

SMALL WASTEWATER (SEPTIC SYSTEM) APPLICATION
FREMONT COUNTY, WYOMING

Step 1: Before any work begins complete and submit the application packet with the correct permit fee :

Permit fees are: New systems **\$300.00**, Non-Conventional systems **\$350.00**, Replacement systems, Replacement Tank or Field, **\$275.00**, **Commercial system <2000 Gal. Daily Residential Usage, \$500.00**, As-built, **\$2,000.00**, More than 2 Inspections, **\$50.00** each, payable to:

Fremont County Planning Department
450 North 2nd Street, Room 360
Lander, WY 82520

Please allow **2 WEEKS** to process the application. Incomplete applications will delay processing.
If you have any questions or need assistance contact the Planning Department at **332-1830** or **332-1077** or fax to **332-1177**.

Marcel Lopez, Small Wastewater Specialist (332-1830 or 330-4010)
marcel.lopez@fremontcountywy.gov

Step 2: To ensure compliance with State and Fremont County Regulations: plan the layout for your home site, with the following minimum distance requirements in mind:

<u>From</u>	<u>To Septic Tank</u>	<u>To Leach field</u>
Wells (including neighboring wells)	50'	100'
Open waterway (including streams, lakes or ditches)	50'	50'
Potable water line	25'	25'
Building foundation (without foundation drain)	5'	10'
Building foundation (with foundation drain)	5'	25'
Break in slope greater than 15%	15'	15'
Property line	10'	10'
Septic tank	n/a	10'

Be sure to choose a site where the bottom of the leach field is at least 4 ft. from the high groundwater level and at least 4 ft. from any bedrock or impermeable soil layer. **As per Fremont County Regulations this will require a backhoe cut that is to be inspected by County personnel during a site evaluation.**

Step 3: Run percolation tests in the area of the proposed leach field **rounding up to the nearest whole number**. Instructions and forms are on pages 5-7 of the application.

Step 4: **Prior to construction, you must make an appointment for a site evaluation.** During the site evaluation we will provide specific information as to the size and configuration of the leach field, if the percolation test has been done.

Step 5: **Prior to backfilling, the system must be inspected by a representative of the Planning Department.** A 48-hour advance notice would be appreciated if possible.

IMPORTANT REMINDER: Before undertaking any excavation, contractors and landowners have a duty to call to locate any utilities buried beneath worksites. Public utilities have established a nationwide network. **This is a free public service & it's the law.** In Wyoming this service is called **One Call of Wyoming: (800) 849-2476 or 811.**
6/13/2018

Example

Owner(s)

Name: John & Becky Smith

Mailing

Address: 123 Washboard Rd.

Lander, WY 82520

Installer

Name: Dave Adams

Mailing

Address: 55 Long Rd.

Riverton, WY 82501

Phone: 555-1234

Phone: 555-1122

1. Physical Address of Property: 101 Fake St.

2. Location of Property: Section 10 T 2N R 3E

3. Subdivision Name: Freeland Estates Lot # 3 Block # N/A

4. Lot Size: _____ ft. by _____ ft., Area: _____ s.f. or 5 1/2 acres

5. Type of building: **circle one** (single family home/ mobile home/ office/ shop) other _____

(b) X basement, _____ floor drain, _____ garbage disposal, X water softener (check all that apply)

6. Water Source: _____ community well, X private well, _____ cistern, _____ municipal

7. Drain field site conditions: (a) Ground slope: 3 %

(b) Type of soil: silt and clay (sand, silt, clay, gravel, etc.)

(c) Depth to peak groundwater is at least 8 ft.

(d) Depth to impermeable soil/bedrock is at least 8 ft.

8. **Septic Tank:** (a) Size: 1,000 gallons (Minimum 1,000 gal. for 1 to 4 bedrooms. Add 150 gal. for each additional bedroom)

(b) Type of tank: pre-cast concrete (concrete, plastic, etc.)

