



Environmental Health Division
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ON-SITE SEWAGE TREATMENT SYSTEMS

Regulation #2

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Intent

The improper design, location, use, and maintenance of on-site sewage treatment systems can adversely affect the public health, safety and general welfare by discharge of inadequately treated sewage to surface and ground waters. In accordance with the authority granted in North Dakota Century Code Chapter 23-35-08 Central Valley Health District hereby provides the minimum standards and criteria for design, location, installation, use and maintenance of on-site sewage treatment systems. These standards apply to the counties that fall within the jurisdiction or control of Central Valley Health District. The purpose of the rules is to protect the health, safety and welfare of the residents and future residents of counties under the jurisdiction of these regulations.

General Provisions

1. “Approving authority” shall mean the Health Officer or his appointed representative from Central Valley Health District.
2. “Sewage Treatment” under this section means all private methods of collecting and disposing of domestic sewage including septic tanks, approved privies, chemical toilets, and any others.
3. “Continuing education” under this regulation means a structured, professionally presented curriculum dealing with on-site sewage treatment systems sanctioned by the approving authority.
4. “Installer” under this regulation means an individual or contractor that engages in the construction of on-site sewage treatment systems.
5. “Mottled soil” under this regulation means soil from a soil boring which is marked with contrasting colors is considered to be mottled.
6. A “chamber or chamber pump” under this regulation means a watertight receptacle for receiving effluent from the septic tank which will be used for placement of an effluent grade pump to distribute that effluent to the treatment area.
7. “NDCC” means the North Dakota Century Code.
8. All sewage treatment systems shall be constructed, added to, or altered in accordance with this regulation. When a public or non-community sewage system is deemed available to a premise used for human occupancy if such premise is within 200 feet, the approving authority shall require that sewage be discharged into that system.
9. Nothing contained in these regulations will be construed to prevent the approving authority from requiring compliance with higher requirements than those contained herein where such higher requirements are essential to maintain safe and sanitary conditions.
10. No on-site sewage treatment system will be installed during wet conditions or conditions by which the soil would become smeared during construction.
11. Where public sewage treatment systems are not available and construction of an on-site sewage treatment system is contemplated for a building of a human occupancy, use, addition to, or alteration of any existing sewage treatment system, the master plumber or sewer and water contractor, or septic system installer, or property owner, previous to beginning any construction shall make an application to the approving authority for a written permit to make the desired installation. An on-site inspection may be required by the approving authority prior to permit approval. A plans approval is valid for 12 months from date of issuance.

12. All domestic sewage or sewage effluent shall be disposed of by an approved method of collection and treatment. Domestic sewage shall not be disposed of in any manner that will cause pollution of the ground surface, ground water, bathing area, lake, pond, watercourse, or create a nuisance. It shall not be discharged into any abandoned or unused well, or into any crevice, sink hole or other opening either natural or artificial in a rock formation.
13. Where water under pressure is not available, all human body wastes shall be disposed of by disposing them in approved privies, chemical toilets, or such other installations acceptable to the approving authority.
14. Water-carried sewage from bathrooms, kitchens, laundry fixtures, and other household plumbing shall pass through a septic tank prior to its discharge into the soil. Where underground disposal for treatment is not feasible, consideration will be given to special methods of collection and disposal.
15. The building contractor, owner, plumbing contractor, or disposal system installer are jointly responsible for compliance with this regulation.
16. Abandoned disposal systems, septic tanks, pumping and other chambers and seepage beds shall be disconnected from the buildings. The tank and chambers shall be pumped out and filled with earth. **The approving authority must be notified to approve abandonment procedures.**
17. No property shall be improved in excess of its capacity to properly absorb sewage effluent in the quantities and by the means provided in this regulation.
18. The minimum lot size in which a private treatment system may be installed shall be one acre of usable land, except where zoning requires more.
19. Malfunctioning on-site sewage treatment systems are a menace to the health and general welfare of the public and are hereby declared a nuisance; and are subject to the requirements specified under NDCC Section 23-35-08 and Section 23-35-09.
20. Any person who violates, or refuses to comply with any provision of these regulations is guilty of a Class B Misdemeanor which can result in a maximum penalty of 30 days in jail and/or a \$500.00 fine (NDCC Section 23-35-13).

Installation: Excavation and Installer Requirements

1. Individuals or business contractors shall be required by the approving authority to obtain an installer license to install on-site sewage treatment systems as described in this regulation. The fee for license shall be established in accordance as set or prescribed by the Board of Health for Central Valley Health District. Licenses are good for a period of two years. Reciprocity for licenses in other jurisdictions can be made on an individual basis by the approving authority.
2. Individuals or business contractors shall be required by the approving authority to have or obtain a permit to install on-site sewage treatment systems as described in this regulation. The fee for permit shall be established in accordance as set or prescribed by the Board of Health for Central Valley Health District.
3. Installers of septic systems must obtain suitable continuing education which pertains to on-site sewage treatment system installation. Reciprocity for training in other jurisdictions can be made on an individual basis by the approving authority.
4. The installer of a treatment system must contact the approving authority two days prior to backfill and filter cover for final approval. If upon inspection it is found that any construction does not meet regulations or is different from the approval plans or any other violation, an order will be given to rectify the condition. An As-Built plan shall be submitted to the approving authority. A compliance inspection may be completed for final approval.

Design of On-site Sewage Treatment Systems

1. **Design** -The design of the on-site sewage treatment system must take into consideration location with respect to wells or other sources of water supply, topography, water table, soil characteristics, area available, and maximum occupancy of the building. **Sewage treatment fields must have a minimum of two lines.**
2. **Type of System** -The type of system to be installed shall be determined on the basis of location, soil permeability, and ground water elevation.
3. **Sanitary Sewage** -The system shall be designed to receive all sanitary sewage, including laundry waste, from the building. Drainage from **footings, sump pump, roof, garage/shop floor drains, or backwash from water softener** shall not enter the system.
4. **Discharge** -The system shall consist of a septic tank discharging into a sewage treatment field approved by the approving authority.
5. **Ground Water** -No on-site sewage treatment system can be installed where ground water may collect above the sewage treatment system causing a flooded condition. The minimum separation distance from the bottom of the treatment area to the mottled soil or seasonal high water table must equal or exceed three feet.

