WINTERBERGER INSPECTI

210073001

Property Owner(s) Stephanie Carlson Trust Phone Number _____

Address 805 Pleasant Ave. Park Rapids, Mn 56470

P.I.D. R 210073001 Section 13 # Township 140 N Range 36

Date 6/26/2008 Time 4:00 PM Weather conditions Sunny

Location Information *(check all that apply)*
__ shoreland x dwelling __ replacement system
__ protection area __ other establishment x new home construction

Homeowner Information
System will be serving a 5 br type 1 dwelling.
No. of bedrooms *(if applicable)* 5 bedrooms (includes possible additions)
No. of residents in home 2 adults 3 children
Estimated flow 750 gpd
Well casing depth 50+ proposed feet

Water using devices *(check)*
__ Garbage disposal __ Water softener
x Dishwasher __ Sump pump
__ Large bathtub __ High eff. furnace
x Laundry/large tub on 2nd floor __ Jucuzzi/hottub

Discharge location if checked
_____
_____
_____
_____

Water use concerns *(check)*
__ Toilet/faucet leaks __ Max load laundry/day __ Long term prescription medications
__ Home business __ Lint screen __ Antibact. soap __ Frequent parties or out of town guests

Soil Data
Soil texture classification: Sandy loam
Unnatural soil *(check)* __ Yes x No
Type of observation *(check)* __ Probe x Pit x Boring
Parent material *(check)* __ Till x Outwash __ Loess __ Bedrock __ Alluvium
Vegetation type *(check)* __ Wet x Dry __ Unknown
Slope form *(check)* x Summit __ Shoulder __ Back __ Foot __ Toe
Drainage *(check)* x Good __ Fair __ Poor __ Ponding __ Flooding
Located in floodplain *(check)* __ Yes x No

Site Summary Data
Standing water: N/A inches
Bedrock: N/A inches
Saturated soil: N/A inches
Maximum depth of system: 48 inches
Max elevation at system bottom: 3 feet
Soil sizing factor (SSF): 1.27 gpd/ft^2
Linear loading rate (LLR): N/A gpd/ft
Was a perc test done ? __ Yes _____ mpi
x No

Soil Survey Data	Soil #1	Soil #2
Map unit sym & name		
Landscape position		
Flooding		
Slope		
Watertable depth		
Bedrock depth		
Possible system depth		
Texture at depth		
Permeability (P)		
Perc(MPI) = 60 / P		
NRCS onsite suitability		

Soil Boring Data

Boring 1 Elevation: Location: See map

Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0 - 6	fine sandy loam	10yr 3/3	granular	friable
6" - 21"	loamy fine sand	10yr 4/4	single grain	loose
21 - 60	med sand	10yr 5/6	single grain	loose
60 - 85	med sand	10yr 6/6	single grain	loose

Boring 2 Elevation: Location: See map

Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0 - 5	fine sandy loam	10yr 3/3	granular	friable
5" - 23"	loamy fine sand	10yr 4/4	single grain	loose
23 - 38	med sand	10yr 5/6	single grain	loose
38 - 65	med sand	10yr 6/6	single grain	loose
65 +	rocks			

