



Appendix M

Treatment Swale Calculations



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NCI - Treatment Swale Calculations



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Verified Don Mackintosh
Date 12/12/2016

Calculation Parameters

Swale base width 1.0 m
Swale side slopes 3 H:1V
Impervious Area C 0.95
WQ Storm 10 mm/hr in accordance with Auckland Council TR2013/035
Mannings n 0.25

Swale ID	Catchment Area (ha)	Slope (%)	WQ Flow Rate (L/s)	WQ Flow Velocity (m/s)	Length (m)	Residence Time (min)
SW-S2R-1	1.02	2.0%	26.9	0.129	160	20.7
SW-C2PM-1	0.28	1.2%	7.4	0.072	230	26.6

Notes:

Average residence time shown (approx half the residence time for full length swale) for SW-C2PM-1 due to lateral inflow for majority length of swale.