Big Horn County Land Planning

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Rec. By: _____
Date: _____
Receipt #: _____
Ref. #: SEP_____

SEPTIC PERMIT APPLICATION PACKAGE (18 pages) Fee: $150.00

A septic permit application is required for any new construction/install, replacement or repair of a conventional small wastewater treatment facility (<2,000 gallons of domestic sewage per day) within unincorporated areas of Big Horn County. This application package was created by Big Horn County and contains several pages and elements found in the Wyoming Water Quality Division's *"Conventional Septic Systems Application Package for a Permit to Construct."* **Submission of this application package does not constitute permission to proceed with construction.** A septic permit must be issued by Big Horn County before activity can commence.

NOTICE : ADDITIONAL PERMITS & FEES ARE ALSO REQUIRED FOR:
Buildings New Address Driveways Land Divisions Subdivisions Roads Utilities

APPLICANT INFORMATION:
Name: _____
Address: _____
City, State, & Zip: _____
Phone: _____
Email: _____

OWNER INFORMATION (if different from applicant):
Name: _____
Address: _____
City, State & Zip: _____
Phone: _____
Email: _____

PROPOSED SYSTEM IS A:
___ New System
___ Modified/Repaired System
___ Replacement System
___ Holding Tank (1-2 bedroom)

PROPOSED SYSTEM WILL SERVE:
___ Single Family Home
___ Mobile Home
___ Multi-Family Home/Duplex/Apt
___ Commercial: _____

SYSTEM INSTALLER INFORMATION:
Name: _____
Address: _____
Phone: _____
Email: _____
SYSTEM DESIGNED BY: _____

DRINKING WATER SOURCE:
___ Cistern
___ Private Well
___ Community Well
___ Municipal/District Source

PROPERTY INFORMATION:
Property Address and/or Identification #: _____
Is property vacant? ☐ YES ☐ NO
Directions to property: _____
_____

LEGAL DESCRIPTION:
Twp: _____ Range: _____ Section: _____ ¼ ¼ Section: _____ Lot/Tract No. _____

Subdivision Name (if applicable*): _____
*Please refer to any covenants that may apply to development within a platted subdivision.

The following items MUST be submitted as part of your application package:

- Pages 1-2: Application
- Page 3: Site Suitability
- Page 4: Site Plan Drawing
- Page 6: Percolation Test Data Sheet
- Page 7: Septic Tank & Piping Worksheet
- Page 8: Leach field Sizing Worksheet
- Additional documentation as needed/requested.
- Leach field Design **ONE** of the following:
  - Pages 11-12: Perforated Pipe Trench Layout Worksheet
  - Pages 13-14: Chambered Trench Layout Worksheet
  - Pages 15-16: Perforated Pipe Bed Layout Worksheet
  - Pages 17-18: Chambered Bed Layout Worksheet

ACCESS: As part of signing and submitting this application, the applicant certifies, under penalty of perjury, that the applicant has secured and shall maintain permission for Big Horn County and/or Department of Environmental Quality personnel and their invitees to access the permitted site, including (i) permission to access the land where the site is located, (ii) permission to collect resource data as defined by Wyoming Statute § 6-3-414, and (iii) permission to enter and cross all properties necessary to access the site if the site cannot be directly accessed from a public road.

SIGNATURES: The information presented in this application is true and correct to my knowledge. I understand that presenting incorrect information may result in my application being returned. *I certify that the above-described facility has been submitted in accordance with local, county and state statutes as required. Said facility shall be constructed as authorized under the provisions specified in the Wyoming Department of Environmental Quality, Water Quality Division, Rules and Regulations, Chapter 25. I authorize representatives from the Department of Environmental Quality/Water Quality Division and/or Big Horn County, during regular business hours, to have access to and inspect the installed facilities prior to backfilling. Further, I understand that all residences and businesses require a physical address and I may be required to pay a fee to obtain a county-assigned address for structures related to this application.*

- Property Owner(s)**: _____ Date: _____
- Applicant (if not owner): _____ Date: _____

**Property owner signature(s) is/are required.

BELOW - For office use only

- Are past septic installation records on file for this parcel/site? ☐ YES ☐ NO
  - If yes, what year was the information filed? _____ Permit #: _____
- Is DEQ review needed? ☐ YES ☐ NO
  - If yes, reason: _____
  - DEQ response: _____
- Permit issued? ☐ YES ☐ NO
  - If yes, permit number issued: _____ Date issued: _____
  - If no, reason: _____

Site Suitability

The owner/applicant must be aware of the depth of any impermeable soil layers, high groundwater levels and slope when considering the septic system location. The questions below will ensure you have gathered the information necessary to determine if a conventional septic system is appropriate.

****REQUIRED****

Cut/dig a soil and groundwater exploration pit near or within the area of the proposed leach field until you reach water, solid rock or 10 feet (whichever comes first). Then answer the following questions.

