 2nd Test _____ = _____ = _____ Rate

Agreement: The undersigned hereby makes application for permit to install or extend Sewage Disposal System herein specified, agreeing to do all such work in strict accordance with ordinances of the County of Becker, Minnesota and Minnesota Individual Sewage Disposal Code Minimum Standards set forth by Minnesota Department of Health. Applicant agrees that plot plan, sketches and specifications submitted herewith and which are approved by Zoning Administrator shall become a part of the permit. Applicant further agrees that no part of the system shall be covered until it has been inspected and accepted. It shall be the responsibility of the applicant for the permit to notify the County Zoning Administrator, 48 hours before the job is ready for inspection.

Dated 5-4-73

Robert D. Wysuph
 Signature

Permit: Permission is hereby granted to the above named applicant to perform the work described in the above statement. This permit is granted upon express condition that the person to whom it is granted, and his agents, employees and workmen shall conform in all respects to ordinances of Becker County Minnesota.

NOTE: Permit void if work is not commenced within (6) months.

Issued Date: 5-4-73

Floyd Sweeney
 Becker County Zoning Administrator

Fee \$ _____ Surcharge \$ _____

Comments: _____

BECKER COUNTY

Sewage Permit No. SP No. _____

Location: Lake No. _____ Sec. _____ Twp. _____ Range _____ Twp. Name _____

Issued _____ 19____, To _____
Work Authorized _____

NOTE: This card must be placed in a conspicuous place not more than 12 feet above grade on the premises on which work is to be done, and must be maintained there until completion of such work. No part of system shall be covered until it has been inspected and approved. Notify Zoning Administrator, (847-7721) office when job is ready for inspection.

Becker County Zoning Administrator

BECKER COUNTY, MINNESOTA
Board of County Commissioners

Scale: Each grid equals _____ feet/inches.

GRID PLAN SKETCHING FORM

Application for Building Permit Dated _____ 19 _____

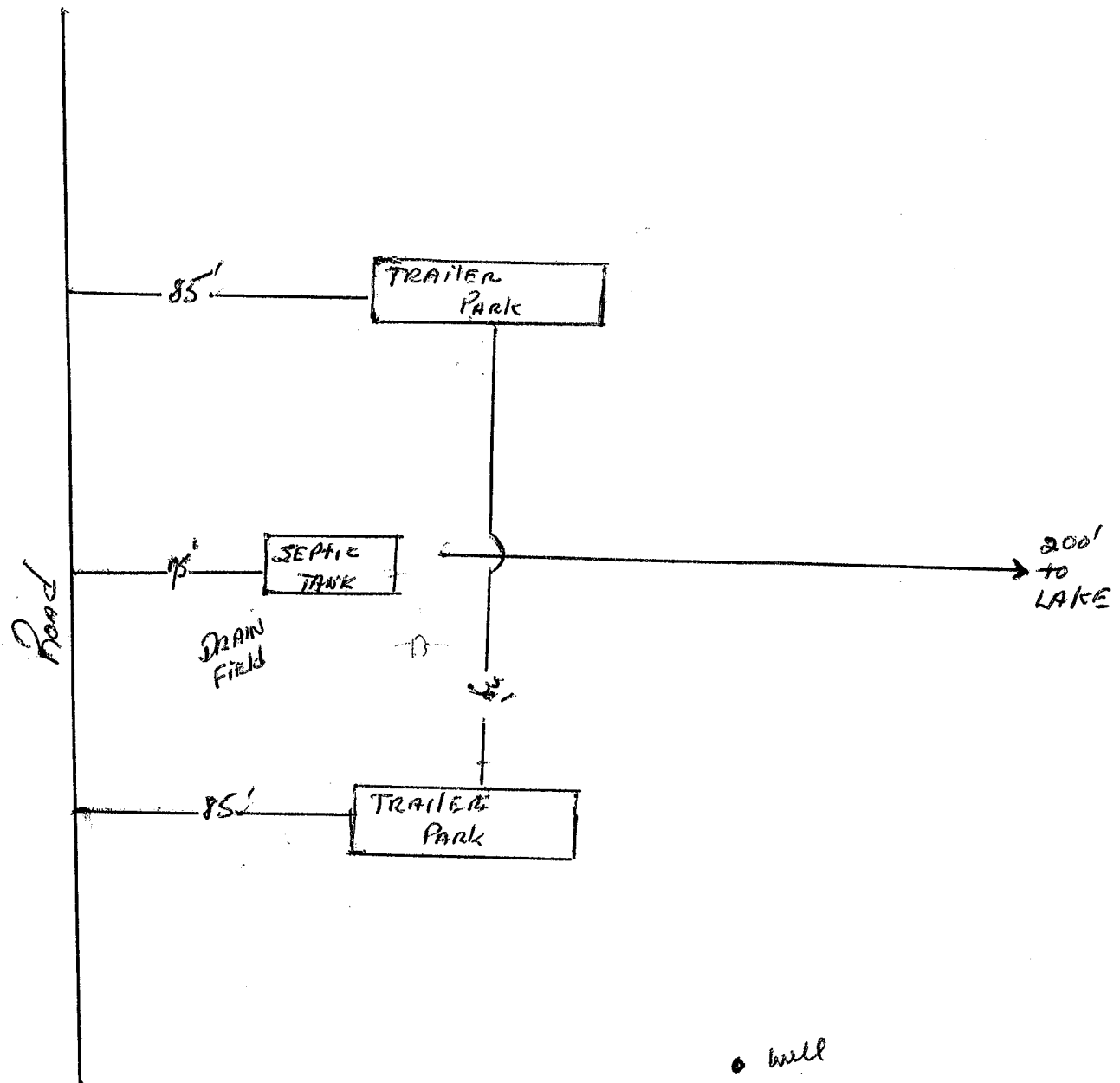
Application for Sewage System Permit Dated 5-4-1973

Building Permit Number _____ Sewage System Permit Number 1108-5

Applicant agrees that this plot plan is a part of application (s) indicated above.