6. **Alternate Design** -Where soil conditions or lot sizes are such that neither of the systems mentioned can be expected to operate satisfactorily, approval of an alternate design shall be secured from the approving authority.
7. **Sewage Flow** -Design criteria for sewage flow according to the type of establishment is indicated in the following table.

Sewage Flow for Establishments

<u>Type of Establishment</u>	<u>Unit</u>	<u>Gallons/Day/Unit</u>
Assembly Hall	Seat	4
*Barber Shop	Chair	68
*Beauty Salon	Station	285
Bowling Alley	Alley	185
Church	Seat	4
	-add for each meal prepared	5
Country Club	Member –no meals	22
	Member –with meals and showers	118
	Member –resident	86
Dance Hall	Person	6
Daycare	Child –no meals	19
	Child –with meals	23
Dormitory	Person	43
<i>Dwellings:</i>		25
Hotel or Luxury Hotel	Guest	55
	Square Foot	0.28
Motel	Guest	38
	Square Foot	0.33
Rooming House	Resident	45
	-add for each nonresident meal	3.3
Fairground and Other Similar Gatherings	Visitor	1.5
Flea Market	Space:	
	-nonfood vendor	15
	-limited food vendor	25
	-with food vendor	50
Health Club or Gym	Member	35
*Industrial Building	Employee -per 8hr shift	17.5
	Employee -per 8hr shift with showers	25
<i>Institutions:</i>		
	Add for each meal	5
*Hospital	Bed	220
*Mental Health hospital	Bed	147
Nursing Home or Other Adult Congregate Living	Resident	125
Other Public Institution	Person	105
Prison or Jail	Inmate	140
Laundromat	Machine	635
	Load	52.5
	Square Foot	2.6
Labor Camp	Person –permanent	18
	Employee –semi permanent	50
*Medical Office	Square Foot	1.1
	Practitioner	275
	Patient	8
Office	Employee -per 8hr shift	18
	Square Foot	0.18

Sewage Flow for Establishments cont.

<u>Type of Establishment</u>	<u>Unit</u>	<u>Gallons/Day/Unit</u>	
<i>Outdoor Lodging and Recreation:</i>			
Camps:			
Day Camps -no meals	Person	20	
Day Camps -with meals	Person	25	
Day and Night Camps -with meals	Person	45	
Campground	Person -with hook-up	36	
	Site -with hook-up	100	
	Site -no hook-up, with common bath	62	
	Site -served by dump station	14.5	
	Permanent Mobile Home	Mobile Home	225
Resort or Lodge Hotel	Person	62	
Resort Cabin	Person	50	
Resort Store	Customer	4	
Park	Visitor	10	
Public Lavatory	User	5	
Public Shower	Shower Taken	11	
<i>Restaurants:</i>			
Bar or Lounge -no meals	Customer	4.5	
	Seat	36	
Cafeteria	Customer	2.5	
Coffee Shop	Customer	7	
Food Outlet	Square Foot	0.2	
Dining Hall	Meal	7	
Restaurant -does not include bar or lounge	Meal -without alcoholic drinks	3.5	
	Meal -with alcoholic drinks	8	
	Seat -open 16 hrs or less	30	
	Seat -open +16hrs	50	
	Seat -open 16 hrs or less, single service articles	20	
	Seat -open +16 hrs, single service articles	35	
	Restaurant -short order	Customer	7
	Restaurant - drive-in	Car Space	30
Restaurant - carry out including caterers	Square Foot	0.5	
Retail Store	Square Foot	0.13	
	Customer	3.8	
	Toilet	590	
<i>Schools:</i>			
Boarding	Student	2	
Day -without gyms, cafeterias, or showers	Student	95	
Day -with cafeterias, no gym or showers	Student	14	
Day -with cafeterias, gym and showers	Student	18	
	Student	27.5	

Sewage Flow for Establishments cont.

<u>Type of Establishment</u>	<u>Unit</u>	<u>Gallons/Day/Unit</u>
Shopping Center	Employee	11.5
	Square Foot	0.15
	Park space	2.5
Swimming Pool	Guest	10
<i>Theatres:</i>		
Auditorium or Movie	Seat	4.5
Drive-In	Car Stall	5
Stadium	Seat	5
<i>Transportation:</i>		
Airport, Bus Station or Rail Depot	Passenger	5
	Square Foot	5
	Restroom	565
*Car Wash -does not include car wash water	Square Foot	5
Gas Station or Convenience Store	Customer	3.5
*Service Station	Customer	11
	Service Bay	50
	Toilet	250
	Square Foot	0.25
Visitor Center	Visitor	13

*Waste other than sewage is only allowed to be discharged into the system if the waste is suitable to be discharged to ground water.

Unless otherwise noted in the table the flow values **do not** include flows generated by employees – a flow value of 15 gallons per employee for each 8 hr shift must be added to the flow amount.

Location of On-site Sewage Treatment System

1. The minimum distances that shall be observed in locating the various components of the treatment system can be found in the Minimum Distances table below.

Minimum Distances

	Well 50'	Well 100'	Distribution Device	Treatment Area	Property Lines	Building
Building Sewer	100	50	-	-	-	-
Septic Tank	100	50	5	10	10	10
Distribution Device	100	50	-	-	10	20
Treatment Area	100	50	5	-	10	10
Well 50'	-	-	100	100	n/a	n/a
Well 100'	-	-	50	50	n/a	n/a
Water line						
-pressure	-	-	10	10	n/a	n/a
-suction	-	-	50	50	n/a	n/a
Surface Water bodies	n/a	n/a	100	100	n/a	n/a

2. All proposed sites for on-site sewage treatment systems must be evaluated as to:
 - a. Depth to the highest known or calculated ground water table or bedrock.
 - b. Soil conditions, properties and permeability.
 - c. Slope.
 - d. The existence of lowlands, local surface depressions and rock outcrops.
 - e. The legal setback requirements from existing and proposed buildings, property lines, sewage tanks, soil treatment systems, water supply wells, buried water pipes and utility lines, the ordinary high water mark of lakes, rivers, streams, flowages, and the location of all soil treatment systems and water supply wells on adjoining lots to the proposed soil treatment system, sewage tank, and water supply well and surface water flooding problems.
 - f. Privies, septic tanks and underground treatment systems shall not be within 200 feet measured horizontally from the high water level in the reservoir or the banks of tributary streams when situated less than 3000 feet upstream from potable water intake structures. Sewage treatment facilities situated beyond 3000 feet upstream from intake structures shall be located no less than 100 feet measured horizontally from the high water level in the reservoir or the banks of the tributary streams.

