

AMORY ENGINEERS, P.C.

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April 28, 2016

Mr. Joseph M. Fisher, Chairman
Hingham Zoning Board of Appeals
210 Central Street
Hingham, MA 02043

Subject: Avalon Hingham Shipyard II – Comprehensive Permit

Dear Mr. Fisher:

This is to advise that we have reviewed the following documents related to the subject Comprehensive Permit Application:

- Report – Bradley Woods Pump Station Hydraulic Capacity Evaluation, dated March 31, 2016, prepared by Weston & Sampson Engineers, Inc.
- Letter from Mr. Lars Unhjem of AvalonBay Communities, dated April 11, 2016, pertaining to sewer upgrades related to the subject project
- Letter – Avalon Hingham Shipyard II, Bradley Woods Pump Station, dated April 12, 2016, prepared by Howard Stein Hudson
- Hingham Lithonia (lighting layout and photometrics plan), dated April 19, 2016, prepared by Carmine Matarazzo (Visual)

After the last continued public hearing on April 13, 2016, there were two unresolved site civil engineering issues, namely site lighting and the project's impacts on the Bradley Woods sewer pumping station. The documents listed above relate to those two issues. We offer the following:

Site Lighting

1. The Hingham Lithonia plan shows that proposed site lighting is intended to light the onsite parking and driveway areas.
2. The photometrics on the plan indicate that light will only extend beyond the site property lines onto USS Amesbury Drive, the Avalon property to the north and minimally onto the edge of Lincoln Street. The minor spillover of light onto the roadways is at driveway intersections, which is appropriate for public safety reasons, yet it does not encroach onto adjacent private properties.

Bradley Woods Sewer Pump Station

The Weston & Sampson Report outlines nine recommended improvements to the Bradley Woods Sewer Pump Station and associated sewer force main. Weston & Sampson's recommended improvements have a total estimated cost of \$293,250, which includes a fifteen percent (15%) contingency. In the Howard Stein Hudson letter, Mr. Richard Latini, P.E. offers

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his opinion on which of the nine recommended improvements should be funded by Avalon to ensure the long term reliability of the system. Mr. Latini identified four items that should be upgraded to support the Avalon project. These include replacing the pumps (\$50,000), level control system (\$10,000), stand-by generator (\$50,000) and electrical conduit inside the wet well (\$2,500). The sum of these four items plus a fifteen percent (15%) contingency is \$129,375, or forty-four percent (44%) of the total Weston & Sampson recommended improvements. In the April 11, 2016 letter, Avalon committed to funding these four items and rounded up their offer to fifty percent (50%) of the Weston & Sampson estimate for a monetary commitment of \$146,625.

We agree that the four items identified for replacement by Mr. Latini are the appropriate items for Avalon to fund, however, the Avalon project will have an impact on some of the other items. According to the Weston & Sampson report the Avalon project will increase the flow to the pump station by 21.47%. We believe that Avalon should also be responsible for 21.47% of the cost of the other flow-related¹ items. Our analysis, which is outlined on the attached 'Worksheet 1', yields a total commitment of \$161,474, which is 55% of the Weston & Sampson total. We understand that this amount is acceptable to Avalon.

With the site lighting and sewer issues resolved we believe that all site civil engineering issues have been resolved.

Please give us a call should you have any question.

Very truly yours,

AMORY ENGINEERS, P.C.

By:



Patrick G. Brennan, P.E.



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¹ There are two recommended improvements in the Weston & Sampson report that are not related to flow, namely structural repairs to the pump station and lighting inside the pump station.

WORKSHEET 1

Avalon Hingham Shipyard II

The Weston & Sampson Report on Bradley Woods Pump Station Hydraulic Capacity, dated March 31, 2016, reported the following flows to the pump station:

Current Average Daily Flow =	85,000 gpd
Current Peak Daily Flow =	493,000 gpd
Projected Avalon Average Daily Flow =	18,250 gpd
Projected Avalon Peak Daily Flow =	106,000 gpd
Projected Total Average Daily Flow =	103,250 gpd
Projected Total Peak Daily Flow =	600,000 gpd
Increase in flow due to Avalon =	21.47%

<u>Weston & Sampson Recommendations:</u>		<u>Howard Stein Hudson Recommendations:</u>	
<u>Item</u>	<u>Cost</u>		<u>Cost</u>
1 Replace Pumps	\$ 50,000	\$	50,000
2 Structural Repairs	\$ 10,000		
3 Submersible Transducer System	\$ 10,000	\$	10,000
4 Replace Generator	\$ 50,000	\$	50,000
5 Flow Meter & Meter Vault	\$ 20,000		
6 Wet Well Piping, Valves, Brackets	\$ 10,000		
7 Extend 6-inch Force Main	\$ 100,000		
8 Replace Lighting in Wet Well	\$ 2,500		
9 Replace Electrical Conduit in Wet Well	\$ 2,500	\$	2,500
Subtotal =	\$ 255,000	\$	112,500
15% Contingency =	\$ 38,250	\$	16,875
Total =	\$ 293,250	\$	129,375

Avalon Offer is 50% of Weston & Sampson total = \$ **146,625**

Using Howard Stein Hudson recommendation to fund Items 1, 3, 4 and 9 plus the percentage increase in flow attributed to the Avalon development (21.47%), we offer the following:

Items 2 and 8 are non-mechanical and are not impacted by flow.

Sum of Items 1, 3, 4 & 9 =	\$ 112,500
21.47% of Items 5, 6 & 7 =	<u>\$ 27,912</u>
Subtotal =	\$ 140,412
15% Contingency =	<u>\$ 21,062</u>
Total =	\$ 161,474

Under this scenario, the additional contribution would be: \$ 14,849