NAC 444.788 Inspections. (NRS 439.200, 444.650)

1. Inspections may be required of the system materials and the trench before the trench is filled with aggregate or rock. Inspections by the administrative authority may be required before the sewer line, septic tank and soil absorption system may be covered. Inspections of alternative systems are required at intervals specified in NAC 444.750 to 444.8396, inclusive. If an engineer verifies that an individual sewage disposal system was constructed according to the plans approved by the administrative authority, the administrative authority may waive its inspection of the system.

2. Until the individual sewage disposal system has passed inspection by the administrative authority and a permit or other type of approval authorizing occupancy of the building has been issued, there must be no occupancy of the building and no permanent electrical power connection to the property.

3. In an area in which there is a local administrative authority, review of designs and inspections for residential systems may be performed by city, district or county building inspectors.

NAC 444.790 Lot size. (NRS 439.200, 444.650)

1. A minimum area of 1 acre (43,560 square feet), including public streets and alleys or other public rights-of-way, lands or any portion thereof abutting on, running through or within a building site, is required for the installation of an individual sewage disposal system on a lot served by a well.

2. For a lot that is a part of a tentative map that is approved before January 1, 2000, a minimum area of 1/4 acre (10,890 square feet), including public streets or alleys or other public rights-of-way, lands or any portions thereof abutting on, running through or within a building site, is required for the installation of an individual sewage disposal system on a lot served by a community water supply.

3. For a lot that is part of a tentative map that is approved on or after January 1, 2000, a minimum area of 1/2 acre (21,780 square feet), including public streets or alleys or other public rights-of-way, lands or any portions thereof abutting on, running through or within a building site, is required for the installation of an individual sewage disposal system on a lot served by a community water supply.

4. Available pertinent land for construction of a building or structure, other than a single-family dwelling, must have a minimum net available area in the amount of 22 square feet per gallon of estimated daily sewage capacity as computed pursuant to NAC 444.8308, 444.831 and 444.8312. One-half of this pertinent land area must be available for sewage disposal.

NAC 444.792 Location. (NRS 439.200, 444.650)

1. Except as otherwise provided in this section, an individual sewage disposal system must be located on the same lot as the building or structure that the system serves. The administrative authority may approve the use of a part of an abutting lot to provide additional space for an individual sewage disposal system or any part thereof, if the owner of the individual sewage disposal system can show:

(a) Proper cause, including, without limitation, a legal right of the owner to use the abutting land as a result of a transfer of ownership of the abutting lot or an easement to use the abutting lot; and

(b) Use of the abutting lot for the individual sewage disposal system does not violate any other requirement of NAC 444.750 to 444.8396, inclusive.

2. The minimum horizontal separations that must be maintained between the perimeter of the components of an individual sewage disposal system and the following features are:

Minimum horizontal distance, in clear, required from:	Building Sewer Drain	Septic Tank	Disposal field (shallow)
Building or structure	—	8’	8’
Property lines	10’	10’	10’
Water supply wells (sealed to 50 feet)	50’	100’	100’
Water supply wells (not sealed to 50 feet)	50’	100’	150’ *
Public water supply wells	50’	150’	150’ *
Streams or watercourses	50’	100’	100’
Drainage channels	25’	25’	25’
Large trees or shrubs	—	10’	10’
Disposal fields	—	5’	—
Community water main line	10’	10’	25’
Individual water service line	10’	10’	25’
Dry wells	—	6’	20’

* The required distance between a well and the components of an individual sewage disposal system may be increased by the administrative authority depending on the depth to the water table, soil profile and site characteristics.

