

Chapter 25 Version 6/9/2016-Gov-SOS-LSO

Section 3, Line Numbers 38 and 39:

Text changed from “New construction following the effective date of this regulation must obtain authorization under a new permit or modification of existing permitted facilities” to “New construction or modification of existing facilities following the effective date of this regulation must obtain authorization under a new permit.

Section 17, Line Number 1671

Text changed from “A permit by rule requires the owner to submit the information contained in paragraph (e) of this section to the Wyoming Department of Environmental Quality, Water Quality Division prior to constructing or installing the system” to “A permit by rule requires the owner to submit the information contained in paragraph (e) of this section to the Wyoming Department of Environmental Quality, Water Quality Division prior to constructing, modifying, or installing the system.”

CHAPTER 25

SEPTIC TANKS, ~~AND/OR~~ SOIL ABSORPTION SYSTEMS, AND OTHER SMALL  
WASTEWATER SYSTEMS

Section 1. ~~General~~ Authority.

This rule is promulgated pursuant to Wyoming Statutes (W.S.) 35-11-101 through 35-11-1904, specifically 35-11-302(a)(iii).

Section 2. ~~Definitions~~ Objective.

~~(formerly Section 1)~~ This ~~part~~ Chapter contains the minimum standards for the design and construction of ~~sewerage small wastewater systems, treatment works and disposal systems for domestic wastes and industrial wastes generated by facilities other than specifically covered by other parts of this Chapter~~ that are defined by W.S. 35-11-103(c)(ix). In addition, this Chapter contains the minimum standards for the design and construction of Underground Injection Control (UIC) Class V facilities 5C1-5C3, 5C6, 5D1, 5E1, 5E3-5E5 as defined in Chapter 27, Appendices C and D.

The following situations will require the application package to be sealed, signed, and dated by a professional engineer (PE): non-domestic wastewater from commercial and industrial facilities, high strength wastewater, individual permits to construct, or standard soil absorption systems with a soil percolation rate that is either less than 5 minutes per inch (mpi) or more than 60 minutes per inch (mpi).

These standards pertain to permits required pursuant to Chapters 3 and 25, Wyoming Water Quality Rules and Regulations. The installation of all components of a small wastewater system require a permit to construct. Permits to construct are specified throughout this chapter as general permits, described in Chapter 3, Section 7; permit by rule, described in Chapter 3, Section 8; or as individual permits to construct, described in Chapter 3, Section 6.

Section 3. ~~Design Flows~~ Timing of Compliance with These Regulations.

Any Chapter 3 permit-to-construct issued for facilities otherwise subject to this chapter prior to the effective date of these regulations, and any facility authorized under the Division's "General Permit to Construct, Install, Modify or Operate a Small Wastewater Facility" shall remain covered under those permits. New construction or modification of existing facilities following the effective date of this regulation must obtain authorization under a new permit.

Section 4. ~~Isolation~~ Definitions.

(a) ~~"Absorption system" means a system constructed under the surface of the ground which receives and distributes effluent from a pretreatment device effectively filtering the effluent through soil or media.~~ "100 year floodplain" means a tract of land throughout a watershed that has a one-in-one hundred chance or occurrence of flooding in any given year or a return period of once every 100 years, as determined by the United States Geological Survey (USGS), Federal Emergency Management Agency (FEMA) or a local planning and development authority.

51 (b) ~~“Aerobic unit” means a covered, watertight receptacle which receives wastewater.~~  
52 ~~The unit removes settleable solids, floatable material, and a part of soluble organic matter by the~~  
53 ~~use of aerobic biological treatment. “Absorption surface” means the interface where treated~~  
54 ~~effluent infiltrates into native or fill soil.~~

55 (c) ~~“Building drain” means the building drain is that part of the lowest piping of a~~  
56 ~~drainage system which receives the discharge from soil, waste and other drainage pipes inside the~~  
57 ~~walls of the building and conveys it to the building sewer beginning two feet (.6m) outside the~~  
58 ~~building wall. “Bed” means a soil treatment and dispersal system where the width is greater than~~  
59 ~~three (3) feet.~~

60  
61 (d) ~~“Bedrock” means geological layers, of which greater than 50 percent by volume~~  
62 ~~consist of unweathered in-place consolidated rock or rock fragments. Bedrock also means~~  
63 ~~weathered in-place rock that cannot be hand augered or penetrated with a knife blade.~~

64  
65 (e) ~~“Bedroom” means any room that is or may be used for sleeping.~~

66  
67 (f) ~~“Dosing system” means the system of tanks, pumps or syphons, and piping located~~  
68 ~~between the septic tank and soil absorption system which is intended to apply a large quantity of~~  
69 ~~settled wastewater to the absorption system in a short period of time. “Blackwater” means water~~  
70 ~~containing fecal matter and/or urine~~

71  
72 (g) ~~“Hydrogeological study” means a study of the occurrence, distribution, quality and~~  
73 ~~movement of the shallowmost groundwater of the site and the potential impact of wastewaters on~~  
74 ~~the groundwater. “Five day biochemical oxygen demand (BOD<sub>5</sub>)” means a measurement of~~  
75 ~~the dissolved oxygen used by microorganisms in the biochemical oxidation of organic matter~~  
76 ~~during a five (5) day period.~~

77  
78 (h) ~~“Impermeable soil” means any soil which has a percolation rate greater than 60~~  
79 ~~minutes per inch.~~

80  
81 ~~Previously 2(d) “Building sewer” means the building sewer is that part of the horizontal piping~~  
82 ~~the pipe of a drainage system which extends from the end of the building drain and conveys the~~  
83 ~~building drain discharge to the septic tank or other onsite sewage disposal facility that carries~~  
84 ~~wastewater from the building.~~

85  
86 (i) ~~“Pump Tank” means a tank in which the dosing pumps or syphons are installed.~~  
87 ~~“Chamber” means a domed open bottom structure that is used in lieu of perforated distribution~~  
88 ~~pipe and gravel media.~~

89  
90 (j) ~~“Delegated small wastewater program” means a local governmental entity,~~  
91 ~~delegated by the Administrator, with the authority to administer the provisions of W.S. 35-11-~~  
92 ~~301(a) (iii) for small wastewater systems pursuant to the provisions of W.S. 35-11-304.~~

93  
94 (k) ~~“Direct human consumption food crops” are crops consumed directly by humans.~~  
95 ~~These include, but are not limited to fruits, vegetables and grains grown for human consumption.~~

96  
97 (l) ~~“Domestic wastewater” means a combination of the liquid or water-carried wastes~~  
98 ~~from residences, business buildings, institutions, and other establishments arising from normal~~  
99 ~~living activities.~~

100

101 ~~Previously 2(e) (m) “Domestic sewage septage” “Domestic”~~ means the liquid ~~and~~  
102 ~~waterborne wastes or solid material derived removed from the ordinary living processes a waste~~  
103 ~~treatment vessel, free from industrial wastes, and of such character as to permit satisfactory~~  
104 ~~disposal without special treatment~~ that has received only wastes from residences, business  
105 buildings, institutions, and other establishments arising from normal living activities.  
106

107 (n) “Dosing tank” means a tank equipped with an automatic siphon or pump designed  
108 to discharge effluent on an intermittent basis.  
109

110 (o) “Effluent” means a liquid flowing out of a septic tank, other treatment vessel or  
111 system.  
112

113 (p) “Effluent filter” means a removable, cleanable device inserted into the outlet piping  
114 of a septic tank or other treatment vessel designed to trap solids that would otherwise be  
115 transported to the soil absorption system or other downstream treatment components.  
116

117 (q) “Evapotranspiration” means the combined loss of water from soil by evaporation  
118 from the soil or water surface and by transpiration from plants.  
119

120 (r) “Greywater” means untreated wastewater that has not been contaminated by any  
121 toilet discharge; that is unaffected by infectious, contaminated, or unhealthy bodily wastes; and  
122 does not present a threat from contamination by unhealthful processing, manufacturing, or  
123 operating wastes. “Greywater” includes but is not limited to wastewater from bathtubs, showers,  
124 washbasins, clothes washing machines (unless soiled diapers are serviced), laundry tubs, and  
125 kitchen sinks.  
126

127 (s) “Grease interceptor” means a device designed to separate fats, oils, and grease  
128 from wastewater.  
129

130 (t) “Groundwater” means subsurface water that fills available openings in rock or soil  
131 materials such that they may be considered water saturated under hydrostatic pressure.  
132

133 (u) “High groundwater” means seasonally or periodically elevated levels of  
134 groundwater.  
135

136 (v) “High strength wastewater” means a wastewater stream with a BOD<sub>5</sub> higher than  
137 200 mg/L.  
138

139 (w) “Holding Tank” means a watertight receptacle designed to receive and store  
140 wastewater.  
141

142 (x) “Manifold” means a non-perforated pipe that distributes effluent to individual  
143 distribution pipes.  
144

145 (y) “Mound system” means an onsite wastewater system where any part of the  
146 absorption surface is above the elevation of the existing site grade, and the absorption surface is  
147 contained in a mounded fill body above the grade.  
148

149 (z) “Mulch basin” means an excavated area that has been refilled with a highly  
150 permeable media, organic and inorganic materials intended to distribute greywater to irrigate  
151 vegetation.

152  
153 (aa) “Pathogens” are disease-causing organisms. These include, but are not limited to,  
154 certain bacteria, protozoa, viruses, and viable helminth ova.

155  
156 (bb) “Percolation rate” means the time expressed in minutes per inch required for water  
157 to seep into saturated soil at a constant rate.

158  
159 (cc) “Pipe invert” means the bottom of the internal surface of the pipe.

160  
161 (dd) “Percolation test” means the method used to measure the percolation rate of water  
162 into soil as described in Appendix A.

163  
164 (ee) “Permit by rule” means an authorization included in these rules that does not  
165 require either an individual permit or a general permit. A facility which is permitted by rule must  
166 meet the requirements found in this chapter, but is not required to apply for and obtain a permit to  
167 construct and operate the facility.

168  
169 (ff) “Pressure distribution” means a network of pipes in which effluent is forced  
170 through orifices under pressure.

171  
172 (gg) “Restrictive layer” means a nearly continuous layer that has one or more physical,  
173 chemical, or thermal properties that significantly impede the movement of water and air through  
174 the soil or that restrict roots or otherwise provide unfavorable root conditions. Examples are  
175 bedrock, cemented layers, dense layers, and frozen layers.

176  
177 (hh) “Septage” means liquid or solid material removed from a waste treatment vessel  
178 that has received wastes from residences, business buildings, institutions, and other  
179 establishments.

180  
181 (ii) “Septic tank” means a watertight tank designed and constructed to receive and  
182 treat raw wastewater.

183  
184 (jj) “Serial distribution” means a group of trenches arranged so that the total effective  
185 absorption area of one trench is used before liquid flows into the next trench.

186  
187 (kk) “Service provider” means a person authorized and trained by a system  
188 manufacturer or their vendor to operate and maintain any proprietary system.

189  
190 (ll) “Soil absorption system” means a shallow, covered, excavation surface, or mound  
191 made in unsaturated soil into which wastewater effluent from the septic tank is discharged  
192 through distribution piping for application onto absorption surfaces through porous media or  
193 manufactured components.

194  
195 (mm) “Trench” means an absorption surface with a width of three (3) feet or less.

196  
197 **Section 5. ~~Site Suitability~~ Design Flows.**

198  
199 ~~(formerly Section 3) The sewerage system, treatment works and disposal system shall have a~~  
200 ~~minimum absorption area based on the minimum peak design flows listed in Table 1 below. The~~  
201 ~~volume of wastewater shall be determined by one of the following:~~

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- (a) Tables 1 and 2 provided in this section.
- (b) Metered water supply data from the facility.
- (c) Metered water supply data from another facility where similar water demands have been demonstrated.

**Table 1**

**Quantities of Domestic Sewage Flows**

Type of Establishment	Flow (gallons per day per _____)
<b>Residential Units</b>	
Single Family Dwellings	150/bedroom
Multiple Family Dwelling (with laundry capabilities)	150/bedroom
Multiple Family Dwelling (without laundry capabilities)	120/bedroom
Cottages	50/person
Mobile Home Parks	350/home*
<b>Commercial Facilities</b>	
Airports	4/passengers
Bar	3/patron
Bathhouses and swimming pools	10/person
Campgrounds (individual sewer outlets available)	100/site
Campgrounds (service building only)	75/site
Car or truck wash	200/vehicle
Church (no food preparation and/or dishwashing)	5/seat
Church (food preparation and/or dishwashing)	7/seat
Country Club	100/member
Factories	30/employee
Hospital	200/bed
Laundry (self-service)	600/machine or 50/cycle
Motels	80/double bed or 40/single bed
Office building	30/employee
Restaurant (toilet and kitchen wastes)	13/meal
Restaurant (kitchen wastes)	6/meal
Restaurant (additional for bars and lounges)	2/meal
Restaurant (kitchen wastes with disposable service)	2/meal
Rest Home	100/resident
<b>Schools</b> Boarding	100/resident student
Day, without gyms, cafeterias, or showers	15/student
Day, with cafeterias only	20/student
Day, with cafeteria, gym and showers	25/student
Service stations	10/vehicle served
Shopping Center	2/parking space
Store, Retail	30/employee
Theaters: Movie	5/seat
Drive-In	15/vehicle space
Warehouses	30/employee

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\* Must consider flow into the soil absorption system from mobile homes where taps are allowed to run to prevent freezing.

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**Table 1. Residential Design Flow Rates per Bedroom (gallons per day, gpd)<sup>1</sup>**

<a href="#">1 bedroom</a>	<a href="#">150</a>
<a href="#">2 bedrooms</a>	<a href="#">280</a>
<a href="#">3 bedrooms</a>	<a href="#">390</a>
<a href="#">4 bedrooms</a>	<a href="#">470</a>
<a href="#">5 bedrooms</a>	<a href="#">550</a>
<a href="#">6 bedrooms</a>	<a href="#">630</a>

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218  
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220

<sup>1</sup>An unfinished basement is considered two (2) additional bedrooms.

<sup>2</sup>The design flow shall be increased by eighty (80) gpd for each additional bedroom over six (6).

**Table 2. Non-Residential Wastewater Design Flow Rates<sup>1</sup>**

Facility	Unit	Flow (gallons/unit/day)
Airports	<a href="#">person</a>	4
<a href="#">Apartment</a>	<a href="#">bedroom</a>	<a href="#">120</a>
<a href="#">Automobile</a> Service Station	vehicle served	10
Bars	<a href="#">seat</a>	<a href="#">20</a>
Bathhouses and swimming pools	person	10
Campgrounds ( <a href="#">w/ toilets only</a> )	<a href="#">person</a>	<a href="#">25</a>
Campgrounds ( <a href="#">w/shower facility</a> )	<a href="#">person</a>	<a href="#">45</a>
<a href="#">Church</a>	<a href="#">person</a>	4
Country Club	member	<a href="#">25</a>
<a href="#">Day School, Office Building, Retail Store, Warehouse (no showers)</a>	<a href="#">person</a>	<a href="#">15</a>
Hospital	bed	<a href="#">250</a>
<a href="#">Industrial Building (sanitary waste only)</a>	<a href="#">employee</a>	<a href="#">20</a>
Laundry (self-service)	<a href="#">machine</a>	<a href="#">450</a>
Mobile Home	<a href="#">bedroom</a>	<a href="#">See table 1</a>
Motel, <a href="#">Hotel, Resort</a>	<a href="#">bedroom</a>	<a href="#">140</a>
<a href="#">Recreational Vehicle</a>	<a href="#">each</a>	<a href="#">100</a>
Rest Home, <a href="#">Care Facility, Boarding School</a>	bed	100
Restaurant	meal	<a href="#">10</a>

<u>Restaurant (kitchen waste only)</u>		<u>meal</u>	<u>6</u>
Theater		<u>seat</u>	<u>3</u>

<sup>1</sup>Values shown in the above table are the typical flow rates from *Wastewater Engineering Treatment and Reuse*, Metcalf and Eddy, 2003 Edition.

**Section 6. ~~Building Sewer Pipes~~ Systems not Specifically Covered by This Rule.**

This section is provided to encourage new technology and equipment and provide a process for evaluating and permitting designs that deviate from this rule. The proposed construction of facilities and processes not in compliance with this rule may be permitted provided that the facility, when constructed and operated, meets the objective of these rules.

(a) Each application for a permit to construct shall include an engineering design report, detailed construction plans, and technical specifications for all piping, tanks, and equipment. All of the documents shall have a suitable title showing the owner's name and the Wyoming registration number, seal, and signature of the engineer.

(b) Each application for a permit to construct will be evaluated on a case-by-case basis using the best available technology. The application shall include at least one of the following:

(i) Data obtained from a full scale, comparable installation that demonstrates the acceptability of the design.

(ii) Data obtained from a pilot plant operated under the design condition for a sufficient length of time to demonstrate the acceptability of the design.

(iii) Data obtained from the theoretical evaluation of the design that demonstrates a reasonable probability the facility will meet the design objectives.

(iv) An evaluation of the flexibility of making corrective changes to the constructed facility in the event it does not function as planned.

(c) If an applicant wishes to construct a pilot plant to provide data necessary to show the design will meet the purpose of the act, a permit to construct must be obtained.

**Section 7. ~~Soil Absorption System Sizing~~ Site Suitability.**

(a) ~~(Formerly 4(e) Location. Surface runoff shall be diverted around or away from all soil absorption systems. Avoid depressions and bases of slopes and areas in the path of runoff from roofs, patios, driveways, or other paved areas unless surface drainage is provided. Formerly 4(e))~~ Absorption systems ~~Small wastewater systems~~ Small wastewater systems shall not be located beneath buildings, parking lots, roadways, driveways, irrigated landscaping, or ~~other similarly~~ compacted areas.

