

3.11 Water Balance Calculations

Water Balance Calculations

SM-4810

Project: 263-265 Great Road

By: BRE

Date: 2/16/2012

Location: Acton MA

Checked: GD

Date:

Pre-Development Recharge

CN= 40.4
From Figure 1, infiltration= 20 in/year
Drainage Area= 238,273 s.f.

Recharge= 238,273 x 20 /12 in/ft 397,122 c.f./year

Pre-Development Sewage Flow

Leaching Area= 660 gpd
Total Design Flow= 660 gpd

660 gpd x 365 days/year x 0.134 s.f./gal = 32,202 c.f./year
Average(50%)= 16,101 c.f./year

Post-Development Recharge

CN= 52.7
From Figure 1, infiltration= 19.2 in/year
Drainage area= 190,357 s.f.

Recharge= 190,357 x 19.2 /12 in/ft 304,572 c.f./year

Post-Development Sewage Flow

Leaching Area= 8,360 gpd
Total Design Flow= 8,360 gpd

8,360 gpd x 365 days/year x 0.134 s.f./gal = 407,887 c.f./year
Average(50%)= 203,943 c.f./year

Post-Development Drywell Infiltration

CN= 98
From Figure 1, runoff= 30.6 in/year (directed to drywells)
Roof Area = 41,818 s.f.

Recharge= 41,818 x 30.6 /12 in/ft 106,636 c.f./year

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Post-Development Infiltration Beds

Subcatchment 1a

CN= 70.9
From Graph 2= 4 in/year (100% of runoff from 10 yr storms or smaller infiltrated)
Drainage area= 26,572 s.f.
Recharge= 26,572 x 4.0 /12 in/ft 8,857 c.f./year

Subcatchment 2a

CN= 72.6
From Graph 2= 4 in/year (100% of 10 yr storms or smaller infiltrated)
Drainage area= 25,265 s.f.
Recharge= 25,265 x 4.0 /12 in/ft 8,422 c.f./year

Subcatchment 3a

CN= 57.9
From Graph 2= 1 in/year (100% of 10 yr storms or smaller infiltrated)
Drainage area= 49,223 s.f.
Recharge= 49,223 x 1.0 /12 in/ft 4,102 c.f./year

Post-Development Driveway Runoff Infiltration

CN= 62
From Figure 1, runoff= 2.9 in/year (directed to drywells)
Area = 11,326 s.f.
Recharge= 11,326 x 2.9 /12 in/ft 2,737 c.f./year

Post-Development Vs. **Pre-Development**
639,268 > 413,223
c.f./year c.f./year