Chapter 3:
General Regulations

General Comments

The content of Chapter 3 is often referred to as "miscellaneous," rather than general regulations. Chapter 3 received that label because it is the only chapter in the code whose requirements do not interrelate. Limitations, flood hazard areas and engineered design are covered in this chapter.

Purpose

The ensuing sections outline requirements and considerations related to: limitations on private sewage disposal systems, allowing soil absorption systems in flood hazard areas, and allowing a septic system of an alternative engineered design. It is important to remember that private sewage disposal systems are only permitted to hold and treat residential-strength waste that can be generated by residential and commercial establishments.

Additionally, there are unique and specific conditions and requirements when installing septic systems in areas that are prone to flooding. Finally, most all engineered systems are permitted based on performance, specifically the level of treatment of effluent before it is discharged into the soil, air or surface water. It is important that the code official ensures that they are working with an engineer or other design professional that has experience and is familiar with designing private sewage disposal systems.

SECTION 301
GENERAL

301.1 Scope. The provisions of this chapter shall govern the general regulations of *private sewage disposal systems*, including specific limitations and *flood hazard areas*.

❖ This section of the code provides requirements for the design, permitting and installation of septic systems designed to handle different types or strengths of sewage located within flood hazard areas, and alternative engineered design systems.

SECTION 302
SPECIFIC LIMITATIONS

302.1 Domestic waste. Waste and sewage derived from ordinary living uses shall enter the septic or treatment tank unless otherwise specifically exempted by the *code official* or this code.

❖ Only domestic waste must enter a septic system permitted to serve a residential building. Commercial waste must be addressed through the design of a septic system for handling commercial waste. Industrial or hazardous waste is generally not allowed to enter a septic system of any kind unless specifically allowed by the code official.

302.2 Cesspools and privies. Privies shall be prohibited. *Cesspools* shall be prohibited, except where approved by the *code official*. Where approved, *cesspools* shall be designed and installed in accordance with Chapter 10.

❖ Privies, cesspools, unapproved tanks or tanks without bottoms are sanitary nuisances prohibited by this code. If cesspools are allowed, they must be designed, permitted and installed per Chapter 10 of this code.

302.3 Industrial wastes. The *code official* shall approve the method of treatment and disposal of all waste products from manufacturing or industrial operations, including combined industrial and domestic waste.

❖ Treatment and disposal of sewage generated by manufacturing or industrial operations that enters a septic system must be designed, permitted, and installed with approval by the code official. Any manufacturing or industrial waste mixed with residential waste must be deemed to be manufacturing and industrial waste.

302.4 Detrimental or dangerous waste. Material such as ashes, cinders or rags; flammable, poisonous or explosive liquids or gases; oil, grease or other insoluble material that is capable of obstructing, damaging or overloading the *private sewage disposal system*, or is capable of interfering with the normal operation of the *private sewage disposal system*, shall not be deposited, by any means, into such systems. The *code official* shall approve the method of treatment and disposal.

❖ Only the appropriate type of sewage can go into a septic system designed and approved for that type of waste. All other types of sewage (industrial or commercial or waste products) must be disposed of in a manner which is approved by local or state regulations.

302.5 Clear water. The discharge of surface, rain or other clear water into a *private sewage disposal system* shall be prohibited.

❖ Stormwater, surface water and groundwater must not enter a septic system.

302.6 Water softener and iron filter backwash. Water softener or iron filter discharge shall be indirectly connected by means of an air gap to the *private sewage disposal system* or discharge onto the ground surface, provided that a *nuisance* is not created.

❖ An air gap must be installed to ensure that water softeners or iron filters do not discharge into the septic system. They may be allowed to discharge onto the

surface of the ground provided that a sanitary nuisance is not created.

302.7 Food waste disposals. Where a food waste disposal connects to a *private sewage disposal system*, the system shall be designed to accommodate the solids loading from the disposal unit.

❖ Where waste from a food or garbage disposal unit is directed into a septic system, the septic system must be designed to handle the resulting solids. An outlet filter or other design feature must be used to handle higher volumes of solids.

SECTION 303
FLOOD HAZARD AREAS

[BS] 303.1 General. Soil absorption systems shall be located outside of *flood hazard areas*.

Exception: Where suitable soil absorption sites outside of the *flood hazard area* are not available, the soil absorption site is permitted to be located within the *flood hazard area*. The soil absorption site shall be located to minimize the effects of inundation under conditions of the design flood.

