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

Compliance Inspection Form

Existing Subsurface Sewage Treatment Systems (SSTS)

Instructions on page 7

Parcel number: 09.0574.00

System status: ☒ Compliant ☐ Noncompliant
(based on all compliance requirements)

For Local Tracking Purposes:

Summary Form

Property Information

Property owner name(s): Bruce Slette

Property address: 47608 Tubly Lake Dr

Property owner's address (if different): 5045 Rose Creek PKWY , Fargo ND 58104

County: Becker Property owner phone: 701-293-1394 Permitting authority: Becker Co Zonning

Date system constructed: 1997 Reason for inspection: Building cabin

System Description

Brief system description: 1000gal Tank with lift station and mound system

Local permit number: 10597 Number of bedrooms: 3 Design flow rate: 450

Is the system:

In Shoreland area? ☒ Yes ☐ No

In Wellhead Protection Area? ☐ Yes ☒ No

An U.S. Environmental Protection Agency (EPA) Class V Injection Well? ☐ Yes ☒ No

System serving a Minnesota Department of Heath (MDH) licensed facility? ☐ Yes ☒ No

Compliance Status (Based on state requirements – additional local requirements may also apply.)

Based on the information gathered and reported on attached forms, the compliance status of this system is (check one):

☒ Certificate of Compliance – valid until *(3 years from date of report)*: 5/26/2012

☐ Notice of Noncompliance - For Noncompliant systems:

The reason for noncompliance is:

This noncompliant system is classified as (check one below):
☐ Imminent threat to public health & safety ☐ Failing to protect ground water ☐ Not in compliance with operating permit

Certification (Completed form must be submitted to the local unit of government within 15 days.)

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.

Name: Patricia Stock Certification number: 5663

Business license name and number: A-1 Septic 2029 **or**

Name of local unit of government:

Signature: Patricia Stock Date: 5-26-09

Required Attachments

Inspector Complete: **This Inspection Report is 6 pages long.**

Check compliance forms attached: ☒ Hydraulic Performance ☒ Tank Integrity ☒ Soil Separation ☐ Operating Permit Form (if applicable) ☒ System drawing/As-built drawing ☐ An assessment of any local requirements that are different from what is required on this form ☒ Soil Boring Logs ☐ Abandonment form (if appropriate) ☐ Other information (list):

Upgrade Requirements *(derived from 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.*

Parcel number: 09.0574.00 System status: ☒ Compliant ☐ Noncompliant
(as determined by this form)

Hydraulic Performance and Other Compliance

Compliance Issue #1 of 4

Date of observation: 5-20-09 Reason for observation: building cabin

This form expires upon next inspection or in three years, whichever occurs first: 5-26-09

Compliance questions/criteria: (Required)
(Check the appropriate box)

Does the system discharge sewage to the ground surface?	☐ Yes ☒ No
Does the system discharge sewage to drain tile or surface waters?	☐ Yes ☒ No
Does the system cause sewage backup into dwelling or establishment?	☐ Yes ☒ No
Do other situations exist that have the potential to immediately and adversely impact or threaten public health or safety (electrical, unsafe covers, etc.)?	☐ Yes ☒ No

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

Does the system pose a threat to ground water for any conditions deemed non-protective as determined by the inspector?	☐ Yes ☒ No

"Yes" indicates that the system is failing to protect ground water. If "yes", describe the condition noted:

Verification Method*: (Optional)
(Check the appropriate box)

- ☒ Searched for surface outlet
- ☐ Performed hydraulic test
- ☒ Searched for seeping in yard
- ☐ Checked for backup in home
- ☐ Excessive ponding in soil system/D-boxes
- ☒ Homeowner testimony
- ☐ Examined for surging in tank
- ☐ "Black soil" above soil dispersal system
- ☐ System requires "emergency" pumping
- ☐ Performed dye test
- ☐ Other:

** No standard protocol exists. This list is not exhaustive, in sequential order, nor does it indicate which combinations are necessary to make this determination.*

Certification

This form is to be completed and attached to the Summary Form of the Minnesota Pollution Control Agency's (MPCA) **Compliance Inspection Form for Existing Subsurface Sewage Treatment Systems.** Observations, interpretations, and conclusions must be completed by an inspector. Completed form must be submitted to the local unit of government within 15 days.

Property owner name(s): Bruce Slette

Property address: 47608 Tubly Lake Dr

Property owner's address (if different): 5045 Rose Creek PKWY , Fargo ND 58104

County: Becker Phone: 701-293-1394

I hereby certify that I personally made the observations, interpretations, and conclusions reported on this form and that they are correct.

Name: Patricia Stock Certification number: 5663

Business license name and number: A-1 Septic 2029 **or**

Name of local unit of government:

Signature: Patricia Stock Date:

Parcel number: 09.0574.00 System status: ☒ Compliant ☐ Noncompliant
(as determined by this form)

Tank Integrity and Safety Compliance

Compliance Issue #2 of 4

Date of observation: 5-20-09 Reason for observation: building cabin

This form expires on (three years): _____

Compliance questions/criteria: (Required)
(Check the appropriate box)

Does the system consist of a seepage pit*, cesspool, drywell, or leaching pit?	☐ Yes ☒ No
Do any sewage tank(s) leak below their designed operating depth?	☐ Yes ☒ No

If yes, identify which sewage tank leaks. _____

Any "yes" answer indicates that the system is failing to protect ground water.

* Seepage pits meeting 7080.2550 may be compliant if allowed in ordinance by local permitting authority.

Verification Method:** (Optional)
(Check the appropriate box)

- ☒ Probed tank bottom
- ☐ Observed low liquid level
- ☒ Examined construction records
- ☐ Examined empty (pumped) tank
- ☒ Probed outside tank for "black soil"
- ☐ Pressure/vacuum check
- ☐ Other: _____

** *No standard protocol exists. This list is not exhaustive, in sequential order, nor does it indicate which combinations are necessary to make this determination.*

Safety Check

1.	Are any maintenance hole covers damaged, cracked, or appeared to be structurally unsound?	☐ Yes*	☒ No
2.	Were all maintenance hole covers replaced in a secured manner (e.g., **all** screws replaced)?	☒ Yes	☐ No*
3.	Was secondary access restraint present (safety pan, second cover, or safety netting) – highly recommended.	☐ Yes	☒ No
4.	Was any other safety/health issue present?	☐ Yes*	☒ No

Explain: _____

System is an imminent threat to public health and safety.

Certification

This form is to be completed and attached to the Summary Form of the Minnesota Pollution Control Agency's (MPCA) **Compliance Inspection Form for Existing Subsurface Sewage Treatment Systems.** Observations, interpretations, and conclusions must be completed by an inspector, maintainer, or service provider. Completed form must be submitted to the local unit of government within 15 days.

Property owner name(s): Bruce Slette

Property address: 47608 Tubly Lake Dr

Property owner's address (if different): 5045 Rose Creek PKWY , Fargo ND 58104

County: Becker Phone: 701-293-1394

I hereby certify that I personally made the observations, interpretations, and conclusions reported on this form and that they are correct.

Name: Patricia Stock Certification number: 5663

Business license name and number: A-1 Septic 2029 **or**

Name of local unit of government: _____

Signature: Patricia Stock Date: 5-26-09

Parcel number: 09.0574.00 System status: ☒ Compliant ☐ Noncompliant
(as determined by this form)

Soil Separation Compliance and Other Compliance

Compliance Issue #3 of 4

Date of observation: 5-20-09 Reason for observation: building cabin

This information on this form does not expire.