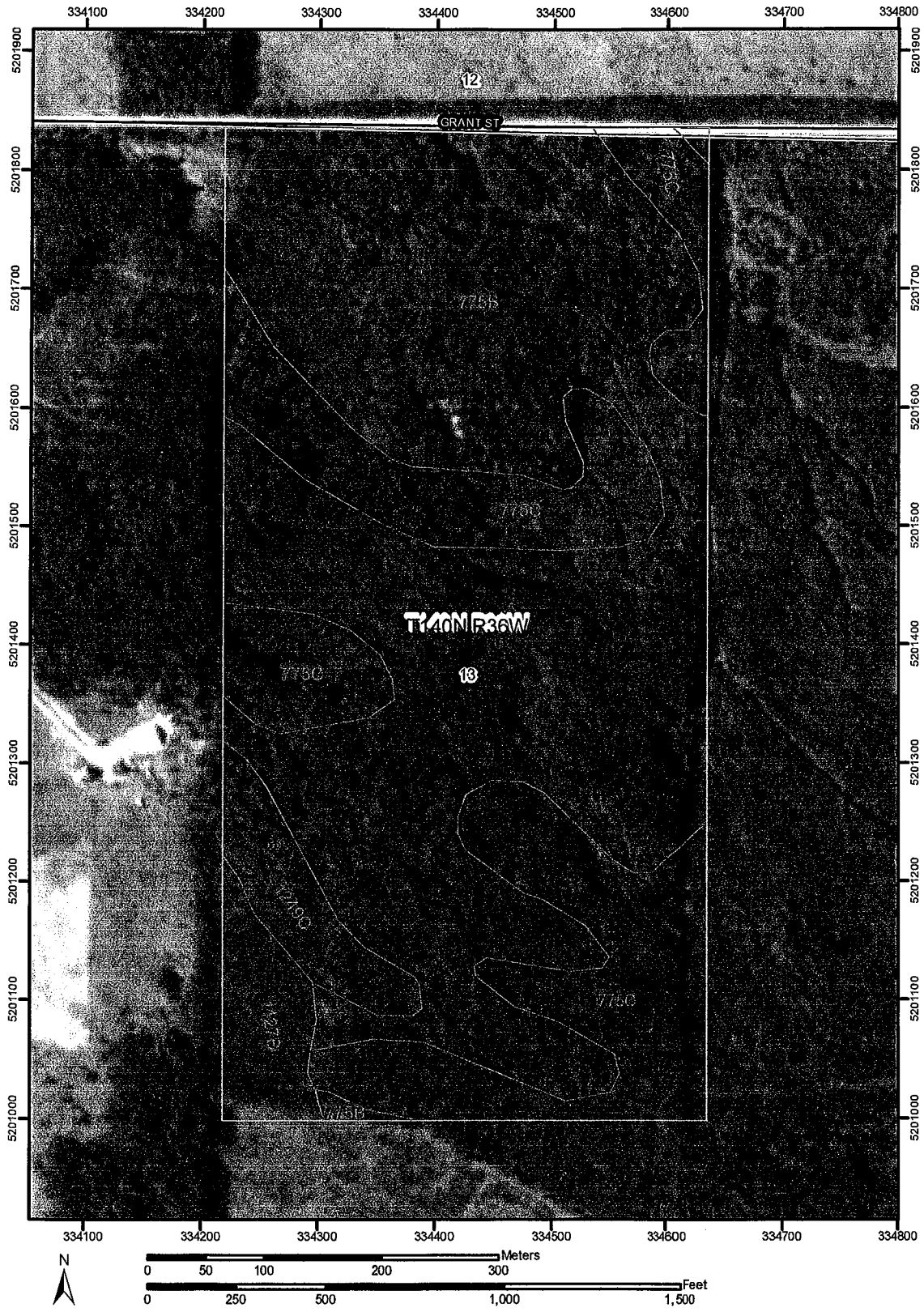
✓ entered Laird

Boring 3 Elevation:		Location: R 210073001 (See map)		
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0 - 5	fine sandy loam	10yr 3/3	granular	friable
5" - 23"	loamy fine sand	10yr 4/4	single grain	loose
23 - 37	sandy loam	10yr 4/6	blocky	firm
37 - 80	med sand	10yr 6/6	single grain	loose

Boring 4 Elevation:		Location: Alternate site area		
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0 - 5	fine sandy loam	10yr 3/3	granular	friable
5" - 22"	loamy fine sand	10yr 4/4	single grain	loose
22 - 60	med sand	10yr 5/6	single grain	loose
60 - 75	med sand	10yr 6/6	single grain	loose

Boring 5 Elevation:		Location:		
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence

Boring 6 Elevation:		Location:		
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence


334100
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12
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T140N R36W
13
N
Meters
0 50 100 200 300
Feet
0 250 500 1,000 1,500

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features

Public Land Survey
- Township and Range
- Section

Municipalities
- Cities
- Urban Areas

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Becker County, Minnesota
Survey Area Data: Version 5, Oct 27, 2006

Date(s) aerial images were photographed: 1991

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Becker County, Minnesota (MN005)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
775B	Sugarbush-Two Inlets complex, 1 to 8 percent slopes	56.0	65.0%
775C	Sugarbush-Two Inlets complex, 8 to 15 percent slopes	23.7	27.5%
1127B	Bootlake-Graycalm complex, 2 to 8 percent slopes	3.2	3.7%
1249C	Graycalm-Bootlake complex, 8 to 15 percent slopes	3.3	3.8%
Totals for Area of Interest (AOI)		86.2	100.0%

University of Minnesota Trench and Bed Worksheet

All boxed rectangles must be entered, the rest will be calculated.

ONSITE SEWAGE TREATMENT PROGRAM

1. Flow

A. Estimated Flow [750] gpd *(Fig. A-1)* R210073001

A-1 Estimated Sewage Flows in GPD				
Number of Bedrooms	Class I	II	III	IV
2	300	225	180	60% of
3	450	300	218	the
4	600	375	256	values
5	750	450	294	in the
6	900	525	332	Class I,
7	1050	600	370	II or II
8	1200	675	408	columns

Pump Tank Minimum Sizing
500 gallons or 100% of Average Design Flow (A-1) or dual alternating pump system

2. Minimum Septic Tank Capacity

B. Septic tank capacity *(Fig C-1)* [1500] gallons Number of tanks/compartments [2]

C. Effluent filter (yes/no) [yes]

C-1 Minimum Septic Tank Capacity in Gallons			
Number of Bedrooms	Minimum Capacity	Capacity with GD*	Capacity with GD and pump in basement **
2 or less	750	1125	1500
3 or 4	1000	1500	2000
5 or 6	1500	2250	3000
7, 8 or 9	2000	3000	4000

* GD = garbage disposal, Must have multiple tanks or compartments

** Must have multiple tanks, compartments or effluent screen

3. Pump Tank Specifications

D. Pump tank needed (yes/no) [yes] Minimum size if needed [1000] gallons

4. SOILS *(Site evaluation data)*

E. Depth to restricting layer = [7] ft

F. Maximum depth of system Item E - 3 ft = 7 - 3 = 4 ft

G. Texture [sandy loam] Percolation Rate *if available* [6" - 15"] mpi

H. SSF [1.27] ft^2/gpd (see figure D-15)

I. % Slope [2] %

D-15 Soil Characteristics & SSF		
Perc Rate mpi	Soil Texture	Soil Sizing Factors ft^2/gpd
< 0.1 *	Coarse sand	0.83
0.1- 5	Medium sand	0.83
	Loamy sand	
0.1- 5**	Fine sand	1.67
6 - 15	Sandy loam	1.27
16 - 30	Loam	1.67
31 - 45	Silt loam, silt	2.00
46 - 60	Clay loam, sandy clay or silty clay	2.20
61 - 120***	Clay, sandy or silty clay	4.20
>120****		

