**CMGT 235 – Electrical and Mechanical Systems**

Department of Construction Management 🏵 California State University, Chico

Homework #17– Stormwater Management

Points: 20

Solution

Due: 10/20/2022

Use the Rational Method to determine the peak runoff rate (gpm) and volume (gallons) for the drainage area given. The rainfall intensity is 6.3 in/hr.



C = 1.00

C = 0.35

C = 0.50

**How to Calculate Storm Drainage - Doctor Drainage**



Volleyball Court - Area = 30 ft x 60 ft = 1800 ft2

Parking Lot - Area = 24 ft x 63 ft = 1512 ft2

Grass Area - Area = 60 ft x 33 ft – ½ x 45 ft x 18 ft = 1980 ft2 – 405 ft2 = 1575 ft2

Runoff Calculation

Q = (C x I x A) / 96.23

Q = [(0.5 x 1800 ft2 + 1.00 x 1512 ft2 + 0.35 x 1575 ft2) x 6.3 in/hr] / 96.23 = 159 gpm

Volume in one hour (60 min)

V = 159 gpm x 60 min = 9,540 gal