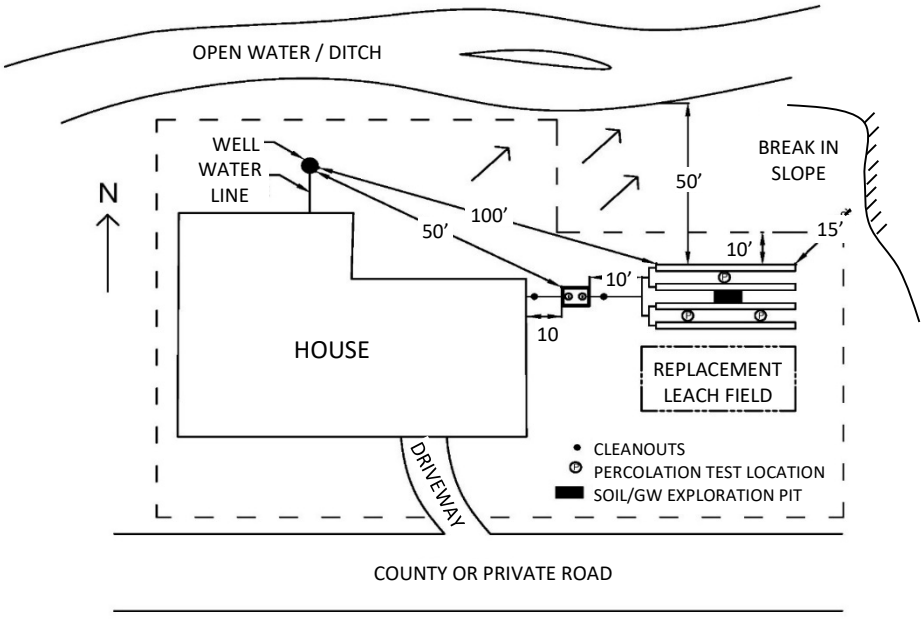
Excavation	Was the bottom of the required exploration pit at least **4 feet below** the bottom of the proposed leach field, usually a minimum of 8-10 feet total depth?			☐ Yes ☐ No
	Take a color photograph of the excavation, showing a tape measure against the sidewall of the trench. Submit a color copy of the photograph as a separate sheet or via email. **Photo provided to county?**			☐ Yes ☐ No
	Who conducted the excavation?			
	Date of excavation:		Depth of the excavation:	
Impermeable Layers	Did the excavator observe a rock layer below the surface? If yes, at what depth (in inches or feet) below the ground surface?			☐ Yes ☐ No
	Did the excavator observe a clay layer below the surface? If yes, at what depth (in inches or feet) below the ground surface?			☐ Yes ☐ No
High Groundwater	Was groundwater present in the excavation? If yes, at what depth (in inches or feet) below the ground surface?			☐ Yes ☐ No
	Does the soil have an alkali crust at the surface, a rotten egg smell, or a blue-gray or greenish-gray (gley) color that may indicate frequent/continuous saturation? If yes, at what depth (in inches or feet) below the ground surface?			☐ Yes ☐ No
	Does the soil have a mottled appearance with areas around roots or cracks that look like rust, or is the soil stained a dark red-black or red-brown color, which may indicate periods of saturation? If yes, at what depth below the ground surface?			☐ Yes ☐ No
Slope	What is the estimated % slope of the leach field area? Include a color photo of the proposed leach field area in your packet.			
	Is there a break in slope (the side of a hill or where slope becomes abruptly steeper) within 15-20 feet of the leach field area?			☐ Yes ☐ No

Site Plan Drawing

Keep these setbacks in mind as you work through the remainder of this packet. Attach a sketch of your site as a separate sheet showing each of the items in the table below, if applicable.

Check Box if Shown on Site Plan	Element	Required Setback Distance (feet) to Septic Tank	Required Setback Distance (feet) to Leach field	Is the Setback Distance Satisfied?
☐	Property lines	10	10	☐ Yes ☐ No
☐	All buildings, roads, and driveways	—		
☐	Setback to buildings w/out a foundation drain	10	10	☐ Yes ☐ No
☐	Setback to buildings with a foundation drain	10	25	☐ Yes ☐ No
☐	Private wells (including neighbors)	50	100	☐ Yes ☐ No
☐	Public water supply wells	100	200	☐ Yes ☐ No
☐	Potable water supply lines	25	25	☐ Yes ☐ No
☐	Surface water (ditch, pond, Intermittent waterways, etc.)	50	50	☐ Yes ☐ No
☐	Septic tank	—	10	☐ Yes ☐ No
☐	Break in slope (where slope gets abruptly steeper)	15	15	☐ Yes ☐ No
☐	Cisterns	25	25	☐ Yes ☐ No
☐	Leach field & Replacement Leach field	10	—	☐ Yes ☐ No
☐	North arrow	—		
☐	Slope (arrow pointing downslope)	—		
☐	Location of percolation test holes (numbered)	—		
☐	Location of soil exploration pit	—		
☐	Location of flow dividers, d-boxes and cleanout ports	—		

Example site plan:



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.

1. 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.

2. 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 course sand, washed gravel, or crushed stone in the bottom in order to prevent scouring or sealing.

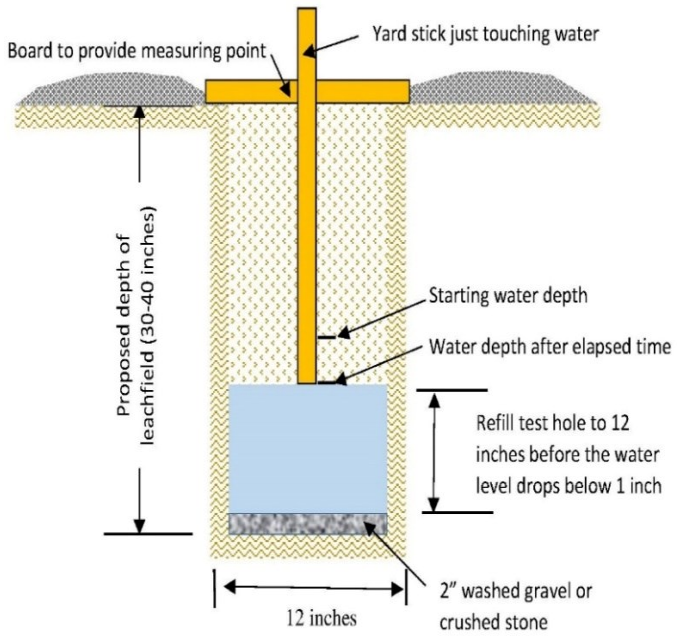
3. Presoaking. Presoaking is ***absolutely required*** to get valid percolation test results. Presoaking allows the water conditions in the test hole to reach a stable condition that is similar to a leach field. Presoaking time varies with soil conditions, but presoak holes for at least 4 hours. Maintain 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.

1. Perc Rate 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. Fill each hole with 12 inches of water and let the soil re-hydrate for 15 minutes prior to taking any measurements. Refill the test hole to 12 inches above the gravel before starting the measurements. 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.**

2. Measure down to the water from the fixed reference point. Record this value on the first line in the perc test data sheet (Page 6). 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.

3. Continue the test until the water level drop rate has stabilized, i.e. three consecutive measurements within 1/8 inch of each other. 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 water level measurements for your calculations.



Percolation Test Data Sheet

Owner/Project Name: _____ **Date:** _____

Test holes were pre-soaked for: _____ (hours/minutes) **Time Interval:** _____ min

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	**Elapsed 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)													

Final Water Level Drop: The smallest of the three (3) consecutive water level drops that were within an ⅛ inch of each other. Some test holes may take longer to stabilize than others. If the drop rate continued to fluctuate, use the smallest drop rate out of the last six measurements for your calculations.

Helpful Conversions: 1/8 = 0.125 1/4 = 0.25 3/8 = 0.375 1/2 = 0.50 5/8 = 0.625 3/4 = 0.75 7/8 = 0.875

To calculate perc rate (minutes per inch): Time Interval (min) ÷ Final Water Level Drop (in)

Example Perc Rate = 10 min/1.125 in = 8.9 min/in

Leach field percolation (Perc) rate: If 3 to 5 holes were tested, use the slowest (highest number) rate of the holes tested. If six or more holes were tested, use the average rate.

