BECKER COUNTY

829 LAI
DETROIT LAKES, MN 56502-0787
PHONE (218) 846-7314 - FAX (218) 846-7266

191372024

INSTALLATION PERMIT FOR
INDIVIDUAL SEWAGE TREATMENT

FIRE NO. _____

PERMIT/RECEIPT NO. 10153

TAX PARCEL NUMBER 19.1372.024

LEGAL DESCRIPTION
Block 1 Fox Shores 2nd Add Lot 7

LAKE/STREAM NAME	LK/STR CLASS	SECTION	TWP	RANGE	TOWNSHIP NAME
Fox	RD	7	138	41	Lake View

PROPERTY OWNER	ADDRESS/ CITY/ STATE	PHONE NO
Keith Zitzow	RR1 Box 475 Detroit Lakes MN	

INSTALLER	LICENSE NO	PHONE NO
Nels Thorson		

SEWAGE TREATMENT SYSTEM DATA

WORK CATEGORY

(X) NEW SYSTEM
( ) REPAIR

TYPE OF SYSTEM

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

SIZE OF TANK
1000 GALLONS
SIZE OF DRAINFIELD
375 FT2
SYSTEM LENGTH
125 FT
NUMBER OF TRENCHES 4
ESTIMATED FLOW 450 GPD

TYPE OF DRAINFIELD

(X) STANDARD (gravelless)
( ) STANDARD (rock trench)
( ) STANDARD (bed)
( ) MOUND (pressure distb)

SIZE OF LIFT STATION
NA GALLONS
SIZE OF PUMP
NA
DEPTH TO RESTRICTING LAYER 4.2'
MAXIMUM DEPTH OF SYSTEM 1.2'

PERC RATE 3.7

SSF .83
SIZE OF GRAVELLESS PIPE 10 inch

DEPTH OF ROCK NA

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.

Signature on site evaluation — Signature
7/25/96 — 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.

site plan attached

For Office Use Only

Application Fee 45.00 State Surcharge .50 Total 45.50

[ ] Application is hereby denied

[X] Application is hereby granted to K Butzow 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:

Debi Moltzan 1/25/96

Signature of Becker County Qualified Employee Date

This permit expires on 1/25/97

APPLICATION FOR SEWAGE SYSTEM

CERTIFICATE OF COMPLIANCE

With The Becker County Zoning Ordinance

Application Number	Tax Parcel Number	Fire Number of Project Location
10153	19. 1372.024	

A. GENERAL INFORMATION

1. Applicant's Name (Last, First, M.I.)	2. Authorized Agent (if applicable)
Zitzow, Keith	

3. Mailing Address (Street, RFD, Box Number, City, State, Zip Code)			
RR1 Box 475 Detroit Lakes MN 56501			
4. Day Phone	**5. Evening Phone**	**6. Section**	**7. Township**
	847-2836	7	Lake View

B. PROPERTY DESCRIPTION

1. Lot(s), Block, Subdivision Name

Lot 7 Block 1 Fox Shores 2nd Addition

SEWAGE SYSTEM DATA

Anticipated Use
- a. (1) Single Family
- b. ( ) Multiple Family
- c. ( ) Commercial
- d. ( ) Other (specify)

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

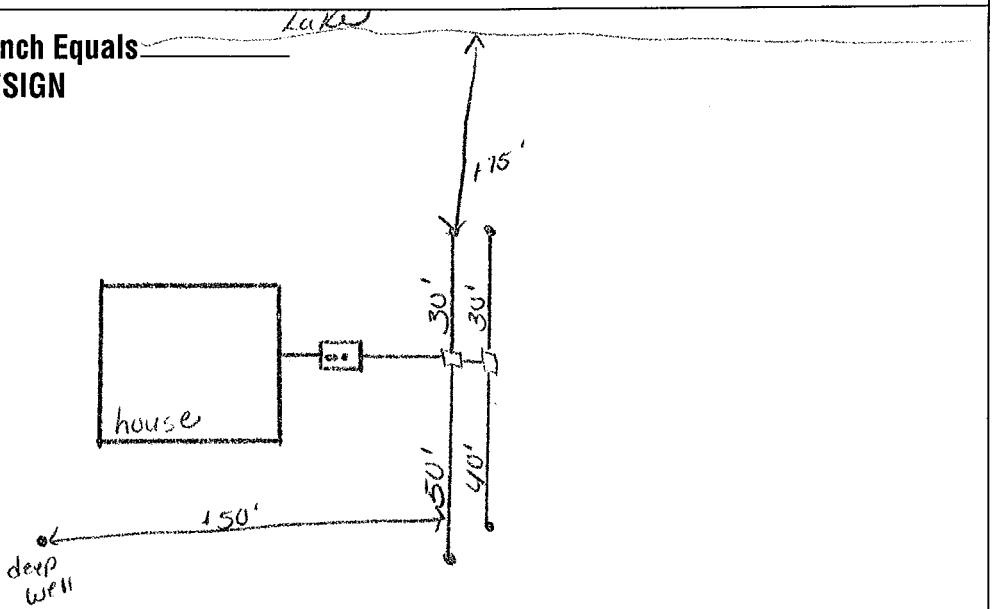
Type of Drainfield
- a. (X) Standard System
- b. ( ) Mound (pressure distribution)

