

Title 15 - Mississippi State Department of Health

Part III – Office of Health Protection

Subpart 77 – On-site Wastewater

APPENDIX 03 ~~REGULATION GOVERNING RESIDENTIAL INDIVIDUAL ON-SITE WASTEWATER DISPOSAL SYSTEMS; DESIGN STANDARD: AGGREGATE REPLACEMENT~~

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101	Introduction	

In a conventional onsite wastewater system treatment begins in the septic tank, under anaerobic conditions. Final treatment and disposal takes place in the soil of the drain field, an aerobic environment. It is necessary for this aerobic condition to exist in the soil of the drain field for proper treatment of the effluent.

102 Definitions

- 102.01 Chamber System - a system of bottomless molded plastic chambers installed in direct contact with the trench bottom to infiltrate primary treated effluent into the soil for final treatment and disposal.
- 102.02 Fragipan - a loamy subsurface horizon with high bulk density relative to horizons above it, and is seemingly cemented when dry with hard or very hard

consistency. When moist, fragipans have moderate or weak brittleness, and dry fragments slake or fracture when placed in water. Fragipans are usually mottled and slowly or very slowly permeable to water.

- 102.03 Frequent Flooding - flooding likely to occur often under usual weather conditions (more than a 50 percent chance of flooding in a year, or more than 50 times in 100 years).
- 102.04 Aggregate Replacement Disposal System - any normally gravity-fed subsurface disposal field utilizing an alternate media or technology to act as a replacement for the aggregate media. These system depths range from 36 to 6 inches in depth.
- | | |
|-----------------------------------|------------------|
| Standard Subsurface Disposal | 25 in. to 36 in. |
| Shallow Subsurface Disposal | 13 in. to 24 in. |
| Ultra-shallow Subsurface Disposal | 6 in. to 12 in. |
- 102.05 Large Diameter Aggregate Replacement System - subsurface disposal system that utilizes large diameter pipe covered with a filtering material approved by the Mississippi State Department of Health for use in IOWDS systems.
- 102.06 Multi-Pipe Aggregate Replacement System - subsurface disposal system that utilizes a multiple arrangement of piping, approved by the Mississippi State Department of Health, to replace the aggregate media of conventional soil absorption systems for use in IOWDS systems.
- 102.07 Impervious - resistant to penetration by air, water, and roots.
- 102.08 Permeability, soil - transmission of air and water through the soil.
- 102.09 Plot Plan - a descriptive drawing, including a legal description of the property, indicating the property dimensions, house location, plumbing stub-outs, driveways and other pertinent information for the proper determination of an adequate individual onsite wastewater disposal system.
- 102.10 Sensitive Waters - public or private waters used for recreation (swimming, skiing, fishing), shellfish harvesting, potable water intake or other situations where people are likely to come into contact with the water.
- 102.11 Sewage - water-carried discharges from residences or similar establishments including excreta and other liquid waste.
- 102.12 Single Family Residence - a structure occupied by a related family unit.
- 102.13 Site Evaluation - the process of gathering information used to determine the suitability of the property for the construction of an individual onsite wastewater disposal system.

- 102.14 Skeletal - rock fragments 2 mm in diameter or larger make up 35 percent or more by volume; enough earth to fill interstices larger than 1 mm; the fraction finer than 2 mm is sandy, loamy, or clayey as defined by USDA particle-size classes.
- 102.15 Slope - deviation of a plane surface from the horizontal; when given in percent (%), it is the rise or fall of the land surface in feet per 100 feet of horizontal distance.
- 102.16 Soil Boring - a hole bored or dug below the depth of the proposed subsurface disposal system in order to determine the suitability of the soil for subsurface absorption.
- 102.17 Soil Horizon - a layer of soil approximately parallel to the land surface and differing from adjacent genetically related layers in physical, chemical, and biological properties or characteristics including but not limited to color, structure, texture, consistence and ph.
- 102.18 Soil Texture - the relative proportions of the various soil separates in a soil.
- 102.19 Soil Textural Classes - USDA standardized terms used to convey textural make-up of the fine-earth fraction less than two millimeters in diameter. The fine-earth fraction includes sand (2.0 - 0.05mm in size), silt (0.05mm - 0.002mm in size) and clay (less than 0.002mm in size) particles. The specific textural classes are defined as follows:
- 102.20 Soil Type - a subdivision of the soil series based on texture of the surface horizon.
- 102.21 Treatment - a process applied to wastewater which causes the resulting effluent to meet or exceed EPA secondary standards for treated wastewater for surface discharge and which does not endanger the public health.
- 102.22 Water Table - that level in saturated soil where the hydraulic pressure is zero.
- 102.23 Water Table, perched or seasonal - the water table of a discontinuous saturated zone in a soil, indicated by "gleyed" colors of Chroma 2 or less (Munsell color chart) in mottles or a solid mass.
- 103 Site Evaluation
- 103.01 Information obtained during the soil and site evaluation will determine which type(s) of IOWDS may be utilized for an individual lot.
- 103.02 Prior to completing the Soil and Site Evaluation/System Recommendation, the Environmentalist shall visit the lot and conduct the soil and site evaluation.

- 103.03 The soil determinations will be made based on soil borings to a depth of five feet or to a depth sufficient to reach a restrictive horizon. Restrictive soil or site conditions may preclude the use of any subsurface disposal system.
- 103.04 A soil and site evaluation will be based on the following criteria:
1. Absence of or protection from frequent flooding.
 2. Landscape position with good surface runoff.
 3. Slopes of less than 15%.
 4. Depth to high water table of greater than four feet.
 5. Depth to bedrock, fragipan or plinthite of greater than four feet.
 6. Soil texture and color defined by the Natural Resource Conservation Service as indicating good drainage and suitability for soil absorption, based on a soil boring of five feet.
 7. Available area in which to install an individual onsite wastewater disposal system meeting all requirements of this regulation. The area for repairs and future extensions shall be no less than 50% of the space required for the recommended system. Systems utilizing surface land application discharge are exempt from the 50% additional area requirement.
- 103.05 The non compliance of one or more of the above items may require a design alteration of an underground system.
- 104 Location of Onsite Wastewater Disposal Systems
- 104.01 All components of the onsite wastewater disposal system shall be located a minimum of:
1. five feet from any dwelling.
 2. ten feet from any property line.
- 104.02 Any vessel holding wastewater shall be located a minimum of 50 feet from any public, private or individual potable water source.
- 104.03 The effluent disposal field shall be located at a lower elevation or in a landscape position that will preclude any surface runoff from flowing in the direction of the well site and a minimum of 100 feet from any public, private or individual potable water source.
- 104.04 Potable water lines shall not pass under or through any part of the sewage disposal system. Where a water supply line must cross a sewer line, the bottom of the water service within ten feet of the point of crossing, shall be at least 12

inches above the top of the sewer line. The sewer line shall be of Schedule 40 pipe with cemented joints at least ten feet on either side of the crossing. Water and sewer lines shall not be laid in the same trench. The water and sewer lines, when laid on the same elevation, shall maintain a minimum separation distance of 10 feet.

- 104.05 The surface of or the surface above the disposal field shall not be used for vehicular traffic or vehicular parking.
- 104.06 No portion of an onsite wastewater disposal system shall be located under dwellings or other permanent structures.
- 104.07 Effluent disposal systems shall not be located in depressed areas where surface water will accumulate. Provision shall be made to minimize the flow of surface water over the effluent disposal field.
- 104.08 Subsurface wastewater disposal fields located on slopes of less than eight percent shall have a minimum setback from recreational waters, shellfish waters or other sensitive areas [See Table I].
- 104.09 Subsurface wastewater disposal fields located on slopes of greater than eight percent shall be located a minimum of 100 feet from recreational waters, shellfish waters and other sensitive areas.
- 104.10 Slopes of greater than 30% shall not be considered for subsurface disposal installation.
- 104.11 Where all or part of the onsite wastewater disposal system is proposed to be installed on property other than the owner's, an easement in perpetuity shall be legally recorded in the proper county. The easement shall be of sufficient area to permit access, construction and maintenance of the onsite sewage disposal system.
- 104.12 No site for an effluent disposal field or expansion area shall be approved which is located wholly within an area which is frequently flooded, swamp, marsh, or wetland. Except that if permits have been issued by the proper regulatory agency authorizing the use of wetlands for building sites, the property shall be evaluated using standard soil and site criteria for IOWDS.
- 104.13 When a proposed lot is located partially within a frequently flooded area, that portion of said lot not within the flood prone area may be considered for approval for the effluent disposal field.
- 104.14 There shall be maintained a minimum of 12 inches of unsaturated soil between the bottom of the subsurface disposal system and a perched or seasonal water table in soils that contain a restrictive horizon (fragipan, chalk, bedrock, clay or silty clay) within five feet of the surface.