I certify that this perc test was done in accordance with WQRR Chapter 25, Appendix A and the instructions on the previous page.

Test Performed by: _____ **Signature:** _____

Septic Tank and Piping Worksheet

Septic Tank	**Minimum Tank capacity:** • Up to 4 bedrooms: 1,000 gallons • 5 Bedrooms: 1,150 gallons (*Add 150 gallons per each additional BR)		**Tank Size to be Used: (gallons)**	
	Manufacturer & Model Number:		**Number of Compartments in Tank:**	
	Tank Material:	☐ Concrete ☐ Fiberglass ☐ Thermoplastic ☐ Other (please describe): _____		
	Is this septic tank on the DEQ-approved list? If no, provide a tank diagram from the manufacturer. If you cannot locate a diagram from the manufacturer, complete "Basic Design Requirements for Septic Tanks Not on the DEQ-Approved List."			☐ Yes ☐ No ☐ Don't Know
	Does the tank have a 20-inch access opening in **EACH** compartment of the tank and a riser from the access opening that terminates at a max of six (6) inches below the ground surface?			☐ Yes ☐ No
	Do access openings have a locking device?			☐ Yes ☐ No
	Is septic tank installed on a level grade, with firm bedding to prevent settling, and without rock or other obstructions touching the tank as per WQRR Chapter 25, Section 10(a)(ii)?			☐ Yes ☐ No
	If installing two tanks in a series, install the downstream tank a minimum of 2 inches lower than the first to insure proper flow. Will the installer use a series of tanks as described?			☐ Yes ☐ No
	Depth of backfill to be placed over tank (minimum of 6" required):			☐ Yes ☐ No
Building Sewer Pipes	**Piping material to be used between the building and septic tank:**		**Proposed pipe size (diameter):**	
	Will the installer lay the pipe from the house to the septic tank in a straight line?			☐ Yes ☐ No
	- If no, will the installer include the **required** cleanout ports at any alignment change greater than 22.5 degrees and branch connections?			☐ Yes ☐ No
	Will the pipe from the house to the septic tank be more than 100 feet long?			☐ Yes ☐ No
	- If yes, will **required** cleanout ports be spaced along the line every 100 feet or less?			☐ Yes ☐ No
	DEQ recommends a cleanout port facing each direction between the building and the tank. Which direction does your **required** cleanout port face?			☐ Toward Building ☐ Toward Tank ☐ Both Directions
	Will the piping have a standard slope of ¼ inch per foot (2%) but not flatter than 1/8 inch per foot?			☐ Yes ☐ No
	If the installer uses more than one trench, they must use a distribution box or flow divider tee to equalize flow. Which will be used in your proposed system?			☐ Single Trench ☐ Flow Divider Tee(s) ☐ D-box

Leach field Sizing Worksheet

Design Flow (gpd)

Select Building Type

☐	Residential Building (Includes Mobile Homes)	**# Bedrooms**	**Box A**
		Unfinished Basement?	☐Yes ☐No
		If yes, enter 2. **If no, enter 0.**	**Box B**
		Total # Bedrooms = Box A + Box B	**Box C**
☐	Non-Residential Building	Refer to Chapter 25, Table 2 of the WQRR to determine design flow. Show calculations (attach a separate sheet if necessary).	

Enter the number of gallons per day (gpd) of wastewater generated that corresponds with the total number of bedrooms (Box C) in Box 1 below.

1	bedroom	150 gpd
2	bedrooms	280 gpd
3	bedrooms	390 gpd
4	bedrooms	470 gpd
5	bedrooms	550 gpd
6	bedrooms*	630 gpd

*Add 80 gallons per day for each additional bedroom.

Design Flow (gpd):
Enter value from cells above or Chapter 25, Table 2.

Box 1

Loading Rate (gpd/ft²)

Check Perc Rate Obtained from Perc Test Data (page 6)

Perc. Rate min/inch	Loading Rate gpd/ft²	Perc. Rate min/inch	Loading Rate gpd/ft²	Perc. Rate min/inch	Loading Rate gpd/ft²
○ 5	0.80	○ 16	0.50	○ 30-31	0.39
○ 6	0.75	○ 17	0.49	○ 32-33	0.38
○ 7	0.71	○ 18	0.48	○ 34-35	0.37
○ 8	0.68	○ 19	0.47	○ 36-37	0.36
○ 9	0.65	○ 20	0.46	○ 38-40	0.35
○ 10	0.62	○ 21	0.45	○ 41-43	0.34
○ 11	0.60	○ 22	0.44	○ 44-46	0.33
○ 12	0.58	○ 23-24	0.43	○ 47-50	0.32
○ 13	0.56	○ 25	0.42	○ 51-55	0.31
○ 14	0.54	○ 26 - 27	0.41	○ 56-60	0.30
○ 15	0.52	○ 28 - 29	0.40		

Loading Rate (gpd/ft²):
Enter loading rate for your percolation rate from above table.

Box 2

Leach field Sizing (ft²)

Required Leach field Area (ft²)
Divide design flow (Box 1) by the loading rate (Box 2).
Round **up** to the nearest whole number.

_____ ÷ _____ = _____

Design Flow (Box 1) | Loading Rate (Box 2) | Leach field Area (ft²) (Box 3)

Example: 280 gpd ÷ 0.62 gpd/ft² = 451.61 or 452 ft²

Box 3

Leach field Design Instructions

Construct conventional septic system leach fields using either a trench or a bed layout. Perforated pipe or open-bottom chamber systems can be used in either layout. DEQ prefers trench layouts because they provide more surface area for absorption of wastewater into the soil. Trenches also treat wastewater more efficiently because the undisturbed soil between the trenches allows more oxygen to reach the microbes that break down and treat the wastewater. For this reason, trenches are also more effective when soils have lower or "slower" percolation rates. Use bed layouts where space for a leach field is limited and only where soils have higher or "faster" percolation rates. DEQ considers trenches spaced less than three (3) feet apart as bed layouts.

To design your leach field, follow these steps:

1) Choose either a trench or a bed layout.
2) Choose either perforated pipe or open-bottomed chambers for your leach field.
3) Fill out the layout worksheet and diagram that correspond to your selection. This worksheet will determine how many trenches you need or how large to make your bed.
4) Submit **only** one completed worksheet and diagram.

