

#####  
Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 90.  
RETURN PERIOD (YRS) = 5.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area	Slope	% Impervious	Pern	B	Link
Label	#1 #2	#1 #2	#1 #2	#1 #2	#1 #2	No.
	(ha)	(%)	(%)			
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000
node1	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.001
out	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.002

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link
Label	Intensity	#1 #2	#1 #2	#1 #2	Inflow	to	Lag
	(mm/h)	(mm)	(mm/h)	(mm)	(m^3/s)	Peak	mins
Stage 1	41.278	5.000 20.00	0.000 2.500	56.900 38.992	0.2382	30.00	0.000
node1	41.278	5.000 0.000	0.000 0.000	56.900 0.000	0.2382	30.00	0.000
out	41.278	5.000 0.000	0.000 0.000	56.900 0.000	0.2379	30.00	0.000

#### SUMMARY OF BASIN RESULTS

Link	Time	Peak	Time	Peak	Total	-----	Basin	-----
Label	to	Inflow	to	Outflow	Inflow	Vol.	Vol.	Stage
	Peak	(m^3/s)	Peak	(m^3/s)	(m^3)	Avail	Used	Used
node1	30.00	.2382	30.00	.2379	325.18	0.0000	151.91	1.1913

#### SUMMARY OF BASIN OUTLET RESULTS

Link	No.	S/D	Dia	Width	Pipe	Pipe
Label	of	Factor	(m)	(m)	Length	Slope
		(m)			(m)	(%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 7.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3633  
ESTIMATED PEAK FLOW (CUMECS) = 0.22  
ESTIMATED TIME TO PEAK (MINS) = 35.00

LINK node1 7.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3633  
ESTIMATED PEAK FLOW (CUMECS) = 0.22  
ESTIMATED TIME TO PEAK (MINS) = 35.00

iosd llkta 0 2  
LINK out 7.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.2129  
ESTIMATED PEAK FLOW (CUMECS) = 0.16  
ESTIMATED TIME TO PEAK (MINS) = 40.00

#####  
Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 120.  
 RETURN PERIOD (YRS) = 5.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 #2 (ha)	Slope #1 #2 (%)	% Impervious #1 #2 (%)	Pern #1 #2	B #1 #2	Link No.
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000
node1	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.001
out	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.002

Link Label	Average Intensity (mm/h)	Init. Loss #1 #2 (mm)	Cont. Loss #1 #2 (mm/h)	Excess Rain #1 #2 (mm)	Peak Inflow (m <sup>3</sup> /s)	Time to Peak mins	Link Lag
Stage 1	34.200	5.000 20.00	0.000 2.500	63.381 44.590	0.2202	35.00	0.000
node1	34.200	5.000 0.000	0.000 0.000	63.381 0.000	0.2202	35.00	0.000
out	34.200	5.000 0.000	0.000 0.000	63.381 0.000	0.1633	40.00	0.000

#### SUMMARY OF BASIN RESULTS

Link Label	Time to Peak	Peak Inflow (m <sup>3</sup> /s)	Time to Peak	Peak Outflow (m <sup>3</sup> /s)	Total Inflow (m <sup>3</sup> )	Vol. Avail	Basin Vol. Used	Stage Used
node1	35.00	.2202	40.00	.1633	363.27	0.0000	151.43	1.1429

#### SUMMARY OF BASIN OUTLET RESULTS

Link Label	No. of	S/D Factor (m)	Dia (m)	Width (m)	Pipe Length (m)	Pipe Slope (%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 8.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4216  
 ESTIMATED PEAK FLOW (CUMECS) = 0.13  
 ESTIMATED TIME TO PEAK (MINS) = 45.00

LINK node1 8.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4216  
 ESTIMATED PEAK FLOW (CUMECS) = 0.13  
 ESTIMATED TIME TO PEAK (MINS) = 45.00

iosd 1lkta 0 2  
 LINK out 8.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.2712  
 ESTIMATED PEAK FLOW (CUMECS) = 0.13  
 ESTIMATED TIME TO PEAK (MINS) = 45.00

#####  
 Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 180.  
 RETURN PERIOD (YRS) = 5.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51

TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area		Slope		% Impervious		Pern		B		Link
Label	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	No.
	(ha)		(%)		(%)						
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000
node1	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.001
out	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.002

Link	Average	Init.	Loss	Cont.	Loss	Excess	Rain	Peak	Time	Link
Label	Intensity	#1	#2	#1	#2	#1	#2	Inflow	to	Lag
	(mm/h)	(mm)		(mm/h)		(mm)		(m^3/s)	Peak	mins
Stage 1	26.158	5.000	20.00	0.000	2.500	73.465	52.282	0.1261	45.00	0.000
node1	26.158	5.000	0.000	0.000	0.000	73.465	0.000	0.1261	45.00	0.000
out	26.158	5.000	0.000	0.000	0.000	73.465	0.000	0.1260	45.00	0.000

#### SUMMARY OF BASIN RESULTS

Link	Time	Peak	Time	Peak	Total	-----	Basin	-----
Label	to	Inflow	to	Outflow	Inflow	Vol.	Vol.	Stage
	Peak	(m <sup>3</sup> /s)	Peak	(m <sup>3</sup> /s)	(m <sup>3</sup> )	Avail	Used	Used
node1	45.00	.1261	45.00	.1260	421.61	0.0000	151.17	1.1166

#### SUMMARY OF BASIN OUTLET RESULTS

Link	No.	S/D	Dia	Width	Pipe	Pipe
Label	of	Factor	(m)	(m)	Length	Slope
		(m)			(m)	(%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 9.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3831  
ESTIMATED PEAK FLOW (CUMECS) = 0.31  
ESTIMATED TIME TO PEAK (MINS) = 25.00

LINK node1 9.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3831  
ESTIMATED PEAK FLOW (CUMECS) = 0.31  
ESTIMATED TIME TO PEAK (MINS) = 25.00

iosd llkta 0 2  
LINK out 9.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.2327  
ESTIMATED PEAK FLOW (CUMECS) = 0.30  
ESTIMATED TIME TO PEAK (MINS) = 25.00

#####  
Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 60.  
RETURN PERIOD (YRS) = 20.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area		Slope		% Impervious		Pern		B		Link
Label	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	No.