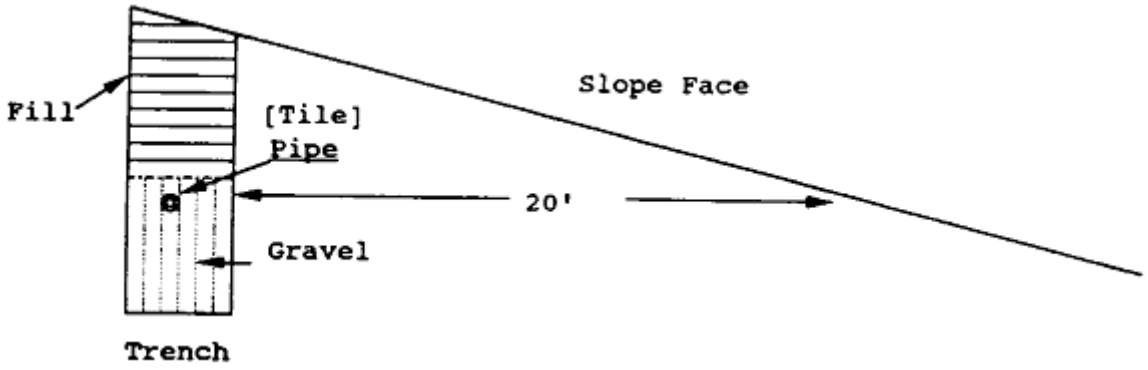
NAC 444.794 Slope requirements. (NRS 439.200, 444.650)

1. For lots with slopes in excess of 20 percent, soil absorption trenches must, at the level of the distribution pipe, be a minimum of 20 feet horizontally from the face of the slope or ground surface as shown in subsection 4.

2. Additional restrictions may be imposed where conditions relating to percolation and slope so indicate.

3. A stepped network of trenches utilizing relief lines which follows the contours of the slope may be used upon the approval of the health authority.

4. Diagram of a slope:



NAC 444.796 Performance of percolation test by property owner; verification of certain data by engineer. (NRS 439.200, 444.650)

1. Data from percolation tests from a minimum of two test holes in the area of the proposed soil absorption system is required. The property owner shall perform a percolation test in accordance with this section and NAC 444.7962 to 444.7968, inclusive.

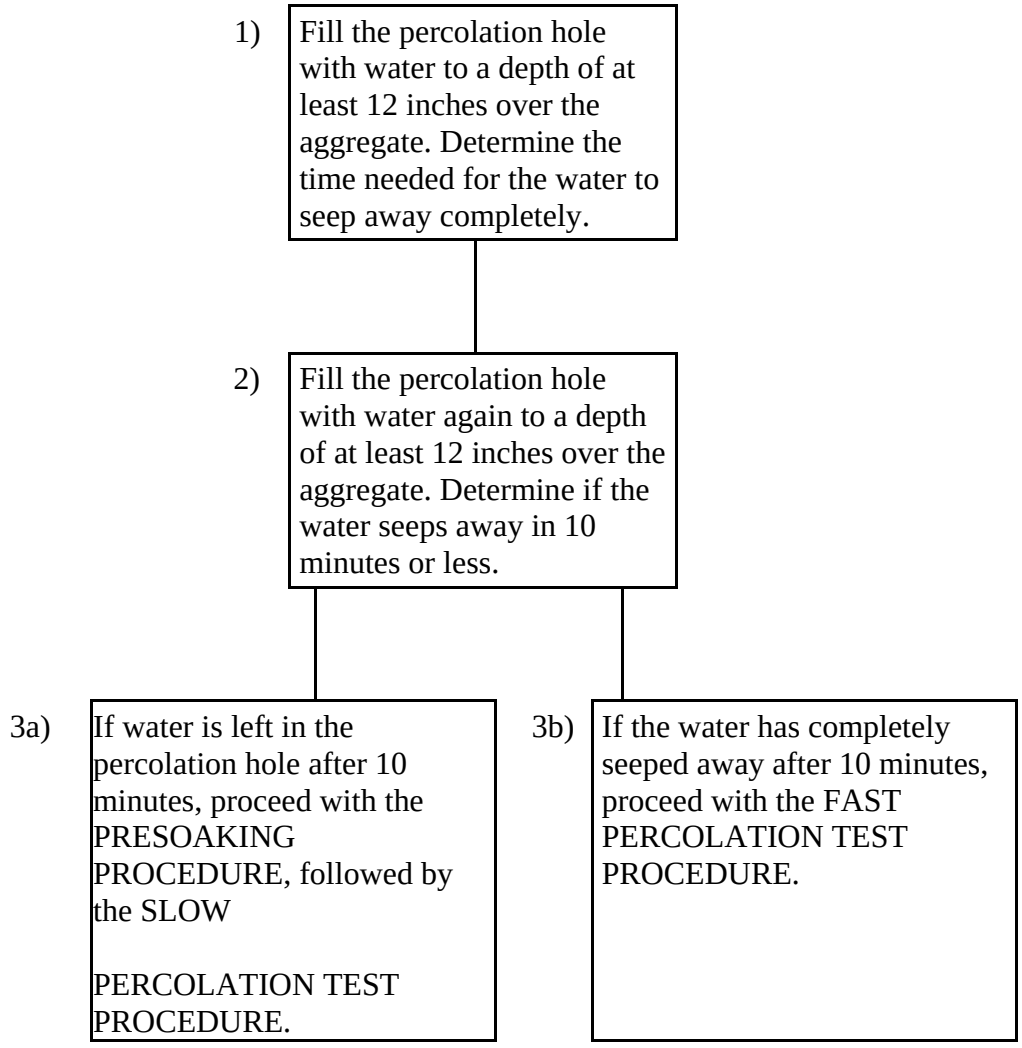
2. The hole must be dug or bored to the proposed depth of the absorption trench. The hole must have vertical sides and have a horizontal dimension of 4 to 12 inches. The bottom and sides of the hole must be carefully scratched with a sharp-pointed instrument to expose the natural soil interface. All loose material must be removed from the bottom of the hole which must then be covered with 2 inches of coarse sand or gravel when necessary to prevent scouring. Any soil which has sloughed into the hole before or during the percolation test must be removed.