Trench Leach field System:

Perforated Pipe Trench Layout Worksheet, Page 10
Chambered Trench Layout Worksheet, Page 12

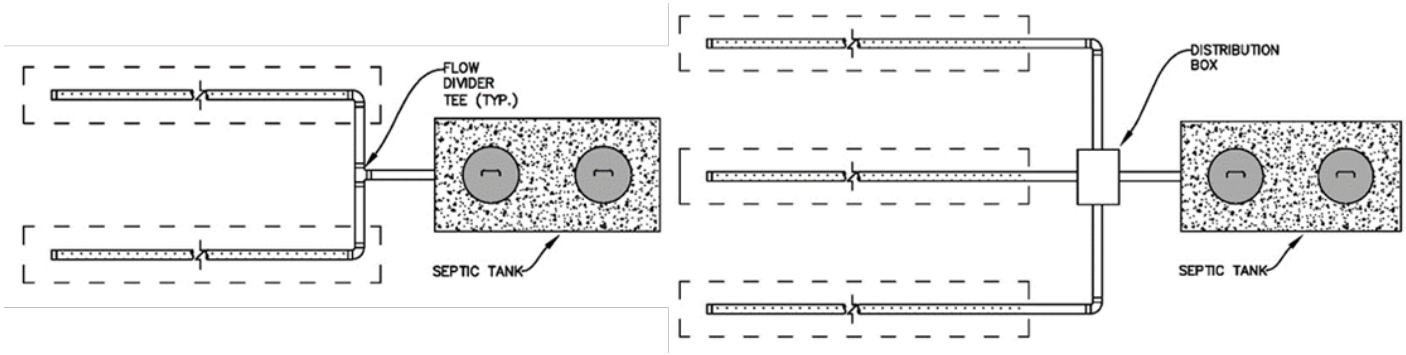
Bed Leach field System:

Perforated Pipe Bed Layout Worksheet, Page 14
Chamber Bed Layout Worksheet, Page 16

Install leach fields to ensure equal distribution of wastewater effluent among all the trenches. Equal distribution allows the use of the entire infiltrative surface of the leach field and prevents overloading part of the leach field.

Use either a piping header or distribution box (D-box) to distribute wastewater effluent equally among the trenches of a leach field. A piping header system conveys wastewater effluent to each disposal trench using a network of solid piping. Split the discharge line from the septic tank using a T-pipe fitting (see example below). If there is an odd number of trenches in the leach field, use a distribution box to divide wastewater effluent evenly among the trenches (see example below). Distribution boxes are typically made of concrete or wastewater-grade plastics and are watertight with a single inlet set at a higher elevation than the outlets. **T-pipes and Distribution boxes must be level and set on undisturbed soil.**

Examples of Septic Systems Where the Effluent is Distributed Equally.



DEQ does not require installation of leach field trenches in a straight line. In fact, it is always preferable to follow the contour of the land. Drop boxes are suitable for sloping ground and are installed to achieve serial loading.

Additionally, never install the leach field in floodways, at the base of slopes, or in depressions where runoff water could flood the leach field. Construct leach fields in areas with good surface drainage, where the water cannot pond over the leach field.

Chamber System Equivalent Areas

Use dimensions provided in the table to design leach fields utilizing chamber technology on pages 13 (chamber trenches) or 17 (chamber beds) of the application package.

WDEQ 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).

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	**Quick 4 High Capacity**	4.4	34	16	4.0	34	11.5	**23.9**	**16.2**
	Quick 4 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**
	Prinsco Pro4/36HC	4.7	34	16	4	34	12.2	**24.3**	**16.2**
Standard	**Quick 4 Standard**	4.4	34	12	4.0	34	8.0	**21.5**	**16.2**
	Quick 4 Plus Standard	4.4	34	12	4.0	34	8.0	**21.5**	**16.2**
	Quick 5 Standard	5.4	34	12	5	34	8	**26.9**	**20.3**
	Prinsco Pro4/36	4.7	34	12	4	34	8.5	**21.9**	**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	**Quick 4 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**
	Prinsco Pro4/36LP	4.7	34	8	4	34	6.5	**20.5**	**16.2**
Narrow	**Quick 4 Equalizer 36**	4.4	22	12	4.0	22	6.0	**14.5**	**10.5**
	Quick 5 Equilizer 36	5.4	22	12	5	22	6	**18.1**	**13.1**
	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**
	Prinsco Pro4/24	4.7	34	12	4	22	8.5	**16.2**	**10.5**
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**

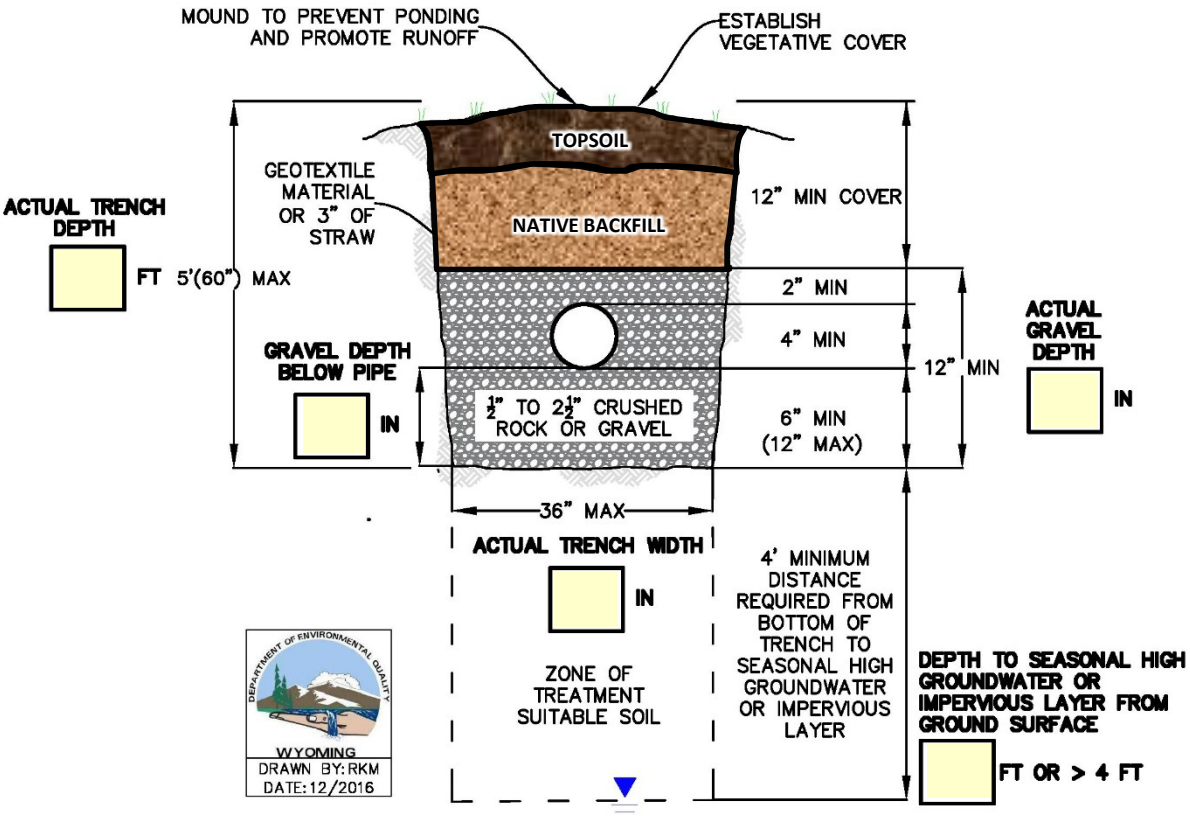
[1] The equivalent areas calculation used the outside width of the chamber.

