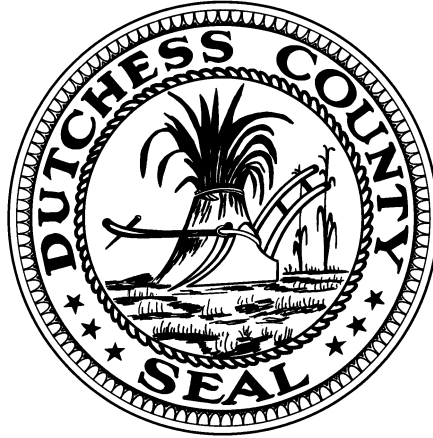


Dutchess County  
Department of Health  
Environmental Health Services  
387 Main Street  
Poughkeepsie, NY 12601



*WATER AND WASTEWATER SYSTEMS*

**DESIGN  
AND  
CONSTRUCTION  
STANDARDS**

March 29, 2006



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DESIGN POLICY AND STANDARDS FOR INDIVIDUAL LOTS AND  
REALTY SUBDIVISIONS, NON-RESIDENTIAL AND OTHER PROPERTIES, LESS  
THAN 1000 GALLONS PER DAY.

(Appendix 75-A, Standards for Individual Water Supply  
and Individual Sewage Treatment Systems)

75-A.1 - Introduction  
Chapter II, Subchapter I, Part 75, Subpart A  
AN:II-I-75-A

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**On-site wastewater treatment systems for individual lots, realty subdivisions, non-residential and other properties less than 1000 gallons per day must be designed in accordance with Appendix 75-A, of *The New York State Department of Health Administrative Rules and Regulations* and *The Dutchess County Health Department (DCHD) Design and Construction Standards*.**

**The DCHD Design and Construction Standards are shown in bold print and identified as "DCHD note" and are more restrictive than Appendix 75-A.**

**Section 75-A.1 Introduction, Effective December 1, 1990 - Accepted as DCHD policy and standard, in addition to the following:**

**DCHD note: Standards and Guidelines also include those specifically set forth by the *DCHD Plan Submission Guides* and Articles XI, XVI & XIX of *The Dutchess County Sanitary Code* and *The New York State Department of Health Environmental Health Manual*.**

- a) This appendix applies to on-site wastewater treatment systems serving residential properties and receiving sewage without the admixture of industrial wastes or other wastes, as defined in Environmental Conservation Law, Section 17-0701, in quantities of less than 1,000 gallons per day (gpd).
- b) Definitions - As used in this Appendix, the following words and terms shall have the indicated meaning:
  - (1) Absorption Area - an area to which wastewater is distributed for infiltration to the soil.
  - (2) Absorption Field - the area to which sewage is distributed for infiltration to the soil by means of a network of pipes.
  - (3) Absorption Trench - a long narrow area, which includes a pipe for the distribution of septic tank effluent.
  - (4) Aerobic Treatment Unit - a system that provides for the biological decomposition of the organic portion of the wastewater by mechanical aeration of the wastewater.
  - (5) Aggregate - washed gravel or crushed stone 3/4 - 1 1/2 inches in diameter.
  - (6) Application Rate - the rate at which septic tank effluent is applied to a subsurface absorption area, for design purposes, expressed in gal. /day per square foot (gpd/sq. ft.).

- (7) Baffle - a flow deflecting device used in septic tanks and distribution boxes to inhibit the discharge of floating solids, reduce the amount of settleable solids that exit, and reduce the exit velocity of the wastewater.
- (8) Building Sewer - that part of the drainage system, which extends from the end of the building drain and conveys wastewater to the sewage system or sewer.
- (9) Cleanout - an opening providing access to part of the sewage system.
- (10) Commissioner - the State Commissioner of Health.
- (11) Curtain Drain - a subsurface drain designed and constructed to control groundwater and surface water intrusion into the area of the sewage system.
- (12) Design Professional - a person licensed or registered in the State of New York and authorized by the State Education Law to design the systems described in the standards.
- (13) Distribution Device - a device used to uniformly distribute sewage to the absorption area.
- (14) Distribution Line - the perforated pipe used to distribute wastewater to the absorption area.
- (15) Drinking Water - water whose physical, chemical and biological quality is or is intended to be satisfactory for human consumption, food preparation or culinary purposes.
- (16) Effective Grain Size - a measure of the diameter of soil particles, when compared to a theoretical material having an equal transmission constant. It is the dimensions of that mesh screen which will permit 10 percent of the sample to pass and will retain 90 percent.
- (17) Gas Baffle - a device on the outlet of a septic tank, which deflects gas, bubbles away from the outlet and reduces the carry over of solid particles from the septic tank.
- (18) Groundwater - subsurface water occupying the saturation zone from which wells and springs are fed.
- (19) Heavy Equipment - all equipment which would result in the compaction of the design absorption area at a depth equivalent to the design depth of the distribution lines.
- (20) Infiltration - the flow or movement of water into the interstices or pores of a soil through the soil interface.
- (21) Invert - the floor, bottom, or lowest point of the inside cross-section of a pipe.
- (22) Local Health Department - a city, county, or part-county department of health or a State Department of Health District Office.
- (23) Percolation - the movement of water through the pores of a soil or other porous medium following infiltration through the soil interface.
- (24) Permeability - a measure of the rate of movement of liquid through soil.
- (25) Scum - the wastewater material, which is less dense than water, and floats on top of the water.
- (26) Sewage - the combination of human and household waste with water which is discharged to the home plumbing system including the waste from a flush toilet, bath, sink, lavatory, dishwashing or laundry machine, or the water-carried waste from any other fixture, equipment or machine.

- (27) Stabilized Rate of Percolation - the rate corresponding to two consecutive equal or near equal percolation test results.
- (28) Useable Soil - unless otherwise stated a soil with a percolation rate of faster than 60 min/in with a compatible soil classification.
- (29) Wastewater - any water discharged from a house through a plumbing fixture to include, but not limited to, sewage and any water or waste from a device (e.g., water softener brine) which is produced in the house or property.
- (30) Watercourse - a visible path through which surface water travels on a regular basis. Drainage areas that contain water only during and immediately after a rainstorm shall not be considered a watercourse.
- (31) Watershed - an area of drainage for a body of water that serves as a source of drinking water and for which watershed rules and regulations have been adopted by the commissioner.
- (32) Well head area - the area surrounding a well, which includes the cone of influence (where the drawdown of groundwater causes groundwater flow).
- (33) Wetland - an area(s) of marshes or swamps which have been designated as such by the State Department of Environmental Conservation or other agency having jurisdiction. Marshes or swamps that have not been classified by an agency, as a wetland shall not be treated for design purposes as a wetland.

**Section 75-A.2 Regulation By Other Agencies, Effective December 1, 1990 - Accepted as DCHD policy and standard.**

- (a) Where sewage treatment systems are to be located on the watersheds or wellhead area of public water supplies, the rules and regulations enacted by the State Department of Health for the protection of these supplies must be observed. Where systems are to be located on the watershed of any stream or body of water from which the City of New York obtains its water supply, the approval of the New York City Department of Environmental Protection, Division of Water Resources, must also be obtained.
- (b) This appendix establishes the minimum standards acceptable in New York State. Other agencies, such as the Adirondack Park Agency or local health departments may establish more stringent standards. Where such standards have been established, or approval by another agency is required, the more stringent standard shall apply
- (c) A local health department may not adopt standards less stringent than the State standard unless a General Waiver has been issued by the State Commissioner of Health or his designated representative as provided in Part 75 of this Title, or the local health department is otherwise legally authorized to adopt such standards.
- (d) When individual sewage systems overlay a drinking water aquifer, local health departments may establish population density limits and minimum lot sizes for residential development with on-site sewage treatment systems.

**Section 75-A.3 Sewage Flows, Effective December 1, 1990 - (a) and (b) accepted as DCHD policy and standard, as noted on the DCHD column on Table 1, "Design Flows".**

- (a) Roof, footing, garage, cellar and surface water drainage must be excluded from the system. Water softener, water recharge and backwash wastes normally are not to be discharged to the system unless a separate subsurface discharge to an area 250 feet from wells or watercourses is unavailable.
- (b) Minimum design flows for various configurations of plumbing fixtures shall be as shown in Table 1.

**TABLE 1**  
**DESIGN FLOWS**  
Design Flows  
GPD per Bedroom

<u>Plumbing Fixtures</u>	<u>GPD per Bedroom</u>	<b><u>DCHD Policy</u></b>
Old standard fixture (Pre-1979) 3.5+ gal per flush (gpf) toilet and 3.0+ gpm faucets/showerheads	150	<b>Acceptable</b>
New standard fixtures 3.5 gpf max. toilet and 3.0 gpm max. faucets/showerheads	130	<b>Acceptable</b>
Water-saving toilets 1 gpf or less with new standard fixtures (3.0 gpm max.)	90	<b>Not Acceptable</b>
Waterless toilet (e.g., composter) with new standard fixtures	75 (greywater only)	<b>Not acceptable</b>

**DCHD note: If actual flow data is available for design purposes, then the application rates shall be reduced by fifty (50%) percent. This applies to non-residential and other properties less than 1000 gallons per day.**

**Section 75-A.4 Soil and Site Appraisal, Effective December 1, 1990.**

- (a) Site Investigation.
  - (1) Areas lower than the 10-year flood level are unacceptable for on-site systems. Slopes greater than 15% are also unacceptable.

**DCHD note: Section 75-A.4 (a-1) Accepted as DCHD policy and standard and as follows:**

**The ten (10) year flood level does not require predictive analysis. Determination shall be by visual observation, historical fact and professional judgment. In any event, the ten (10) year flood level determination shall be jointly agreed upon by the design and DCHD review engineer prior to the submission of plans.**

**Sewage systems and wells are not permitted within the one hundred (100) year flood level. Area for placement of the sewage disposal system or well may be raised within the one hundred (100) year flood level area unless a floodway area is designated therein. Any filling shall be subject to approval of the local municipality.**

**Slopes greater than ten (10%) percent require drop boxes. Distribution boxes may be used with prior DCHD approval provided that speed levelers are used in the distribution box and energy dissipation boxes are used at the beginning of each lateral.**

**With slopes greater than fifteen (15%) percent, filling to reduce the slope will not be allowed unless a waiver is granted by the DCHD.**

- (2) There must be at least four feet of useable soil available above rock, unsuitable soil, and high seasonal groundwater for the installation of a conventional absorption field system (75-A.8 (b)).

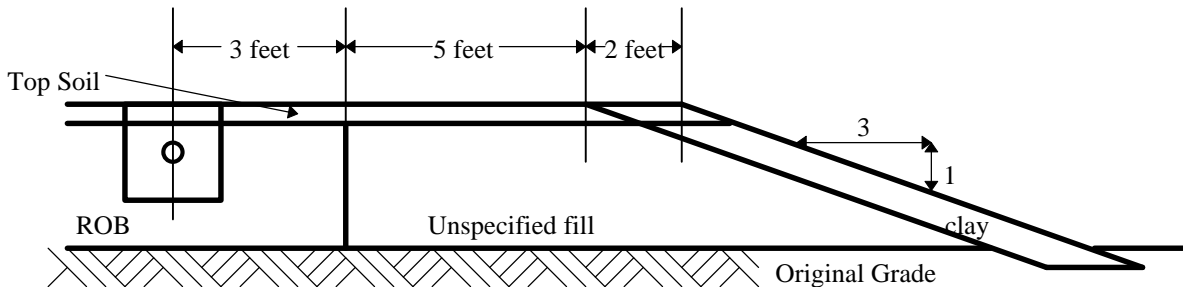
**DCHD note: \*Section 75-A.4 (a-2) If rock or unsuitable soil is less than six and one-half (6½') feet and high seasonal groundwater is less than five and one-half (5½') feet, but in either case no less than two and one-half (2½') feet, the lot may be improved by fill material in accordance with the following conditions:**

- 1. A satisfactory percolation rate at twenty four- (24") inches in natural soil.**
- 2. Fill material applied to improve the lot is allowed to settle and stabilize for a period of six (6) to nine (9) months; or, if gravel, mechanically compacted in six (6") layers in a manner which will allow adequate percolation.**
- 3. Deep tests and percolation tests shall be required in the fill after settling and stabilization, (or compaction, if sand and gravel with a small amount of loam is used.) Percolation rates shall be equivalent to or less than the percolation rate of the virgin soil and shall be no more than fifteen (15) minutes per inch stabilized rate.**
- 4. Prior to the placement of fill, the area of the sewage disposal system shall be cleared of brush, debris, trees, etc. cut to the level of the virgin ground. No topsoil shall be removed unless specifically specified on the plans.**
- 5. A one hundred percent (100%) expansion area shall be required.**

