

15 NCAC 2H .0219-.0220; have been adopted as published in the NCR, Volume 2, Issue 1, page(s) 70-76, with changes, as follows:

.0219 MINIMUM DESIGN REQUIREMENTS

(a) All facilities requiring a permit pursuant to this Section shall be designed following good engineering practice and shall not result in nuisance conditions. The plans and specifications must be stamped and sealed by a Professional Engineer.

(b) Waste, including treated waste, shall not be placed directly into, or in contact with, GA classified groundwater unless such placement will not result in a contravention of GA groundwater standards, as demonstrated by predictive calculations or modeling methods acceptable to the Director.

(c) Impoundments, trenches or other excavations made for the purpose of storing or treating waste will not be excavated into bedrock unless the placement of waste into such excavations will not result in a contravention of assigned standards, as demonstrated by predictive calculations or modeling methods acceptable to the Director.

(d) The bottoms of earthen impoundments, trenches or other similar excavations with the exception of nitrification fields and sewer line excavations shall be at least four feet above the bedrock surface, except that the bottom of excavations which are less than four feet above bedrock shall have a liner with a hydraulic conductivity no greater than  $1 \times 10^{-7}$  centimeters per second. Liner thickness will be that thickness necessary to achieve a leakage rate consistent with the sensitivity of classified groundwaters. Separation distances or liner requirements may be reduced if it can be demonstrated by predictive calculations or modeling methods acceptable to the Director, that construction and use of these treatment and disposal units will not result in contravention of assigned standards.

(e) Industrial waste shall not be applied or discharged onto or below the land surface when the vertical separation between the waste and the seasonal high water table is less than one foot. If the area to be utilized has a separation of less than three feet, and in other areas as designated by the Director, a demonstration must be made using predictive calculations or modeling methods, acceptable to the Director, that such placement will not result in contravention of classified groundwater standards.

(f) Treatment works and disposal systems utilizing earthen basins, lagoons, ponds or trenches, excluding nitrification fields and holding ponds containing treated effluent prior to spray irrigation, for treatment, storage or disposal shall have either a liner of natural material at least one foot in thickness

and having a hydraulic conductivity of no greater than  $1 \times 10^{-6}$  centimeters per second when compacted, or a synthetic liner of sufficient thickness to exhibit structural integrity and an effective hydraulic conductivity no greater than that of the natural material liner.

(g) Except as otherwise provided by these requirements or by terms of a permit, all waste treatment, storage and disposal facilities must maintain and operate a groundwater monitoring system as approved by the Division. The monitoring system must be designed to assess the impact of any discharge on the quality of the underlying groundwaters and must be based on the results of the hydrogeologic investigation.

(h) For pumping stations:

- (1) no by-pass or overflow lines,
  - (2) multiple pumps shall be provided capable of pumping at a rate of 2.5 times the average daily flow rate with any one pump out of service. Pump-on/Pump-off elevations shall be located such that 2-8 pumping cycles per hour may be achieved in the pump station. If extended detention times are necessary due to phased development, the need for odor and corrosion control must be evaluated by the applicant.
  - (3) where waters classified as WS, SA, B or SB could be impacted by a power failure, at least one of the following shall be required:
    - (A) dual source or standby power supply on site or,
    - (B) telemetry systems with sufficient numbers of standby generators and personnel for distribution or
    - (C) approval by the director that the pump station:
      - (i) serves a private water distribution system which has automatic shut-off at power failure and no elevated water storage tanks, and
      - (ii) has sufficient storage capacity that no potential for overflow exists, and
      - (iii) is connected to facilities that can tolerate septic wastewater due to prolonged detention;
  - (4) The need for screened vents must be evaluated for all wet wells;
  - (5) high water alarms;
  - (6) protection from a 100 year flood;
  - (7) restricted access to the site and equipment.
- (i) For sewer systems and sewer system extensions:
- (1) All building drains and building sewers which are approved by the local building inspector in accordance with the North Carolina Building Code are deemed to be permitted by the Environmental Management Commission;