[2] The 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.

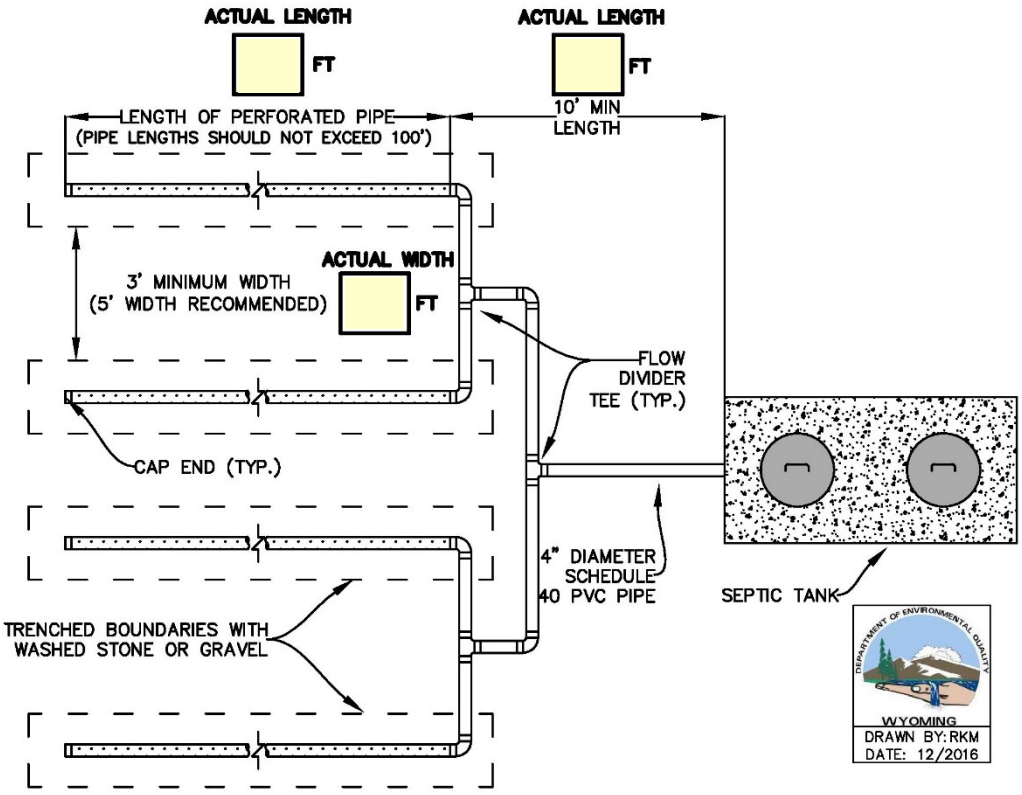
Perforated Pipe Trench Layout Worksheet

Design	Required Leach field Area (ft^2) (Page 8, Box 3)			Box 1
	Depth of Trench Below Pipe (ft) (0.5' min)			Box 2
	Width of Trench (ft) (3' max)			Box 3
	Absorptive Area Per Linear Foot of Trench (ft^2/ft)	_____ + _____ + _____ = _____ Trench Depth (Box 2) Trench Depth (Box 2) Trench Width (Box 3) Absorptive Area		Box 4
	Minimum Total Trench Length (ft)	_____ ÷ _____ = _____ Required Leach field Area (Box 1) Absorptive Area (Box 4) Total Trench Length		Box 5
Trench Layout	Number of Trenches to Use	**Total Trench Length (ft) (from Box 5)** ≤100 101-200 201-300 301-400 401-500 501-600	**Minimum # of Trenches to Use (Please circle)** 1 2 3* 4 5* 6	Box 6 **Your proposed design:** **# of trenches to be used = _____** **Length of each trench = _____** **Combined length of trenches = _____** *A distribution box, or D-box, is required when an odd number of trenches is used.

Fill in the boxes on the diagram below.



Perforated Pipe Trench Layout Diagram



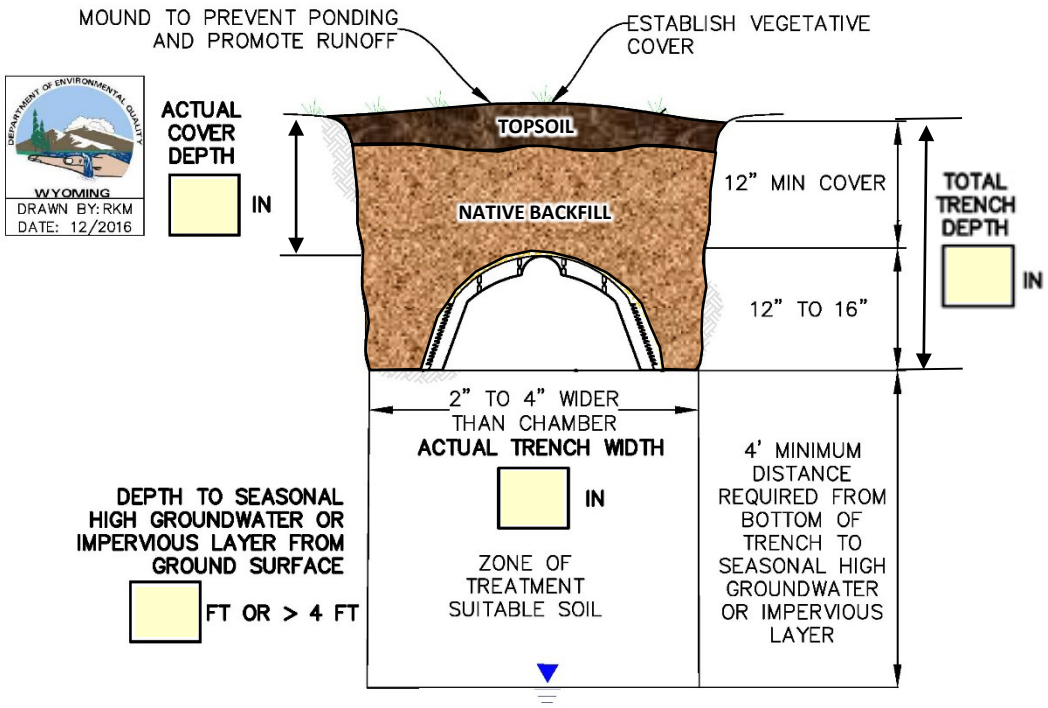
***Prior to backfilling, the aggregate shall be covered throughout with a woven/non-woven geotextile material or a three (3) inch layer of straw.**

