Special Use Permit Standard Guidelines for Subsurface Wastewater Disposal Systems
Franklin County, Virginia
JN 25012

Approved by the Franklin County Board of Supervisors, July 18, 2006

The purpose of this document is to establish a uniform set of standard guidelines to be used by Franklin County in setting conditions for subsurface wastewater disposal systems that require a Special Use Permit by the County. These standard guidelines apply to wastewater facilities that would be classified as mass drainfields by the Department of Health or any system 1,200 gpd or greater.

The County Board of Supervisors reserves the right to revise these recommended standard guidelines, and/or implement them in full or in part according to the health and wellbeing of the Franklin County community.

I. General Requirements

1. General

All wastewater treatment facilities must be designed and constructed in accordance with the all local, state and federal codes and regulations, and the more stringent shall apply. All facilities must meet the following minimum design criteria for treated effluent:

Biochemical Oxygen Demand (BOD)	30 mg/l
Total Suspended Solids (TSS)	30 mg/l
Total Nitrogen (N)*	5 mg/l

*Total nitrogen in the effluent after consideration of dilution area may be approved by the Utilities Director upon providing adequate documentation.

2. Buffer Zones

All sewage treatment facilities that require a Special Use Permit by the County must provide an adequate buffer zone as specified in the Sewage Collection and Treatment (SCAT) Regulations or as described herewith:

a. Within buffer zones, neither residential uses, high density human activities, nor activities involving food preparation are to be established within the extent of the buffer zone. Land use within the buffer zone must be identified and approved by the County Zoning Administrator. The buffer zone is the distance from any aerated treatment unit.

b. The County may approve a reduction up to one half of the listed buffer zone requirements based on one or more of the following factors: (i) site topography, (ii) prevailing wind directions, (iii)

existence of natural barriers, (iv) establishment of an effective windbreak, (v) type of adjacent development, and (vi) provision of enclosed units.

c. The prevailing wind direction should be determined by on-site data. Local weather station records may be utilized if they are demonstrated to be applicable.

d. A windbreak should be located on both sides of the treatment works parallel to the facilities and the area that is to be protected by the windbreak and as close to the treatment works as practical. An windbreak should consist of at least 2 parallel rows of evergreen trees with an initial minimum height of 6 feet. Other species of trees or man made windbreaks may be proposed to the County for approval.

e. Visual screening and/or landscaping shall be provided for the treatment facility. The County Zoning Administrator shall approve the type of visual screening and/or landscaping.

f. Reduced buffer distances may be established for covered/enclosed treatment unit operations or processes with approval by the County. Covered/enclosed units shall be provided with screened openings and positive forced draft ventilation and shall have provisions for removal of aerosols and odors from the exhaust.

g. The required buffer zone shall be maintained by adequate legal instruments such as either ownership, recorded easements, or restrictive zoning.

Unit Processes that are totally enclosed

Design Flow (gpd)	Buffer Zone (feet)
<1,200	none
1,200 to 500,000	50
>500,000	100

Unit Processes using low intensity mixing

Design Flow (gpd)	Buffer Zone (feet)
<40,000	200
40,000 to 500,000	300
>500,000	400

Unit Operations using turbulent aeration or mixing

Design Flow (gpd)	Buffer Zone (feet)
<40,000	300
40,000 to 500,000	400
>500,000	600

3. Reliability Classification

All sewage treatment facilities that require a Special Use Permit by the County must have a reliability classification established in accordance with 9 VAC 25-790-70 of the SCAT Regulations. The County may elect to assign a more stringent reliability classification if there is concern for the impact to the environment, groundwater supplies, or public health. Determination of the reliability classification will also consider the size of the treatment facility and the availability of water during power outages.

4. Operational Staffing

All sewage treatment facilities that require a Special Use Permit by the County must be properly staffed to ensure conformance with the facilities performance requirements. Staffing recommendations are given in accordance with the Department of Environmental Quality's SCAT Regulations 9 VAC 25-790-300 Table 1, copy attached. The facility Owner may request a reduction in staffing requirements from the County's Utilities Director upon providing information on emergency response procedures, facility automation, remote monitoring capabilities, and related items.

II. Design Requirements

1. General

All wastewater treatment facilities must be designed in accordance with the most current version of the Department of Environmental Quality's Sewage Collection and Treatment Regulations, Sewage Handling and Disposal Regulations and any related guidance memorandums, and the County Code.

2. Documentation of Design

The responsible engineer shall provide documentation of all assumptions used in the design process, as submitted to the Virginia Department of Health. This must include, but is not necessarily limited to, depth to seasonal groundwater table or restrictive layer in the soil, calculations for groundwater mounding and nitrate loading, and hydraulic characteristics of the soil.

