

Appendix 14:
81.6-Acre Project Site Fire Flow
Technical Memorandum



Joint Permit Application Package
Albany Port District Commission

**Port of Albany
Expansion Project**

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February 23, 2022

Robert Leslie, Director, Department of Economic Development & Planning
Town of Bethlehem
445 Delaware Avenue
Delmar, New York 12054

Re: Port of Albany Marmen-Welcon Manufacturing Facility: 309 River Road Fire Flow

Dear Rob:

As a follow up to the discussions that took place on the 2/17/2022 video conference meeting between representatives from the Town of Bethlehem, Selkirk Fire District, Marmen, Albany Port District, and McFarland Johnson, the following revisions are proposed to the fire protection water supply system that will serve the project site:

1. As detailed in the 1/7/22 letter the required site fire flow requirement is 2,000 gpm, consistent with the provisions of NFPA 1, Section 18.4 – Fire Flow Requirements for Buildings. The estimated fixed building fire sprinkler demand has been revised to account for building systems, that as of the date of this letter, have not been finalized (i.e. spray paint booths), as well as providing protection against shielded fires.
2. The site insurance carrier has not been determined yet, but at the owner and building user's direction the fixed building sprinkler systems have been sized per FM Global Property Loss Prevention Data Sheets.
3. As detailed in the 1/7/22 letter the domestic demand is 20.5 gpm. Because the fire flow demand will be provided by the vertical turbine pumps, it is anticipated that the Town of Bethlehem need only satisfy the plumbing flow demand, which is well below the 1,250 gpm available at the 16-inch water main. A heated enclosure with the required backflow and water metering devices will be provided as previously planned. The domestic water line size may be reduced from the previously planned 10-inch connection to a 4-inch connection.
4. It is proposed that two Vertical Shaft Turbine - Type Pumps are installed over a wet pit that will draw water from the Hudson River as shown on the attached drawing SP-00. The pumps are preliminarily sized at 2,500 gpm each and will provide the necessary flow for the site hydrants as well as the fixed building fire sprinkler demand. The final pump selection will be determined once all the building components are finalized.
5. The fire pumps will be housed in a heated enclosure, consistent with the requirements of NFPA 20 - Standard for the Installation of Stationary Pumps for Fire Protection. Refer to the Figures / images below for interior and exterior views of a similar installation.