- (2) All sewers shall be designed based upon at least minimum standards which include:
- (A) wastewater flow rate at design loading should result in the sewer flowing approximately half full. The sewer must also be evaluated as to its ability to carry peak loadings;
  - (B) a velocity of two feet per second;
  - (C) construction and operation shall not result in water pollution;
  - (D) infiltration rate limited to 200 gallons per day per inch of pipe diameter per mile of pipe;
  - (E) construction and operation consistent with all applicable local ordinances;
  - (F) for public sewers, a minimum eight inch diameter pipe;
  - (G) minimum separations:
    - (i) Storm sewers (vertical) 12 inches
    - (ii) Water mains (vertical -  
water over sewer) 18 inches  
or  
(horizontal) 10 feet
    - (iii) In benched trenches (vertical) 18 inches
    - (iv) Any private or public water supply source, including any WSI waters or Class I or Class II impounded reservoirs used as a source of drinking water 100 feet
    - (v) Waters classified WSI, WSII, WSIII, B, SA, or SB (from normal high water (or tide elevation)) 50 feet
    - (vi) Any other stream, lake or impoundment 10 feet
    - (vii) Any building foundation 5 feet
    - (viii) Any basement 10 feet
    - (ix) Top slope of embankment or cuts of 2 feet or more vertical height 10 feet
    - (x) Drainage systems
      - (A) Interceptor drains 5 feet
      - (B) Ground water lowering and surface drainage ditches 10 feet
    - (xi) Any swimming pool 10 feet
    - (xii) Ferrous sewer pipe with joints equivalent to water main standards, shall be used where these minimum separations cannot be maintained. The minimum separation shall however not be less than 25 feet from a private well or 50 ft from a public water supply well.

- (H) Three (3) feet 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;
- (I) The maximum separation between manholes shall be 425 feet unless written documentation is submitted with the application that the owner/authority has the capability to perform routine cleaning and maintenance on the sewer at the specified manhole separation;
- (J) Drop manholes shall be provided where invert separations exceed 2.5 feet;
- (K) Manholes shall be designed for 100-year flood protection;
- (L) The need for air relief valves shall be evaluated at all high points along force mains;
- (M) Odor and corrosion control must be evaluated by the applicant for all sewers and force mains with extended travel times.
- (j) For treatment works and disposal systems:
  - (1) no by-pass or overflow lines;
  - (2) multiple pumps if pumps are used;
  - (3) where waters classified as WS-I, WS-II, WS-III, B, SA, or SB could be impacted by a power failure, at least one of the following:
    - (A) dual or standby power supply on site, capable of powering all essential treatment components under design conditions, or
    - (B) approval by the director that the facility:
      - (i) serves a private water distribution system which has automatic shut-off at power failure and no elevated water storage tanks, and
      - (ii) has sufficient storage capacity that no potential for overflow exists, and
      - (iii) can tolerate septic wastewater due to prolonged detention;
  - (4) protection from 100 year flood;
  - (5) buffer zones of at least the following distances, and greater where necessary to comply with Section 2H .0400 of this Subchapter or to address particular site or waste characteristics:
    - (A) Any habitable residence or place of public assembly under separate ownership or which are to be sold
      - (i) for spray irrigation systems not covered by 2H .0219(k) . . . . . 400 feet
      - (ii) for surface sludge application . . . . . 400 feet
      - (iii) for subsurface sludge injection . . . . . 200 feet
      - (iv) for facultative lagoons . . . . . 400 feet
      - (v) for activated sludge plants or surface sand filters . . . . . 100 feet

