



September 28, 2020

Mr. Rudolph V. Lioce III, Chairman
Board of Sewer Commissioners
Post Office Box 644
Milford, MA 01757

Subject: The Residences at Stone Ridge - Phase II
Sewer Review
Milford, Massachusetts
T&H No. 1112

Dear Mr. Lioce:

As requested, Tata and Howard (T&H) has reviewed the “Comprehensive Permit Application” dated June 5, 2020 submitted by the Gutierrez Company for the proposed Phase II Residences at Stone Ridge housing development. The project site consists of approximately 17.25 acres on an approximately 80-acre parcel. The project consists of three residential buildings, a swimming pool, and a fitness center.

The development plans of the parcel have evolved since the original approval was granted. The Gutierrez Company previously obtained approval for the Stone Ridge Office park at the same location for 625,000 square feet of office space. The previously approved design flow for the development was 46,875 gpd. The Phase I development permit application was submitted for review on March 8, 2018 and included a long-term design flow 79,171 gpd. The Phase I long-term design flow included 388,750 square feet of office space. The wastewater system design included 2,900 linear feet of gravity sewer, a pump station with two 350 gallon per minute (gpm) pumps, and 2,300 linear feet of 6-inch force main.

The long-term design flow for the development was revised in the Phase II permit application to include additional dwelling units and reduced the office space development plans. The number of bedrooms submitted in Phase I March 8, 2018 application was reduced from 426 bedrooms to 383 bedrooms. A summary of the evolution of the design is included in Table No. 1.

Table No. 1
Development Plans

Location	Design Flow	Total Design Flow
Original Approval	625,000 SF office space	46,785 gpd
Phase 1 Long-Term (Approved 2018)	63,085 SF Restaurant Depot 462 Bedroom Residential 388,750 SF Office Space	79,171 gpd
Phase 2 Long-Term (Current Application)	63,085 SF Restaurant Depot 843 Bedroom Residential 21,120 gpd Conceptual Design	117,004 gpd

The Residences at Stone Ridge Phase II includes 296 dwelling units with a total of 460 bedrooms located on Deer Street off Cedar Street. Based on this information, we estimated the increased wastewater flow generated by the proposed Phase II development and compared it to the approved design flow for the pump station.

The wastewater generation for Phase II was estimated utilizing Massachusetts Title 5 System Sewage Flow Design Criteria. To estimate the added flow generated for the pool, it was estimated that 15% of the residents would use the swimming pool on any given day. The I/I for this analysis was estimated using the approximately 1,450 linear feet pipe length for sewers within the residential development. Table No. 2 contains the estimated flow using the Title 5 Design Criteria. For the 460-bedroom development, this method results in a total daily flow of 50,600 gpd.

Table No. 2
Title 5 Flow Design Criteria

Location	Design Flow	Units	Total Flow
Residents	110 gpd/bedroom	460 bedrooms	50,600 gpd
Swimming Pool	10 gpd/person	104 people (15% residents per day)	1,035 gpd
I/I	200 gpd/idm	1,450 LF of 8" pipe	439 gpd
Total			52,074 gpd
Future Development			21,120 gpd
Total Revised Flow			73,194 gpd

The proposed development application includes the construction of an additional pump station upstream of the previously approved pump station for the development. The proposed Upper Deer Street Pump Station would discharge to the previously approved Lower Deer Street Pump Station.

A second pump station does not appear to be necessary for this project. Based on the plans provided, the development should be served by gravity sewer to the previously approved pump station. Adding an unnecessary pump station would add more opportunity for complications and failure in the system and would concentrate flows to the lower pump station at the pumping rate of the proposed pump station rather than gradually as they are generated.

The proposed flow to the Lower Deer Street pump station has increased by 73,194 gpd. Based on the Milford Sewer Regulations and Massachusetts Department of Environmental Protection's (MassDEP) Guidelines for the Design, Construction, Operation, and Maintenance of Small Wastewater Treatment Facilities with Land Disposal, wet well capacity shall be designed for at least 6 hours of emergency storage above the working level.

As previously agreed, the Lower Deer Street Pump Station includes an 8-foot diameter wet well and a hydraulically connected 10-foot diameter wet well. The intent of the addition 10-foot diameter wet well was to provide the minimum 6 hours of emergency storage at the long-term design flow submitted with Phase I. With the increase in total design flow to the system, there is not enough emergency storage at the station. To provide six hours of storage for the added Phase II flow, the Lower Deer Street Pump Station will require an additional 18,299 gallons of capacity.

The Phase II application includes replacing the previously approved 7.5 horsepower (hp) pumps with two 12 hp pumps. The 12 horsepower pumps must be sized to accommodate the long-term flow from the development with the largest pump out of service.

We recommend that the wet well volume at the Lower Deer Street pump station be increased to allow for adequate emergency storage for the revised design flow. The pump capacity is unknown for the Lower Deer Street Pump Station; therefore it is recommended that the Board request pump design including pump curves and wet well fill and pump cycles. It is recommended that the Board request detailed design documents for review and approval.

We appreciate the opportunity to review this application for the Board. Please call if you have any questions.

Sincerely,
TATA & HOWARD, INC.



James V Hoyt, P.E.
Project Manager

cc: Mr. John Mainini – Town of Milford