



Town of Carlisle
Office of
BOARD OF HEALTH
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Memorandum

To: Carlisle Zoning Board of Appeals
From: Carlisle Board of Health
Date: August 5, 2016

In Re: "The Birches, 100 Long Ridge Road, Carlisle MA, prepared for Lifetime Green Homes, LLC, designed by Meisner Brem Corporation dated February 2, 2016".

In response to your request the Board of Health at a public meeting held on 7/27/16 discussed the proposed project changes submitted on behalf of the Lifetime Green Homes (LGH) 40 B Development. The applicant proposes "to provide a public water supply for the property in place of private drinking water wells; and to modify the shared septic system, by moving one of the systems to a different location on the site".

It is the Board's opinion that these changes will increase the protection of groundwater and the drinking water supply in two ways:

- First, Public Water Supplies (PWSs) are regulated by the state under 310 CMR. 22.0 and are subject to a rigorous permitting process. A PWS requires site approval and pumping test, well head protection requirements, backup power, regular water quality monitoring, and a financial assurance mechanism. A PWS must be operated by a Certified Well Operator and must have an Emergency Response Plan establishing procedures for handling water supply issues.
- Second, the three leaching fields are now more evenly dispersed throughout the site eliminating the extensive groundwater mounding caused by locating two of the systems back to back in the northwest corner.

The Board of Health would like to point out, however, that even with the above changes, there are additional concerns that the Board of Health would like the Zoning Board to consider:

1. Lifetime Green Homes (LGH) should provide a narrative describing all of the changes resulting from the revised plan. This is standard practice for the Board of Health whenever a revised plan is submitted.
2. LGH should provide new technical studies (Groundwater Mounding Analysis, Nitrogen Transport Model, Water Balance Study) in support of the revised plan. The previous studies were based on the locations of eleven private wells and three sewage disposal system locations that no longer apply.
3. The seven PWSs should be treated as a Well Field with the potential for hydraulic connectivity between each well and nearby abutter's wells. In the past, MassDEP has agreed to test nearby domestic wells for potential impacts as part of the PWS approval.
4. LGH should explain why seven wells are being proposed rather than a smaller number. It is more expensive to drill additional wells and they will also require more ongoing maintenance and operating costs for the homeowner's association.
5. Although PWS design, site approval and pump test approval will be overseen by the state, the applicant should provide the ZBA with more preliminary detail of the infrastructure (pump house, access road, water distribution lines) and data on the water use demand (estimated yield per well).
6. LGH should disclose if there will be an irrigation well (existing well to remain) and a well to supply the fire cistern and include those withdrawals in water use demand.
7. The new disposal site does not have witnessed soil testing. ZBA should require confirmatory testing, witnessed by the town, to demonstrate that the soils in this area are capable of sustaining a soil absorption system.
8. The Board of Health has concerns about the use of E-One Grinder pumps instead of a conventional force main and pump chamber. The Board would like to know if these have been eliminated in the revised plan and if not, how many units will be involved.
9. Since the PWSs will have a backup power supply, there should be equivalent protection for the three soil absorption systems during a power outage.
10. A recent groundwater study authorized by the Board of Health¹ emphasizes the importance of septic system design flows and separation between septic systems

¹ Board of Health Regulations – Septic Systems and Protection of Drinking Water, Horsley Witten Group, dated March 14, 2016.

and private wells as a means of controlling nitrates in drinking water. The LGH project should comply with all of the Board of Health local sewage disposal regulations for systems 2000 gpd or greater(15. 100, 15.211and 15.290-15.293), including 150' setback from a leaching field to a well and 165 gpd design flows.

The Board of Health appreciates the opportunity to bring these concerns before the Zoning Board of Appeals. If you have any questions, please contact the Board of Health.