Compliance questions/criteria: (Required)
(Check the appropriate box)

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:	
Does the system have at least a two-foot vertical separation distance from periodically saturated soil or bedrock?	☐ Yes ☐ No
For 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:	
Does the system have a three-foot vertical separation distance from periodically saturated soil or bedrock?*	☒ Yes ☐ No
For reduced separation distance systems (i.e., "performance" systems under old 7080.0179 or Type IV or V system under new 7080. 2350 or 7080.2400):	
Does the system meet the designed vertical separation distance from periodically saturated soil or bedrock?*	☐ Yes ☐ No

Any "no" answer indicates that the system is failing to protect ground water.

Verification Method:** (Optional)
(Check the appropriate box)

☒ Conducted soil observation(s) (attach boring logs)
☐ Two previous verifications (attach boring logs)
☐ Other: _____

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

* *May be reduced by up to 15 percent if allowed in local ordinance.*

** *No standard protocol exists. This list is not exhaustive, in sequential order, nor does it indicate which combinations are necessary to make this determination.*

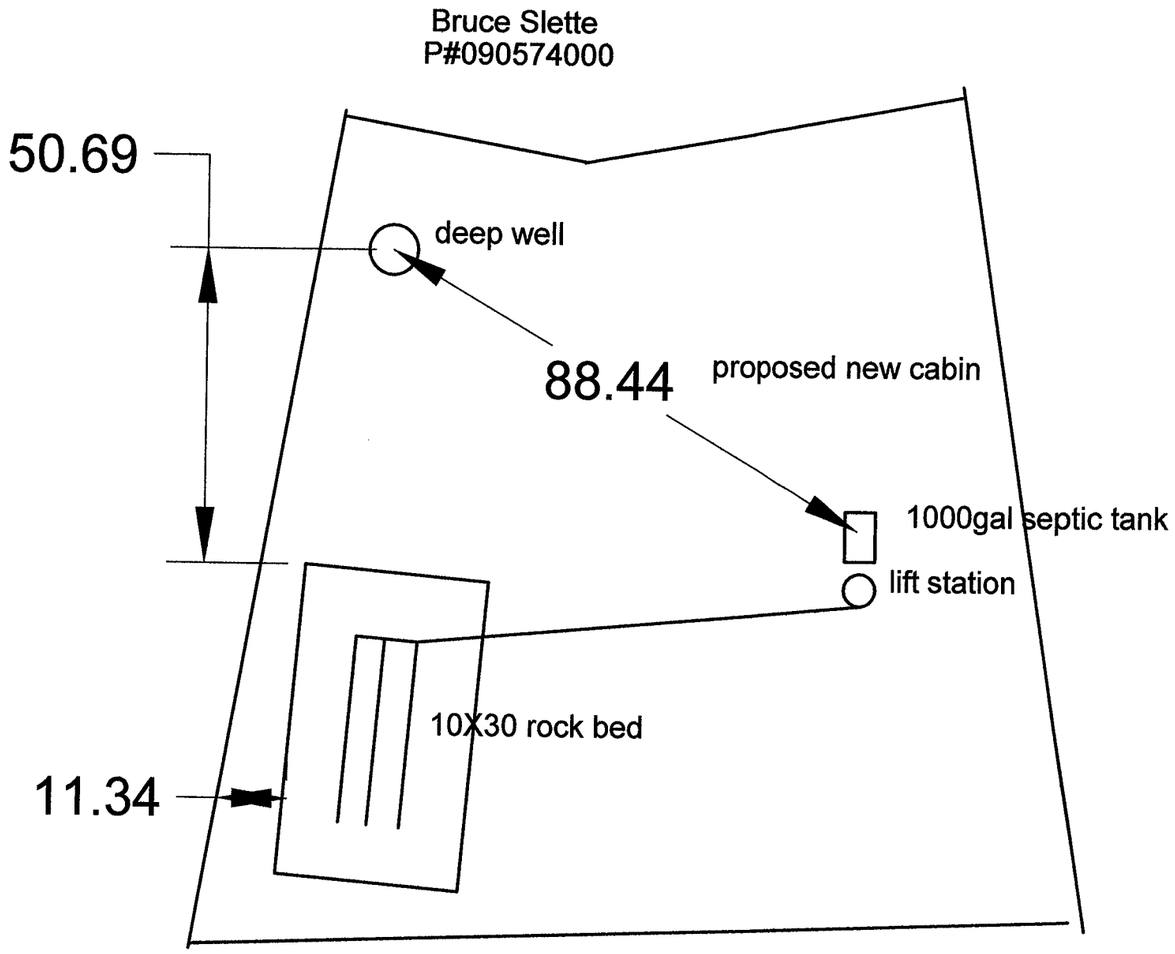
Certification

This form is to be completed and attached to the Summary Form of the Minnesota Pollution Control Agency's (MPCA) **Compliance Inspection Form for Existing Subsurface Sewage Treatment Systems.** Observations, interpretations, and conclusions must be completed by an inspector or designer. Completed form must be submitted to the local unit of government within 15 days.

Property owner name(s): Bruce Slette
Property address: 47608 Tubly Lake Dr
Property owner's address (if different): 5045 Rose Creek PKWY , Fargo ND 58104
County: Becker Phone: 701-293-1394

I hereby certify that I personally made the observations, interpretations, and conclusions reported on this form and that they are correct.

Name: Patricia Stock Certification number: 5663
Business license name and number: A-1 Septic 2029 **or**
Name of local unit of government:
Signature: Patricia Stock Date: 5-26-09


Bruce Slette
P#090574000
50.69
deep well
88.44
proposed new cabin
1000gal septic tank
lift station
10X30 rock bed
11.34

Soils Report

ID No: 636

Customer Name: Bruce Slette
Date: 5/26/2009

Tests By: A1-Septic
DRP: Patricia Stock
MPCA License No: 2029

Site Address:	***Legal Description:***
Tubly Lake 5045 Rose Creek PKWY Fargo ND 58104	Peaceful Bay 1st Add TWP142 R39
Becker	Eagle View Section 3

Boring Name: Soil Boring One

Boring Elevation (Ft):
Restrictive Layer Depth (In): 31
Restrictive Layer Type: Mottles
Standing Water Depth (In): Not Present

Soil Recovery Method: Hand Auger
Soil Series:
Soil Condition: Natural

Comments:

Soil Profile

Depth(In)	*Soil Color*	*Soil Color Description*	*Soil Texture*
0 *to* 8	10 yr 2/2	Very Dark Brown	Sandy Loam, Moderate, Blocky
9 *to* 24	7.5 yr 5/4	Brown	Fine Sand, Moderate, Single Grained
25 *to* 31	7.5 yr 6/4	Light Brown	Medium Sand, Moderate, Single Grained
32 *to* 64	7.5 yr 6/3	Light Brown/mottles	Medium Sand, Strong, Single Grained

APPLICATION FOR SEWAGE SYSTEM

CERTIFICATE OF COMPLIANCE
With The Becker County Zoning Ordinance

Application Number: 105917
Tax Parcel Number: 09.0374.000
Fire Number of Project Location: 253

A. GENERAL INFORMATION

1. Applicant's Name (Last, First, M.I.)	2. Authorized Agent (if applicable)		
Warnsholz Emil	Barry Muff		
3. Mailing Address (Street, RFD, Box Number, City, State, Zip Code)			
1703 4th Ave NW Austin MN 55912			
4. Day Phone	5. Evening Phone	6. Section	7. Township
507-433-2653		3	Eagle View

B. PROPERTY DESCRIPTION

1. Lot(s), Block, Subdivision Name
Peaceful Bay 1st Add Pt Lot 6 Big at SW cor Lot 6 Peaceful Bay 1st

SEWAGE SYSTEM DATA

Anticipated Use
a. (✓) Single Family
b. ( ) Multiple Family
c. ( ) Commercial
d. ( ) Other (specify)

Type of Installation
a. ( ) Septic Tank Only
b. ( ) Drainfield Only
c. ( ) Septic Tank & Drainfield
d. ( ) Holding Tank
e. (✓) Septic Tank/Drainfield Lift Station

Type of Drainfield
a. ( ) Standard System
b. (✓) Mound (pressure distribution)

Well Data
a. Depth 175'
b. Diameter 4"

Type of Well
a. (✓) Drilled
b. ( ) Sand Point

1 Inch Equals_____
DESIGN

See Attached Site Plan

Show Distance Between Sewage System And Buildings, Property Lines, Lake, Road And All Wells Within 125 Feet.

