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COUNTY DEPARTMENT AGENDA REQUEST

Department/Division: Fayette County Water System

Department Head: Tony Parrott

Presenter, if needed: Tony Parrott

Preferred Meeting Date: Thursday, February 14, 2008

Wording for the Agenda:

Consideration of Water Committee's recommendation to amend the County Code of Ordinances to enable the Water System to take over individual community septic and drip irrigation systems within a subdivision.

Background/History/Details:

The Board of Commissioners approved the Water Committee recommendation to own and operate community septic systems and community drip irrigation systems in Fayette County on February 7, 2007. The County Code of Ordinances needs to be updated to include the proposed changes and enable the Water System to take over individual community septic and drip irrigation systems as they are built to County specifications.

This item was also discussed at the December 5, 2007 meeting.

What action are you seeking from the Board of Commissioners?

Approval of the changes to the code. See Summary of Procedure for Fayette County Water System Community Septic and Drip Irrigation Systems that is attached.

If this item requires funding, please describe:

Funding will be according to rates charged. Residential rates will be $4.38 per 1,000 gallons of metered water used each month, with a minimum bill of $20.00. The rates for Industrial, Commercial and Multi Family are $4.85 per 1,000 gallons of metered water with a minimum of $20.00 per month.

Has this issue come before the Commissioners in the past? Yes

If so, when? 2-7-07 and 1-2-08

Do you need audio-visual for the presentation? No

Back-up Material Submitted? Yes

STAFF USE ONLY

- (●) Finance Review Complete
- (●) Purchasing Review Complete
- ( ) Legal Review Complete
- (●) Administrative Staff Review Complete

Administrator's Approval Yes

Confirmed Meeting Date Thursday, February 14, 2008

- ( ) Recognition/ Presentation
- ( ) Public Hearing
- (●) Old Business
- ( ) New Business
- ( ) Consent
- ( ) Report
- ( ) Other

Fayette County GEORGIA

Where Quality Is A Lifestyle

SUMMARY OF PROCEDURES FOR COMMUNITY SEPTIC AND DRIP IRRIGATION

The Fayette County Board of Commissioners by ordinance adopted _____, established rules and procedures for the acceptance of community septic and drip irrigation sewer systems for operation by the Water System.

1. The Sanitary Sewer System Specifications will be those that are the currently approved collection system specifications. (Appendix A)

2. The engineering submittal will include the EPD Large Community Subsurface System Engineering Submittal Form (Appendix B) and the EPD Sanitary Sewer Extension Submittal form (Appendix C). The developer will provide the Water System with this information and the submittals will be reviewed by Water System staff and the Consulting Engineer. After the submittals are approved by Water System staff and the Consulting Engineer, the appropriate forms will be submitted to EPD.

3. Each lot will have a septic tank. The tank will be pumped every 5 years by the homeowner. The sizing and installation of the septic tank will be according to the rules adopted by the Department of Human Resources. Each tank will be required to have a filter.

4. Every lot in the subdivision will be connected to the Fayette County Water System and the community septic and drip irrigation sewer system.

5. 100% replacement area will be required for community septic systems.

6. 100% replacement area will be required for drip irrigation systems.

7. After the installation, inspection, and testing of the community septic or drip irrigation sewer system, the developer will provide a deed to Fayette County for the system, including any easements, two copies of the as-builts of the collection system and septic or drip field, and Operations and Maintenance Manuals for the system.

8. Residential rates: $4.38 per 1000 gallons of metered water used each month, with a minimum bill of $20.00. The rates for Industrial, Commercial and Multi Family are $4.85 per 1000 gallons of metered water with a minimum of $20.00 per month.

FAYETTE COUNTY CODE
Chapter 19
UTILITIES

Sec. 19-19 Community septic and drip irrigation sewer systems

(a) *Scope.* The provisions of this section will be administrated by the Fayette County Water System and shall apply to the installation of all community septic and drip irrigation sewer systems to protect the health, safety, and welfare of the citizens of Fayette County.

(b) *Definition.* A community septic or drip irrigation sewer system is a decentralized sewage treatment system where sanitary sewage is collected from a small area such as a single development and transported through a pipe network to a common collection point for land treatment and disposal.

(c) *Submittal.* Construction plans for the community septic or drip irrigation sewer system must be submitted to the Fayette County Water System for review and approval. The construction plans must comply with the construction plan check list maintained by the Fayette County Water System. All systems must comply with the Sanitary Sewer System Specifications (approved on 8/10/95) on file at the Fayette Water System. The submittal will include a completed Georgia Environmental Protection Division (EPD) Large Community Subsurface System Engineering Submittal Form and a completed EPD Sanitary Sewer Extension Submittal Form. These forms are available from EPD. Upon approval of the construction plans, these forms will be submitted to the EPD by the Fayette County Water System.

(d) *Minimum standards for community septic and drip irrigation sewer systems:*

(1) Each lot must have a septic tank and the tank is required to have a filter. Only filters listed on the Sewage Effluent Filter Approvals list, as compiled by the Georgia Department of Human Resources, can be used. The sizing of the tank and installation will be according to Georgia Department of Human Resources standards. The tank must be pumped by the lot owner every five years and a copy of the receipt for pumping must be submitted to the Fayette County Water System at that time.

(2) Each lot within the development must be connected to the public water system and the community septic or drip irrigation sewer system.

(3) A 100 percent land treatment/disposal replacement area is required to be maintained on-site for the community septic or drip irrigation sewer system. This area must be depicted in the construction plans as well as any applicable preliminary plat, final plat, or site plan.

(e) *Transfer of ownership of the community septic or drip irrigation sewerage system to Fayette County.* After the installation, inspection, and testing of the community septic or drip irrigation sewer system is approved by the Fayette County Water System, the ownership of the system, associated property, and any easements will be transferred to Fayette County by deed. Two copies of the as-built drawings of the community septic or drip irrigation sewer system and Operations and Maintenance Manuals must also be submitted to the Fayette County Water System as part of the transfer of ownership to Fayette County.

(f) *Rate schedule.* Rates shall be as adopted by the Fayette County Board of Commissioners periodically.

Fayette County Water System

Sanitary Sewer
System Specifications

Printed July 2006

SANITARY SEWER SYSTEM SPECIFICATIONS

SECTION 1.00 - MATERIALS

1.01 PIPE MATERIALS

A. Polyvinyl Chloride (PVC) Pipe:

1. PVC sewer pipe and fittings shall be plastic gravity sewer pipe with integral wall bell and spigot joints for the conveyance of domestic sewage. Pipe and fittings shall meet extra strength minimum of SDR-35 of the requirements of ASTM D 3034, latest revision, for 4" through 15" and ASTM F 679 for 18" through 27". Minimum wall thickness shall be as follows:

4"	-	0.120 inches
6"	-	0.180 inches
8"	-	0.240 inches
10"	-	0.300 inches
12"	-	0.360 inches
15"	-	0.437 inches
18"	-	0.536 inches
21"	-	0.632 inches
24"	-	0.711 inches
27"	-	0.801 inches

2. Each length of pipe shall be marked with the manufacturer's name, trade name, nominal size, class, hydrostatic test pressure, manufacturer's standard symbol to signify it was tested, and date of manufacture. Each rubber ring shall be marked with the manufacturer's identification, the size, the year of manufacture and the classes of pipe with which it can be used.

3. Under no circumstances shall PVC pipe ever be installed above ground.

B. Ductile Iron Pipe (DIP):

1. Ductile iron pipe and fittings shall conform to the requirements of ANSI: A21.51 (centrifugally cast in metal or sand lined molds). Pipe shall be thickness Class 50 for 8" diameter pipes and smaller, and Class 51 for 10" diameter pipes and larger. The pipe shall be lined with Polybond or Polyline, or approved equal. The lining shall have a minimum thickness of 40 mils.

2. The exterior of the pipe shall be seal coated with an approved bituminous seal coat in accordance with ANSI:A21.4.

C. High Density Polyethylene (HDPE) Pipe:

1. High density polyethylene pipe and fittings shall be made of high density, high molecular weight polyethylene pipe material meeting the requirements of Type III, Class C, Category 5, Grade P34, as defined as ASTM D 1248 Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.

1.02 **JOINT MATERIALS**

A. Joints Between DIP:

1. Ductile iron pipe shall be of the bell and spigot type with push-on joints, conforming to ANSI Specification A21.11 or mechanical joints.

B. Joints Between PVC:

1. PVC pipe shall be jointed with a rubber or PVC ring or gasket designed to prevent inflow or exflow. Mechanical Compression Joint or molded plastic or similar material (with or without the use of rubber or elastic plastic compression rings) as described in ASTM Specifications C-425 for Polyvinyl Chloride (Slip Joint). Precast Joints or Rubber Pushtype Gaskets for compression joint sealing (ASTM D 3312 or F 477) are all acceptable. (PVC pipe shall not be joined by a solvent cement joint in which the pipe spigot wedges into the tapered socket and the surfaces fuse together.)

C. Joints Between HDPE:

1. HDPE pipe shall be joined by bell and spigot gasket style or thermal weld type connections in accordance with manufacturer's recommendations and shall show no sign of leakage. In the case of gasket type, all surfaces of the joint upon which the gasket may bear shall be smooth and free of such imperfections, ridges, fractures or cracks that could adversely affect sealability.

D. Joints Between Sewer Pipes of Different Materials:

1. Transition joints between sewer pipes of different materials shall be accomplished by the use of adapters made especially for that purpose.

1.03 PRECAST CONCRETE MANHOLES

A. Precast concrete manholes shall consist of precast reinforced concrete sections with eccentric, (or flat slab for shallow manholes) top section and a base section conforming with the typical manhole details as shown on the Standard Detail Drawings.

B. Precast manhole sections shall be manufactured, tested, and marked in accordance with the latest provisions of ASTM Standard Specifications, Serial Designation C 478.

C. Joints of the manhole sections shall be of the tongue-and-groove type, Sections shall be joined using O-ring rubber gaskets, flexible plastic gaskets conforming to the applicable provisions of ASTM Standard Specification, Serial Designation C 443, latest revision, or an approved bituminous mastic joint material.

D. Each section of the precast manhole shall have not more than two holes for the purpose of handling and laying. These holes shall be sealed with cement mortar using one part Portland cement to two parts clean sand, meeting ASTM Standard Specifications, Serial Designation C 144, latest revision.

E. Manhole steps conforming to the applicable provisions of ASTM Specification C 478, latest edition, such as aluminum 14967 as manufactured by Alcoa Inc., or equal, shall be factory built into the precast sections.

F. Holes in precast bases to receive sewer pipe shall be precast at the factory at the required locations and heights. Knocking our of holes in the field will not be permitted. All manholes shall have Kor-N-Seal (or equal) rubber boots for all pipe entries/exits.

G. Manhole bases and inverts shall be constructed of 2500 psi concrete in accordance with details on Standard Detail Drawings and inverts shall have the same cross-section as the invert of the sewers which they connect. The manhole base and invert shall be carefully formed to the required size and grade by gradual and even changes in sections. Changes in direction of flow through the sewer shall be made to a true curve with as large a radius as the size of the manhole will permit.

H. The manhole base shall be set upon a 6 inch (minimum thickness) mat of #57 crushed stone.

I. Brickwork required to complete the precast concrete manhole shall be constructed using one part portland cement to two parts clean sand, meeting ASTM Specifications, Serial Designation C 144, thoroughly mixed to a workable plastic mixture. Brickwork shall be constructed in a neat and workmanlike manner. Cement mortar shall be used to grout interior exposed brick joints and faces.

J. The cast iron frame for the manhole cover shall be set at the required elevation and properly anchored to the masonry. Frames and covers shall be Vulcan VM-3MOD or equal. Where manholes are constructed in paved areas, the top surface of the frame and cover shall be tilted to conform to the exact slope, crown and grade of the existing adjacent pavement. Manholes on all outfall sewers shall have bolt-down, water-tight lids and shall be 18 inches above grade.

K. Masonry work shall be allowed to set for a period of not less than 24 hours. All loose or waste material shall be removed from the interior of the manhole. The manhole cover then shall be placed and the surface in the vicinity of the work cleaned off and left in a neat and orderly condition.

1.04 CASINGS

A. Steel casing pipe shall be used for all cased piping.

B. Steel casing pipe shall have a minimum yield strength of 35,000 psi and shall conform to the requirements of ASTM A139. It shall be fully coated on the exterior and interior with a coal tar coating. The casing pipe diameter shall be six to eight inches greater than the "bell" diameter of the carrier pipe. Minimum wall thickness shall be as follows:

Nominal Diameter (inches)	Nominal Thickness (inches)
Under 14	0.188
14	0.219
16	0.219
18	0.250
20	0.281
22	0.312
24	0.344
26	0.375
28	0.406
30	0.406
32	0.438
34	0.469
36	0.469
42	0.500
48	0.625
54	0.750

SECTION 2.00 - SEWER SYSTEM EXCAVATION AND CONSTRUCTION

2.01 TRENCH EXCAVATION

A. Trench excavation shall conform to OSHA regulations, 29 CFR Part 1926, Subpart P, Paragraph 1926.650 through 1926.653.

B. Trenches shall be cut true to the lines and grades shown on the plans. The bottom of the trench shall be cut carefully to the required grade of the pipe except where bedding materials or cradles are shown in which case the excavation shall extend to the bottom of the bedding or cradles as shown on the plans. Minimum pipe cover shall be as shown on the approved plans.

C. Bell holes shall be excavated at proper intervals so the barrel of the pipe will rest for its entire length upon the bottom of the trench. Bell holes shall be large enough to permit proper installation of all joints in the pipe.

D. Pipe trenches shall not be excavated more than 100 feet in advance of pipe laying, and all work shall be performed to cause the least possible inconvenience to the public. Adequate temporary bridges or crossings shall be constructed and maintained where required to permit uninterrupted vehicular and pedestrian traffic.

E. All excavations shall be adequately guarded with barricades and lights in compliance with all OSHA and Georgia Department of Transportation requirements so as to protect the public from hazard.

F. Excavations adjacent to existing or proposed buildings and structures, or in paved streets or alleys shall be sheeted, shored and braced adequately to prevent undermining or subsequent settlement of such structures or pavements. Underpinning of adjacent structures shall be done when necessary to maintain structures in safe condition.

G. Streets, sidewalks, parkways, and other public property disturbed in the course of the work shall be restored to as near as original condition as possible in a manner satisfactory to the County.

H. Whenever water is present in the trench, it shall be removed in a manner satisfactory to the County and enough backfill shall be placed on the pipe to prevent floating. Any pipe that has floated shall be removed from the

trench and relaid later during dry conditions. No pipe shall be laid in wet trench conditions that preclude proper bedding, or on frozen trench bottom, or when, in the opinion of the County, the trench conditions or the weather are unsuitable for proper installation.

2.02 ROCK EXCAVATION

A. Drilling and blasting operations shall be conducted with due regard for the safety of persons and property in the vicinity and in strict conformity with requirements of all ordinances, laws and regulation governing blasting and the use of explosives. Rock excavation near existing pipelines or other structures shall be conducted with the utmost care to avoid damage. Injury or damage to other structures and properties shall be promptly repaired to the satisfaction of the County and property owner.

B. Rock in trenches shall be excavated over the horizontal limits of excavation and to depths as follows:

Size of Pipeline Inches	Depth of Excavation Below Bottom of Sewer Pipe, Inches
4 and Less	4
4 to 6	6
8 to 18	8
18 to 30	10
Over 30	12

The space below grade for pipe lines shall then be backfilled with #57 and smaller crushed rock, gravel, or other approved bedding material.

