TECHNICAL GUIDANCE

MANUAL

FOR

INDIVIDUAL AND SUBSURFACE

SEWAGE DISPOSAL SYSTEMS

Idaho Department of Environmental Quality
1410 N. Hilton Street
Boise, Idaho 83706

Website link to TGM updates: http://www.deq.idaho.gov/water/assist_business/septic/tech_manual_updates.cfm

TABLE OF CONTENTS

TABLE OF CONTENTS

INTRODUCTION

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To restore and maintain the quality of public waters and to protect the public health and general welfare of Idaho's residences and visitors, the Board of Environmental Quality has adopted *Rules for Individual Subsurface Sewage Disposal Systems.* Because of the dynamic and complex nature of small wastewater disposal systems governed by those rules, an on-going technical guidance document is necessary. A Technical Guidance Committee has been mandated by that rule to establish criteria for alternatives to standard drainfield systems. This Technical Guidance Manual has been prepared to summarize that criteria and to provide the necessary guidance to Environmental Health Specialists, Professional Engineers, Installers and others needing information on the detailed design, construction, alteration, repair, operation and maintenance of standard individual and subsurface sewage systems, their components and their alternatives.

THE TECHNICAL GUIDANCE COMMITTEE

To assist in providing the latest information for this manual an Individual and Subsurface Sewage Disposal Committee has been established by the Board of Environmental Quality. The committee includes three District Health Department Environmental Health Specialists, a member of the State's Department of Environmental Quality, a Professional Engineer licensed in the State of Idaho, and a licensed septic tank system installer. All sections of this Manual have been reviewed and approved by that Technical Committee prior to inclusion herein.

THE INDIVIDUAL AND SUBSURFACE SEWAGE DISPOSAL COORDINATOR

To assist in updating and maintaining this manual in a timely manner, to advise the Committee on the latest state-of-the-art in on-site and subsurface disposal methodology, new products and the law and to provide approvals, the Department of Environmental Quality provides a staff position, the Individual Subsurface Sewage Disposal Coordinator, to accommodate those needs. The Coordinator will also assist in continued education of those involved in system design, approval, installation, operation and maintenance.

DISCLAIMER

The inclusion of new alternative system technology in this manual does not imply that such technology will be approved for use. The manual is provided solely for guidance should a particular alternative's implementation is desired.

Listing of products does not constitute endorsement. Products not listed may be approved by the Director if, after their review, they are found to meet the regulatory intent of the Rules for Individual Subsurface Sewage Disposal.

11/01/04

SOILS AND GROUND WATER

SOILS TEXTURE AND GROUP DETERMINATIONS

Determining Soil Textural Classifications

Soil texture is the proportion of three separates: sand, silt and clay. It is one of the most important characteristics of soil for water movement because of its relationship to pore size, pore size distribution and continuity of pores. Permeability, aeration and drainage are all related to the soils ability to filter and adsorb pollutants. Sizes of the major separates are shown in the table below.

TABLE 1

Sizes of Mineral Soil and Rock Fragments

Material	Equivalent Diameter	Passes Sieve #
Clay	Less than 0.002 mm	425
Silt	0.002 to 0.05 mm	270
Very Fine Sand	0.05 to 0.1 mm	140
Fine Sand	0.1 to 0.25 mm	100
Medium Sand	0.25 to 0.5 mm	50
Coarse Sand	0.5 to 1.0 mm	16
Very Coarse Sand	1.0 to 2.0 mm	10
Gravel	2.0 mm to 7.5 cm	3"
Cobbles	7.5 to 25.4 cm	10"
Stones	25.4 to 61 cm	24"
Boulders	Greater than 61 cm	-

The Soil Textural Classification used by Idaho has been adopted from the U. S. Department of Agriculture. Soils textures of proposed soil absorption sites are determined according to these guidelines. Once the textures have been determined then the soil design groups may be specified for the design of the absorption system. Characteristics of each soil texture are shown in Table 2.

Refer to Figure 1 and Table 3 for summaries of the soil particle distributions and percentages in each of the textures.

TABLE 2. Soil Textural Characteristics.

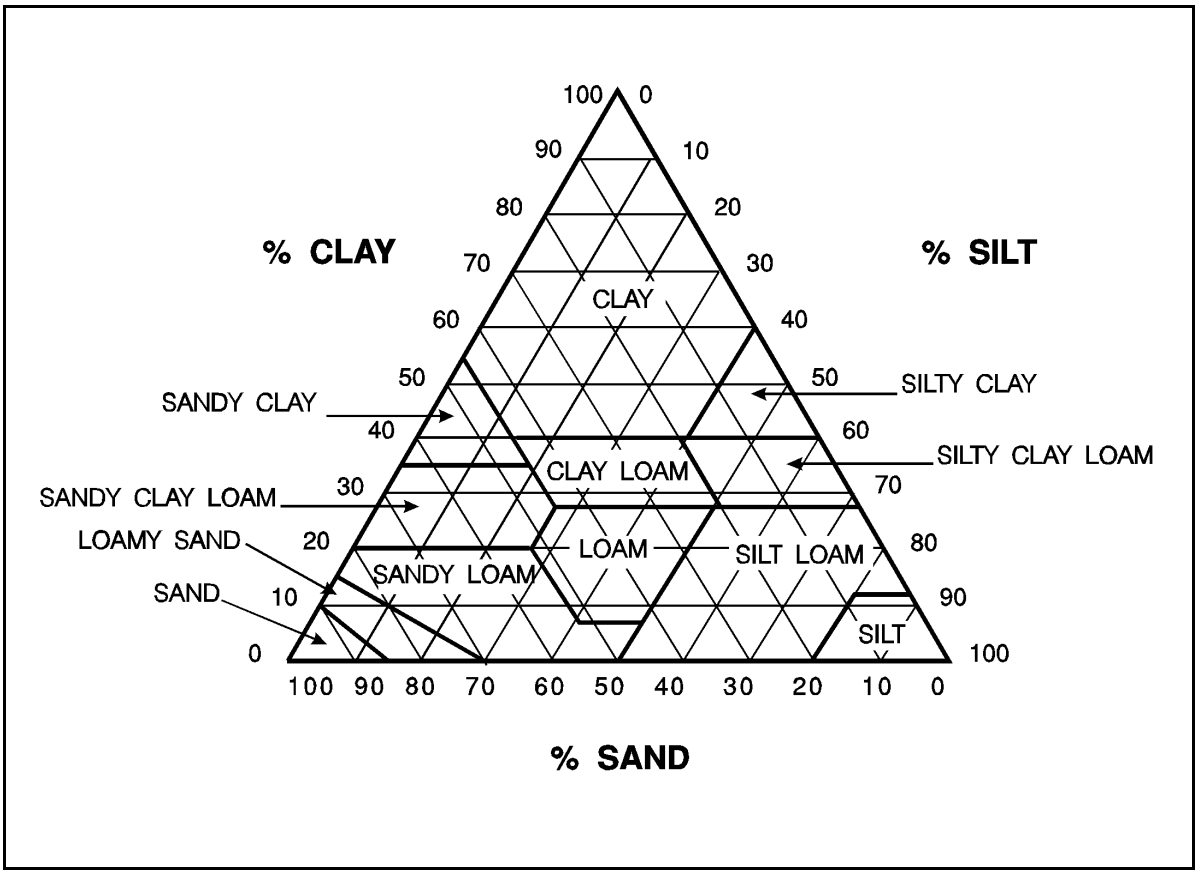
Soil Texture	Visual Detection of Particle Size General Appearance of Soil	Squeezed By Hand and When Air Dry	Pressure Released When Moist	Ribbon Between Thumb and Finger
Sand	Soil has a granular appearance, loose, gritty grains visible to the eye. Free flowing when dry.	Will not form a cast. Falls apart easily.	Forms cast which crumbles at least touch.	Cannot ribbon.
Sandy Loam	Somewhat cohesive soil; aggregates easily crunched. Sand dominates but slight velvet feel.	Cast crumbles easily when touched.	Cast will bear careful handling.	Cannot ribbon.
Loam	Uniform mixture of silt, clay, and sand. Aggregates crushed under moderate pressure. Velvety feel which becomes gritty with continued rubbing.	Cast will bear careful handling.	Cast can be handled freely.	Cannot ribbon.
Silt Loam	Quite Cloddy when dry. Can be pulverized easily to a fine powder. Over 50 % silt.	Cast can be freely handled. Flour-like feel when rubbed.	Cast can be freely handled. When wet, flows into puddle.	Will not ribbon, but has slight plastic look.
Silt	Over 80 % silt with little fine sand and clay. Cloddy when dry pulverizes readily to a flour-like powder.	Cast can be freely handled.	Cast can be freely handled. Puddles readily. "Slick" Feeling	Ribbons with a broken appearance.
Silty Clay Loam	Hard lumps when dry, resembling clay. Takes strong pressure to break the lumps.	Cast can be freely handled.	Cast can be freely handled. Can be worked into a dense mass.	Forms thin ribbon which breaks easily.
Clay	Very fine textured soil breaks into very hard lumps that take extreme pressure to break.	Cast can be freely handled.	Cast can be freely handled. "Sticky" feeling.	Forms long, thin ribbons.

Determining Soil Textural Classifications

TABLE 3. Soil Textural Proportions.

	Sand	Silt	Clay
Sand	> 85 %	< 15 %	< 10 %
Loamy Sand	70 to 90	< 30	10 to 15
Sandy Loam	43 to 85	< 50	< 20
Loam	23 to 52	< 50	7 to 27
Silty Loam	< 50	50 to 88	< 27
Silt	< 20	> 80	< 12
Sandy Clay Loam	45 to 80	< 28	20 to 35
Clay Loam	20 to 45	15 to 35	27 to 40
Silty Clay Loam	< 20	60 to 73	27 to 40
Sandy Clay	45 to 65	< 20	35 to 55
Silty Clay	< 20	40 to 60	40 to 60
Clay	< 45	< 40	> 40

FIGURE 1. USDA Soil Textural Triangle.



Basic textural names may be modified if the soil mass contains 15 to 95% of stones, cobble or gravel by adding the name of the dominant rock fragment:

Gravelly or stony = 15% to 35% of the soils volume is rock fragments.

Very gravelly or very stony = 35% to 60% of the soils volume is rock fragments.

Extremely gravelly or extremely stony = 60% to 95% of the soils volume is rock fragments.

95% or more should take the name of the geological type, such as granite, gneiss, limestone, or gravel.

Design Soil Groups and Subgroups

This section is provided as a guide to field environmental health personnel in making technical allowances for standard systems and for Health Departments to use in selecting alternative systems. The required absorption area of a subsurface disposal system depends upon the texture of the soils that surround that system. In a similar manner, required separation distances between the disposal and features of concern, such as wells, surface water, and groundwater, depend upon the texture of the soils. Soils surrounding the system and those below it may not be the same.

The soil design group or subgroup used for the purpose of determining both the minimum effective soil depth and separation category (separation distances) is the one describing the finest textured soils at the sides of the drainfield trenches and beneath them for the effective depth.

TABLE 4. Soil Textural Classification Design Groups.

Design soil group	Design soil Subgroup	Soil Textural Classification	USDA Field Test Textural Classification
A	A-1	Medium Sand	30-60 Mesh
	A-2a	Medium Sand	Poorly Graded
	A-2b	Fine Sand Loamy Sand	Sand 60-140 Mesh Sand
B	B-1	Very Fine Sand Sandy Loam Very Fine Sandy Loam	Sand 140-270 Mesh Sandy Loam Sandy Loam
	B-2	Loam Silt Loam Sandy Clay Loam	Silt Loam ($\leq$ 27 % Clay)
C	C-1	Silt Sandy Clay Loam Silt Clay Loam	Silt Loam Clay Loam ($\geq$27% Clay) Clay Loam
	C-2	Clay Loam	Clay Loam

All other soil textures and some soil features (Gravel, Coarse Sand, All Clays, Organic Muck, Claypan, Hardpan and Duripan) are unsuitable for installation of a standard drainfield system.

Soil Design Subgroup Corrections

A soil will be raised or lowered in design subgroup as indicated in this section: (**Subgroup correction is to determine application rate only**, it will not change surface water or groundwater separation requirements).

1. Porous silt loams and soils with strong vertical structure should be raised one soil subgroup for design purposes.
2. A soil with moderate or strong platy structure should be lowered one subgroup for design purposes.
3. A soil should be lowered one subgroup if 35% to 60% of its volume is rock fragments (very gravelly, very stony).
4. A soil should be lowered by two subgroups if 60% to 95% of its volume is rock fragments (extremely gravelly, extremely stony).
5. A soil with 95% or greater rock fragments is unsuitable as an effective soil for subsurface sewage disposal.
6. A uniform fine and very fine sand (blow sands for example) should be lowered two (2) subgroups for design purposes. Soils that qualify for this modification have a Coefficient of Uniformity less than three (C_u<3.0).

Medium Sand

The following definitions may be used to determine if a soil texture is a medium sand:

1. Conforms to the gradation requirements of ASTM-C-33 and less than 2% passes a # 200 sieve:

Sieve Size	Percent (%) Passing
4	95-100
8	80-100
16	50-85
30	25-60
50	10-30
100	2-10
200	<2

2. Conforms to the USDA definition of a medium sand:

Sieve Size	Millimeter Size	Percent (%) Passing
4	2-10	100
10	1-2	75
16	0.1-1	50
140	0.05-0.1	0-15

3. A sand with a mean particle size (D_{50}) of no more than 0.5 mm and a Coefficient of

Uniformity (C_u) of 8 or greater has been shown to sustain a biological mat and will be acceptable in systems under continual use.

SEPARATION GUIDELINES

Effective Soil Depth to Porous Layers or Groundwater.

The following table provides guidance for determining effective soil depth from the bottom of absorption fields to very porous layers or to normal high groundwater.

TABLE 5
Minimum Effective Soil Depth, in Feet, by Soil Design Subgroup To the Limiting Layer

Limiting Layer	Soil Design Subgroup A-1	A-2	B-1	B-2	C-1	C-2
Fractured Bedrock or Other Porous Layer	6	5	4	3	3	2 ½
Normal High Ground Water	6	5	4	3	3	2 ½
Seasonal High Ground Water	1	1	1	1	1	1

Effective Soil Depths to Impermeable Layers

The following guidance may be used to determine the effective soil depth below absorption fields to impermeable layers, such as dense clays or caliche.

TABLE 6
Effective Soil Depth, in Feet, to Impermeable Layers

Percent Slope	Acres 1	2	3	4	5 or more
20	3.0'	2.8'	2.5'	2.3'	2.0'
16	3.2'	2.9'	2.6'	2.4'	2.0'
12	3.4'	3.1'	2.7'	2.4'	2.0'
8	3.6'	3.2'	2.8'	2.5'	2.0'
4	3.8'	3.4'	2.9'	2.5'	2.0'
0	4.0'	3.5'	3.0'	2.5'	2.0'

Conditions of approval:

1. The impermeable layer is that soil or geological feature that is less permeable than a

C-2 soil. The layer must be contiguous and unbroken beneath the absorption field and its replacement area for at least 10' in any direction from these sites.

2. Adjacent lots are of equal size or larger.

3. This guidance is applicable to standard systems and capping fill trench alternatives.

4. Minimum distance to a property line on the down-slope side of the absorption field and its replacement area must be at least 10 feet.

5. The lateral hydraulic conductivity of the effective soil should be such as to transport the combined precipitation and wastewater flow through the soil without surfacing.

CRITERIA FOR REDUCTION IN SEPARATION DISTANCES TO PERMANENT WATER

Rule Set Back	Soil Class	Soil Reduction	Vertical Soil Depth Above Water: >25' and Depth to Limiting Layer: >10'	Maximum Setback Reduction	Minimum Distance to Surface Water
300'	A-1	0	25'	25'	275'
300'	A-2	25'	25'	50'	250'
200'	B-1	0	25'	25'	175'
200'	B-2	25'	25'	50'	150'
100'	C-1	0	0	0	100'
100'	C-2	0	0	0	100'

The distance to permanent surface water may also be reduced to not less than 100' for all soil types when it can be demonstrated that:

1. The surface water is sealed so that there is no movement of groundwater into the surface water body or:

   The surface water body is discharging into the groundwater and:

2. There are no limiting layers between the elevation of the drainfield and the elevation of the surface water.

Each site should be reviewed on its own merits. Additional criteria such as population density and watershed characteristics, must be examined before an allowance is granted. Alternative systems may be required.

No additional technical allowance may be granted without a formal variance procedure.

STANDARD PERCOLATION TEST

The use of the percolation test is for checks on site surveys and soil analysis data ONLY. It is not to be used as the sole determiner of a proposed disposal site's infiltrative capability. The following outlines a procedure for making a standard percolation test.

1. Dig or bore a hole with horizontal dimensions of six (6) to eight (8) inches and with vertical sides to a depth of at least eight (8) inches in the zone of anticipated soil absorption.

2. Carefully scarify the bottom and sides of the hole with a knife or other device to remove any smeared surfaces.

3. Place about one (1) inch of coarse sand in the bottom of the hole to prevent scouring and sediment. A small section of standard four inch diameter perforated drain pipe is handy to prevent water splash on the hole sidewall.

4. Fill the hole with at least eight (8) inches of water and allow the soil to presoak at least four (4) hours. It is preferable to let the soil soak overnight. If the soil contains greater than 27% clay the soak period should be extended to 48 hours. The water must be clear, free of organics, clay or high sodium content.

5. Measurement procedure. In soils where:

   a) water remains in the hole after the presoak period, adjust the water depth to six (6) inches. Measure the drop in water level every thirty (30) minutes. Continue the test until the last reading is the same as the previous reading or four (4) hours, whichever occurs first.

   b) no water remains in the hole after the presoak period, add water to bring the depth to six (6) inches. Measure the drop in thirty (30) minute intervals, refilling the hole to the six (6) inch depth after each thirty (30) minute reading. Continue the test until the last reading is the same as the previous reading or four (4) hours, whichever occurs first.

   c) the first six (6) inches of water soaks away in less than thirty (30) minutes, the time interval between measurements should be ten (10) minutes.

6. Calculations:

$$\text{Percolation Rate, Minutes/inch} = \frac{\text{Time, in Minutes}}{\text{Water Drop, in Inches}}$$

7. At least two percolation tests should be run on each site, one test at each end of the proposed drainfield and in the zone of the effective soil depth.

8. The conversion of percolation rates to effluent application rates is approximate only, since the mechanism of hydraulic flow in the soil is dissimilar, especially in older, steady-state drainfields. Approximate comparisons are as follows:

TABLE 7

Soil Class	Soil Type	Percolation Rate, minutes/inch (1)	Application Rate gals/day/ft^2 (2)
NA	Gravel, Coarse Sand (3)	< 1	Not Suitable
A-1	Medium Sand	1 - 3	1.20
A-2a	Medium Sand, Poorly graded	4 - 5	1.0
A-2b	Fine Sand, Loamy Sand	6 - 15	0.75
B-1	Sandy Loam	16 - 30	0.60
B-2	Loam, Silt Loam	31 - 60	0.45
C-1	Sandy or Silty Clay Loam (4)	45 - 60	0.30
C-2	Clay Loam (4)	61 - 120	0.20
NA	Clays, Organic Muck, Duripan, Hardpan, Claypan	> 120	Not Suitable

(1) Estimates only.

(2) Application rates are for domestic wastes. A safety factor of 1.5 or more should be used for wastes of significantly different characteristics.

(3) See medium sand definition for a material that may be acceptable for use.

(4) Soils without expandable clays.

Evaluating Fill Material At Septic System Sites

Over time, precipitation and/or irrigation causes compacting of a fill, which may give it similar characteristics to that of the natural soils. Idaho has a wide range of precipitation, ranging from about 7 inches to near 80 inches. Differences in precipitation affects the rate and amount of compaction. Normal compaction will usually take at least 10 years to occur, depending on soil texture, fill depth and precipitation. Fill in low precipitation zones may never become naturally compacted enough to prevent settling in the drainfield area. Supplemental spray irrigation water can be used to aid settling where natural precipitation is not adequate. Generally, fill must be adequately saturated by irrigation for a minimum of 5 years to assure natural settling. If fill, other than sand, is loose or if it can be easily dug out by a gloved hand, then adequate settling has not occurred. Ideally, potential drainfield sites in fill should be planned 5-7 years in advance. Adequate depth and area should be planned and the site should be leveled prior to beginning the settling period.

NATURAL SETTLING OF FILL
OVER A 10 YEAR PERIOD

Soil Class	Depth of Moisture Penetration and Settling in Inches		
A	40	60	120
B	30	48	60
C	20	30	40
	7 - 16"	16 - 24"	> 24"
	Precipitation Zones		

Judgement in site evaluation will be necessary when layers of different textures occur. If a fill has a continuous horizontal layer of a finer textured soil, the settling should be calculated for the most restrictive soil. As an example, most of a fill is an A soil but a continuous layer of C soil occurs at 20 inches or less in a 7 to 16 inch precipitation zone. The fill in this situation should be considered a C soil. If the layer occurred at 30 inches then the depth between 30 and 40 inches may lack natural compaction.

Prior to placement of any fill, the natural ground surface should be scarified or plowed to a depth of 6 to 8 inches. This will increase stability and avoid the problems associated with a layer of organic material.

The original soil should not have been compacted prior to the placement of fill. Compaction can easily happen at construction sites if equipment, or other types of vehicles have been operated during periods when the site was wet. On sloping areas, preventing compaction is very critical because saturation zones can develop just above the compacted layer, creating stability problems. Loose soils with significant amounts of volcanic ash are particularly susceptible to compaction.

Sites should be avoided where fill has been dumped in piles for a long period and then leveled out. This will cause differential settling. The calculation of settling time will begin after leveling.

One way to check for compaction is to run a knife or geology pick point vertically on the face of a pit. Depth of penetration should be about 1/2 to 1" into the soil. Changes in resistance to the movement of this sharp object across the soil horizon is an indication of compaction. Very distinct platy structure or high bulk density is also an indication of compaction.

Fills of a different texture than the underlying natural soil can have stability problems on slopes if the underlying soil has a finer texture by 2 subgroups and a potentially slower permeability. Deep mixing of the fill with the top 12 inches of the native soil may help alleviate the problem on slopes less than 15%.

Demolition material; stumps, trash, large rock, in fill may make the site unsuitable.

If the fill is thin, less than 24 inches, the system may be in the natural soil. Guidelines for cap and fill systems will apply. Because of their greater variability, fills will require more extensive on-site investigation to determine the existence of restrictive layers, inclusion of stumps, demolition materials, etc.

This section is intended to provide general information for property owners to consider when filling a site and it is not an approved alternative design.

GROUNDWATER LEVEL

From the Static Water Level. Groundwater levels can be established by recorded observations of the changes in elevation of the groundwater's surface in a hole or well over a period of time:

1. Newly excavated holes or installed wells should be left undisturbed for 24 hours prior to observing the groundwater's surface elevation.

2. Permanent wells should be cased, with perforations in the casing throughout the anticipated zone of saturation. An idealized monitoring well for observing groundwater of less than 18' deep is shown in Figure 2.

If a permanent well is to be used for water quality monitoring also then it should be:

1. Purged or otherwise developed to eliminate installation contamination and silt build-up.

2. Provided with a ground water seal at the annular space between the casing and natural ground to prevent surface water from entering the groundwater along the exterior of the casing.

From Soil Condition. If the static groundwater level cannot be determined but its presence at some time in the year is suspected, its level can be predicted by looking for the presence of:

1. Reddish-brown or brown soil horizons with gray mottles, that have a chroma of two or less, and red or yellowish-red mottles;

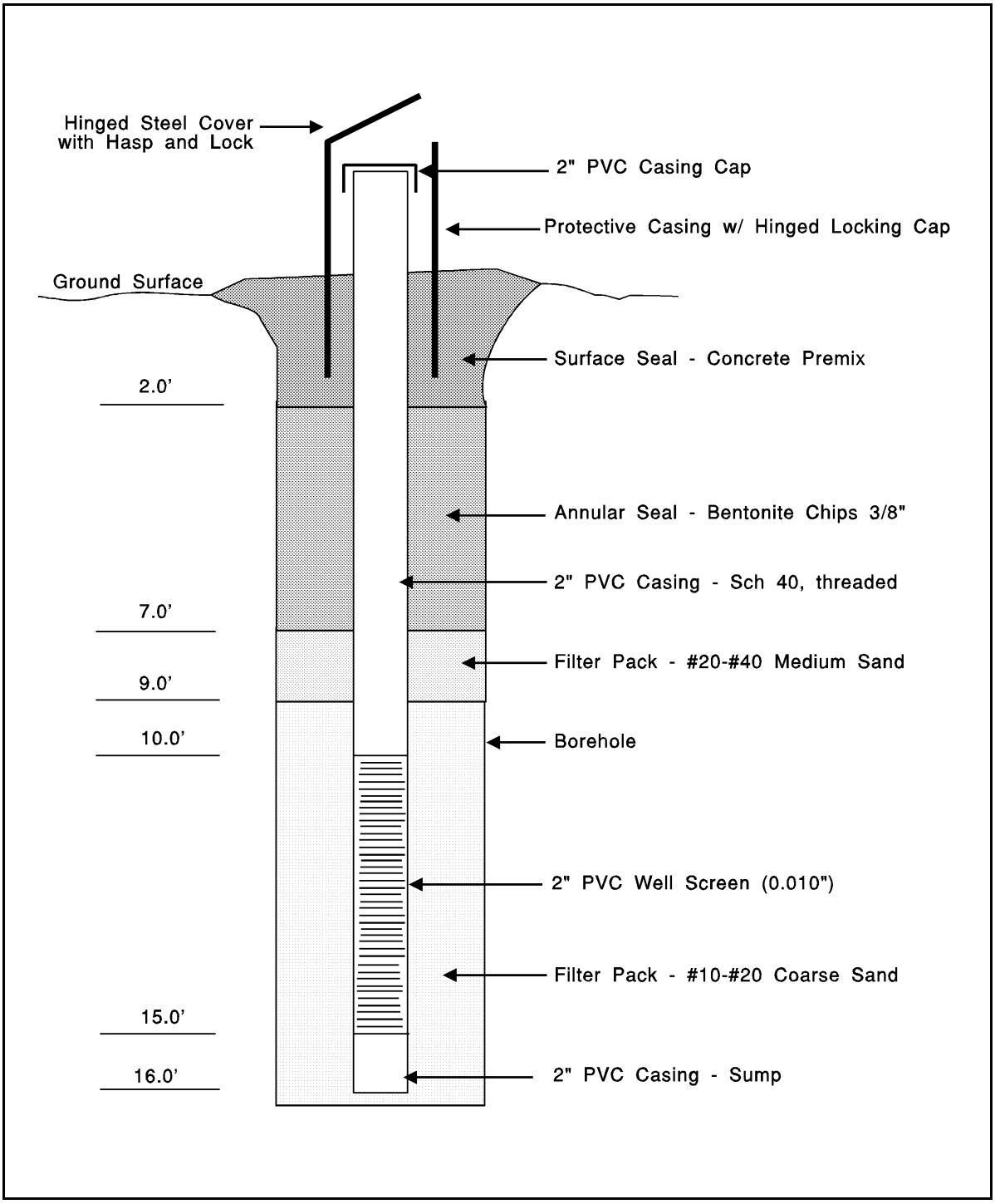
2. Grey soil horizons that have a chroma of two or less, or gray soil horizons with red, yellowish-red, or brown mottles;

3. Dark colored highly organic soil horizons; or

4. Soil profiles with concentrations of soluble salts at or near the surface of the ground.

Care must be exercised in interpreting soil conditions as an indicator of high groundwater. Mottling may be the artifact of past groundwater from geologic time. Some soils do not readily indicate mottling, especially those with high ferric (Fe^{+++}) iron content and in areas with newly-established water tables or where the brown color is from iron bacteria.

Figure 2. Shallow Ground Water Monitoring Well Design.



CUT OFF TRENCHES

Description: A perforated pipe installed beneath the ground surface which collects and/or conveys seasonal or normal high ground water to a natural drainage way

Purpose and Function:

Cut off trenches may be used to lower seasonal high and normal high ground water on slopes by intercepting laterally moving ground water which is perched above a hydraulically restrictive horizon and directing the intercepted ground water away from the drainfield area. Cut off trenches must intercept an impermeable layer in order for ground water to be significantly reduced in the area of the drainfield and replacement area (Cut Off Trench Figure 2).

Cut off trenches that do not intercept impermeable layers will only reduce the water table in the near vicinity of the drainage trench. Drainage trenches do not significantly reduce the water table levels in the drainfield and reserve areas. Effectiveness of drainage trenches is dependent on site-specific criteria.

Cut Off Trenches Specific Conditions for Approval:

Cut off trenches are suggested to be orientated parallel to the length and width of the drainfield and shall be installed on all sides except for the downslope side as shown in Cut Off Trench Figure 3.

Trenches must be keyed into the hydraulically restrictive zone, the impermeable soil, or hardpan for at least 8". Cut off trenches may not be used to lower perched water tables in soils with moderat or strong platy structure and where the subsoil structure does not follow the topography of the land. CAUTION: Cut off trenches must not pass through the confining layer. Cut off trenches that pass through the confining layer could potentially drain a perched aquifer into a developed aquifer.

Ground water levels must be monitored for one full high ground water season after the cut off trench is installed.

Drainage must discharge to a natural drainage way on the property, such that the water will not flood or damage adjacent property.

Cut off trenches may not be used to drain wetlands.

Cut off trenches must meet surface water separation distances from upgradient drainfields.

Cut off trenches cannot be used for any large soil absorption system, community septic system or central sewage system. Cut off trenches may only be used for individual homes.

Mechanical disposal of water is prohibited; pumps are not allowed to be used with a cut off trench.

Slope of the site must be between 5 and 45% and the minimum drain slope shall be 1% or one foot of fall per 100 ft of run.

Cut off Trenches (cont'd)

Outlets should be 50 ft from property line unless discharging directly into a well-defined drainage way.

Outlets shall be designed, constructed, located and maintained in a manner which does not violate any applicable Federal, State, or Local laws or regulations.

Table 1. Setbacks of drainfield from cut off trench based on percent slope. Effective soil depths for drainfields must meet Tables 5 and 6. Depth requirements of drainfields are listed on the first line and minimum setback distances are listed on the second line.

Percent Slope	Depth of Cut Off Trench in Fee							
	3	4	5	6	7	8	9	10
5%	0.5-3 50	1.5-4 50	2.5-4 50	3.5-4 50	4 61	4 81.5	4 100	4 120
10%	0-3 30.5	0-4 40.5	0-4 50	1-4 50	2-4 50	3-4 50	4 50	4 61
15%	0-3 18	0-4 25	0-4 32	0-4 39	0-4 45	0.5-4 50	1.5-4 50	2.5-4 50
20%	0-3 14	0-4 19.5	0-4 24.5	0-4 29.5	0-4 34.5	0-4 39.5	0-4 44.5	0-4 50
25%	0-3 11.5	0-4 16	0-4 19.5	0-4 23.5	0-4 27.5	0-4 31.5	0-4 35	0-4 39.5
30%	0-3 9.5	0-4 13	0-4 16.5	0-4 19.5	0-4 23	0-4 26.5	0-4 30	0-4 33

Table 1. The top line in each cell of Table 1 is the depth required for the drainfield to be installed at in order to maintain the drainfield below the level of the cut off trench. Drainfield setback distances are a function of slope. As the slope increases the separation distance is reduced. The risk of septic tank effluent being intercepted by the cut off trench decreases as the slope increases; thus we are able to reduce setbacks at higher slopes.

Design and Construction Techniques:

1. Excavate plumb sidewall of a 1 ft wide trench for the length of the cut off trench, including side trench area. Trench depth is dependent upon the depth to impermeable layer or hydraulically restrictive layer.

Design and Construction Techniques:

2. Install drain line (UV resistant pipe, foundation drain material, etc). Drain holes are oriented down to intercept ground water at its lowest level. Cover and secure screen on the drain line outlet to prevent animal harborage and infestation. Use hardware cloth and a pipe clamp or animal guard. See Cut Off Trench Figure 1. Minimum size of drain used in mains shall be determined by application of Manning's equation assuming full pipe flow. In no case shall the pipe be less than 4" in size, except that for soils containing a high percentage of fine sand or where local experience has shown it to be desirable, the minimum size shall be 6".

3. Cover drain line with drainrock above the normal high ground water elevation.

4. Cover drainrock with a geotextile filter fabric of > 1 oz/yd².

5. Fill trench with medium sand or pit run sand (4" minus) and cover with top soil.

6. Construct diversion swale to prevent runoff from inundating the drainfield areas.

7. Excavate/drill/install ground water elevation monitoring pipes and monitor ground water elevation for one complete high ground water season to determine effectiveness of cut off trenches.

Maintenance

1. Outlets should be kept clear of sediment and debris.
2. Erosion control practices shall be maintained and out fall structures repaired to prevent scouring of sediment from the pipe outlets.
3. Animal guards shall be maintained to prevent rodent damage to the drain lines and obstructing the pipe outlets.
4. Water-loving trees and shrubs should be kept at least 50 feet from all perforated drain lines.

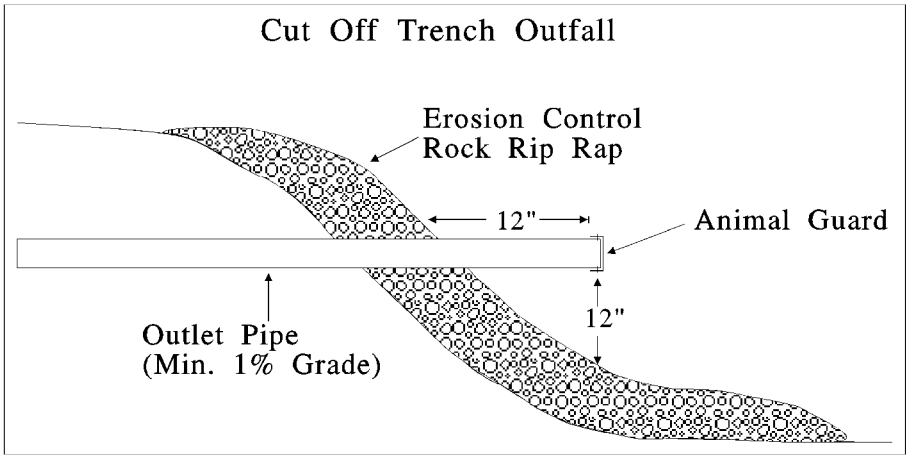
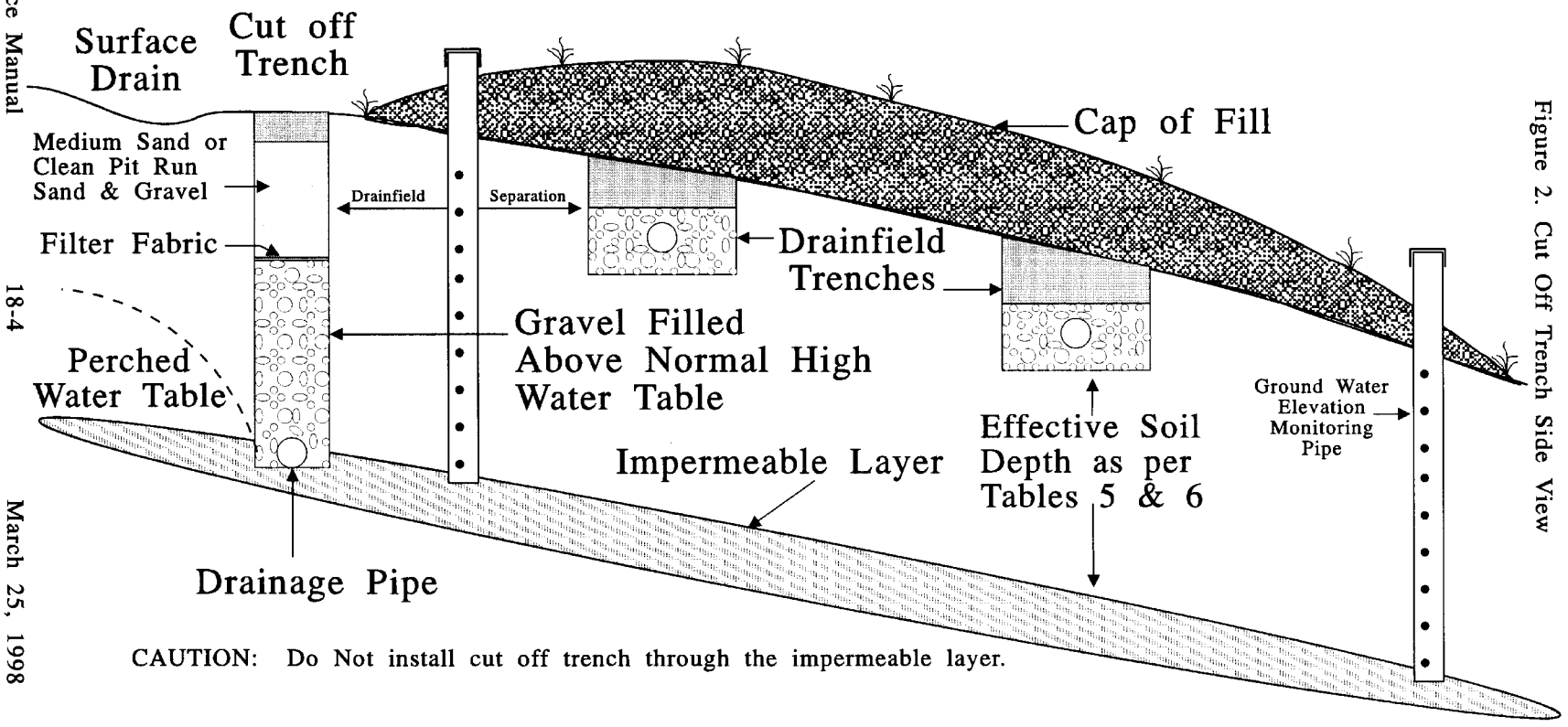


Figure 1. Cut Off Trench Outfall.

Cut Off Trench

Cut off trench designed to intercept a laterally moving perched water table caused by a shallow, impermeable layer or hydraulically restrictive layer.

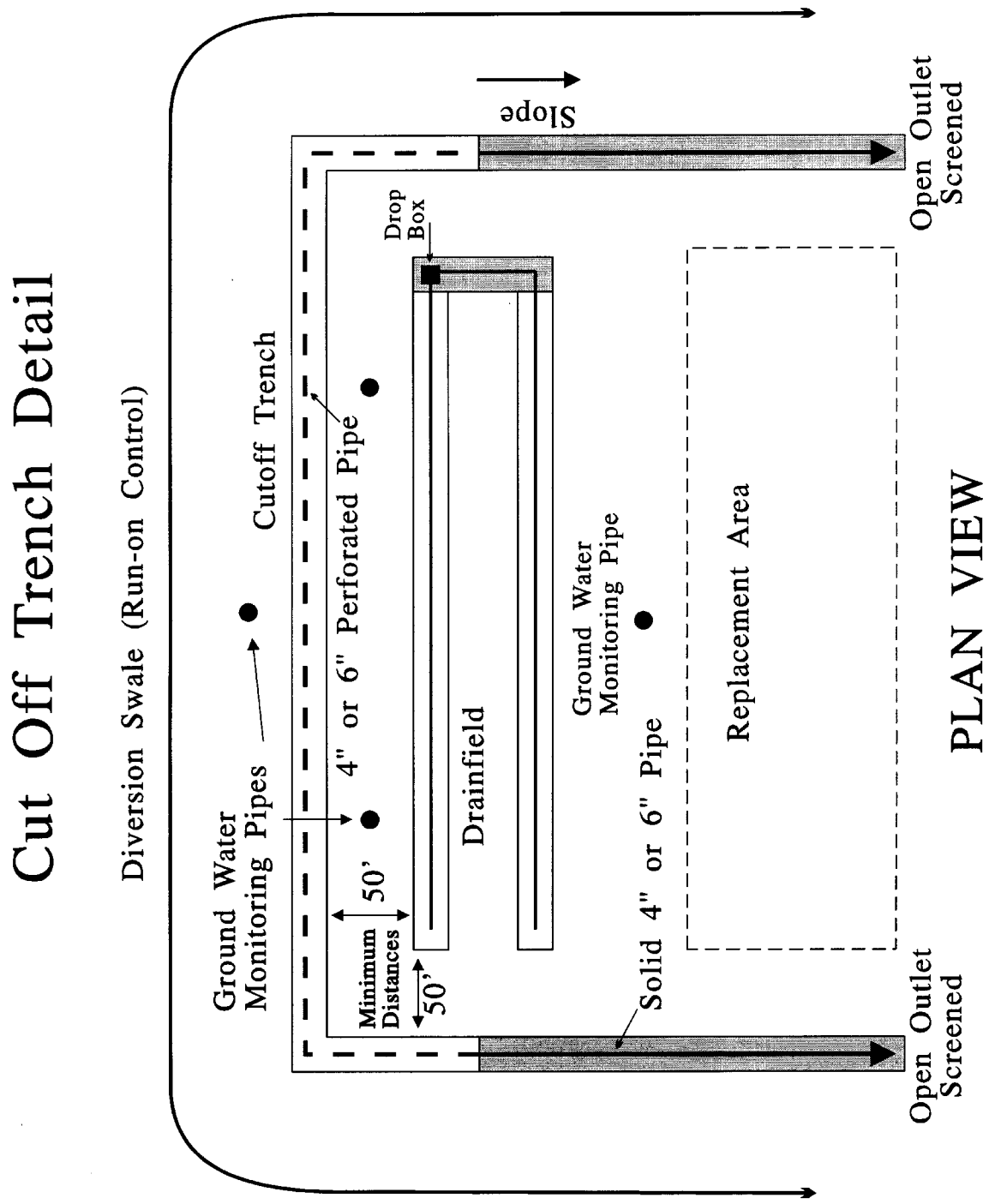


CAUTION: Do Not install cut off trench through the impermeable layer.

Side View

Figure 2. Cut Off Trench Side View

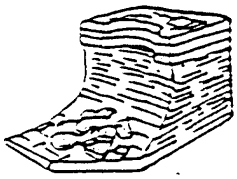
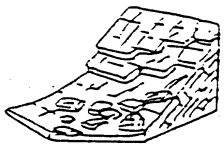
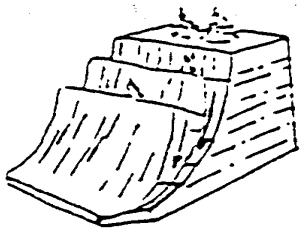
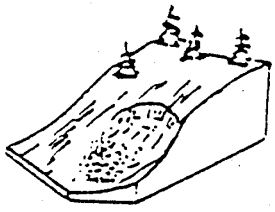
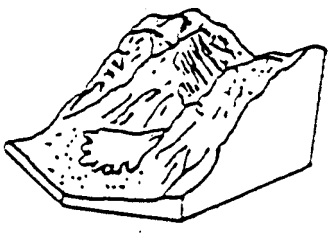
Figure 3. Cut Off Trench Plan View



UNSTABLE LANDFORMS

Description: Unstable Landforms means areas showing evidence of mass down slope movement such as debris flow, landslides, rockfalls, and hummocky hill slopes with undrained depressions up slope. Unstable landforms may exhibit slip surfaces roughly parallel to the hillside; landslide scars and curving debris ridges; fences, trees and telephone poles which appear tilted; or tree trunks which bend uniformly as they enter the ground. Active sand dunes are unstable landforms.

Table 1. Descriptions and Characterizations of Different Unstable Landforms.

Process	Definition and Characteristics	Illustration
Rock fall and debris fall	The rapid descent of a rock mass, vertically from a cliff or by leaps down a slope. The chief means by which taluses are maintained.	
Rockslide and debris slide	The rapid, sliding descent of a rock mass down a slope. Commonly forms heaps and confused, irregular masses of rubble.	
Slump	The downward slipping of a coherent body of rock or regolith along a curved surface of the slumped mass, and any flat-lying planes in it, become rotated as they slide downward. The movement creates a sharp facing downslope.	
Debris Flow	The rapid downslope plastic flow of a mass of debris. Commonly forms an apron-like or tongue-like area, with a very irregular surface. In some cases, begins with slump at head, and concentric ridges and transverse furrows in surface of the tongue-like part.	
Variety: Mudflow	A debris flow in which the consistency of the substance is that of mud; generally contains a large portion of fine particles, and a large amount of water.	

Unstable Landform (cont'd)

Cross Section of Unstable Landform. The following diagram depicts an unstable landform.

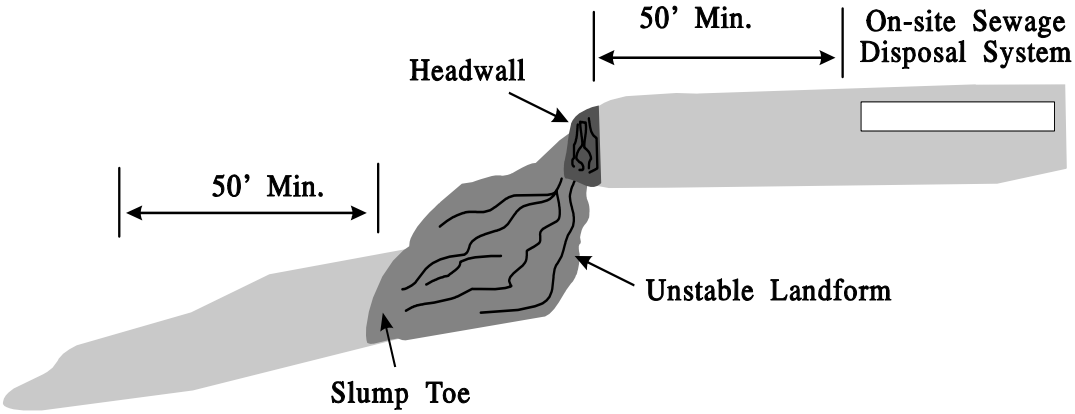


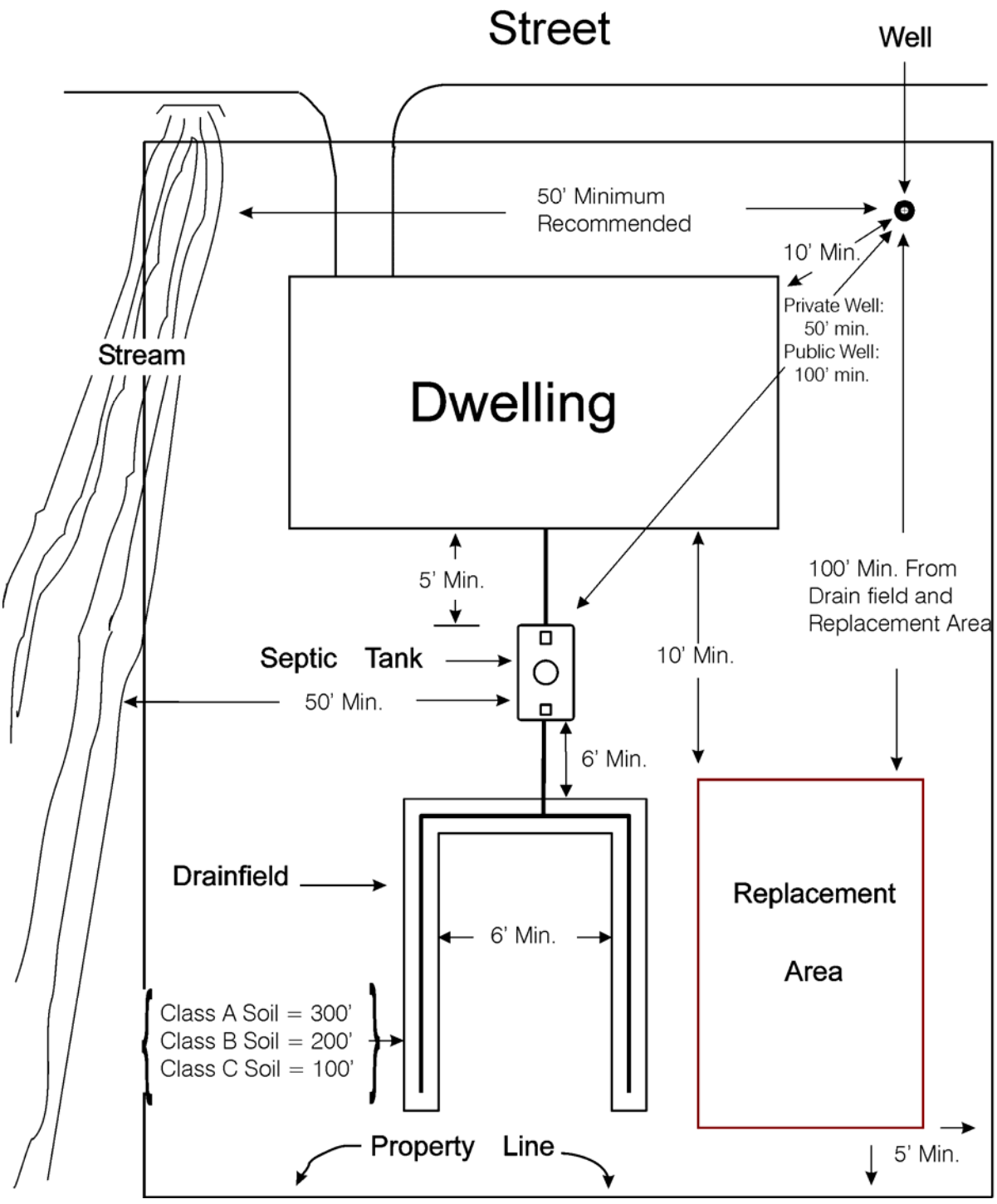
Figure 1. Cross Section of an Unstable Landform.

