

APPENDIX B

OPTION ONE: Collective Management of Decentralized Onsite Wastewater Treatment and Disposal Systems

Option one is a community-generated option, not authored by CHS Engineers (the consultant). Therefore it appears in detail in Appendix B below.

Collective management of decentralized onsite wastewater treatment and disposal systems would establish programs to provide approved solutions which could include traditional and advanced on-site systems as well as cluster systems serving multiple homes and businesses in areas where population is more dense or located in areas with problematic soil conditions.

This option would provide community-wide programs which could include a combination of (1) cluster systems and (2) on-site systems (advanced on-site and conventional on-site).

Cluster systems that serve multiple homes and businesses could be appropriate in the more densely populated areas or in areas with less suitable soil conditions. Cluster systems use small collection networks to bring wastewater from a limited number of houses (5-100) to a common treatment and disposal area.

Conventional on-site systems would be appropriate where soil conditions support their use. Advanced on-site systems (such as sand filters, peat filters, pressure distribution systems, drip irrigation systems, disinfection systems, dual systems, aerobic treatment units, wetland treatment systems) are all technologies that can be used over a broader range of site and soil conditions than the conventional septic system.

These on-site systems employ both conventional and newer technologies. Cluster systems that serve multiple homes and businesses collectively are usually termed "decentralized wastewater treatment systems."

In sum, this decentralized option would permit a mix of Washington State Department of Health approved on-site solutions and cluster systems that individual developers or a group of homeowners could choose from. Collectively, outputs of effluent under cluster systems could reach 14500 gpd, the amount which triggers regulation by Washington State's Department of Ecology.

A collective management program could be developed in conjunction with the Island County Health Department for problem solving in the areas of decentralized onsite wastewater treatment and disposal systems. The assistance could be in the form of technical, educational support to property owners, as well as providing such programs as Community Education, System Inventory, Inspection & Assistance and Upgrades.

Advantages and land use considerations of collective management of decentralized onsite wastewater treatment and disposal systems.

1. This is the most flexible approach to the Clinton community because it is the most cost-effective strategy for a small rural community. This approach avoids the financial burden on homeowners who have properly maintained and have properly working onsite systems, while permitting homeowners who either want or need an advanced onsite system or cluster solution to organize and fund those systems independently.

2. Advantages of advanced on-site systems -- sand filters, peat filters, pressure distribution systems, drip irrigation systems, disinfection systems, dual systems, aerobic treatment units, wetland treatment systems: these can be used over a much broader range of site and soil conditions than the conventional septic systems.

Other advantages of advanced on-site systems:

- a. They avoid secondary impacts of sewer extensions
- b. They can overcome soil limitations
 - They can be used in some areas unsuited to conventional septic systems
 - They are an alternative to the need for holding tanks
- c. They can reduce the size of soil absorption system
- d. Shore areas with small lots and shallow soils can use pressure sewers

3. Advantages of cluster systems. Cluster systems use small collection networks to bring wastewater from a limited number of homes (usually 5 to 100 units) to a common treatment and disposal area. Cluster systems utilize alternative collection networks such as small-diameter gravity sewers and pressure sewer systems that are less expensive to install than the large pipes typically used in the centralized approaches.

A pressure system has significant flexibility in the way the collection network can be configured and expanded. Planning and construction of a pressure sewer system can be done in a manner very similar to a water distribution system. Compared to gravity sewers, pressure sewer pipes are smaller, buried relatively shallow and do not need to be located at the low elevation side of a lot.

Wastewater from the cluster system is pretreated and discharged either into a communal subsurface drainfield or into a land application system that uses irrigation.

Other features of cluster systems:

- a. They can decouple building lots from soil/size limits imposed by wastewater system
- b. They require nearby area suitable for treatment and dispersal/reuse
- c. They create opportunities for multiple use of cluster site
- d. They avoid individual holding tanks

4. If a management program is developed, decentralized options could become just as reliable and dependable as the centralized techniques. The viability of the decentralized approach depends on the establishment of an appropriate management program assuring that these technologies are properly operated and maintained.

5. A mix of solutions avoids the pitfall of using a sole source supplier.

6. Decentralized systems can replace failing onsite systems. Today more options for wastewater management exist than ever before, and these options provide rural communities with environmental protection, flexibility needed to plan for future economic growth, and lower installation costs than traditional centralized wastewater management systems. In fact, in a 1997 report to the U.S. Congress, the EPA found that "the `decentralized approach' to wastewater management favors rural communities and frequently will be more cost-effective than centralized sewerage. The price tag to construct a centralized sewerage system has become prohibitive for less densely developed rural communities. And, increasing environmental requirements pose significant challenges for wastewater systems that discharge treated wastewater into waters such as rivers, streams, and coastal waters."

7. Decentralized wastewater systems are low impact development and are compatible with ULID concepts. These systems minimize the sudden impact of a major construction project which would disrupt local and ferry traffic conditions, and avoid the potential for large pollution accidents due to the discharge of untreated effluent resulting from the failure of a centralized system.

8. Decentralized wastewater systems can provide wastewater treatment solutions matched to planned land use and available water supply. Properly used onsite and cluster systems, when combined with

conservation provisions in land use plans and ordinances, can protect groundwater and maintain open space.

