

Date: December 7, 2024

Project #: HC24BC034

RE: RMOw - Installation of Grinder Duplex Sump Pump for Whistler Public Library Washroom Drainage

BACKGROUND

Resort Municipality of Whistler (RMOw) is experiencing ongoing clogging issues in the public library washroom drainage system. A recent camera inspection identified a problematic branch fitting connection within the existing sanitary piping, where toilet waste frequently clogs, leading to backups. The fitting is located beneath the custom air handling unit, making it difficult to access for replacement or modification.

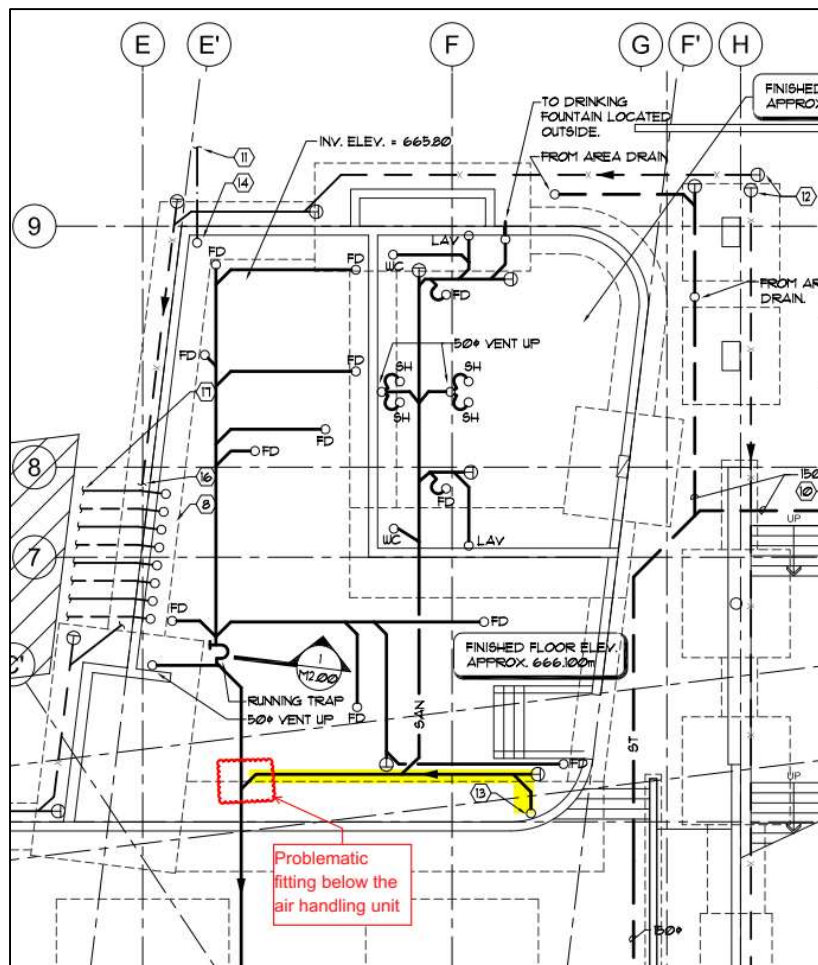


Figure 1: Location of Problematic fitting (Record Drawings M2.00)

