

January 22, 2024

Ms. Karen Sherman, Town Planner
Town of Holliston
703 Washington Street
Holliston, MA 01746

Re: Open Space Residential Development peer review response letter

Creative Land & Water Engineering, LLC (CLAWE) has received and reviewed the Engineering Peer Review Letter from DPW (the "Reviewer") dated November 28, 2023. This letter provides our responses. To facilitate the review, we will quote the Reviewer's comments first in *italics* and follow-up with our response in **red**.

Water Division: a hydraulic study should be conducted to confirm adequate residential water pressure and volume as well as meeting minimum fire suppression regulations (750gpm at 20 psi under flow conditions from a fire hydrant) or acceptable exceptions. The hydraulic model should address pressure issues for homes in close elevation to the Hollis Water Storage Tank, connection and run lengths and the possible installation of residential water pressure boosters. The connection to municipal water supply should be to the 6" ductile iron water main running up Jasper Hill along side of the town hall. The new water main must be 8" cement lined ductile iron pipe, the hydraulic model should address potential issues regarding the connection. Connection and construction requirements are detailed in the Holliston Water Rules and Regulations available at https://www.townofholliston.us/sites/g/files/vyhli706/f/file/file/water_rules_and_regs.pdf

Response: The site is located next to the water tower that is at least 140 ft above the highest house proposed at the site. The water tower will easily provide 60 psi pressure to the house second floor and for 6" pipe water main will provide water to a fire hydrant from the 8" water main to the street. The above setting shall produce 754 gpm flow at 20 psi. See attached for detailed calculations.

Highway Division:

1. Greater detail addressing drainage of storm water into the Washington Street drainage system specifically detailing speed of flow and volume.

Response: The flow leaving the Jasper hill last manhole to the existing street drainage will be reduced by 36% compared with the existing condition, and 38% reduced for volume for a 25-year storm as required by the street drainage design standard. It will reduce both peaks and volumes of runoff to Washington Street for all storms up to 100-year event. Therefore, the proposed condition would alleviate the existing drainage issue if there existed.

2. Meeting ADA compliance regarding grade of sidewalk. Options for pedestrian crossing points, snow storage and removal during a snow event considering the access road is via an active parking lot.

Response: See Attorney's response to this by Fletcher Tilton PC.

Let us know if there are any further questions regarding the project.

Sincerely,
Creative Land & Water Engineering, LLC

By



Desheng Wang, Ph.D., P.E.
Civil/Environmental Engineer
Certified Wetland Scientist
Certified Soil Evaluator

A blue ink signature of Francis Alves.

Francis Alves, E.I.T.
Civil/Environmental Engineer

CC: Jasper Hill Realty Trust LLC, 340 Winter Street, Framingham, MA 01702
Peter Barbieri, Esq.

According to the **Massachusetts Fire Code**, the minimum size of water main for providing fire protection and serving fire hydrants shall be **8-inch diameter** ¹. Additionally, pipelines to fire hydrants shall be **6 inches in diameter** ².

To calculate the fire hydrant flow to its connector, we can use the following formula:

$$\text{Flow Rate (GPM)} = \sqrt{(\text{Static Pressure} - \text{Residual Pressure}) \times \text{Nozzle Size} \times 29.83}$$

Given that the static pressure is **60 psi** and the residual pressure is **20 psi** for a 4" nozzle connector, the flow rate can be calculated as follows:

$$\text{Flow Rate (GPM)} = \sqrt{(60 \text{ psi} - 20 \text{ psi}) \times \text{Nozzle Size} \times 29.83} = 754 \text{ gpm.}$$

there are typically two sizes of connector nozzles in a fire hydrant. The larger nozzle is usually **4 inches in diameter** and is used for pumper trucks, while the smaller nozzle is usually **2.5 inches in diameter** and is used for hoses ¹². However, the size of the nozzle can vary depending on the specific fire hydrant model and the water supply system ¹²