

**ANNE ARUNDEL COUNTY  
DEPARTMENT OF HEALTH  
PRIVATE SEWAGE DISPOSAL CODE**

Anne Arundel County Department of Health

3 Harry S. Truman Parkway

Annapolis, Maryland 21401

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# Anne Arundel County Private Sewage Disposal Code

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**Anne Arundel County Private Sewage Disposal Code**  
**Chapter XVI**  
**Individual Sewage Disposal Systems**

**1600. INDIVIDUAL SEWAGE DISPOSAL SYSTEMS**

Regulations governing individual sewage disposal systems for homes and other establishments in Anne Arundel County where public sewerage system is not available are hereby established as minimum requirements. These regulations are also in complete accord with the Annotated Code of Maryland, Environment Article, Section 10-103, and COMAR 26.04.02 and COMAR 26.04.03.

Wherever a sewer main for public use exists in any street or alley and is within 50' of a property, the owner of all buildings intended for human habitation, occupancy, or use shall connect to the public sewer main.

**1600.1 GENERAL PROVISIONS**

All sewage disposal systems shall be constructed, added to or altered in accordance with these Regulations.

- a. Where a public sewerage system is legally and economically available to the building to be served, the Approving Authority may require that sewage be discharged into that system.
- b. "Sewage disposal" under this section shall mean all private methods of collecting and disposing of domestic sewage.
- c. All domestic sewage must be disposed of by an approved method of collection, treatment and effluent discharge. It is a violation of this title to dispose of sewage or sewage effluent in any manner which will or may cause pollution of any ground surface, ground water, bathing area, lake, pond, water course, tidewater or create a sewage disposal nuisance.
- d. Where water under pressure is not available, all human body wastes shall be disposed of by depositing them in approved privies, chemical toilets, or such other installations acceptable to the Approving Authority.
- e. Water-carried sewage from bathrooms, kitchens, laundry fixtures and other household plumbing must pass through a septic or other approved sedimentation tank prior to its discharge into the soil. Where conventional sewage disposal systems are not feasible, consideration may be given to non-conventional methods of collection, treatment, and disposal. It shall be unlawful to connect a food waste grinder to a domestic individual sewage disposal system. It shall be the owner's responsibility to maintain a private sewage disposal system as installed and to avoid creation of a public health nuisance.

- f. The building contractor, owner, plumbing contractor or sewage disposal system contractor are jointly responsible for compliance with these regulations and for fulfilling the requirements of the design for the construction, addition, or alteration of individual sewage disposal systems approved by the Approving Authority.
- g. No cesspool, septic tank, privy or other means of private sewage disposal shall be permitted wherever a sewer under public ownership adjoins the property in question, and each and every existing cesspool, privy, or other means of private sewage disposal, must be eliminated and abandoned. It shall be the owner's responsibility that abandoned disposal systems shall be disconnected from the buildings, pumped out and filled with earth.
- h. No property shall be improved in excess of its capacity to properly absorb sewage effluent in the quantities and by the means provided in this Code. The adequacy of the sewage disposal system shall be determined based on soil permeability rate, amount of usable soils, water table depth, use of the property, and maximum sewage flow as outlined in this Code.
- i. When the Approving Authority finds there to be insufficient lot area or improper soil conditions for adequate sewage disposal for the building or land use proposed, no building permit shall be issued and no private sewage disposal shall be permitted. On-site sewage disposal systems serving existing structures for which additions, alterations, or changes in use are proposed, shall be determined by the Approving Authority as capable of handling existing and foreseeable increases in sewage flow based on the provisions of this Code. Before a building permit is issued, site plans satisfactory to the Approving Authority must be submitted and approved with a designed private sewage disposal system complying with the provisions of this Code.

The required site plan must contain the following:

- (i) Location and elevation of the proposed structure to be served by the disposal facility.
- (ii) Areas designated for sewage disposal shall show original and final contours at one (1) or two (2) foot intervals to show the topography and final grading of the lot. Five (5) foot contours may be used for slopes over twenty-five percent (25%).
- (iii) Location of all existing and proposed wells and septic systems on the property and within one hundred (100) feet of the property line. Replacement of existing wells may be required if necessary to identify area for sewage disposal and future replacement systems.
- (iv) Location of all percolation tests conducted, both failing and passing.

- (v) Detailed plans of the proposed disposal system and future replacement areas. Areas for two replacement systems are required for all lots established and approved prior to November 17, 1985 unless public sewerage will be available within two years as verified in writing by the Department of Public Works. However, for any lot that was approved subject to a 10,000 square foot or greater disposal area, this disposal area shall be reserved for the exclusive use of septic effluent disposal.
- (vi) Location of easements and rights-of way affecting the property.
- (vii) Location of water wells and waterlines existing or proposed on the property.
- (viii) Location of proposed on-site storm water management structures.
- j. Nothing contained in this chapter shall be construed to prevent the Approving Authority from requiring compliance with higher requirements than those contained herein where such higher requirements are essential to maintain a safe and sanitary condition.
- k. The “Approving Authority” for such systems shall be the County Health Officer, or his duly authorized agent, whose duties, and responsibilities it shall be to administer, enforce and interpret the provisions of this chapter. The Approving Authority may adopt minimum standards for the design and construction of private sewage disposal systems in the implementation of this Code.
- l. Materials of construction shall be as indicated in this Chapter and the 2003 International Plumbing Code. Where materials are not shown or indicated by a standard or by a recognized testing agency specification, materials shall conform to the standards cited in the 2003 International Plumbing Code.
- m. When there are existing public health hazards due to unsanitary conditions caused by malfunctioning sewage disposal systems, and the unsanitary conditions cannot be eliminated through the use of conventional sewage disposal systems, the Approving Authority may grant variances to the requirements of this Chapter and may approve the installation of conventional speculative and non-conventional sewage disposal systems.
- n. The Approving Authority may grant variances to the requirements of this Chapter for non-conventional sewage disposal systems that will meet the intent of this Chapter and the requirements of COMAR 26.04.02.
- o. The separation to the ground water shall be maximized for the installation of a private sewage disposal system and shallow system designs shall be required where feasible.