2.03 BACKFILLING TRENCHES

A. General:

1. Backfill material shall consist of fine, loose earth containing sufficient but not excessive moisture content for thorough compaction. Material that is too dry for adequate compaction shall receive a prior admix of sufficient water to secure adequate moisture content. Material having excessive water content shall not be placed at any time. Backfill material shall be free of large clods, stones, vegetable matter, debris, and other objectionable material.

B. Backfilling Beneath Roads, Sidewalks or Other Critical Areas:

1. All backfill beneath roads, sidewalks or other critical areas shall be compacted to ninety-five percent (95%) Standard Proctor or as otherwise required by the Georgia Department of Transportation (D.O.T.) or other such agency having jurisdiction using mechanical tamping equipment in six (6) inch lifts. It shall be the responsibility of the contractor to demonstrate to the County that 95% compaction has been obtained.

2.04 INSTALLATION OF SEWER PIPE

A. Pipe and accessories shall at all times be handled with care to avoid damage. Whether moved by hand, skidways or hoists, material shall not be dropped or bumped. The interior of all pipe shall be kept free from dirt and foreign matter at all times. Each joint of pipe shall be unloaded opposite or near the place where it is to be laid in the trench.

B. All such material that is defective in manufacturer or has been damaged in transit or after delivery shall be removed from the job site.

C. Sewer pipes shall be joined by "push-on" joints using elastomeric gaskets to affect the pressure seal. The ends of pipe to be jointed and the gaskets shall be cleaned immediately before assembly, and the assembly shall be made as recommended by the pipe manufacturer. Lubricant used must be non-toxic and supplied or approved for use by the pipe manufacturer. Sewer pipes shall be laid in the uphill direction with the bells pointing upgrade. Any variation from this procedure shall require approval from the County.

D. When pipe laying is not in progress, the open ends of installed pipe shall be plugged by approved means to prevent entrance of trench water into the line.

E. No special laying conditions are required for ductile iron pipe (DIP) other than haunching and soil compaction to twelve (12) inches above the spring line and any other conditions which are stipulated elsewhere in these specifications.

F. The following laying conditions shall be followed with PVC pipe:

1. By embedding PVC pipe in sand or graded gravel, no special compaction requirements will be necessary. However, the sand or gravel must extend from six inches below the pipe to twelve inches above the pipe and the material must be firmly placed under the pipe haunches. See standard detail drawing.

2. When embedding PVC pipe in friable, compressible soils (eg. silt, clay, sandy clay, silty clays, etc.), special care must be exercised to provide a uniform (undisturbed or fully compacted) trench bottom. Additionally, the backfill must be compacted to 95% standard proctor in 6"-8" lifts to twelve inches above the top of the pipe.

3. All PVC pipe must pass a 7.5% deflection test as follows: Not before 30 days after pipe is laid and backfill placed, the Contractor shall, in the presence of the Fayette County Water System Representative, test the pipe for deflection. A mandrel, sized to permit up to 7.5% deflection, shall be used. The sequence for testing is as follows:
   a. Completely flush the line making sure the pipe is clean of any mud or debris that would hinder the passage of the mandrel.
   b. During the final flushing of the line, attach a floating block or ball to the end of the mandrel pull rope and float the rope through the line.
   c. After the rope is threaded through the line, connect the pull rope to the mandrel and place the mandrel in the entrance of the pipe.
   d. Connect a retrieval rope to the back of the mandrel to pull it back if necessary.
   e. Remove all the slack in the pull rope and place a tape marker on the rope at the ends of the pipe where the mandrel will exit, determining the location of the mandrel in the line.
   f. Draw mandrel through the sewer line.
   g. If a section with excessive deflection is found, locate it; dig down and uncover the pipe; inspect the pipe, if any damaged pipe is found, replace it; if pipe is not damaged, replace and thoroughly tamp the haunching and initial backfill; replace remainder of backfill.

G. Bell holes shall be provided of sufficient size to allow ample room for making the pipe joints properly. The bottom of the trench between bell holes shall be carefully graded so that the pipe barrel will rest on a solid foundation for its entire length as shown on the plans. Each joint shall be laid so that it will form a close concentric joint with adjoining pipe and in order to avoid sudden offsets or inequalities in the flow line.

H. Water shall not be allowed to run or stand in the trench before the trench has been backfilled. The Contractor at no time shall open up more trench than his available pumping facilities are able to dewater.

2.05 CONNECTIONS

A. Service Connections, Generally:

1. A sewer service stubout with plugged stub shall be provided for every existing or proposed lot or building. See Standard Detail Drawings. All services shall be shown on the construction drawings. Wye branches of the same material as the collector sewer shall be installed on the collector sewer lines at the locations shown on the construction drawings for each service connection. A single service stub shall be provided for each residence being served. The service stub shall extend from the wye to the property line of the lot being served.

2. The developer shall be responsible for serving all lots developed. On any lot where the service stub cannot be found, the developer shall install or be responsible for payment of the cost of installation of the service stub. Also, unless otherwise noted on the final plat, the service stub shall be low enough to serve the first ground level floor elevation, and where grades permit it shall be low enough to serve the basement.

3. For new construction, the builder shall be responsible for the location of the service line and checking its elevation prior to the pouring of the foundation, driveway or other appurtenance. The County will not be responsible for any house built too low to be served nor for any service covered by construction.

4. Riser connections shall be installed on service lines which are greater than nine feet deep.

5. Service stubs shall be laid in compacted or undisturbed soil from the main sewer to the property line. The slope shall be 2.0% or greater.

6. No plumber or contractor will be allowed to make a tap onto the County sewerage system without prior approval and without the tap being made in the presence of a Fayette County Water System Representative.

B. Plugged Stubs:

1. All service lines extending from collector sewers must utilize a plugged stub at the termination point. (See Standard Detail Drawings.)

2. Service lines shall be plugged with an air-tight, removable plastic plug.

3. The precise location of each plugged stub shall be indicated on the as-built plans to the nearest foot.

C. Service Connections Where Plugged Stub Not Provided:

1. Connections to existing sewer lines where no plugged stub exists shall be made by removing a section of the sewer from the existing line and inserting, in the space, a wye branch of proper size, or by the construction of a manhole or other such method as approved by Fayette County.

2. Connections to existing manholes where no plugged stubs exist shall be made by neatly cutting a hole in the wall of the existing structure with a coring machine at or near its invert, inserting a length of sewer pipe into the hole, filling around the pipe with concrete or mortar and trowelling the inside and outside surfaces of the joint to a neat finish.

3. All sewer connections for multiple or non-residential structures shall be made by the owner (applicant) at his expense.

2.06 RAILROAD CROSSINGS

A. All railroad crossings shall conform to the requirements of the American Railway Engineering Association Manual for Railway Engineering, Part 5. The Contractor shall secure permission from the railroads to schedule the work so as not to interfere with the operation of the railroads. The Contractor shall be held responsible for any delays or damages occurring to the railroads. The Contractor will furnish the railroad with such additional insurance as may be required, cost of same to be borne by the Contractor, together with the costs for flagmen, watchmen, temporary work of any nature, safety devices and any other items that may be imposed by the railroad.

2.07 HIGHWAY CROSSINGS

A. The Contractor shall be responsible for the coordinating and scheduling of all construction work in the State Highway right-of-way with the Fayette County and/or Georgia Department of Transportation, as appropriate.

B. Work along and across Georgia State Highway right-of-way shall conform to Georgia D.O.T. Standard Specifications for Construction of Roads and Bridges.

2.08 JACK AND BORE

A. Jacks for forcing the casing pipe through the roadbed shall have a jacking head constructed in such a manner as to apply uniform pressure around the ring of the pipe. The pipe to be jacked shall be set on guides, braced together, to properly support the section of the pipe and direct it to the proper line and grade. In general, roadbed material shall be excavated just ahead of the pipe, the excavated material removed through the pipe, and the pipe then forced through the roadbed into the excavated space.

B. Where pipe is required to be installed under railroads, highways, streets or other facilities by jacking or boring methods, construction shall be done in a manner that will not interfere with the operation of the facility, and shall not weaken the roadbed or structure.

C. Excavated material will be placed near the top of the working pit and disposed of as required. The use of water or other fluids in connection with the boring operation will be permitted only to the extent necessary to lubricate cuttings. Jetting will not be permitted.

D. The diameter of the excavation shall conform to the outside diameter and circumference of the casing pipe as closely as practicable. Any voids which develop during the installation operation shall be pressure grouted.

E. The pipe shall be jacked from the low or downstream end. At each end of the casing pipe the void between the carrier pipe and casing shall be sealed with brick and mortar. Any pipe damaged in jacking operations shall be removed, and replaced by the Contractor at his expense.

F. After the steel casing pipe has been installed, the DIP carrier pipe shall be installed in the casing pipe. Care shall be exercised at all times to protect the coating and lining of this pipe and to maintain tight, full-seated joints in the carrier pipe. See Standard Detail Drawing.

2.09 RELATIONSHIP TO WATER LINES

A. The following clearances from water pipes shall be maintained:

1. Ten feet horizontal distance between sewer and water main for parallel installation.
2. Eighteen inches vertical distance for water main and sewer crossings.

B. The County may allow parallel installation of water line closer than ten feet to a sewer, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer.

C. For sewer and water main crossings the crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer.

2.10 REPLACEMENT OF PAVEMENT

A. General:

1. Contractor shall fully restore and replace all pavement, curbs, gutters, sidewalks and other surface structures removed or disturbed, to a condition that is as near original condition as possible.

B. Pavement Cuts:

1. All pavements cuts shall be made by sawing prior to excavation to eliminate uneven and ragged edges.

2. All road cuts shall have an eight (8) inch thick concrete cap (3000 psi in 28 days) which shall extend not less than twelve (12) inches beyond the edges of the backfilled ditch. (See Standard Detail Drawing.)

3. Final asphalt patches shall match the existing pavement type, quality and thickness as closely as possible. Special care shall be exercised to match existing slopes and grades for a smooth transition.

C. Pavement Replacement:

Where sewer lines are installed in existing paved streets, the streets in which the sewer lines are installed shall receive a full width asphalt repaving in accordance with Fayette County Standards and Specifications.

2.11 LOCATION AND PROTECTION OF EXISTING UNDERGROUND UTILITIES

A. It is the responsibility of the Contractor to locate all underground utilities and to protect same. Utility lines or services damaged by the Contractor shall be repaired by the Contractor at the Contractor's own expense.

2.12 TESTING

A. Infiltration Testing:

1. Infiltration of groundwater into sewer lines shall not exceed 100 gallons per inch of diameter, per 24 hour day, per mile of sewer.

B. Low Pressure Air Testing:

1. All lines shall be air tested in the following manner after backfilling and tamping has been completed:
   a. Test Preparation:
   All wyes, tees or end-of-side sewer stubs shall be plugged with flexible-joint caps, or acceptable alternate, securely fastened to withstand the internal test pressure. Prior to testing for acceptance, the pipe should be cleaned.

b. Test Procedure:
The sewer segment being tested shall be pressurized to 3.5 psi. A short period of time (2-4 minutes) may be required to allow the pressure to stabilize. The pressure shall not decrease more than 0.5 psi (from 3.5 to 3.0 psi) during the time periods shown below:

Pipe Size (inches)	Time
4	2 minutes, 32 seconds
6	3 minutes, 50 seconds
8	5 minutes, 6 seconds
10	6 minutes, 22 seconds
12	7 minutes, 39 seconds

c. Test Failure:
If the pipe installation fails to meet the infiltration or air test requirements shown above, the Contractor shall determine at his own expense the source or sources of leakage, and he shall repair or replace all defective materials or workmanship. The completed pipe installation shall meet the requirements of these tests and the results of the air test shall be neatly tabulated by the Contractor and submitted to Fayette County.

2.13 CLEAN-UP

A. Prior to requesting the "completion of sewer construction" inspection, the Contractor shall remove and dispose in an acceptable manner all shipping timbers, shipping bands, spacers, excess materials, broken material, crates, boxes and any other material brought to the job site.

B. Any work, trees, lawns, shrubs, fences, flower beds, drainage culverts, or other property damaged by the sewer construction shall be repaired or replaced.

C. All shoulders, ditches, culverts, and other areas impacted by the sewer construction shall be at the proper grades and smooth in appearance.

D. All manhole covers shall be brought to grade.

E. A uniform stand of grass is required prior to Fayette County acceptance of the sewer.

SECTION 3.00 - INSPECTION AND ACCEPTANCE

3.01 CONSTRUCTION, INSPECTION, GENERALLY

A. Authorized representatives of Fayette County, the State of Georgia or the United States shall have access to the site for inspection at any time.

B. Fayette County shall be notified when specific inspections are required so that the inspection time can be scheduled.

C. Contractor shall notify the Water System Inspector by 8:30 A.M. of each workday when work is scheduled unless authorized to do otherwise.

D. Upon request, the Contractor shall furnish the inspector with copies of the manufacturer's certification or submittals confirming the materials utilized meet the requirements of these specifications. The inspector may reject any materials not meeting specifications or any faulty or damaged materials. Any materials so rejected must be removed from the project immediately and must be prominently marked so that such rejected material can be spotted on this or any other project.

E. The inspector may at any time direct that he be allowed to see any foundation, bedding, pipe work, manhole or other appurtenances. No connections to manholes, wyes, bends, service laterals, nor service stoppers shall be backfilled without first having the approval of the inspector.

F. The contractor shall complete the project and shall have cleaned up the job site prior to requesting a "completion of sewer construction" inspection. The inspector may terminate the "completion of sewer construction" inspection and direct further work at any time he feel that the project is not substantially complete and ready for the inspection.

3.02 SEQUENCE OF COMPLETION CHECKPOINT CONSTRUCTION INSPECTIONS

A. Conditions for "Completion of Sewer Construction" Inspection

1. The Contractor shall complete the sewer construction and shall have cleaned up the job site prior to requesting a completion of sewer construction inspection.

2. The Contractor shall request a completion of sewer construction inspection and present the following information to the Fayette County Water System:
   a. Length of sewer installed by line size.
   b. Cost of sewer line installed by line size.

3. Infiltration and air testing shall have been accomplished as provided in Section 2.12 and the results presented to the inspector at the inspection.

4. The check sheet issued by Fayette County for corrective work, as needed, shall be presented along with a written response to such letter indicating what work has been done by the Contractor in response to the check sheet items.

5. Presentation of as-built drawings in accordance with Section 3.03.

6. During the completion of sewer construction inspection, the developer will be expected to provide the necessary manpower and tools to open manholes and provide access to any other structures as requested by the County.

B. "Completion of Sewer Construction" Inspection and Letter

1. The Fayette County Water System will issue a letter certifying the completion of the sewer system construction when the contractor has completed the work items shown on the plans in accordance with all the provisions of this chapter as indicated by the Fayette County inspector in his completion of construction inspection report.

2. In no case will the completion letter be considered as final acceptance of the project, nor will the contractor or developer be relieved of responsibility to protect and maintain the system until final acceptance is given.

C. "Completion of Development Inspection" and Letter

1. Upon completion of all work items in a development including water and sewer lines, streets, storm drains and all other utilities, the subdivision inspection team will reinspect all phases of the development. During this inspection, the sewers will be checked for any cut lines, shifted manholes, excessive infiltration, adjustment

of manholes, and any damage by other construction. The cleanouts will be checked and off street sewers will be checked for settling and erosion and for proper landscaping.

2. Upon satisfactory completion of any discrepancies noted during this inspection, the developer will begin the twelve (12) month maintenance period required for all phases of the development.

D. Final Acceptance Inspection and Letter

At the end of twelve (12) months following the "completion of development" inspection, the subdivision will again be inspected. During the final acceptance inspection, the developer will again be expected to provide the necessary manpower and tools to open manholes and provide access to any other structures as requested by the County. When all discrepancies noted during this inspection have been corrected, the Water System will issue an acceptance letter and will begin perpetual maintenance of the sewerage system. The County will not accept the sewer system until the as-built drawings have been provided in accordance with Section 3.03 and submitted to the Fayette County Water System.

