Gisaf - Documentation #9452

Rational Method for Run Off evaluation

16/12/2019 17:26 - Giulio Di Anastasio

Status:	Closed	**Start date:**	16/12/2019
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Assignee:	Giulio Di Anastasio	**% Done:**	0%
Category:		**Estimated time:**	0.00 hour
Target version:		**Spent time:**	0.00 hour

Description

UNITS!!!!

Overall formula is
Q = 0.00278*C*Itc*A
Where:
Q = design peak runoff rate (m3/s)
C = the runoff coefficient (dimensionless)
Itc =average rainfall intensity (mm/h), for a duration equal to the ‘time of concentration’ tc, (minutes) of the catchment
A = catchment area (ha).

To calculate volume of Run Off instead:
Replace Q with V (volume), and Itc with R (rainfall), it becomes
V = 0.00278*C*R*A

Where
V = volume of runoff (m3)
C = the runoff coefficient (dimensionless)
R =average rainfall intensity (mm/h), for a duration equal to the ‘time of concentration’ tc, (minutes) of the catchment
A = catchment area (ha).

Run-off coefficient for rural areas: see attached table

Formula
The runoff coefficient for rural watersheds is given by:

C= Cr + Ci + Cv + Cs

Where
C = Runoff coefficient
Cr = Component of coefficient accounting for watershed relief
Ci = Component of coefficient accounting for soil infiltration
Cv = Component of coefficient accounting for vegetal cover
Cs = Component of coefficient accounting for surface type

Antecedent condition
If there is antecedent rainfall, C can become C1 where
C1 = C x (1 + 0.5C)
Example: if C is 0.6, then
C1 = 0.6 x (1+0.5 *0.6) = 0.6 x (1+0.3) = 0.6 + 0.18 = 0.78

History

#1 - 26/05/2020 14:31 - Giulio Di Anastasio

- Project changed from GIS to Gisaf

#2 - 26/05/2020 14:32 - Giulio Di Anastasio

- Status changed from New to Closed

Files