## 1600.2 PERMITS REQUIRED

- a. Where public sewage disposal systems are not available and construction is contemplated for a building for human occupancy or use, or addition to or alteration of any existing sewage disposal system, the Master Plumber or Disposal System Contractor shall, previous to beginning any construction, make an application to the Approving Authority for a written permit and obtain a permit to make the desired installation (s).
- b. Before a permit to make the desired installation is issued, a percolation test application, in a form required by the Approving Authority, must be obtained and approved. For single family dwellings where it is necessary to replace an existing component of the septic system prior to the disposal area, (e.g. septic tank, distribution box, piping or lift pump station) a percolation test application will not be required in order to obtain the sewage disposal permit. The Approving Authority shall require a soil evaluation, including percolation and other pertinent tests, said evaluation to be conducted under its supervision, with such information to be made a part of the application. When there is evidence that a geological formation has a high and fluctuating water table during specified months of the year, the Approving Authority may specify the times during which the tests are to be made.
- c. The percolation test rate may range between one and thirty minutes. The results of percolation tests shall be considered in conjunction with available information on topography, soil type and conditions, surface and subsurface drainage conditions, water table level, the history of failure of septic systems in surrounding areas and soil map data.
  - (i) The percolation test application shall be approved, when, upon review of the percolation test application and required site plan, the Approving Authority is satisfied that the proposed design is adequate. Approval is valid for two years from the date of issuance, but may be renewed at the discretion of the Approving Authority. The Approving Authority may require additional testing or evaluation before renewing the application. During the two years after the permit application is approved, a sewage disposal permit may be issued by the Administrative Authority for the construction of the approved system. The sewage disposal system permit expires at the end of the prescribed period printed on the permit.
  - (ii) When, upon review of the application and required site plan, the Approving Authority is convinced that the proposed design is inadequate, or soil and geological conditions are such as to preclude safe and proper operation of the desired installation(s), a permit to proceed with construction shall be denied.

- (iii) No installation shall be made without first obtaining a written sewage disposal system permit from the Administrative Authority.
- (iv) The Approving Authority may make inspections during construction to determine compliance with these regulations. No part of any installation shall be covered until approval by the Approving Authority has been granted. Any part of an installation which has been covered prior to final approval shall be uncovered upon order of the Approving Authority. Final written approval shall not be given until all pertinent data required has been submitted.

### **1600.3 DESIGN OF INDIVIDUAL SEWAGE SYSTEM**

#### **1600.3.1 DESIGN**

The design of the individual disposal system must take into consideration location with respect to wells or other sources of water supply, topography, water table, soil characteristics, area available, maximum occupancy of the building, and facilities requiring water usage and the necessity for water treatment equipment.

#### **1600.3.2 TYPE OF SYSTEM**

The type of system to be installed shall be determined on the basis of location, soil permeability, and ground-water elevation.

#### **1600.3.3 SANITARY SEWAGE**

The system shall be designed to receive all sanitary sewage including laundry waste from the building and backwash effluent from swimming pool or water treatment equipment when appropriate. Drainage from basement floor, footing or roofs shall not enter the system. Separate sewage disposal systems may be required for backwash effluent from water conditioning equipment where water quality or wastewater flows may adversely impact a new or existing sewage disposal system. Existing disposal systems may be used as a means of sewage disposal for backwash effluent from water treatment equipment where systems are found in compliance with the provisions of this Code.

#### **1600.3.4 DISCHARGE**

Treated sewage effluent may be discharged into the ground, or through methods acceptable to the Approving Authority.

### **1600.3.5 FLOODED CONDITION**

No plumbing fixture may be connected to any individual sewage disposal system where ground water may collect above the sewage disposal system causing a flooded condition, unless the elevation of the fixture trap is a sufficient height above the elevation of the finished grade of the ground in which the seepage pit and/or disposal field are installed to prevent back-up.

### **1600.3.6 DESIGN CRITERIA**

Table 1600.3.6 establishes the minimum design criteria for determining sewage flows according to type of establishment.

## **1600.4 LOCATION OF INDIVIDUAL SEWAGE SYSTEM**

### **1600.4.1 REQUIRED MINIMUM LOT SIZE WHERE PUBLIC WATER IS AVAILABLE.**

The minimum lot size in which a private disposal system may be installed is 15,000 square feet.

### **1600.4.2 REQUIRED MINIMUM LOT SIZE WITH PRIVATE WATER SYSTEM**

The minimum lot size in which a private disposal system may be installed is 20,000 square feet.

### **1600.4.3 DISTANCES**

Table 1600.4.3 provides for the minimum distance that must be observed in locating the various components of the disposal system and any required replacement areas.

**Table 1600.4.3**  
**Distance Requirements**

<b>All Distances are in Feet</b>	<b>Well in Unconfined Aquifer</b>	<b>Well in Confined Aquifer</b>	<b>Septic Tank</b>	<b>Distribution Box</b>	<b>Disposal Field</b>	<b>Dry Well</b>	<b>Drain Field</b>
Building sewer other than cast iron or approved PVC	100	50	--	--	--	--	--
Building sewer cast iron or approved PVC	10	10	--	--	--	--	--
Septic tank	100	50	--	5	10	10	10
Distribution Box	100	50	5	--	5	5	5
Drainfield**	100	50	10	5	--	--	--
Dry Well*	100	50	10	5	--	--	--
Disposal Field (including mound systems)	100	50	10	5	--	--	--
Building with basement	30	30	20	20	20	20	20
Building without basement	30	30	10	20	20	20	20
Property line	10	10	10	10	10	10	10
Water line	--	--	10	10	10	10	10
Road or right of way	15	15	10	10	10	10	10
Retaining wall; 25% or greater slopes	--	--	25	25	25	25	25
Swimming Pool	10	10	10	20	20	20	20
Storm Drain *** (closed conduit)	--	--	10	10	10	10	10

\* Drywells must be separated from each other by a distance of 3 times the diameter of the well edge to edge. Thus an 8 foot well would have a separation of 24 feet from its neighbor.