3.03 AS-BUILT DRAWINGS

A. The developer or the developer's engineer or contractor is responsible for furnishing to the Fayette County Water System as-built drawings as soon as the sewer work has been completed. It is the engineer's responsibility to insure that the necessary information is received from the contractor to complete the as-built drawings.

B. As-built or record drawings must be furnished to Fayette County prior to approval of the final plat.

C. As-built drawing preparation guidelines are as follows:

1. Sewer as-builts should be on a separate plan sheet from other utilities.

2. The as-builts shall contain the name of the development.

3. The location of all sewer lines, manholes, stream crossings, road crossings, and all other appurtenances should be shown.

4. Land lots and districts shall be shown.

5. All lots are to be numbered.

6. Road names shall be on plans.

7. The term "As-Built" or "Record Drawing" is to be stamped in large clear print on the plans.

8. The "As-Built" drawings are to be submitted on 24"x36" paper.

9. Maximum scale 1" = 20'. Minimum scale 1" = 100'.

10. When a phase of a subdivision is completed, a location sketch of entire subdivision with said phase outlines shall appear on plans.

11. Contour lines are acceptable as long as they are faint and do not interfere with or overpower details on the drawing.

12. Out lots should be so noted.

13. Contractor's name, address and phone number should be on the as-builts.

14. As-built sewer plans shall show by appropriate dimensions the location of all plugged stubs to the nearest feet.

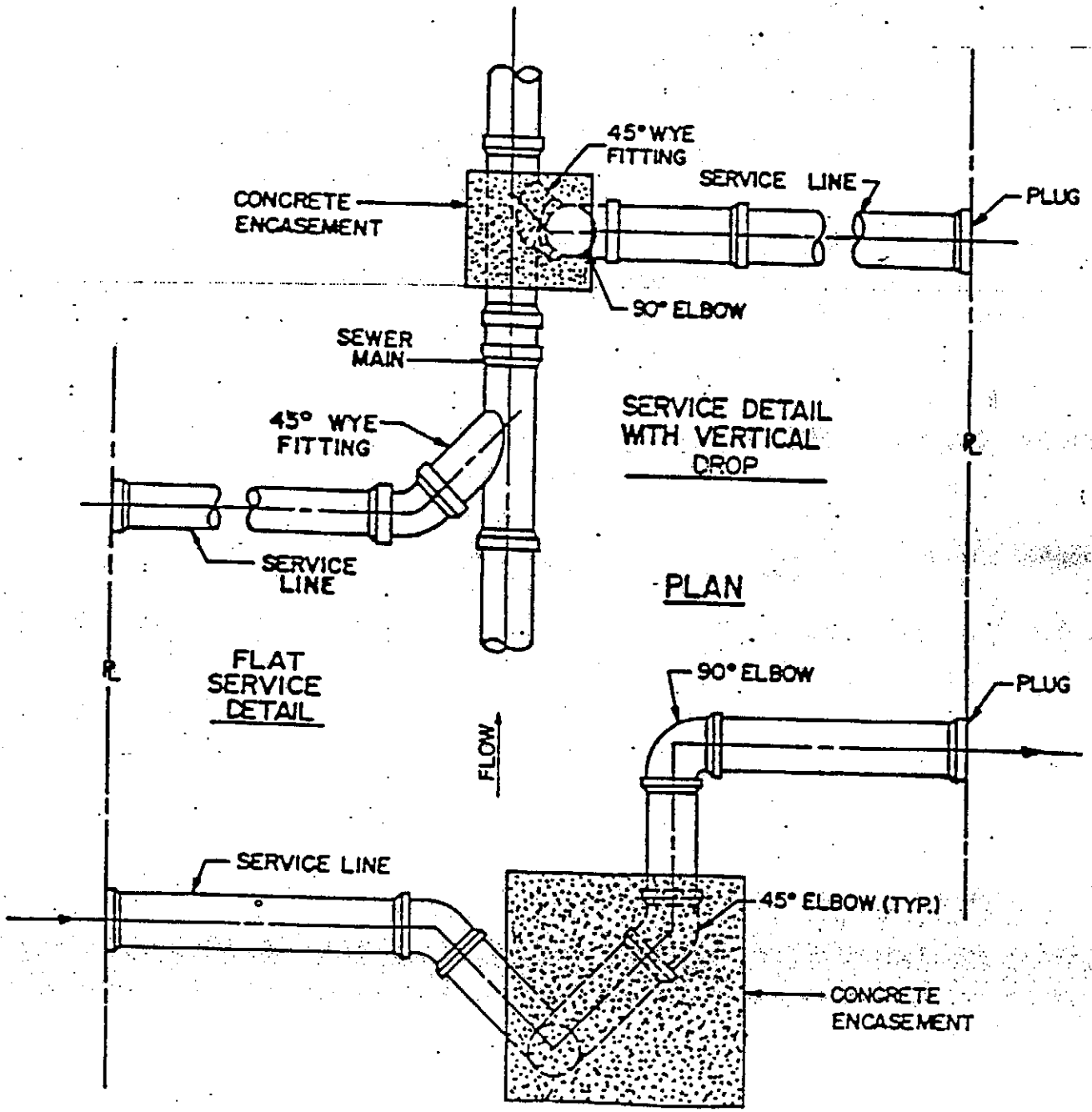
15. The as-built drawings must be run from tracings which have been corrected to show all field changes made to the approved drawings. No hand-drawn or marked up construction plans will be accepted as as-built or record drawings.

16. The as-built drawings shall include at a minimum a site plan and plan and profile sheets.

17. The as-built drawings must be sharp, clear, and clean and legible, and must be suitable for filming as permanent records.

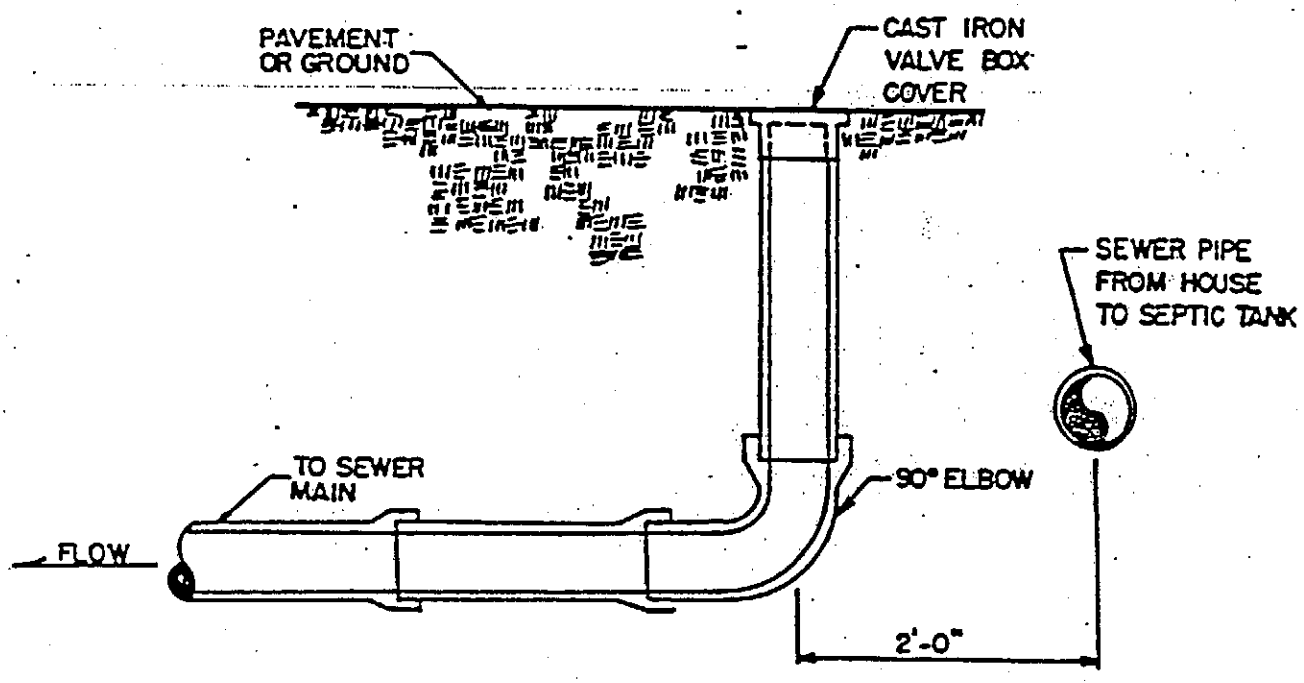
STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

SEWER SERVICE LATERAL
PLAN AND PROFILE VIEW



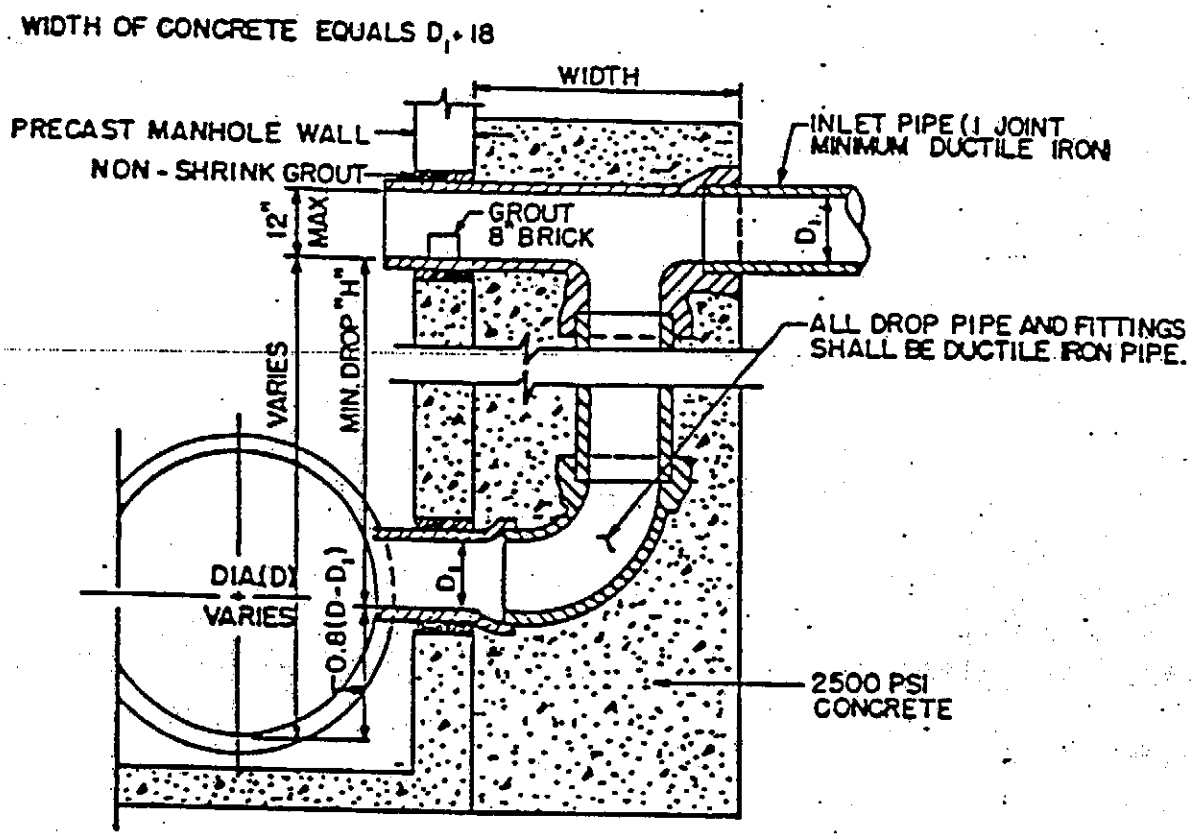
STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

TYPICAL DRY SEWER
SERVICE LINE TERMINATION
TYPICAL SECTION



STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

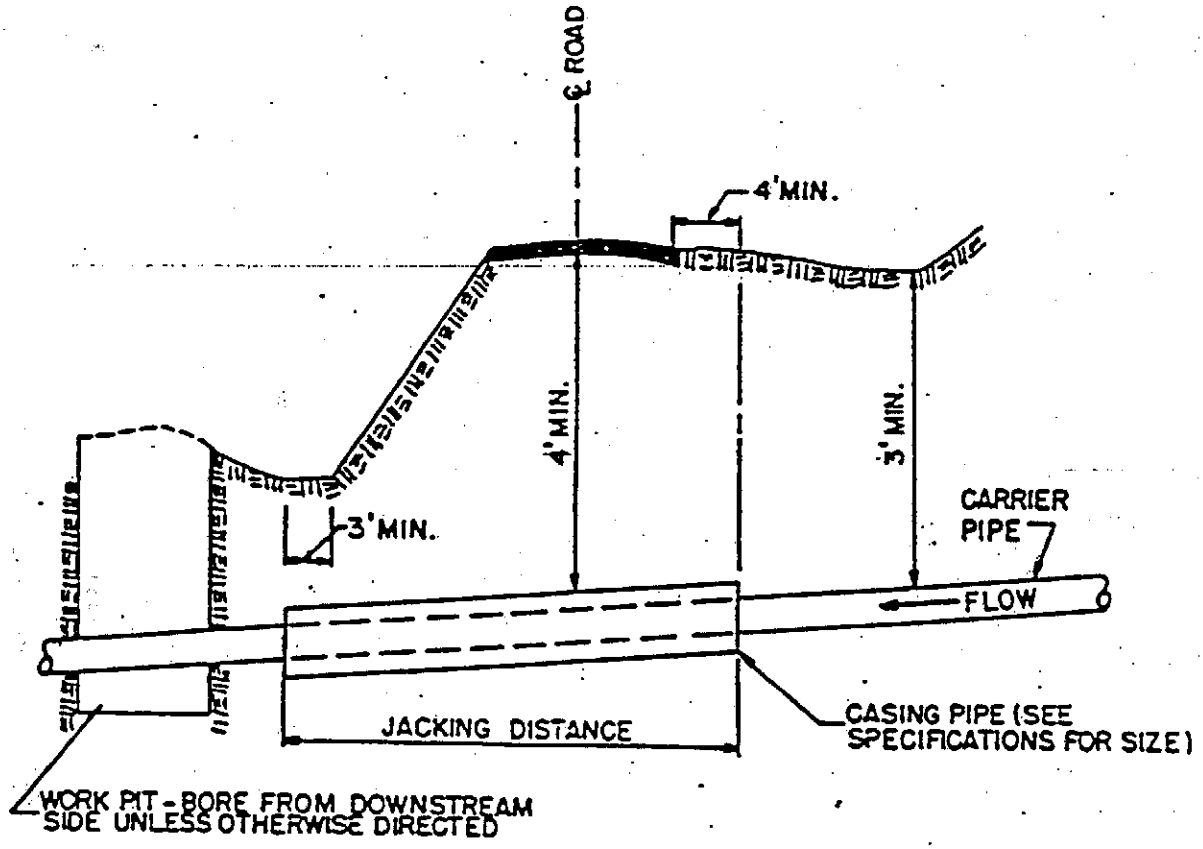
OUTSIDE VERTICAL DROP
TYPICAL SECTION



MIN. DROP "H"			
PIPE DIA.	PIPE MATERIAL		
	HDPE	DIP	PVC
8"	36"	36"	36"
10"	36"	36"	36"
12"	36"	36"	36"