	Tank	Drainfield		Tank	Drainfield
Distances to Well:	50	75	Distance to Pressure Line:	10+	10+
Distance to Building:	17	+~~50~~ 30	Tank Capacity (gal.& Area of Drainfield (ft 2)	EX1000 LIFT 96	300
Distance to Property Line:	10+	10	Distance to Ordinary High Water Level:	81	100+
Drainfield separation from Highest Known Ground Water Level, Impervious Lens or Soil Mottling:					3'

I hereby certify with my signature that all data on my application forms, plans and specifications are true and correct: _____
Signature of Applicant — Date

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

Signature
Title: Chief Inspector — Date: 1-7-97

BECKER COUNTY PLANNING & ZONING

829 LAKE AVENUE, PO BOX 787
DETROIT LAKES, MN 56502-0787
PHONE (218) 846-7314 - FAX (218) 846-7266

INSTALLATION PERMIT FOR
INDIVIDUAL SEWAGE TREATMENT

FIRE NO. _____

PERMIT/RECEIPT NO. 10597

TAX PARCEL NUMBER 09.0574.000

LEGAL DESCRIPTION
Pt Lot 6 Beg at SW Cor Lot 6 Peaceful Bay 1st Th NW

LAKE/STREAM NAME	LK/STR CLASS	SECTION	TWP	RANGE	TOWNSHIP NAME
Tulaby	RD	3	142	39	Eagle View

PROPERTY OWNER	ADDRESS/ CITY/ STATE	PHONE NO
Laura Wainshelz	1703 4th Ave NW Austin	MN

INSTALLER	LICENSE NO	PHONE NO
Larry Muff		

SEWAGE TREATMENT SYSTEM DATA

WORK CATEGORY
(/) NEW SYSTEM
(X) REPAIR

TYPE OF SYSTEM
( ) SEPTIC TANK/DRAINFIELD
(X) DRAINFIELD ONLY
( ) HOLDING TANK
( ) ALTERNATE (specify)
_____
( ) LIFT STATION

SIZE OF TANK
exist GALLONS
SIZE OF DRAINFIELD
2500 FT2
SYSTEM LENGTH
_____ FT
NUMBER OF TRENCHES _____
ESTIMATED FLOW 300 GPD

TYPE OF DRAINFIELD
( ) STANDARD (gravelless)
( ) STANDARD (rock trench)
( ) STANDARD (bed)
(X) MOUND (pressure distb)

SIZE OF LIFT STATION
300 GALLONS
SIZE OF PUMP
20/10
DEPTH TO RESTRICTING LAYER _____
MAXIMUM DEPTH OF SYSTEM Mound

PERC RATE _____

SSF _____
SIZE OF GRAVELLESS PIPE —

DEPTH OF ROCK _____

# of manholes construct bed 10X30

I hereby certify with my signature that all the data contained herein as well as all supporting data are true and correct to the best of my knowledge. I also understand that this permit is valid for a period of six (6) months.

+ Larry Muff — Signature
10-31-96 — Date

Any changes to the permit must first be approved by Becker County Planning & Zoning. No system shall be covered up without inspection by Becker County Planning & Zoning.

Site Plan as approved on Site Evaluation.

attached

For Office Use Only

Application Fee $60.00 State Surcharge .50 Total $60.50

[ ] Application is hereby denied

[X] Application is hereby granted to L. Wunsch & Sons 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:

Robi Mollza — 10-31-96

Signature of Becker County Qualified Employee — Date

This permit expires on 5-1-97

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 # 253
Tax Parcel Number 09.0574.000

Legal Description: Pt Lot 6 Beg at SW Cor Lot 6 Peaceful Bay 1st Th NW

Lake/Stream Name	Lake/Stream Class	Section	TWP	Range	Township Name
Tulaby		3	142	39	Eagle View

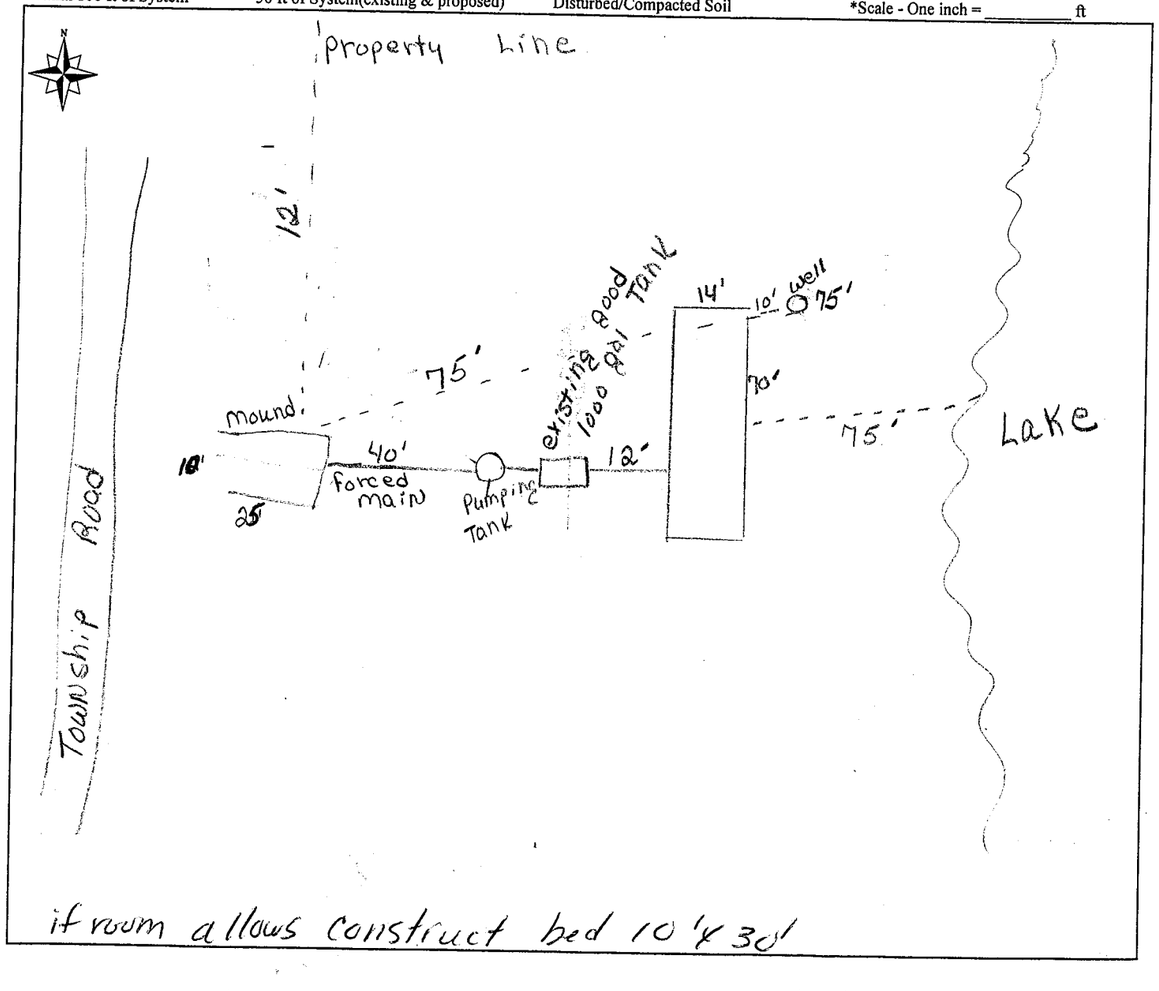
Property Owner	Address	City, State, Zip Code	Phone Number
Laura Warnshelz	1703 4th Ave. NW	Austin MN 55912	(507) 433-2653