~~(formerly 10(a)(i)(b) Replacement area. An area shall be designated and shown on the plans for future installation of a replacement absorption system. The site must include area for both the proposed soil absorption system and a future replacement soil absorption system. Both the proposed and replacement soil absorption systems shall be sized to receive one-hundred (100%) percent of the wastewater flow. If a trench system is used, the replacement-area soil~~



269 absorption system may ~~include the area be located~~ between the trenches ~~of the proposed soil~~  
270 absorption system if ~~sufficient spacing has been provided~~ there is at least nine (9) feet of spacing  
271 between trench sidewalls. ~~At least three feet of undisturbed soil shall remain between the existing~~  
272 ~~and replacement trench side walls.~~

273  
274 ~~—— (formerly 5(e)) Groundwater protection and bedrock or impermeable soil separation.~~

275  
276 ~~(formerly 5(e)(i))~~ (c) For single family homes, For standard soil absorption systems the  
277 effective suitable soil depth ~~to bedrock or impermeable soil must be shall extend~~ at least four (4)  
278 feet ~~from below~~ the bottom of the absorption system ~~stone and the natural ground surface to any~~  
279 restrictive layer, fractured rock, or highly permeable material.

280  
281 ~~(formerly 5(e)(i))(d)~~ ~~——~~ The depth to ~~seasonally high groundwater must shall~~ be at least  
282 four (4) feet ~~from below~~ the bottom of the absorption ~~system surface stone and at least two feet~~  
283 ~~from the natural ground surface. for all treatment systems except pressure distribution. (formerly~~  
284 ~~5(e)(ii))~~ ~~——~~ For all systems other than single family homes up to 2000 gallons per day, the depth  
285 ~~to bedrock or impermeable soil must be at least four feet from the natural ground surface. The~~  
286 ~~depth to seasonally high groundwater must be at least four feet from the bottom of the absorption~~  
287 ~~system stone and at least two feet from the natural ground surface. Also, For pressure distribution~~  
288 systems, the depth to high groundwater shall be a minimum of at least three (3) feet of  
289 unsaturated soil shall be maintained between below the bottom of the absorption ~~system stone~~  
290 surface and the estimated groundwater mound imposed on the seasonally high groundwater table.  
291 if the percolation rate of the soil is five (5) minutes per inch or greater (5-60 mpi). ~~The height of~~  
292 ~~the groundwater mound may be estimated from Figures 1 through 6. The average daily flow~~  
293 ~~should be used and may be estimated as 0.6 times the flow determined from Table.~~

294  
295 ~~(formerly 5(e) (iii))~~ For all systems larger than 2000 gallons per day, a minimum of  
296 ~~three feet of unsaturated soil shall be maintained between the bottom of the absorption system~~  
297 ~~stone and the estimated groundwater mound imposed on the seasonally high groundwater table.~~  
298 ~~The maximum height of the groundwater mound shall be estimated by the design engineer.~~

299  
300 ~~—— (formerly Section 5(e))(e) Sloping ground installations~~ Slope

301  
302 ~~(formerly Section 5(e)(i))(i)~~ Absorption systems shall not be located in an area  
303 ~~where the natural slope is steeper than stated below. The following are Table 3 shows~~ the  
304 maximum permissible slopes on which an absorption system may be constructed.

305  
306 ~~(formerly contained in Section 5(e)(i))~~ Table 3. Slope and Percolation Rates for Absorption  
307 Systems

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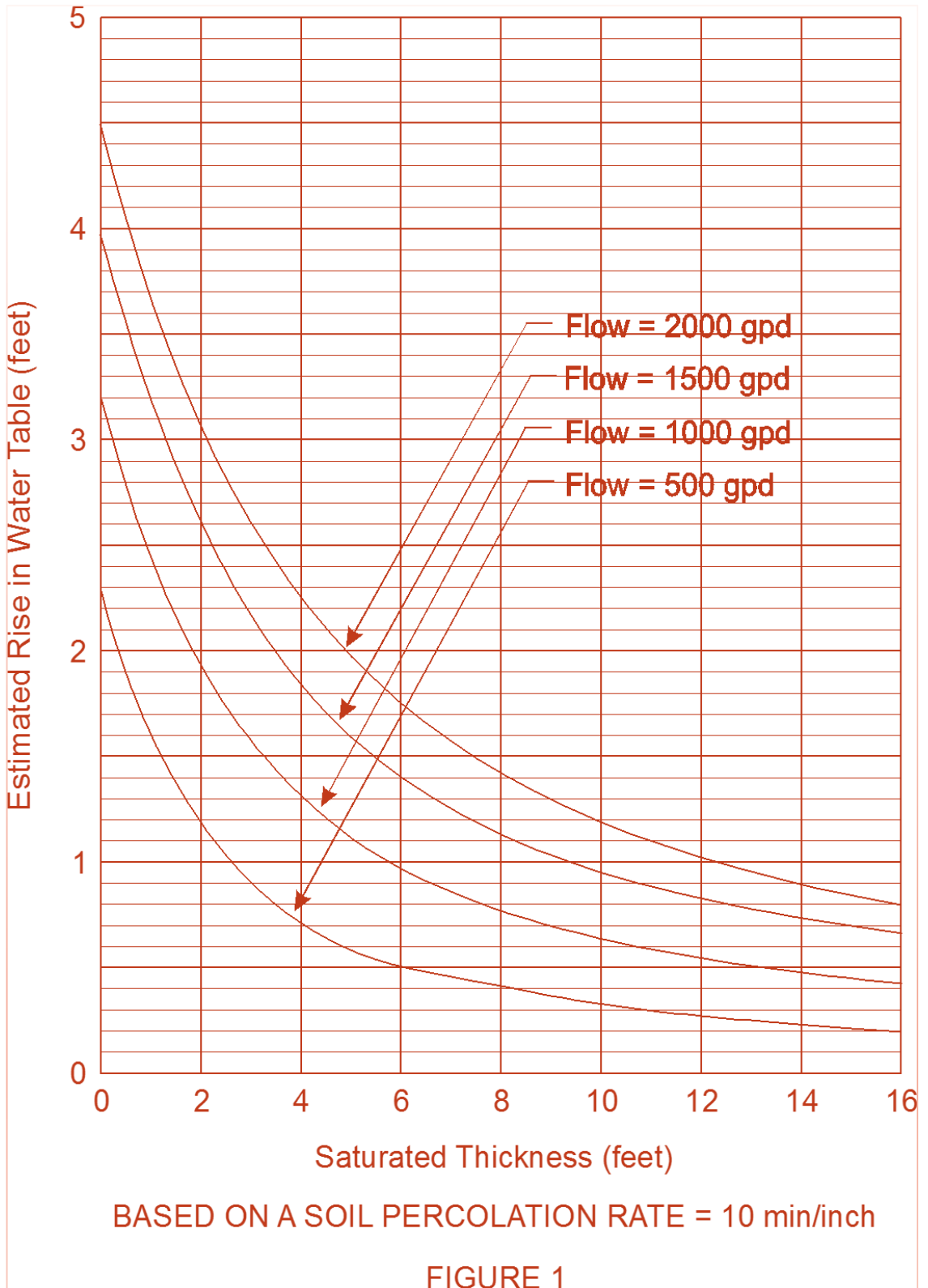
Percolation Rate (minutes/inch)	Maximum Slope <sup>1</sup>
<del>Faster than</del> 5	25%
6-45	20%
46-60	15%

309 <sup>1</sup> Flatter slopes may be required where the effluent ~~may surface~~ sufaces downslope.

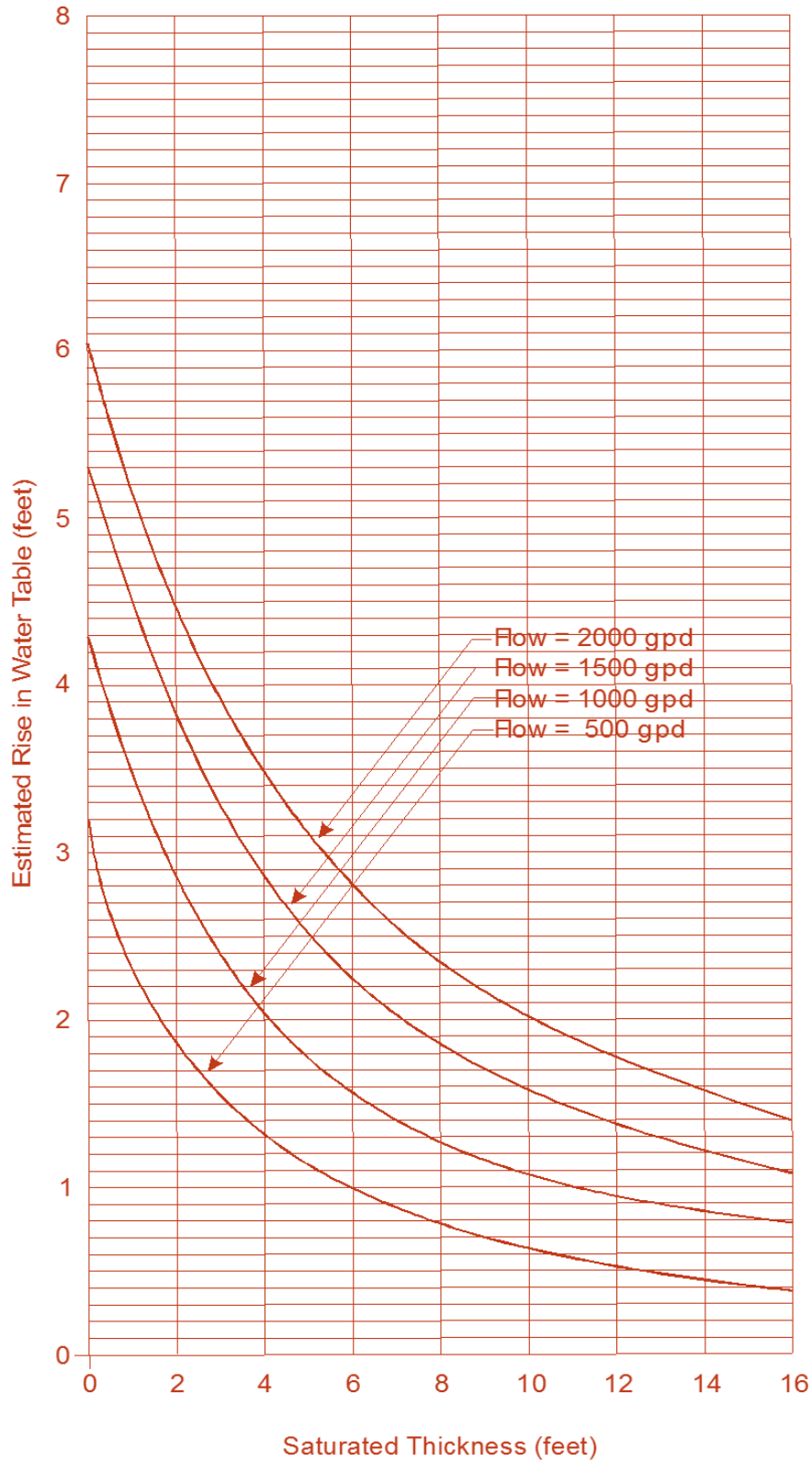
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311 ~~(formerly 5(e)(ii))~~ “Saturated thickness” Distance between the seasonally high groundwater table  
312 ~~and the under lying impervious layer such as clay, bedrock or soils with significantly lower~~

313 permeability.  
314  
315 (formerly 5 (e)(ii)) “Estimated Rise in Water Table”: The estimated distance the water table will  
316 rise at the center of the absorption system above the initial water table when the indicated flow is  
317 applied daily.  
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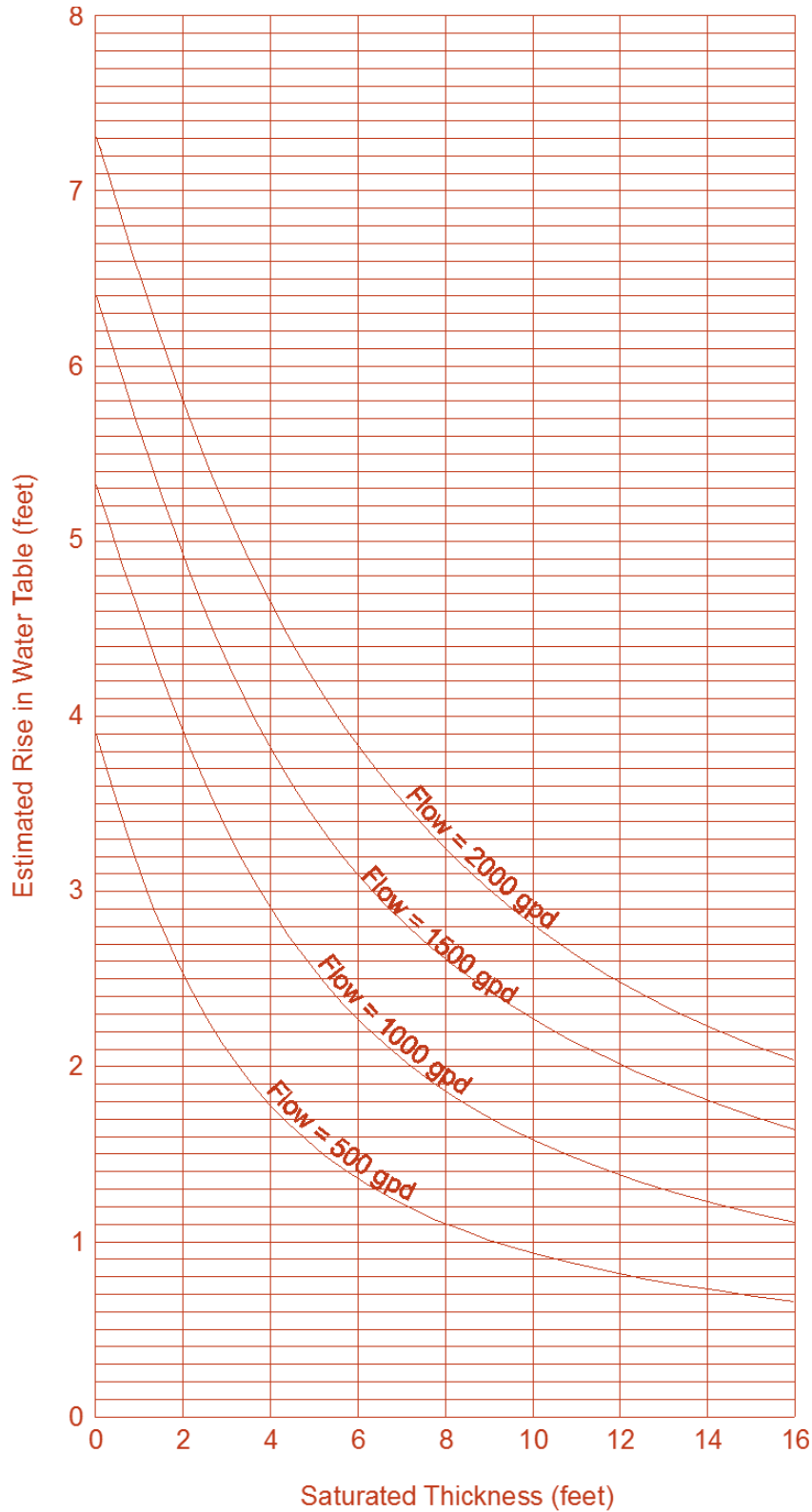
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BASED ON A SOIL PERCOLATION RATE = 20 min/inch

FIGURE 2

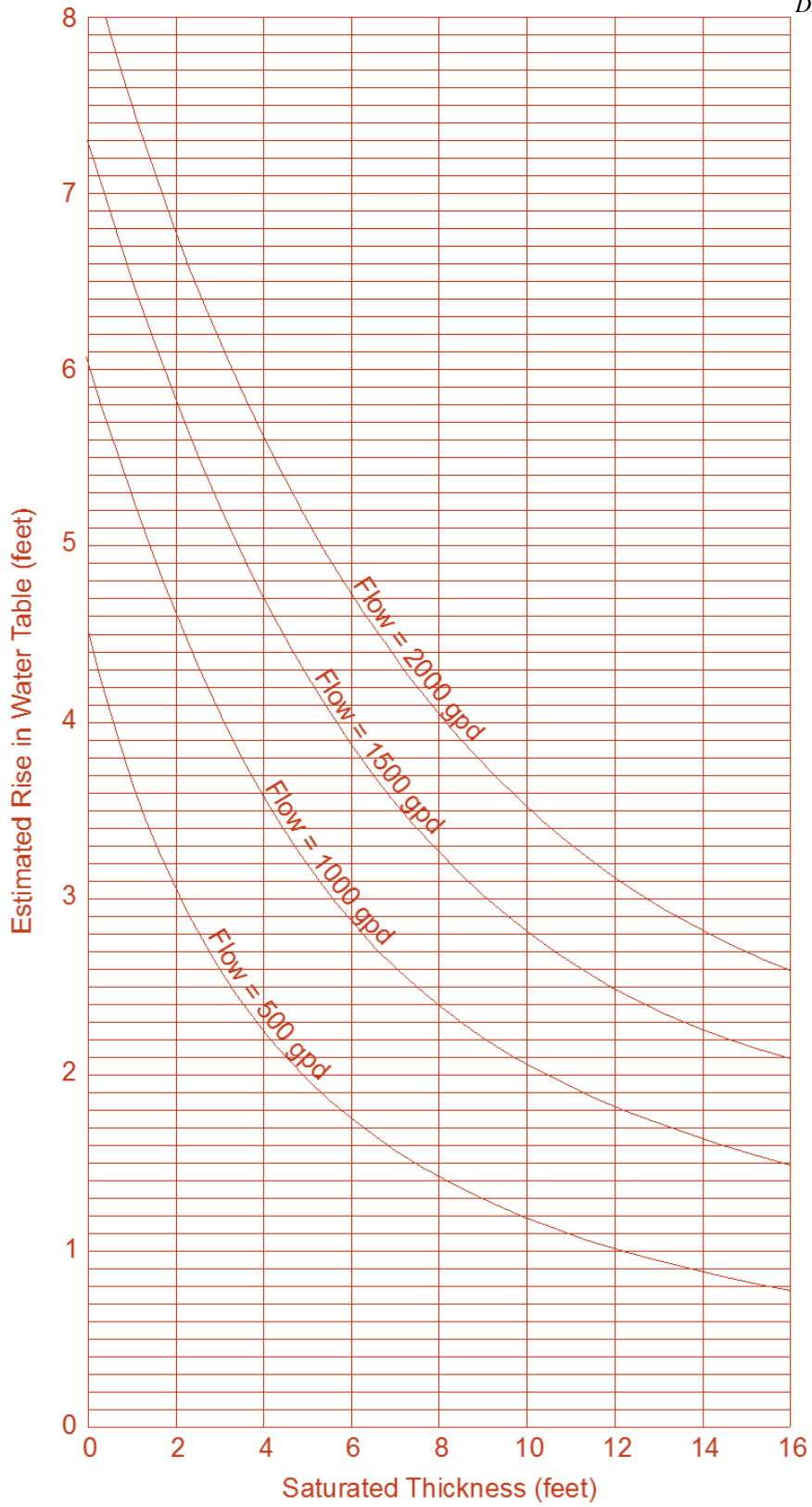
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BASED ON A SOIL PERCOLATION RATE = 30 min/inch

