

OSSF

(On-Site Sewage Facility)

TECHNICAL INFORMATION

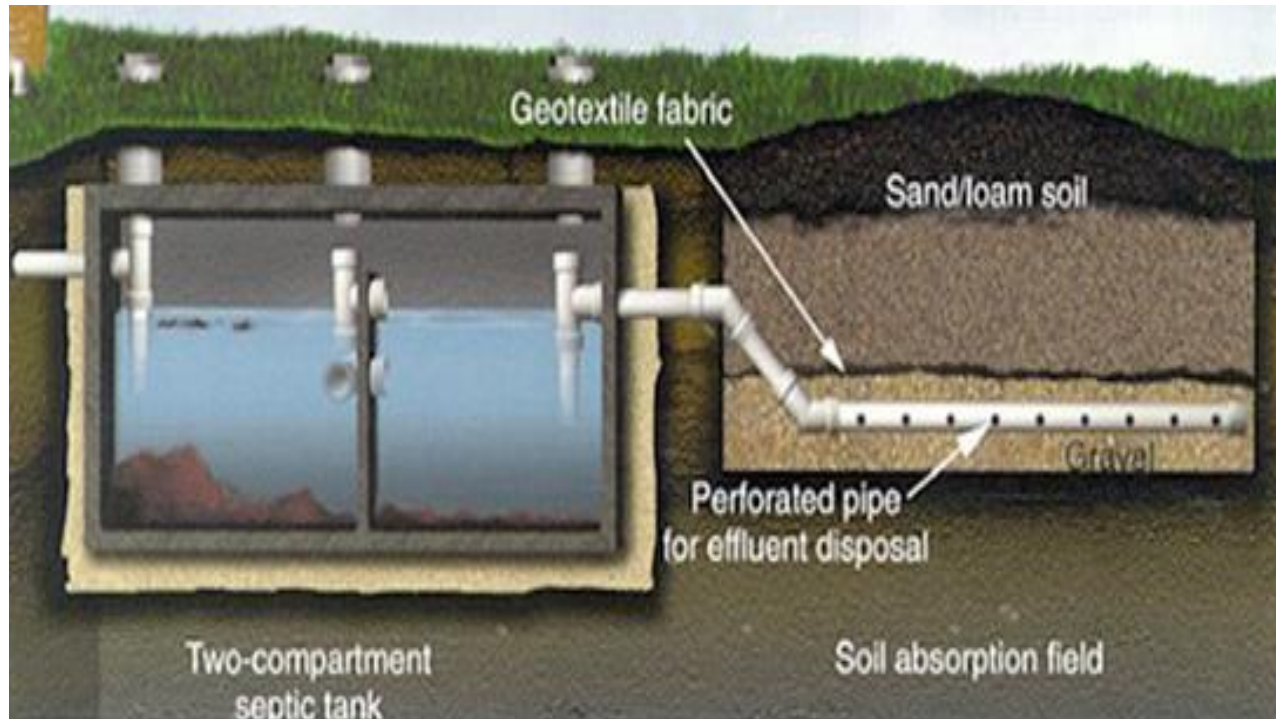


TABLE I

EFFLUENT LOADING REQUIREMENTS BASED ON SOIL CLASSIFICATION

SOIL CLASS (Refer to Table VI)	LONG TERM APPLICATION (R_a) *GALLONS PER ABSORPTIVE AREA (SF) PER DAY
Ia	>0.50
Ib	0.38
II	0.25
III	0.20
IV	0.1

- The absorptive area consists of the bottom area of the excavation **PLUS** one foot of sidewall area around the full perimeter of the excavation.

The required absorptive area shall be calculated by the following formula:

ABSORPTIVE AREA = Q/R_a , Where Q is the wastewater usage rate in gallons per day (see Table III, Relating to Wastewater Usage Rate).

