Water Service Calculations

LRL File No. : 170132
Project : Hindu Heritage Centre
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Water Demand

Total fixture units: 120 (as per OBC Table 7.6.3.2.A)
Conversion of fixture units to equivalent gpm: 48 gpm (as per PS&D)

Average water demand = 261647.52 L / day
= 3.03 L/s

Maximum daily peak factor: 1.5
Maximum daily demand = 392471 L / day
= 4.54 L / s

Maximum hour peak factor: 1.8
Maximum hour demand = 706448 L / day
= 8.18 L / s

If applicable, add car wash flow rate:
Maximum Car Washes per Hour = 0
Car Wash Hours of Operation = 0 hrs (6am to 10pm)
Car Washes per day = 0
Amount of Water per Car Wash = 0 L
Maximum car wash demand = 0 L/day
= 0.00 L/s

Adjusted total maximum water demand = 706448 L / day
= 8.18 L / s

Water Service Pipe Sizing

$Q = VA$

Where: V = velocity
A = area of watermain pipe
Q = water supply flow rate

By deriving the above formula, we can obtain the diameter of the pipe:

Minimum pipe diameter:

$d = (4Q/\pi V)^{1/2}$

$d =$ 0.072 m

$d =$ 72 mm

Proposed pipe diameter: **75*** mm

*for the final design, a 150mm diameter water service was chosen to account for the Mechanical design elements (sprinklers)