Dated 5-4-1973

Robert D. Weymouth
Signature



• bill

- W — File
- Y — Owner
- B — Building Inspector

attached

For Office Use Only

Application Fee \$90⁰⁰ State Surcharge 150 Total \$90⁵⁰

Application is hereby denied

Application is hereby granted to Cedar Crest Resort to install an individual septic system according to the specifications of the site evaluation and design submitted to the Becker County Environmental Services Office. By Order of:

Hepi Moltzen
Signature of Becker County Qualified Employee

11/12/96
Date

This permit expires on 5-12-97

White - Office
 Yellow - Inspector
 Pink - Owner

BECKER COUNTY ZONING ADMINISTRATOR

COUNTY COURT HOUSE

Phone 218-847-7721 - Detroit Lakes, MN 56501

APPLICATION FOR PERMIT TO INSTALL SEWAGE DISPOSAL SYSTEM

LEGAL
 DESCRIPTION
 AND
 LOCATION

Permit No. 12-1784-5
 Date 4-2-74

Lake No. _____ Lake Name _____ Lake Classif. _____ Sec. _____ TWP _____ Range _____ TWP Name _____

IDENTIFICATION: Please Print All Information.

OWNER	Last Name	First	Initial	Meilling Address -No. Street, City and State	Zip No.	Tel. No.
	CEDAR CREST RESORT			WAUBUN, MN, 56589		
	Robert D Wyszuph					
SEWAGE SYSTEM INSTALLER	Name					

This System will be ready for inspection on _____, 19____

This space for office use only

_____ 19____ M _____

Date Rec'd _____ Time Rec'd _____ Phone Call Rec'd By _____

Owner or Agent Signature

SEWAGE DISPOSAL SYSTEM DATA:

	<input checked="" type="checkbox"/> SEPTIC TANK	<input type="checkbox"/> SEEPAGE PIT	<input checked="" type="checkbox"/> DRAIN FIELD
Capacity	2 TANKS	Gls.	Sq. Ft.
Distance from nearest well	MINN DEPT of Health SPEC.		Ft.
Distance from lake or stream	Ft.	Ft.	Ft.
Distance from occupied building	Ft.	Ft.	Ft.
Distance from property line	Ft.	Ft.	Ft.
Distance from bottom to Water Table	Ft.	Ft.	Ft.

All distances are shortest distance between nearest points

RECORD OF TESTS:

Inspection was made on _____, 19____, Time _____ M By _____

PERCOLATION TEST DATA: Date of First Test _____, 19____, Rate _____

Date of Second Test _____, 19____, Rate _____

1st Test Taken By _____

2nd Test Taken By _____ First Test _____ + 2nd Test _____ = _____ = _____ Rate _____

Agreement: The undersigned hereby makes application for permit to install or extend Sewage Disposal System herein specified, agreeing to do all such work in strict accordance with ordinances of the County of Becker, Minnesota and Minnesota Individual Sewage Disposal Code Minimum Standards set forth by Minnesota Department of Health. Applicant agrees that plot plan, sketches and specifications submitted herewith and which are approved by Zoning Administrator shall become a part of the permit. Applicant further agrees that no part of the system shall be covered until it has been inspected and accepted. It shall be the responsibility of the applicant for the permit to notify the County Zoning Administrator, 48 hours before the job is ready for inspection.

Dated 4-2-74 _____
 Signature Robert D Wyszuph

Permit: Per mission is hereby granted to the above named applicant to per form the work described in the above statement. This permit is granted upon express condition that the person to whom it is granted, and his agents, employees and workmen shall conform in all respects to ordinances of Becker County Minnesota.

NOTE: Permit void if work is not commenced within (6) months.

Issued Date: 4-2-74 _____

 Becker County Zoning Administrator

Fee \$ 6.00 Surchage \$ 1.00 Paid 4-2-74

Comments: To be used for overnight camping, no Campers, or or trailers parked over winter

BECKER COUNTY

SEWAGE SYSTEM PERMIT APPLICATION

1. Location of property: Lake White Earth Sec. 8 Twp. 142 Range 410
 Legal description Cedar Crest Res. Waubesa, Wisconsin 56589
2. Lot length _____ width 590' lot size area 39 ACRES
3. Contour of property: Approximate elevation above water table at building site _____ sewage system site 12 ft adjacent property _____
4. Type of building: residential _____ commercial accessory _____
5. Location of roads: County 112 Township _____ State _____
6. Type of sewage system planned: Tank size 4000 gal 2 compartment
 Number of tanks _____ Drainfield Lineal feet 180
7. Type of soil: Sand _____ Clay Other _____
8. Location of sewage system on adjacent property _____
 Number of feet _____
9. Location of well on your property _____ (Sketch on reverse side). On adjacent property None
10. Name of sewage system contractor Self
 Well drilling contractor _____
 Note: If making either of the above installations yourself indicate
11. Minimum set back:

	Building	Sewage System
From Road R.O.W.	_____	_____
Adjacent Property	_____	_____
Lakeshore (High Water Mark)	_____	_____
12. Any other information: _____

Dated April 21-72

Robert D. W...
Applicants signature

Cedar Crest Res.
Waubesa 56589

Permit No. 332

Permit Fee \$ 2.50

Permit issued
4/24/72

Certificate
Issued
5/10/72

WILL BE USING OLD SEPTIC TANK HE BELIEVES, SEPTIC TANK TO BE SERVICED

State