Determination of Soils

1. **Percolation Tests** -Where percolation tests are required, they must be made by a licensed soil classifier or licensed profession engineer approved by the approving authority. Results are to be given to the approving authority and the homeowner prior to design of system.
2. **Soil Borings** -Where soil borings are required, they must be made as follows:
 - a. Each boring or excavation must be made to a depth at least three feet deeper than the bottom of the proposed system or until bedrock or a water table is encountered, whichever is less.
 - b. A soil texture description must be recorded by depth and notations made where texture changes occur.
 - c. Particular effort must be made to determine the highest known water table by recording the first occurrence of mottling observed in the hole, or if mottling is not encountered, the open holes in clay or loam soils must be observed after standing undisturbed a minimum of 16 hours, and depth to standing water, if present, must be measured.

Septic Tanks

1. **Liquid Capacity**

The liquid capacity of all septic tanks shall conform to the following listed tables determined by the number of bedrooms or apartment units in dwelling occupancies and the occupant load or the number of plumbing fixture unit as described from the table listed below, whichever is greater in other building occupancies.

Capacity of Septic Tanks

Single family dwelling -number of bedrooms	Multiple dwelling units or apartments -one bedroom each	Other uses -maximum fixture units served	Minimum septic tank working capacity -in gallons
1-3		20	1000
4	2 units	25	1200
5 or 6	3	33	1500
7 or 8	4	45	2000
	5	55	2250
	6	60	2500
	7	70	2750
	8	80	3000
	9	90	3250
	10	100	3500

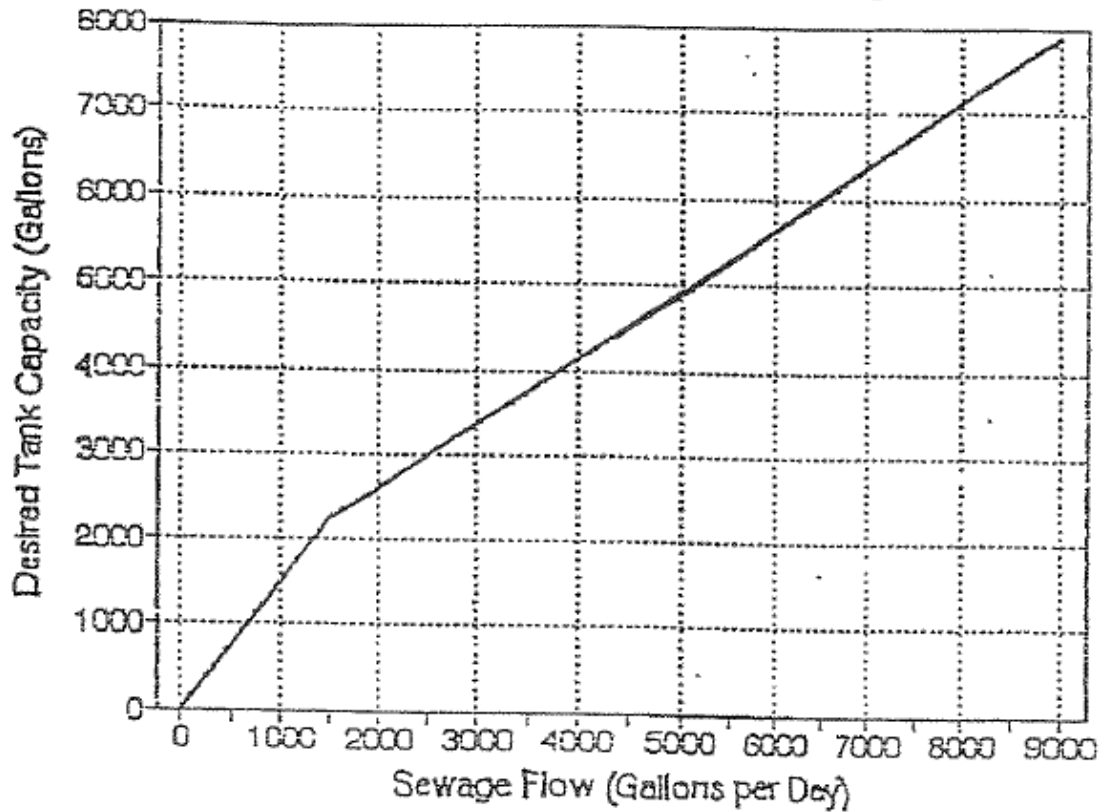
Extra bedroom; add 150 gallons for each bedroom

Extra dwelling units over 10; add 250 gallons for each dwelling

Extra fixture units over 100; add 25 gallons for each fixture unit

Garbage grinders, sewage ejector, and/or grinder pumps increase septic tank by 50%

Septic Tank Capacity



RESTAURANTS: To provide cooling of dishwasher wastes for grease coagulation, provide twice the capacity shown on graph.

LAUNDROMATS: To provide cooling of wastewater for suds and grease flotation, provide at least twice the capacity shown on graph.

SLAUGHTER-HOUSES: Do not allow blood to enter the system. Collect the blood separately and sell to renderer. To provide sufficient time to stabilize the remaining high strength waste, twice the capacity shown on graph is required.

DAIRIES: Septic tanks and drainfields will not treat milk or whey wastes.