ISTS Designer I / Designer II	License Number	Address	Phone Number
Larry Muff	576	R.R. # 1, Box 87 Ogema, MN 56569	(218) 983-3376

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



if room allows construct bed 10'x30'

SOIL INFORMATION

TEST HOLE #1

DEPTH IN INCHES	SOIL TEXTURE	MUNSELL COLOR	STRUCTURE
4"	dirt	Gray	BLOCKY PLATY PRISMATIC NONE
2'	Coarse Sand	Light Brown	BLOCKY PLATY PRISMATIC NONE
			BLOCKY PLATY PRISMATIC NONE
			BLOCKY PLATY PRISMATIC NONE
Depth to standing water			
Depth to mottling			

TEST HOLE #2

DEPTH IN INCHES	SOIL TEXTURE	MUNSELL COLOR	STRUCTURE
4"	dirt	Gray	BLOCKY PLATY PRISMATIC NONE
2'	Coarse Sand	Light Brown	BLOCKY PLATY PRISMATIC NONE
			BLOCKY PLATY PRISMATIC NONE
			BLOCKY PLATY PRISMATIC NONE
Depth to standing water			
Depth to mottling			

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

SYSTEM IS ( ) NEW ( ) REPAIR Tank is good New mound

SYSTEM DESIGN ( ) GRAVITY FLOW (X) PRESSURE DISTRIBUTION

WATER USES: None
( ) WASHING MACHINE
( ) DISHWASHER
( ) WATER SOFTENER
( ) GARBAGE DISPOSAL

NUMBER OF BEDROOMS 2
NUMBER OF BATHROOMS 1
TOTAL SQ. FT OF STRUCTURE 980
TANK SIZE 1000
LIFT STATION SIZE 300
SOIL TREATMENT AREA SIZE 250 SQ FT
DOSE VOLUME

DEPTH OF SYSTEM Mound
SYSTEM DESIGN FLOW 450 GPD
SOIL SIZING FACTOR 0.83
PUMP SIZE 1/2 horse
LENGTH OF LIFT LINE 40'
TOTAL DYNAMIC HEAD 9.24

TYPE OF RESIDENCE
(X) TYPE I ( ) TYPE II
( ) TYPE III ( ) TYPE IV

WELL INFORMATION-Property's Well DEPTH OF WELL 75'

TYPE OF WELL Deep

Neighboring wells (within 100 ft of system) Depth of Wells None

Type of Wells None

Name of Designer I
Designer II Larry Muff

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 10-31-96

For Office Use Only

Date Site Evaluation / Design received 10-31-96 Received by Debi Moltz

Date Site Evaluation approved 10-31-96 Approved by Debi Moltz

INDIVIDUAL SEWAGE TREATMENT SYSTEM WORKSHEET

FLOW

A. Estimated 300 gpd
measured 300 x 1.5= 450 gpd

SEPTIC TANK VOLUME

B. 1000 gallons

SOILS (Site evaluation data)

C. Depth to restricting layer = 36" feet
D. Maximum depth of system C - 3 ft = _____ feet
E. Texture Coarse Sand Percolation rate 1 to 5 MPI
F. SSF 0.83 sq ft/gpd
G. Slope — %

TRENCH BOTTOM AREA

H. For trenches with 6 inches of rock below the pipe:
A x F = _____ x _____ = ____ sq ft of bottom area

N/A mound

I. For trenches with 12 inches of rock below the pipe:
A x F x 0.8 = ____ x ____ x 0.8 = ____ sq ft of bottom area

J. For trenches with 18 inches of rock below the pipe:
A x F x 0.66 = _____ x _____ x 0.66 = ____ sq ft of bottom area

K. For trenches with 24 inches of rock below the pipe:
A x F x 0.6 = _____ x ____ x 0.6 = ____ sq ft of bottom area

BED BOTTOM AREA

L. For seepage beds with 6 or 12 inches of rock below the pipe;
1.5 x A x F = 1.5 x ____ x ____ = ____ sq ft of bottom area

ROCK VOLUME IN CU FT

M. Rock depth below distribution pipe plus 0.5 foot times bottom area:
M =Rock depth + 6 inches x Area (H,I,J,L,K)
(____ + 0.5 ft) x ____ = _____ cu ft

N/A mound

ROCK VOLUME IN CU YDS

N. Volume in cu ft divided by 27
M ÷ 27 = cu yds ___ ÷ 27 = ____ cu yds

ROCK WEIGHT

O. Cubic yards times 1.4 = tons
N x 1.4 = tons _____ x 1.4 = ____ tons

SYSTEM LENGTH

N/A mound

P. Select trench width = _____ ft
Q. Divide bottom area by trench width: (H, I, J, or K) ÷ P = lineal feet
___ ÷ ___ = ___ lineal feet

Q1. Gravelless Design
A x F ÷ (3 for 10" pipe, 2 for 8" pipe , width of the Chamber)
_____ x_____÷ _____ = _____ 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
____ x ____ = _____ sq ft

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

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)

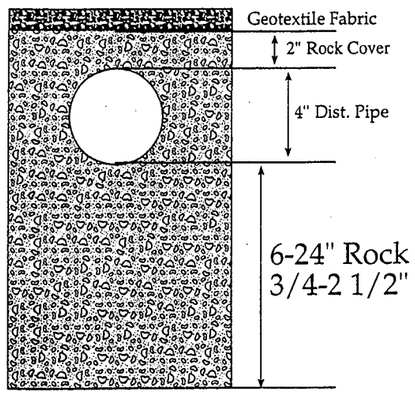
Number of Bedrooms	Minimum Liquid Capacity	Liquid capacity with garbage disposal
2 or less	750	1125
3 or 4	1000	1500
5 or 6	1500	2250
7, 8 or 9	2000	3000

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



18-36" Width

NA all Coarse Sand

- 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 ÷ DROP = PERC (Decimal) A	1/16 = .06
						1/8 = .13
	REFILL				TIME ÷ DROP = PERC (Decimal) B	3/16 = .19
						1/4 = .25
	REFILL				TIME ÷ DROP = PERC (Decimal) C	5/16 = .31
						3/8 = .38
	REFILL				TIME ÷ DROP = PERC (Decimal) D	7/16 = .44
						1/2 = .5
	REFILL				TIME ÷ DROP = PERC (Decimal) E	9/16 = .56
						5/8 = .63
	REFILL				TIME ÷ DROP = PERC (Decimal) F	11/16 = .69
						3/4 = .75
	REFILL				TIME ÷ DROP = PERC (Decimal) G	13/16 = .31
						7/8 = .88
	REFILL				TIME ÷ DROP = PERC (Decimal) H	15/16 = .94