	(ha)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000
node1	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.001
out	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.002

Link Label	Average Intensity (mm/h)	Init. #1 (mm)	Loss #2 (mm)	Cont. #1 (mm/h)	Loss #2 (mm/h)	Excess #1 (mm)	Rain #2 (mm)	Peak Inflow (m <sup>3</sup> /s)	Time to Peak (mins)	Link Lag
Stage 1	71.405	5.000	20.00	0.000	2.500	66.378	49.511	0.3052	25.00	0.000
node1	71.405	5.000	0.000	0.000	0.000	66.378	0.000	0.3052	25.00	0.000
out	71.405	5.000	0.000	0.000	0.000	66.378	0.000	0.3049	25.00	0.000

#### SUMMARY OF BASIN RESULTS

Link Label	Time to Peak (mins)	Peak Inflow (m <sup>3</sup> /s)	Time to Peak (mins)	Peak Outflow (m <sup>3</sup> /s)	Total Inflow (m <sup>3</sup> )	Vol. Avail	Basin Vol. Used	Stage Used
node1	25.00	.3052	25.00	.3049	383.08	0.0000	152.31	1.2314

#### SUMMARY OF BASIN OUTLET RESULTS

Link Label	No. of	S/D Factor (m)	Dia (m)	Width (m)	Pipe Length (m)	Pipe Slope (%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 10.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4473  
 ESTIMATED PEAK FLOW (CUMECS) = 0.32  
 ESTIMATED TIME TO PEAK (MINS) = 30.00

LINK node1 10.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4473  
 ESTIMATED PEAK FLOW (CUMECS) = 0.32  
 ESTIMATED TIME TO PEAK (MINS) = 30.00

iosd 1l1kta 0 2  
 LINK out 10.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.2969  
 ESTIMATED PEAK FLOW (CUMECS) = 0.32  
 ESTIMATED TIME TO PEAK (MINS) = 30.00

#####  
 Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 90.  
 RETURN PERIOD (YRS) = 20.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. #1 (ha)	Area #2 (ha)	Slope #1 (%)	% #2	Impervious #1 (%)	Pern #2	B #1	B #2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	1.000
node1	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	1.001
out	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	1.002

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link
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Label	Intensity (mm/h)	#1 ( mm )	#2 ( mm )	#1 (mm/h)	#2 ( mm )	#1 (mm/h)	#2 ( mm )	Inflow (m <sup>3</sup> /s)	to Peak	Lag mins
Stage 1	54.865	5.000	20.00	0.000	2.500	77.276	59.168	0.3239	30.00	0.000
node1	54.865	5.000	0.000	0.000	0.000	77.276	0.000	0.3239	30.00	0.000
out	54.865	5.000	0.000	0.000	0.000	77.276	0.000	0.3236	30.00	0.000

#### SUMMARY OF BASIN RESULTS

Link Label	Time to Peak	Peak Inflow (m <sup>3</sup> /s)	Time to Peak	Peak Outflow (m <sup>3</sup> /s)	Total Inflow (m <sup>3</sup> )	----- Vol. Avail	Basin Vol. Used	----- Stage Used
node1	30.00	.3239	30.00	.3236	447.30	0.0000	152.42	1.2421

#### SUMMARY OF BASIN OUTLET RESULTS

Link Label	No. of	S/D Factor (m)	Dia (m)	Width (m)	Pipe Length (m)	Pipe Slope (%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 11.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4967  
ESTIMATED PEAK FLOW (CUMECS) = 0.30  
ESTIMATED TIME TO PEAK (MINS) = 35.00

LINK node1 11.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4967  
ESTIMATED PEAK FLOW (CUMECS) = 0.30  
ESTIMATED TIME TO PEAK (MINS) = 35.00

iosd llkta 0 2  
LINK out 11.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3463  
ESTIMATED PEAK FLOW (CUMECS) = 0.30  
ESTIMATED TIME TO PEAK (MINS) = 35.00

#####  
Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 120.  
RETURN PERIOD (YRS) = 20.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 (ha)	Area #2	Slope #1 (%)	% Impervious #2 (%)	Pern #1	#2	B #1	#2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.0018	.0040	1.000
node1	.00001	0.000	.0010	0.000	0.000	0.000	.0025	0.00	1.001
out	.00001	0.000	.0010	0.000	0.000	0.000	.0025	0.00	1.002

Link Label	Average Intensity (mm/h)	Init. Loss #1 ( mm )	Loss #2	Cont. Loss #1 (mm/h)	#2	Excess Rain #1 ( mm )	#2	Peak Inflow (m <sup>3</sup> /s)	Time to Peak	Link Lag mins
Stage 1	45.334	5.000	20.00	0.000	2.500	85.643	66.622	0.2994	35.00	0.000
node1	45.334	5.000	0.000	0.000	0.000	85.643	0.000	0.2994	35.00	0.000
out	45.334	5.000	0.000	0.000	0.000	85.643	0.000	0.2991	35.00	0.000

# SUMMARY OF BASIN RESULTS

Link Label	Time to Peak	Peak Inflow (m <sup>3</sup> /s)	Time to Peak	Peak Outflow (m <sup>3</sup> /s)	Total Inflow (m <sup>3</sup> )	----- Vol. Avail	Basin Vol. Used	----- Stage Used
node1	35.00	.2994	35.00	.2991	496.70	0.0000	152.28	1.2280

# SUMMARY OF BASIN OUTLET RESULTS

Link Label	No. of	S/D Factor (m)	Dia (m)	Width (m)	Pipe Length (m)	Pipe Slope (%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 12.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.5722  
ESTIMATED PEAK FLOW (CUMECS) = 0.17  
ESTIMATED TIME TO PEAK (MINS) = 45.00

LINK node1 12.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.5722  
ESTIMATED PEAK FLOW (CUMECS) = 0.17  
ESTIMATED TIME TO PEAK (MINS) = 45.00

iosd llkta 0 2  
LINK out 12.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4218  
ESTIMATED PEAK FLOW (CUMECS) = 0.17  
ESTIMATED TIME TO PEAK (MINS) = 45.00

#####  
Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 180.  
RETURN PERIOD (YRS) = 20.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

# SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area (ha)	Area #2	Slope #1 (%)	% Impervious #2 (%)	Pern #1	B #2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	1.000
node1	.00001	0.000	.0010	0.000	0.000	0.000	1.001
out	.00001	0.000	.0010	0.000	0.000	0.000	1.002

Link Label	Average Intensity (mm/h)	Init. Loss #1 (mm)	Loss #2	Cont. Loss #1 (mm/h)	Loss #2	Excess Rain #1 (mm)	Rain #2	Peak Inflow (m <sup>3</sup> /s)	Time to Peak mins	Link Lag
Stage 1	34.539	5.000	20.00	0.000	2.500	98.605	77.230	0.1707	45.00	0.000
node1	34.539	5.000	0.000	0.000	0.000	98.605	0.000	0.1707	45.00	0.000
out	34.539	5.000	0.000	0.000	0.000	98.605	0.000	0.1706	45.00	0.000

# SUMMARY OF BASIN RESULTS

Link Label	Time to Peak	Peak Inflow (m <sup>3</sup> /s)	Time to Peak	Peak Outflow (m <sup>3</sup> /s)	Total Inflow (m <sup>3</sup> )	----- Vol. Avail	Basin Vol. Used	----- Stage Used
node1	45.00	.1707	45.00	.1706	572.23	0.0000	151.48	1.1479

# SUMMARY OF BASIN OUTLET RESULTS

Link Label	No. of	S/D Factor (m)	Dia (m)	Width (m)	Pipe Length (m)	Pipe Slope (%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 13.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.5273  
ESTIMATED PEAK FLOW (CUMECS) = 0.39  
ESTIMATED TIME TO PEAK (MINS) = 25.00

LINK node1 13.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.5273  
ESTIMATED PEAK FLOW (CUMECS) = 0.39  
ESTIMATED TIME TO PEAK (MINS) = 25.00

iosd llkta 0 2  
LINK out 13.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3769  
ESTIMATED PEAK FLOW (CUMECS) = 0.39  
ESTIMATED TIME TO PEAK (MINS) = 25.00

#####  
Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 60.  
RETURN PERIOD (YRS) = 100.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

# SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 #2 (ha)	Slope #1 #2 (%)	% Impervious #1 #2 (%)	Pern #1 #2	B #1 #2	Link No.
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000
node1	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.001
out	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.002

Link Label	Average Intensity (mm/h)	Init. Loss #1 #2 (mm)	Cont. Loss #1 #2 (mm/h)	Excess Rain #1 #2 (mm)	Peak Inflow (m^3/s)	Time to Peak mins	Link Lag
Stage 1	95.495	5.000 20.00	0.000 2.500	90.451 73.493	0.3907	25.00	0.000
node1	95.495	5.000 0.000	0.000 0.000	90.451 0.000	0.3907	25.00	0.000
out	95.495	5.000 0.000	0.000 0.000	90.451 0.000	0.3903	25.00	0.000

# SUMMARY OF BASIN RESULTS

Link Label	Time to Peak	Peak Inflow (m^3/s)	Time to Peak	Peak Outflow (m^3/s)	Total Inflow (m^3)	Basin Vol. Avail	Basin Vol. Used	Stage Used
node1	25.00	.3907	25.00	.3903	527.29	0.0000	152.79	1.2791

# SUMMARY OF BASIN OUTLET RESULTS

Link Label	No. of	S/D Factor (m)	Dia (m)	Width (m)	Pipe Length (m)	Pipe Slope (%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 14.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.6115  
ESTIMATED PEAK FLOW (CUMECS) = 0.41  
ESTIMATED TIME TO PEAK (MINS) = 30.00

LINK node1 14.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.6115  
ESTIMATED PEAK FLOW (CUMECS) = 0.41  
ESTIMATED TIME TO PEAK (MINS) = 30.00

iosd llkta 0 2  
LINK out 14.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4611  
ESTIMATED PEAK FLOW (CUMECS) = 0.41  
ESTIMATED TIME TO PEAK (MINS) = 30.00

#####  
Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 90.  
RETURN PERIOD (YRS) = 100.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area	Slope	% Impervious	Pern	B	Link
Label	#1 #2	#1 #2	#1 #2	#1 #2	#1 #2	No.
	(ha)	(%)	(%)			
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000
node1	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.001
out	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.002

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link
Label	Intensity	#1 #2	#1 #2	#1 #2	Inflow	to	Lag
	(mm/h)	(mm)	(mm/h)	(mm)	(m^3/s)	Peak	mins
Stage 1	73.141	5.000 20.00	0.000 2.500	104.68 86.478	0.4067	30.00	0.000
node1	73.141	5.000 0.000	0.000 0.000	104.68 0.000	0.4067	30.00	0.000
out	73.141	5.000 0.000	0.000 0.000	104.68 0.000	0.4064	30.00	0.000

#### SUMMARY OF BASIN RESULTS

Link	Time	Peak	Time	Peak	Total	-----	Basin	-----
Label	to	Inflow	to	Outflow	Inflow	Vol.	Vol.	Stage
	Peak	(m^3/s)	Peak	(m^3/s)	(m^3)	Avail	Used	Used
node1	30.00	.4067	30.00	.4064	611.51	0.0000	152.88	1.2878

#### SUMMARY OF BASIN OUTLET RESULTS

Link	No.	S/D	Dia	Width	Pipe	Pipe
Label	of	Factor	(m)	(m)	Length	Slope
		(m)	(m)	(m)	(m)	(%)
node1	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 15.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.6760  
ESTIMATED PEAK FLOW (CUMECS) = 0.38  
ESTIMATED TIME TO PEAK (MINS) = 35.00



LINK nodel 15.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.6760  
ESTIMATED PEAK FLOW (CUMECS) = 0.38  
ESTIMATED TIME TO PEAK (MINS) = 35.00

iosd llkta 0 2  
LINK out 15.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.5256  
ESTIMATED PEAK FLOW (CUMECS) = 0.38  
ESTIMATED TIME TO PEAK (MINS) = 35.00

#####  
Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 120.  
RETURN PERIOD (YRS) = 100.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area	Slope	% Impervious	Pern	B	Link
Label	#1 #2	#1 #2	#1 #2	#1 #2	#1 #2	No.
	(ha)	(%)	(%)			
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000
nodel	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.001
out	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.002