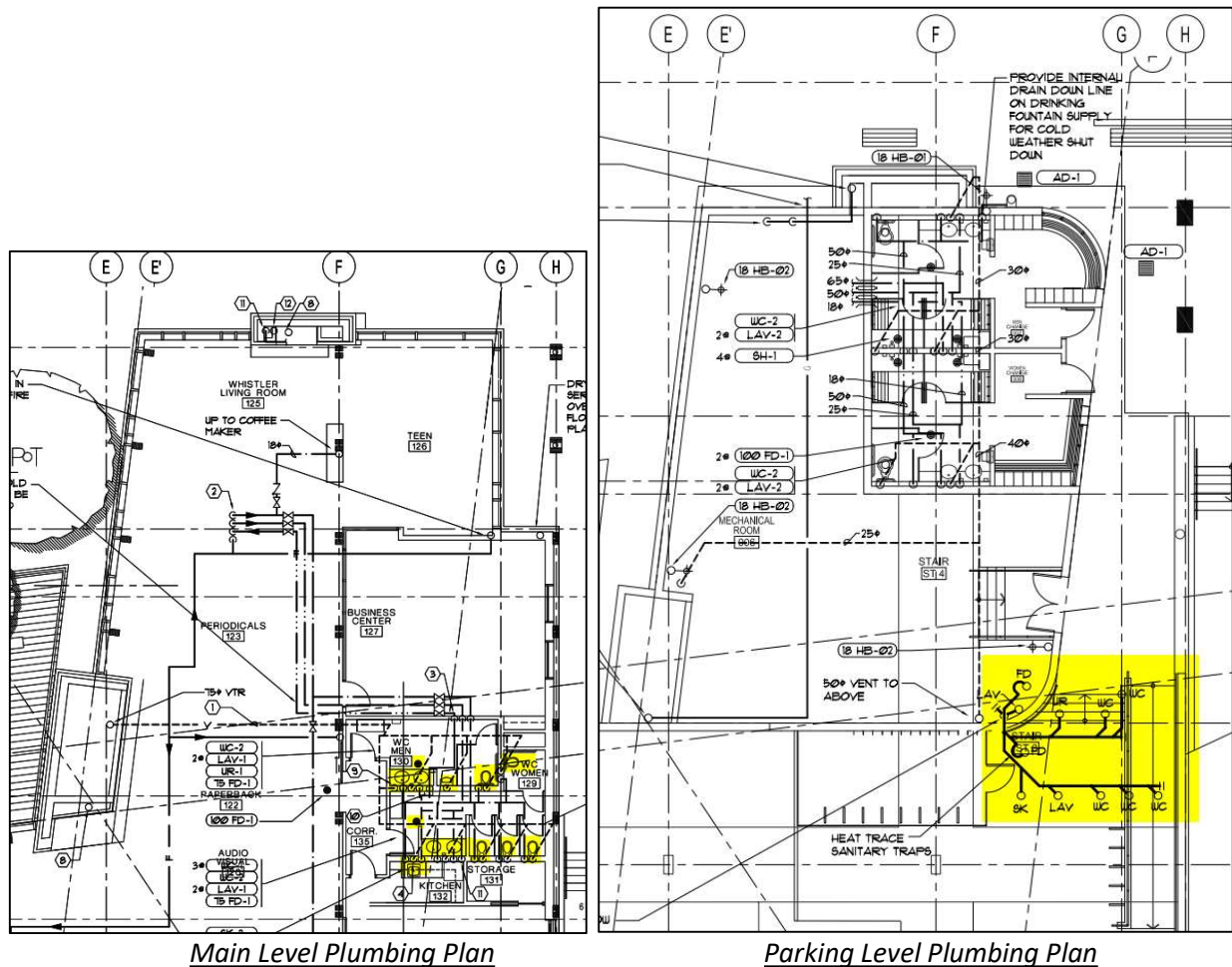


Figure 2: Public Washroom Group (Record Drawings, M2.01 & M2.02)

PLUMBING SCOPE OF WORK

1. Install Duplex Sump Pump mounted on the ground in the mechanical room, complete with a housekeeping pad. Refer to the concept sketch in Figure 3.
2. Apply intumescent coating to the entire basin or alternatively, provide a complete enclosure.
3. Remove a section of the existing 4" sanitary vertical pipe to redirect sanitary drainage to the new sump pump.
4. Extend a new 4" sanitary pipe to the sump pump. The contractor shall coordinate the exact locations of the new sump pump and the sanitary disconnection point on site before starting work.
5. Install a 2" Schedule 80 PVC (or galvanized or stainless steel) discharge pipe, complete with a combined check and shut off valve. Connect it to the existing 4" sanitary vertical pipe at a low level using a 2" to 4" reducer.