FIGURE 3

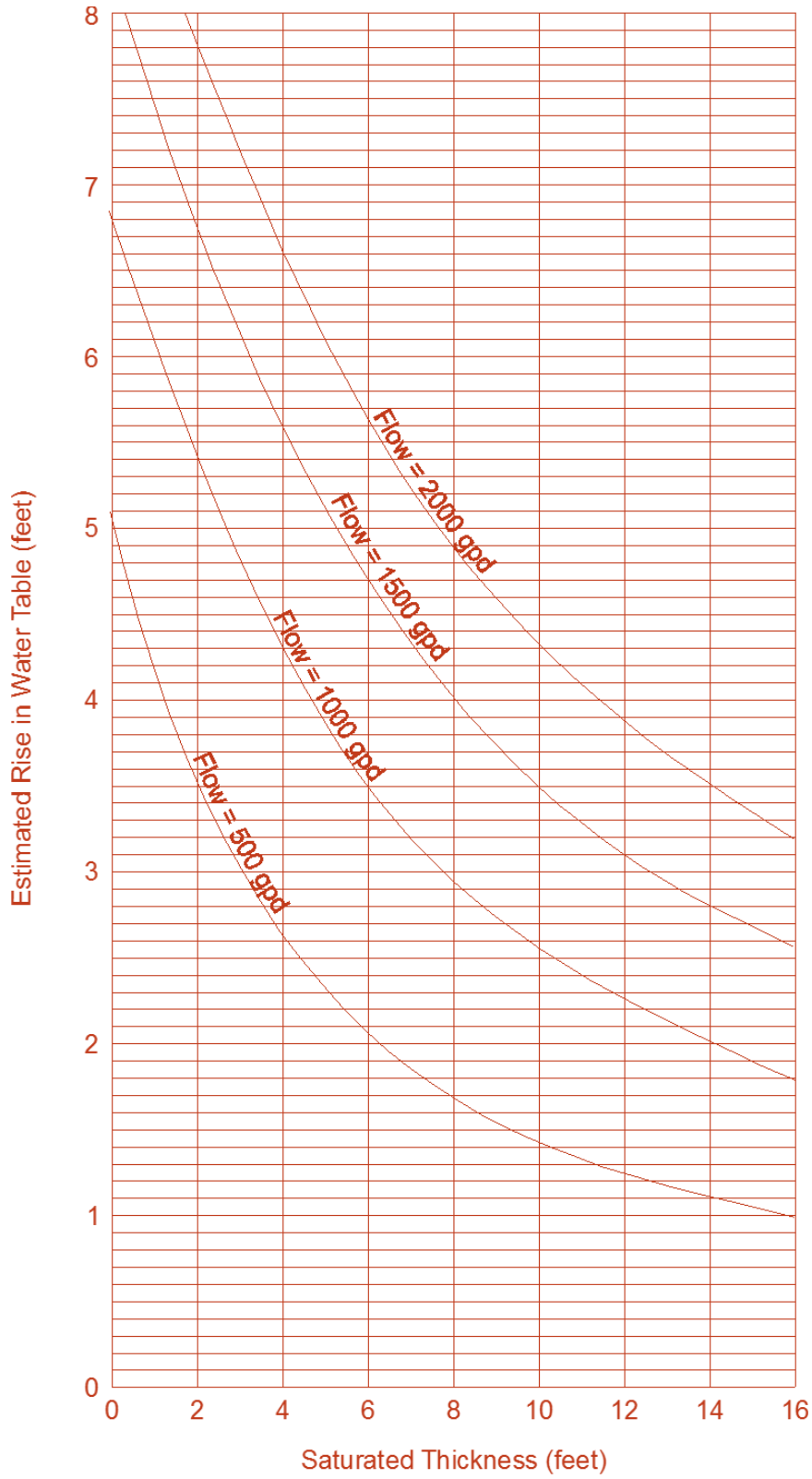
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BASED ON A SOIL PERCOLATION RATE = 40 min/inch

FIGURE 4

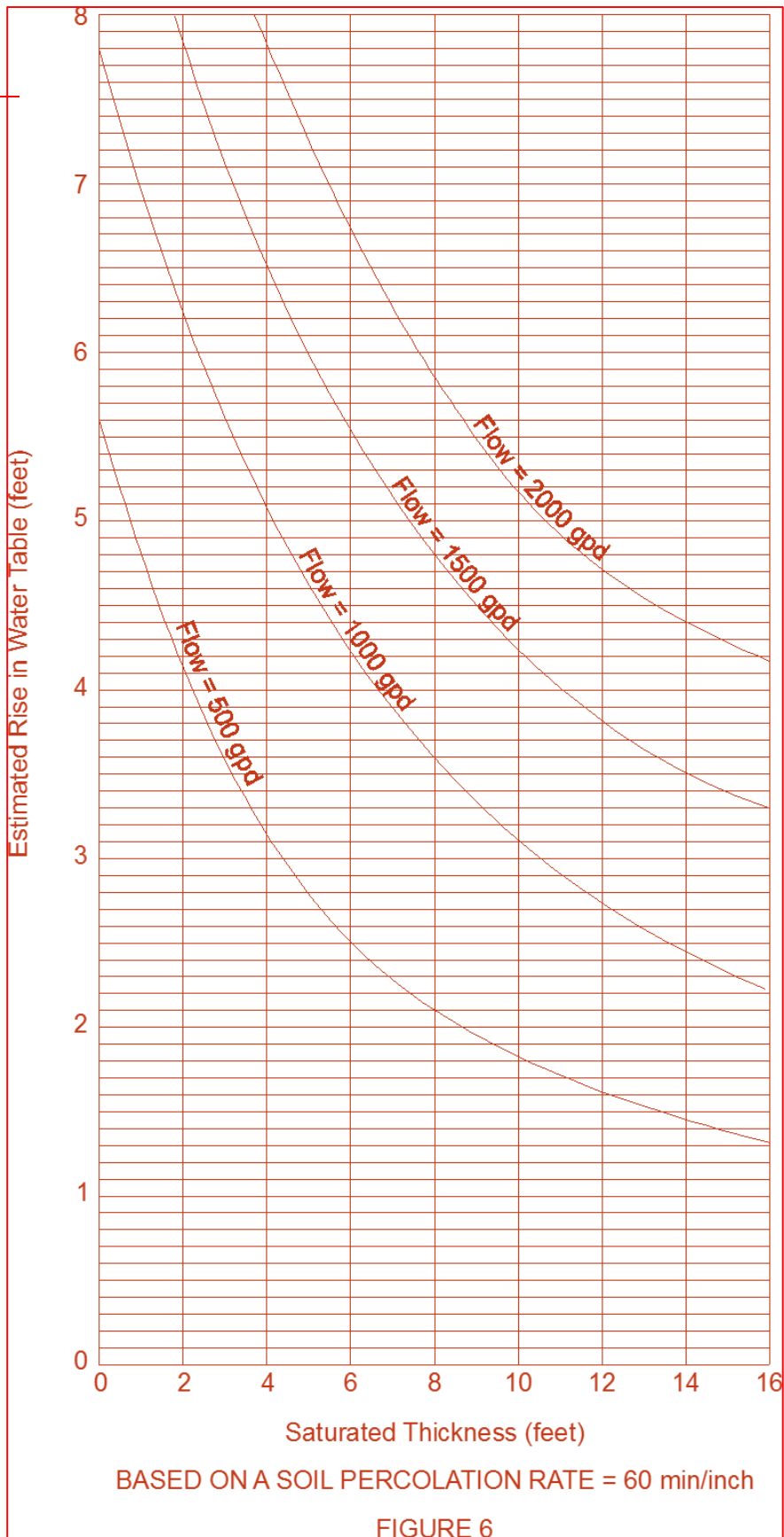
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BASED ON A SOIL PERCOLATION RATE = 50 min/inch

FIGURE 5

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381 (ii) Serial distribution, with the use of drop boxes or approved fittings, is the  
382 preferred installation method for sloping terrain. The bottom of individual trenches shall be level  
383 and the trenches shall be constructed to follow the contours of the land.

384  
385 (iii) The placement of multiple trenches, with each subsequent trench down slope of  
386 the previous trench shall be avoided when the addition of effluent to the soil absorption system  
387 trenches may lead to either an unstable slope or seepage down slope.

388  
389 ~~(formerly 5(e)(ii))~~(iv) All absorption surfaces must be located at least 15  
390 horizontal feet from the top of any break in slope ~~which that~~ exceeds the maximum ~~allowed in~~  
391 ~~subsection (i) above~~ slope allowed.

392  
393 (f) Soil Exploration Pit and Percolation Tests

394  
395 (i) Delegated small wastewater programs shall require a percolation test in  
396 addition to the soil exploration pit.

397  
398 (ii) ~~(formerly 5(a))~~ ~~Soil exploration. Soil exploration~~ A minimum of one soil  
399 exploration pit within the proposed soil absorption system location shall be excavated to a  
400 minimum depth of four (4) feet below the bottom of the proposed soil absorption system ~~shall be~~  
401 ~~made to provide information on subsoil conditions~~ to evaluate the subsurface conditions.

402  
403 ~~(formerly 5(b))~~ ~~Soil evaluation.~~

404  
405 ~~(formerly 5(b)(i))~~ ~~No less than three percolation tests shall be run in the~~  
406 ~~proposed absorption system location. The percolation tests shall be performed in accordance with~~  
407 ~~Appendix A of this part. The type of soil encountered at the percolation test location shall be~~  
408 ~~specified.~~

409  
410 ~~((formerly 5b)(ii))~~ (iii) The percolation test shall be performed in accordance with  
411 Appendix A of this chapter. An evaluation of the soil texture, in the proposed soil absorption  
412 system location, by a person experienced in soils classification, may be used as an additional tool  
413 to confirm the percolation rate. ~~but at least one percolation test shall be performed.~~

414  
415 ~~(formerly Section 4)~~(g) Isolation Minimum horizontal setback distances (in feet) are as  
416 follows:

417  
418 ~~(formerly 4(a))~~ ~~Domestic wastewater. The isolation distances listed below apply when~~  
419 ~~domestic wastewater is the only wastewater present.~~

420  
421 ~~(formerly 4(a)(i))~~ ~~If the flow is less than 2000 gallons per day (gpd), the~~  
422 ~~minimum isolation distance (in feet) shown in Table 2 shall be maintained.~~

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434

~~(formerly Table 2)~~ **Table 4. Minimum Horizontal Setbacks for Domestic Wastewater in Feet<sup>1, 2</sup>**

From	To Septic Tank Or Equivalent	To Absorption System
Wells (includes neighboring wells)	50	100
<u>Public Water Supply Well</u>	<u>100<sup>2</sup></u>	<u>200<sup>2</sup></u>
Property Lines	10	10
Foundation Wall (w/o drains)	5	10
Foundation Wall (with drains)	5	25
Potable Water Pipes	25	25
Septic Tank	<u>N/A</u>	10
<del>Stream or</del> Surface <del>Body of</del> Water, <u>Spring</u> (including seasonal and intermittent)	50	50
<u>Cisterns</u>	<u>25</u>	<u>25</u>

435 <sup>1</sup> ~~(formerly 4(b)) Non-domestic wastewater.~~ For disposal of ~~wastewaters other than~~  
436 ~~domestic non-domestic~~ wastewater, the ~~isolation setback~~ distance shall be determined by a  
437 hydrogeological study in accordance with Section ~~15~~ 17(b) of Chapter 3, but shall not be less than  
438 the distances shown in Table 4.

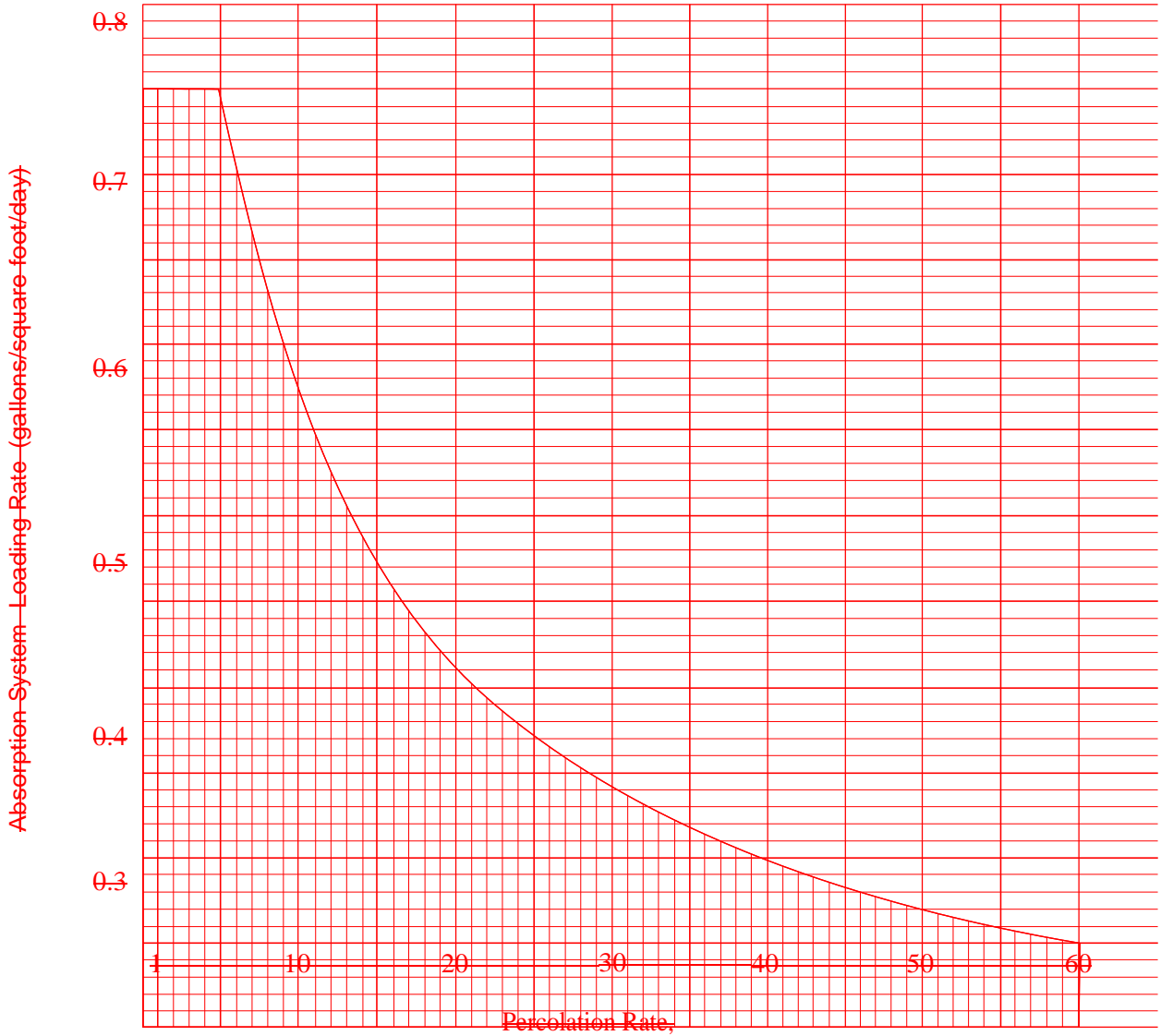
439  
440 <sup>2</sup> Small wastewater systems that discharge to the same aquifer that supplies a public water  
441 supply well and are located within Zone 1 or 2 (Attenuation) of the public water supply well, as  
442 determined by Wyoming Department of Environmental Quality Source Water Assessment Project  
443 (2004) or as established in Section 2 of the Wyoming Wellhead Protection Guidance Document  
444 (1997), shall provide additional treatment. These systems will be required to obtain an individual  
445 permit to construct and will require that a PE sign, stamp, and date the application, as stated in  
446 Section 2 of this chapter. The additional treatment shall be in accordance with Chapter 3 Section  
447 2(b)(ii). The treatment system shall be designed to reduce the nitrates to less than 10 mg/L of  
448 NO<sub>3</sub>- as N and provide 4-log removal of pathogens before the discharge leaves the property  
449 boundary of each small wastewater system.