3. The health authority may require an engineer to verify data relating to the depth of the high ground water and bedrock, or areas subject or susceptible to flooding, the ground slope, and the results of percolation tests. Verification of maximum high ground water includes, without limitation, a morphological study of soil conditions with particular reference to soil color and sequence of horizons.

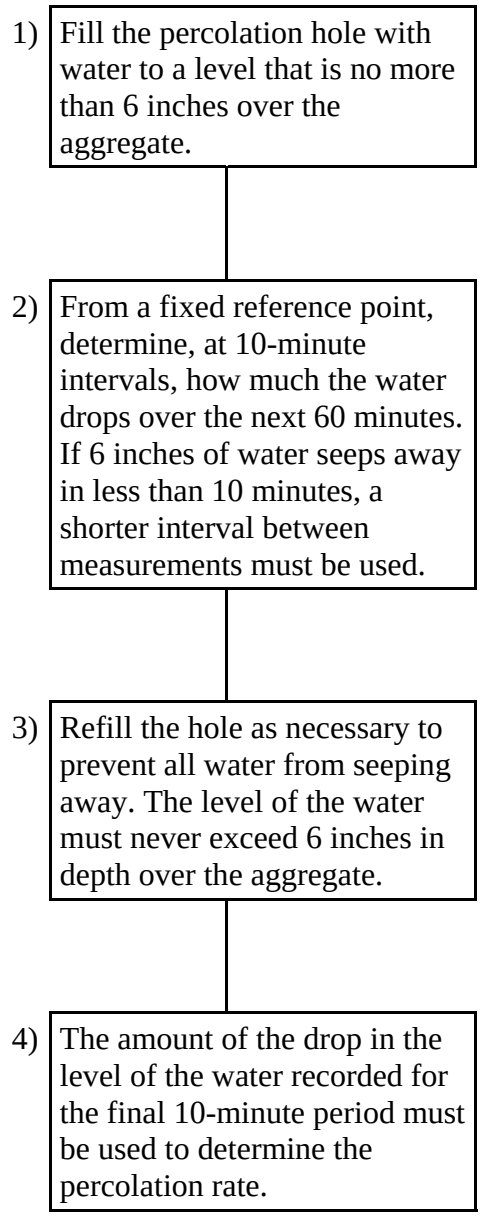
4. If the natural soil condition has been altered by filling or other attempts to improve wet areas, the health authority may require the verification by the engineer to include observation of high ground water levels under saturated soil conditions.

5. If the natural soil condition has been altered by filling or other attempts to improve the percolation rate of the soil, the health authority may require the verification by the engineer to include a determination of whether the fill material is suitable for an individual sewage disposal system.