Figure: 30 TAC §285.91(2)

SEPTIC TANK MINIMUM LIQUID CAPACITY

A. Determine the applicable wastewater usage rate (Q) in TABLE III of 30 TAC Chapter 285. B. Calculate the minimum septic tank volume (V) as follows:

1. For Q equal to or less than 250 gal/day: $V = 750$ gallons
2. For Q greater than or equal to 251 gal/day but less than or equal to 350 gal/day: $V = 1000$ gallons
3. For Q greater than or equal to 351 gal/day but less than or equal to 500 gal/day: $V = 1250$ gallons
4. For Q greater than or equal to 501 gal/day but less than or equal to 1000 gal/day: $V = 2.5 Q$
5. For Q greater than or equal to 1001 gal/day: $V = 1,750 + 0.75Q$

AEROBIC TREATMENT UNIT SIZING FOR SINGLE FAMILY RESIDENCES, COMBINED FLOWS FROM SINGLE FAMILY RESIDENCES, OR MULTI-UNIT RESIDENTIAL DEVELOPMENTS

Number of bedrooms/living area of home	Minimum Aerobic Tank Treatment Capacity (gallons per day per residential unit)
Three bedrooms and < 2,501 sq. ft. or Less than three bedrooms and 1,500 < sq. ft. < 2,501	360
Four bedrooms and < 3,501 sq. ft. or Less than four bedrooms and 2,500 < sq. ft. < 3,501	480
Five bedrooms and < 4,501 sq. ft. or Less than five bedrooms and 3,500 < sq. ft. < 4,501	600
Six bedrooms and < 5,501 sq. ft. or Less than six bedrooms and 4,500 < sq. ft. < 5,501	720
Seven bedrooms and < 7,001 sq. ft. or Less than seven bedrooms and 5,500 < sq. ft. < 7,001	840
Eight bedrooms and < 8,501 sq. ft. or Less than eight bedrooms and 7,000 < sq. ft. < 8501	960
Nine bedrooms and < 10,001 sq. ft. or Less than nine bedrooms and 8,500 < sq. ft. < 10,001	1,080
Ten bedrooms and < 11,501 sq. ft. or Less than ten bedrooms and 10,000 < sq. ft. < 11,501	1,200
For each additional bedroom above ten or 1,500 additional square feet of living area above 11,500	120

Table III. Wastewater Usage Rate.

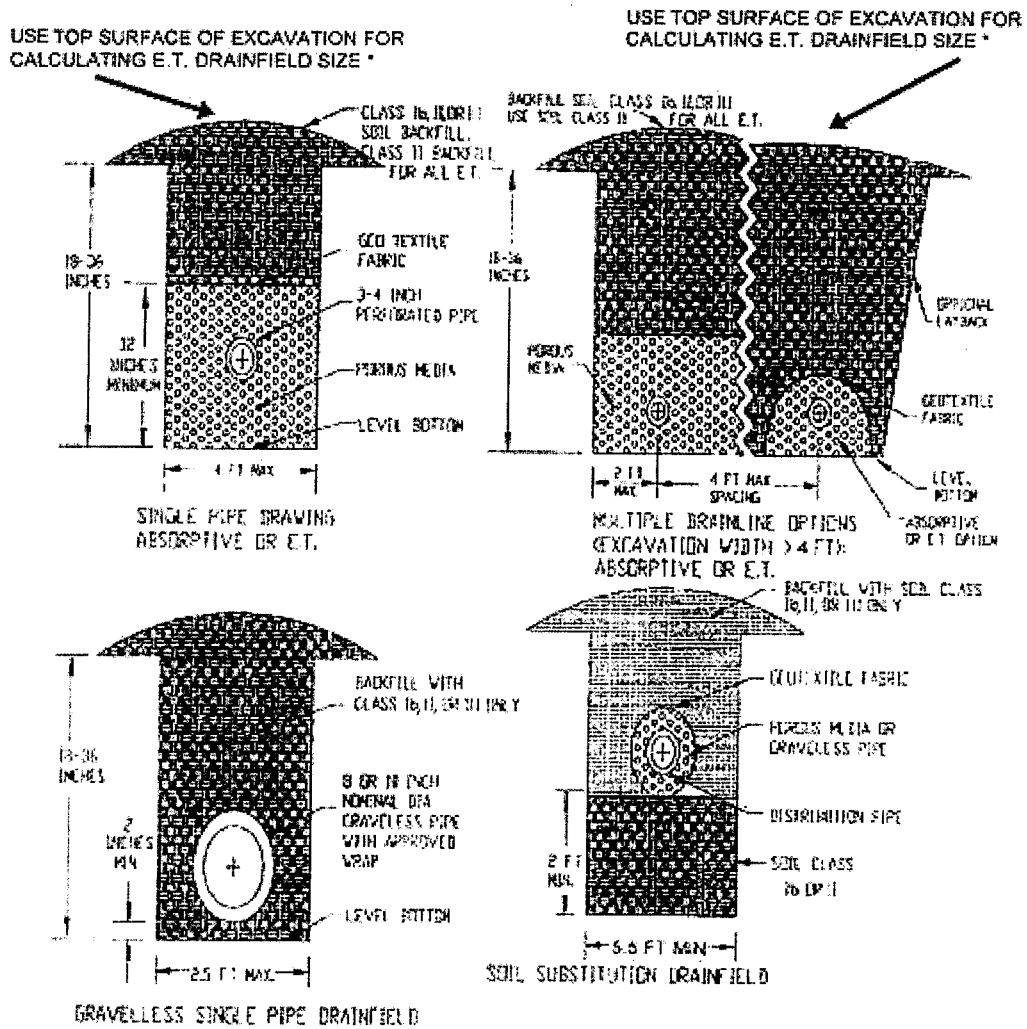
This table shall be used for estimating the hydraulic loading rates only. Sizing formulas are based on residential strength BOD₅. Commercial/institutional facilities must pretreat their wastewater to 140 BOD₅ prior to disposal unless secondary treatment quality is required. For design purposes, restaurant wastewater will be assumed to have a BOD₅ of at least 1,200 mg/l after exiting the grease trap or grease interceptor.