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link
Label	Intensity	#1 #2	#1 #2	#1 #2	Inflow	to	Lag
	(mm/h)	(mm)	(mm/h)	(mm)	(m^3/s)	Peak	mins
Stage 1	60.296	5.000 20.00	0.000 2.500	115.56 96.411	0.3763	35.00	0.000
nodel	60.296	5.000 0.000	0.000 0.000	115.56 0.000	0.3764	35.00	0.000
out	60.296	5.000 0.000	0.000 0.000	115.56 0.000	0.3760	35.00	0.000

#### SUMMARY OF BASIN RESULTS

Link	Time	Peak	Time	Peak	Total	-----	Basin	-----
Label	to	Inflow	to	Outflow	Inflow	Vol.	Vol.	Stage
	Peak	(m^3/s)	Peak	(m^3/s)	(m^3)	Avail	Used	Used
nodel	35.00	.3764	35.00	.3760	676.01	0.0000	152.71	1.2714

#### SUMMARY OF BASIN OUTLET RESULTS

Link	No.	S/D	Dia	Width	Pipe	Pipe
Label	of	Factor	(m)	(m)	Length	Slope
		(m)			(m)	(%)
nodel	1.0	1.000		0.000	5.000	0.2000

LINK Stage 1 16.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.7744  
ESTIMATED PEAK FLOW (CUMECS) = 0.21  
ESTIMATED TIME TO PEAK (MINS) = 45.00

LINK nodel 16.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.7744  
ESTIMATED PEAK FLOW (CUMECS) = 0.21  
ESTIMATED TIME TO PEAK (MINS) = 45.00

iosd llkta 0 2

LINK out 16.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.6240  
 ESTIMATED PEAK FLOW (CUMECs) = 0.21  
 ESTIMATED TIME TO PEAK (MINS) = 45.00

#####  
 Summer Hill Stage 1 - 4-10-12 proposed with det rwts

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 180.  
 RETURN PERIOD (YRS) = 100.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area	Slope	% Impervious	Pern	B	Link
Label	#1 #2 (ha)	#1 #2 (%)	#1 #2 (%)	#1 #2	#1 #2	No.
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000
node1	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.001
out	.00001 0.000	.0010 0.000	0.000 0.000	.025 0.00	.0021 0.000	1.002

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link
Label	Intensity (mm/h)	#1 #2 (mm)	#1 #2 (mm/h)	#1 #2 (mm)	Inflow (m^3/s)	to Peak mins	Lag
Stage 1	45.785	5.000 20.00	0.000 2.500	132.34 110.80	0.2126	45.00	0.000
node1	45.785	5.000 0.000	0.000 0.000	132.34 0.000	0.2126	45.00	0.000
out	45.785	5.000 0.000	0.000 0.000	132.34 0.000	0.2126	45.00	0.000

#### SUMMARY OF BASIN RESULTS

Link	Time	Peak	Time	Peak	Total	Basin		
Label	to Peak	Inflow (m^3/s)	to Peak	Outflow (m^3/s)	Inflow (m^3)	Vol. Avail	Vol. Used	Stage Used
node1	45.00	.2126	45.00	.2126	774.42	0.0000	151.75	1.1754

#### SUMMARY OF BASIN OUTLET RESULTS

Link	No.	S/D	Dia	Width	Pipe	Pipe
Label	of	Factor	(m)	(m)	Length (m)	Slope (%)
node1	1.0	1.000		0.000	5.000	0.2000

Run completed at: 4th October 2012 10:11:19

## Existing Conditions

Run started at: 4th October 2012 9:58:59

```
#####
                        RUNTIME                RESULTS
#####
Max. no. of links allowed =          1500
Max. no. of routing increments allowed =      250000
Max. no. of rating curve points =      250000
Max. no. of storm temporal points =      250000
Max. no. of channel subreaches =          25
Max link stack level =          50
Input Version number =          800
LINK Stage 1          1.000

ESTIMATED VOLUME (CU METRES*10**3) =          0.1392
ESTIMATED PEAK FLOW          (CUMECs) =          0.12
ESTIMATED TIME TO PEAK          (MINS) =          23.80
#####
```

#####  
Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

```
#####
ROUTING INCREMENT (MINS) =          0.10
STORM DURATION (MINS) =          60.
RETURN PERIOD (YRS) =          1.
BX =          1.0000
TOTAL OF FIRST SUB-AREAS (ha) =          0.51
TOTAL OF SECOND SUB-AREAS (ha) =          0.09
TOTAL OF ALL SUB-AREAS (ha) =          0.60
#####
```

### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area	Slope	% Impervious	Pern	B	Link
Label	#1 #2	#1 #2	#1 #2	#1 #2	#1 #2	No.
	(ha)	(%)	(%)			
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link
Label	Intensity	#1 #2	#1 #2	#1 #2	Inflow	to	Lag
	(mm/h)	(mm)	(mm/h)	(mm)	(m <sup>3</sup> /s)	Peak	mins
Stage 1	30.677	5.000 20.00	0.000 2.500	25.666 9.257	0.1210	23.80	0.000

LINK Stage 1 2.000

```
ESTIMATED VOLUME (CU METRES*10**3) =          0.1681
ESTIMATED PEAK FLOW          (CUMECs) =          0.13
ESTIMATED TIME TO PEAK          (MINS) =          30.00
```

#####  
Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

```
#####
ROUTING INCREMENT (MINS) =          0.10
STORM DURATION (MINS) =          90.
RETURN PERIOD (YRS) =          1.
BX =          1.0000
TOTAL OF FIRST SUB-AREAS (ha) =          0.51
TOTAL OF SECOND SUB-AREAS (ha) =          0.09
TOTAL OF ALL SUB-AREAS (ha) =          0.60
#####
```

### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. #1	Area #2	Slope #1	#2	% Impervious #1	#2	Pern #1	#2	B #1	#2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000

Link Label	Average Intensity (mm/h)	Init. #1	Loss #2	Cont. #1	Loss #2	Excess #1	Rain #2	Peak Inflow (m^3/s)	Time to Peak	Link Lag mins
Stage 1	23.789	5.000	20.00	0.000	2.500	30.674	13.103	0.1284	30.00	0.000