- (B) Any private or public water supply source . 100 feet;
- (C) Streams classified as WS-I, WS-II, WS-III or B
  - (i) for subsurface disposal . . . . . 50 feet
  - (ii) for non-discharge surface disposal . . 100 feet
- (D) Waters classified SA or SB . . . . . 100 feet  
from normal  
high water
- (E) Any other stream, canal, marsh, or  
coastal waters
  - (i) for subsurface disposal . . . . . 50 feet
  - (ii) for non-discharge surface disposal . . 100 feet
- (F) Any Class I or Class II impounded reservoir  
used as a source of drinking water . . .100 feet  
from normal  
high water
- (G) Any other lake or impoundment
  - (i) for subsurface disposal . . . . . 50 feet
  - (ii) for surface disposal . . . . . 100 feet
- (H) Any building foundation
  - (i) for subsurface disposal . . . . . 10 feet
  - (ii) for surface disposal . . . . . 100 feet
- (I) Any basement
  - (i) for subsurface disposal . . . . . 15 feet
  - (ii) for surface disposal . . . . . 100 feet
- (J) Any property line
  - (i) for spray irrigation . . . . . 150 feet
  - (ii) for other surface disposal systems . . 100 feet
  - (iii) for subsurface sludge injection . . . 100 feet
  - (iv) for other surface treatment systems . 50 feet
  - (v) for other subsurface systems . . . . . 10 feet
- (K) Top of slope of embankments or cuts or two  
feet or more in vertical height
  - (i) for subsurface disposal . . . . . 15 feet
  - (ii) for surface disposal . . . . . 100 feet
- (L) Any water line from a disposal system . . . 10 feet
- (M) Drainage systems:
  - (i) Interceptor drains (upslope)
    - (I) for subsurface disposal . . . . . 10 feet
    - (II) for surface disposal . . . . . 100 feet
  - (ii) Interceptor drains (downslope)
    - (I) for subsurface disposal . . . . . 25 feet
    - (II) for surface disposal . . . . . 100 feet
  - (iii) Groundwater lowering and surface  
drainage ditches
    - (i) for subsurface disposal . . . . . 25 feet
    - (ii) for surface disposal . . . . . 100 feet
- (N) Any swimming pool
  - (i) for subsurface disposal . . . . . 15 feet
  - (ii) for surface disposal . . . . . 100 feet
- (O) Any other nitrification field  
(except repair area) . . . . . 20 feet
- (P) Any well with the exception of an  
approved groundwater monitoring well . . . 100 feet
- (Q) Public right-of-way  
surface disposal . . . . . 50 feet

- (6) adequate flow equalization for facilities with fluctuations in influent flow which may adversely affect the performance of the system;
  - (7) preparation of an operational management plan, including restricted access to the site and equipment, and, if appropriate, a crop management plan;
  - (8) except for facilities for single family residences or as approved by the director, appropriate monitoring wells designed to assess the impacts on the groundwater of any discharge and constructed in accordance with Section 2C .0100 of this Chapter.
- (k) For Land Application of Domestic Wastewater on Golf Courses and Other Public Access Areas
- (1) Aerated flow equalization facilities with a capacity of at least 25 per cent of the system design flow.
  - (2) All essential treatment and disposal units shall be provided in duplicate.
  - (3) The treatment process shall produce an effluent with a monthly average TSS of less than 5 mg/l and a daily maximum TSS of less than 10 mg/l and a maximum fecal coliform level of less than 1/100 ml, prior to discharge to a 5-day detention pond.
  - (4) There must be no public access to the 5-day detention pond.
  - (5) The size of the irrigation pond, that follows the five day holding pond, shall be justified using a mass water balance for worse case conditions.
  - (6) An automatically activated standby power source or other means to prevent improperly treated wastewater from entering the 5-day detention pond shall be provided.
  - (7) Requirements for the lining of the 5-day detention and irrigation ponds shall be site-specific.
  - (8) In the design of the sprinkler system, the piping shall be a separate system, with no cross-connections to a potable water supply (includes no spigots on the distribution system).
  - (9) The rate of application shall be site-specific but not exceeding 1 and 3/4 inches/week (as given in 2H.0404(g)8).
  - (10) The time of spraying shall occur between 11:00 p.m. and 3 hours prior to the daily opening of the course.
  - (11) There shall be a 100 foot vegetative buffer zone between the edge of spray influence and the nearest dwelling.
  - (12) Signs shall be posted at the pro-shop stating that the course is irrigated with treated wastewater.
  - (13) There shall be a certified operator of a class equivalent to the class plant on call 24 hours/day.

(1) Wastewater Flow Rates

- (1) In determining the volume of sewage from dwelling units, the flow rate shall be 120 gallons per day per bedroom. The minimum volume of sewage from each dwelling unit shall be 240 gallons per day and each additional bedroom above two bedrooms will increase the volume by 120 gallons per day. Each bedroom or any other room or addition that can reasonably be expected to function as a bedroom shall be considered a bedroom for design purposes. When the occupancy of a dwelling unit exceeds two persons per bedroom, the volume of sewage shall be determined by the maximum occupancy at a rate of 60 gallons per person per day.
- (2) The following table shall be used to determine the minimum allowable design daily flow of wastewater facilities. Design flow rates for establishments not identified below shall be determined using available flow data, water-using fixtures, occupancy or operation patterns, and other measured data.