Additional Application Information Requirement.
Applicants proposing systems on a suspected unstable landform are required to provide supplemental information on their subsurface sewage disposal application as can be required in Subsection 005.04.o of the Rules. The septic tank and drainfield shall not be on an unstable landform, where operation of the subsurface sewage disposal system may be adversely affected.

Application for a subsurface sewage disposal system with any portion of the system on an unstable landform shall have the permit denied. Locating subsurface sewage disposal systems on unstable landforms will result in adverse system operation, performance and effluent treatment.

STANDARD SUBSURFACE DISPOSAL SYSTEM COMPONENTS

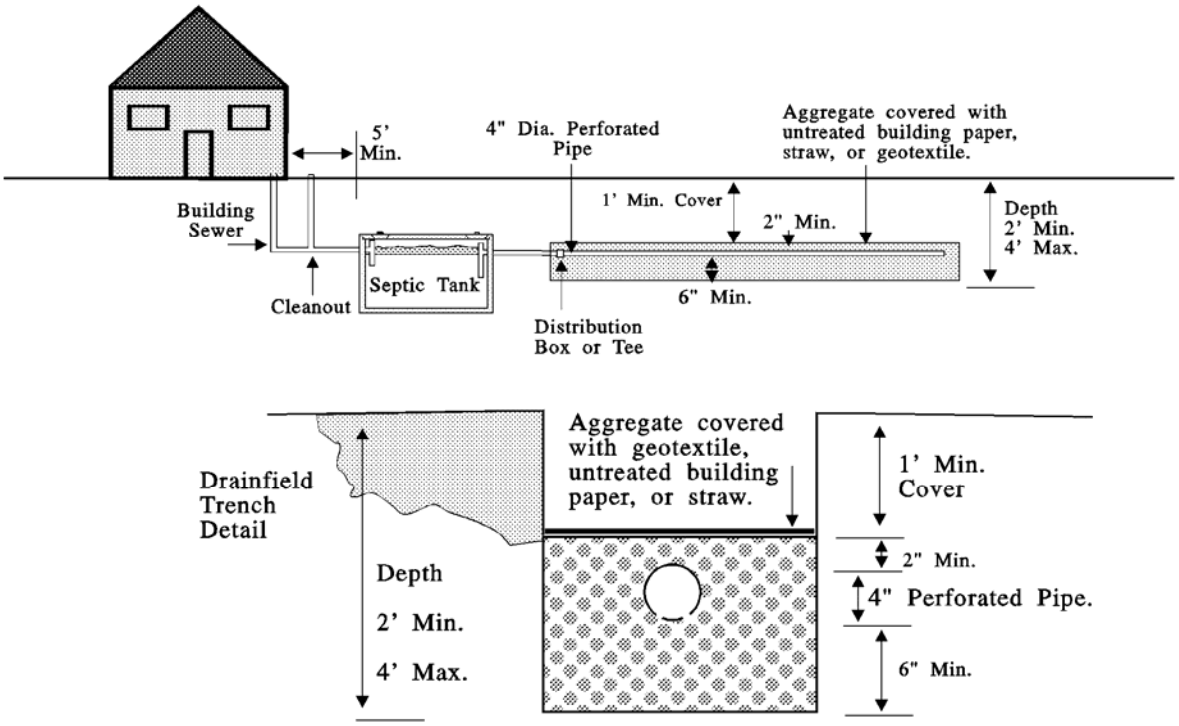
Dimensional Requirements for a Standard Drainfield



Notes:

1. The distance from a drainfield to a dwelling with a basement is 20 feet.
2. There must be a minimum separation of 6 feet between absorption trenches and from installed trenches or beds to the replacement area.
3. The distance from the septic tank to the drainfield is 6 feet.
4. The minimum distance between a building sewer and a domestic well is 50 feet.

CROSS SECTIONAL VIEW OF A STANDARD DRAINFIELD



COMPONENTS OF STANDARD SYSTEMS

Interceptors (Clarifiers) and Grease Traps

Interceptors (clarifiers) and grease traps are specifically designed devices installed to separate and retain materials, such as greases and oils, from sewage. They are usually installed between the discharging fixture, such as a sink or slaughter pad, and the wastewater treatment device. In this sense, they may be referred to as pretreatment devices.

The design and installation of these devices is under the jurisdiction of the Idaho Division of Building Safety, Plumbing Bureau or a local administrative authority.

These devices or additional pretreatment devices may be required for commercial or industrial establishments, such as food service establishments, car washes, slaughter houses or other establishments discharging substances in their wastewater that would be detrimental to the sewage disposal system. Effectiveness of the pretreatment device is substantiated by monitoring the effluent and reporting the operation and maintenance performed.

Any person applying to discharge non-domestic wastewater to a subsurface sewage disposal system shall be required to provide the characterization of the wastewater strength and sufficient information to the Director, documenting that the wastewater will not adversely affect the waters of the State of Idaho. Commercial establishments with wastewater strengths exceeding normal domestic wastewater strength, as depicted in Table 08., are required to pre-treat the wastewater down to normal domestic wastewater strengths.

Table 8. Constituent Mass Loadings and Concentrations in Typical Residential Wastewater [a]

Constituent	**Parameter**	
	Mass Loading (grams/person/day)	*Concentration (mg/L)*[b]
Total solids (TS)	115 – 200	500 – 880
Volatile solids	65 – 85	280 – 375
Total suspended solids (TSS)	35 – 75	155 – 330
Volatile suspended solids	25 – 60	110 – 265
Five-day biological oxygen demand (BOD_5)	35 – 65	155 – 286
Chemical oxygen demand (COD)	115 – 150	500 – 660
Total nitrogen (TN)	6 – 17	26 – 75
Ammonia (NH_4+)	1 – 3	4 – 13
Nitrites (N-NO_2) and nitrates (N-NO_3)	<1	<1
Total phosphorus (TP)[c]	1 – 2	6 – 12
Fats, oils, and grease	12 – 18	70 – 105
Volatile organic compounds (VOC)	0.02 – 0.07	0.1 – 0.3
Surfactants	2 – 4	9 – 18
Total Coliforms (TC)[d]		10^8 – 10^{10}
Fecal Coliforms (FC)[d]		10^6 – 10^8

[a] For typical residential dwellings equipped with standard water-using fixtures and appliances. Table source: USEPA, Onsite Wastewater Treatment Systems Manual, 2002 (EPA/625R-00-008), Table 3-7, page 3-11, which was in turn adapted from Bauer et al, 1979; Bennett and Linstedt, 1975; Laak, 1975, 1986; Sedlak, 1991; Tchobanoglous and Burton, 1991.

[b] Milligrams per liter; assumed water use of 60 gallons/person/day (227 liters/person/day).

[c] The detergent industry has lowered the TP concentrations since early literature studies; therefore, Sedlak (1991) was used for TP data.

[d] Concentrations presented in Most Probable Number of organisms per 100 milliliters.

Information on these devices is found in the Uniform Plumbing Code, 2000 Edition, Chapter 10 and Appendix H. Plans and specifications for these devices must be approved by the Idaho Division of Building Safety, Plumbing Bureau or local administrative plumbing authority.

Building Sewer

The design and installation of a building sewer is under the jurisdiction of the Idaho Division of Building Safety, Plumbing Bureau or a local administrative authority. The state or local authority must approve any plans involving the construction or installation of a building sewer.

Information provided here is advisory only and intended for planning purposes.

1. Building sewers must run at a uniform slope of not less than one-fourth (1/4) of an inch per foot toward the point of discharge.

2. Building sewer piping should be laid on a firm stable bed throughout its entire length.

3. Building sewers must be installed a minimum of twelve (12) inches below the surface of the finished grade.

4. Cleanouts shall be placed:
   a) Inside the building near the connection between the building drain and the building sewer; or
   b) Outside the building at the lower end of a building drain and extended to grade; and
   c) At intervals of up to one hundred (100) feet in straight runs; and
   d) At every change in alignment or grade in excess of twenty-two and one-half (22 1/2) degrees, except that no cleanout will be required for one (1) forty-five (45) degree change of direction or one (1) forty-five (45) degree offset.

Septic Tanks and Dosing Chambers

Both concrete septic tanks and dosing chambers should be placed on original soil. They should not be placed on unconsolidated or uncompacted fill greater than six inches deep. Some fill is often necessary to make a smooth bearing surface in the bottom of the excavation that will receive the tank or chamber.

Concrete tanks or chambers will often leak if not coated with a bituminous coating or other sealer. Such sealing is recommended in all dosing chambers and in septic tanks placed in or near groundwater or in porous soils.

All plastic, polyethylene and fiberglass tanks must be installed according to the manufacturers' recommendations.

Septic Tanks and Dosing Chambers (Cont'd)

All septic tanks must have a riser if the manhole opening of the tank is deeper than 24" below the ground surface. The riser must come within 18" of the surface. Dosing chambers must have their manhole extended to the ground surface.

ABS Schedule 40 or equivalent is recommended to connect septic tanks to dosing chambers. It is also recommended as the pipe to span the septic tank excavation and at least 3' beyond. Thinner-walled ASTM-D-3033 or 3034 plastic pipe may be used if the void at the tanks side is compacted with fill material. That material must be granular, clean and compacted to 90% proctor density. These latter two grades of plastic pipe are otherwise suitable, if placed on undisturbed earth, as the house sewer, the distribution line to the drainfield and within the drainfield. In no event should there be less than 12" of cover over thin-walled plastic pipe. ASTM D-2729 pipe is acceptable for use as the effluent pipe. ASTM D-2729 is not a suitable class of pipe to span the septic tank or dosing chamber excavation. ASTM D-2729 must be laid on a stable base and not driven over by excavation equipment.

Specifications

1. General

a. The manufacturer shall provide structural design and certification by an engineer licensed in the State of Idaho.

b. The tank shall be designed for the following minimum loading conditions assuming a maximum coverage of 3 feet:

Top - 375 psf

Walls shall be designed for an inside hydrostatic water pressure to the level of the outlet and for an outside earth pressure equivalent to that exerted by a fluid weighing thirty (30) pounds per cubic foot, in accordance with accepted engineering practice.

Each tank shall be structurally designed to withstand all anticipated earth or other loads. If the tank is to be stable with greater than 3 feet of cover, the loading requirements should be increased accordingly and the maximum cover depth marked on the tank.

c. All tanks shall be capable of being filled with water above ground for 24 hours without leaking and without a major deflection in shape.

d. All tanks shall be installed in strict accordance with the manufacturer's recommended installation instructions.

e. If pipe is used as the tank baffle system, it shall meet or exceed the ASTM rating of D-3034.

Septic Tanks and Dosing Chambers (Cont'd)

2. Concrete Tanks

a. The walls and bottom slab shall be poured monolithically; alternatively, water stops may be provided.

b. Reinforcing steel shall be ASTM A-615 Grade 60, fy=60,000 psi. Details and placement shall be in accordance with ACI 315 and ACI 318 or equivalent as certified by a licensed professional engineer experienced in the use of structural reinforcement fibers.

c. Concrete shall be ready-mix with cement conforming to ASTM C-150, Type II. It shall have a cement content of not less than 5 sacks per cubic yard and a maximum aggregate size of 3/4 inch. Water/cement ratio shall be kept low (0.45±), and concrete shall achieve a minimum compressive strength of 3,000 psi in 28 days.

d. Form release used on tank molds shall be compatible with the water seal method used.

e. Tanks shall not be moved from the manufacturing site to the job site until the tank has cured for 7 days or has reached two-thirds of the design strength.

f. In order to demonstrate watertightness, tanks shall be tested prior to acceptance. The tank shall be tested by filling with water to the soffit and letting stand. After 24 hours, the tank shall be refilled to the soffit and examined for visible leaks.

3. Polyethylene and Fiberglass Tanks

a. Polyethylene and fiberglass tanks shall meet or exceed Canadian Standard CAN 3-B66-M85. Report from an independent testing company certifying that the tank meets the Canadian Standard is required.

b. Installation instructions, prepared by the manufacturer, shall accompany each tank. Strict conformance with the backfill instructions will be required.

c. On-site hydrostatic testing is suggested prior to installation. The tank should be filled with water for one hour. Any leakage or dimensional change greater than 1/2 inch shall be cause for rejection.

4. Septic Tank Abandonment. If in the opinion of the Director a septic system is abandoned (58.01.03.003.01) and it is necessary to protect the public's health and safety from the eventual collapse of the septic tank or its misuse, the Director shall require the septic tank to be abandoned by:

a. Disconnection of the inlet and outlet piping, and

b. Pumping of the scum and septage with approved disposal, and

c. Filling the septic tank with earthen materials or

d. Physically destroying or removing the septic tank from the ground.

Drainfields

Whether it is a trench or a bed, the drainfield should not be constructed when the soil is near or wetter than its optimum moisture. It's at the optimum moisture that a soil will compact to its maximum ability and thus reduce its capability to transmit water. This ability to compact and restrict flow is particularly true of finer soils, such as silt loams and clay loams. It is not as critical in sands or sandy loams.

If it is entirely unavoidable to excavate the drainfield when the soil is drier than optimum, then the sides and bottom should be raked to relieve any compaction. Backhoe buckets and teeth can very effectively smear both side walls and bottoms. Therefore, raking should be done manually with a strong iron garden rake after all excavation with a backhoe is complete and before the drainrock is put in place.

Drainrock should be checked for cleanliness before it is placed in the trenches. Long transportation time may generate additional fines. If drainrock is found to be unsuitably dirty when it arrives at the site, it can often be cleaned in the truck by tipping the truck bed slightly and washing the rock with a strong stream of water.

Trenches do not have to be constructed straight. It is always preferable to follow the contour of the land. The drainfield must not be installed in floodways, at slope bases, in concave slopes or depressions. Drainfield areas shall be constructed to allow for surface drainage and to prevent ponding of water over the drainfield.

Table 9 gives the lengths of trenches in the 7 soil subgroups (A-2 has two application rates: see Table 7 in the Soils and Ground Water Section).

Table 9. Area Requirements and Total Trench Lengths for Standard Subsurface Sewage Disposal Systems.

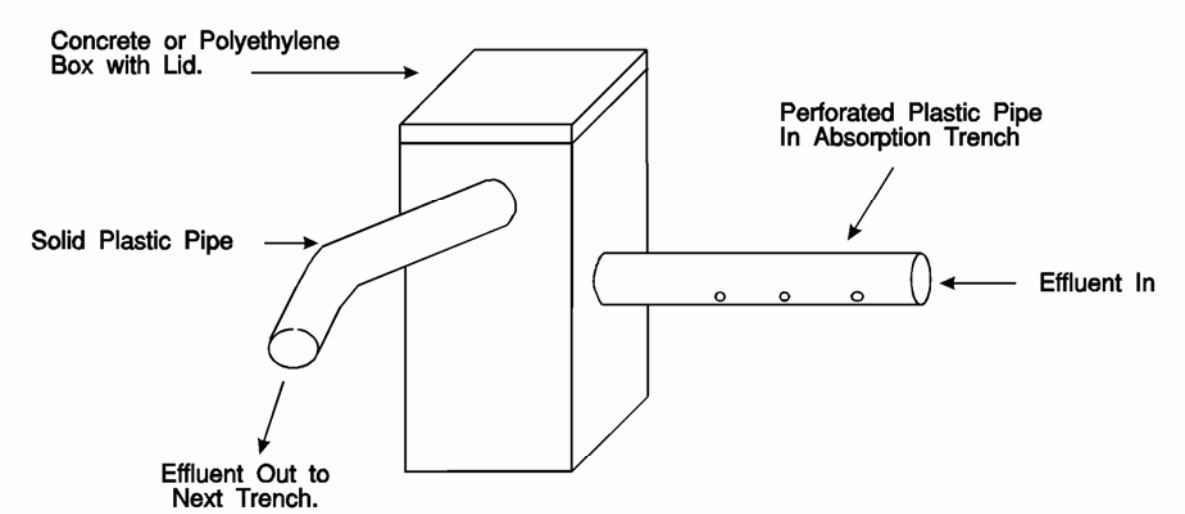
Number of Bedrooms Gallons per day	1 150	2 200	3 250	4 300	5 350	6 400
Soil Group A-1 Total ft	125	167	208	250	292	333
3' wide trench	42'	56'	69'	83'	97'	111'
2.5' wide trench	50'	67'	83'	100'	117'	133'
2' wide trench	63'	83'	104'	125'	146'	167'
Soil Group A-2a Total ft	150	200	250	300	350	400
3' wide trench	50'	67'	83'	100'	117'	133'
2.5' wide trench	60'	80'	100'	120'	140'	160'
2' wide trench	75'	100'	125'	150'	175'	200'
Soil Group A-2b Total ft	200	267	333	400	467	533
3' wide trench	67'	89'	111'	133'	156'	178'
2.5' wide trench	80'	107'	133'	160'	187'	213'
2' wide trench	100'	133'	167'	200'	233'	267'
Soil Group B-1 Total ft	250	333	417	500	583	667
3' wide trench	83'	111'	139'	167'	194'	222'
2.5' wide trench	100'	133'	167'	200'	233'	267'
2' wide trench	125'	167'	208'	250'	292'	333'
Soil Group B-2 Total ft	333	444	556	667	778	889
3' wide trench	111'	148'	185'	222'	259'	296'
2.5' wide trench	133'	178'	222'	267'	311'	356'
2' wide trench	167'	222'	278'	333'	389'	444'
Soil Group C-1 Total ft	500	667	833	1000	1167	1333
3' wide trench	167'	222'	278'	333'	389'	444'
2.5' wide trench	200'	267'	333'	400'	467'	*
2' wide trench	250'	333'	417'	500'	*	*
Soil Group C-2 Total ft	750	1000	1250	1500	1750	2000
3' wide trench	250'	333'	417'	500'	*	*
2.5' wide trench	300'	400'	500'	*	*	*
2' wide trench	375'	500'	*	*	*	*

* Exceeds 500 feet of trench length or 1500 ft of total trench area. Use an alternative system or request a variance.

Serial Distribution

On sloped ground it is often preferable to use serial distribution, that is, distribution such that each trench in order is completely filled before effluent flows to the next trench. In order to maintain trenches between 2' and 4' below ground it may be particularly essential to use this kind of distribution.

The drop boxes are constructed so that each trench is completely flooded before the effluent flow runs to the next down-slope trench. Care must be exercised in excavating the connecting line between trenches. Bleeding of effluent down this excavation is a common cause of surfacing effluent in serial distribution systems. The excavation of the connecting trench to the next down-slope trench should just be deep enough to accept the solid connector pipe.



Drop Box Detail

Drainfield Cover

Although straw and untreated building paper may be used to cover drainrock, geotextiles of greater than one ounce per square yard weight are recommended. These materials are particularly recommended in soils that may flow when wet, such as uniform fine sands or silts and in pressure distribution systems.

ALTERNATIVE SYSTEMS

GENERAL REQUIREMENTS

All rules pertaining to a standard subsurface system shall be applicable, except as modified in this section for each alternative.

All alternative systems shall be approved for specific site use by the Health Districts in a manner consistent with the individual District's policy for use of alternative systems.

Requirements for each site-specific alternative shall be contained in the permit.

The designer of alternative public systems must be a Professional Engineer licensed in the State of Idaho and experienced in the alternative system's design. The designer of alternative private systems may be required to be either a Professional Engineer or an Environmental Health Specialist. If either is used they must be licensed in the State of Idaho and should be experienced in the alternative system's design.

NON-PROFIT CORPORATIONS FOR MANAGING SMALL OR SUBSURFACE WASTEWATER FLOW SYSTEMS

Entities to manage large soil absorption systems, extended treatment or experimental systems, clustered systems or other more complex systems must guarantee that they will be responsible for the system and be available to provide operation and maintenance. The following guidance provides for a non-profit corporation which can do that:

1. The non-profit organization should be incorporated according to Idaho Code, Title 30, Chapter 03.

2. Membership should be limited to property owners only.

3. Voting should be limited to one parcel/one full membership/one vote.

4. Voting rights should be restricted to members with improved property.

5. Voting rights should not be cancelled.

6. The purposes of the organization should be clearly defined in the Articles of Incorporation.

7. The funds generated are to operate the specific function(s) and should be restricted for use to the specific purpose.

8. Multiple purpose organizations funds generated are to be separately maintained and funds from one account should not be available for another account's use.

9. The organization should own the system(s) it intends to maintain.

10. Mutually agreeable access to those systems owned by the entity should be provided by the property owner.

11. The membership (and shares) in the entity must run with the land and successive owners must acquire the preceding owner's membership or voting share(s).

12. The purchaser or any new member should be provided with a copy of the Articles of Incorporation, By-Laws, Covenants and Contracts with the entity.

13. There should be no provision(s) restricting ownership of improved property.

14. The entity should be capable of raising revenue by fixing and collecting user charges.

15. The Board of Directors should be able to raise revenue in emergency operation and maintenance without majority vote.

NON-PROFIT CORPORATIONS FOR MANAGING SMALL OR SUBSURFACE WASTEWATER FLOW SYSTEMS (Cont'd)

16. The organization must be capable of suing and of being sued, maintain the capability to impose liens on those members (shareholders) who become delinquent in user charges and can suspend services, providing such suspension will not jeopardize other members use.

17. An operation and maintenance manual shall be approved by the Director and shall include the monitoring requirements as outlined in the Extended Treatment Package Systems, Conditions of Approval Section.

18. The conditions for dissolution of the organization should be specified. Dissolution should be limited to connection to a municipal wastewater treatment facility or merger with another approved non-profit-corporation having management capability.

19. Except as provided in Item 18 the entity should not be able to vote itself out of existence.

20. A third party should be identified to execute the specified operation and maintenance function(s) in the event the operating entity is incapable of performance.

21. The entity should be able to plan and control how and at what time additional service functions will be extended or added.

22. The Articles of Incorporation and/or By-Laws should provide for proxy voting.

23. Proxies should not be binding on new purchasers.

24. The developer of the project should be required to contribute to the operation and maintenance until such time as the non-profit corporation is self-sustaining. Consider either a specified period of time or when a specified number of lots has been sold.

25. The organization should have a defined service area boundary.

VESTED RIGHTS/NON-CONFORMING USES

Failed system. Repair or replacement of an existing system.

1. Dwelling or structure unit served by the system must not be altered, remodelled or otherwise changed, so as to result in increased wastewater flows.

2. The reason for failure should be determined if possible.

3. If failure is due to age, the system may be repaired or replaced with a similar system that shall be constructed to come as close as possible to current dimensional and set back requirements for standard systems.

4. If failure has occurred in less than ten years and is due to increased wastewater flows or poor site characteristics, an alternative or larger system must be constructed as close as possible to current dimensional and set back requirements for alternative systems.

Additions or Alterations. Changes to an existing structure or dwelling, such as remodelling.

1. The addition or alteration will not cause the existing system to become unsafe or overloaded. Enough reserve area for both the original and additional system shall be preserved.

2. The addition or alteration will not be additional or new dwelling units.

3. The wastewater flow will not be significantly increased.

4. The area reserved for replacement cannot be used for the addition.

Abandoned System: An abandoned system is considered to be a system that has not received wastewater flows or blackwaste for one year or more.

1. An abandoned system may be used if wastewater or blackwaste characteristics are similar to former waste strengths and flow rate received by the system and,

2. The system was originally permitted, and approved and,

3. The site is inspected and approved.

4. If the system is an unapproved system it must be uncovered, pumped and inspected. It must meet all current requirements, including the issuing of a permit.

EASEMENT

GUIDELINES FOR APPROVAL OF AN EASEMENT TO CONSTRUCT AN INDIVIDUAL SUBSURFACE SEWAGE DISPOSAL SYSTEM

The Health District will consider allowing a private individual subsurface sewage disposal system on an adjoining property owned by a second property owner. However, this should be considered as an option of "last resort" when other practical solutions are not available on the applicant's property. The following is guidance that is to be used for approval of an easement.

1. The site for the easement must be reviewed by the District Health Department for approval.

2. The site must meet all requirements of the *Title 1, Chapter 3, Idaho Rules for Individual and Subsurface Sewage Disposal Systems*, including but not limited to soils, setbacks, sufficient area for the original and replacement drainfields and slope.

3. The easement is to be professionally prepared by an attorney and recorded in the county courthouse of local jurisdiction or a written agreement from the grantor granting an easement to the grantee which will be surveyed and recorded after the system is installed. A copy of the easement is to be made available to the local Health District and attached to the sewage disposal permit prior to final permit approval.

4. The attorney(s) shall include in the written easement the following items:

    a. The easement shall be in perpetuity or until the system is abandoned by the grantee.

    b. Grantor is to be protected with enforceable provisions that will require the owner of the system to make repairs as needed.

    c. Grantee is to have access to his system to make repairs or perform routine maintenance.

    d. Grantee must have ability to restrict any use of the easement area that may have an adverse effect on the system functioning properly.

5. A survey, including monumenting the corners, of the proposed easement site shall be made to supply an accurate legal description of the easement, and enable the Health Department to properly evaluate the site.

CAPPING FILL TRENCH

Description. A capping fill trench is a standard drainfield trench constructed so that its bottom is at least three (3) inches into the natural soil but less than two feet deep in the natural soil. A selected fill material caps the trench to provide cover.

Conditions for Approval.

1. The capping fill trench may be considered for a site if the effective depth below the trench bottom, as specified in the Soils and Groundwater section Tables 5 and 6, can be met.

2. The site may not exceed twelve (12) percent slope if the drainrock extends above natural soil. If the drainrock is at or below natural soil the site may not exceed twenty (20) percent slope.

3. The bottom of a capping fill trench must be below the organic soil layer.

Fill Material. The site soil must be one of the approved effective soil groups. The texture of the fill material shall be the same as or one soil group finer than that of the site material, except that no fill material finer than Clay Loam may be used. Fill shall be free of debris, stones, frozen clods or ice.

Construction.

1. The fill area is plowed or scarified to disrupt the vegetative mat. Smearing shall be avoided.

2. The trenches shall be installed according to the specifications outlined on the permit, as if the top of the fill was the natural soil surface.

3. If the trenches are constructed entirely within the natural soil, the trenches will be constructed first. The site will then be scarified and the cap installed after the trenches are in place.

4. When the invert of the pipe is at or above the original soil the fill material should be compacted to ninety (90) % of the existing soils.

5. The edges of the finished fill should be at least ten (10) feet beyond the nearest trench sidewall.

6. The finished side slopes of the fill are to be evenly graded from the outer edges of the trenches to the natural soil surface with a slope of 3:1 or less (three horizontal to one vertical).

7. Compaction of the scarified area must be prevented. Use of pneumatic-tired equipment is prohibited on the fill or cover.

8. At least twelve (12) inches of fill must be applied to cover the trenches.

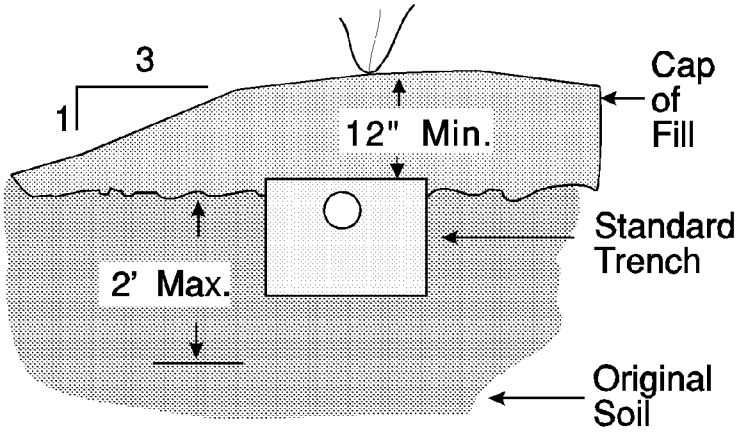
CAPPING FILL TRENCH (Cont'd)

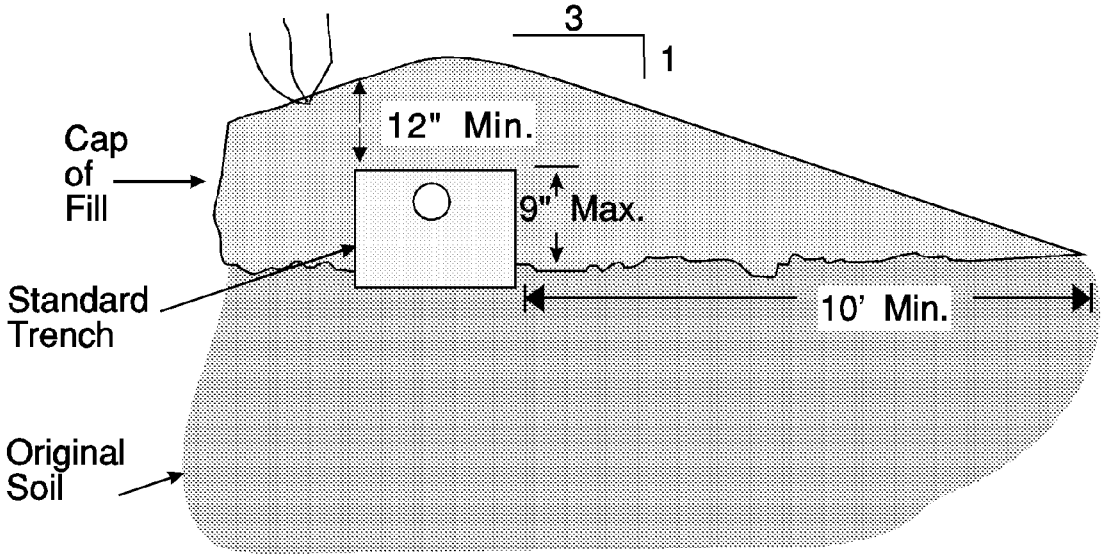
Inspections.

1. The site soils texture, fill soil texture, scarification or vegetative mat disruption process will be inspected by the director.

2. The installed trenches will be inspected by the Director.

3. Final inspection after covering may be conducted by the Director to investigate the degree of incorporation of fill soil with the original soil





COMPOSTING TOILET

Description. Toilets within the dwelling that store and treat non-water carried human urine and feces and small amounts of household garbage by bacterial decomposition. The resultant product is compost.

Conditions for Approval.

1. Water under pressure shall not serve the dwelling unless a public sewer or another acceptable method of on-site disposal is available.

2. Composting toilets may be applicable wherever pit privies are applicable.

3. The units are restricted to the disposal of human feces, urine and small quantities of household garbage.

Design.

1. All materials used in the construction of the toilet must be durable and easily cleanable. Styrene rubber, PVC, and fiberglass are examples of acceptable materials.

2. The design must demonstrate adequate resistance to internal and external stresses.

3. All mechanical and electrical components should be designed to operate safely and be capable of providing continuous service under reasonably foreseen conditions such as extreme temperatures and humidity.

4. The toilet unit must be capable of accommodating full or part-time usage.

5. Continuous positive ventilation of the storage or treatment chamber must be provided to the outside. Ventilation components should be independent of other household ventilation systems. Venting connections must not be made to room vents or to chimneys. All vents must be designed to prevent flies and other insects from entering the treatment chamber.

Note: Toilets, as plumbing fixtures, are under the regulations of the State Plumbing Bureau. Current plumbing code prohibits the use of composting toilets without the permission of the Health Department.

DRIP DISTRIBUTION SYSTEM

Description: A small-diameter flexible piping network with emitters to discharge filtered effluent into the root zone of the receiving soils. The system is composed of a septic tank, (optional pretreatment system: Intermittent sand filter /Recirculating gravel filter, Extended Treatment Package System), filtering system (cartridge, or disk filters), a dosing system and process controller. Typical components include a 1,000 gallon septic tank and a 1,000 gallon pump tank, (optional pretreatment system), an effluent dosing pump, flushable disk filter, a flow meter, a programmable logic controller, and a network of shallow, self cleaning drip irrigation lines.

Conditions of Approval.

1. Drip distribution drainfields shall only be installed at locations that meet the criteria in the site suitability subsection of the rules (58.01.03.008.02 and 58.01.03.013.). The effective soil depths that are established for alternative pretreatment systems may be applied to drip distribution systems (when pretreatment systems are used).

Design.

1. Application areas up to 2 ft^2/ft of drip irrigation line may be used.
2. Drip lines may be placed on a minimum of two-foot centers.
3. Drip lines are placed directly in native soil at a depth of 6 to 18 inches with a minimum final cover of 12 inches. The design application rate is based on the most restrictive soil type encountered within two feet of the drip lines.
4. Septic tank effluent is required to be filtered with a 100-micron or smaller disk filter prior to discharge into the drip piping system.
5. Drip laterals are flushed once every two weeks to prevent biofilm and solids build up in the piping network. Minimum flushing velocity is 2 feet/second at the return ends of the distribution lines and in the drip irrigation tubing during field flush cycles and long enough to fill all lines and achieve several pipe volume changes in each lateral.
6. Minimum of two vacuum relief valves per zone. Valves are located at the highest points on both the distribution and return manifolds. Vacuum relief valves are located in a valve box, adequately drained, and insulated to prevent freezing.
7. Pressure regulators/pressure compensators are to be used on sloped installations. Pressure is to be between 25 and 40 psi. Pressure regulators/pressure compensators are located at the manifold of each zone where varying topographies exist. Pressure compensating emitters must be used on sloped installations.
8. Return manifold is required to drain back to the septic tank.
9. Timed dosing is required. Timed or event counted backflushing of the filter is required.
10. Filters, flush valves, and pressure gauge may be placed in a head works (between pump chamber and drip field). Each component is required to be insulated to prevent freezing.
11. System must be designed by an Idaho licensed professional engineer.

DRIP DISTRIBUTION SYSTEM (Cont'd)

Construction.

1. No wet weather installation. Excavation and grading are to be completed before installation of the subsurface drip system. Drip systems may not be installed in unsettled fill material.

2. No construction activity or heavy equipment may be operated on the drainfield area other than minimum to install the drip system. Do not park or store materials on drainfield area.

3. Horizontal spacing between drip lines shall be as specified and installed at the depth specified. Note for freezing conditions: the bottom drip line must be higher than the supply and return line elevation at the dosing tank.
4. All PVC pipe and fittings shall be PVC sch 40 type 1 rated for pressure applications. All glued joints shall be cleaned and primed with purple (dyed) PVC primer prior to being glued.
5. All cutting of PVC pipe, flexible PVC and/or drip tubing shall be accomplished with pipe cutters. Sawing of PVC, flexible PVC and/or drip tubing shall be followed by cleaning all shavings or sawing shall not be allowed.
6. All open PVC pipes, flexible PVC and/or drip tubing in the work area shall have the ends covered with duct tape during storage and construction to prevent construction debris and insects from entering the pipe. Prior to gluing all glue joints shall be inspected for and cleared of construction debris.
7. Dig the return header ditch along a line marked on the ground and back to the septic tank. Start the return header at the farthest end from the dosing tank. The return line must slope back to the treatment tank or septic tank.
8. Prior to start up of the drip distribution system the air release valves shall be removed and each zone in the system shall be flushed as follows:
   A. Using an appropriate length of flexible PVC pipe with a male fitting attached to the air release connection to direct the flushing away from the construction area,
   B. Flush the zone with a volume of water (clean water to be provided by contractor) equal to 1.5 times the volume of the pipes from the central unit to the air release valve or the equivalent of five minutes of flushing, and
   C. Repeat this procedure for each zone (the flushing of the system is accomplished by manual override of the control panel by the manufacturer or engineer.)
9. If existing septic tanks are to be used, they shall be pumped out by a commercial septic tank pumper, checked for leakage or other problems, and replaced if necessary. After the tank is emptied, the tank shall be rinsed, pumped, and refilled with clean water. Debris in the septic tank shall be kept to a minimum since it could clog the disk filters during startup. (Disk filters are not backflushed during startup as any clogging could cause incorrect rate of flow readings for the controller.)
10. Once completed, drainfield area for shallow installations (less than 12 inches) are to be capped with 6-8 inches of clean soil and suitably revegetated.

Inspection.

1. System must be inspected by an Idaho licensed professional engineer.
2. Turn on pump and check pressure at the air vacuum breaker. Pressure should be between 15 and 45 PSI.
3. Check system for leaks; record flow measurements and pressure readings at start up.

DRIP DISTRIBUTION SYSTEM (Cont'd)

Example: Suggested Design

1. Determine square feet needed for the drip distribution system. Wastewater flow in GPD is divided by the soil application rate (based on the soil classification from an on-site evaluation). The result is the ft^2 needed for the system.

   Example: three-bedroom home in C-2 soils.
   250 GPD/0.2 gal/ft^2 = 1250 ft^2

2. The system design is to use an application area of 2 ft^2 per foot of drip line. Divide the required ft^2 by the drip line application area (2 ft^2/ft) to determine the length of drip line needed for the system.

   1250 ft^2 / 2ft^2/ft = 625 ft of drip line.

3. Determine the size of pump based on GPM (step 3) and total head (step 4) necessary to deliver dose to system. Determine pumping rate by finding the total number of emitters and multiplying by the flow rate per emitter (1.32 gal/hr/emitter at 20 psi). Adjust output to GPM and add 1.5 GPM per connection for flushing to achieve 2 ft/s flushing velocity.

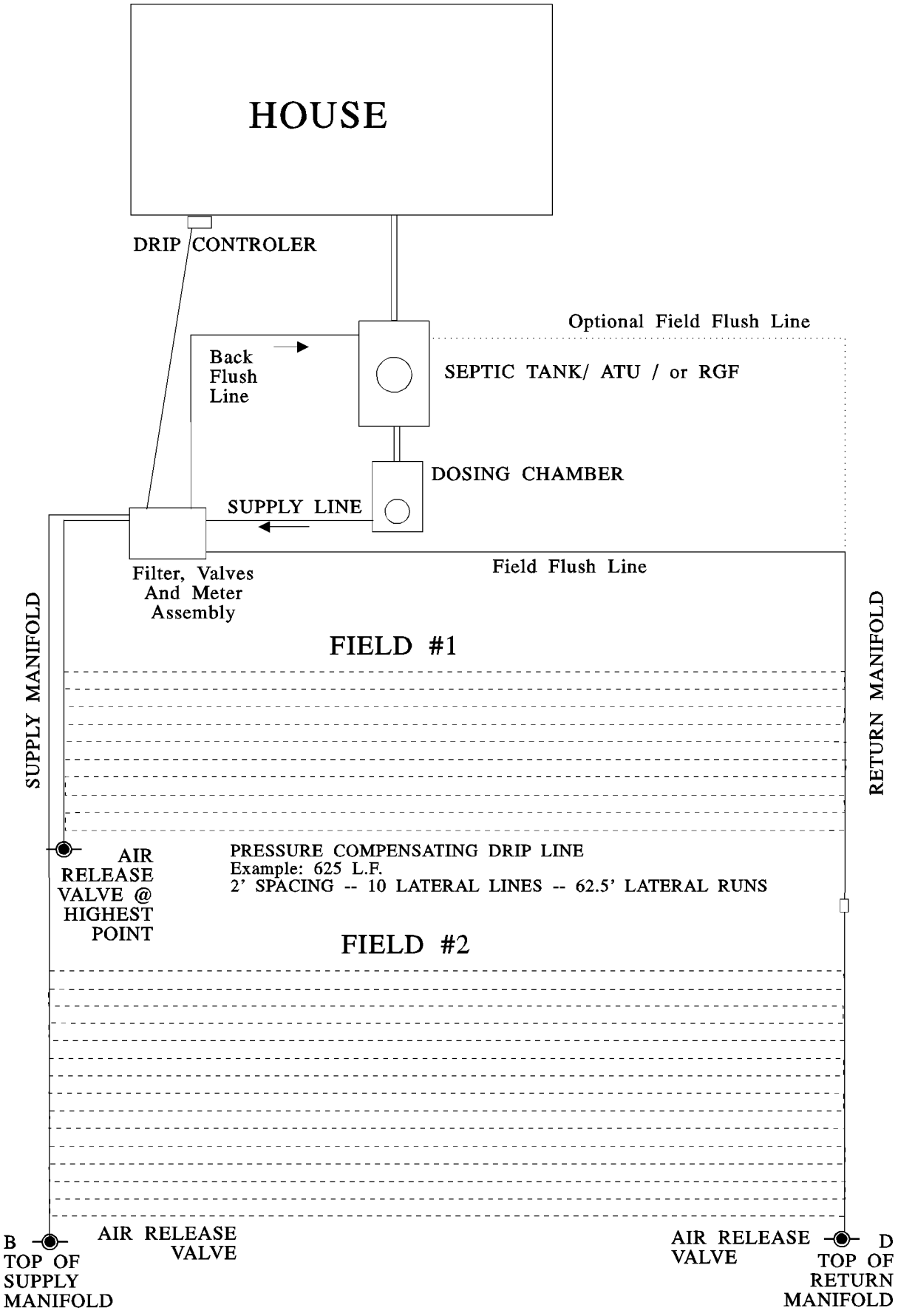
   625 ft / 2 emitters/ft = 312.5 use 315 emitters
   315 emitters x 1.32 g/hr/emitter = 415.8 gal/hr
   415.8 gal/hr / 60min/hr = 6.93 GPM or 7GPM
   10 connections at 1.5 GPM/connection = 15 GPM

4. Determine feet of head. Multiply the system design pressure (20 psi is standard, but values can be between 10 and 60 psi dependant upon drip line used) by 2.31 ft/psi to get head required to pump against.

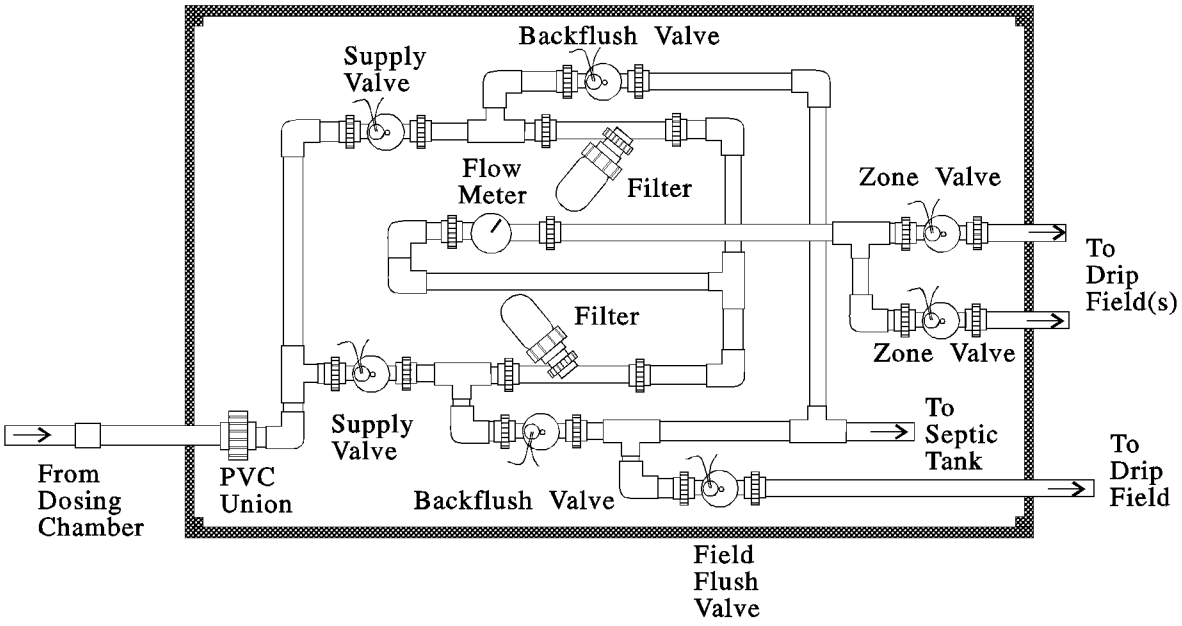
   20 psi x 2.31ft/psi = 46.2 ft of head. Add in the frictional head loss from piping.

5. Select a pump. Pump selected must achieve a minimum of 22 GPM plus the flush volume at 46.2 ft of head.

DRIP DISTRIBUTION SYSTEM

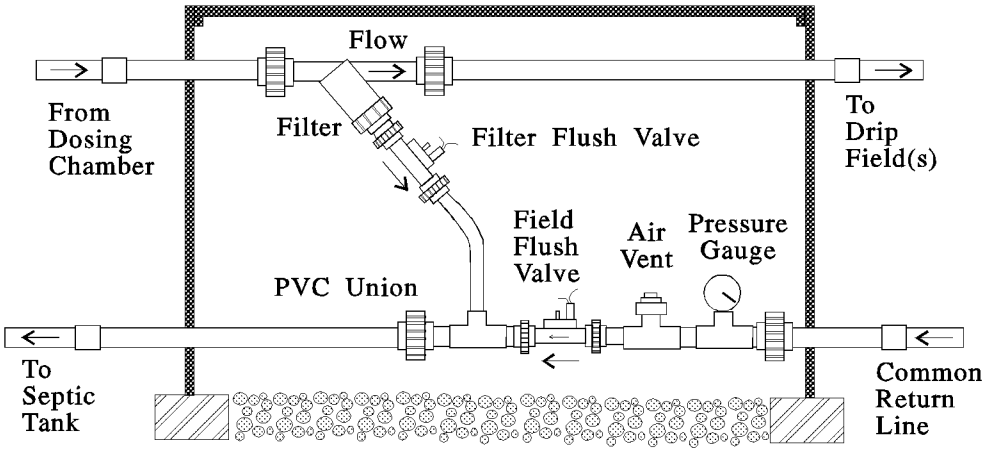


Valve Box Examples



Example of Filter, Valve and Meter Assembly.

Valve Box



Example of Filter, Valve and Meter Assembly.

EVAPOTRANSPIRATION SYSTEMS

Description. A sand and gravel bed contained within an impervious lining, which receives septic tank effluent and in which evapotranspiration through the surface of the sand and/or plant life is the sole means of effluent removal.

Conditions for Approval.

1. The site must not be subject to flooding.
2. High groundwater, seasonal or normal, must not come within six (6) inches of the bottom of the impervious liner.
3. Evapotranspiration systems may be approved where soils are very thin, impermeable or very coarse.
4. The adjusted growing season (March-October) evapotranspiration at the site must exceed the ten year return frequency annual precipitation.
5. The slope must not exceed twelve (12) percent.
6. The setback from surface water may be reduced to 100 feet if the system is constructed with a minimum of a 30 mil PVC, 60 mil HDPE liner equivalent geosynthetic clay liner.
7. The ET System must have a minimum of 100 feet separation to any Domestic or Public well.

Design.

1. Area: $T_{area} = nV/(GS_{ET} - P)$

   Where:
   T_{area} = Total horizontal area in square feet.
   n = Peaking factor, varies from 1 to 1.6, per EPA/625/R-00/008, TFS-31.
   V = Annual volume of received effluent, in cubic feet.
   GS_{ET} = Annual growing season (March-October) reference evapotranspiration, adjusted for the vegetation planted on the bed, in feet.
   P = Annual precipitation, in feet, with a return frequency of 10 years.

2. Total Bed Depth (T_{bd}). Total Bed Depth will be determined from a water mass balance beginning with October (See form at the end of this section). No credit is given for evaporation occurring between November and February.
   a. The total bed depth includes:
      i. The vertical distance from the ground surface to the bottom of the laterals which should be no greater than 1 foot plus the lateral pipe diameter.
      ii. The vertical distance from the bottom of the laterals to the highest calculated saturated effluent depth which should be no less than 0.5 feet.
      iii. The total vertical distance from the ground surface to bottom of the impermeable liner should not exceed 4 feet.

   See Evapotranspiration Cross-Section diagram below.