- 104.15 There shall be maintained a minimum of 24 inches of unsaturated soil between the bottom of the subsurface disposal system and any perched or seasonal water table in soils that do not contain a restrictive horizon (fragipan, chalk, bedrock, clay or silty clay) within five feet of the surface.
- 104.16 Easements or right-of-way areas for utilities, surface or subsurface drainage, roads, streets, ponds or lakes shall not be used as available space for location of individual onsite sewage disposal systems.
- 105 Underground Absorption
- 105.01 Aggregate replacement systems shall comply with all criteria for subsurface gravel disposal systems except in sections pertaining to the gravel media or as specified in this regulation.
- 105.02 The size of the subsurface sewage disposal system shall be determined by soil texture and estimated wastewater flow.
- 105.03 Soils with excessively rapid permeability rates, gravel and coarse sand, shall be considered unsuitable for subsurface disposal unless the native soil is replaced with a suitably thick (greater than two feet) layer of loamy sand or sand textured soil.
- 105.04 Soils with excessively slow permeability rates, silty clay and clay, shall be considered unsuitable for conventional subsurface disposal.
- 105.05 Subsurface disposal systems shall be placed no deeper than 36 inches below the surface.
- 105.06 Aggregate replacement subsurface disposal systems shall have a minimum 12 inches of soil backfill.
- 105.07 The minimum distance between absorption trench sidewalls shall be six feet.
- 105.08 Trenches shall not be excavated when the soil is wet enough to smear or compact easily.
- 105.09 There shall be a minimum of three feet of undisturbed soil between the excavation for the septic tank or treatment plant and the beginning of the absorption trench, bed or effluent line.
- 105.10 The bottom of the outlet of the septic tank, aerobic treatment plant or vessel supplying effluent to the pipe must be a minimum of one inch above the top of the aggregate replacement system.
- 105.11 Care must be taken when backfilling to prevent the pipe from shifting during the backfilling process.

- 105.12 Soil material excavated from trenches shall be used in backfilling and should be left mounded over the trenches until initial settling has taken place.
- 105.13 Standard manufactured fittings compatible with the pipe shall be used to connect all pipes within the effluent disposal field.

106 Alternating Disposal Fields

- 106.01 An alternating effluent disposal field system provides two complete disposal fields, separated by a valving system so that each system could alternately be used and rested. This "resting" has shown to be useful in regenerating the soil's capability for absorbing the effluent.
- 106.02 The size of each field can be from 50 to 100 percent of the required square footage of a single disposal field.
- 106.03 The length of time each field would be used and then rested will be determined on a case-by-case basis.

107 Shallow and Ultra-shallow Disposal Fields

Shallow or ultra-shallow systems can sometimes be used where the depth to the restrictive horizon or water table is less than the minimum required. Placement of the system may be as shallow as 6 inches for large diameter double-six aggregate replacement pipe systems. Ultra-shallow installations shall be restricted to soil textures of loam or lighter. Shallow installations may be placed in any texture shown as suitable in the system specific sizing tables.

108 Sizing

The large diameter aggregate replacement systems shall be sized in accordance with the following tables.

109 Construction

- 109.01 Large diameter aggregate replacement absorption trenches shall be a minimum of 24 inches and a maximum of 36 inches in width.
- 109.02 The bottom of the trenches or bed and the distribution lines shall have a grade from level to no greater than two inches fall per 100 feet for double six inch large diameter aggregate replacement pipe and one inch fall per 100 feet for eight and ten inch large diameter aggregate replacement pipe.
- 109.03 Overlap filter wrap at coupling joints and seal using factory approved methods.
- 109.04 The 4" pipe from the septic tank, aerobic treatment plant or vessel supplying effluent to the aggregate replacement pipe shall be installed into an offset connector particular to the type and manufacturer of the pipe. These connectors

will also be used when crossovers are constructed to change elevations of field system.

- 109.05 Fabric must be pulled over offset connector and sealed using a factory approved method.
- 109.06 The ends of the large diameter aggregate replacement pipe shall be closed with an end cap particular to the type and manufacturer of the pipe.
- 109.07 Care must be taken during backfilling to prevent the aggregate replacement pipe from "crawling" when backfill is applied.

110 Distribution of Effluent

110.01 Aggregate Replacement Pipe Systems

1. When a change in elevation of the disposal trench is required, a distribution box, connecting lateral or crossover must be used. At the point where a crossover line leaves a lateral, the trench for the crossover line shall be dug no deeper than the top of the Aggregate replacement pipe in the preceding trench so that an undisturbed block of earth will remain in place for the full depth of the aggregate replacement pipe. The distribution box shall be level and supply all lines equally. Field lines must be equal lengths when served by one distribution box.
2. Distribution boxes may be used to connect the effluent line to the effluent distribution lines. Non-perforated rigid pipe shall exit the distribution box for a minimum of five feet at level grade before the effluent distribution line (perforations) begins.
3. Crossover lines shall be laid on undisturbed earth. The invert of the crossover must be at least four inches lower than the invert of the septic tank outlet line. Crossovers shall be constructed as shown in Figure 1.

111 Absorption Beds

Absorption beds may be constructed using large diameter aggregate replacement filter wrap pipe.

- 111.01 Absorption beds and trenches should be located a minimum of 10 feet from any trees.
- 111.02 The amount of linear footage required shall be the same as for trench configurations. The bottom of the bed should have a relatively level grade; the grade within the bed shall not exceed the grade allowed for trench installations.
- 111.03 Lines for distributing effluent shall be spaced from 3 to 6 feet apart with the first and last pipe placed next to the sidewall of the bed. The number of lines will

depend on the lineal feet of aggregate replacement line (Table II & III) and width of the bed to be constructed.

- 111.04 Care should be taken to prevent heavy machinery from damaging the bed during backfilling.
- 111.05 The effluent must be equally distributed to the bed by means of a distribution box or with a pipe manifold.
- 111.06 When a change in elevation of the disposal trench is required, a connecting lateral or crossover must be used. At the point where a crossover line leaves a lateral, the trench for the crossover line shall be dug no deeper than the top of the aggregate replacement pipe in the preceding trench so that an undisturbed block of earth will remain in place for the full depth of the pipe. Crossover lines shall be laid on undisturbed earth. The invert of the crossover must be at least four inches lower than the invert effluent line of the septic tank, aerobic treatment plant or vessel supplying effluent to the pipe [Figure 1].

112 Multi-Pipe Aggregate Replacement Systems

112.01 General

The multi-pipe aggregate replacement system is a system that utilizing bundles of four inch perforated pipe to provide a void space. The top pipe in one bundle of this system receives the treated effluent for distribution throughout the disposal system. All multi-pipe aggregate replacement systems must be installed by a Certified Installer that is factory-trained and authorized by the manufacturer.

112.02 Sizing

The multi-pipe aggregate replacement systems shall be sized in accordance with the TABLE IV.

112.03 Construction

1. The bottom of the trenches and the distribution lines shall have a grade from level to no greater than two inches fall per 100 feet for multi-pipe aggregate replacement systems.
2. Multi-pipe aggregate replacement system trenches shall be a minimum of 24 and a maximum of 36 inches in width.
3. The multi-pipe aggregate replacement system must be installed with effluent being distributed to each trench distribution pipe by use of a distribution box or a level pipe header.

- a. When a change in elevation of the disposal trench is required, a distribution box or approved crossover shall be used. The distribution box, if used, shall be level and supply all lines equally.
 - b. Distribution boxes may be used to connect the effluent line to the effluent distribution lines. Non-perforated rigid pipe shall exit the distribution box for a minimum of five feet at level grade before the effluent distribution line (perforations) begins.
4. The system shall be covered with a manufacturer-approved, geotextile cloth before backfilling.
 5. The geotextile cloth shall cover the open ends of the void and distribution pipes at their termination at the ends of the trench.
 6. Multi-pipe gravel replacement systems shall not be used in "bed" configurations.
- 112.04 When a change in elevation of the disposal trench is required, an additional distribution box or connecting lateral/crossover must be used. At the point where a crossover line leaves a lateral, the trench for the crossover line shall be dug no deeper than the top of the multi-pipe aggregate replacement distribution pipe in the preceding trench so that an undisturbed block of earth will remain in place for the full depth of the distribution system. Crossover lines shall be laid on undisturbed earth. The invert of the crossover must be at least four inches lower than the invert effluent line of the septic tank, aerobic treatment plant or vessel supplying effluent to the pipe.

113 Expanded Polystyrene (EPS) Aggregate Systems

113.01 General

The EPS Aggregate system utilizes bundles of expanded polystyrene aggregate to replace rock aggregate in a subsurface disposal system. Effluent is distributed via a 4 inch perforated pipe incorporated into the center of one EPS bundle. System configurations of multiple bundles will incorporate one bundle run containing the 4 inch perforated pipe in conjunction with bundles containing only EPS aggregate. This 4 inch perforated pipe receives the treated effluent for distribution throughout the trench. The expanded polystyrene aggregate must be contained in a material that is resistant to the effects of wastewater, will prevent the loss of aggregate from the container and strong enough to retain the shape of the bundles during system installation and backfilling. All EPS Aggregate Systems must be installed by a factory-trained installer that is an authorized representative of the manufacturer.

113.02 Construction

1. The EPS Aggregate System absorption trenches shall be a minimum of 24 inches and a maximum of 36 inches in width.
2. The bottom of the trenches and the distribution lines shall have a grade from level to no greater than two inches fall per 100 feet.
3. The grade shall be measured from the trench bottom and not the effluent distribution line encased in the EPS bundle.
4. The EPS Aggregate system shall be covered with an approved cover material before backfilling. Covering material shall consist of craft paper or other bio-degradable product approved and/or supplied by the manufacturer.

