



September 5, 2022

**BY ELECTRONIC MAIL: permitting@hamiltonma.gov
AND BY FIRST CLASS MAIL**

Hamilton Zoning Board of Appeals
Hamilton Town Hall
577 Bay Road
Hamilton, MA 01936

Re: Application for Comprehensive Permit – Off Asbury Street, Hamilton

Dear Members of the Board:

As you know, this firm represents residents of the Village at Canter Brook Farm (the “Neighbors”), which abuts the site of the above-referenced proposed housing development project. I am writing to follow up on my last letter of August 3, 2022, and to address the Project’s hydrology impacts in particular. In short, the Project as currently designed does not meet the Town’s Groundwater Protection Overlay District requirements, and does not appear to even meet state law performance standards governing septic systems. The Board should demand a thorough explanation from the Applicant as to how this Project will meet these standards, failing which the Board should deny the comprehensive permit.

I. The Project’s Septic System Does Not Comply with State and Local Legal Requirements.

The proposed Project Site is located in a Zone II wellhead protection area under the state Clean Water Act. A Zone II is a geographically-defined area that is tributary to a public water supply, in this case, a Town of Hamilton well field located off of Pine Tree Drive and within the Ipswich River Wildlife Sanctuary. Water that is recharged into the ground and that eventually mixes with existing groundwater within a Zone II, including natural precipitation and wastewater recharged through septic systems, eventually flows towards the wells that the Zone II protects. The Town of Hamilton has designated Zone II areas as being part of the Town’s Groundwater Protection Overlay District (“GPOD”) under the Zoning Bylaws (Section 9.1). Under Section 9.1.9(3), the Bylaw mandates that “any use that will render impervious more than fifteen (15) percent or twenty-five hundred (2,500) square feet of any Lot, whichever is greater” requires a special permit. The Bylaw further states that “a system for groundwater recharge must be provided which does not degrade groundwater quality.” (emphasis added).

A. The Project Violates the Town's GPOD Bylaw.

Under the Bylaw a property owner may obtain permission to exceed the 15% impervious coverage cap by demonstrating that the Bylaw's performance standard of no degradation of groundwater quality can be satisfied. Here, the Applicant is seeking a waiver from the GPOD Bylaw, to create 60,525 square feet of impervious area, amounting to 28.4% of the project site (4.89 acres). This is almost double the maximum amount of impervious coverage allowed under the Bylaw. We are not aware of any scientific analysis performed by the Applicant, such as a nitrogen loading model, that would support the Applicant's supposed contention that its Project will not degrade groundwater quality notwithstanding such an extreme divergence from the Town's standard.

Protection of groundwater was a major concern in the permitting of the Canter Brook senior housing development, abutting the Project Site, in 2015-2016. The Canter Brook project was approved by the Hamilton Planning Board for 23 units on 14 acres (density of 1.6 units per acre). By comparison, the Applicant is seeking an approval for 45 units on 4.89 acres (9.2 units per acre). Both projects are within the GPOD and are served by on-site septic systems.

B. The Project Violates the Nitrogen Loading Restrictions under Title 5.

The Project's septic system also requires a permit from the Hamilton Board of Health under Title 5 of the State Environmental Code. In recognition of the sensitivity of Zone II areas, Title 5 limits the amount of wastewater that can be discharged in Zone II areas to 440 gallons per day, per acre, or 550 gallons per day for enhanced Nitrogen removal septic systems.¹ According to the application, the Project's 45 housing units will have a total of 90 bedrooms, which equates to a septic system design flow of 9,900 gallons per day (110 gpd/bedroom). The Project Site contains 213,008.4 square feet, or 5.45 Title 5 acres. The resulting septic system flow for the Project is 1,816.51 gpd/acre (213,008/5.45).

Title 5 allows property developers to exceed the 440 gpd/acre limitation by restricting land it doesn't own ("non-facility credit land") that is within the same zone of contribution to the well protection area, and then aggregate the land area of this credit land with the land for the Project. The Applicant stated in its application filed with the Board that it intends to avail itself of the "facility aggregation plan" provisions of Title 5, which are Section 15.216(5) of the state regulations, and the "Guidelines for Aggregation of Flows and Nitrogen Loading under 310 CMR 15.216," published by the state Department of Environmental Protection ("DEP"). Under Title 5, a design flow of 9,900 gpd would need at least 22.5 acres of land to meet this standard. Thus, the Project would need at least 17.05 Title 5 acres of "credit land" if the Applicant wishes to avail itself of this provision.