* No trench >25% of total system

** Soil with >50% fine sand particles

*** A mound must be used

**** An other or performance system

5. **System Type**

	Pressure Bed *(<6% slope)*
	Gravity Bed (<6% slope)
x	Trenches

Distribution Media Type

x	Rock
	Chamber
	Gravelless
	Other: ____

Method of Distribution

	Pressure
x	Drop Boxes
	Dist. Box *(<3% slope)*
	Other: ____

6. **TRENCH OR BED BOTTOM AREA**

J. For trenches with 6 inches of wide wall beneath the pipe or 10" diameter gravelless pipe:
A x H = 750 gpd x 1.27 ft/gpd = 952.5 ft^2

K. For trenches with 12 inches of sidewall:
A x H x 0.8= **750** gpd x **1.27** ft/gpd x 0.8 = **762.0** ft^2

L. For trenches with 18 inches of sidewall:
A x H x 0.66= 750 gpd x 1.27 ft/gpd x 0.66 = 628.7 ft^2

M. For trenches with 24 inches of sidewall:
A x H x 0.6= 750 gpd x 1.27 ft/gpd x 0.6 = 571.5 ft^2

N. For gravity beds with 6 or 12 inches of rock below the pipe;
1.5 x A x H = 1.5 x 750 gpd x 1.27 ft/gpd = NA ft^2

O. For pressure beds with 6 or 12 inches of rock below the pipe;
A x H = 750 gpd x 0 ft/gpd = NA ft^2

7. **Trench and Bed Dimensions**

P. Select required square feet of bottom area required based on depth of rock/gravelless pipe or height of chamber slats
[ ] ft^2
(must use 6" of rock square footage for beds)

Q Select width of trench or bed [**3.0**] ft
(use 3' for gravelless pipe, width of chamber or width of excavation for rock in trenches & beds can not be wider the 25')

R. For trenches or pressure beds the lineal feet required = required square footage / width of bottom of trench or bed
762.0 ft^2 / **3.0** ft = **254.0** lineal feet

S. For gravity beds the lineal feet required = required square footage / width of bed
0.0 ft^2 / 3.0 ft = ____ lineal feet

8. **Rock Sizing and Volume**

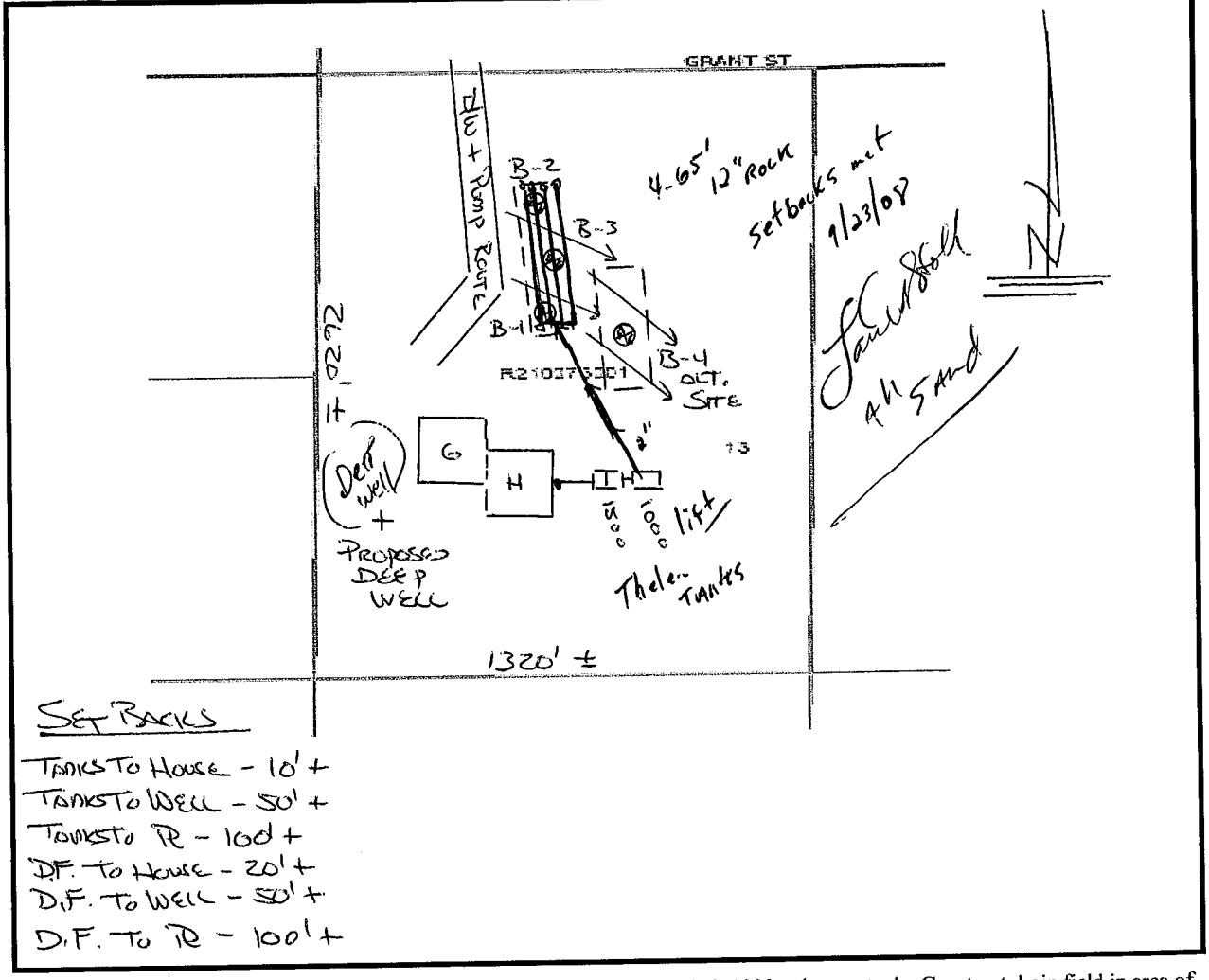
T. Depth of media below pipe [1.0] ft
Cubic feet of rock needed = Rock depth below distribution pipe plus 0.5 foot times bottom area:
(Rock depth + 0.5 foot) x Area (J, K, L, M)
(1.0 ft + 0.5 ft) x 762.0 ft^2 = 1143.0 ft^3
Volume in cubic yards = volume in cubic feet divided by 27
1143.0 / 27= 42.3 yd^3
Weight of rock in tons = cubic yards times 1.4
42.3 x 1.4= 59.3 tons
Add in 10% extra for constructability = 1.1 X 59.3 = 65.2 tons