Type of Establishments	Daily Flow For Design
Airports, also RR Stations, bus terminals. (not including food service facilities) . . . . .	5 gal/passenger
Barber Shops . . . . .	50 gal/chair
Bars, Cocktail Lounges (not including food services) . . . . .	20 gal/seat
Beauty Shops . . . . .	125 gal/booth or bowl
Bowling Alleys . . . . .	50 gal/lane
Businesses (other than those listed in this table) . . . . .	25 gal/employee
Camps	
Construction or work camps . . . . .	60 gal/person
Summer camps . . . . .	60 gal/person
Camp grounds	
Without water and sewer hookups . . . . .	100 gal/campsite
Travel trailer/recreational vehicle park with water and sewer hookup . . . . .	120 gal/campsite
Churches (not including food service, day care and camps) . . . . .	3 gal/seat
Country Clubs - Resident Members . . . . .	60 gal/person
Nonresident Members . . . . .	20 gal/person
Day Care Facilities . . . . .	15 gal/person
Factories (exclusive of industrial wastes) -- per shift . . . . .	
Add for showers -- per shift . . . . .	25 gal/person 10 gal/person
Food Service Facilities	
Restaurants (including fast food) . . . . .	40 gal/seat or 40 gal/15 ft <sup>2</sup> of dining area, whichever is greater

24-hour Restaurant . . . . .	50 gal/seat
Single-Service (exclusive of fast food) . . .	25 gal/seat
Food Stands	
(1) Per 100 square feet of total	
floor space . . . . .	50 gal
(2) Add per employee . . . . .	25 gal
Hospitals . . . . .	300 gal/bed
Laundries (self-service) . . . . .	500 gal/machine
Marinas . . . . .	10 gal/boat slip
With bathhouse . . . . .	30 gal/boat slip
Meat Markets	
(1) Per 100 square feet of total	
floor space . . . . .	50 gal
(2) Add per employee . . . . .	25 gal
Motels/Hotel . . . . .	120 gal/room
with cooking facilities in room . . . . .	175 gal/room
Nursing/Rest Homes -- With laundry . . . . .	120 gal/bed
Without laundry . . . . .	60 gal/bed
Offices -- per shift . . . . .	25 gal/person
Residential Care Facilities . . . . .	60 gal/person
Resort . . . . .	200 gal/room
Restaurants . . . . .	40 gal/seat, or
	40 gal/15 ft <sup>2</sup> of
	dining area
	(whichever is
	greater)
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 . . . . .	60 gal/person
Service Stations . . . . .	250 gal/water closet
	or urinal
Stadiums, Auditoriums, Theaters, Drive-ins . .	5 gal/seat
	or space
Stores, shopping centers and malls -- Note; if food	
service is included, add 40 gal/seat . . . . .	120 gal/1000 ft <sup>2</sup>
Swimming Pools and Bathhouses . . . . .	10 gal/person

(3) An adjusted daily sewage flow may be granted upon a showing that a sewage system is adequate to meet actual daily water consumption from a facility included in subparagraph (1) or (2) of this paragraph. Documented, representative data from that facility or a comparable facility shall be submitted, consisting of at least 12 consecutive monthly total water consumption readings and daily total water consumption readings for at least 30 consecutive days of water use. The daily readings shall be taken during a projected peak sewage flow month. The adjusted design daily sewage flow shall be determined by taking the numerical average of the daily readings that fall within the upper 10 percent of the daily readings when ranked in descending order.



- (m) Additional requirements:
- (1) distance between water supply wells and waste facilities in accordance with Rule 2C .0107(a) of this Chapter or, if a greater area may be impacted, a distance in accordance with the perimeter of compliance described in Rule 2L .0103(h) of this Chapter;
  - (2) compliance with the groundwater standards specified in Subchapter 2L of this Chapter;
  - (3) where applicable compliance with regulations on "coastal waste treatment disposal" found in Section .0400 of this Subchapter; and
  - (4) For subsurface disposal systems, compliance with regulations on subsurface disposal systems found in Section .0300 of this Subchapter.
- (n) Alternative Design Criteria may be approved by the Director. This approval will only be given in cases where the applicant can demonstrate that the Alternative Design Criteria will provide the following:
- (1) Equal or better treatment of the waste; and
  - (2) Equal or better protection of the waters of the State; and
  - (3) No increased potential for nuisance conditons.

