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22045-PWA-00-XX-CA-C-1002

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Greenfield Run-off Analysis of Existing Site Area

DATE. 12/07/22

The following analysis has been undertaken to establish the greenfield runoff rate for a development planned on land which is currently undeveloped. The analysis uses the IH124 method and site characteristic information to give a  $Q_{bar}$  rural (l/s) value which can be utilised alongside a growth curve factor for the calculation of estimated site discharge values for critical storm periods. This  $Q_{bar}$  value can be applied to proposed drainage designs and utilised as a value for which rates are to be restricted.

The IH124 Method can be expressed as:

$$Q_{bar} = Q_{BarRural} = 0.00108 \times (0.01 \times A)^{0.89} \times SAAR^{1.17} \times SPR^{2.17}, \text{ m}^3/\text{s}$$

Where:

**$Q_{barrural}$**  is the mean annual flood flow from a rural catchment (approximately 2.3 year return period)

**A** is the area of the catchment in ha.

**SAAR** is the standard average annual rainfall for the period 1941 to 1970 in mm (SAAR 41-70). SAAR 61-90, . which was analysed for FEH for rainfall from 1961 - 1990, is virtually the same and can also be used

**SPR** is Standard Percentage Runoff coefficient for the SOIL category.

<b>A, The total site area contributing to the catchment</b>	<b>0.199</b>	(ha)
<b>SAAR</b>	<b>1383</b>	(mm)
<b>Hydrological Region</b>	<b>10</b>	
<b>Soil Type</b>	<b>5</b>	
<b>SPR</b>	<b>0.53</b>	

**Mean Annual Greenfield Peak Flow (Estimated site discharges)**

This method of calculating the mean annual greenfield peak flow is based on flood estimation for small catchments, specifically, Report no.124 (Institute of Hydrology 1994)

$$Q_{bar} = 2.77 \text{ l/s}$$

**Greenfield Runoff Rates**

1 in 1 year	2.41	l/s
1 in 30 years	4.70	l/s
1 in 100 years	5.75	l/s
1 in 200 years	6.56	l/s