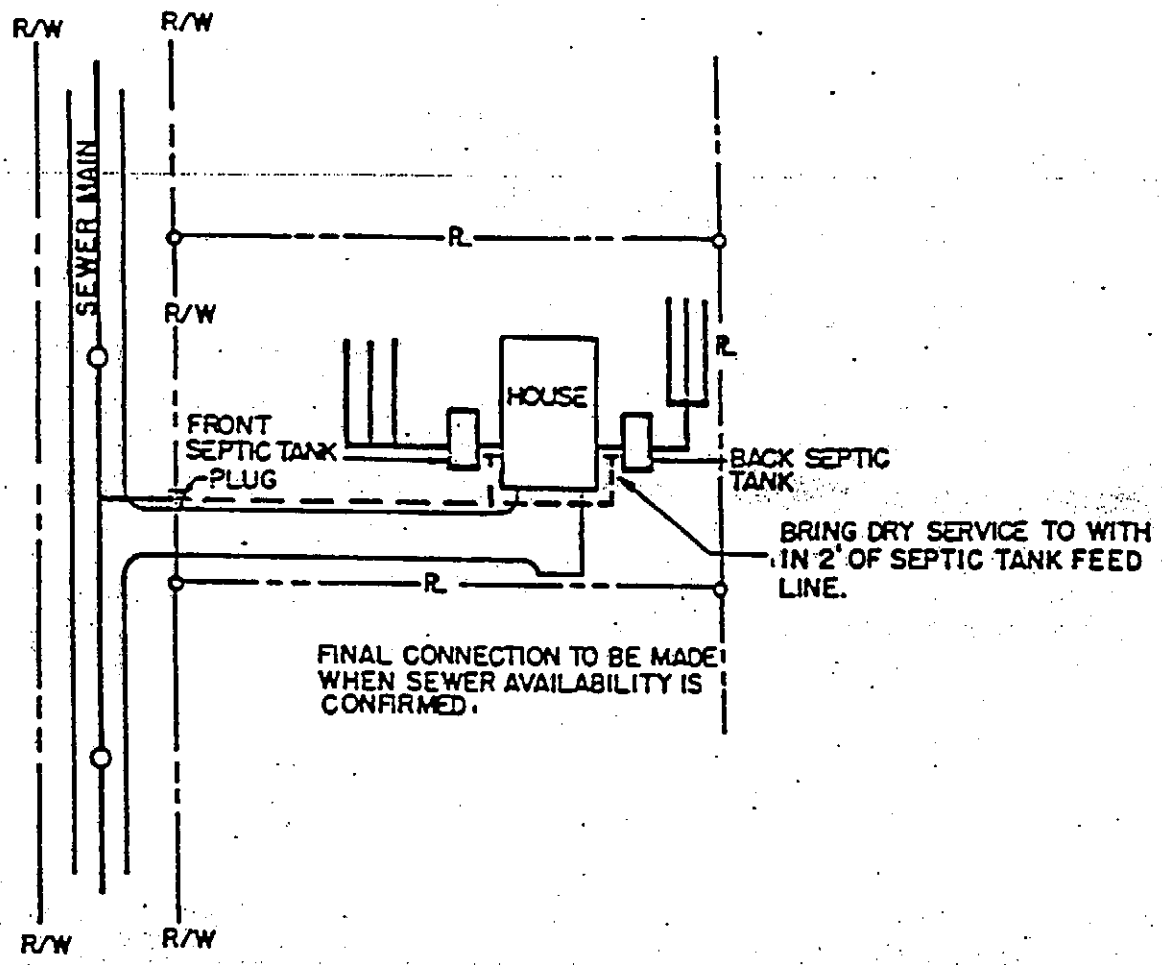
STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

JACK AND BORE ROAD CROSSING
TYPICAL SECTION



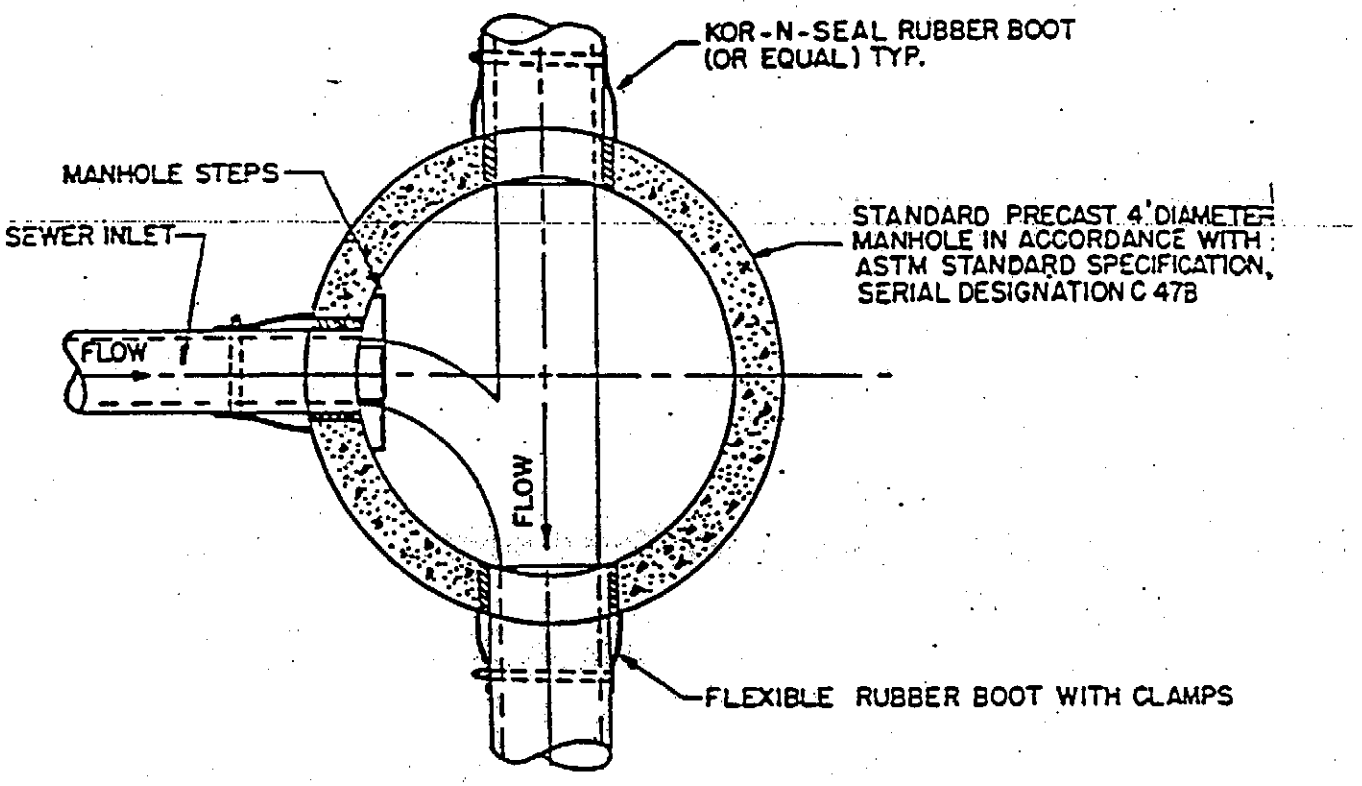
STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

DRY SERVICE LINE INSTALLATION
PLAN VIEW



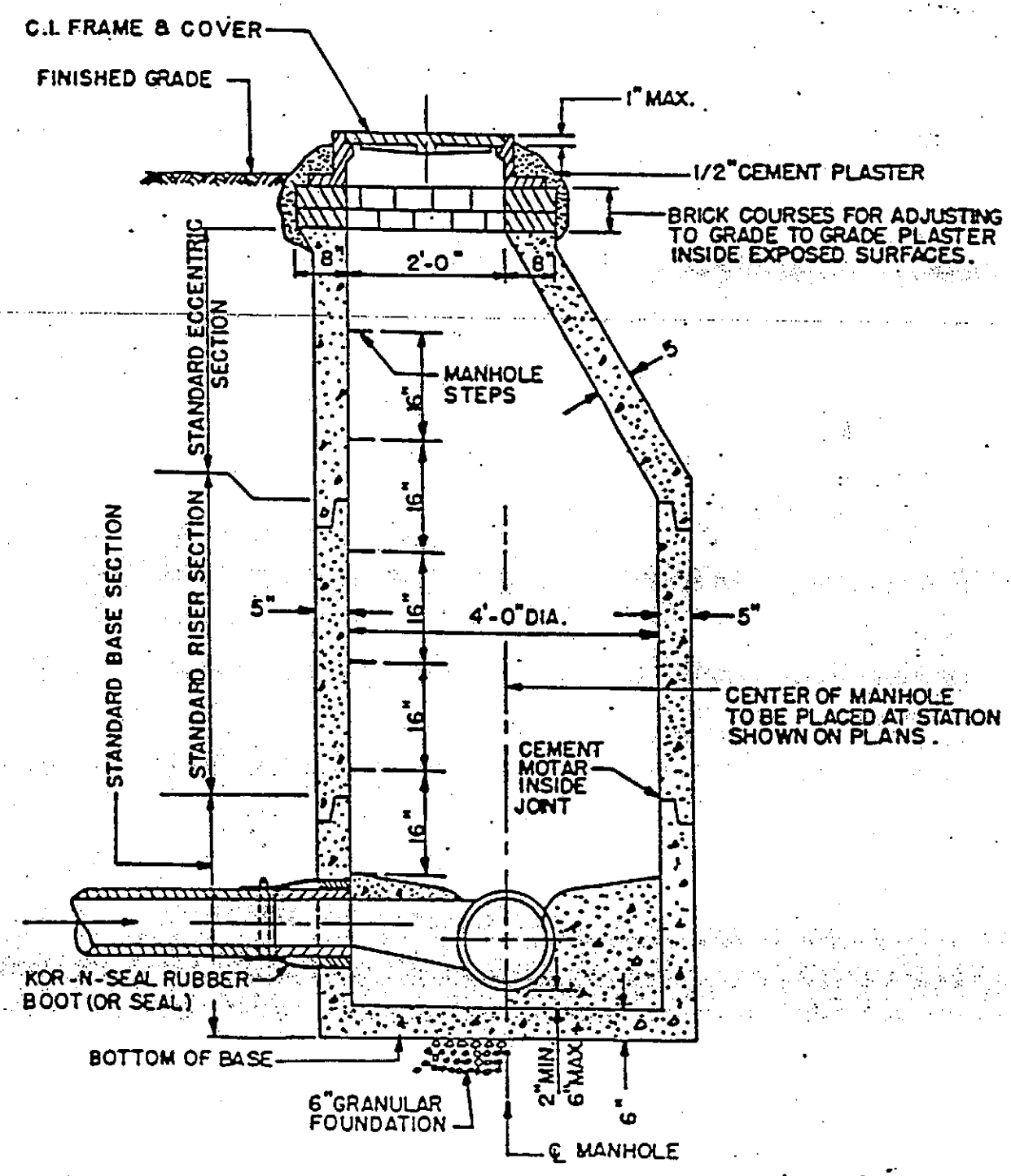
STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

STANDARD MANHOLE
PLAN VIEW



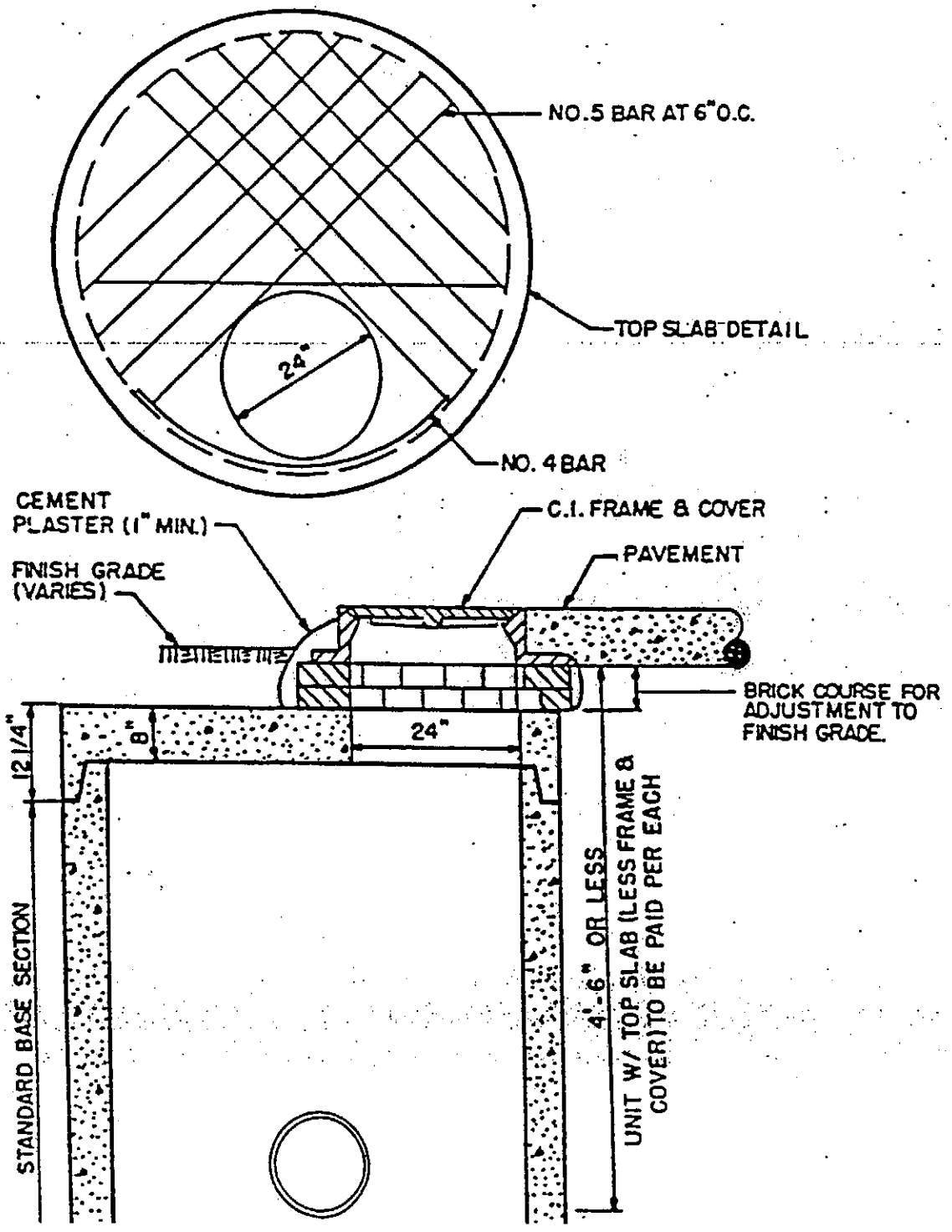
STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