**NOTE: In any event, the fill, including location, material and dimension, must be in place and certified by a professional engineer as being suitable for the installation of a sewage disposal system. (This paragraph shall be included as a Condition of Approval on the plans.)**

**Detail of fill section shall be shown on plan.**

**Standard Detail:**



**FILL SECTION**

**Fill pad material (gravel) must extend three (3') feet beyond center of trench. After fill pad material, there must be seven (7') feet of additional soil, with the final two (2') feet being impervious soil with a one (1) vertical to three (3) horizontal slope. The toe of the slope shall extend into the virgin soil 6 to 12 inches deep and 24 inches wide. Topsoil shall be applied in accordance with Appendix 75-A, Section 75.9(b-4-iv).**

**Sites where the twenty-four (24") inch percolation test cannot be performed in natural soil due to the presence of rock, groundwater or impervious strata or other circumstances are not considered suitable "as is" for subsurface systems. However, the lot may be improved for a subsurface system in accordance with the following conditions:**

- 1. By filling and grading the lot with soil containing a mixture of gravelly loam (gravel, sand, silt, clay mixture) and topsoil (containing humus), seeding and allowing to settle and stabilize for a period of no less than twenty-four (24) months. The fill material must be of a sufficient depth to allow installation of a subsurface system meeting the applicable standards regarding depth to groundwater, rock and unsuitable soil without the placement of additional fill material.**

**The stabilized fill material shall extend a minimum of fifty (50') feet or more if required by the DCHD beyond the proposed area and expansion area for the sewage disposal system with a minimum of a one (1) on four (4) slope, starting twenty five (25') feet from the proposed location of the sewage disposal system and expansion area.**

- 2. By filing with the DCHD a grading plan prepared by a professional engineer to include, but not be limited to, original and filled contours. The plan must show that the fill will not create any drainage problems, including any with adjacent parcels. The plan is to be submitted to the DCHD for review and acceptance prior to the fill being placed.**
- 3. The design engineer shall certify in writing that the fill material was of an acceptable quality and was in place and stabilized for a minimum of twenty-four (24) months.**

**4. After the twenty-four (24) month period of settling and stabilization, deep tests and percolation tests shall be required for design. However, if a sand and gravel fill with a small amount of loam (5-15 minutes per inch percolation rate after installation and stabilization), laid down in mechanically compacted six (6) inch lifts is used, then the 24-month waiting period may be waived upon receipt of certification by a NYS licensed professional.**

**5. The approval of the local municipality shall be obtained prior to any consideration for approval.**

(3) Soils with very rapid percolation rates (faster than one minute per inch) are not suitable for subsurface absorption systems unless the site is modified by blending with a less permeable soil to reduce the infiltration rate throughout the area to be used.

**DCHD note: Section 75-A.4(a-3) Accepted as DCHD policy and standard. Blending with a less permeable soil can be with a gravelly loam placed to a depth of twenty four (24") inches below the anticipated bottom of the trench or pit. Percolation tests shall be required for the gravelly loam with a rate not to exceed 2 to 5 minutes per inch. In any event, said installation shall be certified by a licensed professional engineer. Normal trench design shall apply.**

(4) Subsurface treatment systems and components of the sewage system shall be separated from buildings, property lines, utilities and wells, to maintain system performance, permit repairs and reduce undesirable effects of underground sewage flow and dispersion. The minimum separation distances are shown in Figures 1 and 2. Reduced separation distances may be approved upon request when the site evaluation by a design professional or soil scientist clearly establishes there will be no adverse environmental impact and will not interfere with the satisfactory operation and maintenance of the system. Table 2 shows the acceptable minimum separation distances from the various components of treatment systems.

**Accepted as DCHD policy and standard.**

(5) Once the required infiltration area is determined by daily flow, percolation tests and soil evaluation, the required useable area of the property for subsurface treatment can be found. An additional useable area of 50 percent shall be set aside for future expansion or replacement whenever possible.

**DCHD note: Section 75-A.4(a-5) An additional useable area of one hundred (100%) percent shall be set aside for future replacement or expansion.**

**If the design criteria includes provisions for four (4) or more bedrooms, the area for infiltration, including the one hundred (100%) percent expansion area, shall be shown for the maximum number of bedrooms or the plan shall specifically designate that the design will only accommodate a maximum of three (3) bedrooms.**

(b) Separation Requirements:

**DCHD note: Section 75-A.4(b) Accepted as DCHD policy and standard.**

TABLE 2

## SEPARATION DISTANCES FROM WASTEWATER SYSTEM COMPONENTS

<u>System components</u>	<u>Well or suction line</u>	<u>To stream, lake, watercourse(b)or wet- land</u>	<u>Dwelling</u>	<u>Property Line</u>
House sewer (watertight joints)	25' if cast iron pipe 50' otherwise	25'	3'	10'
Septic tank	50'	50'	10'	10'
Effluent line to distribution box	50'	50'	10'	10'
Distribution box	100'	100'	20'	10'
Absorption field	100' (a)	100'	20'	10'
Seepage pit	150' (a)	100'	20'	10'
Dry well (roof and footing)	50'	25'	20'	10'
Raised or Mound system (c)	100' (a)	100'	20'	10'
Evapotranspiration- absorption system (c)	100' (a)	50'	20'	10'
Composter	50'	50'	20'	10'

## NOTES:

- (a) When sewage treatment systems are located in coarse gravel or upgrade and in the general path of drainage to a well, the closest part of the treatment system shall be at least 200 feet away from the well.
- (b) Mean high water mark.
- (c) For all systems involving the placement of fill material, separation distances are measured from the toe of slope of the fill.

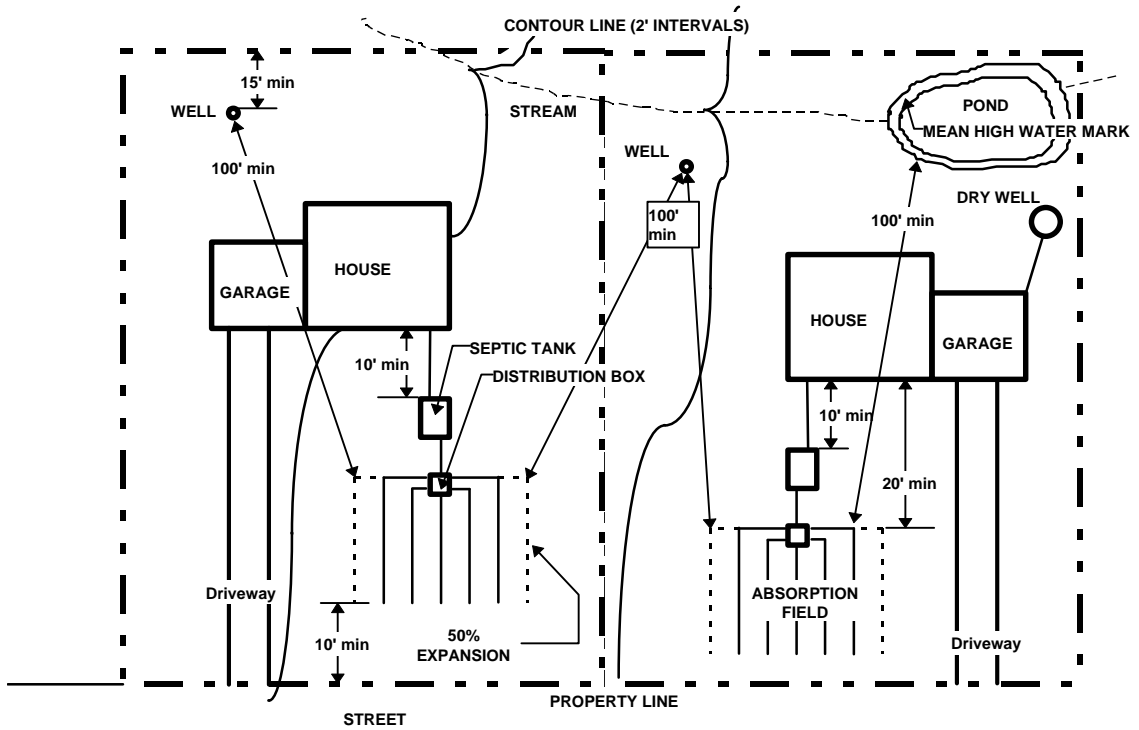


FIGURE 1  
 ABSORPTION FIELD SEPARATION REQUIREMENTS

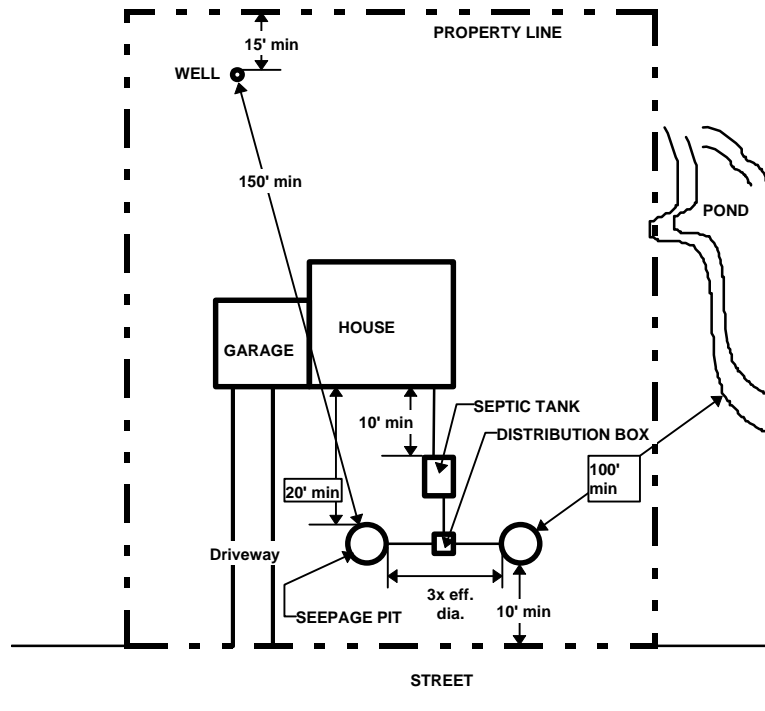


FIGURE 2  
 SEEPAGE PIT SEPARATION REQUIREMENTS

(c) Soil Investigation.

- (1) The highest groundwater level shall be determined and shall include the depth to the seasonal high groundwater level and the type of water table -- perched, apparent, or artesian.

**DCHD note: Section 75-A.4(c-1) The design engineer shall indicate on the plan the depth to the seasonal high groundwater level and the type of water table encountered; i.e. perched, apparent or artesian.**

- (2) If a subsurface treatment unit such as an absorption field is planned, at least four feet of useable soil shall be available over impermeable deposits (i.e., clay or bedrock). Highest groundwater level shall be at least two feet below the proposed trench bottom. Where systems are to be installed above drinking water aquifers, a greater separation distance to bedrock may be required by the local health department having jurisdiction. At least one test hole at least six feet deep shall be dug within or immediately adjacent to the proposed leaching area to insure that uniform soil and site conditions prevail. If observations reveal differing soil profiles, additional holes shall be dug and tested. These additional holes shall be spaced to indicate whether there is a sufficient area of useable soil to install the system. Treatment systems shall be designed to reflect the most severe conditions encountered. If the percolation tests results are inconsistent with field determined soil conditions, additional percolation tests must be conducted and the more restrictive tests must be the factor used for the system design.

**DCHD note: Section 75-A.4(c-2) If a subsurface treatment unit such as absorption field is planned, at least five feet (5') of useable soil shall be available over impermeable deposits (i.e. clay or bedrock) below bottom of trench. Highest groundwater level shall be at least four feet (4') below the proposed trench bottom. Where systems are to be installed above drinking water aquifers, a greater separation to bedrock may be required by the local health department having jurisdiction. A minimum of two (2) deep test holes, widely spaced within the proposed leaching area, are required to insure that uniform soil and site conditions prevail. The deep tests shall also be representative of the expansion area. If observations reveal differing soil profiles, then additional holes shall be dug for observation. These additional holes shall be spaced to indicate whether there is a sufficient area of useable soil to install the system. Treatment systems shall be designed to reflect the most severe conditions encountered. If the percolation test results are inconsistent with field-determined soil conditions, then additional percolation tests shall be conducted and the more restrictive tests shall be the factor used for the system design.**

- (3) Test holes for seepage pits shall extend to at least mid-depth and full depth of the proposed pit bottom. At least three feet of useable soil shall exist between the pit bottom and rock or other impermeable soil layer and the highest groundwater level. This shall be confirmed by extending at least one deep test hole three feet below the deepest proposed pit.

