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# *The* **NORTH CAROLINA REGISTER**

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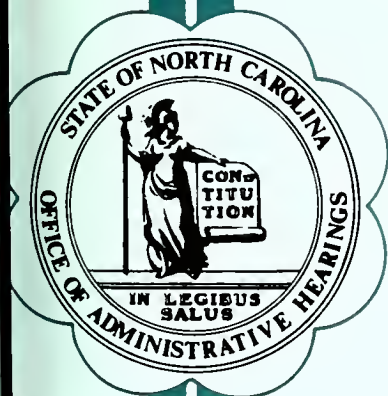
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**Revenue**

**ISSUE DATE: JUNE 15, 1989**

**Volume 4 • Issue 6 • Pages 312-364**



# INFORMATION ABOUT THE NORTH CAROLINA REGISTER AND ADMINISTRATIVE CODE

## NORTH CAROLINA REGISTER

The *North Carolina Register* is published bi-monthly and contains information relating to agency, executive, legislative and judicial actions required by or affecting Chapter 150B of the General Statutes. All proposed, administrative rules and amendments filed under Chapter 150B must be published in the Register. The Register will typically comprise approximately fifty pages per issue of legal text.

State law requires that a copy of each issue be provided free of charge to each county in the state and to various state officials and institutions. The *North Carolina Register* is available by yearly subscription at a cost of one hundred and five dollars (\$105.00) for 24 issues.

Requests for subscriptions to the *North Carolina Register* should be directed to the Office of Administrative Hearings, P. O. Drawer 11666, Raleigh, N. C. 27604, Attn: *Subscriptions*.

## ADOPTION, AMENDMENT, AND REPEAL OF RULES

An agency intending to adopt, amend, or repeal a rule must first publish notice of the proposed action in the *North Carolina Register*. The notice must include the time and place of the public hearing; a statement of how public comments may be submitted to the agency either at the hearing or otherwise; the text of the proposed rule or amendment; a reference to the Statutory Authority for the action and the proposed effective date.

The Director of the Office of Administrative Hearings has authority to publish a summary, rather than the full text, of any **amendment** which is considered to be too lengthy. In such case, the full text of the rule containing the proposed amendment will be available for public inspection at the Rules Division of the Office of Administrative Hearings and at the office of the promulgating agency.

Unless a specific statute provides otherwise, at least 30 days must elapse following publication of the proposal in the *North Carolina Register* before the agency may conduct the required public hearing and take action on the proposed adoption, amendment or repeal.

When final action is taken, the promulgating agency must file any adopted or amended rule for approval by the Administrative Rules Review Commission. Upon approval of ARRC, the adopted or amended rule must be filed with the Office of Administrative Hearings. If it differs substantially from the proposed form published as part of the public notice, upon request by the agency, the adopted version will again be published in the *North Carolina Register*.

A rule, or amended rule cannot become effective earlier than the first day of the second calendar month after the adoption is filed with the Office of Administrative Hearings for publication in the NCAC.

Proposed action on rules may be withdrawn by the promulgating agency at any time before final action is taken by the agency.

## TEMPORARY RULES

Under certain conditions of an emergency nature, some agencies may issue temporary rules. A temporary rule becomes effective when adopted and remains in

effect for the period specified in the rule or 180 days whichever is less. An agency adopting a temporary rule must begin normal rule-making procedures on the permanent rule at the same time the temporary rule is adopted.

## NORTH CAROLINA ADMINISTRATIVE CODE

The North Carolina Administrative Code (NCAC) is a compilation and index of the administrative rules of 25 state agencies and 38 occupational licensing boards. The NCAC comprises approximately 15,000 letter single spaced pages of material of which approximately 35% is changed annually. Compilation and publication of the NCAC is mandated by G.S. 150B-63(b).

The Code is divided into Titles and Chapters. Each state agency is assigned a separate title which is further broken down by chapters. Title 21 is designated for occupational licensing boards.

The NCAC is available in two formats.

- (1) Single pages may be obtained at a minimum cost of two dollars and 50 cents (\$2.50) for pages or less, plus fifteen cents (\$0.15) per page for additional page.
- (2) The full publication consists of 52 volumes totaling in excess of 15,000 pages. It is supplemented monthly with replacement pages. A one year subscription to the full publication including supplements can be purchased for seven hundred and fifty dollars (\$750.00). Individual volumes may also be purchased with supplement service. Renewal subscriptions for supplements to the initial publication available.

Requests for pages of rules or volumes of the NCAC should be directed to the Office of Administrative Hearings.

## NOTE

The foregoing is a generalized statement of the procedures to be followed. For specific statutory language, it is suggested that Articles 2 and 5 of Chapter 150B of the General Statutes be examined carefully.

## CITATION TO THE NORTH CAROLINA REGISTER

The *North Carolina Register* is cited by volume, issue number and date. **1:1 NCR 101-201, April 1, 1986** refers to Volume 1, Issue 1, pages 101 through 201 of the *North Carolina Register* issued on April 1, 1986.

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# **NORTH CAROLINA REGISTER**



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**Publication Deadlines and Schedules**  
*(January 1989 - May 1990)*

Issue Date	Last Day for Filing	Last Day for Electronic Filing	Earliest Date for Public Hearing & Adoption by Agency	* Earliest Effective Date
*****	*****	*****	*****	*****
01/02/89	12/08/88	12/15/88	02/01/89	05/01/89
01/16/89	12/27/88	01/03/89	02/15/89	05/01/89
02/01/89	01/10/89	01/17/89	03/03/89	06/01/89
02/15/89	01/26/89	02/02/89	03/17/89	06/01/89
03/01/89	02/08/89	02/15/89	03/31/89	07/01/89
03/15/89	02/21/89	03/02/89	04/14/89	07/01/89
04/03/89	03/10/89	03/17/89	05/03/89	08/01/89
04/14/89	03/23/89	03/31/89	05/14/89	08/01/89
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07/14/89	06/22/89	06/29/89	08/13/89	11/01/89
08/01/89	07/11/89	07/18/89	08/31/89	12/01/89
08/15/89	07/25/89	08/01/89	09/14/89	12/01/89
09/01/89	08/11/89	08/18/89	10/01/89	01/01/90
09/15/89	08/24/89	08/31/89	10/15/89	01/01/90
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12/01/89	11/07/89	11/15/89	12/31/89	04/01/90
12/15/89	11/22/89	12/01/89	01/14/90	04/01/90
01/02/90	12/07/89	12/14/89	02/01/90	05/01/90
01/16/90	12/20/89	12/29/89	02/15/90	05/01/90
02/01/90	01/10/90	01/18/90	03/03/90	06/01/90
02/15/90	01/25/90	02/01/90	03/17/90	06/01/90
03/01/90	02/08/90	02/15/90	03/31/90	07/01/90
03/15/90	02/22/90	03/01/90	04/14/90	07/01/90
04/02/90	03/12/90	03/19/90	05/02/90	08/01/90
04/16/90	03/23/90	03/30/90	05/16/90	08/01/90
05/01/90	04/09/90	04/17/90	05/31/90	09/01/90
05/15/90	04/24/90	05/01/90	06/14/90	09/01/90

\* The "Earliest Effective Date" is computed assuming that the public hearing and adoption occur in the calendar month immediately following the "Issue Date", that the agency files the rule with The Administrative Rules Review Commission by the 20th of the same calendar month and that ARRC approves the rule at the next calendar month meeting.



EXECUTIVE ORDER NUMBER 90

GOVERNOR'S ADVISORY COUNCIL ON  
LITERACY

North Carolina's economy is changing in fundamental ways. Employment in agriculture and low-skill manufacturing is declining. This decline is offset by new jobs in other industries which require different, higher-level skills. Unless effective steps are taken to upgrade the basic skills of the existing and future work force, North Carolina's economy will suffer.

Improving the literacy of North Carolina's citizens is key. Nonreading adults in North Carolina are likely to be locked in low-paying jobs. These adults do not possess the reading abilities necessary to learn new, higher-level skills.

THEREFORE, by the authority vested in me as Governor by the Constitution and laws of North Carolina, IT IS ORDERED:

Section 1. ESTABLISHMENT

The Governor's Advisory Council on Literacy, hereinafter "The Council," is hereby established to replace the Governor's Literacy Council created by Executive Order Number 32. The Council shall consist of not less than 19 persons appointed by the Governor.

Section 2. MEMBERSHIP

The membership of the Council shall include, but not be limited to, the following members:

1. The President of the Community College System, or someone designated by that person, and one representative nominated by the State Board of Community Colleges;
2. The Director of the North Carolina Literacy Association, or someone designated by that person, and one representative nominated by the Board of Directors of the North Carolina Literacy Association;
3. One representative of another literacy program;
4. The State Superintendent of Public Instruction, or someone designated by that person;
5. One representative of the State Senate to be nominated by the Lieutenant Governor;
6. One representative of the State House of Representatives to be nominated by the Speaker of the House;
7. Five representatives of business and industry to be appointed by the Governor;

8. One representative of the University of North Carolina to be nominated by the President of that University;
9. One representative of the Association of Private Colleges and Universities to be appointed by the Governor; and
10. Four members-at-large to be appointed by the Governor.

Members of the Council shall serve two-year staggered terms, except that nine members of the initial Council shall be appointed for one-year terms, and the remainder shall be appointed for two year terms. The Governor shall determine which members serve these initial terms.

Except for the President of the Community College System, the Director of the North Carolina Literacy Association and the State Superintendent of Public Instruction or their designees, all members serve at the pleasure of the Governor. All vacancies shall be filled by the Governor. When filling vacancies involving persons nominated and appointed pursuant to subsections 1, 2, 5, 6, 8 above, the Governor shall solicit replacement nominations from the appropriate authority. The Governor shall designate one member to serve as Chairperson of the Council.

Section 3. FUNCTIONS

A. The Council shall meet regularly at the call of the Chairperson.

B. The Council shall develop and deliver to the Governor a long-range plan designed to expand literacy education efforts in the workplace. The plan shall designate the various State agencies which must cooperate to implement these efforts. Funding for this plan shall be included in the Council's recommended comprehensive program budget.

C. The Council may establish an adjunct Technical Committee composed of literacy service providers, instructors, administrators, and program participants. Such a committee would serve as a source of practical advice regarding policy initiatives being considered by the Council. The Governor shall designate the members and Chairperson of such a Committee. The Committee would meet at the call of either its Chairperson or the Council's Chairperson.

D. The Council shall seek to establish a Literacy Trust Fund. It shall recommend the goals, the areas of eligible activity, the disbursement mechanisms, and the funding criteria for such a Fund to the Governor.

E. The Council shall develop and deliver to the Governor financial and service recommendations for State literacy programs and resources. In this regard, the Council shall build on the informa-

tion previously gathered by the Governor's Commission on Literacy to review the existing:

1. Literacy services and resources;
2. Numbers of persons served by these services;
3. Gaps in literacy service;
4. Coordination among literacy services;
5. Characteristics and needs of the target populations for literacy services; and
6. Delivery of literacy services to these populations.

F. The Council shall propose to the Governor (1) a comprehensive program budget for all literacy activities in every State agency, (2) program performance objectives, and (3) timetables for accomplishing goals. In proposing a literacy program budget, the Council shall give a high priority in funding to the research and development of promising innovative literacy programs.

G. The Council shall foster cooperation and coordination among state agencies and private sector literacy services to achieve the maximum possible impact from existing programs and eliminate duplicative efforts.

H. The Council shall work to develop methods to measure literacy program performance and student progress in order to more precisely monitor program achievements.

I. The Council shall work to increase the professional capabilities of existing literacy educators. The Council shall also encourage development of professional, full-time literacy educators. In this regard, the Council shall arrange to provide statewide technical assistance in pedagogy, literacy program design, and curriculum development for adult learners. The Council shall also develop mechanisms to provide practical assistance and support to volunteer teachers.

J. The Council shall promote literacy programs and raise awareness of illiteracy among both the general public and the business community.

K. The Council shall foster coordination of current state agency literacy programs in order to most effectively reach those in need of literacy services. The Council shall work to develop several varied intervention strategies for the population of adult learners.

L. The Council shall develop programs for family literacy education for the parents of children at risk of illiteracy.

#### Section 4. ADMINISTRATION

A. Administrative support and staff for the Council shall be provided by the Department of Administration.

B. Members of the Council shall be reimbursed for necessary travel and subsistence expenses as

authorized under N.C.G.S. 138-5 and 138-6. Funds for the reimbursement of such expenses shall be made available from funds authorized to the Department of Administration.

C. Each cabinet department shall make every reasonable effort to cooperate with the Council to implement the provisions of this order.

#### Section 5. IMPLEMENTATION AND DURATION

This Executive Order shall become effective immediately and shall expire in accordance with North Carolina law two years from the date on which it is signed. It is subject to reissuance or extension at the discretion of the Governor.

Done in Raleigh, North Carolina, this 18th day of May, 1989.

#### **EXECUTIVE ORDER NUMBER 91**

#### **NORTH CAROLINA MOTOR CARRIER ADVISORY COUNCIL**

The motor carrier industry is an important industry to North Carolina and to the United States. Coordination with other states' laws and federal laws benefit the motor carrier industry, businesses served by the motor carrier industry, and the citizens of North Carolina.

NOW, therefore, by authority vested in me as Governor by the Constitution and laws of North Carolina, IT IS ORDERED:

#### Section 1. ESTABLISHMENT

There is hereby created and established the North Carolina Motor Carrier Advisory Council. The Advisory Council shall be composed of not less than seventeen (17) members as follows:

The Secretary of the Department of Transportation or his designee;

The Highway Administrator or his designee;

Commissioner, Division of Motor Vehicles or his designee;

Director, Motor Fuel Division, Department of Revenue or designee;

Director, Governor's Highway Safety Program or designee;

North Carolina Utilities Commission, Transportation Division representative;

North Carolina State Highway Patrol representative;

At least six members from the motor carrier industry representing the following areas: heavy duty and rigging, truckload, less than truckload, trucking association, private carrier, tank/bulk;

Representative of the state bus association;

At least three (3) members representing the interests of intra-state truck users.

National Motor Carrier Advisory Committee members shall serve as ex-officio members of the North Carolina Council.

All public members shall be appointed and serve at the pleasure of the Secretary of the Department of Transportation. They shall serve two-year terms.

The Secretary of the North Carolina Department of Transportation or his designee shall chair the Advisory Council.

The Secretary of Transportation may designate a co-chair from among the public members of the Council.

#### Section 2. DUTIES

The Advisory Council shall have the following duties:

1. To review current laws, policies, and procedures regarding taxation, regulation, and safety of the motor carrier industry in North Carolina;
2. To determine the extent to which these laws, policies, and procedures are consistent with those in other states;
3. To work cooperatively with the National Governors' Association, the Federal Highway Administration, and other organizations in an effort to streamline and improve uniformity and efficiency among the states in motor carrier taxation, regulation, and other related matters;

4. To advise the Governor and make recommendations concerning the motor carrier industry.

#### Section 3. ADMINISTRATION

The Department of Transportation shall provide the planning, technical, and administrative support for the Advisory Council.

#### Section 4. EXPENSES

Members of the Council shall be compensated for their per diem expenses as provided in N.C. General Statutes 138-5 and 138-6. These expenses shall be provided from funds made available from the Department of Transportation.

#### Section 5. AGENCY COOPERATION

Every agency and department of state government is directed to cooperate with the Council by providing necessary information requested by the Council and to provide the Council on a timely basis departmental directives and procedures applied within the agency or department which affect the motor carrier industry.

#### Section 6. EFFECTIVE DATE

This Order shall be effective immediately and shall remain in effect as provided by N.C. General Statutes 147-16.2.

Done in the Capital City of Raleigh, North Carolina, this 18th day of May, 1989.



## TITLE 10 - DEPARTMENT OF HUMAN RESOURCES

*Notice is hereby given in accordance with G.S. 150B-12 that the Division of Health Services intends to amend rule(s) cited as 10 NCAC 10A .1935, .1937 - .1942, .1944, .1946 - .1950, .1952 - .1958, .1960 - .1961, .1964; and repeal rule(s) cited as 10 NCAC 10A .1936.*

*The proposed effective date of this action is January 1, 1990.*

*The public hearings will be conducted:*

*July 18, 1989 - 7:30 p.m.  
Public Assembly Building  
Brunswick County Government Complex  
Highway 17 South  
Bolivia, North Carolina*

*July 19, 1989 - 1:30 p.m.  
Highway Building  
Auditorium (First Floor)  
1 South Wilmington Street  
Raleigh, North Carolina*

*July 20, 1989 - 7:30 p.m.  
Administration Building  
McDowell Technical Community College  
Exit 226, I-40  
Marion, North Carolina*

*Comment Procedures: Any person may request information or copies of the proposed rules by writing or calling John P. Barkley, Agency Legal Specialist, Division of Health Services, P.O. Box 2091, Raleigh, North Carolina 27602-2091, (919) 733-3134. Written comments on these rule changes may be sent to Mr. Barkley at the above address. Written and oral comments (no more than ten minutes for oral comments) on these rule changes may be presented at the public hearing. Notice should be given to Mr. Barkley at least three days prior to the public hearing if you desire to speak. A fiscal note is also available.*

### CHAPTER 10 - HEALTH SERVICES: ENVIRONMENTAL HEALTH

#### SUBCHAPTER 10A - SANITATION

#### SECTION .1900 - SEWAGE TREATMENT AND DISPOSAL SYSTEMS

##### .1935 DEFINITIONS

The following definitions shall apply throughout this Section:

- (6) "Areas subject to frequent flooding" means those areas inundated at a ten-year or less frequency and includes alluvial soils and areas subject to tidal or storm overwash.
- (7) "Collection sewer" means gravity flow pipelines, force mains, effluent supply lines, and appliances appurtenant thereto, used for conducting wastes from building drains to a treatment system and to a ground absorption sewage treatment and disposal system.
- (8) "Designated wetland" means an area on the land surface established under the provisions of the Coastal Area Management Act or the Federal Clean Water Act.
- (9) "Design unit" means one or more dwelling units, places of business, or places of public assembly on a single lot or tract of land or on multiple adjoining lots or tracts of land under common or joint ownership to be served by a sanitary sewage system.
- (10)(7) "Dwelling unit" means any room or group of rooms located within a structure and forming a single, habitable unit with facilities which are used or intended to be used for living, sleeping, bathing, toilet usage, cooking, and eating.
- (11)(8) "Effluent" means the liquid discharge of a septic tank or other sewage treatment device.
- (12)(9) "Ground absorption sewage treatment and disposal system" means a system that utilizes the soil for the subsurface disposal of partially treated or treated sewage effluent.
- (13)(40) "Horizon" means a layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil forming processes.
- (14)(44) "Local health department" means any county, district, or other health department authorized to be organized under the General Statutes of North Carolina.
- (15) "Mean high water mark" means, for coastal waters having six inches or more lunar tidal influence, the average height of the high water over a 19 year period.
- (16) "Naturally occurring soil" means soil formed in place due to natural weathering processes and being unaltered by addition-filling, removal, or other man-induced changes other than tillage.
- (17)(42) "Nitrification field" means the area in which the nitrification lines are located.
- (18)(43) "Nitrification lines" means approved pipe, specially designed porous blocks, or other approved materials which receive partially treated sewage effluent for distribution and absorption into the soil beneath the ground surface.



- (19) "Nitrification trench", also referred to as a sewage absorption trench, means a ditch into which a single nitrification line is laid and covered by soil.
- (20)(14) "Non-ground absorption sewage treatment system" means a facility for waste treatment designed not to discharge to the soil, land surface, or surface waters, including but not limited to, approved vault privies, incinerating toilets, mechanical toilets, composting toilets, chemical toilets, and recycling systems.
- (21)(15) "Organic soils" means those organic mucks and peats consisting of more than 20 percent organic matter (by dry weight) and to depths of 18 inches or greater in thickness.
- (22)(16) "Parent material" means the mineral matter that is in its present position through deposition by water, wind, gravity or by decomposition of rock and exposed at the land surface or overlain by soil or saprolite.
- (23)(17) "Ped" means a unit of soil structure, such as an aggregate, crumb, prism, block, or granule formed by natural processes.
- (24)(18) "Perched water table" means a saturated zone, generally above the natural water table, as identified by drainage mottles caused by a restrictive horizon.
- (25)(19) "Person" means any individual, firm, association, organization, partnership, business trust, corporation, company, or unit of local government.
- (26)(20) "Place of business" means any store, warehouse, manufacturing establishment, place of amusement or recreation, service station, foodhandling establishment, or any other place where people work or are served.
- (27)(21) "Place of public assembly" means any fairground, auditorium, stadium, church, campground, theater, school, or any other place where people gather or congregate.
- (28)(22) "Privy building" means and includes any and all buildings which are used for privacy in the acts of urination and defecation which are constructed over pit privies and are not connected to a ground absorption sewage treatment and disposal system or a public or community sewage system.
- (29) "Public management entity" means a city (G.S. 160A, Article 16), county (G.S. 153A, Article 15), interlocal contract (G.S. 153A, Article 16), joint management agency (G.S. 160A-461 -462), county service district (G.S. 153A, Article 16), county water and sewer district (G.S. 162A, Article 6), sanitary district (G.S. 130A, Article 2), water and sewer authority (G.S. 162A, Article 1), metropolitan water district (G.S. 162A, Article 4), metropolitan sewerage district (G.S. 162A, Article 5), public utility (G.S. 62-3(23)), local or district health department (G.S. 130A, Article 2), or other public entity legally authorized to operate and maintain on-site sewage systems.
- (30)(23) "Relocation" means the displacement of a residence, place of business, or place of public assembly from one location to another.
- (31)(24) "Repair area" means an area, either in its natural state or which is capable of being modified, consistent with these Rules, which is reserved for the installation of additional nitrification fields and is not covered with structures or impervious materials.
- (32)(25) "Residence" means any home, hotel, motel, summer camp, labor work camp, mobile home, dwelling unit in a multiple-family structure, or any other place where people reside.
- (33)(26) "Restrictive horizon" means a soil horizon that is capable of perching ground water or sewage effluent and that is brittle and strongly compacted or strongly cemented with iron, aluminum, silica, organic matter, or other compounds. ~~capable of perching ground water or sewage effluent. Restrictive horizons may occur as fragipans, iron pans or organic pans, are recognized by their resistance in excavation or in using a soil auger, and are compacted soil or are cemented.~~
- (34)(27) "Rock" means the consolidated or partially consolidated mineral matter or aggregate, including bedrock or weathered rock, not exhibiting the properties of soil and exposed at the land surface or overlain by soil or saprolite.
- (35)(28) "Sanitary system of sewage treatment and disposal" means a complete system of sewage collection, treatment and disposal, including approved privies, septic tank systems, connection to public or community sewage systems, incinerators, mechanical toilets, composting toilets, recycling toilets, mechanical aeration systems, or other such systems.
- (36)(29) "Saprolite" means thoroughly decomposed earthy mineral matter, weathered in place from igneous or metamorphic rock and usually overlain by soil and exhibiting some properties of rock.
- (30) "Septage" means a waste that is a fluid mixture of partially treated sewage solids, liquids, and sludge of human or domestic

waste origin pumped from septic tanks, residential grease traps, or privies.