9. **Layout**
Select an appropriate scale; one inch = [ ] ft
Show pertinent property boundaries, rights-of-way, easements.
Show location of house, garage, driveway, and all other improvements, existing or proposed.
Show location and layout of sewage treatment system, well and dimensions of all elevations

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.
_____ (signature) 1565 (license #) 6/26/2008 (date)

Local Unit of Government Approval
_____ (signature) _____ (registration #) _____ (date)

Site Evaluation Map



List any construction issues: R 210073001 Set 1000/500 combo tank & 1000 gal pump tank. Construct drain field in area of B-1 B-2 and B-3 (location is marked in field) 254 Ln. Ft. of trench is needed with 12" of rock under pipe. Cover drain field area with top soil and seed as soon as possible.

Mapping Checklist

Map scale: N/A | x indicate north | x show slope | 2 % direction | east

Locate

- x lot dimensions/property lines
- x dwellings and other improvements
- x existing and/or proposed system(s)
- x replacement area
- ___ unsuitable area(s)
- ___ public water supply wells
- x pumping access
- ___ inner wellhead zone

Easements

- ___ phone
- ___ electric
- ___ gas

Elevations

- x borings
- ___ benchmark
- ___ perc tests
- ___ horiz&vert reference pts

Setbacks

- x building
- x all water wells within 100ft
- ___ pressure pipe
- ___ water suction pipe
- ___ streams, lakes, rivers
- ___ floodway and fringe

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

[signature] (signature) 6/26/2008 (date)

1565 (license #) 218-573-2275 (phone number)

University of Minnesota Pump Selection Procedure - 10/25/04

All boxed rectangles must be entered, the rest will be calculated.

R210073001

ONSITE SEWAGE TREATMENT PROGRAM

1. Determine pump capacity:

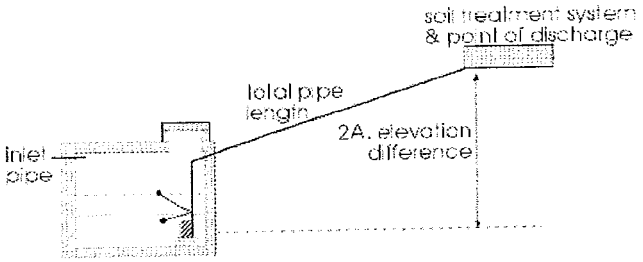
A. Gravity Distribution

1. Minimum required discharge is 10 gpm
2. Maximum suggested discharge is 45 gpm

For other establishments at least 10% greater than the water supply rate, but no faster than the rate at which effluent will flow out of the distribution device.

B. Pressure Distribution - see pressure design worksheet

Selected Pump Capacity: [35] **gpm**



2. Determine Total Dynamic Head (TDH)

A. Elevation difference between pump and point of discharge.
[15] feet

B. Special head requirement? *(See Figure - Special Head Requirements)*
[0] feet

Special Head Requirements	
Gravity Distribution	0ft
Pressure Distribution	5ft

C. Friction loss in supply pipe

1. Select pipe diameter [2] in
2. Enter Figure E-9 with gpm (1A or B) and pipe diameter (C1)
   Read friction loss in feet per 100 feet from Figure E-9
   Friction loss= [2.06] ft/ 100 ft of pipe