3 A high water alarm shall be installed. This high water alarm shall indicate when the effluent level in the ET System reaches the bottom of the laterals. The alarm shall be both audible and visible. The alarm relay shall be latching, requiring the owner/operator/service personnel to physically inspect the effluent level in order to reset the alarm.

System Sizing Procedure.

(A) Determine annual precipitation with a ten year return frequency using annual precipitation data from Idaho Climate at http://www.wrcc.dri.edu/summary/climsmid.html in feet per month. The frequency analysis can be done using the log Pearson III method described at: http://water.oregonstate.edu/streamflow/analysis/floodfreq/index.htm#log. A web-based calculator for this method can be found at:
http://octavian.sdsu.edu/~ponce/pearson/pearsonform.html
The monthly precipitation distribution can be obtained using the long-term monthly averages for the climatological site in question along with the long-term average annual precipitation. The monthly precipitation distribution and calculated annual precipitation are then used to calculate monthly precipitation rate (A).

(B) Effluent Depth = days/month * daily flow, in cubic feet/month/surface area.

$$B = \frac{X\ {}^{Gallons}/_{Day} * Y\ {}^{Days}/_{Month} * 0.1337\ {}^{ft^3}/_{Gallon}}{T_{area}\ ft^2}$$

(C) Determine evapotranspiration in feet per month from average growing season (March-October) reference evapotranspiration (ETr) for the station nearest the proposed project. Resources which provide this information include the Agrimet network at:
http://www.usbr.gov/pn/agrimet/monthlyet.html
and the Kimberley Research and Extension station for the University of Idaho at:
http://www.kimberly.uidaho.edu/water/appndxet/index.shtml
The ETr value should be adjusted for the water use efficiency of typical plant species used on the ET bed by multiplying by the crop coefficient of 0.7:

$$C = 0.7 * ETr$$

(D) Δ Storage = effluent depth + [precipitation - evapotranspiration$_{adjusted}$]:

$$D_{Mar} = B_{Mar} + \left(A_{Mar} - C_{Mar}\right)$$
$$D_{Apr} = \ldots$$
$$D_{Oct} = B_{Oct} + \left(A_{Oct} - C_{Oct}\right)$$

(E) Determine the cumulative storage by adding each previous month.

$$E = D_{Oct} + D_{Nov} + \ldots + D_{Sept}$$

Determine E_{max}, the largest value of cumulative storage needed during the annual cycle.

(F) Determine the total bed depth to prevent overflow. Calculate the saturated bed depth (F). Since the bed is filled with sand, the total bed is not available for storage. An average holding capacity of thirty five (35) percent should be used. The Saturated Bed Depth (ft):

$$F = \frac{E_{\max}}{0.35}$$

(G) Finally, calculate the total bed depth, T_{bd} , by adding the minimum vertical distance from the top of the maximum saturated bed depth to the ground surface to the saturated bed depth (F). If the total bed depth is greater than four feet then the area of the ET bed should be increased to add the required volume in order to keep the ET bed maximum depth at 4 feet or less.

Construction.

1. A appropriately sized septic tank must be placed prior to the ET System to provide primary clarification.
2. The bed must be lined with an impervious liner approved by the Department. Synthetic liners must be imbedded in sand, free of sharp stones, with at least four (4) inches of bedding

sand between the liner and the natural soils. The liners must be bonded per manufacturer's recommended procedures.

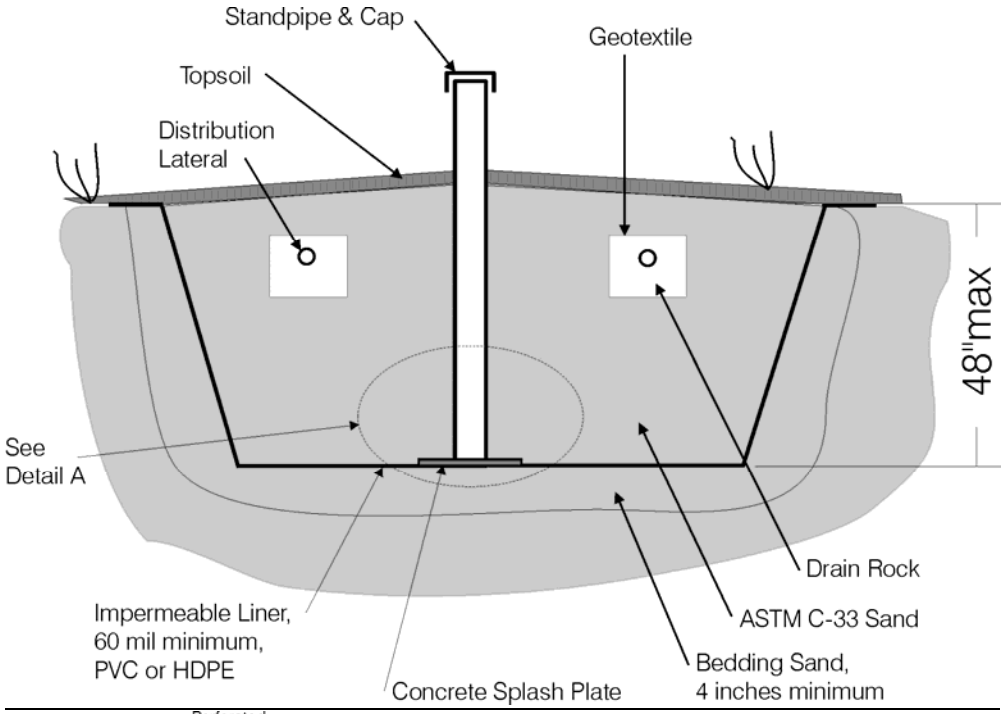
3. The bed is filled with modified ASTM C-33 sand, the modification is the exclusion of all materials passing the 100 sieve. The sand should be crowned at two (2) to three (3) percent to establish a slope for precipitation and snow melt runoff.
4. Distribution laterals must be placed in one (1) foot by one (1) foot drain rock trenches constructed in the sand layer. The piping should be looped, and spaced in order to provide uniform effluent distribution.
5. The drain rock shall be wrapped in Geotextile.
6. A four (4) to six (6) inch layer of sandy loam topsoil must be placed directly on the sand of the bed, matching the slope specified for the modified ASTM C-33 sand.
7. An eight (8") inch minimum diameter standpipe shall be installed in the center of the bed. The standpipe shall extend down to the splash plate and shall extend above the topsoil a minimum of six inches. The purpose of the standpipe is to monitor effluent levels in the bed, provide access for maintenance pumping to reduce the salinity levels in the bed, and to provide access for emergency situations to prevent surfacing of effluent. If the ET System has an Aspect Ratio (AR), which is the ratio of length (L) to width (W), greater than two (2), then multiple standpipes will be required so that the distance separating each standpipe does not exceed the width of the ET System, and the number of standpipes required is an equal multiple of the width (W).
8. the ET System's liner must be leak tested after inserting the modified ASTM C-33 sand. The liner must pass the leak test in order to successfully pass the final inspection and receive authorization to be put in used by the Health District.
9. The finished bed should be planted with a combination of both shallow and deep rooting perennials. The species chosen, particularly the deep-rooted species, should be tolerant of elevated salinity levels. Small, salt tolerant shrubs are acceptable, but large trees and other deep rooted plants are prohibited. Plants shall be planted prior to system use, and according to an acceptable planting schedule that will minimize plant die-off due to lack of water, excessive heat or cold, or other detrimental condition.
10. The ET System should be fenced, or placed in a location that prevents small children or pets from accessing its surface.

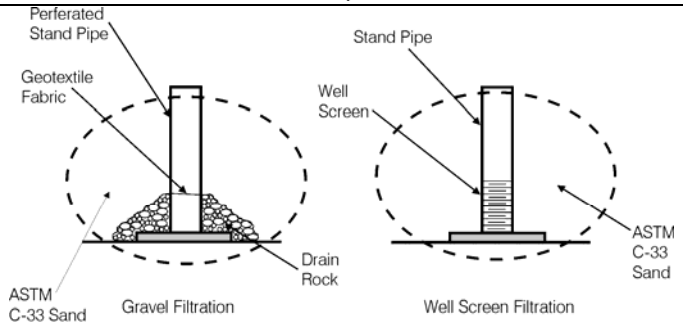
Operations & Maintenance Requirements.

1. Fertilizing the ET system is not required.
2. Irrigation of the ET system is not required, but may be allowed during prolonged droughts or periods of excessive heat to maintain a healthy plant population. At no time should irrigation become a significant contributor to the liquid in the system.
3. Monthly monitoring and recording of the ET System's effluent depth is required for the first year. Subsequent years can be monitored and recorded on a quarterly basis. Annual data shall be submitted to the appropriate Health District.
    a. Unexpected effluent depth shall be immediately reported to the Health District. The Health District shall assist the owner in finding the appropriate corrective action.
        i. A lack of effluent may indicate a leaking system.
        ii. Excessive effluent, indicated by the alarm activating multiple times, may indicate excessive water usage, leaking toilet, or irrigation of the system.
4. Periodic surface maintenance may be required.

a. In the summer, if the surface contains grasses, they should be mowed periodically, and the clipping removed and disposed of with other yard refuse.
b. Autumn maintenance may include gently spreading leaves over the surface, and allowing the resident flora to die back. Removal of the refuse is not necessary. A thin layer of leaves will provide a thermal blanket that will keep the ET System from freezing during the winter.
c. No maintenance is foreseen for winter operation.
d. Spring maintenance may require removal of cover to allow the new growth the best opportunity to access light.

5. A pool test kit may be used to monitor effluent salinity. It is recommended that salinity tests be conducted at the end of the summer or early autumn. Record the value along with the effluent depth. Plants showing signs of stress may indicate excess salinity in the ET System.
6. Periodic pumping and flushing of the ET System may be required to prevent excessive build up of salinity. Excessively saline soils will inhibit plant growth, and could reduce evaporation from the ET System. The ET System should be pumped concurrently with the septic tank maintenance every three (3) to seven (7) years.





Detail A

WATER MASS BALANCE TABLE

Month	Precipitation Rate	Effluent Depth	ET	Δ Storage	Cumulative Storage	Saturated Bed Depth
	A	B	C	D	E	F
Oct.						
Nov.						
Dec.						
Jan.						
Feb.						
March						
April						
May						
June						
July						
Aug.						
Sept.						

Start with the first month in which storage will be positive. In Idaho, that is usually October.

Notes.

1. Ion Exchange Water Softeners, those that use Salt (Sodium or Potassium Chlorides), are not recommended for discharge to ET Systems due to excessively quick salt buildup. If water softeners are used in the home, pumping and flushing of the ET System may be required as often as every other year to prevent stressing the plants, and building up an impermeable salt layer inside the ET System.
2. Unless the net evaporation (the difference between total precipitation and evaporation) is very large, evapotranspiration systems may be impractical. At Kuna, Idaho, where the net evaporation is 25 inches per year, a system for a three-bedroom home may exceed 10,000 square feet and have a diameter exceeding 120 feet, or a square of about 105 feet on a side.
3. No substantiating evidence is currently available to support reduction of ETA design below that which is provided herein.
4. Sources for recommended plants for populating the ETS surface may include, but not be limited to:
    a. The NRCS,
    b. University of Idaho Agricultural Extension, or
    c. Rocky Mountain Native Plant Company, 3780 Silt Mesa Rd, Rifle, Co 81650

EXAMPLE ET SYSTEM CALCULATION:

COLUMN **A** CALCULATIONS:

1. Go to the Desert Research Institute's Idaho climate summary website at http://www.wrcc.dri.edu/summary/climsmid.html.
   Once there, select one of the 152 statewide sites located nearest the proposed ET system site. The first page is the Period of Record Monthly Climate Summary. Record the 12 monthly average total precipitation values and the total annual precipitation value from this page. Divide each month's average precipitation by the annual total and record the resulting value as the Monthly Precipitation Contribution (MPC).

$$MPC_{Jan} = Monthly\_Average_{Jan} \Big/ \sum_{X=Jan}^{Dec} Monthly\_Average_X$$

$$MPC_X = \ldots$$

$$MPC_{Dec} = Monthly\_Average_{Dec} \Big/ \sum_{X=Jan}^{Dec} Monthly\_Average_X$$

2. In the left column of this website, scroll down to the 'Precipitation' heading and select the 'Monthly Totals' under the Monthly Precipitation Listings. This will provide the Monthly Total Precipitation table (in inches) for the selected site's period of record. Evaluate the provided monthly average data, omitting any annual total if any one (1) month shows more than 3 days of data missing. Identify the remaining years of acceptable data, count the total number of valid points (# of Annual average values) and then go to the San Diego State University website (http://octavian.sdsu.edu/~ponce/pearson/pearsonform.html) providing the online Log Pearson III calculator.
   a. Indicate that the data is NOT in SI units.
   b. Indicate the number of years of average annual precipitation data you have.
   c. Enter the data, each value separated by a single space, in the row requesting 'flood series Q_i'. The number of annual data values must equal the number of years you entered in (b).
   d. Click on the "Execute" button. Your results will appear in a new window. Your input data will appear first, followed by the results. Find and record the $Q_{10\text{-yr}}$ value.
3. Multiply the $Q_{10\text{-yr}}$ value by each month's MPC, calculated in step 1 above. Record these values in Column A, of the Water Mass Balance table, in each month's row.

COLUMN **B** CALCULATIONS:

4. Monthly accumulation of wastewater:
   a. Obtain the average daily wastewater flow for the home as specified in Rule (IDAPA 58.01.03.007.08); i.e. X = 3 bedroom home = 250 GPD. Add or subtract 50 GPD for each bedroom deviating from 3.
   b. Multiply:
      i. The home's average daily wastewater flow (X gallons per day), by the number of days in the month under consideration, yielding gallons per month.
      ii. Convert each month's result to ft^3/month by multiplying by 0.1337 ft^3/gallon.
      iii. Multiply the ft^3/month value by your chosen Peaking Factor (PF). [$1.0 \leq PF \leq 1.6$].
      iv. Divide this product by an initial estimated ET system area (T_{area}). Initially start at 7,500 square feet for a 3 bedroom home, and vary the size by 1,000 square feet for each bedroom above or below the 3 bedroom value.
   c. Record the resulting effluent depth in column B for the month under consideration.

COLUMN **C** CALCULATIONS:

5. Evapotranspiration values can be obtained from either the AgriMet website, from the Pacific Northwest Cooperative Agricultural Weather Network, or from the University of Idaho's Kimberley Research and Extension Station website.
   a. If you choose to use the AgriMet data;
      i. The values supplied are in Inches/Month.
         1. Divide each month's value by 12 inches/foot to obtain Foot/Month.
      ii. Use only the data for March through October and multiply each monthly value by the 0.7 adjustment factor to account for vegetation different from alfalfa. Alfalfa is the crop used to develop the AgriMet data.
      iii. Record the result for each month in that month's row under Column C.
   b. If you choose to use the Kimberly Research and Extension Station data, choose a crop, typically pasture grass;
      i. The values supplied are in Millimeters per Day (mm/day).
         1. Multiply each value by the number of days in that month to obtain mm/month.
         2. Divide the mm/month value by 25.4 mm/inch to obtain inches/month.
         3. Divide the inches/month value by 12 in/ft to obtain feet/month.
      ii. Multiply each month's result by the crop conversion factor of 0.7.
      iii. Record the result for each month in that month's row under Column C.

COLUMN **D** CALCULATIONS:

6. Calculate the change in storage (Δ Storage) for each month. This will require that you add the Precipitation, column A, to the effluent generated in the house, column B. Finally, subtract the Evapotranspiration, column C, and record the result for each month in column D.

COLUMN **E** CALCULATIONS:

7. To complete column E first start by copying the value for October from column D into column E.
8. Add the column D value for the next month to the previous month's value in column E. Record this value in column E
9. Repeat step 8 for all 12 months.

$$E_{Oct} = D_{Oct}$$
$$E_{Nov} = E_{Oct} + D_{Nov}$$
$$E_{Dec} = \ldots$$
$$E_{Sept} = E_{Aug} + D_{Sept}$$

COLUMN **F** CALCULATIONS:

10. Divide each month's Cumulative Storage value in column E by the porosity of the bulk material that the Evapotranspiration system is made of. Typically, the ASTM C-33 sand has a porosity of 35% (0.35). If the monthly value in column E is less than zero (0), put zero in F.

$$F_{Oct} = E_{Oct} / 0.35$$

11. Identify the largest value in column F. This should occur in the spring, just prior to the start of the growing season. This value must be less than two and one-half (2.5') feet in order to accommodate the one and one-half (1.5') feet of overburden top soil and not exceed a maximum system depth of four (4') feet.
12. If the maximum depth is greater than two and one-half (2.5') feet, increase the system's surface area and recalculate.

13. If the maximum depth is less than two and one-half (2.5') feet, decrease the system's surface area and recalculate.
14. Repeat this process until a surface area is identified that yields a saturated bed depth of two and one-half (2.5') feet for the site's specific precipitation and evaporation characteristics when coupled with the future home's proposed wastewater generation rate.
15. If a suitable sized Evapotranspiration system is not determined, then
    a. Vary the Peaking Factor, but do not go below a Peaking Factor of one (PF $\geq$ 1).
    b. Vary the number of bedrooms in the home.

Example Calculation for Caldwell, ID Area.
3 bedroom home discharging 250 GPD.

WATER MASS BALANCE

Month	Precipitation Rate	Effluent Depth	ET	Δ Storage	Cumulative Storage	Saturated Bed Depth
	A (ft)	B (ft)	C (ft)	D (ft)	E (ft)	F (ft)
Oct.	0.086	0.087	0.232	-0.059	-0.059	0
Nov.	0.135	0.086	0.000	0.221	0.162	0.46
Dec.	0.142	0.089	0.000	0.231	0.393	1.12
Jan.	0.152	0.089	0.000	0.241	0.634	1.81
Feb.	0.118	0.080	0.000	0.198	0.832	2.38
March	0.122	0.089	0.167	0.044	0.876	2.50
April	0.108	0.086	0.327	-0.133	0.743	2.12
May	0.111	0.089	0.449	-0.249	0.494	1.41
June	0.088	0.086	0.544	-0.370	0.124	0.35
July	0.030	0.089	0.609	-0.490	-0.366	0
Aug.	0.031	0.089	0.497	-0.377	-0.743	0
Sept.	0.058	0.086	0.368	-0.224	-0.967	0

Start with the first month in which storage will be positive. In Idaho, that is usually October.

EXPERIMENTAL SYSTEM

Description. An individual or subsurface disposal system or component that has not been previously used in Idaho or otherwise requires field review prior to approval as an alternative system.

Conditions for Approval.

1. If produced by a manufacturer, the experimental system should remain in the ownership of that manufacturer until the alternative status has been assigned.

2. The manufacturer and the owner must hold the Department of Health and Welfare and the Health District harmless from any liability arising from use of the system.

3. A variance is required for use of an experimental system.

4. The site must otherwise be acceptable for a standard system or approved alternative system. The owner must also agree to replace the experimental system with a standard system or approved alternative system should the Department of Health and Welfare or the Health District determine that the system is a failing system.

5. Conditions for use should be contained in the permit, including, if necessary, operation and maintenance requirements and conditions for abandonment.

6. It is recommended that the owner or manufacturer secure a performance bond in the amount of the replacement system.

Design.

1. The design of the system should be provided by a Professional Engineer licensed in the State of Idaho.

2. All components in contact with wastewater, effluent or treated wastewater must be compatible with those waters. Such products should not decompose, dissolve or otherwise contaminate processed waters at the point of discharge from the unit.

3. All components subject to wear or maintenance must be easily accessible and replaceable.

Construction.

1. If installation instructions are provided by the manufacturer they should be used in installing the system.

2. Licensed Public Works Contractors, plumbers or electricians may be required to install respective components of experimental systems.

EXTENDED TREATMENT PACKAGE SYSTEMS

Description. Manufactured and "packaged" mechanical treatment devices that provide additional biological treatment to septic tank effluent. Such units may use extended aeration, contact stabilization, rotating biological contact, trickling filters or other approved methods to achieve enhanced treatment after primary clarification occurs in an appropriately sized primary clarifier (septic tank). These systems provide secondary wastewater treatment capable of yielding high quality effluent suitable for discharge in environmentally sensitive areas.

Operation, Maintenance and Monitoring Conditions for Approval. The following procedures relating to operation, maintenance and monitoring are either required by the Rules or may be required as permit conditions, as appropriate, per the Rules (IDAPA 58.01.03.005.14) in order to ensure the protection of public health and the environment.

1) A maintenance entity will be available to provide continued device operation and maintenance (O&M). Approval of the O&M entity will be made by the Director prior to issuance of a permit. Approvable entities may include:

   a) Municipal wastewater treatment departments,
   b) Water or Sewer Districts, or
   c) Corporations.

   An O&M Agreement and an accompanying General Access Easement should be entered into between the property owner and the Non-Profit O&M Entity, as a necessary condition for issuing an installation permit. This agreement and the easement will be recorded with the County as a condition for issuing an installation permit.

2) Extended treatment package systems may be used for single family dwellings without an approved maintenance entity **only under all of the following conditions**:

   a) The site is acceptable for a standard system. All separation distances from ground water and surface waters, limiting layers and soil types shall be met.
   b) Enough land is available and suitable for two full size drainfields. One complete full sized drainfield shall be installed.
   c) A State approved effluent filter shall be used at the outlet of the package treatment system and before the drainfield.

3) Final effluent disposal will meet the following criteria:

   a) Surface discharge. System owner will apply for a National Pollution Discharge Elimination System Permit (NPDES) from the U.S. Environmental Protection Agency. Effluent quality will meet the applicable requirements of the Water Quality Standards (IDAPA 58.01.02), the Wastewater Treatment Requirements (IDAPA 58.01.16) and all other applicable regulations.
   b) Groundwater discharge. Effluent quality will meet the applicable requirements of the Ground Water Quality Rule (IDAPA 58.01.11), Wastewater Rules (IDAPA 58.01.16), and all other applicable regulations. Total Nitrogen discharge shall not exceed that specified in the development's Nutrient – Pathogen Study in order to prevent the ground water from exceeding the Ground Water Quality Standard for nitrates (IDAPA 58.01.11.200.01.a) and to maintain and protect the existing and projected future beneficial ground water uses (IDAPA 58.01.11.006.02).

c) Subsurface discharge. If an 85% reduction or better in Carbonaceous Biological Oxygen Demand ($CBOD_5$) and Total Suspended Solids (TSS) can be achieved, then the effluent may be discharged to a drain field satisfying the Sand Filter - Intermittent or the Recirculating Gravel Filter Gravity Disposal Trenches application rate criteria. Otherwise, the effluent must be discharged to a standard drain field, sized as directed in IDAPA 58.01.03.008. Additional drain field reduction granted for use of gravelless trench products is not allowed. The 85% reduction is a qualitative criterion. It will be accepted as being met if the effluent exhibits a quantitative value obtained from lab analysis not exceeding 30 mg/L (30 ppm) for both $CBOD_5$ and TSS.

d) Monitoring.

i) Annual monitoring of effluent will be required for all extended treatment package systems that discharge to a reduced size drain field, to a drain field with a reduced separation distance to ground water, and/or to a drain field located in an environmentally sensitive area (area of concern).

ii) The monitoring will analytically quantify both $CBOD_5$ and TSS. Results for $CBOD_5$ and TSS that exceed 30 mg/L indicate the pretreatment device is not achieving the required 85% reductions. $CBOD_5$ monitoring will replace BOD_5 monitoring effective January 1, 2008.

iii) For those systems installed in areas of concern, including nitrogen sensitive areas, or are used to fulfill nutrient-pathogen study results/requirements, the following additional constituents may be monitored as stipulated on the permit:

(1) Total Kjeldahl Nitrogen (TKN), and

(2) Nitrate-Nitrite nitrogen (NO_3+NO_2-N), and

(3) Results for Total Nitrogen (TN = TKN + (NO_3+NO_2-N)), that exceed the levels stipulated on the installation permit, in the subdivision approval for sanitary restrictions release or the approved nutrient-pathogen study indicate that the device is failing to achieve the required reductions, or

(4) Lab results that exceed the numerical Total Nitrogen values specified in the Total Nitrogen Reduction Policy, Table 1, Column 3, indicate that the treatment device is not achieving the required percent nitrogen reduction, specified in Table 1, Column 2. See Table 1, Best Practical Methods for Onsite Wastewater Systems, on page 85-1.

iv) Samples will be collected, stored, transported and analyzed according to the latest version of “Standard Methods for the Examination of Water and Wastewater” and other acceptable procedures. Each sample will have a Chain of Custody sheet, identifying, at a minimum, the sample’s source (street address or installation permit number), date and time of collection and the person who extracted the sample(s). The Chain of Custody sheet should also specify the lab analyses to be performed on the sample(s). Sample storage and transport will take place in appropriate containers under appropriate temperature control.

v) Samples will be required to be analyzed by a certified laboratory and the monitoring results will be submitted as part of the Annual Report to the local District Health Department. The annual report shall be submitted no later than July 31st of each year for the preceding twelve (12) month period. Reporting period is from July 1st of the preceding year through June 30 of the reporting year.

vi) Additional O&M will be required for devices that fail to achieve the above reductions. Additional sampling will be required to demonstrate the O&M performed successfully restored the treatment system to proper operation. Sample extraction and analysis should occur within 30 days after servicing the system. A maximum of three (3) servicing and subsequent monitoring events, within 90 days, will be allowed to return the system to proper operation. Failure to correct the system within this time frame will result in the system being classified as a 'failing system'. See 'Individual System Sampling Flow Chart' on page 39-3.

vii) If an O&M Entity's Annual Report identifies malfunctioning system rates of 10% or more, DEQ will suspend the O&M and require that the O&M Entity, the affected Home Owners, and the Service Provider, in cooperation with the local Health District, enter into a Corrective Action Plan (CAP). The CAP should establish the time frame to return the non-complying systems to proper operation. The suspension will remain in effect until the malfunctioning system rate is below 10%. Suspension will only prevent issuing additional O&M Agreements. Existing system monitoring, reporting and servicing requirements will not be affected by a suspension. See 'O&M Entity Reporting Flow Chart' on page 39-4.

4) If the system is experimental, the system owner will provide a waiver of liability absolving the Department and the Health Districts of any liability arising from operation or malfunction of the system.

Design. The following procedures relating to design are either required by the Rules or may be required as permit conditions, as appropriate, in order to ensure the protection of public health and the environment.

1) All materials will be durable, corrosion resistant and designed for their intended use.
2) All electrical connections completed on site shall comply with the National Fire Protection Association (NFPA) Standard NFPA70, National Electrical Code, as required by the Division of Building Safety, Electrical Bureau.
3) Design for each specific application should be provided by a Professional Engineer licensed in the State of Idaho and specializing in environmental or sanitary engineering.
4) The system's aerobic treatment section will be preceded by a primary clarifier. The primary clarifier may be either a separate septic tank, a volume integral with the system's package or a combination of internal clarifier volume coupled with an external tank. The primary clarifier shall provide the minimum tank capacity for residential facilities as specified in Rule (IDAPA 58.01.03.007.07.a), or for non-residential facilities a minimum of two (2) days hydraulic residence time (HRT) as stipulated in Rule (IDAPA 58.01.03.007.07.b). Timed dosing from the clarifier to the aerobic treatment unit is preferred, and highly recommended, in order to maintain a constant source of nutrients for the system's aerobic microbes.
5) Manufactured and "packaged" mechanical treatment devices will be required to prove that the specified equipment model:
   a) Has successfully completed National Sanitary Foundation (NSF) standard 40 testing, or
   b) Has successfully completed an EPA sanctioned Environmental Technology Verification (ETV) test, or
   c) Was designed by an Idaho registered professional engineer specializing in sanitary or environmental engineering.

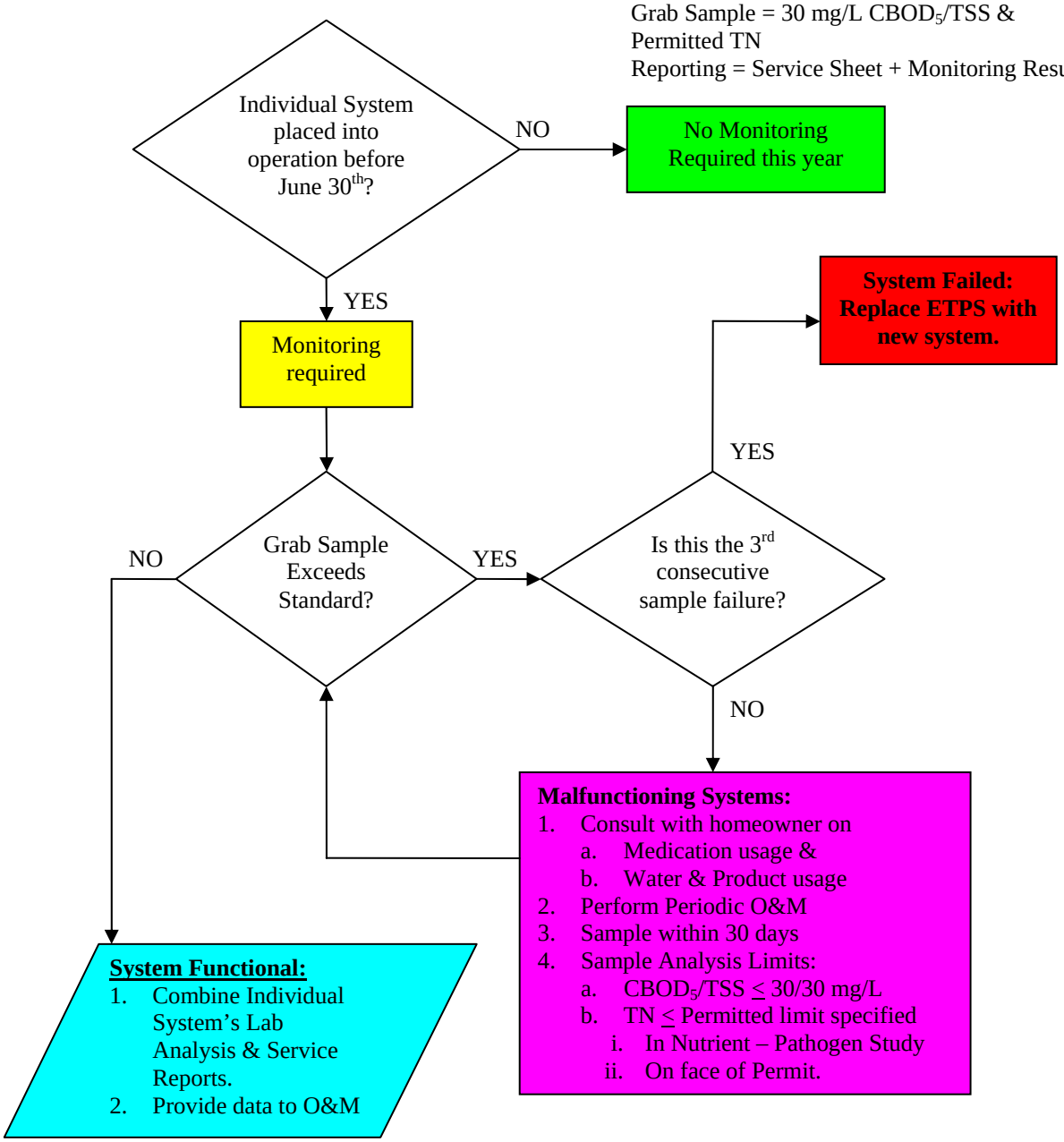
Construction. The following procedures relating to construction are either required by the Rules or may be required as permit conditions, as appropriate, in order to ensure the protection of public health and the environment.

1) Installation
   a) The system shall be installed by an appropriately qualified installer. Idaho Rule defines System (IDAPA 58.01.03.003.35) as "Beginning at the point of entry physically connected piping, treatment devices, receptacles, structures, or areas of land designed, used or dedicated to convey, store, stabilize, neutralize, treat, or dispose of blackwaste or wastewater." Consequently, the system includes the drainfield.
   b) A licensed Complex System Installer shall be required to install extended treatment package systems (IDAPA 58.01.03.006.01.b).
   c) A Public Works Contractor may install an ETPS if they are under the direct supervision of an Idaho Registered Professional Engineer.
   d) Licensed Plumbers and Electricians will be required to install specific devices and components for proper system operation. If the device requires any on-site fabrication or component assembly a Public Works Contractor should be used.
2) The design or certifying engineer should provide a written statement, within 90 days of completion of installation that the system has been installed and is operating in accordance with design and/or the manufacturer's recommendations.

**If a Health District has questions regarding application of this guidance document to a proposed system, the Health District should contact the DEQ.

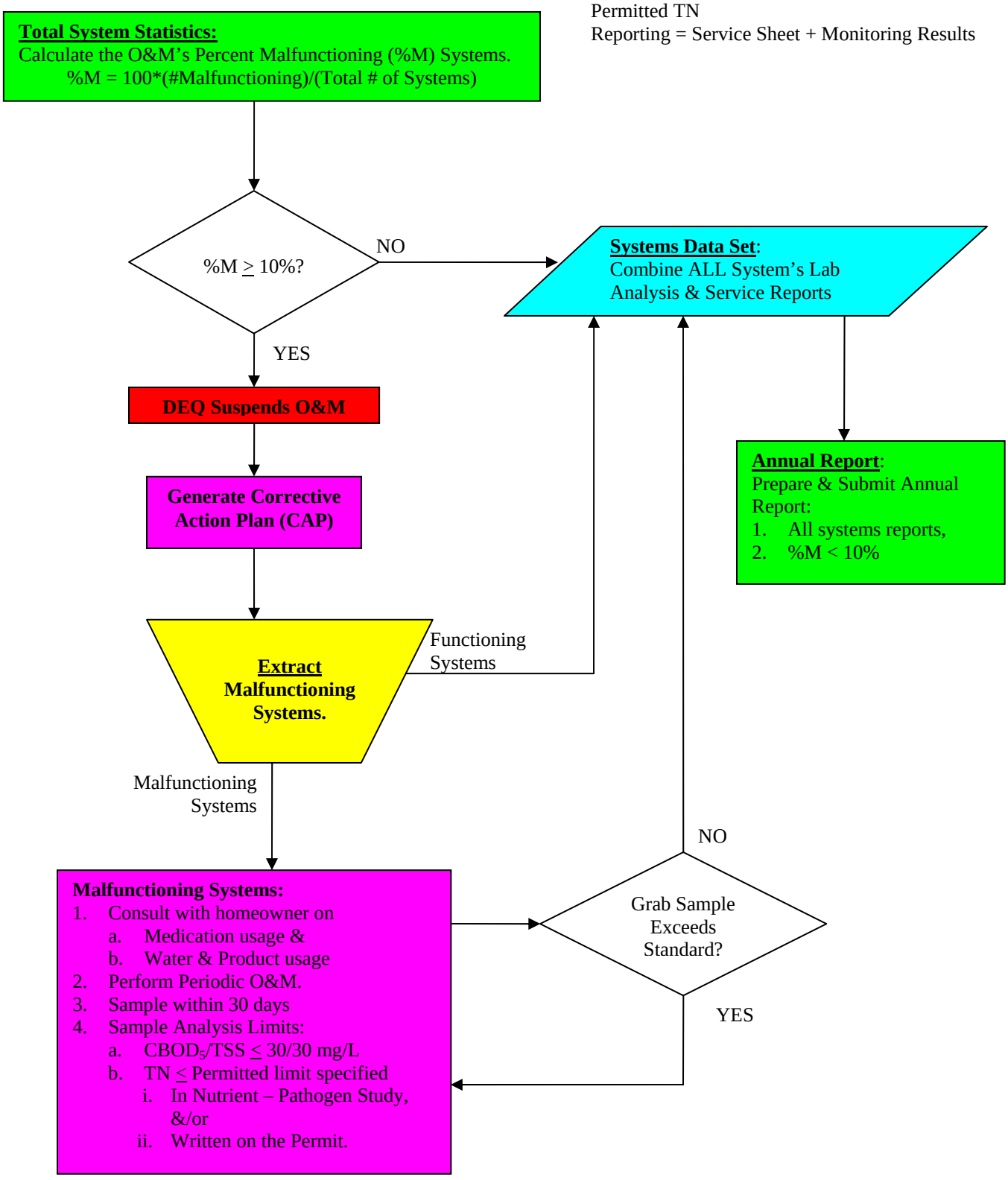
Individual System Sampling Flow Chart

Legend:
Monitoring = Sampling + Analysis
Grab Sample = 30 mg/L $CBOD_5$/TSS & Permitted TN
Reporting = Service Sheet + Monitoring Results



O&M Entity Reporting Flow Chart

Legend:
Monitoring = Sampling + Analysis
Grab Sample = 30 mg/L $CBOD_5$/TSS & Permitted TN
Reporting = Service Sheet + Monitoring Results



EXTRA DRAINROCK TRENCH

Description. A standard trench with more than six (6) inches of aggregate under the perforated pipe.

Conditions for Approval.

1. The site must meet the general requirements for a standard system.

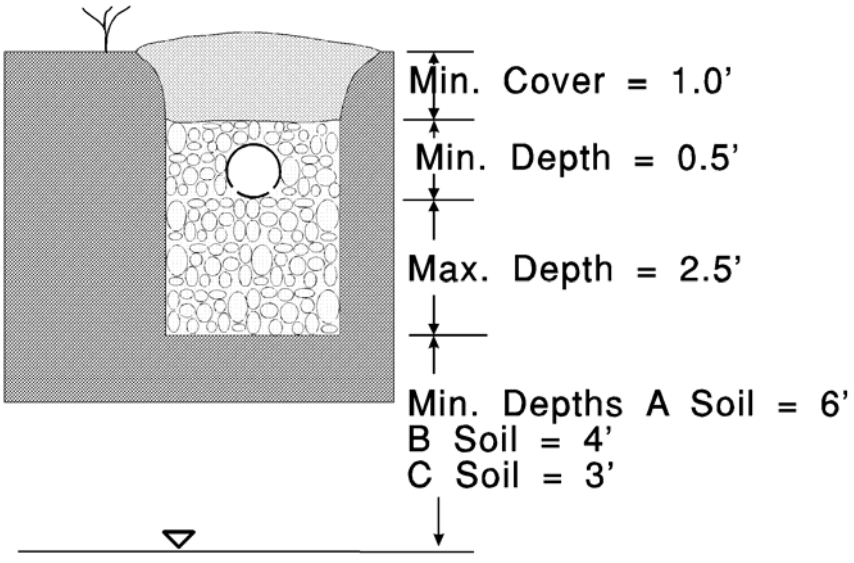
2. The bottom of the trench may not be deeper than 4 feet below the surface.

General Requirements. The standard trench length is reduced to the percentage shown in the Table:

Percentage of Length of a Standard Trench

Depth of gravel below the pipe (inches)	Width of Trench 12"	18"	24"	30"	36"
12"	75%	78%	80%	82%	83%
18"	60%	64%	66%	69%	71%
24"	50%	54%	57%	60%	62%
30"	43%	47%	50%	53%	55%

Example: A three bedroom home is to be located on a small lot. The effective soil is a uniform silt loam with a normal high groundwater at 7 feet. From Table 5 the minimum distance from trench bottom to groundwater is three feet. Maximum depth of the trenches is 4 feet.



The total absorption area required for a three bedroom home with silt loam soil is 500 ft^2 (250 g/dwelling/0.5 g/ft^2/day). That is 167 linear feet of 3 feet wide trench. With 2.5 feet (30 inches) of aggregate under the pipe the reduced trench length would be 92 feet (167 feet x .55).

GRAVELLESS TRENCH SYSTEM

Description. A system which meets all the requirements of a standard trench system except that the drainrock is replaced by a large diameter, nylon fabric-wrapped plastic pipe.

Conditions for Approval.

1. Unless otherwise noted herein, the system must be installed according to the pipe manufacturer's recommendations.

Design.

1. Length of pipe needed should be calculated on the following basis:
   8" diameter pipe = 2 square feet effective area
   10" diameter pipe = 3 square feet effective area

2. Effective area is equivalent to trench bottom area.

   Example: A three bedroom home (250 GPD) on a site with sandy loam soil (B-1, 0. 6 GPD/ft^2) would require 208 linear feet of 8" pipe((250/0.6)/2) or 138 linear feet of 10" pipe ((250/0.6)/3).

3. Individual lines in Type C soils should be as long as possible, not exceeding the 100' maximum.

4. An inspection port/sludge sump should be installed at the end of each line.

Construction.

1. The trench should follow the contour of the land and the pipe should be installed between 18" and 36" below the surface.

2. Trench excavations should not be less than 18" wide and no more than 36" wide.

3. Pipe must be installed level with an allowable variation of not more than 1/2" per 100 feet. A transit, engineer's level or surveying station is required.

Note.

Gravelless domed chamber systems are awarded a forty percent reduction in size if arranged in trenches. No reduction is allowed for bed or sand mound designs.

GRAY WATER SUMP

Description. A receptacle designed to receive hand-carried gray water and its disposal trench in soil.

Conditions for Approval.

1. Limited to serve facilities such as recreation parks, camp sites, seasonal dwellings, or construction sites.

2. Gray water flow is limited to ten (10) gallons per unit per day.

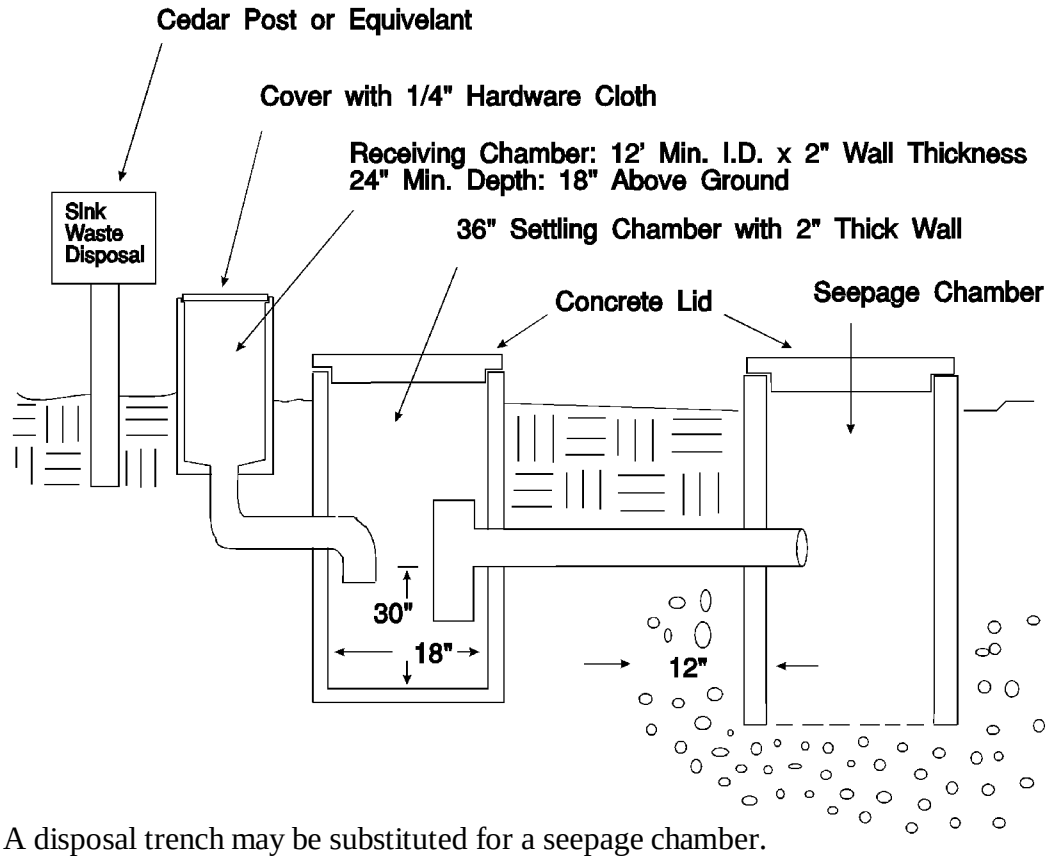
3. Gray water may not be piped to the disposal system.

4. Soils at the disposal site must be approved by the permit-issuing agency prior to approval of the permit application.

5. Seepage chamber must be located a minimum of 100 feet from any surface water. Separation from limiting layers will be the same as for standard systems.

Construction.

1. General details:



2. A disposal trench may be substituted for a seepage chamber.

3. A sign must identify the disposal system at public places. Letters should be at least three (3) inches high.

GRAYWATER SYSTEM

Description. Graywater is untreated household wastewater that has not come into contact with toilet waste. Graywater includes used water from bathtubs, showers, bathroom wash basins and water from clothes washing machines and laundry tubs. It shall not include wastewater from kitchen sinks, water softeners, dishwashers or laundry water from soiled diapers. A graywater system consists of a separate plumbing system from the black waste and kitchen plumbing, a surge tank to temporarily hold large drain flows, a filter to remove particles that could clog the irrigation system, a pump to move the graywater from the surge tank to the irrigation field, and an irrigation system to distribute the graywater.

Conditions for Approval.

1. Graywater treatment and disposal systems must meet all the separation distance setback criteria and soil application rate criteria as found in the rules.

2. Specialized plumbing designs will need to be approved by the Division of Building Safety, Plumbing Bureau.

3. Graywater surge tanks must be watertight and non-corrosive.

4. Operations and Maintenance manuals must be provided to the owner of the property.

5. Graywater may not be used to irrigate vegetable gardens.

6. The capacity of the septic tank and size of the blackwaste drainfield and replacement area shall not be reduced by the existence or proposed installation of a graywater system servicing the dwelling.

7. Graywater shall not be applied on the land surface or be allowed to reach the land surface.

Design Requirements:

1. Graywater flows are determined by calculating the maximum number of occupants in the dwelling, based on the first bedroom with two occupants and each bedroom thereafter with one occupant. Estimated daily graywater flows for each occupant are:

Showers, bathtubs, and wash basins (total)	25 Gal./Day/Occupant
Clothes washer	15 Gal./Day/Occupant

Multiply the number of occupants by the estimated graywater flow.

Ex. Three-bedroom house will have a design for four (4) people. The house has a clothes washer connection, then each occupant is assumed to produce 40 Gallons of graywater per day, resulting in a total of 160 gallons per day.

2. The following formula is used to estimate the square footage of landscape to be irrigated:

$$LA = \frac{GW}{ET \times PF \times 0.62}$$

where: GW = estimated graywater produced (Gallons per Week)
LA = Landscaped area (ft²)
ET = Evapotranspiration (inches per week)
PF = Plant Factor, based on climate and type of plants either 0.3, 0.5, or 0.8
0.62 = conversion factor (from inches of ET to gallons per week)

Example. If ET = 2 inches per week, and lawn grasses are grown with a PF of 0.8 (high water using) then the landscaped area is equal to: LA = (160 GPD x 7 Days)/ (2 x 0.8 x 0.62) = 1,129 ft² of lawn.

3. An alternative to using graywater for lawns is to irrigate landscape plants. A plant factor is dependent upon the type of plants to be watered, an ET rate, and plant canopy. The following table can be used to calculate square footage of landscape plants that are able to be irrigated with graywater:

ET (Inches per Week)	Relative Water Need of Plant	Gallons per Week 200 ft² Canopy	100 ft² Canopy	50 ft² Canopy
1 Inch per Week	Low Water Using 0.3	38	19	10
	Med. Water Using 0.5	62	31	16
	High Water Using 0.8	100	50	25
2 Inches per Week	Low Water Using 0.3	76	38	19
	Med. Water Using 0.5	124	62	31
	High Water Using 0.8	200	100	50
3 Inches per Week	Low Water Using 0.3	114	57	28
	Med. Water Using 0.5	186	93	47
	High Water Using 0.8	300	150	75

Gallons per week calculation for this chart was determined with the following formula: Gal/Week = ET x Plant Factor x Area x 0.62 (Conversion factor). This formula does not account for irrigation efficiency. If the irrigation system does not distribute water evenly, extra water will need to be applied.

Example: 4 bedroom home with a washer will produce 1,120 gallons per week (7days x 160GPD). If ET = 2 inches per week, then the 1,120 gallons of gray water a homeowner could irrigate:

8 small fruit trees: 8 x 50 = 400 gallons (high water using, 50 ft canopy)
8 medium shade trees: 8 x 62 = 496 gallons (med. water using, 100 ft canopy)
7 large shrubs: 7 x 31 = 217 gallons (med. water using, 50 ft canopy)
Total water use per week: 1,113 gallons per week

Other Requirements.