Ten Percent Calculation *

A,B,C Largest # of ABC − Smallest # of ABC = _____ Smallest # of ABC × 0.10 = _____	B,C,D Largest # of BCD − Smallest # of BCD = _____ Smallest # of BCD × 0.10 = _____
C,D,E Largest # of CDE − Smallest # of CDE = _____ Smallest # of CDE × 0.10 = _____	D,E,F Largest # of DEF − Smallest # of DEF = _____ Smallest # of DEF × 0.10 = _____
E,F,G Largest # of EFG − Smallest # of EFG = _____ Smallest # of EFG × 0.10 = _____	F,G,H Largest # of FGH − Smallest # of FGH = _____ Smallest # of FGH × 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 ÷ DROP = PERC (Decimal) A	1/16 = .06
						1/8 = .13
	REFILL				TIME ÷ DROP = PERC (Decimal) B	3/16 = .19
						1/4 = .25
	REFILL				TIME ÷ DROP = PERC (Decimal) C	5/16 = .31
						3/8 = .38
	REFILL				TIME ÷ DROP = PERC (Decimal) D	7/16 = .44
						1/2 = .5
	REFILL				TIME ÷ DROP = PERC (Decimal) E	9/16 = .56
						5/8 = .63
	REFILL				TIME ÷ DROP = PERC (Decimal) F	11/16 = .69
						3/4 = .75
	REFILL				TIME ÷ DROP = PERC (Decimal) G	13/16 = .31
						7/8 = .88
	REFILL				TIME ÷ DROP = PERC (Decimal) H	15/16 = .94

Ten Percent Calculation *

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

MOUND DESIGN WORKSHEET
(For Flows up to 1200 gpd)

A. FLOW
Estimated 300 gpd
or measured 300 x 1.5 = 450 gpd.

B. SEPTIC TANK LIQUID VOLUMES
1000 gallons existing

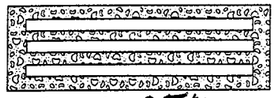
C. SOILS (refer to site evaluation)
1. Depth to restricting layer = 36 inches _____ feet
2. Depth of percolation tests = 1 TO 2' inches
3. Texture coarse sand Percolation rate 1-5 mpi
4. Land slope 0 %

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

D. ROCK LAYER DIMENSIONS
1. Multiply flow rate by 0.83 to obtain required area of rock layer: A x 0.83 =
300 gpd x 0.83 sq. ft./gpd = 250 sq. ft.
2. Select width of rock layer (max 10' if <120 mpi max 5') = ~~12~~ 10 ft.
3. Length of rock layer = area ÷ width =
250 sq. ft. ÷ ~~12~~ 10 ft. = ~~25~~ ft.


Width 10 ft
<120mpi <10'
>120mpi <5'


Length 25' ft

E. ROCK VOLUME
1. Multiply rock area by rock depth to get cubic feet of rock; 250 sq. ft. x 1 ft. = 250 cu. ft.
2. Divide cu. ft. by 27 cu. ft./cu. yd. to get cubic yards;
250 cu. ft. ÷ 27 = 10 cu. yd.
3. Multiply cubic yards by 1.4 to get weight of rock in tons; 10 cu. yd. x 1.4 ton/cu. yd. = 14 tons.

F. ABSORPTION WIDTH
1. Percolation rate in top 12 inches of soil is 1-5 mpi
Texture Coarse Sand
2. Select allowable soil loading rate from table;
1.20 gpd/ft²
3. Calculate adsorption width ratio by dividing rock layer loading rate of 1.20 gpd/ft2 by allowable soil loading rate;
1.20 gpd/ft² ÷ 1.20 gpd/ft² = 1.
4. Multiply adsorption width ratio by rock layer width to get required adsorption width;
12 x 1 ft = 12 ft

Absorption Width Sizing Table			
Percolation Rate in Minutes per Inch (MPI)	Soil Texture	Gallons per day per square foot	Ratio of Absorption width to Rock Layer Width
Faster than 0.1	Coarse Sand	1.20	1.00
0.1 to 5	Sand	1.20	1.00
0.1 to 5	Fine Sand	0.60	2.00
6 to 15	Sandy Loam	0.79	1.52
16 to 30	Loam	0.60	2.00
31 to 45	Silt Loam	0.50	2.40
46 to 60	Clay Loam	0.45	2.67
60 to 120	Clay	0.24	5.00
Slower than 120	Clay	0.20	6.00

PRESSURE DISTRIBUTION SYSTEM

1. Select number of perforated laterals 3

2. Select perforation spacing = 3 feet.

3. Since perforations should not be placed closer than 1 ft. to the edge of the rock layer (see diagram), subtract 2 ft. from the rock layer length.

   $\frac{25}{\text{Rock layer length}} - 2 \text{ ft.} = 1923$ feet.

4. Determine the number of spaces between perforations. Divide the length above by perforation spacing and round down to nearest whole number.

   Length perf. spacing = $\frac{23}{(3)}$ ft. ÷ $\frac{3}{(2)}$ ft. = 8 spaces

5. Number of perforations is equal to one plus the number of perforation spaces .

   8 spaces + 1 = 9 perforations/lateral

6. Multiply perforations per lateral by number of laterals to get total number of perforations.

   $\frac{3}{\text{lateral s}} \times \frac{9}{\text{perfs/lateral}} = 27$ perforations.

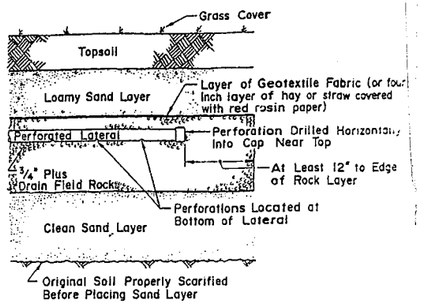
7. Determine required flow rate by multiplying number of perforations by flow per perforation

   $\frac{27}{\text{perfs}} \times \frac{.74}{\text{gpm/perf}} = 20$ gpm.

8. If laterals are connected to header pipe as shown on upper example, to select minimum required lateral diameter; enter table with perforation spacing and number of perforations per lateral. Select minimum diameter for perforated lateral = 1½ inches.

9. If perforated lateral system is attached to manifold pipe near the center, lower diagram, perforated lateral length and number of perforations per lateral will be approximately one half of that in step 8. Using these values, select minimum diameter for perforated lateral = _____ inches.

END PERFORATION OF A PERFORATED LATERAL

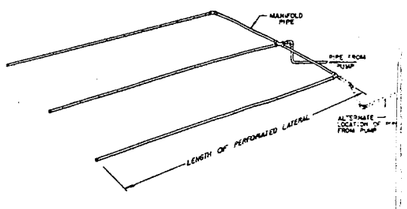


Required Perforation Discharge in gallons per minute (gpm)		
Discharge Head (feet)	7/32 inch perf	¼ inch perf
1.0a	0.56	0.74
2.0b	0.80	1.04

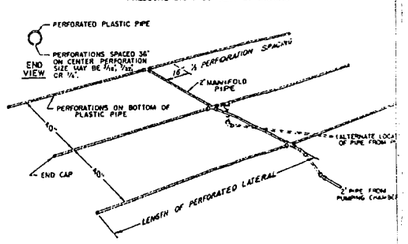
a. Use for single family homes
b. Use for all other applications

Maximum number of quarter inch perforations per lateral to guarnantee < 10% discharge variation			
Perforation Spacing (feet)	1¼	1½	2
2.5	14	18	28
3.0	13	17	26
3.3	12	16	25
4.0	11	15	23
5.0	10	14	22

MANIFOLD LOCATED AT END OF PRESSURE DISTRIBUTION SYSTEM



LAYOUT OF PERFORATED PIPE LATERALS FOR PRESSURE DISTRIBUTION IN MOUND



PUMP SELECTION PROCEDURE

A. Determine pump capacity:

Gravity Distribution

1. Minimum suggested is 20 gpm
2. Maximum suggested is 45 gpm

Pressure Distibution

3. a. Select number of perforated laterals 3
   b. Select perforation spacing = 3 feet.
   c. Subtract 2 ft. from the rock layer length.
   29 (Rock layer length) - 2 ft. = 23 feet.
   d. Determine the number of spaces between perforations.
   Length perf. spacing = 23 ft. ÷ 3 ft. = 8 spaces
   e. 8 spaces + 1 = 9 perforations/lateral
   f. Multiply perforations per lateral by number of laterals to get total number of perforations. 3 laterals x 9 perfs/lateral = 27 perforations.
   g. 27 perfs x .74 gpm/perf = 20 gpm.