450  
451 **Section 8. ~~Pretreatment~~ Soil Absorption System Sizing.**

452  
453 ~~(formerly Section 7(a)-(a) Trench, bed and seepage pit systems.~~ The total ~~infiltrative~~  
454 ~~infiltration surface of a soil absorption system~~ area of a soil absorption system shall be calculated  
455 ~~based on the flow rate as determined by the criteria stated in Section 3 and with the allowable~~  
456 ~~loading rate as determined by using Figure 7.~~ by dividing the design flow rates (gpd) from Table  
457 1 or Table 2 by the loading rate (gpd/ft<sup>2</sup>) found in Table 5. ~~The total infiltrative surface is the sum~~  
458 ~~of the sidewall and bottom areas of the absorption system below the invert of the distribution~~  
459 ~~pipe.~~

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(min/inch)

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FIGURE 7

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**Table 5. Rates of Wastewater Application for Soil Absorption System Areas**

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

518

519

520

(b) ~~Soils with a percolation rate of 60 minutes per inch or greater are unacceptable for standard absorption systems.~~ The total infiltration area shall be defined as follows:

521

522

523

(i) For standard trenches the total infiltration area shall be calculated based on the following formula:

524

525

$$A = L(W + 2S)$$

526

527

A = Total infiltration area

528

529

L = Total length of trench

530

531

W = Bottom width

532

533

S = Sidewall height of 12 inches or less

534

535

(A) The sidewall height is the depth below the flowline of the pipe to the bottom of the trench.

536

537

538

(B) The maximum credit for sidewall height shall not exceed twelve (12) inches even if the actual sidewall height exceeds twelve inches.

539

540

541

542

(ii) For chamber trenches, the total infiltration area shall be calculated based on the following formula:

543

544

$$A = L(E + 2S)$$

545

546

A = Total infiltration area

547

548



600 ~~the leach system stone and the existing soil below the constructed soil absorption system.~~ The  
601 soil absorption system shall be sized based on the percolation rate of the fill material.  
602

603 **Section 9. ~~(formerly Dosing Systems Following Septic Tanks)~~ Building Sewer Pipes.**

604 ~~(formerly 6(a))—Building drain pipe. All building drain pipe shall comply with the~~  
605 ~~standards published in the Uniform Plumbing Code 1982 or other locally approved, nationally~~  
606 ~~recognized plumbing code.~~

607  
608 ~~(formerly 6(b))—Building sewer pipe. All building sewers shall be installed in accordance~~  
609 ~~with the Uniform Plumbing Code 1982 or other locally approved, nationally recognized~~  
610 ~~plumbing code 2012 International Plumbing Code (IPC). In the absence of ~~an a locally~~ approved~~  
611 ~~plumbing code, and in addition to the IPC, the building sewer shall comply with the following:~~  
612

613  
614 ~~(formerly 6(b)(i)) (a) (Material) Suitable building sewer pipe materials are Ppolyvinyl C~~  
615 ~~chloride (PVC) or Acrylonitrile-Butadiene-Styrene (ABS) east or ductile iron, portland cement,~~  
616 ~~or vitrified clay pipe shall be used for sewer pipes. The septic tank inlet and outlet pipes shall be~~  
617 ~~east or ductile iron or schedule 40 PVC or ABS pipe and shall extend past the septic tank~~  
618 ~~excavation to solid ground span the excavations for the septic tank and/or dosing chamber.~~  
619 American Society for Testing and Materials (ASTM) D-3034 Standard Dimension Ratio (SDR)  
620 35 plastic pipe may be used if the void at the tank's side is filled with material that is granular,  
621 clean and compacted.  
622

623 ~~(formerly 6(b)(ii)) (b) Size. Building sewer pipes shall not be smaller than four inches in~~  
624 ~~diameter. They shall be sized to handle the peak hourly flow from the building.~~  
625 Building sewer pipes shall be sized to handle the peak hourly flow from the building and shall  
626 not be smaller than four (4) inches in diameter. When two different sizes or types of sewer pipes  
627 are to be connected, a proper type of fitting or conversion adapter shall be used.  
628

629 (c) Sewer pipe shall not decrease in size flowing downstream.

630  
631 ~~(formerly 6(b)(iii))(d) Slope. Building sewer pipes should shall be laid at a ~~minimum~~~~  
632 ~~standard slope of 1/4 inch per foot, but and shall not be flatter than 1/8 inch per foot.~~  
633

634 ~~(formerly 6(b)(iv)) Alignment. Building sewer pipes should be laid in a straight~~  
635 ~~line. Any single change or cumulative change of alignment of 22 ½ degrees or greater shall be~~  
636 ~~served by a cleanout.~~

637  
638 ~~(formerly 6(b)(v))(e) Cleanouts. Cleanouts shall be provided at branch connections,~~  
639 ~~every change in alignment, and at least every 100 feet in straight runs ~~maximum.~~~~

640  
641 ~~(formerly 6(b)(vi))(f) Backfilling. All sewer piping shall be laid on a firm bed~~  
642 ~~throughout its entire length. It shall be protected from damage due to rocks, hard lumps of soil,~~  
643 ~~debris and the like.~~

644  
645 ~~(formerly 6(b)(vi))(g) Special care shall be ~~utilized~~ used to prevent lateral movement or~~  
646 ~~ovalation deformation during backfill. The backfill material shall be compacted to a density at~~  
647 ~~least equivalent to the trench walls. Backfill over the pipe shall be of sufficient depth to protect~~  
648 ~~the pipe from expected traffic loads and the wastewater from freezing.~~  
649

650 **Section 10. ~~Subsurface Treatment and Disposal Systems~~ Septic Tanks and Other**  
651 **Treatment Tanks.**

652 ~~(formerly 8(a))~~(a) Septic tanks:-

653 ~~(formerly 8(a)(i))~~ (i) ~~Material. The~~ Septic tanks shall be fabricated or  
654 constructed of durable concrete, fiberglass, thermoplastic or an approved material ~~not subject~~  
655 ~~to excessive corrosion or decay and structurally capable of supporting the loads to which it~~  
656 ~~will be subjected.~~ ~~The~~ Tanks shall be water tight and fabricated to constitute an individual  
657 structure, and shall be designed and constructed to withstand anticipated loads. As part of the  
658 application review process, Department of Environmental Quality, Water Quality Division  
659 (DEQ/WQD) or the delegated small wastewater program shall review the design of  
660 prefabricated septic tanks for compliance with applicable construction standards.

661 ~~(formerly 8(a)(v))~~ (ii) ~~Installation.~~ The septic tank shall be placed on a level  
662 grade and a firm bedding to prevent settling. Where rock or other undesirable protruding  
663 obstructions are encountered, the opening for the septic tank shall be over excavated, as needed,  
664 and backfilled with sand, crushed stone, or gravel to the proper grade.

665 (A) Septic tanks shall not be buried deeper than the tank manufacturer's  
666 maximum designed depth for the tank. The minimum depth of soil cover over the top of the tank  
667 is six (6) inches.

668 (B) Backfill around and over the septic tank shall be placed in such a manner  
669 as to prevent undue strain or damage to the tank or connected pipes.

670 (C) Septic tanks shall not be placed in areas subject to vehicular traffic unless  
671 engineered for the anticipated load.

672 ~~(formerly 8(a)(ii))~~(iii) Size

673 ~~(formerly 8(a)(ii)(A))~~(A) ~~Residential units serving no more than 4 families. The~~  
674 minimum liquid volume of a septic tanks shall be 1000 gallons for residences ~~through four~~  
675 ~~bedroom capacity up to a four (4) bedroom capacity.~~ Additional capacity of ~~250~~150 gallons per  
676 bedroom shall be provided for each bedroom over four (4).

677 ~~(formerly 8(a)(ii)(B))~~(B) ~~Commercial/industrial units.~~ Septic tanks for high strength  
678 wastewater or non-residential units shall have a minimum effective liquid capacity sufficient to  
679 provide at least ~~36~~48 hour retention at peak flow or 1,000 gallons, whichever is greater.

680 ~~(formerly 8(a)(iii))~~(iv) Configuration

681 ~~(formerly 8(a)(iii)(A))~~(A) ~~The Single compartment~~ septic tanks shall have a length  
682 to width ratio of no less than two (2) to one (1), or be so partitioned ~~as to provide protection~~  
683 ~~protect~~ against short circuiting of flow. ~~The inlet pipe shall be at least three inches higher than the~~  
684 ~~outlet pipe.~~

685 ~~(formerly 8(a)(iii)(B))~~(B) ~~If the septic tank is partitioned,~~ For septic tanks with two  
686 (2) compartments or more the volume of the first compartment must be at least 50 percent of the  
687 total required volume, the inlet compartment shall not be less than one-half (1/2) of the total  
688 capacity of the tank.

701  
702 ~~(formerly 8(a)(iii)-(A)) (C)~~ The water depth shall be no less than  
703 ~~four feet nor greater than six feet.~~ The liquid depth shall not be less than three (3) feet nor greater  
704 than six (6) feet.  
705  
706 ~~(formerly 8(a)(iii)(C))~~ The outlet elevation shall be designed to  
707 provide a distance of 20 percent of the liquid depth between the top of the liquid and the bottom  
708 of the septic tank cover for scum storage.  
709  
710 ~~(formerly 8(a)(iii)-(B)) (D)~~ The partition shall allow venting of the  
711 ~~tank.~~ The tank partition shall allow the venting of gases between compartments and out through  
712 the vent stack on the plumbing system of the house. Gases generated during liquefaction of the  
713 solids are normally vented through the building's plumbing stack vent.  
714  
715 ~~(formerly 8(a)(iii)(A)) (E)~~ The septic tank inlet and outlet on all  
716 tanks or tank compartments shall be provided with a open-ended sanitary tees or baffles. The  
717 outlet shall be provided with a tee or baffle that extends into the middle third of the water depth to  
718 prevent floating or settled solids from carrying over into the disposal field or bed. The inlet shall  
719 be provided with tee or baffle made of approved materials constructed to distribute flow and  
720 retain scum in the tank or compartments.  
721  
722 (I) The tees or baffles shall extend above the liquid  
723 level a minimum distance of five (5) inches.  
724  
725 (II) The inlet tees or baffles shall extend below the  
726 liquid level at least eight (8) inches but no more than 40% percent of the liquid level. The outlet  
727 tees or baffles shall extend below the liquid level at least ten (10) inches but no more than 45% of  
728 the liquid level.  
729  
730 (III) A minimum of one (1) inch of clear space shall be  
731 provided over the top of the baffles or tees for venting.  
732  
733 ~~(formerly 8(a)(iii)(A)) (IV)~~ The inlet pipe shall be at  
734 least ~~three two (2)~~ inches higher than the outlet pipe. ~~(formerly 8(a)(iii)(C))~~ The outlet elevation  
735 shall be designed to provide a minimum distance of nine (9) inches or twenty (20) percent of the  
736 liquid depth, whichever is greater, between the top of the liquid and the bottom of the septic tank  
737 cover for scum storage and the venting of gases.  
738  
739 (v) If additional septic tank capacity over 1,000 gallons is needed, it may be  
740 obtained by joining tanks in series provided the following requirements are met:  
741  
742 (A) The inlet of each successive tank shall be at least two (2) inches lower  
743 than the outlet of the preceding tank, and shall have no tee or baffle except for the inlet to the  
744 first tank and the outlet for the last tank.  
745  
746 (B) The first tank or the first compartment of the first tank shall be equal to  
747 fifty percent (50%) or larger of the total septic tank system volume.  
748  
749 ~~(formerly 8(a)(iv)) (vi)~~ Access. A manway An-access opening shall be provided  
750 to each compartment of the septic tank for inspection and cleaning. ~~A cleanout having a minimum~~



751 ~~diameter of six inches shall be provided in each tank compartment and shall extend to the ground~~  
752 ~~surface and be capped.~~

753  
754 ~~(formerly 8(a)(iv))~~ (A) The ~~manway~~-access opening(s) in the cover/lid of  
755 the tank shall have a minimum ~~opening diameter of twenty-(20) inches in the least dimension.~~  
756 Both inlet and outlet devices shall be accessible.

757  
758 (B) The riser from the access opening shall terminate at a maximum of six  
759 (6) inches below the ground surface. Riser covers terminating above grade shall have an  
760 approved locking device.

761  
762 (vii) Land application of domestic septage in remote areas that meet the conditions  
763 found in Appendix B will be permitted as a permit by rule. Delegated small wastewater programs  
764 may issue individual permits.

765  
766 (viii) An effluent filter with an opening of 1/8-inch or smaller shall be provided on  
767 the outlet of a septic tank or other tank that precedes a small diameter pressure distribution  
768 system.

769  
770 ~~(formerly 8(b))—Aerobic units.~~

771  
772 ~~(formerly 8(b)(i)) Residential units serving no more than four dwelling units.~~  
773 ~~Aerobic treatment units can be used as a pretreatment device for a single residential unit serving~~  
774 ~~no more than four families provided the unit carries the seal of testing and approval from the~~  
775 ~~National Sanitation Foundation (NSF) for the NSF Standard No. 40—1978. The unit shall be~~  
776 ~~sized based on the flow quantities stated in Section 3. No reduction in the sizing of soil absorption~~  
777 ~~systems or the final treatment systems shall be permitted if an aerobic unit is used instead of a~~  
778 ~~septic tank.~~

779  
780 ~~(formerly 8(b)(ii)) Commercial and residential units serving more than four families.~~  
781 ~~Aerobic units treating wastewater generated from other than a single residential unit serving four~~  
782 ~~families or less shall meet the design requirements of Part B or Part C of Chapter XI~~

783  
784 ~~(formerly 9(a))(b) Pumping systems for flow up to 2000 gallons per day.~~ Dosing Tanks

785  
786 ~~formerly 9(a)(i)) (i) Pump tank—Where only one pump is provided, the pump~~  
787 ~~tank shall have the minimum volume as required in Table 4 below. The~~ Dosing tanks  
788 ~~shall comply with the~~ meet the same material and installation requirements for as septic  
789 ~~tanks. The pump tank shall be vented. The vent shall have a downward turn that~~  
790 ~~terminates at least 12 inches above ground and be provided with a screen. The pump tank~~  
791 ~~shall have an access manhole provided with an opening at least 20 inches in least~~  
792 ~~dimension.~~ Dosing tanks shall have a 20-inch diameter access opening and it shall have a  
793 riser from the access opening to the ground surface.

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**Table 4**

**Pump-Tank  
Volume (gallons) Required Between**

<b>AVERAGE FLOWS (gallons per day)</b>	<b>“OFF” &amp; “ON” SWITCH</b>	<b>“ON” &amp; “ALARM” SWITCH</b>	<b>“ALARM” SWITCH &amp; TANK-INLET</b>	<b>RECOMMENDED PUMP CAPACITY (gpm)</b>
0-499	100	50	200	10
500-999	200	100	400	20
1000-1499	300	100	600	30
1500-2000	400	100	800	40

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810

**Table 6. Dosing Tank Volume (gallons)**

<b>Average Design Flows (gpd)</b>	<b>0-499</b>	<b>500-999</b>	<b>1000-1499</b>	<b>1500-2000</b>
<b>Between Pump “off” and Tank Inlet</b>	<b>350</b>	<b>700</b>	<b>1000</b>	<b>1300</b>
<b>Between Tank Inlet and Alarm Switch</b>	<b>200</b>	<b>400</b>	<b>600</b>	<b>800</b>
<b>Between Alarm switch and Pump “on”</b>	<b>50</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Between Pump “on” and Pump “off”</b>	<b>100</b>	<b>200</b>	<b>300</b>	<b>400</b>
<b>Recommended Pump Capacity (gpm)</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>

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~~(formerly 9(a)(ii) — Pumps.~~

~~(formerly 9(a)(ii)(A) — Sizing. The pump shall have a flow rate of at least ten gallons per minute when installed. The pressure loss (feet of head) of the system can be calculated by adding: the elevation difference between the discharge outlet at the soil absorption system and the low water level in the pump tank; and the friction losses incurred in the pressure transfer pipe and distribution piping. Table 5 may be used to estimate the head loss of the pipe when pumping ten gallons per minute and using plastic pipe.~~

**Table 5**

<b>Diameter (inches)</b>	<b>Head Loss per 100 feet of pipe (in feet)</b>
<b>1</b>	<b>12</b>
<b>1¼</b>	<b>4</b>
<b>1½</b>	<b>2</b>

824  
825  
826  
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830

~~(B) — Installation/removal. The pump shall be installed in the tank so that it can be removed without entering the tank. This can be accomplished by (1) looping the pipe up near the access manhole with a pipe union provided at the top of the loop, (2) using a quick disconnect sliding coupler, or (3) using a pitless adapter. Chains, cable, or piping can be used to lift the pump out of the tank if designed for this loading. Setting the pump on an 8 inch block~~

831 ~~minimizes the transfer of any solids that may enter the pump tank.~~

832

833 ~~(iii) — Pressure transfer pipe. The pressure transfer piping between the tank and~~  
834 ~~the leach system shall be designed to drain after each pump cycle to prevent freezing. This~~  
835 ~~can be accomplished by either eliminating the check valve at the pump or by providing a~~  
836 ~~weep hole in the pipe in the tank. If the pipe is long, the tank shall be enlarged by the~~  
837 ~~volume of the pipe to accommodate the volume of liquid drained from the pipe.~~

838

839 ~~(b) Syphons. Where automatic syphons are used, they shall be designed to empty the~~  
840 ~~syphon tank in less than 20 minutes. The syphon tank shall be sized in accordance with Section~~  
841 ~~9(a)(i) above.~~

842

843 ~~(c) For all systems exceeding 2000 gallons per day. The pumping system shall~~  
844 ~~comply with the standards of Part B of Chapter XI.~~

845

846 ~~(formerly 9(a)(ii)(C)) (ii) Electrical controls. The electrical control system for the~~  
847 ~~wastewater pump shall consist of a “pump off” switch, a “pump on” switch, and a “high water~~  
848 ~~alarm” switch which shall be located to provide the necessary volumes as stated in Table 4.~~  
849 High water alarms shall be provided for all tanks that use pumps or siphons. The alarm device  
850 shall be an audible alarm or an indoor illuminated alarm or both. All electrical controls (pump  
851 electrical cord, switches, etc.) shall comply with the National Electrical Code—1981, Class 1,  
852 Group D, Division 1 locations. All openings around the cables or cords entering the tank shall  
853 be sealed.