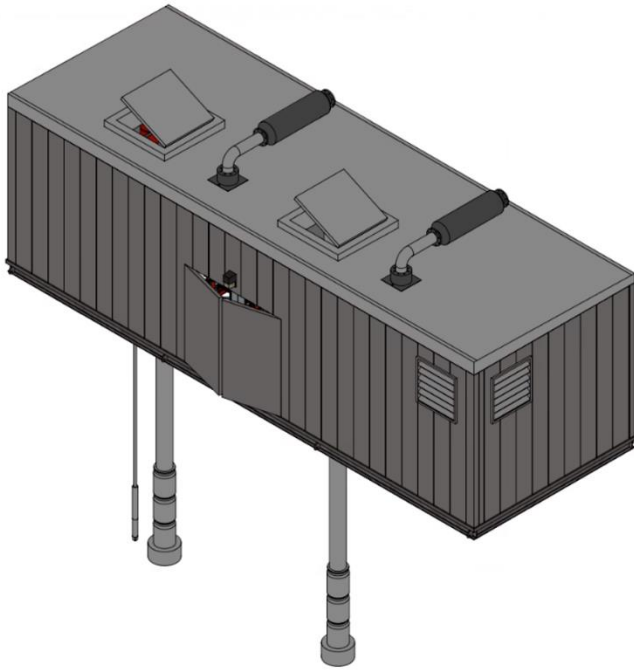


Figure 1 - Fire Pump Enclosure Exterior Detail

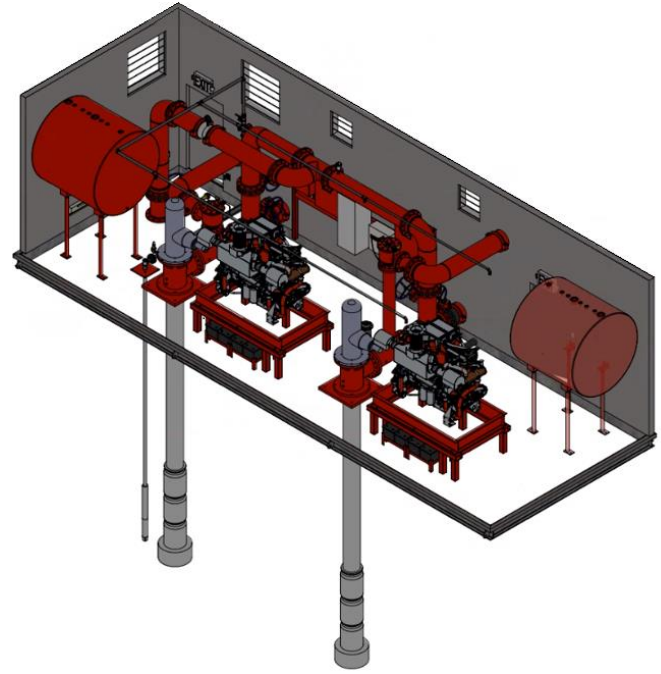


Figure 2 - Fire Pump Enclosure Interior Detail

- The enclosure will be supported on a concrete foundation with a wet pit right below it. The water for the pit will be provided by the Hudson River. The pit design will be similar to Figure 3 A.7.2.2.2 from NFPA 20, shown below:

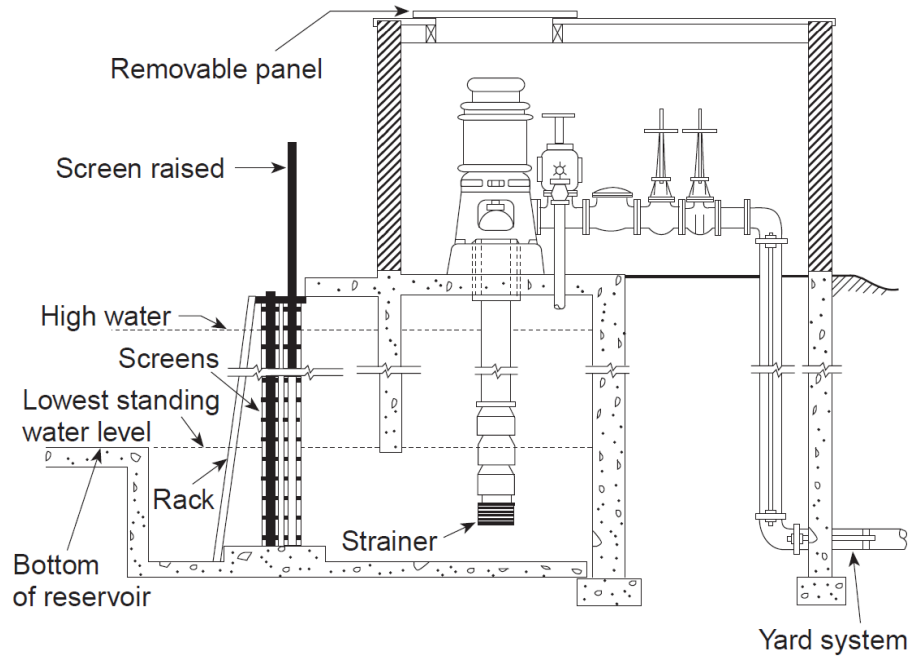


Figure 3 - Vertical Shaft Turbine-Type Pump Installation in a Wet Pit (Figure A.7.2.2.2/NFPA 20)

7. The wet pit inlet will be protected by a pair of vertical screens that will protect the pumps from debris and fish entrainment. The screen will be sized such that the inlet velocity to the wet pit does not exceed the recommended velocities of 0.2 ft/s for a passive pump screen intake or 0.4 ft/s for an active pump screen intake (NOAA - Juvenile Fish Screen Criteria for Pump Intakes).

Please advise if the proposed system concept meets with your approval so that a detailed set of plans and specifications may be developed.

If there are any questions, please do not hesitate to contact me at 607-723-9421 x2950, or via email at ppathomopoulos@mjinc.com.

Sincerely
McFarland Johnson, Inc.

Petros Papathomopoulos, PE
Project Manager

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