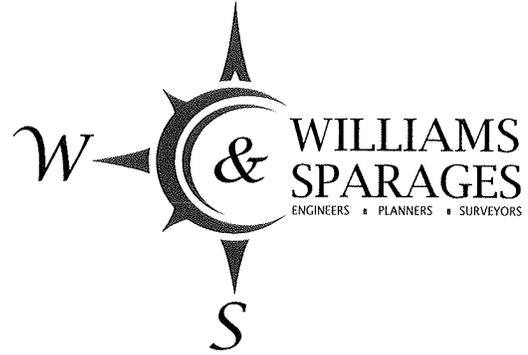


CONC-0020

August 2, 2019

Elizabeth Hughes, Planning Director  
Town of Concord  
Planning Division  
131 Keyes road  
Concord, MA 01742



RE: Public Health Director memo to Planning Director dated August 2, 2019  
36-unit Planned Residential Development, 1440 Main St.

Enclosed please find your use, our responses to the referenced comments provided by the Health Division. We respectfully, thank all staff for their additional time, regarding this project, and are available to assist with any additional clarifications.

*This review is based on the plans dated June 14, 2019, prepared by Williams and Sparages Engineers, which describes the above-referenced residential development.*

*The Health Division offers the following comments relative to construction of the proposed shared on-site sewage disposal system that will serve the 36 units. Please note, per the definition of **Shared System** in 310 CMR 15.000: a system serving a condominium located on the same facility is not a shared system. This will be one System, serving one Facility, which will be real property in control of single ownership, a condominium association made up of all the owners of the dwelling units served by the system.*

1. *The plans submitted with the application do not show sufficient detail to determine if the on-site sewage disposal system will conform with all requirements of 310 CMR 15.000 (Title 5). Specifically, the following information will be needed: A separate Sewage Disposal Plan will be prepared and submitted to the Board of Health for review and Approval.*
  - (a) *No reserve area is shown. Reserve Area is shown as dashed lines between primary on Utility Plan (Sheet 5). Is the reserve area designed in between the proposed primary leaching trenches? Yes, reserve trenches are shown in between primary.*
  - (b) *Approximately 800 ft. of sewer line runs from Unit 5 to the septic tank over an elevation drop of approximately 20 ft. Sewer manholes are shown approximately every 100 ft. Will these manholes be used as drop manholes to accommodate for elevation changes? Drop manholes are unlikely, sewer line will generally follow driveway slope of less than five-percent (2% min). The slope of each sewer line segment between manholes must be shown to meet the requirements of 310 CMR 15.222: Building Sewers Sewer lines will meet requirement*
  - (c) *Per 310 CMR 15.212: Depth to Groundwater, a groundwater mounding analysis must be conducted to determine high groundwater elevation. We concur, A groundwater mounding analysis along with pressure distribution calculations for soil absorption system will be provided at time of Application for Disposal Works Construction Permit.*

- (d) *Based on the elevation of the nearby isolated wetland, it is likely that the septic tanks and pump chamber may be located in groundwater. If so, invert elevations for these tanks must be above estimated seasonal high groundwater and buoyancy calculations must be provided. Inverts will be above estimated seasonal high groundwater and buoyancy calculations for each tank will be provided on Sewage Disposal System Plan.*
- (e) *It is recommended that a generator be installed to power the septic system pump chamber in the event of a power failure. A generator can be provided adjacent to mail station and pump chamber if required. The septic system design requires sewage to be pumped to the SAS for pressure distribution. Agreed. The pump chamber as designed provides storage capacity for two days of system design flow. In the absence of a generator, residents will not be able to dispose of any wastewater after two days of power loss. Provisions will be provided within the condominium documents to ensure continued use of system in event of power failure, either thru the use of a generator or a contract with local pumping contractor to maintain available emergency storage equivalent to daily design flow.*

2. *The septic system as proposed will be significantly challenging to construct and maintain, as the space available is highly constrained due to the number of units, significant competition for space for underground utilities, topography, and other site constraints. Health Division staff have the following concerns:*

- (a) *The SAS is located in an open area in the middle of most of the units. Once the dwelling units are constructed, there will be limited access for large construction equipment to get into this area should repairs to the SAS be needed. If the reserve area is located in the same area as the primary SAS, and if the primary SAS fails or needs repair, large areas of the SAS will need to be excavated, and clean soil brought in to construct a new SAS. Once the dwelling units are constructed, there will be restricted access for large equipment and no area to stockpile excavated soil or clean soil being brought in. Large equipment would be forced to drive over Zone B of the SAS to access Zone A, which could potentially damage Zone B. Should any minor repairs be deemed necessary, smaller scale equipment such as a backhoe or rubber track excavator would likely be utilized for all areas of the soil absorption system. Inspection ports at the end of each trench lateral will also be provided. Inspection of any line is possible at any time to confirm proper function of system. Should the reserve area need to be utilized, then a construction sequence will be provided and provisions outlined to protect any remaining system components and abutting dwellings.*
- (b) *The SAS will be constructed 20 ft. from the foundations of some of the units. If repairs or replacement of the SAS is required, maneuvering heavy equipment to excavate and repair the SAS in close proximity to building foundations will be challenging. Should this scenario occur, then a construction sequence schedule will be provided to the town prior to construction which could include directive to use smaller scale equipment at locations in close proximity to dwelling units.*

- (c) *Due to the site density and competition for space to provide for utilities and stormwater drainage, if the final design of the septic system does meet 310 CMR 15.000, there will be limited options for re-design and relocation of the system. The final design will meet Title 5 by providing a properly sized primary area and a reserve area for upgrade as outlined in the System Table provided on the Utility Plan (Sheet 5). In the future, prior to any on-site upgrades of the system, including use of the reserve area, the Owner could be required by 310 CMR 15.004: (3), to connect entire system to sanitary sewer, provided additional capacity has been made available at such time.*
3. *It should be noted that the septic system is designed for 90 bedrooms with a design flow of 9900 gpd. If the design flow was 10,000 gpd or above, permitting of the system would be done by MA DEP who would require a Groundwater Discharge Permit. As part of this permit, DEP would likely require an advanced wastewater treatment unit be constructed in recognition that effluent must be treated to a higher level to prevent impacts to groundwater when high volumes of effluent are being applied to the ground in a small area. Adding one bedroom to the current design would put design flow above 10,000 gpd. There will be no additional bedrooms added to the System. The number of bedrooms (up to 90 bedrooms maximum) to be served by the System, will be allocated and specified for each condominium unit in the Master Deed per 310 CMR 15.203: System Sewage Flow Design Criteria (2)\*\*\*.*

Thank you for opportunity to offer our perspective to these items, please do not hesitate to contact our office with any questions.

Respectfully,

For: Williams & Sparages



Richard J. Harrington, P.E.

cc: Susan Rask, Town of Concord, Public Health Director

Jeffrey Rhuda, Manager, Symes Development & Permitting, LLC