❖ The absorption trenches or bed of a septic system must not be located within a flood hazard area. If no other area exists on a developable parcel, the septic system must be designed in a manner that minimizes the impact of floodwaters on the performance of the septic system so as not to create a sanitary nuisance.

[BS] 303.2 Tanks. In *flood hazard areas*, tanks shall be anchored to counter buoyant forces during condition of the design flood. The vent termination and service manhole of the tank shall be not less than 2 feet (610 mm) above the *design flood elevation* or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tanks during conditions of the design flood.

❖ If a septic tank must be located in a flood hazard area, the tank must be properly anchored. The vent/cleanout and manhole lids of the tank must be at least 2 feet (610 mm) above the design flood elevation or be designed with watertight covers preventing the intrusion of floodwater and prohibiting sewage from leaving the tank.

[BS] 303.3 Mound systems. Mound systems shall be prohibited in *flood hazard areas*.

❖ Mound systems, absorption trenches and beds built up above existing, natural grade must not be located in flood hazard areas.

SECTION 304
ALTERNATIVE ENGINEERED DESIGN

304.1 Alternative engineered design. The design, documentation, inspection, testing and approval of an alternative engineered design *private sewage disposal system* shall comply with Sections 304.1.1 through 304.6.

❖ Requirements for an alternative design are listed in Section 304.1.

304.1.1 Design criteria. An alternative engineered design shall conform to the intent of the provisions of this code and shall provide an equivalent level of quality, strength, effectiveness, fire resistance, durability and safety. Material, equipment or components shall be designed and installed in accordance with the manufacturer's instructions.

❖ Alternative engineered systems must equal or exceed the performance of a code-compliant traditional septic system.

304.2 Submittal. The *registered design professional* shall indicate on the permit application that the *private sewage disposal system* is an alternative engineered design. The permit and permanent permit records shall indicate that an alternative engineered design was part of the approved installation.

❖ The registered design professional must indicate on the permit application that the design is an alternative engineered design. Similarly, the permit and all records associated with the system must indicate that it is an alternative engineered design.

304.3 Technical data. The *registered design professional* shall submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this code.

❖ A system with an alternative engineered design, or performance-based system, must use a design supported by technical data provided by the registered design professional demonstrating performance equal to or greater than a code-compliant system.

304.4 Construction documents. The *registered design professional* shall submit to the *code official* two complete sets of signed and sealed *construction documents* for the alternative engineered design.

❖ The registered design professional must provide two completed sets of signed and sealed plans for an application for an alternative engineered design system.

304.5 Design approval. Where the *code official* determines that the alternative engineered design conforms to the intent of this code, the *private sewage disposal system* shall be approved. If the alternative engineered design is not approved, the *code official* shall notify the *registered design professional* in writing, stating the reasons therefor.

❖ A permit must be issued in a timely manner by the code official for all alternative engineered design systems submitted that meet or exceed the requirements in this code. If the application is not approved, the code official must provide notification and identification of items not meeting code in a timely, specific and clear manner.

304.6 Inspection and test. The alternative engineered design shall be inspected in accordance with the requirements of Section 111.

❖ Alternative engineered design septic systems must be inspected as required by Section 111.

Chapter 4:
Site Evaluation and Requirements

General Comments

A private sewage disposal system has effluent that cannot be directly discharged into waterways or open ponds. Soil of the right consistency and water content provides natural filtering and treatment of this discharge. Because soil conditions vary widely, even on the same building site, tests and inspections of the soils must be performed to evaluate the degree to which the soil can accept these liquids. The results of the tests provide necessary information to design an adequate private sewage disposal system. Chapter 4 provides the methods for evaluating the building site.

Purpose

A site evaluation, whether performed by the code official, their designee, an engineer or contractor, is a vital part of the permitting process and will ultimately determine if the design of the septic system will meet the requirements of code and perform properly for years into the future. Ensuring that the soil type and resulting absorption rate are appropriate for the placement of a septic system is foundational. Consideration of site elements is also extremely important. The placement of structure, well location, distance to surface water, and the slope of the property are just some of the important factors to consider during a site evaluation. While it seems counterintuitive, the development of a property should start with septic system design and location. This is especially important on smaller lots with larger homes.

SECTION 401
GENERAL

401.1 Scope. The provisions of this chapter shall govern the evaluation of and requirements for *private sewage disposal system* sites.