\*\* Standard drainfield trenches are 3 ft. wide and are separated one from another by 9 ft. All drainfield trenches are of equal length. No trench may exceed 100 ft. Approving authority will stipulate separation between deep drainfield trenches.

\*\*\* For storm drainage facilities other than those incorporating solid conduits (ie: Swales, Storm Water Infiltration pits, etc..) a 25 ft. minimum distance is required. Areas with a slope of greater than 25% cannot be utilized for individual sewage disposal system.

**1600.4.4 ALL SEWAGE DISPOSAL SYSTEMS SHALL CONFORM WITH THE FOLLOWING GENERAL PRINCIPLES REGARDING SITE:**

Sewage disposal system shall be located at the point lower than the ground elevation of the well on the premises consistent with the general layout topography and surroundings, including abutting lots. Locations at a higher elevation may be used with the specific permission of the Approving Authority.

**1600.4.5 EXCEPTIONS**

The provisions of Sections 1600.4.1 and 1600.4.2 shall not apply to property which was subdivided in accordance with the subdivision regulations of Anne Arundel County prior to November 9, 1968.

**1600.4.6 WAIVER OR MODIFICATION**

The approving authority may waive or modify the requirements of 1600.4.1, 1600.4.2, and 1600.4.3 as applied to resubdivision of property in accordance with the Anne Arundel County subdivision regulations if he finds that:

- a. Such property was subdivided in accordance with subdivision regulations of Anne Arundel County in effect prior to November 9, 1968;
- b. The individual lot size resulting from such resubdivision shall be greater than or at least equal to, the individual lot size prior to such resubdivision;
- c. Because of unusual circumstances of shape and topography or other physical features or conditions of such property, extraordinary hardships may result from strict compliance;
- d. Sufficient lot area and proper soil conditions exist to permit adequate sewage disposal for the building or land use proposed.

All actions taken on and after November 9, 1968 by the county health officer pursuant to the provisions of Section 1600.2 of the seventh draft of the proposed revision of the state plumbing code adopted as the Anne Arundel County Plumbing Code by Bill 64-68 and readopted as said Code by Bill 26-72, whereby the county health officer granted his approval for the issuance of permits for the installation of individual sewage disposal systems upon property which was subdivided prior to November 9, 1968 and resubdivided on or after November 9, 1968 but prior to the effective date of this subsection (e), in accordance with the subdivision regulations of Anne Arundel County in existence at the time of the resubdivision, notwithstanding the fact that installation and location of such individual sewage disposal system may not comply with the requirements of Sections 1600.4.1, 1600.4.2, and 1600.4.3 of said code, are hereby ratified, confirmed, and validated. (Bill NO. 26-72, 1; Bill No. 75-74.1, Bill No. 103-76, 1; Bill No. 4-77, 1,2; Bill No. 58-77, 1.)

## **1600.5 PERCOLATION TEST**

### **1600.5.1**

Percolation tests to determine the absorption capacity of soil for septic tank effluent must be conducted in the following manner and the results interpreted in accordance with the following:

The percolation rate in minutes for one inch drop after prewetting is noted. The size of the subsurface irrigation system can be obtained from Table 1600.5.2 and Table 1600.5.3 for individual residences and Table 1600.5.4 for commercial and institutional establishments. When seepage pits are contemplated, the percolation rate is noted and the system is designed under the requirements of Table 1600.5.3 and Table 1600.5.4.

- a. An adequate number of percolation and other pertinent observations, as required by the Approving Authority, shall be conducted within the area designated for on-site sewage disposal so as to determine that the area is suitable for sewage disposal.
- b. The Approving Authority may require additional percolation testing: (1) where soil texture or structure varies or limiting geologic conditions are encountered; or (2) when the Approving Authority deems it necessary to evaluate a larger disposal and recovery area for the estimated sewage flow.
- c. Percolation rates slower than 30 minutes for one inch may not be approved except for conventional, sand mound and conventional alternative systems.
- d. A percolation rate faster than 2 minutes per inch, after prewetting may not be approved when, in the opinion of the Approving Authority, adequate protection for the ground water may not be provided.
- e. A percolation rate of between 2 and 5 minutes per inch after prewetting will require disapproval if, in the opinion of the Approving Authority, adequate protection of the ground water may not be provided.
- f. The bottom of the septic drainage system shall be at least 4 feet above ground water. The minimum separation distance may be increased when, in the opinion of the Approving Authority, additional separation is needed to protect groundwater or where seasonal fluctuations occur. Soil percolation tests and any other tests required shall be performed at the time of the year when the highest water table can be expected at the on-site sewage disposal area.

**TABLE 1600.5.2*****Tile Length for each 100 gallons of Sewage per day  
For Residential Use***

Minutes for A 1" Drop	1' Wide Trench	2' Wide Trench	3' Wide Trench
1	80	40	26
2**	104	54	34
3**	120	60	40
4**	138	68	46
5**	152	74	50
6	160	80	54
7	176	88	58
8	184	94	62
9	194	98	64
10	200	100	66
12	206	104	70
14	224	112	74
16	232	116	78
18	240	120	80
20	254	128	86
25	280	140	94
30	304	152	102

Over 30 considered impervious – not approvable. Absorption area of standard trenches designed using surface area of the trench bottom only \*\* See Section 1600.5.1.e

### 1600.5.3 SEEPAGE PIT TEST

- a. When seepage pits are contemplated test pits shall be excavated and the percolation test conducted as indicated under paragraph 1600.5.1.