Features of decentralized wastewater systems:

1. Advanced onsite and cluster systems could require more attention than a property owner can be expected to provide and therefore could require the establishment of an operation and management program.
2. This program will need to receive continuous wastewater management education in order to provide customers with ongoing education of new technologies.
3. The management program will need to be coordinated with regulatory agencies regarding the guidelines for management of a variety of systems.
4. It is difficult to calculate the cost per customer because the specific solutions to be selected and implemented cannot be pre-determined until the need or demand arises by the landowner or group of landowners. However, known retail and wholesale costs for specific systems that are approved and listed by the Department of Health are available.
5. This option could be implemented inside or outside the proposed service area to provide approved solutions for wastewater treatment and disposal, community-wide.

Collective Management of Decentralized Treatment and Disposal Options: Managing and permitting a mix of approved onsite technologies and cluster or membrane for new development or upgrades to existing onsite systems.

Wastewater Collection:	sand filters, peat filters, pressure distribution systems, drip irrigations systems, disinfection systems
Effluent quality:	Tertiary <5/5 (BOD/TSS), w/ nitrogen removal
Initial Plant Capacity:	14,500 minimum for cluster or multiple housing unit
Expansion or upgrade potential:	None needed within a 20 year period
Effluent Disposal Method:	Varies depending upon system used
Effluent Reuse Potential:	Varies depending upon system used
Sludge Handling:	Varies depending upon system used
Time to implement:	Less than 6 months to install most alternatives
Plant Site area:	Varies depending upon system used
Residential customers:	353 connections
Commercial acres served:	33.8 (406 ERUs) can be served by a cluster system

SOME RESOURCES AVAILABLE; a selected list

The following is a summary of other resources that might be helpful in finding solutions to problems encountered by individual property owners.

Environmental Protection Agency at
www.epa.gov/OWM/mtb/decent/new.htm

Onsite and Clustered (Decentralized) Wastewater Treatment Systems

- EPA releases the new [Voluntary National Guidelines for Management of Onsite and Clustered \(Decentralized\) Wastewater Treatment Systems](#)
- Comment on the [Handbook for Management of Onsite and Clustered \(Decentralized\) Wastewater Treatment Systems](#)
- [Educational Materials for Homeowners](#)
<http://www.epa.gov/OWM/mtb/decent/homeowner.htm>
- [Wastewater Treatment Programs Serving Small Communities](#)

National Small Flows Clearinghouse <http://www.nsfsc.wvu.edu>

PipelineNewsletter http://www.nesc.wvu.edu/nsfc/nsfc_pipeline.htm

Popular with small community officials, citizens, maintenance and inspection personnel, and community educators, each quarterly issue of *Pipeline* focuses on a single wastewater topic and presents it in an easy-to-read format.

Helping America's Small Communities Meet Their Wastewater Needs

[NODP Phase IV Products "Tools for Communities" Now Available](#)

http://www.nesc.wvu.edu/nsfc/NODP_products.htm

[Spring 2003 issue of *Small Flows Quarterly* is now available for download](#)

NODP PRODUCTS "Tools for Communities"

The National Environmental Services Center (NESC) is now offering a series of products from the National Onsite Demonstration Program's (NODP) Phase IV project. The "Tool for Communities" series is designed to assist communities address onsite/decentralized wastewater management issues.

The purpose of the recently completed Demo IV project was to develop an increased understanding of community wastewater treatment challenges and develop products, case studies, and resources to further assist small communities in their wastewater projects. This onsite management tool kit consists of 12 products. These products are designed to be used in consecutive order.

1. Community Onsite Options: Wastewater Management in the New Millennium
2. Approaches to Onsite Management: Community Perspectives
3. Managing Onsite Wastewater Treatment Systems Adds Value
4. Insights into Community Onsite Management Systems: A National Overview
5. Community Self-Assessment
6. Sanitary Situation Survey: Individual Housing Unit Responses Form
7. Sanitary Situation Survey: Individual Lot Assessment
8. Envisioning Your Community's Future
9. Community Readiness Indicator
10. Financing Your Community's Onsite Management System
11. Overview of Onsite Technologies
12. Enabling Mechanisms: Options for Community Onsite Management

Wastewater Management Program

A list of wastewater-related documents in Word or PDF may be found on the [Publications](#) Web page from the Washington State Department of Health, and include the following publications: Website address: [Web: http://www.doh.wa.gov/wastewater.htm](http://www.doh.wa.gov/wastewater.htm)

- List of Approved Systems & Products (January 2003)

As Established in Chapter 246-272 WAC On-site Sewage Systems
<http://www.doh.wa.gov/ehp/ts/WW/Approved-System-Jan-2003.doc>

- Aerobic Treatment Units (Effective Date: December 31, 2002)
<http://www.doh.wa.gov/ehp/ts/WW/ATU-Dec-2002.doc>

- Feb 2002 U.S. EPA Onsite Wastewater Treatment Systems Manual. <http://www.epa.gov/ORD/NRMRL/Pubs/625R00008/625R00008.htm>

For more information or additional copies of this document, contact:

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Note: The 1995 Washington State WAC, which governs on-site wastewater treatment systems, still references the 1980 version of the ***EPA Onsite Wastewater Treatment Systems Manual***.

<http://www.doh.wa.gov/ehp/ts/WW/SummaryPage-1980-EPA-Onsite.htm>

To Order a free copy of the (Feb. 2002) U.S. ***EPA Onsite Wastewater Treatment Systems Manual*** from EPA at:

<http://www.epa.gov/OWM/mtb/decent/new.htm#osdmml>