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April 23, 2019

Chairman Heather Feldman
Bedford Village Fire District
P.O. Box 230
34 Village Green
Bedford, NY 10506

**Re: Proposed New Fire Department Headquarters Building
Environmental Considerations**

Chairman Feldman,

The following report sets forth responses to concerns raised by citizens within the Bedford Village Fire District and Bedford Village community regarding the new Firehouse plans and its potential environmental adverse impacts.

Outlined below, you will find each comment or concern, and an associated response stating the facts about the project. Please see below:

- 1. The proposed new Firehouse, its operation and adjacent paved areas will adversely impact the underlying aquifer that serves as a critical water source for neighboring homes, including “The Farms.” Some of the factors contributing to this adverse impact include:**

***Response:** The new Firehouse will not result in significant adverse impacts to the water quality of the aquifer or reduce recharge in any significant way. The new Firehouse development plan incorporates several features that will be protective of the environment including measures to manage both the quality and quantify of stormwater and will continue to infiltrate this water on-site. Importantly, the new Firehouse is not inconsistent with thousands of other developments that are sited over the Town of Bedford aquifer and drinking water aquifers across the country.*

However, because it will be complying with environmental regulations that are stricter than many those older developments were built to, and because it has been carefully designed in accordance with cutting edge environmental technologies which includes stormwater treatment structures for all paved and roof areas it will not result in significant adverse impacts to water quality or the environment. Below, in the point by point information that follows, this fact is further explained.

- 2. The area of newly paved and built-over impervious surfaces will reduce aquifer recharge due to the diversion of rainfall away from the site and the underlying ground water system.**

***Response:** No stormwater will be diverted off-site as a result of the new Firehouse; there will be no piped discharges from the site and all stormwater currently being generated from the site will continue to be managed and infiltrated on site. This will be achieved because the*

new Firehouse plan includes measures to manage stormwater during and after construction in accordance with the New York State Department of Environmental Conservation (NYSDEC) Stormwater Pollution Prevention Plan (SWPPP) requirements. The SWPPP is also subject to review and approval by the New York City Department of Environmental Protection (NYCDEP).

The SWPPP has strict requirements for stormwater management. During construction, erosion and sedimentation controls will be installed, maintained, and periodically inspected in accordance with NYSDEC and NYCDEP standards and these measures will ensure no significant adverse impacts from construction runoff. Further, post-construction stormwater management will be achieved through the installation of two bioretention basins – these basins will capture all the stormwater from the new impervious areas on site and allow it to slowly infiltrate to the ground. These basins will manage both the quantity and quality of stormwater generated and will maintain hydrologic inputs to the freshwater wetlands on site thus maintaining the health of those aquatic resources. Finally, the amount of impervious surface created for this Firehouse (1.5 acres of the 10-acre site) is negligible with respect to the total aquifer area.

3. **Even if rainwater is redirected to unpaved ground elsewhere onsite, it will be far less effective in reaching the underlying aquifer due to increased runoff. At present rainfall is evenly distributed over a broader area.**

Response: *The new Firehouse will not reduce the ability of the underlying aquifer to recharge in any significant way. As discussed in the answer to Question 2 above, stormwater bioretention basins will retain and infiltrate all stormwater generated on the site into the basins and from them it will be released to underlying soils and the aquifer. These basins are geographically dispersed on the site - one is on the eastern border of the site, closer to Southbrook Road and the other is on the northern portion of the site, north west of the new Firehouse building footprint. Currently, stormwater runoff on the site feeds the wetlands located there, and the bioretention basins will maintain this hydrologic input as well.*

It may be helpful to note that in 1985, the Town of Bedford had an aquifer study prepared which estimated the average groundwater recharge budget within the Town of about 20 million gallons per day¹. This is a significant figure that results from town-wide infiltration. The NYSDEC and NYCDEP regulations that the Firehouse will conform to apply to similar projects and serve to help maintain appropriate quality and infiltration of stormwater Town-wide.

4. **Extensive compaction of unpaved surfaces adjacent to the firehouse during construction will permanently reduce percolation of rainwater into the subsurface, thus reducing aquifer recharge and increasing runoff.**

Response: *The work on the new Firehouse will neither compact soils site wide nor increase runoff from the site. The new Firehouse will disturb a total of 3.1-acres of a 10-acre site. Of this 3.1-acres, 1.5-acres of new impervious area will be in place when*

¹ Leggette, Brashears & Graham, Inc. (1985). Groundwater Assessment for the Town of Bedford.

construction is completed and 1.6-acres will be restored, utilizing native vegetation that is consistent with the surrounding environs and has greater habitat value than landscaped species. The 1.5-acre impervious area will no longer infiltrate stormwater, however, the bioretention basins will manage the stormwater from that area, retaining it on site and allowing it to infiltrate

5. **The massive foundations needed for the firehouse structure will require extensive disturbance of the subsurface at significant depth. This will permanently disrupt the groundwater and subsurface water flow direction that is presently critical to aquifer recharge.**

Response: *The design of the foundations for the new Firehouse has not been finalized and estimates of their cost and nature have been developed to the conceptual level only to facilitate conservative cost estimation. However, no foundational elements appropriate for a building this size would result in a subsurface structure large enough to significantly alter the underlying aquifer conditions.*

The depth of any foundation structures below grade will be of little consequence to groundwater flow. The proposed structure is at the top of a hill, along a groundwater flow divide. The groundwater will continue to flow downhill and around the selected foundation structures.