**DCHD note: Section 75-A.4(c-3) Accepted as DCHD policy and standard, except that five (5') of useable soil shall exist between the pit bottom and rock or impermeable soil layer and four feet (4') between the pit bottom and the highest groundwater level. This shall be confirmed by extending the deep test holes to an appropriate depth.**

- (4) A local health department may accept or require other soil tests in lieu of the percolation test when such tests are conducted or observed by local health department personnel.

**DCHD note: Section 75-A.4(c-4) Accepted as DCHD policy and standard.**

- (d) Soil Percolation Test.

**DCHD note: Section 75-A.4(d-1)(d-2)(d-3) Accepted as DCHD policy and standard.**

**The percolation tests shall be widely placed within the proposed leaching area and be representative of the expansion area. The engineer's report or plan shall certify that pre-soaking was done in accordance with the DCHD policy and standard, "Percolation and Deep Test Procedure".**

- (1) At least two percolation tests shall be made at the site of each proposed sewage treatment system.
- (2) For seepage pits, one test shall be conducted at the bottom depth, and the other at half the pit depth. If different soil layers are encountered when digging the test pit, a percolation test shall be performed in each layer with the overall percolation rate being the weighted average of each test based upon the depth of each layer. The local health department having jurisdiction may adopt an alternative procedure for determining the permeability of soil for the installation of seepage pits.
- (3) A percolation test is only an indicator of soil permeability and must be consistent with the soil classification of the site as determined from the test holes.

#### **Section 75-A.5 House Sewer, Effective December 1, 1990.**

- (a) House sewers are laid on firm foundation at a minimum grade of one-quarter inch per foot preferably without bends. At least one cleanout with a properly fitted plug is to be provided. The house sewer shall allow for venting of gases from the sewage system.
- (b) House sewer construction including materials shall comply with the applicable requirements of the State Uniform Fire Prevention and Building Code contained in 9NYCRR, Parts 903 through 907, inclusive, and Part 1250.
- (c) A minimum horizontal separation of 10 feet should exist between the house sewer and any water line. Where lines must cross, the water service line shall be at least 12 inches above the house sewer. If a water line must pass below the house sewer, the vertical separation must be at least 18 inches.
- (d) Suction waterlines shall never cross under house sewers or any other component of the sewage system.

**DCHD note: Section 75-A.5(a)(b)(c)(d) Accepted as DCHD policy and standard and shall include SDR 35 PVC pipe. A minimum raw line invert elevation shall be shown for each lot to ensure gravity feed. Tanks in series shall be connected by a single pipe with a minimum diameter of four (4) inches sloped at one quarter (1/4") inch per foot minimum.**

**DCHD note: There shall be no bends in the house sewer without prior DCHD authorization.**

#### **Section 75-A.6 Septic Tanks, Effective December 1, 1990.**

**DCHD note: Section 75-A.6(a-1)(a-2)(b-1)(b-2)(b-3)(b-4)(b-5) Accepted as DCHD policy and standard, except as follows:**

- 1. If the tank is delivered to the site in sections, then it shall be demonstrated by the contractor to the DCHD field inspector and/or certifying engineer that the tank is sealed, watertight and acceptable for use. This shall require, as a minimum, the filling of the tank with water to observe if it is in fact sealed, watertight and acceptable for use. This shall be made a Condition of Approval on the plan.**
- 2. The installation of fiberglass and polyethylene tanks shall be under the supervision of a professional engineer who shall certify that the tank was installed in accordance with Appendix 75A, manufacturer's instructions and the DCHD policy and standard. This shall be made a Condition of Approval on the plan.**

(a) General information.

- (1) Septic tank capacities shall be based upon the number of household bedrooms. An expansion attic shall be considered as an additional bedroom. Table 3 specifies minimum septic tank capacities and minimum liquid surface areas.

**TABLE 3  
MINIMUM SEPTIC TANK CAPACITIES**

<u>NUMBER OF BEDROOMS</u>	<u>Minimum Tank Capacity (gallons)</u>	<u>Minimum Liquid Surface Area (sq. ft.)</u>
1,2,3	1,000	27
4	1,250	34
5	1,500	40
6	1,750	47

**NOTE:**

Tank size requirements for more than six bedrooms shall be calculated by adding 250 gallons and seven square feet of surface area for each additional bedroom. A garbage grinder shall be considered equivalent to an additional bedroom for determining tank size.

- (2) Septic tank covers shall always be accessible. Where manholes are more than 12 inches below final grade, an extension collar shall be provided over each opening. Extension collars shall not be brought flush with the ground surface unless the cover can be locked to prevent tampering. Driveways or other facilities shall not be constructed above septic tanks unless specially designed and reinforced to safely carry the load imposed.

(b) Design and Installation. (1) General Requirements. The following applies to all septic tanks regardless of material.

- (i) A minimum liquid depth of 30 inches. The maximum depth for determining the allowable design volume of a tank shall be 60 inches. Deeper tanks provide extra sludge storage, but no credit shall be given toward design volume.
- (ii) The minimum distance between the inlet and outlet shall be six feet. All tanks shall meet the minimum surface area requirement for the specific design volume specified in Table 3. The effective length of rectangular tanks should not be less than two nor greater than four times the effective width.

- (iii) Tanks must be watertight, constructed of durable material not subject to corrosion, decay, frost damage, or cracking. After installation, all septic tanks shall be able to support at least 300 pounds per square foot (psf).
  - (iv) Tanks with a liquid depth of 48 inches or more shall have a top opening with a minimum of 20 inches in the shortest dimension to allow entry into the tank. Tanks with a liquid depth less than 48 inches shall have a top opening that is at least 12 inches in the shortest dimension.
  - (v) Tanks shall have inlet and outlet baffles, sanitary tees or other devices to prevent the passage of floating solids and to minimize disturbance of settled sludge and floating scum by sewage entering and leaving the tank. Outlet designs such as gas deflection baffles are strongly recommended in all tanks. Inlet and outlet baffles shall extend a minimum of 12 inches and 14 inches respectively, below the liquid level in tanks with a liquid depth of less than 40 inches, and 16 and 18 inches respectively, in tanks with a liquid depth of 40 inches or greater. The distance between the outlet baffle and the outlet shall not exceed six inches. Baffles shall be constructed of a durable material not subject to corrosion, decay or cracking.
  - (vi) There shall be a minimum of one inch clearance between the underside of the top of the tank and the top of all baffles, partition and/or tees to permit venting of tank gases. Multi-chamber and multi-tank systems shall also be designed to permit the venting of tank gases.
  - (vii) Tanks shall be placed on at least a three inch bed of sand or pea gravel. This will provide for proper leveling and bearing. Additional instructions provided by the manufacturer shall also be followed.
  - (viii) There shall be a minimum drop in elevation of two inches between the inverts of the inlet and outlet pipes.
  - (ix) Garbage grinders. An additional 250 gallons of capacity and seven square feet of surface area is required when a garbage grinder can reasonably be expected at the time of construction or in the future. A gas deflection baffle or other acceptable outlet modification, and a dual compartment tank or two tanks in series must also be provided.
- (2) Multi-compartment tanks or tanks in series.
- (i) Dual compartments are recommended for all tanks and shall be required on all tanks with an interior length of ten feet or more.
  - (ii) The first compartment or tank (inlet side) shall account for 60 - 75% of the required total design volume.
  - (iii) The baffle separating the compartments shall extend from the bottom of the tank to at least six inches above the invert of the outlet pipe.
  - (iv) Compartments shall be connected by a four-inch vertical slot at least 18 inches in width, a six inch elbow, or two 4-inch elbows located at a distance below the liquid level equal to one-third the distance between the invert of the outlet and the bottom of the tank. At least one access manhole shall be provided into each compartment.
  - (v) Tanks in series should be connected by a single pipe with a minimum diameter of four inches.
  - (vi) The volume and surface area for meeting the requirements of Table 3 shall be based upon the total volume and surface areas of all the tanks and chambers.

- (3) Concrete tanks. (i) Concrete shall have a minimum compressive strength of 2,500 pounds per square inch (psi) at 28 days set; 3,000 psi concrete is recommended as a minimum.
  - (ii) Wall thickness shall be a minimum of three inches unless the design has been certified by a New York licensed professional engineer as complying with all appropriate requirements for thin-wall construction. All walls, bottom and top shall contain reinforcing to assure support for 300 psi.
  - (iii) All joints shall be sealed such that the tank is watertight; joints below the liquid level must be tested for water tightness prior to backfilling.
  - (iv) The walls and floor of cast-in-place tanks shall be poured at the same time (monolithic pour).
- (4) Fiberglass and polyethylene tanks. These tanks must meet the following additional requirements:
  - (i) These tanks shall not be installed in areas where the groundwater level can rise to the level of the bottom of the septic tank.
  - (ii) Particular care must be taken during installation, bedding, and backfilling of these units so as to prevent damage to tank walls. The manufacturer's installation instructions shall be followed.
  - (iii) All tanks should be sold by the manufacturer completely assembled. If, because of size, the tank is delivered to the site in sections, all joints shall be sealed with watertight gaskets and shall be tested for water tightness after installation, and prior to backfilling.
- (4) Steel tanks. Steel tanks must have a label indicating corrosion protection complying with Underwriters Laboratories, Inc., Standard UL-70 or equivalent.
- (5) Aerobic units. A homeowner may choose to install an aerobic unit instead of a septic tank under the following conditions:

**DCHD note: Section 75-A.6 (b-6) Aerobic Units are not acceptable for new construction.**

- (i) The unit shall have a label indicating compliance with the standards for a Class I unit as described in the National Sanitation Foundation (NSF) Standard 40 or equivalent.
- (ii) The rated capacity of the unit shall be equal to or greater than the design flow as determined from Table 1.
- (iii) The absorption system that follows the unit shall be sized in the exact same manner as it would for a septic tank.
- (iv) Units which do not include as a standard feature a service contract which provides for, as a minimum, semiannual inspections and annual pumping for three years or more are prohibited.
- (v) The surface discharge of aerobic unit effluent is strictly prohibited.

**Section 75-A.7 Distribution Devices, Effective December 1, 1990.**

**DCHD note: Section 75-A.7 If fiberglass or plastic distribution devices are specified, then the manufacturer's installation instructions shall be shown on the plan.**

- (a) Gravity Distribution. The maximum length of absorption lines used in conjunction with the gravity distribution shall be 60 feet.

**DCHD note: Section 75-A.7 Bends not to exceed forty-five (45°) degrees are permitted in the line from the septic tank to distribution device, provided each bend has a cleanout.**

- (1) Distribution Box. (i) For accessibility, it is necessary that the distribution box be located and has a removable cover not more than 12 inches below grade. Where, due to site conditions, a distribution box must be greater than 12 inches below the surface, an extension collar shall be installed to within 12 inches of the surface.
- (ii) All outlets from the distribution box shall be at the same level to insure the even distribution of flow.
- (iii) To minimize frost action and reduce the possibility of movement once installed, distribution boxes must be set on a bed of sand or pea gravel at least 12 inches thick.
- (iv) The drop between inlet and outlet inverts shall be at least two inches. A baffle is required at the inlet side of the box when the slope from the septic tank to the box exceeds 1/2 inch per foot or when siphon dosing is used.

**DCHD note: Section 75-A.7 All distribution boxes shall be baffled at the inlet side.**

- (v) There shall be a minimum two-inch clearance between the inverts of the outlets and the bottom of the box to prevent short-circuiting and reduce solids carry-over.
- (vi) Distribution boxes may be constructed in place or purchased prefabricated. When concrete is used to construct boxes, it shall have a minimum compressive strength of 2,500 psi at 28 day set.
- (vii) Prefabricated boxes may be constructed of concrete, fiberglass, or plastic. The boxes shall be installed in conformance with the manufacturer's instructions in addition to the requirements above.
- (2) Serial Distribution. (i) In serial distribution, an upper distribution line is allowed to fill before the effluent overflows into a lower line. This method is acceptable for use with dosing systems only.
- (ii) The connections between distribution lines is made with non-perforated pipe placed in undisturbed soil.