**TABLE 1600.5.3**  
***Effective Absorption Area in Seepage Pits***  
***For each 100 gallons of Sewage per day***

Time in Minutes for A 1" Drop	Effective Absorption Area* For each 100 gallons (sq. ft.)
1	64
2**	80
3**	90
4**	100
5**	112
6	124
7	126
8	138
9	144
10	150
12	168
14	182
16	194
18	204
20	216
25	278
30	334

Over 30 minutes considered impervious – not approvable. \*Absorption area of seepage pits designed using sidewall area only. \*\* See Section 1600.5.1.e

**TABLE 1600.5.4**  
**Maximum Sewage Application Rates for Commercial,  
 Institutional, and Other Non-Residential Establishments**

Minutes for A 1" Drop	Gallons Per Square Foot Per day for Drainfields	Gallons Per Square Foot Per day for Seepage Pits
1	2.50	1.56
2	1.92	1.25
3	1.78	1.11
4	1.46	1.0
5	1.32	.89
6	1.25	.81
7	1.14	.79
8	1.06	.77
9	1.04	.69
10	1.00	.67
12	.96	.59
14	.89	.55
16	.86	.52
18	.83	.49
20	.78	.46
25	.71	.36
30	.68	.30

Over 30 considered impervious – not approvable.

Minimum septic tank capacity for commercial and institutional establishments shall be calculated as follows:

- (1) Flows of 1,500 gallons per day (gpd) or greater  
 $v = 1,125 \text{ gallons} + 0.75 Q$   
 Where  $v =$  minimum septic tank volume  
 $Q =$  estimated daily peak sewage flow
- (2) Flows of less than 1,500 gallons per day (gpd)  
 $v = 1.5 Q$

The use of two or more septic tanks in series in order to obtain the required liquid volume is not approvable for commercial or institutional installations.

**1600.6 CAPACITY OF SEPTIC TANKS**

**1600.6.1**

Capacity of sewage disposal systems includes all portions of a house exclusive of patios, decks, open porches, carports, garages and uninhabitable attics. A minimum of 50 % of any unfinished basement having a ceiling height of 7 feet or greater is to be included when computing the square footage of the house.

**1600.6.2**

The liquid capacity of all septic tanks shall conform to Table 1600.3.6 based on the type of establishment and Table 1600.6.2 based on the square footage of the house.

*Table 1600.6.2  
 Liquid Capacity of Septic Tanks (Gallons) and Flow Rates for Individual Homes.  
 Provides for use of all household appliances except food waste grinder.*

Square Footage Of House *	Recommended Minimum Tank Capacity (Gallons)	Flow Rate (Gallons/Day) Used to Size
0 to 750 sq. ft.	1,000	300
750 to 1,500	1,000	450
1,500 to 2,500	1,250	600
2,500 to 3,500	1,500	750
3,500 and up	1,500	900

### **1600.6.3 MULTIPLE COMPARTMENTS**

In all two compartment tanks, the inlet compartment shall have a capacity of not less than two-thirds of the total tank capacity. Cleanout devices and access panels shall be installed in such a manner as to allow both compartments to be properly serviced.

### **1600.6.4 SEPTIC TANK CONSTRUCTION**

Plans for all septic tanks including concrete, plastic and fiberglass shall be approved by the Approving Authority prior to installation. Such plans shall show all dimensions, reinforcing, structural calculations and such other pertinent data as may be required. Septic tanks shall be watertight and constructed of materials to prevent excessive corrosion or decay. Each such tank shall be structurally designed to withstand all anticipated earth or other loads and shall be installed level and on a solid bed. All fabricated septic tanks must be constructed in accordance with the plans approved by the Approving Authority. All septic tanks shall have a liquid depth of not less than 2 1/2 feet and a length of not less than 2 nor greater than 3 times the width. Every septic tank must be a two-compartment tank with a top construction seam. There shall be no less than 2 inches between the invert inlet pipe and the invert outlet pipe. Plastic or fiberglass septic tanks meeting the above design and construction criteria may be utilized.

### **1600.6.5 METAL TANKS**

Metal septic tanks shall not be permitted.

### **1600.6.6 CONCRETE TANKS**

- a. The inlet and outlet tees shall be located a minimum of 6 inches from the openings of the tank. The tees shall extend from near the top of the tank to a point 16 inches below the inverts of the openings. Sanitary tees must conform to the following standards:
  1. The inlet tee's vertical leg must be a minimum of 6 inches in diameter and it's horizontal leg a minimum of 4 inches in diameter.
  2. The outlet tee's vertical and horizontal legs shall be a minimum of 4 inches in diameter.
  3. The vertical leg of both the inlet and outlet tee must extend sixteen inches below the invert of the horizontal leg and not less than 3 inches above the crown of the horizontal leg.
  4. Tees shall be constructed of SCH 40 or SDR 35 PVC pipe.
- b. The tops shall have as a minimum, one twenty inch manhole with handle over each compartment. For septic tanks installed deeper than 6 inches below finished grade, the manhole must be raised by a method acceptable to the Approving

Authority to within 6 inches below finished grade. Manholes not extended to grade must have a pipe at ground surface marking the location of the manhole lid. Manholes extending above the ground surface shall be designed in a manner acceptable to the Approving Authority.

- c. The minimum thickness of the walls shall be 4 inches or an equivalent design acceptable to the Approving Authority.
- d. The tops and bottoms shall be 4 inches thick unless placed under a driveway, in which case they shall be a minimum of 6 inches.
- e. All tank walls and bottoms shall be reinforced with a minimum of 6" x 6" eight gauge wire mesh.
- f. As a minimum the tops shall be reinforced with 3/8" steel bars on 6-inch centers in 2 perpendicular directions.
- g. These tanks must be waterproof.
- h. All pre-cast concrete septic tanks slated for use in Anne Arundel County must bear the date on which they were poured. The date must be permanently scribed in the concrete in such a location as to be conspicuous after the tank has been set in the hole. No tank may be delivered to Anne Arundel County prior to the concrete achieving "working strength" and, in no case, in less than the minimum 7 days curing period. If tanks are made to different specifications for delivery to several counties, those tanks delivered to Anne Arundel County must be marked "A.A.Co."
- i. The inlet and outlet of the tank must be fitted with an approved type gasket, which will ensure the water tightness of the inlet and outlet piping.
- j. The seam of pre-cast tanks must be made watertight by the use of an approved sealant.
- k. The minimum 28 day compressive strength of concrete used to fabricate septic tanks and other sewage disposal components shall be 4000 psi.
- l. The internal wall must contain a slot of a minimum height of two inches and be located in the center of the liquid depth of the septic tank and shall extend 4 feet in length.