(c) Manufacturer: The Concrete Place

9. **Percolation Rate:** 25 mpi (see page 8 for procedure and page 10 for data sheet)

10. **Loading Rate:** 0.42 gpd/s.f. (locate your percolation rate on the "Loading Rate Table" on page 12)

11. **DAILY FLOW RATE (INDICATE ONE)** 1 Bedroom 150: 2 Bedroom 280: 3 Bedroom 390: 4 Bedroom 470: 5 Bedroom 550: 6 Bedroom 630. *The design flow shall be increased by eighty (80) gallons per day for each additional bedroom over six (6). Unfinished basements are to be considered at no less than two (2) additional bedrooms To allow for running taps during freezing conditions, an additional 50 gallons per day must be added to the small wastewater sewage flow for mobile homes.*

Commercial Daily Flow Rate to be determined by Planning Department

I certify that the above described facility has been submitted in accordance with local, county and state statutes, as required, and that said facility shall be constructed as authorized under the provisions specified in Wyoming Water Quality Rules and Regulations, Chapter 25. This application is effective for a period of (1) year maximum from the date of this application

Becky Smith

Signature of Owner

AUG 10, 2016

Date

6/13/2018

Owner(s)
Name: _____
Mailing
Address: _____

Phone: _____

Installer
Name: _____
Mailing
Address: _____

Phone: _____

1. Physical Address of Property: _____
2. Location of Property: Section _____ T _____ R _____
3. Subdivision Name: _____ Lot # _____ Block# _____
4. Lot Size: _____ ft. by _____ ft., Area: _____ ft² or _____ acres
5. Type of building, **circle one** (single family home/ mobile home/ office/ shop) other _____
(a) _____ basement, _____ floor drain, _____ garbage disposal, _____ water softener (*check all that apply*)
6. Water Source: _____ community well, _____ private well, _____ cistern, _____ municipal
7. Drain field site conditions: (a) Ground slope: _____ %
(b) Type of soil: _____ (sand, silt, clay, gravel, etc.)
(c) Depth to peak groundwater is at least _____ ft.
(d) Depth to impermeable soil/bedrock is at least _____ ft.
8. **Septic Tank:** (a) Size: _____ gallons (Minimum 1,000 gal. for 1 to 4 bedrooms. Add 150 gal. for each additional bedroom)
(b) Manufacturer: _____

9. **Percolation Rate:** _____ mpi (See page 8 for procedure and page 10 for data sheet)

10. **Loading Rate:** _____ gpd/s.f. (Locate your percolation rate on the "Loading Rate Table "on page 12)

11. **DAILY FLOW RATE:(INDICATE ONE)** 1 Bedroom 150: 2 Bedroom 280: 3 Bedroom 390: 4 Bedroom 470: 5 Bedroom 550 : 6 Bedroom 630. *The design flow shall be increased by **eighty (80) gallons** per day for each additional bedroom over six (6). Unfinished basements are to be considered at no less than **two (2) additional bedrooms**.*

To allow for running taps during freezing conditions, an additional 50 gallons per day must be added to the small wastewater sewage flow for mobile homes.

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Signature of Owner

Date

Example

12. Drain field size calculations:

$$\begin{array}{r} \text{Daily Flow Rate} = \underline{\quad 630 \quad} \text{gpd} \\ \div \\ \text{Loading Rate} = \underline{\quad .42 \quad} \text{gpd/s.f.} \end{array} = \underline{\underline{1,500}} \text{ ft}^2$$

13. Drain field layout:

(a) Type of system: (check one)

Rock and perforated pipe **Trench**

Rock and perforated pipe **Bed**

Chamber Trench system

Chamber Bed system

(b) Request the appropriate design sheet during the pre-construction site evaluation with the Planning Department staff.

Construction Requirements

SEPTIC TANK

1. Tank design must comply with Wyoming DEQ standards.
2. The septic tank must contain baffles and/or "T's" that extend into the middle third of the liquid depth. A minimum 20" man way must be installed for each compartment of the tank. The riser from the access opening shall terminate at a maximum of six (6) inches below the ground surface. Riser covers terminating above grade shall have an approved locking device.
3. Tank must be set on top of compacted or undisturbed soil.

BUILDING SEWER

1. All solid pipe between the house and the tank and between the tank and field must have a minimum slope of 1/4" per foot (2%) for a 4" pipe.
2. The septic tank inlet and outlet pipes shall be 4" schedule 40 PVC and shall extend past the septic tank excavation to undisturbed soil.
3. Cleanouts shall be provided at least every 100 ft. and up grade of any change in alignment greater than 22.5 degrees. A cleanout just outside the house is required, regardless of the distance to the tank.