Well Data
- a. Depth +50'
- b. Diameter

Type of Well
- a. (X) Drilled
- b. ( ) Sand Point

1 Inch Equals

DESIGN



1000 gallon tank
drop box distribution
10 inch gravelless pipe Nels Thorson Installer

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'	+50'	Distance to Pressure Line:	+20'	+20'
Distance to Building:	10'	+30'	Tank Capacity (gal.) & Area of Drainfield (ft 2)	1000	450
Distance to Property Line:	+10'	+10'	Distance to Ordinary High Water Level:	+75'	+75'
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

Jay D Hanson
Signature

Inspector 4 Nov 96
Title Date

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

Onsite Septic System Site Evaluation/Design

Fire Number _____

Tax Parcel Number 19.1372.034

Legal Description:
Block 1 Fox Shores 2nd Add Lot 7

Lake/Stream Name	Lake/Stream Class	Section	TWP	Range	Township Name
Fox		7	138N	41W	Lake View

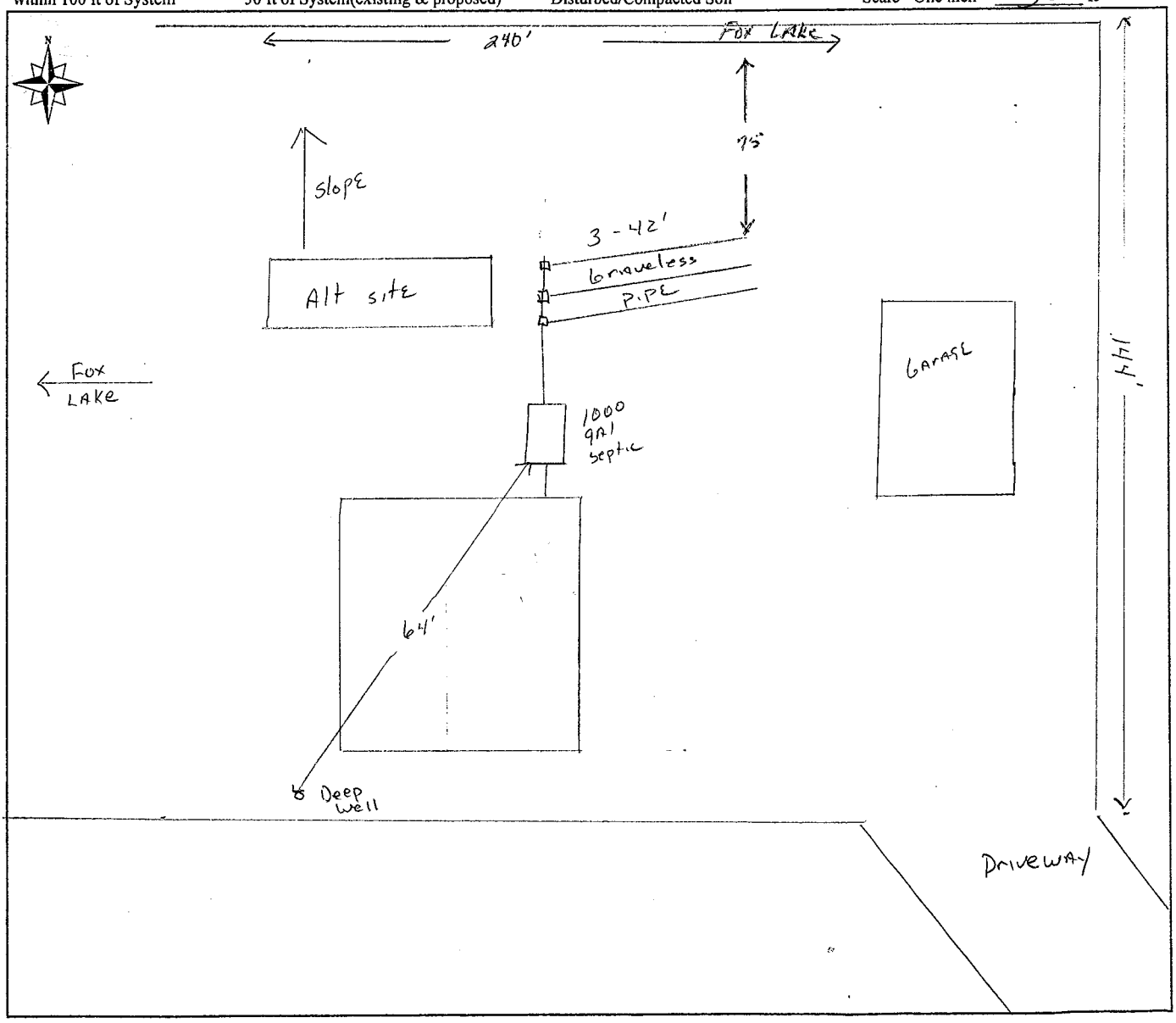
Property Owner	Address	City, State, Zip Code	Phone Number
Keith & Paula Zitzow	RR1 Bx 475	Detroit Lakes mn	847-2836