#### **1600.6.7 DEPTH BELOW GROUND OF SEPTIC TANK**

The design of the septic system determines the depth of the septic tank. The maximum earth cover on septic tanks shall be 3 feet for concrete tanks and 2 feet for plastic tanks. For installations deeper than as provided above, prior approval must be obtained from the Approving Authority.

### **1600.6.8 LIMITATION OF SERVICE**

No septic tank shall serve more than one property unless authorized by the Approving Authority.

### **1600.6.9 HOLDING TANKS**

Sewage Holding Tanks may be used to resolve existing on-site sewage disposal system failures when community sewer facilities are not available and an on-site repair is not possible.

- a. Holding tanks must be of watertight construction and installed in such a manner as to minimize their potential for being impacted by ground or surface water. Where ground and surface waters exist, additional sealing methods for holding tanks, joints or pipe connections may be required as necessary by the Approving Authority.
- b. Holding tanks must be sized to accommodate 7 days of sewage flow. Larger holding tank capacities may be required when such use, flow or additional capacities are needed to maintain sanitary conditions.
- c. The minimum capacity of a holding tank system serving a single residential dwelling shall be no less than 3000 gallons.
- d. Two or more holding tanks may be connected in series to reach the required storage capacity needed for existing use.
- e. Holding tanks shall be equipped with a high water level alarm and shall provide an audible or visual signal and be installed in or on the building structure served by the holding tank system. The floats or other devices for the alarm shall be designed to activate when a minimum holding capacity equivalent to a 24 hour sewage flow is reached.
- f. Each compartment of a holding tank system must have a manhole constructed to grade to allow access for system maintenance.

### **1600.7 DISTRIBUTION BOX**

A distribution box shall be required when more than one line of subsurface irrigation or more than one seepage pit is used. All fabricated distribution boxes must be constructed in accordance with the approved plans as submitted and approved by the Approving Authority.

a. Connection

Each lateral shall be connected separately to the distribution box and shall not be subdivided.

b. Invert Level

The invert of all distribution-box outlets shall be at the same level and approximately two (2") inches above the bottom of the box. The inlet invert shall be at least one (1") inch above the invert of the outlets. The size of the distribution box shall be sufficient to accommodate the number of lateral lines.

c. Watertight

The distribution box shall be of watertight construction arranged to receive the septic tank effluent sewer and with an outlet or connecting line serving each trench or seepage pit.

d. Baffle

A baffle shall be placed at right angles to the direction of the incoming tank effluent.

e. Reinforcement

When a concrete distribution box is used, the walls, top, and bottom must be reinforced with 2" x 8" eight gauge wire mesh.

## **1600.8 SEEPAGE PIT**

### **1600.8.1**

Seepage pits may be used either to supplement the subsurface disposal field or in lieu of such field where conditions favor the operation of seepage pits, as may be found necessary and approved by the Approving Authority.

- a. Deep seepage pits penetrating groundwater are prohibited in Anne Arundel County for new construction.
- b. Where seepage pits are used for septic tank effluent disposal, the number, diameter and depth of the pits shall be determined after percolation tests have been made to ascertain the porosity of the soil.
- c. Seepage pits shall be constructed by totally gravel packing the excavated seepage pit in the following manner:

Before addition of aggregate, a 6-inch perforated pipe must be placed in the excavation and must extend from the bottom of the pit to just above the completed gravel pack. The pipe must have 3 rows of perforations located at 120 degree intervals around the pipe; each row of perforations shall consist of a minimum of 20 five-eighths inch diameter holes for a 10-foot section of pipe. Schedule 40 PVC, SDR-35 PVC, and sewer drain pipe (ASTM 2729) are all acceptable for this 6-inch pipe. All sections of pipe are to be primed and glued. Above the gravel a transition to a 4-inch section of SCH 40 PVC or SDR-35 PVC pipe shall be made in such a way as to ensure the piping is continuous to the bottom of the dry well. This pipe is to be fitted with a cleanout cap which extends 4 inches above grade. A cast iron pipe and panella type cap shall be used as a sleeve to protect the PVC standpipe in traffic bearing area. The cast iron pipe shall rest on a concrete foundation in a manner approved by the Approving Authority. A geotextile fabric filter must be placed over the gravel pack to keep the backfill material out of the aggregate, except where poured in-place concrete tops are required to seal the dry well from surface water.

- d. Seepage pits shall be no closer than 3 times the diameter of the largest pit as measured from side to side.

#### **1600.9 DRAINFIELD TRENCHES**

- a. Drainfield trenches shall be designed and constructed on the basis of the required effective percolation area.
- b. The filter material shall cover the pipe and extend the full width of the trench and shall be not less than 6 inches deep beneath the bottom of the drain pipe, and 2 inches above the top of the pipe. The filter materials shall be washed gravel, crushed stone, or slag, ranging in size from ½ to 2 ½ inches and free of fines, dust, ashes, or clay. The filter material shall be covered by geotextile fabric specially designed to exclude sediment but allow the passage of water.
- c. The minimum size pipe shall be four inches (4") and the minimum spacing requirements for disposal fields shall conform to those set forth in Table 1600.9d.
- d. Maximum length of lateral shall not exceed 100 ft.

*TABLE 1600.9d*  
*Size and Spacing of Drainfield Fields*

Width of Trench At Bottom (in.)	Spacing between Trenches (ft.)	Effective Absorption Area per Lineal Ft. Of Trench (sq. ft.)
18	6.0	1.5
24	6.0	2.0
30	7.6	2.5
36	9.0	3.0

A greater spacing is desirable where available area permits.

