

to: Lisa Davis Lewis, Chair, Carlisle Zoning Board of Appeals  
from: David Freedman, Chair, Town Advisory Group for 100 Long Ridge Rd 40B  
date: 3 April 2015  
re: Peer Review of Groundwater Impact Analysis

As noted previously, the various boards and departments represented on the TAG will continue to provide input to the ZBA on their particular areas of expertise. At yesterday's TAG meeting, the TAG asked that I communicate the below concerns and requests on behalf of the TAG to you and your board.

Notwithstanding future Board of Health (BOH) review of this project under Title V, there are assumptions—related to principles underlying Title V requirements and with regard to proposed alternative technologies—made in the Groundwater Impact Analysis that we believe must be reviewed by consultants with specific expertise in Title V and alternative technologies within the hearing before the ZBA on the request for the Comprehensive Permit under 40B. These include, but are not limited to, the following:

**A. Review of groundwater mounding model used to perform the analysis**

Key questions for peer review are:

1. Whether the model used is appropriate for the project, the site, and the alternative technologies proposed for this project.
2. Whether the +/- variation within the model used may introduce a level of uncertainty in the results that might conceal a potential hazard to drinking water supplies within and beyond the project.
3. Whether the inputs used align with best practices & Title V requirements.

**B. Review of assumptions underlying the groundwater impact analysis of the collective impact of the multiple systems vs an analysis based on individual systems**

**C. Review of the groundwater impact analysis vis a vis the predicted performance (manufacturers specifications) and real-world experience with the proposed alternative technologies**

1. Should include evaluation of the systems as proposed in the context of the proposed project (systems immediately adjacent to one another and collectively on the site).
2. Should include evaluation of the impact of other proposed technologies in conjunction with the septic systems (grinder pumps, etc.), including their compatibility one with another.

Additionally, the applicant's calculations regarding nitrogen credit land should be evaluated. He has stated in the hearing that he no longer needs the adjacent land, but it is still shown as an easement on the revised plans. Qualified peer review is required to determine whether his calculations are based on reasonable and verifiable assumptions as to the nitrogen loading that can be achieved by the proposed alternative technologies and that the assumptions take into consideration the systems on the site as a whole.

The disagreement between the applicant and the ZBA/BOH over whether the project is served by a series of individual systems each under 2,000 gpd or is a large system (2,000-10,000 gpd) has impacts well beyond appropriate setbacks to drinking water wells. Proper review of the assumptions used in the Groundwater Impact Analysis must go beyond computer modeling and numerical analysis of data.

We appreciate the efforts the ZBA has undertaken with the support of the Selectmen to engage independent peer review of the hydrogeology of the site and proposed project, but the authorized scope of work does not appear to address the issues outlined herein. We do not believe the ZBA can reasonably make an assessment of the underlying hydrogeology of the site without a clear understanding of the issues outlined above and thus do not see this request as being duplicative of later review by the BOH under Title V, nor beyond the jurisdiction of the ZBA. We therefore respectfully request that the ZBA engage appropriate expert peer reviewers to perform this work.

As the need for this review is predicated on the applicant's request for waivers from local BOH regulations, a waiver of DEP standards and accompanying requirements for a public water supply, and the use of multiple alternative systems with minimal established track records to provide assurances to the ZBA in rendering the decisions you are being asked to make, we urge the ZBA to request from the applicant adequate funding for such peer review.

Thank you for your continued attention to the collective concerns of our local boards, departments and citizens.