Draw your perforated pipe trench layout below or attach a separate sheet.

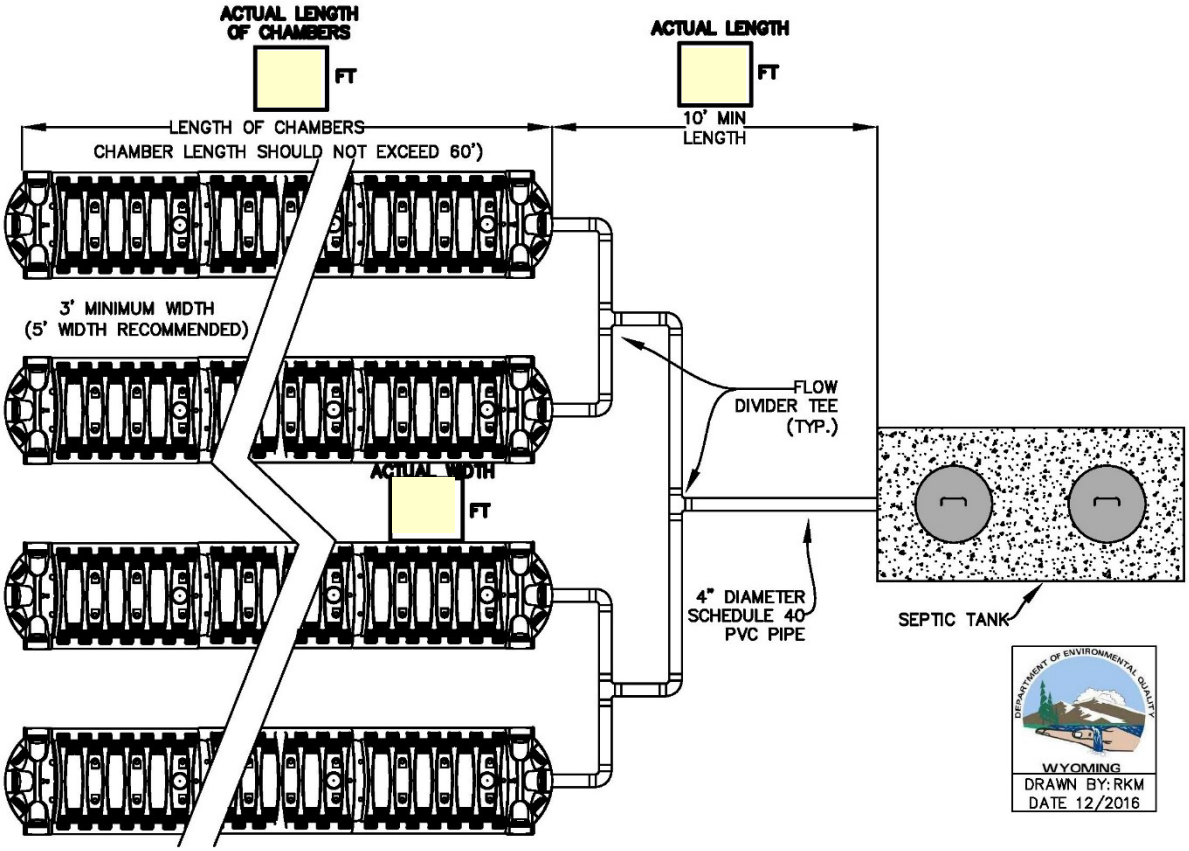
Chambered Trench Layout Worksheet

Chamber (See Page 10)	Chamber Manufacturer		Chamber Model	
	Nominal Length (ft)		Nominal Width (in)	
	Nominal Height (in)		Effective Length (ft)	Box 1
Design	Required Leach field Area (Page 8, Box 3)			Box 2
	Equivalent Area Per Unit (See Page 10)			Box 3
	Minimum Number of Chambers	_____ ÷ _____ = _____ Required Leach field Area (Box 2) / Equivalent Area Per Unit (Box 3) / Number of Chambers (Round Up)		Box 4
Trench Layout	Minimum combined trench length (ft)	_____ * _____ = _____ **feet** Number of Chambers (Box 4) / Effective Length (Box 1) / Minimum Combined Trench Length		Box 5
	Number of Trenches to Use	**Total Trench Length (ft) (from Box 5)** ≤60 61-120 121-180 181-240 241-300 301-360	**Minimum # of Trenches to Use (Please circle)** 1 2 3* 4 5* 6	**Your proposed design:** **# of trenches to be used = _____** **Length of each trench = _____** **Combined length of trenches = _____** *A distribution box, or D-box, is required when an odd number of trenches is used. Box 6

Fill in the boxes on the diagram below.