6. Install a new 2" dedicated vent for the sump pump or connect it to the existing vent system at the very top of the common vent, in compliance with the BC Plumbing Code or as approved by the RMOW inspector. Verify the exact routing on-site prior to rough-in.
7. Relocate the existing floor drain currently located in the area where the new sump pump will be installed, if necessary.
8. Mount the AE21L-3 Duplex Panel Control/Alarm, near the sump pump. Ensure it is securely fastened and readily accessible for operation and maintenance. The exact location shall be coordinated with RMOW.
9. Test and commission the sump pump system, including both pumps, the control panel operation, and alarms. Verify functionality and performance in the presence of the owner or their representative.
10. Sump pump system installation shall conform to the British Columbia Plumbing Code 2024.

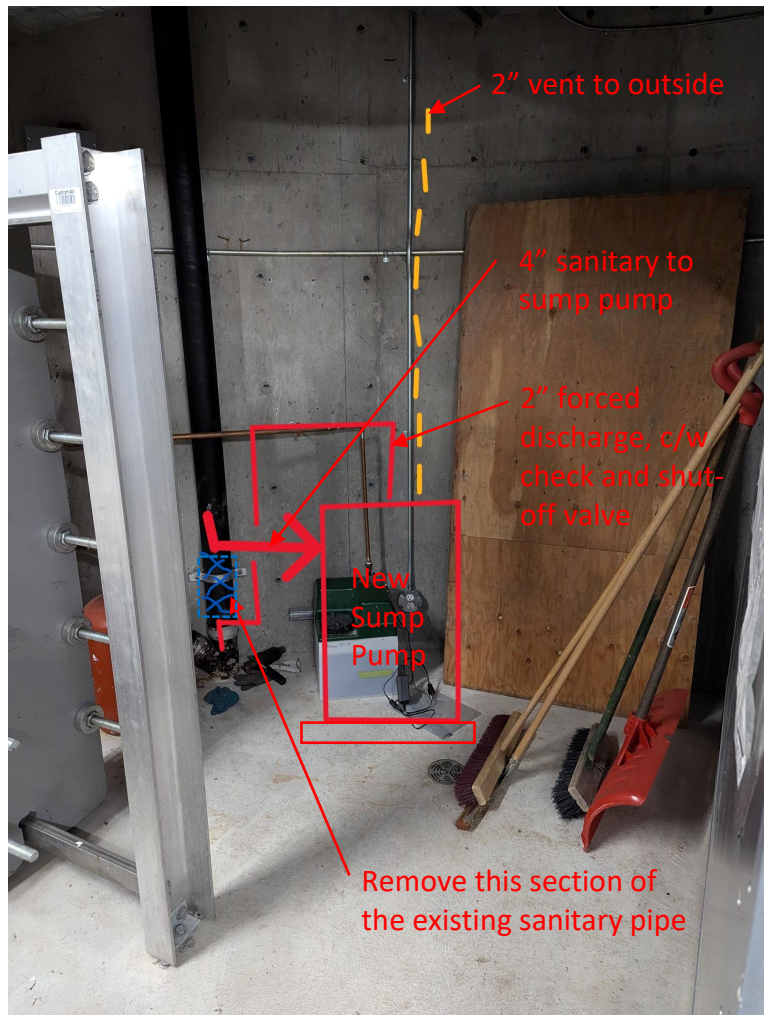


Figure 3: New Sump Pump Installation Concept Sketch

SUMP PUMP SPECIFICATIONS

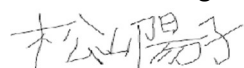
Liberty Pump, 36" diameter x 36" tall fiberglass tank with Duplex Grinder Sewage Pump System, 1102/PRG102M, 1 HP, Full load amp - 6 amp each pump, 230V, 4" Cast Iron inlet, 2" discharge, 35 gpm @ TDH - 4.5', c/w mechanical flow switches, a 2" combined check and shutoff valve, AE21L-3 duplex control panel/alarm, NEMA 1 indoor type, three (3) float switches, including a high water alarm. Pump shall be equipped with a self-resetting thermal overload protection switch and be rated for continuous duty (refer to Appendix A: Sump Pump Specs).