113.03 Distribution of Effluent [EPS Aggregate System]

1. When a change in elevation of the disposal trench is required, a distribution box, connecting lateral or crossover must be used. At the point where a crossover line leaves a lateral, the trench for the crossover line shall be dug no deeper than the top of the distribution pipe in the preceding trench so that an undisturbed block of earth will remain in place for the full depth of the system [Figure 2]. The invert of the crossover must be at least four inches lower than the invert of the septic tank outlet line.
2. Distribution boxes may be used to connect the effluent line to the effluent distribution lines. The distribution box shall be level and supply all lines equally. Field lines must be equal lengths when served by one distribution box. Non-perforated rigid pipe shall exit the distribution box for a minimum of five feet at level grade before the effluent distribution line (perforations) begins.

113.04 Absorption Beds [EPS Aggregate Systems]

Absorption beds may be constructed using the EPS Aggregate system.

1. Absorption beds and trenches should be located a minimum of 10 feet from any trees.
2. The amount of linear footage required for EPS horizontal systems shall be the same as for trench configurations [Table V]. The bottom of the bed should have a relatively level grade; the grade within the bed shall not exceed the grade allowed for EPS trench installations. EPS triangular systems shall not be used in bed configurations.
3. The EPS bundles shall be placed side by side in the bed. The number of bundles will depend on the lineal footage required and the width of the bed to be constructed.

4. Care should be taken to prevent heavy machinery from damaging the bed during backfilling.
5. The effluent must be equally distributed to the bed by means of a distribution box or with a pipe manifold.

113.05 Sizing

EPS Aggregate systems shall be sized in accordance with the following:

114 Chamber Subsurface Disposal Systems

114.01 General

Chamber systems utilize molded plastic bottomless chambers which are installed in a drain field excavation with the open bottom of the chamber in direct contact with the trench bottom. The chambers are linked together in such a manner as to completely cover the excavation with adjacent chambers in contact with each other. Effluent is introduced into the chambers and is absorbed into the soil for final treatment and disposal. All chamber systems must be installed by a factory trained and authorized installer.

114.02 Chamber Class Designation

1. Each model of chamber will be assigned a class designation based on the bottom square footage of the chamber section. This square footage will be derived by a multiple of the outside width and the useable length of the chamber section.
2. Chamber models will be assigned a class designation according to Table VII.

114.03 Construction

1. The chamber system absorption trenches shall be a minimum of 18 inches and a maximum of 36 inches in width.
2. The bottom of the trenches shall have a grade from level to no greater than two (2) inches fall per 100 feet.
3. The grade shall be measured from the trench bottom and not the chamber top.
4. The chamber system shall be covered as per the manufacturer's specifications. In all cases there shall be a minimum of 12 inches of soil cover over the chamber system.

5. The minimum height of a chamber, at its centerline, shall be eleven (11) inches.
6. The last chamber in each "run" shall be terminated with an end plate.

114.04 Distribution of Effluent [Chamber Systems]

1. When a change in elevation of the chamber system is required, a distribution box, connecting lateral or crossover must be used. At the point where a crossover line leaves a lateral, the trench for the crossover line shall be dug no deeper than the top of the endplate inlet or the inlet in the top of the chamber in the preceding trench so that an undisturbed block of earth will remain in place for the full depth of the system. The invert of the crossover must be at least four inches lower than the invert of the septic tank outlet line.
2. Distribution boxes may be used to connect the effluent line to the effluent distribution lines. The distribution box shall be level and supply all lines equally. Field lines (chambers) must be equal lengths when served by one distribution box. Non-perforated rigid pipe shall exit the distribution box for a minimum of five feet at level grade before the effluent distribution line begins.

114.05 Sizing of the Chamber System

1. Chamber systems installed in a trench configuration shall be sized in accordance with Table VIII.
2. Chamber systems installed in a bed configuration shall have the same number of chamber sections as indicated for a trench system. The length and width of the bed to be constructed will depend on the number of chamber sections to be installed as indicated by Table VIII. Any side-by-side placement of chambers shall constitute a bed.
 - a. Absorption beds and trenches should be located a minimum of 10 feet from any trees.
 - b. The bottom of the bed should have a relatively level grade; the grade within the bed shall not exceed the grade allowed for trench installations.
 - c. The chambers shall be placed side by side in a bed with separation between each chamber row per individual manufacturer's requirements.
 - d. Care should be taken to prevent heavy machinery from damaging the bed during backfilling.

- e. The effluent must be equally distributed to the bed by means of a distribution box or with a pipe manifold.

115 Addendum to Section 112 Multi-Pipe Aggregate Replacement Systems

Section 112.01 General will now read as:

The multi-pipe aggregate replacement system is a system that utilizing bundles of four inch perforated pipe to provide a void space. The top pipe in one bundle of this system receives the treated effluent for distribution throughout the disposal system. All multi-pipe aggregate replacement systems must be installed by a Certified Installer that is factory-trained and authorized by the manufacturer.

Section 112.03 Construction shall read the same except for:

- ~~6. Multi-pipe gravel replacement systems shall not be used in "bed" configurations.~~

Section 112.05 Absorption Bed [Multi-pipe System] will read as follows:

1. Multi-pipe systems installed in a bed configuration shall have the same lineal foot requirements as indicated for their respective trench configurations. The length and width of the bed to be constructed will be determined by the number of multi-pipe systems wide and the length selected to comply with the lineal footage required under Table IV.
2. The multi-pipe system shall be placed side by side in the bed. Any side by side placement of multi-pipe systems shall constitute a bed.
3. The bottom of the bed should have a relatively level grade, from the end and side to side. The grade within the bed shall not exceed the grade allowed for trench installations.
4. The effluent must be equally distributed to the bed by means of a distribution box or with a pipe manifold.
5. The multi-pipe system may be cut in-order to accommodate setbacks. The multi-pipe system shall be cut to a length which preserves the integrity of the banded void pipes and provides adequate banding of the system a minimum of every 18 inches to a maximum of every 20 inches. Manufactured couplers shall be used to join cut ends of the void pipes.
6. The system shall be covered with a manufacturer-approved geotextile cloth before backfilling.
7. The geotextile cloth shall cover the open ends of the void pipes.

8. Care should be taken to prevent heavy machinery from damaging the bed during backfilling.

Title 15 - Mississippi State Department of Health

Part III – Office of Health Protection

Subpart 77 – On-site Wastewater

APPENDIX 04 ~~REGULATION GOVERNING INDIVIDUAL ON-SITE WASTEWATER DISPOSAL; DESIGN STANDARD; IV (SUBSURFACE DRIP DISPOSAL)~~

100 INTRODUCTION

Subsurface Drip Disposal is a ~~subsurface disposal~~ system that has 3 basic design principles ~~different from conventional subsurface disposal systems~~. They are (1) uniform distribution of effluent, (2) dosing and resting cycles and (3) shallow placement of trenches. This system uses small diameter pipe with ~~underground~~ emitters and must be preceded by a treatment system that conforms to the manufacturer's specifications particular to that system. The effluent must be adequately filtered before distribution ~~through to the disposal field(s) underground emitter system~~. Only Subsurface Drip Disposal Systems that provide for **timed dosing** are acceptable. The term manufacturer, unless otherwise specified, used in this Design Standard is considered the manufacturer of the treatment device.

101 DEFINITIONS

- 101.01 Advanced Treatment System – an Individual On-site Wastewater treatment system that complies with Section 41-67-10, MS Code of 1972, Annotated 41-67-2(a)
- 101.02 Components – all physical, mechanical, and electrical components of any wastewater disposal system.
- 101.03 Distribution manifold – pvc pipe that delivers the treated effluent to the drip tubing.
- 101.04 Emitter – small labyrinth inside of drip tubing that eliminates pressure and releases drops of treated effluent.
- 101.05 Maintenance – the inspecting and evaluating of an Alternative System or Advanced Treatment System. The replacement of any component registered with a specific Advanced Treatment System (i.e., aerator, diffuser, control panel, etc.).
- 101.06 Subsurface drip irrigation disposal system – a system that relies on advanced treatment and filtration of the treated effluent. Final disposal occurs in the upper limits of the soil horizon and is distributed through small diameter tubes that have emitters that slowly drip the treated water into the soil.

- 101.07 Vacuum breakers/air release valve – relieves pressure off the treated effluent and allows air to escape the system without causing damage.

102 DESIGN

Utilizing USDA soil groups as classified by textures is the most appropriate criteria on which to base loading rates for this system. Theis determination size of the drip field (disposal) shall be based on the most restrictive soil, naturally occurring within 2 feet of the ground surface or to a depth of 1 foot below the trench bottom, whichever is deeper. Criteria and techniques for soil and site evaluation can be found in Chapter 03 Regulation Governing Residential Onsite Wastewater Disposal Systems: Soil and Site Evaluation.