Actual water usage data or other methods of calculating wastewater usage rates may be used by the system designer if it is accurate and acceptable to the Texas Commission on Environmental Quality or its authorized agents. If actual water use records are greater than the usage rates in this table, the system shall be designed for the higher flow.

TYPE OF FACILITY	USAGE RATE GALLONS/DAY (Without Water Saving Devices)	USAGE RATE GALLONS/DAY (With Water Saving Devices)
Single family dwelling (one or two bedrooms) - less than 1,500 square feet.	225	180
Single family dwelling (three bedrooms) - less than 2,500 square feet.	300	240
Single family dwelling (four bedrooms) - less than 3,500 square feet.	375	300
Single family dwelling (five bedrooms) - less than 4,500 square feet.	450	360
Single family dwelling (six bedrooms) - less than 5,500 square feet.	525	420
Greater than 5,500 square feet, each additional 1,500 square feet or increment thereof.	75	60
Condominium or Townhouse (one or two bedrooms)	225	180
Condominium or Townhouse (each additional bedroom)	75	60
Mobile home (one or two bedrooms)	225	180
Mobile home (each additional bedroom)	75	60
Country Clubs (per member)	25	20
Apartment houses (per bedroom)	125	100
Boarding schools (per room capacity)	50	40
Day care centers (per child with kitchen)	25	20
Day care centers (per child without kitchen)	15	12
Factories (per person per shift)	15	12
Hospitals (per bed)	200	160

Hotels and motels (per bed)	75	60
Nursing homes (per bed)	100	80
Laundries (self service per machine)	250	200
Lounges (bar and tables per person)	10	8
Movie Theaters (per seat)	5	4
Office buildings (no food or showers per occupant)	5	4
Office buildings (with food service per occupant)	10	8
Parks (with bathhouse per person)	15	12
Parks (without bathhouse per person)	10	8
Restaurants - minimum effluent BOD5 quality described above this table		
Restaurants (per seat)	35	28
Restaurants (fast food per seat)	15	12
Schools (with food service & gym per student)	25	20
Schools (without food service)	15	12
Service stations (per vehicle)	10	8
Stores (per washroom)	200	160
Swimming pool bathhouses (per person)	10	8
Travel trailer/RV parks (per space)	50	40
Vet clinics (per animal)	10	8
Construction sites (per worker)	50	40
Youth camps (per camper)	30	24

(4) Figure 4. Typical Drainfields - Sectional View.



