

June 4, 2025

Via email to Alvaro Esparza

Ashland Zoning Board of Appeals
Attn: John F, Trefethen, Chair
101 Main Street
Second Floor
Ashland, MA 01721

Re: "Sanctuary at Ashland Mills 10-50 Main Street – Comprehensive Permit

Dear Chairman,

Haley and Ward, Inc. is writing this letter to present our findings related to the peer review of the "Sanctuary at Ashland Mills" 10-50 Main Street Comprehensive Permit, specifically the wastewater and water capacity analysis. We have reviewed the permit submission by the applicant and offer this summary of our findings.

We have based our findings on the following documents.

1. Application dated October 2024.
2. Letter dated May 21, 2025 by Strategic Land Ventures to the Zoning Board of Appeals in response to Haley Ward's email requesting clarification of wastewater design data.
3. Ashland's 2022, 2023, and 2024 annual statistical reports (ASR) submitted to Massachusetts Department of Environmental Protection (MassDEP) agency.

Water Capacity Findings

This section is meant to address the current theoretical available capacity of the Ashland water system to provide water to the site for consumption, but not for fire protection. It is our understanding that fire protection information has not been submitted to date, and that peer review will be conducted by others.

The applicant did not provide proposed water usage increase over existing water use for the site. Therefore, we took the liberty of estimating potential water demand for the project. The applicant submitted with their application and follow-up letter details of the type, number for each type, and related flows. The following is a summary of that data.



- Residential bedrooms: 337
- Retail square feet: 6,500
- Restaurant seats: 160
- Maximum daily sewer flows: 42,995 gpd
- Average Daily flows: 28,663 gpd
- Peak flow: 160,512 gpd

According to WaterSense, an Environmental Protection Agency Partnership Program, the average American family uses more than 300 gallons per day (gpd), with roughly 70 percent of this use occurring indoors. If we utilize an average family size of 3.5 people per residential house, that equates to approximately 85.7 gpd per person. The applicant has indicated, for the residential portion of the project, there are 337 bedrooms, which can translate to a water demand of 28,886 gpd for the residential portion of the project. MassDEP also sets a use standard on municipalities, including Ashland, of 65 gpd per person for residential use. That would calculate to 21,905 gpd. The estimated retail and restaurant water demand, has not been calculated under this method.

Another option for calculating water use is to conduct an inventory of the plumbing fixtures proposed for the project. This information may not be available at this point in the peer review. Therefore, we look at a third water use demand calculation option, which is to utilize the wastewater flow. A typical conversion is the daily water use can be 110% of the anticipated daily sewer flows. If the 110% conversion were to be accepted, the project proposed water demand, all types, would be 47,300 gpd (42,995 gpd x 1.10).

Ashland maintains water supply wells at the Howe Street water treatment plant site to maintain water demand in their water system. They also own and maintain a water connection to the Southborough water system that is considered an indirect connection to the Massachusetts Water Resources (MWRA) water system. The indirect MWRA water connection is only used during extreme drought conditions, which can be generally described as reduced capacity in the Ashland wells to a degree where Ashland cannot meet system demand with only Town wells. For that reason, the MWRA connection is not considered an available water capacity for this analysis.

Ashland's withdrawals from the Howe Street water supply wells are limited through the Water Management Act (WMA) regulation, with a Registration Statement limit and a Permit limit that totals 2.18 million gallons per day (MGD). The registered limit is 1.23 mgd and the permit limit is 0.95 mgd, both are based on average daily flow (total annual volume withdrawn divided by total days in the year).



Ashland shares the Howe Street water treatment facility with the town of Hopkinton. Hopkinton is assigned 0.5 mgd of the 0.95 mgd withdrawal limit under the WMA permit.