- 102.01 Prior to the design of the Subsurface Drip Disposal System, the suitability of the site must be demonstrated through acceptable soil permeability rates, acceptable soil conditions (Table I) and other topographic characteristics. The design and construction of the Subsurface Drip Disposal System must conform to the drip tubing manufacturer's specification (Figure 1).
- 102.02 A minimum of 6 inches of naturally occurring soil must be present above a restrictive horizon or a predominantly gray soil (>50%) before placement of fill. Subsurface Disposal System is not recommendable on hydric soils conditions.
- 102.03 ~~To overcome the lack of sufficient depth, to a restrictive horizon and/or seasonal water table, a clean fill material may be used.~~ Except where hydric soils are present, a clean fill material may be used to overcome seasonal water table limitation. The fill material shall consist of a minimum of 50 percent sand particles equal to or greater than 0.25 mm. Clay content shall be 20 percent or less. Organic matter shall be removed from the native soil surface prior to placing and incorporating the fill. This fill must be incorporated into the native soil to prevent a textural interface from developing. When fill material is used the entire fill area must be sodded to prevent erosion, or other effective erosion control methods used. The full depth of fill material must extend at least 2 feet in all directions from drip lines and at that point shall be sloped at a grade of no steeper than 3 to 1.
- 102.04 In soils that contain a restrictive horizon, within 5 feet of the surface, there shall be ~~maintained~~ a minimum of 12 inches of unsaturated soil between the bottom of the drip disposal system and perched or seasonal water table.
- 102.05 In soils that do not contain a restrictive horizon, within 5 feet of the surface, there shall be ~~maintained~~ a minimum of 24 inches of unsaturated soil between the bottom of the drip disposal system and any perched or seasonal water table.
- 102.06 Drip lines must be installed a minimum of 6 inches deep. The maximum depth may not exceed 18 inches. In all cases there shall be a minimum of 12 inches separation between the water table and restrictive horizon.

- 102.07 Minimum separation between emitter line laterals shall be 2 feet. ~~and for~~ slopes of 20 percent or greater shall be a minimum of 3 feet between emitter line laterals.
- 102.08 Drip tubing shall either be placed 4 inches lower than the supply manifolds or water breaks shall be used to prevent effluent from flowing from drip trenches to the supply manifold trenches.
- 102.09 Valves, fittings, level control switches and all other components must be designed and manufactured to resist the corrosive effects of wastewater and common household chemicals.
- 102.10 Electrical equipment shall be protected with safety devices (overload interrupting devices, fuses, etc.). Electrical equipment shall comply with appropriate *National Electrical Manufacturer's Association (NEMA)* requirements. Electrical component parts shall be covered by the manufacturer's limited warranty.

103 LOCATION / ~~and~~ SETBACKS

103.01 All components of the drip disposal system shall be located a minimum of:

1. Water Supply (Public/Private)
 - a. ~~The discharge area shall be located at a lower elevation and a minimum of 100 feet from any public, private or individual potable water sources (well), unless protected by topographic features.~~
 - b. ~~Any vessel holding wastewater shall be located a minimum of 50 feet from any public, private or individual potable water source for all vessel(s) holding wastewater.~~
2. Water Supply Components
 - a. 10 feet horizontal separation from any potable water line, which includes the collection and distribution of the wastewater or effluent.
 - b. 10 feet horizontal separation from any water meter.
 - c. Potable water lines must not pass under or through any part of the wastewater disposal system which includes the collection and distribution of the wastewater or effluent.
3. Sensitive Waters
 - a. ~~Sensitive water setbacks are based on soil texture and soil in the discharge area (Table I)~~ 100 feet on slopes of greater than 8 percent

- b. Table I for slopes of less than or equal to 8 percent.
- 4. Property Lines
 - a. ~~10 feet from property lines, down slope or same grade, and dwellings.~~
 - b. ~~10 feet from property lines up slope.~~
- 5. Residence and Buildings
 - a. 5 feet from habitable
 - b. 5 feet from non-habitable
- 6. Additional Structures
 - a. 5 feet from porches, patios and decks
 - b. 5 feet from walkways, driveways and parking areas
 - c. 25 feet from swimming pools
- 7. ~~5 feet from any dwelling and driveway~~
- 8. ~~10 feet from any property line~~
- 9. ~~The aerobic treatment unit and pump chamber shall be located a minimum of 50 feet from any public, private or individual potable water source.~~
- 103.02 ~~The drip disposal field shall be located at a lower elevation and a minimum of 100 feet from any public, private or individual potable water source (well).~~
- 103.03 ~~This system may be utilized on sites where soil and site conditions prohibit the installation of a conventional or modified subsurface disposal system.~~
- 103.04 ~~The area of the disposal field shall not be used for vehicular traffic or vehicular parking. No vehicular traffic or parking is allowed in the area of the treatment and disposal system.~~
- 103.05 ~~Aerobic Advanced treatment units, pump chambers, and drip Subsurface Drip Disposal fields shall not be located under dwellings or other permanent structures.~~
- 103.06 ~~Drip Disposal fields shall not be located in depressed areas where surface water will accumulate. Provision shall be made to minimize the flow of surface water.~~
- 103.07 ~~Drip Disposal fields shall have a minimum setback from recreational waters, shellfish waters or other sensitive areas as prescribed in Table II.~~

- 103.08 Where all or part of the drip treatment and disposal system is proposed to be installed on property other than the owner's, an easement in perpetuity shall be legally recorded in the ~~proper~~ appropriate county. The easement shall be of sufficient area to permit access, construction and maintenance. ~~of the drip disposal system.~~
- 103.09 ~~No site utilizing a disposal field shall be approved which is located wholly within an area which is frequently flooded, swamp, marsh, wetland, or drainway, etc. When a site is located partially within this area, that portion not directly affected may be considered for discharge area.~~
- 103.10 Deeded easements or right-of-way areas for utilities, surface or subsurface drainage, roads, streets, ponds or lakes shall not be used as available space for location of a drip disposal system.
- 103.11 Lines shall be on contour and shall not be installed perpendicular (or up and down, etc.) to the slope. Elevation differences in a line or the entire grid shall not exceed the drip tubing manufacturers' specifications.

104 TREATMENT

- 104.01 Wastewater disposed of by overland discharge must meet the requirement established by American National Standards Institute/National Sanitation Foundation (ANSI/NSF) International Standard Number 40 ANSI/NSF Standard 40 testing protocol, as set forth in Regulations Governing Residential Individual Onsite Wastewater Disposal Systems: Certification. The type of treatment must also conform to drip tubing manufacturers' specifications.
- 104.02 The ~~primary~~ treatment facility and dosing chamber shall be designed, constructed and installed so all joints, seams, and component parts shall preclude infiltration of groundwater, and prevent escape of wastewater or liquids.

105 DISTRIBUTION

105.01 Drip Tubing

1. The drip lines may be installed using any of the following methods:
 - a. Excavation by a trenching machine.
 - b. Approved plowing method as determined by the tubing manufacturer. The insertion tool must be of the type that does not pull or stretch the drip line during insertion. The use of "cable plows" or any type insertion method that employs pulling the drip line through the plowed trench is prohibited.

2. To insure equal dosing of the field there can be no more than a 10 percent variance in the flow between any 2 emitters in the entire field.
3. If necessary, pressure compensating devices or regulators shall ensure equal distribution from all emitters at +/- 10 percent of the designed discharge rate.
4. The length of each distribution line shall not exceed drip tubing manufacturer's specifications to insure equal distribution to each emitter.
5. Emitter outlet orifices are non-directional device.

105.02 Pump Chambers

1. The ~~Subsurface Drip Disposal~~ system shall be designed and installed in such a manner that during normal operating procedures the inlet to the treatment facility will not become surcharged.
2. The pump chamber shall have a minimum capacity of 1.5 times the estimated daily flow.
3. The pump chamber shall be equipped with an audible high water alarm, and may utilize a functional self-opening relief valve.
4. The pump chamber shall have a grade level access allowing a minimum of 17 inch diameter or 15 inch square, to allow servicing and/or removal of the largest component in the chamber. Access ports shall be protected against unauthorized entrance or removal, by use of tamper proof fasteners or a lid weighing 65 pounds or more.
5. The pump chamber shall be vented through the grade level access or by means of a separate vent. In either case, the vent shall be a minimum of 1 inch in diameter.
6. The pump chamber shall be made of material resistant to the corrosive effects of wastewater and designed to withstand the lateral and bearing loads to which it is expected to be subjected.
7. All openings shall be sealed with mastic, butyl rubber or other pliable sealant that is waterproof, corrosion resistant and approved for use in contact with wastewater, in a manner to prevent the entrance of surface and groundwater.
8. The high water alarm must be set as to allow a reserve capacity equal to $4\frac{1}{2}$ day estimated flow.
9. Emitter outlet orifices on drip tubing are non-directional.

105.03 Minimum Pump Specifications

1. The pumping system shall be capable of dosing the drip field a minimum of 6 equally spaced doses per 24 hour period. Each dose volume shall not exceed the estimated maximum daily flow divided by the number of dosing cycles. It is acceptable that daily usage of less than the design flow rate will result in a diminished number of cycles. An emergency override float is required to accommodate conditions which exceed the normal daily flow rate. (Table III).
2. The pumping system shall be designed to discharge the required volume of wastewater within the pressure range specified by ~~the~~ all component's manufacturers.
3. The pump shall be equipped with a low water cutoff to prevent damage to the pump during low water conditions in the pump chamber.
4. The pump shall be constructed of corrosion resistant materials suitable for effluent pumping.
5. The pump shall be sized per pump and components manufacturers' specifications to meet or exceed the hydraulic requirement of the system.
6. The pump shall be installed as not to violate the pump warranty.
7. The suction and pressure lines shall be Schedule 40 or equal and be sized to meet or exceed the hydraulic requirements of the system.