* Credit for top surface area shall be limited to 2 feet past outside drainline.

Figure: 30 TAC §285.91(4)

Table IV. Required Testing and Reporting.

Type and Size of Treatment Unit	Testing Frequency	Required Tests	Minimum Acceptable Test Results
Any Treatment Method in Conjunction with Surface Application	At least once every four months	One BOD ₅ and TSS Grab Sample Per Year (non-single family residences only) Total Chlorine Residual or Fecal Coliform at Each Required Test	BOD ₅ and TSS Grab Samples Not To Exceed 65 mg/l 0.1 mg/l Residual in Pump Tank or Fecal Coliform Not To Exceed 200 MPN/100 ml (CFU/100 ml)
Any Secondary Treatment System	At least once every four months	None	None
Non Standard	Permit Specific	Permit Specific	Permit Specific

Figure: 30 TAC §285.91(5)

Table V. Criteria for Standard Subsurface Absorption Systems.

FACTORS	SUITABLE (S)	UNSUITABLE (U)
Topography	Slopes 0-30%	Slopes greater than 30% Complex slopes
Subsoil Texture	Soil Class Ib, II, or III soils along the sidewall and two feet below the bottom of the excavation	Soil Class Ia soils along the sidewall or within two feet below the bottom of the excavation (Except for lined ET) Soil Class IV along the sidewall or within two feet below the bottom of the excavation (Except for pumped effluent and ET)
Restrictive Horizon	No restrictive horizon intersects the sidewall or is within 24 inches below the bottom of the proposed excavation.	A restrictive horizon intersects the sidewall or is within 24 inches below the bottom of the proposed excavation (Except as indicated in §285.33(b)(1)(A)(vi))
Gravel analysis	In Class II or III soils, only; Gravel portion less than 30% and gravel greater than 2.0 mm; or If greater than 30% gravel, 80% of the gravel portion must be less than 5.0 mm	All other Class II and III soils, which contain gravel in excess of what is described as suitable All other soils with greater than 30% gravel
Groundwater	No indication of seasonal groundwater anywhere within 24 inches of the bottom of the proposed excavation.	Indications of seasonal groundwater or drainage mottles anywhere within 24 inches of the bottom of the proposed excavation (Except for lined ET)
Flood Hazard	No flooding potential.	Areas located in the floodplain and regulatory floodway unless system designed according to §285.31(c)(2) Depressional areas without adequate drainage
Other		Fill material

(5) Figure 5. Typical Drainfields.