- (37)(31) "Septic tank" means a water-tight, covered receptacle designed for primary treatment of sewage and constructed to:
- (a) receive the discharge of sewage from a building;
  - (b) separate settleable and floating solids from the liquid;
  - (c) digest organic matter by anaerobic bacterial action;
  - (d) store digested solids through a period of detention; and
  - (e) allow clarified liquids to discharge for additional treatment and final disposal.
- (38)(32) "Septic tank system" means a subsurface sanitary sewage system consisting of a settling septic tank and a subsurface disposal field.
- (39)(33) "Sewage" means the liquid and solid human waste and liquid waste generated by water-using fixtures and appliances, including those associated with food handling. The term does not include industrial process wastewater or sewage that is combined with industrial process wastewater.
- (40)(34) "Site" means the area in which the sewage treatment and disposal system is to be located and the area required to accommodate repairs and replacement of nitrification field and permit proper functioning of the system.
- (41)(35) "Soil" means the naturally occurring, unconsolidated mineral and organic material of the land surface developed from rock or other parent material and consists of sand, silt, and clay-sized particles and variable amount of organic materials. Soil does not exhibit properties of rock or parent material. However, zones of transition in which soil characteristics predominate shall be considered soil.
- (42)(36) "State" means the Department of Human Resources, Division of Health Services.
- (43)(37) "Structure", as it relates to soil, "Soil structure" means the arrangement of primary soil particles into compound particles, peds, or clusters that are separated by natural planes of weaknesses from adjoining aggregates. ~~and have properties unlike those of an equal mass of unaggregated primary soil particles.~~
- (44) "Soil textural classes" means soil classification based upon size distribution of mineral particles in the fine-earth fraction less than two millimeters in diameter. The fine-earth fraction includes sand (2.0 - 0.05 mm in size), silt (less than 0.05 mm - 0.002

mm or greater in size), and clay (less than 0.002 mm in size) particles. The specific textural classes are defined as follows:

- (a) "Sand" means soil material that contains 85 percent or more of sand; the percentage of silt plus 1.5 times the percentage of clay shall not exceed 15.
  - (b) "Loamy sand" means soil material that contains at the upper limit 85 to 90 percent sand, and the percentage silt plus 1.5 times the percentage of clay is not less than 15; at the lower limit it contains not less than 70 to 85 percent sand, and the percentage of silt plus twice the percentage of clay does not exceed 30.
  - (c) "Sandy loam" means soil material that contains either 20 percent clay or less, and the percentage of silt plus twice the percentage of clay exceeds 30, and contains 52 percent or more sand; or less than seven percent clay, less than 50 percent silt, and between 43 and 52 percent sand.
  - (d) "Loam" means soil material that contains seven to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.
  - (e) "Silt loam" means soil material that contains 50 percent or more silt and 12 to 17 percent clay; or contains 50 to 80 percent silt and less than 12 percent clay.
  - (f) "Silt" means soil material that contains 80 percent or more silt and less than 12 percent clay.
  - (g) "Sandy clay loam" means soil material that contains 20 to 35 percent clay, less than 28 percent silt, and 45 percent or more sand.
  - (h) "Clay loam" means soil material that contains 27 to 40 percent clay and 20 to 45 percent sand.
  - (i) "Silty clay loam" means soil material that contains 27 to 40 percent clay and less than 20 percent sand.
  - (j) "Sandy clay" means soil material that contains 35 percent or more clay and 45 percent or more sand.
  - (k) "Silty clay" means soil material that contains 40 percent or more clay and 40 percent or more silt.
  - (l) "Clay" means soil material that contains 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- (45) "Stream" means a natural or manmade channel in which water flows most of the year.
- (46)(38) "Subsurface disposal" means the application of sewage effluent beneath the surface of the ground by distribution through approved nitrification lines.



Statutory Authority G.S. 130A-335(e).

**.1936 REQUIREMENTS FOR SEWAGE TREATMENT AND DISPOSAL (REPEALED)**

Statutory Authority G.S. 130A-335(e).

**.1937 PERMITS**

(a) An Improvement Permit shall be required before a ground absorption or a nonground absorption sewage treatment and disposal system is ~~initially~~ installed to serve a residence, place of business, or place of public assembly and before subsequent additions thereto which increase sewage flow as determined by Rule .1949 of this Section and before any repairs or renovations to a sewage treatment and disposal system.

(b) No person shall construct, install, repair, or renovate, or cause to be constructed, installed, repaired, or renovated any ground absorption sewage treatment and disposal system without first having obtained an Improvements Permit from the local health department. The local health department shall issue an Improvements Permit only after it has determined that the system is designed and can be installed so as to meet the provisions of these Rules. An Improvements Permit shall be valid for ~~36~~ 60 months from the date of issue. If the installation has not been completed during that time period, the information submitted in the application for an Improvements Permit is falsified or changed, or the site is altered, the permit shall become invalid. When an Improvements Permit has become invalid, the installation shall not be commenced or completed until a new Improvements Permit has been obtained.

(c) Application for an Improvements Permit shall be submitted to the local health department. The application shall contain at least the following information: name of owner, mailing address, location of property, plat of property (if not readily available to local health department), type of facility, estimated sewage flow based on number of bedrooms or number of persons served, type of water supply, and signature of owner or authorized agent.

(d) ~~Application for~~ Prior to the issuance of an Improvement Permit for a ~~ground absorption sewage treatment and disposal~~ sanitary sewage system to serve a condominium or other multiple-family ownership development where the system will be under common or joint control, ~~shall be made by submitting~~ a properly executed agreement (tri-party) among the local health department, developer, and a non-profit, incorpo-

~~rated owners homeowners~~ association shall be submitted to the local health department and filed with the local register of deeds, which addresses The tri-party agreement shall address ownership, transfer of ownership, maintenance, repairs, operation, and performance, and the necessary funds for the continued performance of the sanitary sewage system, including collection, treatment, disposal, and other appurtenances.

(e) No residence, place of business, or place of public assembly shall be occupied nor shall any sanitary sewage system be covered or placed into use until the local health department finds that the system is in compliance with Article 11 of G.S. Chapter 130A, these Rules, and all conditions prescribed by the Improvements Permit, and issues a Certificate of Completion or an Operation Permit. The Operation Permit shall be valid as long as the sanitary sewage system is in compliance with Article 11 of G.S. Chapter 130A, these rules, and all conditions imposed by the Operation Permit. renewed at the frequency specified in Table V. Prior to permit renewal, the local health department shall verify that the sanitary sewage system remains in compliance with Article 11 of G.S. Chapter 130A, these rules and all conditions imposed by the Operation Permit.

(f) Upon determining that an existing sanitary sewage system has a valid Operation Permit or a valid Certificate of Completion and is operating satisfactorily in a mobile home park, the local health department shall issue a written authorization for a mobile home to be connected to the existing system and to be occupied.

(g) Any person ~~other than the owner or controller of a residence, place of business, or place of public assembly,~~ who engages in the business of constructing, installing, or repairing sanitary sewage treatment and disposal systems or the collection, hauling, and disposal of septage from septic tanks shall register with the local health department in each county where he operates before constructing, installing, or repairing sanitary sewage treatment and disposal systems. ~~or collecting and disposing of septage from septic tanks.~~

(h) Systems which exceed 3,000 gallons per day and other systems which are required to be designed by a professional engineer shall be re-inspected annually.

(i) The local health department shall prepare a written report with reference to the site or soil conditions required to be evaluated pursuant to this Section. When a permit is denied, the report shall be provided to the applicant and shall include information on modifications or alterna-



tives available and the mechanism and required timeframes for appealing the decision in accordance with G.S. 150B. The report shall be signed and dated by the local (authorized) sanitarian.

*Statutory Authority G.S. 130A-335(e).*

#### 1938 RESPONSIBILITIES

(b) Actions of representatives of state or local health departments engaged in the evaluation and determination of measures required to effect compliance with the provisions of this Section shall in no way be taken as a guarantee or warranty that sewage treatment and disposal systems approved and permitted will function in a satisfactory manner for any given period of time. or that such employees assume any liability for damages, consequential or direct, which are caused, or which may be caused, by a malfunction of such systems. Due to the development of clogging mats which adversely impact the life expectancy of normally functioning ground absorption sewage treatment and disposal systems and variables influencing system function which are beyond the scope of these rules, no guarantee or warranty is implied or given that a sewage treatment and disposal system will function in a satisfactory manner for any specific period of time.

(c) Plans and specifications prepared by a person with a demonstrated knowledge of ground absorption sanitary sewage collection, treatment, and disposal systems, soil and rock characteristics, ground-water hydrology, and drainage systems may be required for review and approval by the local health department where the design sewage flow exceeds 600 gallons per day and shall be required for alternative systems not specifically described in this Section, and extensive drainage systems serving two or more lots, and for sanitary sewage systems designed to handle 3,000 gallons per day or less, which include separate nitrification fields with individual capacities of greater than 1500 gallons per day, as determined in Rule .1949(a) or (b) of this Section, prior to the issuance of an Improvement Permit.

(d) Sewage treatment and disposal systems not specifically described in the rules of this Section or any systems which require complex pumping, treatment, or pre-treatment before disposal, other than by a conventional septic tank, collection sewers, structures which have not been pre-engineered, and any other systems so specified by the local health department shall be designed by a professional engineer currently licensed by the State of North Carolina and approved by the local health department. Application rates for such systems shall be in accordance with this

Section unless other rates are certified acceptable by the professional engineer or by a soil scientist and approved by the local health department. Plans and specifications for such systems, including methods of operation and maintenance, shall be approved prior to issuance of an Improvement Permit, and the Certificate of Completion shall not be issued until the design engineer certifies to the local health department that the system was installed in accordance with the approved plans and specifications. Any sanitary sewage system which meets one or more of the following conditions shall be designed by a professional engineer currently licensed to practice in the state of North Carolina:

- (1) The system is designed to handle over 3,000 gallons per day, as determined in Rule .1949(a) or (b) of this Section, except where the system is limited to an individual septic tank system serving an individual dwelling unit or several individual septic tank systems, each serving an individual dwelling unit.
- (2) The system requires pretreatment before disposal other than by a conventional septic tank.
- (3) The system requires use of sewage pumps prior to the septic tank or other pretreatment system, except for systems subject to the North Carolina Plumbing Code.
- (4) The system requires use of more than one pump or siphon.
- (5) The system includes collection sewers which serve two or more buildings.
- (6) The system includes structures which have not been pre-engineered.
- (7) Any other system so specified by the local health department.

The state shall review and approve plans and specifications for all systems serving a design unit with a design flow greater than 3,000 gallons per day which are required to be designed by a professional engineer and any other system so specified by the local health department. An improvement permit shall not be issued unless the plans and specifications, including methods of operation and maintenance, are approved by the state. Prior to issuance of the operation permit, the owner shall submit to the local health department a statement signed by a registered professional engineer stating that construction is complete and in accordance with approved plans and specifications and approved modifications. Periodic observations of construction and a final inspection for design compliance by the certifying registered professional engineer or his representative shall be required for this statement. The

statement shall be affixed with the professional engineer's seal.

(e) Plans and specifications required to be prepared by a professional engineer shall contain all necessary information for construction of the system in accordance with applicable rules and laws and shall include at least one or more of the following, as determined to be applicable by the local or state health department:

- (1) the engineer's seal, signature, and the date on all plans and the first sheet of specifications;
- (2) a site plan based on a surveyed plat showing all system components, public water supply sources within 500 feet, private water supplies and surface water supplies within 200 feet, water lines serving the project and within ten feet of all components, building foundations, basements, property lines, embankments or cuts of two feet or more in vertical height, swimming pools, storm sewers, interceptor drains, surface drainage ditches, and adjacent nitrification fields;
- (3) specifications describing all materials to be used, methods of construction, and means for assuring the quality and integrity of the finished product, and the operation and maintenance procedures to be included in the specifications shall address requirements for the system operator, inspection schedules, residuals management provisions, process and performance monitoring schedules, and provisions for maintaining mechanical components and nitrification field vegetative cover;
- (4) for collection sewers, force mains and supply lines, plan and profile drawings, showing pipe diameter, depth of cover, cleanout and manhole locations, invert and ground surface elevations, valves and appurtenances, proximity to utilities in natural features such as wells, water lines, storm drains, surface waters, roads, and other trafficked areas;
- (5) for all tankage, plans showing capacity, invert and ground elevations, access manholes, inlet and outlet detail, and for built-in-place or nonstate-approved, pre-cast tanks, also show dimensions, reinforcement details, liquid depth, and other pertinent construction features;
- (6) for lift stations and effluent dosing tanks, calculations for pump or siphon sizing, plan and profile drawings additionally showing anti-buoyancy provisions, pump or siphon locations, discharge piping, valves, vents, pump controls, pump re-

moval system, activation levels for pumps or siphons and high-water alarm, and electrical connection details;

- (7) for wastewater treatment plants and other pretreatment systems, plan and profile drawings and cross-section views for all relevant system components, and for non-standard systems, also provide data and contact lists for comparable facilities;
- (8) for nitrification field and repair area, plans showing the following:
  - (A) field locations with existing and final relative contour lines based on field measurements at intervals not exceeding two feet or spot elevations if field areas are essentially flat or of uniform grade;
  - (B) field layout, pipe sizes, length, spacing, connection and cleanout details, invert elevations of flow distribution devices and laterals, valves, and appurtenances;
  - (C) trench plan and profile drawings and flow distribution device details;
  - (D) location and design of associated surface and groundwater drainage systems; and
- (9) any other information required by the local or state health department.

(f) For systems permitted after January 1, 1990, the entire sanitary sewage system shall be owned or controlled and operated by a person legally authorized to own or control and operate a system. Unrestrictive easements shall be obtained permitting the use and unlimited access for inspection and maintenance of all portions of this system to which the owner and operator do not hold clear title. Easements shall remain valid as long as the system is operational and shall be recorded with the county register of deeds.

(e) The State (DHR) shall review the plans and specifications for any sanitary sewage system where the design sewage flow exceeds 3000 gallons per day, except where the sanitary sewage system is limited to an individual septic tank system serving an individual dwelling unit or several individual septic tank systems each serving an individual dwelling unit.

*Statutory Authority G.S. 130A-335(e).*

#### **.1939 SITE EVALUATION**

(a) The local health department shall investigate each proposed site. The investigation shall include the evaluation of the following factors:

- (1) topography and landscape position;
- (2) soil characteristics (morphology); which includes texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of vari-



- ous horizons; and the thickness and arrangement of the horizons in a soil profile;
- (3) soil wetness; drainage which includes both external (surface) and internal (soil);
- (4) soil depth;
- (5) restrictive horizons; and
- (6) available space.

(b) Soil profiles shall be evaluated at the site by borings or other means of excavation to at least 48 inches or to an UNSUITABLE characteristic and a determination shall be made as to the suitability of the soil to treat and absorb septic tank effluent. Applicants may be required to dig pits when necessary for proper evaluation of the soil at the site.

(c) ~~(b)~~ Site evaluations shall be made in accordance with Rules .1940 through .1948 of this Section. Based on this evaluation, each of the factors listed in Paragraph (a) of this Rule shall be classified as SUITABLE (S), PROVISIONALLY SUITABLE (PS), or UNSUITABLE (U).

*Statutory Authority G.S. 130A-335(e).*

#### .1940 TOPOGRAPHY AND LANDSCAPE POSITION

(a) Uniform slopes under 15 percent shall be considered SUITABLE with respect to topography. When slopes are less than 2 percent, provisions shall be made to insure adequate surface drainage. When slopes are greater than four percent, the nitrification lines shall follow the contour of the ground.

(b) Uniform slopes between 15 percent and 30 percent shall be considered PROVISIONALLY SUITABLE with respect to topography. If the soils are deep (36 inches or more). Slopes within this range may require installation of interceptor drains up-slope from the soil absorption system to remove all excess water that might be moving laterally through the soil during wet periods of the year. Usable areas larger than minimum are ordinarily required in this slope range.

(c) Slopes greater than 30 percent shall be considered UNSUITABLE as to topography, except when a thorough study of the soil characteristics indicates that a soil absorption system will function satisfactorily and sufficient ground area is available to properly install such a system. Slopes greater than 30 percent may be classified reclassified as PROVISIONALLY SUITABLE after an investigation indicates that a modified system may be installed in accordance with Rule .1956 of this Section; however, slopes greater than 65 percent shall not be reclassified as PROVISIONALLY SUITABLE, when:

- (1) The slope can be terraced or otherwise graded or the nitrification lines located in naturally occurring soil so as to maintain a minimum 10-foot horizontal distance from the nitrification trench and the top edge of the fill embankment;
  - (2) The soil characteristics can be classified as Suitable or Provisionally Suitable to a depth of at least one foot below the bottom of the nitrification trench;
  - (3) Surface water runoff is diverted around the nitrification field so that there will be no scouring or erosion of the soil over the field;
  - (4) If necessary, ground-water flow is intercepted and diverted to prevent such water from running into or saturating the soil absorption system; and
  - (5) There is sufficient ground area available to install the septic tank system with these modifications.
- (d) Complex slope patterns and slopes dissected by gullies and ravines shall be considered Unsuitable with respect to topography.
- (e) ~~Areas subject to frequent flooding shall be considered Unsuitable with respect to landscape position.~~
- (e) ~~(f)~~ Depressions shall be considered Unsuitable with respect to landscape position except when the site complies essentially with the requirements of this Section and is specifically approved by the local health department.
- (f) ~~(g)~~ The surface area on or around a ground absorption sewage treatment and disposal system shall be landscaped to provide adequate drainage if directed by the local health department. The interception of perched or lateral ground-water movement shall be provided where necessary to prevent soil saturation on or around the ground absorption sewage treatment and disposal system.
- (g) A designated wetland shall be considered UNSUITABLE with respect to landscape position.

*Statutory Authority G.S. 130A-335(e).*

#### .1941 SOIL CHARACTERISTICS (MORPHOLOGY)

(a) Soil borings shall be taken at the site to be used for soil absorption systems. Such borings shall be taken to a depth of 48 inches or as required to determine the soil characteristics. Soil borings and core samples shall be evaluated and a determination made as to the suitability of the soil to treat and absorb septic tank effluent. The important soil characteristics which shall be



evaluated by the local health department are as follows:

- (1) Texture. The relative amounts proportions of the different sizes of sand, silt, and clay sized mineral particles in the fine-earth fraction of the a soil are referred to as soil texture. All soils are composed of sand, (2.0 - 0.05 mm in size); silt, which includes intermediate-sized particles that cannot be seen with the naked eye, but feels like flour when pressed between the fingers, (0.05 - 0.002 mm in size); and clay, which is extremely small in size and is the mineral particle that gives cohesion to a soil (less than 0.002 mm in size). The texture of the different horizons of soils may shall be classified into four general groups and 12 soil textural classes based upon the relative proportions of sand, silt, and clay sized mineral particles. and shall be used for determining the application rates shown in Tables II and III.

(A) (a) SOIL GROUP I - SANDY TEXTURE SOILS. Soil Group I. Sandy texture soils contain more than 70 percent sand-sized particles in the soil mass. These soils do not have enough clay to be cohesive. Sandy soils have favorable sewage application rates, but may have a low filtering capacity leading to malfunction due to contamination of ground water. The sandy group includes the sand and loamy sand soil textural classes and shall generally be considered SUITABLE with respect to texture.

- (i) Sand. Sand has a gritty feel, does not stain the fingers, and does not form a ribbon or ball when wet or moist.
- (ii) Loamy Sand. Loamy sand has a gritty feel, stains the fingers (silt and clay), forms a weak ball, and cannot be handled without breaking.

(B) (b) SOIL GROUP II - COARSE LOAMY TEXTURE SOILS. Soil Group II. Coarse loamy texture soils contain more than 30 percent sand-sized particles and less than 20 percent clay-sized particles in the soil mass. They exhibit slight or no stickiness. The coarse loamy group includes sandy loam and loam soil textural classes and shall generally be considered SUITABLE with respect to texture.

- (i) Sandy Loam. Sandy loam has a gritty feel and forms a ball that can be picked up with the fingers and handled with care without breaking.

- (ii) Loam. Loam may have a slightly gritty feel but does not show a fingerprint and forms only short ribbons of from 0.25 inch to 0.50 inch in length. Loam will form a ball that can be handled without breaking.

(C) (c) SOIL GROUP III - FINE LOAMY TEXTURE SOILS. Soil Group III. Fine loamy texture soils contain less than 40 percent clay-sized particles and not more than 30 percent sand-sized particles in a soil mass. They exhibit slight to moderate stickiness. The fine loamy group includes silt, silt loam, sandy clay loam, silt loam, clay loam, and silty clay loam textural classes and shall generally be considered PROVISIONALLY SUITABLE with respect to texture.

- (i) Silt Loam. Silt loam has a floury feel when moist and will show a fingerprint but will not ribbon and forms only a weak ball.
- (ii) Silt. Silt has a floury feel when moist and sticky when wet but will not ribbon and forms a ball that will tolerate some handling.
- (iii) Sandy Clay Loam. Sandy clay loam has a gritty feel but contains enough clay to form a firm ball and may ribbon to form 0.75-inch to one-inch long pieces.
- (iv) Silty Clay Loam. Silty clay loam is sticky when moist and will ribbon from one to two inches. Rubbing silty clay loam with the thumbnail produces a moderate sheen. Silty clay loam produces a distinct fingerprint.
- (v) Clay Loam. Clay loam is sticky when moist. Clay loam forms a thin ribbon of one to two inches in length and produces a slight sheen when rubbed with the thumbnail. Clay loam produces a non-distinct fingerprint.