Chambered Trench Layout Diagram

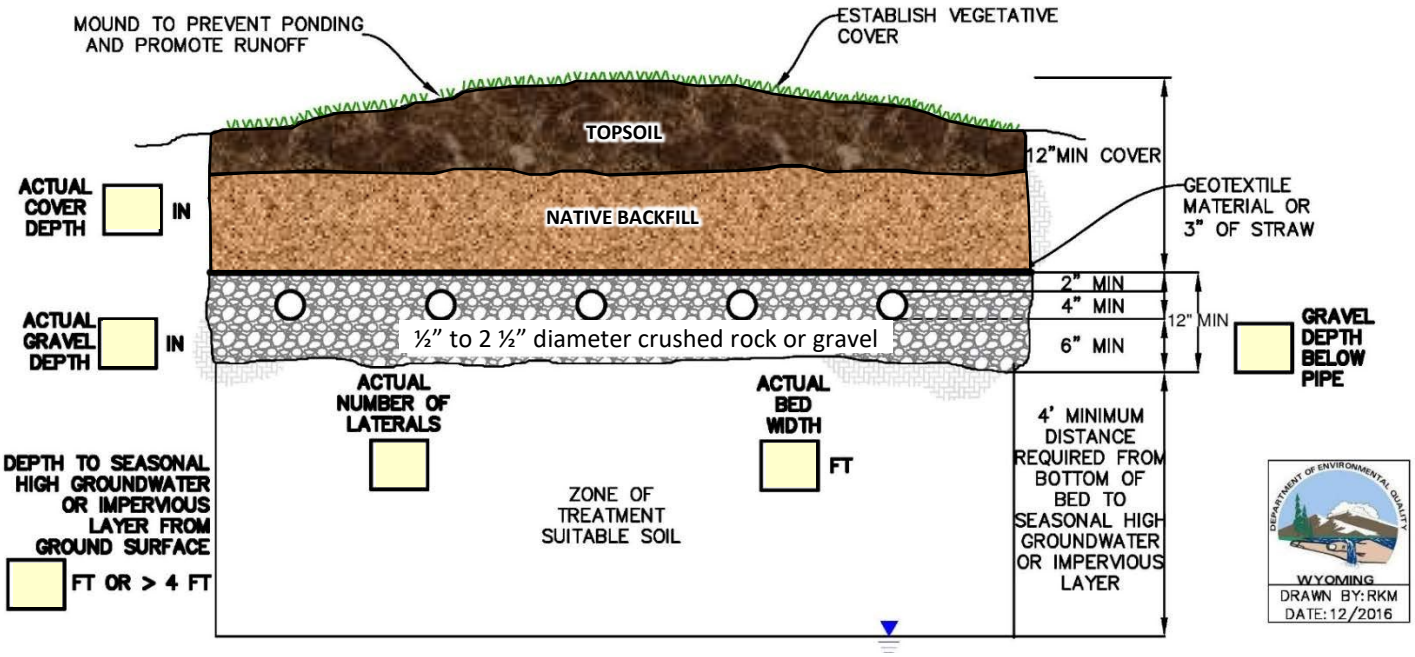


Draw your chambered trench layout below or attach a separate sheet.

Perforated Pipe Bed Layout Worksheet

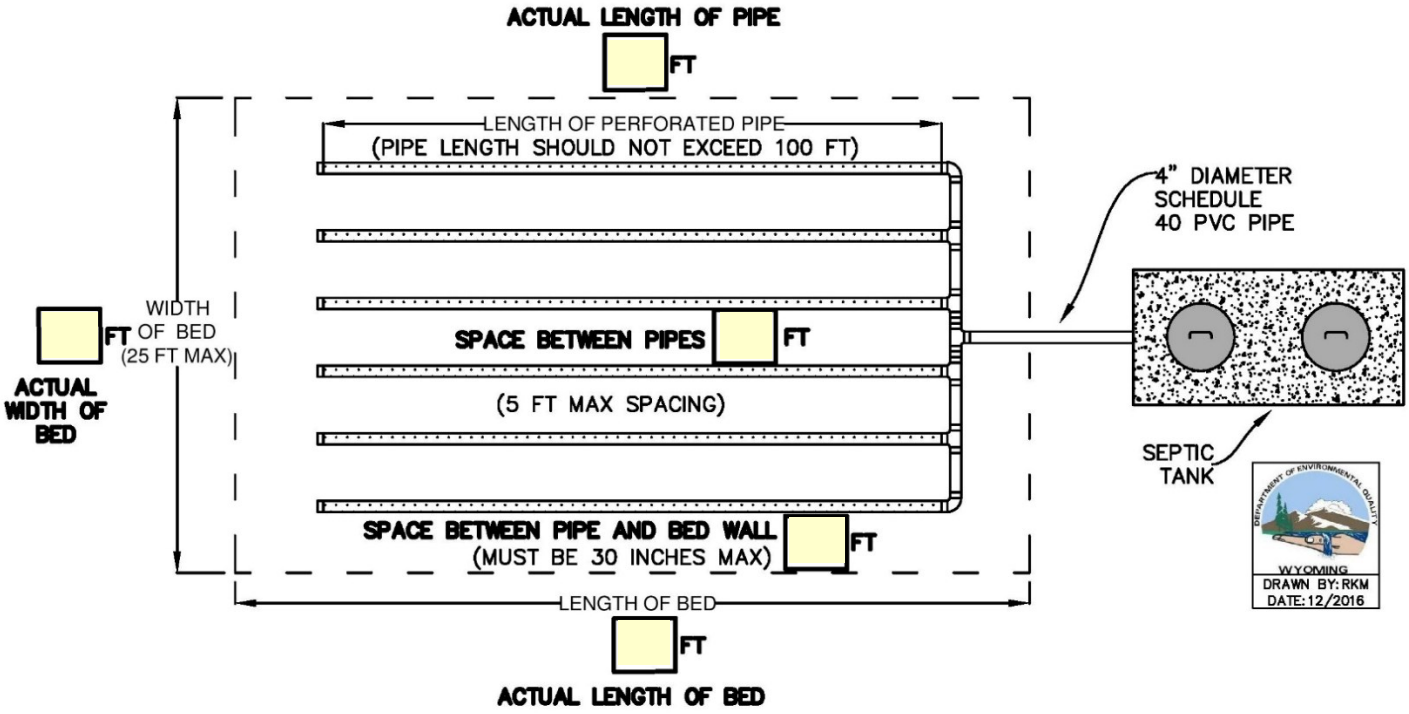
Design	Required Leach field Area (Page 8, Box 3):			Box 1
	Proposed Total Excavated Depth (ft):		Proposed Bed Width (ft):	Box 2
	Proposed Depth below pipe (ft):		Proposed Bed Length (ft):	Box 3
	Total Bed Area (ft^2)	_____ * _____ = _____ Bed Width (Box 2) Bed Length (Box 3) Total Bed Area		Box 4
	Is Box 4 ≥ Box 1? • If No, adjust Bed Width (Box 2) and Bed Length (Box 3) until Box 4 is greater than Box 1 • If Yes, complete the bottom of this page.			

Fill in the boxes on the diagram below.