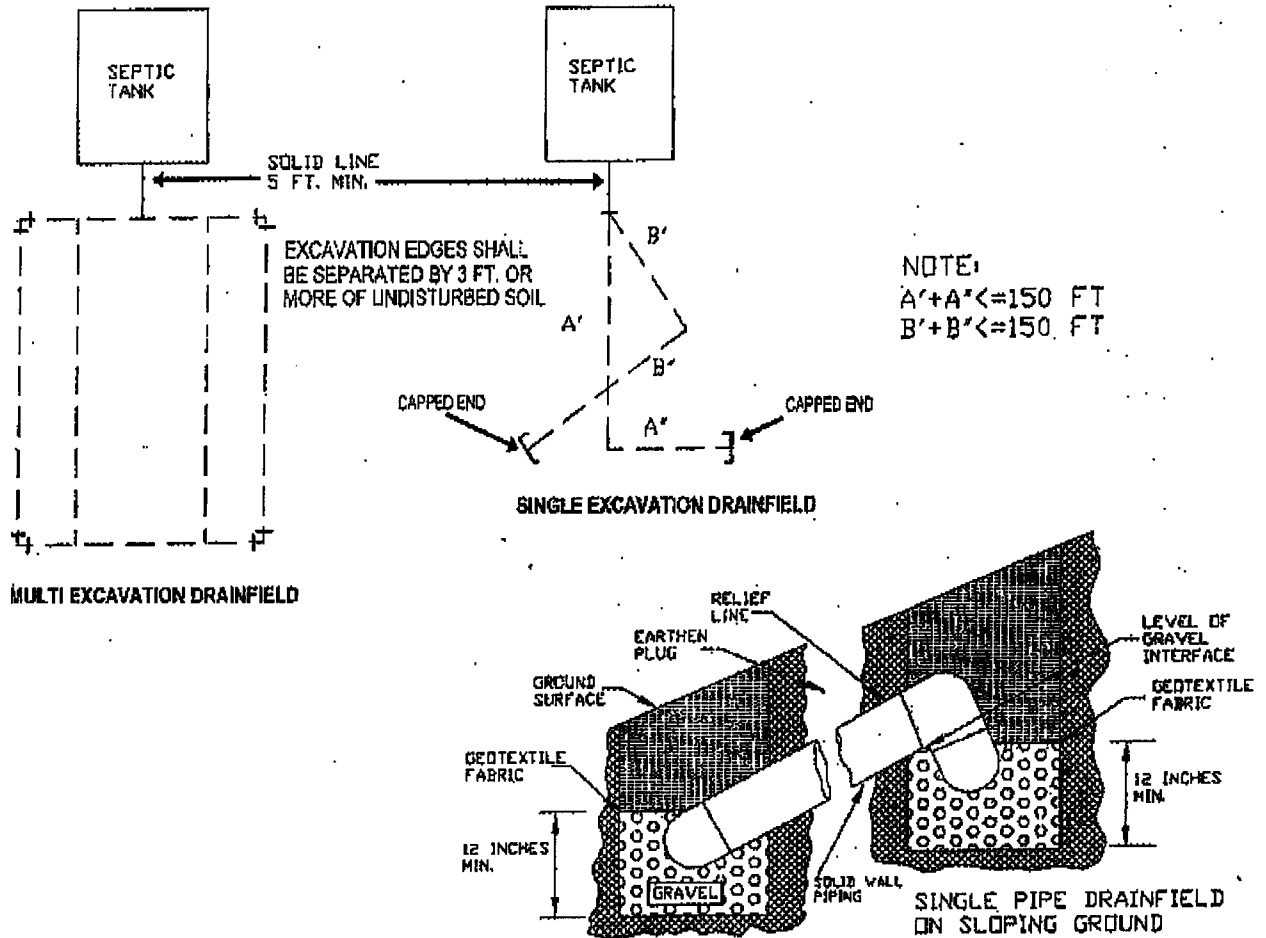


Table IX. OSSF System Designation.

SYSTEM DESCRIPTION	SYSTEM TYPE	PLANNING MATERIAL TO BE PREPARED BY R.S. or P.E.²	INSTALLER REQUIREMENTS
Septic Tank & Absorptive Drainfield	Standard	No	Class I or II
Septic Tank & ET Drainfield (Unlined)	Standard	No	Class I or II
Septic Tank & ET Drainfield (Lined)	Standard	No	Class II
Septic Tank & Pumped Drainfield	Standard	No	Class I or II
Septic Tank & Leaching Chamber	Proprietary	No	Class I or II
Septic Tank & Gravelless Pipe	Proprietary	No	Class I or II
Septic Tank & Low Pressure Dosing	Non-standard	Yes	Class II
Septic Tank & Absorptive Mounds	Non-standard	Yes	Class II
Septic Tank & Soil Substitution	Non-standard	Yes	Class I or II
Septic Tank, Secondary Treatment, Filter & Surface Application	Non-standard	Yes	Class II
Aerobic Treatment & Standard Absorptive Drainfields	Proprietary	Yes	Class II
Aerobic Treatment & ET Drainfield	Proprietary	Yes	Class II
Aerobic Treatment & Leaching Chamber	Proprietary	Yes	Class II
Aerobic Treatment & Gravelless Pipe	Proprietary	Yes	Class II
Aerobic Treatment, Filter & Drip Emitter	Proprietary	Yes	Class II
Aerobic Treatment & Low Pressure Dosing	Proprietary	Yes	Class II
Aerobic Treatment & Absorptive Mounds	Proprietary	Yes	Class II
Aerobic Treatment & Surface Application	Proprietary	Yes	Class II
Any Other Treatment System	---	Yes	Class II
Any Other Subsurface Disposal System	---	(1)	(1)
Any Other Surface Disposal System	---	Yes	Class II
Non-Standard Treatment when Secondary Treatment Required	Non-Standard	Engineer Only	Class II
Holding Tank	---	No	Class I or II