❖ The following information will inform and advise the code official on the required or necessary considerations that must be evaluated in order to permit and install a private sewage disposal system.

401.2 Site evaluation. Site evaluation shall include soil conditions, properties and permeability, depth to zones of soil saturation, depth to bedrock, slope, landscape position, all setback requirements and the presence of *flood hazard areas*. Soil test data shall relate to the undisturbed elevations, and a vertical elevation reference point or benchmark shall be established. Evaluation data shall be reported on approved forms. Reports shall be filed within 30 days of the completion of testing for all sites investigated.

❖ Site evaluations should consider soil conditions including color, size/structure and hydraulic loading of the soil located in the tank and drain field area. It is important to ensure proper separation between the bottom of the drain field and the perched or seasonal high water table or unsuitable soil such as hardpan or rock. Additional factors such as setbacks to surface water or flood zones, drinking water or irrigation wells, property lines, ditches or swales, and significant sloping areas should also be considered as part of the site evaluation process. The soil data collected should apply to natural soil conditions that have not been disturbed. Often, systems are planned to be installed in areas where the natural soil has been removed and the area has been filled in with soil taken from another location. This is often referred to as fill material. The code official should be very cautious with soil evaluations in these cases as there are no natural indicators of permeability or the seasonal high water table. It is a good idea to consult with an engineer or soil scientist in these cases to ensure the system will perform well and avoid a sanitary nuisance situation.

401.3 Replacement system area. On each parcel of land being initially developed, sufficient area of suitable soils based on the soil tests and system location and site requirements of this code for one replacement system shall be established. Where bore hole test data in the replacement system area are equivalent to data in the proposed system area, the percolation test is not required.

❖ Drain fields do not last forever. Suitable areas with favorable soil conditions are required for future drain field locations. While it is possible to dig up a failing drain field, perform a soil replacement and install a new drain field in the same location, it is very expensive and labor intensive, and the fill material is not as desirable as natural soil material. While evaluating the site, scrutiny should be given to the drain field replacement area to make sure that it will meet code when the replacement drain field needs to be installed.

401.3.1 Nonconforming site conditions. Where site conditions do not permit replacement systems in accordance with this code and an alternative system is used, the alternative system shall be approved in accordance with Section 105.

❖ When a conventional drain field cannot be installed in the replacement area, an alternative system can be considered, and it will have to meet code all requirements.

401.3.2 Undisturbed site. The replacement system shall not be disturbed to the extent that the site area is no longer suitable. The replacement system area shall not be used for construction of buildings, parking lots or parking areas, below-ground swimming pools or any other use that will adversely affect the replacement area.

❖ It is important that property owners understand that the replacement area should not be used for other purposes such as structure expansions, swimming pools or parking areas. In the cases where this does occur, it may be required to remove said structures and other property improvements to use the replacement area for its original purpose.

SECTION 402
SLOPE

402.1 General. A *conventional soil absorption system* shall not be located on land with a slope greater than 20 percent. A *conventional soil absorption system* shall be located not less than 20 feet (6096 mm) from the crown of land with a slope greater than 20 percent, except where the top of the aggregate of a system is at or below the bottom of an adjacent roadside ditch. Where a more restrictive land slope is to be observed for a soil absorption system, other than a *conventional soil absorption system*, the more restrictive land slope specified in the design sections of this code shall apply.

❖ The slope of the property is a very important factor to consider when installing both the tank and drain field. Extreme slope, grader that 20 percent, can cause a tank and drain field system to create a sanitary nuisance. Systems should be located greater than 20 feet away from the crown of the extreme (20 percent or greater) sloping areas of the property, except where the top of the drain field is at or below the bottom of an adjacent roadside ditch or swale.

SECTION 403
SOIL BORINGS AND EVALUATION

403.1 Soil borings and profile descriptions. *Soil borings* shall be conducted on all sites, regardless of the type of private sewage system planned to serve the parcel. Borings shall extend not less than 3 feet (914 mm) below the bottom of the proposed system. Borings shall be of sufficient size and extent to determine the soil characteristics important to an on-site liquid waste disposal system. Borehole data shall be used to determine the suitability of soils at the site with respect to zones of seasonal or permanent soil saturation and the depth to bedrock. Borings shall be conducted prior to percolation tests to determine whether the soils are suitable to warrant such tests and, if suitable, at what depth percolation tests shall be conducted. The use of power augers for *soil borings* is prohibited. *Soil borings* shall be conducted and reported in accordance with Sections 403.1.1 through 403.1.5. Where it is not practical to have borings made with a backhoe, such borings shall be augered or dug by hand.