1. The Graywater Standards (UPC) require that all graywater piping be marked "Danger Unsafe Water."

2. Valves in the plumbing system must be readily accessible, and backwater valves must be installed on surge/holding tank drain connections to sanitary drains or sewer piping. Ball valves are recommended to be used in the system. Finally all piping must be downstream of a waterseal type trap(s) if no such trap exists, an approved vented running trap shall be installed upstream of the connection to protect the building from possible waste or sewer gasses.

3. Surge tank must be vented and have a locking gasketed lid. If the surge tank is within the structure, then the venting must meet the requirements of the Uniform Plumbing Code. Outside surge tanks shall be vented with a 180° bend and screened. A minimum capacity of 50 gallons is required. The surge tank must be placed on a 3-inch concrete slab or on dry level compacted soil and the lid labeled "Graywater Irrigation System, Danger-Unsafe Water." Surge tanks shall be constructed of solid durable materials, not subject to excessive corrosion or decay, and shall be watertight. The tank drain and overflow gravity drain must be permanently connected to the septic tank or sewer line. The drain and overflow drain shall not be less in size than the inlet pipe.

4. Filters with a minimum flow capacity of 25 gallons per minute are required.

5. Pumps are usually required to lift the graywater from the surge tank to the irrigation system (See pressure Distribution System Section). Alternatively if all of the landscape plants are below the building drain lines then the graywater irrigation system could use gravity to distribute the graywater.

6. Irrigation system can be either a mini-leachfield or a subsurface drip irrigation system. Mini-leachfield designs follow the rules and are required to use geotextile for the drainrock soil barrier.

Notes:

1. The following plants are tolerant of sodium and chloride ions or have been reported to do well under graywater irrigation:

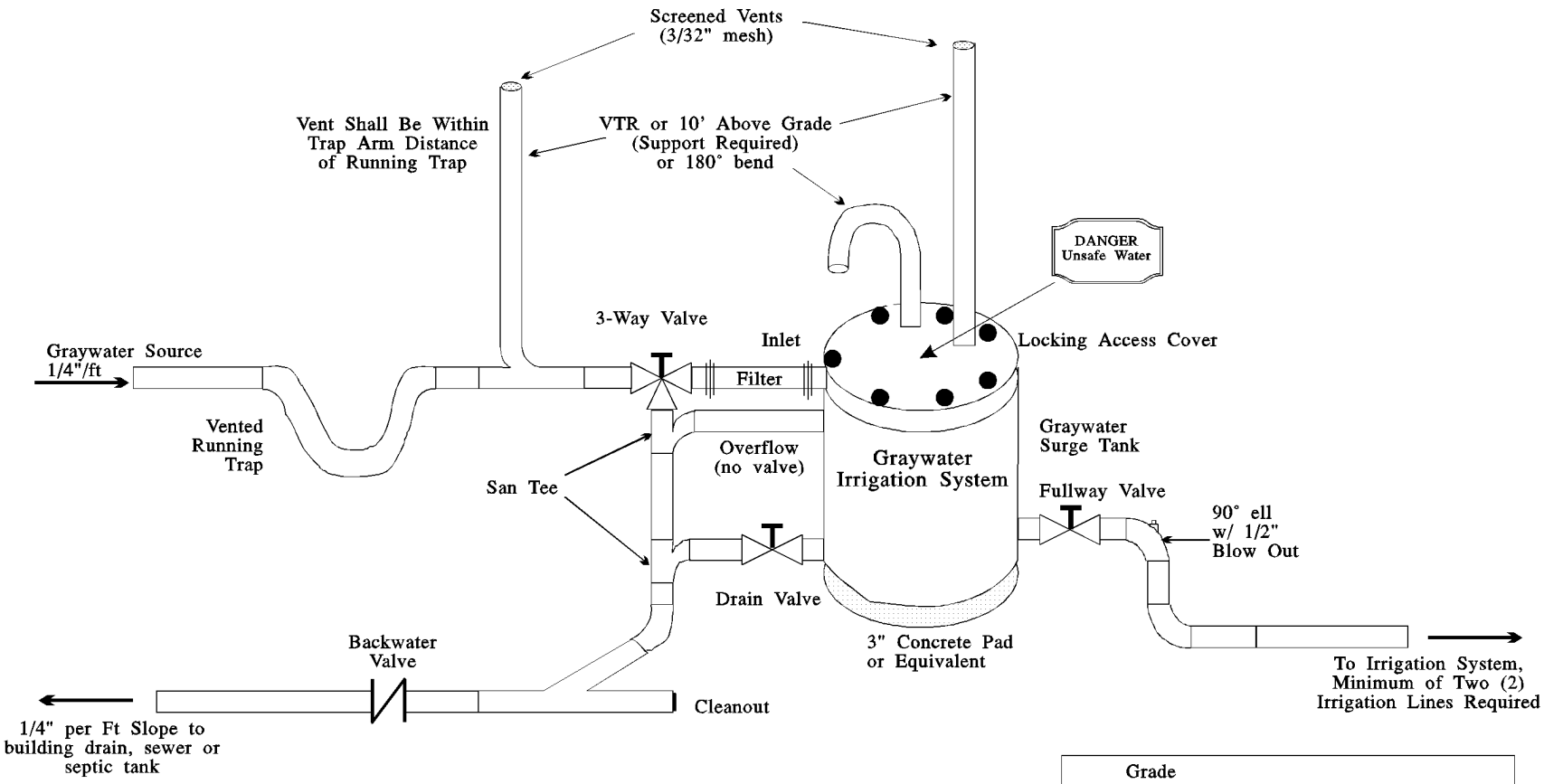
Crape Myrtle	Redwoods	Star Jasmine	Holly	Deodar Cedar
Bermuda Grass	Honeysuckle	Oaks	Cottonwood	Arizona Cypress
Oleander	Bougainvillea	Rose	Rosemary	Agapanthus
Italian Stone Pine	Purple Hopseed Bush	Olive	Juniper	Sweet Clover
Strawberry Clover	Evergreen Shrubs	Pfitzer Bush		Carpet Grass

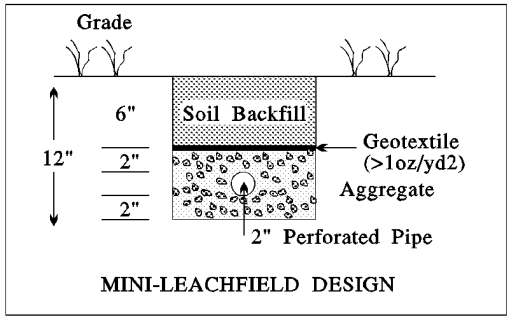
2. Several different types of media can be used in graywater filtration. These include: nylon or cloth filters, sand filters, and rack or grate filters.

3. Mini-Leachfield Design Criteria:

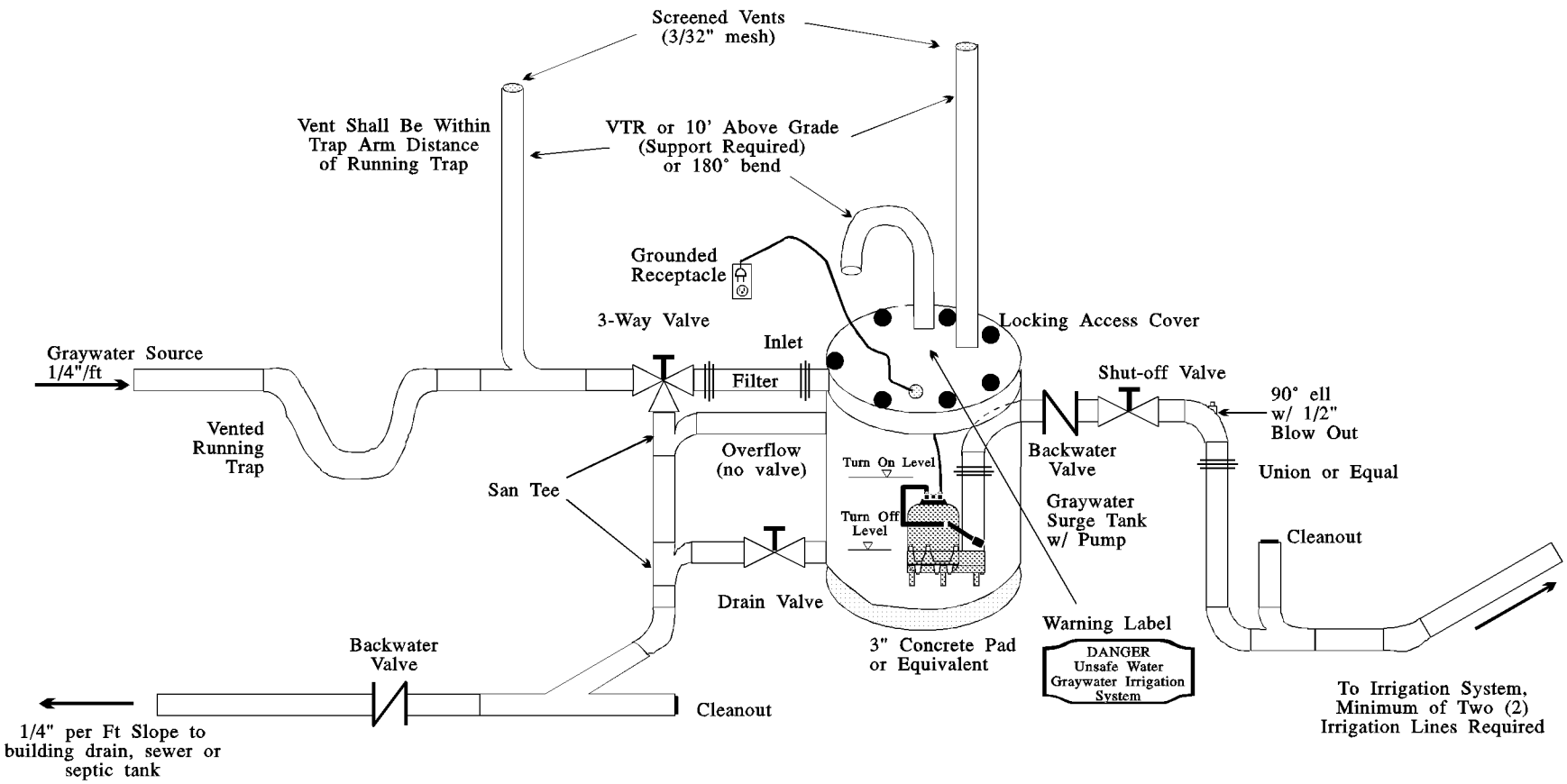
Mini-Leachfield Design Criteria	Minimum	Maximum
Number of drain lines per irrigation zone	1	---
Length of each perforated line	---	100 ft
Bottom width of trench	6 inches	18 inches
Total depth of trench	12 inches	18 inches
Spacing of line, Center to Center	3 ft	4 ft
Depth of earth cover over lines	6 inches	12 inches
Depth of aggregate over pipe	2 inches	---
Depth of aggregate beneath pipe	2 inches	---
Grade on perforated pipe	Level	1 inch / 100 ft

GRAYWATER SYSTEM (Single Tank - Gravity)





GRAYWATER SYSTEM (Single Tank - Pumped)



HOLDING TANK

Description. A sealed vault for the temporary storage of water-carried sewage. The vault is pumped periodically and the sewage disposed at a secondary treatment site.

Conditions for Approval.

1. An emergency situation exists and installation of a holding tank is necessary to prevent a potential public health hazard.

2. A management entity or arrangement to provide maintenance and pumping of the tank by a licensed pumper must be approved by the Director. Such an entity or arrangement must be in operation at the time the permit is issued.

3. May not be approved for new dwellings.

4. May not be approved for permanent, year-round residences except temporarily to satisfy 1. above.

5. Sites may not be subject to flooding.

Requirements.

1. Must meet the distance limitations of a septic tank.

2. Must be watertight, constructed of durable materials and not subject to excessive corrosion, decay, frost damage, or cracking.

3. May be a modified septic tank with inlet and outlet opening sealed.

Sizing.

1. The tank shall meet the volume requirements of a septic tank, except that no tank shall be less than fifteen hundred (1500) gallons.

Other Requirements.

1. Toilet structures over holding tanks must meet the requirements of structures over pit privies.

2. The access/pumping port must be located outside of any structure and should have a diameter of at least eight (8) inches.

3. A warning system may be required to indicate when the tank is two thirds (2/3) full.

INCINERATOR TOILETS

Description. Toilets within a dwelling or other structure that store and incinerate non-water carried human urine and feces. Incinerations may be by petroleum fuels or electricity.

Conditions for Approval.

1. Water under pressure shall not serve the dwelling unless a public sewer or another acceptable method of on-site disposal is available.

2. Incinerator toilets may be applicable wherever pit privies are applicable.

3. The units are restricted to the disposal of human feces and urine.

Design.

1. All materials used in the construction of the toilet must be durable and easily cleanable. The combustion area and flue must be constructed of heat-resistant, non-corrosive metals. Styrene rubber, PVC, and fiberglass are examples of acceptable materials or other toilet components.

2. The design must demonstrate adequate resistance to internal and external stresses.

3. All mechanical and electrical components should be designed to operate safely and be capable of providing continuous service under reasonably foreseen conditions such as extremes in temperature and humidity.

4. The toilet unit must be capable of accommodating full or part-time usage.

5. Continuous positive ventilation of the storage or treatment chamber must be provided to the outside. Ventilation components should be independent of other household ventilation systems. Venting connections must not be made to room vents or to chimneys. All vents must be designed to prevent flies and other insects from entering the treatment chamber.

Note: Toilets, as plumbing fixtures, are under the regulation of the State Plumbing Board. Current plumbing code prohibits the use of incinerator toilets without the permission of the Health Department. A copy of the approved permit application should go to the local plumbing authority.

INDIVIDUAL LAGOON

Description. A pond sealed with a natural or synthetic liner and into which sewage from a household or small business is discharged. Bacteria digest the solids in the presence of oxygen and the liquid is evaporated into the atmosphere.

Conditions for Approval.

1. Lagoons are applicable only in areas of the State where the annual evaporation exceeds the annual precipitation.

2. The lagoon may not be placed within one hundred (100) feet of the owner's property line, and may not be placed within three hundred (300) feet from a neighboring dwelling.

3. The bottom of the finished lagoon must not be constructed within six (6) inches of the maximum seasonal high groundwater.

4. The site must be located in an area of maximum exposure to the sun and wind.

5. Slope must not be greater than twelve (12) percent.

6. Lagoons are restricted from use in areas where such systems may have an ice cover for more than three (3) months.

7. A source of make-up water must be readily available.

8. Lot size should be at least ten (10) acres, but in no case should be less than five (5) acres. If the lot is less than ten (10) acres, a variance must be required.

Design.

1. Area of the lagoon at the two (2) foot minimum depth is first determined by the net evaporation of the area:

$$\text{Area, Square Feet} = \frac{1.2 \times \text{Yearly Flow, in Cubic Feet}^{*}}{\text{Annual Net Moisture, in Feet}^{**}}$$

* Yearly Flow, Cubic Feet = gallons/day x 365 days) 7.48 gal/ft^3.
** Annual Net Moisture, as determined from a water mass balance beginning in October.

2. For commercial establishments with organic loadings higher than domestic sewage check the area required based on BOD loading. This is also a particularly important check in areas with high evaporation rates and low precipitation.

$$A = \frac{(\text{gallons/day})(\text{BOD, mg/l})(8.35 \times 10^{-6})}{20 \text{ lbs/acre/day}} \times 43{,}560 \text{ ft5/acre}$$

Where A = Surface area in square feet.

3. Use the area calculation that gives the largest area.

4. Total Liquid Depth: Two (2) feet Minimum Depth + two (2) feet Freeboard + Annual Net Moisture as determined by a water mass balance.

Construction.

1. The effluent discharge inlet to the lagoon must be placed near its center.

2. A concrete splash-pad must be constructed around the inlet.

3. A water depth gauge clearly visible from the edge of the lagoon should be installed at the concrete splash pad.

4. A cleanout must be placed on the gravity influent lines at a point above the lagoon maximum liquid elevation.

5. If the sewage is pumped to the lagoon, a valve must be installed in the line that will permit repairs without draining the lagoon and will prevent backflow of effluent to the pumping chamber.

6. Excavation must provide the following dike and embankment details:

Inner slope	3:1
Outer Slope	2:1 or flatter
Embankment Width	4 feet Minimum

7. All fill must be compacted.

8. The lagoon must be fenced to exclude children, pets and livestock. A sign indicating **"DANGER - HUMAN SEWAGE"** is recommended.

Inspections.

1. The site must be inspected at the time the impervious liner is placed.

2. Inspections may be required during embankment construction to assure adequacy of fill compaction and after completion.

3. Individual lagoons will be seepage tested by licensed engineers using the appropriate pond/lagoon seepage test procedure.

PIT PRIVY

Description. A building containing a stool, urinal or seat over an excavation in natural soil for disposal of blackwastes.

Conditions for Approval.

1. Surface water will be excluded.

2. The distance limitations of a standard trench can be met with the following exceptions:
   a. Clay soils of all types are acceptable.
   b. Impermeable layer restrictions are waived.

3. The dwelling is not served by water under pressure or a standard system could otherwise be constructed.

4. The pit should be abandoned when the sewage comes within sixteen (16") inches of the ground surface.

Construction Requirements for the Pit.

1. The area on which the privy is placed must be firm and level for at least twelve (12") inches from the sides of the building and shall be at least six (6") inches above the highest ground elevation as measured eighteen (18") inches from the sides of the building.

2. The bottom of the pit should be between three (3') and six (6') feet below the original ground level.

3. The volume of the pit should be at least fifty (50) gallons per seat.

Construction Requirements for the Building.

1. Pit privy buildings must be constructed to meet the same requirements as portable sanitation unit buildings except:
   a. All openings, spaces, and cracks which would permit access of flies to the pit must be no wider than one-sixteenth (1/16") of an inch. This would include doors and seats when closed.
   b. The pit must be vented through the building with a screened flue or vent stack having a cross-sectional area of at least seven (7) square inches per seat and extending at least twelve (12") inches above the roof of the building.

Abandoning a Pit Privy.

1. The privy building should be either dismantled, moved to cover a freshly dug pit or stored for future use as a privy building.
2. The pit shall be filled with soil, free of rock, allowing for about twelve (12") inches of settling. The site should be marked.

PORTABLE SANITATION UNITS

Description. Portable self-contained toilets used for special, temporary events such as fairs, races, or construction projects.

Conditions for Approval.

1. Permanent sewage disposal facilities are not available and their installation is impractical.
2. The event served is temporary, that is one (1) year or less.
3. The event is one in which the Occupational Safety and Health Agency requires portable sanitation units.
4. Units can be made freely available to users.

Units Required.

1. Work site requirements:

Total Number of Workers	Minimum Number of Units (8 hour days/40 hour week)
1 to 15	1
16 to 30	2
31 to 51	3
52 to 72	4
73 to 93	5
Over 93	1 additional unit for each additional 20 workers.

2. Special event requirements:

Number of People	Number of hours for the event									
	1	2	3	4	5	6	7	8	9	10
0-500	4	4	4	6	6	6	8	8	8	8
501-1,000	4	6	6	6	6	8	8	8	8	12
1,001-2,000	8	8	8	8	8	12	12	12	12	16
2,001-3,000	8	8	10	10	10	12	16	16	20	20
3,001-4,000	8	8	12	12	16	16	20	24	24	28
4,001-5,000	12	12	12	16	20	30	30	30	30	34
5,001-6,000	12	12	16	16	20	30	30	36	36	40
6,001-7,000	12	12	16	20	30	32	40	40	48	52
7,001-8,000	12	12	20	24	32	32	40	44	52	54
8,001-9,000	16	16	24	28	40	40	52	52	60	64
9,001-10,000	16	16	28	40	40	52	52	60	60	72

3. Campouts and overnight event requirements:
   At least one (1) unit for every fifty (50) participants.

4. Urinals may be substituted for one-third (1/3) of the total units specified if facilities will not serve women.

General Requirements.

1. Portable sanitation unit buildings may be mobile trailers or prefabricated skid-mounted, or otherwise portable structures. If they contain more than one stool, each stool should occupy a separate compartment with a door and walls or partitions between stools sufficient to assure privacy. Urinals need not occupy separate compartments.

2. Where it is impractical to locate a portable sanitation unit building such as in mines or high-rise structures, units may be located without buildings so long as privacy while using the facilities is assured.

3. The interior floors, walls, ceilings, partitions, and doors of all sanitation unit buildings should have a finish that can be easily cleaned.

4. Every portable sanitation unit room must provide adequate space for the user with minimum inside dimensions of 91 cm (3 ft) front to back and side to side, inside clear height of 1.98 m (6 ft 6 in), and a stool riser height of 35 cm to 51 cm (14 to 20 in).

5. The door of a building or partitioned area in a building housing a stool should be provided with an inside latch. Any door leading to the outside shall be self-closing.

6. Waste containers must be fabricated from nonabsorbent, watertight materials.

7. The waste container must be vented to the outside of the building with a minimum nominal vent area of 45 cm square (7 in. square).

8. Buildings that are not provided with mechanical ventilation means must be provided with a screened ventilation area having a cross-sectional area of at least 0.09 m square (1 ft square) per stool.

9. Portable chemical and biological toilets and urinals that are free-standing and not installed in a building do not require a ventilation system.

10. Chemicals and biologicals, if used in the waste container, must be compatible with the final disposal site. Chemicals of type and quantity to be considered hazardous wastes must not be used.

Service Requirements.

1. Work site units should be serviced weekly.

2. Special events with more than 500 people in attendance should have a service attendant on site during the event.

3. The employer or event promoter or manager must be responsible for the hygiene and use of each portable sanitation unit.

4. Units should be removed from the site as soon as possible after the completion of the event, but no longer than seven (7) days after.

Disposal of Waste Container Sewage.

1. Final disposal must be to a site approved by the Director.

2. For removal of sewage, suppliers of portable sanitation units must employ septic tank pumpers licensed by the State of Idaho unless the supplier is so licensed.

PRESSURE DISTRIBUTION SYSTEM

Description. A low pressure system of small diameter perforated plastic pipe laterals, manifold, pressure transport line, dosing chamber and a pump or siphon.

Conditions for Approval.

1. The pressure distribution system is to be used whenever it is desirable to:
   a. Maintain a uniform application rate throughout the drainfield.
   b. Treat and dispose of effluent in the uppermost levels of the soil profile.
   c. Aid in mitigating the potential contamination of groundwater in areas of excessive permeability.
   d. Improve the performance and increase the life span of a drainfield.

2. Pressure distribution may be used in sand mounds, sand filters, sand-filled trenches and standard trenches in aquifer-sensitive areas or in large drainfields. Geotextile filter fabrics are required to be used for cover over pressure distribution systems.

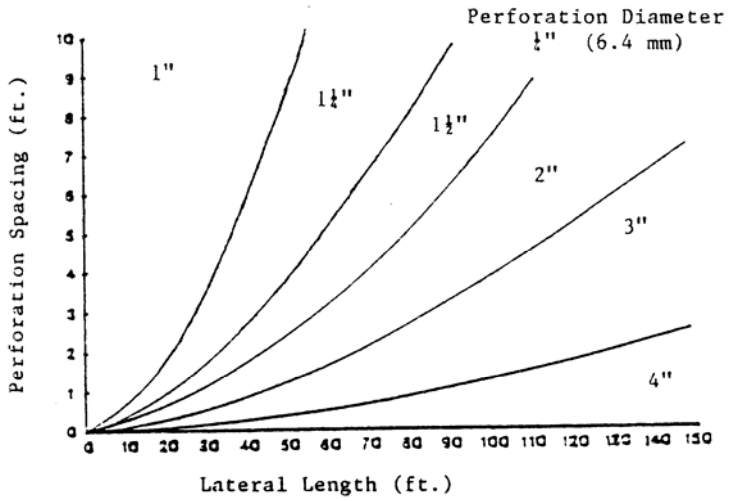
3. These guidelines provide for a simple strategy of design to assist the non-engineer. They are not intended to supplant or limit engineering design or other low pressure systems. The guidance should not be used where laterals are at different elevations (elevation differences greater than 6") or for systems with daily flows over 2,500 gallons. Plans for systems with designs different than those provided herein shall be reviewed by the Department of Environmental Quality. The following guide is recommended for pressure system design outside of these guidelines:

   Otis, R.J. 1981. Design of Pressure Distribution Networks for Septic-Tank Absorption Systems. Small Scale Waste Management Project Publication #9.6. University of Wisconsin, Madison, WI.

Design.

1. Laterals
   a. The lateral length should be shorter than the trench length by at least 6" but not more than one-half the orifice spacing.
   b. Laterals in trenches should be placed equidistant from each side.
   c. The lateral spacing in beds is typically 3 to 6 feet. The outside laterals should be placed at one-half the selected lateral spacing from the bed's edge.
   d. A preliminary estimate of orifice spacing should be made. Normally, the first estimate will be one-half the lateral spacing. For most installations the spacing will be between 18" and 36".
   e. The orifice diameter should be ¼" (0.25"). A residual head of 2.5 feet is used for calculating flows and pump size. The flow through each orifice at that head will be 1.17 gallons per minute. Testing of the residual head shall be made on each lateral for terraced systems. Testing may be accomplished by placing the last orifice on a lateral in the up position and plugging the orifice with the lateral end cap or placing a screw in the orifice.

f. Determine the lateral diameter from the following figure: (if a smaller diameter orifice is used, flow will change and the following table cannot be used).



g. The laterals should not exceed the lengths below for the pipe anticipated to be used.

Lateral Diameter, Inches	Orifice Spacing, Feet	Schedule 40	Class 200	Class 160	Class 125
1.0	1.5	16.5	21	21	-
1.0	2.0	20	24	24	-
1.0	2.5	22.5	27.5	27.5	-
1.0	3.0	27	33	33	-
1.25	1.5	27	30	31.5	31.5
1.25	2.0	32	36	38	38
1.25	2.5	37.5	42.5	45	45
1.25	3.0	42	48	48	51
1.5	1.5	34.5	39	39	40.5
1.5	2.0	42	46	48	50
1.5	2.5	47.5	52.5	55	57.5
1.5	3.0	54	60	63	63
2.0	1.5	52.5	55.5	58.5	60
2.0	2.0	64	68	70	72
2.0	2.5	72.5	77.5	80	82.5
2.0	3.0	81	87	90	93

PRESSURE DISTRIBUTION SYSTEM (Cont'd)

h. Calculate the lateral and total discharge rates:

Lateral Discharge Rate, gpm = 1.17 x number of orifices
Total Discharge Rate, gpm = Lateral Rate x number of laterals

i. Individual ball valves shall be installed on each lateral to balance residual head on terraced systems.

2. Manifold: Determine the manifold size from the following Table:

Lateral Discharge Rate (g.p.m.)		Manifold Diameter = 13"	Manifold Diameter = 12"	Manifold Diameter = 2"	Manifold Diameter = 3"	Manifold Diameter = 4"
Manifold		Lateral Spacing	Lateral Spacing	Lateral Spacing	Lateral Spacing	Lateral Spacing
End	Central	2 4 6 8 10	2 4 6 8 10	2 4 6 8 10	2 4 6 8 10	2 4 6 8 10
10	5	4 8 6 8 10	10 8 12 16 20	12 16 24 24 30	26 40 48 56 70	42 64 84 96 110
20	10	4 4 6	4 4 6 8 10	6 8 12 16 20	16 24 30 32 40	26 40 54 64 70
30	15	2	2 4 6	4 8 6 8 10	12 16 24 24 30	20 28 36 48 50
40	20			4 4 6 8 10	10 12 18 16 20	16 24 30 32 40
50	25			2 4 6 8	8 12 12 16 20	14 20 24 32 40
60	30			2 4	6 8 12 16 20	12 16 24 24 30
70	35			2 4	6 8 12 8 10	10 16 18 24 30
80	40			2	6 8 6 8 10	10 12 18 16 20
90	45			2	4 8 6 8 10	8 12 18 16 20
100	50			2	4 4 6 8 10	8 12 12 16 20
110	55				4 4 6 8 10	8 12 12 16 20
120	60				4 4 6 8 10	6 8 12 16 10
130	65				4 4 6 8 10	6 8 12 16 10
140	70				2 4 6 8	6 8 12 8 10
150	75				2 4 6	6 8 12 8 10
160	80				2 4 6	6 8 6 8 10
170	85				2 4 6	4 8 6 8 10
180	90				2 4	4 8 6 8 10
190	95				2 4	4 8 6 8 10
200	100				2 4	4 4 6 8 10

Example A: Central Manifold
Lateral Q = 40 gpm
Lateral Spacing = 6'
Manifold Length = 18'
Manifold Diameter = 4"

Example B: Terminal Manifold
Lateral Q = 30 gpm
Lateral Spacing = 6'
Manifold Length = 24'
Manifold Diameter = 3"

3. Transport (Pressure) Line: Determine the diameter of the transport line from the following table. (The table is specifically for ABS schedule 40 pipe with a Hazen-Williams Coefficient of 150).

Friction Loss in feet per one hundred feet
Pipe Diameter, in inches

Flow, GPM	1"	13"	12"	2"	3"	4"
5	1.52	0.39	0.18			
6	2.14	0.55	0.25	0.07		
7	2.89	0.76	0.36	0.10		
8	3.63	0.97	0.46	0.14		
9	4.57	1.21	0.58	0.17		
10	5.50	1.46	0.70	0.21		
11		1.77	0.84	0.25		
12		2.09	1.01	0.30		
13		2.42	1.17	0.35		
14		2.74	1.33	0.39		
15		3.06	1.45	0.44	0.07	
16		3.49	1.65	0.50	0.08	
17		3.93	1.86	0.56	0.09	
18		4.37	2.07	0.62	0.10	
19		4.81	2.28	0.68	0.11	
20		5.23	2.46	0.74	0.12	
25			3.75	1.10	0.16	
30			5.22	1.54	0.23	
35				2.05	0.30	0.07
40				2.62	0.39	0.09
45				3.27	0.48	0.12
50				3.98	0.58	0.16
60					0.81	0.21
70					1.08	0.28
80					1.38	0.37
90					1.73	0.46
100					2.09	0.55
150						1.17

Example: The transport line will be 50" long and flow is calculated at 20 gpm. The headloss for 100' of 1 1/2" diameter pipe is 2.46'. For 50' it would be 1.23'.

4. Calculate the total head:

Total Head = E + T + R

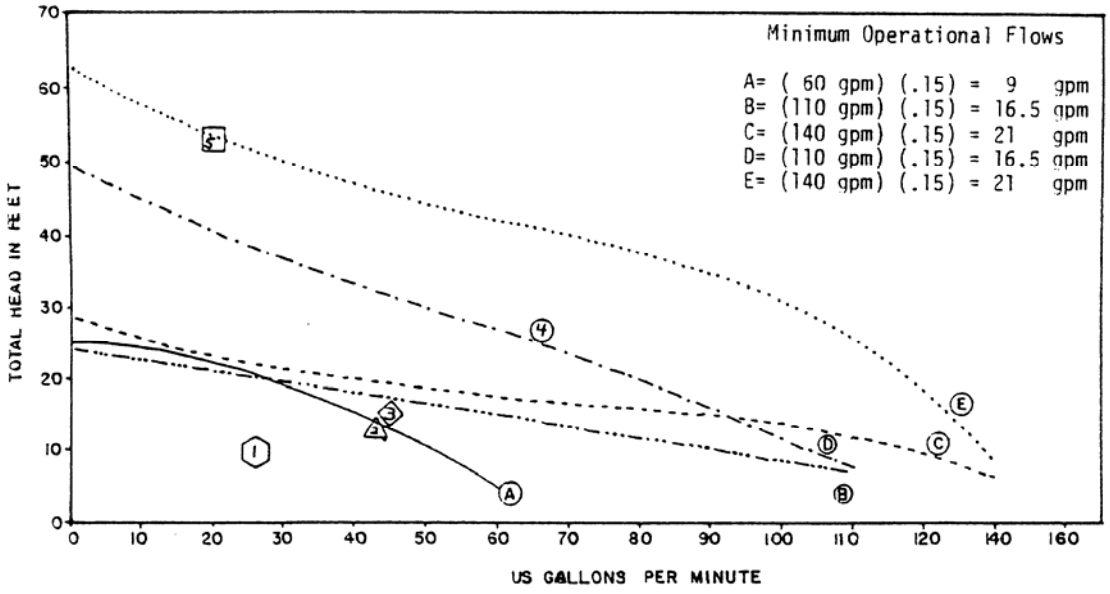
Where: E = elevation difference between the pump and the manifold.
T = transport pressure line head.
R = residual head (2.5 feet).

5. Pump:

a. Pump selection is a critical part of the system design package. It is based on the discharge rate and pumping head required for the system. Using the pump head-discharge rate curves supplied by the manufacturer, select a pump at the required head.

b. To help maximize pump efficiency, pump selection should also address maximum usable head. Select pumps where the operating point will be greater than 15 percent of the maximum pump rate (maximum gpm rating). For example, a pump with a maximum capacity of 80 gpm should only be used if the operational requirement is greater than 80 gpm x 0.15 or 12 gpm.

c. The preceding will help illustrate proper pump selection. Five pump curves are shown in the following example. In the upper right corner of the graph are the calculations showing the minimum operational flows based on the 15% pump curve efficiency requirement. In the table several system requirements are shown with the pumps ultimately selected.



System	GPM	TDH	Pump Selected	Comments
1	26	9'	A, B, or C	All pumps will work, but because of price and serviceability pump A, B or C were Selected.
2	43	13'	A, B, or C	Price and Serviceability
3	45	15'	B, or C	Pump A not adequate
4	67	26'	E	Pump D might be adequate. Check the operation point.
5	20	53'	N/A	20 GPM is less than 15 % of the maximum flow for pump E.

d. Other pump considerations:

- Pump should be specified for effluent.
- Pump should transfer solids as large as orifice diameter.
- Pump should be serviceable from ground level without the need to enter the pump chamber. PVC unions are available which assist in the easy removal of pumps.
- Pumps and electrical connections shall conform to the requirements of the Division of Building Safety, Electrical Bureau. Pumps must be kept submerged and all connections made outside the chamber in an explosion proof box for multiple residential and commercial installations. For individual residential systems the electrical connections may be made in a weatherproof box. Both systems require the use of a seal off. See figures and page 58-59 for details.
- Impellers shall be cast iron, bronze, or other corrosion-resistant material. Regardless of the material, the impeller may freeze if the pump remains inactive for several months.
- If for any reason a check valve is used, a bleeder hole should be installed so the volute is kept filled with effluent. Some pumps may run backwards if the impeller is in air.

6. Dosage.

a. Determine the dose volume by the following sets of design criteria:

1) Soil Type:

Determine the dose volume by dividing the average daily flow, in gpm, by the following recommended dosing frequency:

Soil Texture at Drainrock Interface	Doses per Day
Medium and fine sand	4
Loamy sand, sandy loam	1-2
Loam and finer soils	1

2) Dose/Volume Ratio:

a) The daily dose volume ratio should be at least 7 times the volume of the manifold and lateral piping which drains between doses plus one time the interior volume of the transport line. If the dose is too small, then the pipe network will not become fully pressurized or may not be pressurized for a significant portion of the total dosing cycle.

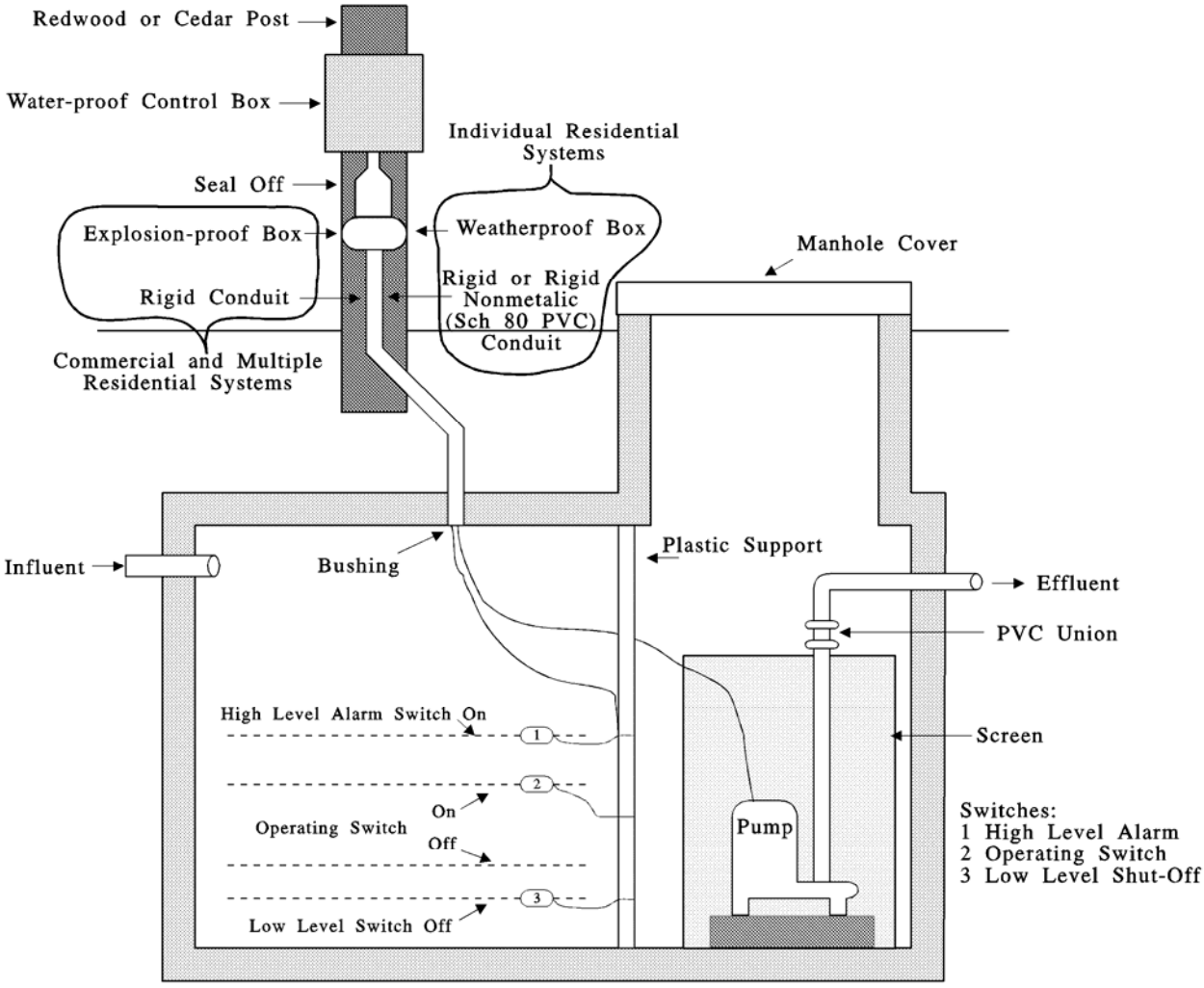
b) It may be necessary to modify the piping network configuration to reduce the pipe volume or space which drains between doses.

c) Use the following table to calculate distribution line, manifold, and transport line volumes. Calculate only pipe volumes that drain between doses.

Volume (Gal/ft of Length)

Diameter (Inches)	Schedule 40	Class 200	Class 160	Class 125
1	0.045	0.058	0.058	----
13	0.078	0.092	0.096	0.098
12	0.105	0.120	0.125	0.130
2	0.175	0.189	0.196	0.204
3	0.385	0.417	0.417	0.435
4	0.667	0.667	0.714	0.714
6	1.429	1.429	1.429	1.667

7. Dosing Chamber:



a. The dosing chamber must be watertight, with all joints sealed. Precautions must be made in high-groundwater areas to prevent the tank from floating.

b. A screen must be placed around the pump with 1/8" holes or slits of non-corrosive material and have a minimum of 12 square feet of area. Its placement must not interfere with the floats and it should be easily removable for cleaning. Effluent filter designs fitted with a closing mechanism are a suitable alternative to screens around pumps.

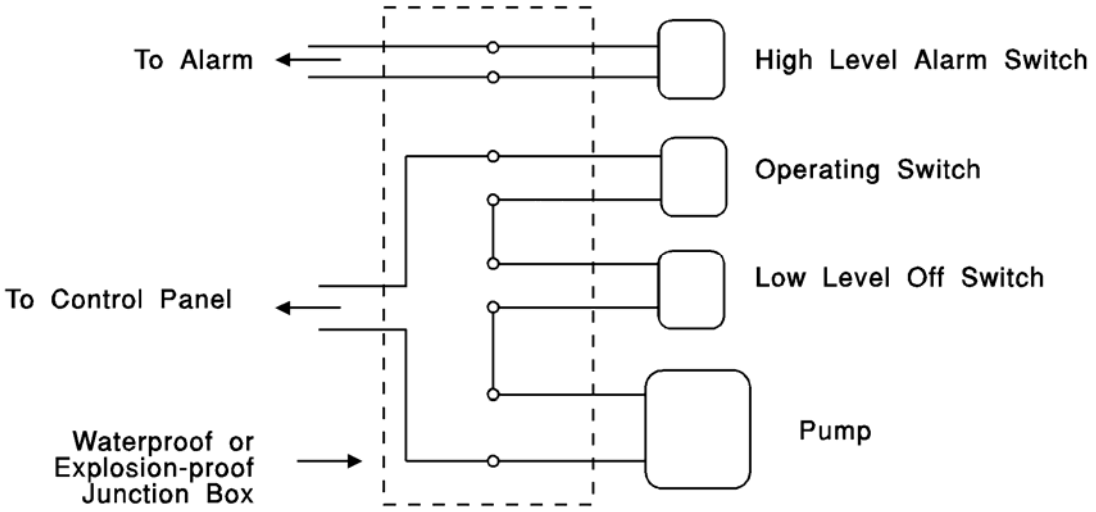
c. Electrical Requirements (Contact the Division of Building Safety, Electrical Bureau):

   1) Visual or audio alarms on a separate circuit from the pump must be provided to indicate when the level of effluent in the pump or siphon chamber is higher than the height of the volume of one dose.

   2) All electrical connections must be made outside of the chamber in either an approved weatherproof box or an explosion-proof junction box (Crouse-Hind Type EAB or equivalent). The lines from the junction box to the control box must pass through a sealing fitting (seal-off) to prevent corrosive gases from entering the control panel. All wires must be contained in solid conduit from the dosing chamber to the control box.

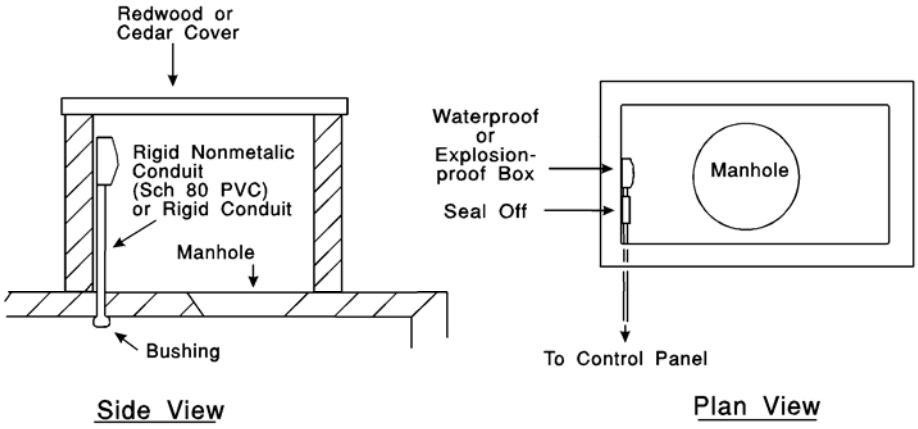
3) The minimum effluent level must be above the pump. This is the level that the low level off switch is set and should be 2" to 3" above the pump.

4) An acceptable circuit is shown in the following diagram:



5) Plans and schematics for the electrical installation should be approved by the Division of Building Safety, Electrical Bureau prior to installation and at the same time the permit is issued.

6) An alternative to placing the electrical connections on a pole is to place them in a dry well over the dosing chamber. The following diagram shows an arrangement acceptable to the Electrical Bureau:



d. The volume of the dosing chamber should be equal to at least two day's flow. A 750-gallon tank will provide sufficient volume to keep the pump covered with effluent, provide an 80-gallon to 120-gallon dose and store one day's flow for most single dwelling installations.

8. In-Tank Pumps. Placement of sewage effluent pumps in a septic tank is an acceptable practice under the following conditions:

   a. Sewage effluent pumps must be placed in an approved pump vault.

   b. The drawdown of effluent from the septic tank is limited to a maximum 120 gallons per dose with a maximum pump rate of 30 GPM.

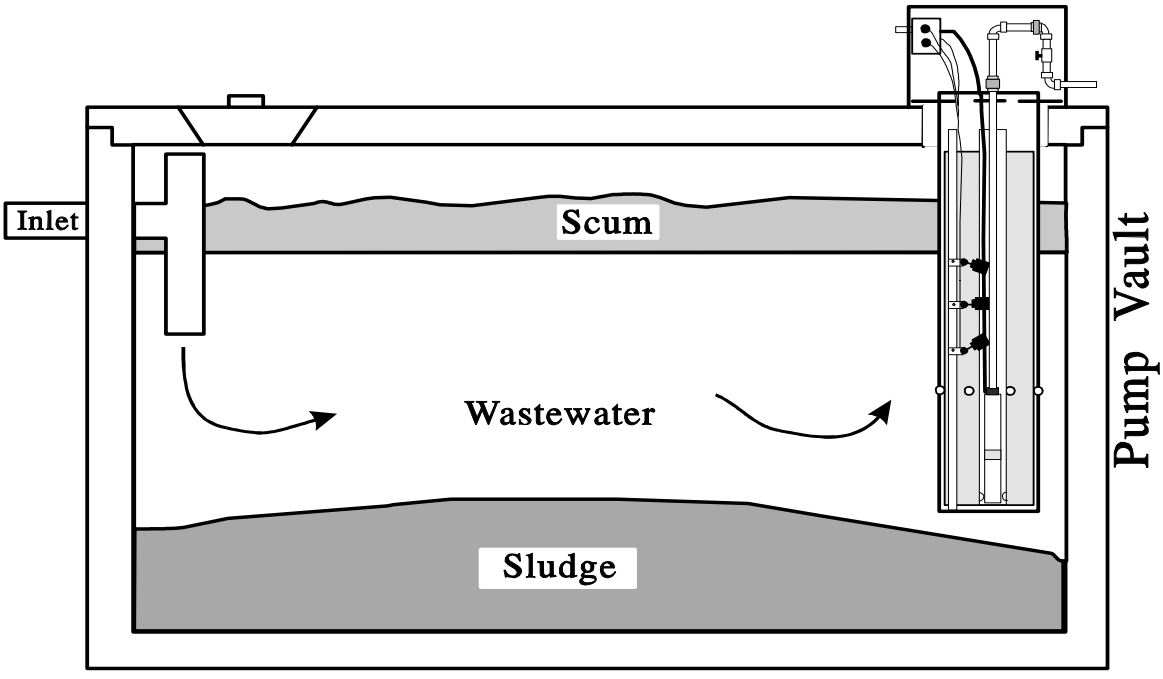
   c. Septic tanks must be sized to allow for one days flow above the high water alarm, unless a duplex pump is used.

   d. The pump vault inlets must be set at fifty (50%) percent of the liquid volume.

   e. Placement of the pump vault inside the septic tank shall be in accordance with the manufacturer' recommendations.

   f. Pump vault screens shall be one-eighth inch (1/8") holes, or slits (or smaller); be constructed of non-corrosive material; and have a minimum of 12 square feet of area.

   g. Placement of the pump vault and pump must not interfere with the floats or alarm and pump vault should be easily removable for cleaning.



RV DUMP STATION

Description:

RV dump stations pose a unique problem for subsurface sewage disposal systems in that the recirculating fluid used in RV tanks contains formaldehyde and/or para-formaldehyde. The presence of these chemicals inhibits bacterial action inside of a septic tank. This leads to solids carry over and premature failure of the drainfield. Compounding the problem is the fact that RV units recirculate the fluid several times before it is dumped. The fluid disposed of in the dump station then is both "strong" and preserved.

Disposal Systems Options for RV Dump Stations:

1. Municipal Treatment Plant: This is the preferred option, if available. Research indicates that RV dump stations do not cause any problems for disposal in municipal treatment plants because of the dilution. Furthermore, formaldehyde is quite volatile and dissipates rapidly when exposed to an aerobic treatment process.

2. Community Drainfield System: To date, there is no research available as to the effects of RV dump station wastes on community drainfield systems. It is logical to assume that at some point the RV waste would be diluted sufficiently so that it should not pose a problem to a drainfield system, but what dilution would be acceptable is not now known. Until further research is completed, it is recommended that not more than 5% of the waste flow to a community septic system be generated by an RV dump station.