STANDARD MANHOLE
TYPICAL SECTION



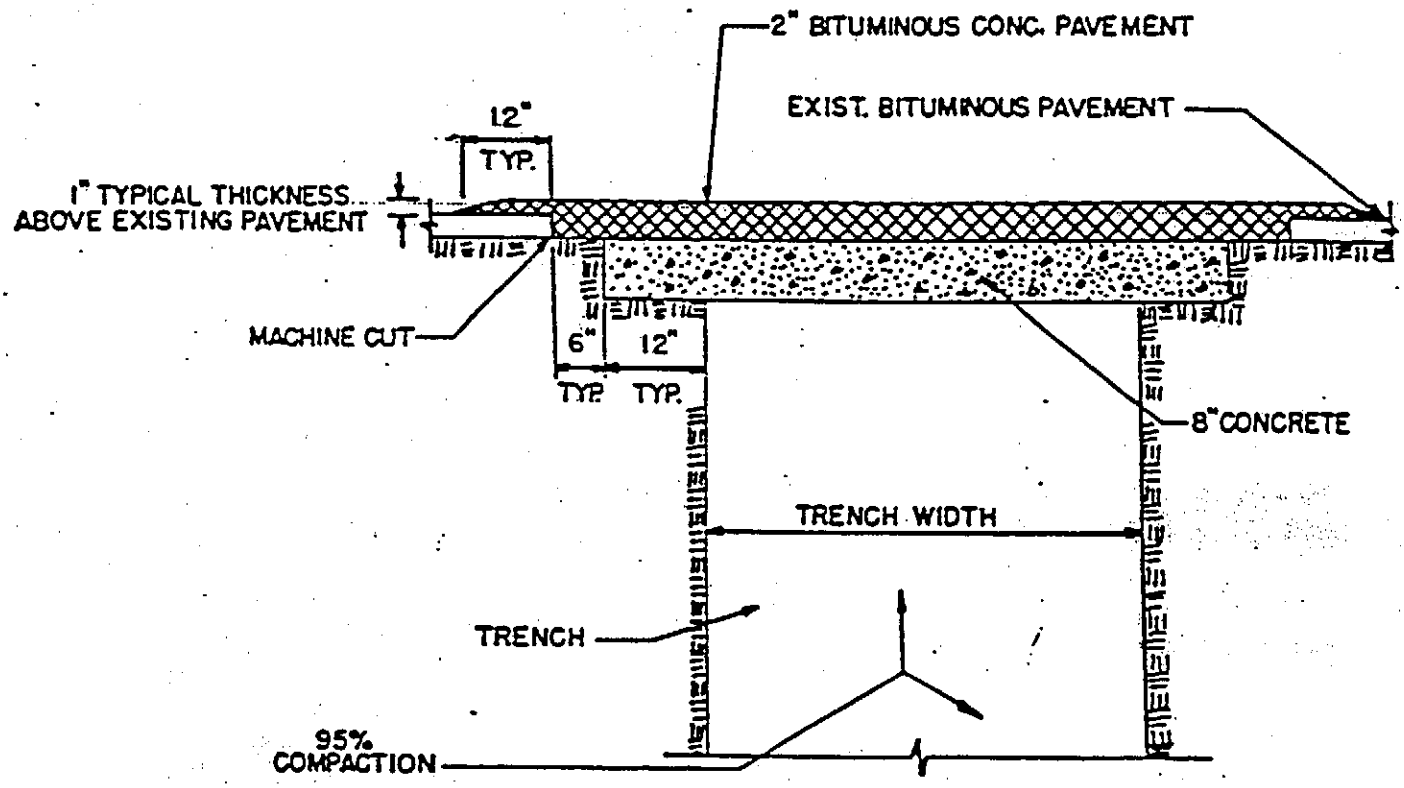
STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

STANDARD SHALLOW MANHOLE
TYPICAL SECTION



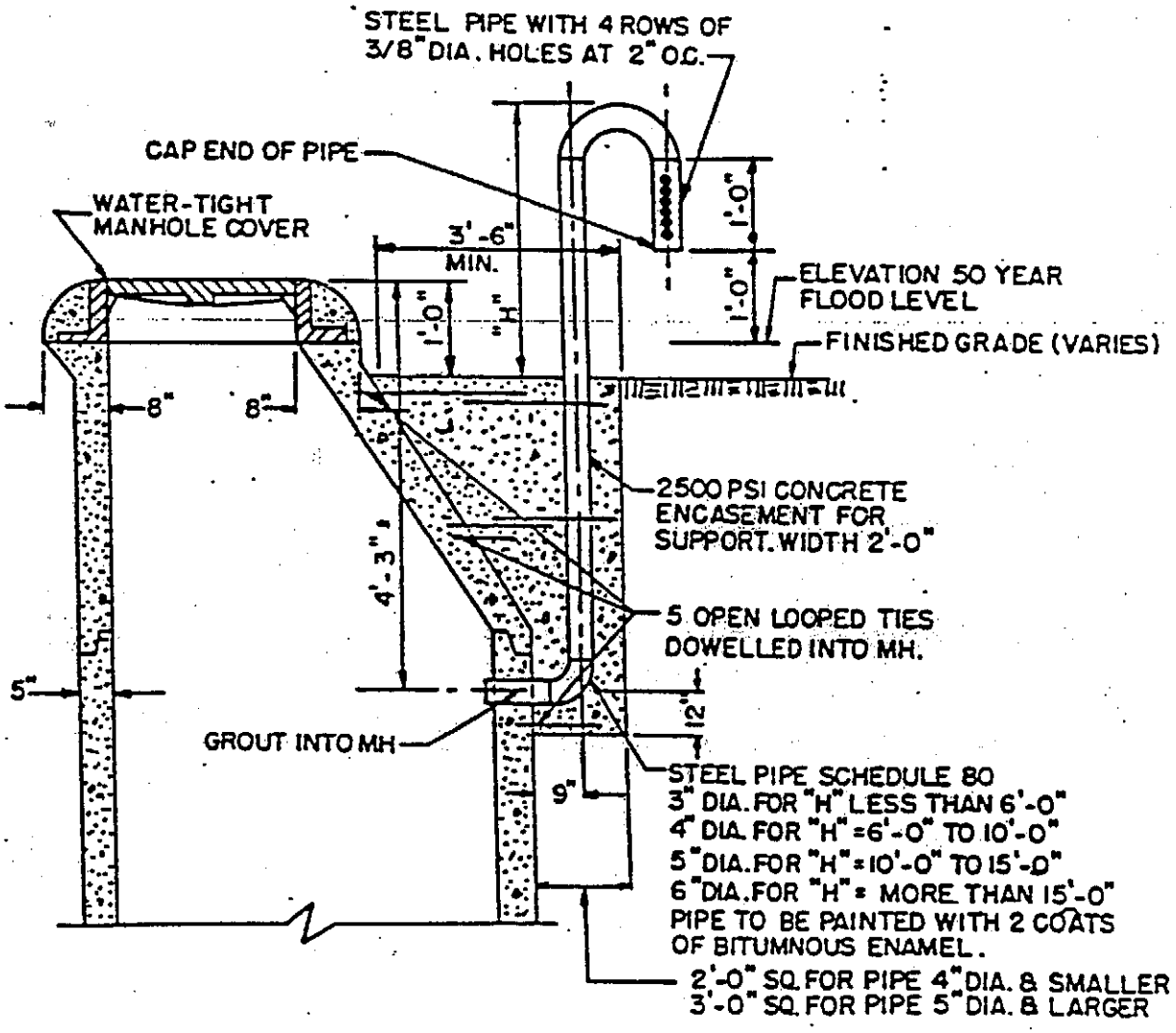
STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

PAVEMENT REPLACEMENT
TYPICAL SECTION



STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

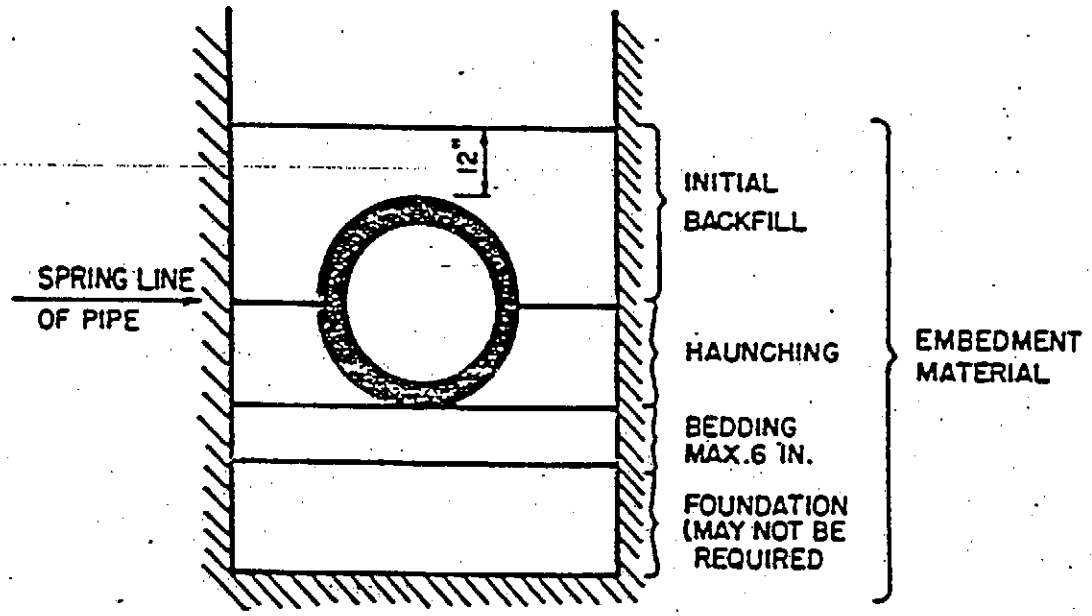
VENTED MANHOLES
TYPICAL SECTION



NOTE: VENTED CONNECTION TO MANHOLE TO CONSIST OF STEEL PIPE AND CLASS "D" CONCRETE COMPLETE.

STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

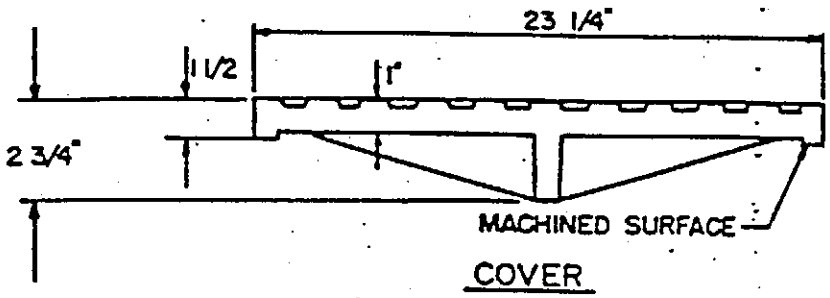
PIPE BEDDING
TYPICAL SECTION



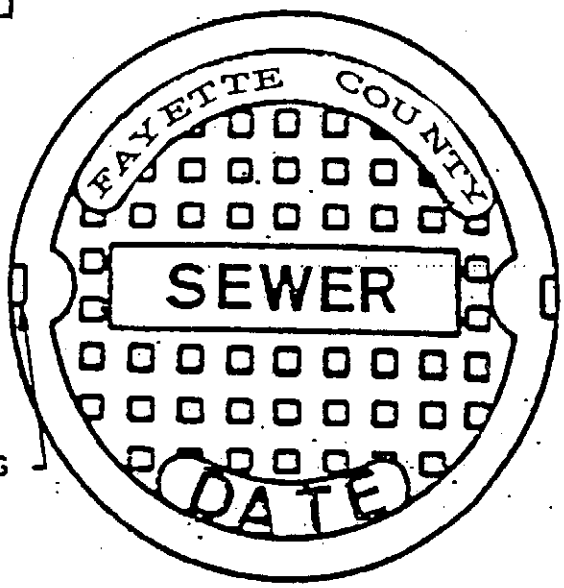
TYPICAL TRENCH

STANDARD DETAIL
FAYETTE COUNTY
WASTEWATER SYSTEM

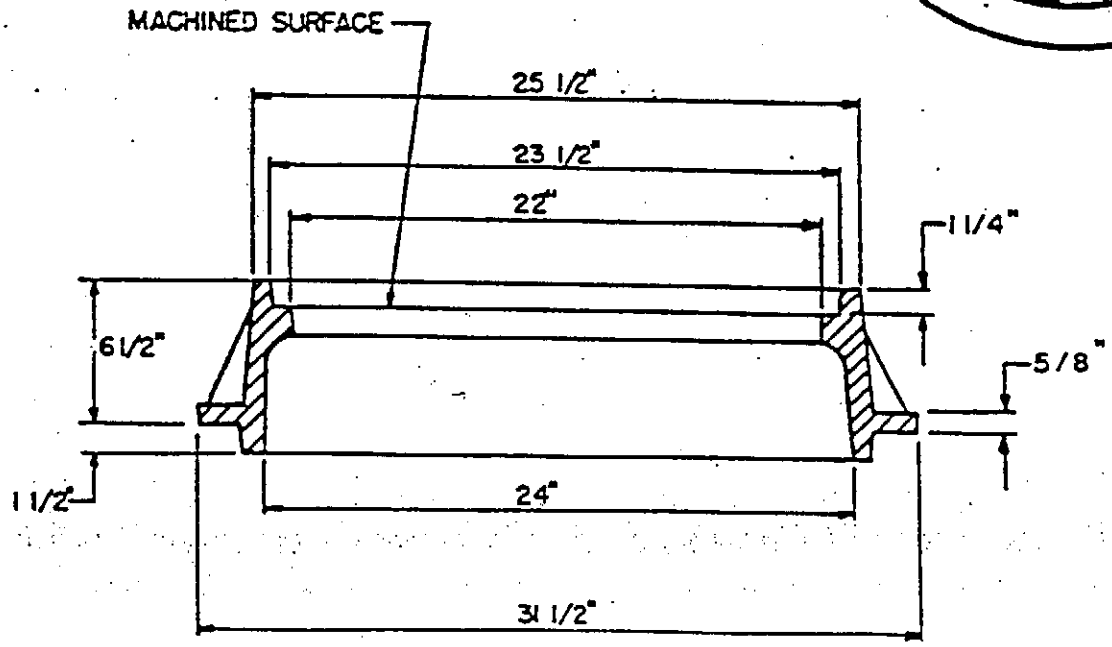
MANHOLE FRAME AND COVER
TYPICAL SECTION



COVER



(2) NON-PENETRATING PICK HOLES



FRAME

MIN.FRAME WT:200 #APPROX.

LARGE COMMUNITY SUBSURFACE SYSTEM ENGINEERING SUBMITTAL

EPD Project Number:
(Assigned by EPD)

This submittal can be used for community subsurface wastewater treatment plants within the flow range of 10,000 to 150,000 GPD. The system must be designed in accordance with the attached guidance document, or other nationally accepted engineering standards, and must be capable of achieving the general permit limits. (Sanitary sewers must be submitted separately. See Sanitary Sewer Extension Submittal form.)

Submitted for review pursuant to W.Q. Rules section 391-3-6-.02(3)(a) are this form and (as applicable):

[ ] EID (Environmental Information Document, required for all publicly owned systems)
[ ] ROTR (Report of Technical Review)
[ ] Buffer variance
[ ] Other: _____

1a. Project Name: _____

1b. Project Location (City/County): _____

Local government official (if publicly owned): _____

Mailing address: _____

1c. Publicly owned: [ ] yes [ ] no

If privately owned, is the project consistent with local zoning and have appropriate approvals been obtained? [ ] yes [ ] no

Provide a statement by the local government that this project is consistent with their short and/or long term planning and that they concur with the project.

If publicly owned, is the project consistent with the Service Delivery Strategy Act? [ ] yes [ ] no

If publicly owned and in the Metropolitan North Georgia Water Planning District, is this project consistent with the Long Term Wastewater Management Plan? [ ] yes [ ] no

2a. Treatment system owner (same as permittee): _____

Name of responsible official for permittee: _____

Phone number: _____

Mailing address: _____

2b. Design engineer: _____ P.E. License No.: _____

Phone number: _____

Address: _____

2c. Georgia P.E. or Professional Geologist providing the written hydrogeologic determination:
_____ License No.: _____

Phone number: _____

Address: _____

3a. Design flow and constituent levels shown below must be developed in accordance with the guidance document. Give flow in units of GPD. Give constituent values in mg/l (pH – standard units).

Item	Flow	BOD_5	TSS	O&G	TKN	NH_3-N	NO_2-N + NO_3-N	pH	TP
Influent									
Effluent									

Type of development (mark all that apply):

[ ] Residential population

[ ] Commercial/institutional

[ ] Restaurant/grocery store

[ ] Special events, school or prison population

[ ] Industrial loading (type)

3b. Wastewater treatment system description (provide unit descriptions and sizing summary):

_____

_____

_____

3c. If design was done using methods other than those contained in the attached guidance document, attach information defining the engineering standards used for the design.

