Michael Ward
Highway and Drainage Consultant

LANCASTER GROVE

Drainage Calculations
Using Wallingford Procedure

Existing Impermeable Area 0.042 ha

Storm Frequency 1 in 1 Year M5-60 = 20mm r = 0.4

Climate Change Allowance 0 %

Duration Min	Z1	Rainfall Intensity mm/hr	Impermeable Area ha	Peak Discharge l/s	Volume Run Off cu m
5	0.36	53.6	0.042	6.3	1.9
10	0.51	37.3	0.042	4.4	2.6
15	0.62	30.8	0.042	3.6	3.2
30	0.79	19.6	0.042	2.3	4.1
60	1.00	12.8	0.042	1.5	5.4
120	1.22	8.1	0.042	0.9	6.8
240	1.53	5.2	0.042	0.6	8.7
360	1.67	3.8	0.042	0.4	9.7

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Proposed Impermeable Area 0.052 ha

Storm Frequency 1 in 1 Year M5-60 = 20mm r = 0.4

Climate Change Allowance 30 %

Duration Min	Z1	Rainfall Intensity mm/hr	Impermeable Area ha	Peak * Discharge l/s	Volume * Run Off cu m
5	0.36	53.6	0.052	10.1	3.0
10	0.51	37.3	0.052	7.0	4.2
15	0.62	30.8	0.052	5.8	5.2
30	0.79	19.6	0.052	3.7	6.6
60	1.00	12.8	0.052	2.4	8.7
120	1.22	8.1	0.052	1.5	10.9
240	1.53	5.2	0.052	1.0	14.1
360	1.67	3.8	0.052	0.7	15.6

* Includes Climate Change Allowance

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Drainage Calculations
Using Wallingford Procedure

Existing Impermeable Area 0.042 ha

Storm Frequency 1 in 100 Year M5-60 = 20mm r = 0.4

Climate Change Allowance 0 %

Duration Min	Z1	Rainfall Intensity mm/hr	Impermeable Area ha	Peak Discharge l/s	Volume Run Off cu m
5	0.36	159.0	0.042	18.6	5.6
10	0.51	117.5	0.042	13.7	8.2
15	0.62	96.7	0.042	11.3	10.2
30	0.79	62.9	0.042	7.3	13.2
60	1.00	40.6	0.042	4.7	17.1
120	1.22	24.5	0.042	2.9	20.6
240	1.53	15.1	0.042	1.8	25.3
360	1.67	10.8	0.042	1.3	27.2

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Proposed Impermeable Area 0.052 ha

Storm Frequency 1 in 100 Year M5-60 = 20mm r = 0.4

Climate Change Allowance 30 %

Duration Min	Z1	Rainfall Intensity mm/hr	Impermeable Area ha	Peak * Discharge l/s	Volume * Run Off cu m
5	0.36	159.0	0.052	29.9	9.0
10	0.51	117.5	0.052	22.1	13.2
15	0.62	96.7	0.052	18.2	16.4
30	0.79	62.9	0.052	11.8	21.3
60	1.00	40.6	0.052	7.6	27.5
120	1.22	24.5	0.052	4.6	33.2
240	1.53	15.1	0.052	2.8	40.8
360	1.67	10.8	0.052	2.0	43.8

* Includes Climate Change Allowance