



MINNEHAHA COUNTY ON-SITE WASTEWATER TREATMENT SITE EVALUATION WORKSHEET Form #1

Land Owner _____

Legal Description _____

Type of Structure (check one): Residence Commercial Industrial Accessory Building Other

- If Residence: - No. of bedrooms... - Total sq. ft. of residence... - Sq. ft. of residence per bedroom... - Water Use Appliances... - Type I or Type II house

Existing Land Slope Percentage Is site in Water Source Protection District Private well? Depth of well casing

SOIL BORING

The locations of all percolation test holes and the soil boring hole shall be noted on the site plan on the reverse of the system design worksheet.

Date Hole Made Method of Digging Hole Soil Data From Test Hole:

Table with 3 columns: depth, inches; soil texture; soil color. Includes four rows of blank lines for data entry.

Bottom of boring at feet. Standing water table: Present in hole Bedrock: Present in hole Mottled soil: Present in hole

I, the undersigned, do affirm that I am a certified septic installer, that all the above information and the attached percolation test data is correct, and that the soil boring and perc test data is representative of the soils over the whole of the wastewater treatment site.

Installer Signature: date Installer Company:



PERCOLATION TEST LOG SHEET

Hole # **1** Date test hole was prepared _____

Depth of hole bottom _____ inches Diameter of hole _____ inches

Percolation test conducted by _____

Method of digging holes _____ Method of scratching sidewalls _____

Date/Time of initial water filling _____

Depth of pea gravel in hole bottom: _____ inches

TIME	INTERVAL (minutes)	WATER DEPTH	WATER DROP (fraction)	WATER DROP (decimal)	PERC RATE CALCULATION (time divided by drop in decimals)			
Begin					_____	_____	_____	A
End					Time) Drop (decimal)) Perc Rate	
Begin					_____	_____	_____	B
End					Time) Drop (decimal)) Perc Rate	
Begin					_____	_____	_____	C
End					Time) Drop (decimal)) Perc Rate	
Begin					_____	_____	_____	D
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Begin					_____	_____	_____	E
End					Time) Drop (decimal)) Perc Rate	
Begin					_____	_____	_____	F
End					Time) Drop (decimal)) Perc Rate	
Begin					_____	_____	_____	G
End					Time) Drop (decimal)) Perc Rate	
Begin					_____	_____	_____	H
End					Time) Drop (decimal)) Perc Rate	

decimal conversions: 1/8 = 0.13 1/4 = 0.25 3/8 = 0.38 2 = 0.5 5/8 = 0.63 3/4 = 0.75 7/8 = 0.88

Ten Percent Calculation*

(No more than 10% difference between the largest and smallest readings when averaging to find perc. rate for hole.)

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* If the top number in each set of boxes is larger than the bottom number then take another reading. When the top number is equal or smaller than the bottom number then average the last three readings to compute the average perc rate for the hole.

Average percolation rate for this hole = _____



PERCOLATION TEST LOG SHEET

Hole # **2** Date test hole was prepared _____

Depth of hole bottom _____ inches Diameter of hole _____ inches

Percolation test conducted by _____

Method of digging holes _____ Method of scratching sidewalls _____

Date/Time of initial water filling _____

Depth of pea gravel in hole bottom: _____ inches

TIME	INTERVAL (minutes)	WATER DEPTH	WATER DROP (fraction)	WATER DROP (decimal)	PERC RATE CALCULATION (time divided by drop in decimals)			
Begin					_____	_____	_____	A
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Average percolation rate for this hole = _____



PERCOLATION TEST LOG SHEET

Hole # **3** Date test hole was prepared _____

Depth of hole bottom _____ inches Diameter of hole _____ inches

Percolation test conducted by _____

Method of digging holes _____ Method of scratching sidewalls _____

Date/Time of initial water filling _____

Depth of pea gravel in hole bottom: _____ inches

TIME	INTERVAL (minutes)	WATER DEPTH	WATER DROP (fraction)	WATER DROP (decimal)	PERC RATE CALCULATION (time divided by drop in decimals)			
					Time) Drop (decimal)	÷ Perc Rate	
Begin					_____	_____	_____	A
End					_____	_____	_____	
Begin					_____	_____	_____	B
End					_____	_____	_____	
Begin					_____	_____	_____	C
End					_____	_____	_____	
Begin					_____	_____	_____	D
End					_____	_____	_____	
Begin					_____	_____	_____	E
End					_____	_____	_____	
Begin					_____	_____	_____	F
End					_____	_____	_____	
Begin					_____	_____	_____	G
End					_____	_____	_____	
Begin					_____	_____	_____	H
End					_____	_____	_____	

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* If the top number in each set of boxes is larger than the bottom number then take another reading. When the top number is equal or smaller than the bottom number then average the last three readings to compute the average perc rate for the hole.

Average percolation rate for this hole = _____

Average Site Percolation Rate (average the readings from all three holes).