4a. Soils series in the wastewater application area: _____

4b. Saturated hydraulic conductivity: _____ inch/hour

4c. Percentage of saturated hydraulic conductivity used as permissible percolation rate: _____

4d. Is any portion of the project area located in a most significant recharge area? Yes [ ] No [ ]

5a. Has the area and rate of wastewater application been calculated in accordance with the guidance?
[ ] yes [ ] no If no, describe method used:_____

5b. Method of wastewater application (drainfield, drip irrigation, etc.): _____

5c. Trench bottom area (systems other than drip): _____

Total application area (drip): _____

Reserve area (if applicable): _____

5d. Application rate: _____

6a. Owner's Certification

To the best of my knowledge, I certify the above information is true and correct.

Signature:_____ Date: _____

Printed name: _____

Title: _____

6b. Engineer's Certification

I certify that the information contained in this form and used to design the wastewater treatment system is in accordance with the guidance or other standard engineering practices (as I have described above). I further certify that the design basis is technically sound and that the system so designed can reasonably be expected to consistently meet the general permit limits. I also certify that the plans and specifications (P&S) accurately reflect the design. I certify that an Operations Manual will be developed prior to construction completion. I further certify that I have been in responsible charge of the design of this project in accordance with the rules of the Georgia State Board of Registration for Professional Engineers and Land Surveyors.

Signature:_____ Date:_____

Printed name: _____

Date license expires: _____

Seal (signed and dated):

6c. Georgia P.E. or Professional Geologist Certification

I certify that a written hydrogeologic determination was made in accordance with the guidance or other nationally accepted engineering standards, and that the determination was that the proposed system does not endanger an underground source of drinking water, nor is the system within the inner management zone of any existing well head protection area.

Signature:_____ Date:_____

Printed name: _____

State of registration and registration number:_____

Date license expires: _____

Seal (signed and dated):

6d. Soils Professional

I certify that actual site testing was conducted and that the proposed application rate was developed in accordance with the guidance.

Signature: _____ Date: _____

Printed name: _____

LARGE COMMUNITY DESIGN GUIDANCE

INTRODUCTION

These guidelines are to provide assistance in the preparation of submittals for Environmental Protection Division (EPD) approval of subsurface systems. If the project involves subsurface drip irrigation EPD's *Guidelines for Land Treatment of Municipal Wastewater by Drip Irrigation* should instead be used for engineering design. For subsurface drip systems with flows < 150,000 gal/day which propose to be covered under the general permit, the buffer areas listed in this document are acceptable provided that all weather access is maintained around the site without impacting monitoring wells or application areas.

A general Land Application System (LAS) permit (Permit No. GAG278000) has been issued to cover the operation of large community subsurface systems with capacities within the flow range of greater than 10,000 to 150,000 gallons per day (gpd). The submittal requirements for design and construction of large community subsurface systems may be addressed by the submittal of items required by this document. The items include the following:

1. A large community subsurface system engineering submittal form;
2. A copy of the Design Development Report;
3. A Notice of Intent form;
4. A copy of the public notice run by the owner and any public comments; and
5. A certification of construction completion.

Community subsurface systems larger than 150,000 gpd are not covered under the general Land Application System (LAS) permit No. GAG278000, but instead will be issued individual LAS permits. The design for systems larger than 150,000 gpd may use these guidelines but the submittal requirements are different. It is strongly recommended that anyone planning to design and construct a community subsurface system larger than 150,000 gpd contact the Engineering & Technical Support Program (ETSP).

PROCEDURES FOR EPD REVIEW AND APPROVAL (See Flowchart)

It is a violation of State law (O.C.G.A. 12-5-30(a)) to begin construction of wastewater facilities without a permit from the Director. It is a violation of the Rules and Regulations for Water Quality Control (Chapter 391-3-6-.02) to begin construction of such facilities prior to EPD approval of the plans and specifications. Operation of a system cannot be initiated until written authorization is received from EPD. Therefore, the owner must ensure that all approvals are obtained prior to construction or initiation of operations. Failure to do so may result in enforcement action(s).

Design Development Report, Environmental Information Document, Soils Investigation Report

All engineering material submitted to EPD must be prepared by or under the direct supervision or review of, and bear the signed seal of a Professional Engineer (P.E.) competent in the design of sewerage systems and wastewater treatment facilities (Chapter 391-3-6-.02).

If the proposed system will be publicly owned, an Environmental Information Document (EID) must be prepared and submitted. The EID must include the minutes from at least one public meeting advertised at least 30 days in advance. Separate guidance on the required contents of an EID can be obtained from EPD.

The soils investigation report must include a detailed soil map (scale of 1" = 100' or larger) of the planned absorption area and replacement area with soils series identified and soil observation/data collection sites accurately located. The soil investigation report must include depth to rock and other water restrictive horizons, depth to the seasonal high water table, slope, and flood potential. A minimum of four borings per ½ acre of system area with no rounding (i.e., a 0.6 acre site would require eight observations) is required. The borings must cover both the original and reserve areas equally. In addition, at least one test pit per soil series with a minimum of three pits per site must be dug. The test pits must be backfilled following the evaluation. The saturated hydraulic conductivity of the most restrictive layer to a depth three feet below the planned installation depth must be determined with a minimum of three tests per soils series on the original site and a minimum of three tests per soils series on the reserve area. The saturated hydraulic conductivity of the most restrictive layer shall be used to determine the absorption area. See Appendix B for additional information on calculating the absorption area including safety factors required for different soils types.

A minimum of three feet of soil must exist between the bottom of the soils absorption system and bedrock and/or the seasonal high groundwater level. If less than three feet exists, either the drip guidelines or an alternative solution can be considered. Drain fields should not be proposed for sites with slopes greater than 20%.

The Design Development Report (DDR) must include a location map, a topographic map, and a scaled drawing with two-foot contours showing the preliminary site layout of the pretreatment system and subsurface distribution area. Since EPD will not typically conduct a site inspection of the proposed system, the DDR must completely describe the proposed location and its surroundings. The maps shall show the 100-year flood zone elevation, the maximum pool elevation for any lakes or ponds, any drainage features, any most significant groundwater recharge areas (as shown on the Hydrologic Atlas 18 by the Georgia Geologic Survey), and any Karst or wetlands areas. If any portion of the system falls in a most significant groundwater recharge area, EPD may require additional review of the project. Locations of nearby houses, schools, private or public wells, water supply lines, sewers, and information on adjacent land uses must be provided.

The DDR must include the design wastewater characteristics including average and peak flows, Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Oil and Grease, Total Kjeldahl Nitrogen, Nitrates, Nitrites, Ammonia, pH, and Total Phosphorus. The sources of any assumed values must be indicated. A description of the proposed development must be included so EPD can evaluate whether the wastewater is appropriately characterized. The description should include number of residences, people per residence, number and type of restaurants, number and types of stores, and any other information needed to support the quantity and strength of wastewater used for design. Example flows are attached in the Sewage Flow Table in Appendix A.

The disposal field area calculations and pretreatment system design calculations must be included in the DDR. If a septic tank is provided for pretreatment, a minimum of 24 hours detention time must be provided. The septic tank(s) must be baffled and include an effluent filter. The tank must have a manway opening for pumping of sludge and maintenance. If the raw wastewater is projected to have levels higher than typical domestic wastewater (BOD (>200 mg/l), TSS (>200 mg/l), or oil and grease (>25 mg/l)), additional pretreatment must be provided. If an aerobic treatment unit is provided, sufficient information on the proposed unit must be provided so that EPD can verify its design. All restaurants and grocery stores must have grease traps or other oil/water separators. If a pond is proposed for pretreatment, an individual LAS permit must be obtained.

The distribution from the pretreatment system to and within the disposal field area must be addressed in the DDR. The trenches should be no more than 100 feet long and three feet wide. At least six feet must be provided between trench edges. If drip irrigation is to be provided, the drip irrigation guidelines (EPD's *Guidelines for Land Treatment of Municipal Wastewater by Drip Irrigation)* are to be used. The disposal field area must be grassed to prevent erosion. The DDR must show how equal distribution will be provided across the system.

The DDR must indicate the number and locations of the groundwater monitoring wells. A minimum of one downgradient well must be provided. Additional wells may be required depending on the topography and size of the proposed system. The wells must extend to sufficient depths to sample seasonal fluctuations of the unconfined water table. The wells shall conform to EPD's *Manual for Groundwater Monitoring* except 2" diameter wells may be allowed. Note that the general permit requires that the groundwater leaving the system boundaries must not exceed the maximum contaminant levels (MCL) for drinking water. If those levels are exceeded, enforcement actions will result. The general permit specifies the parameters to be tested. The DDR must include a nitrogen balance to demonstrate that the percolate will not exceed the MCL for nitrate. Background groundwater samples from the installed monitoring wells must be obtained prior to initiation of operation.

The DDR must address the disposal of sludge from the pretreatment system. Note that the general permit requires that disposal by any means other than hauling to another treatment plant or codisposal at a sanitary landfill must be approved by EPD. Sludge from the pretreatment unit cannot be disposed of as septage.

The DDR must calculate the hydraulic wastewater loading rate to the infiltrative area in inches per week using the trench bottom areas. If the loading rate is in excess of 2.8 inches/week, the higher application rate must be supported with documentation that the soils can absorb the higher rate without becoming saturated. If the higher rate is approved, a reserve area (100% of the equivalent field area) for future replacement must be designated and set aside. No construction on or disturbance of the primary area and the reserve area can occur. If disturbance of the disposal area does occur, a new soil investigation must be conducted to reassess the soil's capabilities.

The location and type of required flow measuring device(s) must be stated in the DDR. The general permit must be reviewed to ensure that the required sampling and flow measuring will be achieved with the proposed facility. The DDR must address the required sampling location(s) and address how the permit requirements for sampling will be met.

The following minimum buffer areas must be provided and shown on the site layout:

ITEM	PRETREATMENT UNIT	ABSORPTION FIELD
Lakes, Ponds, Streams	25 feet	50 feet
Trout Streams	50 feet	50 feet
Springs, Wellheads	50 feet	100 feet
Water Supply Lines	10 feet	10 feet
Property Lines	10 feet (below ground unit)	10 feet
	150 feet (aboveground unit)	
Habitable Structures	10 feet (below ground unit)	10 feet
	300 feet (aboveground unit)	

The DDR must include a written hydrogeologic determination by a Georgia registered P.E. or Professional Geologist that the system does not endanger an underground source of drinking water nor is such a system within the inner management zone of any existing well head protection area. In addition, the DDR must address the buffer requirements for water supply watersheds and river corridor protection. (See the DNR Rules for Environmental Planning Criteria, Chapter 391-3-16-.01 and -.04.)

Grease traps or other devices are required for all facilities that will generate wastewater with fats, oil, and grease (FOG) levels over 25 mg/l. The permittee must determine what types and sizes of grease traps are acceptable and advise the potential users of their facility. The grease traps must be protective of the treatment system. The permittee must establish a grease management program to ensure proper maintenance of the grease traps.

Notice of Intent

If a system is to be covered under the general LAS permit, a Notice of Intent (NOI) must be submitted along with a maintenance and operations agreement, a trust indenture (for privately owned systems), and a sewer use agreement (for privately owned systems) or a sewer use ordinance (for publicly owned facilities). Failure to provide the specified documents will adversely affect a system's ability to be covered by the general permit. The required documents are described below.

The maintenance and operations agreement is a contract between the permittee and the person(s) who will operate and maintain the facility. Note that the operator must hold at least a Class III certification (Chapter 750-3 of the Rules of the State Board of Examiners for Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts). The agreement must require at least the minimum frequency and duration of site visits specified in the general permit. If the permittee intends to operate and maintain the facility without a contract operator, they must submit to EPD substantial evidence, including documentation of the operator's qualifications, that they are competent to meet the permit requirements.

A trust indenture is required for privately owned facilities to ensure continuity of operation. The permittee must attempt to acquire a trust indenture with the local government. If the local government is not willing to serve as a trustee, EPD will consider allowing a non-governmental entity as trustee. In such cases we recommend that appropriate financial security be provided to allow continued operation of the system. Typically, the financial security is in the form of a bond or letter of credit with the minimum amount being equal to the cost of major component replacement, as well as projected operation and maintenance costs of the facility for three years.

The sewer use agreement establishes what strength and quantity of wastewater the permittee is willing to accept from each user of the facility and how changes in building occupancy that could result in changes in wastewater strength or volume will be addressed.

The Sewer Use Ordinance is enacted by the local government to establish what strength of wastewater can be discharged to their system and what additional costs will be assessed for discharges in excess of those levels. A Sewer Use Ordinance is not required for privately owned systems. However, the owners of private systems must ensure that additions to their system will not exceed the treatment capacity of the facility.

Public Notice

After review of the NOI, if EPD proposes to allow coverage under the general permit, a public notice will be sent to the proposed permittee. This public notice must be run in the newspaper with

widest circulation in the area of the project at least 30 days prior to being given coverage under the general permit. The notice must include the name of the project, the location of the project, the intent to be covered under the general permit, and **must provide an address for comments**. Any comments received during the 30-day comment period must be submitted with the proof of advertisement of the notice.

If EPD determines that the proposed facility cannot be covered under the general permit, then an LAS permit application for the individual facility must be submitted and complete, detailed plans and specifications for the proposed facility must be submitted for EPD's Engineering and Technical Support Program's approval. The signed seal of a Georgia Professional Engineer must appear on both the specifications and on the plans. EPD cannot approve the plans and specifications until an individual LAS permit is issued.

Operations Manual

The Professional Engineer must develop (or have developed) an operations manual for the large community subsurface system that addresses all requirements of the EPD operations manual guidelines. The Professional Engineer must certify that the manual has been developed in accordance with the guidelines and that a copy has been provided to the operator and to EPD.

Construction

Construction cannot begin until EPD has approved the plans and specifications or issued a NOI acceptance letter. During construction, disturbance of the drain field area must be kept to a minimum. No disturbance of the reserve area can occur and the disposal area shall be clearly marked in the field with temporary fencing and signs to limit access and prevent disturbance. The areas cannot be used for materials storage, siting the construction trailer, or any other activities. Access to the areas must be restricted.

