Board of Health

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MEMORANDUM

TO: **Sherborn Zoning Board of Appeals, ZBA**

FROM: **Sherborn Board of Health, BoH**

DATE: **March 20, 2024**

RE: **Farm Road Homes 40B – BoH Comments and Recommendations on Septic System Issues**

The following constitutes an update to information provided on March 18, 2024 (via e-mail) to address a request from the Applicant following March 14, 2024 submittals by the project's engineer of (i) a revised septic plan and (ii) responses to prior BoH questions and comments.

Items identified by the Health Agent as outstanding septic system issues and shared in the e-mail of the 18th were further discussed at the Board of Health's meeting that evening. Text from the e-mail is shown in black. Additions and updates from the Board's meeting are indicated by blue text.

1. ***Resolution of outstanding concerns about compliance with Title 5 requirements for mounding and nitrogen loading analyses for septic systems with flows >2,000 gallons per day.*** The Peer Reviewers' most recent comments indicated that they share concerns about these analyses, which the Board has attempted to resolve with the Applicant in a variety of ways. (See other issues noted by the Items that follow.) Given this validation of its concerns and the need for the Board to have complete confidence in being able to proceed with determinations about compliance for these matters, the Board made a motion to:

   > Recommend to the ZBA that a third party carry out the analyses of hydraulic conductivity, groundwater mounding, and nitrogen loading calculations.

   The motion passed with a 3:0 vote.

2. ***Profiles for the step-trenches and location of the septic tanks, including the tanks utilized for the innovative technology, and the pump chamber.*** It is standard practice to include profiles on septic plans involving step-trenches (e.g., as was most recently done for Greenwood Street Homes' plans) and for the other components noted. Profiles are used to demonstrate compliance with respect to: 310 CMR 15.220(4)(o) and (s); 310 CMR

15.221(7), (8), and (13); and required distances to finished ground surface, estimated high groundwater, and other site infrastructure.

In addition to the step-trenches and other components noted above, the Board revisited the importance of profiles for understanding the placement of underground utilities and their relationships to one another (e.g., water lines must be protected from sewer lines), as was relayed in earlier written statements to ZBA.

The Board determines that these profiles are essential for compliance assessment and that it would be inappropriate for the BoH to prepare elements of what it is meant to review for compliance (as was suggested by the Applicant's team). The Peer Reviewer made similar comments.

3. Proper value for post-treatment septic effluent total nitrogen (TN) concentration. For the purposes of nitrogen loading analyses, the assumption about TN in the post-treatment effluent shall be a minimum of 25 mg/l because the system is > 2,000 gallons per day; only some systems below that threshold may use the 19 mg/l value in performance calculations. Since the 25 mg/l value for TN is currently approved for various SeptiTech STAAR systems but not the engineered version proposed for this project, the BoH notes that assumption may have to change depending on what conditions are in a forthcoming Provisional Use Approval for the SeptiTech STAAR 13.5 system (if it is approved).

The Board's discussion of 3-18-2024 included not only this issue but the overall situation of the outstanding approval from MassDEP for the engineered SeptiTech STAAR 13.5 system. Related comments are provided below under Item 8.

4. ***Alternative USGS comparison wells.*** As it relates to the status of the Frimpter method utilized, the correct formula was utilized for the Winchendon well but this well is not the closest USGS well to use for Sherborn (as also noted by the Peer Reviewer). It is requested that other USGS wells, with the same/similar type of terrain and soil, be utilized for comparison. In particular, the type of soil at this location is closer to a sandy loam – loamy sand mix.

The Board maintains that there is value in performing these comparison evaluations for this large project.

5. Adjustments to groundwater data. Information on groundwater adjustments, as provided by the Applicant on March 12, 2024, does not correspond to the BoH Agent's observations in the field for monitor pipe 55 – 11 AN. Groundwater was recorded in the Agent's field notes at this monitor pipe at 15.75 feet but the engineer shows the groundwater at 16.25 feet. The date this monitor pipe was read was April 27, 2021. Data for other monitor pipes for this

area are not per the Agents field notes and 5-1, 5-2, 5-3, and SLTP -2 were not observed by the Agent.

These are not necessarily critical issues, since they appear to be minor variations, but they should be accurate. An overall issue is that a variety of data used by the engineer (beyond these noted, including Item 6 below) does not correspond to the Agent's field notes, as was communicated in previous deficiency letters.

(See additional comments under Item 6.)

6. ***Soil absorption system design flow rate adjustment.*** As reviewed previously, a design flow rate of 0.74 gallons per day per square foot is being used rather than 0.60 gallons per day per square foot as required for a Class II soil (per 310 CMR 15.242 and .243. The Class II soil classification is based on the BoH Agent's soil evaluations in the field.

   The Board concluded that, when discrepancies exist between soil classifications and other field observations made by the project engineer and by Sherborn's Health Agent, the Agent's classification shall be used. The differences are small and using the more conservative classifications (i.e., the Agent's) is recommended by MassDEP.

   To use an applicant's interpretation over that of a regulatory body's Agent would be setting a new precedent.

7. ***Groundwater flow direction.*** Although the project engineer has stated in various responses that the "7" to a "dozen" monitoring wells have been installed in accordance with BoH standards, it needs to be pointed out that monitoring wells in test pits --advanced during subsurface investigation for the soil absorption system-- are serving a different purpose than groundwater slope/flow direction assessment.

   Thus, to comply with Title 5 mounding and nitrogen loading evaluations for systems with flows > 2000 gallons per day, an appropriate method for determining groundwater flow direction shall be applied, including any additional data collection needed.

   (See Items 1 and 9.)

8. ***Outstanding MassDEP Provisional Use Approval for the proposed SeptiTech STAAR engineered system.*** Given that:
   - a Provisional Use Approval has not yet been issued for the engineered system proposed for Farm Road Homes, and
   - Provisional Use Approvals typically contain more conditions of use than do General Use Approvals and those conditions are unpredictable at this time,

the Board concludes that it is not feasible (even if there were no other existing septic plan deficiencies, such as Items 6 and 9) to approve the septic system proposed, conditional to receipt of Provisional Use Approval for SeptiTech STAAR 13.5 from MassDEP because requirements potentially associated with MassDEP's approval are too speculative and complex to frame.

9. ***Additional subsurface investigations.*** The Health Agent noted that he has not witnessed all test pit and other subsurface investigations performed by the Applicant's consultants. While that is not required for all instances, it is necessary for key observations that affect system compliance. The Board supports the Agent's:
    - request for additional test pits in the tanks' areas and another in the SAS area; and
    - recommendation that such subsurface investigations be witnessed by the Health Agent and a third party (e.g., the Peer Reviewer).

Other items may be forthcoming pending new information, some of which may result from responses by the Applicant to the Peer Reviewer's most recent comments.