2. **Septic Tank Construction** -Septic tanks must be constructed of sound durable materials not subject to excessive corrosion or decay and must be water tight. Each such tank must be structurally designed to withstand all anticipated earth or other loads and must be installed level and on a solid bed. All tanks regardless of material or other method of construction must conform to the following criteria:
- a. The liquid depth of any septic tank or compartment shall not be less than 30 inches, nor more than six and one-half feet. No tank may have an inside horizontal dimension less than 24 inches.
 - b. The space in the tank between the liquid surface and the top of the inlet and outlet baffles must be not less than 20 percent of the total required liquid capacity, except that in horizontal cylindrical tanks this space must not be less than 15 percent of the total required liquid capacity.
 - c. There must be at least one inch between the underside of the top of the tank and the highest point of the inlet and outlet devices. The inlet invert must not be less than three inches above the outlet invert.
 - d. Baffles must be integrally cast with the tank, affixed with a permanent waterproof adhesive or affixed with stainless steel connectors, top and bottom, and be constructed of acid-resistant concrete, acid resistant fiberglass or plastic.
 - e. The inlet baffle must extend at least six inches, but not more than 20 percent of the total liquid depth below the liquid surface and at least one inch above the crown of the inlet sewer.
 - f. The outlet baffle and the baffles between compartments must extend below the liquid surface a distance equal to 40 percent of the liquid depth, except that the penetration of the indicated baffles or sanitary tees for horizontal cylindrical tanks must be 35 percent of the total liquid depth. They also must extend above the liquid surface. In no case may they extend less than six inches above the liquid surface.
 - g. Inlet baffles must be no less than six inches or no more than 12 inches measured from the end of the inlet pipe to the nearest point on the baffle. Outlet baffles must be six inches measured from beginning of the outlet pipe to the nearest point on the baffle. Sanitary tees used as baffles must be at least four inches in diameter.
 - h. The inlet and outlet must be located opposite each other along the axis of maximum dimension. The horizontal distance between the nearest points of the inlet and outlet devices must be at least four feet.

- i. There may be one or more manholes. Manholes must be at least **18 inches** in diameter, and located within six feet of all walls of the tank. The manhole must extend through the cover to a point within 12 inches but no closer than six inches below finished grade. The manhole cover must be corrosion resistant, rated 300 pound load bearing and covered with at least six inches of earth. When in the opinion of the approving authority the manhole is permitted above finish grade, it must be safely secured by chain or other method approved by the approving authority.
- j. There must be an inspection pipe of at least four inches in diameter or a manhole over both the outlet and inlet devices. The inspection pipe must extend through the cover and be capped flush or above finished grade. A downward projection of the centerline of the inspection pipe must be directly in line with the centerline of the inlet or outlet device.

3. Multiple Tanks

- a. Where more than one tank is used to obtain the required liquid volume, the tanks must be connected in series.
 - b. No more than four tanks in series can be used to obtain the required liquid volume.
 - c. The first tank must be no smaller than any subsequent tanks in the series.
4. **Compartment Tanks** -Compartment tanks are to be approved by the approving authority.
 5. **Depth of Septic Tank** -Where septic tanks are installed above frost line, precautions must be taken to prevent the septic tank from freezing.
 6. **Service Limited** -No septic tank shall serve more than one property unless authorized by the approving authority.
 7. **Disposal of Effluent** -The effluent from all septic tanks shall be disposed of underground in a sewage field or an approved alternative system.

Distribution Box

1. **Use** -A distribution box may be used when more than one line of an absorption field is used.
2. **Connection** -Each lateral line shall be connected separately to the distribution box and shall not be subdivided.

3. **Invert Level** -The inlet invert shall be at least one inch above the invert of the outlets. The size of the distribution box shall be sufficient to accommodate the number of lateral lines.
4. **Watertight** -The distribution box shall be of watertight construction arranged to receive the septic tank effluent sewer and with an outlet or connecting line serving each trench.
5. **Inspection** -The sides of the bed should extend to within a short distance of the ground surface to permit inspection and shall have a concrete marker at grade.

Absorption Trenches

1. **Design** -Absorption trenches shall be designed and constructed on the basis of the percolation test results or other soil data. The minimum trench bottom area **required per bedroom** for well drained soils is 252 feet squared and 300 feet squared in tight soils. Use the Recommended Absorption Trench Area Table to find the required trench bottom area. The bottom of the trench shall be dug so it is level throughout its length. The maximum depth to the bottom of absorption trenches may not exceed 48 inches. The trench bottom must be at least 36 inches above the mottled soil condition indicating a water table or from standing water in the borehole. No trench shall exceed 110 feet in length.
2. **Rock Filled Trenches Filter Material** -The filter material shall cover the four inches diameter pipe to a depth of two inches measured from the crown of the pipe and extend the full width of the trench and shall not be less than six inches or more than 18 inches deep beneath the bottom of the four inches diameter pipe. The filter material may be washed rock or crushed stone ranging in size from one inch to three inches. The filter material shall be covered by red rosin paper 40, hay, straw, or approved filter fabric 40, as the laying of the pipe proceeds. Approved graveless systems may be used in lieu of rock fill providing an equivalent surface area of soil is utilized.
3. **Graveless Trenches** -Graveless systems are sized using the above criteria. No consideration is given for manufacturers suggested reduction.
4. **Spacing** -Trenches must have a minimum spacing of undisturbed earth of six feet for 18 inches to 24 inches trench widths, and nine feet for trenches up to 36 inches wide.
5. **Absorption field.** The size and requirements for absorption fields shall conform to those given in the following table.

Recommended Absorption Trench Area

Percolation Rate <i>Minutes/Inch</i>	Soil Classification	Depth of Rock below Distribution Pipe	
		18"	24"
<i>-Trench bottom area loading rate, gal/ft²/day</i>			
.1 to 5	Sand	1.80	2.10
6 to 15	Sandy Loam	1.20	1.40
16 to 30	Loam	0.90	1.05
31 to 45	Silt Loam	0.76	0.89
46 to 60	Clay Loam	0.68	0.79
<i>-Square feet of trench bottom/bedroom¹</i>			
.1 to 5		85	70
6 to 15		125	110
16 to 30		165	145
31 to 45		200	170
46 to 60		220	190

¹ Based on sewage volume of 150/GPD/Bedroom

² Bed Systems must be 1.5 times the size of an equivalent trench system

6. Absorption Lines

- a. Gravity distribution. Absorption lines shall be constructed of approved materials.
- b. Pressure distribution. Absorption lines must be constructed on one and one-half inches to two inches rigid plastic pipe with one-fourth inch holes drilled in the bottom of the pipes. The number of perforations and spacing of perforations for different diameter pipes for pressure distribution laterals must not exceed ten percent of the average pressure on the perforations. The pipe and connections must be able to withstand a pressure of at least 40 pounds per square inch. The perforated laterals should be attached to a two inches manifold pipe and should have the ends capped. The laterals should be spaced no further than 40 inches on center and no further than 20 inches from the edge of the rock. Pipe must be installed level and capped at ends. The manifold must be supported and backfilled by hand.

7. Grade -The absorption trench bottom must be level.

Piping Material

All piping from building drain to sewage treatment system shall be four inches or larger service schedule 40 acrylonitrile-butadiene-styrene or polyvinyl chloride plastic pipe, type PSP PVC sewer pipe SDR 35 40, and fittings A.S.T.M. D3033 or D3034.