854

855 (iii) The minimum effluent level shall achieve complete submergence of the pump.

856

857 (iv) Dosed systems using a siphon shall have a dose counter installed to check for  
858 continued function of the siphon.

859

860 ~~(formerly Section 12)-(c) Holding tanks~~

861

862 (i) Holding tanks shall meet the same material requirements as septic tanks.  
863 Holding tanks shall have a twenty (20)-inch minimum diameter access opening. A riser shall be  
864 brought to ground surface from the access opening.

865

866 ~~(formerly 12(a)) (ii) Uses. Holding tanks shall not be used for residential~~  
867 ~~systems when other alternative systems are available, except on a temporary, seasonal or~~  
868 ~~intermittent basis, or when used to correct a failed ~~subsurface disposal~~ soil absorption system~~  
869 ~~when other alternatives are unavailable. ~~Use of holding tanks for new construction is~~~~  
870 ~~prohibited.~~

871

872 ~~(formerly 12(b)) — Acceptance. A letter of verification from the local~~  
873 ~~receiving agency, denoting acceptance of the wastewater generated shall be submitted with~~  
874 ~~the plans.~~

875

876 ~~(formerly 12(e)) (iii) — Location. The location and construction of~~  
877 ~~holding tanks shall meet the requirements for septic tanks in Sections 4(a)(i) and Section~~  
878 ~~8(a)(i) respectively. Holding tanks must be located in an area readily accessible to the~~  
879 ~~pump truck and where the tank itself will not float due to a high groundwater. If seasonal~~  
880 ~~high groundwater may be present, the tank shall be properly anchored.~~

881

882 ~~(formerly 12(a)) (iv)~~ ~~Where holding tanks are allowed, they shall be sized on the basis~~  
883 ~~of seven days storage at the flow rate determined from Table 1. The minimum liquid volume shall~~  
884 ~~be the greater of 1,000 gallons or seven (7) days storage based upon flow rate determined from~~  
885 ~~Section 5.~~

886  
887 ~~(formerly 12(d))~~ ~~Vent. Each holding tank shall be provided with a two inch~~  
888 ~~minimum diameter vent ending in a return elbow above final grade. The vent shall terminate~~  
889 ~~at least 30 feet from any door, window, or fresh air inlet. The vent should be screened.~~

890  
891 ~~(formerly 12(e))~~ ~~(v)~~ ~~Alarm.~~ All holding tanks shall be equipped with a high water  
892 ~~level~~ alarm. The device shall be an audible alarm or an indoor illuminated alarm or both. The  
893 ~~alarm level shall be placed~~ device shall be installed so that the alarm is triggered when the water  
894 level reaches at 3/4 of the depth of the tank capacity.

895  
896 ~~(formerly 12(f))~~ ~~Pumpout. A six inch pump out pipe which extends to the~~  
897 ~~surface shall be provided. It shall be capped at all times.~~

898  
899 (vi) A design package for holding tanks is provided online at the Division's website to  
900 assist the applicant in submitting a completed application for coverage under the general permit  
901 for small wastewater systems. The worksheet and calculations were prepared by a registered  
902 professional engineer employed by the Wyoming Department of Environmental Quality, Water  
903 Quality Division. The general design requirements stated in this section are incorporated into  
904 the worksheets such that by properly completing the forms and installing the components, the  
905 system will comply with these requirements.

906  
907 ~~(formerly 8(e)(d))~~ Grease Interceptors ~~—grease, oil, silt and sand.~~

908  
909 ~~(formerly 8(e)(i)) (i)~~ ~~When required. Liquid wastes containing grease, oil, or silt and~~  
910 ~~sand~~ A commercial or institutional food preparation facility with a waste stream containing fat,  
911 oil, and grease (FOG) in excess of 25 mg/L shall provide install an exterior grease interceptor or a  
912 device approved by the delegated health department or county before the septic tank. Waste  
913 streams from residential living units are exempt from this requirement. Facilities that typically  
914 have waste streams high in FOG are, but not limited to, restaurants, cafeterias, slaughterhouses,  
915 and institutional kitchens.

916  
917 ~~(formerly 8(e)(ii)) (ii)~~ ~~Material. The interceptor shall meet the material~~  
918 ~~requirements of Section 8(a)(i).~~ Waste streams high in FOG shall be plumbed separately and  
919 directly to a grease interceptor prior to the waste treatment process.

920  
921 (iii) Waste streams from sanitary facilities such as bathrooms, toilets, urinals, or  
922 other similar fixtures shall not be discharged into the grease interceptor. These sources must be  
923 connected at least four to six (4-6) feet downstream of the grease interceptor's discharge. The  
924 design shall prevent any backflow from the sanitary sources into the grease interceptor.

925  
926 (iv) Only one source facility per grease interceptor shall be allowed.

927  
928 ~~(formerly 8(e)(v))~~ ~~Access. The access shall meet the requirements of Section~~  
929 ~~8(a)(iv).~~

930  
931 ~~(formerly 8(e)(vi))~~ (v) Location. Grease interceptors shall be located so that  
932 they are easily accessible for inspection, cleaning, and removal of the collected wastes.

933 ~~Interceptors shall be placed as close as practical to the fixture it serves. The wastewater from~~  
 934 ~~fixtures not producing grease, oil, or sand and silt shall bypass the interceptor. The interceptor~~  
 935 ~~shall not be closer than fifteen (15) feet from the last discharging fixture and no further away than~~  
 936 ~~thirty-five (35) feet.~~

937  
 938 ~~(formerly 8(e)(iv)) (vi) Configuration. Grease interceptors shall have a minimum~~  
 939 ~~at least of two (2) compartments with the first compartment having at least 50 percent of the total~~  
 940 ~~required volume a 20-inch minimum diameter access opening for each compartment for cleanout.~~  
 941 ~~Each compartment shall be vented. Each access opening shall have a riser brought to the surface~~  
 942 ~~and have a sealed lid that is rated for any anticipated load. There shall be a means provided to~~  
 943 ~~sample the effluent.~~

944  
 945 (vii) There shall be no internal cleanout tees or bypasses.

946  
 947 (viii) The inlet and outlet of the grease interceptor shall be vented. The vent pipe  
 948 shall be at least two (2) inches in diameter. The inlet and outlet vents shall not be interconnected.

949  
 950 (ix) The outlet pipe invert shall be no more than two (2) inches lower than the inlet  
 951 invert.

952  
 953 (x) The dividing wall between compartments shall be the same height as the other  
 954 walls and the cover should contact the top of the dividing wall. If the partition/dividing wall does  
 955 not contact the cover, the outlet tee or baffle shall extend below the liquid level, 40-50% of the  
 956 total liquid depth.

957  
 958 (xi) The effluent from each compartment shall be drawn from the bottom of a riser  
 959 pipe that terminates at least eighteen (18) inches below the inlet pipe invert of that same  
 960 compartment.

961  
 962 (xii) Grease interceptors shall be accessible during normal business hours without  
 963 interrupting normal business operations.

964  
 965 (xiii) Grease interceptors shall be installed in accordance with the manufacturer's  
 966 instructions and applicable requirements of this section. A copy of the manufacturer's  
 967 instructions shall be submitted with every permit to construct application submitted to  
 968 DEQ/WQD.

969  
 970 ~~(formerly 8(e)(iii)) (xiv) Grease interceptors shall be sized using one of the~~  
 971 ~~according to the following formulas:~~

972  
 973 ~~**Commercial kitchens (grease, garbage)**~~  
 974  
 975

<del>Number of meals per peak hour</del>	<del>X</del>	<del>Waste Flow rate*</del>	<del>X</del>	<del>Retention time***</del>	<del>X</del>	<del>Storage factor***</del>	<del>=</del>	<del>Interceptor size(liquid capacity)</del>
--	--------------	-----------------------------	--------------	------------------------------	--------------	------------------------------	--------------	--

976  
 977 ~~**Car**~~  
 978 ~~**wash**~~  
 979 ~~**(sand,**~~  
 980 ~~**silt,**~~  
 981 ~~**oil)**~~  
 982

Total washer equipment flow rate (GPM)	X	60	X	Retention time	X	Storage factor	=	Interceptor size (liquid capacity)
--	---	----	---	----------------	---	----------------	---	------------------------------------

983  
984  
985  
986  
987  
988

**Laundries (grease, lint, silt)**

Number of 2-cycles machines X per hour	X	Waste flow rate	X	Retention time	X	Storage factor	=	Interceptor size (liquid capacity)
--	---	-----------------	---	----------------	---	----------------	---	------------------------------------

989  
990  
991  
992  
993  
994

\*Waste flow rate—see Table 1.

\*\* Retention Times

Commercial kitchen waste:	
Dishwasher and/or disposal	2.5 hours
Single service kitchen:	
Single serving with disposal	1.5 hours
Car washers	2.0 hours
Laundries	2.0 hours

995  
996  
997

\*\*\*Storage Factors

Fully equipped commercial kitchen	8 hr. operation: 1 16 hr. operation: 2 24 hr. operation: 3
Single service kitchen	1.5
Carwashers	self-serve: 1.5 employee operated: 2
Laundries	1.5 (allows for rock filter)

998  
999  
1000

**Commercial Kitchens (grease, garbage)**

Number of meals per peak hour	X	Waste Flow rate*	X	Retention time**	X	Storage factor***	=	Interceptor size (liquid capacity)
-------------------------------	---	------------------	---	------------------	---	-------------------	---	------------------------------------

1001  
1002  
1003  
1004  
1005

\*Waste flow rate – see Table 2.

\*\*Retention times

Kitchen waste:	
Dishwasher and/or disposal	2.5 hours
Single service kitchen:	
Single serving with disposal	1.5 hours

1006  
1007

\*\*\*Storage factors

1008

<u>Fully equipped commercial kitchen</u>	<u>8 hr. operation: 1</u> <u>16 hr. operation: 2</u> <u>24 hr. operation: 3</u>
<u>Single service kitchen:</u>	<u>1.5</u>

1009

(A) The minimum volume shall not be less than 750 gallons

1010

1011

1012

(e) Other Interceptors

1013

1014

(i) Interceptors are required for oil, grease, sand and other substances harmful or hazardous to the building drainage system, or the small wastewater treatment system.

1015

1016

1017

(A) Laundries

1018

1019

(I) Commercial laundries, laundromats, and dry-cleaners shall be equipped with an interceptor in order to reduce the quantity of lint and silt that enter the collection system.

1020

1021

1022

1023

(II) The system must be of adequate size and design to allow for cool-down of wastewater so that separation can be more readily achieved.

1024

1025

1026

(III) The interceptor must be installed with a wire basket or similar device, removable for cleaning, that prevents passage into the drainage system of solids ½ inch (12.7 mm) or larger in size, string, rags, buttons, or other materials that are detrimental to the waste treatment system.

1027

1028

1029

1030

(IV) Sizing must be in accordance with the following formula:

1031

1032

1033

1034

**Laundries (grease, lint, silt)**

1035

<u>Total gallons per cycle</u>	<u>X</u>	<u>Cycles per hour</u>	<u>X</u>	<u>Retention time*</u>	<u>X</u>	<u>Storage factor**</u>	<u>=</u>	<u>Interceptor</u>
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1036

1037

\*Retention times

1038

<u>Institutional laundries</u>	<u>2.5 hours</u>
<u>Standard commercial laundry</u>	<u>2.0 hours</u>
<u>Light commercial laundry</u>	<u>1.5 hours</u>

1039

1040

\*\*Storage factors

1041

<u>8 hours of operation</u>	<u>1.0</u>
<u>12 or more hours of operation</u>	<u>1.5</u>

1042

1043

(B) Car Washes

1044

1045 (I) Where automobiles are washed (including detail shops utilizing  
1046 hand-wash practices), separators shall have a minimum capacity of 1000 gallons for the first bay,  
1047 with an additional 500 gallons of capacity for every other bay.

1048  
1049 (II) Additionally, wash racks must be constructed to eliminate or  
1050 minimize the impact of run-off from rain/storm events. Minimum requirements are roofed  
1051 structures with at least two walls and appropriate grading to prevent stormwater infiltration into  
1052 the sanitary sewer.

1053  
1054 (III) An effluent sampling point is required.

1055  
1056 (f) Abandonment of Septic and Holding Tanks

1057  
1058 The following is the procedure to abandon septic tanks and holding tanks when the system is  
1059 upgraded, equipment replacement is necessary, or central sewer lines are made available.

1060  
1061 (i) The abandoned tank should be pumped and the septage hauled to a licensed  
1062 facility approved to receive the waste or the septage pumped into the newly constructed septic or  
1063 holding tank. Discharging to a central sewer requires coordination with, and the approval of, the  
1064 owner/operator of the sewer system.

1065  
1066 (ii) Once the abandoned tank is empty, it should be removed and the excavation  
1067 backfilled. As an alternative to removing the tank, the access covers can be removed; the bottom  
1068 drilled or broken up sufficient to drain; and the tank filled with native soil, pit run, or sand.

1069  
1070 (iii) If the abandoned tank is part of a Class V UIC facility, the abandonment must  
1071 also be in compliance with Chapter 46 27, Section 42-19.

1072  
1073 **Section 11. ~~Evapotranspiration Beds~~ Effluent Distribution Devices.**

1074  
1075 ~~Formerly Section 11(a) — Sizing. The area of evapotranspiration beds shall be determined using~~  
1076 ~~the following formula:~~

1077  
1078  
1079 
$$\text{AREA} = 586 \left[ \frac{Q}{\text{PET} - P} \right]$$

1080  
1081 where:

1082  
1083 ~~Area = Area of the evapotranspiration bed at the ground surface in square feet~~

1084  
1085 ~~Q = Average daily sewage flow, gallons per day, (0.6 times the flow determined from~~

1086 ~~Table 1) PET = Potential evapotranspiration rate in inches per year~~

1087  
1088 ~~P = Annual precipitation rate in inches per year.~~

1089 ~~Formerly 11 (b) — Construction.~~

1090  
1091 ~~Formerly 11 (b) (i) If an impervious barrier is necessary for the protection of~~  
1092 ~~groundwater it shall be installed between the evapotranspiration bed and the native soil. It shall~~



1093 ~~be a polyvinyl chloride sheet with a minimum thickness of 20 mils or equivalent. A 3 inch~~  
1094 ~~layer of sand shall be placed under and over the liner.~~

1095  
1096 ~~Formerly 11 (b) (ii) — The bottom 12 inches of the bed shall be filled with clean~~  
1097 ~~stone 1/2 — 2 1/2 inches in~~

1098  
1099 ~~Formerly 11 (b) (iii) — Perforated pipe complying with Section 10(a)(v) shall be~~  
1100 ~~placed in the stone.~~

1101  
1102 ~~Formerly 11 (b) (iv) — Four inches of pea gravel (less than 1/4 inch in~~  
1103 ~~diameter) or durable filter cloth shall be placed over the stone.~~

1104  
1105 ~~Formerly 11 (b)(v) A 24 inch uniform sand layer in the size range of D50~~  
1106 ~~(0.10mm) shall be placed on top of the pea gravel or filter cloth.~~

1107  
1108 ~~Formerly 11 (b) (vi) — A six inch layer of sandy topsoil shall be placed on top of~~  
1109 ~~the evapotranspiration bed.~~

1110  
1111 ~~Formerly 11 (b) (vii) — The bed should be vegetated with small shrubs and/or grasses~~  
1112 ~~such as fescue, brome, or alfalfa.~~

1113  
1114 ~~Formerly 11 (b) (viii) — The evapotranspiration bed shall be placed at a depth~~  
1115 ~~sufficient to prevent surcharging of the septic tank.~~

1116  
1117 Distribution boxes and flow divider tees are suitable for level or nearly level ground and are  
1118 installed before the soil absorption system with the goal of splitting flows equally between soil  
1119 absorption system laterals. Drop boxes are suitable for sloping ground and are installed to  
1120 achieve serial loading.

1121  
1122 (a) Distribution Boxes

1123  
1124 ~~(formerly 10(a)(vii)(i) Distribution box. If a~~ The distribution box is used, it shall  
1125 be installed to provide uniform distribution of the wastewater on a level, stable base to ensure  
1126 against tilting or settling and shall be placed so that it will not be subject to and to minimize  
1127 movement from frost heave.

1128  
1129 (ii) Boxes shall be watertight and constructed of concrete or other durable material.

1130  
1131 (iii) Boxes shall be designed to accommodate the inlet pipe and the necessary  
1132 distribution lines. The inlet piping to the distribution box shall be at least one (1) inch above the  
1133 outlet pipes and all pipes shall have a watertight connection to the distribution box.

1134  
1135 (iv) The box shall be protected against freezing and made accessible for  
1136 observation and maintenance.

1137  
1138 (v) Boxes shall have flow equalizers installed on each outflow.

1139  
1140 (b) Flow divider tees may be used in place of distribution boxes.

1141  
1142 (c) Drop boxes are suitable for sloping ground and are installed to achieve serial loading.  
1143 The drop boxes shall meet the requirements in paragraphs (a)(i through v) of this section.