Figure: 30 TAC §285.91(10)

Table X. Minimum Required Separation Distances for On-Site Sewage Facilities.

	TO					
FROM	Tanks	Soil Absorption Systems, & Unlined ET Beds	Lined Evapotranspiration Beds	Sewer Pipe With Watertight Joints	Surface Application (Edge of Spray Area)	Drip Irrigation
Public Water Wells ²	50	150	150	50	150	150
Public Water Supply Lines ²	10	10	10	10	10	10
Wells and Underground Cisterns	50	100	50	20	100	100
Private Water Line	10	10	5	10 ⁵ except at connection to structure	No separation distances	10
Wells Completed in accordance with 16 TAC §76.1000(a)(1)	50	50	50	20	50	50
Streams, Ponds, Lakes, Rivers, Creeks (Measured From Normal Pool Elevation and Water Level); Salt Water Bodies	50	75 LPD with secondary treatment & disinfection - 50	50	20	50	25 when $R_a < 0.1$ 75 when $R_a > 0.1$ (With Secondary Treatment & Disinfection - 50)

(High Tide Only); Retention Ponds/Basin (Spillway elevation)						
Foundations, Buildings, Surface Improvements, Property Lines, Swimming Pools, and Other Structures	5	5	5	5 Pipe may run beneath driveways and sidewalks or up to surface improvements if it is Schedule 80 pipe or sleeved in Schedule 40 pipe Pipe containing secondary effluent has no setbacks from building foundations	No Separation Distances Except: Property lines - 20 ⁶ Swimming Pools - 25	No Separation Distances Except ⁴ : Property Lines - 5
Underground Easements	1	1	1	1	May spray to edge of easement, but not into. Sprinkler heads must be 1 feet from easement edge	1
Overhead Easements	1 No setbacks if permission is granted by easement holder	1 No setbacks if permission is granted by easement holder	1 No setbacks if permission is granted by easement holder	1 No setbacks if permission is granted by easement holder	1 No setbacks if permission is granted by easement holder	1 No setbacks if permission is granted by easement holder

Slopes Where Seeps may Occur and detention ponds	5	25	5	10	10	10 when $R_a < 0.1$ 25 when $R_a > 0.1$
Edwards Aquifer Recharge Features (See Chapter 213 of this title relating to Edwards Aquifer) ³	50	150	50	50	150	100 when $R_a < 0.1$ 150 when $R_a > 0.1$

1. All distances measured in feet, unless otherwise indicated.
2. For additional information or revisions to these separation distances, see Chapter 290 of this title (relating to Public Drinking Water).
3. No on-site sewage facility may be installed closer than 75 feet from the banks of the Nueces, Dry Frio, Frio, or Sabinal Rivers downstream from the northern Uvalde County line to the recharge zone.
4. Drip irrigation lines may not be placed under foundations.
5. Private water line/wastewater line crossings should be treated as public water line crossings, see Chapter 290 of this title.
6. Separation distance may be reduced to 10 feet when sprinkler operation is controlled by commercial timer. See §285.33(d)(2)(G)(i) of this title (relating to Criteria for Effluent Disposal Systems).