LEACHFIELD

1. Pipe and Stone Systems-A minimum of 6" of washed stone under the pipe and a minimum of 2" of washed stone over the pipe is required. The stone must be covered by filter cloth or 2" of straw before backfilling. Do not use plastic sheeting or tar paper.
2. The bottom of all beds and trenches must be level. And no deeper than 5 feet from finished grade.
3. A minimum of 12" of backfill is required to cover the field.
4. The field must be 15 ft. from the break in slope if the slope is steeper than 20%.

12. Minimum square feet of infiltrative surface needed:

$$\text{Daily Flow Rate} = \underline{\hspace{2cm}} \text{ gpd}$$

$$\div \hspace{10em} = \underline{\hspace{2cm}} \text{ ft}^2$$

$$\text{Loading Rate} = \underline{\hspace{2cm}} \text{ gpd/ft}^2$$

For Office Use Only

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LEACHFIELD

1. Pipe and Stone Systems-A minimum of 6" of washed stone under the pipe and a minimum of 2" of washed stone over the pipe is required. The stone must be covered by filter cloth or 2" of straw before backfilling. Do not use plastic sheeting or tar paper.
2. The bottom of all beds and trenches must be level. And no deeper than 5 feet from finished grade
3. A minimum of 12" of backfill is required to cover the field.
4. The field must be 15 ft. from the break in slope if the slope is steeper than 20%.