105.04 Minimum Filter Specifications

1. The filter shall filter ~~the effluent to prevent clogging~~ to the specifications of the drip ~~disposal~~ tubing manufacturer ~~to prevent clogging~~.
2. The filter shall achieve the required filtration at a rate equal to or greater than the peak discharge rate, including filter and/or system backwash.
3. An independent third party acceptable to the ~~health authority~~ Division shall certify the filter performance. Verification from a manufacturer of filters or by an independent registered professional engineer ~~with the State of Mississippi under his/her seal shall be acceptable as third party certification~~.
4. The filter shall be made of material resistant to the corrosive effects of wastewater and common household chemicals.
5. The filters shall be readily accessible for inspection and/or service.

6. The filter flush volume and velocity shall be per filter manufacturer's specifications.
7. The filter residue shall be returned to the treatment facility.
8. The system must provide an automatic field and filter flush to prevent the build-up of solids in the distribution system, with its discharge returning to the treatment facility and be capable of achieving a flushing velocity of a minimum of 1 foot per second. The return line must be permanently installed as a component of the system. A hose bib shall be prohibited as a component part of the drip disposal system.

105.05 Component Specifications

1. Vacuum breakers shall be installed as per drip tubing manufacturer's specification, a minimum of one 1 vacuum breaker/air release valve for each drip field zone.
2. Vacuum breakers shall be located in a protective enclosure that will prevent the accumulation of any substance that would prevent their proper operation and shall have a grade level access.
3. All materials shall meet applicable *American Society for Testing and Materials (ASTM)* standards and be resistant to common household chemicals. The drip tubing manufacturer must certify drip tubing as designed and manufactured for the disposal of wastewater. The drip tubing must be color coded, by the manufacturer, to be easily identified as tubing designed for wastewater disposal.
4. Equipment susceptible to freezing must be adequately protected to prevent freezing.

106 DOCUMENTATION

106.01 The registered drip manufacturer must provide, detailed instructions for installation, initiation of service and operation and maintenance to the distributor, ~~and/or~~ installer and Division of Onsite Wastewater. Specific instructions shall include but not limited to:

1. Recommendations concerning types of wastewater which cannot be disposed of by the system.
2. Arrangement of plumbing connections.
3. Electrical wiring of components.
4. Installation instructions ~~to cover proper~~ that specifies how to locate in of the system in well drained areas and that also provides protection for

vents, pumps, filters and controls from snow, ice, or water vapor accumulations.

5. A Drawing with each major component numbered, and identified with the same designation on an illustration, photograph, or print.
6. Recommended frequency of maintenance; maintenance instructions; and procedures for removal and disposal of wastes.

106.02 User's Homeowner's Manual

106.03 A ~~user's~~ Homeowner's manual shall be provided to the consumer by the drip tubing and advanced treatment unit manufacturers with each drip disposal system. The manual shall include:

1. Model number.
2. Design and flow diagrams.
3. Limited warranties.
4. Replacement and service policies.
5. General installation instructions to cover proper that specifies how to locate ion of the system in well-drained areas and; that also provides protection for vents, pumps, filters, and controls from snow, ice, or water vapor accumulations.
6. Detailed operation and maintenance requirements (including user responsibility, parts, and service).
7. Recommendations concerning types of wastewater which cannot be disposed of by the system.
8. Arrangement of plumbing connections.
9. Electrical wiring of components.

106.04 Limited Warranty

1. The manufacturer shall provide a 2 year limited warranty, from date of installation, covering all parts and materials.
2. Each manufacturer shall furnish the user with a limited warranty identifying the replacement policy covering all mechanical and electrical component parts.

106.05 Initial Service Policy

1. A 2 year initial service policy shall be furnished to the user homeowner by the manufacturer, and shall be included in the original purchase price. This policy shall provide as a minimum:
 - a. The 4 inspection/service calls (at least one every 6 months) over the 2 year period including inspection, adjustment, and servicing of mechanical, electrical, and other applicable component parts to insure proper function. The first inspection shall be conducted a minimum of 6 months from installation.
2. If any improper operation is observed, which cannot be corrected at the time of the service call, the user and the local health authority shall be notified immediately in writing of the conditions and the estimated date of correction.

106.06 ~~Continuing Service Policy-Maintenance Agreement~~

~~Each manufacturer shall make available, for purchase by the user, a continuing service policy with terms comparable to the initial service policy. A continuing maintenance agreement, in perpetuity, is required on drip irrigation disposal systems. Property owner must submit a continuing maintenance affidavit and a copy of the current continuing maintenance agreement before system is approved or re-approved as an existing system.~~

106.07 ~~Stand-by Parts~~

~~Standby mechanical and electrical component parts shall be stocked by the local distributor for use when the drip system's mechanical or electrical components must be removed from the installation site for repairs.~~

106.08 ~~Guaranteed Component Parts~~

~~The physical, mechanical and electrical component parts shall be guaranteed against any defects in material and workmanship as warranted. The cost of replacing damaged component parts, not due to reasonable wear and tear, is excluded from this provision.~~

106.09 ~~Mechanical Component Parts~~

1. ~~Mechanical component~~ parts shall be protected against damage or impairment of efficiency by flooding or surcharging.
2. ~~Mechanical component~~ parts shall not require periodic maintenance or adjustment by the user other than changing a fuse and similar devices, or visual inspection of the warning light.
3. ~~Mechanical component~~ parts shall be covered by the manufacturer's limited warranty.

106.10 Service

Service shall be available within no more than 2 days following a request.

106.11 Service Label

A clearly visible, permanently attached label or plate, giving instructions for obtaining service, shall be placed at the audible signal.

107 RESPONSIBILITY OF THE USER

108 The user shall be responsible for maintaining and operating the Subsurface Drip Disposal System ~~according to~~ in accordance with the regulatory agency MSDH Regulations Governing Individual Onsite Wastewater Disposal Systems, advanced treatment unit manufacturer's specifications and the drip tubing manufacturer's specifications.

109 EXISTING SYSTEM

In addition to the visual inspection conducted by the county environmentalist the following will apply:

109.01 The system must be inspected by a factory authorized representative to verify that the system is functioning within factory specifications.

109.02 The factory authorized representative must furnish written verification, to the Department that an inspection was made and the system is functioning properly or has been repaired and is presently functioning properly.

Figure I

SUBSURFACE DRIP DISPOSAL SYSTEM

(Example sketch only)