NAC 444.7962 Determination of appropriate percolation test procedure. (NRS 439.200, 444.650) In conducting a percolation test, the following flow chart must be used to determine which test procedure to follow:

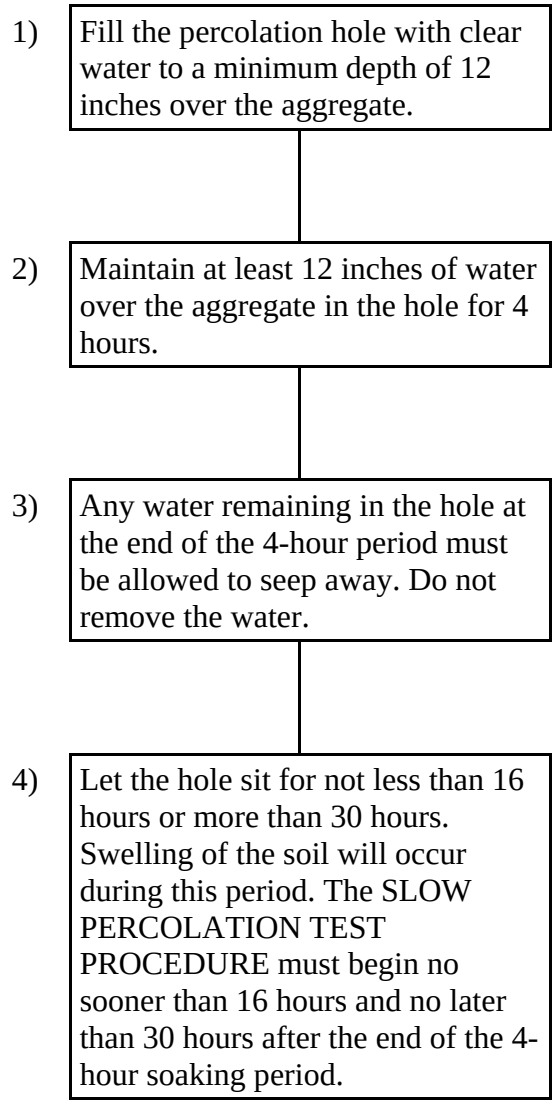


NAC 444.7964 Fast percolation test procedure. (NRS 439.200, 444.650) The following flow chart illustrates the fast percolation test procedure:

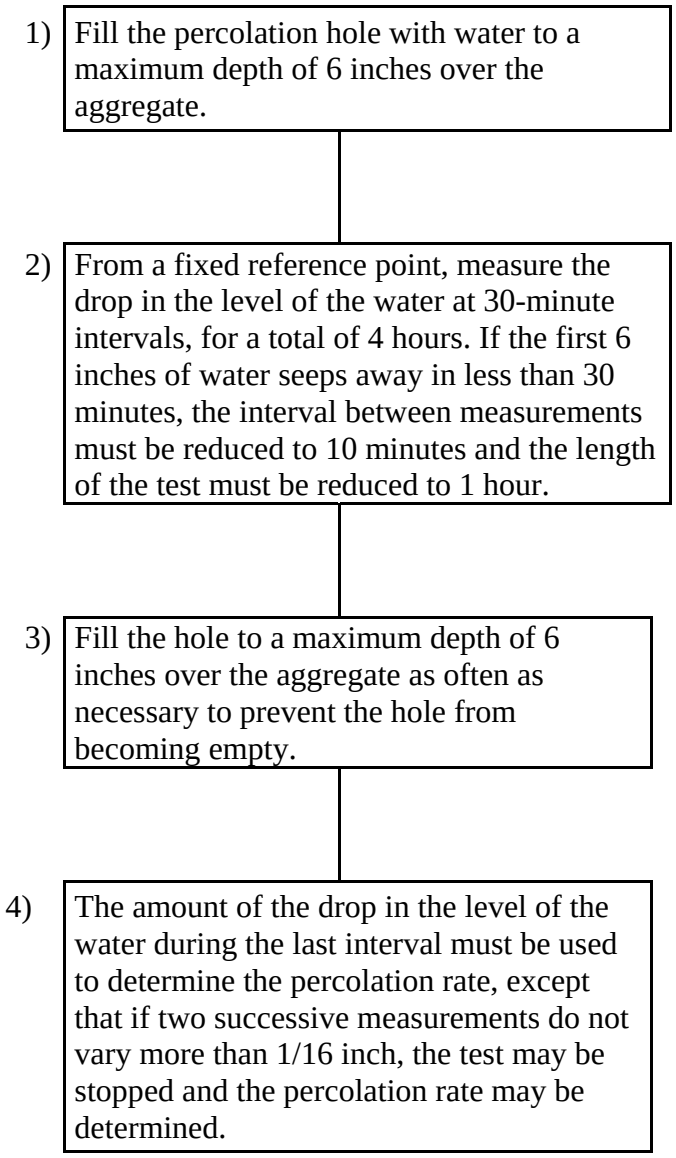


NOTE: The minimum time in which a fast percolation test may be completed is 1 hour. The level of the water must never exceed 6 inches over the aggregate during a fast percolation test.