- e. Disposal lines shall be constructed of not less than four inch (4") perforated plastic pipe of a type approved by the Approving Authority. The perforated pipe shall contain 3 rows of perforations. Each row of perforations shall consist of a minimum of 20 five-eighths inch diameter holes for a 10-foot section of pipe.
- f. The trench bottom shall be uniformly graded to slope no more than four inches (4") per one hundred feet (100'). The drainfield pipe shall be laid at the same pitch as the bottom of the drainfield trench.
- g. Drainfield trench excavations must be inspected before the addition of aggregate unless an alternative arrangement has been made with the Approving Authority.
- h. An inspection pipe shall be installed at the distal end of each lateral of a drainfield absorption system. The pipes must be perforated in the aggregate, solid above the aggregate, and extend from the bottom of the trench to above finished grade. An approved cleanout cap must be placed on top of the pipe. Both SDR 35 and SCH 40 PVC are approved for the inspection pipe.

**1600.9.1 DEEP TRENCHES**

In cases where State Regulations would allow the use of deep absorption trenches, credit may be given for the added absorption area provided in deeper trenches with a resultant decrease in length of trenches. Such credit shall be given in accordance with Table 1600.9.1, which give the percentage of length of standard absorption trenches based on six (6") inch increments of increase in depth of filter material.

**TABLE 1600.9.1**  
**Percentage of Length of Standard Trench**

Effective Depth of Gravel below Pipe in Inches	Trench Width			
	12"	18"	24"	36"
12	75	78	80	83
18	60	64	66	71
24	50	54	57	62
30	43	47	50	55
36	37	41	44	50
42	33	37	40	45

- a. The standard absorption trench is one in which the filter material extends 2 inches above and 6 inches below the pipe.
- b. For trenches or beds having width or depth not shown in Table 1600.9.1, the percent of length of standard absorption trench may be computed as follows:

$$\text{Percent of length of standard trench} = \frac{w + 2}{w + 1 + 2d} \times 100$$

Where w = width of trench in feet

d = effective depth of gravel below pipe in feet

- c. The separation between deep trenches shall be computed by using the following formula. The minimum separation between trenches shall be 6 feet.

$$\text{Separation between trenches} = 2 \times \text{effective depth in trench} + \text{width of trench}$$

In no case shall the required trench separation exceed 18 feet edge to edge.

### **1600.10 GREASE INTERCEPTORS**

For the design and construction of a grease interceptor the following general specifications shall be followed:

- a. Grease Interceptors shall be required for all food establishments where food preparation, food processing or waste from food operations occur.

- b. A grease interceptor where required shall be placed in an accessible location and shall be placed outside the building. It shall be located on the kitchen waste drain as close as possible to the kitchen. The discharge from a grease interceptor shall pass through a septic tank before it is discharged to the under ground disposal system or other treatment facilities.
- c. All fabricated grease interceptors must be constructed in accordance with the plans approved by the Approving Authority. Interior grease recovery units and metal grease interceptors shall not be permitted for use.
- d. A grease interceptor shall provide at least 5 gallons per individual seating unit and shall not be less than 500 gallon capacity. It shall be baffled to retain congealed grease on the surface of the liquid. The inlet pipe shall be baffled to a depth of 6 inches below the liquid level and the outlet shall be baffled to a depth 6 inches from the bottom of the grease interceptor. Grease interceptor designs other than above may be used upon approval of the Approving Authority.

#### **1600.11 PIPING MATERIAL**

All piping from building drain to distribution box shall be 4 inches (4") or larger cast iron, SDR-35 PVC, or SCH 40 DWV PVC pipe.

#### **1600.12 MOUNDS AND NON-CONVENTIONAL SYSTEMS**

Non-conventional systems where permitted, must be installed according to plans submitted to and approved by the Approving Authority. Where mound systems are proposed, infiltrometer tests must be conducted in the least permeable soil horizon, which is located in the upper 36 inches of soil. In no case shall a mound system be approved where the ground water is less than 36 inches below the ground surface. Mound systems must be installed according to plans approved by the Approving authority. Mound system design must meet, at a minimum, the requirements of COMAR Regulation 26.04.02.05, Q, effective November 3, 1986.

#### **1600.13 SEWAGE EFFLUENT PUMPING EQUIPMENT FOR INDIVIDUAL SEWAGE DISPOSAL SYSTEMS**

- a. Where necessary to lift the septic tank effluent to the disposal area, an approved pump and pump pit shall be provided.
- b. The pit must be specifically designed for sewage effluent and shall be of sufficient capacity to accommodate the particular application. The pump pit must be located after the septic tank and only septic tank effluent shall enter the pump pit unless otherwise authorized by the Approving Authority.
- c. The sump containing the pump shall be watertight, accessible from grade with a twenty-inch minimum manhole, and structurally sufficient for the existing or

proposed use. Concrete components must have their only construction seam located above the inlet to the sump.

- d. An audible or visual high water alarm shall be installed in the building per manufacturer's specifications. The high water alarm must be on a separate electrical circuit from the pump.
- e. Unless otherwise specified by the approving authority, a minimum emergency capacity equal to the daily flow shall be provided, the capacity to be measured between the invert of the inlet to the pit and the elevation at which the high water alarm is activated.
- f. The force main pipe between the pump and point of discharge shall be SCH 40 or SDR 21 PVC or approved equal. All SCH 40 and SDR 21 fittings in this line must be pressure rated. Force mains must be installed so as to prevent freezing and no shallower than 30 inches below grade.
- g. All electrical connections to the pump and float switches shall be located outside the pump chamber and protected from the weather.
- h. All pump pits serving nonresidential uses must have duplex pumping equipment.

#### **1600.14 CHEMICAL TOILETS**

All requests for permission to erect and use chemical toilets shall be approved by the Approving Authority. Where approved, chemical toilets shall be installed as follows:

- a. A chemical toilet consists of a toilet seat connected by a metal hopper to a metal tank containing chemicals, usually sodium hydroxide. All connections to the toilet seat and the tank shall be watertight. A rod shall extend above the floor of the room to operate the agitator in the chemical tank.
- b. A supply of the chemical shall be available in a closed container for periodic additions to the toilet.

