

MEMORANDUM

TO: Edmond Miga
FROM: Jay Sheehan
DATE: May 1, 2006
RE: Addendum to the Town of Wilbraham Wastewater Mini Study

This addendum was prepared to supplement the Wastewater Mini Study report in accordance with a March 29, 2006 meeting with representatives from the Wilbraham Department of Public Works and Hampden-Wilbraham Regional School District. The purpose of the meeting was to discuss the alternatives and recommendations presented in the Wastewater Mini Study report. The Town requested clarification of the regulatory requirements regarding the Minnechaug Regional High School's wastewater system. As a result of the town's review of the collection system evaluation, the report's recommendations were revised. This memorandum presents these clarifications and revisions.

Minnechaug Regional High School

Massachusetts Title 5 regulations govern all aspects of on-site sewage treatment and disposal systems. According to Title 5, any on-site disposal system with a design flow over 15,000 is required to upgrade its system to include treatment. The Minnechaug Regional High School inspection sheets state the design flow for the high school's three systems is 16,000 gpd, which exceeds this regulatory threshold.

The DEP allows an alternative method of calculating system capacity where the septic system owner can use actual water usage times two to set the system's rated capacity. Actual water usage for the High School (based on 6 years of winter water usage) is approximately 14,000 gpd. Using the actual water usage times two results in a system sized for 28,000 gpd, far exceeding the regulatory limit for a Title 5 subsurface disposal system. Therefore, the School must consider alternative wastewater disposal options. Although water conservation measures such as low-flush toilets and low-flow fixtures could reduce the water usage at the schools, the reduction would not be enough to bring the schools under the 15,000 gpd regulatory threshold.

Collection System Technology Recommendations

All feasible alternatives for providing sewer service to the entire study area including the Minnechaug Regional High School were determined to be generally comparable in cost. However, these alternatives are widely varied in terms of ease of implementation and operation and maintenance requirements. These considerations were further explored during the meeting and are summarized by treatment technology.

On-Site Wastewater Treatment at the High School

Although initial cost estimates indicated that on-site wastewater treatment at the High School would be an advantageous option, further review revealed that the annual operation and maintenance (O&M) costs of a treatment facility would be higher than originally anticipated. Based on actual O&M cost information from similar sized treatment facilities in Massachusetts, the projected annual O&M costs would be as much as \$40,000/year. Based upon this new information, on-site wastewater treatment at the High School is no longer an appealing option.

Low Pressure System

As demonstrated in the report, a low pressure system with individual grinder pumps has the lowest present worth cost for sewerage Main Street. However, such a system places greater responsibility on the customer since homeowners have to buy and maintain their own pumps. In the long-term, this could be problematic because equipment may not be serviced and replaced by homeowners when necessary. Additionally, such an arrangement may require an increased service call effort such as in the case of a power outage.

Vacuum Sewer System

Although a vacuum sewer system has multiple advantages when it comes to construction, it is significantly more costly to design and construct than a low pressure system. It is also more expensive to operate than the other systems. Moreover, the availability of qualified construction contractors, vendors and service providers is limited, and their knowledge of proper installation, various modes of system operation, and troubleshooting techniques is constrained by the minimal quantity of these installations in New England.

Conventional Gravity System

A conventional gravity system, as proposed in the report, is the most costly alternative to construct due to the need for deep excavation. Originally, the proposed layout consisted of a gravity sewer in which the flow from the entire study area would be directed towards the High School and then pumped via a force main to the existing manhole in Main Street. The site topology is such that excavations in excess of 18 feet would be necessary.

A modified alternative of this system was proposed during the meeting. This alternative would consist of a gravity sewer system with two pump stations, one on the High School parcel and another one near the Wilbraham-Monson Academy (WMA) property. Flow from the south part of the study area will be collected at the High School pump station and pumped to the WMA pump station where it will be combined with the flow from the north portion of the study area. The entire flow will then be pumped to the existing manhole in Main Street.

The benefits of this alternative are as follows:

- reduced excavation depths
- ease of long-term maintenance
- no need for additional staff training
- widely available replacement parts

- takes responsibility off the individual homeowner
- power outage handled with backup power at pump stations
- provides excess capacity for future changes

Conclusion

Meeting attendees concluded that a modified gravity sewer alternative presents the most sensible option for sewerage Main Street and the High School. This alternative would ensure ownership and maintenance responsibilities are not with the individual homeowners, which will improve the reliability of the system. The system would also be most consistent with the existing sewer infrastructure in Wilbraham, thereby facilitating its proper operation and maintenance.

It is recommended that a preliminary design phase be conducted to finalize the technical configuration and overall costs prior to final design. The preliminary design phase should consist of a topographic and utility survey to refine the analysis and verify the adequacy of a gravity sewer solution. This preliminary design would also present a map of the proposed system layout.

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Attachment

cc: Tonya Basch – Town of Wilbraham
Ed Cenedella – Wilbraham-Hampden Regional School District
Bob Rafferty, Polina Liberman – Woodard & Curran