**DCHD note: Section 75-A.7(2) Serial Distribution is NOT acceptable for new construction.**

(3) Drop Manholes

- (i) Drop manholes are used on sloping sites to reduce the velocity of flow to lower distribution lines. This system may be used with gravity distribution.
- (ii) Baffles at the inlet end of the manhole and approximately four inches from the inlet are required in drop manholes.
- (iii) The inverts of all outlets in each manhole shall be at the same level.

(b) Pressure distribution and dosing.

**DCHD note: Article 75-A.7 The installation of pumps and pump stations shall be permitted only in an individual situation because of hardship or other circumstances which make it impractical to comply with this policy and standards guideline.**

**All pumps and pump stations shall receive conceptual approval prior to the submission of plans. Site specific detailed design standards shall be placed upon the plans.**

- (1) These methods permit the rapid distribution of effluent throughout the absorption system followed by a rest period during which no effluent enters the system. The maximum length of absorption lines used in conjunction with these methods shall be 100 feet.
  - (i) Pressure distribution utilizes a sewage effluent pump to move the effluent through the pipe network and into the soil. The volume discharged in each cycle will exceed the volume available in the pipe network and will be discharged from the pipe under pressure.
  - (ii) Dosing involves the use of a pump or siphon to move the effluent into the pipe network. Discharge from the pipe is by gravity. The volume of effluent in each dose should be 75% to 85% of the volume available in the pipe network.
- (2) Dosing or pressure distribution is recommended for all systems as it promotes better treatment of wastewater and system longevity.
- (3) In absorption fields, single dosing units are required when the total trench length exceeds 500 feet. Alternate dosing units are required when the length exceeds 1,000 feet.
- (4) The use of manually operated siphons or pumps is not acceptable.
- (5) Pipe used in pressure distribution shall have a minimum diameter of 1.5 inches and a maximum diameter of three inches. Pipe for siphon dosing is sized to conform with the volume of the dose and can range from three to six inches in diameter based upon the volume of each dose. The ends of all pipes shall be capped.
- (6) Only pumps designated by the manufacturer for use as sewage effluent pumps shall be used.
- (7) Pump chambers shall be equipped with an alarm to indicate malfunction. Siphon dosing systems normally include an overflow to the distribution laterals. Pressure distribution systems shall not be equipped with an overflow.
- (8) Pump chambers shall be sized to provide a minimum of one day's design flow storage above the alarm level. Siphon chambers shall have a minimum total storage of one day's design flow below the overflow pipe.

**DCHD note: Section 75-A.7 The use of pumps shall require two (2) days storage above the alarm level.**

Section 75-A.8 Subsurface Treatment, Effective December 1, 1990.

**DCHD note: Gravel-less absorption systems, deep absorption trenches, cut-and-fill systems and absorption bed systems shall be considered as experimental and alternative systems and shall be permitted in an individual situation because of hardship or other circumstances which make it impractical to comply with generally accepted standards and this policy and standard. Design criteria shall be in accordance with 75-A.4(a-5) of this policy and standard and shall include a 100 percent (100%) expansion area.**

**DCHD note: Gravel-less absorption systems, deep absorption trenches, cut-and-fill systems and absorption bed systems shall meet minimum requirements as follows:**

- 1. Absorption pipes shall not be placed under driveways and other areas not deemed suitable.**
- 2. The stabilized percolation rates shall be from 1 to 30 minutes per inch.**
- 3. A professional engineer's certification of construction compliance shall be required and made a Condition of Approval on the plans, except for gravel-less systems.**
- 4. Maximum width of an absorption bed shall be twenty (20') feet.**
- 5. The required square footage for an absorption bed shall be 1.5 times the square footage required for a normal trench absorption system.**
- 6. Cut and fill systems shall require percolation tests to be conducted in the fill and the design shall be based upon the slower percolation rate (virgin soil or fill pad).**
- 7. Infiltrator-type systems shall be approved on a case by case basis. Certain units may be installed without stone for soils with a stabilized percolation rate of 1-30 minutes per inch. Certain units may be installed in soils with stabilized percolation rates of 30-60 minutes per inch provided a minimum of six (6) inches of stone is placed around the sidewalls of the unit.**

**Certain units may qualify for a total size of field reduction of up to 25%.**

- (a) General Information. All effluent from septic tanks or aerobic tanks shall be discharged to a subsurface treatment system. Surface discharge of septic tank or aerobic unit effluent shall not be approved by the Department of Health or a local health department acting as its agent.
- (b) Absorption Field Systems.

**DCHD note: Section 75-A.8 Minimum separation distances between lowest part of trench or pit shall be in accordance with Section 75.A.4 (c-2) and Section 75-A.4 (c-3), as described in this policy and standard.**

(1) Site requirements.

- (i) The minimum distances that absorption fields shall be separated from other facilities are shown in Figure 1 and Table 2
- (ii) A minimum of four feet of useable soil shall exist above bedrock and groundwater with a minimum separation of two feet to the lowest part of any trench.
- (iii) Absorption fields shall not be built under driveways, parts of buildings or under above-ground swimming pools or other areas subject to heavy loading. Surface waters shall be diverted from the vicinity of the system.

**DCHD note: Any sewage disposal system that must be placed under paved areas shall be designed to withstand the maximum anticipated loading and shall be vented at the end.**

(2) Design criteria.

- (i) The required length of absorption trench is determined from Table 4A based upon the percolation test results and confirmed by the soil evaluation. The maximum trench width for design purposes shall be 24 inches. Only 24 inches shall be allowed for absorption area calculations. Where trenches exceed 24 inches in width, calculations of absorptive area shall be based on a width of 24 inches.
- (ii) Adjacent trenches shall be separated by at least four feet of undisturbed soil. Individual trenches shall be constructed parallel to the ground contours with trench bottoms as near level as possible. They need not be perfectly straight but abrupt changes in direction shall be avoided.

**TABLE 4A  
REQUIRED LENGTH OF ABSORPTION TRENCH (Based Upon Two [2] Feet Wide Trench)**

Flow Rate (Gals/Day)										
min inch	2 Bdrms		3 Bdrms		4 Bdrms		5 Bdrms		6 Bdrms	
	260	300	390	450	520	600	650	750	780	900
1-5	108	125	162	187	216	250	270	312	325	374
6-7	130	150	195	225	260	300	325	375	390	450
8-10	145	167	217	250	290	333	360	417	433	500
11-15	162	188	244	281	325	375	406	469	488	563
16-20	186	214	279	321	372	429	464	536	557	643
21-30	217	250	325	375	433	500	542	625	650	750
31-45	260	300	390	450	520	600	650	750	780	900
46-60	290	333	433	500	578	667	722	833	867	1000*
	Dosing Not Required				Dosing or Alternate Design Required					

<b>TABLE 4B</b> <b>APPLICATION RATES</b> <b>for</b> <b>NON-STANDARD DESIGN FLOWS</b>	
PERCOLATION RATE minutes/inch	APPLICATION RATE gal/day/sq ft
1 - 5	1.2
6 - 7	1.00
8 - 10	0.90
11 - 15	0.80
16 - 20	0.70
21 - 30	0.60
31 - 45	0.50
46 - 60	0.45
Soil with a percolation of less than 1 min/in is unsuitable for a conventional system.	
Required Area (sq ft) = Flow Rate (GPD)/Application Rate(GPD/sq ft)	
Required Absorption Field Length = Required Area (sq ft)/2 ft (trench width)	

(3) Materials.

**DCHD note: SB2 pipe shall be limited to an equivalence rate of 1 square foot per linear foot for the 8 inch diameter pipe and 1.3 square feet per foot for the 10 inch diameter pipe.**

- (i) Perforated distributor pipe shall be used in the trenches. Solid (non-perforated) pipe shall be used between the distribution box and the trenches. Perforated pipe shall be made of rigid or corrugated plastic and be labeled as fully meeting ASTM standards for use in septic systems. Corrugated plastic pipe delivered in coils is not to be used unless provision is made to prevent the recoiling or movement of the pipe after installation.

**DCHD note: Solid pipe between box and trench shall be a minimum of two (2) feet long.**

- (ii) Aggregate shall mean washed gravel or crushed stone 3/4 – 1-1/2 inches in diameter. Larger diameter material or finer substances and run-of-bank gravel are unacceptable.
- (iii) The aggregate shall be covered with a material that prevents soil from entering the aggregate after backfilling, yet must permit air and moisture to pass through. The preferred material for covering the aggregate is a permeable geotextile. Untreated building paper or a four-inch layer of hay or straw is acceptable. Polyethylene and treated building paper are relatively impervious and shall not be used.

(4) Construction.

**DCHD note: Manufacturer's installation directions shall be followed for all proprietary absorption systems.**

- **Flow diffusers, galleys, tri-galleys, infiltrators, contactors and wider trenches are all allowed 2 square feet absorptive area per linear foot.**
- **Center-to-center distance is 6 feet, or 3 times trench width, whichever is greater.**

- (i) Trench locations and depths should be marked by stakes before the trenches are excavated. The natural surface shall not be significantly disturbed. If the site is re-graded or similarly disturbed, the soil shall be allowed to stabilize and new percolation tests conducted.
- (ii) The trench depth shall be as shallow as possible, but not less than 18 inches. At least six inches of aggregate is placed below the distribution line and two inches above the line. The earth cover over the aggregate should not exceed 12 inches in order to enhance natural aeration and nitrogen uptake by plant life. Trenches shall be excavated to design depth with bottoms practically level. Heavy equipment shall be kept away from the field because the weight may permanently alter soil characteristics due to compaction, cause trench cave-ins, and/or misalign and break pipe.
- (iii) Trench bottoms are to be raked and immediately covered with at least six inches of aggregate.
- (iv) Any smeared surfaces on the trench walls are to be raked. Distributor lines are carefully placed on the aggregate and covered with aggregate to a depth of at least two inches over the top of the pipe. Additional aggregate may be required to bring the top of the aggregate to within six to 12 inches of the surface.
- (v) In gravity distribution systems, the pipe shall be carefully sloped at between 1/16 inch and 1/32 inch per foot. Grades shall be determined by an engineer's level, transit or carpenter's level.
- (vi) After the upper aggregate is placed, the geotextile, untreated building paper, hay or straw is to be immediately installed and the trench backfilled with native soil. If the trenches cannot be immediately backfilled, they should be temporarily covered with an impervious material such as treated building paper to prevent sidewall collapse and siltation into the aggregate.
- (vii) The earth backfill is to be mounded slightly above the original ground level to allow for settling and after settlement the entire area should be graded without the use of heavy equipment and seeded with grass.

(c) Gravelless Absorption Systems.

- (1) In one type of system, a large diameter corrugated plastic pipe (eight inches or greater in diameter) surrounded by a hydrophilic geotextile is installed in an excavated trench using only the original soil as backfill. Other systems utilizing products such as galleys flow diffusers or leaching chambers can be installed without aggregate backfill. One linear foot of these products shall be equivalent to one linear foot of conventional (24 inch wide) absorption trench.
- (2) Site requirements. These systems shall be used on sites that have been classified as having a design percolation rate of one to 45 minutes per inch, and meet the vertical and horizontal separation distances in Table 2.
- (3) Design criteria. The local health department having jurisdiction shall be contacted prior to construction regarding the acceptability of specific products for use as gravel less distribution system.
- (4) Construction. Gravel less distribution systems shall be installed in conformance with the manufacturer's instructions because of the proprietary design of some products.

(d) Deep Absorption Trenches.

(1) Site Requirements. These are used on sites where a useable layer of soil is overlaid by three to five feet of impermeable soil.

(2) Design Criteria.

(i) There shall be at least four feet of useable solid beneath the impermeable layer.

(ii) The required length of absorption trench is determined from Table 4A based upon percolation tests conducted in the underlying soil.

(3) Construction.

(i) Trenches are excavated at least two feet into the useable layer and backfilled with aggregate or coarse sandy material containing a low percentage of fines more permeable than the underlying material to a level 30 inches below the original ground surface.

(ii) An absorption trench system as described in Section 75-A.8(b) is constructed in the upper 30 inches of the excavation.

(e) Shallow Absorption Trenches.

**DCHD note: Shallow absorption trenches are not acceptable.**

(1) Site Requirements. These systems are used where there is at least two feet but less than four feet of useable soil and/or separation to boundary conditions.

(2) Design criteria.

(i) A minimum two-foot separation must be maintained between the bottom of each trench and all boundary conditions.

(ii) The bottom of each trench must not be above the original ground surface.

(iii) Material of the same permeability as the underlying original soil shall be used as fill material. The depth of the fill shall not be greater than 30 inches above the original ground elevation.

(iv) An absorption trench system as described in Section 75-A.8(b) is designed using the percolation of the underlying original soil.

