

April 25, 2022

Mr. John Field, PE
Land Use Coordinator
Zoning Board of Appeals
11 Townhouse Rd.
Weston, MA 02493-7320

**Subject: Wetland Impact Review, Hanover-Weston 40B
518 South Avenue**

Dear John and Board Members:

This report summarizes my analysis of potential wetland impacts that may result from development of the Hanover-Weston 40B project. My comments refer to the latest revised plan ("Plan") and documents submitted to the Zoning Board of Appeals ("Board") in March, 2022.

GENERAL COMMENTS

My analysis is based on regulations issued by MassDEP under the Wetlands Protection Act ("WPA"). The project site contains multiple state-protected wetland resources, including:

- Bordering Vegetated Wetlands ("BVW");
- An unnamed stream within the BVW, which is a tributary to Bogle Brook;
- Bank, associated with the stream; and
- Land Under a Waterbody, also associated with the stream.

UNRESOLVED WETLAND-RELATED ISSUES

Throughout the hearing process for this application, three key wetland-related issues have been identified and discussed at length. In my opinion, these matters remain problematic.

Concerns are: (1) wastewater system location; (2) groundwater alterations (including mounding); and (3) impacts to wetland resources.

(1) Wastewater System Location

The project's proposed effluent leaching area lies as close as 50-feet to the edge of BVW. The placement is in violation of the MassDEP July 2018 "Guidelines for the Design, Construction, Operation, and Maintenance of Small

Wastewater Treatment Facilities with Land Disposal,"¹ which requires a minimum setback of 100-feet.

The Applicant responds that these are only "guidelines," a position which disregards the purpose of the 100-foot setback. Further, the Applicant has argued that Title 5 only requires a setback of 50-feet. However, a wastewater treatment facility is not a Title 5-regulated system, and the comparison is inappropriate.

The Applicant has offered no substantive discussion about why the MassDEP recommended 100-foot setback should not apply, and instead emphasizes that the state will review the wastewater system prior to approval. I spoke last year to Keven Brander, the DEP Section Chief for wastewater system approvals, who stated that MassDEP does *not* conduct site-by-site wetland impact analysis.

Therefore, my overriding concern about the proximity of the leaching area to the wetlands is that the effluent may change groundwater quality. The MassDEP guidance is intended to ensure that that does not occur. That the wetlands and brook are sensitive receptors is not disputed. Because the Plan places the leaching area 50-feet closer to wetlands than recommended by the state, that safeguard is compromised.

(2) Groundwater Alterations

The project will increase the volume of water intercepting groundwater and as a result, raise the elevations of groundwater through mounding. Although groundwater modeling has been repeatedly revised by the Applicant, expert peer reviewers working for the Board and for abutters continue to challenge the accuracy of the Applicant's data. At this date both the height and lateral extent of mounding is unsettled.

Resolving this issue is critical as MassDEP requires that a mounding analysis show "that the groundwater mound that forms under the recharge system will not break out above the land or water surface of a wetland (e.g., not increase the water sheet elevation in a Bordering Vegetated Wetland, Salt Marsh, or Land Under Water within the 72-hour evaluation period)"² Whether the design meets this requirement remains in dispute.

If the design fails to do so, impacts to wetlands are probable. See below.

(3) Impacts to Wetland Resources

My opinion is that the physical, biological or chemical characteristics of the wetlands and stream may be altered by the constant, large-scale daily pulse of wastewater which would enter the wetland system.³ The combination of changes to the chemical characteristics of the soils; to the duration of soil saturation; to groundwater elevations; and to stream flow may constitute an

¹ Table 2, page 44 of that document requires a leaching facility to be a minimum distance of 100-feet from Surface Waters (BVW). Surface waters are defined as "all waters other than groundwaters within the jurisdiction of the Commonwealth including, without limitation, rivers, **streams**, lakes, ponds, springs, impoundments, estuaries, **wetlands**, coastal waters and vernal pools (314 CMR 4.02). [my emphasis]

² MA Stormwater Handbook, Volume 3, page 28.

³ When fully operational the wastewater system will discharge up to 32,000 gallons per day (gpd) of effluent. This quantity is at least 60 times greater than the volume generated by the typical single family home in Weston.

impermissible alteration that would affect wetland vegetation, as well as amphibians, reptiles and other animals within the system.

The Applicant's technical team emphasizes that state regulations permit these changes, and that similar projects have already been allowed in Weston. Particularly, they cite presumptions in the WPA referencing Title 5, which I noted earlier is an improper comparison. Yet presumptions aside, the WPA is specific and unambiguous about what represents a wetland alteration:

*Alter means to change the condition of any Area Subject to Protection under M.G.L. c. 131, § 40. Examples of alterations include, but **are not limited to**, the following:*

*(a) **the changing of pre-existing drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns and flood retention areas ...***

*(d) **the changing of water temperature, biochemical oxygen demand (BOD), and other physical, biological or chemical characteristics of the receiving water.** [emphasis throughout mine]⁴*

My opinion is that the proposed work meets portions of this definition. Pre-existing drainage patterns and flushing characteristics are likely to be altered by increased wastewater volume. Water temperature may change. Further, "physical, biological or chemical characteristics of receiving water" may be altered by the introduction of the wastewater.

SUMMARY

Regardless of what I consider a laudatory and an extraordinary measure of transparency and cooperation by the Applicant's technical team, my opinion remains that the placement of the wastewater system is inappropriate. The extent of mounding beside and within the wetlands remains unclear. Whether otherwise avoidable impacts to wetland resources may occur remains unresolved.

Rather than these key issues being settled so that the Board might make a reasoned decision, they remain in dispute after more than a year's time.

Please contact me with questions.

Very truly yours,



Wetland Scientist, Hydrologist

⁴ 310 CMR 10.04 Definitions