ELECTRICAL SERVICE SCOPE OF WORK

1. All installations must be compliant to the standards outlined in the current Canadian Electrical Code.
2. Obtain permit from TSBC.
3. Provide a dedicated 230V circuit for the sump pump system, capable of supporting two (2) pumps, each with full load current of 6 amps, operating simultaneously.
4. Wire the control panel to the two grinder pumps, ensuring correct connections for the three float switches.
5. Test the entire system, including pump operation, float switch functionality, and alarm responses, providing both visual and audible alerts in case of pump failure or high-level conditions.
6. Provide grounding and bonding as required.

Sincerely,

HENA Consulting Inc



Yoko Matsuyama, P.Eng, LEED® AP



APPENDIX A:
Sump Pump Specifications

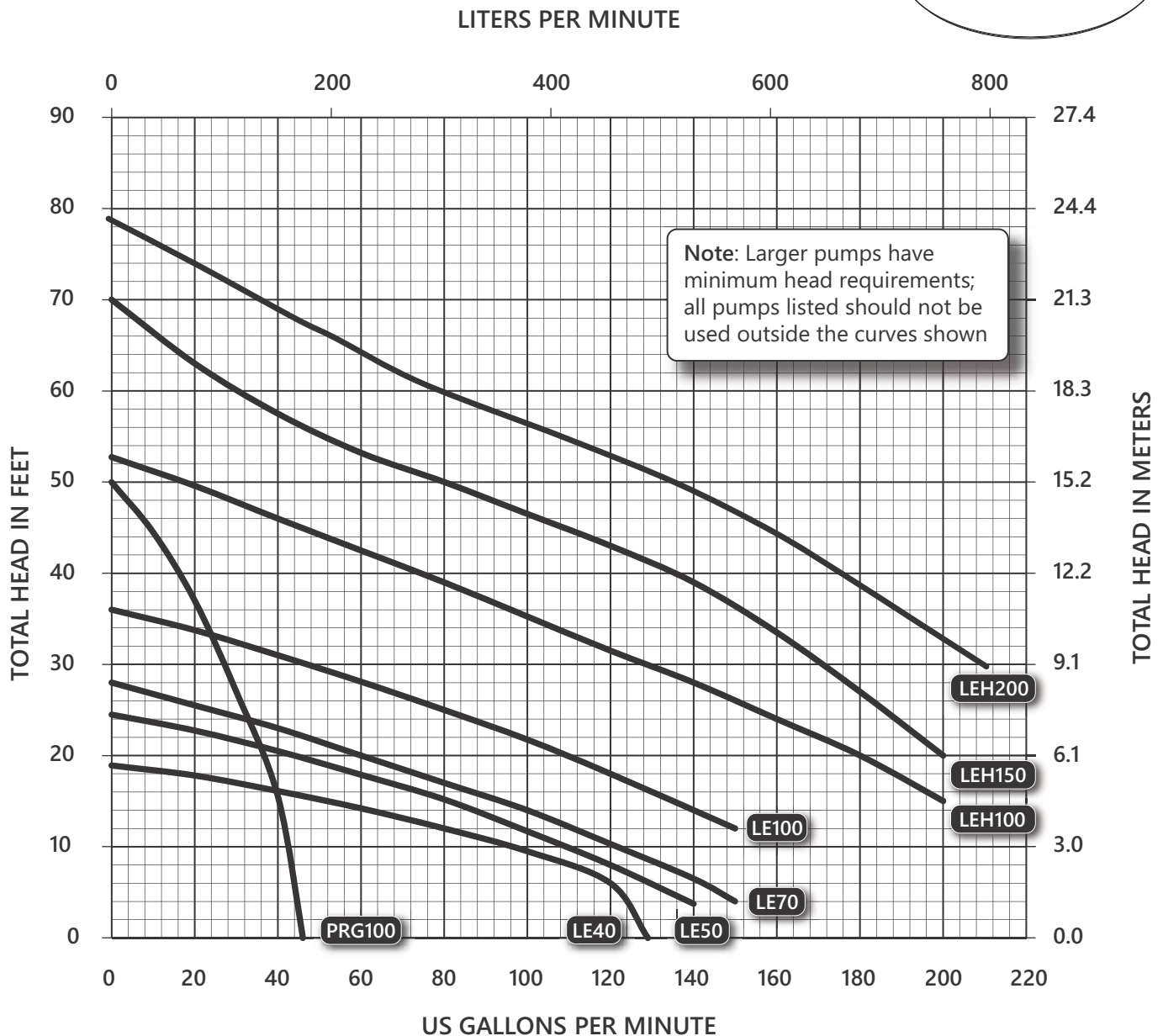
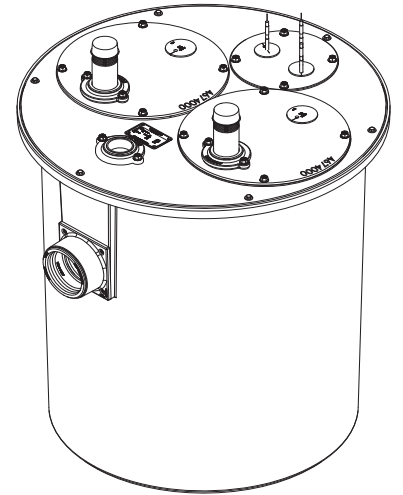
System Specification

