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Small Diameter Wastewater Effluent Collection Systems

Effluent sewer systems are the most common type of wastewater collection system used for cluster systems. With effluent collection systems, a primary treatment tank, or septic tank (also sometimes referred to as interceptor tank) is located at each residence or building served. Effluent from the primary treatment tank is collected in a small diameter street collector line. Street collector lines conveying primary treated effluent can be located in relatively narrow trenches (as compared with conventional raw wastewater gravity collection lines), and can follow grade lines much more easily than raw wastewater lines, particularly in hilly areas.

Some advantages of effluent collection systems as compared with conventional gravity sewer lines include the following:

- Typical pipe sizes of 2-8 inches, with lesser construction costs due to smaller trenches;
- Long effective life of material-typically 40 years;
- Good reliability with low level of maintenance and repairs;
- Manholes eliminated (cleanouts used instead of manholes);
- Watertight collection lines and fittings/appurtenances, with infiltration and inflow greatly reduced or eliminated entirely;
- Discharges wastewater free of solids and grease.
- Much less dependent on topography than conventional gravity collection systems;
- Typically requires less excavation with resulting environmental impact and construction costs;
- Typically requires fewer lift stations than conventional gravity collection systems;
- Eliminates need for primary treatment at the shared/community final treatment and dispersal site;
- Designed to handle flows within certain ranges, and does not have built-in excess capacity characteristic of conventional gravity collection systems (this has been perceived as an advantage by planners and environmental groups in areas where there are concerns about overdevelopment, where relatively dense development depends on the availability of centralized wastewater service).

Additional information on effluent sewers and other alternative collection systems can be found in the EPA manual: *Alternative Wastewater Collection Systems* (document number EPA/625/1-91/024).