LIST OF SYMBOLS

C	Hazen Williams coefficient for pipe
$C_i(D_i)$	Cost per unit length of the i^{th} pipe with diameter D_i
C_D	Drag coefficient of fluid particle
C_i	Cost function of pipe i
C_v	Volumetric concentration of fluid
CW	Concentration of fluid by weight
D_i	Diameter of pipe i of network
$D_{\min}$	The minimum diameter of pipe required
D_{new}	New pipe taken from commercially available pipe
$\bar{D}_{new,\min}$	Minimum equivalent diameter of pipe that could be duplicated to its existing diameter
DV (S_i)	The decoded value of the substring S_i
ε	The roughness height of the pipe material in meter
f	friction factor of sediment fluid
$f(CW)$	The function of concentration by weight (CW)
g	Gravitational force
h_f	head loss in pipe
$H_{\min}$	Minimum pressure head required at any node
H_m	The pressure head at any node (m).

K	Penalty function multiplier
N	The total number of pipes in any pipe network
Q_e	External inflow or demand at the junction node
Q_{in}	Flow into the junction
Q_{out}	Flow out of the junction
$Q_{\min}$	The minimum discharge at any node
Q_m	The discharge in pipe meeting at node m
q_m	Nodal withdrawal at node m
R	Reynolds Number
R_s	Sediment particle's Reynolds number
s	Ratio of mass densities of slurry particle and mass density of fluid (fluid in which solid particle of slurry is flowing)
S_i	Substring
S_S	Specific gravity of solid slurry particle
T	Water temperature (^0C)
V	Average velocity of fluid flow
ν	Kinematic viscosity of fluid in the pipe
V_{CR}	Critical mixture velocity (slurry)
w	Fall velocity of slurry particle