E-9 Friction Loss in Plastic Pipe per 100 ft

Flow Rate (gpm)	nominal pipe diameter 1.5"	2.0"	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	0.3
40	8.91	2.64	0.39
45	11.07	3.28	0.48
50	13.46	3.99	0.58
55		4.76	0.7
60		5.6	0.82
65		6.48	0.95
70		7.44	1.09

3. Determine total pipe length from pump discharge to soil system discharge point.
   Estimate by adding 25 percent to pipe length for friction loss in fittings.
   Pipe length times 1.25 = equivalent pipe length
   [115] ft x 1.25 = [143.75] feet

4. Calculate total friction loss by multiplying friction loss (C2)
   by the equivalent pipe length (C3) and divide by 100.
   Friction Loss = [2.06] ft/100ft X [143.75] ft / 100 = [3.0] feet

D. Total head requirement is the sum of elevation difference (A), special head requirements (B), and total friction loss (C4).
[15] ft + [0] ft + [3.0] ft

Total Head: [18.0] feet

3. Pump Selection

1. A pump must be selected to deliver at least	35	gpm (1A or B)	
with at least	18.0	feet of total head (2D).	BN 98 or equiv.

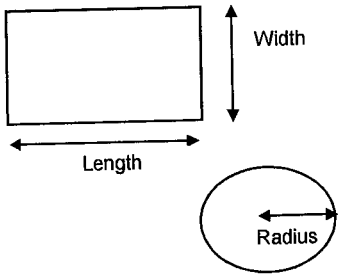
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

[signature] (signature) [1565] (license #) 6/26/2008

DOSING CHAMBER SIZING - 10/25/04

All boxed rectangles must be entered, the rest will be calculated.

R210073001



1. Determine area
   - A. Rectangle area = L x W: 8 ft x 5 ft = 40 ft²
   - B. Circle area = 3.14 x radius²: 3.14 x ____ ft² = 0.0 ft²
   - C. Get area from manufacture: ____ ft²

2. Calculate gallons per inch
   There are 7.5 gallons per cubic foot of volume, therefore multiply the area (1A, B or C) times the conversion factor and divide by 12 inches per foot to calculate gallon per inch.
   Surface area x 7.5 / 12 = 40 ft² x 7.5 / 12in/ft = 25.0 gallon per inch

Legal Tank: 500 gallons or 100% the daily flow or Alternating Pumps

3. Calculate total tank volume
   - A. Depth from bottom of inlet pipe to tank bottom = 48 in
   - B. Total tank volume = depth from bottom of inlet pipe to tank bottom(3A) x gal/in(2)
     = 48 in x 25.0 gal/in = 1200.0 gallons

4. Calculate gallons to cover pump (with 2-3 inches of water covering pump)
   (Pump and block height + 2 inches) x gallon per inch
   (10 + 2 in) x 25.0 gal/in = 300.0 gallons

5. Calculate total pumpout volume
   - A. Select pump size for 4-5 doses per day. Gallon per dose = gpd *(see Figure A-1)* / doses per day =
     750 gpd / 5 doses/day = 150 gallons

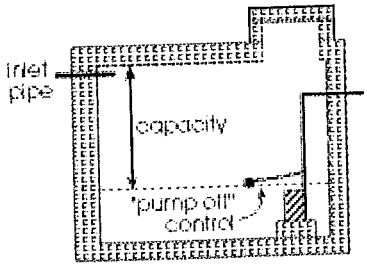
A-1 Estimated Sewage Flows in GPD

Number of Bedrooms	Class I	Class II	Class III	Class IV
2	300	225	180	60% of
3	450	300	218	the
4	600	375	256	values
5	750	450	294	in the
6	900	525	332	Class I,
7	1050	600	370	II or II
8	1200	675	408	columns

E-20 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
2.5	0.250
3	0.380
4	0.660

   - B. Calculate drainback
     1. Determine total pipe length: 115.0 ft
     2. Determine liquid volume of pipe, 0.17 gal/ft *(see figure E-20)*
     3. Drainback quantity = 115.0 ft (5B1) x 0.17 gal/ft(5B2) = 19.6 gal
   - C. Total pump out volume = dose volume(5A) + drainback (5B3)
     150 gallons + 19.6 gallons = 169.6 gal



6. Calculate float separation distance (using total pumpout volume)
   Total pumpout volume(5C) / gal/inch(2)
   169.6 gal / 25.0 gal/in = 6.8 inch

7. Calculate volume for alarm (typically 2 - 3 inches)
   Alarm depth (inch) x gallon/inch(2) = 3 in x 25.0 gal/in = 75 gal

8. Calculate total gallons = gallons over pump(4) + gallons pumpout(5C) + gallons alarm(7)
   300.0 gal + 169.6 gal + 75.0 gal = 544.6 gal

9. Total tank depth = total gallons(8) / gallon/in(2)
   544.6 gallons / 25 gal/in = 21.8 in

Recommended
Calculate reserve capacity (75% of the daily flow)
Daily flow x 0 .75 = 750 x 0.75 = 562.5 gallons

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

(signature) 1565 (license #) 6/26/2008

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

Application Approved by: Laurel A Stahl Date: 7/11/08

Amount Paid $100.00 Receipt Number _____ Permit Number _____

NOTES: ~~171424~~

7/11/08 171424/395500

****

INSPECTION REPORT

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 _____

Alarm required? _____ Yes _____ No Alarm Type Styne Alarm manufacturer _____

Lift pump in system? _____ Yes _____ No Pump manufacturer _____

Number of bedrooms _____

Component Information

Tank size 1500 - 1000 l.ft Tank manufacturer Thelen Tanks

Drainfield size 762 sq.ft.