1100-Series

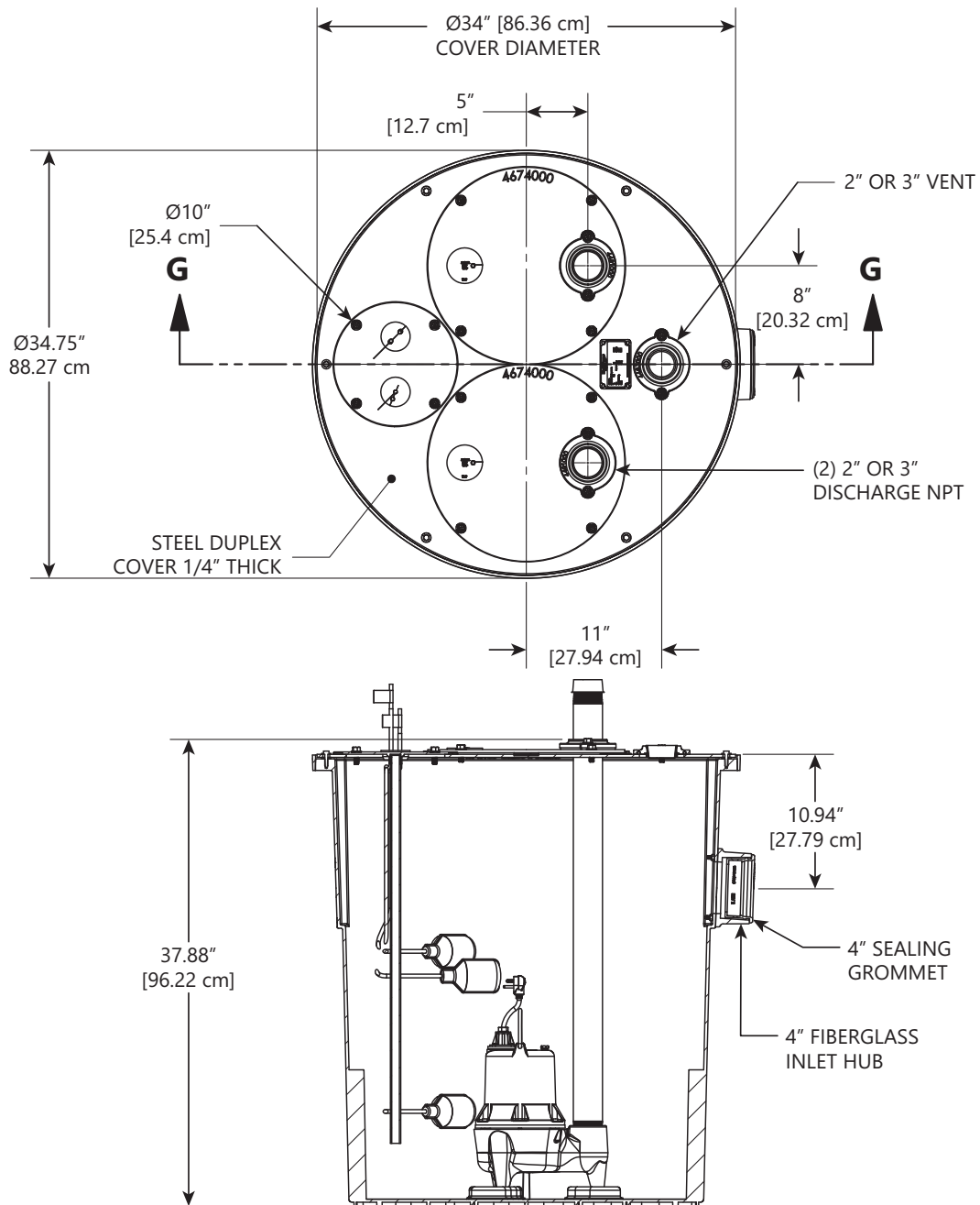
Pre-assembled Duplex Sewage System

30" x 36", 110 Gallon

Indoor Use ONLY



1100-Series Dimensional Data



SECTION **G-G**

1100-Series Electrical Data

| MODEL | HP | VOLTAGE | PHASE | SF | FULL LOAD AMPS ¹ | LOCKED ROTOR AMPS ¹ | THERMAL OVERLOAD TEMP | STATOR WINDING CLASS | DISCHARGE | AUTOMATIC |
|--------------|-------|---------|-------|-----|-----------------------------|--------------------------------|-----------------------|----------------------|-----------|-----------|
| 1102/LE41M | 4/10 | 115 | 1 | 1.0 | 12 | 22.5 | 105°C / 221°F | B | 2" | NO |
| 1102/LE51M | 1/2 | 115 | 1 | 1.0 | 12 | 22.5 | 105°C / 221°F | B | 2" | NO |
| 1102/LE52M | 1/2 | 208-230 | 1 | 1.0 | 6.8 | 12 | 105°C / 221°F | B | 2" | NO |
| 1102/LE71M | 3/4 | 115 | 1 | 1.0 | 12 | 29.1 | 105°C / 221°F | B | 2" | NO |
| 1102/LE72M | 3/4 | 208-230 | 1 | 1.0 | 6 | 13.5 | 105°C / 221°F | B | 2" | NO |
| 1102/LE73M | 3/4 | 208-230 | 3 | 1.0 | 4.1 | 14.7 | N/A | B | 2" | NO |
| 1102/LE74M | 3/4 | 440-480 | 3 | 1.0 | 2.1 | 7.4 | N/A | B | 2" | NO |
| 1102/LE102M | 1 | 208-230 | 1 | 1.0 | 8 | 22.3 | 105°C / 221°F | B | 2" | NO |
| 1102/LE103M | 1 | 208-230 | 3 | 1.0 | 5.3 | 18.3 | N/A | B | 2" | NO |
