

December 3, 2008

Mr. Joseph Saster, Chairman  
Douglas Water and Sewer Commission  
PO Box 624  
Douglas, MA 01516

12-08-08P03:49 RCVD  
TOWN ENGINEER  
DEC 10 2008

RE: North Village Residential Development  
Sewer Design Review

Dear Mr. Saster:

In accordance with our proposal dated July 10, 2008, BETA Group, Inc. (BETA) has completed a review of the submitted design for wastewater related infrastructure for the above referenced project. The design review was based on the plan set, entitled "North Village – A Comprehensive Permit Definitive Site Plan" and dated April 15, 2008 and revised November 19, 2008, as prepared by Heritage Design Group of Whitinsville, MA. These plans address comments issued by BETA on August 14, 2008 concerning the initial submittal.

Specific comments related to the revised design are as follows.

1. Sheet 23
  - a. Since the grade of the forcemain varies, air release valves must be installed at all relative high points along its run. An air release valve and a clean out shall be provided in the vicinity of Station 6+10, where the force main bends upward to cross the plate arch culvert.
  - b. The forcemain is shown as 3-inch Schedule 40 PVC. The "Guides for the Design of Wastewater Treatment Works, TR-16" suggest a minimum forcemain size of 4-inches. Please revise the forcemain size to 4-inches and change the PVC pipe standard to AWWA C-900.
2. Sheet 28
  - a. Sewer Manhole 24 is identified as an "In-line Flushing". Since this manhole is located at a high point in the low pressure forcemain profile, provisions for automatic air release must be made.
  - b. Sewer Manhole 23 is identified as "Air Release". Since this manhole is located at a low point in the low pressure forcemain profile, provisions for in-line flushing must be made. It appears that the identification of Sewer Manholes 23 and 24 may be reversed.
  - c. The low pressure forcemain is identified as 2-inch SDR-11 PVC. This forcemain should be identified as SDR-11 HDPE.
3. Sheet 42
  - a. The forcemain from the junction of the discharge piping from pump #1 and pump #2 to its terminus at Sewer Manhole 22 shall be have a nominal 4-inch diameter.

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Pipe sizes and the corresponding penetrations in the valve pit must be adjusted accordingly.

4. Sheet 43

- a. With the use of a 4-inch forcemain, the operating point of the selected pump must be redefined and the ON/OFF elevations for the lead pump adjusted accordingly to provide the manufacturer's recommended number of start/stops per hour.
- b. In reference to Detail 6/43 (Forcemain Manhole Connection), "Option 1" does not appear to be appropriate for use at Sewer Manhole 22, where the manhole must be constructed over an existing sewer.

5. Electrical and Instrumentation

- a. Telemetry system for alarms must be coordinated with the Town of Douglas. Alarms should be segregated by criticality, to comply with the Town's current telemetry system. Critical alarms shall include wet well flood, generator failure, instrumentation control panel failure, wet well low level. Non-critical alarms shall include pump 1 failure, pump 2 failure, main utility power failure and wet well high level.

Please note that BETA has not addressed any issues relating to the operation, maintenance, and/or ownership of the pumping station, E/One pumps, and associated force mains. Our review focused on the engineering components only. We suggest that the Town and its Water and Sewer Commission address these issues.

Very truly yours,  
**BETA GROUP, INC**



Joseph D'Alesio, P.E.  
Sr. Vice President

cc: Douglas Zoning Board of Appeals, c/o William J. Cundiff, P.E.  
William J. Cundiff, P.E., Town Engineer