We reviewed Ashland's average daily withdrawal volume for the last three years, as reported in Ashland's annual statistical reports (ASR) submitted to MassDEP. This is total withdrawals that were used by Ashland and Hopkinton. The average withdrawal was 1.89 mgd with the highest withdrawal, 2.0 mgd, occurring in 2024. We must decrease the theoretical available average daily demand by 0.1 mgd, to reflect the balance of Hopkinton's approved withdrawal under the 0.5 mgd limit. Therefore, three-year theoretical current average available capacity (withdrawal) is 0.19 mgd. It is difficult to provide an opinion on what can be developed in Ashland without exceeding the withdrawal limits, as there are many types of uses that could be proposed. If we look at the basic development, single family residential houses, that demand can be compared to the available capacity. The WMA has a residential performance standard for maximum usage of 65 gallons per capita day. Ashland's historical residential usage has been below 65 gpcd, with 2024 listed as 49. For this analysis, we held the 65 gpcd for a typical person and calculated 2,872 (0.19 mgd/65 gpcd) as the theoretical number of residential people that could be added to the water system and stay within the available capacity.

The information known at the time of this analysis indicates Ashland has approximately 190,0000 gpd available to meet new demand. The "Sanctuary at Ashland Mills" project under consideration has an estimated daily water demand calculated at 47,300 gpd. Therefore, according to the data currently known, the Ashland water system, under their WMA registration and permit limits, theoretically has available capacity for the proposed "Sanctuary at Ashland Mills" development.

Wastewater Capacity Findings

This section is meant to address the current theoretical available capacity of the Ashland wastewater collection system to receive the proposed wastewater from this site. It does not address the capacity of the gravity sewers that will receive the proposed wastewater flows.

Ashland owns and maintains a wastewater collection system with several wastewater pump stations that collect and discharge wastewater. Two of the wastewater pump stations, Chestnut Street and Brackett Road, discharge almost all of Ashland's collected wastewater to the Town of Framingham wastewater collection system.



The remaining negligible amount flows by gravity to other locations in the Framingham system. The Framingham system then discharges the wastewater to the MWRA wastewater system, located at Arther Street in Framingham.

Ashland's discharge is regulated by two separate bodies, the Water Resources Commission (WRC) and the town of Framingham. The WRC limit is through the Inter-Basin-Transfer act that governs the transfer of water that is withdrawn from the ground in one basin and discharged to another basin, in this case to the MWRA deer island site in Boston.

The Framingham limit is through the Inter-Municipal Agreement (IMA) between Ashland and Framingham. This IMA has several flow limits; including average daily, maximum daily and peak hour for each of the two pump stations, Chestnut and Brackett.

We completed a wastewater capacity report, entitled "Wastewater Capacity Report" dated May 2025, for the Town of Ashland that identifies the theoretically available wastewater capacity within each of the two major pump stations, Chestnut Street and Bracket Road.

The "Sanctuary at Ashland Mills" proposed wastewater flows will go to the Chestnut Street pump station. Therefore, our attention will be directed to the available capacity for that pump station, however this peer review letter does not address the physical capacity of the gravity sewers that the proposed development flows will be carried by. This must be conducted by the applicant.

The May 2025 capacity report identified a theoretical capacity for the various IMA flow limits and are summarized below in *Table 1 IMA Flow Limit Theoretical Capacity*.

Table 1 IMA Flow Limit Theoretical Capacity

IMA Flow Limit	Avail. Capacity MGD ¹	Potential Residential Bedrooms ²	Potential Residential Houses ³
Average Daily 2.1 mgd	1.147	10,430	2,980
Maximum Daily 3.5 mgd	1.352	4,096	1,170



The applicant submitted with their application and follow-up letter details of the type, number for each type, and related flows. The following is a summary of that data.

- Residential bedrooms: 337
- Retail square feet: 6,500
- Restaurant seats: 160
- Maximum daily sewer flows: 42,995 gpd
- Average Daily flows: 28,663 gpd
- Peak flow: 160,512 gpd

The applicant indicated in their submittal that the wastewater flows will be directed to a proposed on-site pump station, that will collect and discharge the wastewater to the Ashland system. This will change the peak flow rate, and match what the design rate of the pumps included in the station. As indicated above, this analysis is not looking at the Ashland gravity sewers for their capacity. That exercise must be accomplished by the applicant.