1144  
1145 **Section 12. ~~Holding Tanks~~ Standard Soil Absorption Systems.**  
1146

1147 ~~(formerly 10(a))~~ (a) General Design ~~Requirements~~ Requirements:  
1148

1149 (i) All soil absorption systems shall be designed in such a manner that the  
1150 effluent is effectively filtered and retained below ground surface. The absorption surface accepts,  
1151 treats, and disperses wastewater as it percolates through the soil.  
1152

1153 ~~(formerly 10(a)(ii)(ii))~~ Protection. ~~Effort shall be made to protect the natural~~  
1154 ~~absorptive properties of the soil. Soil absorption systems shall not be installed during adverse~~  
1155 ~~weather or soil conditions. Rain, severely cold temperatures, or excessively moist soils are~~  
1156 ~~considered adverse weather or soil conditions. All smeared or compacted surfaces shall be~~  
1157 ~~restored to their original infiltrative conditions prior to placement of the stone.~~ Soil absorption  
1158 systems shall not be excavated when the soil is wet enough to smear or compact easily. Open soil  
1159 absorption system excavations shall be protected from surface runoff to prevent the entrance of  
1160 silt and debris. All smeared or compacted surfaces shall be raked to a depth of one (1) inch, and  
1161 loose material removed before filter or filler material is placed in the soil absorption system  
1162 excavation.  
1163

1164 ~~(formerly 10(a)(iii))~~ Runoff. ~~Surface runoff shall be diverted around or away from all~~  
1165 ~~soil absorption systems.~~  
1166

1167 (iii) Soil absorption systems shall be designed to approximately follow the ground  
1168 surface contours so that variation in excavation depths will be minimized. The trenches may be  
1169 installed at different elevations, but the bottom of each individual trench shall be level throughout  
1170 its length.  
1171

1172 ~~(formerly 10(a)(ix))~~ (iv) Earth cover. ~~Shallow soil absorption system depths are~~  
1173 encouraged to promote treatment and evapotranspiration. A minimum of 12 inches of earth shall  
1174 be placed over the absorption system stone. ~~The minimum soil cover depth over the soil~~  
1175 absorption system is one (1) foot. The maximum depth to the bottom absorption surface of a soil  
1176 absorption system is five (5) feet. The earth shall be permeable soil that will allow aeration of the  
1177 system and will support the growth of grass. The earth cover shall be graded to insure that water  
1178 will not pond on the surface. Finished grading shall prevent ponding and promote surface water  
1179 runoff.  
1180

1181 (v) Pipes, chambers or other products shall be bedded on firm, stable material.  
1182 Heavy equipment shall not be driven in or over soil absorption systems during construction or  
1183 backfilling.  
1184

1185 (vi) Standard trenches refer to perforated pipe embedded in aggregate-filled  
1186 trenches that shall conform to the following:  
1187

1188 ~~(formerly 10(a)v))~~(A) Gravity pipe. All plastic gravity absorption system  
1189 The perforated pipes shall have a minimum diameter of four 4 inches and shall conform to ASTM  
1190 standard D2729. Suitable pipe materials include: ASTM D-2729-11 PVC, ASTM D-3034-08  
1191 PVC, Schedule 40 PVC ASTM d1784-11, and ASTM F810-07 PE. Piping in all horizontally  
1192 constructed absorption systems shall be layed with the holes centered around the vertical axis at  
1193 the bottom of the pipe. All field tile pipe shall be spaced 1/4 inch apart. Piping in horizontally  
1194 constructed absorption systems shall have a maximum slope of three inches per 100 feet.

1195  
1196 ~~(formerly 10(a)(vi))~~ Pressure pipe. All pressure distribution piping shall be  
1197 designed to withstand the anticipated pressures with a safety factor of two, provide uniform  
1198 application of the wastewater, and have non-clogging orifices.  
1199

1200 ~~(formerly 10(a)(iv))~~ (B) — Stone. Soil absorption system stone. The aggregate  
1201 shall be crushed rock, gravel or other acceptable, durable and inert material that is free of  
1202 finer, sized and has an effective diameter between 1/2-inch to 2 1/2 inches.  
1203

1204 ~~(formerly 10(a)(viii))~~(C) Stone cover. A suitable cover such as untreated  
1205 building paper, filter cloth, or straw shall be placed over the stone prior to backfilling the system.  
1206 Prior to backfilling, the aggregate shall be covered throughout with a woven/non-woven  
1207 geotextile material or a three (3) inch layer of straw.  
1208

1209 ~~((formerly 10(a)(iv))~~ (D) At least two inches of stone shall be placed over the  
1210 distribution pipe, and at least six inches of stone shall be placed under and beside the distribution  
1211 piping. A minimum of 12 inches of stone shall be placed between a seepage pit wall and  
1212 structural liner. The stone shall be free from sand, silt, and clay. Aggregate shall extend the full  
1213 width and length of the soil absorption system to a depth of at least twelve (12) inches with at  
1214 least six (6) inches of drain gravel under the distribution pipe and at least two (2) inches over the  
1215 distribution pipe.  
1216

1217 (E) Maximum width of trench excavation is three (3) feet.  
1218

1219 ~~(formerly 10(d))~~(F) Special requirements for trench systems. A Minimum  
1220 separation spacing of trenches (wall to wall) of is three (3) feet or a horizontal distance equal to  
1221 1.25 times the vertical depth of the trenches, whichever is greater, of undisturbed soil shall be  
1222 maintained between adjacent trench sidewalls. Trench spacing shall be increased to nine (9) feet  
1223 when the area between each trench is considered as reserve area. For clay loam soils that have  
1224 percolation rates greater than 60 min/in., the nine (9) foot spacing shall also be required but it is  
1225 not considered as reserve area.  
1226

1227 ~~(formerly 10(f))~~(vii) Special requirement for bed systems. The distribution  
1228 system piping shall be spaced no more than 10 feet apart. Standard beds shall conform to the  
1229 same pipe and aggregate requirements for trenches as found in subparagraphs (vi)(A through D)  
1230 of this section. Standard beds shall also conform to the following:  
1231

1232 ~~(formerly 10(a)(x)) (A) Levelness.~~ The soils shall have percolation rates  
1233 less than 60 minutes per inch (5-60 mpi). ~~The bottom of soil absorption systems and each~~  
1234 ~~segment of a sidehill system~~ the bed shall must be level, therefore the site shall be relatively flat,  
1235 sloping no more than one (1) foot from the highest to the lowest point in the installation area.

1236  
1237 (B) Distribution laterals within a bed must be spaced on not greater than six  
1238 (6) feet centers. Sidewalls shall not be more than three (3) feet from a distribution lateral.

1239  
1240 (C) Beds must not be wider than twenty-five (25) feet if gravity distribution  
1241 is used. Multiple beds must be spaced at one-half the bed width.

1242  
1243 (D) Rubber tired vehicles must not be driven on the bottom surface of any  
1244 bed excavation.

1245  
1246 (viii) Chambered trenches, when used in lieu of perforated pipe and aggregate, shall  
1247 be installed in conformance with the manufacturer recommendations. No cracked, weakened,  
1248 modified, or otherwise damaged chamber units shall be used in any installation.

1249  
1250 (A) All chambers shall be an open, arch-shaped structure of durable, non-  
1251 degradable design, suitable for distribution of effluent without filter material.

1252  
1253 (B) All chamber endplates shall be designed so that the bottom elevation of  
1254 the inlet pipe is at least six (6) inches from the bottom of the chamber.

1255  
1256 (C) Inlet and outlet effluent sewer pipes shall enter and exit the chamber  
1257 endplates. Inspection ports shall be installed at all outlet effluent sewer pipes.

1258  
1259 (D) All chambers shall have a splash plate under the inlet pipe or another  
1260 design feature to avoid unnecessary channeling into the trench bottom.

1261  
1262 (E) Maximum width of trench excavation is three (3) feet.

1263  
1264 (F) Minimum spacing of trenches (wall to wall) is three (3) feet. Trench  
1265 spacing shall be increased to nine (9) feet when the area between each trench is considered as  
1266 reserve area. For clay loam soils that have percolation rates more than 60 min/in., the nine (9)  
1267 foot spacing shall also be required but it is not considered as reserve area.

1268  
1269 (ix) Chambered beds shall conform to the same requirements for chambered  
1270 trenches as found in subparagraphs (viii)(A through D) of this section. Aggregate, as specified in  
1271 subparagraph (vi)(B) of this section, or native soil shall be used to fill the space between the  
1272 chambers.

1273  
1274 ~~(formerly 10(e)(x)) Special requirements for serial sidehill trench or bed systems.~~  
1275 Serial Sidehill Trench:

1276  
1277 ~~(formerly 10(e)(i)) (A) — Separation.~~ A minimum of ~~three~~ six (6) feet of  
1278 undisturbed soil shall be maintained between adjacent trench or bed side walls.

1279  
1280 ~~(formerly 10(e)(ii)) (B) Levelness.~~ The bottom of each serial trench or bed  
1281 system shall be level.

1282  
1283 ~~(formerly 10(e)(iii)) (C) Overflow.~~ The overflow pipe between serial soil  
1284 absorption systems shall be set no higher than the mid-point of the upstream distribution pipe.  
1285 The overflow pipe shall not be perforated.

1286  
1287 ~~(formerly 10(b) — Special requirements for seepage pits. If a structural lining is needed to~~  
1288 ~~support stone in a seepage pit, it shall be constructed of durable material not subject to excessive~~  
1289 ~~corrosion or decay and structurally capable of supporting the loads to which it will be subjected.~~  
1290 ~~The lining shall be perforated or otherwise designed to allow the passage of wastewater. Seepage~~  
1291 ~~pits shall be separated by a minimum distance equal to 3 times their diameter.~~

1292  
1293 (b) A design package for standard soil absorption systems is provided online at the  
1294 Division’s website to assist the applicant in submitting a completed application for coverage  
1295 under the general permit for small wastewater systems. The worksheet and calculations were  
1296 prepared by a registered professional engineer employed by the Wyoming Department of  
1297 Environmental Quality, Water Quality Division. The general design requirements stated in this  
1298 section are incorporated into the worksheets such that by properly completing the forms and  
1299 installing the components, the system will comply with these requirements.

1300  
1301 **Section 13. ~~Privies~~ Pressure Distribution Systems.**

1302  
1303 (a) General Design Requirements:

1304  
1305 (i) The basic elements of a pressure distribution system include a dosing tank,  
1306 filter, and a means to deliver specified doses to a small diameter pipe network within a soil  
1307 absorption system. Pressure distribution is required for mound systems or for bed systems with a  
1308 width greater than twenty-five (25) feet.

1309  
1310 (ii) Pumps must be sized to match the distribution system curve or demand.  
1311 Pumps shall be designed for sewage pumping applications and be accessible from the ground  
1312 surface.

1313  
1314 (iii) The control system for the pump and dosing tank shall, at a minimum, consist  
1315 of a “pump off” switch, a “pump on” switch, a “high liquid alarm”.

1316  
1317 (A) All electrical connections must be made outside of the chamber in either  
1318 an approved weatherproof box or an explosion-proof junction box.

1319  
1320 (B) The wiring from the junction box to the control box must pass through a  
1321 sealing fitting to prevent corrosive gases from entering the control panel.

1322

1323 (C) All wires must be contained in solid conduit from the dosing chamber to  
1324 the control box.

1325  
1326 (iv) The pressure transport piping between the tank and the soil absorption system  
1327 shall be designed to prevent freezing.

1328  
1329 (A) The ends of lateral piping shall be constructed with long sweep elbows or  
1330 an equivalent method to bring the end of the pipe to finished grade. The ends of the pipe shall be  
1331 provided with threaded plugs, caps, or other devices to allow for access and flushing of the  
1332 lateral.

1333  
1334 (B) All joints in the manifold, lateral piping, and fittings shall be solvent-  
1335 welded using the appropriate joint compound for the pipe material. Pressure transport piping  
1336 may be solvent-welded or flexible gasket jointed.

1337  
1338 (C) Where automatic siphons or other devices are used, they shall be  
1339 designed to empty the dosing tank in less than ten (10) minutes.

1340  
1341 (v) The pressure distribution system shall have a combination of at least three (3)  
1342 vertical feet of filter sand and/or unsaturated native soil above the high groundwater level. The  
1343 filter sand shall conform to ASTM C-33, with less than 2% passing the #200 sieve.

1344  
1345 (b) A design package for pressure distribution systems is provided online at the  
1346 Division's website to assist the applicant in submitting a completed application for coverage  
1347 under the general permit for small wastewater systems. The worksheet and calculations were  
1348 prepared by a registered professional engineer employed by the Wyoming Department of  
1349 Environmental Quality, Water Quality Division. The general design requirements stated in this  
1350 section are incorporated into the worksheets such that by properly completing the forms and  
1351 installing the components, the system will comply with these requirements.

1352  
1353 **Section 14. ~~Chemical Toilets~~ Sand Mound Systems.**

1354  
1355 ~~(formerly 14(a) — General requirements. Chemical toilets shall only be used in the containment~~  
1356 ~~of body wastes. These requirements apply only to the use of chemical toilets for permanent~~  
1357 ~~structures.~~

1358  
1359 ~~— (formerly 14(b) — Greywater. If indoor plumbing is installed, a separate greywater~~  
1360 ~~disposal is required and shall meet the requirements of Section 3 through 12. The minimum~~  
1361 ~~design flows for greywater shall be obtained from Table 1 with a reduction of 33 percent~~  
1362 ~~allowed for the elimination of blackwater wastes.~~

1363  
1364 ~~— (formerly 14(e) — Disposal. All chemical toilet wastes shall be disposed of at an~~  
1365 ~~approved wastewater facility. A letter of verification from the receiving agency, denoting~~  
1366 ~~acceptance of the wastewater generated shall be submitted with the plans. These wastes shall~~  
1367 ~~not be discharged into a soil absorption system.~~

1368  
1369 ~~— (formerly 14(d) — Construction. Chemical toilets shall be constructed and installed to~~  
1370 ~~resist breakage or damage from routine usage. Outdoor chemical toilets shall be adequately~~  
1371 ~~stabilized and secured to prevent overturning. Materials used shall be resistant to the sewage~~  
1372 ~~wastes and the chemicals encountered. The holding compartment of the toilet shall be~~

1373 ~~constructed to prevent accessibility to the public and to disease transmitting vectors.~~

1374

1375 ~~— (formerly 14(e)) — Additives. No chemical or biological additive shall be placed in the~~  
1376 ~~toilet that may adversely affect the operation of a sewage treatment facility where the toilet~~  
1377 ~~waste will ultimately be disposed or that may adversely impact the quality of the groundwater~~  
1378 ~~as specified in Chapter VIII, “Quality Standards for Groundwater of Wyoming.”~~

1379

1380 The sand mound consists of a sand fill, an aggregate bed and a soil cap.

1381

1382 (a) Selection Criteria:

1383

1384 The high groundwater level, bedrock or impervious clay layer is less than four (4) feet below the  
1385 bottom of the soil absorption system excavation.

1386

1387 (b) Site Requirements:

1388

1389 (i) A minimum of one (1) foot of vertical separation of the native soil is required  
1390 between the bottom of the sand fill and the top of the high groundwater level, any restrictive  
1391 layer, or any highly permeable material.

1392

1393 (ii) The percolation rate of the native soil at the interface of the sand fill shall be  
1394 greater than five (5) and less than sixty (60) minutes per inch (5-60 mpi). The percolation shall  
1395 be measured in the top twelve (12) inches of native soil.

1396

1397 ~~(formerly 10(e)) (c) — Special requirements for mounded systems.~~ General Design  
1398 Requirements:

1399

1400 ~~(formerly 10(c)(i)) — Sizing~~ (i) Sand Layer

1401

1402 ~~(A) The infiltrative surface between the stone and the fill material shall be~~  
1403 ~~sized based on the flow rate as determined by Section 3 and the allowable loading rate as~~  
1404 ~~determined by Figure 7 of Section 7 for the percolation rate of the fill. The total infiltrative~~  
1405 ~~surface is the sum of the sidewall and bottom areas of the stone — soil interface below the~~  
1406 ~~distribution pipe.~~

1407

1408 ~~(B) The interface area between the fill soil and the native soil shall be sized~~  
1409 ~~based on the infiltration rate of the native soil as determined by Figure 7 of Section 38 but shall~~  
1410 ~~not be smaller than a system designed to the requirements of subsection (ii) below.~~

1411

1412 (A) Filter sand shall conform to ASTM C-33, with less than 2% passing the  
1413 #200 sieve.

1414

1415 (B) The minimum depth of sand below the aggregate bed surface shall be  
1416 one (1) foot.

1417

1418 C) The sand mound shall have a combination of at least four (4) vertical

1419 feet of filter sand and unsaturated native soil above the high groundwater level.

1420

1421 (I) For sand mounds using pressure distribution systems, the depth  
1422 to high groundwater shall be three (3) feet below the bottom of the absorption surface if the  
1423 percolation rate of the soil is five (5) minutes per inch or greater (5-60 mpi).

1424

1425 (D) The top of the sand layer under the aggregate bed shall be level in all  
1426 directions.

1427

1428 (E) The sand layer shall fill around the perimeter of and to the top of the  
1429 aggregate bed.

1430

1431 ~~(formerly 10(c)(ii))(F) Grade. The finished grade shall extend at~~  
1432 ~~least three feet horizontally beyond the stone and then be sloped to the parent soil at a grade no~~  
1433 ~~steeper than four horizontal to one vertical. The slope of all sides shall be three (3) horizontal to~~  
1434 ~~one (1) vertical or flatter.~~

1435

1436 ~~(formerly 10(c)(i)(B))(G) The interface infiltration area between the fill soil~~  
1437 ~~and the native soil, which is the bottom of the sand fill, shall be sized calculated based on the~~  
1438 ~~infiltration rate of the native soil as determined by Figure 7 of Section 38 by dividing the design~~  
1439 ~~flowrates (gpd) from Table 1 or Table 2 by the loading rate (gpd/ft<sup>2</sup>) found in Table 5, but shall~~  
1440 ~~not be smaller than a system designed to the requirements of subsection (ii) below.~~

1441

1442 (ii) Aggregate Bed

1443

1444 (A) The aggregate shall be crushed rock, gravel or other acceptable, durable  
1445 and inert material that is free from fines, and has an effective diameter between one-half (1/2)  
1446 inch and two and one half (2 ½) inch.