(_____ + _____ + _____) ÷ 3 = _____



MINNEHAHA COUNTY ON-SITE WASTEWATER TREATMENT SYSTEM DESIGN WORKSHEET

Form #2

WASTEWATER FLOW

A. Estimated _____ gpd (see Table 4-1)
 measured _____ x 1.5 = _____ gpd

SEPTIC TANK VOLUME

B. _____ gallons (see Table 5-1)

SOILS (site evaluation data)

- C. Depth to restricting layer = _____ feet
 D. Maximum depth of system (C-4 ft. = _____ feet)
 E. Percolation rate _____ mpi
 F. Soil sizing factor _____ sq ft/gpd (see Table 7-1)

TRENCH BOTTOM AREA

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

DISTRIBUTION

- (Check one based on slope)
 Bed _____ (less than 6% slope)
 Trenches
 _____ Interconnecting pipes (level to slightly sloping)
 _____ Drop boxes (any slope)
 _____ Distribution box (level to slightly sloping)

TRENCH LENGTH

- K. Select trench width = _____ ft
 L. Divide bottom area by trench width (G,H,I, or K)
 _____) _____ = _____ lineal feet

TRENCH SPACING

- M. Distance of undisturbed soil between trenches (min. of 6 ft)
 _____ feet

Table 4-1
Estimated Residential Wastewater Flows in Gallons per day (gpd)

Number of Bedrooms	Type I House	Type II House
2	300	240
3	450	360
4	600	480
5	750	600
6	900	720
7	1050	840
8	1200	960

Table 5-1
Minimum Septic Tank Capacities (in gallons)

Number of Bedrooms	Minimum Liquid Capacity	Minimum Liquid Capacity w/ garbage disposal
2	1000	1200
3	1000	1200
4	1250	1500
5	1500	1800
6	1750	2100
7	2000	2400
8	2250	2700

Table 7-1
Soil Characteristics and Sizing Factors for Absorption Systems

Perc rate in m.p.i.	Soil texture	Sq.Ft. per gallons per day
1-5.9	Sand	see section 7.02
6-15.9	Sandy Loam	1.27
16-30.9	Loam	1.67
31-45.9	Silt Loam	2.00
46-55.9	Clay Loam	2.50
56-60	Clay	see section 7.03

SITE PLAN (Use other side)

- Show any lakes, streams, wetlands, etc.
- Show pertinent property boundaries, right-of-way, easements
- Show location of house, garage, driveway, and all other improvements, existing or proposed
- Show location and layout of sewage treatment system
- Show location of water supply well(s)
- Dimension all set backs and separation distances
- Show locations of percolation holes and soil data hole



MINNEHAHA
COUNTY

Map of System Layout

Include a map of your system or draw your own map.

A large rectangular area filled with a grid of small squares, intended for drawing a map of the system layout. The grid is composed of solid lines forming the outer boundary and dashed lines forming the internal squares.



MINNEHAHA COUNTY WASTEWATER TREATMENT SYSTEM INSPECTION

Form #3

(TO BE FILLED OUT BY INSPECTOR)

Applicant _____ Installer _____

Location _____ Date _____

Site and Establishment Data:

_____ Daily Wastewater Flow _____ Absorption Area (min 400 sq ft)
_____ Percolation Rate _____ Depth to Limiting Soil Layer
_____ Ground Slope _____ Depth of Casing on Well

Distance from: To Sewage Tank To Absorption Area
Well, Cistern, Reservoir _____ (min 50-75')
Lake, Stream, Impoundment _____ (min 100-150')
Pressurized Water Line _____ (min 100')
Dwelling, Occupied Bldg. _____ (min 25')
Trees or Dense Shrubs _____ (min 20')
_____ (min 10')

General System Data:

_____ System Depth (max 4') _____ Tank Size (min 1000 gallons)
_____ Tank Manhole (max. 6-12" below ground level)
_____ Tank Inspection Pipes (at or near ground level)
_____ Tons of Rock _____ Barrier Material (fabric, paper,
straw/hay)
_____ Type of Absorption System (trench, bed, mound, gravelless, chamber system, etc.)
_____ Tracer Wire

Gravity Distribution System Data (check appropriate item{s}):

_____ Interconnected pipes (max 6" surface elevation difference over absorption area)
_____ Interconnected chambers (max 6" surface elevation difference over absorption area)
_____ Distribution boxes (max 28" surface elevation difference over absorption area)
_____ Drop boxes (no slope restrictions)

Trench Data:

_____ Number of Trenches (min 2) _____ Trench width (max 3')
_____ Trench Lengths (max 100' each)
_____ Distance Between Trenches (min 6' undisturbed soil)
_____ Rock Over Pipe (min 2") _____ Rock Under Pipe (min 6")

Absorption Beds Data:

_____ Bed Length (max 100') _____ Bed Width (max 15')
_____ Number of Laterals _____ Lateral Spacing (max 5')
_____ Depth of Rock Below Pipe (min 6", max 30")
_____ Depth of Rock Above Pipe (min 2")
_____ Distance from Pipe to Edge of Rock Bed (min 12", max 30")



Holding Tank:

_____ Tank Size (min 1000 gal or 7 days flow)
_____ Alarm (allows for three day flow after activation)

Pressure System Data:

_____ Dosing Chamber Gallons _____ Pump Alarm
_____ Chamber Manhole (6-12" below ground level)
_____ Pump Riser (type and height)
_____ Number of Laterals _____ Lateral Spacing (max 5')
_____ Perforation Spacing on Laterals
_____ Distance from Lateral to Edge of Rock Bed (min 12", max 30")
_____ Depth of Rock Below Lateral (min. 9")
_____ Depth of Rock Above Lateral (min 2")

Mound System Data:

_____ side slopes (max 1:3) _____ rock layer width (max 10')
_____ rock layer length _____ downslope bank width
_____ upslope bank width _____ total mound length
_____ method of preparing soil beneath mound
_____ separation depth of clean sand below rock bed (min. 12")

Deficiencies to be corrected:

Date corrections inspected: _____

Certification:

This certifies that the installation of the on-site wastewater treatment system has been inspected and, based on that inspection and data provided by the applicant or his installer, conforms to the minimum requirements of South Dakota and Minnehaha County on-site wastewater treatment regulations. This certification does not guarantee, warrant, or in any way insure the operation, reliability or longevity of said system.

Inspector _____ Date _____