270103002

ION SYSTEM

CERTIFICATE OF COMPLIANCE
With The Becker County Zoning Ordinance

SE/97

Application Number	11135
Tax Parcel Number	27.0103.002
Fire Number of Project Location	

A. GENERAL INFORMATION

1. Applicant's Name (Last, First, M.I.)	2. Authorized Agent (if applicable)
Moos, Donald + Cheri	

3. Mailing Address (Street, RFD, Box Number, City, State, Zip Code): HC05 Box 502-A Park Rapids, MN. 56470

4. Day Phone	5. Evening Phone	6. Section	7. Township
		24	Sarannah

B. PROPERTY DESCRIPTION

1. Lot(s), Block, Subdivision Name: Pt lot 3 Beg 1204.05' N+W of SE Cor, Th NWly ALRd

SEWAGE SYSTEM DATA

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

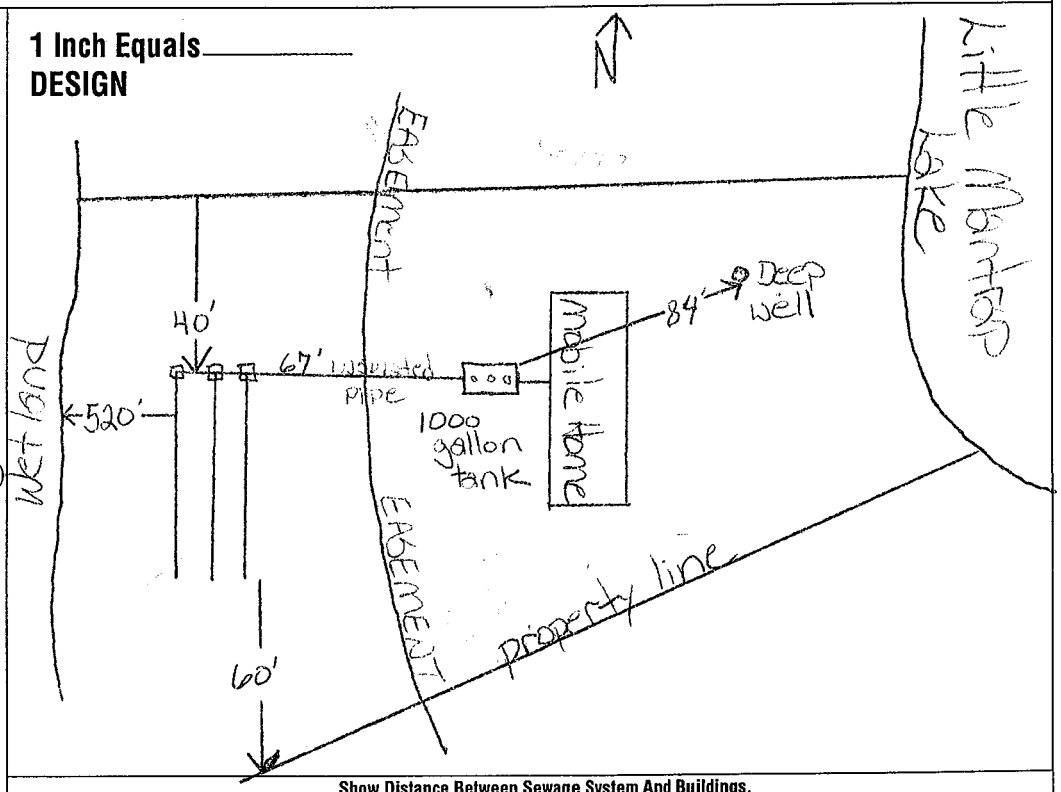
Type of Installation
a. ( ) Septic Tank Only
b. ( ) Drainfield Only
c. (✓) Septic Tank & Drainfield
d. ( ) Holding Tank
e. ( ) Septic Tank/Drainfield Lift Station

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

Well Data
a. Depth 67'
b. Diameter 4"

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

1 Inch Equals_____
DESIGN



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

		Tank	Drainfield			Tank	Drainfield
Distances to Well:	=	84'	163'	Distance to Pressure Line:	=	20'	97'
Distance to Building:	=	10'	77'	Tank Capacity (gal.& Area of Drainfield (ft 2)	=	1000	571
Distance to Property Line:	=	10'+	10'+	Distance to Ordinary High Water Level:	=	140'	219'
Drainfield separation from Highest Known Ground Water Level, Impervious Lens or Soil Mottling:	=						6'