History Note: Statutory Authority G.S. 143-215.3(a)(1);  
143-215.1;  
Eff. October 1, 1987.

#### .0220 CERTIFICATION OF COMPLETION

Prior to the operation of any sewer system, treatment works or disposal system permitted in accordance with this section, a certification must be received by the permitting agency from a professional engineer certifying that the sewer system, treatment works or disposal system has been installed in accordance with the approved plans and specifications. For facilities with phased construction or where there is a need to operate certain equipment under actual operating conditions prior to certification, additional certification may be needed as follow-ups to the initial, pre-operation, certification.

History Note: Statutory Authority G.S. 143-215.1;  
Eff. October 1, 1987.

15 NCAC 2H .0219; has been amended as published in the North Carolina Register, Volume 2, Issue 11, pages 897-903, as follows:

.0219 MINIMUM DESIGN REQUIREMENTS

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(c) Impoundments, trenches or other excavations made for the purpose of storing or treating waste will not be excavated into bedrock unless the placement of waste into such excavations will not result in a contravention of assigned standards, as demonstrated by predictive calculations or modeling methods acceptable to the Director.

(d) The bottoms of earthen impoundments, trenches or other similar excavations with the exception of nitrification fields, infiltration systems, and sewer line excavations shall be at least four feet above the bedrock surface, except that the bottom of excavations which are less than four feet above bedrock shall have a liner with a hydraulic conductivity no greater than  $1 \times 10^{-7}$  centimeters per second. Liner thickness will be that thickness necessary to achieve a leakage rate consistent with the sensitivity of classified groundwaters. Separation distances or liner requirements may be reduced if it can be demonstrated by predictive calculations or modeling methods acceptable to the Director, that construction and use of these treatment and disposal units will not result in contravention of assigned standards.

(e) Industrial waste shall not be applied or discharged onto or below the land surface when the vertical separation between the waste and the seasonal high water table is less than one foot. If the area to be utilized has a separation of less than three feet, and in other areas as designated by the Director, a demonstration must be made using predictive calculations or modeling methods, acceptable to the Director, that such placement will not result in contravention of classified groundwater standards.

(f) Treatment works and disposal systems utilizing earthen basins, lagoons, ponds or trenches, excluding nitrification fields, infiltration systems, and holding ponds containing treated effluent prior to spray irrigation, for treatment, storage or disposal shall have either a liner of natural material at least one foot in thickness and having a hydraulic conductivity of no greater than  $1 \times 10^{-6}$  centimeters per second when compacted, or a synthetic liner of sufficient thickness to exhibit structural integrity and an effective hydraulic conductivity no greater than that of the natural material liner.

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(g) Except as otherwise provided by these requirements or by terms of a permit, all waste treatment, storage and disposal facilities must maintain and operate a groundwater monitoring system as approved by the Division. The monitoring system must be designed to assess the impact of any discharge on the quality of the underlying groundwaters and must be based on the results of the hydrogeologic investigation.

(h) For pumping stations:

- (1) no by-pass or overflow lines;
- (2) multiple pumps shall be provided capable of pumping at a rate of 2.5 times the average daily flow rate with any one pump out of service. Pump-on/Pump-off elevations shall be set such that 2-8 pumping cycles per hour may be achieved in the pump station at average flow. If extended detention times are necessary due to phased development, the need for odor and corrosion control must be evaluated by the applicant;
- (3) where waters classified as WS, SA, B or SB could be impacted by a power failure, at least one of the following shall be required:
  - (A) dual source or standby power supply on site or,
  - (B) telemetry systems with sufficient numbers of standby generators and personnel for distribution or
  - (C) approval by the director that the pump station:
    - (i) serves a private water distribution system which has automatic shut-off at power failure and no elevated water storage tanks, and
    - (ii) has sufficient storage capacity that no potential for overflow exists, and
    - (iii) is connected to facilities that can tolerate septic wastewater due to prolonged detention;
- (4) The need for screened vents must be evaluated for all wet wells;
- (5) high water alarms;
- (6) protection from a 100 year flood;
- (7) restricted access to the site and equipment;
- (8) all-weather roadway to the site;