3. Holding Tanks: If the tanks are pumped and disposed of at a municipal treatment plant, this should be an acceptable option. The holding tanks should have a high alarm system. The alarm float should be set to allow for 1 day of flow after the high alarm is reached.

RECIRCULATING GRAVEL FILTER

Description. A bed of coarse sand in a container which filters and biologically treats septic tank effluent. The filter effluent is returned to the recirculation tank for blending with untreated septic tank effluent and recirculated back to the filter. The treated effluent is distributed to a disposal trench of reduced dimension. System components include: septic tank, recirculating tank with float valve and low pressure distribution system, free access filters, and a drainfield.

Conditions for Approval.

1. Non-domestic wastewater with BOD or TSS exceeding normal domestic wastewater strengths (Page 20-1) is required to be pretreated to these levels prior to discharge into the recirculating sand filter system.
2. The bottom of the filter must not come within twelve inches of seasonal high groundwater.

System Design.

1. The recirculation ratio is 4:1. Pumps are set by timer to dose approximately 5 to 10 minutes per 30 minutes. Longer dosing cycles may be desirable for larger installations, e.g., 20 minutes every 2 to 3 hours. Hydraulic loading is 5 gal/ft²/day (forward flow).

2. The filter media is very fine washed gravel (pea gravel), with 100% passing the 3/8 inch sieve, an effective size of 3 to 5 mm, a uniformity coefficient <2, and < 1% passing a # 50 sieve.

3. The minimum recirculating chamber size is one-half the volume of the septic tank.

4. Sand filter container, piping, gravel, and gravel cover should meet the minimum requirements as shown herein. No soil cover is required.

5. The filter container shall be constructed of reinforced concrete or other materials where equivalent function, workmanship, watertightness and at least a twenty-year service life can be documented. The following requirements must be met for flexible membrane liners:
   a. Have properties equivalent to or greater than thirty mil polyvinyl chloride.
   b. Have field repair instructions and materials provided to the purchaser of the liner.
   c. Have factory fabricated "boots" for waterproof field bonding of piping to the liner.
   d. Liner must be placed against smooth, regular surfaces free of sharp edges, nails, wire, splinters, or other objects that may puncture the liner. A four-inch layer of clean sand should provide liner protection.

6. Float valves or equivalent bypass alternatives are required in the recirculation tank. Discharge to the drainfield must occur after filtration.

7. The media and pipe shall be covered to prevent accidental contact and to provide access to the filter surface for filter maintenance.

8. Extreme climates may require insulation of the recirculating sand filter lid or cover to prevent freezing of the media.

RECIRCULATING GRAVEL FILTER (Cont'd)

Filter Construction.

1. All materials must be structurally sound, durable and capable of withstanding normal installation and operation stresses. Components that may be subject to excessive wear must be readily accessible for repair or replacement.

2. All filter containers must be placed over a stable level base.

3. The pressure system must be designed and installed according to the guidance given for Pressure Distribution Systems. Geotextile filter fabric shall not be used in the recirculating sand filter.

4. Access to the filter surface must be provided to facilitate maintenance.

Gravity Disposal Trenches.

1. Except as noted herein the final disposal trenches must meet the requirements of a standard trench system.
2. The following distances must be maintained between the trench bottom and the limiting layer:

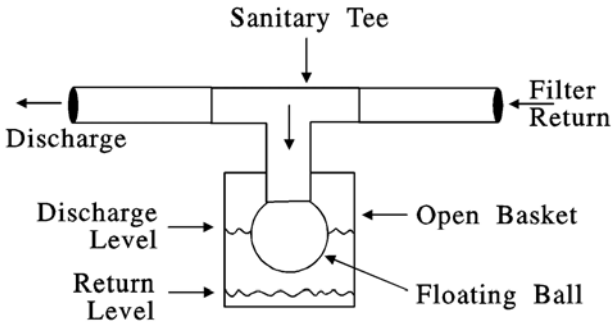
Limiting Layer	Flow <2,500 GPD	Flow ≥2,500 GPD
	All Soil Types	All Soil Types
Impermeable Layer	2	4
Fractured Rock or Very Porous Layer	1	2
Normal High Ground Water	1	2
Seasonal High Ground Water	1	2

3. Capping fill may be used to obtain adequate separation from limiting layers.
4. The minimum area, in square feet of bottom trench surface, shall be calculated from the maximum daily flow of effluent divided by the figure below:

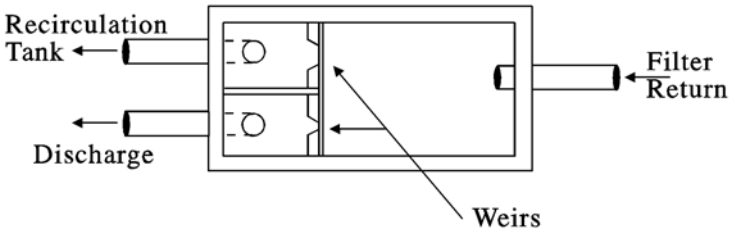
Soil Group	Gallons/ft²/Day
A-1	1.7
A-2	1.2
B-1	0.8
B-2	0.6
C-1	0.4
C-2	0.3

RECIRCULATING GRAVEL FILTER (Cont'd)
FIGURES

By-Pass Alternatives

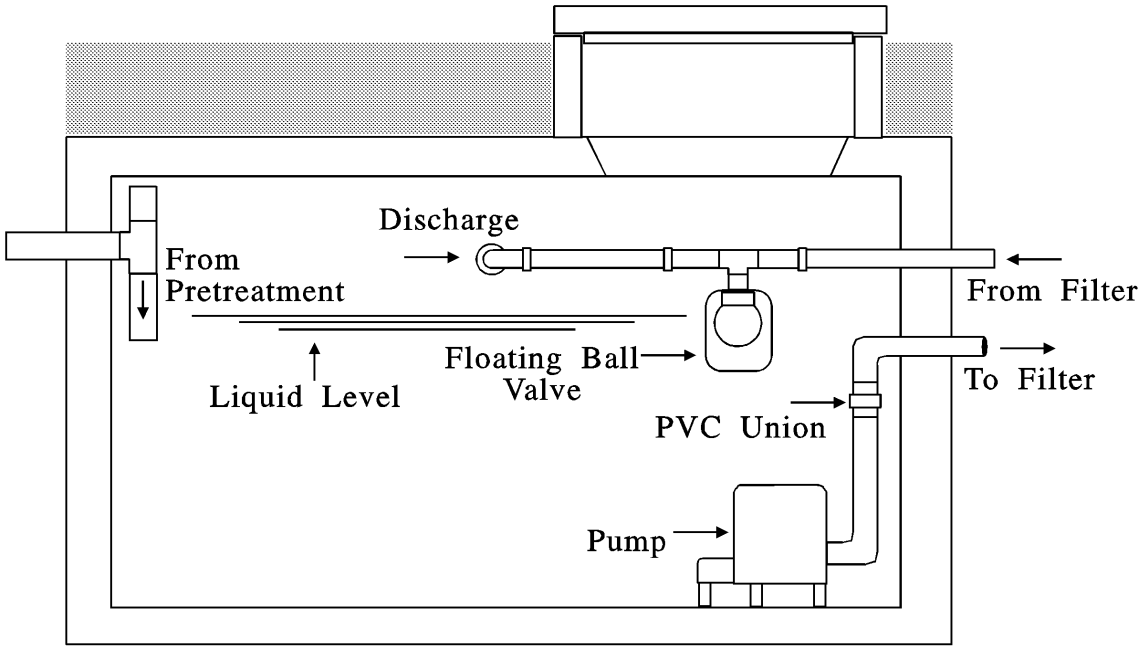


Floating Ball Valve



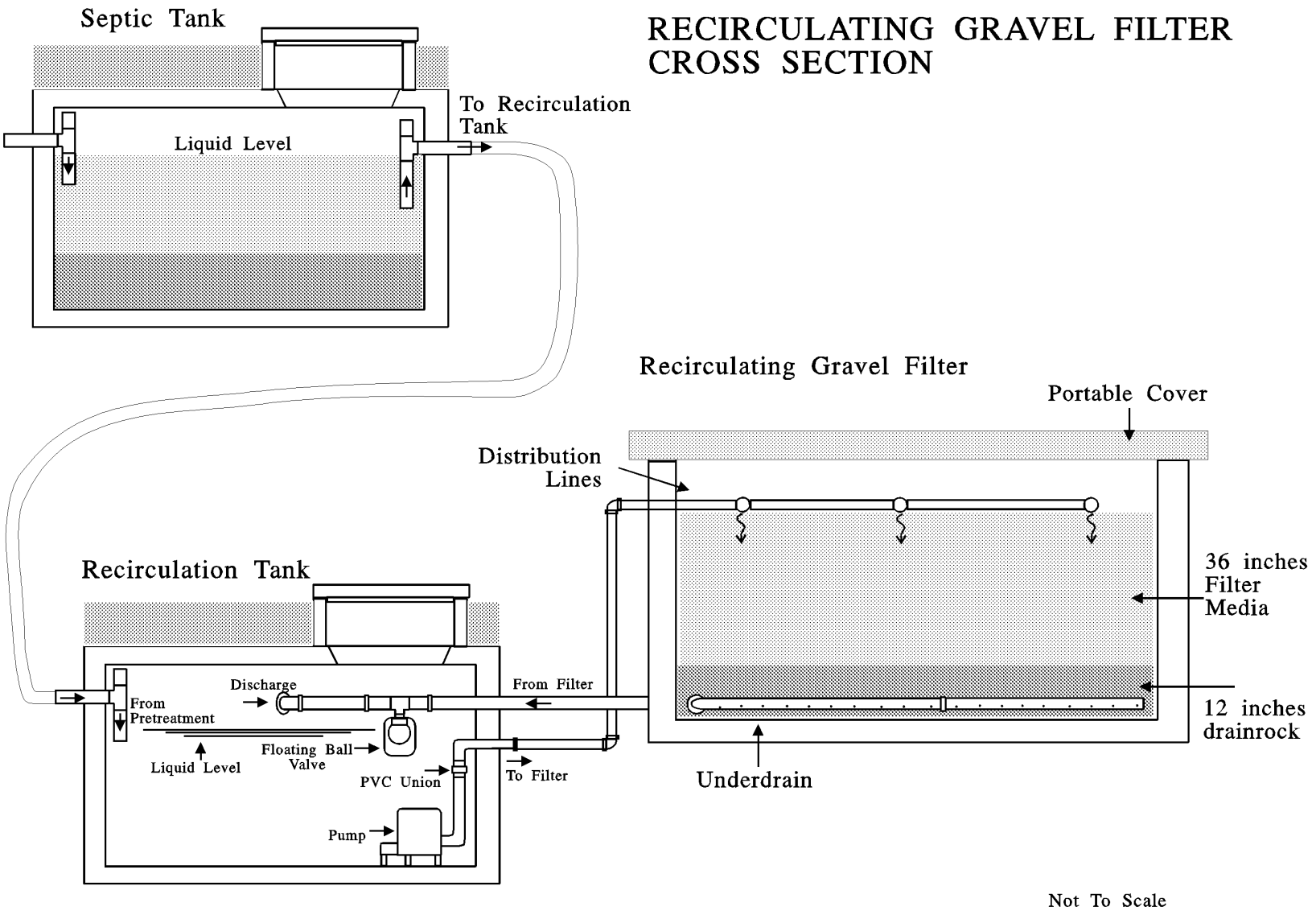
Adjustable Weirs

Recirculation Tank



RECIRCULATING GRAVEL FILTER (Cont'd)

RECIRCULATING GRAVEL FILTER CROSS SECTION



Not To Scale

SAND FILTER - INTERMITTENT

Description. A bed of medium sand in a container which filters and biologically treats septic tank effluent. The filter effluent is then distributed to a disposal trench of reduced dimension.

Conditions for Approval.

1. Slope must be 30 percent or less.

2. Maximum wastewater flow must be 600 gallons per day or less.

3. The bottom of the filter must not come within twelve inches of seasonal high groundwater.

Filter Design.

1. Application rate of septic tank effluent to the filter must be 0.7 gallons per square foot per day.

2. Filter sand must conform to ASTM-C-33 with less than 2% passing the #200 sieve.

3. Sand filter container, piping, gravel, gravel cover, and soil crown material should meet the minimum requirements as shown herein.

4. The filter container shall be constructed of reinforced concrete or other materials where equivalent function, workmanship, watertightness and at least a twenty year service life can be documented. The following requirements must be met for flexible membrane liners:

    a. Have properties equivalent to or greater than thirty (30) mil polyvinyl chloride.
    b. Have field repair instructions and materials provided to the purchaser of the liner.
    c. Have factory fabricated "boots" for waterproof field bonding of piping to the liner.
    d. Liner must be placed against smooth, regular surfaces free of sharp edges, nails, wire, splinters, or other objects that may puncture the liner. A four inch layer of clean sand should provide liner protection.

Filter Construction.

1. All materials must be structurally sound, durable and capable of withstanding normal installation and operation stresses. Components that may be subject to excessive wear must be readily accessible for repair or replacement.

2. All filter containers must be placed over a stable level base.

3. The pressure system must be designed and installed according to the guidance given for Pressure Distribution Systems.

SAND FILTER - INTERMITTENT (Cont'd)

Gravity Disposal Trenches.

1. Except as noted herein the final disposal trenches must meet the requirements of a standard trench system.

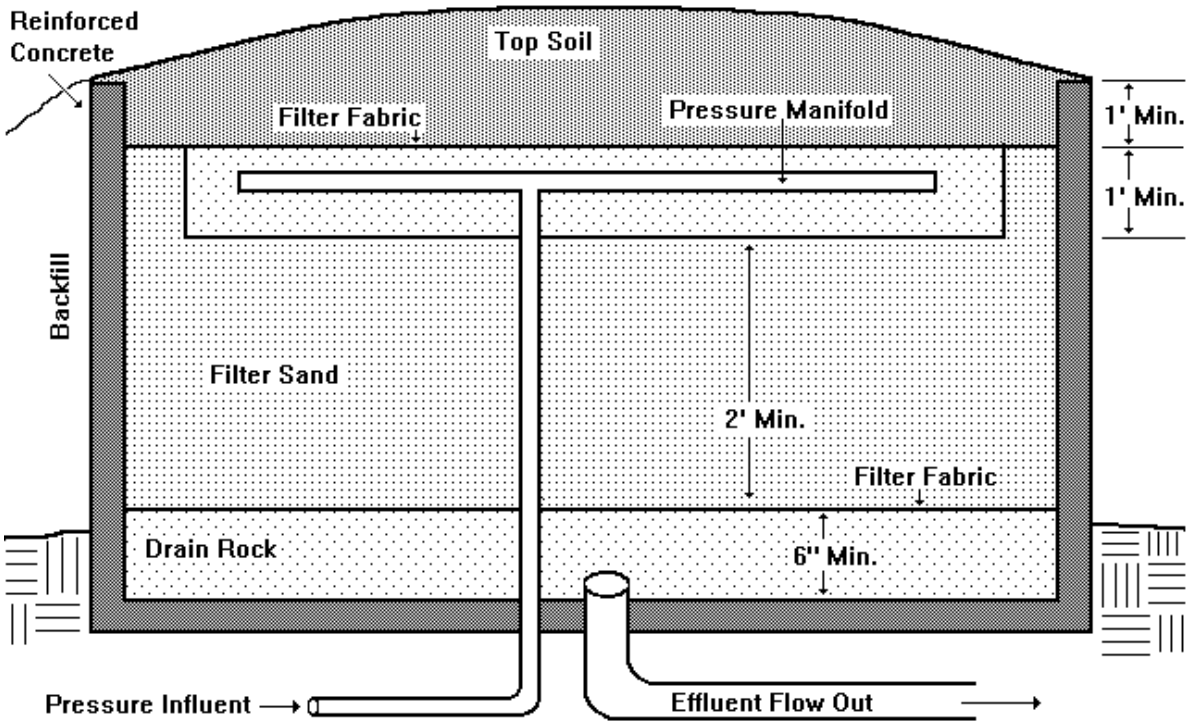
2. The following distances must be maintained between the trench bottom and the limiting layer:

	Soil Group		
Limiting Layer	A	B	C
Impermeable Layer	2	2	2
Fractured Rock or Very Porous Layer	1	1	1
Normal High Ground Water	1	1	1
Seasonal High Ground Water	1	1	1

3. Capping fill may be used to obtain adequate separation from limiting layers.

4. The minimum area, in square feet of bottom trench surface, shall be calculated from the maximum daily flow of effluent divided by the figure below:

Soil Group	Gallons/ft²/Day
A-1	1.7
A-2	1.2
B-1	0.8
B-2	0.6
C-1	0.4
C-2	0.3


Reinforced
Concrete
Top Soil
Filter Fabric
Pressure Manifold
1' Min.
1' Min.
Backfill
Filter Sand
2' Min.
Filter Fabric
Drain Rock
6" Min.
Pressure Influent
Effluent Flow Out

SAND FILTER - INTRENCH

Description. A standard trench or bed system receiving effluent by either gravity or low pressure flow, under which is placed a sand filter of medium sand. An acceptable modification is to excavate impermeable soil layers down to more permeable soils and place clean pit run sand and gravel between the medium sand and more permeable soils or ground water.

Conditions for Approval.

1. Except as specified herein the system must meet the dimensional and construction requirements of a standard trench, bed or pressure distribution system.

2. The intrench filter or its modification may be used over very porous strata, coarse sand and gravel or ground water.

3. The system is to be sized according to the receiving soils at the sand or pit run and soil interface or at 1.2 gals./sq. ft., whichever is less.

Design and Construction.

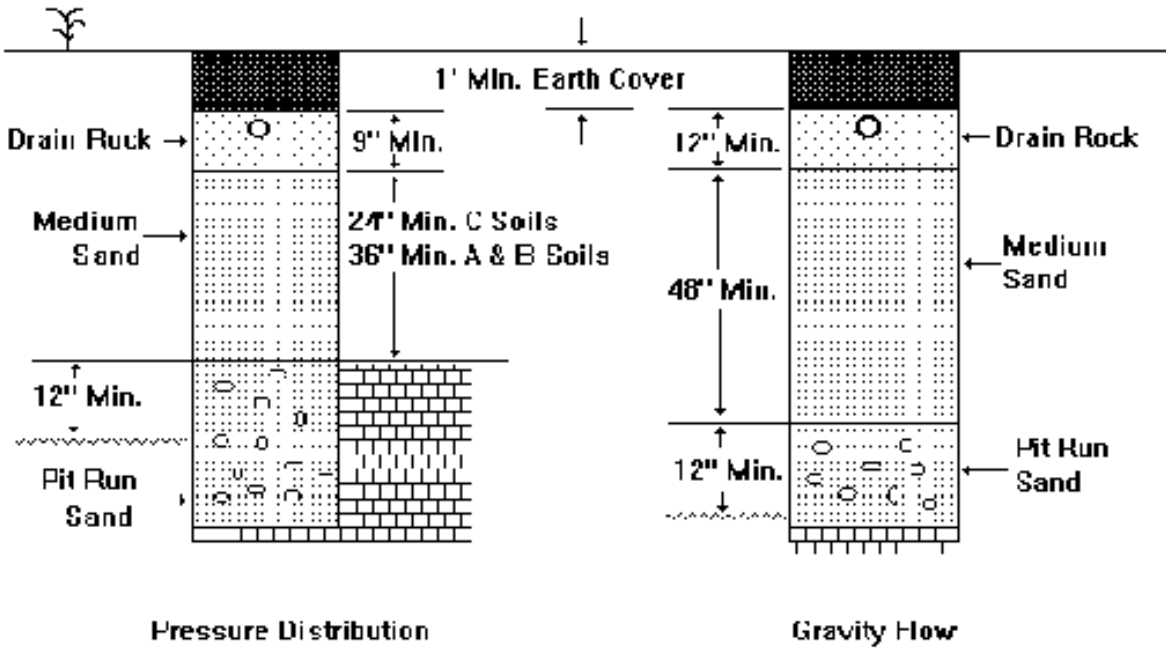
1. The filter sand must conform to the gradation requirements of ASTM-C-33 (less than 2% may pass a 200 sieve).

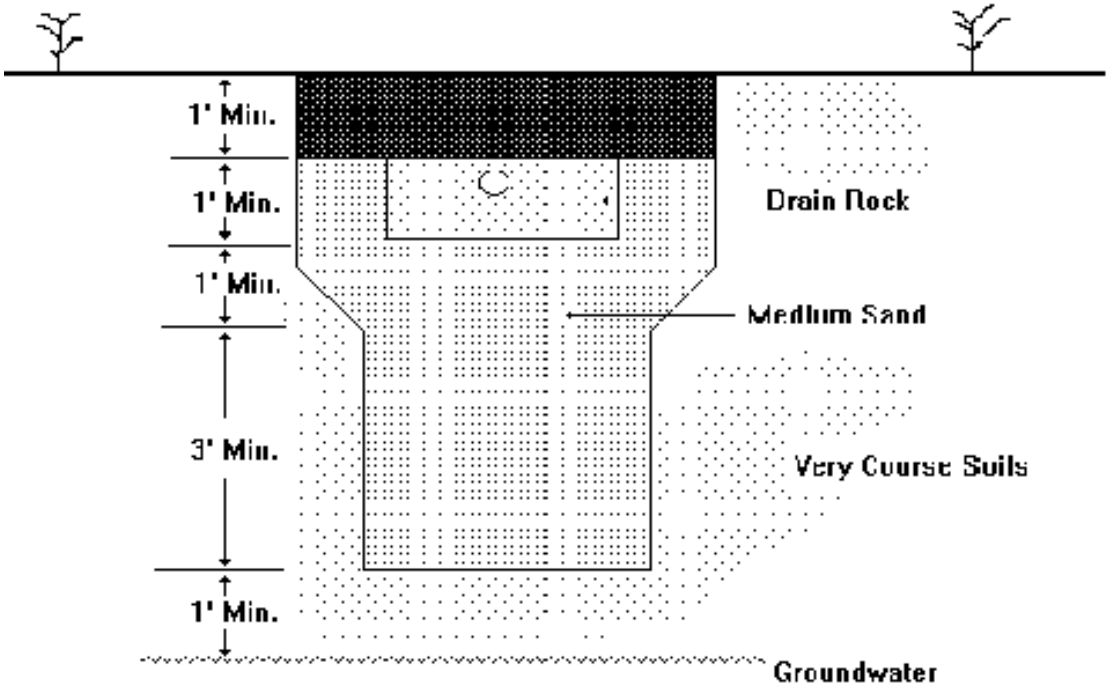
2. The pit run backfill material, if used, is to meet an A-1 soil classification.

3. The following minimum filter sand depths must be used:
   Gravity flow system = 4 feet
   Pressure distribution = 2 feet in C soils
   3 feet in A & B soils

4. When the native soils are A-1 or coarser, the filter sand shall envelop the drainrock such that at least 1 foot of filter sand is between it and the native soils (see diagram).

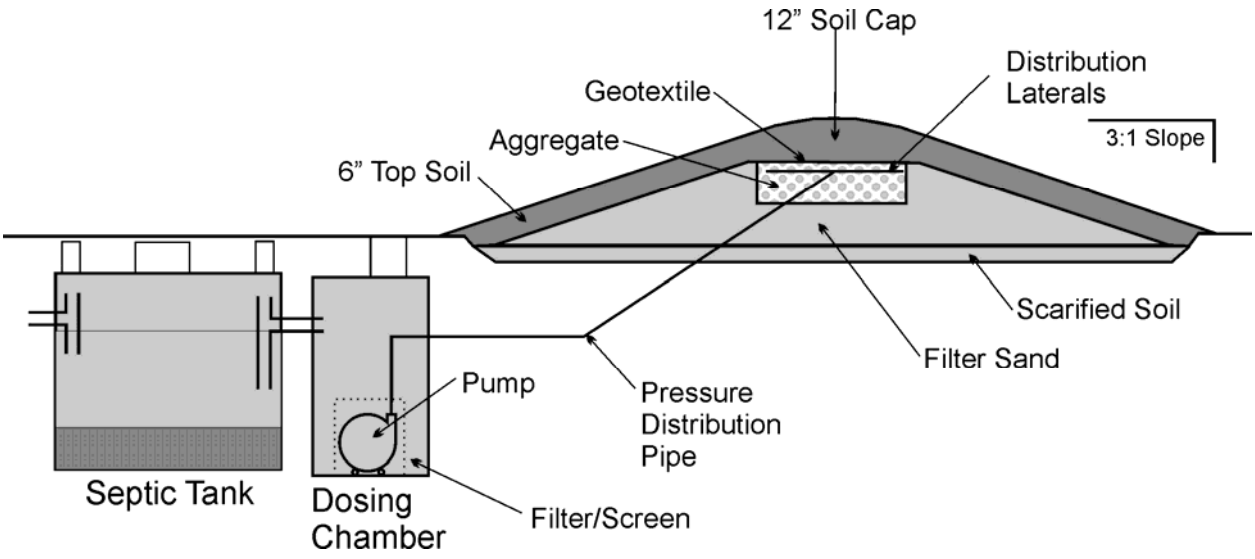
5. The seasonal or normal ground water must not come within twelve inches of bottom of the sand filter.


1' Min. Earth Cover
Drain Rock
9" Min.
24" Min. C Soils
36" Min. A & B Soils
Medium Sand
12" Min.
Pit Run Sand
12" Min.
48" Min.
12" Min.
Drain Rock
Medium Sand
Pit Run Sand
Pressure Distribution
Gravity Flow


1' Min.
1' Min.
1' Min.
3' Min.
1' Min.
Drain Rock
Medium Sand
Very Course Soils
Groundwater

SAND MOUND

Description: A soil absorption facility consisting of a septic tank, pumping chamber or dosing siphon and chamber, mound fill of selected sand with a small diameter pipe distribution system, cap and top soil.



Conditions for Approval:

1. Minimum Depth of Natural Soil to Limiting Layer, in Feet.

Soil Design Group	Extremely Impermeable Layer	Extremely Permeable Layer	Normal High Ground Water
A, B	3	3	3
C	3	2	2

2. For Soil Textural classifications of Sandy Clay, Silty Clay, Clay or coarser textured soils with percolation rates from 60 to 120 min. per inch, the minimum depth of natural soil to the limiting layer shall conform to that for Soil Design Group C.

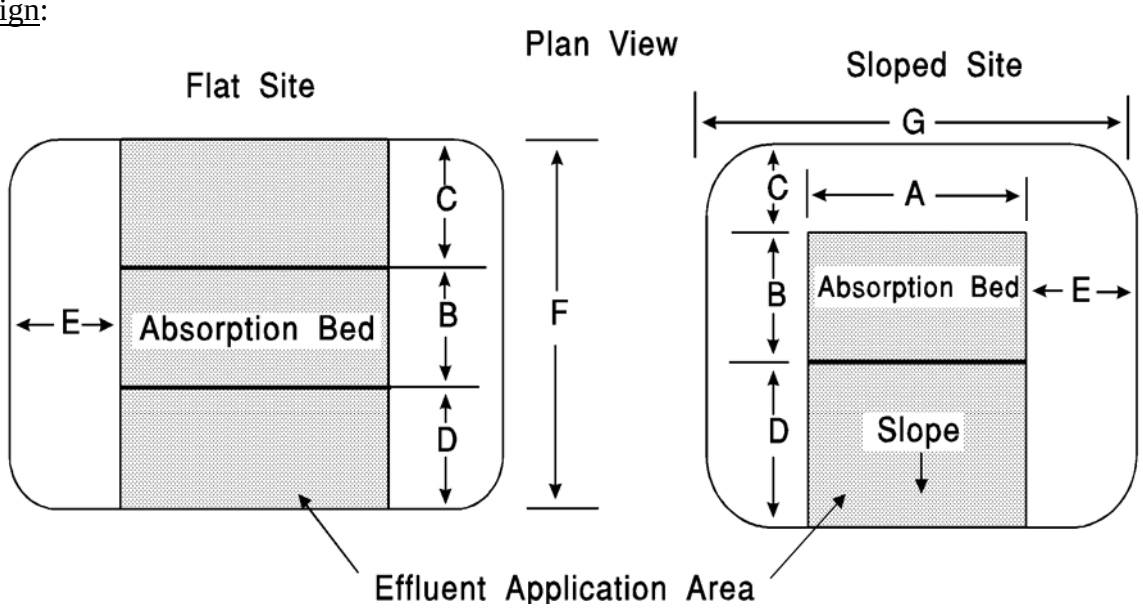
3. Maximum Slope of Natural Ground:

Design Group	A	B	C-1	C-2
Slope, Percent	20	20	12	6

4. The sand mound must not be installed in flood ways, areas with large trees and boulders, in concave slopes, slope bases or depressions.

5. The minimum pretreatment of sewage prior to disposal to the mound must be a septic tank sized according to the rules. Design flow must be 1.5 times the wastewater flow.

Design:



1. Bed design:

   a. Only absorption beds may be used. The maximum bed area should be 2250 square feet (A x B). Beds in commercial or large systems should be a maximum of fifteen feet (B < 15') wide and beds for individual dwellings less than ten feet (B < 10') wide. Beds should be as long and narrow as practical, particularly on sloped ground, to minimize basal loading.
   b. The application rate of effluent in the sand bed should be calculated at 1.0 gallon per square foot (sand AR = 1.0 g/ft^2).
   c. Absorption beds for commercial establishments that discharge other than normal strength domestic waste should be sized at 0.5 gallons per square foot (0.5 g/ft^2) or 40 lbs. BOD/acre/day, whichever is greater.
   d. The bed must be filled with nine inches (9") of clean drainrock.
   e. The drainrock portion of the sand mound must be covered with a geotextile after installation and testing of the pressure distribution system.

2. Sand fill design:

   a. Filter sand must conform to ASTM-C-33, with less than 2% passing the # 200 sieve. A manufactured sand is recommended.
   b. The minimum depth of sand below the bed shall be one foot (1').
   c. Flat sites: The effective area will be A x (C+B+D).
   d. Sloped sites: The effective area will be A x (B+D).

SAND MOUND (Cont'd)

e. $$Effluent\_Application\_Area = \frac{Design\_Flow(gpd)}{Soil\_Application\_Rate\_\left(gpd/ft^2\right)}$$

f. The slope of all sides must be 3 horizontal to 1 vertical (3:1) or flatter.

g. The sand mound must be covered with a minimum topsoil depth of six (6) to twelve (12) inches. The soil cap at the center of the mound must be crowned to twelve (12) inches. Topsoil and soil cap must be a sandy loam, loamy sand, or silt loam.

h. The mound should be protected to prevent damage caused by vehicular, livestock or excessive pedestrian traffic. The toe of the mound must be particularly protected from compaction.

i. The sand fill area must be as long and narrow as practical, with plan view dimension G exceeding dimension F.

Construction:

1. The pressure line from the dosing chamber should be installed first and should be located up-slope of the mound. If located downslope, consider using anti-seep collars on trench. If a pump is to be used the pressure line should slope down to the pump so that the pressure line will drain between discharges.
2. Grass, shrubs, and trees must be cut close to ground surface and removed from the mound site. If extremely heavy vegetation or organic mat exists, these materials should be removed prior to scarification and replaced with filter sand (typically 3 or 4 inches of filter sand is added.) When the soil is dry the ground in the area of the sand fill should then be scarified or ripped to a depth of 6" to 8". The importance of the ripping is to provide vertical windows in the soil. Tree stumps are not to be removed. If stumps are numerous, additional area should be calculated into the total sand area to compensate for the lost area.
3. The sand fill will then be placed and shaped before it freezes or rains. No pneumatic-tired vehicles should be permitted on the sand or plowed area in order to prevent the soils from being compacted. For sloped sites, all work is done from the up-slope side.
4. The absorption bed will be shaped and filled with clean drainrock.
5. After leveling the drainrock, the low pressure distribution system manifold and laterals will be installed. The system should be tested for uniformity of distribution.
6. Geotextile must be placed over the absorption bed and backfilled with six (6) inches of soil on sides and shoulders, and twelve (12) inches of soil on the top center. Soils types must be sandy loam, loamy sand, or silt loam.
7. Typical lawn grasses and other appropriate low-profile vegetation should be established as soon as possible, preferably before the system is put into operation. Do not plant trees or shrubs on the mound. Trees with roots that aggressively seek water must be planted at least fifty (50) feet from the mound (poplar, willow, cottonwood, maple, elm, etc…).
8. A standpipe must be installed within the bed, down to the fill sand, so that ponding water can be measured periodically.

SAND MOUND (Cont'd)

Inspections:

1. Site inspections must be made by the Director before, during and after construction.
2. The designer or owner must certify that the system has been installed per the approved plans.

SAND MOUND DESIGN CHECKLIST {Example for a 3 bedroom house on B-2 soils, flat site}		
1	Determine soil Application Rate (AR) {Ex: B-2 soil}	AR = _____GPD/ft^2 {Ex: 0.45 gpd/ft^2}
2	Determine Daily Flow Rate (DFR) {Ex: 250 GPD x 1.5 safety factor}	DFR = _____GPD {Ex: 375 GPD}
BED DESIGN:		
3	$Area = \frac{Daily\_Flow\_Rate\_GPD(\#2)}{Sand\_Application\_Rate\_{}^{GPD}/_{ft^2}\left(1.0\_{}^{GPD}/_{ft^2}\right)}$	Area = _____ft^2 {Ex: 375 ft²}
4	Width (B): $Width\_(B) = \sqrt{\frac{Area\_(\#3) \times Soil\_AR\_(\#1)}{Sand\_Application\_Rate\_\left(1.0\,{}^{GPD}/_{ft^2}\right)}}$ Maximum Bed Width: Commercial = 15 ft, Residential = 10 ft. {Ex: $Width\_(B) = \sqrt{\frac{(\#3 \times \#1)}{1.0\,{}^{GPD}/_{ft^2}}} \approx 13\,ft$ }	Width (B) = _____ ft {Ex: 13 ft or 10 ft max} {Ex: use 10 ft}
5	Length (A): $Length\_(A) = Area\_(\#3)/Width\_(\#4)$ {Ex: 375 ft² / 10 ft}	(A) _____ ft {Ex: 37.5 ft}
SAND MOUND DESIGN:		
6	Total Area (TA): $EAA = DFR\_(\#2)/soil\_AR\_(\#1$ {Ex: 375 gal / 0.45 gal/ft^2}	TA =_____ft^2 {Ex. 833 ft²}
7	Effluent Application Area (EAA) = Total Area - Bed Area: EAA = TA (#6) – Area (#3) = {Ex. 833 ft^2 – 375 ft^2}	EAA = _____ft^2 {Ex. 458 ft²}
8	Flat site perimeter (C,D): 0.5x[EAA (#7) / Length (#5)] {Ex. 458/37.5)/2} {5.25 ft minimum}	(C) = (D) = _____ft {Ex. 6.1 ft}
9	Sloped site: Downslope Length (D) = EAA (#7) / Length (#5)	(D) = ft
10	Sloped site: Upslope (C) = (Bed depth + max. sand depth) x 3	(C) = _____ft
11	End slope (E) = (Bed depth + max. sand depth) x 3 {Ex: (0.75 ft + 1.0 ft) x (3)}	(E) = _____ft {Ex. 5.25 ft}
12	Total Width (F) = B + C + D {Ex. 10 + 6.1 + 6.1}	(F) = _____ft {Ex: 22.2 ft}
13	Total length (G) = A+(2 x E) (G > F) {Ex: (G) = 37.5 ft + 2 x 5.25 ft}	(G) = ft {Ex: 48 ft}
FINISHED MOUND DIMENSIONS:		
14	Sand Mound Length + 6 ft Min. (G + 6) {Ex: 48 ft + 6 ft}	(G+6) = _____ft {Ex: 54 ft}
15	Sand Mound Width + 6 ft Min. (F + 6) {Ex: 22.2 ft + 6 ft}	(F+6) = _____ft {Ex: 28.2 ft}

Checklist for Design of a Sand Mound:

SAND MOUND DESIGN CHECKLIST		
1	Determine soil Application Rate (AR)	AR = _____GPD/ft^2
2	Determine Daily Flow Rate (DFR)	DFR = _____GPD
BED DESIGN:		
3	$Area = \frac{Daily\_Flow\_Rate\_GPD(\#2)}{Sand\_Application\_Rate\_{}^{GPD}/_{ft^2}\left(1.0\_{}^{GPD}/_{ft^2}\right)}$	Area = _____ft^2
4	Width (B): $Width\_(B) = \sqrt{\frac{Area\_(\#3) \times Soil\_AR\_(\#1)}{Sand\_Application\_Rate\_\left(1.0\,{}^{GPD}/_{ft^2}\right)}}$ Maximum Bed Width: Commercial = 15 ft, Residential = 10 ft.	Width (B) = _____ ft
5	Length (A): $Length\_(A) = Area\_(\#3)/Width\_(\#4)$	(A) _____ ft
SAND MOUND DESIGN:		
6	Total Area (TA): $EAA = DFR\_(\#2)/soil\_AR\_(\#1)$	TA = _____ft^2
7	Effluent Application Area (EAA) = Total Area - Bed Area: EAA = TA (#6) – Area (#3)	EAA = _____ft^2
8	Flat site perimeter (C,D): 0.5 x [EAA (#7) / Length (#5)] {5.25 ft minimum}	(C) = (D) = _____ft
9	Sloped site: Downslope Length (D) = EAA (#7) / Length (#5)	(D) = ft
10	Sloped site: Upslope (C) = (Bed depth + max. sand depth) x 3	(C) = _____ft
11	End slope (E) = (Bed depth + max. sand depth) x 3	(E) = _____ft
12	Total Width (F) = B + C + D	(F) = _____ft
13	Total length (G) = A+(2 x E) (G > F)	(G) = ft
FINISHED MOUND DIMENSIONS:		
14	Sand Mound Length + 6 ft Min. (G + 6)	(G+6) = _____ft
15	Sand Mound Width + 6 ft Min. (F + 6)	(F+6) = _____ft

SEEPAGE PIT

Definition. An absorption pit filled with standard drainfield aggregate.

Conditions for Approval.

1. The area must not have any shallow domestic, public wells or sink holes connected by underground channels.

2. The site must meet the requirements of a standard system except that it is not large enough.

3. The pit bottom must be no deeper than eighteen (18) feet below the natural ground surface. *The top of the pit may be more than four (4) feet below the surface*.

4. Seepage pits may not be installed in Group C soils.

Sizing. The effective area of the pit may be determined from the table: Effective Area of Seepage Pits

Diameter of Seepage Pit, in Feet	Effective Depth Below Flow Line, in Feet									
	1	2	3	4	5	6	7	8	9	10
3	9	19	28	38	47	57	66	75	85	94
4	13	25	38	50	63	75	88	101	113	126
5	16	31	47	63	79	94	110	126	141	157
6	19	38	57	75	94	113	132	151	170	188
7	22	44	66	88	110	132	154	176	198	220
8	25	50	75	101	126	151	176	201	226	251
9	28	57	85	113	141	170	198	226	254	283
10	31	63	94	126	157	188	220	251	283	314
11	35	69	104	138	173	207	242	276	311	346
12	38	75	113	151	188	226	264	302	339	377

Construction.

1. Effluent pipe shall be covered with a minimum of two (2) inches of aggregate.

2. Seepage pit excavation shall be covered with geotextile, straw or untreated building paper.

3. Effluent Pipe shall be installed to the geographic center of the pit.

STEEP SLOPE SYSTEM

Description. A trench system for slopes greater than twenty percent.

Conditions for Approval.

1. Steep slope systems may be considered where the slope at the site is greater than twenty (20) percent but less than forty-six (46) percent.

2. The soil must be well-drained, with no evidence of saturation and of Soil Design Group A or B with no evidence of textural change in the effective depth.

3. Except as listed in this section, all regulations applicable to a standard system will apply.

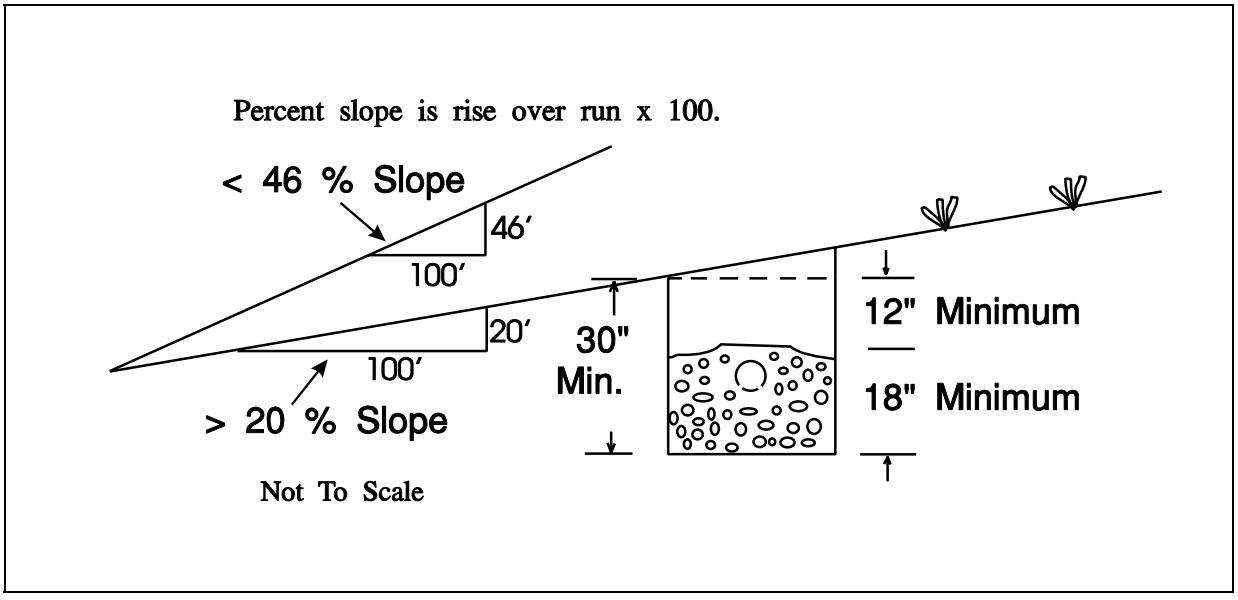
Construction.

1. Parallel trenches must be separated by at least eight (8) feet of undisturbed soil.

2. If more than one trench is used, serial distribution will be required.

3. Trenches must be installed at a minimum depth of thirty (30) inches below the natural soil surface on the downhill side of the trench, and contain a minimum of eighteen (18) inches of drainrock and twelve (12) inches of soil backfill or be constructed to gravelless trench specifications with a thirty (30) inch minimum depth.

4. In consideration of safety and plumb trench sidewalls, hand excavation of trenches paralleling the contour of the land's surface may be necessary.



TWO CELL INFILTRATIVE SYSTEM

Description. A two-celled infiltrative system into which domestic sewage is discharged. The cells provide storage of sewage during wet seasons and the second cell provides very slow infiltration into the surrounding soils. Evaporation and more rapid infiltration occur during dry seasons, reducing the liquid volume and replenishing storage capacity.

Conditions of Approval:

1. The cells may not be placed within one hundred (100') feet of the owner's property line, and may not be placed within three hundred (300') feet from a neighboring dwelling.

2. The bottom of the finished cells must meet the effective soil depths for a C soil.

3. Soil design group must be C or "unsuitable clays."

4. The site must be located in an area of maximum exposure to the sun and wind.

5. Slope must not be greater than six (6%) percent.

6. The system cannot be placed on fill.

7. A source of make-up water must be readily available.

8. Lot size shall be at least 5 acres.

9. This design is for an individual dwelling with up to 6 bedrooms and is not to be used for commercial non-domestic wastewater.

10. In areas of the State where the precipitation exceeds evaporation by more than 6 inches, this design would be considered experimental.

Design Volume:

The first cell is approximately 32,100 gallons at a liquid depth of four (4') feet. The first cell should operate full or nearly full at all times. If the water level drops below two (2') feet, make-up water is added to raise the first cell water level up to the two (2') foot minimum pool.

The second cell is approximately 51,000 gallons at a liquid depth of four (4') feet. This provides 182 days or about 6 months storage when this cell is dry.

Total volume = 83,100 gallons at a liquid depth of four (4') feet.

Construction.

1. The sewage discharge inlet must be placed in the basal area of the first cell.

2. A concrete splash pad must be constructed around the inlet

3. A water depth gauge clearly visible from the edge of the cell shall be installed.

4. A cleanout must be placed on the gravity effluent lines at a point above the maximum liquid elevation.

5. If the sewage is pumped to the system, a check valve, and a shut-off valve must be placed between the pump and the system so that repairs can be completed without draining the cells.

6. Excavation must provide the following dike and embankment details:

Dike and Embankmen	Minimum Slopes
Inner Slopes	3:1
Outer Slopes	2:1
Embankment Width (Top)	4 Feet Minimu

7. The system must be fenced to exclude children, pets, and livestock. A sign on the fence indicating **"DANGER - HUMAN SEWAGE"** shall be erected.

8. Diversion ditches or curtain drains must be installed on sloping terrain to prevent surface runoff from entering the system.

9. A reserve area equal to the size of the second cell shall be required.

10. Before operation of the system, the first cell shall be filled with two (2') feet of make-up water.

11. Shallow permeable top soils shall be removed prior to starting excavation and construction. (Top soils may be saved and used to provide vegetative cover on the dike embankments).

12. Dike levees and embankments shall be adequately compacted. Inlet piping trenches shall be compacted to 90% standard proctor density.

13. No pneumatic-tired vehicles shall be permitted on the basal area or inside slope of the cells.

14. The top and outer embankment shall be seeded or adequately protected from erosion.

Inspection:

Inspections may be required during construction and after completion. Inspections shall include slope verification, interior and exterior dimensions, splash pads, clean outs, signs, fencing, operation and maintenance manual, and seeding of the embankment.

1. The site must be inspected at the time the cells are excavated.

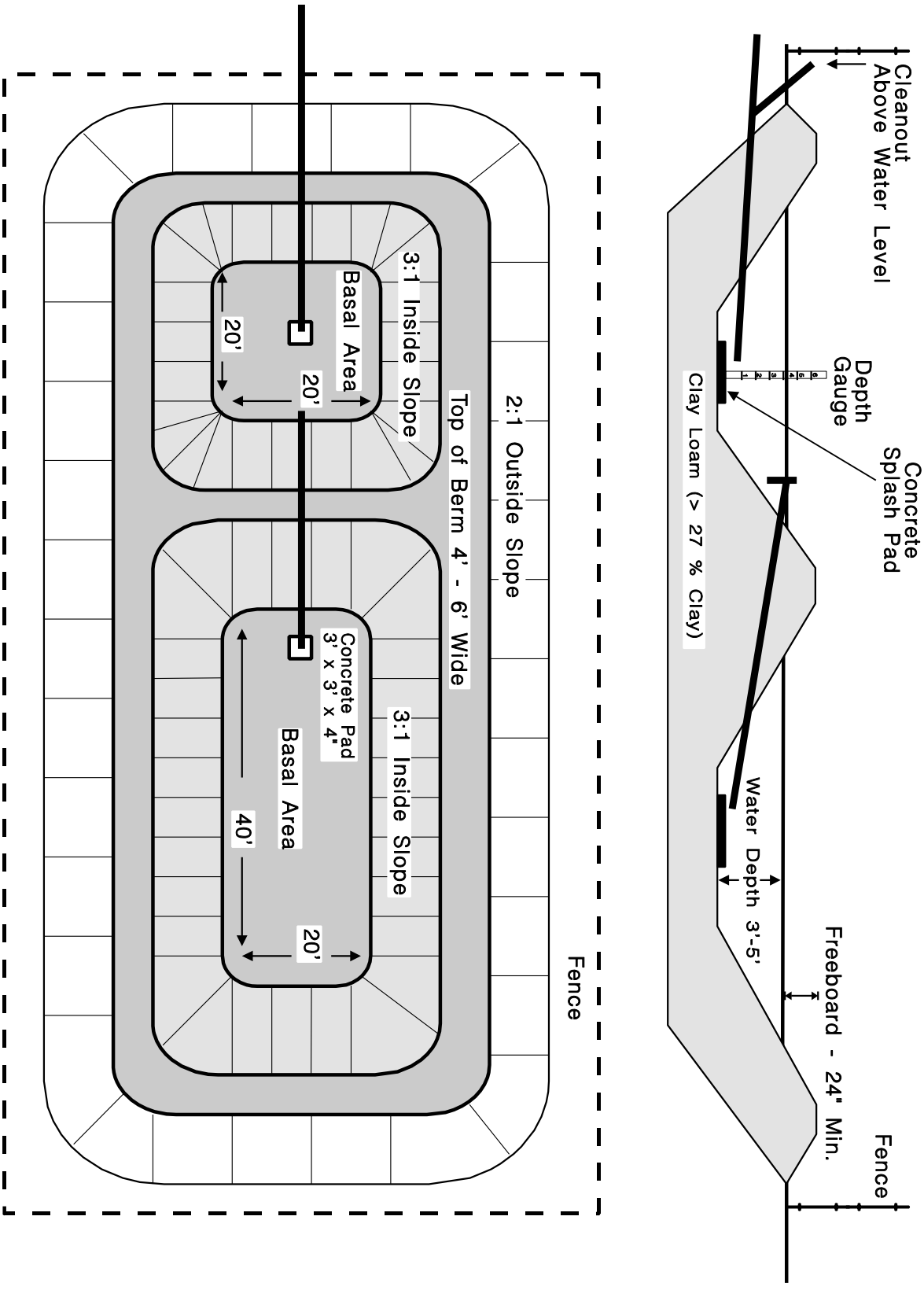
2. Inspections may be required during embankment construction to assure adequacy of fill compaction.