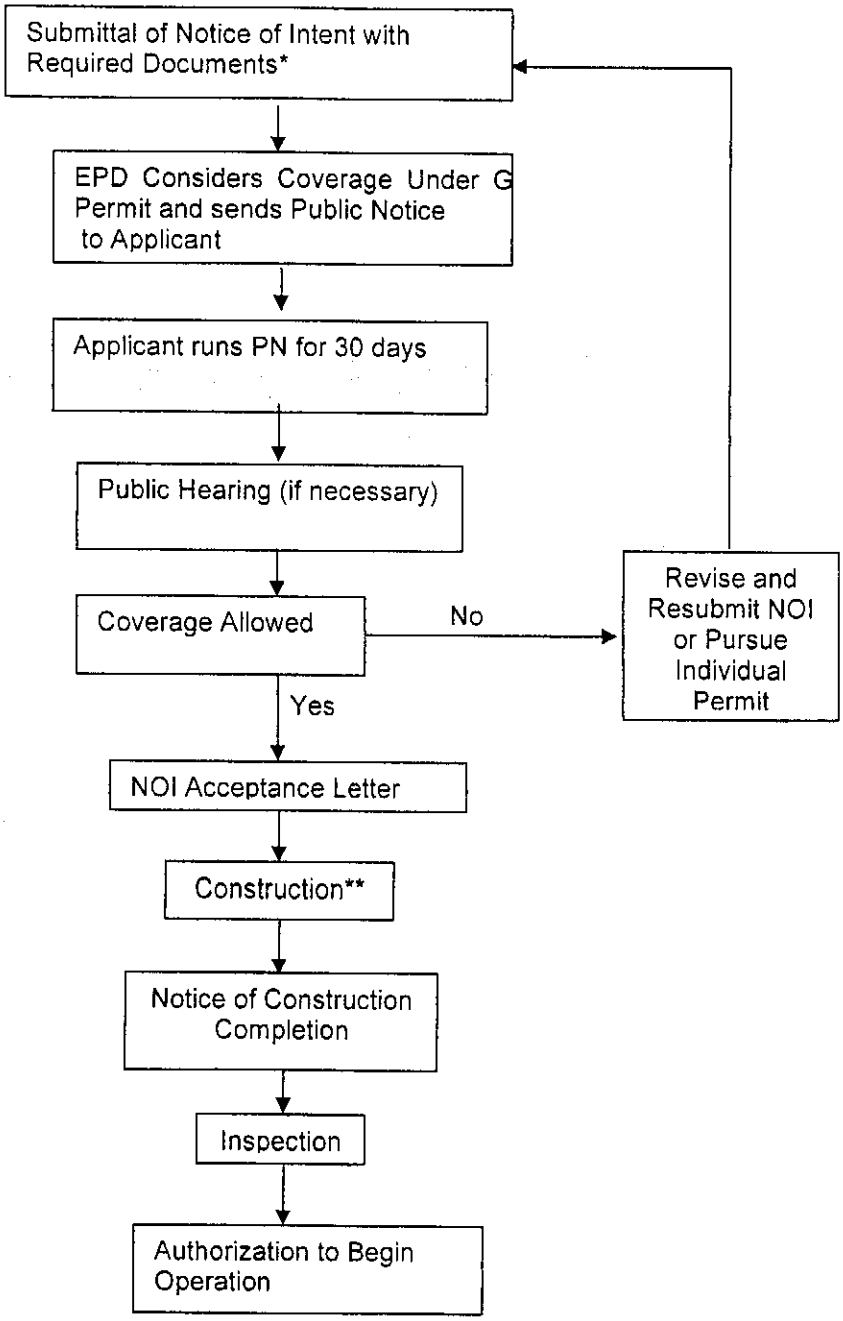
If the project is not covered under the general permit, EPD must approve revised plans and specifications if there are any substantial changes to the project during construction (examples include changing the pretreatment process, moving the drain field area, changing the type of drain field, etc.). Approval for the changes must be obtained prior to construction of the revisions.

Following construction, the design engineer must certify that construction is complete in accordance with the approved plans and specifications or NOI acceptance letter and the permittee must request approval to begin operation. EPD will then determine if a final inspection will be held to evaluate if the construction has been satisfactorily completed in accordance with the approved plans and specifications and if the facility is ready to begin operation. If the facility is found to be complete, a written authorization to begin operation will be sent by EPD's Permitting, Compliance, and Enforcement Program. Until that authorization is received, the facility cannot begin receiving wastewater.

Operation

During operation, the LAS permit must be followed and the appropriate sampling and reporting requirements must be met. A Class III certified operator (or higher) must remain in charge of the facility's operation. The general permit requires that the operator be on-site a minimum of two hours per month. The permittee must ensure that all appropriate sampling and reporting requirements are satisfied. Failure to comply with permit requirements may result in enforcement actions against the permittee.

Large Community Subsurface System Review Flowchart



* The required documents include the Large Community Subsurface System Engineering Submittal, the Design Development Report (DDR), a maintenance and operations agreement, a trust indenture (for privately owned systems), a sewer use agreement, and a sewer use ordinance (for publicly owned systems).

** Construction cannot begin until the NOI acceptance letter is issued.

APPENDIX A

Sewage Flow Table

FACILITY	GPD*
Airport, Railroad, or Bus Terminal)	5/Passenger+ 10/Employee
Stadiums, Racetracks, Assembly Halls	5/Seat
Bar/Lounge	30/Seat
Barber Shop or Beauty Salon	125/Chair + 20/Employee
Bath House for Swimming Pool	10/Swimmer
Boarding Houses	75/Resident
Bowling Alley	75/Lane + 20/Employee
Car Wash (Non-Recycling)	75/Car
Church	5/Sanctuary Seat
Campgrounds, Travel Trailer Parks, etc. Without Independent Sewer Connections	100/Space
Campgrounds, Travel Trailer Parks, etc. With Independent Sewer Connections	150/Space
Country Club	25/Member
Day Camp	20/Person
Day Care Center	15/Person
Dental Office (Continuous Water)	20/Employee + 250/Chair
(Demand Water)	20/Employee + 100/Chair
Fitness Center/Spa	50/Person
†Food Service **	
Restaurants, less than 24 hrs/day	50/Seat+20/Employee
Restaurants, 24 hrs.	75/Seat+20/Employee
Restaurants on Interstates	100/Seat+20/Employee
Drive-In Restaurant	50/Space+20/Employee
Carryout Only, Food Stands	50/100-ft² floor space +20/Employee
Catering (single service only)	50/100-ft² floor space
Funeral Home	300/Embalming + 100/Staff Member
†Grocery Store	200/1000-ft² Floor Space
Hospital	300/bed +100/Resident Staff
Hotel/Motel	100/Room
Motel with Kitchenette	150/Room
Laundry, Self-service	500/Machine
Marina (pump out facilities)	30/Slip
†Meat Market	50/100-ft² Floor Space
Medical Offices	200/Exam Room
Nursing Home/Personal Care Home, etc.	150/Bed + 100/Resident Staff
Prison/Jail	125/Bed + 20/Employee
Resident Camps	60/Person
Homes	
Residential	150/Bedroom
Vacation, Resort	100/Bedroom
Rest Area	Determined after consultation with Ga DOT

Retail Stores, Convenience Stores (Freestanding)		Larger of 400/restroom or 100/fixture
Schools:	Day, Toilets Only	12/Person
	†Day, Toilets & Cafeteria	16/Person
	†Day, Toilets, Cafeteria, Gym	20/Person
	† Boarding	100/Person
Service Station		3000 Minimum
	Interstate Location	
	24 Hour Operation	325/fixture
	<24 Hour Operation	250/fixture
Shopping Center/Mall		100/1000-ft² Enclosed Space
Theaters (Indoor)		5/Seat
	(Drive-In)	10/Space
Veterinary Office/Animal Hospital		100/Run + 10/Cage + 20/Employee
Workers Including Factory, Office, School, Commercial and Construction (Without Showers and Industrial Waste)		30/Person

- GPD means gallons per day

† Operations with BOD_5 and TSS greater than 200 mg/L require pretreatment to reduce BOD_5 and TSS to 200 mg/L or below.

** These flows are to be additive to other flows. For example, a bar or lounge serving food would have this flow added to the 30 gpd per seat flow.

APPENDIX B

Acceptable Methods for Measuring Saturated Conductivity (Ks)

Table 1. Laboratory Methods

METHOD	CITATION	APPLICATION
Constant Head	Klute & Dirksen, 1986 Reynolds & Elrick, 2002	Intact cores required for natural soils. Useful on soils with structure and coarse to medium texture that have low to high Ks.
Falling Head	Klute & Dirksen, 1986 Reynolds & Elrick, 2002	Intact cores required for natural soils. Useful in soils with very low Ks (heavy clay and/or poor structure) to reduce test time to several hours. Can be difficult to administer on soil with high Ks (sands).

Table 2. Field Methods: Unsaturated Zone

METHOD	CITATION	APPLICATION
Infiltrometers Ring Type Tension Type	Bouwer, 1966 Reynolds, et al. 2002	For use in the unsaturated zone only (above water table). Requires excavation of soil to test depth. For ring infiltrometers, accuracy increases with increasing cylinder diameter and decreasing ponding depth. Double rings are used to create one dimensional vertical flow. For tension types, a steady rate approach may take several hours to achieve constant flow.
Constant Head Permeameters Commercial Models 1. CCHP 2. Guelph	Amoozegar, 1992 Reynolds et al., 2002	For use in the unsaturated zone only. Conducted in 2-4" borehole at various depths to allow limited site disturbance and provides relatively rapid results. CHP method is most accurate in typical coarse to medium textured, structured soils. Overestimates of Ks may occur in massive, dry, fine textured soils (Radcliffe and Rasmussen, 2002).

Table 3. Field Methods: Saturated Zone and Lateral Flow

METHOD	CITATION	APPLICATION
Borehole Test Slug Test	Bouwer & Jackson, 1974 Amoozegar, 2002	Used at depths below or immediately above the water table. Beneath the water table, water is extracted and recharge is quantified. For zones just above the water table, water is injected and the rate of dissipation is quantified. The radial influence of the test is assumed based on known media properties or monitored in adjacent borehole to allow quantification of flow components. Lateral flow is assumed.

1.0 OTHER METHODS

There is no single "best method" for determining Ks, since test accuracy will vary under the widely variable soil and water conditions encountered in the field. The selection of the test method is a matter of professional judgment determined after site evaluation and inspection of a representative soil profile. Soil physics testing methods are constantly evolving and methods other than those cited here may be used if appropriate. A clear explanation of the method and supporting citations from peer-reviewed research should be submitted with alternative methods. Excellent reviews of this subject are available in *Methods of Soil Analysis*; Part-4, Physical Methods, Chapter 3.4 (Reynolds, et al., 2002) and *Soil Physics Companion*; Chapter 4 (Radcliffe & Rasmussen, 2001).

2.0 SAMPLING INTENSITY AND DATA SYNTHESIS

Conductivity data is highly variable both across and within soil types (Mulla and McBratney, 2001, Warrick, 1998) and multiple tests are required for any disposal site. The number of samples required to provide a representative sample range from three to >15 per site-soil type depending on:

1. Area and variability of physical properties in the soil type(s).
2. Level of statistical confidence desired.
3. Resources available for testing and risk of system failure.

In general, as sample number decreases, the confidence level that a true mean value is represented decreases. Professional judgment should be used to determine the sampling intensity based on evaluation of site-specific conditions and the consistency of Ks data gathered. For example; a small residential site with one soil type that has three Ks tests with results in the same order of magnitude may be sufficient. For a large site with three soil types and Ks tests varying over three orders of magnitude, more than 30 samples may be needed.

Conductivity data typically has a quadratic or logarithmic distribution and a geometric mean is appropriate for a representative design value. Geometric means should be calculated for each unique soil type/horizon in the expected effluent distribution zone.

3.0 ESTIMATING LOADING RATE FROM Ks DATA

The saturated flow through soil is described by Darcy's Law as $Q=K_s \times H$ where Q is the flow and H is the gradient. If we conservatively assume a unit gradient (1) for design, the value of Ks becomes an estimate of flow under saturated conditions. Where Ks is expressed in in/hr (English units), the conversion to gallons per day per square foot (gdsf) is approximately 14.96.

Conductivity tests are typically done on relatively undisturbed soils using clean water. The actual application of this data is to estimate a loading rate for wastewater applied to a trench side and bottom that has been disturbed by heavy equipment during construction. Thus, the actual loading rate should be less than the Ks to account for reductions in soil permeability due to structural loss during excavation and wastewater impacts. Wastewater contains chemicals (principally salts) and organics that: increase water density, coat the soil surface (biomat) and, at higher salt concentrations, reduce structure in clay soils. Actual Ks values should be reduced by a factor of 50 to 95% to account for these limitations on flow. This factor is referred to as the "*Percolation Factor*" for the purposes of this discussion. Again, this factor should be selected based on professional judgment considering the soil and effluent properties.

4.0 PERCOLATION FACTOR

Some general criteria for developing a percolation factor for calculating loading rates from ambient or pre-construction Ks are suggested. The factor should be decreased (Ks reduced) as clay content and structure of the soil increases. System construction activities and wastewater constituents have more potential to reduce Ks in fine (clayey) soils and soils with strong structure than in coarse (sandy) and weaker structured soils.

Sandy Soils

Sandy soils with little or no clay and granular to massive structure will usually have minimal change in conductivity following construction unless fines and organics are present and compaction of the infiltrative surface is allowed. Primary reduction in Ks is expected to be due to biomat formation. In addition, sandy soils are mostly silica and are largely non-reactive to wastewater salts. Sandy soils with texture of sand to loamy sand would have a factor of 40-50% (0.4-0.5 x Ks).

Clay Soils

On the other end of the spectrum, soils with greater than 35% swelling/reactive clay may need loadings of 5-10% of Ks to allow adequate long-term infiltration. In many cases, this will result in loading rates so low (<0.1 gdsf) that the site will not practically support a drain-field. Heavy soils predominated by non-reactive clays such as kaolinite are more permeable, but most of the percolation capacity is structural. The Ks should be reduced to 10-20% Ks. These soils typically have effluent loading rates of <0.1 to 0.3 gdsf (Tyler, 2000).

Loamy Soils

Soils with non-reactive clay (kaolinitic) and heavy loam textures such as clay loam and sandy clay loam move water primarily through structural pores that may be blocked during excavation and plugged by wastewater solids and sedimentation as the system is used. Loading rates in heavy loam soils are the hardest to assess and should not exceed 10-50% of Ks. Heavy loams vary widely in hydraulic loading capacity and typically range from <0.1 to 0.6 gdsf (Tyler, 2000). Coarse and medium loams including sandy loam, loam and silt loam are intermediate in loading capacity and should be treated as similar but slightly better than clay loam as far as the percolation factor (20-50% of Ks). Typical loading rates for these soils are in the range of 0.2 to 0.8 gdsf (Tyler, 2000).

Other Considerations

Soils with platy, weak, or massive-cemented structure and/or redoximorphic features are likely to be unsuitable for wastewater disposal regardless of texture or effluent characteristics. However, this condition should be evident in properly conducted test borings and Ks tests.

Summary

In summary, an effluent loading rate can be reasonably estimated by:

1. Conducting multiple Ks tests of percolation zone.
2. Calculating the geometric mean of all correctly done tests.
3. Multiplying the mean Ks by a percolation factor of 0.05 to 0.5 to account for construction, effluent and biomat limitations.

Example: Trenches are to be placed in a sandy clay loam soil horizon with Ks test results of 0.10, 0.26, 0.85, 0.08 and 0.05 in/hr. The geometric mean is:
$(0.1 \times 0.26 \times 0.85 \times 0.08 \times 0.05)^{1/5} = 0.155$ in/hr
The preconstruction saturated flow in gdsf is 0.155 x 14.96 = 2.3 gdsf
Based on construction by backhoe, heavy loam with strong structure and domestic effluent quality with BOD of 150, the loading rate safety factor is judged to be 0.20

The design loading rate is estimated as 0.20 x 2.3 = 0.46 gdsf
Length of three-foot wide trench required per 100 gallons of wastewater flow:
100 gal/0.46 gdsf = 217 sf and 217sf/3 ft = 72.3 ft
For 10,000 gpd flow, 72.3 x 100 or 7,230 ft of conventional trench is required.

Table 4. General guidelines for maximum wastewater loading based on texture and saturated hydraulic conductivity (Ks) testing.