| 1102/LE104M | 1 | 440-480 | 3 | 1.0 | 2.5 | 9.2 | N/A | B | 2" | NO |
| 1102/LE105M | 1 | 575 | 3 | 1.0 | 1.9 | 7.1 | N/A | B | 2" | NO |
| 1102/LEH102M | 1 | 230 | 1 | 1.0 | 12 | 28.6 | 120°C / 248°F | B | 2" | NO |
| 1102/LEH103M | 1 | 208-230 | 3 | 1.0 | 9 | 32.4 | N/A | B | 2" | NO |
| 1102/LEH104M | 1 | 440-480 | 3 | 1.0 | 4.5 | 16.2 | N/A | B | 2" | NO |
| 1102/LEH105M | 1 | 575 | 3 | 1.0 | 3.3 | 12.8 | N/A | B | 2" | NO |
| 1102/LEH152M | 1-1/2 | 208-230 | 1 | 1.0 | 15 | 53 | 135°C / 275°F | B | 2" | NO |
| 1102/LEH153M | 1-1/2 | 208-230 | 3 | 1.0 | 10.6 | 61 | N/A | B | 2" | NO |
| 1102/LEH154M | 1-1/2 | 440-480 | 3 | 1.0 | 5.3 | 31 | N/A | B | 2" | NO |
| 1102/LEH155M | 1-1/2 | 575 | 3 | 1.0 | 4.8 | 24 | N/A | B | 2" | NO |
| 1102/LEH202M | 2 | 230 | 1 | 1.0 | 18 | 53 | 135°C / 275°F | B | 2" | NO |
| 1102/LEH203M | 2 | 208-230 | 3 | 1.0 | 13.2 | 61 | N/A | B | 2" | NO |
| 1102/LEH204M | 2 | 440-480 | 3 | 1.0 | 6.6 | 31 | N/A | B | 2" | NO |
| 1102/LEH205M | 2 | 575 | 3 | 1.0 | 5.5 | 24 | N/A | B | 2" | NO |
| 1102/PRG101M | 1 | 115 | 1 | 1.0 | 12 | 47.5 | 105°C / 221°F | B | 2" | NO |
| 1102/PRG102M | 1 | 230 | 1 | 1.0 | 6 | 23.7 | 105°C / 221°F | B | 2" | NO |