#### **1600.15 PRIVIES AND PRIVY VAULTS**

All requests for permission to erect and use privies shall be approved by the Approving Authority. Where approved, privies shall be constructed as follows:

- a. A privy pit may be constructed by boarding a square or rectangular pit to prevent earth caving or by providing a watertight structure in the pit. The pit shall provide a minimum capacity of 60 cubic feet. The pit should be lined with boards and a privy building shall be placed over the pit. The floor of this building shall be of wood or concrete with the privy seat of wood, a vent located adjacent to the seat shall extend from the pit to a point above the roof of the building. The seat shall be provided with a cover which shall be self-closing.

- b. All openings in the building shall be screened to prevent the entrance of flies. Earth shall be mounded on all sides of the building to prevent the entrance of rats to the pit.
- c. When removable cans are used in a privy, they shall be placed in watertight vaults and provision made for removing the seat so the cans can be moved for disposal of the contents in a manner acceptable to the Approving Authority. The privy building shall comply with the above specifications for a pit privy building.

#### **1600.16 WATER SERVICE NEAR SOURCES OF POLLUTION**

All pressure water supply lines shall be at least 10 feet removed from any sewage disposal area or any area designated for future sewage disposal. All pressure water supply lines shall also maintain a minimum of 10 feet separation from all septic tanks, distribution boxes, cesspools, or other potential sources of contamination.

Where any pressure water supply line must cross the building sewer line, the bottom of the water service line within 10 feet of the crossing shall be at least twelve inches above the top of the building sewer line. Where this condition cannot be met, a sleeve shall be installed over the water pipe, extending a minimum of 6 feet on either side of the sewer pipe. The sleeve shall be made watertight by use of a non-hardening seal. The sleeving material shall be at least the same grade or schedule of material as the water pipe it is sleeving.

*TABLE 1600.3.6  
WASTEWATER FLOW CRITERIA FOR DESIGNING  
LARGE ON-SITE SEWAGE DISPOSAL SYSTEMS*

WASTEWATER FLOWS SHALL BE DETERMINED BASED ON THE SQUARE FOOTAGE OF THE BUILDING AND THE EXISTING OR PROPOSED USE. ALL USES SHALL BE CONSIDERED IN DETERMINING WASTEWATER FLOWS.

<u>ESTABLISHMENT</u>	<u>GPD* PER UNIT</u>
AIRPORT	
PER EMPLOYEE	15
PER PASSENGER	5
(ADD FOR FOOD SERVICE FACILITY)	
ANIMAL SHELTER/KENNELS	
PER RUN	25
ADD PER EMPLOYEE/SHIFT	15
BANKS	.04**
BEAUTY/BARBER SHOPS	
PER STATION	350
BOWLING ALLEY	
PER EMPLOYEE	15
PER LANE, NO BAR/FOOD	75
PER LANE, BAR ONLY	125
PER LANE, BAR AND FOOD	200
CAR WASH	PER EQUIPMENT SPEC
COMMUNITY COLLEGES	
PER EMPLOYEE AND STUDENT	15
(ADD FOR FOOD SERVICE)	
CHURCH/ASSEMBLY HALL	
PER SEAT	3
(ADD FOR FOOD SERVICE)	
COUNTRY CLUB	
PER SEAT MEMBER PER ROOM	100
PER NONRESIDENT	25
DEPARTMENT STORE	.04**
WITH LUNCH COUNTER	.08**
DINNER THEATER	20/SEAT
DANCE HALL/NIGHT CLUB	5/SEAT
(ADD FOR FOOD SERVICE)	
DAY CARE (PER CHILD)	
FAMILY	20/CHILD
GROUP	25/CHILD
DENTIST OFFICE	
PER CHAIR	450
LOW WATER USE EQUIPMENT	.09**

DRIVE IN THEATER	
PER CAR SPACE	5
DRUG STORES	.13**
DRY GOODS STORE	.05**
FACTORY (MANUFACTURING PLANT)	
PER EMPLOYEE/PER SHIFT	15
ADD FOR SHOWERS PER EMPLOYEE	10
FAIRGROUND	
PER PERSON	5
GOLF COURSE (PUBLIC)	
PER 18 HOLES	3500
HOMES FOR THE AGED	100/BED
HOSPITAL	350/BED
LAUNDRY (COIN OPERATED)	
PER MACHNE/PER 24 HOURS	400
MARINAS	
PER SLIP<25 FEET	10
PER SLIP, 25-35 FEET	25
PER SLIP, >35 FEET	75
BOATELS (PER SLIP/SPACE) DIVIDE BY 3	15
PUMP OUT STATION (PER SLIP)	35
(STORAGE VOLUME ONLY)	
MEDICAL OFFICE BUILDING	.62**
MOBILE HOME PARKS	
PER LOT, MINIMUM	300
MOTEL OR HOTEL	
PER UNIT (NO FOOD, NO KITCHEN)	125
PER UNIT (WITH FOOD/KITCHEN/EFFICIENCY)	200
NURSING HOME	200/BED
OFFICE BUILDINGS	.09**
PARKS	
PER PERSON (WITH TOILETS PROVIDED)	10
ADD FOR SHOWERS	10
VISITOR CENTER PER PARKING SPACE	45
PRISON/JAIL	
PER BED SPACE	125
PER EMPLOYEE/SHIFT	15
RESIDENTIAL APARTMENTS OR CONDOMINIUMS	150/BEDROOM
ROOMING/BOARDING	75/BEDROOM
RESTAURANTS/FOOD SERVICE	
24-HOUR OPERATION OR FAST FOOD	75/SEAT
INTERSTATE/MAJOR HIGHWAY	150/SEAT
12-HOUR OPERATION	50/SEAT
BAR/TAVERN/PUB	25/SEAT
BANQUET ROOMS	5/SEAT
CARRYOUT SERVICE	600
DELI/CONVENIENCE STORE	600