There are many requirements and conditions associated with using credit land to meet an aggregate Nitrogen loading equivalency of 440 gpd/acre. Specifically, and as applicable to this Project:

¹ Under Title 5, an "acre" is defined as being 40,000 square feet.

- The Project’s wastewater discharge cannot cause an exceedance of 10 mg/liter of Nitrogen at the downgradient boundary of the credit land, or at a tributary to a drinking water reservoir;
- The credit land must be in the same Nitrogen Sensitive Area (i.e., Zone II) as the septic system facility;
- The credit land must be “downgradient” from and adjacent to the facility containing the leaching fields;
- The restriction on the credit land must prohibit the use of nitrogen-based fertilizer and livestock husbandry.
- The credit land must be dry – it cannot be located undersurface water (wetlands do not provide any recharge for dilution); and
- The restriction on the credit land must be enforceable by the Town in perpetuity.

The Applicant has not provided any evidence that it can meeting any of these criteria. A proposed “Facility Aggregation Plan” was included in the application package filed with the Board on March 10, 2022, but the details are not legible - the resolution of the plan is too blurry. We have repeatedly attempted to obtain a legible copy of this plan from the Applicant, to no avail. It appears that the proposed credit land would be to the west of, but not abutting, the Project Site.² The area where the credit land is proposed is shown on the state’s GIS maps as being predominantly wetland. Further, the plan does not demonstrate that the credit land is “downgradient” from the proposed leaching field; it may be, but the Applicant has provided no groundwater flow direction analysis. Nor has the Applicant provided a “mass balance analysis” under the Title 5 “Guidelines,” demonstrating that the 10 mg/l Nitrogen loading standards can be met at the property boundary shared with the credit land.³ Presumably, the farmer who owns the Project Site and the land surrounding it did not offer to make the abutting land available for credit land, since doing so would limit the productive use of the remaining fields.

C. The Project Violates a Conservation Restriction Held by Essex County Greenbelt.

Significantly, the Applicant is proposing a primary and secondary leaching field in an area where no test pits have been dug (or at least no test pit data has been filed with the Board), and on a portion of the Project Site that is encumbered by a conservation restriction that specifically precludes such uses. The Applicant’s site plan clearly delineates the boundaries of the “restricted area,” and concedes that the leaching fields are within this restriction area. The total land area that is subject to the Conservation Restriction is 58.69 acres. The restriction (copy attached as Exhibit A) specifically prohibits:

(c) excavation... in such a manner as to alter the surface topography of the Restriction Area;

(d) Any development or other improvement for purposes of residential, commercial, industrial or institutional use;

² Your peer review engineer stated in his letter dated August 31, 2022 that the credit land is “adjacent to” the Project Site, but that is not reflected on the blurry plan provided by the Applicant.

³ As noted above, it does not appear that the Project Site shares a property boundary with the credit land.

(f) Activities detrimental to... water or soil conservation.

The discharge of 9,900 gallons of wastewater per day on the Restriction Area clearly violates the terms of the Conservation Restriction. The Restriction is held by the Essex County Greenbelt Association. The Applicant has provided no evidence that the Greenbelt has consented to the proposed use of the Restriction Area, even if it could.

II. Recommendations

We respectfully request that the Board demand a scientific justification from the Applicant for is requested waiver from the GPOD, and a thorough explanation for how the septic system will comply with Title 5. The Board should demand that a legible copy of the Facility Aggregation Plan be filed, and should solicit the Board of Health's comments on this proposal.

As I stated in my letter last month, there are a number of well-established methods to analyzing groundwater impacts from artificial recharge facilities such as these. For starters, the Applicant should conduct a groundwater mounding analysis to evaluate the overlapping and cumulative impacts of the wastewater and stormwater recharge systems on the site. The Applicant should also perform a Nitrogen and Phosphorus loading model to measure the pollutant loading impact from these systems on the groundwater. Such studies typically employ the MODFLOW software modeling program, designed by engineers at the United States Geological Survey.

The Applicant should also address the material impervious area discrepancy between its latest waiver request (60,525 sf) and its original application filed in March (47,933 sf), which I raised in my last letter.

Finally, the Neighbors have retained a hydrologist, Scott Horsley, to review and comment on the Project's likely environmental impacts. Mr. Horsley is an expert at groundwater modeling and evaluating impacts from recharge systems, such as septic systems and stormwater infiltration facilities. Mr. Horsley will be providing a letter this week, commenting on the Project's nonconformities with Title 5 and the state Stormwater Management Handbook.

Thank you for your consideration.

Very truly yours,

/s/ Daniel C. Hill

Daniel C. Hill

Enc.

cc: Clients
Board of Health
Applicant

EXHIBIT A