NAC 444.7966 Presoaking procedure for slow percolation test. (NRS 439.200, 444.650) The following flow chart illustrates the presoaking procedure for a slow percolation test:



NAC 444.7968 Slow percolation test procedure. (NRS 439.200, 444.650) The following flow chart illustrates the slow percolation test procedure:



NAC 444.798 Approved cleanout; building sewer. (NRS 439.200, 444.650)

1. An approved cleanout must be installed between the building drain and the building sewer line. The cleanout must be located within 3 feet of the structure or, if the cleanout cannot be placed within 3 feet of the structure, as close as practicable to the structure. At least one additional cleanout must be placed for each 100-foot increment of sewer line and for each aggregate change in the direction of the sewer line in excess of 90 degrees.

2. The building sewer between the house and the septic tank must be approved pipe made of cast-iron, concrete, cement-asbestos or polyvinylchloride, with watertight joints.

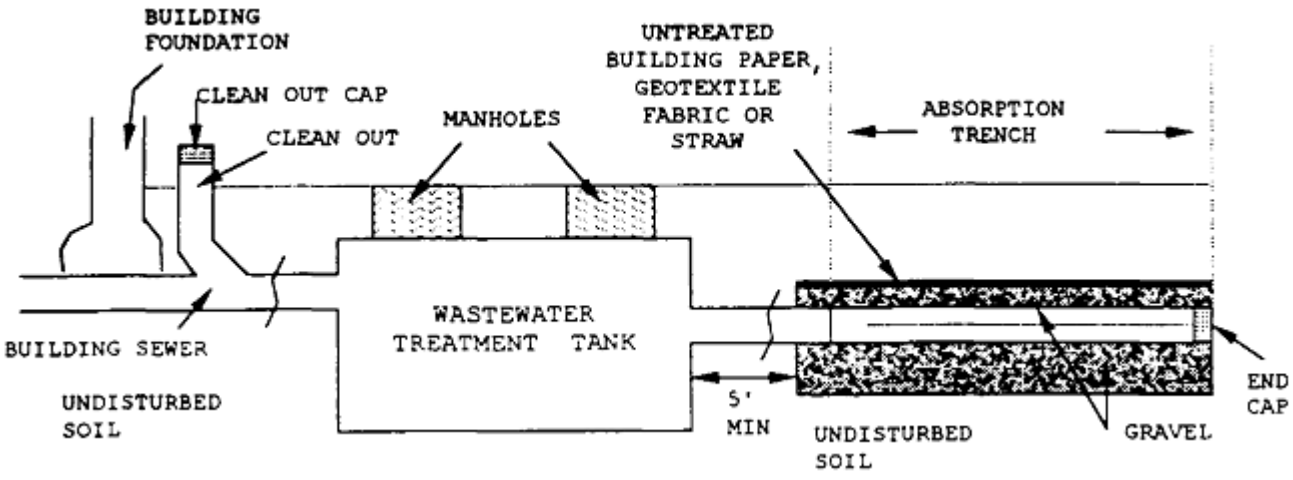
3. Except as otherwise provided in this section, the run of the building sewer, when practical, must be at a uniform slope of not less than 1/4 inch per foot from the building toward the point of disposal. If approved by the administrative authority, a building sewer which is:

(a) Not less than 4 inches or more than 6 inches in diameter may have a slope of not less than 1/8 inch per foot.

(b) Eight inches or more in diameter may have a slope of not less than 1/16 inch per foot.

4. A building sewer must be laid on undisturbed earth or well-compacted material. The top of the building sewer must be 12 inches or more below the final grade.