❖ Soil borings and pits are necessary and required to ensure proper soil evaluations can occur. Pits dug by a backhoe that are large enough to see the horizontal soil profile to a depth of at least 6 feet are recommended so that soil horizons and the soil textures of those horizons has been easily viewed and evaluated. When using a soil auger, make sure that the correct auger buckets are available for the type of soil worked. Soil should be evaluated (recording color, texture, and depth as you go) to a depth of at least 3 feet below the bottom of the drain field. Power augers must not be used as they do not provide proper evaluation of the soil due to the disturbance of the soil that occurs during their use. They also can create an unsafe situation that results in physical harm to the user.

403.1.1 Number. There shall be not less than three borings per soil absorption site. Where necessary, more *soil borings* shall be made for an accurate evaluation of a site. Borings shall be constructed to a depth of not less than 3 feet (914 mm) below the proposed depth of the system.

Exception: On new parcels, the requirement of six borings (three for initial area and three for replacement area) shall be reduced to five where the initial and replacement system areas are contiguous and one boring is made on each outer corner of the contiguous area and the fifth boring is made between the system areas [see Appendix A, Figure A101.1(1)].

❖ At least three soil borings should be performed in the drain field area. It is recommended that they be at the beginning, middle and end of the drain field location. Additional soil borings may be needed depending on the system design. It is important not to forget the evaluation of the drain field replacement area.

When evaluating a new site, the requirement is for at least three in the proposed installation area and another three in the replacement area, except when the proposed installation location and the replacement area are right next to each other.

403.1.2 Location. Each borehole shall be accurately located and referenced to the vertical elevation and horizontal reference points. Reports of boring location shall either be drawn to scale or have the horizontal dimensions clearly indicated between the borings and the horizontal reference point.

❖ The site plan should indicate soil boring or pit locations in relation to both vertical elevation and the horizontal reference point.

403.1.3 Soil description. Soil profile descriptions shall be written for all borings. The thickness in inches (mm) of the different soil horizons observed shall be indicated. Horizons shall be differentiated on the basis of color, texture, *soil mottles* or bedrock. Depths shall be measured from the ground surface.

❖ The soil boring and pit descriptions must record the depth, color and texture of each soil horizon encountered. The depth must reference how far down from the surface each distinct horizon starts and ends. Other features that should be recorded include mottles, hardpan and bedrock.

403.1.4 Soil mottles. Seasonal or periodic soil saturation zones shall be estimated at the highest level of *soil mottles*. The *code official* shall require, where deemed necessary, a detailed description of the soil mottling on a marginal site. The abun-

dance, size, contrast and color of the *soil mottles* shall be described in the following manner:

Abundance shall be described as "few" if the mottled color occupies less than 2 percent of the exposed surface; "common" if the mottled color occupies from 2 to 20 percent of the exposed surface; or "many" if the mottled color occupies more than 20 percent of the exposed surface. Size refers to length of the mottle measured along the longest dimension and shall be described as "fine" if the mottle is less than 0.196 inch (5 mm); medium if the mottle is from 0.196 inch to 1.590 inches (5 mm to 40 mm); or coarse if the mottle is larger than 1.590 inches (40 mm). Contrast refers to the difference in color between the soil mottle and the background color of the soil and is described as "faint" if the mottle is evident but recognizable with close examination; "distinct" if the mottle is readily seen but not striking; or "prominent" if the mottle is obvious and one of the outstanding features of the horizon. The color(s) of the mottle(s) shall be indicated.

❖ Redoximorphic features or mottles are indicators of the seasonal high water table or perched water tables. These features only present in the soil under extended saturation periods. The mottles should be both prominent and distinct when using them for determining a water table level depth. During soil profile evaluation, the mottles encountered should be documented without mistaking them for soil inclusions (other strips or veins of contrasting soil types). It is important to describe these mottles as best possible to ensure proper documentation and justification in the determination of the seasonal-high or perched water table.

403.1.5 Observed ground water. The depth to ground water, if present, shall be reported. Observed ground water shall be reported at the level that ground water reaches in the soil borehole or the highest level of sidewall seepage into the boring. Measurements shall be made from ground level. Soil located above the water level in the boring shall be checked for the presence of *soil mottles*.

