

**Engineering Report
Water and Sanitary Sewer**

For

HENRY STREET CONDOMINIUMS

**128 HENRY STREET
SARATOGA SPRINGS, NEW YORK**

Planning Board #17.0XX

**Prepared For:
Robert Bucher
18 Computer Drive East
Suite 103
Albany, NY 12205**

Prepared By:

**The LA Group, P.C.
40 Long Alley
Saratoga Springs, New York 12866**



December 11, 2017

I. Project Description

The Henry Street Condominium project consists of a proposed subdivision of the parcel currently occupied by Four Seasons Natural Foods on Henry Street. As a part of the subdivision, a new condominium building to house 24 units, with 49 total bedrooms, is proposed. The first floor of the building will be parking.

II. Existing Water and Sanitary Sewer Utilities

The portion of the lot where the proposed work will be completed does not currently receive water or sanitary service, since it is currently undeveloped.

Municipal water service is available from the City of Saratoga Springs. A 4-inch diameter water main is located along the western side of Henry Street. The 4-inch main connects tees into 8-inch main at the intersection of York Street.

Municipal sanitary sewer service is also available from the City of Saratoga Springs at the corner of York Street and Henry Street, where a sanitary manhole is located. The gravity sewer pipe inverts entering and exiting the manhole are both 8-inches in diameter. This sanitary line eventually connects to the Saratoga County Sewer District No. 1 (SCSD), where it ultimately is directed for conveyance and treatment at the SCSD wastewater treatment plant in Mechanicville.

III. Projected Water and Wastewater Flows

The table below provides information on the anticipated wastewater flow rates for the project:

<u>Description</u>	<u>Use Rate</u>	<u>Total Use</u>
(49) 1-bedroom units	110 gpd/unit ¹	5,390 gpd
Total		5,390 gpd

Average daily flow for wastewater is estimated to be 3.74 gallons per minute (gpm) based on a 24 hour day. Estimated peak hourly flow is 15.7 gpm (4.2 x average).²

Average daily demand for water is estimated to be approximately equal to the wastewater flow or 3.74 gpm. Instantaneous peak demand is estimated at 3.0 gpm³ for each unit giving a total instantaneous demand of 147 gpm.

For the purposes of input into the City of Saratoga Springs water model, we offer the following estimated water demands for the project:

- Average Day Demand is 3.74 gallons per minute (GPM) over the 24 hour period.

- Max Day Demand is 7.48 gallons per minute (GPM) based on twice the average.
- Peak Hourly Flow is 15.7 gallons per minute (GPM) based on 4.2 times the average.
- Fire Flow Demand is 1,000 gallons per minute (GPM) per ISO guidelines.

IV. Proposed Water and Wastewater Utilities

Proposed Water Utilities

To service the project, the existing 4-inch main in Henry Street will be replaced with an 8-inch ductile iron water main along the frontage of the property to provide domestic service to the building. It is anticipated that the units will have fire protection via a fire sprinkler system.

For a building protected by an automatic fire sprinkler system, the ISO states:

“The NFF for residential occupancies (such as apartment buildings, lodgings and rooming houses, board and care facilities, hotels, motels and dormitories) protected by an automatic fire sprinkler system installed in accordance with the general criteria of NFPA 13R, Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and including Four-Stories in Height, is the demand at the base of the automatic sprinkler riser”.

“The minimum NFF is 1,000 gpm at 20 psi for a duration of 2 hours”.

Using the minimum given by ISO, the NFF for this facility is 1,000 gpm.

Connections and appurtenances, including mechanical joints, tees, isolation valves, thrust blocks, trenching, bedding, service connections, as well as testing and disinfection will all be specified in accordance with City of Saratoga Springs standards.

Proposed Wastewater Utilities

For sanitary sewer collection, an 8-inch gravity sanitary sewer main will be extended down Henry Street. This gravity sewer will be owned and maintained by the City of Saratoga Springs. The project proposes connection to this manhole via a 6-inch lateral. The lateral will be installed at a minimum 2.0% slope to ensure adequate pipe cleansing.

Notes

1. From Table 1, Appendix 75-A Wastewater Treatment Standards - Residential Onsite Systems (110 gallons per day per bedroom)
2. From Figure 1, GLUMRB Recommended Standards for Wastewater Facilities
 $Q = (18 + P^{1/2}) \div (4 + P^{1/2})$ where P = population in thousands
3. From Tables XIV Community Water Systems Source Book, Ameen (3.0 gpm/residence)