



Town of Nantucket Sewer Department WASTEWATER MANAGEMENT

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RESIDENTIAL GRINDER PUMP DESIGN, SELECTION & INSTALLATION

The Town of Nantucket Sewer Department has established standards for the design and installation of residential grinder pump units connecting to the municipal sewer, including the type/model of pump(s) that will be approved for use. Attached is the Town's current grinder pump unit specification section, which will apply to all Sewer Connection Permit Applications issued by the Nantucket Sewer Department for properties that will require a grinder pump.

NANTUCKET HARBOR SHIMMO AND PLUS PARCELS SEWER EXTENSION PROJECT

In conjunction with the recently constructed NH Shimmo and Plus Parcels Sewer Extension Project, the Town of Nantucket is offering homeowners in these project areas a reduced price for the purchase of their grinder pump units (*). To that end, the town conducted a public bid process to secure pricing for the specified grinder pump units and has since entered into contract with Williamson Electrical Company, Inc. for the purchase of **Barnes ECOTRAN-OGP2022CE** units. Based on the design of the sewer system in this area and on the public bid process, **THIS IS THE ONLY APPROVED UNIT FOR PROPERTIES IN THE NH SHIMMO & PLUS PARCELS SEWER EXTENSION AREAS.**

For more information on the Barnes ECOTRAN-OGP pump units, see attached information or contact Bob Greene at Williamson New England Pump & Motor, (617) 884-9200.

(*) Please note that the discounted grinder pump purchases are only for properties within the NH Shimmo and Plus Parcels Sewer Extension Project area. Discounted units will not be offered to patrons outside of this project area.

ALL OTHER SEWERED AREAS

For any other connections to the municipal sewer (i.e. properties outside of the NH Shimmo and Plus Parcels Sewer Extension Project area) requiring an on-lot grinder pump unit, the Town prefers the Barnes Ecotran-OGP2022CE since it meets the town standard specification in all aspects and provides for standardization town wide with regard to repair and maintenance of grinder pump units. The town has gone to great lengths through the recent public bid process to require on island support and inventory for these pumps.

The specified pumps include complete factory-built and tested, Underwriter's Laboratory (UL) listed units, with all components to be provided by one supplier. We have concerns with any proposals to custom design and build the stations since this will make it difficult to meet the town specification and will require more checks and balances on review of the design and installation.

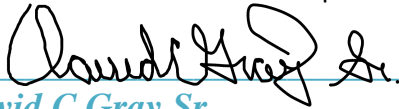
One of the common concerns/desires we are hearing is in regard to providing additional storage due to the size of the dwellings or to power disruptions. It should be noted that during extreme power failure events, there are other more pressing issues than the ability to use the waste water system. Following are a few other comments regarding this subject:

- A report by Sump & Sewage Manufacturers Associated determined that water usage during a power outage is reduced to 20.9%, or on average 35.5 GPD during an outage. The specified units provide a 150-gallons storage capacity to the cover, which equates to four days of storage capacity under these reduced water usage conditions for properties that do not include waste water facilities in their basement (i.e. below the cover elevation of the external grinder pump unit).
 - The typical grinder pump basin package has 65 gallons of storage to the invert and 150 gallons to the top of the basin
- Average duration of a power outage in MA in 2017 was 29 minutes. This does differ on the island due to coastal storms but it has improved over the years.
- A common option, which is being supplied with the Barnes ECOTRAN units for the NH Shimmo Area grinder pump basin packages, is a remote power connection on the control panel. During an extended power outage, the basin can be pumped down using a portable generator.
 - If the residence is equipped with a backup generator, the grinder pump would be powered by this power source as well
- Another option within the ECOTRAN units regarding additional or emergency storage is to install sloped storage chambers of 12" to 18" diameter pipe, connected to the two remaining inlet connections on the specified unit (see attached detail).
- For residences with higher water usage, duplex pump systems are available in various storage capacities exceeding 500 gallons utilizing the same specified grinder pumps and basin configuration. When these types of systems are requested, they will be reviewed per application for potential approval.

Another request we are getting is in regard to using septic tanks, or concrete manholes, as large grinder pump storage tanks. The Town does not allow these applications based on the following concerns:

- A low-pressure sewer system collects and transports sanitary wastewater to the WWTF. Regardless of the manufacturer, the pump systems are designed to have minimal storage between pump on and off so that the sewage is retained within the basin for a minimal amount of time prior to discharge to the municipal sewer and ultimately the WWTF. Therefore, the typical grinder pump basin has minimal volume between the pump on and off level and is sized to withstand a high number of starts per hour. Septic tanks are designed to retain and breakdown sewage whereas grinder pump systems are designed to pump the wastewater before it turns septic.
 - **Retention time associated with large tanks fosters odor issues and solids' settling in the tank – the goal is to avoid both issues.**
- Concrete tanks with the associated gaskets will, over time, develop leaks and potentially allow ground water infiltration, which not only impacts the loading on the WWTF, but can also potentially affect the local ground water.
- Grinder pumps need to remain submerged to properly cool and should be placed immediately over the wastewater with sloping sidewalls to funnel the sewage just below the grinder pump, thereby preventing stagnant areas within the tank and the associated solids build up and odors.

We trust this information is helpful – let us know if you have additional questions.



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