LINK Stage 1 3.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.1906  
 ESTIMATED PEAK FLOW (CUMECS) = 0.12  
 ESTIMATED TIME TO PEAK (MINS) = 33.50

#####  
 Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 120.  
 RETURN PERIOD (YRS) = 1.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. #1	Area #2	Slope #1	#2	% Impervious #1	#2	Pern #1	#2	B #1	#2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000

Link Label	Average Intensity (mm/h)	Init. #1	Loss #2	Cont. #1	Loss #2	Excess #1	Rain #2	Peak Inflow (m^3/s)	Time to Peak	Link Lag mins
Stage 1	19.788	5.000	20.00	0.000	2.500	34.565	16.065	0.1211	33.50	0.000

LINK Stage 1 4.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.2252  
 ESTIMATED PEAK FLOW (CUMECS) = 0.66E-01  
 ESTIMATED TIME TO PEAK (MINS) = 45.00

#####  
 Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 180.  
 RETURN PERIOD (YRS) = 1.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. #1	Area #2	Slope #1	#2	% Impervious #1	#2	Pern #1	#2	B #1	#2	Link No.
	(ha)				(%)						

Stage 1 0.5100 0.0900 2.000 2.000 99.90 .1000 .018 .040 .0010 .0073 1.000

Link Label	Average Intensity (mm/h)	Init. Loss #1 (mm)	Loss #2	Cont. Loss #1 (mm/h)	Loss #2	Excess Rain #1 (mm)	Rain #2	Peak Inflow (m <sup>3</sup> /s)	Time to Peak mins	Link Lag
Stage 1	15.219	5.000	20.00	0.000	2.500	40.653	19.924	0.0655	45.00	0.000

LINK Stage 1 5.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.2758  
 ESTIMATED PEAK FLOW (CUMECS) = 0.22  
 ESTIMATED TIME TO PEAK (MINS) = 25.00

#####  
 Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 60.  
 RETURN PERIOD (YRS) = 5.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 (ha)	Area #2	Slope #1 (%)	Slope #2	% Impervious #1 (%)	% Impervious #2	Pern #1	Pern #2	B #1	B #2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000

Link Label	Average Intensity (mm/h)	Init. Loss #1 (mm)	Loss #2	Cont. Loss #1 (mm/h)	Loss #2	Excess Rain #1 (mm)	Rain #2	Peak Inflow (m <sup>3</sup> /s)	Time to Peak mins	Link Lag
Stage 1	53.519	5.000	20.00	0.000	2.500	48.499	31.795	0.2225	25.00	0.000

LINK Stage 1 6.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3252  
 ESTIMATED PEAK FLOW (CUMECS) = 0.24  
 ESTIMATED TIME TO PEAK (MINS) = 30.00

#####  
 Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 90.  
 RETURN PERIOD (YRS) = 5.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 (ha)	Area #2	Slope #1 (%)	Slope #2	% Impervious #1 (%)	% Impervious #2	Pern #1	Pern #2	B #1	B #2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000

Link Label	Average Intensity (mm/h)	Init. Loss #1 (mm)	Loss #2 (mm)	Cont. Loss #1 (mm/h)	Loss #2 (mm/h)	Excess Rain #1 (mm)	Rain #2 (mm)	Peak Inflow (m <sup>3</sup> /s)	Time to Peak (mins)	Link Lag
Stage 1	41.278	5.000	20.00	0.000	2.500	56.900	38.992	0.2382	30.00	0.000

LINK Stage 1 7.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3633  
 ESTIMATED PEAK FLOW (CUMECS) = 0.22  
 ESTIMATED TIME TO PEAK (MINS) = 35.00

#####  
 Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 120.  
 RETURN PERIOD (YRS) = 5.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 (ha)	Area #2 (ha)	Slope #1 (%)	Slope #2 (%)	% Impervious #1 (%)	% Impervious #2 (%)	Pern #1	Pern #2	B #1	B #2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	1.000	.018	.040	.0010	.0073	1.000

Link Label	Average Intensity (mm/h)	Init. Loss #1 (mm)	Loss #2 (mm)	Cont. Loss #1 (mm/h)	Loss #2 (mm/h)	Excess Rain #1 (mm)	Rain #2 (mm)	Peak Inflow (m <sup>3</sup> /s)	Time to Peak (mins)	Link Lag
Stage 1	34.200	5.000	20.00	0.000	2.500	63.381	44.590	0.2202	35.00	0.000

LINK Stage 1 8.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4216  
 ESTIMATED PEAK FLOW (CUMECS) = 0.13  
 ESTIMATED TIME TO PEAK (MINS) = 45.00

#####  
 Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 180.  
 RETURN PERIOD (YRS) = 5.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 (ha)	Area #2 (ha)	Slope #1 (%)	Slope #2 (%)	% Impervious #1 (%)	% Impervious #2 (%)	Pern #1	Pern #2	B #1	B #2	Link No.
Stage 1	0.5100	0.0900	2.000	2.000	99.90	1.000	.018	.040	.0010	.0073	1.000

Link Label	Average Intensity (mm/h)	Init. Loss #1 (mm)	Loss #2 (mm)	Cont. Loss #1 (mm/h)	Loss #2 (mm/h)	Excess Rain #1 (mm)	Rain #2 (mm)	Peak Inflow (m <sup>3</sup> /s)	Time to Peak (mins)	Link Lag
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Stage 1 26.158 5.000 20.00 0.000 2.500 73.465 52.282 0.1261 45.00 0.000

LINK Stage 1 9.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.3831  
ESTIMATED PEAK FLOW (CUMECS) = 0.31  
ESTIMATED TIME TO PEAK (MINS) = 25.00

#####  
Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 60.  
RETURN PERIOD (YRS) = 20.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch.	Area	Slope	% Impervious	Pern	B	Link
Label	#1	#2	#1	#2	#1	#2	No.
	(ha)		(%)	(%)			
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	1.000

Link	Average	Init.	Loss	Cont.	Loss	Excess	Rain	Peak	Time	Link
Label	Intensity	#1	#2	#1	#2	#1	#2	Inflow	to	Lag
	(mm/h)	(mm)		(mm/h)		(mm)		(m^3/s)	Peak	mins
Stage 1	71.405	5.000	20.00	0.000	2.500	66.378	49.511	0.3052	25.00	0.000