(D) (d) SOIL GROUP IV - CLAYEY TEXTURE SOILS. Soil Group IV. Clayey texture soils contain 40 percent or more clay-sized particles and include sandy clay, silty clay, and clay. There are two major types of clays: the 1:1 clays (Kaolinite) which do not shrink or swell extensively when dried or wetted; and the 2:1 clays (Montmorillonite) including mixed mineralogy clays, with both Kaolinite and Montmorillonite, that will shrink and swell when dried and wetted. The 1:1 clays, when wet, are slightly sticky to sticky; when moist, are friable to firm;

and when dry, are slightly hard to hard. The 1:1 clays (Group IVa) shall generally be considered Provisionally Suitable as to texture. The 2:1 and mixed mineralogy clays, when wet, are very sticky and very plastic; and, when moist, these clays are very firm to extremely firm; and when dry, are very hard to extremely hard. The 2:1 and mixed mineralogy clays (Group IVb) shall be considered Unsuitable as to texture. The clayey group includes sandy clay, silty clay, and clay textural classes and shall be considered PROVISIONALLY SUITABLE with respect to texture.

(i) Sandy Clay: Sandy clay is plastic, gritty, and sticky when moist and forms a firm ball and produces a thin ribbon to over two inches in length.

(ii) Silty Clay: Silty clay is both plastic and sticky when moist and lacks any gritty feeling. Silty clay forms a firm ball and readily ribbons to over two inches in length.

(iii) Clay: Clay is both sticky and plastic when moist, produces a thin ribbon over two inches in length, produces a high sheen when rubbed with the thumbnail, and forms a strong ball resistant to breaking.

(E) (e) The soil texture textural class shall be estimated by determined in the field testing, as described in Rule 1941(1) of this Section, by hand texturing samples of each soil horizon in the soil profile using the following criteria:

(i) Sand: Sand has a gritty feel, does not stain the fingers, and does not form a ribbon or ball when wet or moist.

(ii) Loamy Sand: Loamy sand has a gritty feel, stains the fingers (silt and clay), forms a weak ball, and cannot be handled without breaking.

(iii) Sandy Loam: Sandy loam has a gritty feel and forms a ball that can be picked up with the fingers and handled with care without breaking.

(iv) Loam: Loam may have a slightly gritty feel but does not show a fingerprint and forms only short ribbons of from 0.25 inch to 0.50 inch in length. Loam will form a ball that can be handled without breaking.

(v) Silt Loam: Silt loam has a floury feel when moist and will show a fingerprint but will not ribbon and forms only a weak ball.

(vi) Silt: Silt has a floury feel when moist and sticky when wet but will not ribbon and forms a ball that will tolerate some handling.

(vii) Sandy Clay Loam: Sandy clay loam has a gritty feel but contains enough clay to form a firm ball and may ribbon to form 0.75-inch to one-inch long pieces.

(viii) Silty Clay Loam: Silty clay loam is sticky when moist and will ribbon from one to two inches. Rubbing silty clay loam with the thumbnail produces a moderate sheen. Silty clay loam produces a distinct fingerprint.

(ix) Clay Loam: Clay loam is sticky when moist. Clay loam forms a thin ribbon of one to two inches in length and produces a slight sheen when rubbed with the thumbnail. Clay loam produces a nondistinct fingerprint.

(x) Sandy Clay: Sandy clay is plastic, gritty, and sticky when moist and forms a firm ball and produces a thin ribbon to over two inches in length.

(xi) Silty Clay: Silty clay is both plastic and sticky when moist and lacks any gritty feeling. Silty clay forms a firm ball and readily ribbons to over two inches in length.

(xii) Clay: Clay is both sticky and plastic when moist, produces a thin ribbon over two inches in length, produces a high sheen when rubbed with the thumbnail, and forms a strong ball resistant to breaking.

(F) Laboratory estimation determination of texture the soil textural class as defined in these rules by particle-size analysis of the fine-earth fraction (less than 2.0 mm in size) using the sand, silt, and clay particle sizes as defined in these rules may be substituted for field testing when conducted in accordance with ASTM (American Society for Testing and Materials) C-136 and D-422 standards procedures for sieve and hydrometer analyses which are hereby adopted by reference in accordance with G.S. 150B-14(c). For fine loamy and clayey soils (Groups III and IV), the dispersion time shall be increased to 12 hours. Copies of the standards may be inspected in and copies obtained from the Office of Administrative Procedures, Department of Human Resources, Division of Health Services, P. O. Box 2091, Raleigh, North Carolina 27602-2091.



(2) **Soil Consistence.** Soil consistence comprises the attributes of soil material, typically clay, that are expressed by the degree and kind of cohesion and adhesion or by the resistance to deformation or rupture.

(a) **Soil Consistence When Wet.**

(i) **Stickiness.** Stickiness is the quality of adhesion to other objects. For field evaluation of stickiness, wet soil material is pressed between thumb and finger and its adherence noted. Degrees of stickiness are described as follows:

(A) **Slightly sticky.** After pressure, soil material adheres to both thumb and finger but comes off one or the other rather cleanly. It is not appreciably stretched when the digits are separated.

(B) **Sticky.** After pressure, soil material adheres to both thumb and finger and tends to stretch somewhat and pull apart rather than pulling free from either digit.

(C) **Very sticky.** After pressure, soil material adheres strongly to both thumb and finger and is decidedly stretched when they are separated.

(ii) **Plasticity.** Plasticity is the ability to change shape continuously under the influence of an applied stress and to retain the impressed shape on removal of the stress. For field determination of plasticity, roll the soil material between thumb and finger and observe whether or not a wire or thin rod of soil can be formed. Degree of resistance to deformation at or slightly above field capacity as follows:

(A) **Slightly plastic.** Wire formable but soil mass easily deformable.

(B) **Plastic.** Wire formable and moderate pressure required for deformation of the soil mass.

(C) **Very plastic.** Wire formable and much pressure required for deformation of the soil mass.

(b) **Soil Consistence When Moist.**

Consistence when moist is determined at a moisture content approximately midway between air dry and field capacity. At this moisture content most soil materials exhibit a form of consistence characterized by: tendency to break into smaller masses rather than into powder; some deformation prior to rupture; absence of brittleness; and ability of the material after disturbance to cohere again when pressed together. To evaluate this consistence,

select and attempt to crush in the hand a mass that appears slightly moist.

(i) **Friable.** Soil material crushes easily under gentle to moderate pressure between thumb and finger, and coheres when pressed together.

(ii) **Firm.** Soil material crushes under moderate pressure between thumb and finger but resistance is distinctly noticeable.

(iii) **Very firm.** Soil material crushes under strong pressure; barely crushable between thumb and finger.

(iv) **Extremely firm.** Soil material crushes only under very strong pressure; cannot be crushed between thumb and finger and must be broken apart bit by bit.

(c) **Soil Consistence When Dry.** The consistence of soil materials when dry is characterized by rigidity, brittleness, maximum resistance to pressure, more or less tendency to crush to a powder or to fragments with rather sharp edges, and inability of crushed material to cohere again when pressed together. To evaluate, select an air-dry mass and break in the hand.

(i) **Slightly hard.** Weakly resistant to pressure; easily broken between thumb and finger.

(ii) **Hard.** Moderately resistant to pressure; can be broken in the hands without difficulty but is barely breakable between thumb and finger.

(iii) **Very hard.** Very resistant to pressure; can be broken in the hands only with difficulty; not breakable between thumb and finger.

(iv) **Extremely hard.** Extremely resistant to pressure; cannot be broken in the hands.

(3) **Organic Soils.** Organic soils shall be considered Unsuitable.

(2) (4) **Soil Structure - The following types of soil structure shall be evaluated:** In many soils, the sand, silt, and clay particles tend to cling or stick to one another to form a ped or a clump of soil. This is known as soil structure. Soil structure may have a significant effect on the movement of effluent through a soil. The structure may determine the rate of movement of liquids through clayey soils. Structure is usually not important in soil Groups I and II, and these types of soils shall generally be considered Suitable as to structure. The three kinds of soil structure that are most significant in



movement of sewage effluent through Groups III and IV soils are block-like, platy, and the absence of soil structure or massive conditions are described as follows:

(A) CRUMB AND GRANULAR SOIL STRUCTURE - Soils which have crumb or granular structure shall be considered SUITABLE as to structure.

(B) (a) BLOCK-LIKE SOIL STRUCTURE - Block-Like Soil Structure with peds 2.5 cm (1 inch) or less in size shall be considered PROVISIONALLY SUITABLE as to structure. Block-like soil structure with peds greater than 2.5 cm (1 inch) in size within 36 inches of the naturally occurring soil surface shall be considered UNSUITABLE as to structure.

(i) In Groups III and IV soils, if the soil exhibits many peds of angular and sub-rounded peds, then the soils have block-like structure. The sewage effluent may move between the cracks of these types of peds. Block-like soil structure in Groups III and IV soils is frequently destroyed by mechanical equipment manipulating the soil when it is too wet. Trenches for nitrification lines being placed in Groups III and IV soils with block-like structure should only be dug when soils are moist or dry. Block-like soil structure in Groups III and IV soils shall be considered Provisionally Suitable as to structure.

(ii) Some rocks, even though weathered, such as slates or creviced or fractured rocks, exhibit block-like structure, which is not changed by moving water, thereby allowing fluids to move downward without filtration. Rock shall be considered Unsuitable as to structure.

(C) PLATY SOIL STRUCTURE - soils which have platy soil structure within 36 inches of the naturally occurring soil surface shall be considered UNSUITABLE as to structure.

(b) Platy Soil Structure. If Groups III and IV soils fall out into plate-like sheets, then the soil would have platy structure. Water or effluent movement through these soils would be extremely slow, and the structure shall be considered Unsuitable.

(c) Absence of Soil Structure. Some Groups II, III, and IV soils are massive and exhibit no structural aggregates. In these kinds of soils, water or effluent

movement would be negligible. Such structure shall be considered Unsuitable.

(D) PRISMATIC SOIL STRUCTURE - Soils which have prismatic soil structure within 36 inches of the naturally occurring soil surface shall be considered UNSUITABLE as to structure.

(E) ABSENCE OF SOIL STRUCTURE - Soils which are single grained and exhibit no structural aggregates shall be considered SUITABLE as to structure. Soils which are massive and exhibit no structural peds within 36 inches of the naturally occurring soil surface shall be considered UNSUITABLE as to structure.

(F) Structure shall be evaluated using Soil Taxonomy, Appendix I, which is hereby adopted by reference in accordance with G.S. 150B-14(c). Copies may be inspected in, and copies obtained from, the Department of Human Resources, Division of Health Services, P.O. Box 2091, Raleigh, NC 27602-2091.

(3) Clay Mineralogy - Along with soil texture, the mineralogy of the clay-sized fraction determines the degree to which some soils swell and thereby affects the size and number of pores available for movement of sewage effluent through the soil. There are two major types of clays, including 1:1 clays, which do not shrink or swell extensively when dried or wetted; and the 2:1 clays, including mixed mineralogy clays, such as clays containing Kaolinite and Montmorillonite that will shrink and swell when dried and wetted. The type of clay minerals in the clay-sized fraction shall be determined by a field evaluation of moist soil consistence or of wet soil consistence using Soil Taxonomy, Appendix I, which is hereby adopted by reference in accordance with G.S. 150B-14(c). Copies may be inspected in, and copies obtained from, the Department of Human Resources, Division of Health Services, P.O. Box 2091, Raleigh, NC 27602-2091.

(A) SLIGHTLY EXPANSIVE CLAY MINERALOGY - Soils which have loose, very friable, friable or firm moist soil consistence, or have slightly sticky to sticky or nonplastic, slightly plastic to plastic wet soil consistence, are considered to have predominantly 1:1 clay minerals and shall be considered SUITABLE as to clay mineralogy.

(B) EXPANSIVE CLAY MINERALOGY - Soils which have either very firm

or extremely firm moist soil consistence, or have either very sticky or very plastic wet soil consistence, are considered to have predominantly 2:1 clay minerals (including mixed mineralogy clays) and shall be considered UNSUITABLE as to clay mineralogy.

(4) Organic Soils - Organic soils shall be considered UNSUITABLE.

(b) Where the site is UNSUITABLE with respect to structure or clay mineralogy, it may be reclassified PROVISIONALLY SUITABLE after a special investigation indicates that a modified or alternative system may be installed in accordance with Rule .1956 or Rule .1957 of this Section.

Statutory Authority G.S. 130A-335(e).

#### .1942 SOIL WETNESS CONDITIONS

Soils with seasonally high water tables are of major concern in evaluating sites for sewage effluent disposal. These are the soil areas that give good sewage absorption rates during dry seasons of the year but force sewage effluent to the surface during the wetter seasons. The depth of the seasonal high water table can commonly be recognized by those examining soil profiles. The criterion for recognition of high water tables is that of soil color. Subsurface horizons that are in colors of reds, yellows, and browns generally indicate good soil aeration and drainage throughout the year. Subsurface horizons that are in colors of grey, olive or bluish colors indicate poor aeration and poor soil drainage. These dull or greyish colors may occur as a solid mass of soil or may be in mottles of localized spots. The volume of greyish colors is indicative of the length of time that free water stands in that soil profile. There are soils that have light-colored mottles which are relics from the light-colored rock from which the soils have weathered. These soils would not have high water tables, so one must distinguish between a true soil composed of sand, silts and clays, or the rock material that may still exist in the soil profile. Any soil profile that has the greyish colors of chroma 2 or less (Munsell color chart) indicative of high water tables, or is subject to tidal or periodic high water, within 36 inches of the surface, shall be considered Unsuitable as to drainage. Soils where the seasonally high water table is less than 48 inches and more than 36 inches below the naturally occurring soil surface shall be considered Provisionally Suitable with respect to soil drainage. Soils where the seasonally high water table is greater than 48 inches below the naturally occurring soil surface shall be considered Suitable

with respect to soil drainage. Where the soil is considered suitable as to structure and texture, (Soil Groups I and II) and modifications can be made to maintain the ground-water table at least 42 inches below the bottom of the nitrification trench at all times, such soils may be reclassified Provisionally Suitable as to drainage. Drainage systems installed for ground-water lowering shall be maintained so that a minimum separation of one foot occurs between the nitrification trench bottom and the seasonally high water table. For extensive drainage systems, such as ground-water lowering in subdivisions, easements shall be recorded and shall have adequate width for reasonable egress and ingress for maintenance.

(a) Soil wetness conditions caused by a seasonal high-water table, perched water table, tidal water, or seasonally saturated soils shall be determined by observation of colors of chroma 2 or less (Munsell color chart) in mottles or a solid mass. If drainage modifications have been made, the soil wetness conditions may be determined by direct observation of the water surface during periods of typically high water elevations. However, colors of chroma 2 or less which are relics from minerals of the parent material shall not be considered indicative of a soil wetness condition. Sites where soil wetness conditions are greater than 48 inches below the naturally occurring soil surface shall be considered SUITABLE with respect to soil wetness. Sites where soil wetness conditions are between 36 inches and 48 inches below the naturally occurring soil surface shall be considered PROVISIONALLY SUITABLE with respect to soil wetness. Sites where soil wetness conditions are less than 36 inches below the naturally occurring soil surface shall be considered UNSUITABLE with respect to soil wetness.

(b) Where the site is UNSUITABLE with respect to soil wetness conditions, it may be reclassified PROVISIONALLY SUITABLE after an investigation indicates that a modified or alternative system can be installed in accordance with Rule .1956 or Rule .1957 of this Section.

Statutory Authority G.S. 130A-335(e).

#### .1944 RESTRICTIVE HORIZONS

Restrictive horizons in soils are recognized by their apparent resistance in excavation or in using a soil auger. Restrictive horizons may occur as fragipans or iron pans. These horizons are compacted soil or are cemented with iron oxide or other oxides and vary in color from red to grey. Other common restrictive horizons are ones in which materials, composed of organic matter and aluminum with or without iron, have



precipitated. These materials cement the mineral soils and tend to fill the voids with silt sized particles. These horizons are commonly referred to as organic hardpans. They may be black, dark reddish brown, or grey in color.

Restrictive horizons that are greater than three inches thick severely restrict the movement of water and sewage effluent and do not adequately respond to ground water lowering drainage systems. Where these horizons are less than three inches thick, they do not severely restrict the movement of water and sewage effluent, but rather indicate the presence of a seasonally high water table and after special investigation may be modified as required in Rule .1942 of this Section.

(a) Soils in which restrictive horizons are three inches or more in thickness and at depths greater than 48 inches below the naturally occurring soil ground surface shall be considered SUITABLE as to depth to restrictive horizons. Restrictive Soils in which restrictive horizons are three inches or more in thickness and at depths between 36 inches and 48 inches shall be considered PROVISIONALLY SUITABLE as to depth to restrictive horizons. Restrictive Soils in which restrictive horizons are three inches or more in thickness and encountered at depths less than 36 inches and greater than 42 inches below the ground surface shall be considered UNSUITABLE as to depth to restrictive horizons.

(b) Where the site is UNSUITABLE with respect to restrictive horizons, it may be reclassified PROVISIONALLY SUITABLE after a special investigation indicates that a modified or alternative system can be installed in accordance with Rules .1956 or .1957 of this Section.

*Statutory Authority G.S. 130A-335(e).*

#### .1946 OTHER APPLICABLE FACTORS

The site evaluation ~~should~~ shall include consideration of any other applicable factors involving accepted public health principles, such as, but not limited to:

- (1) The proximity of a large-capacity water-supply well, the cone of influence of which would dictate a larger separation distance than the minimum distance specified in Rule .1950 of this Section;
- (2) The potential public health hazard due to of possible failures of soil absorption systems involving large quantities of sewage, which when specifically identified, would dictate larger separation distances than the minimums specified in Rule .1950 and Rule .1955(m) of this Section;

- (3) The potential public health hazard of possible massive failures of soil absorption systems proposed to serve large numbers of residences, as in residential subdivisions or mobile home parks.

- (4) For sites serving systems designed to handle over 3,000 gallons per day, which include separate nitrification fields with individual capacities of greater than 1500 gallons per day, as determined in Rule .1949(a) or (b) of this Section, sufficient site-specific data shall be collected during the site investigation to predict the height of the water table mound that will develop beneath the field (level sites) and the rate of lateral and vertical flow away from the nitrification trenches (sloping sites). Data to be collected may include soil borings to depths greater than 48 inches, permeability in hydraulic conductivity measurements, water level readings, and other information determined to be necessary by the local health department or the state. The site shall be considered UNSUITABLE if this data indicates that the groundwater mound which will develop beneath the site cannot be maintained two feet or more below the bottom of the nitrification trenches or it is determined that effluent is likely to become exposed on the ground surface within, or adjacent to, the nitrification field.

*Statutory Authority G.S. 130A-335(e).*

#### .1947 DETERMINATION OF OVERALL SITE SUITABILITY

All of the criteria in Rules .1940 through .1946 of this Section shall be determined to be SUITABLE, PROVISIONALLY SUITABLE, or UNSUITABLE, as indicated. If all criteria are classified the same, that classification will prevail. Where there is a variation in classification of the several criteria, the following shall be used in making the overall site classification. The the most limiting lowest of the uncorrectable characteristics will shall be used to determine the overall site classification.

- (1) If the topography is classified as Unsuitable, it may be reclassified Provisionally Suitable under the conditions outlined in Rule .1940 of this Section.
- (2) If the soil texture is classified as Unsuitable, the overall classification will be Unsuitable regardless of the other criteria unless the provisions of Rule .1948(c) of this Section are met.
- (3) If the soil structure is classified as Unsuitable, the overall classification will be Un-



suitable, regardless of the classification of the other criteria unless provisions of Rule .1948(e) of this Section are met.

- (4) When soil depth is classified as Unsuitable, it may be reclassified as Provisionally Suitable under the conditions outlined in Rule .1942 of this Section.
- (5) When the restrictive horizon is classified Unsuitable, it may be reclassified as Provisionally Suitable under the conditions outlined in Rule .1948(e) of this Section.
- (6) When drainage (ground water level) is Unsuitable, it may be reclassified as Provisionally Suitable under the conditions outlined in Rule .1942 of this Section.

Statutory Authority G.S. 130A-335.

**.1948 SITE CLASSIFICATION**

(c) Sites originally classified as Unsuitable may be used for soil absorption disposal systems, provided engineering, hydrogeologic, and soil studies indicate to the local health department that a suitable septic tank system or a suitable alternate system can reasonably be expected to function satisfactorily. Such sites may be reclassified as Provisionally Suitable upon submission to the local health department and when requested by the local health department to the state agency of the following: Sites classified UNSUITABLE have severe limitations for the installation and use of a properly functioning ground absorption sewage treatment and disposal system. An improvement permit shall not be issued for a site which is classified as UNSUITABLE. However, where a site is UNSUITABLE, it may be reclassified PROVISIONALLY SUITABLE if a special investigation indicates that a modified or alternative system can be installed in accordance with Rules .1956 or .1957 of this Section.

- (1) adequate substantiating data to indicate that a ground absorption system can be installed so that the effluent will receive adequate treatment;
- (2) adequate substantiating data to indicate that the effluent will not contaminate any drinking water supply, ground water used for drinking water, or any surface water;
- (3) adequate substantiating data to indicate that the effluent will not be exposed on the ground surface or be discharged to surface waters where it could come in contact with people, animals, or vectors.

Statutory Authority G.S. 130A-335(e).

**.1949 SEWAGE FLOW RATES FOR DESIGN**

**UNITS**

(b) Table No. I shall be used to determine the minimum design daily flow of sewage ~~that are~~ minimums required ~~for use~~ in calculating the design volume of ~~septic tanks and the design capacity of nitrification fields~~ sanitary sewage systems to serve selected types of establishments. The minimum design volume of sewage from any establishment shall be 100 gallons per day. Design of sewage treatment and disposal systems for establishments not identified in this Rule shall be determined using available flow data, water-using fixtures, occupancy or operation patterns, and other measured data.