RETAIL STORES	.05**
SCHOOLS (PER STUDENT)	
NO FOOD OR SHOWERS	15
ADD FOR FOOD	5
ADD FOR SHOWERS	10
BOARDING	100
SERVICE STATIONS	.18**
STATE HIGHWAY REST AREA (MINI STATION)	2000
SHOPPING CENTERS	.18**
SPAS/SAUNAS/JACUZZI	20% OF VOLUME
SPORTS ARENA	5/SEAT
(ADD FOR FOOD SERVICE)	
SUPERMARKETS	.2**
SWIMMING POOLS	
PER SWIMMER	10
PER EMPLOYEE	15
THEATER/ARENA	
PER SEAT, NO FOOD	5
(ADD FOR FOOD SERVICE)	
TRAVEL TRAILER PARK/CAMPS	
PER SPACE	150
PER SPACE WITH SEWER/SERVICE BUILDING	175
CHILDREN'S CAMP	50/PERSON
LABOR CAMP	50/PERSON
LUXURY CAMP	100/PERSON
DAY CAMP (NO MEALS)	15/PERSON
WAREHOUSE	.03**

\* GALLONS PER DAY

\*\* GALLONS PER DAY PER SQUARE FOOT

# Anne Arundel County Private Sewage Disposal Code

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**ANNE ARUNDEL COUNTY PRIVATE SEWAGE DISPOSAL CODE  
CHAPTER XVII  
POTABLE WATER SUPPLY SYSTEM**

**1700.1 GENERAL REGULATIONS**

- a. The regulations in this chapter apply to any water system where plumbing fixtures are installed for human occupancy. The "Approving Authority" for such systems shall be the County Health Officer or his duly authorized agent, whose duties and responsibilities it shall be to administer, enforce, and interpret the provisions of this chapter. The Approving Authority may adopt minimum standards for potable water supply and distribution systems in the implementation of this Code.
- b. Pumps shall be installed only in wells, springs and cisterns that comply with the Code of Maryland Regulations 26.04.04.
- c. Only registered master plumbers or certified well drillers or certified pump installers may apply for permits to install pumps.
- d. When the Approving Authority finds there to be insufficient lot area or yield for an adequate potable water supply system for the building or land use proposed, no building permit shall be issued and no potable water supply system shall be permitted. Potable water supply systems serving existing structures for which additions, alterations, or a change in use is proposed, shall be determined by the Approving Authority as capable of handling existing and foreseeable increases in water demand. A susceptibility analysis to existing or potential sources of contamination and additional water quality tests may be required at the discretion of the Approving Authority. Before a building permit is issued, site plans satisfactory to the Approving Authority must be submitted and approved.

The required site plan must contain the following:

- (1) Detailed plans showing the location of the proposed structure to be served by the potable water supply system, and any existing or proposed structure within 30' of the property line.
- (2) Location of all existing and proposed wells and water lines on the property and within 100 feet of the property line.
- (3) Location of all existing and proposed septic systems, building sewer lines, and public sewer facilities on the property and within 100 feet of the property line.

- e. A minimum separation of 30' must be maintained between a proposed structure and an existing water supply well.

## **1700.2 PUMPS**

Pumps shall be as follows:

- (a) Pumps shall be certified under Water Systems Council Testing and Rating Standards.
- (b) Pumps shall be installed in accordance with the manufacturer's recommendations.
- (c) Pumping equipment shall be installed to prevent the entrance of contamination or objectionable material either into the well or into the water that is being pumped.
- (d) The pump shall be located to facilitate necessary maintenance and repair, including overhead clearance for removal of drop pipe and other accessories.
- (e) The pump shall be suitable mounted to avoid objectionable vibration and noise, and to prevent damage to pumping equipment.
- (f) The pump controls and/or accessories shall be protected from the weather.

## **1700.3 CONTROLS-DEVICES**

The following controls are required on all pump installations:

- (a) Pressure switch
- (b) Thermal overload switch
- (c) Pressure relief valve on positive displacement pumps.
- (d) Low water level cut-off switch is also required on all pumps that have a capacity in excess of the source of water.

## **1700.4 PUMP HOUSING**

No water supply shall be located within or under any building except a separate structure housing pumping equipment. When a separate structure is used to house the water supply, the pumping equipment shall have an impervious floor and rain tight walls and roof. Where a pump pit is used, it shall be of watertight construction and provided with a positive drain or sump pump to keep the pit dry.

## **1700.5 STORAGE TANKS**

### **1700.5.1 STORAGE EQUIPMENT**

Storage equipment shall be as follows:

- (a) All tanks shall be certified under Water Systems Council Standards for size and pressure.
- (b) All tanks shall be coated or made of material to resist corrosion.
- (c) Hydropneumatic tanks shall have a working pressure rating in excess of the maximum system pressure, but not less than 75 psi.
- (d) All tanks shall be constructed of materials and/or coatings which are non-toxic.
- (e) All tanks shall be provided with a means of draining.
- (f) Atmospheric storage tanks shall be provided with a cover.

### **1700.6 CROSS CONNECTION**

There shall be no cross-connection between an individual water supply system and other individual or public water supply system.

### **1700.7 SEPARATE SERVICE FOR EACH PROPERTY**

No water supply shall serve more than one property or structure unless authorized by the Approving Authority.

### **1700.8 CONNECTION TO PUBLIC WATER SYSTEM REQUIRED**

#### **1700.8.1**

Where required

- (a) Wherever a water main for public use exists in any street or alley and is within 50 feet of a property, the owner of all buildings intended for human habitation, occupancy, or use shall connect to the public water main.
- (b) Where an adequate public water system exists within three (300) feet of an existing lot of record and is located within a water quality problem area as designated in the Anne Arundel County Master Plan for Water Supply and Sewerage Systems, connection shall be made to the public water system.

- (c) No well for potable use shall be constructed on a property accessible to an adequate public water supply.

**1700.9 PRIVATE WELLS TO BE ABANDONED**

Wherever a replacement well is installed, it shall be the owner's responsibility to abandon and seal a previously existing water supply in a manner satisfactory to the Approving Authority.

**1700.10 POTABILITY REQUIREMENTS**

Any well intended to serve a building for human use or habitation shall meet the potability requirements of COMAR 26.04.04 and 26.04.01 prior to occupancy.