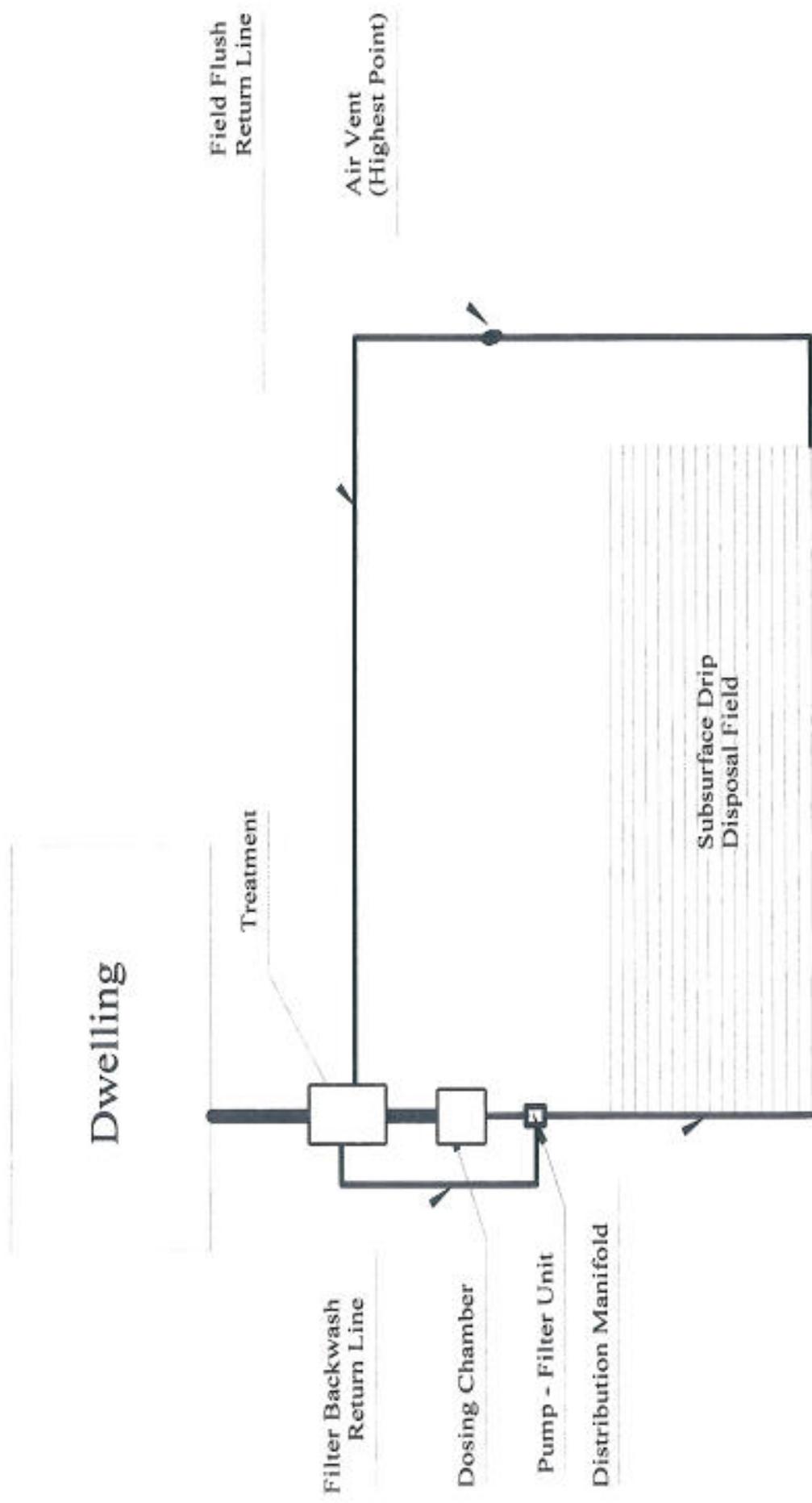


Table I

SUBSURFACE DRIP DISPOSAL SYSTEM

Results of Soil Evaluation

Soil Textural Class	Loading Rate GPD/ Ft ²	Linear feet (Lf) Per Bedroom**	Additional Lf/Person Over 2 Person Per Bedroom**	Depth of Drip Line in Inches
Gravel	NOT SUITABLE			
<i>Coarse Sand</i>	0.5	150	75	6-18
<i>Medium Sand</i>				
<i>Fine Sand</i>				
<i>Loamy Sand</i>				
<i>Sandy Loam</i>	0.3	250	125	6-18
<i>Light Loam</i>				
<i>Heavy Loam</i>				
<i>Silt Loam</i>				
<i>Sandy Clay Loam</i>				
<i>Light Clay Loam</i>	0.15	500	250	6-18
<i>Heavy Clay Loam</i>				
<i>Light Silty Clay Loam</i>				
<i>Heavy Silty Clay Loam</i>				
<i>Sandy Clay</i>	0.05	1500	750	6-18
<i>Silty Clay</i>				
<i>Clay</i>				

** Bedroom is equivalent to 150 gallons per day.

Table II
SETBACK REQUIREMENTS FROM SENSITIVE WATER
 Minimum Distance from the Water Edge

Soil Textural Class	Slope of Less Than 8 Percent	Slope of Greater Than 8 Percent
Gravel	NOT APPLICABLE	
<i>Coarse Sand</i>	100 feet	100 feet
<i>Medium Sand</i>		
<i>Fine Sand</i>		
Loamy Sand		
Sandy Loam		
<i>Light Loam</i>	50 feet	100 feet
<i>Heavy Loam</i>		
Silt Loam		
Sandy Clay Loam		
<i>Light Clay Loam</i>		
<i>Heavy Clay Loam</i>		
<i>Light Silty Clay Loam</i>		
<i>Heavy Silty Clay Loam</i>		
Sandy Clay	100 feet	100 feet
Silty Clay		
Clay		

The texture of the subsoil material having the greatest permeability rates within two 2 feet below the surface receiving effluent shall be used to determine setback.

Table III

SUBSURFACE DRIP DISPOSAL SYSTEM PUMP CYCLES
Minimum Requirements

Pump Cycles/24 Hours	Gallons Pumped/Bedroom/Cycle	Additional Gallons Pumped Per Person Over 2 Per Bedroom
6	25	12.5
8	18.75	9.375
10	15	7.5
12	12.5	6.25

Based on 150 gallons per day per bedroom.

CERTIFICATION OF REGULATION

~~This is to certify that the above REGULATION GOVERNING INDIVIDUAL ON-SITE WASTEWATER DISPOSAL: DESIGN STANDARD IV (SUBSURFACE DRIP DISPOSAL SYSTEM) was adopted by the Mississippi State Board of Health on April 9, 2008 to become effective May 13, 2008.~~

F. E. Thompson, Jr., MD, MPHA
Secretary and Executive Officer

Title 15 - Mississippi State Department of Health

Part III – Office of Health Protection

Subpart 77 – On-site Wastewater

APPENDIX 10 DESIGN STANDARD: OVERLAND DISCHARGE

~~CHAPTER 12 – REGULATION GOVERNING INDIVIDUAL ON-SITE WASTEWATER DISPOSAL: DESIGN STANDARD X (OVERLAND DISCHARGE)~~

100 INTRODUCTION

Overland discharge is essentially a method used to dispose Advanced/Alternate treated effluent. Overland discharge may be ~~spray irrigation~~, a single (1) point discharge or multi-point (2 or 4) discharge, with a level manifold. These discharge options can be gravity-fed or pressurized, with the use of a pump. Careful evaluation of the site, soils and geographical conditions are necessary to prevent runoff, erosion, groundwater pollution and nuisance conditions. ~~Untreated or primary (partially) treated wastewater shall not be disposed of by overland discharge.~~

101 DEFINITIONS

- 101.01 Advanced Treatment System – an Individual On-site Wastewater treatment system that complies with Section 41-67-10. MS Code of 1972, Annotated Section 41-67-2(a)
- 101.02 Components – all physical, mechanical, and electrical components of any wastewater disposal system.
- 101.03 Discharge area – area of land receiving the treated effluent.
- 101.04 Distribution box – A connection source for a single inlet line to multiple distribution lines.
- 101.05 Manifold – 3" or larger Schedule 40 PVC pipe used in distributing a flowing discharge from some type of advanced treatment unit or treatment filter, such as a Plant Rock Filter or Sand Filter.
- 101.06 Maintenance – the inspecting and evaluating of an Alternative System or Advanced Treatment System. The replacement of any component registered with a specific Advanced Treatment System (i.e., aerator, diffuser, control panel, etc.).

101.07 Multi-point discharge – 2 or 4 discharge points that deliver effluent from a level manifold. (Figure I)

101.08 Single point discharge – discharge line consisting of 1 point only.

102 DESIGN

102.01 The discharge area receiving the effluent shall have a minimum 6 inches of naturally occurring soil free of a restrictive horizon, redoximorphic feature or predominately-grey color (>50%) and shall be maintained to prevent surface accumulation or ponding. Overland Discharge is not recommendable on hydric soils conditions.

102.02 The texture of the subsoil material having the greatest permeability rates within 2 feet below the surface receiving effluent shall be used to determine setback.

102.03 The discharge area must be of sufficiently sized to maintain the outermost edge of the effluent: ~~in addition to the following prescribed distances:~~

102.04 Slopes of greater than 20 percent shall not be considered for discharge areas unless justified by a ~~professional~~ Certified Engineer Evaluator registered in the State of Mississippi.

103 LOCATION/SETBACKS

103.01 The discharge area must be seeded, maintained with sod, permanent vegetative cover, or a wooded area. ~~and must not be placed on slopes of less than 1 percent.~~

103.02 Discharge area must be a minimum of:

1. Water Supply

a. ~~The discharge area shall be located at a lower elevation and a minimum of 100 feet from any public, private or individual potable water sources (well), unless protected by topographic features.~~

b. ~~Any vessel holding wastewater shall be located a minimum of 50 feet from any public, private or individual potable water source for all vessel(s) holding wastewater.~~

c. 10 feet horizontal separation from any potable water line, which includes the collection and distribution of the wastewater or effluent.

d. 10 feet horizontal separation from any water meter.

e. Potable water lines must not pass under or through any part of the wastewater disposal system which includes the collection and distribution of the wastewater or effluent.

2. Sensitive Waters
 - a. ~~Sensitive water setbacks are based on soil texture and soil in the discharge area (Table I) 100 feet on slopes of greater than 8 percent~~
 - b. Table I for slopes of less than or equal to 8 percent.
 3. Property Lines
 - a. ~~50 feet from property lines, down slope or same grade, and dwellings.~~
 - b. ~~10 feet from property lines up slope.~~
 4. Residence and Buildings
 - a. 25 feet from habitable
 - b. 15 feet from non-habitable
 5. Additional Structures
 - a. 25 feet from porches, patios and decks
 - b. 10 feet from walkways, driveways and parking areas
 - c. 25 feet from swimming pools
 - d. ~~All water lines must maintain a minimum horizontal separation distance of 10 feet horizontal separation from an Advanced Treatment System~~
- 103.03 Discharge area shall not be located in depressed areas where surface water will accumulate. Provisions shall be made to minimize the flow of surface water over the effluent disposal ~~field area.~~
- 103.04 ~~Discharge areas located on slopes of less than or equal to 8 percent shall have a minimum setback from the outermost edge of the effluent and recreational waters, shellfish waters or other sensitive areas as prescribed in Table I. Discharge areas fields located on slopes of greater than 8 percent shall be located a minimum of 100 feet from recreational waters, shellfish waters and other sensitive areas. (Table I)~~
- 103.05 Where all or part of the discharge area is proposed to be installed on property, other than the owner's, an easement in perpetuity shall be legally recorded in the ~~proper~~ appropriate county. The easement shall be of sufficient size to permit access, construction and maintenance.