**TABLE NO. I**

TYPE OF ESTABLISHMENT	DAILY FLOW FOR DESIGN
Airports (Also R.R. stations, bus terminals--not including food service facilities)	5 gal/passenger
Barber Shops	50 gal/chair
Bars, Cocktail Lounges (Not including food service)	20 gal/seat
Beauty Shops (Style Shops)	125 gal/chair
Bowling <del>Alleys</del> Lanes	50 gal/lane
Businesses (other than those listed elsewhere in this table)	25 gal/employee
Camps	
Construction or Work Camps	60 gal/person 40 gal/person (with chemical toilets)
Summer Camps	60 gal/person
Campgrounds With Comfort Station (Without water and sewer hookups)	100 150 gal/campsite
Travel Trailer/Recreational Vehicle Park (With water and sewer hookups)	120 gal/space
Churches (Not including a Kitchen, Food Service facility, Day Care or Camp)	3 gal/seat
Churches (With a Kitchen but, not including a Food Service Facility, Day Care, or	

# PROPOSED RULES

Camp)	5 gal/seat
Country Clubs	20 gal/member
Resident Members	60 gal/resident member
Nonresident Members	20 gal/person
Day Care Facilities	15 gal/person
Factories (Exclusive of industrial waste)	25 gal/person/shift
Add for showers	10 gal person/shift
Food Service Facilities	
Restaurants	40 gal/seat or 40 gal 15 square ft of dining area (whichever is greater)
24-hour Restaurant	75 gal/seat
Food Stands	
(1) Per 100 square feet of food stand floor space	50 gal
(2) Add per food employee	25 gal
Other Food Service Facilities	5 gal meal
Hospitals	300 gal/bed
Marinas	10 gal boat slip
With bathhouse	30 gal boat slip
Meat Markets	
(1) Per 100 square feet of market floor space	50 gal
(2) Add per market employee	25 gal
Motels/Hotels	120 gal/room
With cooking facilities	175 gal room
Offices (per shift)	25 gal person
Residential Care Facilities	60 gal/person
Restaurants	40 gal/seat or 40 gal 15 square ft of dining area (whichever is greater)
Rest Homes and Nursing Homes	
With laundry	120 gal/bed
Without laundry	60 gal bed
Schools	
Day Schools	
With cafeteria, gym and showers	15 gal student
With cafeteria only	12 gal student
With neither cafeteria nor showers	10 gal student
Boarding Schools	60 gal person
Service Stations	250 gal/water closet or urinal
24-hour Service Stations	325 gal water closet

Stores, Malls, Shopping Centers	200 gal/1000 square ft
(Exclusive of food service and meat markets)	120 gal/1000 square ft of retail sales area
Stadium, Auditorium, Theater, Drive-in	5 gal/seat or space
Swimming Pools, Spas, and Bathhouses	10 gal/person
Travel Trailer Parks	120 gal/space

(c) An adjusted design daily sewage flow may be granted by the local health department upon a showing as specified below that a sewage system is adequate to meet actual daily water consumption from a facility included in Rule .1949(b) of this Section.

(1) Documented data from that facility or a comparable facility justifying a flow rate reduction shall be submitted to the state and the local health department. The submitted data shall consist of at least 12 previous consecutive monthly total water consumption readings and at least 30 consecutive daily total water consumption readings. The daily readings shall be taken during a projected normal or above normal peak sewage flow month. A peaking factor shall be derived by dividing the highest monthly flow as indicated from the 12 monthly readings by the sum of the 30 consecutive daily water consumption readings. The adjusted design daily sewage flow shall be determined by taking the numerical average of the greatest ten percent of the daily readings that fall within the upper 40 percent of the daily readings when ranked in descending order, and multiplying by the peaking factor. Further adjustments shall be made in design sewage flow rate used for sizing nitrification fields and pretreatment systems when the sampled or projected wastewater characteristics exceed those of domestic sewage, such as wastewater from restaurants or meat markets.

(2) An adjusted daily sewage flow rate may be granted contingent upon use of extreme water-conserving fixtures, such as toilets which use 1.5 gallons per flush or less, spring-loaded faucets with flow rates of one gallon per minute or less, and showerheads with flow rates of two gallons per minute or less. The amount of sewage flow rate reduction shall be determined by the state and local health departments based upon the type of fixtures



and documentation of the amount of flow reduction to be expected from the proposed facility. Adjusted daily flow rates based upon use of water-conserving fixtures shall apply only to design capacity requirements of dosing and distribution systems and nitrification fields. Minimum pretreatment capacities shall be determined by the design flow rate of Table I of this Rule.

Statutory Authority G.S. 130A-335(e).

#### .1950 LOCATION OF SANITARY SEWAGE SYSTEMS

(a) Every ~~ground absorption~~ sanitary sewage treatment and disposal system shall be located at least the minimum horizontal distance from the following:

- (1) Any private water supply source, including any well or spring -- 100 feet;
- (2) Any public water supply source -- 100 feet;
- (3) Streams classified as ~~A-H~~ -- 50 WS-I -- 100 feet;
- (4) Waters classified as S.A. -- 100 feet ~~(from normal high tide mark)~~ from mean high water mark;
- (5) Other coastal waters -- 50 feet from mean high water mark;
- ~~(6)(5)~~ Any ~~other~~ stream, canal, marsh, or coastal waters or other surface waters -- 50 feet;
- ~~(7)(6)~~ Any Class I or Class II impounded reservoir used as a source of drinking water -- 100 feet ~~(from normal high water line)~~ from normal pool elevation;
- ~~(8)(7)~~ Any other lake or impoundment -- 50 feet ~~(from normal high water line)~~ from normal pool elevation;
- ~~(9)(8)~~ Any building foundation -- 5 feet;
- ~~(10)(9)~~ Any basement -- 15 feet;
- ~~(11)(10)~~ Any property line -- 10 feet;
- ~~(12)(11)~~ Top of slope of embankments or cuts of 2 feet or more vertical height -- 15 feet;
- ~~(13)(12)~~ Any water line -- 10 feet;
- ~~(14)(13)~~ Drainage Systems:
  - (A) Interceptor drains and foundation drains -- 10 feet upslope, 15 feet sideslope, and 25 feet downslope;
  - (B) Groundwater lowering ditches and devices surface drainage ditches -- 25 feet;
  - (C) Surface water diversions -- 10 feet;
- ~~(15)(14)~~ Any swimming pool 5 feet -- 15 feet;
- ~~(16)(15)~~ Any other nitrification field (except repair area) -- 20 feet;

(b) Nitrification line may be installed in fill ground where at least one foot of naturally oc-

curing soil is present with Suitable or Provisionally Suitable soil characteristics with respect to texture, structure, and drainage as required by these Rules and is specifically approved by the state or local health department. Areal fill must be installed such that there is a minimum separation of two feet between the trench bottom and any soil horizon with unsuitable soil characteristics. In such areal fill sites, the soil used for fill and the areal extent of fill shall be approved by the local health department before placement and shall have such soil texture to be classified as sand, loamy sand, loam, or sandy loam. There shall be a mix of the fill soil and the original soil at the interface of the two soils.

(b) ~~(c)~~ Ground absorption sewage treatment and disposal systems ~~(1)~~ shall not be installed in sites where the seasonal high water is within one foot of the ground surface at any time of the year; ~~(2)~~ may be located closer than 100 feet from a private water supply, except springs and uncased wells located downslope and used as a source of drinking water, for repairs, space limitations, and other site-planning considerations but shall be located the maximum feasible distance and in no case less than 50 feet.

(c) ~~(d)~~ Septic tank systems Nitrification fields and repair areas shall not be located under paved areas or ~~driveways~~ areas subject to vehicular traffic. If effluent is to be conveyed under areas subject to vehicular traffic, ductile Cast iron or other suitable pipe may be permitted to convey the effluent under a driveway or other paved areas. shall be used.

(d) In addition to the requirements of Paragraph (a) of this Rule, sites to be used for subsurface disposal for design units with flows over 3,000 gallons per day, which include separate nitrification fields with individual capacities of greater than 1500 gallons per day, as determined in Rule .1949(a) or (b) of this Section, shall be located at least the minimum horizontal distance from the following:

- (1) Any Class I or II impounded reservoir used as a source of drinking water, or any public water supply source utilizing a shallow (under 50 feet) groundwater aquifer -- 500 feet;
- (2) Any other public water supply source utilizing an unconfined aquifer -- 200 feet;
- (3) Any private water supply source utilizing an unconfined aquifer -- 100 feet;
- (4) Waters classified as SA -- 200 feet from mean high water mark;
- (5) Any waters classified as WS-I -- 200 feet;
- (6) Any surface waters classified as WS-II, WS-III, B, or SB -- 100 feet; and
- (7) Any property line -- 25 feet.



(e) Collection sewers, force mains, and supply lines shall be located at least the minimum horizontal distance from the following:

- (1) Any public or private water supply source, including wells, springs, and Class I or Class II impounded reservoirs used as a source of drinking water -- 100 feet, unless constructed of leakproof pipe, such as cast iron pipe with leaded or mechanical joints, in which case the minimum setback may be reduced to 50 feet from a public water supply source and 25 feet from a private water supply source;
- (2) Any waters classified as WS-I, WS-II, WS-III, SA, or SB -- 50 feet, unless constructed of similar leakproof pipe, in which case the minimum setback may be reduced to 10 feet;
- (3) Any other stream, canal, marsh, coastal waters, lakes and other impoundments, or other surface waters -- 10 feet;
- (4) Any basement -- 10 feet;
- (5) Any property line -- 5 feet;
- (6) Top of slope of embankments or cuts of two feet or more vertical height -- 10 feet;
- (7) Drainage Systems:
  - (A) Interceptor drains, storm drains, and surface water diversions -- 5 feet;
  - (B) Ground-water lowering and surface drainage ditches -- 10 feet;
- (8) Any swimming pool -- 10 feet;
- (9) Any other nitrification field -- 5 feet.
- (f) Sewer lines may cross a water line if 18 inches clear separation distance is maintained, with the sewer line passing under the water line. When conditions prevent an 18-inch clear separation from being maintained or whenever it is necessary for the water line to cross under the sewer, both the water line and sewer shall be constructed of ferrous materials with mechanical joints equivalent to water main standards for a distance of at least ten feet on each side of the point of crossing, with full sections of pipe centered at the point of crossing.
- (g) Sewer lines may cross a storm drain if 12 inches clear separation distance is maintained unless the sewer is of cast iron pipe or encased in concrete or cast iron pipe for at least five feet on either side of the crossing.
- (h) Sewer lines may cross a stream if at least three feet of stable cover can be maintained or the sewer line is of cast iron pipe or encased in concrete or cast iron pipe for at least ten feet on either side of the crossing and fully protected against the normal range of high and low water conditions, including the 100-year flood wave action. Areal crossings shall be by cast iron pipe with mechanical joints and pipe must be an-

chored for at least ten feet on either side of the crossing. Force mains and supply lines must be protected from freezing.

(i) Treatment systems, including septic tanks, lift stations, wastewater treatment plants, and sand filters, shall not be located in areas subject to frequent flooding (areas inundated at a ten-year or less frequency) unless specially designed and installed to be completely watertight and to remain fully operable during a ten-year storm. Mechanical or electrical components or treatment systems must be above the 100-year flood level or otherwise adequately protected against a 100-year flood.

*Statutory Authority G.S. 130A-335(e).*

#### **.1952 SEPTIC TANK; DOSING TANK AND LIFT STATION DESIGN**

(a) A septic tank or dosing tank shall be watertight, structurally sound, and not subject to excessive corrosion or decay. Septic tanks shall be of two-compartment design. The inlet compartment of a two-compartment tank shall be hold between two-thirds and three-fourths of the total tank capacity. A properly designed dosing siphon or pump shall be used for discharging sewage effluent into nitrification lines when the total length of such lines exceeds 750 linear feet in a single system and as required for any pressure-dosed system. When the design daily flow from a single system exceeds 3,000 gallons per day or when the total length of nitrification lines exceeds 2,000 linear feet in a single system, alternating siphons or pumps shall be used which shall discharge to separate nitrification fields. The dose volume Discharges from pump or siphon systems shall be of such design so as to fill the nitrification lines from 60 66 percent to 75 percent of their capacity at each discharge or except as required for low-pressure distribution systems. The discharge rate Discharges from pump dosing systems shall be designed to maximize the distribution of the effluent throughout the system nitrification field. Septic tanks installed where the top will be deeper than 30 inches below the finished grade shall have an access manhole, with cover, extending to within 42 six inches of the finished grade, having a minimum opening adequate to accommodate the installation or removal of the septic tank lid. Any system serving a design unit with a design sewage flow greater than 3,000 gallons per day shall have access manholes over each compartment, and the outlet sanitary tee, which extend at least to finished grade for inspection and maintenance. Pump or dosing chambers shall have an access manhole having a minimum diameter of 30

inches extending a minimum of six inches above the finished grade. Syphon dosing chambers shall be designed in accordance with the minimum dose requirements in this Rule. Effluent pump chambers shall meet the construction requirements of this Section and shall have a minimum liquid capacity equivalent to the septic tank liquid capacity required in this Rule. All effluent pump chambers dosing tanks shall have a properly functioning high-water alarm. ~~installed independent of the electrical circuit for the pump.~~ The alarm shall be audible or visible by system users and weatherproof if installed outdoors. The alarm circuit shall be provided with a manual disconnect in a watertight, corrosion-resistant outside enclosure (NEMA 4X or equivalent) adjacent to the dosing tank.

(b) Minimum liquid capacities for septic tanks shall be in accordance with the following:

- (1) Residential Septic Tanks (for each individual residence or dwelling unit):

Number of Bedrooms	Minimum Liquid Capacity
2 or less	750 gallons
3 or less	900 gallons
4	1,000 gallons
5	1,250 gallons

Equivalent Capacity  
Per Bedroom

375 gallons  
300 gallons  
250 gallons  
250 gallons

~~These figures provide for use of garbage grinders, automatic clothes washers, and other household appliances.~~

- (2) Septic tanks for large residences, multiple dwelling units, or places of business or public assembly shall be in accordance with the following:
  - (A) The minimum liquid capacity of septic tanks for places of business or places of public assembly with a design sewage flow of 600 gallons per day or less shall be determined in accordance with the following:  $V = 2Q$ ; where V is the liquid capacity of the septic tank and Q is the design daily sewage flow.
  - (B) Individual residences with more than five bedrooms, multiple-family residences, individual septic tank systems serving two or more residences, or any place of business or public assembly where the design sewage flow is greater than 600 gallons per

day, but less than 1,500 gallons per day, the liquid capacity of the septic tank shall be designed in accordance with the following:  $V = 1.17Q + 500$ ; where V is the liquid capacity of the septic tank and Q is the design daily sewage flow. The minimum liquid capacity of a septic tank serving two or more residences shall be 1,500 gallons.

- (C) Where the design sewage flow is between 1,500 gallons per day and 4,500 gallons per day, ~~or greater,~~ the liquid capacity of the septic tank shall be designed in accordance with the following:  $V = 0.75Q + 1,125$ ; where V is the liquid capacity of the septic tank and Q is the design daily sewage flow.

- (D) Where the design sewage flow exceeds 4,500 gallons per day, the septic tank shall be designed in accordance with the following:  $V = Q$ ; where V is the liquid capacity of the septic tank and Q is the design daily sewage flow.

- (3) The minimum capacity of any septic tank ~~or effluent pump chamber~~ shall be 750 gallons.

(c) The following are minimum standards of design and construction of pump tanks and pump dosing systems:

- (1) Pump tanks shall have a minimum liquid capacity in accordance with the following:

- (A) Pump tanks for systems with nitrification fields installed in Soil Group I, II, or III soils, as defined in these rules, shall have a minimum liquid capacity equal to two-thirds of the required septic tank liquid capacity.

- (B) Pump tanks for systems installed in Group IV soils shall have a minimum liquid capacity equal to the required septic tank liquid capacity.

- (C) The minimum liquid capacity of any pump tank shall be 750 gallons. The liquid capacity of a pump tank shall be considered as the entire internal volume with no additional allowance for freeboard.

- (D) An alternate method to determine minimum liquid capacity of a pump tank shall provide for the minimum pump submergence requirement, the minimum does volume requirement, and the minimum emergency storage capacity requirement. Emergency storage capacity requirement is determined based on the type of facility served, the classification of surface waters which would be impacted by a pump tank failure, and the availability of standby power devices and emer-



gency maintenance personnel. The emergency storage capacity shall be the freeboard space in the pump tank above the high-water alarm activation level and may also include the available freeboard space in previous tankage and in the collection system below the lowest connected building drain invert. Minimum emergency storage capacity requirement for residential systems and other systems in full-time use on sites draining into WS-I, WS-II, WS-III, SA, SB, and B waters means 24 hours, without standby power, or 12 hours with standby power manually activated, or four hours with standby power automatically activated or with a high-water alarm automatically contacting a 24-hour maintenance service. Minimum emergency storage capacity requirement for systems not in full-time use and for all systems at sites draining into all other surface waters shall be 12 hours without standby power, or eight hours with standby power manually activated, or four hours with standby power automatically activated or with a high-water alarm automatically contacting a 24-hour maintenance service.

- (E) Notwithstanding Paragraphs (c) (1) (A)-(D), other criteria for pump tank capacity may be approved by the state and local health department for raw sewage lift stations, pressure sewer systems, and systems with design flows exceeding 3,000 gallons per day.
- (2) The effluent pump shall be capable of handling at least one-half inch solids and designed to meet the discharge rate and total dynamic head requirements of the effluent distribution system. The pump shall be listed by Underwriter's Laboratory or an equivalent third party electrical testing and listing agency.
  - (3) Pump discharge piping shall be of Schedule 40 PVC or stronger material and adequately secured. Fittings and valves shall be of compatible corrosion-resistant material. A threaded union, flange, or similar disconnect device shall be provided in each pump discharge line and corrosion-resistant rope or chain attached to each pump enabling pump removal from the ground surface without requiring dewatering or entrance into the tank. Valves shall also be readily accessible from the ground surface.
  - (4) Antisiphon holes (three-sixteenth inch) shall be provided when the discharge or

invert elevation of the distribution system is below the high-water alarm elevation in the pump tank, or in accordance with pump manufacturer's specifications. Check valves shall be provided when the volume of the supply line is greater than 25 percent of the dosing volume, or in accordance with pump manufacturer's specifications. When provided, the antisiphon hole shall be located between the pump and the check valve.

- (5) Sealed mercury control floats or similar devices designed for detecting liquid levels in septic tank effluent shall be provided to control pump cycles. A separate level sensing device shall be provided to activate the high-water alarm. Pump-off level shall be set to keep the pump submerged at all times or in accordance with the manufacturer's specifications. A minimum of 12 inches of effluent shall be maintained in the bottom of the pump tank. The high-water alarm float shall be set to activate within six inches of the pump-on level. The lag pump float switch, where provided, shall be located at or above the high-water alarm activation level.
- (6) Pump and control circuits shall be provided with manual circuit disconnects within a watertight, corrosion-resistant, outside enclosure (NEMA 4X or equivalent) adjacent to the pump tank, securely mounted at least 12 inches above the finished grade. The pump(s) shall be manually operable without requiring the use of special tools or entrance into the tank for testing purposes. Conductors shall be conveyed to the disconnect enclosure through waterproof, gasproof, and corrosion-resistant conduits, with no splices or junction boxes provided inside the tank. Wire grips, duct seal, or other suitable material shall be used to seal around wire and wire conduit openings inside the pump tank and disconnect enclosure.
- (7) For systems requiring duplex and multiplex pumps, a control panel shall be provided which shall include short circuit protection for each pump and for the control system, independent disconnects, automatic pump sequencer, hand-off-automatic (H-O-A) switches, run lights, and elapsed time counters for each pump. Alarm circuits shall be supplied ahead of any pump overload or short circuit protective devices. The control panel must

be in a watertight, corrosion-resistant enclosure (NEMA 4X or equivalent) unless installed within a weathertight building. The panel shall be protected from intense solar heating.

- (8) Dual and multiple fields shall be independently dosed by separate pumps and their supply lines shall be "H" connected to permit manual alternation between fields dosed by each pump. "H" connection valving shall be readily accessible from the ground surface, either from the pump tank access manhole or in a separate valve chamber outside the pump tank.
- (9) The pump tank shall have a properly functioning high-water alarm. The alarm circuit shall be supplied ahead of any pump overload and short circuit protective devices. The alarm shall be audible and visible by system users and weatherproof if installed outdoors in an enclosure (NEMA 4X or equivalent).
- (d) Siphons and siphon dosing tanks may be used when at least two feet of elevation drop can be maintained between the siphon outlet invert and the inlet invert in the nitrification field distribution system.
  - (1) Siphon dosing tanks shall be designed in accordance with the minimum dose requirements in this Rule and shall meet the construction requirements of this Section. The siphon dose tank shall provide at least 12 inches of freeboard, and the inlet pipe shall be at least three inches above the siphon trip level. The high-water alarm shall be set to activate within two inches of the siphon trip level.
  - (2) Siphon dosing tanks shall have a watertight access opening over each siphon with a minimum diameter of 24 inches and extending a minimum of six inches above finished grade.
  - (3) The slope and size of the siphon discharge line shall be sufficient to handle the peak siphon discharge by gravity flow without the discharge line flowing full. Vents for the discharge lines shall be located outside of the dosing tank or otherwise designed to not serve as an overflow for the tank.
  - (4) All siphon parts shall be installed in accordance with the manufacturer's specifications. All materials must be corrosion-resistant, of cast iron, high density plastic, fiberglass, stainless steel, or equal.
  - (5) Siphon dosing tanks shall have a properly functioning high-water alarm that is audi-

ble and visible by system users and weatherproof if installed outdoors in an enclosure (NEMA 4X or equivalent).

- (e) Raw sewage lift stations shall meet the construction standards of this Section and all horizontal setback requirements for sewage treatment and disposal systems in accordance with Rule .1950(a) of this Section unless the station is a sealed, watertight chamber, in which case the setback requirements for collection sewers in Rule .1950(e) of this Section shall apply. Sealed, watertight chambers shall be of a single, prefabricated unit, such as fiberglass, with sealed top cover, and preformed inlet and outlet pipe openings connected with solvent wells, O-ring seals, rubber boots, stainless steel straps, or equivalent. Dual pumps shall be provided for stations serving two or more buildings or for a facility with more than six water closets. Pumps shall be listed by Underwriter's Laboratories or an equivalent third party electrical testing and listing agency, and shall be grinder pumps or solids-handling pumps capable of handling at least three-inch spheres unless the station serves no more than a single water closet, lavatory, and shower, in which case two-inch solids handling pumps shall be acceptable. Minimum pump capacity shall be 2.5 times the average daily flow rate. The dosing volume shall be set so that the pump-off time does not exceed 30 minutes, except for stations serving single buildings, and pump run-time shall be from three to ten minutes at average flow. Pump station emergency storage capacity and total liquid capacity shall be determined in accordance with Paragraph (c)(1)(D) of this Rule except for a sealed, watertight chamber serving an individual building, in which case a minimum storage capacity of eight hours shall be required. All other applicable requirements for pump tanks and pump dosing systems in accordance with Paragraph (c) of this Rule shall also apply to raw sewage lift stations.

Statutory Authority G.S. 130A-335(e).

#### .1953 PREFABRICATED SEPTIC TANKS AND PUMP TANKS

When prefabricated concrete tanks or tanks of other material are used, they shall be constructed in accordance with the plans which have been approved by the State Department of Human Resources and shall comply with all requirements of this Section. ~~Three~~ At least three complete sets of plans and specifications for the design of the prefabricated septic tank shall be submitted to the Environmental Health Section, Division of Health Services, P.O. Box 2091,



Raleigh, North Carolina 27602-2091. Plans and specifications for each septic tank or pump tank to be produced shall be submitted separately to the Division of Health Services for approval. These plans and specifications shall show the design of the septic tank in detail, including:

- (1) All pertinent dimensions;
- (2) Reinforcement material and location;
- (3) Material strength;
- (4) Liquid depth;
- (5) ~~Cleanout provisions.~~ Joint material and method of sealing;
- (6) Access manhole and riser detail;
- (7)(6) Other design features.