6. **The large volumes of water required to support the ongoing needs of fire equipment at the new site will be drawn from the water table close to the surrounding residential areas. These areas are dependent upon the same finite water resources.**

Response: *The new Firehouse will receive water from the Town water supply, not a private well, and therefore will be sourced from the Town wells. The current Firehouse currently uses a comparable volume of water and is also sourced from same Town wells making the increase on this supply from the new Firehouse minimal. The typical daily demand from the new Firehouse would be less than 200 gallons per day, which is a small number when compared to the daily demand on the Town wells. This typical daily usage is relatively low because the Firehouse will not be manned on a full-time basis. There are also times when the Firehouse will utilize more water per day than the average demand for the building. For example, during training exercises, the new Firehouse water demand is expected to peak about approximately 1,000-1200 gallons per day however, even this is still a small demand in relation to the Town's available supply. For context, according to the United States Environmental Protection Agency, for typical residential use, each person uses about 80-100 gallons of water per day².*

Water is also used for firefighting; this use protects the lives and property of the residents of Bedford Village, and the criticality of being able to utilize water resources for this purpose cannot be overstated. Water for firefighting purposes is most often sourced from hydrants located at specific points throughout the Town; these are also fed from Town wells.

Lastly, it is important to note that all of the practices, exercises and water usage for firefighting currently take place at and in relation to the existing Firehouse and hydrant

² <https://water.usgs.gov/edu/qa-home-percapita.html>

locations. The Firehouse water usage will simply take place in a new location down the road if the new Firehouse is constructed.

7. **Potential groundwater contamination may result from the operation of what amounts to an industrial scale operation that will be in what is now a pristine woodland.**

Response: *The new Firehouse is a community facility providing an essential service to Bedford Village and there are no industrial operations planned. Most commonly the Firehouse will be utilized for emergency response operations, meetings, training and sporadically, for community events. Meetings include twice monthly trainings with 20-30 individuals, a monthly Fire Department meeting with 20-30 individuals and the monthly public Fire District meeting with approximately one dozen people. In addition, seasonal ad-hoc use by other not-for-profit groups in the Town of Bedford such as the Boy Scouts is likely to occur on a weekly basis and will most often entail site usage by a small number of individuals (typically less than 15 people). Special events, such as a Fire Department Pancake Breakfast, will be held on an ad-hoc and infrequent basis.*

The Site will be accessed for emergency calls at a rate of approximately two per day. Emergency response operations that require clean up of equipment will occur within the new Firehouse apparatus bays which are equipped with a special drainage system that discharges to a capture tank to be pumped and then treated off site. All equipment washing and decontamination, including gear and apparatus will be conducted within the area that discharges to this special system preventing the potential for significant adverse impacts from contamination from these sources.

The Firehouse site is within the NYSDEC Critical Environmental Area (CEA) that corresponds to the Town of Bedford Aquifer Protection Zone (APZ) and the Firehouse will be in compliance with the provisions of the Town of Bedford Aquifer Protection Ordinance. Importantly, the Firehouse wastewater generation will be well below what is allowed by the density standards of the Aquifer Protection Ordinance, which does not allow more than 300 gallons per wastewater per acre per day. This means that the 10-acre site would be permitted to use and discharge up to 3,000 gallons per day and be fully compliant with the Aquifer Protection Zone Regulations however the new Firehouse usage will be much lower. In addition, the Firehouse is not out of context with land uses that currently exist within the APZ. The CEA area of the APZ encompasses approximately 21% of the land area of the Town and includes a vast mix of land uses including commercial and industrial operations.

Further, the Firehouse includes design features that will avoid significant adverse impacts from the heating and cooling fuel on the site which include a storage tank for No.2 Fuel Oil to fuel an emergency generator. This will be installed and maintained in accordance with all Westchester County Chemical Bulk Storage Regulations. While the final storage tank model has not yet been selected, compliance with Westchester County Department of Health regulations will ensure that appropriate features to minimize risk from spills are present. These will include the selection of double-walled tanks with monitoring between the walls, and anti-syphon valves. The tank will be protected by bollards to prevent impact related damage and will be installed on a concrete pad with a curb to further prevent spillage.



It is imperative that the Bedford Village Fire District and Bedford Village community understands the facts about the project that has been proposed. The concerns above have been vetted thoroughly and the responses provided have been developed by a team consisting of an individual with a Ph.D. in Hydrogeology, an Environmental Planner and a Civil Engineer.

If any of the information provided is not clear, please do not hesitate to contact Tim Hazlett or Constance Vavilis at (631) 756-8000 extension 2223 or 1713 respectively.

Very truly yours,

H2M architects + engineers

Handwritten signature of Timothy J. Hazlett in black ink.

Timothy J. Hazlett, Ph.D.
Hydrogeology + Water Resources
Modeling Practice Leader

Handwritten signature of Constance Vavilis in black ink.

Constance Vavilis
Senior Environmental Planner

cc:	Board of Fire Commissioners	BVFD
	Andrew Klein – Chief of Dept.	BFD
	Jim Best – Captain	BFD
	Joe Mottola, AIA	H2M
	Dennis Ross, AIA	H2M
	Patrick Stone, RA	H2M
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