(i) For sewer systems and sewer system extensions:

- (1) All building drains and building sewers which are approved by the local building inspector in accordance with the North Carolina Building Code are deemed to be permitted by the Environmental Management Commission;
- (2) All sewers shall be designed based upon at least minimum standards which include:
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- (C) construction and operation shall not result in water pollution;
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- (G) minimum separations:
  - (i) Storm sewers (vertical) 12 inches
  - (ii) Water mains (vertical - water over sewer) 18 inches
    - or
    - (horizontal) 10 feet
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  - (v) Waters classified WS-I, WS-II, WS-III, B, SA, or SB (from normal high water (or tide elevation)) 50 feet
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  - (ix) Top slope of embankment or cuts of 2 feet or more vertical height 10 feet
  - (x) Drainage systems
    - (A) Interceptor drains 5 feet
    - (B) Ground water lowering and surface drainage ditches 10 feet
  - (xi) Any swimming pool 10 feet
  - (xii) Ferrous sewer pipe with joints equivalent to water main standards, shall be used where these minimum separations cannot be maintained. The minimum separation shall however not be less than 25 feet from a private well or 50 ft from a public water supply well.
- (H) Three (3) feet 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;

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- (I) The maximum separation between manholes shall be 425 feet unless written documentation is submitted with the application that the owner/authority has the capability to perform routine cleaning and maintenance on the sewer at the specified manhole separation;
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  - (K) Manholes shall be designed for 100-year flood protection;
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  - (M) Odor and corrosion control must be evaluated by the applicant for all sewers and force mains with extended travel times.
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    - (A) dual or standby power supply on site, capable of powering all essential treatment components under design conditions, or
    - (B) approval by the director that the facility:
      - (i) serves a private water distribution system which has automatic shut-off at power failure and no elevated water storage tanks, and
      - (ii) has sufficient storage capacity that no potential for overflow exists, and
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  - (5) buffer zones of at least the following distances, and greater where necessary to comply with Section 2H .0400 of this Subchapter or to address particular site or waste characteristics:
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      - (i) for spray irrigation systems not covered by 2H .0219(k) . . . . . 400 feet
      - (ii) for surface sludge application . . . . . 400 feet
      - (iii) for subsurface sludge injection . . . . . 200 feet
      - (iv) for facultative lagoons . . . . . 400 feet
      - (v) for activated sludge plants or surface sand filters . . . . . 100 feet

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- (B) Any private or public water supply source . 100 feet
- (C) Streams classified as WS-I, WS-II, WS-III or B
  - (i) for subsurface disposal . . . . . 50 feet
  - (ii) for non-discharge surface disposal . . 100 feet
- (D) Waters classified SA or SB . . . . . 100 feet  
from normal  
high water
- (E) Any other stream, canal, marsh, or  
coastal waters
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- (F) Any Class I or Class II impounded reservoir  
used as a source of drinking water . . . 100 feet  
from normal  
high water
- (G) Any other lake or impoundment
  - (i) for subsurface disposal . . . . . 50 feet
  - (ii) for surface disposal . . . . . 100 feet
- (H) Any building foundation except  
treatment facilities:
  - (i) for subsurface disposal . . . . . 10 feet
  - (ii) for surface disposal . . . . . 15 feet
- (I) Any basement
  - (i) for subsurface disposal . . . . . 15 feet
  - (ii) for surface disposal . . . . . 15 feet
- (J) Any property line
  - (i) for spray irrigation . . . . . 150 feet
  - (ii) for other surface disposal systems . . 100 feet
  - (iii) for subsurface sludge injection . . . 100 feet
  - (iv) for other surface treatment systems . 50 feet
  - (v) for other subsurface systems . . . . . 50 feet
- (K) Top of slope of embankments or cuts or two  
feet or more in vertical height
  - (i) for systems other than  
rapid infiltration systems . . . . . 15 feet
  - (ii) for rapid infiltration systems . . . 100 feet
- (L) Any water line from a disposal system . . . 10 feet
- (M) Drainage systems:
  - (i) Interceptor drains and surface water  
diversions (upslope)
    - (I) for subsurface disposal . . . . . 10 feet
    - (II) for surface disposal other  
than spray irrigation systems  
and rapid infiltration systems . . 10 feet
    - (III) for spray irrigation systems . . 100 feet
    - (IV) for rapid infiltration systems . 200 feet