Pumps and Pump Systems

This section pertains to pumps installed after the septic tank. Sumps and ejectors installed before the septic tank must meet the requirements set forth in section 710.0 of the Uniform Plumbing Code.

1. Pumping Chambers

- a. The pumping chambers must be watertight and constructed of corrosion-resistant materials.
- b. The working capacity of the pumping chamber must equal one-fourth of the daily sewage flow. Total capacity of the pumping chamber must equal or exceed daily sewage flow.
- c. The desired pump cycling frequency is four times per day.
- d. A secure cover must be provided that is either bolted on or heavy enough to prevent unauthorized entry.
- e. An external electrical outlet must be provided for connection to the pump and control switches. Openings for wiring into the pump chamber must be sealed.
- f. No electrical splices or connections shall be located in the pump chamber or riser.
- g. Pumping chambers must have an appropriate mechanical warning system that will indicate pump failure.

2. Pumps

- a. Effluent lift pumps must be cast bronze, cast iron or plastic construction and must be designed for handling septic tank effluent. Pedestal sump pumps with an open motor are not allowed.
- b. Set the pump on a pedestal on the bottom of the pump chamber to minimize grit and solids entering the impeller.
- c. The pump must have maximum lift capability of at least five feet greater than the actual elevation, plus pipe friction loss. A pump to sewage mound shall deliver seven and one-half gallons per minutes for each one hundred square feet of rock area.
- d. Outlet piping must be one and one-fourth inches in diameter or greater. The pipe must be laid below frost line and uniformly graded to drain back to the pump

chamber. Volume of drain back should not exceed ten percent of the working capacity of the pump chamber. If piping is set to drain back, any check valves on the pump should be removed and one-fourth inch drain hole drilled on the low point of the outlet pipe. Piping connection to the pump must be with a union or quick disconnect coupling near the top of the pump chamber.

3. Pump Controls

- a. On-off switching for sewage pumps must be sealed mercury float switches or of a type approved by the approving authority.
- b. Electrical connections must **not** be made in the pump chamber or pump chamber riser.

Alternative Systems

1. **Mounds** -Mounds may be constructed on soils having a percolation rate faster than one hundred twenty minutes per inch. For soils slower than 120 minutes per inch, the system must be moved to more amenable soil.
 - a. Location -Mounds may not be located on site of greater than 12 percent slope. For moderately permeable soils, the approving authority may approve construction on slopes over six percent. Mounds may not be built in areas where water may pond.
 - b. Design -The basal sand area of the mound must be sized on the basis of 0.83 gallons per square foot per day. The basal sand may be 12 inches to 24 inches deep and must extend at least five feet beyond the rock filter material in all directions. The rock layer must be 12 inches to 24 inches deep, and may not exceed ten feet in width. Only pressure distribution may be used in the mound, so piping shall be one and one-half inches to two inches diameter rigid ABS or PCV. One and one-fourth inches hole must be drilled every 36 inches and the ends of the lateral must be capped. A one-fourth inch hole shall be drilled in the top of the cap to serve as a siphon break. Laterals shall be spaced no further than 40 inches on center and no further than 20 inches from the edge of the filter rock. Surface water must be diverted by a berm located uphill from the base of the mound.
 - c. Specifications -Sand must be uniformly graded, with no more than 15 percent fines. Filter rock must be one inch to three inches in diameter, washed or screened to less than ten percent fines.

A jar test should be used to determine sand suitability. In a one quart jar, place two inches of sand. Add water to three-fourths level, cap, shake and set aside to settle. If a layer of silt is present on top which is more than one-eighth inch thick the sand is not suitable for mound construction.

d. Construction

1. Scarify the area with backhoe teeth or a cultivator. Do not remove topsoil. Bring outlet pipe from pump up into the center of the mound area.
 2. Lay sand on scarified area. Do not compact the soil with machinery tires. Level sand to desired depth.
 3. Lay filter rock down the center of the sand layer. Level.
 4. Connect piping to manifold and lay pipe on rock. Cover pipe with rock and level by hand. Holes must be on bottom of the pipe.
 5. Lay sand up to the top of the rock on all sides, sloping sand away at a three to one or four to one slope.
 6. Cover rock with red rosin paper, straw, hay or filter fabric.
 7. Backfill entire mound to a three to one or four to one grade. Downhill side of mound on slopes must be backfilled at a four to one or longer grade. Cover mound with topsoil.
 8. Seed grass over mound. Trees and shrubs may be planted on the toe and up the sides of the mound, but do not plant shrubs or trees on top. If vegetation is not established before winter, cover mound with hay or straw to prevent freezing.
2. **Alternate Design** -Alternative designs for construction of sewage treatment systems complying with the intent of this code may be submitted to the approving authority for approval.
3. **Holding Tanks**
- a. Holding tanks may be allowed only as replacements for existing non-conforming systems or on existing parcels or lots as of the date of the enactment of these regulations and only where it can conclusively be shown that a standard system cannot be feasibly installed.
 - b. A holding tank shall be constructed of the same materials and by the same procedures as those specified for watertight septic tanks.
 - c. The tank shall be protected against flotation by weight of tank, earth anchors, or shallow bury depths.

- d. The minimum capacity of a holding tank for a dwelling is 1000 gallons or 400 gallons times the number of bedrooms, whichever is greater.
- e. For permanent structures other than dwellings, the capacity shall be at least five times the daily flow rate.
- f. Holding tanks shall be located in an area that is readily accessible for pumping under all weather conditions and where accidental spillage will not create a nuisance.
- g. A contract for disposal and treatment of the sewage wastes shall be maintained by the owner with a pumper, municipality, agency or firm established for that purpose. A copy of the contract or receipts for disposal shall be made available to the approving authority.
- h. Holding tanks must have an appropriate mechanical warning system to indicate when the water level is within one foot of the top of the tank.

Sand Filters Repealed effective September 1, 1990.

4. Chemical Toilets

- a. All requests for permission to erect and use chemical toilets shall be approved by the administrative authority.
- b. Chemical toilets shall consist of a toilet seat connected by a metal hopper to a metal tank containing chemicals, usually sodium hydroxide. All connections to the toilet seat and the tank shall be watertight. A rod shall extend above the floor of the room to operate the agitator in the chemical tank.
- c. A supply of the chemical shall be available in a closed container for periodic additions to the toilet.