LINK Stage 1 10.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4473  
ESTIMATED PEAK FLOW (CUMECS) = 0.32  
ESTIMATED TIME TO PEAK (MINS) = 30.00

#####  
Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 90.  
RETURN PERIOD (YRS) = 20.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch.	Area	Slope	% Impervious	Pern	B	Link
Label	#1	#2	#1	#2	#1	#2	No.
	(ha)		(%)	(%)			
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	1.000

Link	Average	Init.	Loss	Cont.	Loss	Excess	Rain	Peak	Time	Link
Label	Intensity	#1	#2	#1	#2	#1	#2	Inflow	to	Lag
	(mm/h)	(mm)		(mm/h)		(mm)		(m^3/s)	Peak	mins
Stage 1	54.865	5.000	20.00	0.000	2.500	77.276	59.168	0.3239	30.00	0.000

LINK Stage 1 11.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.4967  
 ESTIMATED PEAK FLOW (CUMECS) = 0.30  
 ESTIMATED TIME TO PEAK (MINS) = 35.00

#####  
 Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 120.  
 RETURN PERIOD (YRS) = 20.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area	Slope	% Impervious	Pern	B	Link
Label	#1 #2	#1 #2	#1 #2	#1 #2	#1 #2	No.
	(ha)	(%)	(%)			
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link
Label	Intensity	#1 #2	#1 #2	#1 #2	Inflow	to	Lag
	(mm/h)	( mm )	(mm/h)	( mm )	(m^3/s)	Peak	mins
Stage 1	45.334	5.000 20.00	0.000 2.500	85.643 66.622	0.2994	35.00	0.000

LINK Stage 1 12.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.5722  
 ESTIMATED PEAK FLOW (CUMECS) = 0.17  
 ESTIMATED TIME TO PEAK (MINS) = 45.00

#####  
 Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
 to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
 STORM DURATION (MINS) = 180.  
 RETURN PERIOD (YRS) = 20.  
 BX = 1.0000  
 TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
 TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
 TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area	Slope	% Impervious	Pern	B	Link
Label	#1 #2	#1 #2	#1 #2	#1 #2	#1 #2	No.
	(ha)	(%)	(%)			
Stage 1	0.5100 0.0900	2.000 2.000	99.90 .1000	.018 .040	.0010 .0073	1.000

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link
Label	Intensity	#1 #2	#1 #2	#1 #2	Inflow	to	Lag
	(mm/h)	( mm )	(mm/h)	( mm )	(m^3/s)	Peak	mins
Stage 1	34.539	5.000 20.00	0.000 2.500	98.605 77.230	0.1707	45.00	0.000

LINK Stage 1 13.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.5273



ESTIMATED PEAK FLOW (CUMECS) = 0.39  
ESTIMATED TIME TO PEAK (MINS) = 25.00

#####  
Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 60.  
RETURN PERIOD (YRS) = 100.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area		Slope		% Impervious		Pern		B		Link
Label	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	No.
	(ha)		(%)		(%)						
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link			
Label	Intensity	#1	#2	#1	#2	Inflow	to			
	(mm/h)	( mm )		(mm/h)	( mm )	(m^3/s)	Peak			
							mins			
Stage 1	95.495	5.000	20.00	0.000	2.500	90.451	73.493	0.3907	25.00	0.000

LINK Stage 1 14.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.6115  
ESTIMATED PEAK FLOW (CUMECS) = 0.41  
ESTIMATED TIME TO PEAK (MINS) = 30.00

#####  
Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 90.  
RETURN PERIOD (YRS) = 100.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area		Slope		% Impervious		Pern		B		Link
Label	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	No.
	(ha)		(%)		(%)						
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link			
Label	Intensity	#1	#2	#1	#2	Inflow	to			
	(mm/h)	( mm )		(mm/h)	( mm )	(m^3/s)	Peak			
							mins			
Stage 1	73.141	5.000	20.00	0.000	2.500	104.68	86.478	0.4067	30.00	0.000

LINK Stage 1 15.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.6760  
ESTIMATED PEAK FLOW (CUMECS) = 0.38  
ESTIMATED TIME TO PEAK (MINS) = 35.00

#####  
Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 120.  
RETURN PERIOD (YRS) = 100.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area		Slope		% Impervious		Pern		B		Link
Label	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	No.
	(ha)		(%)		(%)						
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link			
Label	Intensity	#1	#2	#1	#2	Inflow	to			
	(mm/h)	( mm )	(mm/h)	( mm )	(mm/h)	(m^3/s)	Peak			
							mins			
Stage 1	60.296	5.000	20.00	0.000	2.500	115.56	96.411	0.3763	35.00	0.000

LINK Stage 1 16.000

ESTIMATED VOLUME (CU METRES\*10\*\*3) = 0.7744  
ESTIMATED PEAK FLOW (CUMECs) = 0.21  
ESTIMATED TIME TO PEAK (MINS) = 45.00

#####  
Summer Hill Stage 1 - 4-10-12 -existing

Results for period from 0: 0.0 1/ 1/1990  
to 5: 0.0 1/ 1/1990

#####

ROUTING INCREMENT (MINS) = 0.10  
STORM DURATION (MINS) = 180.  
RETURN PERIOD (YRS) = 100.  
BX = 1.0000  
TOTAL OF FIRST SUB-AREAS (ha) = 0.51  
TOTAL OF SECOND SUB-AREAS (ha) = 0.09  
TOTAL OF ALL SUB-AREAS (ha) = 0.60

#### SUMMARY OF CATCHMENT AND RAINFALL DATA

Link	Catch. Area		Slope		% Impervious		Pern		B		Link
Label	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	No.
	(ha)		(%)		(%)						
Stage 1	0.5100	0.0900	2.000	2.000	99.90	.1000	.018	.040	.0010	.0073	1.000

Link	Average	Init. Loss	Cont. Loss	Excess Rain	Peak	Time	Link			
Label	Intensity	#1	#2	#1	#2	Inflow	to			
	(mm/h)	( mm )	(mm/h)	( mm )	(mm/h)	(m^3/s)	Peak			
							mins			
Stage 1	45.785	5.000	20.00	0.000	2.500	132.34	110.80	0.2126	45.00	0.000