Figure: 30 TAC §285.91(13)

TABLE XIII: DISPOSAL AND TREATMENT SELECTION CRITERIA

ON-SITE SEWAGE FACILITY ⁽⁹⁾ (OSSF)	SOIL TEXTURE OR FRACTURED ROCK ⁽¹⁰⁾ (MOST RESTRICTIVE CLASS ALONG MEDIA ⁽¹⁾ or 2 FEET BELOW EXCAVATION)				MINIMUM DEPTH TO GROUNDWATER	MINIMUM DEPTH TO RESTRICTIVE HORIZON ⁽¹⁾
	Class Ia	Class Ib, II ⁽⁸⁾ or III ⁽⁸⁾	Class IV	Fractured Rock	MEASURED FROM BOTTOM OF MEDIA ⁽⁷⁾	MEASURED FROM BOTTOM OF MEDIA ⁽⁷⁾
Disposal Method (section) Treatment						
Absorptive drainfield ⁽²⁾ (285.33(b)(1))Septic tank	U	S	U	U	2 feet	2 feet
Absorptive drainfield ⁽²⁾ Secondary treatment	S ⁽⁵⁾	S	U	S ⁽⁵⁾	2 feet	2 feet
Lined E-T ⁽²⁾ Septic tank	S	S	S	S	N/A	N/A
Lined E-T ⁽²⁾ Secondary treatment	S	S	S	S	N/A	N/A
Unlined E-T ⁽²⁾ Septic tank	U	S	S	U	2 feet	2 feet
Unlined E-T ⁽²⁾ Secondary treatment	S ⁽⁵⁾	S	S	S ⁽⁵⁾	2 feet	2 feet
Pumped Effluent Drainfield ⁽³⁾ Septic tank	U	S	S	U	2 feet	1 foot
Leaching chamber ⁽²⁾ Septic tank	U	S	U	U	2 feet	2 feet
Leaching chamber ⁽²⁾ Secondary treatment	S ⁽⁵⁾	S	U	S ⁽⁵⁾	2 feet	2 feet
Gravelless pipe ⁽²⁾ Septic tank	U	S	U	U	2 feet	2 feet
Gravelless pipe ⁽²⁾ Secondary treatment	S ⁽⁵⁾	S	U	S ⁽⁵⁾	2 feet	2 feet
Drip Irrigation Septic tank/ filter	U	S	S	U	2 feet	1 foot
Drip Irrigation Secondary treatment/ filter	S ⁽⁵⁾	S	S	S ⁽⁵⁾	1 foot	6 inches
Low Pressure Dosing Septic tank	U	S	S	U	2 feet	1 foot
Low Pressure Dosing Secondary treatment	S ⁽⁵⁾	S	S	S ⁽⁵⁾	2 feet	1 foot
Mound ⁽⁴⁾ Septic tank	S	S	S	S	2 feet	1.5 feet
Mound ⁽⁴⁾ Secondary treatment	S	S	S	S	2 feet	1.5 feet

Surface application Secondary treatment	S ⁽⁶⁾	S ⁽⁶⁾	S ⁽⁶⁾	S ⁽⁶⁾	N/A	N/A
Surface application Non-standard treatment	S ⁽⁶⁾	S ⁽⁶⁾	S ⁽⁶⁾	S ⁽⁶⁾	N/A	N/A
Soil Substitution ⁽²⁾ Septic tank	S	S	U	S	2 feet	2 feet
Soil Substitution ⁽²⁾ Secondary Treatment	S	S	U	S	2 feet	2 feet

S = Suitable

U = Unsuitable

- (1) An absorptive drainfield may be used, if a rock horizon is at least 6 inches above the bottom of the excavation, see §285.33(b)(1).
- (2) If the slope in the drainfield area is greater than 30% or is complex, the area is unsuitable for the disposal method.
- (3) Can only be installed in an area where the slope is less than or equal to 2.0%.
- (4) Can only be installed in an area where the slope is less than 10%.
- (5) Requires disinfection before disposal. A form of pressure distribution shall be used for effluent disposal in fractured or fissured rock.
- (6) Requires vegetation cover and disinfection.
- (7) When no media exists, measure from the bottom of the excavation or pipe, whichever is less.
- (8) May require gravel analysis for further suitability analysis (see §285.30(b)(1)(B)).
- (9) If OSSF is located within a Flood Hazard, see §285.31(c)(2) for special planning requirements.
- (10) Includes fissured rock.

All OSSFs require surface drainage controls if slope is less than 2%.