5. Privies

- a. All requests for permission to erect and use privies shall be approved by the approving authority.
- b. General specifications for the design and construction of a privy. A privy pit must be constructed by providing a watertight structure in the pit. The watertight structure shall provide a minimum capacity of 1000 gallons. A privy building shall be placed over the structure. The floor of this building shall be of concrete with the privy seat of suitable material which is easily cleanable and serviceable. A vent located adjacent to the seat shall extend from the vault to a point above the roof of the building. The seat shall be provided with a cover which shall be self-closing.

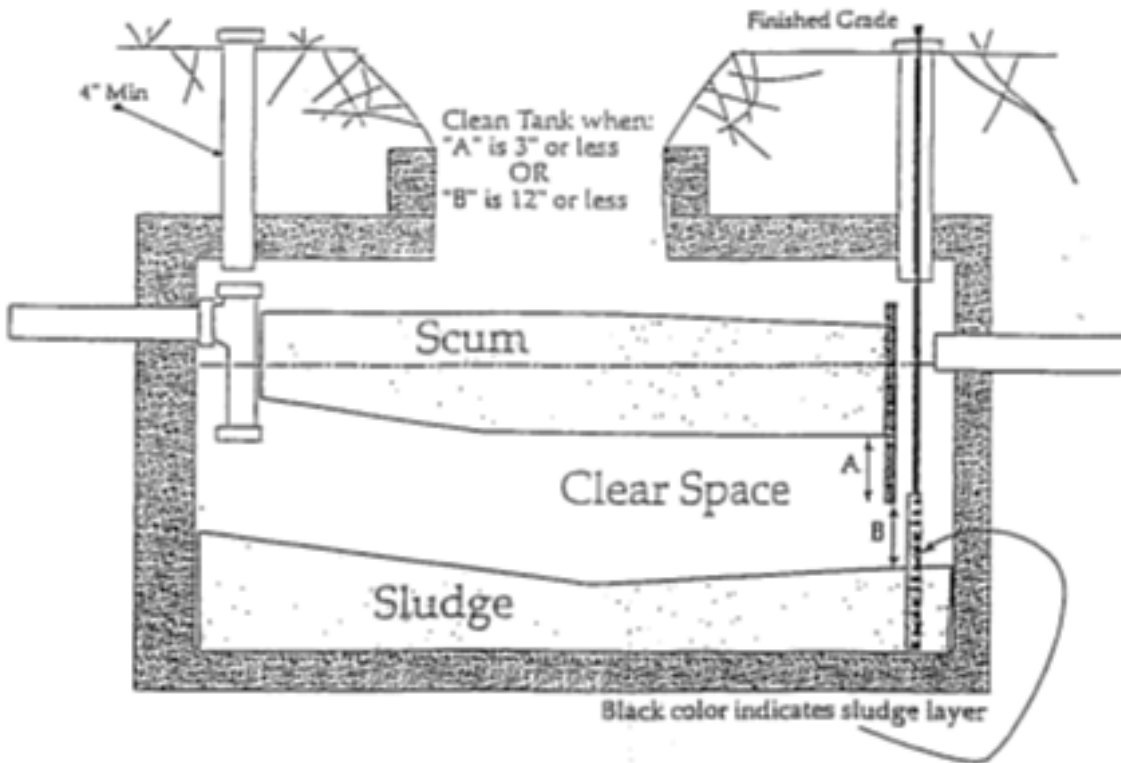
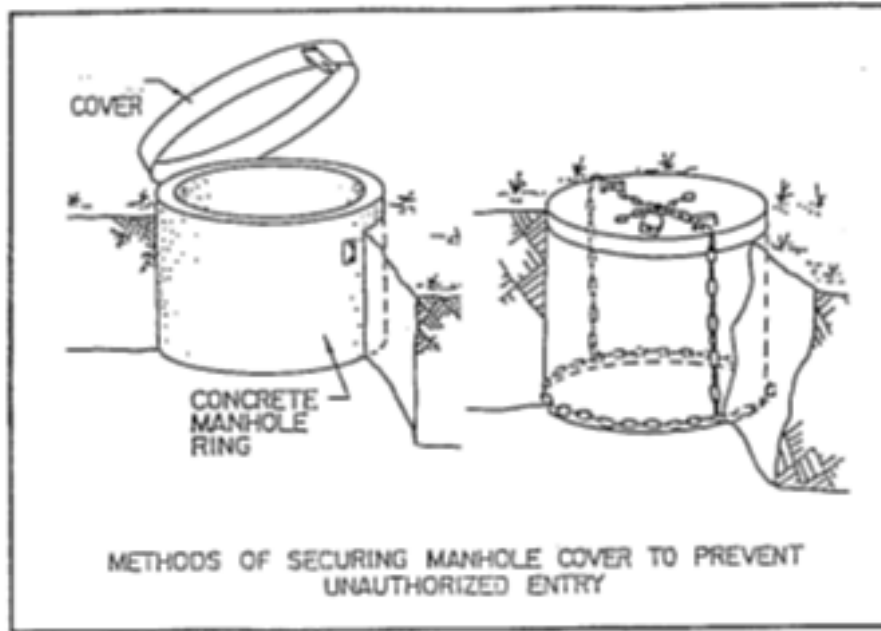
All openings in the building shall be screened to prevent the entrance of flies. The building shall be so constructed as to prevent the entrance of vermin to the vault. The privy door shall be self-closing.