❖ The highest level of the observed water table must be recorded. It is important to note that the observed water table is often found below the depth of mottling (indicator of seasonal high water table) but it can, in less common cases, be found above the mottling during wet conditions or seasons of the year. In certain soil textures, the ground water may be noticed by increased suction or resistance on the soil auger bucket.

403.2 Color patterns not indicative of soil saturation. The following soil conditions shall be reported, but shall not be interpreted as color patterns caused by wetness or saturation. Soil profiles with an abrupt textural change with finer-textured soils overlying more than 4 feet (1219 mm) of unmottled, loamy sand or coarser soils can have a mottled zone for the finer textured material. Where the mottled zone is less than 12 inches (305 mm) thick and located immediately above the textural change, a soil absorption system shall be permitted in the loamy sand or coarser material below the mottled layer. The site shall be considered to be unsuitable where any *soil mottles* occur within the sandy material. The *code official* shall consider certain coarse sandy loam soils to be included as a coarse material.

❖ The right color of mottling depends on the soil type you are evaluating. For example, high-chroma or reddish-brown mottles are looked for in sandy soils. In clayey soils, low chroma (white or grey) color depletions in the soil are looked for.

403.2.1 Other soil color patterns. *Soil mottles* occur that are not caused by seasonal or periodic soil saturation zones. Examples of such soil conditions not limited by enumeration are *soil mottles* formed from residual sandstone deposits; *soil mottles* formed from uneven weathering of glacially deposited material or glacially deposited material that is naturally gray in color, including any concretionary material in various stages of decomposition; deposits of lime in a profile derived from highly calcareous parent material; light-colored silt coats deposited on soil bed faces; and *soil mottles* usually vertically oriented along old or decayed root channels with a dark organic stain usually present in the center of the mottled area.

❖ It is important for the soil evaluator to be trained and experienced to ensure that the right type of mottling is used to call a seasonal high water table. Soil inclusions or deposits of different types of soil with different textures and colors can occur. These are often confused as hydraulic indicators rather than the soil mottles they actually are. Misidentification of these mottles can result in installation requirements that are not necessary and costly for property owners.

403.2.2 Reporting exceptions. The site evaluator shall report any mottled soil condition. The observation of *soil mottles* not caused by soil saturation shall be reported. On request, the *code official* shall make a determination of the acceptability of the site.

❖ The soil evaluator must record all hydraulic and soil mottles. This important documentation is essential for transparency and justification of the installation requirements.

403.3 Bedrock. The depth of the bedrock, except sandstone, shall be established at the depth in a *soil boring* where more than 50 percent of the weathered-in-place material is consolidated. Sandstone bedrock shall be established at the depth where an increase in resistance to penetration of a knife blade occurs.

❖ Hardpan or bedrock is determined when 50 percent or more of the soil in the auger bucket or pit is consolidated. This threshold is often reached gradually when encountering larger soil structures, but in some cases can be crossed abruptly.

403.4 Alluvial and colluvial deposits. Subsurface soil absorption systems shall not be placed in alluvial and colluvial deposits with shallow depths, extended periods of saturation or possible flooding.

❖ A drain field should not be located in areas of frequent or seasonal flooding as the soil is unsuitable. The soil is dynamic and lacks natural structure that needs time to develop and is favorable to hydraulic loading of the soil.

SECTION 404
PERCOLATION OR PERMEABILITY EVALUATION

404.1 General. The permeability of the soil in the proposed absorption system shall be determined by percolation tests or permeability evaluation.

❖ Permeability of the soil is key to a well-functioning drain field. While percolation tests are still used in some areas, boring holes identifying soil characteristics that are then compared to known hydraulic loading rates are more commonly used to determine drain field sizing.

404.2 Percolation tests and procedures. Not less than three percolation tests in each system area shall be conducted. The holes shall be spaced uniformly in relation to the bottom depth of the proposed absorption system. More percolation tests shall be made where necessary, depending on system design.

❖ Similar to soil boring holes or pits, the percolation test requires at least three holes in the drain field location. The percolation holes must be dug uniformly to the bottom of the proposed drain field depth. This will help ensure adequate hydraulic soil loading in the entire drain field area.