Run completed at: 4th October 2012 9:59:03

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## APPENDIX C – MUSIC

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Baseflow Total Nitrogen Estimation  
Method,Stochastic,Stochastic,Stochastic,Stochastic,Stochastic,Stochastic,Stochastic,Stochastic,Stochast  
ic,Stochastic,Stochastic,Stochastic,Stochastic,Stochastic,Stochastic  
Baseflow Total Nitrogen Serial Correlation,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0  
OUT - Mean Annual Flow  
(ML/yr),1.58,2.55,2.44,0.901,1.39,0.727,0.636,1.80,1.22,1.90,1.28,2.20,0.879,0.512,7.33  
OUT - TSS Mean Annual Load (kg/yr),341,541,496,181,291,153,130,384,254,403,255,454,182,107,626  
OUT - TP Mean Annual Load  
(kg/yr),0.654,1.08,1.02,0.375,0.580,0.306,0.266,0.742,0.494,0.806,0.530,0.884,0.357,0.214,0.645  
OUT - TN Mean Annual Load  
(kg/yr),4.54,7.37,7.07,2.60,4.01,2.11,1.81,5.14,3.51,5.54,3.69,6.31,2.56,1.46,7.35  
OUT - Gross Pollutant Mean Annual Load  
(kg/yr),37.9,61.1,58.7,21.8,33.4,17.6,15.4,43.4,29.3,45.5,30.8,53.3,21.1,12.3,166  
Rain In  
(ML/yr),1.73832,2.80375,2.69161,1.07944,1.82243,0.8972,0.78505,2.36917,1.3458,2.08879,1.68225,2.63553,0.  
.967292,0.672901,11.4954  
ET Loss  
(ML/yr),0.15934,0.256999,0.24672,0.177034,0.430728,0.168781,0.147683,0.559945,0.12336,0.191465,0.397595  
,0.43224,0.0886653,0.159038,4.10289  
Deep Seepage Loss (ML/yr),0,0,0,0,0,0,0,0,0,0,0,0,0,0,0  
Baseflow Out  
(ML/yr),0,0,0,0.00703025,0.0237383,0.007791,0.006817,0.0308598,0,0,0.0219123,0.0171645,0,0.00876475,0.2  
74511  
Imp. Stormflow Out  
(ML/yr),1.57898,2.54675,2.44488,0.833425,1.15877,0.651968,0.570472,1.5064,1.22244,1.89733,1.06964,2.034  
85,0.878628,0.427854,4.69875  
Perv. Stormflow Out  
(ML/yr),0,0,0,0.0604813,0.204222,0.0670268,0.0586485,0.265489,0,0,0.188513,0.147669,0,0.0754052,2.36165  
Total Stormflow Out  
(ML/yr),1.57898,2.54675,2.44488,0.893906,1.36299,0.718995,0.629121,1.77189,1.22244,1.89733,1.25815,2.18  
252,0.878628,0.503259,7.0604  
Total Outflow  
(ML/yr),1.57898,2.54675,2.44488,0.900936,1.38673,0.726786,0.635937,1.80275,1.22244,1.89733,1.28006,2.19  
968,0.878628,0.512024,7.33491  
Change in Soil Storage  
(ML/yr),0,0,0,0.0014745,0.00497875,0.001634,0.00142975,0.00647225,0,0,0.00459575,0.0036,0,0.00183825,0.  
0575735  
TSS Baseflow Out  
(ML/yr),0,0,0,0.0955115,0.322984,0.105818,0.0929283,0.418488,0,0,0.297699,0.23376,0,0.119237,2.28104  
TSS Total Stormflow Out  
(ML/yr),341.266,541.006,496.074,181.217,290.556,152.658,130.229,383.893,254.369,403.015,254.786,454.174  
,182.367,106.411,623.426  
TSS Total Outflow  
(ML/yr),341.266,541.006,496.074,181.313,290.879,152.764,130.322,384.311,254.369,403.015,255.084,454.408  
,182.367,106.53,625.707  
TP Baseflow Out  
(ML/yr),0,0,0,0.00116825,0.003967,0.00129825,0.001139,0.00511475,0,0,0.003641,0.00286325,0,0.00146075,0.  
.00906975  
TP Total Stormflow Out  
(ML/yr),0.654253,1.07799,1.02249,0.373973,0.576521,0.304854,0.264426,0.73653,0.49364,0.806306,0.526576,  
0.881221,0.357166,0.212754,0.636342  
TP Total Outflow  
(ML/yr),0.654253,1.07799,1.02249,0.375141,0.580488,0.306152,0.265565,0.741645,0.49364,0.806306,0.530217  
,0.884085,0.357166,0.214215,0.645411  
TN Baseflow Out  
(ML/yr),0,0,0,0.0152408,0.0514663,0.016899,0.0147923,0.067039,0,0,0.0475038,0.0372773,0,0.019001,0.2080  
98  
TN Total Stormflow Out  
(ML/yr),4.53907,7.37153,7.06956,2.58718,3.95635,2.09119,1.79436,5.07507,3.51141,5.5414,3.64548,6.2688,2.  
.55742,1.44218,7.13836  
TN Total Outflow  
(ML/yr),4.53907,7.37153,7.06956,2.60242,4.00782,2.10809,1.80915,5.14211,3.51141,5.5414,3.69298,6.30608,  
2.55742,1.46118,7.34646  
GP Total Outflow  
(ML/yr),37.8809,61.0982,58.6542,21.8257,33.4254,17.6146,15.4128,43.4531,29.3271,45.5181,30.8543,53.2886  
.21,0789,12.3417,166.74
```

Type,MediaFiltrationNode,MediaFiltrationNode,MediaFiltrationNode,RainWaterTankNode,RainWaterTankNode,Ra