1447

1448 (B) The aggregate bed depth shall not be less than nine (9) inches with a  
1449 minimum of six (6) inches of clean aggregate placed below the distribution pipe and two (2)  
1450 inches above the distribution pipe. The aggregate shall be covered with an approved geotextile  
1451 material after installation and testing of the pressure distribution system.

1452

1453 (C) The design shall be a long, narrow bed design with a maximum width of  
1454 twenty-five (25) feet.

1455

1456 (D) The infiltration area, which is the bottom of the aggregate bed, shall be  
1457 calculated by dividing the design flowrates (gpd) from Table 1 and Table 2 by the loading rate of  
1458 0.8 gpd/ft<sup>2</sup>.

1459

1460 (iii) Soil Cover

1461



1462 (A) The soil cap shall be constructed of a sandy loam, loamy sand, or silt  
1463 loam. The depth of the soil cap shall be at least six (6) inches at the edges to twelve (12) inches  
1464 at the center. The slope of all sides shall be three (3) horizontal to one (1) vertical or flatter.

1465  
1466 ~~(formerly 10(c)(iii))(B) — Fill soil. The fill soil that is~~ A layer of top soil at  
1467 least six (6) inches thick shall be placed ~~between the native soil and the stone over the entire sand~~  
1468 mound area. shall have a minimum percolation rate of five minutes per inch. Topsoil shall be  
1469 placed over the mound to promote vegetative cover. The sand mound should be planted with  
1470 vegetation that does not require watering and will not establish deep roots. Native grasses are  
1471 commonly used.

1472  
1473 ~~(formerly 10(c)(iv)) — Preparation. All trees, roots, and other organic matter shall be~~  
1474 ~~removed from the area to be occupied by the mound.~~

1475  
1476 (d) A design package for sand mound systems is provided online at the Division’s  
1477 website to assist the applicant in submitting a completed application for coverage under the  
1478 general permit for small wastewater systems. The worksheet and calculations were prepared by a  
1479 registered professional engineer employed by the Wyoming Department of Environmental  
1480 Quality, Water Quality Division. The general design requirements stated in this section are  
1481 incorporated into the worksheets such that by properly completing the forms and installing the  
1482 components, the system will comply with these requirements.

1483  
1484 **Section 15. ~~Small Non-discharging Waste Stabilization Ponds~~ Small Wastewater**  
1485 **Lagoons.**

1486  
1487 (a) ~~General requirements.~~ Selection Criteria:

1488  
1489 (i) ~~The use of this section for small nondischarging waste stabilization ponds~~  
1490 ~~applies only to those systems defined as small wastewater systems. All other treatment systems~~  
1491 ~~shall meet the requirements of Part B or Part C of Chapter XI as applicable.~~ Lagoons shall only  
1492 be considered in areas of Wyoming where the annual evaporation exceeds the annual  
1493 precipitation during the active use of the lagoon.

1494  
1495 (ii) ~~Non-discharging waste stabilization ponds Lagoons~~ shall only be constructed  
1496 in soils allowed where when the percolation rate exceeds sixty (60) minutes per inch and the soil  
1497 is at least 1 foot thick on both the sides and bottom of the pond extends vertically down at least  
1498 two (2) feet from the bottom of the lagoon to the seasonal high groundwater table or bedrock  
1499 formations. If the 60 minute per inch percolation rate cannot be obtained, a sufficient clay shall be  
1500 incorporated into the top foot of soil until the 60 minute per inch percolation rate is reached. An  
1501 impermeable artificial liner of 20 mils in thickness may be substituted.

1502  
1503 (iii) A lagoon shall not be constructed within the 100 year floodplain.

1504  
1505 (b) General Design Requirements:

1506  
1507 ~~(formerly 15(b)) (i) Isolation. The isolation distances shall meet the requirements for~~  
1508 ~~absorption systems as specified in Section 4(a)(i).~~ Beyond the horizontal setback distances

1509 requirements specified in Section 7(g) of this rule, the lagoon shall not be placed within one  
1510 hundred (100) feet of the owner's property line.

1511  
1512 (ii) The use of a septic tank that meets the specifications in Section 9 of this rule  
1513 shall be required before the small wastewater lagoon.

1514  
1515 (iii) The lagoon shall be located and constructed so it will not receive surface runoff  
1516 water.

1517 (iv) The slope of the lagoon site shall not exceed five percent (5%).

1518 (v) The lagoon site must be located in an area of maximum exposure to sun and  
1519 wind.

1520  
1521 (vi) The lagoon shall be designed for complete retention.

1522  
1523 ~~(formerly 15(d))—Sizing.~~ (vii) The area of the lagoon shall be calculated based on  
1524 the following formula.

1525

1526 
$$A = \frac{584 \times Q}{(365 \times S) + (E - P)} \times 1.3$$

1527

1528 A = Area of the lagoon (in square feet) at the maximum operating depth of 5 foot feet  
1529 ~~water level in square feet~~

1530

1531 Q = Average daily sewage flow, gallons per day. ~~(0.6 times the flow determined from~~  
1532 ~~Table 1)~~ (Multiply values from Table 1 or 2 by 0.6 to get average daily flow.)

1533

1534 E = Average annual lake evaporation rate in inches per year. (Note: lake evaporation is  
1535 less than pan evaporation; lake evaporation equals pan evaporation times a pan coefficient of 0.7)

1536

1537 P = Average annual precipitation rate in inches per year.

1538

1539 S = Soil permeability in inches per day "S" ~~cannot be greater than 0.25 inches per day~~  
1540 ~~"S" shall equal zero for an artificial liner or for bedrock~~ Seepage rate in decimal form, in inches  
1541 per day.

1542

1543 ~~(formerly 15(e))—Construction requirements.~~

1544

1545 ~~(formerly 15(e)(i)(viii))~~ (viii) The slopes of the ~~inside~~ dikes shall not be steeper than  
1546 three ~~(3)~~ horizontal to one (1) vertical ~~nor flatter than four horizontal to one vertical. The slopes~~  
1547 ~~of the outside dikes shall not be steeper than three horizontal to one vertical and shall not allow~~  
1548 ~~surface runoff to enter the pond. (formerly 15(e)(iv))~~ The minimum ~~top~~ width of the top of the  
1549 dike shall be ~~eight~~ four (4) feet.

1550

1551 ~~(formerly 15(e)(iii))~~ (ix) All fill ~~material~~ shall consist of impervious material that is  
1552 well compacted and free of rocks, frozen soil, or other large material.

1553

1554 (x) ~~(formerly 15(d)(ii))~~ ~~A~~ The minimum ~~water level operating depth of at least two~~  
1555 ~~feet~~ shall be two (2) feet maintained in the pond at all times, including start-up. ~~(formerly~~

1556 ~~15(d)(iii) — A minimum free board of two feet shall be provided between the lowest embankment~~  
1557 ~~berm and the maximum water level. The maximum water level shall not be less than five feet. The~~  
1558 ~~dikes shall provide a minimum freeboard of two (2) feet.~~

1559  
1560 ~~(formerly 15(e)(ii)) (xi) — All organic material and debris shall be removed from the~~  
1561 ~~pond site prior to construction. The floor of the lagoon shall be level and maintained free of all~~  
1562 ~~vegetation.~~

1563  
1564 (xii) The influent line into the lagoon must discharge near the center.

1565  
1566 (xiii) A cleanout or manhole shall be provided in the influent line near the dike.

1567  
1568 (xiv) The area around the small wastewater lagoon shall be fenced to preclude the  
1569 entrance of livestock, pets, and humans. The fence shall be equipped with a locking gate. The  
1570 gate shall have a sign indicating “NO TRESPASSING – WASTEWATER LAGOON”.

1571  
1572 (c) A design package for a small wastewater lagoons is provided online at the Division’s  
1573 website to assist the applicant in submitting a completed application for coverage under the  
1574 general permit for small wastewater systems. The worksheet and calculations were prepared by a  
1575 registered professional engineer employed by the Wyoming Department of Environmental  
1576 Quality, Water Quality Division. The general design requirements stated in this section are  
1577 incorporated into the worksheets such that by properly completing the forms and installing the  
1578 components, the system will comply with these requirements.

1579  
1580 ~~(formerly 15(e)) — Groundwater protection and bedrock or impermeable soil separation.~~

1581  
1582 ~~(formerly 15(e)(i)) — For single family homes, the depth to seasonally high~~  
1583 ~~groundwater shall be at least four feet from the bottom of pond.~~

1584  
1585 ~~(formerly 15(e)(ii)) For all “small wastewater systems” other than single family~~  
1586 ~~homes, a minimum of three feet of unsaturated soil shall be maintained between the bottom of the~~  
1587 ~~pond and the estimated groundwater mound imposed on the seasonally high groundwater table.~~  
1588 ~~The height of the groundwater mound can be estimated from Figures 1-6, Section 5 in~~  
1589 ~~conjunction with the average daily sewage flow.~~

1590  
1591 **Section 16. ~~Commercial/Industrial Wastes~~ Privies or Outhouses.**

1592  
1593 Privies or outhouses that meet the requirements of this section are permitted by rule. A permit by  
1594 rule requires the owner to submit the information contained in paragraph (g) of this section to the  
1595 Wyoming Department of Environmental Quality, Water Quality Division prior to constructing or  
1596 installing the facility. By submission of the required information, the owner acknowledges and  
1597 certifies they will comply with the requirements contained in this section.

1598  
1599 Pre-fabricated privies or outhouses shall be sealed, water-tight vaults and shall meet the following  
1600 conditions.

1601  
1602 ~~(formerly 13(a)) General requirements.~~

1603  
1604 ~~(formerly 13(a)(ii)) If indoor plumbing is installed, the grey water disposal method~~  
1605 ~~shall meet the requirements of Section 3 through 12. The minimum design flow for grey water~~

1606 shall be obtained from Table 1 with a reduction of 33 percent allowed for the elimination of black  
1607 wastes.

1608  
1609 ~~(formerly 13(a)(iii)) The privy shall consist of a vault and an outhouse building.~~

1610  
1611 ~~(formerly 13(b)(a))~~ Isolation. The isolation horizontal setback distance requirements  
1612 for sealed privies or outhouses shall comply with Section 7(g) for septic tanks.

1613  
1614 ~~(formerly 13(d)(ii))(b)~~ The depth to seasonally high groundwater from the bottom of a  
1615 water tight vault shall be sufficient to prevent floatation of the empty vault.

1616  
1617 ~~(formerly 13(e))~~ Soil exploration. Soil exploration to a minimum depth of 4 feet below  
1618 the bottom of the proposed vault shall be made to provide information on subsoil condition.

1619  
1620 (c) The vault must have sufficient capacity for the dwelling served, and must have at  
1621 least 27 cubic feet or 200 gallons of capacity.

1622  
1623 ~~(formerly 13(a)(i))(d)~~ All privies shall be designed and constructed to prevent access  
1624 by flies and rodents. Privies or outhouses must be insect tight; must have a self-closing door; the  
1625 privy or outhouse seat must include a cover; and all exterior openings, including vent openings,  
1626 shall be screened.

1627  
1628 ~~(formerly 13(d))~~ Groundwater and bedrock separation.

1629  
1630 ~~(formerly 13(d)(i))~~ The depth to seasonally high groundwater and bedrock or  
1631 impermeable soil shall be at least four feet from the bottom of an unlined vault.

1632  
1633 ~~(formerly 13(e))~~ Sizing. Vaults shall have a minimum capacity of 500 gallons per riser  
1634 and shall be a minimum of 4.5 feet deep.

1635  
1636 ~~(formerly 13(f))~~ Construction.

1637  
1638 ~~(formerly 13(f)(i))~~ The vault shall be constructed and installed to resist breakage and  
1639 damage imposed by frost heave, uplift pressures from a fluctuating water table, loads imposed by  
1640 the outhouse building and soils, and damage that may be caused by vandalism or rough cleaning  
1641 procedures. The vault shall be constructed  
1642 to prevent access by flies.

1643  
1644 ~~(formerly 13(f)(ii))~~ Materials used for vault construction shall be resistant to alkali  
1645 attack, hydrogen sulfide gas, and other corrosive elements associated with decomposing waste.

1646  
1647 ~~(formerly 13(f)(iii))~~ A clean-out manhole shall be installed and shall have a  
1648 minimum opening of 20 inches in the least dimension. The manhole shall be located outside of  
1649 the outhouse building and be equipped with a tightfitting secure cover.

1650  
1651 ~~(formerly 13(f)(iv))(e)~~ Privies or outhouses must be adequately vented.  
1652 The vault shall be ventilated to a point outside and above the outhouse building. The outhouse  
1653 building shall have a set of vents installed near the floor on two opposite sides of the building and  
1654 a roof vent that has a rain cap. All vents shall be screened.

1655  
1656 ~~(formerly 13(g))~~ Vault additives. No chemical or biological additive shall be placed in the

1657 ~~vault that may adversely effect the operation of a sewage treatment facility where the vault waste~~  
1658 ~~will ultimately be disposed or that may adversely impact the quality of the groundwater as~~  
1659 ~~specified in Chapter VIII, "Quality Standards for Groundwater of Wyoming".~~

1660  
1661 (f) Privies or outhouses shall not be constructed within the 100 year floodplain.

1662  
1663 (g) Owner's name, address, phone number, legal description of privy or outhouse  
1664 (address, latitude/longitude, or ¼ ¼ section), and the date construction or installation will begin.

1665  
1666 **Section 17. Greywater Systems.**

1667  
1668 Greywater systems that meet the requirements of this section are permitted by rule. A permit by  
1669 rule requires the owner to submit the information contained in paragraph (e) of this section to the  
1670 Wyoming Department of Environmental Quality, Water Quality Division prior to constructing,  
1671 modifying, or installing the system. By submission of the required information, the owner  
1672 acknowledges and certifies they will comply with the requirements contained in this section.

1673  
1674 (a) Greywater Operation and Requirements

1675  
1676 (i) Restrictions

1677  
1678 (A) Greywater shall not leave the property on which it is generated.  
1679 Ponding or runoff is prohibited.

1680  
1681  
1682 (B) Greywater systems shall not be installed in a delineated floodplain.

1683  
1684 (C) The volume of greywater shall not exceed an average of 2000 gallons  
1685 per day.

1686  
1687 (D) Greywater shall not come in direct contact with or adversely impact  
1688 surface or groundwater.

1689  
1690  
1691 (ii) Odor control of the greywater system shall meet the requirement of  
1692 Wyoming DEQ Air Quality Regulations Chapter 2, Section 11.

1693  
1694  
1695 (iii) If the greywater system is to be used during the winter, the greywater system  
1696 shall be designed to prevent freezing.

1697  
1698 (b) Estimating Greywater Discharge

1699  
1700 (i) The greywater discharge for single family and multi-family dwellings shall be  
1701 calculated by estimates of greywater use based on water use records, or the following procedure:

1702  
1703 (A) The number of occupants of each dwelling unit shall be calculated as 2  
1704 occupants per bedroom.

1705  
1706 (B) The estimated greywater flows of each occupant shall be calculated in  
1707 gallons per day (gpd) as follows:

1708  
1709  
1710  
1711  
1712  
1713  
1714  
1715  
1716  
1717  
1718  
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1720  
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1751  
1752  
1753  
1754

Showers, bathtubs and wash basins – 25 gpd/occupant

Laundry – 15 gpd/occupant

(ii) The total number of occupants shall be multiplied by the applicable estimated greywater discharge as provided above and the type of fixtures connected to the greywater system.

(c) Greywater System Configurations

(i) All greywater systems shall have a means to direct greywater to either the blackwater system or the greywater system.

(ii) Diverter valves shall not have the potential to allow backflow from the blackwater system into the greywater system.

(iii) Greywater used for surface irrigation should be disinfected. The disinfection should achieve a fecal coliform level of 200 cfu/100 mL or less.

(d) Setbacks

(i) A 30 foot buffer zone is required between the greywater application site and adjacent property lines and any public right-of-way. This buffer zone requirement may be met by the use of a subsurface drip irrigation system.

(ii) A 30 foot separation distance is required between greywater application sites and all surface waters.

(iii) A 100 foot separation distance is required between greywater application sites and all potable water supply wells.

(e) Owner’s name, address, phone number, legal description of greywater system (address, latitude/longitude, or ¼ ¼ section), and the date construction or installation will begin.

**Section 18. Operation and Maintenance.**

(a) For any system that disposes of wastewater through land application or subsurface filtration, the owner shall not add any chemical or biochemical additive to the system that would adversely affect the quality of the groundwater as stated in the WDEQ Water Quality Rules & Regulations, Chapter 8.

(b) Septic tanks shall be pumped as needed to prevent solids carryover into the soil absorption system.

1755 (c) Holding tanks and sealed vaults shall be pumped prior to reaching their maximum  
1756 capacity. It is preferable that these types of tanks be pumped before the wastewater volume  
1757 exceeds 75% of the tank's capacity.

1758  
1759 (d) Any service provider that pumps septic tanks, holding tanks, or sealed vaults, shall  
1760 dispose of the wastewater contents at a permitted wastewater treatment facility or in a manner  
1761 approved by the Division or delegated authority.

1762  
1763 (e) Damaged fittings and broken, crushed or plugged piping associated with any small  
1764 wastewater system shall be replaced in a timely manner.

1765  
1766 (f) Composting or non-discharging toilets where permitted shall have their waste  
1767 disposed of at a permitted wastewater treatment facility or landfill, or in a manner approved by  
1768 the Division or delegated authority.