404.2.1 Percolation test hole. The test hole shall be dug or bored. The test hole shall have vertical sides and a horizontal dimension of 4 inches to 8 inches (102 mm to 203 mm). The bottom and sides of the hole shall be scratched with a sharp-pointed instrument to expose the natural soil. Loose material shall be removed from the hole, and the bottom shall be covered with 2 inches (51 mm) of gravel or coarse sand.

❖ When using a soil auger, the bucket used must be 4 to 8 inches in diameter. Loose soil must be removed and approximately 2 inches of gravel or coarse sand placed at the bottom of the hole.

404.2.2 Test procedure, sandy soils. The hole shall be filled with clear water to not less than 12 inches (305 mm) above the bottom of the hole for tests in sandy soils. The time for this amount of water to seep away shall be determined and this procedure shall be repeated if the water from the second filling of the hole seeps away in 10 minutes or less. The test shall proceed as follows: Water shall be added to a point not more than 6 inches (152 mm) above the gravel or coarse sand. Thereupon, from a fixed reference point, water levels shall be measured at 10-minute intervals for a period of 1 hour. Where 6 inches (152 mm) of water seeps away in less than 10 minutes, a shorter interval between measurements shall be used, but the water depth shall not exceed 6 inches (152 mm) in any case. Where 6 inches (152 mm) of water seeps away in less than 2 minutes, the test shall be stopped and a rate of less than 3 minutes per inch (7.2 s/mm) shall be reported. The final water level drop shall be used to calculate the percolation rate. Soils not meeting the requirements of this section shall be tested in accordance with Section 404.2.3.

❖ This section outlines the procedures for conducting a percolation testing sandy soils. It is important to follow and document all steps as closely as possible. These steps will help you determine if the soil is poorly or well drained. This information is important to determine the specific hydraulic loading of the soil that is possible in that location.

404.2.3 Test procedure, other soils. The hole shall be filled with clear water, and a minimum water depth of 12 inches (305 mm) shall be maintained above the bottom of the hole for a 4-hour period by refilling whenever necessary or by use of an automatic siphon. Water remaining in the hole after 4 hours shall not be removed. Thereafter, the soil shall be allowed to swell not less than 16 hours or more than 30 hours. Immediately after the soil swelling period, the measurements for determining the percolation rate shall be made as follows: Any soil sloughed into the hole shall be removed, and the water level shall be adjusted to 6 inches (152 mm) above the gravel or coarse sand. Thereupon, from a fixed reference point, the water level shall be measured at 30-minute intervals for a period of 4 hours, unless two successive water level drops do not vary by more than $^{1}/_{16}$ inch (1.59 mm). Not less than three water level drops shall be observed and recorded. The hole shall be filled with clear water to a point not more than 6 inches (152 mm) above the gravel or coarse sand whenever it becomes nearly empty. The water level shall not be adjusted during the three measurement periods except to the limits of the last measured water level drop. Where the first 6 inches (152 mm) of water seeps away in less than 30 minutes, the test shall be performed again for a period of 1 hour with measurements performed every 10 minutes. The water depth shall not exceed 5 inches (127 mm) at any time during the measurement period. The drop that occurs during the final measurement period shall be used in calculating the percolation rate.

❖ This section outlines the procedures for conducting percolation testing for all soils other than sandy soils. It is important to follow and document all steps as closely as possible. These steps will help determine if the soil is poorly or well drained. This information is important to determine the specific hydraulic loading of the soil that is possible in that location.

404.2.4 Mechanical test equipment. Mechanical percolation test equipment shall be of an approved type.

❖ Mechanical percolation test equipment and procedures must be reviewed and validated in order to be utilized as an alternative to traditional percolation tests.

404.3 Permeability evaluation. Soil shall be evaluated for estimated percolation based on structure and texture in accordance with accepted soil evaluation practices. Borings shall be made in accordance with Section 404.2 for evaluating the soil.

❖ Soil borings in accordance with Section 404.2 are made so that percolation estimates can be based on the soil's specific structure and texture.

SECTION 405
SOIL VERIFICATION

405.1 Verification. Where required by the *code official*, depth to *soil mottles*, depth to high ground water, soil textures, depth to bedrock and land slope shall be verified by the *code official*. The *code official* shall require, where necessary, backhoe pits to be provided for verification of *soil boring* data. Where required by the *code official*, the results of percolation tests or permeability evaluation shall be subject to verification. The *code official* shall require, where necessary, that percolation tests be conducted under supervision. Where the natural soil condition has been altered by filling or other methods used to