Example Plan

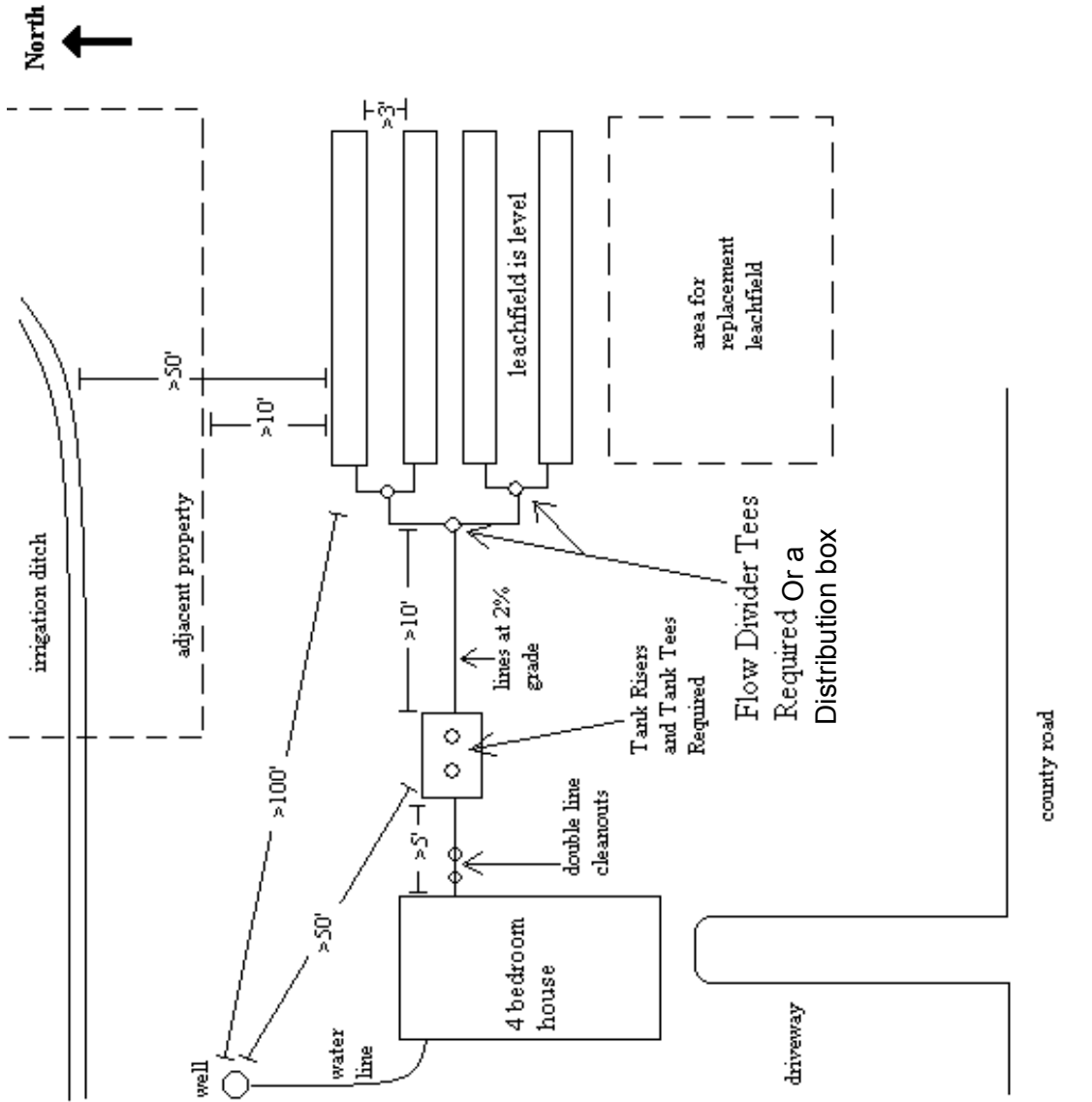
PLAN SHEET

- Make a drawing of your property, including:
- property lines
 - all buildings
 - all wells within 200'
 - drinking water lines
 - streams, ditches, surface bodies of water
 - breaks in slope greater than 15%
 - septic tank
 - leach field
 - a NORTH ARROW
 - the road you will use to access the house
 - the driveway
 - an area for future installation of a REPLACEMENT LEACHFIELD

Show the relative distances of these features. See table below for minimum distance requirements.

From field	To Septic Tank	To Leach
Wells	50'	100'
Open waterway	50'	50'
Potable water line	25'	25'
Building foundation (without vent)	5'	10'
Building foundation (with vent)	5'	25'
Break in slope	15'	15'
Property line	10'	10'
Septic tank	N/A	10'

Reviewed by: _____
 Date of Authorization: _____



PLAN SHEET

Make a drawing of your property, including:

1. property lines
2. all buildings
3. all wells within 200'
4. drinking water lines
5. streams, ditches, surface bodies of water
6. breaks in slope greater than 15%
7. septic tank
8. leach field
9. a NORTH ARROW
10. the road you will use to access the house
11. the driveway
12. an area for future installation of a REPLACEMENT LEACHFIELD

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<u>From</u> <u>field</u>	<u>To Septic Tank</u>	<u>To Leach</u>
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Property line	10'	10'
Septic tank	N/A	10'

Reviewed by:

Date of Authorization:

Percolation Test Instructions

In order for a septic system to perform properly, the wastewater must move through the soil at an ideal rate, neither too fast nor too slow. A percolation test estimates the rate at which the water will percolate, or move, through the soil. The information provided by percolation tests is necessary to design leach fields correctly. Follow the steps below to complete a percolation test.

Location of Percolation Test Holes. The percolation (perc) test holes must be spaced uniformly over the proposed leach field site. A minimum of three (3) test holes are required, although you can use more if desired.

Test Hole Preparation. Dig or bore each hole 12 inches wide and as deep as the proposed depth of the leach field (usually between 30 and 40 inches). Make sure the sides are vertical and scrape the sides and bottom of the hole with a sharp pointed instrument to restore a natural soil surface. Remove loose soil from the hole and place 2 inches of coarse sand, washed gravel, or crushed stone in the bottom in order to prevent scouring or sealing.

Presoaking. Presoaking is absolutely required to get valid percolation test results. Presoaking allows the water conditions in the test hole to reach a stable condition that is similar to a leach field. Presoaking time varies with soil conditions, but presoak holes for at least 4 hours. Maintain at least 18 inches of water in the test holes for at least 4 hours, then allow the soil to swell for 12 hours (overnight is good) before starting the perc test.

For sandy or loose soils, add 18 inches of water above the gravel or coarse sand. If the 18 inches of water seeps away in 18 minutes or less, add 18 inches of water a second time. If the second filling of 18 inches of water seeps away in 18 minutes or less, the soil is excessively permeable and the site is unsuitable for a conventional disposal system. If this is the case, contact your county small wastewater permitting authority or DEQ district office.