Drainfield medium _____ Medium manufacturer _____

Drainfield medium size/depth _____

Soil Verification

Vertical separation verified for Boring #1 on Tank Hole Depth all Sand good Soils

Vertical separation verified for Boring #2 on _____ Depth _____

Vertical separation verified for Boring #3 on _____ Depth _____

Setback Verification

	TANK	DRAINFIELD
Distance to Well		
Distance to Building		
Distance to Property Line		
Distance to OHW of Lake		
Distance to Pressure Line		
Distance to Wetland/Protected Water		

Date System Installed 9/23/08 **Installer** Jamie Doble **Inspector** Laurel A Stahl

****

****

CERTIFICATE OF COMPLIANCE

( ) Certificate Is Hereby Denied

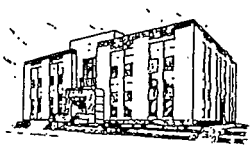
(X) Certificate is Hereby Granted Based upon the Application, addendum from, plans, specifications and all other supporting data. With property maintenance, this system can be expected to function satisfactory, however, this is not a guarantee.

Laurel A Stahl — Signature

ISTS Inspector — Title

9/23/08 — Date

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



BECKER COUNTY

835 LAKE AVENUE, P.O. BOX 787
DETROIT LAKES, MINNESOTA 56502-0787
(218) 846-7314

SKETCH PLAN

Application No.
Tax Parcel No.

Drawing By: _____

Date of Drawing: _____

University of Minnesota
Onsite Sewage Treatment Program

RECEIVED
JUL 09 2008
ZONING

By mail

University of Minnesota
EXTENSION

Septic System Management Plan for In-Ground Systems

The goal of a septic system is to protect human health and the environment by properly treating wastewater before returning it to the environment. Your septic system is designed to kill harmful organisms and remove pollutants before the water is recycled back into our lakes, streams and groundwater.

This **management plan** will identify the operation and maintenance activities necessary to ensure long-term performance of your septic system. Some of these activities must be performed by you, the homeowner. Other tasks must be performed by a licensed septic maintainer or service provider. However, it is YOUR responsibility to make sure all tasks get accomplished in a timely manner.

The University of Minnesota's *Septic System Owner's Guide* contains additional tips and recommendations designed to extend the effective life of your system and save you money over time.

Proper septic system design, installation, operation and maintenance means safe and clean water!

Sec 13 - twp 140 R 36

Property Owner KARL CARLSON

Property Address 58361 GRANT ST OSAGE Property ID R.21007300/

System Designer WINTERBERGER INSPECTIONS License # 1565

System Installer JAMIE NOBLE License # L2556

Service Provider/Maintainer Phone

Permitting Authority Phone

Permit # Date Inspected

Keep this Management Plan with your Septic System Owner's Guide. The Septic System Owner's Guide includes a folder to hold maintenance records including pumping, inspection and evaluation reports. Ask your septic professional to also:

- Attach permit information, designer drawings and as-builts of your system, if they are available.
- Keep copies of all pumping records and other maintenance and repair invoices with this document.
- Review this document with your maintenance professional at each visit; discuss any changes in product use or water-use appliances.

For a copy of the *Septic System Owner's Guide*, call 1-800-876-8636 or go to http://shop.extension.umn.edu/

http://septic.umn.edu

Receipt # 171424-395550
7/11/08

Mailing Address: 505 Pleasant Ave
Park Rapids, MN 56470

✓ mailed Permit

Homeowner Management Tasks

These op*eration and maintenance ac*tivities are your responsibility. *Use the chart on page 6 to track your activities.*

Identify the service intervals recommended by your system designer and your local government. The tank assessment for your system will be the **shortest interval of these three intervals.** Your pumper/maintainer will determine if your tank needs to be pumped.

System Designer: check every 24 months
Local Government: check every _____ months
State Requirement: check every 36 months

My tank needs to be checked every _____ months

Seasonally or several times per year

- ❑ *Leaks.* Check (listen, look) for leaks in toilets and dripping faucets. Repair leaks promptly.
- ❑ *Surfacing sewage.* Regularly check for wet or spongy soil around your soil treatment area. If surfaced sewage or strong odors are not corrected by pumping the tank or fixing broken caps, call your service professional. *Untreated sewage may make humans and animals sick.*
- ❑ *Alarms.* Alarms signal when there is a problem; contact your maintainer any time the alarm signals.
- ❑ *Lint filter.* If you have a lint filter, check for lint buildup and clean when necessary.
- ❑ *Effluent screen.* If you have an effluent screen, inspect and clean it twice a year or per manufacturer recommendations.

Annually

- ❑ *Water usage rate.* A water meter can be used to monitor your average daily water use. Compare your water usage rate to the design flow of your system (listed on the next page). Contact your septic professional if your average daily flow over the course of a month exceeds 70% of the design flow for your system.
- ❑ *Caps.* Make sure that all caps and lids are intact and in place. Inspect for damaged caps at least every fall. Fix or replace damaged caps before winter to help prevent freezing issues.
- ❑ *Water conditioning devices.* See Page 5 for a list of devices. When possible, program the recharge frequency based on *water demand (gallons)* rather than *time (days)*. Recharging too frequently may negatively impact your septic system.
- ❑ *Review your water usage rate.* Review the Water Use Appliance chart on Page 5. Discuss any major changes with your pumper/maintainer.

