Rational Method   **ON SITE EROSION**

Project   = ON SITE EROSION

Analysed by   = CAS COETZER

Name of river   = DE WILDT PV

Description of site   = ON SITE EROSION

Date   = 4/25/2016

Area of catchment   = 1.4 km²

Dolomitic area   = 0.0 %

Mean annual rainfall (MAR)   = 664.00 mm

Length of longest watercourse   = 1.6 km

Flow of water   = Overland flow

Height difference   = 27.5 m

Value of r for over land flow   = Clean soil (r=0,1)

Rainfall region   = Inland

Area distribution   = Rural: 100 %, Urban: 0 %, Lakes: 0 %

Catchment description - Urban area (%)

Lawns		Residential and industry		Business	
Sandy, flat (<2%)	0	Houses	0	City centre	0
Sandy, steep (>7%)	0	Flats	0	Suburban	0

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Heavy soil, flat (<2%) 0      Light industry    0      Streets          0

Heavy soil, steep (>7%) 0     Heavy industry    0      Maximum flood    0


Catchment description - Rural area (%)

Surface slopes              Permeability              Vegetation

Lakes and pans        0     Very permeable    0       Thick bush & forests        0

Flat area             50    Permeable         0       Light bush & cultivated land 0

Hilly                 50    Semi-permeable    60      Grasslands                  100

Steep areas           0     Impermeable       40      Bare                        0
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Average slope                   = 0.01719 m/m

Time of concentration           = 39.8 min

Run-off factor

Rural - C1                      = 0.530

Urban - C2                      = 0.000

Lakes - C3                      = 0.000

Combined - C                    = 0.530
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The HRU, Report 2/78, Depth-Duration-Frequency diagram was used to determine the point rainfall.

Return Period (years)	Time of concentration (hours)	Point rainfall (mm)	ARF (%)	Average intensity (mm/h)	Factor Ft	Runoff coefficient (%)	Peak flow (m³/s)
1:2	0.66	27.7	99.8	41.8	0.75	39.8	6.458
1:5	0.66	37.8	99.8	56.9	0.80	42.4	9.374
1:10	0.66	47.8	99.7	71.9	0.85	45.1	12.60
1:20	0.66	59.0	99.7	88.7	0.90	47.7	16.46
1:50	0.66	76.7	99.6	115.2	0.95	50.4	22.56
1:100	0.66	94.4	99.5	141.7	1.00	53.0	29.20

Run-off coefficient percentage includes adjustment saturation factors (Ft) for steep and impermeable catchments