Perforation Discharges in GPM		
Head (feet)	Perforation diameter (inches)	
	7/32	1/4
1.0a	0.56	0.74
1.5	0.69	0.90
2.0b	0.80	1.04

a Use 1.0 foot single homes.
b Use 2.0 feet for anything else.

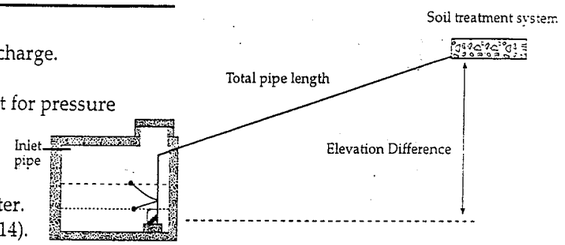
SELECTED PUMP CAPACITY 1820 gpm

B. Determine head requirements:

1. Elevation difference between pump and point of discharge.
   4 feet
2. If pumping to a pressure distribution system, five feet for pressure required at manifold if gravity system, zero.
   4 feet
3. Friction loss
   a. Enter friction loss table with gpm and pipe diameter. Read friction loss in feet per 100 feet from table (F-14).
   F.L. = 2.47 ft./100 ft of pipe
   b. Determine total pipe length from pump to discharge point. Estimate by adding 25 percent to pipe length for fitting loss, or use a fitting loss chart (F-15 40 feet).
   Equivalent pipe length - 1.25 times pipe length =
   40 x 1.25 = 50 feet
   c. Calculate total friction loss by multiplying friction loss in ft/100 ft by equivalent pipe length.
   Total friction loss = 2.47 x 50 ÷100 = 1.24 feet
4. Total head required is the sum of elevation difference, special head requirements, and total friction loss.

   4 (1) + 4 (2) + 1.24 (3c)

   TOTAL HEAD 9.24 feet



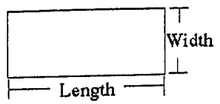
Friction Loss in Plastic Pipe			
Flow Rate gpm	Nominal pipe dia. 1.5"	2"	3"
20	2.47	0.73	0.11
25	3.73	1.11	0.16
30	5.23	1.55	0.23
35	6.96	2.06	0.30
40	8.91	2.64	0.39
45	11.07	3.28	0.48
50	13.46	3.99	0.58
55		4.76	0.70
60		5.60	0.82
65		6.48	0.95
70		7.44	1.09

C. Pump selection

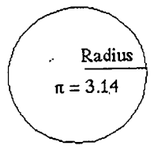
20 1. A pump must be selected to deliver at least **gpm** (Step A) with at least 9.24 **feet of total head** (Step B).

Sizing of Dosing Chamber

1. Determine Surface Area
   Rectangle = Area = L x W
   _____ x _____ = _____ **square feet**



   Circle = Area = π x (Radius)²
   3.14 x 1.5 x 1.5 = 7 **square feet**



   Other = Get Surface Area from Manufacturer
   _____ **square feet**

2. Calculate Gallons Per Inch
   There are 7.5 gallons per cubic foot of volume, therefore you must multiply the area times the conversion factor and divide by 12 inches per foot to calculate gallons per inch
   Area x 7.5 ÷ 12
   7 x 7.5 ÷ 12 = 4 **gallons/inch**

3. Calculate Gallons to Cover Pump (with 2 inches of water covering pump)
   (Height (in) + 2 inches) x gallons/inch
   (12 + 2) x 4 = 56 **gallons**

4. Calculate Total Pumpout Volume
   A. To maximize pump life select sump size for 4 to 5 pump operations per day.
   300 gpd ÷ 4 = 75 gallons per dose
   B. Calculate drainback
      a. Determine total pipe length, 40 feet.
      b. Determine liquid volume of pipe, 10.58 gallons per 100 feet. (see page F-13)
      c. Multiply length by volume: Drainback quantity =
      40 feet x 10.58 gallons ÷ 100 ft. = 4.23 gallons.
   C. Total pump out volume equals dose volume + drainback
   75 gallons per dose + 4.23 gallons = 79.23 **Total gallons**

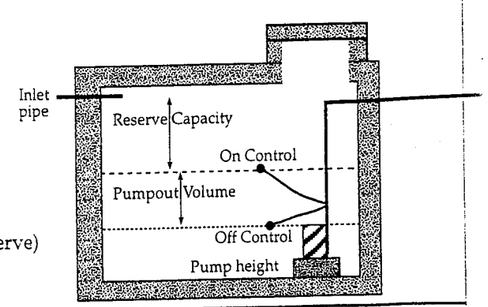
Estimated Sewage Flows in Gallons per day (gpd)

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	

Pipe diameter (inches)	Gallons per 100 feet
1	4.49
1.25	7.77
1.5	10.58
2	17.43
2.5	24.87
3	38.4
4	66.1