***Prior to backfilling, the aggregate shall be covered throughout with a woven/non-woven geotextile material or a three (3) inch layer of straw.**

Perforated Pipe Bed Layout Diagram

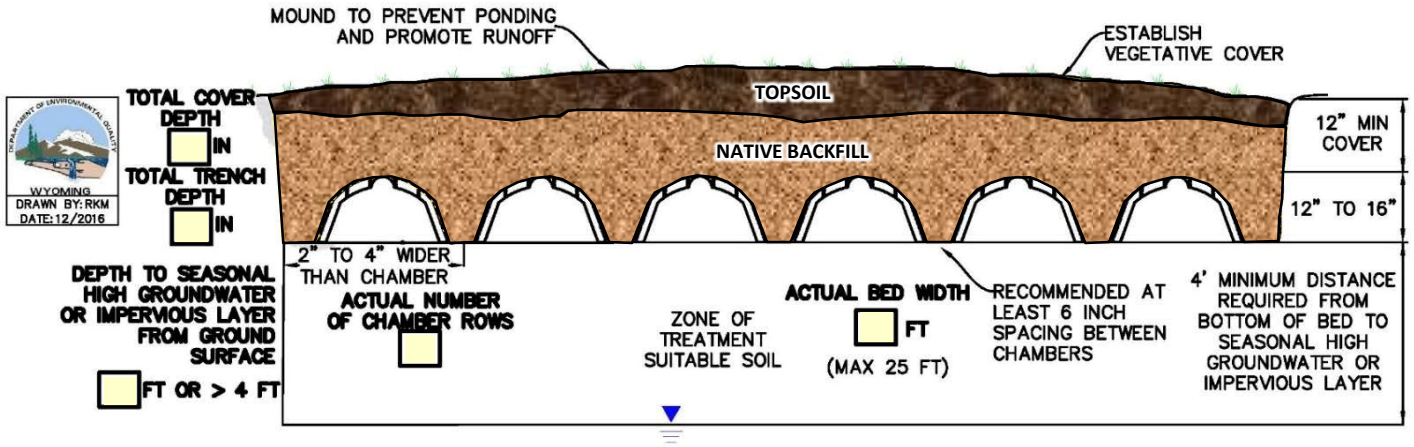


Draw your layout below or attach a separate sheet.

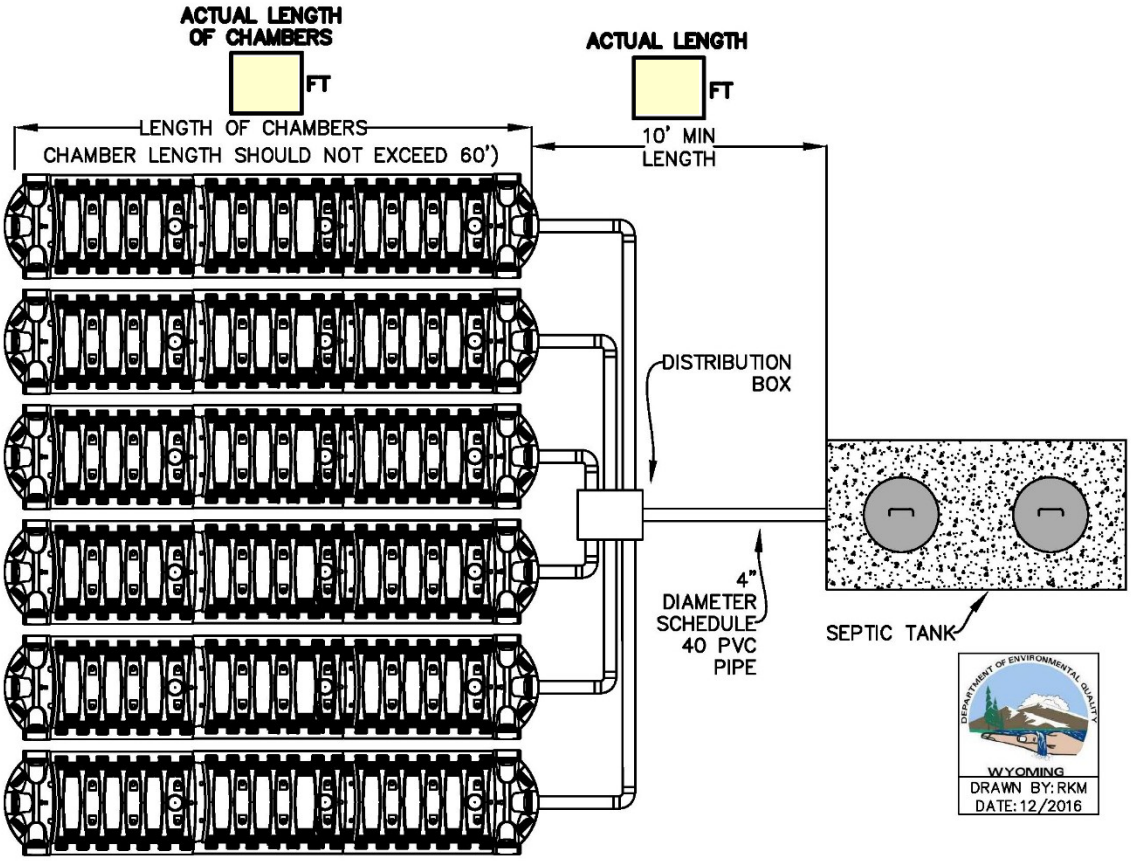
Chambered Bed Layout Worksheet

Chamber (See Page 10)	Manufacturer		Model	
	Nominal Length (ft)		Nominal Width (in)	
	Nominal Height (in)		Effective Length (ft)	Box 1
Design	Required Leach field Area (Page 8, Box 3)			Box 2
	Equivalent Area Per Unit (See Page 10)			Box 3
	Number of Chambers	_____ ÷ _____ = _____ Required Leach field Area (Box 2) / Equivalent Area Per Unit (Box 3) / Number of Chambers (Round Up)		Box 4
Bed Layout	Total Chamber Length (ft)	_____ * _____ = _____ Number of Chambers (Box 4) / Effective Length (Box 1) / Total Chamber Length		Box 5
	Number of Chamber Rows to Use	**Total Chamber Length (ft) (from Box 5)** / **Minimum Number of Chamber Rows to Use** <60 — 1 61-120 — 2 121-180 — 3* 181-240 — 4 241-300 — 5* 301-360 — 6	**For your design:** **Number of Chamber Rows to Use = _____** **Length of Rows = _____** *A distribution box, or D-box, is required when an odd number of trenches is used.	Box 6

Fill in the boxes on the diagram below.



Chambered Bed Layout Diagram



Draw your chambered bed layout below or attach a separate sheet.