| MODEL | HP | VOLTAGE | PHASE | SF | FULL LOAD AMPS ¹ | LOCKED ROTOR AMPS ¹ | THERMAL OVERLOAD TEMP | STATOR WINDING CLASS | DISCHARGE | AUTOMATIC |
|--------------|-------|---------|-------|-----|-----------------------------|--------------------------------|-----------------------|----------------------|-----------|-----------|
| 1103/LE41M | 4/10 | 115 | 1 | 1.0 | 12 | 22.5 | 105°C / 221°F | B | 3" | NO |
| 1103/LE51M | 1/2 | 115 | 1 | 1.0 | 12 | 22.5 | 105°C / 221°F | B | 3" | NO |
| 1103/LE52M | 1/2 | 208-230 | 1 | 1.0 | 6.8 | 12 | 105°C / 221°F | B | 3" | NO |
| 1103/LE71M | 3/4 | 115 | 1 | 1.0 | 12 | 29.1 | 105°C / 221°F | B | 3" | NO |
| 1103/LE72M | 3/4 | 208-230 | 1 | 1.0 | 6 | 13.5 | 105°C / 221°F | B | 3" | NO |
| 1103/LE73M | 3/4 | 208-230 | 3 | 1.0 | 4.1 | 14.7 | 105°C / 221°F | B | 3" | NO |
| 1103/LE74M | 3/4 | 440-480 | 3 | 1.0 | 2.1 | 7.4 | 105°C / 221°F | B | 3" | NO |
| 1103/LE102M | 1 | 208-230 | 1 | 1.0 | 8 | 22.3 | 105°C / 221°F | B | 3" | NO |
| 1103/LE103M | 1 | 208-230 | 3 | 1.0 | 5.3 | 18.3 | N/A | B | 3" | NO |
| 1103/LE104M | 1 | 440-480 | 3 | 1.0 | 2.5 | 9.2 | N/A | B | 3" | NO |
| 1103/LE105M | 1 | 575 | 3 | 1.0 | 1.9 | 7.1 | N/A | B | 3" | NO |
| 1103/LEH102M | 1 | 230 | 1 | 1.0 | 12 | 28.6 | 120°C / 248°F | B | 3" | NO |
| 1103/LEH103M | 1 | 208-230 | 3 | 1.0 | 9 | 32.4 | N/A | B | 3" | NO |
| 1103/LEH104M | 1 | 440-480 | 3 | 1.0 | 4.5 | 16.2 | N/A | B | 3" | NO |
| 1103/LEH105M | 1 | 575 | 3 | 1.0 | 3.3 | 12.8 | N/A | B | 3" | NO |
| 1103/LEH152M | 1-1/2 | 208-230 | 1 | 1.0 | 15 | 53 | 135°C / 275°F | B | 3" | NO |
| 1103/LEH153M | 1-1/2 | 208-230 | 3 | 1.0 | 10.6 | 61 | N/A | B | 3" | NO |
| 1103/LEH154M | 1-1/2 | 440-480 | 3 | 1.0 | 5.3 | 31 | N/A | B | 3" | NO |
| 1103/LEH155M | 1-1/2 | 575 | 3 | 1.0 | 4.8 | 24 | N/A | B | 3" | NO |
| 1103/LEH202M | 2 | 230 | 1 | 1.0 | 18 | 53 | 135°C / 275°F | B | 3" | NO |
| 1103/LEH203M | 2 | 208-230 | 3 | 1.0 | 13.2 | 61 | N/A | B | 3" | NO |
| 1103/LEH204M | 2 | 440-480 | 3 | 1.0 | 6.6 | 31 | N/A | B | 3" | NO |
| 1103/LEH205M | 2 | 575 | 3 | 1.0 | 5.5 | 24 | N/A | B | 3" | NO |