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

Jay D Hanson
Signature
Inspector — 10 June 97
Title — Date

SE/ 97

INSTALLATION PERMIT FOR INDIVIDUAL SEWAGE TREATMENT

PERMIT NUMBER _____

Property Owner: Don Moos

Parcel Number: 27.0103.002

WORK CATEGORY	SIZE OF TANK	SIZE OF LIFT STATION
	1000 GALLONS	— GALLONS
(X) NEW SYSTEM	SIZE OF DRAINFIELD	SIZE OF PUMP
( ) REPAIR	571 FT2	—
	SYSTEM LENGTH	DEPTH TO RESTRICTING
	190 FT	LAYER 6'
	NUMBER OF	MAXIMUM DEPTH OF
TYPE OF SYSTEM	TRENCHES 3	SYSTEM 3'
	ESTIMATED	
(X) SEPTIC TANK/DRAINFIELD	FLOW 450 GPD	PERC RATE Sand
( ) DRAINFIELD ONLY		
( ) HOLDING TANK	TYPE OF DRAINFIELD	SSF 1.27
( ) ALTERNATE (specify)		SIZE OF GRAVELLESS
_____	(X) STANDARD (gravelless)	PIPE 10 inch
( ) LIFT STATION	( ) STANDARD (rock trench)	
	( ) STANDARD (bed)	DEPTH OF ROCK _____
	( ) MOUND (pressure distb)	

ADDITIONAL INFORMATION _____

INSTALLER Blue Ox Construction LICENSE NUMBER _____

ADDRESS/PHONE _____

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.

on site evaluation — Signature

5/28/97 — 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.

For Office Use Only

Application Fee _____ State Surcharge _____ Total _____

[ ] Application is hereby denied

[ ] Application is hereby granted to _____ 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:

_____ _____

Signature of Becker County Qualified Employee — Date

This permit expires on _____

Date Inspected _____ Inspector _____

SE/97

Soil Boring Log

ISTS 95

Client: Don Moose
Address:

Date: 2 May 97
Location: Little Manitou Lake
Soil Type:
Disturbed / Compacted yes (no)
Type of observation: Probe Pit (Boring)

# of Bedrooms: 3
Garbage Disposal: yes (no)
Type: I II III IV
Flow:

Parent Material: Till (Outwash) Loess Bedrock Alluvium
Vegetation: Wet (Dry) Unknown
Slope Form:
Slope: 3 %
Drainage: (Good) Problems Solutions
Floodplain: yes (no)

Elevation of Boring:
Depth of Water:
Depth to Bedrock:
Depth of System:
Soil Sizing Factor:
Linear Loading Rate:
Well Information:
Location:
Depth:
Casing Depth:

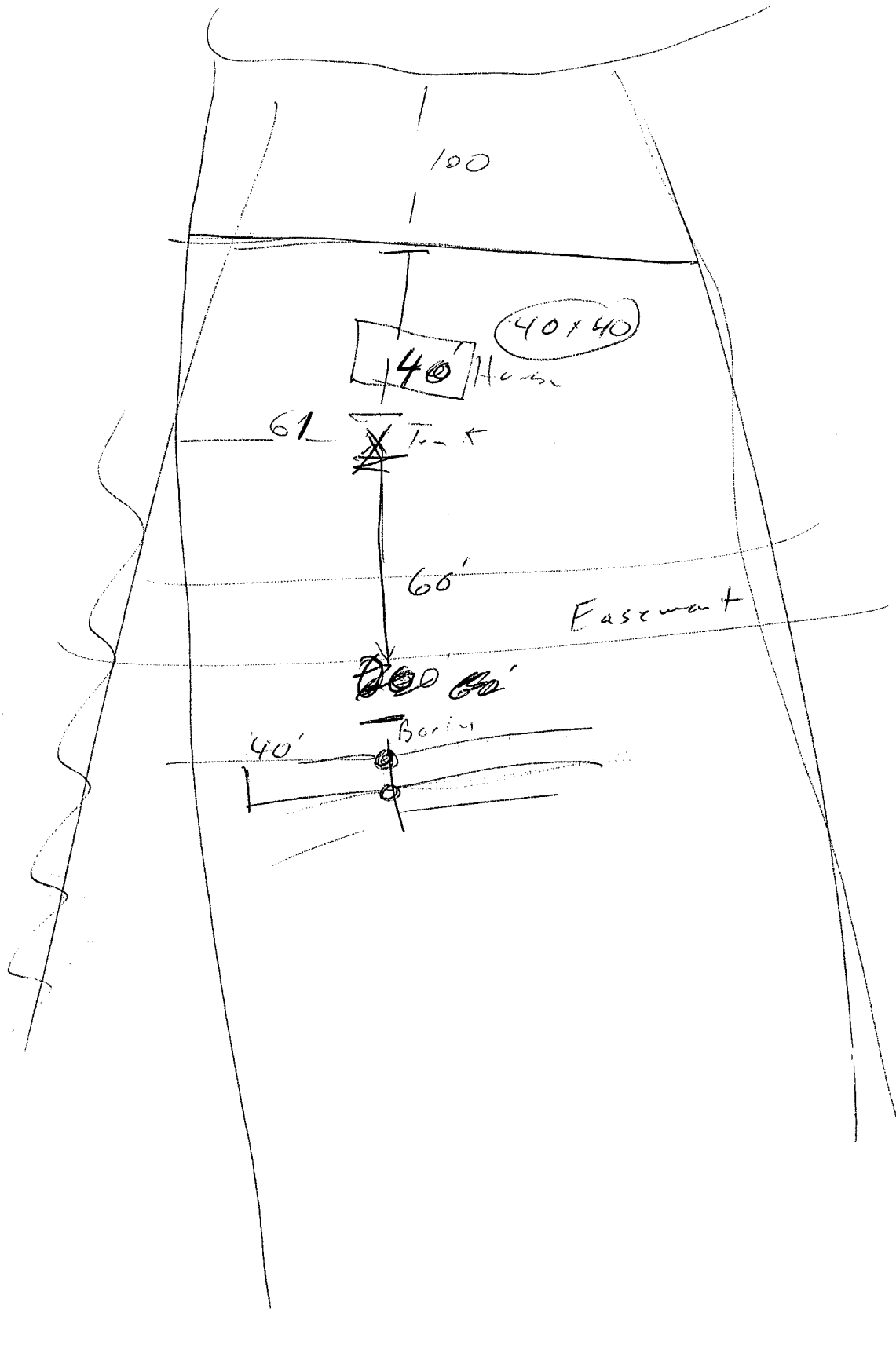
Depth (inches)	Texture	Color	Structure
0-10	Top Soil	B1K	Blocky Platy Prismatic (None)
10-18	Loam	10YR 5/4	Blocky Platy Prismatic None
18-30"	Clay Loam	10YR 4/4	(Blocky) Platy Prismatic None
30" 48	Sand	10YR 5/6	Blocky Platy Prismatic (None)
48" 60"	Course Sand	10YR 4/6	Blocky Platy Prismatic None
60" 72	Sand	7.5YR 4/6	
~~72" 96"~~	~~sand~~	~~10YR 4/4~~	

Additional Notes:

Preliminary design:
Trench____ Bed____ Atgrade ____ Mound____ Holding Tank____
Gravity Dist.____ Pressure Dist. ____
Sand:Serial ____ Pressure____ Liner____ Clay: Liner____

? Lenscea/Moos-Address
Blue Ox Address
Well site

SE/97



INDIVIDUAL SEWAGE TREATMENT SYSTEM WORKSHEET

SE/97

FLOW

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

SEPTIC TANK VOLUME

B. 1000 gallons

SOILS (Site evaluation data)

C. Depth to restricting layer = 96+ feet
D. Maximum depth of system C - 3 ft = 48" feet
E. Texture Sand Percolation rate _____ MPI
F. SSF 1.27 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