3. Prior to operation and before filling the first cell with make-up water a final inspection shall be completed.

Operation and Maintenance:

Operation and maintenance procedures shall be followed as outlined in the "Operation and Maintenance Guidance for Alternative Systems" found in the Operation and Maintenance chapter in the Technical Guidance Manual for Individual and Subsurface Sewage Disposal Systems.

Two Cell Infiltrative System (Cont'd)



VAULT PRIVY

Description. A sealed underground vault for the temporary storage of nonwater-carried sewage. The vault is pumped periodically and the sewage disposed at a secondary treatment site.

Conditions for Approval.

1. Surface water will be excluded.

2. The dwelling is not served by water under pressure or a standard system could otherwise be constructed.

3. A vault privy must be accessible for maintenance.

Requirements.

1. The privy must meet the distance limitations of a septic tank.

2. The privy vault must be watertight, constructed of durable materials and not subject to excessive corrosion, decay, frost damage or cracking.

3. The vault may be a modified septic tank with inlet and outlet opening sealed.

Sizing.

1. The volume of the tank must be three hundred and seventy-five (375) gallons for each toilet, except that no tank may be less than five hundred (500) gallons.

Other Requirements.

1. Toilet structures over holding tanks must meet the requirements of structures over pit privies.

2. The access/pumping port should be located outside of any structure and should have a diameter of at least eight (8") inches.

3. The tank shall be pumped by a licensed septic tank pumper.

APPROVED INSTALLERS AND SUPPLIERS

APPROVED INSTALLERS

Because of continual changes in the status of installers state-wide, their listing in the Technical Guidance Manual will no longer occur. To determine if an installer is licensed or to receive a current list of local installers please contact the following Health Districts:

Panhandle District Health Department 2195 Ironwood Court Coeur d'Alene, ID 83814 208-667-9513	Counties:	Benewah, Bonner, Boundary, Kootenai, Shoshone
North Central District Health Department 215 10th Street Lewiston, ID 83501 208-799-0353	Counties:	Clearwater, Idaho, Latah, Lewis, Nez Perce
Southwest District Health Department 920 Main Street Caldwell, ID 83605 208-455-5400	Counties:	Adams, Canyon, Gem Owyhee, Payette, Washington
Central District Health Department 707 N. Armstrong Place Boise, ID 83704 208-327-7499	Counties:	Ada, Boise, Elmore, Valley
South Central District Health Department 1020 Washington St. North Twin Falls, ID 83303 208-734-5900	Counties:	Blaine, Camas, Cassia, Gooding, Jerome, Minidoka, Lincoln, Twin Falls
Southeast District Health Department 1901 Alvin Ricken Pocatello, ID 83201 208-239-5270	Counties:	Bannock, Bear Lake, Bingham, Butte, Caribou, Franklin, Oneida, Power
District Seven Health Department 254 "E" Street Idaho Falls, ID 83402 208-523-5382	Counties:	Bonneville, Clark, Custer, Fremont Jefferson, Lemhi Madison, Tet

APPROVED SEPTIC TANK PUMPERS

Because of continual changes in the status of septic tank pumpers state-wide, their listing in the Technical Guidance Manual will no longer occur. To determine if a septic tank pumper is licensed or to receive a current list of local septic tank pumpers please contact the following Health Districts:

Panhandle District Health Department 2195 Ironwood Court Coeur d'Alene, ID 83814 208-667-9513	Counties:	Benewah, Bonner, Boundary, Kootenai, Shoshone
North Central District Health Department 215 10th Street Lewiston, ID 83501 208-799-0353	Counties:	Clearwater, Idaho, Latah, Lewis, Nez Perce
Southwest District Health Department 920 Main Street Caldwell, ID 83605 208-455-5400	Counties:	Adams, Canyon, Gem Owyhee, Payette, Washington
Central District Health Department 707 N. Armstrong Place Boise, ID 83704 208-327-7499	Counties:	Ada, Boise, Elmore, Valley
South Central District Health Department 1020 Washington St. North Twin Falls, ID 83303 208-734-5900	Counties:	Blaine, Camas, Cassia, Gooding, Jerome, Minidoka, Lincoln, Twin Falls
Southeast District Health Department 1901 Alvin Ricken Pocatello, ID 83201 208-239-5270	Counties:	Bannock, Bear Lake, Bingham, Butte, Caribou, Franklin, Oneida, Power
District Seven Health Department 254 "E" Street Idaho Falls, ID 83402 208-523-5382	Counties:	Bonneville, Clark, Custer, Fremont Jefferson, Lemhi Madison, Tet

APPROVED SEPTIC TANKS

SUPPLIER	UNIT Liquid Volume (Gallons)	Max. BURY DEPTH (ft)	DESCRIPTION Materials	EFFECTIVE DATE (m/d/yr)
AAA Tanks Idaho Falls, ID	1500	3	One-piece Concrete, single compartment rebar or synthetic structural materials. (**Lid requires Rebar in all configurations**)	1/11/05
	1000	3		1/11/05
	1500		Two-compartment Concrete	8/23/00
Amcor Oldcastle Precast 2240 S. Yellowstone Idaho Falls, ID 83402	1000, 1250, 1500		Two-piece Concrete	
	4000		Two-piece Concrete	6/12/92
	3140		Two-piece Concrete	7/30/93
	1500		Low-profile, 2 compartment	8/24/94
	2000		Two-piece Concrete	8/24/94
	1000		Low-profile, 2 compartment	3/9/98
	1500		Two-Compartment 1000 gal + 500 gal pump chamber	5/17/99
	1150	3	Two-piece, three-compartment Concrete, Jet Inc. Septic Tank	9/16/02
	1000	8 or HS20	One-piece, baffled	1/18/08
	1500	8 or HS20	One-piece, single compartment	1/18/08
	1500	8 or HS20	One-piece, two-compartment	1/18/08
Anderson Supply 630 E. Cottonwood Bozeman, MT 59715	1000		Single Compartment	9/13/88
	1000, 1500		Double Compartment	
	2000		Double Compartment	
	1000		w/ pump chamber	
Associated Tank & Vault Mesa, ID	1000		Concrete Septic Tank	8/5/96
Atkinson Septic Tanks 1315 W. Idaho Blvd. Emmett, ID 83617	1150		Two-piece, three-compartment Concrete, Jet Inc. Septic Tank	11/16/95
B.C. Tanks, L.L.C. 2193 McGrath Eagle, ID 83616	1000		Two-piece Concrete	9/6/96
Big Wood River Septic Jerome, ID	1000		Two-piece Concrete	12/9/93

SUPPLIER	UNIT Liquid Volume (Gallons)	Max. BURY DEPTH (ft)	DESCRIPTION Materials	EFFECTIVE DATE (m/d/yr)
Boise Vault 608 Carnation Dr. Nampa, ID 83687	750, 900, 1000		One-piece Concrete	1/1/77
	1250, 1500		Two-piece Concrete	12/29/77
	900		Low-profile	4/2/86
Bonner Concrete Products Sagle, ID	1000, 1250, 1500		Concrete	12/12/84
	1500	3	Concrete, single compartment, 1-piece	7/5/06
	2000	3	Concrete, 1- & 2-Compartment, 1-piece	6/27/06
Cooper Redi-Mix Salmon, ID	1000		One-piece Concrete	3/26/98
	1500		One-piece, one or two- compartment	5/19/98
Clearwater Concrete, Inc. Kooskia, ID	1000	3	One-piece Concrete	5/21/03
C.V. Concrete Orofino, ID	1000		Three-piece Round Concrete	8/1/87
CXT Precast Concrete Prod. Spokane, WA 99216	1000 Vault	3	One-piece Concrete Vault	5/30/02
Dahle's Red-E-Mix Salmon, ID	1000		Two-piece Concrete	7/26/94
Delta Fiberglass Structure Salt Lake City, UT	1000		Fiberglass Tank	9/6/83
Design Concrete Products Idaho Falls, ID	1000, 1250, 1500		Concrete	4/20/94
Duke's Septic Tanks Rt. 1 Box 116 Payette, ID 83661	1000		Concrete	2/20/86 7/19/94
Dura-Crete Inc. Salt Lake City, UT	1000		Two-piece Concrete	7/21/94
	1250		Two-piece Concrete	4/4/86
	1750		Two-piece Concrete	7/21/94
	2500		Two-piece Concrete	7/21/94
Early Bird Supply Clarkston, WA	1000		Concrete	11/5/86

SUPPLIER	UNIT Liquid Volume (Gallons)	Max. BURY DEPTH (ft)	DESCRIPTION Materials	EFFECTIVE DATE (m/d/yr)
Evergreen Pre-Cast, Inc. P.O. Box 58 Sumner, WA 98390	900	3	Specialty Concrete Septic Tank, Delta Environmental Products Tank Only (ETPS)	10/27/04
Everlasting Concrete Products 15824 Gunfire Rd Caldwell, ID 83605	750, 900, 1250		Two-piece Concrete	12/1/84
	1000	3	Two-piece concrete	12/03/2007
	500 GPD tank, Norweco ETP	3	Two-piece Norweco 500 GPD Extended Treatment Package System tank	7/17/2008
Fiber Septic Systems 1049 Port Way Clarkston, WA, 99403	1000		Single and Double Compartment Fiberglass Tanks	4/2/86
	1250 1500			9/8/93
Fiberglass Contractors Kennewick, WA	1000, 1300, 1500		Single and Double Compartment Fiberglass Tanks	11/2/76
Roth Global Plastics, Inc. P.O. Box 245 Syracuse, NY 13211	1060	3	RMT-1060 HDPE. RMT-1250 HDPE. RMT-1500 HDPE. Five (5) inch dia. inlet/outlet hole @ "A". Single compartment tanks only, baffles are not water tight.	~~6/12/2006~~ 6/1/2009
	1250	3		
	1500	3		
Hancey Concrete Precast Millville, UT	1000	10	Single Compartment, Two-Piece, deep burial concrete	12/2/08
	1250	10	Single Compartment, Two-Piece, deep burial concrete	12/2/08
Horrocks Precast 9659 North Philbin Road Pocatello, ID 83202	1000		Low-profile Concrete	10/27/99
	1500		Concrete	10/27/99
Infiltrator Systems, Inc. P.O. Box 768 Old Saybrook, CT 06475	900	3	TW-900, 1-Piece, 1-Compartment, Molded Plastic (Outlet hole "C")	4/15/09
	1050	3	TW-1050, 1-Piece, 1-Compartment, Molded Plastic (Outlet hole "C")	4/15/09
	1250	3	TW-1250, 1-Piece, 1-Compartment, Molded Plastic (Outlet hole "C")	4/15/09
	1500	3	TW-1500, 1-Piece, 1-Compartment, Molded Plastic (Outlet hole "C")	4/15/09
Jerome Precast 312 E. 400 S (Box 425) Jerome, ID 83338	1000		Concrete	7/8/96
	1250		Concrete	8/26/96
	1250		Two-Compartment Concrete	6/11/98
	1000		Two-Compartment Concrete	10/1/98
	1500	3	One or Two Compartment Concrete	03/24/03
	1000	3	Single Piece & Compartment, BioMicrobics 0.5 MicroFAST ETPS	5/20/09
	1500	3	Single Piece & Compartment, BioMicrobics 0.75 & 0.9 MicroFAST ETPS	5/20/09

SUPPLIER	UNIT Liquid Volume (Gallons)	Max. BURY DEPTH (ft)	DESCRIPTION Materials	EFFECTIVE DATE (m/d/yr)
Johnson Precast 551 East Moody Rd. Rigby, ID 83440	1000	3	Two-piece Concrete	8/1/03
	1500	3	One-piece Concrete	9/16/05
	1000	3	500 GPD Norweco ETP System tank	12/02/08
Jo-Mac Construction P.O. Box 54 Richfield, ID 83349	1000		Concrete	8/20/91
K.G. Septic Tanks Bonners Ferry, ID	1000		Two-piece Concrete	6/22/94
Kanta Manufacturing P.O. Box 96 Three Forks, MT 59752	1000		Concrete	10/24/85
L/R Schuldt Inc. DBA K&G Contractors 2535 North Blvd Idaho Falls, ID 83402	1000	8	One-piece Round	5/14/98
	1000, 1500		One-Piece Rectangular Concrete	11/26/93
	1000		Specialty Concrete Tank, ETPS Southern	7/22/02
	2000	4	One-piece Concrete	11/20/02
Lar-Ken 411 Remington Boise, ID 83714	1000, 1250, 1500		Concrete	5/13/81
	1000		Two-piece Concrete	9/11/95
	2000		Two-piece Concrete	12/18/98
	2500		Concrete	12/18/98
	800		Concrete	5/24/99
	1250		One or Two-Compartment (900 gal + 300 gal pump chamber)	7/21/00
Miller Septic Tanks 319 Orchard Dr. Twin Falls, ID 83303	1000		Two-piece Concrete	3/22/95
	1000		Two-piece Concrete	6/13/95
	1250,1350		Two-piece Concrete	7/18/95
	1000, 1500	3	One-piece Concrete	6/24/04
	1000, 1500	3	One-piece, Two-Compartment Concrete	
Missoula Concrete Const. Missoula, MT	3000		Concrete	11/1/94
	6000		Two-piece Concrete	11/1/94
	1000 STEPS		Two-piece Concrete	11/16/95
	2000		Two-piece Concrete	11/16/95
	1000		Vault Privy	7/11/02

SUPPLIER	UNIT Liquid Volume (Gallons)	Max. BURY DEPTH (ft)	DESCRIPTION Materials	EFFECTIVE DATE (m/d/yr)
Norwesco 4365 Steiner St. St. Bonifacius, MN 55375	750, 1000, 1250, 1500		Polyethylene, one and two manhole	5/13/81 11/06/95
	1000, 1250, 1500		Polyethylene Cisterns	12/17/96
	1000, 1250	3	Polyethylene "Bruiser"	11/13/03
Oldcastle Precast (Amcor) 16419 Ten Lane Nampa, ID 83687	2,990	HS-25	Traffic Rated, reinforced concrete, two-piece, single compartment tank	05/08/2009
Orenco Systems, Inc. 814 Airway Avenue Sutherlin, OR 97479	1000, 1500	3	Fiberglass	6/24/04
Owyhee Sand and Gravel P.O. Box 326 Homedale, ID 83628	1000		Two-piece Concrete	3/10/00
Panhandle Precast Concrete P.O. Box 60 Coeur d'Alene, ID 83814	1000		Two-piece Concrete	12/14/81
	1500, 2000		Two-piece Concrete w/ 500 gal pump chamber	12/14/81
	2500, 3000		Two-piece Concrete	01/30/85
Paulson Precast Rt. 1 Box 291 Rupert, ID 83350	1000		Low-profile Concrete	7/1/94
	1250		Low-profile Concrete	7/1/94
Pocatello Precast 3650 Hwy 30 Pocatello, ID 83201	1000	3'	Low-profile Concrete	4/6/95
	1600	3'	Low-profile Concrete	4/11/95
	1600	3'	Two-Comp. 1100 gal + 500 gal.	3/21/96
	1250	3'	Concrete, 6' x 8'	5/19/98
	1050	3'	Two-Compartment Concrete	7/9/98
	2000	3'	Two-piece Concrete	7/9/98
	1050	6'	One-piece, single compartment tank	10/1/08
	1500	6'	One-piece, single compartment tank	10/1/08
Quadel Industries Coos Bay, OR	Q21-1000		Polyethylene	9/22/84
	Q21-1250		One or Two Compartment	6/22/94
	Q21-1500 Q21-1000+500		1500 gal. 1000 gal. + 500 gal. pump chamber	6/22/94

SUPPLIER	UNIT Liquid Volume (Gallons)	Max. BURY DEPTH (ft)	DESCRIPTION Materials	EFFECTIVE DATE (m/d/yr)
Robertson MFG. 455 East 80 South Hyde Park, UT 83418	1000		Two-piece Concrete	9/14/94
	1250, 1500		One-piece Concrete	11/7/96
Rocky Mountain Precast P.O. Box 2062 Idaho Falls, ID 83403	1000		Two-piece Concrete	10/14/97
	1000		Two-compartment Concrete	7/3/01
Rotational Molding Inc. 716 North 11th Ave. Caldwell, ID 83605	1000		Polyethylene	4/11/88
RotoTech Industries 201 Carlisle Coos Bay, OR 97420	CPI 1250		Polyethylene	9/22/84
Rupp Trucking Ent. Inc., 7905 West 9600 North Tremonton, UT 84337	1000 1250		Two-piece Concrete Two-piece Concrete	4/4/86 11/18/99
Snake River Precast 3640 Highway 30 Pocatello, ID 83201	1000	3	Concrete	4/25/06
	1500	3	Concrete	
Synder Industries Inc. Marked Tree, AR 72365	1050		One ompartment Polyethylene	2/21/03
	1500		One compartment Polyethylene	2/21/03
Triple C Concrete P.O. Box 95 Rupert, ID 83350	1000		Two-piece Concrete	7/17/86
	1000		Low-profile, two-piece Concrete	5/13/96
	1000	2	Single piece, concrete	6/16/2008
	1500	2	Single piece, concrete	6/16/2008
	1500	2	Single piece, dual compartment, concrete	6/16/2008
Valley Precast Inc., 6633 Summer Hill Rd. Boise, ID 83703	1000	3	One-piece Concrete, alternative inlet/outlet locations (5/20/08)	11/23/99
	1250	3	One-piece Concrete, alternative inlet/outlet locations (5/20/08)	11/23/99
	1000	3	Low-profile Concrete, alternative inlet/outlet locations (5/20/08)	5/8/00
	1500	3	One or two compartment 1000 gal. w/ 500 gal. Pump chamber Concrete, alternative inlet/outlet locations (5/20/08)	7/17/00

SUPPLIER	UNIT Liquid Volume (Gallons)	Max. BURY DEPTH (ft)	DESCRIPTION Materials	EFFECTIVE DATE (m/d/yr)
	1000	3	Specialty Tanks ETPS, Biomicrobics, alternative inlet/outlet locations (5/20/08)	12/21/00
	1500	3	Specialty Tanks ETPS, Biomicrobics, alternative inlet/outlet locations (5/20/08)	07/11/03
	1250	3	Specialty Tanks ETPS, Biomicrobics, Two-compartment, alternative inlet/outlet locations (5/20/08)	10/06/03
White Block Company 6219 East Trent Ave. Spokane Valley, WA 99212	750, 900, 1000, 1100, 1250, 1500, 2000, 2500		Concrete	4/2/86
Wilbert Precast, Inc. 2215 East Brooklyn Spokane, WA 99217	750, 1000, 1250, 1500		Concrete	2/6/81
	1000 + 500		Two-piece Concrete w/ 500 gal. Pump chamber	3/21/97
	1500		Two-compartment Concrete	3/21/97
	3000		Multi-piece Concrete	4/04/03
	5,386	HS20	Two-piece, single compartment, Traffic Rated	12/07/2006
Wilson Concrete Products Idaho Falls, ID	1000		Two-piece Concrete	10/1/98
Wilson & Dodge Contractors Box 93 Mountain Home, ID 83647	1000		Concrete	6/15/92
Xerxes Corporation 7901 Xerxes Avenue South Minneapolis, MN 55431	2,500 3,400 4,200 5,000	7 7 7 7	Single Wall, Fiberglass Reinforced Plastic (FRP). (Contact manufacturer for special bedding requirements for durial depths exceeding 7 feet.)	6/7/06 6/7/06 6/7/06 6/7/06

EXTENDED TREATMENT PACKAGE SYSTEMS

Extended Treatment Package Systems

Aerobic Treatment Device (Std 40)	GPD	BOD_5 Removal	TSS Removal	Trench Size	Cert.Date
A-Aerobic-1, LLC A-Aerobic-1 Class I	500	Ave 21 mg/l	Ave 26 mg/l	Intermittent sand filter drainfield	10/14/02
Advanced Septic Treatment Sys. TRD-1000-500 Class I TRD-1000-600 Class I TRD-1000-700 Class I TRD-1000-800 Class I TRD-1000-900 Class I TRD-1000-1000 Class I	500 600 700 800 900 1000			Intermittent sand filter drainfield	11/03/03
Alternative Wastewater Systems Inc SYBR-AER Class I SYBR-AER Class I SYBR-AER Class I SYBR-AER Class I SYBR-AER Class I	500 600 800 1000 1500			Intermittent sand filter drainfield	11/03/03
American Wastewater Systems Inc BEST 1 AWS-500 Class I BEST 1 AWS-800 Class I BEST 1 AWS-1000 Class I BEST 1 AWS-1200 Class I BEST 1 AWS-1500 Class I	500 800 1000 1200 1500			Intermittent sand filter drainfield	11/03/03
Aquapoint Bioclere 16/12/500 Class I	500	Ave 11 mg/l	Ave 13 mg/l	Intermittent sand filter drainfield	3/19/91
Aquarobic International Mini-Plant 54291 Concrete Filter Kit [1] Class I Mini-Plant 54291 Fiberglass Class I	500 to 1500 in 100 gal units	Ave 7 mg/l	Ave 11 mg/l	Intermittent sand filter drainfield	11/03/03
Bio-Microbics, Inc. Micro Fast 0.50 Class I	500	92-95%	95-97%	Intermittent sand filter drainfield	03/05/97

Extended Treatment Package Systems

Aerobic Treatment Device (Std 40)	GPD	BOD_5 Removal	TSS Removal	Trench Size	Cert.Date
Micro Fast 0.75 Class I Micro Fast 0.90 Class I Micro Fast 1.5 Class I	750 900 1500	Ave 11 mg/l	Ave 16 mg/l		6/5/2000 12/27/02
Clearstream Wastewater Systems Model 500 N/C Class I Model 600 N/C Class I Model 750 N/C Class I Model 1000 N/C Class I Model 1500 N/C Class I	 500 600 750 1000 1500	 95-97% Ave 14 mg/l	 93-98% Ave 48 mg/l	Intermittent sand filter drainfield	03/28/96
Consolidated Treatment Sys., Inc. Multi-Flo FTB Class I 0.5, 0.6, 0.6-C, 0.75, 1.0, 1.5 Nayadic M Class I 6A, 8A, 1050A, 1200A, 2000A	 500 to 1500 500 to 1500	 96-97% Ave 5 mg/l 96-97% Ave 6 mg/l	 97-98% Ave 6 mg/l 96-98% Ave 7 mg/l	Intermittent sand filter drainfield	04/02/96 04/02/96
Delta Env. Products DF40-C, F, CC, CA, FF Class I DF50-C, F, CC, CA, FF Class I DF60-C, F, CC, CA, FF Class I DF75-C, F, CC, CA, FF Class I DF100-C, F, CC, CA, FF Class I DF150-C, F, CC, CA, FF Class I	 400 500 600 750 1000 1500	 95-98% Ave 6 mg/l	 96-97% Ave 7 mg/l	Intermittent sand filter drainfield	02/03/97
Desoto Concrete Products H-Two-O Series Class I	500 750 1000			Intermittent sand filter drainfield	11/03/03
Ecological Tanks, Inc. AA, AS 500 Class I AA, AS-650 Class I AA, AS-750 Class I AA, AS-1000 Class I	 500 650 750 1000	 AA Ave 2.0 mg/l AS Ave 2.0 mg/l	 AA Ave 2.2 mg/l AS Ave 1.6 mg/l	Intermittent sand filter drainfield	11/1/97 5/2/02

Extended Treatment Package Systems

Aerobic Treatment Device (Std 40)	GPD	BOD_5 Removal	TSS Removal	Trench Size	Cert.Date
AA, AS-1500 Class I	1500				
Enviro-Flo Class I E-500, E-550 E-600 E-750 E-1000	500 550 600 750 1000	Ave 14 mg/l	Ave 15 mg/l	Intermittent sand filter drainfield	12/18/02
H.E. McGrew, Inc. Class I Alliance 500, 750, 1000 Mighty Mac, 500, 600, 750 Cajun Aire Basic 500, 750, 1000 Cajun Aire Advanced, 500, 750, 1000	500 to 1000	96.5% Ave 7 mg/l Ave 13 mg/l	97.2% Ave 13 mg/l Ave 19 mg/l	Intermittent sand filter drainfield	6/5/2000 12/5/97 12/30/02
Hoot Aerobic Systems, Inc. Class I H 500, 600, 750, 1000 LA 500, 1000	500 to 1000	Ave 3.2 mg/l	Ave 3.6 mg/l	Intermittent sand filter drainfield	2/6/01
Hydro-Action, Inc. Class I AP-500, 600, 750, 900, 1500	500- 1500	Ave 9 mg/l	Ave 15 mg/l	Intermittent sand filter drainfield	04/02/96 3/99 8/1/03
Jet Inc. Class I J-500, J-600 J-750,1000, 1250, 1500	500 600 750-1500	88-96% Ave 15 mg/l	91-97% Ave 12 mg/l	Intermittent sand filter drainfield	10-96 5-93 7-29-97
MICROSEPTEC Class I Enviroserver, ENFG 600, 1200, 1500	600 1200 1500	Ave 6 mg/l	Ave 8 mg/l	Intermittent sand filter drainfield	6/25/99
National Wastewater Systems Inc., Solar Air 500, 800, 1000, 1200	500 800 1000 1200	Ave 13 mg/l	Ave 19 mg/l	Intermittent sand filter drainfield	8/1/03

Extended Treatment Package Systems

Aerobic Treatment Device (Std 40)	GPD	BOD_5 Removal	TSS Removal	Trench Size	Cert.Date
Norweco, INC. Singulair 950 series Class I Singulair 960 series Class I	600-1500 500-1500	>85% Ave 6 mg/l	>85% Ave 10 mg/l	Intermittent sand filter drainfield	04/03/96 8-96
Orenco Systems Inc., AdvanTex AX20N AdvanTex AX15-2N AdvanTex AX20-2N AdvanTex AX15-3N AdvanTex AX20-3N	500 800 1000 1200 1500	Ave 5 mg/l	Ave 4 mg/l	Intermittent sand filter drainfield	4/10/02
Pro Flo Aerobic Systems Pro Flo 500 TL Pro Flo 750 SL Pro Flo 1000 TC	500 750 1000			Intermittent sand filter drainfield	11/03/03
Rogers Treatment Systems Mudbug 5 Mudbug 10 Mudbug 15	500 1000 1500	Ave 15 mg/l	Ave 22 mg/l	Intermittent sand filter drainfield	11/03/03
Southern Manufacturing SM-500 Class I SM-600 Class I SM-750 Class I SM-1000 Class I SM-1500 Class I	 500 600 750 1000 1500	 98.7% Ave 2.0 mg/l	 98.1 % Ave 1.8 mg/l	Intermittent sand filter drainfield	 9/1/97 8/28/00
Zabel Environmental Technology ATS-AD-500 Class I	500			Intermittent sand filter drainfield	12/02 Dropped

COMPOSTING TOILETS

Recycle/Reuse and Water Conservation Devices (NSF STD 41)	Treatment System	Model	Notes	Cert. Date
Advanced Composting Systems	Composting toilets	ACS 200	CSA Certified	8-94
BIOLET INTL	Composting toilets	BioLet XL		6/92
Clivus Multrum, INC.	Composting toilets	08 / 08 M-12 / M-15 M-18 / M-22 M-25 / M-28 M-32 / M-35		2-98
Composting Toilet Systems	Composting toilets	CTS-410 CTS 710, CTS 1010, CTS 904		6-93
ECOTECH Batch Composting Toilet, Carose	Composting toilets	Model 80 A		12-97
Sancor Industries, LTD.	Composting toilets	Waterless Self-Contained Waterless Remote	CSA Certified	7-94
Sun-Mar Corp.	Composting toilets	Sun-Mar- Exce		6-93
Biological Mediation Systems, Inc.	Composting toilet	Devap 2000	Not Certified by NSF	12-95

INCINERATING TOILETS

Incinerating Toilets	Model	Notes	Cert. Date
Global Inventive Industries, Inc. P.O. Box 3752 Costa Mesa, CA 92628 1-800-ECOJOHN (714-568-1077) GII, Inc. 17150 Newhope St. Ste. 707 Fountain Valley, CA 92708	ECOJOHN SR	Gas-fired	2007
Research Products/Blankenship Incinolet 1-800-527-5551	CF (120v) TR (208v, 240v) RV (120v) WB (120v 208v, 240v)	120 V or 240 V Marine	2001
Storburn 1-519-442-4731	60K	Gas-fired	1/93

GRAVELLESS TRENCH COMPONENTS

Gravelless Drainfield Systems	Chambers, Bundled or Large Dia. Pipe	Model	Sizing Factor	Rating (ft^2/ft)	Unit Dimensions (W" x L" x H")	Cert. Date
Advanced Drainage Systems[1] / Bio-Diffuser Chambers[1] / Hancor[1]	Chamber	Arc 36	25%	4.00	34.5"x 60"x 13"	01-06
		Standard 1100BD	25%	4.00	34" x 76" x 11"	12-92
		High Capacity 1400BD	25%	4.00	34" x 76" x 14"	12-92
	Lg. Dia. Pipe	SB-2 (Ø8")	25%	1.33	20' rolls	9-82
		SB-2 (Ø10")	25%	1.33	20' rolls	
Infiltrator Chamber Leachfield Systems	Chamber	Quick 4 Standard	25%	4.00	34" x 48" x 12"	7-05
		Quick 4 Equalizer 36	25%	2.67	22.8" x 48" x 10"	7-05
Multi_Pipe Rock Replacement Distribution System	Bundled Pipe	9-pipe system	25%	1.33	10' lengths	05/98
		11-pipe system	25%	1.33	10' lengths	05/98
		13-pipe system	25%	1.33	10' lengths	05/98
Prinsco, Inc.	Lg. Dia. Pipe	Goldline GLP (Ø8")	25%	1.33	10' & 20' lengths	12-95
		Goldline GLP (Ø10")	25%	1.33	10' & 20' lengths	
Ring Industrial Group (EZ Flow)	EPS Pipe	1201P* & 1201P-Geo*[2]	25%	1.33	10' lengths	02/04
		1202H** & 1202H-Geo**[2]	25%	2.67	10' lengths	02/04
		1203H*** 1203H-Geo***[2]	25%	4.00	10' lengths	10/07

*: in one (1') foot wide trench.
**: in two (2') foot wide trench.
***: in three (3') foot wide trench.
1: Advanced Drainage Systems is now the parent company for both Hancor and Bio-Diffuser. Product markings may change to reflect new ownership.
2: "-Geo" suffix indicates product contains geotextile fabric inside the mesh. Geotextile should be oriented on top to limit soil intrusion. Product must still be covered to prevent soil intrusion per Rule (IDAPA 58.01.03.008.07).

Trench & Product Width to Rating Correlation Table

The measured width of the product must be at least 90% of the design trench width.

Trench Width	Product Measured Width must be at least:	Rating = Design Trench Width divided by 0.75
36" (3.0')	32.4"	4.00 ft^2/lineal foot
30" (2.5')	27.0"	3.33 ft^2/lineal foot
24" (2.0')	21.6"	2.67 ft^2/lineal foot
18" (1.5')	16.2"	2.00 ft^2/lineal foot
12" (1.0')	10.8"	1.33 ft^2/lineal foot

SEPTIC TANK PUMP VAULTS

Pump Vault Manufacturer	Model #	Unit Dimensions	Cert. Date	NSF Cert.
AAA Tanks Idaho Falls, ID	500 gallon	1-piece concrete pump tank, single compartment, rebar & synthetic structural materials.	1/11/05	
Concentric Systems	PF-1645 series PF1445-FI series EF210, EF210-D	16" dia. pump filter x 45", 50", 55", 60" tall 14" dia. pump filter x 45", 50", 55", 60" tall 10" diameter case, 2 parallel EF210 filters	10/07/97 10/07/97 10/07/97	
Cooper Redi-Mix Salmon, ID	500 gallon	1-piece concrete pump tank.	11/22/00	
L/R Schuldt Inc., BDA K&G	500 gallon	2-piece round concrete pump tank.	5/14/98	
Miller Septic Tanks 319 Orchard Dr. Twin Falls, ID 83303	500 gallon	1-piece concrete pump tank.	6/24/04	
Northwest Cascade Stuth	Disk/Screen Effluent Filter	50"x18" Adjust filter stand length, Six 1/8 inch screens 40"x18" Adjust filter stand length, Six 1/8 inch screens	6/05/2000 6/05/2000	
Orenco Systems, INC.	PVU - Series SV - Series	Biotube Pump Vault Screened Pump Vault	6/12/02 12/13/99	
	OSI 12000	12" diameter x 48" tall	3/87	
Pocatello Precast 3650 Hwy 30 Pocatello, ID 83201	680 gallon	Low-profile concrete pump tank.	07/09/98	
Zabel Wastewater Systems	FPV-100	15" diameter filter pump vault, 36" or 48" tall (dosing chamber only)	05/19/98	
Zoeller Pump Co.	P/N 170-0101 P/N 170-0126	Filter and Pump Chamber 15 3/8” dia. x 34” tall Filter and Pump Chamber 17 9/16” dia. x 55 ¾” tall, field fitted for openings – Does not include packages w/ pumps rated at >30 GPM.	10/31/02 10/31/02	

SEPTIC TANK EFFLUENT FILTERS

Effluent Filter	Model #	Unit Dimensions	Septic Tank Liquid Depth	Approval Date	NSF Cert.
BIO WEIR FILTERS, INC. 3 MILTON AVENUE NEWNAN, GA 30263 770-301-6603	D/F SC/9				11/03/03
Bowco Industries 5486 S.E. International Way Portland, Oregon 97222 888-232-9991	EF-235	Total overall Height 27.5” Filter Height 25” Total overall Diameter 4.35” Filter Diameter 4.00”	Fits 4” SDR-35 or Schedule 40 outlet tees Flow Rate up to 1,500 Gallons/ day	07/28/2008	06/02/2004
Norweco 220 Republic Street NORWALK, OH 44857-1196 419-668-4471	BK 2000	Separate settling/retention basin, 2' o.d. x 6'41/2”	Not applicable	10/18/99	05/06/2002
Northwest Cascade Stuth 16207 Meridian Puyallup WA, 98373 1-800-444-2371	Effluent Filter	24" x 18"	Adjust filter stand length	6/05/2000	
Orenco Systems, Inc. 814 Airway Ave. Sutherlin, OR 97479 1-800-348-9843	FT - Series FT j - Series FT i - Series	Biotube Effluent Filters Biotube (jr) Effluent Filters 4" dia by 18" Biotube Insert Effluent Filters	Order to fit tank Up to 45" Fits in existing baffle	12/13/99 12/13/99 12/13/99	
Polylock, Inc 173 Church Street Yalesville, CT 06492 800-234-3119	PL-122 PL-68	4.25" x 4.25" x 12.5" (depth) 4.2" x 14.4" (depth)	Up to 31.25" Fits in existing baffle	10/21/99	06/06/2000 12/9/2003
Premeir Tech 2000 ITEE 1 Avenue Permeir RIVIÈRE-DU-LOUP, QUEBEC G5R 6C1 CANADA 418-867-8883	EFT-80				11/03/03
Tuf-Tite Inc. 500 Capital Drive Lake Zurich, IL 60047 800-382-7009	EF-4 EF-4 Combo	4" diameter for Vented Tees (1/16" filtration) 4" diameter with Vented Tees (1/16" filtration)	Fits in existing baffle	08/22/02 08/22/02	05/06/2002
Zabel Wastewater Systems 6244 Old LaGrange Road Crestwood, KY 40014 800-221-5742	A100 A300 A1800	11.4" diameter x 16" high (residential, 1/16") 11.4" diameter x 16" high (commercial, 1/32") 4" diameter for vented tees (1/16" filtration)	Variable adjusts w/ extension Variable adjusts w/ extension Fits existing baffled tank	04/21/88 05/19/98 03/24/94	06/06/2000 06/06/2000 06/06/2000
Zoeller Pump Co. 3649 Cane Run Road Louisville, KY 40211 502-778-2731	P/N 170-0078	4" diameter for Vented Tees (1/16" filtration)	Fits in existing baffle	08/22/02	05/06/2002

Pipe Materials for Specified Uses

House to Tank	Septic Tank and Dosing Chamber Excavation	Effluent Line [3]	Drainfield [3]	Septic Tank Baffles[4]
Plumbing Bureau	DEQ/HD	DEQ/HD	DEQ/HD	DEQ/HD
[1]ABS SCH 40	ABS SCH 40	ABS SCH 40	ABS SCH 40	ABS SCH 40
	[2]ASTM D-3033 PVC	ASTM D-3033 PVC	ASTM D-3033 PVC	
ASTM D-3034 PVC	[2]ASTM D-3034 PVC	ASTM D-3034 PVC	ASTM D-3034 PVC	ASTM D-3034 PVC
		ASTM D-2729 PVC	ASTM D-2729 PVC	Polylok Baffle
		[5]ASTM F810 PE	ASTM F810 PE	
			[6]ASTM F405 PE	

[1] ABS Schedule 40 or material of equal or greater strength piping. Requirement by rule 58.01.03.007.21.a.

[2] Excavation must be compacted with Fill material to 90% standard proctor density, with a minimum of 12 inches of cover material. Requirement by rule 58.01.03.007.21.b.

[3] Specified on page 22 of the Technical Guidance Manual for Subsurface Sewage Disposal.

[4] Must use ASTM D-3034 or equivalent as specified on page 22 of the Technical Guidance Manual for Subsurface Sewage Disposal.

[5]Smooth Wall High Density Polyethylene (PE), white suitable for effluent and drainfield piping.

[6]Corrugated High Density Polyethylene (PE), black with stripe, flexible, suitable for drainfield piping.

PVC = Poly Vinyl Chloride
ABS = Acrylonitrile-Butadiene-Styrene

VAULT TOILETS

Vault Manufacturer	Volume		**EFFECTIVE DATE** (m/d/yr)
Park and Restroom Structures, Inc. P.O. Box 13280 Spokane Valley, WA 99213-3280	1,200 gallon	1-piece concrete vault toilet tank, single compartment, reinforced concrete construction, building structure integral with vault lid..	6/1/2009

SEPTIC TANK PUMPERS

GUIDANCE MANUAL

INTRODUCTION

The use of a septic tank system requires periodic maintenance which includes pumping out the accumulated scum and sludge, called septage. Septage, because of where it comes from, may give off offensive odors and present the health hazards of diseases. The septic tank pumper has the important task of not only helping the homeowner maintain his system, but protecting the homeowner from the various health hazards associated with the septage.

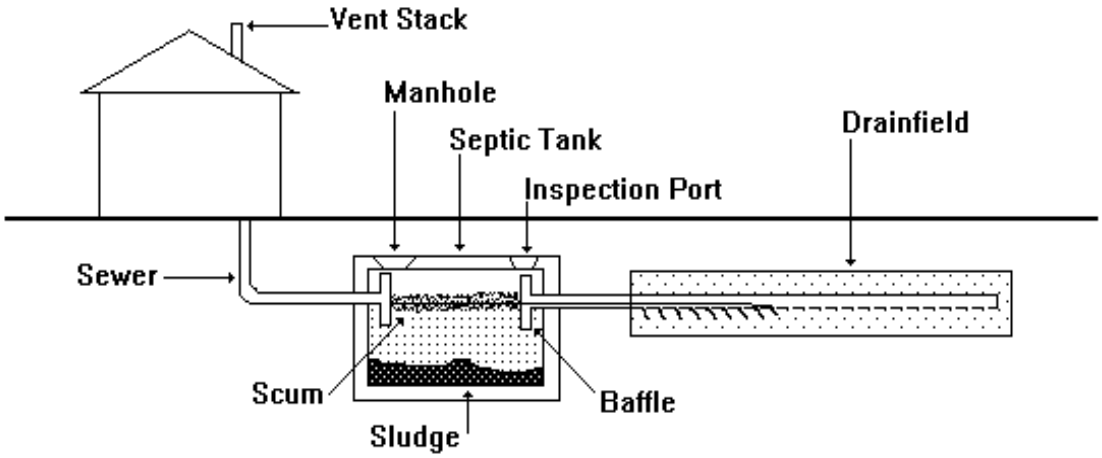
In order to protect and help the homeowner, the pumper needs to know something about the operation of the sewage system as well as the proper procedures for pumping and disposal of the septage. Hopefully, this manual will help the septic tank pumper get off on the right track to a successful career.

THE PUBLIC HEALTH IMPORTANCE OF SEPTAGE

Many very important diseases, including any that will pass in urine and feces, can be found in sewage. Therefore, septage may contain some or all of them. The bacterial diseases of diarrhea (Salmonella, Shigella and Clostridium) and Typhoid (Salmonella typhi) may be present. Parasites, such as Pinworm, Roundworm and Hookworm can often be found, especially in the scum layer. The organisms that cause Amoebic Dysentery, Polio and Hepatitis could also exist in septage.

PARTS AND MECHANICS OF A SEWAGE SYSTEM

The most common septic tank system consists of the septic tank, either rectangular or round and usually made out of concrete, and a disposal field under the ground, usually trenches or a bed filled with gravel and containing perforated plastic pipe.



Wastewater from the home or business enters the tank where the flow slows quickly. Because of the slowing (with a loss of energy) material heavier than water, such as feces and garbage, settle to the bottom as sludge. Lighter-than-water matter, such as grease and plastics, float to the top, as scum. The liquid in the center of the tank, now with the sludge and scum removed, is called effluent and is the liquid that flows to the drainfield for treatment by the soil and organisms in the ground . The septic tank and drainfield will work satisfactorily until such time as the sludge fills over 40% of the volume of the tank or the scum fills the air space in the tank. Before the tank reaches these levels it should be pumped.

If the tank is not pumped, it will be unable to perform its separation function and will let the solids and greases be carried out into the drainfield. There they will fill and clog the soil causing the septage to back up into the house or business, or to even overflow the tank.

CHECKING THE LEVEL OF SCUM AND SLUDGE IN THE TANK

The septic tank should be checked at least once every three years, and, preferably, once a year if the sewage system receives heavy use. Either the homeowner or the septic tank pumper can check the tank.

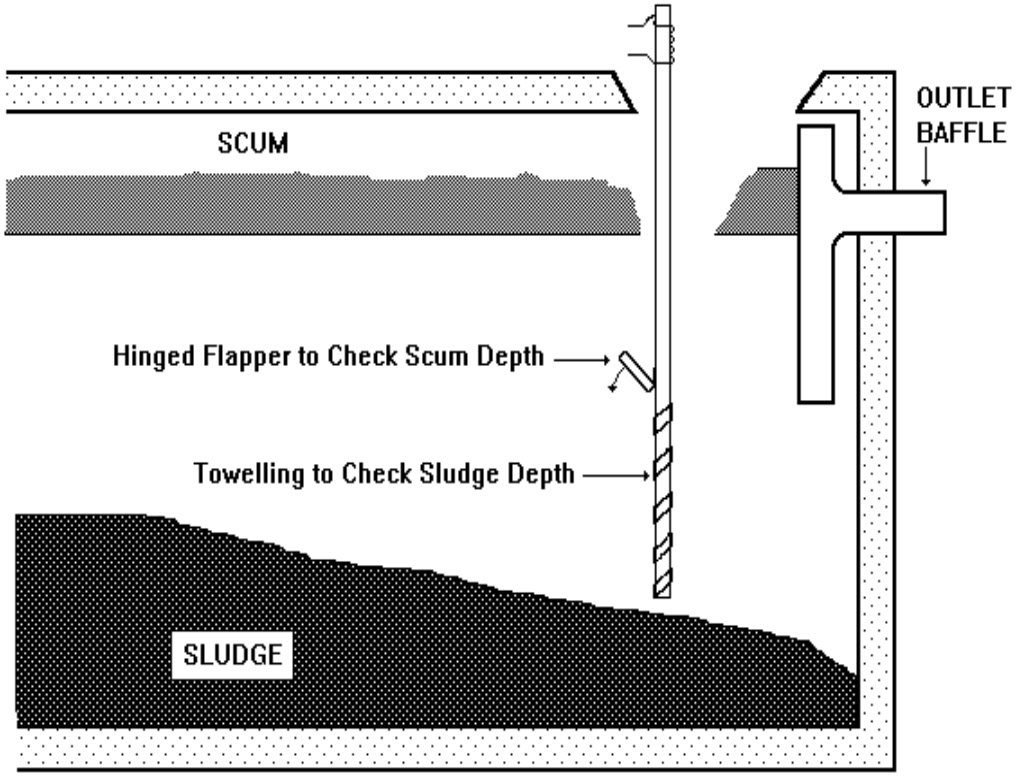
The following outlines a procedure for checking the scum and sludge. First, locate the septic tank. If the homeowner does not have a plot plan of the location of the tank, often the Health Department will have its location on file. If no drawings can be found, a guess as to where the tank is located can be made by finding the 3" or 4" vent stack on the roof. The tank is often located directly out from that stack. Also the building sewer can be located under the crawl space and the place where it exits under the house foundation can be noted. With a steel rod probe the ground to locate the tank. It, or the manhole cover on a riser, should be within 18" of the ground's surface. Once located, excavate to the top of the tank and pull off the manhole cover.

With a shovel break through the scum, making a hole about one foot in diameter. Wrap a strip of terry cloth toweling spirally around a pole and lower the pole into the tank. If the pole is fitted with a hinged flapper about two feet from its bottom such that the flapper swings down the scum level can be checked. Lower the pole into the septic tank liquid until the flapper is about one foot below the scum. Pull the pole towards you a little to get the flapper under the scum, then raise the pole until the scum begins to move up, indicating that the flapper has made contact with the scum. mark the pole at the top of the scum so that the depth of the scum can be measured from the pole after it is removed. Continue to lower the pole into the septic tank until it meets the bottom. Tap the bottom of the tank two or three times with a sharp rap. That permits the sludge to enter into the coarse weave of the terry cloth. Very slowly remove the pole. The depth of the sludge will then be seen in the terry cloth.

Calculate the depth of the sludge as a percent of the liquid depth:

$$\% \text{ Liquid Depth} = \frac{\text{Depth of sludge, in inches}}{\text{Liquid depth of tank, in inches}} \times 100$$

When sludge is greater than 40% of the liquid volume the tank should be pumped.



PRACTICES OF THE SEPTIC TANK PUMPER

Equipment

The major and most expensive piece of equipment is the truck. Certain information should be located on the side of the truck, including the name of the firm, address, business phone number and capacity of the tank. All the information should be in letters at least three inches high on both sides of the truck. The capacity of the tank should be at least 1,000 gallons. It should have an access port for the periodic inspection and maintenance of its interior and some sort of gauge to indicate the volume of liquid it is to contain. The tank should also have a gr avity drainage valve that can be safely locked during transportation and storage. The pumping equipment on the truck should be sized to provide at least fifteen feet of suction lift and should be able to reverse flow. If the pump pulls a vacuum on the tank there should be a water trap between the tank and pump to prevent liquid from entering the pump. The hoses from the tank and pump should be at least three inches in diameter. The discharge valve used to dispose of the septage should be at least two and one-half inches in diameter and equipped with a cam-lock quick couple or screw cap. The valve should be located so that the discharge stream is not blocked in any way, unless it is necessary for disposal. An additional piece of equipment that should be included is a spray bar or splash plate, for use in land spreading. There are also several other small pieces of equipment that should be included in the truck:

- ☐ Flashlight
- ☐ Steel probes
- ☐ Manhole Sealer
- ☐ Bucket
- ☐ 50' Garden Hose
- ☐ Long-handled shovel
- ☐ Pry bar or pick
- ☐ Container of Quick Lim
- ☐ Pole, hoe or rake for scum mixing

Permits and Licenses

A Septic Tank Pumpers Permit is required throughout Idaho for the pumping and disposal of septage. The permit is good for one year and must be renewed at the end of the year. It can be obtained from the District Health Department. An Environmental Health Specialist at the department will inspect the truck prior to issuing the license.