(3) Construction.

(i) Heavy equipment shall be kept out of the absorption area.

(ii) Fill material is carefully placed within the absorption area.

(iii) The edge of the fill material shall be tapered at a slope of no greater than one vertical to three horizontal. On sloped sites a diversion ditch shall be placed on the uphill side to prevent runoff from entering the fill.

(iv) The absorption trench system is constructed in the fill material, extending into the existing natural soil.

(f) Cut and Fill Systems.

- (1) A cut and fill system is an absorption trench system installed on sites where impermeable soil overlies a permeable soil.
- (2) Site Requirements. Cut and fill systems may be used where all the following conditions are found:
  - (i) A soil with a percolation rate slower than 60 minutes per inch, such as clay or clay loam, overlies a useable soil with a percolation rate faster than 60 minutes per inch;
  - (ii) At least three feet of useable soil is available beneath the tight soil;
  - (iii) All minimum vertical and horizontal separation distances can be maintained as described in Table 2.

(3) Design criteria.

- (i) It shall provide for the removal of the overlying unusable soil and replacement by soil having a percolation rate comparable with the underlying soil;
- (ii) An absorption trench system is designed as described in Section 75-A.8(b).
- (iii) The required length of absorption trench is based upon the percolation of the underlying soil or the fill material; whichever has the slower percolation (lower permeability).

(4) Construction.

- (i) The area excavated and filled must provide at least a five-foot buffer in each direction beyond the trenches.
- (ii) The material placed above the trenches shall have a percolation rate faster than 60 minutes per inch.
- (iii) Original surface material shall not be used as backfill above the trenches.
- (iv) The surface area of the fill system must be mounded and graded to enhance the runoff of rainwater from the system and seeded to grass.

(g) Absorption Bed Systems.

- (1) General. An absorption bed system operates on a principal similar to the absorption trench except that several laterals, rather than just one, are installed in a single excavation. This reduces the effective sidewall infiltration area per linear foot of lateral or leach line.

(2) Site Requirements.

- (i) A bed system may be built in soils with a percolation rate between one and 30 minutes per inch. A bed shall not be built where the soil evaluation indicates silty loam, clay loam, or clay.
- (ii) Slope of the site shall not exceed eight percent.
- (iii) Bed systems are more practical on sites that are long and narrow with a minimal slope.
- (iv) All vertical and horizontal separation distance requirements shall be met.

(3) Design Criteria.

- (i) Pressure distribution is required for the installation of an absorption bed system. The local health department having jurisdiction may allow the use of siphon dosing on specific sites.

- (ii) The maximum width of the bed shall be 20 feet. The maximum length of each lateral from a pressure manifold shall be 100 feet. Utilizing a center manifold system, a bed may then have a maximum length of 200 feet. Laterals for siphon dosing systems in beds are limited to 75 feet.
- (iii) The depth of the bed shall be between 18 and 30 inches below original ground level.
- (iv) Laterals shall be spaced five (5) feet apart. Two and one-half feet (2 1/2') must be provided between the laterals and the sidewalls. In the maximum width of 20 feet, only four laterals may be installed.
- (v) Using pressure distribution with a center manifold, a bed system shall have maximum dimensions of 205 feet by 20 feet.
- (vi) The required bed bottom area shall be calculated from the application rates shown in Table 5.

**TABLE 5  
ABSORPTION BEDS -- REQUIRED BOTTOM AREA**

<b>Percolation Rate Minutes/Inch</b>	<b>Application Rate Gallons/Day/Sq. ft.</b>
1 - 5	0.95
6 - 7	0.80
8 - 10	0.70
11 - 15	0.60
16 - 20	0.55
21 - 30	0.45
30+	Not acceptable

(4) Construction.

- (i) Heavy construction equipment shall be kept outside the proposed bottom area of the bed.
- (ii) The required bed bottom area is excavated as level as practical. The bottom and sides of the excavation are hand raked to reduce soil smearing.
- (iii) After excavation, a six inch layer of aggregate is placed across the bottom of the bed.
- (iv) The laterals are laid level on the aggregate and covered with aggregate to a level two inches above the top of the pipe.
- (v) The entire bed area is covered with a permeable geotextile. Untreated building paper or a four inch layer of loose hay or straw may be substituted if a permeable geotextile is unavailable.

(h) Seepage Pits.

- (1) General. A seepage pit, sometimes called a leaching pit, leaching pool, or incorrectly a cesspool, is a covered pit with an open-jointed or perforated lining through which septic tank effluent seeps into the surrounding soil.
- (2) Site Requirements.
  - (i) If soil and site conditions are adequate for absorption trenches, seepage pits shall not be used.

- (ii) A minimum three-foot vertical separation must exist between the bottom of any pit and the high groundwater level, bedrock, or other impervious layer.

(3) Design Criteria.

- (i) The required "effective seepage pit area" is obtained from Tables 6 and 7.
- (ii) No allowance for infiltration area is made for the bottom area of a pit or the surface area of impervious soil layers (percolation rate slower than 60 minutes/inch).
- (iii) The effective diameter of a pit includes the diameter of the lining plus the added diameter provided by the annular ring of aggregate. Any area surrounding the liner with rock smaller than 2 1/2 inches in size shall not be included as part of the effective diameter.
- (iv) Effective depth is measured from the invert of the seepage pit inlet to the floor of the pit, with the thickness of impervious layers deducted.

**TABLE 6  
SEEPAGE PITS - REQUIRED ABSORPTIVE AREA (IN SQUARE FEET)  
FOR HOUSEHOLD SYSTEMS**

<b>PERCOLATION RATE MIN/IN</b>	<b>SEWAGE APPLICATION GPD/SQ. FT</b>	<b>300 GPD 2BR</b>	<b>450 GPD 3 BR</b>	<b>600 GPD 4 BR</b>	<b>750 GPD 5 BR</b>	<b>900 GPD 6 BR</b>
1-5	1.20	250	375	500	625	750
6-7	1.00	300	450	600	750	900
8-10	0.90	333	500	667	833	1,000
11-15	0.80	375	563	750	938	1,125
16-20	0.70	429	643	857	1,071	1,286
21-30	0.60	500	750	1,000	1,250	1,500
31-45	0.50	600	900	1,200	1,500	1,800
45-60	0.45	667	1,000	1,333	1,667	2,000
<b>OVER 60</b>	<b>UNSUITABLE. USE SPECIAL DESIGN</b>					

**TABLE 7  
SEEPAGE PITS (CYLINDRICAL) - DIMENSIONS FOR REQUIRED ABSORPTIVE AREA  
(IN SQUARE FEET)**

DIAMETER OF SEEPAGE PIT (FEET)	EFFECTIVE STRATA DEPTH BELOW FLOW LINE (BELOW INLET)									
	1 FOOT	2 FEET	3 FEET	4 FEET	5 FEET	6 FEET	7 FEET	8 FEET	9 FEET	10 FEET
3	9.4	19	28	38	47	57	66	75	85	94
4	12.6	25	38	50	63	75	88	101	113	126
5	15.7	31	47	63	79	94	110	126	141	157
6	18.8	38	57	75	94	113	132	151	170	188
7	22.0	44	66	88	110	132	154	176	198	220
8	25.1	50	75	101	126	151	176	201	226	251
9	18.3	57	85	113	141	170	198	226	254	283
10	31.4	63	94	126	157	188	220	251	283	314
11	34.6	69	104	138	173	207	242	276	311	356
12	37.7	75	113	151	188	226	264	302	339	377

Absorptive Area for Cylinder =  $\pi Dh$   
Absorptive Area for Rectangle =  $(2W + 2L)h$

h - effective depth (Invert of inlet to bottom of seepage pit)

D - outside diameter in ft.

W - outside width in ft.

L - outside length in ft.

$\pi = 3.14$

- (v) Linings may be precast concrete, cast-in-place concrete, or built in place with unmortared hollow cinder or concrete blocks. Concrete shall have a minimum compressive strength of 2,500 psi and 3,000 psi is recommended. Material with comparable structural strength, determined in accordance with commonly accepted sewage construction standards, principles or practices, may be allowed on an individual basis to prevent unreasonable hardship, provided public health is not prejudiced.
  - (vi) The separation between the outside edges of seepage pits shall be three times the effective diameter of the largest pit. This separation is measured as the undisturbed soil between pit excavations.
  - (vii) Pits shall be designed with sufficient structural stability to withstand lateral soil forces as well as vertical loads.
- (4) Construction.
- (i) Laterals leading to each seepage pit must be at least four inches in diameter with a minimum slope of 1/8 inch per foot.
  - (ii) Seepage pits shall not be connected in series. A distribution box shall be required where more than one seepage pit is installed.
  - (iii) The pit excavation is to be raked to minimize sidewall smearing that may occur and reduce infiltration capacity. If groundwater is encountered, the pit shall be backfilled with the original soil to a level at least three feet higher than maximum groundwater and adjustments made in the pit dimensions.

- (iv) The linings are placed upon a concrete block, poured concrete, or precast footing and surrounded by a six-inch minimum annular ring of large aggregate (2 1/2 – 4 inches in size).
- (v) The rock is covered to prevent soil from filling the void spaces. Building paper, a four-inch thick layer of hay or straw may be used.
- (vi) The seepage pit cover shall be structurally sound and capable of supporting 300 pounds per square foot at the weakest point. Covers may be precast concrete or cast-in-place and shall be reinforced. A manhole with an opening of at least 20 inches in the shortest dimension shall be provided.

**Section 75-A.9 Alternative Systems, Effective December 1, 1990.**

**DCHD note: Section 75-A.9 Alternative systems are accepted only in accordance with this policy and standard and with percolation test results 1 to 60 minutes per inch stabilized rate. “Evaporation-transpiration raised systems and intermittent sand filters are not acceptable. A 100 percent (100%) expansion area is required for alternative systems.**

(a) General Information.

- (1) Alternative systems described in this subsection must be designed and submitted by a design professional. The design professional shall certify to the local health department that the site/soil evaluation and the plans meet the minimum requirements of these standards. Construction must be supervised by the design professional, and certification of construction in conformance with the approved plans shall be provided by the design professional to the local health department. Any of these requirements may be waived by a local health department which provides that particular service(s).
- (2) Alternative designs not shown herein may be considered by the local health department on a limited experimental basis or for replacement systems on difficult sites, but are also subject to the requirements of Section 75-A.9(1). Performance monitoring of these systems should be required.

(b) Raised System.

- (1) A raised system is an absorption trench system constructed in fill material with acceptable permeability placed above the natural soil on a building lot.
- (2) Site Requirements. A raised system may be used where all the following conditions are found:
  - (i) There is at least one foot of original soil with a faster than 60 minutes percolation rate, above any impermeable soil layer or bedrock, but not more than two feet.
  - (ii) The maximum high groundwater level must be at least one foot below the original ground surface.
  - (iii) Slopes shall not exceed 15%.
  - (iv) All minimum vertical and horizontal separation distances can be maintained as described in Table 2.

(3) Design Criteria.

- (i) Percolation tests shall be conducted in the fill material at the borrow pit and after placement and settling at the construction site. The slower percolation rate of these tests shall be used for design purposes.
- (ii) The total area beneath the absorption trenches, extending 2.5 feet in all directions from the outer edge of all trenches, is defined as the basal area. The minimum size of the basal area of the raised bed shall be calculated based upon 0.2 gpd/sq.ft.
- (iii) An absorption trench system as described in Section 75-A.8(b) is designed using the percolation rate of the fill material. The use of slowly permeable soils for the fill material will result in a trench system that will have a basal area larger than the minimum area calculated in (ii) above.
- (iv) Sufficient soil with a percolation rate of between 5 - 30 min/in is required to maintain at least two feet separation between the proposed bottom of the trenches and any boundary condition such as groundwater, bedrock, clay or other relatively impermeable soil or formation.
- (v) The edge of the fill material shall be tapered at a slope of no greater than one vertical to three horizontal with a minimum 20 foot taper.
- (vi) Horizontal separation distances shall be measured from the outside edge of the taper.
- (vii) The system shall incorporate siphon dosing or pressure distribution except where the following conditions are met:
  - (aa) The local health department has a program incorporating site evaluation, system design approval, and construction inspection/certification.
  - (bb) A minimum of two feet of fill material with a percolation rate of 5 - 30 min/in shall be placed between the bottom of the trenches and the existing ground.
- (viii) Curtain drains may be used to intercept and carry underground water away where high groundwater levels exist. Curtain drains shall be upslope from the system and at least 20 feet from the toe of slope of the fill material.