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

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

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)
450 x 1.27 ÷ 3 = 190 feet

LAWN AREA

R. Select trench spacing, center to center = 8 feet

S. Multiply trench spacing by lineal feet R x Q = sq ft of lawn area
190 x 8 = 1524 sq ft

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

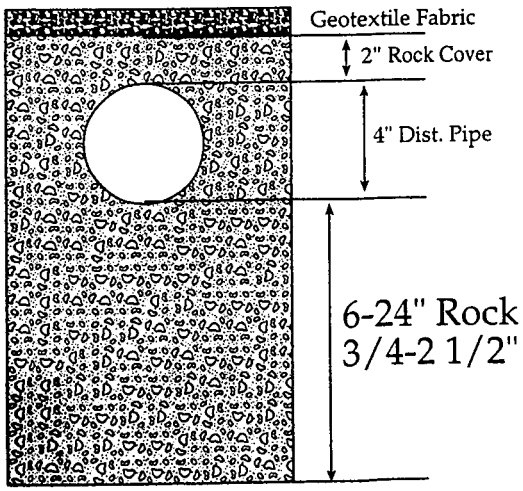
Estimated Sewage Flows in Gallons per day (gpd)				
Number of Bedrooms	Type I	Type II	Type III	Type IV
2	300	225	180	60% of the values in Type I, II or III columns
3	450	300	218	
4	600	375	256	
5	750	450	294	
6	900	525	332	
7	1050	600	370	
8	1200	675	408	

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

- 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	
	START				TIME ÷ DROP (Decimal) = PERC	A
	REFILL				TIME ÷ DROP (Decimal) = PERC	B
	REFILL				TIME ÷ DROP (Decimal) = PERC	C
	REFILL				TIME ÷ DROP (Decimal) = PERC	D
	REFILL				TIME ÷ DROP (Decimal) = PERC	E
	REFILL				TIME ÷ DROP (Decimal) = PERC	F
	REFILL				TIME ÷ DROP (Decimal) = PERC	G
	REFILL				TIME ÷ DROP (Decimal) = PERC	H

conversions
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

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.

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	REFILL				TIME ÷ DROP (Decimal) = PERC	F
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	REFILL				TIME ÷ DROP (Decimal) = PERC	H

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13/16 = .81
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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.

SOIL INFORMATION

5e/97

TEST HOLE #1				TEST HOLE #2			
DEPTH IN INCHES	SOIL TEXTURE	MUNSELL COLOR	STRUCTURE	DEPTH IN INCHES	SOIL TEXTURE	MUNSELL COLOR	STRUCTURE
See soil Boring log			BLOCKY PLATY PRISMATIC NONE				BLOCKY PLATY PRISMATIC NONE
			BLOCKY PLATY PRISMATIC NONE				BLOCKY PLATY PRISMATIC NONE
			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 (X) 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 1800 Apx
TANK SIZE 100 gal

DEPTH OF SYSTEM 30
SYSTEM DESIGN FLOW 450 GPD
SOIL SIZING FACTOR 1.27
PUMP SIZE

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

LIFT STATION SIZE
SOIL TREATMENT AREA SIZE SQ FT
DOSE VOLUME

LENGTH OF LIFT LINE
TOTAL DYNAMIC HEAD

WELL INFORMATION-Property's Well DEPTH OF WELL 67'

TYPE OF WELL 4" deep

Neighboring wells (within 100 ft of system) Depth of Wells No

Type of Wells

Name of Designer I
Designer II Blue Ox Construction (Mike Brown)

Date of Site Evaluation 5/2/97

MPCA Number 1388

Phone

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

Signature of Evaluator [signature] Date 5/27/97

For Office Use Only

Date Site Evaluation / Design received 5/27/97 Received by [signature]

Date Site Evaluation approved Approved by

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

SE/ 97

Onsite Septic System Site Evaluation/Design

Fire Number _____

Tax Parcel Number 27.0163.002

Legal Description:
See Exhibit "A" Pt Lot 3 Beg 1204.05' N & W of SE Cor, th NWLY ALG

Lake/Stream Name	Lake/Stream Class	Section	TWP	Range	Township Name
Little Mantrap Lake		24	142	36	