ISTS Designer I / Designer II	License Number	Address	Phone Number
Randy Anderson	634	Detroit Lakes	849-1143

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 = 30 ft



SOIL INFORMATION

TEST HOLE #1				TEST HOLE #2			
DEPTH IN INCHES	SOIL TEXTURE	MUNSELL COLOR	STRUCTURE	DEPTH IN INCHES	SOIL TEXTURE	MUNSELL COLOR	STRUCTURE
0-6	loAm	Topsoil	(BLOCKY) PLATY PRISMATIC NONE	0-4	loAm	Topsoil	(BLOCKY) PLATY PRISMATIC NONE
6-20	SAND	10YR 4/6	BLOCKY PLATY PRISMATIC NONE	4-20	SAND	10YR 4/6	BLOCKY PLATY PRISMATIC NONE
20-52	coArse SAND	10YR 4/3	BLOCKY PLATY PRISMATIC NONE	20-52	coArse SAND	10YR 4/3	BLOCKY PLATY PRISMATIC NONE
			BLOCKY PLATY PRISMATIC NONE				BLOCKY PLATY PRISMATIC NONE
Depth to standing water				Depth to standing water			
Depth to mottling	52"			Depth to mottling	52		

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

4% slope towards lake

SYSTEM IS (X) NEW ( ) REPAIR

SYSTEM DESIGN (X) GRAVITY FLOW ( ) PRESSURE DISTRIBUTION

WATER USES:

( ) WASHING MACHINE
( ) DISHWASHER
( ) WATER SOFTENER
( ) GARBAGE DISPOSAL

TYPE OF RESIDENCE

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

NUMBER OF BEDROOMS 3
NUMBER OF BATHROOMS 3
TOTAL SQ. FT OF STRUCTURE 2864
TANK SIZE 1000
LIFT STATION SIZE —
SOIL TREATMENT AREA SIZE 625 SQ FT
DOSE VOLUME —

DEPTH OF SYSTEM 1.2'
SYSTEM DESIGN FLOW 450 GPD
SOIL SIZING FACTOR .83
PUMP SIZE —
LENGTH OF LIFT LINE —
TOTAL DYNAMIC HEAD —

WELL INFORMATION-Property's Well DEPTH OF WELL Deep

TYPE OF WELL Drilled

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

Type of Wells —

Name of Designer I
Designer II Randy Anderson

Date of Site Evaluation 6-12-96

MPCA Number 634

Phone 849-1143

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

Signature of Evaluator Randy Anderson Date 6-12-96

For Office Use Only

Date Site Evaluation / Design received 7/25/96 Received by Debi Moltzen

Date Site Evaluation approved 7/25/96 Approved by Debi Moltzen

INDIVIDUAL SEWAGE TREATMENT SYSTEM WORKSHEET

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 = 4.3 feet
D. Maximum depth of system C - 3 ft = 1.3 feet
E. Texture Sand Percolation rate 3.7 MPI
F. SSF .83 sq ft/gpd
G. Slope 9 %

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 .83 ÷ 3 = 125 feet

LAWN AREA

R. Select trench spacing, center to center = 5 feet

S. Multiply trench spacing by lineal feet R x Q = sq ft of lawn area
125 x 5 = 625 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)