(4) Construction.

- (i) Heavy construction equipment shall not be allowed within the area of the system. The underlying soil shall be undisturbed although the surface may be plowed with at least a double-bottomed blade/furrow plow and the furrow turned upslope.
- (ii) A system shall not be built in unstabilized fill material. The fill material shall be allowed to settle naturally for a period of at least six months to include one freeze-thaw cycle.
- (iii) The absorption trenches shall be constructed in the fill material.
- (iv) The entire surface of the system including the tapers shall be covered with a minimum of six inches of topsoil, mounded to enhance the runoff of rainwater from the system and seeded to grass.
- (v) On sloping sites a diversion ditch or curtain drain shall be installed uphill to prevent surface water runoff from reaching the bed area.

(c)

## **Mound systems are not acceptable.**

- (1) General. A mound system is a soil absorption system that is elevated above the natural soil surface in a suitable fill material. It is a variation of the raised bed utilizing sandy fill material but not requiring a stabilization period prior to the construction of the absorption area. On sites with permeable soils of insufficient depth to groundwater or creviced or porous bedrock, the fill material in the mound provides the necessary treatment of wastewater. The overall size of the mound system will normally be substantially smaller than a raised bed.
- (2) Site Requirements. A mound system may be used where all the following conditions are found:
  - (i) The maximum high groundwater level must be at least one foot below the original ground surface.
  - (ii) Bedrock shall be at least two feet below the natural ground surface.
  - (iii) The percolation rate of the naturally occurring soil shall be faster than 120 minutes/inch.
  - (iv) The natural ground slopes shall not exceed 12%.
  - (v) All minimum horizontal separation distances can be maintained as described in Table 2.
- (3) Design Criteria.
  - (i) The designer shall consult with the health unit having jurisdiction regarding the method for detailing the hydraulic design.
  - (ii) The basal area of a mound system is defined differently than a raised bed. The basal area for a system on level ground includes all area beneath the absorption trenches or bed and the area under the tapers. On a sloping site, the basal area includes only the area under the absorption trenches/bed and the lower or downhill taper. The basal area is designed upon the percolation of the naturally occurring soil. Where the percolation rate is 60 min/in or faster, refer to Table 4B. For soils of 61 to 120 min/in, a rate of 0.2 gpd/sq. ft. shall be used for determining the minimum basal area required.
  - (iii) Percolation tests for the fill material shall be conducted at the borrow pit. Only soils with a percolation rate between five and 30 minutes per inch shall be used for the fill material. Sands with greater than 10% by weight finer than 0.05 mm material must be avoided. At least 25% of the material by weight shall be in the range of 0.50 mm to 2.0 mm. Less than 15% of the material by weight shall be larger than a half-inch sieve. A sieve analysis may be necessary to verify this requirement. The required absorption area is based upon the percolation rate of the fill material as determined from Table 4B.
  - (iv) The system shall be designed to run parallel with the contours of the site. The width of the system (up and down the slope) shall be kept to a minimum, but in no case shall the absorption area be wider than 20 feet. In a distribution network using a center pressure manifold, distribution lines shall have a maximum total length of 200 feet. In a network using an end manifold, distribution lines shall have a maximum length of 100 feet.
  - (v) Mound dimensions shall meet or exceed those required by the health unit having jurisdiction.
  - (vi) A pressure distribution network shall be required.
  - (vii) A dual chamber septic tank or two tanks in series in addition to the dosing tank shall be provided. A gas baffle or other outlet modification that enhances solids retention is recommended.

(4) Construction.

- (i) Heavy construction equipment shall not be allowed within the basal area and area downslope of the system which will act as the dispersal area for the mound.
- (ii) The vegetation shall not be scraped away, roto-tilled, or compacted. Excess vegetation shall be removed with trees cut at the ground surface but stumps left in place. The area shall be plowed to a depth of seven or eight inches with a double-bottomed blade/furrow plow and the furrow turned upslope.
- (iii) The fill material is placed from the upslope side of the system to the full depth required in the design and shall extend to the edge of the basal area at a slope not to exceed one vertical to three horizontal.
- (iv) The absorption area is then formed within the mound. A minimum of six inches of aggregate shall be placed beneath the distribution lines.
- (v) The pressure distribution lines are placed parallel to the contours of the slope and a minimum of two inches of aggregate is placed above the lines.
- (vi) A permeable geotextile is placed over the entire absorption area to prevent the infiltration of fines into the aggregate.
- (vii) On sloping sites a diversion ditch or curtain drain shall be installed uphill to prevent surface water runoff from reaching the absorption area.
- (viii) A minimum of six inches of finer materials such as clayey loam is placed over the top of the absorption area, and the entire mound including the tapers is then covered with six inches of top soil and seeded to grass.

(d) Intermittent Sand Filters.

(1) General.

In sand filter, the septic tank or aerobic unit effluent is intermittently spread across the surface of a bed of sand through a network of distribution lines. Collector pipes beneath the filter collect treated effluent after it has passed through the sand.

(2) Site Requirements.

- (i) All horizontal separation distances shown in Table 2 must be met and the minimum required vertical separation to groundwater must be met from the bottom of the collector pipes.
- (ii) An environmental assessment determines that the development of the site with a sand filter is consistent with the overall development of the area and will cause no adverse environmental impacts.

(3) Design Criteria.

- (i) Septic tanks installed before a sand filter shall have dual compartments or two tanks in series. The use of a gas baffle on the outlet is strongly recommended.
- (ii) The direct discharge of sand filter effluent to the ground surface or to a body of water shall not be approved by the Department of Health or a local health department acting as its agent.
- (iii) Distributor lines shall be placed at three foot center lines as level as possible.

- (iv) Collector pipes shall be centered between distribution lines at a slope of 1/16 to 1/8 inch per foot.
- (v) Effluent shall be distributed to the sand filter by means of pressure distribution or siphon dosing. Pressure distribution lines shall be a minimum of 1.5 inches and a maximum of three inches in diameter. If siphon dosing is allowed, the distributor pipe(s) shall have a diameter of three to four inches.
- (vi) The distribution system shall be designed to dose the filter at least three times daily based upon the design flow rates with each dose.
- (vii) The sand media shall have an effective grain size of 0.25 to 1.0 mm. If nitrification is not required by the local health department, the effective grain size shall be in the range of 0.5 to 1.00 mm. All sand shall pass a 1/4 inch sieve.
- (viii) The uniformity coefficient of the sand shall not exceed 4.0.
- (ix) The maximum allowed daily sand loading rate shall be 1.15 gal/day/sq. ft.
- (x) Effluent from the collector pipes shall be discharged to an absorption bed located below the original ground level or a mound that is built up above the original ground surface. The size of the bed/mound shall be based upon the estimated quantity of effluent reaching the collector pipe and an application rate of 1.2 gal/day/sq. ft. regardless of the underlying soil percolation. The fill material for the bed/mound shall consist of medium sand with a percolation rate, tested at the borrow pit, not faster than five minutes per inch. All minimum vertical and horizontal separation distances shall be maintained as described in Section 75-A.4.

(4) Construction.

- (i) After excavation, the collector pipe shall be placed in 3/4 inches to 1 1/2 inches size aggregate.
- (ii) There shall be a minimum of four inches of this aggregate beneath the entire system above the collectors.
- (iii) A three-inch layer of crushed stone or clean gravel with a size of 1/8 inch to 1/4 inch is carefully placed on top of the aggregate.
- (iv) A minimum of 24 inches of the approved sand is placed above the crushed stone or gravel.
- (v) The distributor pipes are placed in a layer of aggregate that provides a minimum of four inches across the entire surface of the filter and at least two inches above and below the distributor pipes.
- (vi) A permeable geotextile, two inches of hay or straw, or untreated building paper is placed over the entire bed area to prevent the infiltration of fines into the filter.
- (vii) The entire surface of the filter shall be covered with six to 12 inches of topsoil, mounded to enhance the runoff of rainwater from the system and seeded to grass.
- (viii) The bed/mound following the filter shall be covered with 12 inches of topsoil and seeded to grass.

(e) Evaporation-Transpiration (ET) and Evapo-Transpiration Absorption (ETA) Systems.

(1) General.

ET systems rely on the upward movement of moisture through the soil, surface vegetation and into the air rather than absorption into the soil. ETA systems also use the absorptive capabilities of the soil and are less dependent on evaporation and transpiration.

(2) Site Requirements.

- (i) All systems previously discussed, except intermittent sand filters, have been determined to be unacceptable for the planned building site.
- (ii) An expansion area equal to or greater than 50% of the required basal area shall be available on the site.
- (iii) All minimum vertical and horizontal separation distances can be maintained as described in Table 2 from both the edges of the basal area and the designated expansion area.
- (iv) An environmental assessment determines that the development of the site with this system is consistent with the overall development of the area and will cause no adverse environmental impacts.

(3) Design Criteria.

- (i) The designer must consider all of the items listed below and be able to document from reliable sources (i.e., National Weather Service, Soil Conservation Service) the parameters used and show that the net outflow from the system exceeds the inflow without the exposure of sewage or partially treated sewage on the surface of the ground:

Total rainfall and snowfall.

The percentage of the rainfall and snowfall that will infiltrate into the soil and the percentage that can be expected to runoff the system.

The annual land evaporation rate of the area.

The vertical rise of water than can be expected in the soil due to capillary action.

The amount of transpiration expected from the surface vegetation.

The permeability of the underlying soil and the impact the system will have on the groundwater level.

- (ii) The design must provide for a trench depth that is not greater than 30 inches below the surface.
- (iii) Pressure distribution of effluent throughout the system is required.

**Section 75-A.10 Other Systems, Effective December 1, 1990.**

**DCHD note: Section 75-A.10 subsections (b) through (e) - not accepted as DCDH policy and standard.**

(a) Holding Tanks.

The use of holding tanks shall not be permitted for new home construction except where occupancy of a home is permitted while the sewage treatment system is under construction. Tank size shall be based upon five days design flow or 1,000 gallons, whichever is greater and meet the same construction as a septic tank except that the holding tank shall not have an outlet. Holding tanks are not acceptable for long-term use on year-round residences.

**DCHD note: Under certain circumstances, non-residential holding tanks may be permitted with prior DCHD approval.**

(b) Non-Waterborne Systems.

(1) General.

In certain areas of the State where running water is not available or is too scarce to economically support flush toilets, or where there is a need or desire to conserve water, the installation of non-waterborne sewage systems may be considered; however, the treatment of wastewater from sinks, showers, and other facilities must be provided when non-flush toilets are installed. Household wastewater without toilet wastes is known as greywater.

(2) Composters.

These units shall be installed in accordance with the manufacturers instructions. The units shall have a label indicating compliance with the requirements of National Sanitation Foundation (NSF) Standard 41 or equivalent. Only units with a warranty of five years or more shall be installed.

(3) Chemical and Recirculating Toilets.

- (i) Chemical toilets provide a toilet seat located directly above a vault containing a chemical to disinfect and remove odors from the wastewater. Recirculating toilets use chemicals as the toilet flush fluid. The wastes are separated from the fluid, wastes discharged to an internal holding tank, and the fluid reused.
- (ii) The liquids used in these types of toilets do not completely disinfect the wastes; therefore, waste products from these units shall not be discharged to surface waters or to the ground surface.
- (iii) The reduced volume wastewater from recirculating toilets may be discharged to a larger holding tank but not to a subsurface absorption system.

(4) Incinerator Toilets.

These units accept human waste into a chamber where the wastes are burned. They have a very limited capacity and require a source of electricity or gas. The ash remains must be periodically removed. They must be installed according to the manufacturer's instructions.

(5) Greywater Systems.

Greywater systems shall be designed upon a flow of 75 gpd/bedroom and meet all the criteria previously discussed for treatment of household wastewater.

(c) Engineered Systems.

(1) A treatment system of a type not discussed in this document may be allowed only through the issuance of a Specific Waiver by the health unit having jurisdiction as provided for in Part 75, of this Title.

(2) Special Conditions.

- (i) The system shall be designed by a design professional.
- (ii) An environmental assessment determines that the development of the site with this system is consistent with the overall development of the area and will cause no adverse environmental impacts. The homeowner/purchaser shall be informed of the expected reliability or

problems with the design.

- (iii) The design professional supervises the installation of the system and certifies that the system was built in accordance with the approved plan and/or submits as-built plans of the system.