Statutory Authority G.S. 130A-335(e).

#### .1954 MINIMUM STANDARDS FOR PRECAST REINFORCED CONCRETE TANKS

(a) The following are minimum standards of design and construction of precast reinforced concrete septic tanks:

- (4) There shall be three inlet openings in the tank, one on the tank end and one on each sidewall of the inlet end of the tank. The blockouts for these openings shall leave a concrete thickness of not less than one inch in the tank wall. The blockouts shall be made for a minimum of four-inch pipe or a maximum of six-inch pipe. No blockouts or openings shall be permitted below the tank liquid level.
- (6) The outlet shall be a cast-in-place concrete sanitary tee, a polyvinyl chloride (PVC) sanitary tee, or a polyethylene (PE) sanitary tee, made of not less than class 160 pipe or equivalent fittings and pipe. Class 160 pipe shall have a wall thickness of not less than 0.183 inches. The cast-in-place concrete sanitary tee shall have a minimum thickness of not less than two inches. The tee shall extend down one-fourth of the liquid depth. The tee shall be furnished by the manufacturer. The invert of the outlet shall be at least two inches lower in elevation than the invert of the inlet.
- (9) The tank shall be reinforced by using a minimum reinforcing of six-inch by six-inch No. 10 gage welded steel reinforcing wire in the top, bottom ends, and sides of the tank. The reinforcing wire shall be lapped at least six inches. The tank top must be able to withstand a uniform loading of 150 pounds per square foot. If additional reinforcing is required to accomplish this, it is the responsibility of the manufacturer to install the added rein-

~~forcing.~~ Reinforcement shall be placed to provide a maximum amount of concrete cover. The tank shall be able to withstand a uniform live loading of 150 pounds per square foot in addition to all loads to which an underground tank is normally subjected. These include the dead weight of the concrete and soil cover, active soil pressure on tank walls, and the uplifting force of the ground water.

- (11) ~~A minimum end product strength of 3,000 pounds per square inch shall be used in the construction of a septic tank. The strength of 3,000 pounds per square inch must have been reached within 10 percent of 300 pounds per square inch prior to the tank's being removed from the place of manufacture.~~ A minimum 28-day concrete compressive strength of 4,000 pounds per square inch shall be used in the construction of the septic tank. The concrete must achieve a minimum compressive strength of 2,700 pounds per square inch prior to removal of the tank from the place of manufacture. It shall be the responsibility of the manufacturer to certify that this condition has been met prior to shipment. A septic tank shall be subject to testing to ascertain the strength of the concrete prior to its being approved for installation. Recognized devices for testing the strength of concrete include a properly calibrated Schmidt Rebound Hammer or Windsor Probe Test. Accelerated curing in the mold by use of propane gas or other fuels is prohibited, except in accordance with accepted methods and upon prior approval of the division of health services.
- (12) ~~After curing, tanks manufactured in two sections shall be joined and sealed at the joint by the manufacturer, or by the installer, by using a mastic sealant or pliable sealant that is both waterproof and corrosion resistant.~~ After curing, tanks manufactured in two sections shall be joined and sealed at the joint by using a mastic, butyl rubber, or other pliable sealant that is waterproof, corrosion-resistant, and approved for use in septic tanks. The sealant shall have a minimum size of one inch nominal diameter or equivalent. Before sealing, the joint shall be smooth, intact, and free of all deleterious substances. Tank halves shall be properly aligned to ensure a tight seal. The sealant shall be provided by the manufacturer.

(13) All tanks produced shall bear an imprint identifying the manufacturer, the serial number assigned to the manufacturer's plans and specifications approval by the division of health services, and the liquid or working capacity of the tank. This imprint shall be located to the right of the blockout made for the outlet pipe on the outlet end of the tank. All tanks shall also be permanently marked with the date of manufacture adjacent to the tank imprint.

(b) Pump tanks shall meet the construction requirements of Paragraph (a) of this Rule with the following modifications.

(1) Tanks shall be cast with a single compartment, or, if a partition is provided, the partition shall be cast to contain a minimum of two four-inch diameter circular openings, or equivalent, located 12 inches above the tank bottom.

(2) There shall be no requirement as to tank length, width, or shape, provided the tank satisfies all other requirements of this Section.

(3) The invert of the inlet openings shall be located within 12 inches of the tank top. No freeboard shall be required in the pump tank.

(4) After joining, tanks manufactured in two sections shall be plastered along the joint, both inside and outside, with hydraulic cement, cement mortar, or other waterproofing sealant. Prior to backfilling, the local health department shall make a finding that a two section tank is watertight if a soil wetness condition is present within five feet of the elevation of the top of the tank.

(5) Tank shall be vented and accessible for routine maintenance. A waterproof access manhole with removable lid shall be provided over the pump with a minimum diameter of 24 inches and extending a minimum of six inches above finished grade. Larger or multiple manholes shall be provided when two or more pumps are required. Pumps shall be removable without requiring entrance into the tank. Manhole lids and electrical controls shall be secured against unauthorized access. Manhole riser shall be joined to tank top by means of tongue-in-groove or comparable type joint. The joint shall be sealed in accordance with Paragraphs (a)(12) and (b)(4) of this Rule.

(6) All pump tanks shall bear an imprint identifying the manufacturer, pump tank serial number assigned by the Division of

Health Services, and the liquid or working capacity of the tank. The imprint shall be located to the left of the outlet blockout. All tanks shall also be permanently marked with the date of manufacture adjacent to the tank imprint.

(c) ~~(b)~~ Plans for prefabricated tanks, other than those for precast reinforced concrete tanks, shall be approved on an individual basis as determined by the information furnished by the designer which indicates the tank will provide equivalent effectiveness as those designed in accordance with the provisions of ~~Rule 1954(a).~~ Paragraphs (a) and (b) of this Rule.

(d) ~~(c)~~ Septic Tanks other than approved prefabricated tanks shall be constructed consistent with the provisions of this Rule except as follows:

(1) Cast-in-place concrete septic and pump tanks shall have a minimum wall thickness of six inches.

(2) Concrete block or brick ~~septic~~ masonry tanks shall have a minimum wall thickness of at least six inches when the design volume is less than 1,000 gallons and a minimum wall thickness of at least eight inches when the design volume is 1,000 gallons or more. All joints between masonry units shall be mortared using masonry cement mortar or equivalent. The joints shall have a nominal thickness of three-eighths inch. All concrete block masonry tanks shall have a minimum wall reinforcement of number three reinforcing bars on 20-inch centers, or equivalent. The maximum allowable reinforcement spacing in either direction shall be four feet. All ~~septic~~ tanks constructed of block or brick shall be plastered on the inside with a 1:3 mix (one part cement, three parts sand) of Portland cement at least three-eighths inch thick or the equivalent using other approved water-proofing material.

(3) The bottom of the built-in-place ~~septic~~ tank shall be poured concrete with a minimum thickness of four inches. All built-in-place tanks shall be reinforced to satisfy the structural strength requirements of Paragraph (a)(9) of this Rule. Reinforcement shall be placed in both directions throughout the entire tank, including top, bottom, walls, and ends.

Statutory Authority G.S. 130A-335(e).

.1955 DESIGN CRITERIA FOR  
CONVENTIONAL SEWAGE SYSTEMS



(a) Conventional Septic Tank Systems. Conventional septic tank systems shall utilize a septic tank of adequate approved construction and design volume which provides primary treatment of the sewage in accordance with the provisions of these rules. which provides primary treatment of the sewage. The effluent from the septic tank shall be conveyed flows by gravity to an approved nitrification line where the soil provides for final treatment and disposal of the sewage.

(b) Table II shall be used in determining the maximum long-term acceptance application rate for septic tank systems of conventional trench design. The long-term acceptance rate shall be based on the most hydraulically limiting naturally occurring soil horizon within three feet of the ground surface or to a depth of one foot below trench bottom, whichever is deeper.

TABLE NO. II

SOIL GROUP	SOIL TEXTURAL CLASSES (USDA CLASSIFICATION)	
I	Sands (With S or PS structure and clay mineralogy)	Sand Loamy Sand
II	Coarse Loams (With S or PS structure and clay mineralogy)	Sandy Loam Loam
III	Fine Loams (With S or PS structure and clay mineralogy)	Sandy Clay Loam Silt Loam Clay Loam Silty Clay Loam Silt
IV	Clays (With S or PS structure and clay mineralogy)	Sandy Clay Silty Clay Clay
IV a	Clays (Kaolinite or Ill with PS structure)	Sandy Clay Silty Clay Clay

IV b	Clays (montmorillonite or Mixed Mineralogy)	Sandy Clay Silty Clay Clay
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APPLICATION RATE	
LONG-TERM	ACCEPTANCE RATE
	gpd ft <sup>2</sup>
	1.2 - 0.8
	0.8 - 0.6
	0.6 - 0.4 0.3
	0.4 - 0.1
	0.4 - 0.2
	Unsuitable

The long-term acceptance rate shall not exceed the mean rate for the applicable soil group for food service facilities, meat markets, and other places of business where accumulation of grease can cause premature failure of a soil absorption system. Application rates up to the maximum for the applicable soil group may be permitted for facilities where data from comparable facilities indicates that the grease and oil content of the effluent will be less than 30 mg/l and the chemical oxygen demand (COD) will be less than 500 mg/l.

(c) In calculating the number of square feet of area needed for the nitrification field in trench system, the maximum trench width used in the calculations shall be 36 inches. The design daily sewage flow shall be divided by the long-term acceptance rate to determine the minimum area of nitrification trench bottom. The total length of the nitrification line shall be determined by dividing the required area of nitrification trench bottom by the trench width, not to exceed 36 inches. Trenches shall be located not less than three times the trench width on centers with a minimum spacing of five feet on centers.

(d) The local health department may permit the use of a bed system on sites where the soil texture can be classified into either Soil Groups I, II, or III, meeting essentially the other requirements of this Section, and only on lots which are limited by topography, space, or other site-planning considerations. In such cases, the number of square feet of bottom area needed shall be increased by 50 percent over what would be required for a trench system. Nitrification

lines shall be at least 18 inches from the side of the bed and shall have lines on three-foot centers. When the design daily flow volume of sewage exceeds 600 gallons per day, adequate space shall be provided to accommodate a trench system for the nitrification field. bed systems shall not be used.

(e) The pipe or tubing used between the septic tank and the nitrification line shall be a minimum of four-inch nominal size Schedule 40 polyvinyl chloride (PVC), polyethylene (PE), or acrylonitrile-butadiene-styrene (ABS) or equivalent with a minimum fall of one-eighth inch per foot. Where an effluent distribution device is used between the septic tank and nitrification line, the pipe or tubing shall be a minimum of three-inch nominal size Schedule 40 polyvinyl chloride (PVC), polyethylene (PE), or acrylonitrile-butadiene-styrene (ABS) or equivalent. However, three ~~four~~ inch or greater non-perforated polyethylene (PE) corrugated tubing may be substituted for Schedule 40 pipe between the distribution device and the nitrification line if the following conditions are met:

- (1) the trench has a minimum bottom width of one foot;
- (2) the trench bed is compacted, smooth, and at a uniform grade;
- (3) the pipe is placed in the middle of the trench with a minimum of three inches of clearance between the pipe and the trench walls;
- (4) crushed stone or gravel envelope is placed in the trench on both sides of the pipe and up to a point at least two inches above the top of the pipe;
- (5) a minimum of six inches of soil cover is placed and compacted over the gravel envelope; and
- (6) earthen dams consisting of two feet of undisturbed or compacted soil are placed at both ends of the trench separating the trench from the distribution device and the nitrification line.

All joints from the septic tank to the nitrification line shall be watertight.

(f) When four or six-inch diameter corrugated plastic tubing is used for nitrification lines, it shall be certified as complying with ASTM F 405, Standard Specification for Corrugated Polyethylene (PE) Tubing and Fittings, which is hereby adopted by reference in accordance with G.S. 150B-14(c), applicable ASTM standards. The corrugated tubing shall have three rows of holes, each hole between one-half inch and three-fourths inch in diameter, and spaced longitudinally approximately four inches on centers. The rows of holes may be equally spaced

120 degrees on centers around the periphery, or three rows may be located in the lower portion of the tubing, the outside rows being approximately on 120-degree centers. Other types of pipe may be used for nitrification lines provided the pipe satisfies the requirements of this Section for hole size and spacing and the pipe has a stiffness equivalent to corrugated polyethylene tubing (ASTM F-405) or stronger. The nitrification line shall be located in the center of the nitrification trench.

(g) Nitrification trenches shall be constructed as level as possible but in no case shall the fall in a single trench bottom exceed one-fourth inch in 10 feet as determined by an engineer's level or equivalent. When surface slopes are greater than two percent, the bottom of the nitrification trenches shall follow the contour of the ground. An engineer's level or equivalent shall be used for installation and inspection. The nitrification trench shall not exceed a width of three feet and a depth of three feet, except as approved by the local health department.

(h) Rock used in soil absorption systems shall be clean, washed gravel or crushed stone and graded or sized in accordance with size numbers 3, 4, 5, 57, or 6 of ASTM D-448 (standard sizes of coarse aggregate) which is hereby adopted by reference in accordance with G.S. 150B-14(c). Copies may be inspected in, and copies obtained from the Division of Health Services, P.O. Box 2091, Raleigh, North Carolina 27602-2091, between three-fourths inch to two and one-half inches. The rock shall be placed a minimum of one foot deep with at least six inches below the pipe and two inches over the pipe and distributed uniformly across the trench bottom and over the pipe.

(i) The soil cover over the nitrification field shall be to a depth of at least six inches. The finished grade over the nitrification field shall be landscaped to prevent the ponding of surface water and runoff of surface water shall be diverted away from the nitrification field. Soil cover above the original grade shall be placed at a uniform depth over the entire nitrification field, except as required to prevent the ponding of surface water, and shall extend laterally beyond the nitrification trench five feet. The soil cover shall be placed over a nitrification field only after proper preparation of the original ground surface. The type of soil cover and placement shall be approved by the local health department.

(j) Effluent distribution devices, including distribution boxes, flow dividers, and flow diversion devices, shall be of sound construction, watertight, not subject to excessive corrosion, and of adequate design as approved by the local



health department. Effluent distribution devices shall be separated from the septic tank and nitrification lines by a minimum of two feet of undisturbed or compacted soil and shall be placed level on a solid foundation of soil or concrete to prevent differential settlement of the device. The installer shall demonstrate that the distribution devices perform as designed.

(k) Grease traps or grease interceptors shall be required at certain places of business, including restaurants, food service facilities, and meat markets, and other places of business where the accumulation of grease can cause premature failure of a soil absorption system. Specially designed grease interceptors may be used in lieu of grease traps where it has been demonstrated that they will provide equal or improved performance. The following design criteria shall be met:

- (1) The grease trap shall be plumbed to receive all wastes associated with food handling and no toilet wastes;
- (2) The grease trap liquid capacity shall be sufficient to provide for at least five gallons of storage per meal served per day, at least two-thirds of the required septic tank liquid capacity, or determined in accordance with the following:

$$LC = D \times GL \times ST \times HR \div 2 \times LF$$

where LC = grease trap liquid capacity (gallons)

D = number of seats in dining area

GL = gallons of wastewater per meal (1.5 single-service; 2.5 full service)

ST = storage capacity factor = 2.5

HR = number of hours open

LF = loading factor  
= 1.25 interstate highway  
= 1.0 other highways and recreational areas  
= 0.8 secondary roads)

- (3) Two or more chambers must be provided, with total length-to-width ratio at least 2:1. Chamber opening and outlet sanitary tee must extend down at least 50 percent of the liquid depth.
- (4) Access manholes extending at least to the ground surface must be provided over each chamber and sanitary tee and must have readily removable covers to facilitate inspection and grease removal.

(5) One tank or multiple tanks, in series, may be used, constructed in accordance with Rules .1952, .1953, and .1954 of this Section, including the specified modifications in this Rule.

(6) Specially designed grease interceptors may also be used where it has been demonstrated that they will provide improved performance. The grease trap liquid capacity may be reduced by up to 50 percent when grease interceptors are used in addition to grease traps.

(l) Stepdowns or drop boxes may be used where it is determined by the local health department that topography prohibits the placement of nitrification trenches on level grade. Stepdowns shall be constructed of two linear feet of undisturbed soil and constructed to a the height level with the top of the upper upstream portion of the nitrification line. Effluent shall be conveyed over the stepdown through nonperforated pipe or tubing and backfilled with compacted soil. Drop boxes shall be constructed so that the invert of the inlet supply pipe is one inch above the invert of the outlet supply pipe which is connected to the next lower drop box. The top of the trench outlet laterals, which allow effluent to move to the nitrification lines, shall be two inches below the invert of the outlet supply line. It is recommended that drop boxes be designed to close off the trench outlets to provide for periods of resting when the nitrification trench becomes saturated. Area taken up by stepdowns and drop boxes shall not be included as part of the minimum area required for nitrification trench bottoms.

(m) Nitrification trenches shall be installed with at least one foot of naturally occurring soil between the trench bottom and saprolite, rock, or any soil horizon unsuitable as to texture, structure, soil consistence or drainage. clay mineralogy or wetness.

(n) If sewage effluent pumps are used, the applicable requirements of Rule .1952 of this Section shall apply.

(o) Collection sewers shall be designed and constructed in accordance with the following minimum criteria:

- (1) Building drains and building sewers shall be in accordance with the state plumbing code and approved by the local building inspector.
- (2) Pipe material shall be specified to comply with the applicable ASTM standards, with methods of joining and other special installation procedures specified which are appropriate for the pipe to be used.

- (3) Gravity sewers shall be designed to maintain scour velocities of at least two feet per second with the pipe half full and a minimum of one foot per second at the peak projected instantaneous flow rate. Force mains shall be sized to obtain at least a two-foot per second scour velocity at the projected pump operating flow rate.
- (4) Infiltration and exfiltration shall not exceed 100 gallons per day per inch diameter per mile of gravity sewer pipe or 20 gallons per day per inch diameter per mile of pressure pipe in force mains and supply lines.
- (5) Three-foot minimum cover shall be provided for all sewers unless ferrous material pipe is specified. Ferrous material pipe or other pipe with proper bedding to develop design-supporting strength shall be provided where sewers are subject to traffic-bearing loads.
- (6) Manholes shall be used for eight-inch or larger sewers at any bends, junctions, and at least every 425 feet along the sewer lines. Drop manholes are required where the inlet to outlet elevation difference exceeds 2.5 feet. Manhole lids shall be watertight below the 100-year flood elevation, within 100 feet of any public or private water supply source, and within 50 feet of any surface waters classified WS-I, WS-II, WS-III, SA, SB, or B.
- (7) Cleanouts may be used in four-inch and six-inch sewers instead of manholes. Cleanouts are required at least every 50 feet for four-inch sewers and every 100 feet for six-inch sewers and at all junctions and bends which exceed 45 degrees.
- (8) Additional ventilation provisions may be required for collection sewers. The need for air relief valves shall be evaluated at all high points along force mains.
- (p) Alternating dual field nitrification systems may be utilized where soils are limited by high clogging potentials (Soil Groups III and IV) and where the potential for malfunction and need for immediate repair is required. Alternating dual nitrification fields shall be designed with two complete nitrification fields, each sized a minimum of 75 percent of the total area required for a single field and separated by an effluent flow diversion valve. The diversion valve shall be constructed to resist 500 pounds crushing strength, structurally sound, and shall be resistant to corrosion. Valves placed below ground level shall be provided with a valve box and suitable valve stem so that it may be operated from the ground surface.

Statutory Authority G.S. 130A-335(e).

#### .1956 MODIFICATIONS TO SEPTIC TANK SYSTEMS

The following are ~~Possible~~ modifications to ~~conventional~~ septic tank systems which may be utilized to overcome selected soil and site limitations. ~~and must be approved by the local health department include the following:~~ Except as required in this Rule, the provisions for design and installation of Rule .1955 of this Section shall apply:

- (1) ~~Shallow placement of nitrification trenches shall be utilized where insufficient depth to seasonally high, or perched, water table or where insufficient soil depth prevents the placement of conventional nitrification lines in accordance with this Section.~~ Sites classified UNSUITABLE as to soil depth or soil wetness may be reclassified as PROVISIONALLY SUITABLE with respect to soil depth or soil wetness conditions by utilizing shallow placement of nitrification trenches in the naturally occurring soil. Shallow trenches may be used where at least 24 inches of naturally occurring soil are present above saprolite, rock, or soil wetness conditions and all other factors are PROVISIONALLY SUITABLE or SUITABLE. Shallow trenches shall be designed and constructed to provide at least one foot of ~~natural~~ naturally occurring soil separation between the trench bottom and the ~~uppermost elevation of the seasonally high, or perched, water table and any soil wetness condition, saprolite, rock, or any soil horizon unsuitable as to structure or clay mineralogy.~~ Soil cover above the original grade shall be placed at a uniform depth over the entire nitrification field and extend laterally beyond the nitrification trench five feet. The soil cover shall be placed over a nitrification field only after proper preparation of the original ground surface. The type of soil cover emplacement shall be approved by the local health department.
- (2) Alternating dual field nitrification systems may be utilized where soils are limited by high clogging potentials (soil groups III and IV) and where the potential for malfunction and need for immediate repair is required. Alternating dual field nitrification systems shall be designed with two complete nitrification fields, each sized a minimum of 75 percent of the total area required for a single field and separated by an effluent flow diversion valve. The diversion valve shall



be constructed to resist 500 pounds crushing strength, structurally sound, and resistant to corrosion. Valves placed below ground level shall be provided with a valve box and suitable valve stem so that it may be operated from the ground surface. Sites classified UNSUITABLE as to soil wetness conditions or restrictive horizons may be reclassified PROVISIONALLY SUITABLE as to soil wetness conditions or restrictive horizons when:

- (a) soils are Soil Groups I or II with SUITABLE structure, and clay mineralogy;
  - (b) restrictive horizons, if present, are less than three inches thick or less than 12 inches from the soil surface;
  - (c) modifications can be made to maintain the water table at least 12 inches below the bottom of the nitrification trench at all times and when provisions are made for maintenance of the drainage systems;
  - (d) easements are recorded and have adequate width for egress and ingress for maintenance of drainage systems serving two or more lots;
  - (e) maintenance of the drainage system is made a condition of any permit issued for the use or operation of a sanitary sewage system; and
  - (f) drainage may be used in other types of soil when the requirements of Rule .1957(c) in this Section are met.
- (4) Sites classified as UNSUITABLE as to soil wetness conditions because of the presence of lateral water movement may be reclassified PROVISIONALLY SUITABLE as to soil wetness conditions when such water is intercepted and diverted to prevent saturation of the soil absorption system.
- (5) Stable slopes greater than 30 percent may be reclassified as PROVISIONALLY SUITABLE when:
- (a) the soil characteristics can be classified as SUITABLE or PROVISIONALLY SUITABLE to a depth of at least one foot below the bottom of the nitrification trench at the upslope side of the trench;
  - (b) surface water runoff is diverted around the nitrification field if necessary to prevent scouring or erosion of the soil over the field; and
  - (c) the finished grade over the nitrification field site is returned to the original topography and adequately seeded.
- (+ (6) Sites classified UNSUITABLE as to soil depth, with saprolite present, may be reclassified PROVISIONALLY SUITABLE as

to soil depth when the provisions of this Paragraph are met.