Pumping the Septic Tank

Once the septic tank has been located and the manhole cover exposed and removed, draw down the liquid level six inches to a foot, then break the scum up and mix it and the rest of the tank's contents. Continue pumping until most of the contents are removed. It may be necessary to force septage back into the tank to mix up the sludge on the bottom. After the tank contents have been mixed be sure not to let the septage come back up to the outlet as sludge may then run into the drainfield. Leave a few inches of sludge in the bottom of the tank as "seed" to start bacterial action as the tank refills. Do not clean or disinfect the interior of the tank.

When pumping is complete make a thorough inspection of the tank and note the following:

- ☐ Is the outlet baffle in good condition?
- ☐ Is the inlet baffle in good condition?
- ☐ Is water running back into the tank from the drainfield? (Possible sign of high groundwater in the drainfield).
- ☐ Is water running in through the sides of the tank? (Sign of a leaking tank in high ground water).
- ☐ How much septage was pumped out?
- ☐ Does the sewer line from the house appear to be free-flowing? (Flush a toilet inside the house to see that there is no obstruction).

NEVER enter the tank as the methane gas produced by the septage can kill quickly!!!

If the manhole cover of the tank was found to be more than 18" below the ground (as may be the case with older tanks or tanks serving basements) the homeowner should be advised to add a concrete standpipe that would place the cover within 18" of the ground surface.

After the lid is replaced, replace soil and sod if the manhole was below ground. Put a little Quick Lime on places where septage has spilled.

DISPOSAL OF SEPTAGE

One of the conditions for a license to pump septic tanks is the approval of all sites where septage is disposed. Therefore, the pumper must use only those methods approved by the Health District or the Division of Environmental Quality.

Septage may be disposed of in several ways:

1. At a Municipal Wastewater Treatment Plant. Some plants have special facilities just for the disposal of septage. These should be used whenever practical.

2. By land spreading on private or public land in accordance with 40 CFR Part 503. If the spreading of septage is done on private land, the pumper should have written permission of the landowner and a permit from the Health District. Check with the local Health District on any restrictions. The following general rules should be observed:

    - Do not apply septage to any land used for root crops, such as potatoes, unless that land won't be used for growing those kinds of crops for 20 to 38 months depending on the method of land application.

    - Don't apply septage in a floodplain.

    - The septage shouldn't be applied on porous soils or where it can contaminate groundwater or surface water.

    - Don't let animals whose products (milk, meat) will be eaten use land where septage has been applied for one month.

    - The population of vectors, such as flies, should be minimized by rapid drying of the septage, lime addition, covering or other appropriate techniques as per 40 CFR Part 503 Subpart D.

Also beware that the property owners next to the disposal site can cause enforcement action and have been very successful in court when odors create a problem for them.

Public sites for septage disposal on land are pre-approved by the Health Districts and the Division of Environmental Quality. Such sites may be municipal sludge management farm or farm areas leased or rented for sludge disposal.

After dumping the sludge, clean the truck inside and out. The wastewater from such cleaning should be considered the same as septage and handled accordingly.

OPERATION AND MAINTENANCE

GUIDANCE FOR

ALTERNATIVE SYSTEMS

EXTENDED TREATMENT PACKAGE SYSTEM OPERATION AND MAINTENANCE

Operation and maintenance tasks must follow those recommended by the manufacturer.

LAGOON OPERATION AND MAINTENANCE

The lagoon must be kept filled with at least two (2) feet of liquid. A supply of make-up water shall be available. If the water comes from a well or domestic water supply, an approved backflow prevention device must be installed between the water source and the discharge to the lagoon.

Embankments must be stable and maintained so as to avoid breach, overflow, aesthetic nuisance, or disturbance to the lagoon operation. Permanent vegetation shall be maintained on the top and the outer slopes of the embankment except where a foot or vehicle path is in use. Grasses should be mowed.

Weeds and other vegetation must not be allowed to grow in the lagoon.

Duckweed or other floating aquatic weeds must be physically removed when the vegetation obscures the surface of the liquid.

The fence and all gates must be maintained to exclude animals, children and other unwanted intrusion.

SAND FILTER OPERATION AND MAINTENANCE

Operations and maintenance tasks for sand filters should be specified on the permit.

Conventional sand filters, or sand filters of comparable O&M are the responsibility of the system owner.

Permits may not be issued for a sand filter which, in the judgement of the Director, would require O&M significantly greater than that of conventional sand filters, unless arrangements for system O&M meeting the Director's approval are secured. Filters with special approvals should be inspected every twelve (12) months and checked for necessary corrective maintenance.

The owner of any sand filter system must provide the Department written verification that the system's septic tank has been pumped annually from the date of installation by an approved septic tank pumping business.

The service start date shall be assumed as the date of installation.

The owner must provide the Director certification of tank pumping within two (2) months of the date required for pumping.

SAND MOUND OPERATION AND MAINTENANCE

The Director may require that a management entity be responsible for sand mound operation and maintenance. Such independent management is particularly important for large systems, that is systems with more than nine (9) connections or more than 2,500 gallons of sewage per day. Refer in the Alternative System Section to guidelines for "Non-profit Corporations for Managing Small or Subsurface Wastewater Flow Systems."

The Director may require that operation and maintenance records, including results of groundwater and system test results, be submitted annually.

Alarm systems should be inspected monthly for proper operation.

Sludge depth in the septic tank should be checked annually and the tank shall be pumped when the sludge exceeds forty (40) percent of the liquid depth.

The mound must be maintained free of vehicular traffic, livestock and other compactive or disruptive activity. The toe area of the mound is extremely sensitive to compaction and must particularly be protected. The maintenance of grasses and shallow-rooted perennials on the mound is recommended.

OPEN SEWAGE COMPLAINT INVESTIGATION PROTOCOL

Record pertinent information from complainant to conduct an initial investigation (Name, address and phone number of property owner and complainant, and the nature of the complaint). Health District staff will investigate open sewage complaints stemming from subsurface sewage disposal systems. DEQ will investigate open sewage complaints regarding public wastewater treatment systems (collection, pumping or treatment, etc).

Gather the following equipment and prepare for investigation:

- ☐ Camera, film and batteries
- ☐ Dye, tablets or liquid
- ☐ Notify lab of possibility for coliform density tests
- ☐ Sample bottles, whirl packs, sterilized equipment, lab sample forms.
- ☐ Ice chest and ice
- ☐ Disposable gloves

Go to property, notify owners of complaint and conduct complaint investigation. If complaint is unfounded notify complainant of findings. If open sewage complaint is valid:

1) Take pictures of any open sewage or evidence of wastewater.

2) Dye trace household plumbing if necessary to identify wastewater discharge location.

3) Collect samples of sewage.

4) Collect samples of surface water if direct discharge to water.

5) Place samples in ice chest and transport to laboratory.

6) Post primary and secondary contact recreational waters with open sewage notice until water sample results can be obtained.

7) Issue "Notice of Violation" (NOV) to property owner or send notice via certified mail. Establish time frames for obtaining a replacement system permit (7 days), for system installation (30 days) and any corrective actions necessary to mitigate the public health hazard of the open sewage (items #8 and #9, immediate action). Carbon copy county prosecutor with NOV letter.

8) Require septic tank(s) to be pumped on a daily basis, if necessary, with documentation sent to health district office.

9) Require open sewage to be covered with soil. If property owner is unable to cover sewage with soil require owner to spread lime on top of open sewage.

10) Track property owner activity regarding compliance with NOV and any issued permit.

11) Failure to comply with NOV: file complaint with county prosecutor and ask prosecutor to issue a citation against property owner. Prepare case for court hearing.

12) Follow court's judgement, or hearing findings.

RULES FOR

INDIVIDUAL AND SUBSURFACE

SEWAGE DISPOSAL SYSTEMS

58.01.03 – Individual / Subsurface Disposal Rules

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

Use link below to access official rule retained at the Idaho Department of Administrations Website
http://adm.idaho.gov/adminrules/rules/idapa58/0103.pdf

IDAPA 58
TITLE 01
Chapter 03

58.01.03 - INDIVIDUAL/SUBSURFACE SEWAGE DISPOSAL RULES

000. (RESERVED).

001. LEGAL AUTHORITY.
Title 39, Chapter 1 and Title 39, Chapter 36, Idaho Code, grants authority to the Board of Environmental Quality to adopt rules and standards to protect the environment and the health of the State, for the installation of cottage site sewage treatment facilities and for the issuance of pollution source permits. Title 39, Chapter 1, Idaho Code, grants to the Director the authority to issue pollution source permits; charges the Director to enforce all laws, rules, regulations, and standards relating to environmental protection and health, and those relating to the storage, handling and transportation of solids, liquids and gases which may cause or contribute to water pollution, and authorizes the Department of Environmental Quality to review for approval the plans and specifications for all proposed waste treatment facilities prior to their construction. (5-7-93)

002. TITLE, SCOPE, CONFLICT AND RESPONSIBILITIES.

01. Title. These rules shall be known as Idaho Department of Environmental Quality Rules, IDAPA 58.01.03, "Individual/Subsurface Sewage Disposal Rules". (5-7-93)

02. Scope. The provisions of these rules establish limitations on the construction and use of individual and subsurface sewage disposal systems and establish the requirements for obtaining an installation permit and an installer's registration permit. These rules apply to every individual and every subsurface blackwaste and wastewater treatment system in Idaho. (5-7-93)

03. Conflict Of Rules, Standards, And Ordinances. In any case where a provision of these rules is found to be in conflict with a provision of any state or local zoning, building, fire, safety, or health regulation, standard or ordinance, the provision which, in the judgment of the Director, establishes the higher standard for the promotion and protection of the health and safety of the people, shall prevail. (5-7-93)

04. Responsibilities. (7-1-93)

a. Every owner of real property is jointly and individually responsible for: (10-1-90)

i. Storing, treating, and disposing of blackwaste and wastewater generated on that property.(10-1-90)

ii. Connecting all plumbing fixtures on that property that discharge wastewaters to an approved wastewater system or facility. (10-1-90)

iii. Obtaining necessary permits and approvals for installation of individual or subsurface blackwaste and wastewater disposal systems. (10-1-90)

iv. Abandonment of an individual or subsurface sewage disposal system. (10-1-90)

b. Each engineer, building contractor, individual or subsurface system installer, excavator, plumber, supplier, and every other person, who for compensation shall design, construct, abandon, or provide any system or part thereof, is jointly and individually responsible for compliance with each of these rules that are relevant to that

service or product. (5-7-93)

003. DEFINITIONS.
For the purposes of these rules, the following definitions apply. (5-7-93)

01. Abandoned System. A system which has ceased to receive blackwaste or wastewater due to diversion of those wastes to another treatment system or due to termination of waste flow. (10-1-90)

02. Alternative System. Any system for which the Department has issued design guidelines or which the Director judges to be a simple modification of a standard system. (10-1-90)

03. Authorized Or Approved. The state of being sanctioned or acceptable to the Director as stated in a written document. (10-1-90)

04. Blackwaste. Human body waste, specifically excreta or urine. This includes toilet paper and other products used in the practice of personal hygiene. (10-1-90)

05. Blackwater. A wastewater whose principal pollutant is blackwaste; a combination of blackwaste and water. (10-1-90)

06. Board. Idaho State Board Of Environmental Quality. (10-1-90)

07. Building Sewer. The extension of the building drain beginning five (5) feet outside the inner face of the building wall. (10-1-90)

08. Central System. Any system which receives blackwaste or wastewater in volumes exceeding twenty-five hundred (2,500) gallons per day; any system which receives blackwaste or wastewater from more than two (2) dwelling units or more than two (2) buildings under separate ownership. (10-1-90)

09. Construct. To make, form, excavate, alter, expand, repair, or install a system, and, their derivations. (5-7-93)

10. Director. The Director of the Idaho Department of Environmental Quality or the Director's designee or authorized agent. (10-1-90)

11. Existing System. Any system which was installed prior to the effective date of these rules.(5-7-93)

12. Expand. To enlarge any nonfailing system. (10-1-90)

13. Failing System. Any system which exhibits one (1) or more of the following characteristics: (10-1-90)

a. The system does not meet the intent of these rules as stated in Subsection 004.01. (5-7-93)

b. The system fails to accept blackwaste and wastewater. (10-1-90)

c. The system discharges blackwaste or wastewater into the waters of the State or onto the ground surface. (10-1-90)

14. Ground Water. Any water of the state which occurs beneath the surface of the earth in a saturated geological formation of rock or soil. (5-7-93)

15. High Groundwater Level - Normal, Seasonal. High ground water level may be established by the presence of low chroma mottles, actual ground water monitoring or historic records. (5-7-93)

a. The normal high groundwater level is the highest elevation of ground water that is maintained or exceeded for a continuous period of six (6) weeks a year. (5-7-93)

b. The seasonal high groundwater level is the highest elevation of ground water that is maintained or exceeded for a continuous period of one (1) week a year. (5-7-93)

16. High Water Mark. The line which the water impresses on the soil by covering it for sufficient periods of time to prevent the growth of terrestrial vegetation. (10-1-90)

17. Individual System. Any standard, alternative or subsurface system which is not a central system.(10-1-90)

18. Install. To excavate or to put in place a system or a component of a system. (10-1-90)

19. Installer. Any person, corporation, or firm engaged in the business of excavation for, or the construction of individual or subsurface sewage disposal systems in the State. (10-1-90)

20. Large Soil Absorption System. A large soil absorption system is a subsurface sewage disposal system designed to receive two thousand five hundred (2,500) gallons of wastewater or more per day, including where the total wastewater flow from the entire proposed project exceeds two thousand five hundred (2,500) gallons per day but the flow is separated into absorption modules which receive less than two thousand five hundred (2,500) gallons per day. (5-7-93)

21. Limiting Layer. A characteristic subsurface layer or material which will severely limit the capability of the soil to treat or absorb wastewater including, but not limited to, water tables, fractured bedrock, fissured bedrock, excessively permeable material and relatively impermeable material. (10-1-90)

22. Mottling. Irregular areas of different color in the soil that vary in contrast, density, number and size. Mottling generally indicates poor aeration and impeded drainage. (5-7-93)

23. New System. A system which is or might be authorized or approved on or after the effective date of these rules. (5-7-93)

24. Nondischarging System. Any system which is designed and constructed to prevent the discharge of blackwaste or wastewater. (10-1-90)

25. Permit. An individual or subsurface system installation permit or installer’s registration permit. (10-1-90)

26. Pollutants. Any chemical, biological, or physical substance whether it be solid, liquid, gas, or a quality thereof, which if released into the environment can, by itself or in combination with other substances, create a public nuisance or render that environment harmful, detrimental, or injurious to public health, safety or welfare or to domestic, commercial, industrial, agricultural, recreational, aesthetic, or other beneficial uses. (10-1-90)

27. Public System. Any system owned by a county, city, special service district, or other governmental entity or Indian tribe having the authority to dispose of blackwaste or wastewater; a municipal wastewater treatment facility. (10-1-90)

28. Repair. To remake, reform, replace, or enlarge a failing system or any component thereof as is necessary to restore proper operation. (10-1-90)

29. Scarp. The side of a hill, canyon, ditch, river bank, roadcut or other geological feature characterized by a slope of forty-five (45) degrees or more from the horizontal. (10-1-90)

30. **Sewage**. Sewage has the same meaning as wastewater. (10-1-90)

31. **Soil Texture**. The relative proportion of sand, silt, and clay particles in a mass of soil. (10-1-90)

32. **Standard System**. Any system recognized by the Board through the adoption of design and construction regulations. (10-1-90)

33. **Subsurface System**. Any system with a point of discharge beneath the earth's surface. (10-1-90)

34. **Surface Water - Intermittent, Permanent, Temporary**. (7-1-93)

a. Any waters of the State which flow or are contained in natural or man-made depressions in the earth's surface. This includes, but is not limited to, lakes, streams, canals, and ditches. (10-1-90)

b. An intermittent surface water exists continuously for a period of more than two (2) months but not more than six (6) months a year. (10-1-90)

c. A permanent surface water exists continuously for a period of more than six (6) months a year. (10-1-90)

d. A temporary surface water exists continuously for a period of less than two (2) months a year. (10-1-90)

35. **System**. Beginning at the point of entry physically connected piping, treatment devices, receptacles, structures, or areas of land designed, used or dedicated to convey, store, stabilize, neutralize, treat, or dispose of blackwaste or wastewater. (10-1-90)

36. **Wastewater**. Any combination of liquid or water and pollutants from activities and processes occurring in dwellings, commercial buildings, industrial plants, institutions and other establishments, together with any groundwater, surface water, and storm water that may be present; liquid or water that is chemically, biologically, physically or rationally identifiable as containing blackwater, grey water or commercial or industrial pollutants; and sewage. (10-1-90)

37. **Waters Of The State**. All the accumulations of water, surface and underground, natural and artificial, public and private or parts thereof which are wholly or partially within, which flow through or border upon the state of Idaho. (10-1-90)

38. **Water Table**. The surface of an aquifer. (10-1-90)

004. GENERAL REQUIREMENTS.

01. **Intent Of Rules**. The Board, in order to protect the health, safety, and environment of the people of the state of Idaho establishes these rules governing the design, construction, siting and abandonment of individual and subsurface sewage disposal systems. These rules are intended to insure that blackwastes and wastewater generated in the state of Idaho are safely contained and treated and that blackwaste and wastewater contained in or discharged from each system: (5-7-93)

a. Are not accessible to insects, rodents, or other wild or domestic animals; (10-1-90)

b. Are not accessible to individuals; (10-1-90)

c. Do not give rise to a public nuisance due to odor or unsightly appearance; (10-1-90)

d. Do not injure or interfere with existing or potential beneficial uses of the waters of the State. (10-1-90)

02. Compliance With Intent Required. The Director shall not authorize or approve any system if, in the opinion of the Director, the system will not be (is not) in compliance with the intent of these rules. (5-7-93)

03. System Limitations. Cooling water, backwash or backflush water, hot tub or spa water, air conditioning water, water softener brine, groundwater, oil, or roof drainage cannot be discharged into any system unless that discharge is approved by the Director. (10-1-90)

04. Increased Flows. Unless authorized by the Director, no person shall provide for or connect additional blackwaste or wastewater sources to any system if the resulting flow or volume would exceed the design flow of the system. (10-1-90)

05. Failing System. The owner of any failing system shall obtain a permit and cause the failing system's repair: (10-1-90)

a. As soon as practical after the owner becomes aware of its failure; or (10-1-90)

b. As directed in proper notice from the Director. (10-1-90)

06. Subsurface System Replacement Area. An area of land which is suitable in all respects for the complete replacement of a new subsurface system disposal field shall be reserved as a replacement area. This area will be kept vacant, free of vehicular traffic and free of any soil modification which would negatively affect its use as a replacement disposal field construction site. (10-1-90)

07. Technical Guidance Committee. The Director shall appoint a Technical Guidance Committee composed of three (3) representatives from the seven (7) Health Districts, one (1) representative from the Department of Environmental Quality, one (1) professional engineer licensed in the state of Idaho and one (1) licensed installer. Initially two (2) committee members shall be appointed to each of one (1), two (2) and three (3) year terms. Appointments to vacancies thereafter shall be to three (3) year terms. (12-31-91)

08. Duties Of The Technical Guidance Committee. The Committee shall maintain a technical guidance manual which shall be used in the design, construction, alteration, operation, and maintenance of conventional systems, their components and alternatives. The Committee shall review variances at the request of the Director and provide recommendations on such variances. (10-1-90)

09. Technical Guidance Manual For Individual And Subsurface Alternative Sewage Disposal. The manual maintained by the Technical Guidance Committee shall provide state-of-the-art technical guidance on alternative sewage disposal components and systems, soil type determination methodology and other information pertinent to the best management practices of individual and subsurface sewage disposal. (10-1-90)

10. Alternative System. If a standard system as described in these rules cannot be installed on a parcel of land, an alternative system may be permitted if that system is in accordance with the recommendations of the Technical Guidance Committee and is approved by the Director. (5-7-93)

005. PERMIT AND PERMIT APPLICATION.

01. Permit Required. Except as specified in Subsection 005.02 it shall be unlawful for any person to cause or to perform the modification, repair or construction of any individual or subsurface sewage disposal system within the state of Idaho unless there is a valid installation permit authorizing that activity. (12-31-91)

02. Exceptions To Permit Requirement. The activities listed in this subsection may be lawfully performed in the absence of a valid installation permit. They are, however, subject to all other relevant rules and

regulations. (10-1-90)

a. Portable nondischarging systems may be installed where needed as temporary blackwaste or wastewater systems if they are properly maintained and if they are of a design which has been approved by the Director. (10-1-90)

b. Individual and subsurface systems may be repaired when needed as a result of clogged or broken solid piping or of malfunctions in an electrical or mechanical system. Such repair may not expand the system unless authorized by the Director. (10-1-90)

03. Permit Application. The owner of the system or the owner's authorized representative shall make application to the Director in writing and in a manner or form prescribed by the Director. (10-1-90)

04. Contents Of Application. A permit application will be used to help determine if the proposed construction will be in conformance with applicable rules and regulations. Information required in the application may include, but is not limited to: (10-1-90)

a. The name and address of the owner of the system and of the applicant, if different; (10-1-90)

b. The legal description of the parcel of land; (10-1-90)

c. The type of establishment served; (10-1-90)

d. The maximum number of persons served, number of bedrooms, or other appropriate measure of wastewater flow; (10-1-90)

e. The type of system; (10-1-90)

f. The construction activity (new construction, enlargement, repair); (10-1-90)

g. A scaled or dimensioned plot plan including, if needed, adjacent properties illustrating: (10-1-90)

i. The location and size of all existing and proposed wastewater systems including disposal field replacement areas; (10-1-90)

ii. The location of all existing water supply system features; (10-1-90)

iii. The location of all surface waters; (10-1-90)

iv. The location of scarps, cuts, and rock outcrops; (10-1-90)

v. Land elevations, surface contours, and ground slopes between features of interest; (10-1-90)

vi. Property lines, easements, and rights-of-way; and (10-1-90)

vii. Location and size of buildings and structures. (7-1-93)

h. The plans and specifications of the proposed system which include: (10-1-90)

i. Diagrams of all system facilities which are to be made or fabricated at the site; (10-1-90)

ii. The manufacturer's name and identification of any component approved pursuant to Sections 007 and 009; and (12-31-91)

iii. List of materials. (10-1-90)

i. Soil description and profile, groundwater data, percolation or permeability test results and/or a site evaluation report; (10-1-90)

j. The nature and quantity of blackwaste and wastewater which the system is to receive including the basis for that estimate; (10-1-90)

k. Proposed operation, maintenance, and monitoring procedures to insure the system's performance and failure detection; (10-1-90)

l. Copies of legal documents relating to access and to responsibilities for operation, maintenance, and monitoring; (10-1-90)

m. A statement from the local zoning or building authority indicating that the proposed system would not be contrary to local ordinances; (10-1-90)

n. The signature of the owner of the proposed system and, if different, of the applicant; and (10-1-90)

o. Any other information, document, or condition that may be required by the Director to substantiate that the proposed system will comply with applicable rules and regulations. (10-1-90)

05. Basis For Permit Application Denial. The Director may deny a permit application if in the Director's judgment: (10-1-90)

a. The application is incomplete, inaccurate, or misleading; (10-1-90)

b. The system as proposed is not in compliance with applicable rules and regulations; (10-1-90)

c. The system as proposed would, when put into use, be considered a failing system; (10-1-90)

d. The design and description of a public system was not made by a professional engineer; (10-1-90)

e. Public or central wastewater treatment facilities are reasonably accessible. (10-1-90)

06. Notice Of Denial. Upon denial of an application the Director shall notify the applicant of the reason for denial. (10-1-90)

07. Issuance Of Permit. When, in the opinion of the Director the system as proposed will be in conformance with applicable rules and regulations, the Director shall issue an "Individual and Subsurface System Installation Permit". (10-1-90)

08. Application And Permit Valid For One (1) Year. Unless otherwise stated on the application or permit, it shall become invalid if the authorized construction or activity is not completed and approved within one (1) year of the date of issuance. (10-1-90)

09. Permit Renewal. At the discretion of the Director, a permit may be renewed one (1) or more times upon request by the applicant or owner provided that the request is received by the Director prior to the permit's date of expiration. (10-1-90)

10. Immediate Effect Of The Permit. A valid permit authorizes the construction of an individual or subsurface system and requires that the construction be conducted in compliance with plans, specifications, and conditions contained in the approved permit application. Any deviation from the plans, specifications, and conditions is prohibited unless it is approved in advance by the Director. (10-1-90)

11. Cottage Site Facility Certification. A valid permit shall constitute certification and approval for the purposes of Section 39-3611, Idaho Code. (10-1-90)

12. Existing Installation Permits. Individual and subsurface sewage disposal installation permits or other lot-specific approvals for systems issued prior to February 7, 1978, pursuant to Idaho Code Title 39, Chapter 1 and Title 39, Chapter 36, will become invalid one (1) year after written notice is given by the Director notifying the owner or holder of such a permit or approval that the permit or approval will no longer be valid unless construction or installation of the system provided for in the permit or approval is commenced within one (1) year after giving of the notice. This provision does not apply to certificates filed to satisfy a sanitary restriction pursuant to Section 50-1326, Idaho Code. (10-1-90)

13. Abandonment May Be Required. The Director may require as a condition for issuing a permit that the system be abandoned by a specified date or under specific predetermined circumstances. The date or circumstances will be established before the issuance of the permit and be contained in the permit application. These conditions may relate to a specific date, dwelling density, completion of a municipal system or other circumstances relative to the availability of central sewerage system services. (10-1-90)

14. Operation, Maintenance And Monitoring. The Director may require as a condition of issuing a permit, that specific operation, maintenance, and monitoring procedures be observed. Those procedures will be contained in the permit application. (10-1-90)

15. As-Built Plans And Specifications. The Director may require as a condition of issuing a permit, that complete and accurate record drawings and specifications depicting the actual construction be submitted to the Director within thirty (30) days after the completion of the construction. Alternately, if the construction proceeded in compliance with the approved plans and specifications, a statement to that effect may be submitted. (10-1-90)

16. Permit Fee. All applications shall be accompanied by payment of the fee specified in Idaho Department of Health and Welfare Rules, IDAPA 16.05.05, Subsections 110 through 110.02, “Rules Governing Fees for Health and Environmental Operating Permits, Licenses, and Inspections Services”. (5-7-93)

006. INSTALLER'S REGISTRATION PERMIT.

01. Permit Required. Every installer shall secure from the Director, an installer’s registration permit. Two (2) types of installer permits are available: (5-7-93)

a. A standard and basic alternative system installer’s registration permit is required to install all individual systems not listed under Subsection 006.01.b. (5-7-93)

b. A complex alternative system installer’s registration permit is required to install evapotranspiration systems, extended treatment systems, lagoon systems, large soil absorption systems, pressure distribution systems, intermittent sand filter, in-trench sand filter, sand mound or other systems as may be specified by the Director.

(5-7-93)

02. Examination. The initial issuance of the installer’s permit shall be based on the completion of an examination, with a passing score of seventy (70) or more, of the applicant’s knowledge of the principles set forth in this chapter and the applicable sections of the Technical Guidance Manual. The examination will be prepared, administered and graded by the Director. (5-7-93)

03. Permits Required Annually. Registration permits expire annually on the first (1st) day of January and all permits issued thereafter will be issued for the balance of the calendar year. Additionally, at least one (1) refresher course approved by the state of Idaho, Department of Environmental Quality, be attended every three (3) years. (5-7-93)

04. Contents Of Application. Applications for permits shall be in writing, shall be signed by the applicant or by an officer or authorized agent of a corporation, shall contain the name and address of the applicant, shall indicate whether the permit is to be for installation of standard and basic alternative systems or for installation of standard, basic and complex alternative systems, and shall contain the expiration date of the bond required by Subsection 006.05. (5-7-93)

05. Bond Required. At the time of application, all applicants shall deliver to the Director a bond in a form approved by the Director in sum of five thousand dollars ($5,000) for a standard and basic alternative system installer's registration permit, or in the sum of fifteen thousand dollars ($15,000) for standard, basic and complex alternative system installer's registration permit. The bond will be executed by a surety company duly authorized to do business in the state of Idaho and must run concurrent with the installer's registration permit to be approved by the Director guaranteeing the faithful performance of all work undertaken under the provisions of the installer's registration permit. Any person who suffers damage as the result of the negligent or wrongful acts of the registrant or by his failure to competently perform any of the work agreed to be done under the terms of the registration permit shall, in addition to other legal remedies, have a right of action in his own name on the bond for all damages not exceeding five thousand dollars ($5,000) for standard and basic alternative systems or fifteen thousand dollars ($15,000) for complex alternative systems. The maximum liability of the surety and/or sureties on the bond, regardless of the number of claims filed against the bond, shall not exceed the sum of five thousand dollars ($5,000) for standard and basic alternative systems or fifteen thousand dollars ($15,000) for complex alternative systems. (5-7-93)

06. Exemption. An installer's permit shall not be required for: (10-1-90)

a. Any person, corporation, or firm constructing a central or municipal subsurface sewage disposal system if that person, corporation, or firm is a licensed public works contractor as provided in Title 54, Chapter 19, Idaho Code, is experienced in the type of system to be installed and is under the direction of a professional engineer licensed in the state of Idaho; or (5-7-93)

b. An owner installing his own standard or basic alternative system. (5-7-93)

07. Application Fee. All applications shall be accompanied by payment of the fee specified in Idaho Department of Health and Welfare Rules, IDAPA 16.05.05, Section 120, "Rules Governing Fees for Health and Environmental Operating Permits, Licenses, and Inspection Services". (5-7-93)

08. Grounds For Revocation. Failure to comply with these rules shall be grounds for revocation of the permit. (5-7-93)

007. SEPTIC TANKS DESIGN AND CONSTRUCTION STANDARDS.

01. Materials. New septic tanks will be constructed of concrete, or other materials approved by the Director. Steel tanks are unacceptable. (10-1-90)

02. Construction Requirements. All septic tanks will be water tight, constructed of sound, durable materials and not subject to excessive corrosion, decay, frost damage or cracking. (10-1-90)

03. Concrete Septic Tanks. New concrete septic tanks will at a minimum meet the following requirements: (10-1-90)

a. The walls and floor must be at least two and one-half (2 1/2) inches thick if adequately reinforced and at least six (6) inches thick if not reinforced. (10-1-90)

b. Concrete lids or covers must be at least three (3) inches thick and adequately reinforced. (10-1-90)

c. The floor and at least a six (6) inch vertical portion of the walls of a poured tank must be poured at the same time (monolithic pour). (10-1-90)

d. Wall sections poured separately must have interlocking joints on joining edge. (10-1-90)

e. All concrete outlet baffles must be finished with an asphalt or other protective coating. (10-1-90)

04. Horizontal Dimension Limit. No interior horizontal dimension of a septic tank or compartment may be less than two (2) feet. (10-1-90)

05. Liquid Depth. The liquid depth shall be at least two and one-half (2 1/2) feet but not greater than five (5) feet. (10-1-90)

06. Manufactured Tank Markings. Septic tanks manufactured in accordance with a specified design approved by the Director, will be legibly and indelibly marked with the manufacturer's name or trademark, total liquid capacity and shall indicate the tank's inlet and outlet. (10-1-90)

07. Minimum Tank Capacities. (7-1-93)

a. Tanks serving one (1) or two (2) single dwelling units:

MINIMUM CAPACITY PER DWELLING UNIT	
Number of Bedrooms	**Minimum Liquid Capacity (Gallons)**
1 or 2	900
3 or 4	1,000

For each bedroom over four (4) add two hundred fifty (250) gallons. (10-1-90)

b. Tanks serving all other flows. Septic tank capacity shall be equal to two (2) times the average daily flow as determined from Subsection 007.08. The minimum tank capacity shall be seven hundred and fifty (750) gallons. (12-31-91)

08. Wastewater Flows From Various Establishments In Gallons Per Day.

ESTABLISHMENTS	
Single Family Dwelling and Mobile Homes, 3 bedroom. Add/subtract 50 gallons/bedroom	250/Unit
MULTIPLE RESIDENTIAL	
Hotel: With Private Baths Without Private Baths	 60/Bedspace 40/Bedspace
Motel: With Kitchenette	40/Bedspace 60/Bedspace
Boarding House: Add for each nonresident	150/Bedspace 25
Rooming House/Bunk House Staff Resident Nonresident	40/Resident 40/Staff 15/Staff
Apartments	250/Unit
INSTITUTIONAL	
Assembly Hall/Meeting House	2/Seat
Church: With Kitchen	3/Seat 7/Seat

Hospital:	250/Bedspace
Kitchen only	25/Bedspace
Laundry only	40/Bedspace
Nursing Home/Rest Home	125/Bedspace
Day School:	
Without Showers	20/Student
With Showers	25/Student
With Cafeteria, add	3/Student
Staff-Resident	40/Staff
Nonresident	20/Staff
FOOD SERVICE	
Conventional Service:	
Toilet & Kitchen Wastes	13/Meal
Kitchen Wastes	3.3/Meal
Take Out or Single Service	2/Meal
Dining Hall:	
Toilet & Kitchen Wastes	8/Meal
Kitchen Wastes	3.3/Meal
Drinking Establishment	2/Person
Food Service Employee	15/Employee
COMMERCIAL AND INDUSTRIAL	
Bowling Alley	125/Lane
Laundry - Self Service	50/Wash
Public Transportation Terminal	5/Fare
Service Station	10/Vehicle
Car Wash:	50/Vehicle
1st Bay	1000
Additional Bays	500 each
Shopping Center (No food/laundry)	1/Pkg.Sp.
Theaters (including Concession Stand):	
Auditorium	5/Seat
Drive-in	10/Space
Offices	20/Employee
Factories:	
No Showers	25/Employee
With Showers	35/Employee
Add for Cafeteria	5/Employee
Stores	2/Employee
Public Restrooms	
SEASONAL AND RECREATIONAL	
Fairground (Peak Daily Attend)	1/Person
Stadium	2/Seat
Swimming Pool:	
Toilet & Shower Wastes	10/Person
Parks & Camps (Day Use):	
Toilet & Shower Wastes	15/Person
Roadside Rest Area:	
Toilet & Shower Wastes	10/Person
Toilet Waste	5/Person
Overnight Accommodation:	
Central Toilet	25/Person
Central Toilet & Shower	35/Person

Designated Camp Area: Toilet & Shower Wastes Toilet Wastes	 90/Space 65/Space
Seasonal Camp	50/Space
Luxury Cabin	75/Person
Travel Trailer Park with Sewer and Water Hook-up	125/Space
Construction Camp	50/Person
Resort Camps	50/Person
Luxury Camps	100/Person
Country Clubs Resident Member Add for Nonresident Member	100/Member 25/Person
Public Restrooms: Toilet Wastes Toilet & Shower Wastes	 5/Person 15/Person

(10-1-90)

09. Total Volume. The total volume of a septic tank will at a minimum be one hundred fifteen percent (115%) of its liquid capacity. (10-1-90)

10. Inlets. (7-1-93)

a. The inlet into the tank will be at least four (4) inches in diameter and enter the tank three (3) inches above the liquid level. (10-1-90)

b. The inlet of the septic tank and each compartment will be submerged by means of a vented tee or baffle. (10-1-90)

c. Vented tees or baffles will extend above the liquid level seven (7) inches or more but not closer than one (1) inch to the top of the tank. (10-1-90)

d. Tees should not extend horizontally into the tank beyond two (2) times the diameter of the inlet. (10-1-90)

11. Outlets. (7-1-93)

a. The outlet of the tank will be at least four (4) inches in diameter. (10-1-90)

b. The outlet of the septic tank and each compartment will be submerged by means of a vented tee or baffle. (10-1-90)

c. Vented tees and baffles will extend above the liquid level seven (7) inches or more above the liquid level but no closer than one (1) inch to the inside top of the tank. (10-1-90)

d. Tees and baffles will extend below the liquid level to a depth where forty percent (40%) of the tank's liquid volume is above the bottom of the tee or baffle. For vertical walled rectangular tanks, this point is at forty percent (40%) of the liquid depth. In horizontal cylindrical tanks this point is about thirty-five percent (35%) of the liquid depth. (10-1-90)

e. Tees and baffles should not extend horizontally into the tank beyond two (2) times the diameter of the outlet. (10-1-90)

12. **Scum Storage**. A septic tank will provide an air space above the liquid level which will be equal to or greater than fifteen percent (15%) of the tank's liquid capacity. For horizontal cylindrical tanks, this condition is met when the bottom of the outlet port is located at nineteen percent (19%) of the tank's diameter when measured from the inside top of the tank. (10-1-90)

13. **Manholes**. Access to each septic tank or compartment shall be provided by a manhole twenty (20) inches in minimum dimension or a removable cover of equivalent size. Each manhole cover will be provided with a corrosion resistant strap or handle to facilitate removal. (10-1-90)

14. Inspection Ports. An inspection port measuring at least eight (8) inches in its minimum dimension will be placed above each inlet and outlet. Manholes may be substituted for inspection ports. (10-1-90)

15. Split Flows. The wastewater from a single building sewer or sewer line may not be divided and discharged into more than one (1) septic tank or compartment. (10-1-90)

16. Multiple Tank Or Compartment Capacity. Multiple septic tanks or compartmented septic tanks connected in series may be used so long as the sum of their liquid capacities is at least equal to the minimum tank capacity computed in Subsection 007.07 and the initial tank or compartment has a liquid capacity of more than one-half (1/2) but no more than two-thirds (2/3) of the total liquid capacity of the septic tank facility. (12-31-91)

17. Minimum Separation Distances Between Septic Tanks and Features of Concern.

Features of Concern		Minimum Distance to Septic Tank in Feet
Well or Spring or Suction Line	Public Water Other	100 50
Water Distribution Line	Public Water Other	25 10
Permanent or Intermittent Surface Water		50
Temporary Surface Water		25
Downslope Cut or Scarp		25
Dwelling Foundation or Building		5
Property Line		5
Seasonal High Water Level (Vertically from Top of Tank)		2

(10-1-90)

18. Installation Of Manufactured Tanks. If written installation instructions are provided by the manufacturer of a septic tank, those instructions relative to the stability and integrity of the tank are to be followed unless otherwise specified in the installation permit of these rules. (5-7-93)

19. Manhole Extension. If the top of the septic tank is to be located more than twenty-four (24) inches below the finished grade, manholes will be extended to within eighteen (18) inches of the finished grade. (10-1-90)

20. Sectional Tanks. Sectional tanks will be joined in a manner that will insure that the tank is watertight. (10-1-90)

21. Inlet And Outlet Piping. Unless otherwise specified in the installation permit, piping to and from a septic tank or dosing chamber, to points three (3) feet beyond the tank excavation shall be of a material approved by the Director. The following materials are required: (5-7-93)

a. ABS schedule forty (40) or material of equal or greater strength piping shall be used to span the excavations for the septic tank and dosing chamber. (5-7-93)

b. ASTM-D-3033 or 3034 plastic pipe may be used to span the septic tank and dosing chamber if the excavation is compacted with fill material. (5-7-93)

i. The fill material must be granular, clean and compacted to ninety percent (90%) standard proctor density. (5-7-93)

ii. Placement of ASTM-D-3033 or 3034 on undisturbed earth is suitable, but in no installation shall there be less than twelve (12) inches of cover over the pipe. (5-7-93)

22. Effluent Pipe Separation Distances. Effluent pipes shall not be installed closer than fifty (50) feet from a well. (5-7-93)

23. Septic Tank Abandonment. Responsibility of properly abandoning a septic tank shall remain with the property owner. Septic tanks shall be abandoned in accordance with the following: (5-7-93)

a. Disconnection of the inlet and outlet piping; (5-7-93)

b. Pumping of the scum and septage with approved disposal; (5-7-93)

c. Filling the septic tank with earthen materials; or (5-7-93)

d. Physically destroying the septic tank or removing the septic tank from the ground. (5-7-93)

008. STANDARD SUBSURFACE DISPOSAL FACILITY DESIGN AND CONSTRUCTION.

01. Standard Drainfield. A drainfield consisting of an effluent sewer, one (1) or more aggregate filled trenches and a gravity flow wastewater distribution system. These standards will be the basis of acceptable design and configuration. Overall dimensions of a specific facility will depend upon site characteristics and the volume of wastewater. (10-1-90)

02. Site Suitability. The area in which a standard drainfield is to be constructed must meet the conditions stated in this subsection: (10-1-90)

a. Slope. The natural slope of the site will not exceed twenty percent (20%). (10-1-90)

b. Soil types. Suitable soil types must be present at depths corresponding with the sidewalls of the proposed drainfield and at depths which will be between the bottom of the proposed drainfield and any limiting soil layer (effective soil depth).

Design Soil Group	Soil Textural Classification	USDA Field Test Textural Classification	
Unsuitable	Gravel	10 Mesh	
	Coarse Sand	10-35 Mesh	Sand
A	Medium Sand	35-60 Mesh	Sand
	Fine Sand	65-140 Mesh	Sand
	Loamy Sand		Sand
B	Very Fine Sand	140-270 Mesh	Sand
	Sandy Loam		Sandy Loam
	Very Fine Loamy Sand		Sandy Loam
	Loam		
	Silt Loam		Silt Loam
C	Silt		Silt Loam
	Clay Loam		Clay Loam
	Sandy Clay Loam		Clay Loam
	Silty Clay Loam		Clay Loam
Unsuitable	Sandy Clay		Clay
	Silty Clay		Clay
	Clay		Clay

	Clay soils with high shrink/ swell potential	Clay
	Organic mucks	
	Claypan, Duripan,	
	Hardpan	

(10-1-90)

c. Effective Soil Depths. Effective soil depths, in feet, below the bottom of the drainfield must be equal to or greater than those values listed in the following table.

EFFECTIVE SOIL DEPTHS TABLE			
Site Conditions	**Design**	**Soil**	**Group**
Limiting Layer	A	B	C
Impermeable Layer	4	4	4
Fractured Bedrock, Fissured Bedrock or Extremely Permeable Material	6	4	3
Normal High Groundwater Level	6	4	3
Seasonal High Groundwater Level	1	1	1

(5-7-93)

d. Separation Distances. The drainfield must be located so that the separation distances given be maintained or exceeded according to the following Table:

Feature of Interest	**Soil Types All**	**A**	**B**	**C**
Public Water Supply	100			
All Other Domestic Water Supplies including Springs and Suction Lines	100			
Water Distribution Lines:				
Pressure	25			
Suction	100			
Permanent or Intermittent Surface Water other than Irrigation Canals & Ditches		300	200	100
Temporary Surface Water and Irrigation Canals and Ditches	50			
Downslope Cut or Scarp:				
Impermeable Layer Above Base		75	50	50
Impermeable Layer Below Base		50	25	25
Building Foundations:				
Crawl Space or Slab	10			
Basement	20			
Property Line	5			

(5-7-93)

03. Subsurface Disposal Facility Sizing. The size of a subsurface disposal system will be determined by the following procedures: (10-1-90)

a. Daily flow estimates should be determined in the same manner as are flow estimates for septic tank sizing in Subsection 007.08. (5-7-93)

b. The total required absorption area is obtained by dividing the estimated daily flow by a value below.

Design Soil Group	A	B	C
Absorption Area - Gallons/Square Foot/Day	1.0	0.5	0.2

(10-1-90)

c. Required Area. The size of an acceptable site must be large enough to construct two (2) complete drainfields in which each are sized to receive one hundred percent (100%) of the design wastewater flow. (10-1-90)

04. Standard Subsurface Disposal Facility Specifications. The following table presents additional design specifications for new subsurface sewage disposal facilities.