**Section 75-A.11 New product/system Design Interim Approval, Effective December 1, 1990.**

**Accepted as DCHD policy and standard.**

New product/system design interim approval. Based upon submission of engineering research and testing data indicating that certain products, design and performance are equivalent to these standards, the commissioner may grant interim approval for the use of systems, products or procedures differing from these standards.

**NOTE: All lot re-grading or alterations or installation of curtain drains and drainage systems affecting more than one contiguous lot and which would be required as part of the plan approval shall be completed and the completion certified by a professional engineer prior to final approval of the plan.**

**All other lot re-grading, alterations or drainage systems shall be completed and the completion certified by a professional engineer prior to the installation of the sewage disposal system.**

**NOTE: Any additions, modifications or changes to Appendix 75-A or Appendix 75-B by the New York State Health Department shall become accepted as DCHD policy unless so noted.**

**NOTE: The Commissioner of Health may, upon written application and after review, grant a waiver or variance from a specific provision subject to appropriate conditions.**

APPENDIX 75-B  
INDIVIDUAL WATER SUPPLIES - TREATMENT SYSTEMS

**Accepted as DCHD policy and standard, except as follows:**

**Section 75-B.2(a-7) Backwashing to a septic system is not acceptable.**



## STATEWIDE WAIVERS

TO: Engineers  
Architects  
Land Surveyors

The New York State Department of Health has issued a state-wide waiver to 10NYCRR, Appendix 75-A, Sections 75-A.7(b)(8) and 75-A.9(d)(3)(v), as follows:

Section 75-A.7(b)(8)

The requirement that "Siphon chambers shall have a minimum total storage of one day's design flow below the overflow pipe." is waived.

Section 75-A.9(d)(3)(v)

The requirement for "dosing of all subsurface sand filters" is waived. The dosing requirement will only apply whenever the filter contains 300 or more lineal feet of laterals or 900 or more square feet of filter cover.

Note: The Dutchess County Department of Health does not generally accept sand filters.

Dated: May 10, 1991  
Poughkeepsie, New York



DUTCHESS COUNTY DEPARTMENT OF HEALTH

Design Policy & Standard

FLOW DIFFUSERS & GALLEYS

Flow diffusers and galleys may be designed and installed without stone on the bottom unless the manufacturer or design engineer specifies otherwise. Stone shall be required on the sides.

A splash pad shall be provided in accordance with the plan approval and/or manufacturer's specifications.

The stabilized percolation rate shall be 1-60 minutes per inch.

For design flows less than 1,000 gallons per day, the maximum credit for flow diffusers and galleys is two square feet per lineal foot.

The trench bottom shall be raked or scoured prior to placement of the unit.

A Professional Engineer's certification of construction compliance shall be required and made a condition of approval on the plans.

Dated: June 2, 1992

Rev: March 1, 2006



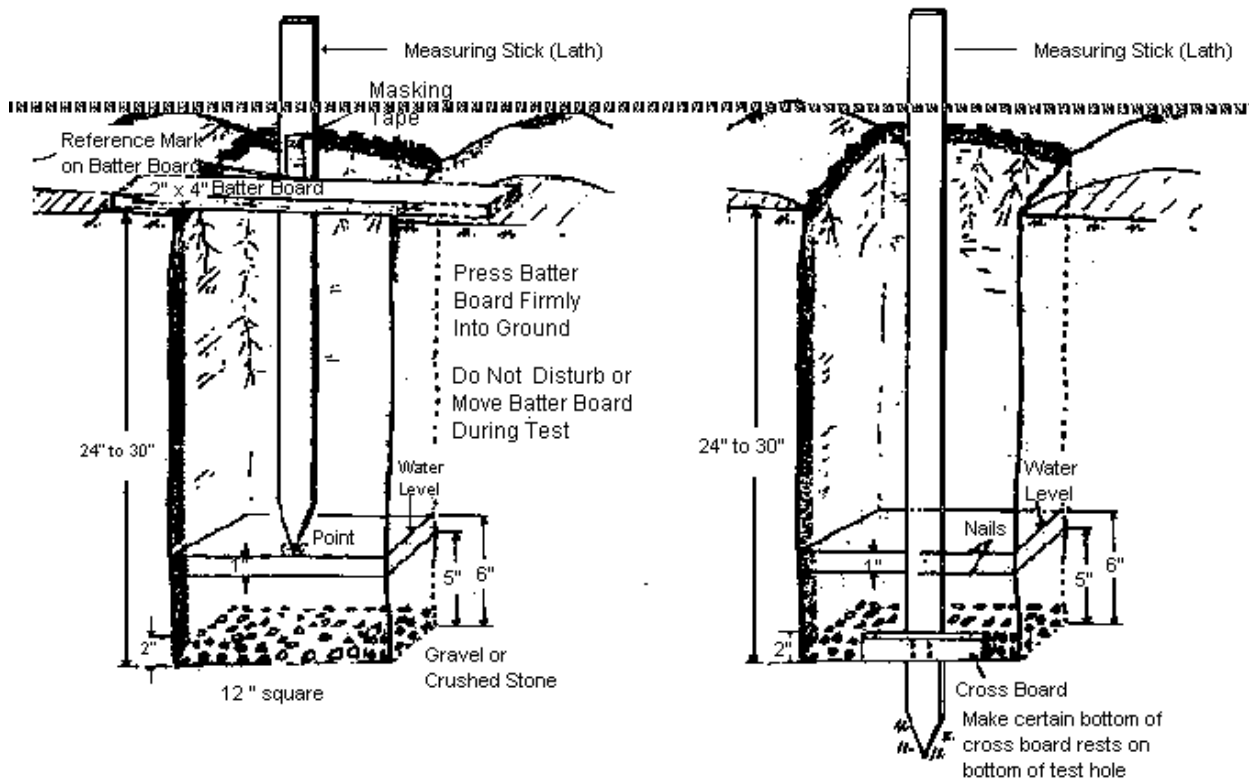
## DUTCHESS COUNTY DEPARTMENT OF HEALTH

### PERCOLATION TEST PROCEDURES

1. Percolation test holes with vertical sides having a 12 inch (12") diameter or twelve inch (12") square shall be dug 24 to 30 inches deep and representatively spaced within the proposed absorption area. It is desirable to place small stones in the bottom of the test hole to reduce scouring and silting action.  
Note: Percolation tests could be at other depths, depending on the type of system design.
2. Approximately 18 - 24 hours before the start of the test, the holes shall be filled (pre-soaked) to overflowing with water.
3. Four (4) hours before the start of the test, the water depth shall be observed. If dry or water level is less than six (6") inches deep, more water must be added. Water may be added all at once or in increments, depending on the rate of percolation, but in each case in amounts necessary to keep the hole saturated below the six (6") inch depth for a period of four (4) hours minimum. The only exception would be in cases where the soil is very permeable sand or gravel, in which case the initial presoak period plus a quick presoak before the test would be acceptable.
4. On completion of the presoak period, the water level shall be allowed to reach the six (6") inch level and then the test begun.
5. Observe and record the time in minutes required for the water to drop one (1") inch; i.e. from the six (6") inch to the five (5") inch mark.
6. Repeat the test (a minimum of 3 times) as described in step 5 until the time for the water to drop one (1") inch for two (2) successive tests gives approximately equal results. At least two percolation test holes shall be performed for each proposed sewage disposal system with the longest time being the design basis for determining the leaching or absorption area.

NOTE: The percolation tests must be used in conjunction with the deep test soil observations. The percolation test should be consistent with the deep test soil observations. Visual observation of the deep test, such as soil mottling, silt and clay content, soil density, etc., shall be considered in the design evaluation and sizing of the absorption area.

## Percolation test diagram



## Soil Percolation Test

PLAN SUBMISSION GUIDE  
FOR  
INDIVIDUAL LOTS AND REALTY SUBDIVISIONS,  
NON-RESIDENTIAL AND OTHER PROPERTIES  
LESS THAN 1000 GALLONS PER DAY

- 1) Plans must show only lots for which approval is requested for sewage disposal and/or water supply and their relationship to other property that is developed or might be developed and such other information as may be needed to make a proper review.
- 2) Name of subdivision, property or lot(s) under which map shall be filed and/or approved; tax grid number(s), name of developer, which shall include but not be limited to a person, partnership, corporation or other legal entity undertaking or participating in the establishment of the subdivision, property or lot(s); name of municipality and developer's signature. The plan shall be accompanied by an application for approval (GEN 157 or HD-1) signed by both the applicant and engineer and other supporting data pertinent to the review and approval.
- 3) General location sketch, with "north" arrow.
- 4) Name, address and professional seal of person preparing the plan, including the surveyor. All plans must have an original seal and signature.
- 5) Design scale.
- 6) Results of percolation (stabilized rate and depth) and deep tests (soil strata, depth, rock and water depth). Percolation and deep tests shall be shown in their exact location for each lot. All deep tests must be observed by a representative of the DCHD unless waived by the department. The results of percolation and deep tests must accompany each submission and be certified as to accuracy by the design engineer. If the deep test and percolation test results are on the plan, then the engineer's seal will be certification as to their accuracy.
- 7) All subdivisions (2 or more lots) shall be surveyed and their dimensions shown in accordance with the design scale. Lots shall be numbered or lettered and the size shown.  
On an individual lot or property, metes and bounds shall be shown and the origin shall be referenced.

- 8) The sewage disposal system(s) shall be shown in the exact location(s) to be constructed, by scale to the property lines, including the expansion area. With an individual lot greater than five (5) acres, the exact location of the sewage disposal system and expansion area may be shown by a minimum of two permanent reference points.

A minimum raw line invert elevation shall be shown to insure gravity feed.

- 9) The individual water supply shall be shown in the exact location to be installed, by scale to the property lines. With an individual lot greater than five (5) acres, the location of the well may be shown by a minimum of two permanent reference points. The location of the well shall be certified as being accessible for the installation and installation of the service line to the dwelling. If installation of the service line is through rock which must be removed, it shall be shown or noted.

NOTE: The DCHD, prior to approval of a plan, reserves the right to require test wells and supporting information to determine if the proposed individual water supply will be adequate in quantity and quality and potable and unobjectionable in physical and chemical quality and not be or become so polluted or subject to such pollution as to constitute a menace or potential menace to the public health or the health of persons using or who may use the water thereby supplied and not have an adverse effect on surrounding development.

No subdivision of three (3) or more lots or one parcel of an unapproved realty subdivision (1115 PHL) shall be approved until the plans demonstrate the availability of a water supply of dependable quality and quantity by test well(s).

For subdivisions of less than three (3) lots, one individual residential lot and design flows less than 1000 gallons per day, the availability of water supply of dependable quality and quantity may be demonstrated by test well(s) or, in lieu of test wells, a report by the design engineer that can demonstrate the adequacy of the existing or proposed water supply.

ADEQUATE QUALITY - New York State Part 5 drinking water maximum contaminant levels.

If the maximum contaminant levels are or may be exceeded, the DCHD may require treatment, central water or an advisory note to be placed on the approved plan for the benefit of the purchaser or user.

ADEQUATE QUANTITY - The water supply shall yield a minimum of five (5) gallons per minute for residential lots. If the yield is less than five (5) gallons per minute, then the DCHD standard and guideline, "Individual Well Approval and Determining Adequacy of Water Supply", shall apply. Approvals for non-residential parcels may require a minimum yield of greater than five (5) gallons per minute.

Prior to plan approval, all test wells shall require a permit to construct, well completion report and quality/quantity test results to be made part of the submission for approval.

The well driller's air test may be used to substantiate the well yield for wells of 5 gallons per minute or greater, provided the test is of a duration sufficient to accurately determine the true well yield. However, the DCHD reserves the right to require other tests to determine the actual yield of an individual water supply.

The following note shall be placed on all plans:

ADVISORY: Although information has been submitted and/or test wells have been drilled to aid in demonstrating the adequacy (quality and quantity) of the water supply, this does not constitute a guarantee that an adequate water supply is available for each and every lot or facility.

Subpart 5-2, New York State Sanitary Code, Water Well Construction, and Article XVI, Dutchess County Sanitary Code, Water Well Construction, Permit Required, the DCHD procedure, "Test Well Sampling Requirements", and the DCHD standards and guidelines for "Individual Well Approval and Determining Adequacy of Water Supply", shall apply to all wells.