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- (ii) Interceptor drains and surface water diversions (downslope)
  - (I) for subsurface disposal . . . . . 25 feet
  - (II) for surface disposal other than spray irrigation systems and rapid infiltration systems . . . . . 25 feet
  - (III) for spray irrigation systems . . . . . 100 feet
  - (IV) for rapid infiltration systems . . . . . 200 feet
- (iii) Groundwater lowering and surface drainage ditches
  - (I) for subsurface disposal . . . . . 25 feet
  - (II) for surface disposal other than spray irrigation systems and rapid infiltration systems . . . . . 25 feet
  - (III) for spray irrigation systems . . . . . 100 feet
  - (IV) for rapid infiltration systems . . . . . 200 feet
- (N) Any swimming pool
  - (i) for subsurface disposal . . . . . 15 feet
  - (ii) for surface disposal . . . . . 100 feet
- (O) Any other nitrification field (except repair area) . . . . . 20 feet
- (P) Any well with the exception of an approved groundwater monitoring well . . . 100 feet
- (Q) Public right-of-way surface disposal . . . . . 50 feet
- (6) adequate flow equalization for facilities with fluctuations in influent flow which may adversely affect the performance of the system;
- (7) preparation of an operational management plan, including restricted access to the site and equipment, and, if appropriate, a crop management plan;
- (8) except for facilities for single family residences or as approved by the director, appropriate monitoring wells designed to assess the impacts on the groundwater of any discharge and constructed in accordance with Section 2C .0100 of this Chapter.
- (k) For Land Application of Domestic Wastewater on Golf Courses and Other Public Access Areas:
  - (1) Aerated flow equalization facilities with a capacity of at least 25 per cent of the daily system design flow.
  - (2) All essential treatment and disposal units shall be provided in duplicate.
  - (3) The treatment process shall produce an effluent with a monthly average TSS of less than 5 mg/l and a daily maximum TSS of less than 10 mg/l and a maximum fecal coliform level of less than 1/100 ml, prior to discharge to a 5-day detention pond.

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- (4) There must be no public access to the 5-day detention pond.
  - (5) The size of the irrigation pond, that follows the five day holding pond, shall be justified using a mass water balance for worse case conditions of record.
  - (6) An automatically activated standby power source or other means to prevent improperly treated wastewater from entering the 5-day detention pond shall be provided.
  - (7) Requirements for the lining of the 5-day detention and irrigation ponds shall be site-specific.
  - (8) In the design of the sprinkler system, the piping shall be a separate system, with no cross-connections to a potable water supply (includes no spigots on the distribution system).
  - (9) The rate of application shall be site-specific but not exceeding 1 and 3/4 inches/week (as given in 2H.0404(g)(8)).
  - (10) The time of spraying shall occur between 11:00 p.m. and 3 hours prior to the daily opening of the course.
  - (11) There shall be a 100 foot vegetative buffer zone between the edge of spray influence and the nearest dwelling.
  - (12) Signs shall be posted at the proshop stating that the course is irrigated with treated wastewater.
  - (13) There shall be a certified operator of a class equivalent to the class plant on call 24 hours/day.
- (1) Wastewater Flow Rates
- (1) In determining the volume of sewage from dwelling units, the flow rate shall be 120 gallons per day per bedroom. The minimum volume of sewage from each dwelling unit shall be 240 gallons per day and each additional bedroom above two bedrooms will increase the volume by 120 gallons per day. Each bedroom or any other room or addition that can reasonably be expected to function as a bedroom shall be considered a bedroom for design purposes. When the occupancy of a dwelling unit exceeds two persons per bedroom, the volume of sewage shall be determined by the maximum occupancy at a rate of 60 gallons per person per day.
  - (2) The following table shall be used to determine the minimum allowable design daily flow of wastewater facilities. Design flow rates for establishments not identified below shall be determined using available flow data, water-using fixtures, occupancy or operation patterns, and other measured data.