- (a) An investigation of the site using pits or trenches at locations and to depths specified by the local health department shall be conducted. The following physical properties and characteristics must be present:
  - (vi) the saprolite shall have no continuous joints or fractures relic of parent rock to a depth two feet below the proposed trench bottom.
- (b) Table III shall be used in determining the long-term acceptance rate for septic tank systems installed pursuant to Paragraph ~~(5)~~ (6). The long-term acceptance rate shall be based on the most hydraulically limiting, naturally occurring saprolite to a depth of two feet below trench bottom.

TABLE III

SAPROLITE GROUP	SAPROLITE TEXTURAL CLASSES	
I	Sands	Sand Loamy Sand
II	Coarse Loams (with less than 20 percent clay)	Sandy Loam Loam

LONG-TERM ACCEPTANCE RATE  
GPD/FT<sup>2</sup>

0.6 - 0.5  
0.5 - 0.4  
0.4 - 0.3  
0.3 - ~~0.2~~ 0.1

If a low pressure pipe system is used, the long term acceptance rate in Table III shall be reduced by one-half and the system shall be designed in accordance with Rule .1957(a) of this Section, except that Paragraphs (a)(2)(B) and (a)(3) shall not apply. Saprolite textural classifications shall be determined from disturbed materials and determined by Rule .1941(1). The local health department may require low-pressure distribution in conventional nitrification trenches, or other modifications to provide adequate effluent treatment and disposal.

- (d) The nitrification field shall be constructed using nitrification trenches with a maximum width of three feet and a maximum

depth of two feet ~~on~~ at the downslope side of the nitrification trench. The bottom of a nitrification trench shall be a minimum of two feet above rock or saprolite that does not meet the requirements of Paragraph (4)(a) of this Rule. However, where SUITABLE or PROVISIONALLY SUITABLE soil underlies the trench bottom, this separation distance may be reduced by subtracting the actual soil depth beneath the trench bottom from 24 inches to establish the minimum separation distance from the trench bottom to rock.

- (e) The bottom of any nitrification trench shall be a minimum of two feet above any wetness condition.

Statutory Authority G.S. 130A-335(e).

#### .1957 DESIGN CRITERIA FOR DESIGN OF ALTERNATIVE SEWAGE SYSTEMS

(a) Low pressure pipe (LPP) system.  
LOW-PRESSURE PIPE SYSTEMS: A Low-pressure (~~two to four foot pressure head~~) pipe (LPP) system systems with a two to five-foot pressure head may be utilized on sites which are SUITABLE or PROVISIONALLY SUITABLE for conventional or modified systems and on sites where soil and site conditions prohibit the installation of a conventional or modified septic tank system due to the presence of shallow soil conditions, seasonally high water table conditions, and slow soil permeability. if the requirements of this Paragraph are met.

- (1) The LPP system shall consist of the following basic components:

(A) a network of small-diameter (~~1 inch to 2 one to two inches~~) perforated PVC 160 psi pipe or equivalent placed in natural naturally occurring soil at shallow depths (generally 6 inches to 12 to 18 inches) in narrow trenches not less than 6 eight inches in width and spaced not less than five feet on center. Trenches shall include at least six inches of stone or gravel below the pipe and two inches above the pipe; and four inches of soil cover.

(B) a properly designed, two-compartment septic tank or other approved pretreatment system and a pumping or dosing tank;

(C) ~~an approved~~ submersible effluent pump (s) with appropriate on-off controls for controlled dosing and a high-water alarm, or other approved pressure dosing and distribution system;

(D) a watertight supply manifold pipe, of Schedule 40 PVC or equivalent, for conveying effluent from the pump dosing chamber to the low-pressure network.

- (2) The soil and site criteria for low-pressure pipe systems shall meet the following minimum requirements:

(A) LPP nitrification fields shall not be installed on slopes in excess of ten percent LPP nitrification fields may be installed on slopes greater than 10 percent but require unless special design procedures to assure proper distribution of effluent over the nitrification field are approved. Landscaping of the LPP distribution field shall be constructed to shed rainwater or runoff. All other requirements of Rule .1940 of this Section shall be met.

(B) ~~There shall be at least Site suitability for an LPP system shall be based on the first 24 inches of separation between soil beneath the naturally occurring soil surface. and rock, water impeding formation, or seasonally high water table. This 24 inch depth inches shall consist of suitable SUITABLE or provisionally suitable PROVISIONALLY SUITABLE soil with respect to texture, structure, and drainage. as determined in accordance with Rules .1941 through .1944 and .1956 of this Section.~~

(C) Components of the LPP shall not be located in depressions or areas subject to frequent flooding. Surface water, perched ground water, and other subsurface lateral water movement shall be intercepted or diverted away from all components of the LPP. Final shape of the LPP distribution field shall be such that rainwater or runoff is shed.

~~(D)~~ Location of the septic tank, other approved pretreatment unit, pumping or dosing chamber, and the LPP nitrification field is subject to the same horizontal setbacks specified in Rule .1950(a). shall be in accordance with Rule .1950 of this Section. Horizontal distances from the LPP nitrification field shall be measured from a margin two and one-half feet beyond the lateral and manifold pipes.

~~(D) (E)~~ An area that is at least equal in size to the LPP distribution field area (plus a two and one-half foot margin beyond lateral and manifold pipes) and meeting all other site and soil criteria shall be set aside for a replacement field.

~~(F)~~ There shall be no soil disturbance of the to an approved site or repair area for an



LPP system except the minimum required for installation.

0.2 - 0.4 0.05

- (3) Application rates. Table ~~III~~ IV shall be used in determining the ~~maximum application~~ long-term acceptance rate for ~~low-pressure pipe~~ LPP systems. The long-term acceptance rate shall be based on the most hydraulically limiting, naturally occurring soil horizon within two feet of the ground surface or to a depth of one foot below the trench bottom, whichever is deeper.

TABLE NO. III  
TABLE IV

SOIL GROUP	SOIL TEXTURAL CLASSES (USDA CLASSIFICATION)	
I	Sands (With S or PS structure and clay mineralogy)	Sand Loamy Sand
II	Coarse Loams (With S or PS structure and clay mineralogy)	Sandy Loam Loam
III	Fine Loams (With S or PS structure and clay mineralogy)	Sandy Clay Loam Silt Loam Clay Loam Silty Clay Loam Silt
IVa	Clays (With S or PS structure and clay mineralogy)	Sandy Clay Silty Clay Clay

APPLICATION RATE  
LONG-TERM ACCEPTANCE RATE  
gpd./ft<sup>2</sup>

0.6 - 0.4

0.4 - 0.3

0.3 - 0.2 0.15

The long-term acceptance rate shall not exceed the mean rate for the applicable soil group for food service facilities, meat markets, and other places of business where accumulation of grease can cause premature failure of a soil absorption system. Application rates up to the maximum for the applicable soil group may be permitted for facilities where data from comparable facilities indicates that the grease and oil content of the effluent will be less than 30 mg/l and the chemical oxygen demand (COD) will be less than 500 mg/l.

- (4) In calculating the number of square feet for the nitrification field, the design sewage flow shall be divided by the application long-term acceptance rate from Table III. The nitrification lines shall have a minimum spacing of five feet on centers. In calculating the minimum length of trenches in the LPP system, the total square footage of the nitrification field shall be divided by five feet.
- (5) Design of the LPP shall comply with accepted practices and be specifically approved by the local health department. Low-pressure systems must be designed for uniform distribution of effluent. The trenches shall be level and parallel to the ground elevation contours.
- (A) The maximum lateral length shall yield no more than a ten-percent difference in discharge rate between the first and last hole along the lateral.
- (B) Minimum hole size shall be 5/32-inch for at least two-thirds of the field lateral lines. Smaller holes (no less than 1/8-inch) may be used in no more than one-third of the lateral lines where necessary to balance flow distribution on sloping sites except for restaurants, foodstands, and meat markets and other establishments in which high clogging potential is encountered.
- (C) Maximum hole spacing shall be as follows: Soil Group I, five feet; Soil Group II, six feet; Soil Group III, eight feet; and Soil Group IV, ten feet.
- (D) The following design provisions are required for sloping sites:
- (i) Separately valved manifolds are required for all subfield segments where the elevation difference between the highest and lowest laterals exceeds three feet.

- (ii) To accomplish this, the hole spacing, hole size or both must be adjusted to compensate for relative head differences between laterals branching off a common supply manifold and to compensate for the bottom lines receiving more effluent at the beginning and end of a dosing cycle. The lateral network shall be designed to achieve a ten to 30 percent higher steady state (pipe full) flow rate into the upper lines, relative to the lower lines, depending on the amount of elevation difference.
- (iii) Maximum elevation difference between the highest and lowest laterals in a field shall not exceed ten feet unless the flow is hydraulically split between subfield segments without requiring simultaneous adjustment of multiple valves.
- (E) Turnups shall be provided at the ends of each lateral, constructed of Schedule 40 PVC pipe or equivalent, and protected with sleeves of larger diameter pipe (six inches or greater). Turnups and sleeves shall be cut off and capped at or above the ground surface, designed to be protected from damage, and easily accessible.
- (F) The supply manifold shall be sized large enough relative to the size and number of laterals served so that friction losses and differential entry losses along the manifold do not result in more than a 15 percent variation in discharge rate between the first and last laterals.
- (i) The ratio of the supply manifold inside cross sectional area to the sum of the inside cross sectional areas of the laterals served shall exceed 0.7:1.
- (ii) The reduction between the manifold and connecting laterals shall be made directly off the manifold using reducing tees.
- (iii) Cleanouts to the ground surface shall be installed at the ends of the supply manifold.
- (G) Gate valves shall be provided for pressure adjustment at the fields whenever the supply line exceeds 100 feet in length. Valves shall be readily accessible from the ground surface and adequately protected in valve boxes.
- (6) Septic tanks and effluent dosing tanks shall be provided pursuant to Rule .1952 of this Section.
- (A) Design flow rate shall be based upon delivering two feet to five feet of static pressure head at the distal end of all lateral lines.
- (B) Dose volume shall be between five and ten times the liquid capacity of the lateral pipe dosed, plus the liquid capacity of the portions of manifold and supply lines which drain between doses.
- (b) Alternative systems other than the low-pressure pipe system shall be approved by the local health department in accordance with Rule .1948(e).
- FILL SYSTEM: A fill system (including new and existing fill) is a system in which all or part of the nitrification trench(es) is installed in fill material. A fill system, including an existing fill site, may be approved where soil and site conditions prohibit the installation of a conventional or modified septic tank system if the requirements of this Paragraph are met.
- (I) New fill systems may be installed on sites where at least the first 18 inches, as determined from the naturally occurring soil surface, consists of suitable soil, and organic soils, restrictive horizons, saprolite or rock are not encountered. Further, no soil wetness condition shall exist within the first 12 inches as determined from the naturally occurring soil surface. The following requirements shall be met:
- (A) Nitrification trenches shall be installed with at least 24 inches separating the trench bottom and any soil horizon unsuitable as to soil structure, clay mineralogy, organic soil, rock or saprolite.
- (B) Nitrification trenches shall be installed with at least 18 inches separating the trench bottom and any soil wetness condition. The separation requirement for soil wetness conditions may be met with the use of a groundwater lowering system only in Group I (sand, loamy sand) soils.
- (C) Fill systems shall be installed only on sites with uniform slopes less than 15 percent. Surface water diversions and subsurface interceptor drains or swales may be required upslope of the fill system.
- (D) The long-term acceptance rate shall be based on the most hydraulically limiting soil horizon within 24 inches of the naturally occurring soil surface. The lowest long-term acceptance rate for the applicable soil group shall be used for systems installed pursuant to this Rule. The long-term acceptance rate shall not exceed 0.8 gallons per day for gravity distribution or 0.4 gallons per day for low-pressure pipe systems.
- (E) If the new fill system uses low-pressure pipe distribution, all the requirements of



Paragraph (a) of this Rule, except Paragraph (a)(2)(B), shall apply. Systems with a design daily flow greater than 480 gallons per day shall use low-pressure pipe distribution.

(F) Fill material shall have such soil texture to be classified as sand or loamy sand (Soil Group I) up to the top of the nitrification trenches. The final six inches of fill used to cover the system shall have a finer texture (Group II, III, or IV) for the establishment of a vegetative cover. The fill material shall have no more than ten percent by volume of fibrous organics, building rubble, or other debris. The fill shall not have discreet layers containing greater than 35 percent of shell fragments.

(G) Where fill material is added, the fill material and the existing soil shall be mixed to a depth of six inches below the interface. Heavy vegetative cover or organic litter shall be removed before the additional fill material is incorporated.

(H) The fill system shall be constructed as an elongated berm with the long axis parallel to the ground elevation contours of the slope.

(I) The side slope of the fill shall not exceed a rise to run ratio of 1:4.

(J) The outside edge of the nitrification trench shall be located at least five feet horizontally from the top of the side slope.

(K) The fill system shall be shaped to shed surface water and shall be stabilized with a vegetative cover against erosion.

(L) The setback requirements shall be measured from the projected toe of a 1:4 side slope.

(2) An existing fill site may be utilized for a sanitary sewage system if the following requirements are met:

(A) Substantiating data are provided by the lot owner (if not readily available to the local health department) indicating that the fill material was placed on the site prior to July 1, 1977.

(B) The fill material shall have such soil texture to be classified as sand or loamy sand (Group I) for a depth of at least 48 inches below the existing ground surface. The fill material shall have no more than ten percent by volume of fibrous organics, building rubble, or other debris. The fill shall not have discreet layers containing greater than 35 percent of shell fragments.

(C) Soil wetness conditions, as determined by Rule .1942(a) in this Section, are 36

inches or greater below the existing ground surface.

(D) The system installed on a site pursuant to this Rule shall use low-pressure pipe distribution and meet all the requirements of Paragraph (a) of this Rule, except (a)(2)(B). The long-term acceptance rate shall not exceed 0.4 gallons per day per square foot. Nitrification trenches shall be installed with at least 24 inches separating the trench bottom and any soil wetness condition.

(E) The available space requirements of Rule .1945(a) and (b) shall apply.

(F) Only a single sanitary sewage system with a design flow of 480 gallons per day or less shall be approved on a lot or tract of land pursuant to this Rule.

(3) Other systems may be installed in fill if the requirements of Paragraph (c) of this Rule are met.

(c) A site classified as UNSUITABLE which cannot be approved for a system in accordance with Rule .1956, and Paragraphs (a) or (b) of this Rule may be used for a ground absorption sewage treatment and disposal system if written documentation, including engineering, hydrogeologic, geologic, or soil studies, indicates to the local health department that the proposed system can reasonably be expected to function satisfactorily. Such sites may be reclassified as PROVISIONALLY SUITABLE if the local health department determines that the adequate substantiating data indicates that:

- (1) a ground absorption system can be installed so that the effluent will receive adequate treatment;
- (2) the effluent will not contaminate ground water or surface water; and
- (3) the effluent will not be exposed on the ground surface or be discharged to surface waters where it could come in contact with people, animals, or vectors.

The state shall review the substantiating data if requested by the local health department.

Statutory Authority G.S. 130A-335(e).

#### .1958 NON-GROUND ABSORPTION SEWAGE TREATMENT SYSTEMS

(b) Holding tanks shall not be considered as an acceptable sewage treatment and disposal system and their use is prohibited, except as provided in Table V in Rule .1961 of this Section.

(c) Chemical toilets shall be used temporarily for mass gatherings, construction sites, or other places of business or public assembly for non-permanent use. Properly managed chemical or

portable toilets for human waste may be used at mass gatherings, construction sites, and labor work camps. Chemical or portable toilets proposed for use at a labor work camp shall have an operation permit from the local health department upon a showing by the owner or controller that the chemical or portable toilet shall be maintained in a sanitary condition. Chemical or portable toilets shall have a watertight waste receptacle constructed of nonabsorbent, acid resistant, noncorrosive material. The chemical or portable toilet waste collected shall be discharged into an approved sewage treatment and disposal system.

*Statutory Authority G.S. 130A-335(e).*

**.1960 MAINTENANCE OF PRIVIES**

(b) The tenant or person occupying the property shall be responsible for these requirements:

- (4) Flies shall be excluded from the pit at all times. The application of a cupful of kerosene or used oil once each week will assist in controlling mosquito breeding and keep down odors.

*Statutory Authority G.S. 130A-335(e).*

**.1961 MAINTENANCE OF SEWAGE SYSTEMS**

(b) Septage removed from ground absorption sewage treatment and disposal systems shall be properly disposed of only at approved locations in accordance with applicable laws, rules, and regulations and consistent with good public health practice. If septage is applied to the land, it shall be buried or plowed under at an approved location within 24 hours. Proper disposal of septage shall be the responsibility of the person providing the septage pumping service. System management in accordance with Table V shall be required for all systems installed or repaired after January 1, 1991, for engineered systems with capacities or greater than 3000 gallons per day installed prior to January 1, 1991, and for systems which utilize mechanical, biological or chemical pretreatment other than septic tanks installed prior to January 1, 1991. After July 1, 1990 prior to issuance of an improvement permit for Type IV, Type V, Type VI, or Type VII systems, a management entity of the type specified in Table V must be in place in the county or service district in which the system is to be located. The management entity shall be responsible for performance inspections of the system at the frequency specified by Table V and shall report the results of their inspections to the local health department at the specified reporting frequency. However, where performance inspections indi-

cate the need for system repairs, the management entity shall report to the local health department within 48 hours. The management entity shall be responsible for routine maintenance procedures in accordance with the operations permit.

**TABLE V(a)**

<u>System Classification</u>	<u>System Description</u>
<u>Type I</u>	<ul style="list-style-type: none"> <li>a. <u>Privy</u></li> <li>b. <u>Chemical toilet</u></li> <li>c. <u>Incinerating toilet</u></li> <li>d. <u>Other toilet system</u></li> <li>e. <u>Grease trap</u></li> </ul>
<u>Type II</u>	<ul style="list-style-type: none"> <li>a. <u>Conventional septic system (single-family or 480 GPD or less)</u></li> <li>b. <u>Conventional septic system with 750 linear feet of nitrification line or less</u></li> <li>c. <u>Conventional system with shallow placement</u></li> </ul>
<u>Type III</u>	<ul style="list-style-type: none"> <li>a. <u>Septic system with single effluent pump</u></li> <li>b. <u>Gravity mound</u></li> <li>c. <u>Dual gravity field</u></li> <li>d. <u>PPBPS system, gravity dosed</u></li> <li>e. <u>Large diameter pipe system</u></li> <li>f. <u>Other non-conventional trench systems</u></li> </ul>
<u>Type IV</u>	<ul style="list-style-type: none"> <li>a. <u>LPP</u></li> <li>b. <u>Pressure mound</u></li> <li>c. <u>System with more than 1 pump or siphon</u></li> <li>d. <u>PPBPS system with pressure distribution</u></li> <li>e. <u>Other trench systems with pressure distribution</u></li> <li>f. <u>Open ditch drainage for 2 or more lots</u></li> <li>g. <u>Sand filter pretreatment systems</u></li> </ul>
<u>Type V</u>	<ul style="list-style-type: none"> <li>a. <u>Pump drainage</u></li> <li>b. <u>Package treatment plants</u></li> <li>c. <u>Chemical treatment plants</u></li> <li>d. <u>Other mechanical,</u></li> </ul>



# PROPOSED RULES

	<u>biological, or chemical pretreatment systems</u>	<u>Type V</u>	<u>Public Management Entity</u>
	<u>e. Any &gt; 3,000 GPD system</u>		<u>Certified Operator ( &gt; 3000 GPD system only)</u>
<u>Type VI</u>	<u>a. Any &gt; 3,000 GPD system with mechanical, biological, or chemical pretreatment system</u>	<u>Type VI</u>	<u>Public Management Entity</u>
<u>Type VII</u>	<u>a. Wastewater reuse/recycle b. Holding tanks</u>	<u>Type VII</u>	<u>Public Management Entity</u>

<u>Permits Required</u>	<u>Permit Renewal Frequency</u>	<u>Minimum System Inspection/ Frequency</u>	<u>Certified Operator</u>	<u>Reporting Frequency</u>
<u>Improvement Permit Operation Permit</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>Improvement Permit Certificate of Completion</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>Improvement Permit Operation Permit</u>	<u>5 yrs.</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>Improvement Permit Operation Permit</u>	<u>3 yrs.</u>	<u>2/yr.</u>	<u>Optional</u>	<u>1/yr.</u>
<u>Improvement Permit Operation Permit</u>	<u>3 yrs.</u>	<u>12/yr.</u>	<u>Required</u>	<u>2/yr.</u>
<u>Improvement Permit Operation Permit</u>	<u>2 yrs.</u>	<u>1/wk(3000-10000 GPD) 2/wk(10000-25000 GPD) 3/wk(25000-50000 GPD) 5/wk(&gt; than 75000 GPD)</u>	<u>Required</u>	<u>4/yr.</u>
<u>Improvement Permit Operation Permit</u>	<u>2 yrs.</u>	<u>12/yr.</u>	<u>Required for Reuse/ Recycle</u>	<u>4/yr.</u>
<u>Improvement Permit Operation Permit</u>	<u>1 yr.</u>			

Statutory Authority G.S. 130A-294; 130A-335(e).

TABLE V(b)

<u>System Classification</u>	<u>Management Entity</u>
<u>Type I</u>	<u>Owner</u>
<u>Type II</u>	<u>Owner</u>
<u>Type III</u>	<u>Owner</u>
<u>Type IV</u>	<u>Public Management Entity</u>
	<u>Certified Operator</u> <u>Certified Installer</u>

## 1964 INTERPRETATION AND TECHNICAL ASSISTANCE

(a) The provisions of this Section shall be interpreted, as applicable, in accordance with the recognized principles and practices of soil science, geology, engineering, and public health.