During each visit by a pumper/maintainer

- ❑ Ask if your pumper/maintainer is licensed in Minnesota.
- ❑ Make sure that your pumper/maintainer services the tank through the manhole. (NOT though a 4" or 6" diameter inspection port.)
- ❑ Ask your pumper/maintainer to accomplish the tasks listed on the Professional Tasks on Page 3.

Professional Management Tasks

These are the operation and maintenance activities that a pumper/maintainer performs to help ensure long-term performance of your system. Professionals should refer to the O/M Manual for detailed checklists for tanks, pumps, alarms and other components. Call 800-322-8642 for more details.

- ❑ Written record provided to homeowner after each visit.

Plumbing/Source of Wastewater

- ❑ Review the Water Use Appliance Chart on Page 5 with homeowner. Discuss any changes in water use and the impact those changes may have on the septic system.
- ❑ Review water usage rates (if available) with homeowner.

Septic Tank/Pump Tanks

- ❑ *Manhole lid.* A riser is recommended if the lid is not accessible from the ground surface. Insulate the riser cover for frost protection.
- ❑ *Liquid level.* Check to make sure the tank is not leaking. The liquid level should be level with the bottom of the outlet pipe. (If the water level is below the bottom of the outlet pipe, the tank may not be watertight. If the water level is higher than the bottom of the outlet pipe of the tank, the effluent screen may need cleaning, or there may be ponding in the drainfield.)
- ❑ *Inspection pipes.* Replace damaged caps.
- ❑ *Baffles.* Check to make sure they are in place and attached, and that inlet/outlet baffles are clear of buildup or obstructions.
- ❑ *Effluent screen.* Check to make sure it is in place; clean per manufacturer recommendation.
- ❑ *Alarm.* Verify that the alarm works.
- ❑ *Scum and sludge.* Measure scum and sludge in each tank, pump if needed.

Pump

- ❑ *Pump and controls.* Check to make sure the pump and controls are operating correctly.
- ❑ *Pump vault.* Check to make sure it is in place; clean per manufacturer recommendations.
- ❑ *Alarm.* Verify that the alarm works.
- ❑ *Drainback.* Check to make sure it is operating properly.
- ❑ *Event counter or run time.* Check to see if there is an event counter or run time log for the pump. If there is one, calculate the water usage rate and compare to the anticipated average daily flow listed on Page 4.

Soil Treatment Area

- ❑ *Inspection pipes.* Check to make sure they are properly capped. Replace caps that are damaged.
- ❑ *Surfacing of effluent.* Check for surfaced effluent or other signs of problems.
- ❑ *Gravity trenches.* Check the number of gravity trenches with ponded effluent. Identify the percentage of the system in use. Determine if action is needed.

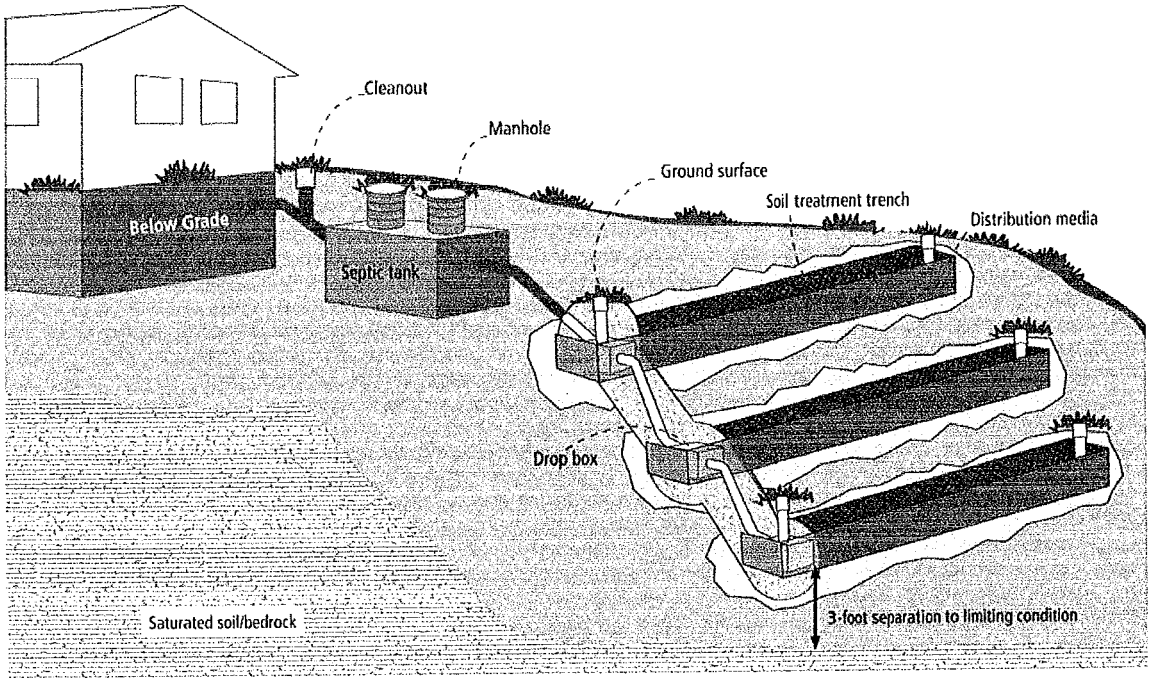
All other components – inspect as listed here:

_____

_____

_____

Information on Your System



Dwelling Type	Well Construction
Number of bedrooms: 5	Well depth (ft): _____
System capacity/ design flow (gpd): 750	☐ Cased well Casing depth: _____
Anticipated average daily flow (gpd): 750	☐ Other (specify): _____
Comments _____	Distance from septic (ft): _____
In-home business? ___ What type? _____	Is the well on the design drawing? Y N

Septic Tank	
☒ One tank *Tank volume:* 1000/500 *gallons*	☒ Pump Tank (*if one*) 1000 gallons
Does tank have two compartments? (Y) N	☐ Effluent Pump *type*: _____
☐ Two tanks *Tank volume:* _____ *gallons*	TDH _____ Feet of head
☐ Tank is constructed of Conc.	Pump capacity _____ GPM
☐ Effluent Screen *type*: _____	☐ Alarm _____ visual _____ audible

Soil Treatment Area		
Trenches: 254 total lineal feet	☒ Gravity distribution	☐ Pressure distribution
Number of trenches: _____ at _____ feet each		
Drainbed size (length x width): ____ ft x ____ ft	☐ Inspection ports	☐ Cleanouts

Water-Use Appliances and Equipment in the Home

Appliance	Impacts on System	Management Tips
Garbage disposal	• Uses additional water. • Adds solids to the tank. • Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Use of a garbage disposal is not recommended. • Minimize garbage disposal use. Compost instead. • To prevent solids from exiting the tank, have your tank pumped more frequently. • Add an effluent screen to your tank.
Washing machine	• Washing several loads on one day uses a lot of water and may overload your system. • Overloading your system may prevent solids from settling out in the tank. Unsettled solids can exit the tank and enter the soil treatment area.	• Choose a front-loader or water-saving top-loader, these units use less water than older models. • Limit the addition of extra solids to your tank by using liquid or easily biodegradable detergents. • Install a lint filter after the washer and an effluent screen to your tank • Wash only full loads. • Limit use of bleach-based detergents. • Think even – spread your laundry loads throughout the week.
2nd floor laundry	• The rapid speed of water entering the tank may reduce performance.	• Install an effluent screen in the septic tank to prevent the release of excessive solids to the soil treatment area. • Be sure that you have adequate tank capacity.
Dishwasher	• Powdered and/or high-phosphorus detergents can negatively impact the performance of your tank and soil treatment area. • New models promote "no scraping". They have a garbage disposal inside.	• Use gel detergents. Powdered detergents may add solids to the tank. • Use detergents that are low or no-phosphorus. • Wash only full loads. • Scrape your dishes anyways to keep undigested solids out of your septic system.
Grinder pump (in home)	• Finely-ground solids may not settle. Unsettled solids can exit the tank and enter the soil treatment area.	• Expand septic tank capacity by a factor of 1.5. • Include pump monitoring in your maintenance schedule to ensure that it is working properly. • Add an effluent screen.
Large bathtub (whirlpool)	• Large volume of water may overload your system. • Heavy use of bath oils and soaps can impact biological activity in your tank and soil treatment area.	• Avoid using other water-use appliances at the same time. For example, don't wash clothes and take a bath at the same time. • Use oils, soaps, and cleaners in the bath or shower sparingly.
Clean Water Uses	**Impacts on System**	**Management Tips**
High-efficiency furnace	• Drip may result in frozen pipes during cold weather.	• Re-route water into a sump pump or directly out of the house. Do not route furnace recharge to your septic system.
Water softener Iron filter Reverse osmosis	• Salt in recharge water may affect system performance. • Recharge water may hydraulically overload the system.	• These sources produce water that is clean; clean water should not go into your septic system. • Reroute water from these sources to another outlet, such as a dry well or old drainfield. • When replacing, consider using a demand-based recharge vs. a time-based recharge. • Check valves to ensure proper operation; have unit serviced per manufacturer directions
Surface drainage Footing drains	• Water from these sources will likely overload the system.	

Maintenance Log

Track maintenance activities here for easy reference. See list of management tasks on page 2.

Activity	Date accomplished									
Check frequently:										
Leaks: check for plumbing leaks										
Soil treatment area check for surfacing										
Lint filter: check, clean if needed										
Effluent screen: if owner-maintained										
Check annually:										
Water usage rate (monitor frequency____)										
Caps: inspect, replace if needed										
Water use appliances – review use										
Other:										

Notes:

"I understand it is my responsibility to properly operate and maintain the sewage treatment system on this property, utilizing the Management Plan. If requirements in this Management Plan are not met, I will promptly notify the permitting authority and take necessary corrective actions. If I have a new system, I agree to adequately protect the reserve area for future use as a soil treatment system."

Property Owner Signature: _____ Date 7/1/08

Designer Signature: _____ Date 6/26/08

Permitting Authority Signature: _____ Date _____