5. Calculate Volume for Alarm (typically 2 to 3 inches)
   Depth (in) x gallons/inch =
   2 x 4 = 8 **gallons**

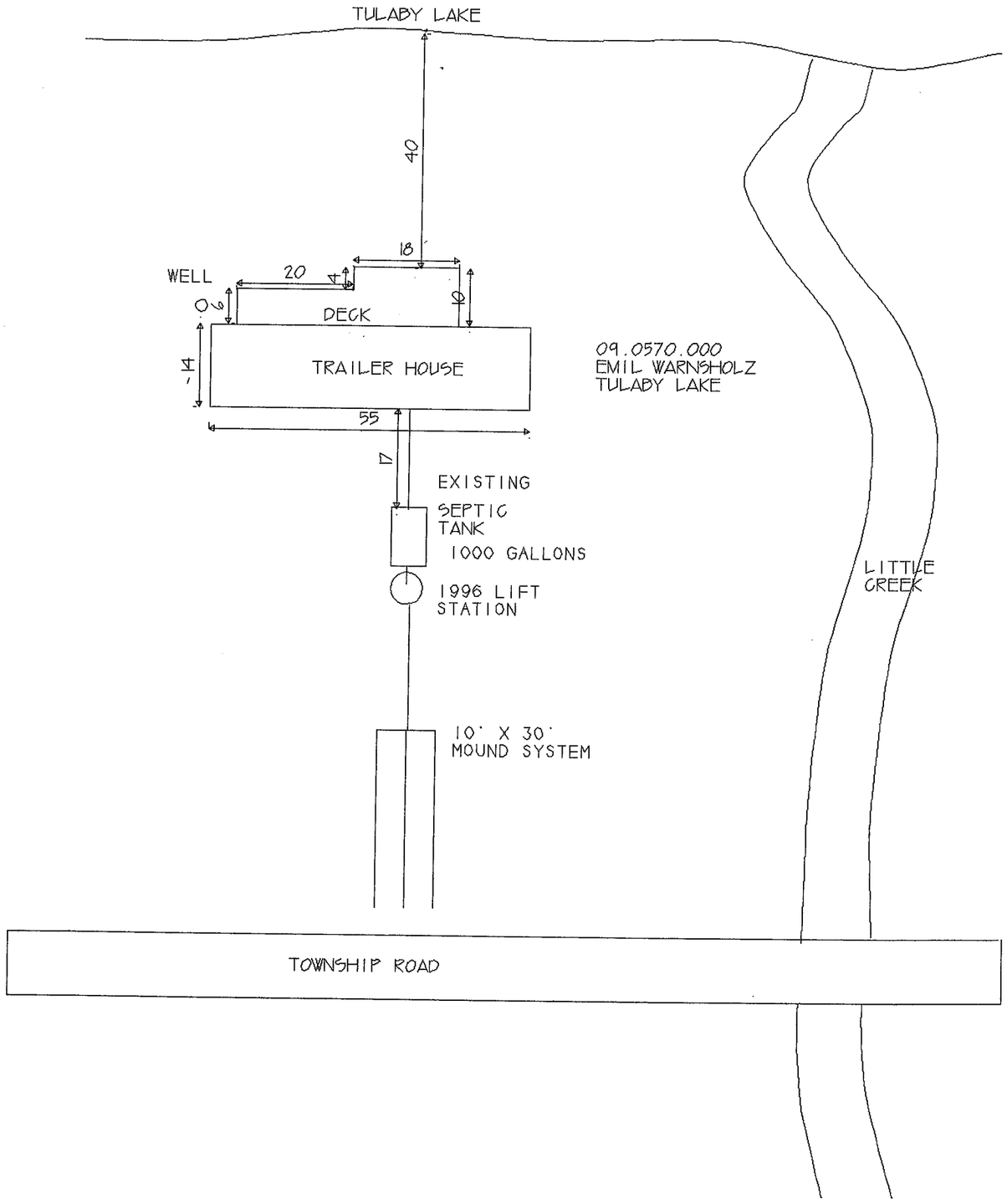
6. Recommended:
   Calculate Reserve Capacity (75% the daily flow)
   Daily flow x .75 =
   300 x .75 = 225 **gallons**



7. Calculate total gallons
   gallons over pump + gallons pumpout +gallons alarm + (gallons reserve)
   3 + 4 + 5 + 6
   56 + 79.23 + 8 (+ 225)= 368 **gallons**

8. Total Depth (Total gallon divided by gallon per inch)
   Total Gallon÷ gallon/inch
   368 ÷ 4 = 92 **inches**

9. Float Separation Distance (equal total pumpout volume)
   Total pumpout volume÷ gallons/inch
   79.23 ÷ 4 = 19.8 **inches**


TULABY LAKE
40
18
WELL
20
4
6
DECK
14
TRAILER HOUSE
55
17
09.0570.000
EMIL WARNSHOLZ
TULABY LAKE
EXISTING
SEPTIC
TANK
1000 GALLONS
1996 LIFT
STATION
10' X 30'
MOUND SYSTEM
LITTLE
CREEK
TOWNSHIP ROAD

BECKER COUNTY ENVIRONMENTAL SERVICES

DEPARTMENT OF PLANNING AND ZONING
829 LAKE AVENUE
P O BOX 787
DETROIT LAKES, MN 56502

TELEPHONE (218) 846-7314
FAX (218) 846-7266

December 27, 1995

Emil Warnsholz
1703 4th Ave NW
Austin MN 55912

Dear Mr. Warnsholz:

During the Summer months of 1995, a representative from our office conducted a Sewer System survey on Tulaby Lake. Your lake, along with several other lakes within the County, was surveyed to target nonconforming Sewage Treatment Systems. The survey project is being conducted through a combined effort of Becker County COLA, Becker County Water Quality Board, and the Becker County Zoning Office.

Inadequate and nonconforming sewer systems are a contributor to deteriorating water quality, algae growth, ground and surface water contamination. Nonconforming systems targeted are cesspools, leaching pits, drywells, and systems with less than three (3) feet of unsaturated soil or sand between the treatment area and the limiting soil characteristics.

The system serving your Tulaby Lake property was found nonconforming due to either a cesspool, drywell, or a seepage pit system. Enclosed please find a list of Certified Septic Installers for Becker County. Please contact an installer to make arrangements to have the septic system updated. Also enclosed please find a Survey form. Please complete and return the survey, along with a proposed date of updating and installer's name to our office by July 1, 1996. Once your system has been update, this information will provide us with the information needed for the new Maintenance Program being implemented for Tulaby Lake.

If you have any questions regarding this matter, please contact me at the above number. Your cooperation is greatly appreciated.

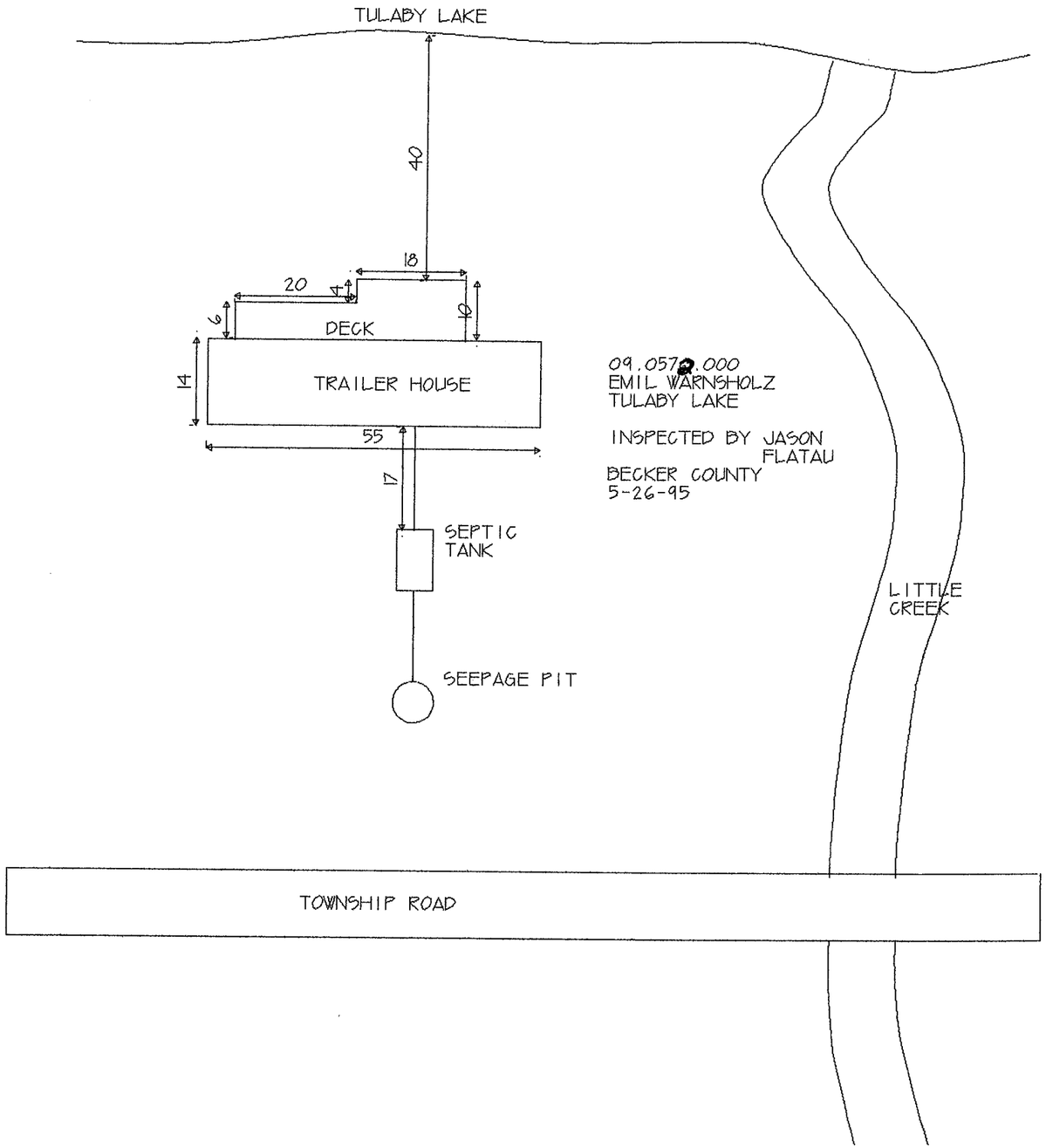
Sincerely,
Patricia L. Swenson
Patricia L. Swenson
Zoning Technician
MPCA No. 2303