Property Owner	Address	City, State, Zip Code	Phone Number
Don Jensen/Moos			

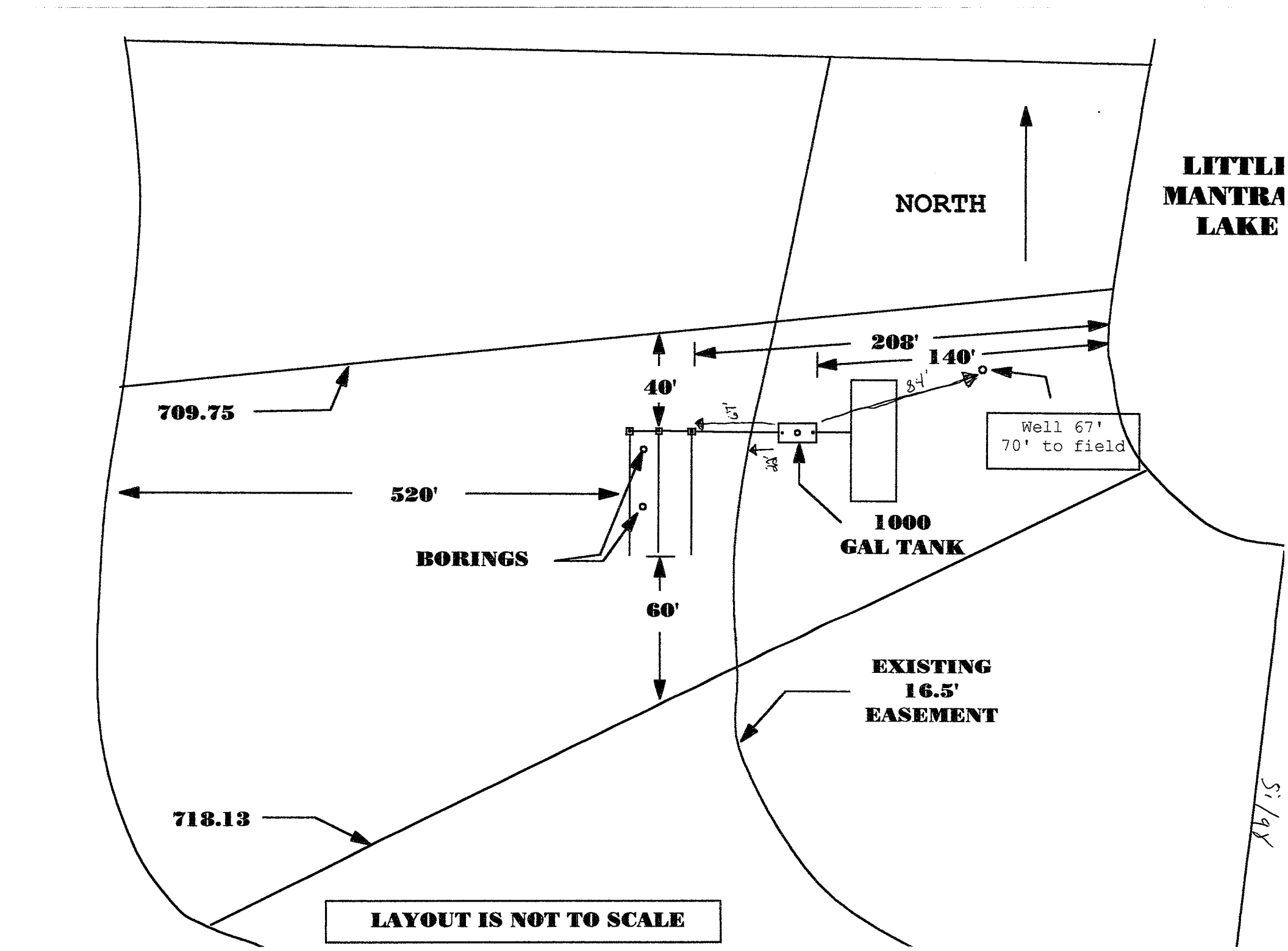
ISTS Designer I / Designer II	License Number	Address	Phone Number
Designer I/Blue Ox Construction	#1388	Rt 1 Bx 197c	(218) 751-7690

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

See Attachment


NORTH
LITTLE
MANTRA
LAKE
208'
140'
40'
709.75
520'
BORINGS
60'
1000
GAL TANK
Well 67'
70' to field
EXISTING
16.5'
EASEMENT
718.13
LAYOUT IS NOT TO SCALE