SUBSURFACE DISPOSAL FACILITY TABLE	
Item	**All Soil Groups**
Length of Individual Distribution Laterals	100 Feet Maximum
Grade of Distribution Laterals and Trench Bottoms	Level
Width of Trenches	1 Foot Minimum 6 Feet Maximum
Depth of Trenches	2 Feet Minimum 4 Feet Maximum
Total Square Feet of Trench	1500 Sq.ft. Max.
Undisturbed Earth Between Trenches	6 Feet Minimum
Undisturbed Earth Between Septic Tank and Trenches	6 Feet Minimum
Depth of Aggregate Total Over Distribution Laterals Under Distribution Laterals	 12 In. Minimum 2 In. Minimum 6 In. Minimum
Depth of Soil Over Top of Aggregate	12 In. Minimum

(10-1-90)

05. Wastewater Distribution. Systems shall be installed to maintain equal or serial effluent distribution. (10-1-90)

06. Excavation. Trenches will not be excavated during the period of high soil moisture content when that moisture promotes smearing and compaction of the soil. (10-1-90)

07. Soil Barrier. The aggregate will be covered throughout with untreated building paper, a synthetic filter fabric (geotextile), a three (3) inch layer of straw or other acceptable permeable material. (10-1-90)

08. Aggregate. The trench aggregate shall be crushed rock, gravel, or other acceptable, durable and inert material which is, free of fines, and has an effective diameter from one-half (1/2) to two and one-half (2 1/2) inches. (10-1-90)

09. Impermeable Surface Barrier. No treatment area trench or replacement area shall be covered by an impermeable surface barrier, such as tar paper, asphalt or tarmac or be used for parking or driving on or in any way compacted and shall be adequately protected from such activities. (5-7-93)

10. Standard Absorption Bed. Absorption bed disposal facilities may be considered when a site is suitable for a standard subsurface disposal facility except that it is not large enough. (10-1-90)

a. General Requirements. Except as specified in this section, rules and regulations applicable to a standard subsurface disposal system are applicable to an absorption bed facility. (10-1-90)

b. Slope Limitation. Sites with slopes in excess of eight percent (8%) are not suitable for absorption bed facilities. (10-1-90)

c. Vehicular Traffic. Rubber tired vehicles must not be driven on the bottom surface of any bed excavation. (10-1-90)

d. Distribution Lateral Spacing. Distribution laterals within a bed must be spaced on not greater than six (6) feet centers nor may any sidewall be more than three (3) feet from a distribution lateral. (10-1-90)

11. Seepage Pit. Seepage pit disposal facilities may be used on a case by case basis within the boundaries of District Health Department Seven when an applicant can demonstrate to the district director's satisfaction that the soils and depth to ground water are sufficient to prevent ground water contamination. The district director shall document all such cases. (4-2-91)L

a. General Requirements. Except as specified in Subsection 008.11.b., rules and regulations applicable to a standard subsurface disposal system are applicable to a seepage pit. (12-31-91)

b. Other conditions for approval, sizing and construction will be as provided for in the seepage pit section of the Technical Guidance Manual for Individual and Subsurface Sewage Disposal, except that the site size restriction in condition two (2) of the Conditions for Approval will not apply. (10-1-90)

12. Failing Subsurface Sewage Disposal System. If the Director determines that the public's health is at risk from a failed septic system and that the replacement of a failing subsurface sewage disposal system cannot meet the current rules and regulations, then the replacement system must meet the intent of the rules and regulations by utilizing a standard subsurface sewage disposal design or alternative system design as specified by the Director.(5-7-93)

009. OTHER COMPONENTS.

01. Design Approval Required. Commercially manufactured blackwaste and wastewater treatment and storage components may not be used in the construction of a system unless their design is approved by the Director. (10-1-90)

02. Plan And Specification Submittal. Plans and specifications for all commercially manufactured individual and subsurface treatment and storage components will be submitted to the Director for approval. Plans and specifications will show or include as requested by the Director, detailed construction drawings, capacities, structural calculations, list of materials, evidence of stability and durability, manufacturers installation, operation and maintenance instructions, and other relevant information. (10-1-90)

03. Effect Of Design Approval. The Director may condition a design approval by specifying circumstances under which the component must be installed, used, operated or maintained. (10-1-90)

04. Notice Of Design Disapproval. If the Director is satisfied that the component described in the submittal may not be in compliance with or may not consistently function in compliance with these rules the Director will disapprove the design as submitted. The manufacturer or distributor submitting the design for approval will be notified in writing of the disapproval and the reason for that action. (5-7-93)

010. VARIANCES.

01. Technical Allowance. The Director may make a minor technical allowance to the dimensional or construction requirements of these rules for a standard system if: (5-7-93)

a. The allowance will not affect adjacent property owners or the public at large; (10-1-90)

b. The allowance will not violate the conditions of Subsection 004.01; and (12-31-91)

c. The allowance will not be in conflict with any other rule, regulation, standard, or ordinance. (10-1-90)

d. The allowance to a dimensional requirement is not more than ten percent (10%) of the requirements of these rules unless otherwise provided for in the Technical Guidance Manual. (5-7-93)

02. Petition For Variance. If a petition of variance to these rules is desired, a request for a variance may be filed with the Director. The petition shall contain the following: (10-1-90)

a. A concise statement of the facts upon which the variance is requested including a description of the intended use of the property, the estimates of the quantity of blackwaste or wastewater to be discharged, and a description of the existing site conditions; (10-1-90)

b. A concise statement of why the petitioner believes that compliance with the provision from which variance is sought would impose an arbitrary or unreasonable hardship, and of the injury that the grant of the variance would impose on the public; and (10-1-90)

c. A clear statement of the precise extent of the relief sought. (10-1-90)

03. Public Notice. At the time of filing a petition evidence shall also be submitted that: (10-1-90)

a. A notice has appeared in the local newspaper advising the public of the request for variance; (10-1-90)

b. All property owners within three hundred (300) feet of the affected site have been notified; and (10-1-90)

c. Such notices to the public have been made fifteen (15) days prior to the filing of the petition. (10-1-90)

04. Objections To Petition. Any person may file with the Department, within twenty-one (21) days after the filing of the petition, a written objection to the grant of the variance. A copy of such objection shall be provided by the Department to the petitioner. (10-1-90)

05. Investigation And Decision. After investigating the variance petition and considering the views of persons who might be adversely affected by the grant of the variance, the Director shall, within sixty (60) days after the filing of the petition, make a decision as to the disposition of the petition. The decision, a copy of which shall be served on the petitioner, shall include: (10-1-90)

a. A description of the efforts made by the Director to investigate the facts as alleged and to ascertain the views of persons who might be affected, and a summary of the views so ascertained; (10-1-90)

b. A statement of the degree to which, if at all, the Director disagrees with the facts as alleged in the petition; (10-1-90)

c. Allegations of any other facts believed relevant to the disposition of the petition; and (10-1-90)

d. The Director’s decision. (10-1-90)

06. Limitations On Decision. No technical allowance or variance shall be granted unless: (10-1-90)

a. Adequate proof is shown by the petitioner that compliance would impose an arbitrary or unreasonable hardship; (10-1-90)

b. The technical allowance or variance rendered is consistent with the recommendations of the Technical Guidance Committee or the Technical Guidance Manual in use at the time of the petition; and (10-1-90)

c. The Director has determined that the approval of the technical allowance or variance will not have an adverse impact on the public health or the environment. (10-1-90)

011. INSPECTIONS.

01. One Or More Inspections Required. Such inspection as are necessary to determine compliance with any requirement or provision of these rules shall be required by the Director. (5-7-93)

02. Duty To Uncover. The permittee shall, at the request of the Director, uncover or make available for inspection any portion or component of an individual or subsurface sewage disposal system which was covered or concealed in violation of these rules. (5-7-93)

03. Advance Notice By Permittee. If an inspection requires some type of preparation, such as test hole excavation or partial construction of the system, the applicant or permittee will notify the Director at least forty-eight (48) hours in advance, excluding weekends and holidays, before the time preparation will be completed. (10-1-90)

04. Substantiating Receipts And Delivery Slips. The permittee shall upon request by the Director provide copies of receipts, delivery slips or other similar documents to substantiate the origin, quality, or quantity of materials used in the construction of any individual or subsurface system. (10-1-90)

012. VIOLATIONS AND PENALTIES.

01. Failure To Comply. All individual and subsurface sewage disposal systems shall be constructed and installed according to these rules. Failure by any person to comply with the permitting, licensing, approval, installation, or variance provisions of these rules shall be deemed a violation of these rules. (5-7-93)

02. System Operation. No person shall discharge pollutants into the underground water of the state of Idaho through an individual or subsurface sewage disposal system unless in accordance with the provisions of these rules. (5-7-93)

03. Violation A Misdemeanor. Pursuant to Section 39-117, Idaho Code, any person who willfully or negligently violates any of the provisions of these rules shall be guilty of a misdemeanor. (5-7-93)

013. LARGE SOIL ABSORPTION SYSTEM DESIGN AND CONSTRUCTION.

01. Site Investigation. A site investigation for a large soil absorption system by a soil scientist and/or hydrogeologist may be required by the Director for review and approval and shall be coordinated with the Director. Soil and site investigations shall conclude that the effluent will not adversely impact or harm the waters of the State. (5-7-93)

02. Installation Permit Plans. Installation permit application plans, as outlined in Subsection 005.04, for a large soil absorption system submitted for approval shall include provisions for inspections of the work during construction by the design engineer or his designee and/or by the Director. (5-7-93)

03. Module Size. The maximum size of any subsurface sewage disposal module shall be ten thousand

(10,000) gallons per day. Developments with greater than ten thousand (10,000) gallons per day flow shall divide the system into absorption modules designed for ten thousand (10,000) gallons per day or less. (5-7-93)

04. Standard Large Soil Absorption System Design Specifications. (5-7-93)

a. All design elements and applications rates shall be arrived at by sound engineering practice and shall be provided by a professional engineer licensed by the state of Idaho and specializing in environmental or sanitary engineering. (5-7-93)

b. Within thirty (30) days of system installation completion the design engineer shall provide either as-built plans or a certificate that the system has been installed in substantial compliance with the installation permit application plans. (5-7-93)

c. Effective Soil Depths. Effective soil depths, in feet, below the bottom of the absorption module to the site conditions must be equal to or greater than the following table:

TABLE -- EFFECTIVE SOIL DEPTHS

Site Conditions	Design Soil Group		
Limiting Layer	A	B	C
Impermeable Layer	8	8	8
Fractured Bedrock, Fissured Bedrock or Extremely Permeable Material	12	8	6
Normal High Groundwater Level	12	8	6
Seasonal High Groundwater Level	2	2	2

(5-7-93)

d. Separation Distances. The disposal area absorption module must be located so that the following separation distances given, in feet, are maintained or exceeded as outlined in the following table:

TABLE -- SEPARATION DISTANCES

Feature of Interest	Design Soil Group		
	A	B	C
All Domestic Water Supplies			
Sewage Volume - 2,500-5,000 GPD	250	200	150
Sewage Volume - 5,000-10,000 GPD	300	250	200
Property Lines			
Sewage Volume - 2,500-5,000 GPD	50	50	50
Sewage Volume - 5,000-10,000 GPD	75	75	75
Building Foundations - Basements			
Sewage Volume - 2,500-5,000 GPD	50	50	50
Sewage Volume - 5,000-10,000 GPD	75	75	75
Downslope Cut or Scarp			
Impermeable Layer - Below Base	100	50	50
Separation Distance - Between Modules	12	12	12

(5-7-93)

e. No large soil absorption system shall be installed above a downslope scarp or cut unless it can be demonstrated that the installation will not result in effluent surfacing at the cut or scarp. (5-7-93)

f. A minimum of two (2) disposal systems will be installed, each sized to accept the daily design flow, and a replacement area equal to the size of one (1) disposal system will be reserved. (5-7-93)

g. The vertical and horizontal hydraulic limits of the receiving soils shall be established and flows shall not exceed such limits so as to avoid hydraulically overloading any absorption module and replacement area. (5-7-93)

h. The distribution system must be pressurized with a duplex dosing system. (5-7-93)

i. A geotextile filter fabric shall cover the aggregate. (5-7-93)

j. An in-line effluent filter between an extended treatment system or lagoon system and the large soil absorption area shall be installed. (5-7-93)

k. Observation pipes shall be installed to the bottom of the drainrock throughout the drainfield. (5-7-93)

l. Pneumatic tired machinery travel over the excavated infiltrative surface is prohibited. (5-7-93)

m. The drainfield disposal area shall be constructed to allow for surface drainage and to prevent ponding of surface water. Before the system is put into operation the absorption module disposal area shall be seeded with typical lawn grasses and/or other appropriate shallow rooted vegetation. (5-7-93)

05. Large Septic Tanks. Large Septic Tanks shall be constructed according to Section 007, except as outlined in this Subsection: (5-7-93)

a. Length to width ratios shall be maintained at least at a three to one (3:1) ratio. (5-7-93)

b. Tank inlet shall allow for even distribution of the influent across the width of the tank. (5-7-93)

c. The width to liquid depth ratio shall be between one to one (1:1) and two and one-quarter to one (2.25:1). (5-7-93)

06. Monitoring And Reporting. Before an installation permit is issued, a monitoring and reporting plan shall be approved by the Director and shall contain the following minimum criteria:

a. Monthly recording and inspection for ponding in all observation pipes. (5-7-93)

b. Monthly recording of influent flows based on lapse time meter and/or event meter of the dosing system. (5-7-93)

c. Monthly recording of groundwater elevation measurements at all monitoring wells if high seasonal groundwater is within fifteen (15) feet of the ground surface. (5-7-93)

d. Semi-annual groundwater monitoring at all monitoring wells. (5-7-93)

e. Monitoring shall conform to the requirements of all federal, state, and local rules and regulations. (5-7-93)

f. An annual “Large Soil Absorption System Report” shall be filed with the Director no later than January 31 of each year for the last twelve (12) month period and shall include section on operation, maintenance and monthly and annual monitoring data. (5-7-93)

07. Operation And Maintenance. Before an installation permit is issued, an operation and maintenance plan shall be approved by the Director and shall contain the following minimum criteria: (5-7-93)

a. Annual or more frequent rotation of the disposal systems, and whenever ponding is noted.(5-7-93)

b. A detailed operation and maintenance manual, fully describing and locating all elements of the system and outlining maintenance procedures needed for operation of the system and who will be responsible for system maintenance, shall be submitted to the Director prior to system use. (5-7-93)

c. A maintenance entity shall be specified to provide continued operation and maintenance. Approval of the entity shall be made by the Director prior to issuance of an installation permit. (5-7-93)

014. -- 995. (RESERVED).

996. ADMINISTRATIVE PROVISIONS.
Persons may be entitled to appeal agency actions authorized under these rules pursuant to IDAPA 58.01.23, "Rules of Administrative Procedure Before the Board of Environmental Quality". (11-9-01)T

997. CONFIDENTIALITY OF RECORDS.
Information obtained by the Department under these rules is subject to public disclosure pursuant to the provisions of Chapter 3, Title 9, Idaho Code, and IDAPA 58.01.21, "Rules Governing the Protection and Disclosure of Records in the Possession of the Idaho Department of Environmental Quality". (11-9-01)T

998. INCLUSIVE GENDER AND NUMBER.
For the purposes of these rules, words used in the masculine gender include the feminine, or vice versa, where appropriate. (12-31-91)

999. SEVERABILITY.
The rules of this manual are severable. If any rule, or part thereof, or the application of such rule to any person or circumstance, is declared invalid, that invalidity does not affect the validity of any remaining portion of the manual.(5-7-93)

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RULES FOR

GOVERNING THE CLEANING OF

SEPTIC TANKS

58.01.15 – Rules Governing The Cleaning of Septic Tanks

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

Use link below to access official rule retained at the Idaho Department of Administrations Website
http://adm.idaho.gov/adminrules/rules/idapa58/0115.pdf

IDAPA 58
TITLE 01
Chapter 15

58.01.15 - RULES GOVERNING THE CLEANING OF SEPTIC TANKS

000. (RESERVED).

001. LEGAL AUTHORITY.
Title 39, Chapter 1, Idaho Code, grants authority to the Board of Environmental Quality to adopt rules, regulations and standards to protect the environment and the health of the State and for the issuance of pollution source permits. Title 39, Chapter 1, Idaho Code, charges the Director to enforce all laws, rules, regulations and standards relating to environmental protection and health and those relating to the storage, handling and transportation of solids, liquids and gases which may cause or contribute to water pollution, and authorizes him to issue pollution source permits. (12-31-91)

002. TITLE AND SCOPE.

01. Title. These rules shall be cited in full as Idaho Department of Environmental Quality Rules, IDAPA 58.01.15, "Rules Governing the Cleaning of Septic Tanks". (12-31-91)

02. Scope. The provisions of these rules establish general requirements for the handling, transportation and disposal of septic tank wastes and for obtaining a septic tank pumping permit. (12-31-91)

003. GENERAL REQUIREMENTS.
All persons, firms or corporations operating any tank truck or any other device or equipment used or intended to be used for the purpose of pumping or cleaning septic tanks and/or transporting or disposing of human excrement, shall conform with the following requirements. (3-1-60)

01. Equipment To Be Watertight. The tank or transporting equipment shall be watertight and so constructed as to prevent spilling or leaking while being loaded, transported and/or unloaded. (3-1-60)

02. Equipment To Be Cleanable. The tank or transporting equipment shall be constructed in such a manner that every portion of the interior and exterior can be easily cleaned and maintained in a clean condition at all times while not in actual use. (3-1-60)

03. Disposal Methods. Disposal of excrement from septic tanks shall be by the following methods only: (3-1-60)

a. Discharging to a public sewer; (3-1-60)

b. Discharging to a sewage treatment plant; (3-1-60)

c. Burying under earth in a location and by a method approved by the Department of Environmental Quality: (3-1-60)

d. Drying in a location and by a method approved by the Department of Environmental Quality (3-1-60)

004. PERMIT REQUIREMENTS.
All persons operating septic tank pumping equipment shall obtain a permit from the Idaho Department of Environmental Quality for the operation of such equipment. Permits shall be renewed annually. Applications for

renewal of permits shall be made on or before March 1 of each year. (3-1-60)

01. Permit Application Contents. Applications for permits shall submit the following information on forms prepared by the Department: (3-1-60)

a. Number of tank trucks operated by owner; (3-1-60)

b. Vehicle license number of each tank truck; (3-1-60)

c. Name and address of owner and/or operator of equipment; (3-1-60)

d. Name and address of business, if different from Subsection 004.01.c.; (3-1-60)

e. Methods of disposal to be used in all areas of operation; (3-1-60)

f. Location of all disposal sites used by applicant; (3-1-60)

g. A complete basis of charges made for payment of the work performed. (3-1-60)

02. Permit Fee. All applications shall be accompanied by payment of the fee specified in Idaho Department of Health and Welfare Rules, IDAPA 16.05.05, Section 115, "Rules Governing Fees for Health and Environmental Operating Permits, Licenses, and Inspection Services". (12-31-91)

03. Vehicle Number To Be Displayed. For each permit issued, a number will be assigned to the owner and/or operator of the tank truck or trucks. The assigned number shall be displayed at all times on the door of the vehicle or vehicles in a manner easily legible. (3-1-60)

04. Permit Suspension Or Revocation. Permits issued are the property of the Department of Environmental Quality and may be suspended or revoked at any time the operator is not in compliance with the requirements of these rules. (3-1-60)

005. -- 995. (RESERVED).

996. ADMINISTRATIVE PROVISIONS.
Persons may be entitled to appeal agency actions authorized under these rules pursuant to IDAPA 58.01.23, "Rules of Administrative Procedure Before the Board of Environmental Quality". (11-9-01)T

997. CONFIDENTIALITY OF RECORDS.
Information obtained by the Department under these rules is subject to public disclosure pursuant to the provisions of Chapter 3, Title 9, Idaho Code, and IDAPA 58.01.21, "Rules Governing the Protection and Disclosure of Records in the Possession of the Idaho Department of Environmental Quality". (11-9-01)T

998. INCLUSIVE GENDER AND NUMBER.
For the purposes of these rules, words used in the masculine gender include the feminine, or vice versa, where appropriate. (12-31-91)

999. SEVERABILITY.
Idaho Department of Environmental Quality Rules, IDAPA 58.01.15, "Rules Governing the Cleaning of Septic Tanks," are severable. If any rule or regulation, or part thereof, or the application of such rule or regulation to any person or circumstance is declared invalid, that invalidity does not affect the validity of any remaining portion of this chapter. (2-15-82)

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HEALTH AND SAFETY, TITLE 39, CHAPTER 1

39-103. Definitions. -- (8) "Water Pollution" is such alteration of the physical, thermal, chemical, biological or radioact ve properties of any waters of the state, or such discharge of any contaminant into the waters of the state as will or is likely to create a nuisance or render such waters harmful or detrimental or injurious to public health, safety or welfare or to domestic, commercial, industrial, recreational, esthetic or other legitimate uses or to livestock, wild animals, birds, fish or other aquatic life.

(9) "Waters" means all the accumulations of water, surface and underground, natural and artificial, public and private, or parts thereof which are wholly or partially within, flow through or border upon this state.

(13) "Person" means any individual, association, partnership, firm, joint stock company, trust, estate, political subdivision, public or private corporation, state or federal governmental department agency or instrumentality, or any other legal entity which is recognized by law as the subject of rights and duties.

(15) "Public Water Supply" means all mains, pipes, and structures through which water is obtained and distributed to the public, including wells and well structures, intakes and cribs, pumping stations, treatment plants, reservoirs, storage tanks and appurtenances, collectively or severally, actually used or intended for use for the purpose of furnishing water for drinking or general domestic use in incorporated municipalities; or unincorporated communities where ten (10) or more separate premises or households are being served or intended to be served; or any other supply which serves water to the public and which the department of health and welfare declares to have potential health significance.

39-108. Investigation -- Inspection -- Right of entry -- Violation -- Enforcement -- Penalty -- Injunctions. -- (1) The director shall cause investigations to be made upon the request of the board or upon receipt of information concerning an alleged violation of this act or of any rule, regulation, permit, or order promulgated thereunder, and may cause to be made such other investigations as the director shall deem advisable.

(2) For the purpose of enforcing any provision of this chapter or any rule or regulation authorized in this chapter, the director or the director's designee shall have the authority to:

(a) Conduct a program of continuing surveillance and of regular or periodic inspection of actual or potential health hazards, air contamination sources, water pollution sources, noise sources, and of solid waste disposal sites;

(b) Enter at all reasonable times upon any private or public property, upon presentation of appropriate credentials, for the purpose of inspecting or investigating to ascertain possible violations of this act or of rules, regulations, permits or orders adopted and promulgated by the director or the board;

(c) All inspections and investigations conducted under the authority of this chapter shall be performed in conformity with the prohibitions against unreasonable searches and seizures contained in the fourth amendment to the constitution of the United States and section 17, article I, of the constitution of the state of Idaho. The state shall not, under authority granted by this chapter, conduct warrantless searches of private property in the absence of either consent from the property owner or occupier or exigent circumstances such as a public health or environmental emergency;

(d) Any district court in and for the county in which subject property is located is authorized to issue a search warrant to the director upon a showing of

(i) probable cause to suspect a violation, or

(ii) the existence of a reasonable program of inspection.

Any search warrant issued under the authority of this chapter shall be limited in scope to the specific purposes for which it is issued and shall state with specificity the manner and the scope of the search authorized.

(3) Whenever the director determines that any person is in violation of any provision of this act or any rule, regulation, permit or order issued or promulgated pursuant to this act, the director may commence either of the following:

(a) Administrative enforcement action.

(i) Notice. The director may commence an administrative enforcement action by issuing a written notice of violation. The notice of violation shall identify the alleged violation with specificity, shall specify each provision of the act, rule, regulation, permit or order which has been violated, and shall state the amount of civil penalty claimed for each violation. The notice of violation shall inform the person to whom it is directed of an opportunity to confer with the director or the director's designee in a compliance conference concerning the alleged violation. A written response may be required within fifteen (15) days of receipt of the notice of violation by the person to whom it is directed.

(ii) Scheduling compliance conference. If a recipient of a notice of violation contacts the department within fifteen (15) days of receipt of the notice, the recipient shall be entitled to a compliance conference. The conference shall be held within twenty (20) days of the date of receipt of the notice, unless a later date is agreed upon between the parties. If a compliance conference is not requested, the director may proceed with a civil enforcement action as provided in paragraph b. of this subsection.

(iii) Compliance conference. The compliance conference shall provide an opportunity for the recipient of a notice of violation to explain the circumstances of the alleged violation and, where appropriate, to present a proposal for remedying damage caused by the alleged violation and assuring future compliance.

(iv) Consent order. If the recipient and the director agree on a plan to remedy damage caused by the alleged violation and to assure future compliance, they may enter into a consent order formalizing their agreement. The consent order may include a provision providing for payment of any agreed civil penalty.

(v) Effect of consent order. A consent order shall be effective immediately upon signing by both parties and shall preclude any civil enforcement action for the same alleged violation. If a party does not comply with the terms of the consent order, the director may seek and obtain, in any appropriate district court, specific performance of the consent order and such other relief as authorized by this chapter.

(vi) Failure to reach a consent order. If the parties cannot reach agreement on a consent order within sixty (60) days after receipt of the notice of violation or if the recipient does not request a compliance conference as per subsection a.ii. of this section, the director may commence and prosecute a civil enforcement action in district court, in accordance with subsection b. of this section.

(b) Civil enforcement action. The director may initiate a civil enforcement action through the attorney general as provided in section 39-109, Idaho Code. Civil enforcement actions shall be commenced and prosecuted in the district court in and for the county in which the alleged violation occurred, and may be brought against any person who is alleged to have violated any provisions of this act or any rule, regulation, permit or order which has become effective pursuant to this act. Such action may be brought to compel compliance with any provision of this act or with any rule, regulations, permit or order promulgated hereunder and for any relief or remedies authorized in this act. The director shall not be required to initiate or prosecute an administrative action before initiating a civil enforcement action.

(4) No civil or administrative proceeding may be brought to recover for a violation of any provision of this chapter or a violation of any rule, regulation, permit or order issued or promulgated pursuant to this chapter, more than two (2) years after the director had knowledge or ought reasonably to have had knowledge of the violation.

(5) Monetary Penalties. (a) Any person determined in a civil enforcement action to have violated any provision of this act or any rule, regulation, permit or order promulgated pursuant to this act shall be liable for a civil penalty not to exceed ten thousand dollars ($10,000) per violation or one thousand dollars ($1,000) for each day of a continuing violation, whichever is greater or ten thousand dollars ($10,000) for each separate air violation and day of continuing air violation. The method of recovery of said penalty shall be by a civil enforcement action in the district court in and for the county where the violation occurred. All civil penalties collected under this act shall be paid into the general fund of the state. Parties to an administrative enforcement action may agree to a civil penalty as provided in this subsection.

(b) The imposition or computation of monetary penalties may take into account the seriousness of the violation, good faith efforts to comply with the law, and an enforceable commitment by the person against whom the penalty is directed to implement a supplemental environmental project. For purpose of this section, "supplemental environmental project" means a project which the person is not otherwise required to perform and which prevents pollution, reduces the amount of pollutants reaching the environment, contributes to public awareness of environmental matters, or enhances the quality of the environment. In evaluating a particular supplemental environmental project proposal, preference may be given to those projects with an environmental benefit which relates to the violation or the objectives of the underlying statute which was violated or which enhances the quality of the environment in the general geographic location where the violation occurred.

(6) In addition to such civil penalties, any person who has been determined to have violated the provisions of this act or the rules, regulations, permits or orders promulgated thereunder, shall be liable for any expense incurred by the state in enforcing the act, or in enforcing or terminating any nuisance, source of environmental degradation, cause of sickness, or health hazard.

(7) No action taken pursuant to the provisions of this act or of any other environmental protection or health law shall relieve any person form any civil action and damages that may exist for injury or damage resulting from any violations of this act or the rules, regulations, permits and orders promulgated thereunder.

(8) In addition to, and notwithstanding other provisions of this act, in circumstances of emergency creating conditions of imminent and substantial danger to the public health or environment, the prosecuting attorney or the attorney general may institute a civil action for an immediate injunction to halt any discharge, emission or other activity in violation of provisions of this act or rules, regulations, permits and orders promulgated thereunder. In such action the court may issue an ex parte restraining order.

39-117. Violation -- Penalty. -- (1) Any person who wilfully or negligently violates any of the provisions of the non-air quality public health or environmental protection laws or terms of any lawful notice, order, permit, standard, rule or regulation issued pursuant thereto, shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not more than ten thousand dollars ($10,000) for each separate violation or one thousand dollars ($1,000) per day for continuing violations, whichever is greater.

39-118. Review of plans. -- (1) Except as provided for dairy systems pursuant to section 37-401 , Idaho Code, all plans and specification for the construction of new sewage systems, sewage treatment plants or systems, other waste treatment or disposal facilities, public water supply systems or public water treatment systems or for modification or expansion to existing sewage treatment plants or systems, waste treatment or disposal facilities, public water supply systems or public water treatment systems, shall be submitted to and approved by the department of health and welfare before construction may begin, and all construction shall be in compliance therewith. No deviation shall be made from the approved plans and specifications without the prior approval of the department. Within thirty (30) days of completion of construction, alteration, or modification of any new sewage systems, sewage treatment plants or systems, other waste treatment or disposal facilities, public water supply systems or public water treatment systems, complete and accurate plans and specifications depicting the actual construction, alteration, or modification performed must be submitted to the department of health and welfare. If construction does not deviate from the original plans previously submitted for approval, a statement to that effect shall be filed with the department.

(2) All plans and specifications submitted to satisfy the requirements of this section shall conform in style and quality to regularly accepted engineering standards. Except with respect to plans and specifications for facilities addressed in subsection 3 of this section, and confined animal feeding operations, the board may require that certain types of plans and specifications must be certified by registered professional engineers. If the department determines that any particular facility or category of facilities will produce no significant impact on the environment or on the public health, the department shall be authorized to waive the submittal or approval requirement for that facility or category of facilities.

(3) All plans and specifications for the construction, modification, expansion, or alteration of waste treatment or disposal facilities for aquaculture facilities licensed by the department of agriculture for both commercial fish propagation facilities as defined in section 22-4601, Idaho Code, and sport fish propagation facilities whether private or operated or licensed by the department of fish and game and other aquaculture facilities as defined in the Idaho waste management guidelines for aquaculture operations, shall be submitted and approved by the department of health and welfare before construction may begin and all construction shall be in compliance therewith. The department shall

review plans and specifications within forty-five (45) days of submittal and notify the owner or responsible party of approval or disapproval. In the event of disapproval the department shall provide reasons for disapproval in writing to the owner or responsible party. Plans and specifications shall conform in style and quality to standard industry practices and guidelines developed pursuant to this subsection. The director shall establish industry guidelines or best management practices subcommittees composed of members of the department, specific regulatory agencies for the industry, general public, and persons involved in the industry to develop and update guidelines or best management practices as needed. Within thirty (30) days of the completion of the construction, modification, expansion, or alteration of facilities subject to this subsection, the owner or responsible party shall submit a statement to the department that the construction has been completed and is in substantial compliance with the plans and specifications as submitted and approved. The department shall conduct an inspection within sixty (60) days of the date of submission of the statement and shall inform the owner or responsible party of its approval of the construction or in the event of nonapproval the reasons for nonapproval.

HEALTH AND SAFETY, TITLE 39, CHAPTER 36

39-3634. Cottage site defined. -- "Cottage site" is defined as a state owned lot containing one (1) acre or less which is or may be leased by the state of Idaho primarily for recreational or homesite use by a lessee. [1970, ch. 191, § 1, p. 555.]

39-3635. Cottage site leases -- Requirements -- Construction of sewage disposal facilities -- Connection to water and sewer district systems -- Payment of charges -- Notification of defaults -- Satisfaction of requirements.-- (1) After the effective date of this act all cottage site leases authorized by the state of Idaho shall require that each lessee must construct, at his cost and expense, sewage disposal facilities, certified by the director of he department of health and welfare as adequate, as follows:

(a) For all new cottage or house construction completed after July 1, 1971 on any cottage site the certificate shall be issued prior to occupancy.

(b) Those cottages or houses existing on the cottage sites prior to the effective date of this act shall meet those standards required by the director of the department of health and welfare for certification within two (2) years of the effective date of this act, unless a public or private sewage collection or disposal system is being planned or constructed in which case the director of the department of health and welfare may grant extensions on a year by year basis but not to exceed three (3) such extensions for any one (1) cottage site.

(c) Isolated dwellings on sites situated on mining, grazing or other similar types of state land board leases shall not be affected unless within two hundred (200) yards of any flowing stream or a lake.

(2) Wherever any cottage site is located within the boundaries of a district organized for water or sewer purposes, or a combination thereof, pursuant to the provisions of chapter 32, title 42, Idaho Code, as amended, the cottage site lessee sh all connect his property to the sewer system of the district within sixty (60) days after written notice from the district to do so, provided, however, no cottage site lessee shall be compelled to connect his property with such sewer system unless a service line is brought by the district to a point within two hundred (200) feet of his dwelling place. All cottage site leases hereafter issued shall require, as a condition of acceptance thereof by the lessee, that the lessee will connect his property to a district sewer system as required in this subsection (2). With respect to all cottage site leases issued subsequent to July 1, 1970, filing with the department issuing the lease of evidence of connection to the district sewer system as contemplated in this subsection (2) shall be conclusive evidence of compliance by the cottage site lessee with the requirements of subsection (1) of this section and of the provisions of the cottage site lease to provide sewage disposal facilities at the expense of the cottage site lessee. Each cottage site lessee whose cottage site is subject to connection to a district sewer system as required in this subsection (2) shall pay to the district to which the cottage site is required to be connected, in a timely manner and when due, all connection fees and charges, all monthly rates, tolls and charges, as provided by chapter 32 title 42, Idaho Code, as amended, and all special benefits payments in lieu of tax payments provided for in subsection (3) of this section.

(3) Notwithstanding that title to a cottage site remains in the state of Idaho, each cottage site lessee shall pay to any district operating a sewer system to which the cottage site is connected as provided in subsection (2) of this section, each year in the same manner and at the same time as county taxes are paid and collected a sum of money in lieu of taxes equal to the sum which would have been paid had the cottage site been held in private ownership, hereinafter called special benefits payments. The special benefit payments shall be computed by applying the millage levy of the district to the cottage site in the ordinary course to the assessed valuation of the property as determined by the county assessor of the county in which the cottage site is located. No special benefits payments shall be imposed prior to January 1, 1980. The cottage site lessee shall have such rights of protest, hearings, and appeals with respect to the valuation of the cottage site for purposes of determining the special benefits payments as if such cottage site were held in private ownership.

It shall be the duty of the county assessor to establish the value of each cottage site as compared to like property upon the request, in writing, of the district.

(4) Each water and sewer district shall immediately notify the department issuing a cottage site lease of the failure of any cottage site lessee to connect to the district sewer system, or to pay any connection fee or charge, monthly rate, toll or charge, or any special benefit payments, all as required or provided for in subsection (3) of the section. Any such notification shall set forth the amount of any such fees, charges or payments which are delinquent.

(5) Approval, pursuant to the provisions of section 39-118, Idaho Code, by the department of health and welfare of the plans and specifications of a sewer system to be constructed, acquired, improved or extended by a water and sewer district shall, as to all cottage sites connected to the district sewer system. satisfy the requirements of section 39-3637, Idaho Code.

(6) The state of Idaho, its boards, agencies or departments, shall not be liable, directly or indirectly, for any connection fees and charges, monthly rates, tolls and charges, or special benefits payments charged to cottage site lessees beyond those fees or payments collected from new lessees pursuant to section 58-304A, Idaho Code, and placed in the revolving fund created by section 58-141A, Idaho Code.

39-3636. Failure to provide sewage disposal -- Penalties.-- Failure to provide certified sewage disposal as provided in section 39-3635(1), Idaho Code, or failure to connect to a district sewer system or to pay, when due, any connection fee or charge, any monthly rate, toll or charge, or any special benefits payment, all as required and provided for in subsections (2) and (3) of section 39-3635, Idaho Code, shall result in the following:

(a) Forfeiture of lease to the state of Idaho after reasonable notice and hearing, as shall be prescribed in rules to be adopted by the department issuing the lease pursuant to the applicable provisions of chapter 52, title 67, Idaho Code, as now or hereafter in force.

(b) Loss of sewage treatment facility credit on any transfer of lease or new lease of such site after notice and hearing before the department issuing such lease.

The department issuing any cottage site lease, upon its own motion or upon receiving notice from a water and sewer district pursuant to the provisions of section 39-3635(4), Idaho Code, of the failure of a cottage site lessee to connect to a district sewer system or to pay any connection fee or

charge, any monthly rate, toll or charge, or any special benefits payments, when due, is authorized to invoke either or both remedies at its discretion or may take such other action allowed by law to enforce the provisions of the lease and the requirements of section 39-3635, Idaho Code, that each cottage site lessee connect to a district sewer system and pay all fees, charges and payments when due.

39-3637. State board of health and welfare -- Rules -- Inspections.-- The state board of health and welfare shall adopt reasonable rules and standards for the installation and operation of cottage site sewage treatment facilities, and shall provide adequate inspection services so as not to delay unreasonably the construction of any lessee. Duplicate originals of all certificates issued by the director of the department of health and welfare shall be filed with the director of the department issuing a cottage site lease.

The director of the department of health and welfare shall initiate on or before July 1, 1971, a site by site inventory of such sewage disposal systems that may exist. The inventory shall ascertain:

(a) If the existing system meets the board standards. If the system meets all standards and rules for cottage sewage disposal systems a certificate shall be issued immediately.

(b) If the system does not meet the board standards. In such case, the lessee shall be advised in writing of the actions necessary to meet the proper standards. A copy of such report shall be filed with the state agency granting the lease. The modifications, unless specifically exempted from the time limit, as provided in this act, shall be completed within two (2) years of the date of the written notice.

39-3638. Final determination by issuing department authorized.-- In the event of dispute, unreasonable delay on the part of lessee or the department of health and welfare, the department issuing a cottage site lease ma upon notice and hearing, make a final determination consistent with control of water pollution and public health.

39-3639. Continuation of cottage site lease program.-- (1) The legislature of the state of Idaho recognizes that certain state lands are presently leased for cottage site uses and are subject to leases and contracts duly authorized by law. It is legislative intent to continue to recognize such leases. However, it is also legislative intent that no new or additional lands be platted, subdivided or leased for cottage site leases, unless and until the condition and precedents listed below have been met.

(2) No additional state lands shall be further platted or subdivided, nor any new cottage leases entered into, unless and until the following provisions have been met:

(a) The department of lands shall have completed a comprehensive planning process, as to its further participation in, and extension of, the cottage site lease program;

(b) The department of lands shall complete a comprehensive planning process as to the extension of cottage site leasing for that immediate geographic area;

(c) No new cottage site leases shall be entered into unless and until an adequate water system and an adequate sewage collection and treatment system have been installed. Both of these systems shall meet applicable state health standards and rules. (i) the costs for providing these systems shall be incorporated into the annual lease rates for the newly created serviced lots,

unless other specific provisions for payment have been required by the state board of land commissioners. (ii) As an alternate means of securing the necessary funds for the construction of water and sewer systems which must meet state standards and rules, the state board of land commissioners may include as a condition of the new lease the requirement that the lessee must prepay his share of the construction costs of the water and sewer system. In all cases, however, such prepayment shall be made, and adequate water and sewer systems shall be installed and in operation before such cottage sites may be inhabited.

(3) The provisions of subsection (1) herein shall not apply to unimproved lots within cottage subdivisions in which at least eighty per cent (80%) of the lots already have cottages upon them.

PLATS AND VACATIONS, TITLE 50, CHAPTER 13

50-1301. Definitions.-- The following definitions shall apply to terms used in sections 50-130 1 through 50-1334, Idaho Code.

1. Easement: A right of use, falling short of ownership, and usually for a certain stated purpose;
4. Monument: A physical structure or object that occupies the position of a corner;
5. Owner: The proprietor of the land, (having legal title);
6. Plat: The drawing, map or plan of a subdivision, cemetery, townsite or other tract of land, or a replatting of such, including certifications, descriptions and approvals;
12. Reference Monument: A special monument that does not occupy the same geographic position as the corner itself, but whose spatial relationship to the corner is known and recorded, and which serves to witness the corner;
13. Sanitary Restriction: the requirement that no building or shelter which will require a water supply facility or a sewage disposal facility for people using the premises where such building or shelter is located shall be erected until written approval is first obtained from the state board of health by its administrator or his delegate approving plans and specifications either for public water and/or sewage facilities, or individual parcel water and/or sewage facilities;
15. Subdivision: A tract of land divided into five (5) or more lots, parcels, or sites for the purpose of sale or building development, whether immediate or future; provided that this definition shall not include a bona fide division or partition of agricultural land for agricultural purposes. A bona fide division or partition of agricultural land for agricultural purposes shall mean the division of land into lots, all of which are five (5) acres or larger, and maintained as agricultural lands. Cities or counties may adopt their own definition of subdivision in lieu of the above definition.
16. Witness Corner: a monumented point usually on a lot line or boundary line of a survey, near a corner and established in situations where it is impracticable to occupy or monument the corner.

50-1304. Essentials of plats.-- All plats offered for record in any county shall....

Plats shall be eighteen (18) inches by twenty-seven (27) inches in size, ...

No part of the drawing or certificates shall encroach upon the margins. Signatures shall be in reproducible black ink. The sheet or sheets which contain the drawing or diagram representing the survey of the subdivision shall be drawn at a scale suitable to insure the clarity of all lines, bearings and dimensions. In the event that any subdivision is of such magnitude that the drawing or diagram cannot be placed on a single sheet, serially numbered sheets shall be prepared and match lines shall be indicated on the drawing or diagram with appropriate references to other sheets. The required dedications, acknowledgments and certifications shall appear on one (1) or the serially numbered sheets.

The plat shall show:

(a) the streets and alleys, with widths and courses clearly shown;
(b) Each street named;
(c) all lots numbered consecutively in each block, and each block lettered or numbered, provided, however, in a platted cemetery, that each block, section, district, or division and each burial lot shall be designated by number or letter or name;

(d) each and all lengths of the boundaries of each lot shall be shown, provided, however in a platted cemetery, that lengths of the boundaries of each burial lot may be shown by appropriate legend;
(e) the exterior boundaries shown by distance and bearing;
(f) descriptions of survey monuments
(g) point of beginning with ties to at least two (2) public land survey corner monuments in one (1) or more of the sections containing the subdivision, or in lieu of public land survey monuments, to two (2) monuments recognized by the county surveyor; and also, if required by the city or county governing bodies, gives coordinates based on the Idaho coordinate system;
(h) the easements;
(i) basis of bearings; and
(j) subdivision name.

50-1306. Extraterritorial effects of subdivision - Property within the area of city impact.-- All plats situate within an officially designated area of city impact as provided for in section 67-6525, Idaho Code, shall be administered in accordance with the provisions set forth in the adopted city or county zoning and subdivision ordinances having jurisdiction. In the situation where no area of city impact has been officially adopted, the county with jurisdiction shall transmit all proposed plats situate within one (1) mile outside the limits of any incorporated city which has adopted a comprehensive plan or subdivision ordinance to said city for review and comment at least fourteen (14) days before the first official decision regarding the subdivision is to be made by the county. Items which may be considered by the city include, but are not limited to, continuity of street pattern, street widths, integrity and continuity of utility systems and drainage provisions. The city's subdivision ordinance and/or comprehensive plan shall be used as guidelines for making the comments hereby authorized. The county shall consider all comments submitted by the city. Where the one (1) mile area of impact perimeter of two (2) cities overlaps, both cities shall be notified and allowed to submit comments.

50-1306A. Vacation of plats -- Procedure.-- ... (1) When any person, persons, firm, association or corporation or other legally recognized form of business desiring to vacate a plat or any part thereof which is inside or within one (1) mile of the boundaries of any city must petition the city council to vacate. Such petition shall set forth particular circumstances of the requests to vacate; contain a legal description of the platted area or property to be vacated; the names of the persons affected thereby, and said petition shall be filed with the city clerk.

(2) Written notice of public hearing on said petition shall be given, by certified mail with return receipt, at least ten (10) days prior to the date of public hearing to all property owners within three hundred (300) feet of the boundaries of the area described in the petition. Such notice of public hearing shall also be published once a week for two (2) successive weeks in the official newspaper of the city, the last of which shall be not less than seven (7) days prior to the date of said hearing; ... (3)When the procedures set forth herein have been fulfilled, the city council may grant the request to vacate with such restrictions as they deem necessary in the public interest.

(4) When the platted area lies more than one (1) mile beyond the city limits, the procedures set forth herein shall be followed with the county commissioners of the county wherein the property lies. The county commissioners shall have authority, comparable to the city council, to grant the vacation, provided, however, when the platted area lies beyond one (1) mile of the city limits, but adjacent to a platted area within one (1) mile of the city, consent of the city council of the affected city shall be necessary in granting any vacation by the county commissioners.

(5) In the case of easement granted for gas, sewer, water, telephone, cable television, power, drainage, and slope purposes, public notice of intent to vacate is not required. Vacation of these easements shall occur upon the recording of the new or amended plat, provided that all affected easement holders have been notified by certified mail, return receipt requested, of the proposed vacation and have been agreed to the same in writing. ...

(7) All publication costs shall be at the expense of the petitioner.

(9) Land exclusive of public right-of-way that has been subdivided and platted in accordance with this chapter need not be vacated in order to be replatted.

50-1315. Existing plats validated,-- None of the provisions of sections 50-1301 through 50-1325, Idaho Code, shall be construed to require replatting in any case where plats have been made and recorded in pursuance of any law heretofore in force; and all plats heretofore filed for record and not subsequently vacated are hereby declared valid, notwithstanding irregularities and omissions in manner of form of acknowledgment or certificate. Provided, however:

(1) When plats have been accepted and recorded for a period of five (5) years and said plats include public streets that were never laid out and constructed to the standards of the appropriate public highway agency, said public street may be classified as public right of way; and

(2) Public rights of way for vehicular traffic included in plats which would not conformto current highway standards of the appropriate public highway agency regarding alignments and access locations which, if developed, would result in an unsafe traffic condition, shall be modified or reconfigured in order to meet current standards before access permits to the public right of way are issued.

50-1324. Recording vacations. -- (1) Before a vacation of a plat can be recorded, the county treasurer must certify that all taxes due are paid and such certification is recorded as part of the records of the vacation. The treasurer shall withhold the certification only when property taxes are due, but not paid.

(2) Upon payment of the appropriate fee therefore, the county recorder of each county shall index and record, in the same manner as other instruments affecting the title to real property, a certified copy of each ordinance, resolution, or order by which any lot, tract, public street, public right of way, private road, easement, common, plat or any part thereof has been vacated. Such certification shall be by the officer having custody of the original document and shall certify that the copy is a full true and correct copy of the original.

50-1325. Easements - Vacations of. Easements shall be vacated in the same manner as streets.

50-1326. All plats to bear a sanitary restriction -- Submission of plans and specifications of water and sewage systems to state department of health and welfare -- Removal or reimposition of sanitary restriction. -- For the purposes of sections 50-1326 through 50-1329, Idaho Code, any plat of a subdivision filed in accordance with chapter 13, title 50, Idaho Code, or in accordance with county ordinances adopted pursuant to chapter 38, title 31, Idaho Code, shall be subject to the sanitary restriction. There shall be placed upon the face of every plat prior to it being recorded by the county clerk and recorder, the sanitary restriction, except such sanitary restriction may be omitted from the plat, or if it appears on the plat, may be indorsed by the county clerk and recorder as sanitary restriction satisfied, when there is recorded at the time of the filing of the plat, or at any time subsequent thereto, a duly acknowledged certificate of approval issued by the director of the department of health and welfare, for either public water and/or public sewer facilities, or individual water and/or sewage facilities for the particular land. The owner shall have the obligation of submitting to the director all

information necessary concerning the proposed facilities referred to. Such certificate of approval may be issued for the subdivision or any portion thereof. Until the sanitary restrictions have been satisfied by the filing of said certificate of approval, no owner shall construct any building or shelter on said premises which necessitates the supplying of water or sewage facilities for persons using such premises. The sanitary restrictions shall be reimposed on the plat upon the issuance of a certificate of disapproval after notice to the responsible party and an opportunity to appeal, if construction is not in compliance with approved plans and specifications, or the facilities do not substantially comply with regulatory standards in effect at the time of facility construction.

50-1327. Filing or recording of noncomplying map or plat prohibited.-- No person shall offer for recording, or cause to be recorded, a plat not containing a sanitary restriction, unless there is submitted for record at the same time the certificate of approval from the director of the department of health and welfare as required in section 50-1326, Idaho Code. The filing and recording of a noncomplying plat shall in no way invalidate a title conveyed thereunder.

50-1328. Rules for the administration and enforcement of sanitary restrictions.-- The state board of health and welfare may adopt rules pursuant to 39-107(8), Idaho Code, including adoption of sanitary standards necessary for administration and enforcement, pursuant to section 39-108, Idaho Code, of sections 50-1326 through 50-1329, Idaho Code. The rules and standards shall provide the basis for approving subdivision plats for various types of water and sewage facilities, both public and individual, and may be related to size of lots, contour of land, porosity of soil, ground water level, pollution of water, type of construction of water and sewage facilities, and other factors for the protection of the public health or the environment.

50-1329. Violation a misdemeanor.-- Any person, firm or corporation who constructs, or causes to be constructed, a building or shelter prior to the satisfaction of the sanitary restriction, or who installs or causes to be installed water and sewer facilities thereon prior to the issuance of a certificate of approval by the director of the department of health and welfare, shall be guilty of a misdemeanor. Each and every day that such activities are carried on in violation of this section shall constitute a separate and distinct offense.

50-1334. Review of water systems encompassed by plats.-- Whenever any plat is subject to the terms and requirements of sections 50-1326 through 50-1329, Idaho Code, no person shall offer for recording, or cause to be recorded, a plat unless he or she shall have certified that at least one (1) of the following is the case:

(1) The individual lots described in the plat will not be served by any water system common to one (1) or more of the lots, but will be served by individual wells.

(2) All of the lots in the plat will be eligible to receive water service from an existing water system, be the water system municipal, a water district, a public utility subject to the regulation of the Idaho public utilities commission, or a mutual or nonprofit water company and the existing water distribution system has agreed in writing to serve all of the lots in the subdivision.

(3) If a new water system will come into being to serve the subdivision, that it has or will have sufficient contributed capital to allow the water system's wells, springboxes, reservoirs and

mains to be constructed to provide service without further connection charges or fees to the landowners of the lots, except for connection of laterals, meters, or other plant exclusively for the lot owner's own use.

Failure to comply with this section is a misdemeanor subject to the provisions of section 50-1329 , Idaho Code. The certification must be filed or recorded as part of the plat document preserved for public inspection. Property owners in the area encompassed by the plat will be entitled to the benefits of the third provision of this section when that option is chosen.

POLICIES

TOTAL NITROGEN REDUCTION POLICY

Onsite wastewater systems that qualify as Best Practical Methods (BPM) for the targeted nitrogen reduction amount appear in Table 1. Areas of concern, such as nitrate priority areas, areas with shallow soils over bedrock, or a shallow depth to ground water, may be required to use one of these BPMs to reduce the development's , or home's environmental impact. Values listed in the Total nitrogen (TN) column should not be exceeded in order to assure that the required TN reduction percentage is attained. These TN values may be used in nutrient – Pathogen (NP) Studies to evaluate impacts on ground water resources.

Table 1. Best Practical Methods for Onsite Wastewater Systems

Best Practical Method (BPM)	**% TN[1] Reduction**	**TN[1] (mg/L)**	**Minimum Source Water Alkalinity[2]**	**O&M Provider**
Intermittent Sand Filters (ISF)	15%[3]	38	108 mg/L	Property Owner
Recirculating Gravel Filters (RGF)	40%[3]	27	189 mg/L	Property Owner
Extended Treatment Package Systems (ETPS)				
Delta - Ecopod	30%	32	156 mg/L	Non-Profit O&M Corp.
Delta - Whitewater	30%	32	156 mg/L	Non-Profit O&M Corp.
Nayadic	30%	32	156 mg/L	Non-Profit O&M Corp.
Norweco - Singulair	30%	32	156 mg/L	Non-Profit O&M Corp.
Norweco – Singulair TNT	30%	32	156 mg/L	Non-Profit O&M Corp.
Southern Manufacturing	30%	32	156 mg/L	Non-Profit O&M Corp.
Jet Inc	32%[4]	31	163 mg/L	Non-Profit O&M Corp.
Recirculating ETPS				
Advantex by OSI	65%[5]	16	269 mg/L	Non-Profit O&M Corp.
Bio-Microbics	65%[6]	16	269 mg/L	Non-Profit O&M Corp.

[1] Quantifiable values (mg/L) will indicate compliance with the Qualitative TN Reduction limit expressed as a percentage (%) reduction.

[2] Minimum recommended source water alkalinity to support nitrification in the denitrification process. Use of water softeners is not recommended due to potentially detrimental effects on the biological processes.

[3] Literature Value

[4] Idaho Testing

[5] 3rd party (ETV)

[6] NSF data

DEFINITIONS

DEFINITIONS

The following definitions are presented to clarify meaning of alternative systems and rules.