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Motels/Hotel . . . . .	120 gal/room
with cooking facilities in room . . . . .	175 gal/room
Nursing/Rest Homes -- With laundry . . . . .	120 gal/bed
Without laundry . . . . .	60 gal/bed
Offices -- per shift . . . . .	25 gal/person
Residential Care Facilities . . . . .	60 gal/person
Resort . . . . .	200 gal/room
Restaurants . . . . .	40 gal/seat, or 40 gal/15 ft <sup>2</sup> of dining area (whichever is greater)
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 . . . . .	60 gal/person
Service Stations . . . . .	250 gal/water closet or urinal
Stadiums, Auditoriums, Theaters, Drive-ins . . . . .	5 gal/seat or space
Stores, shopping centers and malls -- Note; if food service is included, add 40 gal/seat . . . . .	120 gal/1000 ft <sup>2</sup>
Swimming Pools and Bathhouses . . . . .	10 gal/person

(3) An adjusted daily sewage flow may be granted upon a showing that a sewage system is adequate to meet actual daily water consumption from a facility included in subparagraph (1) or (2) of this paragraph. Documented, representative data from that facility or a comparable facility shall be submitted, consisting of at least 12 consecutive monthly total water consumption readings and daily total water consumption readings for at least 30 consecutive days of water use. The daily readings shall be taken during a projected peak sewage flow month. The adjusted design daily sewage flow shall be determined by taking the numerical average of the daily readings that fall within the upper 10 percent of the daily readings when ranked in descending order.

(m) Additional requirements:

- (1) distance between water supply wells and waste facilities in accordance with Rule 2C .0107(a) of this Chapter or, if a greater area may be impacted, a distance in accordance with the perimeter of compliance described in Rule 2L .0103(h) of this Chapter;
- (2) compliance with the groundwater standards specified in Subchapter 2L of this Chapter;
- (3) where applicable compliance with rules on "coastal waste treatment disposal" found in Section .0400 of this Subchapter; and

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Type of Establishments	Daily Flow For Design
Airports, also RR Stations, bus terminals. (not including food service facilities) . . . . .	5 gal/passenger
Barber Shops . . . . .	50 gal/chair
Bars, Cocktail Lounges (not including food services) . . . . .	20 gal/seat
Beauty Shops . . . . .	125 gal/booth or bowl
Bowling Alleys . . . . .	50 gal/lane
Businesses (other than those listed in this table) . . . . .	25 gal/employee
Camps	
Construction or work camps . . . . .	60 gal/person
Summer camps . . . . .	60 gal/person
Camp grounds	
Without water and sewer hookups . . . . .	100 gal/campsite
Travel trailer/recreational vehicle park with water and sewer hookup . . . . .	120 gal/campsite
Churches (not including food service, day care and camps) . . . . .	3 gal/seat
Country Clubs - Resident Members . . . . .	60 gal/person
Nonresident Members . . . . .	20 gal/person
Day Care Facilities . . . . .	15 gal/person
Factories (exclusive of industrial wastes) -- per shift . . . . .	
Add for showers -- per shift . . . . .	25 gal/person 10 gal/person
Food Service Facilities	
Restaurants (including fast food) . . . . .	40 gal/seat or 40 gal/15 ft <sup>2</sup> of dining area, whichever is greater
24-hour Restaurant . . . . .	50 gal/seat
Single-Service (exclusive of fast food) . . . . .	25 gal/seat
Food Stands	
(1) Per 100 square feet of total floor space . . . . .	50 gal
(2) Add per employee . . . . .	25 gal
Hospitals . . . . .	300 gal/bed
Laundries (self-service) . . . . .	500 gal/machine
Marinas . . . . .	10 gal/boat slip
With bathhouse . . . . .	30 gal/boat slip
Meat Markets	
(1) Per 100 square feet of total floor space . . . . .	50 gal
(2) Add per employee . . . . .	25 gal

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- (4) for subsurface disposal systems, compliance with rules on subsurface disposal systems found in Section .0300 of this Subchapter.
- (n) Alternative Design Criteria may be approved by the Director. This approval will only be given in cases where the applicant can demonstrate that the Alternative Design Criteria will provide the following:
- (1) Equal or better treatment of the waste; and
  - (2) Equal or better protection of the waters of the State; and
  - (3) No increased potential for nuisance conditions.

History Note: Statutory Authority G.S. 143-215.3(a)(1);  
143-215.1;  
Eff. October 1, 1987;  
Amended Eff. August 1, 1988.