5. The following is a diagram of an individual sewage disposal system:



NAC 444.8354 Absorption trench system: Design criteria. (NRS 439.200, 444.650)

1. The bottom of an absorption trench that is used in an individual sewage disposal system must be level and not less than 1 foot or more than 3 feet in width.

2. Excavations for absorption trenches must be spaced apart at a distance that is equal to or greater than 4 feet plus 2 feet for each foot of depth which the trench is below the bottom of the distribution piping, as measured from the centerline of the trenches.

3. An individual lateral may not be more than 110 feet long.

4. An absorption trench must not be excavated if the soil is extremely wet. Surfaces in an absorption trench which are smeared or compacted must be scarified to the depth to which the soils are smeared or compacted, and all loose material must be removed.

5. Distribution lines must be perforated drain pipe made of polyvinylchloride, unless otherwise approved by the administrative authority. The bottom of the distribution lines must be laid not less than 12 inches or more than 48 inches below the ground surface in continuous straight or curved lines with a slope of not less than 2 inches or more than 4 inches per 100 feet of pipe. Distribution lines must be equipped with end caps or vented to the surface at the end of the lines.

6. At least 12 inches of clean, graded aggregate ranging in size from 3/4 to 2 1/2 inches must be placed in the trench below the distribution line, and the aggregate must extend at least 2 inches over the top of the distribution line.

7. If an absorption trench is more than 6 feet in depth below the finished grade, the aggregate must extend to not less than 12 inches below the ground surface to avoid an anaerobic condition in the trench.

8. The aggregate in an absorption trench must be covered with untreated building paper, straw, geotextile fabric, or a similar covering approved by the administrative authority, and the top of the trench must be overfilled with not less than 4 inches or more than 6 inches of soil.

9. The percolation rate of the soil must be used to determine the design application rate in accordance with the following table:

Percolation Rate (minutes/inch)	Design Application Rate (gallons/square foot)
0-10	1.6
11-15	1.3
16-20	1.1
21-25	1.0
26-30	0.9
31-40	0.8
41-50	0.7
51-60	0.6

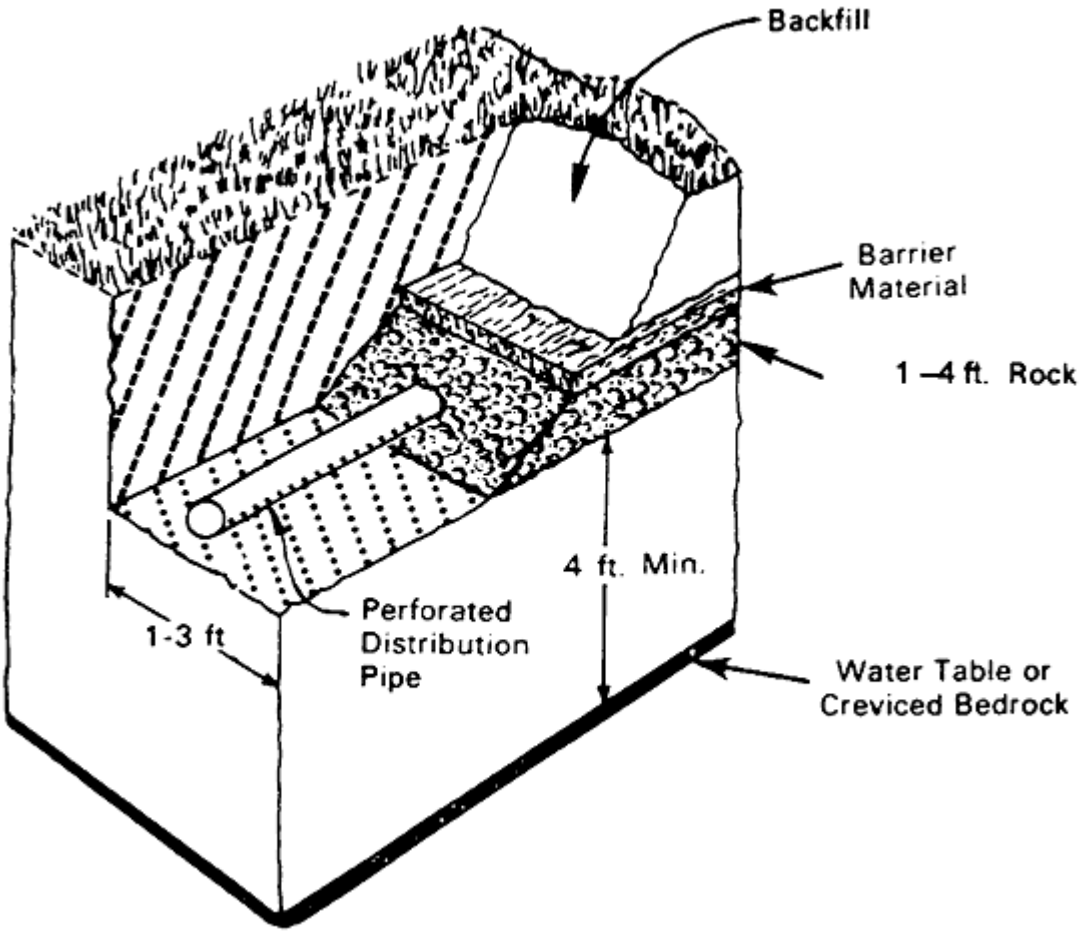
If the percolation rate of the soil is greater than 60 minutes per inch, the system must be designed by an engineer.