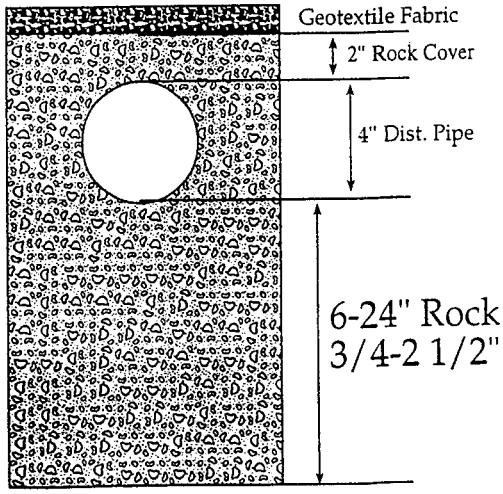
Number of Bedrooms	Minimum Liquid Capacity	Liquid capacity with garbage disposal
2 or less	750	1125
3 or 4	1000	1500
5 or 6	1500	2250
7, 8 or 9	2000	3000

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 Drainfield Hole # 1 Date test hole was prepared: 6-12

Depth of hole bottom: 14 inches Diameter of hole: 6 inches

Soil Data from test hole:

depth, inches	soil texture:	soil color
0-6	loAm	Topsoil 10YR 4/6
6-14	SAND	

Method of scratching sidewall: DRILLBOARD Depth of pea size gravel in bottom of hole: 14 inches

Date and hour of initial water filling: 6-12 Depth of initial water filling: 8 above hole bottom

Method used to maintain 12" of water depth in hole for 4 hours: not needed

Percolation test conducted by: Randy Anderson 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	
11:40 / 11:43	START 3	21 / 20 7/8	3/4	.75	3 TIME ÷ .75 DROP (Decimal) = 4 PERC	A
11:43 / 11:50	REFILL 7	21 / 19	2		7 TIME ÷ 2 DROP (Decimal) = 3.5 PERC	B
11:51 / 11:56	REFILL 5	21 / 19 5/8	1 3/8	1.38	5 TIME ÷ 1.38 DROP (Decimal) = 3.6 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 4 − Smallest # of ABC 3.5 = .5	B,C,D: Largest # of BCD _____ − Smallest # of BCD _____ = _____
Smallest # of ABC 3.5 × 0.10 = .3	Smallest # of BCD _____ × 0.10 = _____
C,D,E: Largest # of CDE _____ − Smallest # of CDE _____ = _____	D,E,F: Largest # of DEF _____ − Smallest # of DEF _____ = _____
Smallest # of CDE _____ × 0.10 = _____	Smallest # of DEF _____ × 0.10 = _____
E,F,G: Largest # of EFG _____ − Smallest # of EFG _____ = _____	F,G,H: Largest # of FGH _____ − Smallest # of FGH _____ = _____
Smallest # of EFG _____ × 0.10 = _____	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 Alt Hole # 2 Date test hole was prepared: 6-12

Depth of hole bottom: 14 inches Diameter of hole: 6 inches

Soil Data from test hole:

depth, inches	soil texture:	soil color
0-4	loAm	Topsoil 10YR 4/6
4-14	SAND	

Method of scratching sidewall: DRILLBOARD Depth of pea size gravel in bottom of hole: 14 inches

Date and hour of initial water filling: 6-12 Depth of initial water filling: 12 above hole bottom

Method used to maintain 12" of water depth in hole for 4 hours: not needed

Percolation test conducted by: Randy Anderson Percolation test started at _____ (am / pm).

Maximum water depth above hole bottom during test: 8 inches

TIME	INTERVAL (MINUTES)	WATER DEPTH	WATER DROP (fraction)	WATER DROP (decimal)	PERC RATE CALCULATION	
12:00 / 12:05	START 5	21 / 19 3/8	1 5/8	1.63	5 TIME ÷ 1.63 DROP (Decimal) = 3 PERC	A
12:06 / 12:10	REFILL 4	21 / 19 5/8	1 3/8	1.38	4 TIME ÷ 1.38 DROP (Decimal) = 2.8 PERC	B
12:11 / 12:16	REFILL 5	21 / 19 1/2	1 1/2	1.5	5 TIME ÷ 1.5 DROP (Decimal) = 3.3 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 3.3 − Smallest # of ABC 2.8 = .5	B,C,D: Largest # of BCD _____ − Smallest # of BCD _____ = _____
Smallest # of ABC 2.8 × 0.10 = .2	Smallest # of BCD _____ × 0.10 = _____
C,D,E: Largest # of CDE _____ − Smallest # of CDE _____ = _____	D,E,F: Largest # of DEF _____ − Smallest # of DEF _____ = _____
Smallest # of CDE _____ × 0.10 = _____	Smallest # of DEF _____ × 0.10 = _____
E,F,G: Largest # of EFG _____ − Smallest # of EFG _____ = _____	F,G,H: Largest # of FGH _____ − Smallest # of FGH _____ = _____
Smallest # of EFG _____ × 0.10 = _____	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.