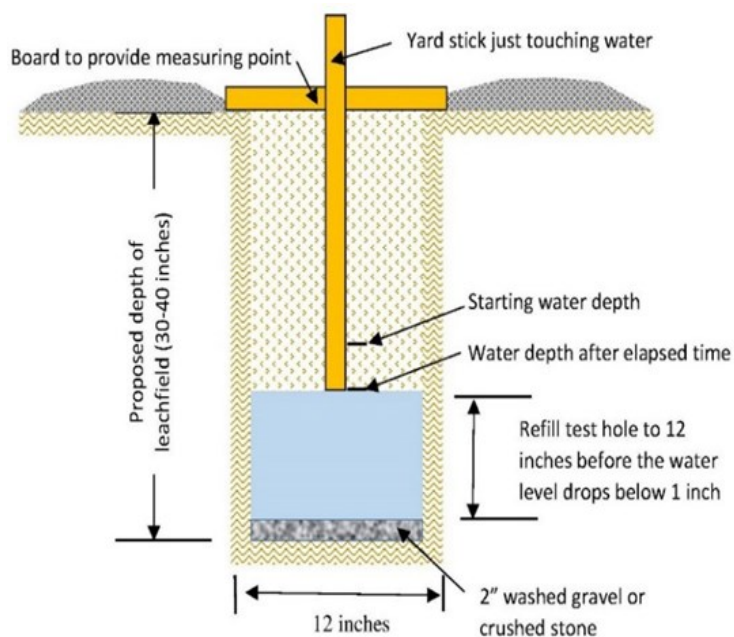
Perc Rate Measurements. Fill each hole with 12 inches of water and let the soil re-hydrate for 15 minutes prior to taking any measurements. Establish a fixed reference point such as a flat board placed across the top of the

hole to measure the incremental water level drop at the constant time intervals. Measure the water level

drop to the nearest 1/8 of an inch with a minimum time interval of 10 minutes. Normal time intervals are usually 10 or 15 minutes.

Refill the test hole to 12 inches above the gravel before starting the measurements. Measure down to the water from the fixed reference point. Record this value on the first line in the perc test data sheet (Page 10). Take another measurement after the time interval has elapsed and record on the second line of the table. Calculate the water level drop and record in the table.

Continue the test until the water level drop rate has stabilized, i.e. three consecutive measurements within 1/8 inch of each other. Before the water level drops below 1 inch above the gravel, refill the test hole to 12 inches. Some test holes may take longer to stabilize than others. If the drop rate continues to fluctuate, use the smallest drop rate out of the last six intervals for your calculations.



EXAMPLE

PERCOLATION TEST RESULTS

- Performed by: Mike Plumber Test date (s): 6/23 & 6/24,2018
 Credentials or status of tester: CONTRACTOR (Owner Contractor Installer engineer geologist ,sanitarian, soil scientist, or other)
- The **time interval** between water level measurements was: 10 minutes.
- TEST DATA:** The test holes were **PRESOAKED** for: Hours, or X overnight.

Do not perform percolation test if ground is frozen or if groundwater is present in holes. Holes must be 12 inches in diameter and evenly spaced over the leach field area. Roughen sides and bottoms of holes and place 2 inches of gravel in each hole.													
		Hole #1 (Required)		Hole #2 (Required)		Hole #3 (Required)		Hole #4 (Optional)		Hole #5 (Optional)		Hole #6 (Optional)	
Depth of Hole:		34											
Time of Day	Time (Min)	Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch	
		Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop
	0	17"											
	10	18 1/4"	1 1/4										
	20	19 1/4"	1										
	30	20	3/4										
	40	20 5/8	5/8										
	50	15	RE-FILL										
	60	15 1/2	1/2										
	70	15 7/8	3/8										
	80	16 3/8	1/2										
Time Interval (minutes)		10											
Final Interval Drop (inches)		1/2											
Perc Rate (min/inch)		20 MPI											
								Design Perc Rate (min/inch)					

- A. If 6 or more holes were tested, the average perc rate was: NA mpi or
 B. If 3 to 5 holes were tested, the slowest perc rate (largest number) was: 20 mpi

PERCOLATION TEST RESULTS

1. Performed by: _____ Test date (s): _____
 Credentials or status of tester: _____ (Owner Contractor Installer engineer geologist
 ,sanitarian, soil scientist, or other)

2. The **time interval** between water level measurements was: _____ minutes.

3. **TEST DATA:** The test holes were **PRESOAKED** for: _____ Hours, or _____ overnight.