10. The required capacity of the septic tank must be divided by the design application rate to calculate the minimum absorption area required.

11. The area of the absorption trench must be determined by calculating the size of the effective area of the sidewall needed beneath the distribution line. Not more than 4 feet of aggregate below the distribution line may be used to calculate the effective area of the sidewall, except that aggregate which is in excess of 4 feet below the distribution line may be used to calculate the effective area of the sidewall with the approval of the administrative authority. The required length of distribution line must be determined as follows:

> The minimum size required for the absorption area (in square feet) divided by [2 times the depth of the aggregate below the distribution line (in feet)] = required length of distribution line (in feet)

12. The following is a diagram of an absorption trench:



NAC 444.8356 Absorption trench system: Inspections. (NRS 439.200, 444.650)

1. If a residential system that is designed by a homeowner includes absorption trenches:

(a) The homeowner shall contact the administrative authority for an inspection before covering the system; and

(b) The administrative authority shall inspect the construction of the system,

➥ before the covering is placed on the system, to ensure that the system complies with the approved plans.

2. If an individual sewage disposal system that includes absorption trenches is designed by an engineer, the engineer shall, within 30 days after the date on which the construction of the system is completed, submit a letter to the administrative authority stating that the system was constructed in accordance with the approved plans.

NAC 444.8358 Absorption bed: General requirements. (NRS 439.200, 444.650)

1. If the use of an absorption trench is not practical, an absorption bed may be used as a viable alternative to the standard disposal trench. The bottom of the absorption bed, rather than the area of the sidewall, must serve as the primary absorptive medium.

2. A homeowner may design a residential system that uses an absorption bed for use at his residence.

(Added to NAC by Bd. of Health by R129-98, eff. 3-25-99)

NAC 444.8361 Absorption bed: Design criteria. (NRS 439.200, 444.650)

1. The absorptive area of an absorption bed must be at least 50 percent larger than the calculated size that would be required for a standard absorption trench.

2. The percolation rate of the soils at the bottom of the absorption bed must not be less than 60 minutes per inch.

3. The effective perimeter of the area of the sidewall beneath the distribution lines, or the depth of the aggregate, must not be less than 12 inches or more than 36 inches. The area of the sidewall may be added to the bottom of the bed when calculating the size of the total absorptive area of the individual sewage disposal system.

4. An absorption bed must not be placed on a slope if the grade of the slope is greater than 8 percent. The bottom of the absorption bed must be level.

5. The invert of the piping for the drain field must be not less than 12 inches or more than 48 inches below the finished grade. The top of the absorption bed must be at least 6 inches below the surface line of the natural soil, and a capping fill must be placed on top of the absorption bed. The capping fill must extend at least 10 feet beyond the perimeter of the leaching area of the absorption bed and must be placed at a minimum depth of 12 inches above the finished grade to allow for settling.