Statutory Authority G.S. 130A-335(e).

## TITLE 15 - DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT

Notice is hereby given in accordance with G.S. 150B-12 that the Environmental Management

*Commission intends to amend rule(s) cited as 15 NCAC 2B .0303.*

*The proposed effective date of this action is December 1, 1989.*

*The public hearing will be conducted at 7:00 P.M. on July 25, 1989 at Courtroom A, Macon County Courthouse, 5 West Main Street, Franklin, NC.*

*Comment Procedures: All persons interested in this matter are invited to attend. Comments, statements, data, and other information may be submitted in writing prior to, during, or within thirty (30) days after the hearing or may be presented orally at the hearing. Oral statements may be limited at the discretion of the hearing officer. Submittal of written copies of oral statements is encouraged. For more information contact Steve Zoufaly, Division of Environmental Management, P. O. Box 27687, Raleigh, NC 27611 (919) 733-5083.*

## CHAPTER 2 - ENVIRONMENTAL MANAGEMENT

### SUBCHAPTER 2B - SURFACE WATER STANDARDS: MONITORING

#### SECTION .0300 - ASSIGNMENT OF STREAM CLASSIFICATIONS

##### .0303 LITTLE TENN RIVER BASIN AND SAVANNAH RIVER DRAINAGE AREA

(c) The Little Tennessee River Basin and Savannah River Drainage Area Schedule of Classifications and Water Quality Standards was amended effective:

- (1) February 16, 1977;
- (2) March 1, 1977;
- (3) July 13, 1980;
- (4) February 1, 1986;
- (5) October 1, 1987;
- (6) March 1, 1989;
- (7) December 1, 1989.

(c) The Schedule of Classifications and Water Quality Standards for the Watauga River Basin was amended effective December 1, 1989 as follows:

- (1) North Fork Coweeta Creek (Index No. 2-10-4) and Falls Branch (Index No. 2-10-4-1) were reclassified from Class C to Class B.
- (2) Burningtown Creek (Index No. 2-38) was reclassified from C-trout to B-trout.

*Statutory Authority G.S. 143-214.1; 143-215.1; 143-215.3(a)(1).*

\* \* \* \* \*

*Notice is hereby given in accordance with G.S. 150B-12 that the Environmental Management Commission intends to amend rule(s) cited as 15 NCAC 2B .0311.*

*The proposed effective date of this action is December 1, 1989.*

*The public hearing will be conducted at 2:00 P.M. and 7:00 P.M. on July 20, 1989 at*

*Municipal Building  
Council Chambers  
425 S. Lexington Ave.  
Burlington, NC  
2:00 P.M.*

*Guilford County Courthouse  
Courtroom 2A, New Courthouse  
201 S. Eugene Street  
Greensboro, NC  
7:00 P.M.*

*Comment Procedures: All persons interested in this matter are invited to attend. Comments, statements, data, and other information may be submitted in writing prior to, during, or within thirty (30) days after the hearing or may be presented orally at the hearing. Oral statements may be limited at the discretion of the hearing officer. Submittal of written copies of oral statements is encouraged. For more information contact Steve Zoufaly, NRCD, Div. of Environmental Management, P. O. Box 27687, Raleigh, NC 27611 (919) 733-5083.*

##### .0311 CAPE FEAR RIVER BASIN

(b) The Cape Fear River Basin Schedule of Classifications and Water Quality Standards was amended effective:

- (1) March 1, 1977;
- (2) December 13, 1979;
- (3) December 14, 1980;
- (4) August 9, 1981;
- (5) April 1, 1982;
- (6) December 1, 1983;
- (7) January 1, 1985;
- (8) August 1, 1985;
- (9) December 1, 1985;
- (10) February 1, 1986;
- (11) July 1, 1987;
- (12) October 1, 1987;
- (13) March 1, 1988;



(14) June 1, 1988;

(15) July 1, 1988;

(16) December 1, 1989.

(c) The Schedule of Classifications and Water Quality Standards for the Cape Fear River Basin has been amended effective December 1, 1989 as follows:

(4) Big Alamance Creek [Index No. 16-19-(1)] from source to Kayser-Roth Hosiery Co., Inc. water intake including all tributaries has been reclassified from Class WS-III NSW and Class C NSW to Class WS-II NSW.

Statutory Authority G.S. 143-214.1; 143-215.1; 143-215.3(a)(1).

## TITLE 21 - OCCUPATIONAL LICENSING BOARD

*Notice is hereby given in accordance with G.S. 150B-12 that the North Carolina Board of Architecture intends to amend rules cited as 21 NCAC 2 .0207 -.0209 and .0302.*

*The proposed effective date of this action is October 1, 1989.*

*The public hearing will be conducted at 2:00 p.m. on July 17, 1989 at North Carolina Board of Architecture, 501 N. Blount Street, Raleigh, NC 27604.*

*Comment Procedures: Written comments must be submitted to the Board on or before July 13, 1989, to the Executive Director, Mrs. Cynthia B. Skidmore, 501 N. Blount St., Raleigh, NC 27604. Oral comments may be presented at the hearing.*

## CHAPTER 2 - BOARD OF ARCHITECTURE

### SECTION .0200 - PRACTICE OF ARCHITECTURE

#### .0207 DENIAL: SUSPENSION OR REVOCATION OF LICENSE

(a) Denial. The Board may refuse to grant an examination, or after examination refuse to grant a license for the practice of architecture, to any person convicted of a felony, or who, in the opinion of the Board, has been guilty of dishonest or unprofessional conduct, or lacks good moral character as defined in G.S. 83A-~~4(5)~~ (15).

(b) Discipline Affecting License. The Board may levy a civil penalty, reprimand, suspend for a period of time, or revoke any corporate certifi-

cate of registration or discipline a licensee pursuant to G.S. 83A-15.

Statutory Authority G.S. 83-15; 83A-1; 83A-6; 83A-7.

#### .0208 DISHONEST CONDUCT

In addition to those grounds as stated in G.S. 83A-15(1) the following acts or omissions, among others, may be deemed to be "dishonest conduct" and to be cause for the levy of a civil penalty or for a denial, suspension, or revocation of a license or certificate of registration to practice architecture:

- (1) Deceitful Statements. It shall be deemed dishonest conduct to make untrue or deceitful statements in an application for examination, any other application to the Board or in any statements or representations to the Board or a committee of the Board.
- (2) Misrepresentation. It shall be deemed dishonest conduct for an architect to permit the use of his professional seal by others, or otherwise represent himself as the author of drawings or specifications which are not personally prepared by him or under his direct supervision. However, "standard design documents" prepared by architects who are registered in this state or in their state of origin may be sealed by a succeeding licensed architect registered in North Carolina provided:
  - (a) the seal of the original architect appears on the documents to authenticate authorship;
  - (b) the words "standard design document" appear on each sheet of the documents prepared by the original architect;
  - (c) the succeeding North Carolina architect clearly identifies all modifications to the standard design documents;
  - (d) the succeeding North Carolina architect assumes responsibility for the adequacy of the design for the specific application in North Carolina and for the design conforming with applicable building codes; and
  - (e) the succeeding North Carolina architect affixes his seal to the standard design documents and a statement substantially as follows: "These documents have been properly examined by the undersigned. I have determined that they comply with existing local North Carolina codes, and I assume responsibility for the adequacy of the design for the specific application in North Carolina."

- (3) Contributions. It shall be deemed dishonest conduct for an architect to make or promise to make contributions of money or service, with the intent to bribe, for the purpose of securing a commission or influencing the engagement or employment of an architect for a project.

*Statutory Authority G.S. 83A-6; 83A-14; 83A-15.*

**.0209 UNPROFESSIONAL CONDUCT**

In addition to those grounds as stated in G.S. 83A-15(3) the following acts or omissions, among others, may be deemed to be "unprofessional conduct", and to be cause for the levy of a civil penalty or for denial, suspension, or revocation of a license or certificate of registration to practice architecture:

- (1) Compliance With Laws. It shall be deemed unprofessional conduct for an architect, in the conduct of his or her professional practice, to knowingly violate any state or federal criminal law. A criminal conviction shall be deemed prima facie evidence of knowingly violating the law.
- (2) Compliance With Foreign Registration. It shall be deemed unprofessional conduct for an architect to knowingly violate the laws governing the practice of architecture or the rules promulgated by any other architectural licensing board in any United States jurisdiction. A finding by a foreign architectural registration board that an architect has violated a law or rule governing the practice of architecture shall be deemed prima facie evidence of knowingly violating the law or rule.
- (3) Product Specification. It shall be deemed unprofessional conduct for an architect to solicit or accept financial or other valuable consideration from material or equipment suppliers for specifying their products.
- (4) Advertising. It shall be deemed unprofessional conduct for an architect to engage in any false, deceptive, fraudulent, or misleading advertising.
- (5) False Statements. It shall be deemed unprofessional conduct for an architect to knowingly make false statements about the professional work or to maliciously injure the prospects, practice, or employment position of others active in the design and construction of the physical environment.
- (6) Evasion.
  - (a) It shall be deemed unprofessional conduct for an architect, through employment by building contractors, or by another not holding an individual or corporate certifi-

cate from the Board, to enable the employer to offer or perform architectural services, except as provided in G.S. 83A-13.

- (b) It shall be deemed unprofessional conduct for an architect to furnish limited services in such manner as to enable owners, draftsmen, or others to evade the public health and safety requirements of Chapter 83A or the building permit requirements of Chapter 160A of the North Carolina General Statutes.
- (c) When building plans are begun or contracted for by persons not properly licensed and qualified, it shall be deemed unprofessional conduct for an architect to take over, review, revise, or sign or seal such drawings or revisions thereof for such persons, or do any act to enable either such persons or the project owners, directly or indirectly, to evade the requirements of Chapter 83A or G.S. 160A-417.
- (7) Branch Office. It shall be deemed unprofessional conduct for an architect to maintain or represent by sign, listing, or other manner that he maintains an architectural office or branch office unless such office is continuously staffed with a registered architect in charge. Provided, however, that this Rule does not apply to on-site project offices during construction.

*Statutory Authority G.S. 83A-6; 83A-14; 83A-15.*

**SECTION .0300 - EXAMINATION  
PROCEDURES**

**.0302 WRITTEN EXAMINATION**

(a) Licensure Examination. All applicants for architectural registration in North Carolina by written examination must pass the Architectural Registration Examination (ARE) prepared by the National Council of Architectural Registration Boards (NCARB).

- (1) Description. The nature of the examination is to place the candidate in areas relating to actual architectural situations whereby his abilities to exercise competent value judgements will be tested and evaluated.
- (2) Qualifications. The prequalifications necessary for an applicant's admission to the Architectural Registration examination (ARE) are as follows:
  - (A) be of good moral character as defined in North Carolina General Statute 83A-1(5);



- (B) be at least 18 years of age;
- (C) hold a degree in architecture from a college or university where the degree program has been approved by the Board, or professional education equivalents as outlined and defined in the North Carolina Board of Architecture's Table of Equivalents for Education and Experience, Appendix A; beginning July 1, 1991, the professional education qualification shall be a NAAB (National Architectural Accrediting Board) accredited professional degree in architecture;
- (D) have three years practical training or experience in the offices of registered architects or its equivalent as outlined and defined in the North Carolina Board of Architecture's Table of Equivalents for Education and Experience, Appendix A. All applicants who apply for architectural registration subsequent to July 1, 1987 shall be required to follow the Intern Development Program (IDP) through the National Council of Architectural Registration Boards or an equivalent program approved by the North Carolina Board of Architecture in order to satisfy the requirements of this Section. In the case of any applicant certifying to the Board that he or she had accrued sufficient training credits under the requirements of the current Appendix A prior to July 1, 1987, so that 12 or fewer months of training remained to be acquired, then the current Appendix A shall continue in effect for such applicant.

(b) Content. The ARE comprises nine divisions as follows:

- |              |  |
|--------------|--|
| Division A:  | Pre-design   |
| Division B:  | Site Design  |
| Division C:  | Building Design  |
| Division D:  | Structural - General                                     |
| Division E:  | Structural - Lateral Forces                              |
| Division F:  | Structural - Long Span                                   |
| Division G:  | Mechanical, Plumbing, Electrical and Life Safety Systems |
| Division II: | Materials and Methods                                    |
| Division I:  | Construction Documents and Services                      |

(c) Retention of Credit. Applicants who had passed portions of the previous registration examinations (Professional Examination - Section A, Professional Examination - Section B and Qualifying Test) will receive the transfer credit set forth below and need only take those divisions

of ARE for which no transfer credit has been received. To be eligible for transfer credits for any portion of the Professional Examination - Section B, the applicant must have passed three parts of that examination in one sitting, in or after December, 1980.

Transfer credits to the ARE from the previous NCARB examinations are as follows:

Previous Examinations Passed	Credit to ARE Divisions
Professional Examination, Section B, Parts I & II	Division A
Professional Examination, Section A (Design/Site)	Divisions B & C
Professional Examination, Section B, Part III	Divisions D, E, F, G and H
Qualifying Test Section A	NO CREDIT
(History and Theory of Architecture are incorporated into all divisions of the ARE).	
Qualifying Test, Section B	Divisions D, E, F
Qualifying Test, Section D	Division G
Qualifying Test, Section C	Division H
Professional Examination, Section B, Part IV	Division I

(d) Practical Training. Practical training means practical experience and diversified training as defined in the North Carolina Board of Architecture's Table of Equivalents for Education and Experience, Appendix A. However, the Board reserves the right to judge each case on its own merits.

~~(e) Filing Application. All new applications and supporting documents for written examina-~~

tion must be on file in the office of the Board not later than April 1st of each year for the ARE in order for the applicant's eligibility to be determined and in order that the candidate may receive proper instructions to prepare for the examination.

(4) (c) Personal Audience. The candidate may be required to appear personally before the examining board or a designated representative of the Board and afford the Board an opportunity to judge his natural endowments for the practice of architecture, his ethical standards, and by questions gain further knowledge of his fitness for the practice of architecture. The time for this audience will be set by the examining body.

(5) (f) Grading. The ARE shall be graded in accordance with the methods and procedures recommended by the NCARB.

(1) To achieve a passing grade on the ARE, an applicant must receive a passing grade of 75 in each division. Grades from the individual divisions may not be averaged. Applicants will have unlimited opportunities to retake divisions which they fail, but all divisions, previously failed, must be retaken at one time at a subsequent examination.

(2) In order to insure fairness in grading and to preserve anonymity until after the examinations have been graded, each candidate will receive a number that will be unique for each candidate. This number shall be placed by the candidate on all papers and exhibits.

(h) (g) Time and place. Beginning in 1983, the Board will administer the ARE over a four day period to all applicants eligible, in accordance with the requirements of this Rule. The place and exact dates will be announced in advance of the examination.

*Statutory Authority G.S. 83A-1; 83A-6; 83A-7.*

## TITLE 23 - DEPARTMENT OF COMMUNITY COLLEGES

*Notice is hereby given in accordance with G.S. 150B-12 that the State Board of Community*

*Colleges/Department of Community Colleges intends to adopt rule(s) cited as 23 NCAC 2C .0604.*

*The proposed effective date of this action is October 1, 1989.*

*The public hearing will be conducted at 10:00 a.m. on July 18, 1989 at First Floor, State Board Conference Room, Caswell Building, 200 West Jones Street, Raleigh, NC 27603-1337.*

*Comment Procedures: A ten-minute time limit per person may be imposed for oral presentations. The number of persons making oral presentations may be limited in order to stay within the time available. Individuals who plan to make oral presentations must submit their remarks in writing to the hearing officer. This procedure will assist the hearing officer in organizing and reporting information to the SBCC. Written statements not to be presented at the hearing should be directed to Mr. J. W. Eades, Hearing Officer, Department of Community Colleges, 200 West Jones Street, Raleigh, N. C. 27603-1337 by July 17, 1989.*

## CHAPTER 2 - COMMUNITY COLLEGE

### SUBCHAPTER 2C - INSTITUTIONS: ORGANIZATION AND OPERATIONS

#### SECTION .0600 - INSTITUTIONAL EVALUATION

##### .0604 CURRICULUM PROGRAM REVIEW

Each college shall monitor the quality and viability of each of its curriculum programs. Each program shall be reviewed at least once every five years with regard to the achievement of its stated purpose, quality of instruction, curriculum design, cost, student outcomes, and contribution to the overall mission of the college. Summary reports of these reviews shall be transmitted to the State President.

*Statutory Authority G.S. 115D-5.*



*Upon request from the adopting agency, the text of rules will be published in this section.*

*When the text of any adopted rule is identical to the text of that as proposed, adoption of the rule will be noted in the "List of Rules Codified" and the text of the adopted rule will not be republished.*

*Adopted rules filed by the Departments of Correction, Revenue and Transportation are published in this section. These departments are not subject to the provisions of G.S. 150B, Article 2 requiring publication of proposed rules.*

## TITLE 17 - DEPARTMENT OF REVENUE

### CHAPTER 7 - SALES AND USE TAX

#### SUBCHAPTER 7B - STATE SALES AND USE TAX

#### SECTION .0100 - GENERAL PROVISIONS

##### .0123 COMMERCIAL FISHERMEN

(a) A Commercial Fisherman's Certificate, Form E-558, may be completed by a person who fishes commercially and accepted by a retail or wholesale merchant as the merchant's authority to sell to a commercial fisherman boats, fuel oil, lubricating oils, machinery, equipment, nets, rigging, paints, parts, accessories and supplies, such as paint brushes, acetylene, oxygen, paint rollers, funnels, sanding discs, welding rods, saw blades, drill bits, and similar property, including foul weather gear, gloves and life vests, for use by them principally in commercial fishing operations without charging and remitting any sales or use tax thereon. The term "commercial fishing operations" means all operations preparatory to, during, and subsequent to the taking of all marine mammals, all shellfish, all crustaceans and all other fishes:

- (1) with the use of commercial fishing equipment; or
- (2) by any means, if a primary purpose of taking is to sell the fish;

Commercial fishing operations also include charter boat and head boat operators when they operate under a charter or as a head boat taking people fishing for hire, but does not include persons principally taking fish for recreation or personal use or consumption. Each certificate should be prepared in duplicate and a copy re-

tained by the commercial fisherman and by the merchant.

(b) To be exempt from sales or use tax under the provisions of G.S. 105-164.13(9), the property must be of a type named therein and must be sold to persons for use by them principally in commercial fishing operations. The certificate may not be used to purchase food, clothing or other personal effects of commercial fishermen other than foul weather gear, gloves and life vests for use in commercial fishing operations. Sales to commercial fishermen of food, tableware, toothpaste, soap, or other personal effects of commercial fishermen are subject to the applicable sales or use tax. Vendors selling taxable tangible personal property to fishermen should make reasonable and prudent inquiry concerning the type and character of the tangible personal property as it relates to the business of commercial fishermen. Every vendor shall keep and preserve suitable records of the gross income, gross receipts and/or gross receipts of sales of such business and such other books, records or accounts as may be necessary to determine the amount of tax for which he is liable. It shall be presumed that all gross receipts of such vendors are subject to the retail sales tax until the contrary is established by proper records.

*History Note: Statutory Authority G.S.*

*105-164.4; 105-164.6; 105-164.13; 105-262;*

*Eff. July 5, 1980;*

*Amended Eff. July 1, 1989; January 3, 1984;*

*November 1, 1982; January 1, 1982.*

#### SECTION .1400 - SALES OF MEDICINES: DRUGS AND MEDICAL SUPPLIES

##### .1406 BLOOD PRODUCTS: BODY TISSUE

Transactions involving the procurement, processing, distribution or use of whole blood plasma, blood products, blood derivatives and other body tissue or organs that are to be injected, transfused or transplanted into the human body are deemed to be services and any charges therefor are exempt from sales or use tax pursuant to the provisions of G.S. 130A-410.

*History Note: Statutory Authority G.S.*

*105-164.3; 105-262; 105-264; 130A-410;*

*Eff. February 1, 1976;*

*Amended Eff. July 1, 1989; September 14, 1977.*

#### SECTION .1800 - HOSPITALS AND SANITARIUMS

##### .1801 SALES TO AND BY HOSPITALS: ETC.

(a) Hospitals and sanitariums are primarily engaged in rendering services and are deemed to be the users or consumers of all tangible personal

property which they purchase for use in connection with the operation of such institutions. Hospitals and sanitariums are, therefore, liable for payment of sales or use tax on their purchases of such property except as hereinafter set forth.

(b) Hospitals and sanitariums are deemed to be the users or consumers of drugs or medicines which they administer to patients. Purchases by hospitals and sanitariums of drugs or medicines, other than insulin, for such use are subject to the three percent state and applicable local sales or use tax. Effective August 1, 1988, sales of insulin are exempt from sales or use taxes whether or not sold on prescription. If, in addition to using drugs or medicines in administering to patients, a hospital or sanitarium operates a pharmacy from which it makes across the counter sales of medicines and drugs, and all purchases of medicines and drugs by such institution are made through the pharmacy, then the drugs or medicines may be purchased without payment of tax to suppliers provided the institution is registered with the Department of Revenue for sales or use tax purposes and has furnished the suppliers with properly executed certificates of resale, Form E-590. By executing the certificates of resale, the hospital or sanitarium assumes the liability for payment of and must pay directly to the department all sales or use taxes due on drugs and medicines which are used by the institution in administering to and caring for its patients. Sales of drugs and medicines by the pharmacy on prescription of physicians and dentists are exempt from tax. Sales of drugs and medicines without written prescriptions of physicians or dentists are taxable at three percent; except, effective August 1, 1988, sales of insulin are exempt from sales or use tax whether or not sold on prescription. Sales of drugs and medicines, other than insulin, to physicians and dentists who administer the same to their patients in rendering professional services are also subject to the three percent state and applicable local sales or use tax.

(c) Purchases by hospitals and sanitariums of foodstuffs for use in furnishing meals to patients are subject to the three percent sales or use tax. If, in addition to furnishing meals to patients, a hospital or sanitarium operates a cafeteria from which it makes sales of prepared meals or foods to guests, visitors, employees, staff or other persons such institution must register with the Department of Revenue and collect and remit the tax on its sales. If the foodstuffs purchased by such institution for use in furnishing meals to patients cannot be distinguished from those purchased for resale through the cafeteria, the hospital or sanitarium may purchase all the foodstuffs under a certificate of resale. The hospital or sanitarium thus assumes liability for

payment of the three percent sales or use tax on foodstuffs used in furnishing meals to its patients and the three percent sales tax on sales of meals by the cafeteria.

