

Tuesday, July 06, 2010

# HANCOCK ASSOCIATES

**Town of Acton Planning Board**

472 Main Street  
Acton, MA. 01720

Re: **Water Balance Calculations**  
Definitive Plan "Michele Circle"

Dear Chairman Bettez,

This office has examined the above referenced site in relation to the *Section 8.5.4* of the *Acton Subdivision Regulations*, which states the following:

In Zones 1-4 of the groundwater protection district, the amount of annual precipitation being captured and recharged to the groundwater on site shall not be reduced due to development related surface runoff from the site when compared to predevelopment. The application shall contain a hydrologic budget or water balance calculation for the site, showing pre- and post-development conditions, prepared by a Massachusetts Registered Professional Engineer experienced in hydrology.

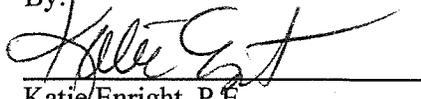
This office prepared a complete set of drainage calculations with the original submittal that included an analysis of the pre and post-development surface runoff from the site for the 2, 10, 25 and 100-year storm events. The runoff volumes leaving the site have been summarized from this report below.

Storm Event	Predevelopment runoff volume leaving the site (acre-feet)	Postdevelopment runoff volume leaving the site (acre-feet)	Decrease in runoff volume leaving the site (acre-feet)
2-year	0.133	0.099	0.034
10-year	0.304	0.242	0.062
25-year	0.432	0.369	0.063
100 year	0.587	0.521	0.066

Based on the HydroCAD data submitted in the original report, less surface runoff leaves the site during all storm events, and therefore no decrease in the amount of annual precipitation being captured and recharged to the groundwater occurs. The design therefore meets the requirements of Section 8.5.4. This has been accomplished by infiltrating water into the ground via roof drywells and by providing a storage volume below of the outlet of the detention basin, which will infiltrate into the ground between storm events.

HANCOCK ASSOCIATES

By:



Katie Enright, P.E.

Project Manager

Hancock Associates

DANVERS, MA  
185 Centre Street  
Danvers, MA 01923  
Phone: (978) 777-3050  
Fax: (978) 774-7816

MARLBOROUGH, MA  
315 Elm Street  
Marlborough, MA 01752  
Phone: (508) 460-1111  
Fax: (508) 460-1121

LAKEVILLE, MA  
4 Freetown Street  
Lakeville, MA 02347  
Phone: (508) 923-1002  
Fax: (508) 923-0022

CHELMSFORD, MA  
313 Littleton Road, Unit 18  
Chelmsford, MA 01824  
Phone: (978) 244-0110  
Fax: (978) 224-1133

SALEM, NH  
P.O. Box 205  
Salem, NH 03079  
Phone: (603) 898-3491  
Fax: (603) 898-6263