



**TOWN OF PAXTON  
Water Commissioners  
Minutes of Meeting**

**Date: Thursday, October 20, 2016**

**Time: 7:00pm**

**Meeting Place: John Bauer Senior Center, 17 West Street, Paxton, MA 01612**

Attendees: Jack Malone, Commissioner, Rodney Jenkins Commissioner, Dave Trulson, Commissioner Mike Putnam, DPW & Water Superintendent, Carol Riches, Town Administrator

Guests: Kevin Quinn, Engineer & Steven Venincasa, Contractor for Bel Arbor Estates

**Minutes**

- Motion (RJ) seconded (DT) to accept the meeting minutes of June 9, 2016 May 24, 2015. Unanimous all in favor.
- Motion (RJ) seconded (DT) to accept the meeting minutes of September 1, 2016. (JM) Abstained not present at the meeting.

**Bel Arbor Estates**

- (MP) shared (KQ) letter dated July 19, 2016 with Commissioners regarding water pipe infrastructure on Bel Arbor Dr.
- (TT) referred to Tata & Howard's letter of June 9, 2016 referencing the Bel Arbor flow test performed by the company. The indication was that the 6 inch main along Holden Road and Bel Arbor was hydraulically deficient and would only be improved by being replaced by an 8 inch main in both areas.
- (TT) provided an estimated cost for the pipe *only* of \$49,909.75, additional costs relating to temporary services, testing and other materials would be substantial. Contractor willing to provide labor only for the pipework on Bel Arbor.
- (SV) responded that as the project was only four lots he was unable to absorb these costs.
- (MP) MassDot indicated that the cost associated with water main replacement/upgrade were not permissible under the TIP project for Holden Road.
- (MP) provided information of past practice for developments coming before the Commission and use of the Tata & Howard model.
- A lengthy discussion continued in which (SV) indicated that he was unable to replace the pipe along Bel Arbor and Holden Road in order to connect to Town water, even if the Water Commissioners offered him a discount on the connection fees for the four lots. The Water Commissioners were not prepared to compromise the reduction in residual pressure by allowing the contractor to not replace the pipe from a 6inch to 8inch.

- Motion (JM) if the contractor for Bel Arbor Estates is unable to bring the mains up to the fire flow standards as outlined by Tata & Howard, the Commission is unable to agree to allow the project to connect to Town water. If the contractor subsequently decides to follow the request of the Water Commission the connection fees for all four lots will be waived. Seconded (DT) unanimous all in favor.
- (KQ) clarified that the motion determined that the Water Commissioners could not accommodate his clients request for water for Bel Arbor.
- (JM) confirmed this to be correct based on the hydraulic study.

**Michael Putnam, DPW & Water Superintendent**

- (MP) stated requested the Water Commissioners sign off on five water connections.
- (MP) stated that he had purchased a roller and shared the cost between the DPW and Water Dept.
- (MP) have a meeting scheduled with Jason Lavallee to discuss the "water meter bad reads". Meters are getting old and it might be time to start an aggressive approach to meter replacement. Will discuss at the next meeting.
- We are still at stage 3. of the drought restrictions enforced by the City of Worcester. Reserves are at a record low and Worcester has started to purchase from MWRA.

**Travis Thibault Water Foreman**

- Discussed asset management and a need to prepare for future planning.  
Provided information regarding the pump station which is also aging and will need replacing at some point.  
AMC new line to Madonna Hall now in place.

**Carol Riches, Town Administrator**

- (CR) (JM) signed the DEP close out paperwork for the Maple Street Water Tank.
- Retained earnings certified at \$246,159 in part due to increase in revenues and money remaining from the contingency and debt relating to the Maple Street water tank.

**Motion (RJ) seconded (DT) to adjourn meeting at 9:05pm.**

Respectfully submitted,



Carol Riches, Town Administrator



Accepted: \_\_\_\_\_  
John Malone, Chair



June 9, 2016

Mr. Jack Malone  
Paxton Board of Water Commissioners  
107 Holden Road  
Paxton, MA 01612

Subject: Bel Arbor Estates Hydraulic Evaluation  
Paxton, Massachusetts  
T&H No. 4781

Dear Mr. Malone:

As requested, Tata & Howard has performed a review of the proposed Bel Arbor Estates development off Bel Arbor Drive. Our evaluation consists of a hydraulic analysis to estimate the available fire flow at this development using the existing verified WaterGEMS model of the system. A discussion of our findings is presented herein.

The proposed development is to extend Bel Arbor Drive and construct four single family houses. Approximately 220 linear feet of new 8-inch diameter ductile iron water main is to be installed from the existing 6-inch diameter main along Bel Arbor Drive.

