Clause 6.2.1 Formulae

There are a number formulae available for use in calculating the velocity of flow. However, Hazen-Williams formula for pressure conduits and Manning's formula for free flow conduits have been popularly used.

(a) Hazen-Williams Formula

The Hazen-williams formula is expressed as:

$$V = 0.849Cr^{0.63}S^{0.54} \quad (6.1)$$

For circular conduits, the expression becomes

$$V = 4.567x10^{-3}Cd^{0.63}S^{0.54} \quad (6.2)$$

and

$$Q = 1.292x10^{-5}Cd^{2.63}S^{0.54} \quad (6.3)$$

Where,

Q = discharge in cubic metre per hour
d = diameter of pipe in mm
V = velocity in mps
r = hydraulic radius in m
S = slope of hydraulic gradeline and
C = Hazen-Williams coefficient.