NRCS TEXTURE	PERC RATE minutes/inch	Ks inch/hour	MAX LOADING RATE gal/day/ft²
SANDS	10	0.33	1.6
Fine sand	30	0.11	1.3
Sand	50	0.07	0.50
Loamy sand	90	0.04	0.20
COARSE LOAMS	10	0.25	1.5
Silt loam	30	0.08	0.50
Sandy loam	50	0.05	0.30
Loam	90	0.03	0.15
HEAVY LOAMS	10	0.25	1.0
Sandy clay loam	30	0.08	0.40
Silty clay loam	50	0.05	0.20
Clay loam	90	0.03	0.15
NR CLAYS	10	0.14	0.40
Sandy clay	30	0.045	0.20
Silty clay	50	0.03	0.10
Clay	90	0.015	0.05
Massive NR Clay	NS	NS	NS
Reactive Clay	NS	NS	NS
Reactive Clay Loams	NS	NS	NS

NR: Non-reactive, kaolinitic to mixed mineralogy NS: Typically not suitable

Table 4 loading rates are based on a 40% perc factor for sands and coarse loams, 30% for heavy loams and 20% for non-reactive clays. Perc factors may be higher if advanced wastewater treatment is used. The table is not applicable on a site-specific basis because data on soil structure varies. Table 4 assumes that the soil structure is granular, blocky, sub-angular blocky or prismatic. Soils with platy, cemented or massive structure typically will have lower values. It is also assumed that Ks tests are conducted in a manner representative of natural conditions (infiltrative surfaces picked to eliminate compacted or smeared areas). If smearing or clogging is unavoidable, Ks values will be artificially low and other test methods should be considered or adjustments made to the perc factor.

Table 4 loading rates are consistent with Ks values as recommended by Radcliffe and West (2000) and recommended effluent loading rates developed by Tyler (2000) as published in the EPA Onsite Wastewater Treatment Systems Manual (2002). Table 4 is provided only as a guide to assist in understanding the typical range of values that may be encountered in suitable soil types and the corresponding infiltration area requirements for planning purposes.

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APPENDIX C

ACKNOWLEDGEMENTS

Assistance in the preparation of these guidelines was provided by the Department of Human Resources, Mr. Larry Chapman, Dr. Larry West, and Mr. Philip D. Freshley (Appendix B).

Department of Natural Resources
Environmental Protection Division
Engineering & Technical Support Program
4220 International Parkway Suite 101
Atlanta, Georgia 30354

SANITARY SEWER EXTENSION SUBMITTAL

Submitted for review pursuant W. Q. Rules section 391-3-6-.02(3)(a) are this form and (as applicable).

[ ] Plans (one copy)
[ ] Specifications (one copy)
[ ] General map of proposed sewer extensions, outlined proposed service area, connection to the existing system, and flood plain contours and elevations if applicable.

[ ] Project Description, design data
[ ] Certified statement as indicated in 8
[ ] Certified statement as indicated in 9
[ ] Copy of SWCD Report of Technical Review (Item 1B)

1A. Name of local government _____

Local government official _____

_____
Mailing Address

_____
City, State, County, Zip Code

1B. Has Report of Technical Review been obtained? _____ yes _____no.
If yes - attach copy. The Report of Technical Review is obtained from the Issuing Authority. For further guidance, see Attachment No. 3, Page 9.

1C. Project name or identification _____

1D. Designing engineer(s) _____

GA P.E. # _____ Expiration Date _____

_____
Mailing Address

2A. Wastewater treatment plant to which extensions are tributary

Name _____ Permit flow _____MGD

Permit # _____

3F. If receiving industrial wastewater, describe industrial waste characteristics.

_____

_____

_____

_____

Quantity _____ GPD. Describe pretreatment received (if any)

_____

(use extra sheet if needed)

4A. Average Design Flow (this project) _____ GPD Peak_____GPD

4B. Design BOD (this project)

Average _____ lbs/day

4C. List nominal pipe diameter(s) and length

_____

_____

_____

_____

4D. No., size and type of pump stations (if any)

_____

_____

Submit design calculations with this form.

5A. Source of project funding _____

_____

Information Sheet
Sanitary Sewer Extension Submittal

The following information is provided to help you understand the reasons that a form must be completed and accompany each sanitary sewer extension request.

Question: Why is a form needed?

Answer: To enable us to process the extension request efficiently and to let us know if further review information is needed.

Question: How does one complete the form?

Answer: We will address each question by number, and refer to the checklist when appropriate.

1A. The name of the local government in which the proposed sewer extension will be located. The name of the local government official whom the correspondence should be addressed to.

1D. The name of firm which prepares the sewerage plans and specifications. The name of the signed Georgia registered professional engineer on the plans.

2A. The name of the wastewater treatment facility to which the proposed sewer extension(s) will be tributary. NPDES permit flow in million gallons per day to the wastewater treatment facility listed in 2A.

2B. From the discharge monitoring reports for the wastewater treatment facility, list the appropriate month, flow, biochemical oxygen demand (BOD5) and suspended solids (SS) for the 12 months preceding the sewer extension submittal.

3A. The name and address of the developer (firm) requesting the sewer extension. If the party responsible for initiating the sewer extension request is not a local government, a certified statement as indicated in 8 will be required.

3B. Immediate acres to be served by this project includes development directly tributary to the proposed sewer extension. Ultimate acres to be served by this project includes development that will be tributary to the proposed sewer extension in the future.

3D. Population density for the immediate service area should be listed. Dividing the population served by the immediate acres should equal the density per acre.

3E. Average gallons per day per capita wastewater contribution should be based on realistic, preferably documentable data for residential development and documentable, equivalent flows for commercial and industrial development. The peaking factor should reflect documentable flow data for the appropriate types of development.

ATTACHMENT NO. 1

Example Letter for Item 8

Date_____

Unit Coordinator
Georgia Environmental Protection Division
Engineering & Technical Support Program
4220 International Parkway Suite 101
Atlanta, Georgia 30354

RE: (Name of Project)

_____

Dear Sir/Madam:

This is to certify that (a) the (name of local government) has reviewed this project, that (b) (name of local government) has adequate transport and treatment capacity to treat wastewater from this project, (c) (name of local government) is willing to accept the project wastewater from the project for treatment and (d) (name of local government) ensures that all provisions of applicable erosion and sediment control programs will be enforced.

Sincerely,

(Signature of Responsible
Local Government Official)

ATTACHMENT NO. 3

PROCEDURE
FOR
LAND-DISTURBING ACTIVITY PERMIT APPLICATION:
SUBMITTAL, REVIEW, AND PERMIT ISSUANCE

1. Applicant contacts Issuing Authority. The Issuing Authority is either the certified local governmental jurisdiction or EPD.

2. Application (Sufficient Copies) is submitted by Applicant to Issuing Authority.

3. Copy of application (which includes erosion and sedimentation control plans) is forwarded by the Issuing Authority to the appropriate Soil and Water Conservation District for District review.

4. Report of Technical Review (provided by the District Conservationist for the Soil and Water Conservation District) is forwarded from the District to the Issuing Authority.

5. If Report of Technical Review indicates Soil and Water Conservation District Approval: Permit (which includes the District Approved erosion and sedimentation control plans) is issued to the Applicant by the Issuing Authority.

6. If Report of Technical Review indicates Soil and Water Conservation District Disapproval:

   (a) Issuing Authority notifies Applicant in writing of necessary changes to be made in application and erosion and sedimentation control plans and provides for or refers Applicant to the District Conservationist for technical assistance.

   (b) Amended application and erosion and sedimentation control plans are submitted by Applicant to Issuing Authority.

   (c) A copy of the amended application and erosion and sedimentation control plans is forwarded by the Issuing Authority to the Soil and Water Conservation District for District review.

   (d) Report of Technical Review from the District is forwarded to Issuing Authority by the District.

APPROVAL OF SEWER PLANS AND SPECIFICATIONS WILL BE DELAYED UNTIL A POSITIVE REPORT OF TECHNICAL REVIEW IS PROVIDED TO EPD.

DISCUSSION BY TONY PARROTT, FACILITIES DIRECTOR, OF THE WATER COMMITTEE RECOMMENDATION TO OWN AND OPERATE COMMUNITY SEPTIC SYSTEMS AND COMMUNITY DRIP IRRIGATION SYSTEMS IN FAYETTE COUNTY.

Tony Parrott, Facilities Director, said the Water Committee had reviewed the options the Board had concerning drip and septic irrigation systems for waste water disposal. He said their choices were not to do anything, to regulate the systems, or to take as part of the county system and manage it. He said the Water Committee recommended that the Board own and operate these systems. He said information was provided to the Board as to how the Water System would operate and manage these systems with additions to the standards that the Environmental Protection Division required.

Chairman Smith said he knew nothing about septic systems. He said he would like to know the pros and cons. He said he understood that the county had no voice in approval of these systems.

Mr. Parrott said the EPD approved one for a subdivision and did not contact the county, nor did any county office, issue a permit. He said they had the right to put in a system without the county doing any type of review on it. He said, for example, on their land application system on a drip system they did not require a 100% backup. He said the County Health Department required a 100% backup for a septic system. He said one thing they were proposing was if they had a system there needed to be backup for it. He said they did not need to have 40 houses on a system and something go wrong and there not be another place to have a drip system. He said the only time to plan this was when the subdivision was developed.

Mr. Parrott said if the system was installed and something went wrong with it, if it was a homeowner association that was responsible for taking care of it, he would suspect the homeowners would come before the Board and ask for the county's help. He said they had had that type of situation with a ground water system. He said the wells went out and the homeowners came before the Board and wanted the county to bail them out.

Mr. Parrott said they recommended installing the drip systems at a higher standard, watch over them, and if something went wrong the Water System would immediately know about it, not after it had been leaking for several months.

Chairman Smith asked how many systems were there now in the county. Mr. Parrott said he did not have an exact figure on that because they were currently not listed as the same type of permit. He said of those that were permitted he thought there were 14 of them in the county. He said the smaller systems were not receiving the same type of permit and he would have to research to give the Board an idea of how many there were in the county.

Chairman Smith asked if they agreed to do this would it cover those or just new systems. Mr. Parrott answered it would be for new systems only. He said if they wanted to accept an older system it would be the Board's choice. He said they could do a study to see how it was installed and operated and make a recommendation. He said the Board had accepted a few of the well water systems into the county over the years.

Commissioner Horgan asked if there were protection mechanisms that if a system failed a neighborhood could come to the county for repair or even sue the county. Mr. Parrott said this would be the same type system as the water system. He said they would be fully responsible for what they did in the community.

Commissioner Horgan asked how they would track the five year re-pumping schedule as was done with the septic systems. Mr. Parrott said all these systems would be receiving county water, therefore, would be county water customers making it no problem to track the five year time frame for pumping the system. He said if they did not pump it the Water System would add that charge to their water bill. He said they would subcontract the pumping out.

Commissioner Frady asked if the county had anyone who could run these community systems. Mr. Parrott responded that he had a license to do this.

Commissioner Frady said the last time they talked about this he had asked if there was any information regarding the cost of operating these systems. Mr. Parrott said there was no track record. He said with a community septic system if you watched what went in, which they were by having the dual tanks, they would maintain the spray drip application field by cutting the grass and maintaining it. He said this was not much cost. He said they were talking about different size pumps for different size systems and maybe a lift station for some of the systems. He said the maintenance cost was minimal.

Commissioner Frady said the manufacturer should have some kind of track record. Mr. Parrott said what was being proposed was not a single system. He said they were proposing that they meet certain standards concerning the quality of the effluent that would be put out onto these fields. He said anyone's system that beat this standard would be available to be used by the developer. He said they would have to meet the discharge standard that the county set.

Commissioner Frady said he had talked with someone recently who was a manufacturer of these machines out of Chicago. He said this person was willing to come down and go over the systems they had and how they operated. He said it would be good for him so he could understand the system better as he had never seen one.

Chairman Smith asked what had transpired to this point.

Mr. Parrott said they had talked about the fact that these systems were set up differently with different rates and different drip systems for the fields. He said there were so many different systems out there with like drip heads but different kinds of pumps. He said that was why they were recommending a standard that would be based on how good the system was in treating the effluent. He said that would have the strength of the waste water going either into the septic system or into the land application system. He said that was what they were basing the standard on. He said they were not setting the standard based on what size pumps, buildings, or tanks someone had.

Chairman Smith said as he understood it this was like a utility and a fee would be charged for it. Mr. Parrott said that was correct. He said he based the revenue on the rate the Water Committee used and an estimate of a number of customers with an average water bill on what it would generate.

Chairman Smith asked how he proposed to cover the cost. Mr. Parrott said the revenue from the customers would cover the basic costs during the first years. He said the maintenance on the system the first year would almost be nothing because once it was installed it would take a builder three or four months to build a house and by the time there were twelve houses on the system it would be 12 to 18 months down the road. He said it would not be a big expense to maintain and operate these systems to start with.

Chairman Smith asked Mr. Parrott if, in his opinion, was the quality of the discharge equal or greater than a normal septic tank. Mr. Parrott responded that it was greater. He said it would be like having two tanks, two different places for the solid settling. He said that made it twice as good as a conventional system. He said some of the drip application fields had an additional filtering process.

Commissioner Frady asked if there was someone that could be interviewed that had one of these. Mr. Parrott said there were several around.

Chairman Smith said if they did not do anything then they would be at the mercy of the state. He said if they put this in they would be tightening the regulations to the point that there was a mandatory 100% replacement in case of failure. He said what they were doing was taking on the potential responsibility of fixing them in exchange for getting the regulations to control the quality of the output from the system.

Chairman Smith asked the Board for their pleasure.

Commissioner Maxwell said he would like to table this until he had more information. He said he would like to know how many systems they were dealing with. He said he did not know how they would transfer ownership of existing systems.

Chairman Smith said this proposal was only for future systems. He said if one of the older systems approached the Board they would have to deal with that separately.

Attorney McNally said the Water Committee was asking for the Board's direction. He said this was the groundwork given and they wanted to know if the county was interested in going with this. He said this was a major step. He said they were requiring regulations over and above what was done at the state level.

Commissioner Frady said he was reluctant to get involved with this. He said they did not know what they were doing.

Chairman Smith said Mr. Parrott had a license and he knew what he was doing.

Commissioner Frady said he thought they needed to know more about what the EPD would do.

Chairman Smith said the EPD was going to do this whether they were a part of it or not. He said the issue that was upon the Board was if they were going to be proactive and try to make these things give a better effluent than a normal septic system or not do anything and let come what may.

Commissioner Horgan said he felt they should be proactive.

County Attorney McNally said if the county was not involved what had traditionally been done was the state would issue a permit to put in the system and looked for someone in the position of assuming responsibility of the development and care. He said they accepted the homeowners association. He said the concern of the Water Committee was there was no guarantee that the homeowners association would take care of it properly and there would not be a back up system when things went bad and the Commissioners would be faced with irate homeowners. He said the Water Committee proposed they take over the system, monitor it, and service it in exchange for setting and accepting higher standards for these systems.

Chairman Smith said he was not sure that more information was needed. He said the Water Committee had told the Board they were setting standards on the systems selected. He said it was not a particular system that was the issue, it was the standards that had to be met by a system no matter what brand, model or make.

Motion was made by Commissioner Horgan, seconded by Commissioner Pfeifer, instructing the Water System to move forward with the Water Committee recommendation for setting up and developing policies and procedures for county owned new drip irrigation systems. Motion carried 5-0. A copy of the Water Committee's recommendation, identified as "Attachment No. 1", follows these minutes and is made an official part hereof.

E. Discussion of the Water Committee's recommendation concerning proposed ordinance amendments to the code to enable the Water System to take over community septic and drip irrigation systems within a subdivision. A copy of the request, identified as "Attachment 21", follows these minutes and is made an official part hereof.

Mr. Tony Parrott reminded the Board this issue had been discussed last year at which time recommendations were made. He told the Board the Water Committee reviewed and adopted the Board's previous recommendations, that the Metropolitan North Georgia Water District and the Department of Natural Resources have reviewed the current recommendation, and the current recommendation was reviewed by the county attorney. He said all that was needed was the Board's approval. Commissioner Frady said he wanted to table the item so he could study the issue further. Some discussion followed. Commissioner Frady motioned to table the item and was seconded by Commissioner Pfeifer. Some further discussion followed. The motion to table the item passed unanimously.