

Enhanced Infiltration Structure - Longfellow - Park Interface

900 mm diameter pipe inside 1.2 m x 1.2m clearstone jacket 190 m long

Structure Length = 190.00 m
Area of Pipe = 0.64 sq m Volume of Pipe = Storage Volume of Pipe = 120.87 cu m
Area of Stone = 0.80 sq m Volume of Stone = 152.73 cu m
Stone Porosity = 0.333333
Storage Volume of Stone = 50.91 cu m
Total Storage Volume of Structure = 171.78 cu m

A = contact area of structure = 684.0 sq m
V = runoff volume to be infiltrated = 171.8 cu m
P = percolation rate of native soils = 3.3 mm/h
n = porosity of storage media (weighted) = 0.3
T = retention time = Solve for T

$T = (1000 \times V) / (P \times n \times A) = 231.11$ hours or 9.6 day drawdown period

Enhanced Recharge Volume - Longfellow - Park Structure = 171.78 cu m x 365 days / 9.6 days = 6511 cu m

Total Enhanced Recharge Volume per 9.6 day period = (171+40+38+20+29+56) = 374 cu m

Total Site Enhanced Recharge Volume (Annual) = 374 cu m x 365 days / 9.6 days = 14176 cu m

Adjusted Total Site Enhanced Recharge Volume (Monthly) = 14176 cu m x 11160 cu m / 14619 cu m = 10822 cu m

Total Natural Site Recharge - Post Development = 24841 cu m

TOTAL POST-DEVELOPMENT RECHARGE = 35663 cu m

TOTAL PRE-DEVELOPMENT RECHARGE = 36426 cu m

-2.10%