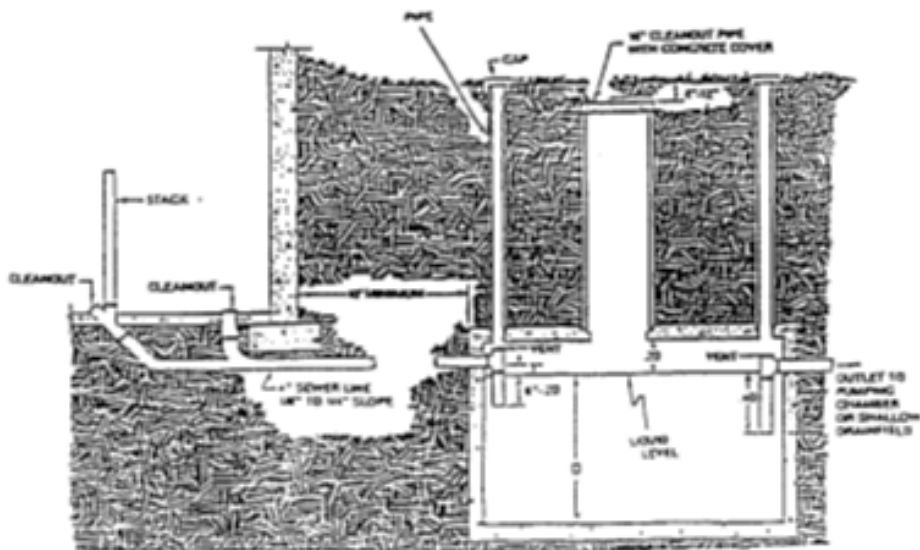
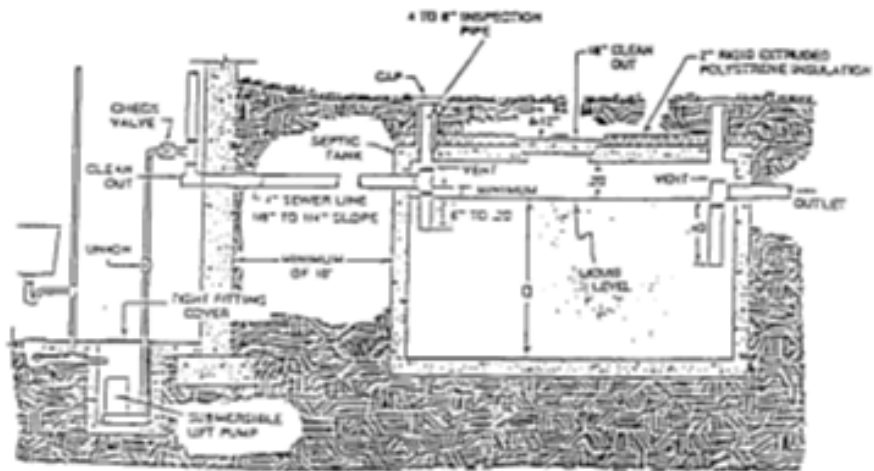
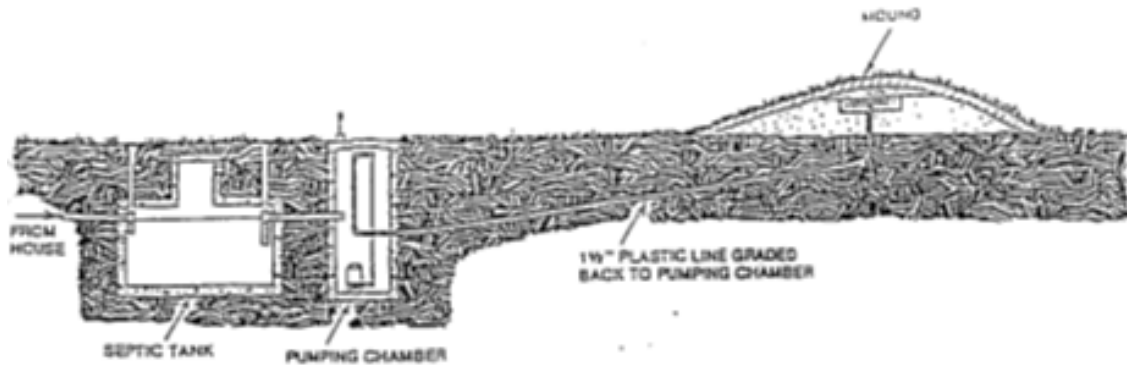
- c. Removable cans. When removable cans are used in a privy, they shall be placed in watertight vaults and provisions made for removing the seat so the cans can be moved for disposal of the contents in a manner acceptable to the approving authority. The privy building shall comply with the above specifications for a pit privy building.

