



Land Owner _____

Legal Description _____

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

If Residence:

- No. of bedrooms (include both planned and potential) _____
- Total sq. ft. of residence (finished and unfinished area) _____
- Sq. ft. of residence per bedroom _____
- Water Use Appliances (number of each appliance planned for house)
- _____ Automatic Washer _____ Dishwasher _____ Garbage Disposal
- _____ Hot Tub or Spa _____ Water Softener _____ Self Cleaning Humidifier in Furnace
- Type I or Type II house
- _____ Type I (sq. ft. of residence per bedroom is 800 or higher, or 4 or more water use appliances are planned)
- _____ Type II (sq.ft. of residence per bedroom is less than 800 or less than 4 water use appliances planned)

Existing Land Slope Percentage

Is site in Water Source Protection District _____yes _____no

Private well? yes no 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:

depth, inches	soil texture	soil color

Bottom of boring at feet.

Standing water table: Present in hole _____no _____yes, present at _____ inches of depth,
hours after boring.

Bedrock: Present in hole no yes, at inches of depth

Mottled soil: Present in hole no yes, at 10 inches of depth

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
End					Time) Drop (decimal) ÷ Perc Rate		
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.)

A, B, C				B, C, D			
	Largest of A, B, C	-	Smallest of A, B, C		Largest of B, C, D	-	Smallest of B, C, D
	x		0.10		x		0.10
	Largest of A, B, C				Largest of B, C, D		
C, D, E				D, E, F			
	Largest of C, D, E	-	Smallest of C, D, E		Largest of D, E, F	-	Smallest of D, E, F
	x		0.10		x		0.10
	Largest of C, D, E				Largest of D, E, F		
E, F, G				F, G, H			
	Largest of E, F, G	-	Smallest of E, F, G		Largest of F, G, H	-	Smallest of F, G, H
	x		0.10		x		0.10
	Largest of E, F, G				Largest of F, G, H		

* 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
End					Time) Drop (decimal) ÷ Perc Rate		
Begin					_____	_____	B
End					Time) Drop (decimal) ÷ Perc Rate		
Begin					_____	_____	C
End					Time) Drop (decimal) ÷ Perc Rate		
Begin					_____	_____	D
End					Time) Drop (decimal) ÷ Perc Rate		
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.)

A, B, C			-	÷	B, C, D		
Largest of A, B, C		Smallest of A, B, C			Largest of B, C, D		
x		0.10		÷	x		÷
Largest of A, B, C					Largest of B, C, D		
C, D, E			-	÷	D, E, F		÷
Largest of C, D, E		Smallest of C, D, E			Largest of D, E, F		
x		0.10		÷	x		÷
Largest of C, D, E					Largest of D, E, F		
E, F, G			-	÷	F, G, H		÷
Largest of E, F, G		Smallest of E, F, G			Largest of F, G, H		
x		0.10		÷	x		÷
Largest of E, F, G					Largest of F, G, H		

* 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 # **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)		
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
End					Time) Drop (decimal) ÷ Perc Rate		
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.)

A, B, C			B, C, D		
Largest of A, B, C	-	Smallest of A, B, C	Largest of B, C, D	-	Smallest of B, C, D
x		0.10	x		0.10
Largest of A, B, C			Largest of B, C, D		
C, D, E			D, E, F		
Largest of C, D, E	-	Smallest of C, D, E	Largest of D, E, F	-	Smallest of D, E, F
x		0.10	x		0.10
Largest of C, D, E			Largest of D, E, F		
E, F, G			F, G, H		
Largest of E, F, G	-	Smallest of E, F, G	Largest of F, G, H	-	Smallest of F, G, H
x		0.10	x		0.10
Largest of E, F, G			Largest of F, G, H		

* 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 = _____

Form # 1, Page 4 of 6



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 x F = _____ x _____ = _____ sq ft of bottom area, or
H. For trenches with 12 inches of rock below the pipe:
A x F x 0.8 = _____ x _____ x 0.8 = _____ sq ft, or
I. For trenches with 18 inches of rock below the pipe:
A x F x 0.66 = _____ x _____ x 0.66 = _____ sq ft, or
J. For trenches with 24 inches of rock below the pipe:
A x F x 0.6 = _____ x _____ x 0.6 = _____ 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



Map of System Layout

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

A large rectangular area filled with a light gray dashed grid, intended for drawing a map or system layout.