1 Amperage values are for **each pump**. Electrical service shall be sized to support both pumps running simultaneously.

1100-Series Technical Data

| | | |
|--------|------------------|--|
| SYSTEM | BASIN | HEAVY-DUTY POLYETHYLENE BASIN |
| | COVER | POWDER COATED STEEL |
| | GUIDE RAIL | NONE - PUMPS PULL OUT WITH COVER |
| | INSPECTION COVER | 10" STEEL WITH INTEGRAL FLOAT TREE |
| | INLET HUB | 4" (PRE-ASSEMBLED) |
| | DISCHARGE PIPING | SCHEDULE 80 PVC (GALVANIZED OR STAINLESS STEEL OPTIONAL) |
| | PUMP RESTRAINT | TORQUE-STOPPS SECURE PUMP LEGS |
| | CONTROL PANELS | DUPLEX - INDOOR OR OUTDOOR ALARM WITH VISUAL AND AUDIBLE (80 dBi) ALARM |
| PUMP | IMPELLER | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | PAINT | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | MAX LIQUID TEMP | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | MAX STATOR TEMP | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | THERMAL OVERLOAD | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | POWER CORD TYPE | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | MOTOR HOUSING | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | VOLUTE | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | SHAFT | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | HARDWARE | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | O-RINGS | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | MECHANICAL SEAL | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |
| | MIN BEARING LIFE | SEE INDIVIDUAL PUMP MODEL SPEC SHEET |

1100-Series Specifications

1.01 SYSTEM

The duplex ejector system shall be (2) of model _____ as manufactured by Liberty Pumps, Bergen, NY or equal. The system shall be factory pre-assembled with pumps, discharge pipe nipples, and floats pre-mounted in the basin. Volume per pump cycle shall be factory set at 28 US gallons. Floats shall be tethered to a removable standpipe/access cover assembly.

System is restricted to indoor use only.

2.01 BASIN

The basin shall be constructed of heavy-duty polyethylene. Dimensions shall be 30" diameter x 36" deep and shall have a total capacity of 110 US gallons. The inlet hub shall be 4" and pre-assembled to basin. The basin shall have "torque-stops" to locate and retain the pump in its proper position.

3.01 COVER

The cover shall be "heavy-duty" 1/4" steel plate, enamel-coated on both sides. The cover shall be 34" in diameter and have _____ (2" or 3") discharges and vent flange. The cover shall be fitted with two 16" diameter pump openings, and one 10" diameter inspection cover with integral standpipe for float tethering. All cover hardware shall be stainless steel.

4.01 PUMP

See specific LE, LEH, or PRG-Series literature for pump performance and technical specifications.

5.01 CONTROLS

The pump shall be controlled with:

- _____ A NEMA 4X outdoor duplex control panel with three float switches including a high water alarm
- _____ A NEMA 1 indoor duplex control panel with three float switches including a high water alarm
- _____ A NEMA 4X outdoor duplex control panel with four float switches including a high water alarm
- _____ A NEMA 1 indoor duplex control panel with four float switches including a high water alarm

6.01 WARRANTY

Standard limited warranty shall be 3 years.