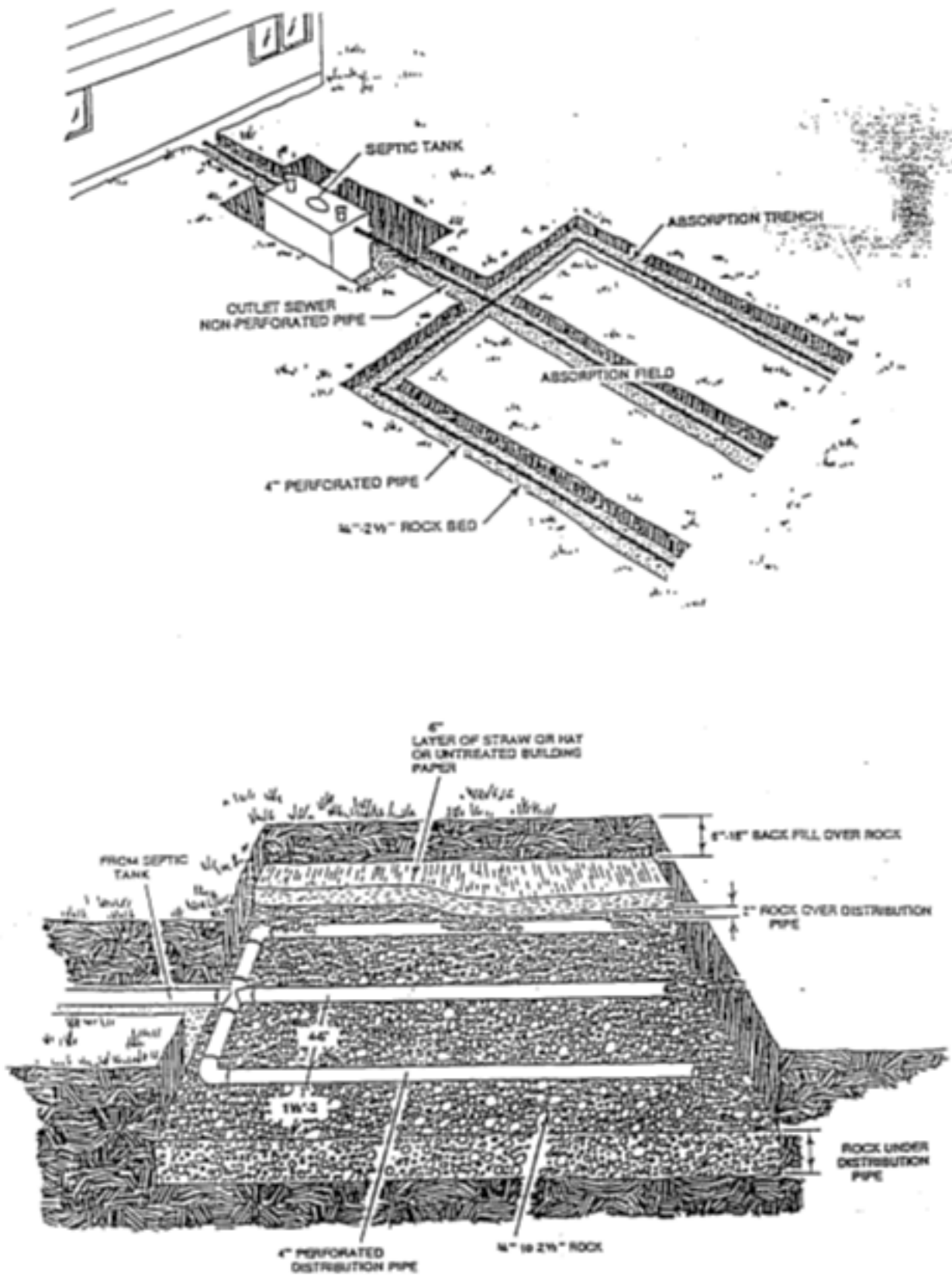
Septic Tank Pumpers

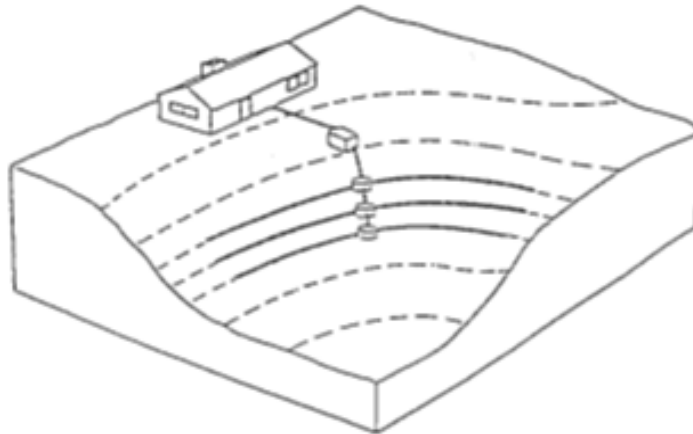
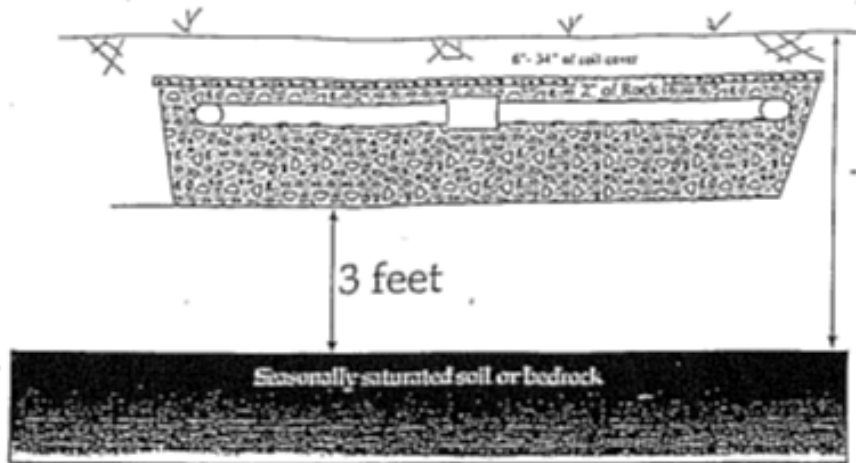
1. Every person engaged in the business of removing and disposing of the solid and liquid contents of private sewage treatment systems shall obtain an annual license from the State Department of Health.
2. All solid and liquid contents of chemical toilets, septic tanks, pump chambers, and watertight pits for septic tank effluent shall be removed, when necessary, and disposed of in conformance with subsections 3 through 9.
3. Every pumper shall obtain a license to engage in such operations as specified in the appropriate rules of the State Department of Health, Chapter 33-21-01.
4. A metal license tag with the number of the license issued shall be posted in a conspicuous place on the left side of the servicing unit.
5. Every vehicle used for pumping purposes shall be equipped with a watertight tank so that there will be no spillage on private premises or on highways or roads.
6. All portable receptacles used for transporting liquid or solid waste shall be watertight; equipped with tight fitting lids and shall be cleaned daily.
7. All pumps and hose lines shall be maintained as to prevent leakage.
8. All waste material shall be disposed of in such a place and in such a manner as will not constitute a nuisance or a menace to public health.
9. Waste material collected by a pumper shall not be discharged into ditches, water courses, lakes, ponds, tidewater, or at any point where it can pollute any water supply, bathing area, or shellfish growing area. It shall not be deposited on the surface of the ground within one thousand feet of any residence or public road.

APPENDIX

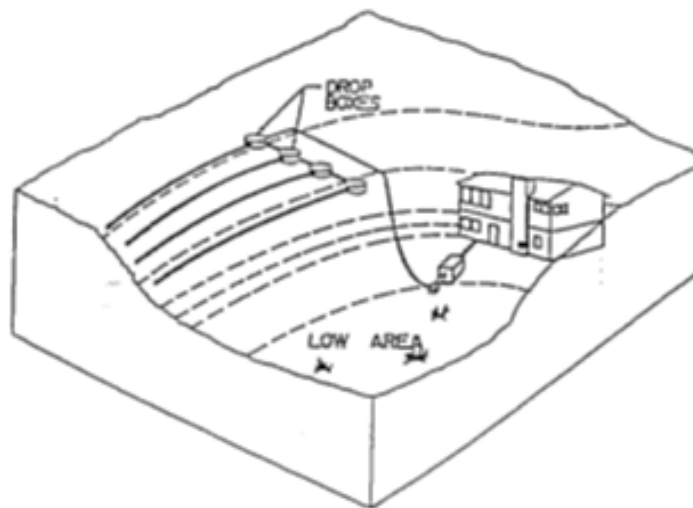








DROP BOX DISTRIBUTION SYSTEM



PUMP SEPTIC TANK EFFLUENT TO AN AREA WITH
SUITABLE SOIL