cc: file 09.0574.000

09.0574.000
EMIL WARNSHOLZ

THE SEWER SYSTEM WAS INSTALLED IN JUNE OF 1972. THERE IS A 800 GALLON PRECAST SEPTIC TANK. THERE IS ALSO A 300 GALLON CESSPOOL. SEWER SURVEY WAS RETURNED. THE LOT IS ALMOST LEVEL WITH THE LAKE LEVEL.

INSPECTED BY JASON FLATAU 5-26-95


TULABY LAKE
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DECK
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TRAILER HOUSE
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17
SEPTIC TANK
SEEPAGE PIT
09.0572.000
EMIL WARNSHOLZ
TULABY LAKE
INSPECTED BY JASON FLATAU
BECKER COUNTY
5-26-95
LITTLE CREEK
TOWNSHIP ROAD

BECKER COUNTY

SEWAGE SYSTEM PERMIT APPLICATION

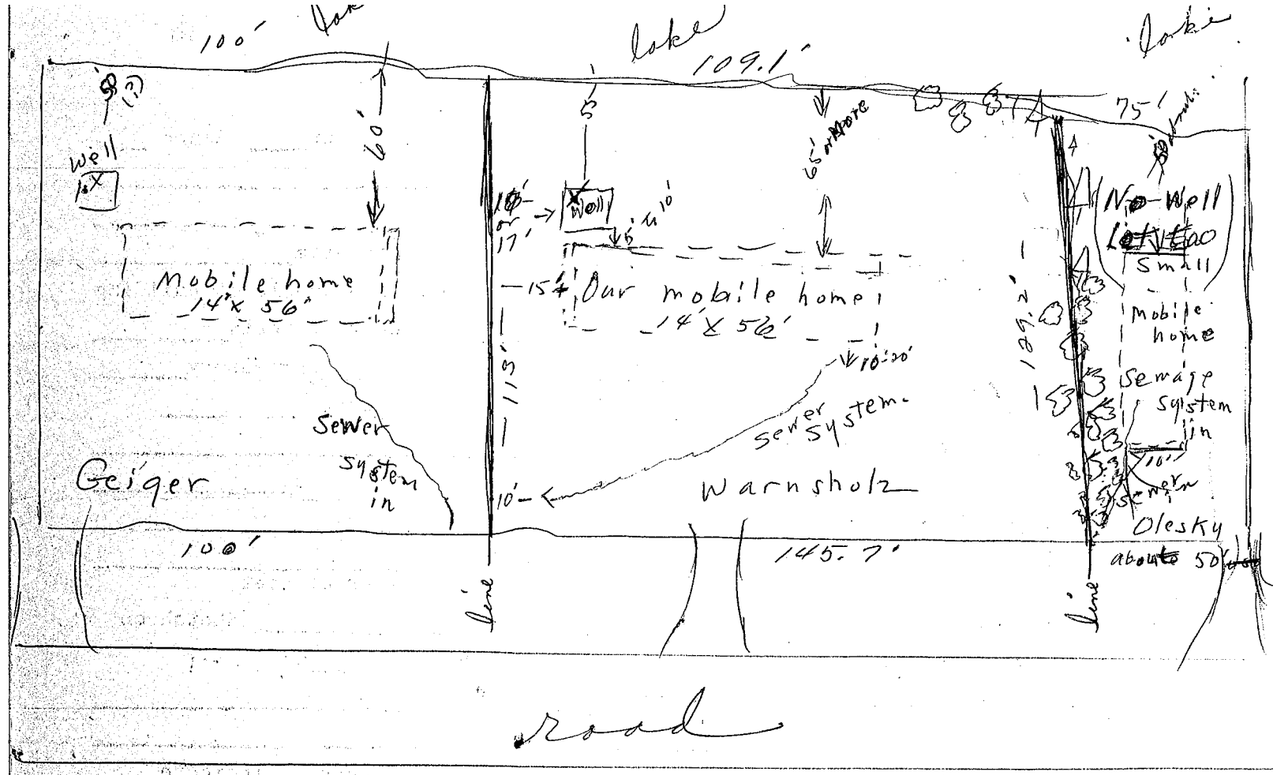
1. Location of property: Lake Tulaby Sec. 3 Twp 142 Range 39
   Legal description Beg at SW cor Lt 6 Peaceful Bay 1st th NW
145.7' NE 129.2' S 109.1' & SW 113' to beg (Pt Lt 6) Peaceful Bay 1st Add.
2. Lot length 109.1' 145.7' width 113' 129.2' lot size area 142 39
3. Contour of property: Approximate elevation above water table at building site 7' sewage system site _____ adjacent property about same
4. Type of building: residential Y seasonal commercial _____ accessory _____
5. Location of roads: County _____ Township V State _____
6. Type of sewage system planned: Tank size 1000 GAL PRECAST
   Number of tanks 2 Drainfield 4' PERF PVC Lineal feet 50 TO 100
7. Type of soil: Sand V Clay V Other _____
8. Location of sewage system on adjacent property 10
   Number of feet
9. Location of well on your property over (Sketch on reverse side). On adjacent property over
10. Name of sewage system contractor Wes Miller's Excavating (Bonded for Becker Co.)
    Well drilling contractor _____
    Note: If making either of the above installations yourself indicate No

11. Minimum set back:	Building	Sewage System
From Road R.O.W.	35 to 40 feet	25 feet or more
Adjacent Property	15-12 feet	10 feet
Lakeshore (High Water Mark)	see below	80 feet or more

12. Any other information: On either lot (west side and East side of our lot) are mobile homes. We will set ours according to their placement, so that it looks the best. According to Minnesota Rules and Regulations, Variances and Setback - b. Where development exists on both sides of proposed site, setbacks may be varied to conform to existing and c. et cetera. Setbacks

Dated May 15, 1972 Mrs. Laura Marnoshog
Applicants signature

Permit No. 1733 Permit Fee _____



In relation to sewer system —
Note: In the Rules and Regulations #10 - There is a discrepancy: Under "Main Concerns on Septic tank Specifications" - 10 feet from lot line, 10 feet from building of human occupancy, etc. Under "Main Concerns of:" (b) 10 feet from lot line, 20 feet from home, 50 feet from well.