- 103.06 Deeded easements or right-of-way areas for utilities, surface or subsurface drainage, roads, streets, ponds or lakes shall not be used as available space for location of discharge areas.
- 103.07 No site utilizing a discharge area shall be approved which is located wholly within an area which is frequently flooded, swamp, marsh, wetland, or drainway, etc. When a site is located partially within this area, that portion not directly affected may be considered for discharge area.
- 103.08 ~~Septic tanks, aerobic treatment units~~ Treatment, disposal, disinfection units and/or pump chambers shall not be located under dwellings or other permanent structures.

104 TREATMENT

- 104.01 Wastewater disposed of by Overland Discharge must meet the requirement established by American National Standards Institute/National Sanitation Foundation (ANSI/NSF) International Standard Number 40 ANSI/NSF Standard 40 testing protocol, as set forth in Regulation Governing Residential Individual Onsite Wastewater Disposal Systems: Certification.
- 104.02 Treated effluent that is to be disposed of by overland discharge must be adequately disinfected as outlined in Appendix 11 (Design Standard for Disinfection).

105 DISTRIBUTION

~~The discharge line shall be a minimum of 3 inch diameter Schedule 40 pipe with cemented joints. The inlet and outlet on the tank (septic tank or ATU) must be 4 inch Schedule 40 pipe for a minimum of 3 feet onto undisturbed soil. Once the outlet pipe has extended a minimum of 3 feet onto undisturbed soil, it can then be reduced to a minimum of 3 inch Schedule 40 pipe for the entire discharge line.~~

105.01 Gravity Fed

1. Single point discharge:

Gravity-fed discharge using a single point discharge line on 1% or greater slope

2. Distribution manifold:

For gravity-fed multi-point discharge distribution by manifold, the level manifold must be constructed using flow diverting devices (Figure I) in such a manner to be self draining.

3. Distribution box (Figure III):

A distribution box may used for multi-point discharge. The distribution box must be installed level to ensure equal distribution of effluent. Outlet lines should have equal slopes for a minimum of 5 feet after leaving the D-box. The D-box should have a baffle wall, or some means of reducing the pressure from the inlet flow.

105.02 Pressurized distribution

1. Distribution box (Figure III):

A distribution box may used for multi-point discharge. The distribution box must be installed level to ensure equal distribution of effluent. Outlet lines should have equal slopes for a minimum of 5 feet after leaving the D-box. The D-box should have a baffle wall, or some means of reducing the pressure from the inlet flow.

2. Distribution manifold (Figure IV):

If effluent is to be delivered to a level manifold ~~or flow-diverting device~~ under pressure, the distribution system shall be designed to provide pressure at the point of discharge not to exceed 5 pounds per square inch. This can be achieved by pumping directly into the head of the manifold or into a baffled distribution box.

Table I SETBACK REQUIREMENTS FROM SENSITIVE WATER

Surface Applications
 Minimum Distance from the Water Edge

Soil Textural Class	Slope of Less Than or Equal to 8 Percent	Slope of Greater Than 8 Percent
Gravel	NOT APPLICABLE	
<i>Coarse Sand</i> <i>Medium Sand</i> <i>Fine Sand</i> Loamy Sand Sandy Loam	75 feet	100 feet
<i>Light Loam</i> <i>Heavy Loam</i> Silt Loam Sandy Clay Loam <i>Light Clay Loam</i> <i>Heavy Clay Loam</i> <i>Light Silty Clay Loam</i> <i>Heavy Silty Clay Loam</i>	50 feet	
Sandy Clay Silty Clay Clay	75 feet	

Figure I

Gravity-fed Manifold

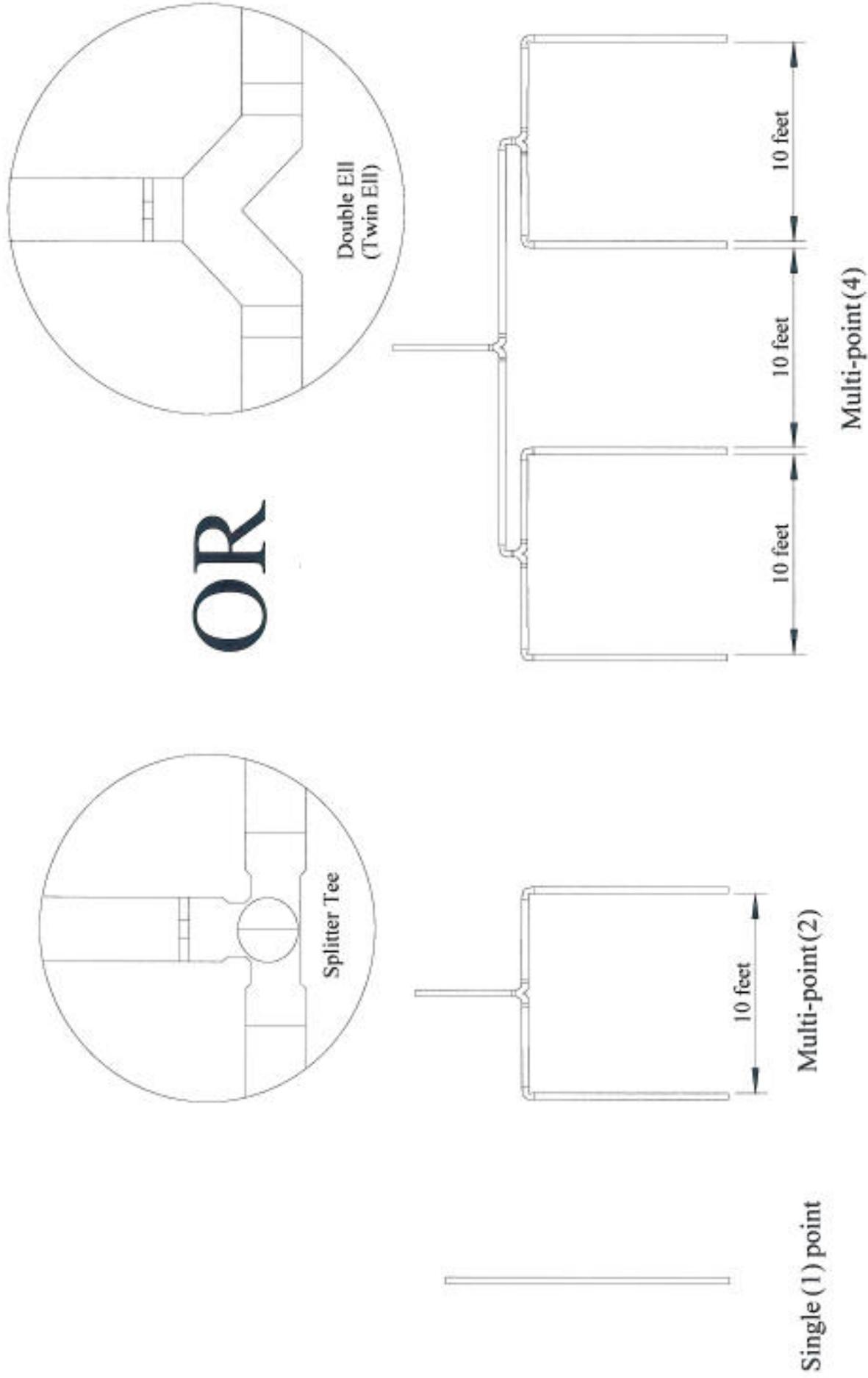
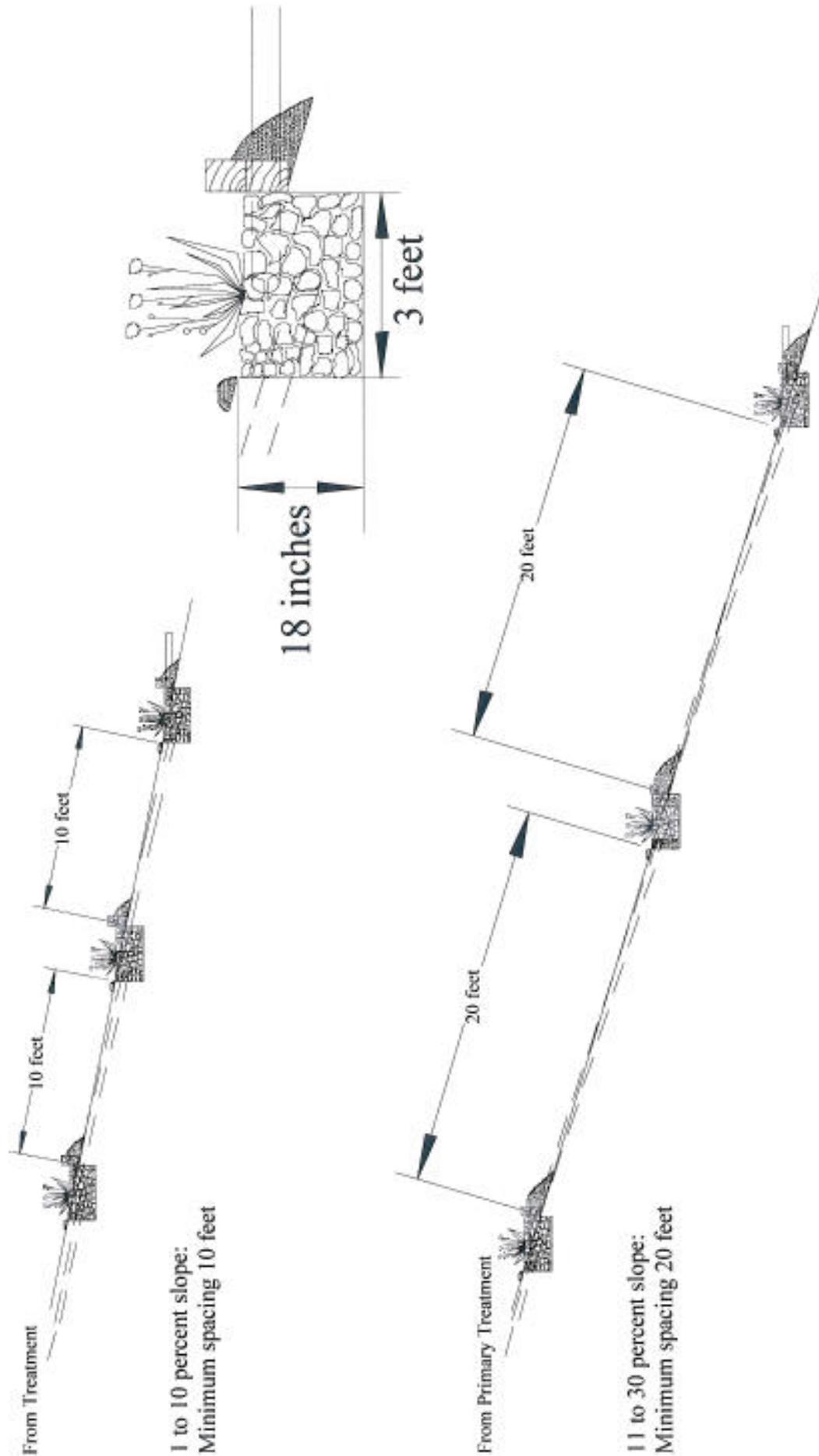