(d) Meals and food products served to students in dining rooms regularly operated by state or private educational institutions are exempt from tax; thus, if a hospital serves meals and food products to student nurses, such sales are exempt from tax.

(e) Sales of crutches, artificial limbs, artificial eyes, hearing aids, false teeth, eyeglasses ground on prescription of physicians, oculists or optometrists, and other orthopedic appliances when the same are designed to be worn on the person of the owner or user are not subject to sales or use tax; therefore, any sales of such property to hospitals or sanitariums or by hospitals or sanitariums are exempt from the tax.

(f) Except as provided by Paragraphs (b) and (c) of this Rule, certificates of resale may not be used by hospitals and sanitariums when making taxable purchases of tangible personal property for use or consumption. The tax due on taxable purchases from North Carolina suppliers or out-of-state suppliers who charge North Carolina sales or use tax must be paid to the suppliers. Hospitals and sanitariums which make taxable purchases from out-of-state suppliers who do not collect and remit North Carolina sales or use tax thereon must register with the department and remit monthly the tax due on such purchases.

*History Note: Statutory Authority G.S.  
105-164.4; 105-164.6; 105-262;  
Eff. February 1, 1976;  
Amended Eff. July 1, 1989.*

## **SECTION .2900 - VENDING MACHINES**

### **.2901 SALES THROUGH VENDING MACHINES**

(a) Any person who makes sales of tangible personal property by means of vending machines is required to register with the Department of Revenue and pay sales tax on the sales price of tangible personal property in excess of one cent per sale. One cent sales through vending machines are exempt from sales tax when made by the owner or lessee of the vending machines. Effective July 1, 1989, the sales price of tangible personal property sold through coin-operated vending machines, other than closed container soft drinks subject to the excise tax under Article 2B of the Revenue Act or tobacco products, is considered to be 50 percent of the total amount for which the property is sold through the vending machines. All bottled soft drinks containing 35 percent or more of natural fruit or vegetable



juice and all bottled natural milk drinks containing 35 percent or more natural liquid milk are exempt from the excise tax imposed by the Soft Drink Tax Article, but the exemption does not apply to any vegetable or fruit drink to which has been added any coloring, artificial flavoring or preservative. The receipts from sales of these items exempt from the soft drink tax will be subject to the tax on 50 percent of the total amount for which these items are sold through vending machines. Records must be kept to support such exempt sales as required by G.S. 105-164.22 and G.S. 105-164.24.

(b) If a person operates a number of vending machines from which taxable sales are made at various locations in this state, one retailer's license may be held by such person at his principal place of business and the tax may be accounted for in one return reflecting the total gross receipts derived from sales through all vending machines operated in this state.

*History Note: Statutory Authority G.S. 105-164.4; 105-164.13; 105-262; Eff. February 1, 1976; Amended Eff. July 1, 1989.*

#### .2903 EXCLUSION OF TAX FROM RECEIPTS

Vending machine operators are permitted to separate their receipts which are 100 percent taxable from their receipts which are 50 percent taxable and, after calculating the taxable amounts of each, may divide those total taxable amounts by 105 percent to arrive at taxable sales reportable on their sales and use tax returns. Records must be kept to support such sales as provided by G.S. 105-164.22 and G.S. 105-164.24.

*History Note: Statutory Authority G.S. 105-164.4; 105-262; Eff. February 1, 1976; Amended Eff. July 1, 1989; August 1, 1988; July 5, 1980.*

### SECTION .3200 - TELEPHONE AND TELEGRAPH COMPANIES

#### .3201 IN GENERAL

(a) Sales of central office equipment and switchboard and private branch exchange equipment to telephone and telegraph companies regularly engaged in providing telephone and telegraph services to subscribers on a commercial basis and, effective July 1, 1983, sales to those companies of prewritten computer programs used in providing telephone service to their subscribers are subject to the one percent sales or use tax with a maximum tax of eighty dollars (\$80.00) per article. For the purpose of deter-

mining the items that may be properly included in the terms central office equipment, switchboard equipment and private branch exchange equipment, reference is made to Accounts 221, 231 and 234 of Title 47--Telecommunication Chapter 1, Part 31, Uniform Systems of Accounts, Class A and Class B Telephone Companies, of the Federal Communications Commission's rules and regulations as revised to January 1, 1960. This Rule has no application to future changes in the Federal Communications Commission's rules and regulations until such changes are reviewed by the Secretary of Revenue to determine the application of tax to the tangible personal property affected by such changes.

(b) Account 221; Central Office Equipment. This account includes switchboards and other equipment, instruments and apparatus necessary to the functions of central offices. Sales to and purchases by the above-referred to telephone and telegraph companies of the items included in Account 221, with certain exceptions, examples of which are set out below, are subject to the one percent sales or use tax with a maximum tax of eighty dollars (\$80.00) per article, irrespective of whether the items are classified in the Uniform System of Accounts as capital expenditures or as maintenance expense. Examples of items contained in Account 221 which are taxable at the three percent rate are:

- (1) aisle-lighting equipment attached to buildings;
- (2) minor building alterations when tangible personal property not properly termed central office equipment is affixed or attached to or in any manner becomes a part of a building or structure;
- (3) cable, other than that connecting central office units to each other or to distributing frames;
- (4) covers for transmission power apparatus;
- (5) desks and tables unless equipped with central office equipment when purchased;
- (6) foundations for engines and other equipment when part of building;
- (7) loading coils used outside central office, loud speaker equipment, operators' chairs;
- (8) platforms, rolling ladders, tarpaulins, ticket holders, toll ticket carriers;
- (9) water stills for battery service;
- (10) tools and portable testing equipment regardless of where used;
- (11) items not herein specified but which may be excluded by Notes A, B, C and D to Account 221.

(c) Account 231; Station Apparatus. This account includes private branch exchange equipment in addition to station apparatus. That

equipment which is properly included in the term private branch exchange equipment is taxable at the one percent rate subject to the eighty dollar (\$80.00) maximum tax per article, whether classified by the Uniform System of Accounts as capital expenditures or as maintenance expense; however, all other equipment in this account is subject to the three percent sales or use tax. Examples of items contained in Account 231 which are taxable at the three percent rate are desk sets, hand sets, wall sets, mobile telephone equipment, backboards, battery boxes, booths, coil collectors, station wiring, protectors, arresters, ground rods, clamps, wire and similar associated equipment, and any items not properly classified as private branch exchange equipment and not included in Accounts 221 and 234 but distributable to other accounts by Notes A, B, C and D to Account 231.

(d) Account 234; Large Private Branch Exchange. This account contains equipment and apparatus necessary to the operation of the above named exchanges. The equipment and apparatus contained in this account which are properly included in the term private branch exchange equipment are subject to the one percent sales or use tax with a maximum tax of eighty dollars (\$80.00) per article, whether classified under the Uniform System of Accounts as capital expenditures or as maintenance expense, but does not include any tangible personal property which is station apparatus. Examples of items included in Account 234 which are taxable at the three percent rate are operators' chairs and equipment and apparatus distributable to other accounts by Notes A, B, and C to Account 234.

(e) The gross receipts derived by a utility from sales of intrastate telephone service are subject to the three percent sales tax on and after January 1, 1985. The term "utility," as used in this Rule, means a telephone company that is subject to the privilege tax based on gross receipts tax under G.S. 105-120. The receipts upon which the tax is due is the total amount derived from the sale of intrastate telephone service, including any charges that go into the delivery of the service that are a part of the sale of such service valued in money, whether paid in money or otherwise, and includes any amount for which credit is given to the purchaser by the seller without any deduction on account of the cost of the service sold, the cost of materials used, labor or service costs, interest charged, losses or any other expenses whatsoever. Therefore, all charges for tangible personal property and services provided in the delivery of intrastate telephone service to the purchaser are a part of the sale of intrastate telephone service upon which the tax is due, notwithstanding that some charges may be billed

separately to the customer from the time or flat rate charges. The term "intrastate telephone service" means telephone service which originates and terminates within this state notwithstanding that it may be routed through equipment located outside this state. Set forth in this Paragraph are the departmental interpretations as to the application of sales tax to transactions by telephone companies.

- (1) Sales tax should be separately stated on the bill provided to each customer; however, the franchise tax is not to be separately stated on such bills.
- (2) A telephone company must report receipts from sales of intrastate telephone service on an accrual basis. A sale of intrastate telephone service is considered to accrue when the telephone company bills the customer for the sale and the applicable tax should be computed thereon. Such receipts must be reported on the Franchise and Sales Tax Report, Form CD-310, which is to be filed quarterly within 30 days following the close of the calendar quarter in which the tax accrues.
- (3) Charges for reconnecting service to customers after service has been terminated for nonpayment are a part of gross receipts from sales of intrastate telephone service and are subject to sales tax. Likewise, any charges for disconnecting such service are subject to the sales tax.
- (4) Sales of intrastate telephone service directly to the United States Government or any agency thereof are not subject to sales tax. In order to be a sale to the United States Government, the Government or agency involved must make the purchase of the intrastate telephone service and pay directly to the vendor the purchase price of such service. While sales directly to the United States Government or any agency thereof are exempt from sales tax, telephone companies should obtain a purchase requisition one time from each agency for their records.
- (5) Accounts of purchasers representing taxable sales on which the sales tax has been paid that are found to be worthless and actually charged off for income tax purposes may at corresponding periods be deducted from gross sales provided, however, they must be added to gross sales if afterwards collected.
- (6) The local sales tax is not applicable to those receipts from services subject to the state sales tax of three percent, but the local tax is applicable to receipts from sales and leases of tangible personal prop-



erty subject to the three percent state rate of tax.

- (7) Late payment charges are not subject to sales tax.
- (8) Any return check charges on customers' checks returned by a bank because of insufficient funds are not subject to sales tax.
- (9) Telephone companies that sell or lease telephone equipment, or related companies or other vendors or lessors that sell or lease such equipment are liable for collecting and remitting the state and applicable local sales or use tax on the amounts of such sales or leases. Such tax is to be reported on the monthly sales and use tax report, Form E-500, and should not be reported on the quarterly Franchise and Sales Tax Return, Form CD-310.

*History Note: Statutory Authority G.S. 105-164.4 105-164.6; 105-262; Eff. February 1, 1976; Amended Eff. July 1, 1989; May 1, 1985; March 1, 1984.*

### **.3203 TOLL OR PRIVATE TELECOMMUNICATIONS SERVICES**

Effective January 1, 1989, the gross receipts derived from toll telecommunications services or private telecommunications services as defined by G.S. 105-120(a) that both originate and terminate in the state which are not subject to the privilege tax under G.S. 105-120 are subject to a six and one-half percent state sales tax. Such receipts are not subject to the state three percent or local sales taxes. This six and one-half percent sales tax is not refundable under the provisions of G.S. 105-164.14(b) or (c). This levy does not apply to mutual telephone associations or cooperatives nor does it include those companies that provide pager services by means other than telephonic quality communications.

*History Note: Statutory Authority G.S. 105-164.4; 105-164.6; 105-262; Eff. July 1, 1989.*

## **SECTION .3300 - ORTHOPEDIC APPLIANCES**

### **.3301 EXEMPT ORTHOPEDIC APPLIANCES**

Sales of crutches, artificial limbs, artificial eyes, hearing aids, false teeth, eyeglasses ground on prescription of physicians or optometrists, pulmonary respirators sold on prescription of physicians, whether worn on the person or not, and other orthopedic appliances when the same are designed to be worn on the person of the owner or user, are exempt from sales and use tax.

The term "orthopedic appliances" includes headgear, bows, neckstraps, wires, bands, brackets, rubber bands and jackscrews when such items are purchased by orthodontists to be assembled into various types of appliances to be worn on the person of the owner or user. Items which are deemed to be tax exempt orthopedic appliances are set forth in this Rule for illustrative purposes:

- (1) abdominal belts;
- (2) artificial noses and ears;
- (3) cervical braces;
- (4) clavicle splints;
- (5) crutch tips;
- (6) crutches;
- (7) dorsolumbar supports;
- (8) elastic anklets;
- (9) elastic arch binder;
- (10) elastic arch brace;
- (11) elastic bandage;
- (12) elastic hose;
- (13) elastic wrist bands;
- (14) head halters;
- (15) invalid walkers;
- (16) lumbosacral supports;
- (17) maternity supports;
- (18) obturators for cleft palate;
- (19) post-operative supports;
- (20) rib splints;
- (21) sacroiliac supports;
- (22) shoulder braces;
- (23) spinal braces;
- (24) stryker frames;
- (25) suspensories;
- (26) traction devices;
- (27) trusses;
- (28) walking canes;
- (29) wheel chairs;
- (30) hip prosthesis;
- (31) bone nails;
- (32) artificial heart valves;
- (33) artificial arteries;
- (34) iron lungs;
- (35) cervical neck collars;
- (36) leg braces;
- (37) ostomy bags, discs, tubes and belts (but not ostomy supplies, such as cements and removers, powders, germicides or similar supplies);
- (38) artificial limbs.

*History Note: Statutory Authority G.S. 105-164.13; 105-262; Eff. February 1, 1976; Amended Eff. July 1, 1989; February 1, 1986; January 1, 1982.*

## **SUBCHAPTER 7C - LOCAL GOVERNMENT: MECKLENBURG COUNTY: SUPPLEMENTAL**

**LOCAL GOVERNMENT AND ADDITIONAL  
SUPPLEMENTAL LOCAL GOVERNMENT  
SALES AND USE TAX ACTS**

**SECTION .0100 - LOCAL GOVERNMENT  
SALES AND USE TAXES**

**.0103 SALES TAX IMPOSED**

(a) Every retailer whose place of business is located in a county which has levied the Mecklenburg County or the local government sales and use tax and the supplemental local government and the additional supplemental local government sales and use tax is required to collect and remit to the North Carolina Secretary of Revenue the county sales tax at the rate of two percent on:

- (1) the sales price of those articles of tangible personal property now subject to the three percent sales tax imposed by the state under G.S. 105-164.4(1); but not on sales of electricity, piped natural gas or intrastate telephone service taxed under G.S. 105-164.4(4a);
- (2) the gross receipts derived from the lease or rental of tangible personal property where the lease or rental of such property is an established business now subject to the three percent sales tax imposed by the state under G.S. 105-164.4(2);
- (3) the gross receipts derived from the rental of any room or lodging furnished by any hotel, motel, inn, tourist camp or other similar accommodations now subject to the three percent sales tax imposed by the state under G.S. 105-164.4(3);
- (4) the gross receipts derived from services rendered by laundries, dry cleaners, cleaning plants and similar type businesses now subject to the three percent sales tax imposed by the state under G.S. 105-164.4(4).

(b) All retailers making taxable sales from a place of business located within a taxing county must collect and remit the two percent local sales tax of the county in which the retailer's place of business is located. Effective March 1, 1988, for local sales tax purposes, the situs of a sale is the retailer's place of business located within a taxing county where the retailer becomes contractually obligated to make the sale. The term "place of business located within a taxing county" shall mean stores, warehouses, sales offices, sales outlets, inventories, and other places within a taxing county where tangible personal property is maintained for sale, lease, or rental at retail, and it shall include inventories of goods carried on foot or in vehicles for sale to customers in a taxing county. It shall also include laundries, dry cleaning plants, or similar businesses and hotels,

motels, or similar facilities in a taxing county. Taxable tangible personal property sold at a business location in a taxing county and delivered by retailers, their agents, the U.S. Mail, or by common carrier to the purchaser in that county or in any other county in this state is subject to the sales tax of the county in which the retailer's place of business is located at which such retailer becomes contractually obligated to make the sale.

*History Note: Statutory Authority G.S.*

*105-262; 105-467;*

*Eff. February 1, 1976;*

*Amended Eff. July 1, 1989; December 1, 1988;*

*August 1, 1988; August 1, 1986.*

**.0104 USE TAX IMPOSED**

(a) A local use tax is levied at the rate of two percent of the cost price of each item or article of tangible personal property which is used, consumed or stored for use or consumption in a taxing county and such use tax may be imposed only on those items of tangible personal property upon which the state now levies a three percent use tax under G.S. 105-164.6. Every retailer engaged in business in this state and in the taxing county and required to collect the use tax levied by G.S. 105-164.6 shall also collect the one percent local use tax and remit same to the North Carolina Secretary of Revenue when such property is to be used, consumed or stored in the taxing county. The use tax shall be levied against the purchaser and his liability for such tax shall be extinguished only upon his payment of the tax to the retailer, where the retailer has charged the tax, or to the Secretary of Revenue where the retailer has not charged the tax. Every person who purchases any taxable tangible personal property for use or consumption in a taxing county from vendors located outside North Carolina or outside the purchaser's county on which the county tax was not required to be collected by the vendors must report and remit the applicable use tax to the Secretary of Revenue.

(b) Where a local sales or use tax has been paid with respect to such tangible personal property by the purchaser thereof, either in another taxing county within this State or in a taxing jurisdiction outside this State where the purpose of the tax is similar in purpose and intent to the local sales or use tax which is imposed within this State, said tax may be credited against the local use tax due. If the amount of local sales or use tax paid in another taxing county or jurisdiction is less than the amount of tax due the taxing county, the purchaser shall pay to the Secretary of Revenue an amount equal to the difference between the amounts so paid in the other taxing county



or jurisdiction and the amount due in the taxing county. No credit shall be allowed for sales and use taxes paid in a taxing jurisdiction outside this State if that taxing jurisdiction does not allow a credit for local government sales taxes paid in this State. The local use tax will not be subject to credit for payment of any state sales or use tax not imposed for the benefit and use of counties and municipalities.

*History Note: Statutory Authority G.S.*

*105-262; 105-468;*

*Eff. February 1, 1976;*

*Amended Eff. July 1, 1989; December 1, 1988;*

*August 1, 1988; February 8, 1981.*

#### SECTION .0300 - APPLICATION OF LOCAL TAX TO SPECIFIC TRANSACTIONS

##### .0304 APPLICATION OF TAX

The following examples of transactions are intended to serve as guides in applying local sales or use tax to sales and purchases of tangible personal property in this state.

- (1) Vendors Making Sales of Tangible Personal Property From a Place of Business in North Carolina:
  - (a) A vendor making retail sales from a place of business located in a taxing county must collect and remit the local sales tax for the county in which the vendor's place of business is located. For sales tax purposes, the situs of the sale is the vendor's place of business located in a taxing county where the vendor becomes contractually obligated to make the sale.
  - (b) A vendor with a place of business in County A who sends a salesman into another county to solicit orders, which are accepted at the vendor's place of business in County A and filled by delivery from the vendor's place of business in County A to the purchaser in another county, is liable for collecting and remitting County A's sales tax on such retail sales of tangible personal property.
  - (c) A vendor with places of business in County A and County B receives an order at the location in County A which he forwards to the location in County B for approval and acceptance and which is filled by delivery from a location in County B to a customer in County A. County B's sales tax is due on the sale.
  - (d) A vendor with a place of business in County A receives an order which he approves and accepts at the location in County A but fills the order by making shipment from a location in County B. County A's sales tax is due on such sales.
- (e) A vendor whose only place of business is in County A receives an order from a customer in County B and the order is approved and accepted in County A but delivery is made from a point in County B. County A's sales tax is due on such sales.
- (2) Vendors Making Sales of Tangible Personal Property From a Place of Business Outside of North Carolina:
  - (a) An out-of-state vendor who is "engaged in business" in this state and in a taxing county as the term is defined in G.S. 105-164.3(5) is liable for charging and remitting such county's tax on tangible personal property which he sells at retail for storage, use or consumption in that county.
  - (b) An out-of-state vendor who is not "engaged in business" in a taxing county as the term is defined by G.S. 105-164.3(5) is not liable for charging or remitting that county's sales or use tax on sales of tangible personal property which is sold and delivered from a place of business outside of North Carolina to a purchaser in that county. The purchaser is liable for remitting the applicable county use tax to the Department of Revenue on the cost price of such tangible personal property.
- (3) Persons Leasing or Renting Tangible Personal Property From an Inventory of Property in North Carolina are Deemed to Have a Place of Business in the County in Which the Inventory is Located:
  - (a) A lessor who maintains an inventory of tangible personal property in a taxing county for the purpose of lease or rental is liable for charging and remitting such county's sales tax on receipts from the lease or rental of such property to lessees in that county for use.
  - (b) A lessor who leases tangible personal property from an inventory in a taxing county and ships or delivers the property to a lessee in a county in which he does not have a place of business or an inventory of tangible personal property for the purpose of lease or rental is liable for charging and remitting the county's tax on such lease receipts for the county in which his inventory is located.
  - (c) If a lessor has an inventory of tangible personal property in two counties and leases property from the inventory in one county to a lessee in the other county and delivers the property to the lessee in the

other county in which he also has an inventory, the lessor is liable for charging and remitting the sales tax of the county where he enters into the contract and becomes contractually bound to lease or rent the property.

- (d) If a lessor keeps an inventory of tangible personal property in a county where he enters into a contract and becomes contractually bound to lease property to a lessee in that county for use in the general conduct of business within and without that county, the lessor is liable for charging and remitting such county's sales tax on the lease or rental receipts.
- (4) Persons Leasing or Renting Tangible Personal Property From an Inventory of Property Located Outside North Carolina:
  - (a) A lessor with an inventory of tangible personal property outside North Carolina who leases or rents property to a lessee in this state for use in a taxing county is liable for charging and remitting such county's use tax on the lease or rental receipts.
  - (b) When property that is leased for a definite stipulated period of time is delivered to the lessee prior to the date the tax becomes effective in a taxing county, the lease or rental receipts are not subject to the county tax levied after the delivery of the property. If the lease is on a month to month basis, the lease receipts for months subsequent to the effective date of the local tax are subject to the tax.

- (5) A person who operates a laundry, dry cleaning plant or similar business in a taxing county is liable for charging and remitting such county's sales tax on receipts derived from the operation of the business. The tax applies even though the items being cleaned may be picked up from the customers or delivered to them in another county within North Carolina or outside this state. An independent operator that solicits business on his own account but engages a laundering, dry cleaning or hat blocking firm or similar type business to perform the laundering, dry cleaning or other services is liable for collecting and remitting the county sales tax for the county in which the business is solicited.
- (6) A person who operates a laundry, dry cleaning plant or similar business outside North Carolina and who picks up items from customers in a taxing county, cleans them at the cleaning plant outside this state and then returns them to the customers in the taxing county, is not liable for charging and remitting the taxing county's use tax on the receipts from the cleaning services.

*History Note: Statutory Authority G.S. 105-262; 105-467; 105-468; S.L. 1967, Ch. 1096, s. 4 and 5; Eff. February 1, 1976; Amended Eff. July 1, 1989; November 1, 1982; January 1, 1982.*



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