There are minor differences between the Applicants' submittal and Haley Ward's calculations of wastewater flow. We consider the Massachusetts Title V sewer design flow as average daily flow, which is published as 110 gallons per day per bedroom (gpdpb). This is a conservative number for planning purposes, such as this peer review analysis. The applicant has indicated they consider the 110 gpdpb is the maximum daily flow and the average daily flow is considered 2/3rds of the maximum daily flow. The applicant further calculates the peak flow from the site as average daily flow times a peaking factor of 5.6.

Our opinion of maximum or peak flow is calculated by multiplying average daily flow times a peaking factor. A peaking factor is an amount that "spikes" the average daily flow for the peak periods of the day, typically morning, early afternoon and evening. The peaking factor depends mainly on the size of the proposed gravity sewer system, population of the proposed development, etc.. The "Sanctuary at Ashland Mills" does not include a gravity sewer, as it is a redevelopment of an existing building and not a subdivision, therefore, the peak value could be elevated from a typical 3 to possibly 4-5.

We have calculated the flows characteristics according to our understanding of sewer design flows and offer the following values.

- Average daily sewer flows: 42,995 gpd
- Peak flow: 171,980 gpd (peak factor of 4)



Regardless of the methods used to calculate the wastewater flows, both fall under the current available capacity of the Chestnut Street pump station. The May 2025 capacity report goes into detail regarding the Chestnut Street pump station rehabilitation project that will be underway next month. This will replace the existing wastewater pumps to increase the capacity of the station to provide the available capacity identified in the report under all conditions, including loss of 1 or 2 pumps.

Existing Gravity Sewer Capacity

The applicant indicated in their submittal that the wastewater flows will be directed to a proposed on-site pump station, that will collect and discharge the wastewater to the Ashland system. This will create the peak flow rate in gallons per minute as the design rate of the pumps included in the proposed station. As previously indicated, the analysis of Ashland's gravity sewers for their capacity and existing condition must be conducted by the applicant.

The gravity sewer segments that are proposed to receive the proposed wastewater flows from the proposed development are located in Main Street, Front Street, Front Street easement to Homer Avenue, Chestnut Street and then discharges to the Chestnut Street pump station.

This work should include two distinct work efforts as summarized below.

1. Install flow meters to measure existing flows to obtain existing flow data, including low, average and maximum flow rates for each segment of the gravity sewer until it reaches the Chestnut Street pump station.
 - a. One option would be to purchase flow meters by SmartCover, which Ashland currently utilizes in their wastewater collection system, that measures sewer flows. This meter type is portable and capable of moving from manhole to manhole. The meter(s) could be connected to Ashland's cloud-based software and the data managed through that site. The meter software provides online monitoring of flows and provide flow trends that can be utilized to analyze gravity sewer capacity.
2. Inspect Ashland's existing gravity sewer from the proposed project discharge location to the Chestnut Street pump station. This would include closed caption television inspection (CCTV) of the sewer interior and identify/documenting the current condition and defects. This will confirm if there are defects that are potential for future pipe failures or that decreases the pipes carrying capacity, such as crushed pipe segments.



Sincerely,
HALEY WARD, Inc.

Gregory J. Eldridge, P.E.
Vice President – Senior Project Manager

Cc: Doug Small, Ashland DPW Director, via email
Daniel Maurer DPW Deputy Director, via email
Rebecca Navarro Ashland Administration & Operations Manager, via email
Alvaro Esparza Assistant Town Planner, via email
Becca Solomon Ashland Conservation agent, via email

P:\MA\Jobs\3010101 Ashland\374 Mill Downtown Project - GJE\04-Support_Docs\Letters\374 Mill water and sewer peer review #1.docx