Do not perform percolation test if ground is frozen or if groundwater is present in holes. Holes must be 12 inches in diameter and evenly spaced over the leach field area. Roughen sides and bottoms of holes and place 2 inches of gravel in each hole.													
		Hole #1 (Required)		Hole #2 (Required)		Hole #3 (Required)		Hole #4 (Optional)		Hole #5 (Optional)		Hole #6 (Optional)	
Depth of Hole:													
Time of Day	Time (Min)	Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch		Measure to nearest 1/8 inch	
		Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop	Water Level	Drop
			—		—		—		—		—		—
Time Interval (minutes)													
Final Interval Drop (inches)													
Perc Rate (min/inch)													
								Design Perc Rate (min/inch)					

A. If **6 or more holes** were tested, the **average perc rate** was: _____ mpi or

B. If **3 to 5 holes** were tested, the **slowest perc rate** (largest number) was: _____ mpi

Table 1. Chamber System Equivalent Areas

Wyoming DEQ Rules and Regulations Chapter 25 Section 8 allows for a 30% reduction in the leach field area when using chambers in place of traditional pipe and stone systems. To calculate the reduction in square footage required to achieve the same amount of infiltrative surface as pipe trenches or beds, use the dimensions provided by the chamber manufacturer. In a trench configuration, the equivalent area is equal to Length * [(Chamber Width * 1.43) + (2 * Effective Sidewall Height)]. In a bed configuration the sidewall is not counted, so the equivalent area is equal to Length * (Chamber Width * 1.43). Use dimensions provided in the table below to design leach fields utilizing chamber technology on pages 16 (chamber trenches) or 20 (chamber beds) of the application package.

Commonly used chambers in Fremont County in RED

Chamber Class	Chamber Name	Nominal Dimensions			Effective Dimensions			Equivalent Area	
		Length	Width	Height	Length	Width ₁	Height ₂	Trench Layout	Bed Layout
		(ft)	(in)	(in)	(ft)	(in)	(in)	(sf/unit)	(sf/unit)
High Capacity	Quick4 High Capacity	4.4	34	16	4.0	34	11.5	23.9	16.2
	Quick4 Plus High Capacity	4.4	34	14	4.0	34	8.0	21.5	16.2
	Arc 36 High Capacity	5.3	34	16	5.0	34	10.5	29.0	20.3
	BioDiffuser 16" High Capacity	6.3	34	16	6.2	34	11.2	36.7	25.1
Standard	Quick4 Standard	4.4	34	12	4.0	34	8.0	21.5	16.2
	Quick4 Plus Standard	4.4	34	12	4.0	34	8.0	21.5	16.2
	Arc 36	5.3	34	13	5.0	34	7.0	26.1	20.3
	BioDiffuser 11" Standard	6.3	34	11	6.2	34	5.8	31.1	25.1
Standard Low Profile	Quick4 Plus Standard LP	4.4	34	8	4.0	34	3.3	18.4	16.2
	Arc 36 LP	5.3	34	8	5.0	34	3.8	23.4	20.3
Narrow	Quick4 Equalizer 36	4.4	22	12	4.0	22	6.0	14.5	10.5
	Arc 24	5.6	22	12	5.0	22	6.3	18.3	13.1
	BioDiffuser Bio 3	7.3	22	12	7.2	22	6.4	26.5	18.9
Narrow LP	Quick4 Plus Equalizer 36 LP	4.4	22	8	4.0	22	3.3	12.7	10.5
Ultra- Narrow	Quick4 Equalizer 24	4.4	16	12	4.0	16	6.0	11.6	7.6
	Arc 18	5.6	16	12	5.0	16	6.3	14.7	9.5
	BioDiffuser Bio 2	7.3	16	12	7.2	16	6.4	21.3	13.7
Ultra- Narrow LP	Quick4 Equalizer 24 LP	4.4	16	8	4.0	16	2.0	9.0	7.6

¹The equivalent areas calculation used the outside width of the chamber.

²The effective height is the height of the slotted sidewall of the chamber or depth below the flow line of the inlet pipe, whichever is less.

LOADING RATE TABLE

Percolation Rate (mpi)	Loading Rate (gpd/ft ²)	Percolation Rate (mpi)	Loading Rate (gpd/ft ²)
5	0.80	21	0.45
6	0.75	22	0.44
7	0.71	23-24	0.43
8	0.68	25	0.42
9	0.65	26-27	0.41
10	0.62	28-29	0.40
11	0.60	30-31	0.39
12	0.58	32-33	0.38
13	0.56	34-35	0.37
14	0.54	36-37	0.36
15	0.52	38-40	0.35
16	0.50	41-43	0.34
17	0.49	44-46	0.33
18	0.48	47-50	0.32
19	0.47	51-55	0.31
20	0.46	56-60	0.30

NOTE- If the perc rate for your site is less than 5 mpi or greater than 60 mpi, you cannot use this generic application package. You must hire a Wyoming Registered Professional Engineer and submit an application customized for your specific site conditions.