A flow test was performed by Tata & Howard and Town of Paxton personnel on May 26, 2016. The hydrant located at 9 Bel Arbor Drive was used as the flowing hydrant and the hydrant located on Holden Road (Route 31) west of the intersection of Bel Arbor Drive was used as the residual gauge hydrant. A copy of the fire flow test results are attached. Static pressures were 78 and 68 psi at the residual and flowing hydrants, respectively. A flow of 240 gallons per minute (gpm) was recorded at the flowing hydrant with a residual pressure of 71 psi. Using the hydraulic model, approximately 400 gpm is currently available at the end of Bel Arbor Drive while maintaining a residual pressure of 20 psi throughout the water distribution system. Information from this test was used to further calibrate the existing WaterGEMS model in the area of the proposed development. In general, the flows recommended for proper fire protection are based on maintaining a residual pressure of 20 psi throughout the distribution system. This residual pressure is considered necessary to maintain a positive pressure in the system to allow continued service to customers and avoid negative pressures that could introduce groundwater into the system.

To estimate the available fire flow, the proposed development was added to the hydraulic model and the model was run using a projected 2025 maximum day demand (MDD) of 1.4 million gallons per day (mgd). The pumps at the pump station were turned off, and the hydraulic gradeline elevation at the water storage tanks was set at 1,315 feet. Under projected MDD scenario, the estimated fire flow available at the end of the proposed 8-inch diameter water main extension on Bel Arbor Drive is approximately 350 gpm at 20 psi. Using an average day demand (ADD) of 0.3 mgd, the estimated fire flow available at the proposed development is approximately 350 gpm.

The Insurance Services Office (ISO), in the 2014 Guide for Determination of Needed Fire Flow, recommended an available fire flow for single family residential homes more than 30 feet apart of 500 gpm and for homes 21 to 30 feet apart of 750 gpm. According to the Layout Plan dated October 8, 2014 and provided by the WBWD, the distances between the homes in the proposed development will be greater than 30 feet.

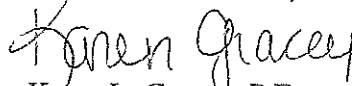
The existing 6-inch diameter main along Holden Road and Bel Arbor Drive is hydraulically deficient. To provide a fire flow of 500 gpm, approximately 1,700 linear feet of 8-inch diameter water main, in addition to the 220 linear feet of 8-inch diameter water main proposed by the developer, will need to be installed to replace the existing 6-inch diameter main. According to Chapter 9 of the Massachusetts Department of Environmental Protection Guidelines and Policies for Public Water Systems, updated in May 2011, the minimum size of water main for providing fire protection and serving fire hydrants shall be 8-inch diameter.

Prior to construction, we recommend the Town review the proposed plans and technical specifications for this development, for conformance with the Town's standards. In addition, resident observation should be provided during construction for compliance with the Town's standards.

We appreciate the opportunity to assist the Town on this important project. If you have any questions, please do not hesitate to contact our office.

Sincerely,

TATA & HOWARD, INC.



Karen L. Gracey, P.E.  
Vice President

Enclosures

# Tata & Howard, Inc.

## Fire Flow Test

Community: Paxton, MA

Client: Paxton Board of Water Commissioners

Date: May 26, 2016 Time: 9:55

Weather: sunny Inspector: SHD

System Conditions: Pumps off. Asnebumskit Tank at 34.9 feet

Hydrant Location:		Test No. <u>1</u>	Test No. ____
Flowing Hydrant:		9 Bel Arbor Drive	
Residual Hydrant:		Holden Road	
<b>Flowing Hydrant:</b>			
Flow Opening (Inches)		1-1/4	
No. Butts Flowing		1	
Static Pressure		68	
Pitot Reading		34	
Hydrant Coefficient			
Flow (GPM) (Qf)		240	
<b>Residual Hydrant:</b>			
Static Pressure (Hs)		78	
Residual Pressure (Hf)		71	

Test No. 1     $Q = \text{_____} \quad Q_f \left( \frac{\text{Hs} - \text{_____}}{\text{Hs} - \text{Hf}} \right)^{.54} = \text{_____ GPM @ _____ PSI}$

Test No. 2     $Q = \text{_____} \quad Q_f \left( \frac{\text{Hs} - \text{_____}}{\text{Hs} - \text{Hf}} \right)^{.54} = \text{_____ GPM @ _____ PSI}$

Calculated By: \_\_\_\_\_

Checked By: \_\_\_\_\_