

STORM RUNOFF CALCULATIONS

Property of Shawn Durrant
Serial # 15-301-0002

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Ogden area taken from data compiled by the Weather Bureau in Technical Paper No. 28, using a 100 year storm.

Runoff storm water has been calculated for two different sets of conditions, one being 0.1 cfs per acre discharge and the other with land fully improved. The difference between the two quantities will be detained in a holding pond. All water that runs off and over the property at present will be diverted into the holding pond and released at a reduced rate into the existing drainage system.

The calculations are as follows:

1) Runoff from the undeveloped existing land

Runoff coefficient	C = 0.1
Rainfall intensity	I = 1 in/hr
Runoff quantity	Q = C*I*A
Acreage	A = 0.55 acres

$$(Q)_{out} = C * I * A = 0.055 \text{ cfs}$$

2) Runoff from developed land

Runoff coefficients		
Driveways&Parking area	12,960	C = 0.7
Landscaped area	2,378	C = 0.2
Roof	1,440	C = 0.9

Weighted runoff coefficient	C = 0.65
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Rainfall intensity	I = varies with time
Runoff quantity	Q = C*I*A (0.250)

3) Detention Basin

Volume in	= Q * T
Volume out	= 0.55 * T

The depth of flow over the undeveloped property assuming complete saturation is calculated as the maximum volume flowing in divided by the area. For the purpose of this calculation only the area north of the existing road is being considered.

The outflow is limited to the outflow if undeveloped.

Use 0.055 cfs for Q outflow

The required volume of the detention basin is 1,492 cubic feet

USE A 3.5 INCH DIAMETTER ORIFICE AT OUTLET