- 10) Field contours shall be shown, using a two (2') feet maximum interval in the location of the house or facility, sewage disposal system and well. Contours elsewhere shall be a maximum of five (5') feet and the origin referenced. Under special circumstances and by prior approval of the DCHD, this requirement may be waived.
- 11) The location, by scale, of all easements, wetlands, bodies of water, drainage facilities, roads, water supply mains, water service lines, sewerage collection mains, building sewer lines, curtain drains and rock outcroppings. The type of easement shall be shown. If a wetlands is classified and marked as a DEC wetlands, the plan must include the name and number of the wetlands and DEC representative who completed the field flag designation and date of said designation. The one-hundred feet (100') buffer zone from the wetlands must be shown.  
No sewage disposal systems or wells or water lines or sewer lines shall be constructed in an easement. Under special circumstances and by prior approval of the Dutchess County Department of Health, this requirement may be waived.
- 12) The location of potential flood areas, including but not limited to high water elevation and a storm of one hundred year frequency and low areas where water may pond or accumulate.
- 13) Methods for grading to provide for adequate collection and drainage of surface and groundwater that will affect design and functional ability of the sewage disposal system and well. Methods of grading shall be shown in a profile. All grading and installation of curtain drains and drainage systems affecting more than one contiguous lot must be completed and certified in writing by a professional engineer that it has been completed prior to final plan approval.

- 14) Design schedule for each lot for 3 and 4 bedroom homes or facility, required number, length and width of absorption trenches, required absorptive area, number and dimensions of seepage pit.
- 15) Statement on the plan that design, construction and installation shall be in accordance with this plan and generally accepted standards in effect at the time of construction, which shall include:
  - Appendix 75-A, Waste Treatment - Individual Household Systems, New York State Sanitary Code."
  - "Waste Treatment Handbook, Individual Household Systems, New York State Department of Health."
  - Rural Water Supply, New York State Department of Health."
  - Planning the Subdivision as Part of the Total Environment, New York State Department of Health."
  - New York State Department of Health and Dutchess County Department of Health policies, procedures and standards.
  - Dutchess County Department of Health Sanitary Code, Article XI and Article XIX.
  - Dutchess County Department of Health Certificate or Notification of Approval letter.

NOTE: All matters standard in the above will not require a note on the plan or design criteria for components of the sewage disposal system and well, unless specifically required.

- 16) Space for DCHD approval stamp a minimum of 5" x 5".
- 17) All water supplies and sewage disposal systems and environmental hazards or other matters which may affect the design or functional ability of the sewage disposal system and well which may be adjacent to or within the proposed subdivision or lot(s) shall be shown in their exact location with a measured distance to scale from the proposed sewage disposal systems and water supplies. This shall include subsurface drainage pits for road storm drainage.

- 18) One set of plans shall be submitted for the initial review for approval.

Two prints and a mylar shall be submitted for final approval (stamp and signature) when the plan is to be filed with the County Clerk.

Three prints shall be submitted for final approval (stamp and signature) when the plans are not to be filed with the County Clerk.

The size of all plans shall be 36" x 48" or less.

- 19) A written engineering report shall accompany each application and plan, explaining, at a minimum, the project and approvals requested.

- 20) Every subdivision (2 or more lots) shall have placed on it the following:  
"This plan is approved as meeting the appropriate and applied technical standards, guidelines, policies and procedures for arrangement of sewage disposal and treatment and water supply facilities; and, as a condition of this approval, a construction inspection by a representative of the DCHD shall be done to determine that construction at the time of inspection was completed in general conformance with the approved plans and any amendment thereof."
- "Approval of any plan(s) or amendment thereto shall be valid for a period of five (5) years from the date of approval. Following the expiration of said approval, the plan(s) may be re-submitted to the Commissioner of Health for consideration for re-approval. Re-submission or revised submission of plans and/or associated documents shall be subject to compliance with the technical standards, guidelines, policies and procedures in effect at the time of the re-submission."
- 21) Every plan for an individual sewage disposal system having a flow of less than one thousand (1000) gallons per day shall have placed on it the following:  
"This plan is approved as meeting the appropriate and applied technical standards, guidelines, policies and procedures for arrangement of sewage disposal and treatment and water supply facilities; and, as a condition of this approval, a construction inspection by a representative of the DCHD and/or professional engineer shall be conducted to determine that construction at the time of inspection was completed in general conformance with the approved plans and any amendment thereof."
- "Approval of any plan(s) or amendment thereto shall be valid for a period of five (5) years from the date of approval. Following the expiration of said approval, the plan(s) may be re-submitted to the Commissioner of Health for consideration for re-approval. Re-submission or revised submission of plans and/or associated documents shall be subject to compliance with the technical standards, guidelines, policies and procedures in effect at the time of the re-submission."
- 22) If the design criteria includes provisions for four (4) or more bedrooms, the area for infiltration, including the 100 percent (100%) expansion area, shall be shown for the maximum number of bedrooms or the plan may specifically designate that the design shall only accommodate a maximum of three (3) bedrooms.
- 23) A note shall be placed on each plan stating, "The undersigned owners of the property hereon state that they are familiar with this plan, its contents and legends and hereby consent to all terms and conditions as stated hereon and to the filing of the plan in the Office of the Clerk of the County of Dutchess, if required."

- 24) The Dutchess County Department of Health shall be contacted prior to commencement of the home construction and/or issuance of a building permit for a pre-construction inspection to ensure that the arrangements for water supply and sewage disposal are commenced in accordance with the approved plans and amendments thereto and generally accepted standards.

Dated: 11-90

Amended: 3-92 (#21, duration of approval)

Amended 11-96 (#24, pre-construction inspection)

Policy & Procedure

STANDARDS & GUIDELINES FOR  
INDIVIDUAL WELL APPROVAL  
&  
DETERMINING ADEQUACY OF WATER SUPPLY

Wells shall be developed in accordance with the New York State Department of Health, "Rural Water Supply", and the Dutchess County Department of Health and New York State Department of Health rules, regulations, policies and procedures.

The design engineer shall demonstrate the adequacy of the water supply in accordance with the following:

- a) Item 9, DCHD Plan Submission Guide for Subdivisions and Individual Lots
- b) A minimum of one test well representatively spaced for each five (5) lots or fraction thereof
- c) Sustained well yield by use of an acceptable test as determined by the design engineer.

Note: The well driller's air test will not be acceptable for well yields of less than five (5) gallons per minute. This includes lots which have not had the benefit of a test well. When used, the air test shall be of a duration sufficient to accurately determine the true well yield.

Note: By prior approval of the DCHD review engineer, water quality tests may not be required for every test well; however, in all cases, a minimum of one well water quality test shall be required.

Note: All test wells shall be protected from vandalism and contamination.

A well with less than five (5) gallons per minute, but not less than two (2) gallons per minute, may be accepted based upon an acceptable report prepared by a professional engineer or other person acceptable to the Department which shall include, but not be limited to, the following:

- 1) Submission of a DCHD "Well Completion Report".
- 2) The well shall be pump tested for yield and drawdown. The test pump shall have a capacity at least equal to the pumping rate at which it is expected the well will be pumped down. The test pump shall be installed to operate continuously until the water level and yield have stabilized. The stabilized water level and yield shall be maintained for a minimum of four hours' duration. Upon termination of pumping, well recovery shall be observed until the original static water level is reached. Pump test data, including complete water level observations and well pumping rate, shall be provided with the engineering report.

- 3) A pump curve for the installed or recommended well pump shall be submitted.
- 4) All wells shall produce a minimum sustained yield of two (2) gallon per minute. With wells that yield two to three gallons per minute, the well pump shall require a low water or low pressure cutoff.
- 5) All systems shall provide 400 gallons of storage at peak demand, either by means of an external storage tank or useable well storage measured from the static water level to a point 4 feet above the pump intake.

If external well storage is proposed, a sketch of the system and equipment specifications shall be submitted for approval.

For systems providing in-well storage, the pump capacity shall be five (5) gallons per minute at the lowest pumping level and a minimum of 30 PSIG in the house system.

- 6) A hydropneumatic tank providing a minimum drawdown of at least 20 gallons at the regular system pressure range (30-50 PSIG) shall be provided.
- 7) Prior to final approval, the Department shall require in writing from either the engineer, developer or property owner that construction and installation was completed in accordance with any approvals and this guideline.

Note: Subdivisions with fifty (50) lots or more shall require a waiver from central water. This includes contiguous or adjacent parcels which may be developed separately. Consideration will be given to a waiver only after the submission of an engineering report with adequate information to justify such waiver.

Note: This standard and guideline should not be interpreted to mean that wells with yields of less than five (5) gallons will be accepted for new projects or in lieu of central water.

Dated: Sept. 20, 1990  
revised: January 22, 2001

DUTCHESS COUNTY DEPARTMENT OF HEALTH  
Policy & Procedure

TEST WELL SAMPLING REQUIREMENTS

Laboratory requirements

All analysis shall be performed by a Laboratory approved by the New York State Department of Health, "Environmental Laboratory Approval Program".

Testing Procedure

Well shall be pumped clear and disinfected with chlorine. After disinfectant has been removed, then sample shall be collected.

Minimum Parameters

These are the minimum required parameters to determine the bacteriological and chemical quality of water:

Total Coliform, E. coli.

Inorganic Parameters

Alkalinity	Cyanide	Nitrite
Antimony	Hardness	pH
Arsenic	Iron	Selenium
Barium	Lead	Sodium
Beryllium	Manganese	Sulfate
Cadmium	Mercury	Thallium
Chloride	Nickel	Turbidity
Chromium	Nitrate	

## Principal Organic Chemicals

benzene	cis-1,3-dichloropropene
bromobenzene	trans-1,3-dichloropropene
bromochloromethane	ethylbenzene
bromomethane	hexachlorobutadiene
n-butylbenzene	isopropylbenzene
sec-butylbenzene	p-isopropyltoluene
tert-butylbenzene	methylene chloride
carbon tetrachloride	n-propylbenzene
chlorobenzene	styrene
chloroethane	1,1,1,2-tetrachloroethane
chloromethane	1,1,2,2-tetrachloroethane
2-chlorotoluene	tetrachloroethene
4-chlorotoluene	toluene
dibromomethane	1,2,3-trichlorobenzene
1,2-dichlorobenzene	1,2,4-trichlorobenzene
1,3-dichlorobenzene	1,1,1-trichloroethane
1,4-dichlorobenzene	1,1,2-trichloroethane
dichlorodifluoromethane	trichloroethene
1,1-dichloroethane	trichlorofluoromethane
1,2-dichloroethane	1,2,3-trichloropropane
1,1-dichloroethene	1,2,4-trimethylbenzene
cis-1,2-dichloroethene	1,3,5-trimethylbenzene
trans-1,2-dichloroethene	m-xylene
1,2-dichloropropane	o-xylene
1,3-dichloropropane	p-xylene
2,2-dichloropropane	Vinyl chloride
1,1-dichloropropene	MTBE

EPA method 502.2 or EPA method 524.2 with a detection limit of 0.5 µg/l or less.

## Other Parameters

There may be additional chemical, microbiological, bacteriological and physical parameters which may be required by the review engineer to assess the quality of water because of suspected or known environmental hazards and site specific concerns, waste disposal sites, orchards, agricultural land uses, oil and chemical spills.

NOTE: Prior to conducting tests to determine the physical, bacteriological and chemical quality of the water, the design person should contact and consult with the DCHD review engineer to establish criteria for the number of test wells, test wells to be sampled, and other parameters which will require analysis.

Reference & Standards:

- Part 5, New York State Sanitary Code;
- New York State Department of Health, New York State Department of Environmental Conservation, Dutchess County Department of Health policies, procedures, guidelines and technical standards.

Dated: 12-17-92

Revised: 11-14-94

Revised: 8-11-98

Revised: 1-22-01

Poughkeepsie, New York



## DUTCHESS COUNTY DEPARTMENT OF HEALTH

### Policy & Procedure

#### PAYMENT OF FEES

Effective December 1, 1992, all plan review and approval fees must be paid in **Cash** or by **certified check** or **money order**; or by a check which will be drawn on the business account of the Design Engineer, Architect or Surveyor; or by a check issued by a municipality.

Dated: 11-5-92



## APPENDIX of FORMS

Please check our website, <http://www.co.dutchess.ny.us/>, for copies of these and other forms.

<b>NAME OF FORM</b>	<b># OF PAGES</b>	<b>Form Number</b>
Fill Section Certification	2	HD-5
Application for Approval of Sanitary Facilities for Realty Subdivision	2	GEN-157
DCHD Application for Approval of Plans for a Wastewater Disposal System	2	HD-1
Percolation Test Data	1	HD-184
Deep Test Results	1	HD-185
Dutchess County Health Department Map Notes	2	mapnotes
Fee Schedule	1	[2005]
Waiver Request Form	2	HD-160
Certification of Construction Compliance	2	HD-159