



Sewer Lateral Assessment

To: Jon R. Schock, Public Services Director
Town of South Kingstown
Public Services Department

From: Steven Cabral
Crossman Engineering

Date: October 22, 2020

Re: Sewer Lateral
Tower Hill Landings Annex

To assist you in your evaluation of the proposed sewer connection, we prepared the following summary of the anticipated maximum day sewer flow versus the capacity of a 6-inch lateral with a minimum slope of 1%.

The forecasted average water and sewer use for the 11 Unit, 40-bedroom apartment complex is based upon the RIDEM "Rules Establishing Minimum Standards Relating to the Location, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems". The RIDEM formula assigns 115 gallons per bedroom for multifamily homes. Therefore, the maximum daily flow equals 40 bedrooms x 115 gpd = 4,600 gpd. Maximum daily flow is estimated to be 1.6 x Average Daily Flow, therefore an annualized average daily flow of 2,875 gpd is estimated.

Peak Domestic Flow Rate (GPM):

To estimate the peak domestic flow rate, we utilized the peaking factors from Table 2-1, Ratio of Extreme Flow to Average Daily Flow, American Society of Civil Engineers and Water Pollution Control Federation which identifies a Peak Factor of 5.7:

$$\text{Peak Flow Rate} = 2,875 \text{ gpd} \times 5.7 (1/(24 \text{ hours/day})) / (60 \text{ mins/hour}) = 11.4 \text{ gpm}$$

Proposed Connection Point:

We recognize the potential to utilize two (2) existing sewer laterals but for this analysis, the capacity of one (1) 6-inch line will be determined. Following completion of the building's internal plumbing system, the use of one versus two laterals will be reassessed.

Utilizing the Manning's Formula for open channel flow and assuming a Manning's N value of 0.012 for PVC pipe and a slope of 1%, the flowing full capacity of a 6-inch lateral was determined to be:

Lateral Capacity = 273.0 gpm, which exceeds the forecasted discharge.