Figure II

Terrace Plant Beds



From Treatment

1 to 10 percent slope:
Minimum spacing 10 feet

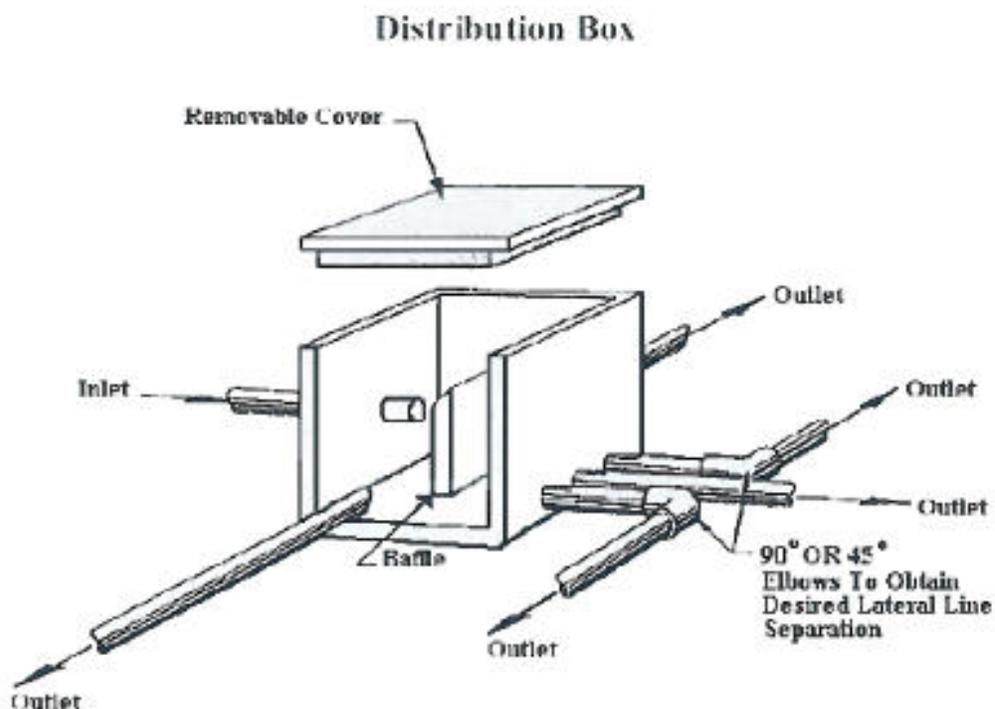
From Primary Treatment

11 to 30 percent slope:
Minimum spacing 20 feet

Further absorption of the effluent could be enhanced with the addition of plantings (canna, calla lilies, elephant ears, etc.) in a bed following the distribution manifold.

Figure III

Distribution Box



- The inlet line into the distribution box may be gravity-fed or pressurized.
- Outlet lines should extend a minimum of 5 feet before changing elevation.

Pressurized Distribution Manifold

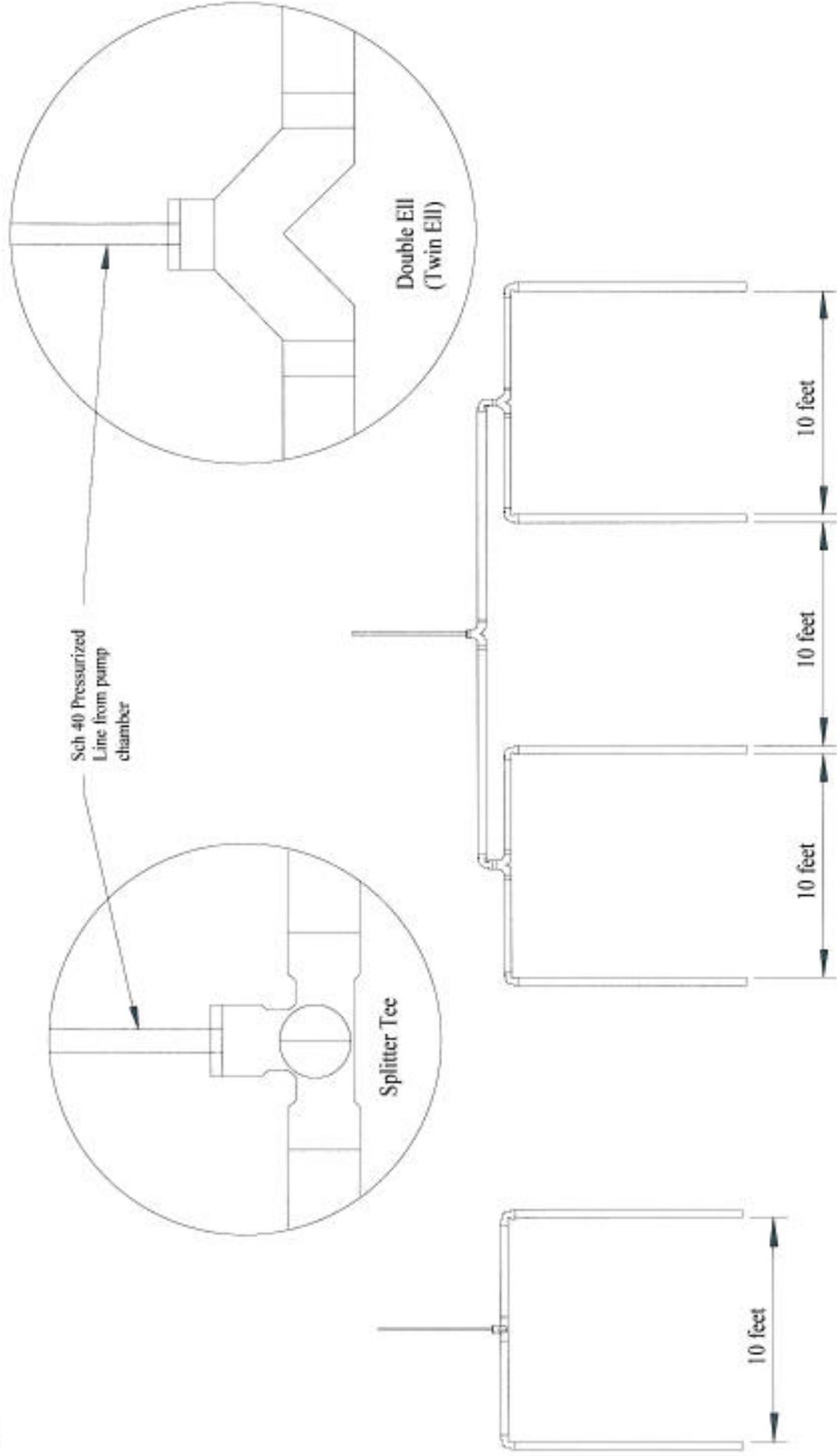


Figure IV

CERTIFICATION OF REGULATION

~~This is to certify that the above REGULATION GOVERNING INDIVIDUAL ON-SITE WASTEWATER DISPOSAL: DESIGN STANDARD X (OVERLAND DISCHARGE) was adopted by the Mississippi State Board of Health on April 9, 2008 to become effective May 13, 2008.~~

F. E. Thompson, Jr., MD
Secretary and Executive Officer