1769  
1770 **Section 19. Commercial and Industrial Wastes and/or Domestic Wastes Greater**  
1771 **Than 2000 Gallons per Day.**

1772  
1773 ~~(formerly 16(a))~~ (a) General requirements. Those Commercial/industrial wastewater systems or  
1774 combination commercial/industrial and domestic wastewater systems are subject to applicable  
1775 requirements listed in Section 1 through ~~12 and~~ 15 of this chapter, in addition to requirements in  
1776 this section.

1777  
1778 ~~(formerly 16(b))~~ (b) — Hydrogeologic investigation. If the wastewater is classified as, or  
1779 determined to be hazardous and/or toxic and/or contain petroleum products, the applicant shall  
1780 demonstrate to the administrator that any discharge or seepage from the wastewater facility will  
1781 not cause a violation of the surface and/or groundwaters of the state in accordance with Chapter  
1782 1, "Quality Standards for Wyoming Surface Waters" and Chapter 8, "Quality Standards for  
1783 Wyoming Groundwaters." Due to the wide variety of wastes, wastewater and site conditions, the  
1784 latest available scientific information shall be used to demonstrate that violation will not occur.

1785  
1786 ~~(formerly 16(e))~~ (c) — Impact. If the impact of the hazardous and/or toxic substance  
1787 and/or petroleum products cannot be determined and mitigated, disposal of the wastewater using  
1788 a soil absorption system shall be prohibited.

1789  
1790 ~~(formerly 16(d))~~ (d) — Pre-treatment. Pre-treatment of the wastewater to remove the  
1791 hazardous, ~~and/or toxic, substance(s)~~ and/or petroleum products shall be required prior to disposal  
1792 if deemed necessary to protect the groundwater and surface water(s) of the state .

1793

1794 ~~(formerly 4(a)(ii)) (c) If the flow is greater than 2000 gpd but less than 10,000 gpd, the~~  
 1795 ~~minimum isolation distances (in feet) shown in Table 3 shall be maintained.~~ The minimum  
 1796 horizontal setback distances (in feet) shown in Table 7 shall be maintained for commercial and  
 1797 industrial wastes and/or wastes greater than 2000 gallons per day but less than 10,000 gallons per  
 1798 day.

1800 ~~(formerly Table 3)~~ **Table 7. Minimum Horizontal Setbacks for Commercial and**  
 1801 **Industrial Wastes in Feet<sup>1</sup>**

From	To Septic Tank Or Equivalent	To Absorption System
Wells (includes neighboring wells)	50	200
<u>Public Water Supply Well</u>	<u>100<sup>2</sup></u>	<u>500<sup>2</sup></u>
Property Lines	10	10
Foundation Wall (w/o drains)	5	10
Foundation Wall (with drains)	5	50
Potable Water Pipes	25	50
Septic Tank	N/A	10
<del>Stream or</del> Surface <del>Body of</del> Water, <u>Spring</u> (including seasonal and intermittent)	50	100
<u>Cisterns</u>	<u>50</u>	<u>50</u>

1803 <sup>1</sup> ~~(formerly 4(a)(iii))~~ For systems larger than 10,000 gallons per day, the isolation distance shall be  
 1804 determined by a hydrogeological study in accordance with ~~Section 15(b)~~ Section 17(b) of Chapter  
 1805 III, but shall not be less than those ~~in subsection two above~~ shown in Table 7.

1806  
 1807 <sup>2</sup> Wastewater systems that discharge to the same aquifer that supplies a public water supply well and  
 1808 are located within Zone 1 or 2 (Attenuation) of the public water supply well, as determined by  
 1809 Wyoming Department of Environmental Quality Source Water Assessment Project (2004) or as  
 1810 established in Section 2 of the Wyoming Wellhead Protection Guidance Document (1997), shall  
 1811 provide additional treatment. These systems will be required to obtain an individual permit to  
 1812 construct and will require that a PE sign, stamp, and date the application, as stated in Section 2 of  
 1813 this chapter. The additional treatment shall be in accordance with Chapter III, Section 2(b)(ii). The  
 1814 treatment shall reduce the nitrates to less than 10 mg/L of NO<sub>3</sub>- as N and provide 4-log removal of  
 1815 pathogens before the discharge leaves the property boundary of each small wastewater system.

1816  
1817



1818 **APPENDIX A**  
1819 **Percolation Test Procedure**

1820  
1821 **Section 1. Purpose**

1822  
1823 (a) Percolation tests are used to determine absorption system site suitability and to size  
1824 the absorption system.

1825  
1826 **Section 2. Procedure**

1827  
1828 ~~(formerly (a))~~ (a) ~~Location.~~ General Requirements:

1829  
1830 (i) Percolation tests shall not be conducted in test holes that extend into  
1831 groundwater, bedrock, or frozen ground.

1832  
1833 (ii) The percolation test shall be conducted only after the soil exploration pit has  
1834 been dug and examined.

1835  
1836 ~~(formerly (a))~~ (iii) A minimum of three (3) percolation test holes are required.

1837  
1838 ~~(formerly (a))~~ (iv) The percolation test holes shall be spaced uniformly over the  
1839 proposed soil absorption system site.

1840  
1841 ~~(formerly (b))~~ (b) Preparation.

1842  
1843 ~~(formerly (b))~~ (i) A ~~four (4) inch to~~ twelve (12) inch diameter hole shall be dug or  
1844 bored to the proposed depth of the soil absorption ~~field~~ system.

1845  
1846 (ii) The walls shall be vertical, with the natural soil surface exposed without  
1847 smearing.

1848  
1849 ~~(iii) To expose a natural soil surface~~ The sides and bottom shall be ~~seraped~~ scarified  
1850 with a sharp pointed instrument and the loose material shall be removed from the hole.

1851  
1852 (iv) Two (2) inches of ~~Coarse sand or gravel~~ gravel or coarse sand shall be placed  
1853 in the bottom of the hole to prevent it from scouring and sealing during water addition.

1854  
1855 (c) Presoaking

1856  
1857 ~~(formerly (c))~~ (i) ~~Presoaking.~~ The purpose of presoaking is to have the water  
1858 conditions in the soil reach a stable condition similar to that which exists during continual  
1859 wastewater application. The minimum time of presoaking varies with soil conditions but must  
1860 be sufficiently long so that the water seeps away at a constant rate. The following presoaking  
1861 instructions are usually sufficient to obtain a constant rate.

1862  
1863 ~~(formerly (c)(i))~~ (A) ~~In sandy soils, place 12 inches of water in the hole. Fill~~  
1864 each hole with clear water to a level at least eighteen (18) inches above the gravel or coarse  
1865 sand and allow it to seep away. Fill the hole again with 12 inches of water and if the water  
1866 seeps away in ten minutes or less, it indicates that the soil is excessively permeable and

1867 ~~requirements in Section 5(d) of these regulations shall be followed. If the eighteen (18) inches~~  
1868 ~~of water seeps away in eighteen (18) minutes or less, add eighteen (18) inches of water a~~  
1869 ~~second time. If the water remains after ten minutes, additional saturation is necessary. Refer to~~  
1870 ~~Appendix A(e)(ii) below. If the second filling of eighteen (18) inches of water seeps away in~~  
1871 ~~eighteen (18) minutes or less, this indicates the soil is sandy and is excessively permeable. The~~  
1872 ~~soil absorption system shall meet the requirements of Section 8 (c).~~

1873  
1874 ~~(formerly (e) (ii)) (B) In other soils, maintain 12 inches of water in the hole~~  
1875 ~~for at least four hours. If either the first or second fillings of eighteen (18) inches of water~~  
1876 ~~does not seep away in ninety (90) minutes, eighteen (18) inches of water must be~~  
1877 ~~maintained in the hole for at least four (4) hours to presoak the test hole. After the four (4)~~  
1878 ~~hours of water contact time, allow the soil to swell for wait at least twelve (12) hours before~~  
1879 ~~starting the percolation rate measurement as stated in Appendix A (d) below.~~

1880  
1881 ~~(formerly (d) (d) Percolation Rate Measurement The water level should be~~  
1882 ~~adjusted to six inches above the gravel initially and after each time interval measurement~~  
1883 ~~when necessary.~~

1884  
1885 ~~(formerly (i)) (i) In other soils, establish a fixed reference point and measure the~~  
1886 ~~drop in water level at constant intervals. The water level drop should be measured to the~~  
1887 ~~nearest 1/8 of an inch. The test may be terminated when the water drop is consistent for three~~  
1888 ~~consecutive measurements. Fill each test hole with twelve (12) inches of water and allow the~~  
1889 ~~soil to rehydrate for 15 minutes prior to any measurements~~

1890  
1891 (ii) Establish a fixed reference point to measure the incremental water level  
1892 drop at constant time intervals. The water level drop should be measured to the nearest 1/8 of  
1893 an inch and the minimum time interval is ten (10) minutes.

1894  
1895 (iii) Refill the test hole to twelve (12) inches above the gravel before starting  
1896 the measurements. Continue to measure the incremental water level drop at a constant time  
1897 interval until a consistent incremental water level drop is achieved. A consistent water level  
1898 drop is achieved when three (3) consecutive water level drops are within 1/8 inches of each  
1899 other.

1900 (iv) Before the water level drops below one (1) inch above the gravel, refill the  
1901 test hole to twelve (12) inches and continue to measure the incremental water level drop.

1902  
1903 ~~(formerly d(ii))(v) The percolation rate for each hole is calculated as follows~~  
1904 ~~for each hole using the following formula:~~  
1905

$$\begin{array}{l} \text{Time Interval (Minutes)} \\ \text{Final Water Level Drop (inches)} \end{array} = \begin{array}{l} \text{Percolation Rate} \\ \text{(minutes/inch)} \end{array}$$

1906 ~~(formerly d(ii)) (vi) If only three to five percolation tests are performed, the~~  
1907 ~~design percolation rate for the absorption system is the slowest rate from all the holes tested. If six~~  
1908 ~~or more percolation tests are performed, the design percolation rate for the absorption system is~~  
1909 ~~the average of all the holes tested as determined by the above formula.~~

1910  
1911 (e) The following information shall be recorded:  
1912

- 1913                    (i) Date(s) of test(s);  
1914  
1915                    (ii) Location, diameter, and depth of each test hole;  
1916  
1917                    (iii) Duration of presoak;  
1918  
1919                    (iv) Time of day for beginning and end of each water-level drop interval;  
1920  
1921                    (v) Each water-level drop measurement;  
1922  
1923                    (vi) Calculated percolation rate;  
1924  
1925                    (vii) Name and signature of person performing test;  
1926  
1927                    (viii) Name of owner or project name; and  
1928  
1929                    (ix) Certification that the percolation test was done in accordance with Wyoming  
1930 Water Quality Rules and Regulations Chapter 25 Appendix A.  
1931

1932  
1933 ~~(Formerly Chapter 15, Appendix C)~~ **APPENDIX B**  
1934 **General Statewide Permit**  
1935 **For Land Application of Domestic Septage in Remote Areas**

1936  
1937 **Department of Environmental Quality/Water Quality Division**  
1938 **Septage Land Application Worksheet**  
1939

1940 **Section 1. Restrictions and Requirements**

1941  
1942 To qualify for the land application of domestic septage (~~domestic septage being defined as either~~  
1943 ~~liquid or solid material removed from a septic tank result from normal household wastes~~) in  
1944 remote areas, the following conditions must be met.

1945  
1946 **DEFINITIONS**

1947 \* ~~“Permanent waterbody” means perennial streams, lakes, wetlands, etc. that have water~~  
1948 ~~throughout the year~~

1949  
1950 \* ~~“Intermittent stream” means a stream or part of a stream that is below the local water~~  
1951 ~~table for some part of the year but is not a perennial stream.~~

1952  
1953 \* ~~“Ephemeral stream” means a stream which flows only in direct response to precipitation~~  
1954 ~~in the immediate watershed or in response to snow melt, and has a channel bottom that~~  
1955 ~~is always above the prevailing water table.~~

1956  
1957 \* ~~“Wetland” means those areas having all three essential characteristics:~~

1958 ~~—— (A) Hydrophytic vegetation;~~

1959  
1960 ~~—— (B) Hydric soils;~~

1961  
1962 ~~—— (C) Wetlands hydrology.~~

1963  
1964 (a) Location restrictions

1965  
1966 (i) Only domestic septage generated on the property owner's location may be land  
1967 applied on the same property owner's location. Domestic septage generated on a specific property  
1968 may be land applied on said property, and shall not be transported to another location for land  
1969 application.

1970  
1971 (ii) A minimum distance of at least 1,000 feet must be maintained from all adjacent  
1972 properties. No land application of domestic septage shall occur within 1,000 feet of all adjacent  
1973 properties.

1974  
1975 (iii) No land application of domestic septage may occur within 300 feet of a  
1976 permanent waterbody, intermittent stream, ephemeral stream or wetland.

1977  
1978 ~~—— No land application of domestic septage may occur within 300 feet of public road.~~  
1979

1980 ~~\_\_\_\_\_~~ No land application of domestic septage shall occur within 300 feet of a public road,  
1981 permanent surface water body, or intermittent stream.

1982  
1983 ~~\_\_\_\_\_~~ No land application of domestic sewage may occur within 1000 feet of a residence  
1984

1985 (b) Site restrictions;

1986  
1987 (i) The land application of domestic septage shall only occur on those sites with  
1988 established vegetation such as rangeland, pasture or hay meadows.

1989  
1990 (ii) No more than 5,000 gallons of domestic septage per acre per year shall be land  
1991 applied.

1992  
1993 (iii) ~~No land application of domestic septage may occur where the depth from the~~  
1994 ~~surface to groundwater is less than four (4) feet.~~

1995  
1996 ~~\_\_\_\_\_~~ No land application of domestic septage may occur where site slopes exceed five  
1997 percent (5%).

1998  
1999 ~~\_\_\_\_\_~~ No land application of domestic septage shall occur where the site's slope exceeds  
2000 five percent (5%) or where the depth to groundwater is less than four (4) feet.

2001  
2002 (iv) The land application of domestic septage shall not occur between November 1  
2003 and May 1, or any other time when frozen or saturated ground conditions exists.

2004  
2005 (v) No public access shall be allowed to any site where domestic septage has been  
2006 applied for at least one (1) year following application. ~~to any site where domestic septage has~~  
2007 ~~been applied.~~

2008  
2009 ~~\_\_\_\_\_~~ Lime stabilization of the septage to pH 12 for 30 minutes prior to land application is  
2010 optional

2011 (vi) No grazing animals shall be allowed access to any site where domestic septage  
2012 has been land applied for at least thirty (30) days following application. ~~to any site where~~  
2013 ~~domestic septage has been land applied.~~

2014  
2015 (c) Crop restrictions;

2016  
2017 (i) No root crops shall be harvested from soils where domestic septage has been  
2018 land applied for at least thirty-eight(38) months following application. ~~from soils where domestic~~  
2019 ~~septage has been land applied.~~

2020  
2021 (ii) No truck crops (harvested parts touch land surface) shall be harvested from  
2022 soils where domestic septage has been land applied for at least fourteen(14) months following  
2023 application. ~~from soils where domestic septage has been land applied.~~

2024  
2025 (iii) No commodity crops (other food, feed, and fiber crops whose harvested parts  
2026 do not touch land surface) shall be harvested from soils where domestic septage has been land  
2027 applied for at least thirty(30) days following application. ~~from soils where domestic septage has~~  
2028 ~~been land applied.~~

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(iv) No turf shall be harvested from soils where domestic septage has been land applied for at least one(1) year following application. ~~from soils where domestic septage has been land applied.~~

(d) Reporting Requirements:

(i) The property owner shall notify the appropriate Department of Environmental Quality, Water Quality Division (DEQ/WQD) District Office Engineer prior to the land application of domestic septage to confirm the requirements and to arrange a possible DEQ/WQD inspection of the land application.

(ii) All records concerned with each septage application will be maintained for at least five (5) years.

(iii) There is a worksheet provided online at the Division's website that must be completed, signed and returned to the DEQ/WQD or the appropriate delegated local permitting authority within 15 days of the land application.

~~This worksheet must be completed, signed, and returned to the Department of Environmental Quality, Water Quality Division or the appropriate delegated local permitting authority within 15 days of the land application.~~

~~Provide the following information concerning your site. Enter NA if not applicable.~~

- ~~1. Date of the application: \_\_\_\_\_~~
- ~~2. Number of acres receiving septage: \_\_\_\_\_~~
- ~~3. Number of gallons of septage land applied: \_\_\_\_\_~~
- ~~4. Type of vegetation receiving: \_\_\_\_\_~~
- ~~5. Name, address and telephone number of septage hauler:~~

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

~~6. If septage was optionally alkali stabilized, please indicate what material was used for stabilization and how pH was measured: \_\_\_\_\_~~

\_\_\_\_\_  
\_\_\_\_\_

~~7) Please indicate that the site sketch on the back of this sheet has been completed and complies with the site restriction distances yes/no:~~

\_\_\_\_\_  
\_\_\_\_\_

~~8) Please indicate if photos of the land application site will be sent to the appropriate District Office: Yes/no. \_\_\_\_\_~~

~~9) Please provide physical address or legal description of land application site: \_\_\_\_\_~~

\_\_\_\_\_  
\_\_\_\_\_

~~10) Please give the name of the DEQ/WQD representative contacted, and time and date. This contact needs to be made prior to the domestic septage land application: \_\_\_\_\_~~

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SKETCH

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REQUIRED ISOLATION  
DISTANCE FROM LAND  
APPLICATION SITE

- ) 1,000 feet from adjacent property
- ) 1,000 feet from any dwelling
- ) 300 feet from any live water, into stream or drainage

~~I certify that the information provided in this worksheet is accurate and meets the requirements set forth~~  
here

~~Signature of landowner~~ \_\_\_\_\_ ~~Date~~

\_\_\_\_\_  
Name (printed)