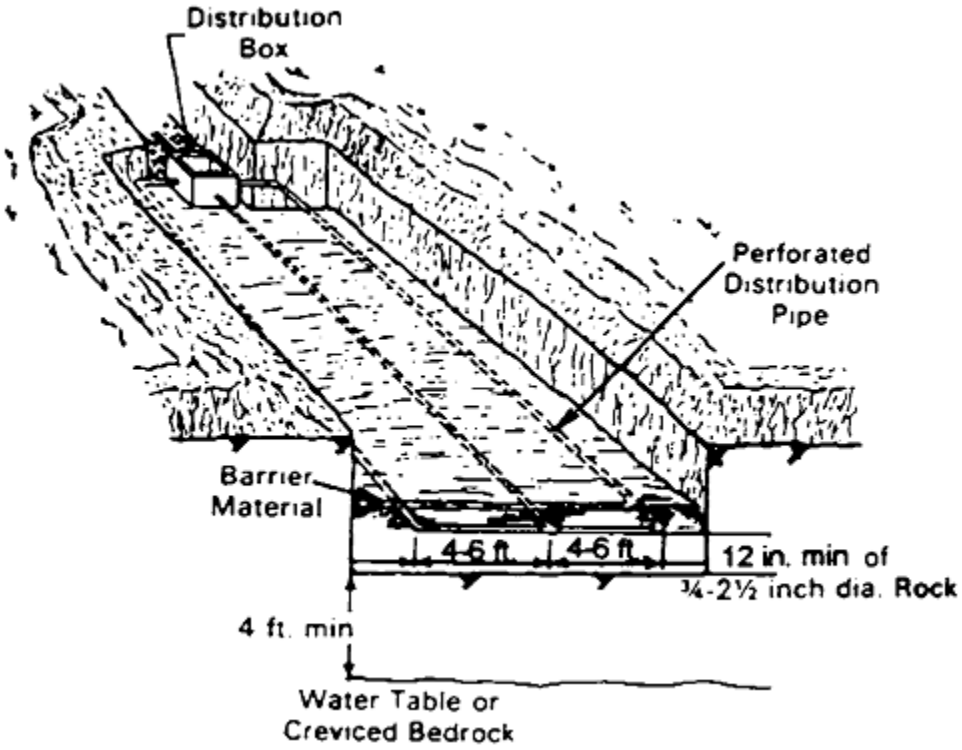
6. An absorption bed must have at least two distribution lines which are separated by not less than 4 feet or more than 6 feet. The distribution lines must be level and placed not less than 3 feet or more than 6 feet from the sidewall of the bed. If a gravity discharge system is used, the distribution line must not be less than 4 inches in diameter. If a pressurized distribution line is used, the line must meet the design guidelines for a pressure distribution system as set forth in NAC 444.8394 and 444.8396.

7. A distribution line must not be longer than 110 feet and must be placed on at least 12 inches of clean, graded aggregate ranging in size from 3/4 to 2 1/2 inches. At least 2 inches of aggregate must cover the top of the distribution line. Untreated building paper, straw, geotextile fabric, or any similar covering approved by the administrative authority, must cover the aggregate, and a backfill of soil must be placed over the covering.

8. The owner of an individual sewage disposal system shall take such precautions as are necessary to avoid compacting the bottom of the absorption bed. Any loose or smeared soil must be raked and removed. No vehicles may travel on the area of the absorption bed after excavation is completed.

9. Dosing is required if more than 500 linear feet of distribution lines are required.

10. The following is a diagram of an absorption bed:



NAC 444.8362 Absorption bed: Inspections. (NRS 439.200, 444.650)

1. The construction of an individual sewage disposal system that includes an absorption bed must be inspected and verified by an engineer or, if the system is designed by a homeowner as part of a residential system for his home, the homeowner. The inspections must be conducted as follows:

(a) Following excavation, the bottom of the absorption bed must be examined to ensure that there is no loose soil and that no smearing conditions exist; and

(b) Upon completion of the installation of the distribution lines in the absorption bed, the individual sewage disposal system must be inspected to ensure that the system complies with the approved design plans.

2. If a residential system that includes an absorption bed is designed by a homeowner:

(a) The homeowner shall contact the administrative authority for an inspection; and

(b) The administrative authority shall inspect the construction,

➥ before the covering is placed on the system, to ensure that the system complies with the approved plans.

3. If an individual sewage disposal system is designed by an engineer, the engineer shall, within 30 days after the date on which construction of the system is completed, submit a letter to the administrative authority stating that the system was constructed in accordance with the approved plans.