3. Reserve Area

Projects must provide a reserve area equal to 100% of the drainfield for any system that qualifies as a mass drainfield under the Sewage Handling and Disposal Regulations. If the project provides secondary treatment of the effluent that is equal or less than the following parameters and the soil classification of the drainfields is as follows, a 50% reserve area will be permitted:

Biochemical Oxygen Demand (BOD)	30 mg/l
Total Suspended Solids (TSS)	30 mg/l
Soil Classification	I or II texture group

Areas, which are designated as reserve areas, shall not be disturbed and shall remain in their current condition, unless approved by the Utilities Director. These areas may be classified as green space or open space. There shall be no adverse impact to designated reserve areas from development or future activities. Reserve areas shall be indicated on the record plat and restricted by deed from other uses.

Justification: (i) VDH only requires reserve areas for fields with a percolation rate greater than 45 minutes per inch (texture group III or IV),
(ii) County code was originally based on providing only primary treatment (septic effluent).

4. Disinfection of Treated Effluent

All treated wastewater that is discharged to a soil with a classification Type I texture group must be disinfected by ultraviolet light irradiation, or other approved non-chlorine based disinfectant, prior to application in the soil regardless of treatment plant capacity. Disininfection of treated wastewater into Type II texture group soils will be evaluated on a case by case basis by the Utilities Director with consideration given to the proximity of the disposal site to public and private wells, water bodies, and environmentally sensitive areas. Effluent shall be treated to less than 200 cfu/100 ml in the discharge.

Justification: (i) recommendation of National Environmental Services Center, March 27, 2006,
(ii) protection of groundwater resources in an area with high dependency on groundwater supplies for potable water,
(iii) protection of Smith Mountain Lake, designated public water supply, and recreational resource.

III. Facilities Management

1. General

All wastewater treatment and disposal systems that require a Special Use Permit must provide adequate management control, operations and maintenance of the system to ensure compliance with the approved design, and protect the environment and public health. The following items are given as general guidelines for the development of standards for management of wastewater facilities.

All sewage treatment facilities must provide to the County a performance bond or acceptable form of surety equal to the value of the treatment facility during its first year of operation to guarantee the performance of

the treatment facility. The period of surety will begin when the facility is placed into service and its operational permit is issued and will continue for a period of twelve months. In the event the facility does not meet its performance criteria, the facility Owner will be required to take corrective action as necessary to meet the performance criteria.

Any facility that requires a Special Use Permit for wastewater facilities shall connect to a public water and sewer system should it become available.

2. Management Plan

All wastewater facilities that require a Special Use Permit must provide a Management Plan to the County Public Works Department for review. The Management Plan must demonstrate that adequate revenues will be generated to provide fiscal responsibility for both short and long term care of the proposed facilities. The Plan must also identify the responsible party who will have ultimate control and liability of the proposed facilities. The management plan should be developed along the lines of those described in the United States Environmental Protection Agency Voluntary National Guidelines for Management of Onsite and Clustered (Dencentralized) Wastewater Treatment Systems, Appendix A.

3. Operations & Maintenance Manual

Upon the completion of the construction of the wastewater facilities, the responsible party shall submit to the County for review and approval an Operations and Maintenance Manual that addresses the facility. The Manual must be prepared in accordance with the Sewage Collection and Treatment Regulations.

4. Performance Monitoring

All treatment facilities requiring an SUP must provide adequate performance monitoring of the treatment facility. The degree of monitoring will be based on the capacity of the facility, the risk the facility posses on the environment, and the complexity of the treatment system. Groundwater monitoring wells shall be established both up gradient and down gradient of the disposal field and be constructed to a depth sufficient for sampling groundwater at all times of year, not less than 50 feet in Type I soils. Baseline samples shall be collected prior to the application of any wastewater in the drainfield. In general the following parameters, as a minimum, shall be monitored:

Treated Effluent (prior to disposal)

	Capacity (gpd)		
	<10,000	10,000 – 40,000	>40,000
Flow	1/wk	1/d	continuous
Biochemical Oxygen Demand (BOD)	1/quarter	1/mo	1/wk
Total Suspended Solids (TSS)	1/quarter	1/mo	1/wk
Total Nitrogen (N)	1/quarter	1/mo	1/wk
Fecal Coliform (only Class I soils)	1/quarter	1/mo	1/wk

Groundwater Sampling

	Capacity (gpd)		
	<10,000	10,000 – 40,000	>40,000
Total Nitrogen (N)	1/yr	2/yr	1/quarter

Notes:

a. All samples for BOD, TSS and total nitrogen shall be 4 hour composite samples.

b. Based on the complexity of the facility and its potential impact on the environment, the County may elect to require additional sampling parameters and more frequent sampling.

5. Reporting

Facility owner/operator is responsible to provide the County with all operating reports as specified in the Special Use Permit for the facility in addition to those that may be required by other state agencies.