

# Elk Rapids Township

## Grinder Pump Station Specifications for Birch Lake Area Sewer

### **1.0 GENERAL:**

The Township has developed these specifications to ensure compatibility between the individual grinder pump stations and the Township force main. The specifications contained herein are intended to provide the owner and/or the installing contractor with minimum requirements for use of the Township collection system. In addition to these specifications, the owner and/or installing contractor shall follow the manufacturer's installation specifications. The Township specifications do not relieve the owners and/or their installation contractors from obtaining additional permits and/or licenses from other regulating authorities, as may be required, nor does it provide any relief from the obligation to comply with rules, regulations, codes, and permit requirements that may apply to the work undertaken in the installation, repair, or replacement of their facilities.

### **2.0 INSPECTION:**

The Township shall require inspection by their designated representative for any new installation. The cost of this inspection shall be included as part of the connection or "tap" fee charged to the owner for connection to the system. Maintenance, repair, and/or replacement work shall not require inspection by the Township, however, conformance to these specifications is still required. Where a nonconforming repair or installation is discovered after-the-fact, such deviation shall be corrected at the owner's cost.

### **3.0 SINGLE PHASE GRINDER PUMP & PANEL INSTALLATIONS:**

Where owners are installing a new or replacement grinder pump and panel as a complete set, the following specifications shall apply. The standard grinder pump and panel installation package is a Liberty Pump, model LSG202M with a SJE Rhombus model 122 simplex pump control panel.

#### Pump Specifications:

The LSG202M is a 2 hp Omnivore single-stage grinder pump with a 1-1/4" discharge, operating at 208/230V, 1-Ph, 15 amps max., and is float operated (manual). Pump motors shall be oil filled, class B insulated NEMA B design, rated for continuous duty. The pump motors shall be internal capacitor start/capacitor run and have an integral thermal overload switch in the windings for protecting the motor. The pump discharge shall be equipped with a slide rail disconnect fitting, which is compatible with the existing rail system used throughout the Birch Lake Sewer (ABS rail system). The design operating point for the grinder pump is 42 gpm at 60 ft. TDH and the max shut-off head is 110 ft.

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### Panel Specifications:

The SJE Rhombus model 112 control panel shall include a NEMA 4X enclosure with a top mounted red alarm beacon, an alarm horn with 83-85 decibel rating, exterior alarm test/normal/silence switch, magnetic motor contactor, HOA switch, pump run indicator light, float switch terminal block, alarm and control fuses, alarm and control power indicators, ground lug, pump disconnect circuit breaker, redundant off float (four float operation), elapsed time meter, an auxiliary alarm contact, and a lockable latch. Control panels may be either wall mounted or post mounted, but must be installed within sight of the pump basin.

### **4.0 SINGLE PHASE GRINDER PUMP ONLY REPLACEMENT:**

Where owners are installing a new or replacement grinder pump to be used with an existing control panel (pre-2016), the following specifications shall apply. The standard grinder pump and panel modification package is a Liberty Pump, model LSG202M-C with a Liberty start/run capacitor kit #K001316.

### Pump Specifications:

The LSG202M-C is a 2 hp Omnivore single-stage grinder pump with a 1-1/4" discharge, operating at 208/230V, 1-Ph, 15 amps max., and is float operated (manual). Pump motors shall be oil filled, class B insulated NEMA B design, rated for continuous duty. The pump motors shall be *external* capacitor start/run and have an integral thermal overload switch in the windings for protecting the motor. The pump discharge shall be equipped with a slide rail disconnect fitting, which is compatible with the existing rail system used throughout the Birch Lake Sewer (ABS rail system). The design operating point for the grinder pump is 42 gpm at 60 ft. TDH and the max shut-off head is 110 ft.

### Panel Modification Specifications:

The existing ABS panels are equipped with start/run capacitors, which are not compatible with the Liberty grinder pump. Do not attempt to install the standard replacement pump without replacing the existing capacitors. The existing panel shall be modified by replacing the existing start/run capacitor with the Liberty K001316 external capacitor retrofit kit to ensure compatibility with the new pump. Owners shall carefully evaluate the condition of their existing control panels and suitability for reuse, including alarm function before proceeding with a retrofit kit.

### **5.0 THREE PHASE GRINDER PUMP & PANEL INSTALLATIONS:**

Where owners are installing a new or replacement 3-phase grinder pump and panel as a complete set, the following specifications shall apply. The standard 3-phase grinder pump and panel installation package is a Homa Pump, model GRP19/3 with a custom built simplex pump control panel with phase converter by Standard Electric.

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### Pump Specifications:

The Homa Barracuda GRP 19/3 is a 1.9 hp single-stage grinder pump with a 1-1/4" discharge, operating at 230V, 3-Ph, 6 amps max., and is float operated (manual). Pump motors shall be oil filled, class F insulated, rated for continuous duty. Three phase pump motors shall have an integral thermal overload switch in the windings for protecting the motor and shall be reversible run. The pump discharge shall be equipped with a slide rail disconnect fitting, which is compatible with the existing rail system used throughout the Birch Lake Sewer (ABS rail system). The design operating point for the grinder pump is 30 gpm at 60 ft. TDH and the max shut-off head is 100 ft.

### Panel Specifications:

The Standard Electric custom built control panels include internal phase converters to convert the building single phase 230V power supply to three phase power to run the pumps. The panels shall include a HOA switch as well as a reverse run switch. Control panels may be either wall mounted or post mounted, but must be installed within sight of the pump basin.

### **6.01 ALTERNATES**

Where an owner has an alternate pump and/or panel manufacturer or model proposed, such alternate shall be approved prior to installation. In order for the Township to evaluate a proposed alternate, the owner shall submit such product information and engineering specifications as deemed necessary by the Township's engineer. At a minimum this will include pump curve data, construction specifications, and electrical data, along with any other product information deemed necessary by the engineer to determine equivalency and compatibility with the pressure sewer system.