```
InWaterTankNode,RainWaterTankNode,RainWaterTankNode,RainWaterTankNode,BufferNode,InfiltrationSystemNode
V4
Lo-flow bypass rate (cum/sec),0,0,0,0,0,0,0,0,0, ,0
Hi-flow bypass rate (cum/sec),1,1,1,100,1,100,1,100,100,100, ,0.05
Inlet pond volume, , , ,0,0,0,0,0,0, ,
Area (sqm),100,70,135,62.5,62.5,62.5,25,125,125,1648.84736842105,450
Extended detention depth (m),0.25,0.25,0.25,0.01,0.01,0.01,0.01,0.01,0.01, ,0.2
Permanent Pool Volume (cubic metres), , , ,125,100,125,25,250,250, ,
Proportion vegetated, , , ,0,0,0,0,0,0, ,
Equivalent Pipe Diameter (mm), , , ,150,100,150,150,150,150, ,
Overflow weir width (m),2,2,2,10,10,10,10,10,10, ,20
Notional Detention Time (hrs), , , ,33.1E-3,74.5E-3,33.1E-3,13.2E-3,66.2E-3,66.2E-3, ,
Orifice Discharge Coefficient, , , ,0.6,0.6,0.6,0.6,0.6,0.6, ,
Weir Coefficient,1.7,1.7,1.7,1.7,1.7,1.7,1.7,1.7,1.7, ,1.7
Number of CSTR Cells,3,3,3,2,2,2,2,2,2, ,1
Total Suspended Solids - k (m/yr),1000,1000,1000,1000,400,400,400,400,400,400, ,400
Total Suspended Solids - C* (mg/L),12,12,12,12,12,12,12,12,12,12, ,12
Total Suspended Solids - C** (mg/L), , , ,12,12,12,12,12,12, ,12
Total Phosphorus - k (m/yr),500,500,500,300,300,300,300,300,300, ,300
Total Phosphorus - C* (mg/L),0.13,0.13,0.13,0.13,0.13,0.13,0.13,0.13,0.13, ,0.09
Total Phosphorus - C** (mg/L), , , ,0.13,0.13,0.13,0.13,0.13,0.13, ,0.09
Total Nitrogen - k (m/yr),50,50,50,40,40,40,40,40,40, ,40
Total Nitrogen - C* (mg/L),1.3,1.3,1.3,1.4,1.4,1.4,1.4,1.4,1.4, ,1
Total Nitrogen - C** (mg/L), , , ,1.4,1.4,1.4,1.4,1.4,1.4, ,1
Threshold Hydraulic Loading for C** (m/yr), , , ,3500,3500,3500,3500,3500, ,3500
Horizontal Flow Coefficient, , , , , , , , , , ,3
Extraction for Re-use,Off,Off,Off,On,On,On,On,On,On,Off,Off
Annual Re-use Demand - scaled by daily PET (ML), , , ,0,0,0,0,0,0, ,
Annual Re-use Demand - scaled by daily PET - Rain (ML), , , , -9999,0, -9999, -9999, -9999, ,
Constant Daily Re-use Demand (kL), , , ,4,5,8.1,1.35,16.2,13.5, ,
User-defined Annual Re-use Demand (ML), , , ,0,0,0,0,0,0, ,
Percentage of User-defined Annual Re-use Demand
Jan, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Feb, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Mar, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Apr, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
May, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Jun, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Jul, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Aug, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Sep, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Oct, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Nov, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
Percentage of User-defined Annual Re-use Demand
Dec, , , ,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.33333333333333,8.333333
33333333, ,
User-defined Re-use File, , , , , , , , , , ,
Filter area (sqm),90,65,67.5, , , , , , ,450
Filter perimeter (m), , , , , , , , , , ,0.1
Filter depth (m),1,1,1, , , , , , ,0
Filter Median Particle Diameter (mm),5,5,5, , , , , , ,
Saturated Hydraulic Conductivity (mm/hr),100,100,100, , , , , , ,
Infiltration Media Porosity,0.3,0.3,0.3, , , , , , ,0.35
Length (m), , , , , , , , , , ,
```

Bed slope, , , , , , , , ,  
 Base Width (m), , , , , , , , ,  
 Top width (m), , , , , , , , ,  
 Vegetation height (m), , , , , , , , ,  
 Vegetation Type, , , , , , , , ,  
 Total Nitrogen Content in Filter (mg/kg), , , , , , , , ,  
 Orthophosphate Content in Filter (mg/kg), , , , , , , , ,  
 Is Base Lined?, , , , , , , , ,  
 Is Underdrain Present?, , , , , , , , ,  
 Is Submerged Zone Present?, , , , , , , , ,  
 Submerged Zone Depth (m), , , , , , , , ,  
 B for Media Soil Texture, -9999, -9999, -9999, -9999, -9999, -9999, -9999, -9999, -9999, -9999  
 Proportion of upstream impervious area treated, , , , , , , , , 0.5,  
 Exfiltration Rate (mm/hr), 10, 10, 10, 0, 0, 0, 0, 0, 10, 25  
 Evap Loss as proportion of PET, , , , 0, 0, 0, 0, 0, 0, 1  
 Depth in metres below the drain pipe, 0.05, 0.05, 0.05, , , , , , , ,  
 TSS A Coefficient, 0.52, 0.52, 0.52, , , , , , , ,  
 TSS B Coefficient, -0.39, -0.39, -0.39, , , , , , , ,  
 TP A Coefficient, 1.28, 1.28, 1.28, , , , , , , ,  
 TP B Coefficient, -0.19, -0.19, -0.19, , , , , , , ,  
 TN A Coefficient, 1.67, 1.67, 1.67, , , , , , , ,  
 TN B Coefficient, -0.09, -0.09, -0.09, , , , , , , ,  
 Sfc, , , , , , , , ,  
 S\*, , , , , , , , ,  
 Sw, , , , , , , , ,  
 Sh, , , , , , , , ,  
 Emax (m/day), , , , , , , , ,  
 Ew (m/day), , , , , , , , ,  
 IN - Mean Annual Flow (ML/yr), 0.636, 0.727, 0.901, 1.58, 2.55, 2.44, 1.22, 1.90, 0.879, 7.33, 2.20  
 IN - TSS Mean Annual Load (kg/yr), 130, 153, 181, 341, 541, 496, 254, 403, 182, 626, 454  
 IN - TP Mean Annual Load (kg/yr), 0.266, 0.306, 0.375, 0.654, 1.08, 1.02, 0.494, 0.806, 0.357, 0.645, 0.884  
 IN - TN Mean Annual Load (kg/yr), 1.81, 2.11, 2.60, 4.54, 7.37, 7.07, 3.51, 5.54, 2.56, 7.35, 6.31  
 IN - Gross Pollutant Mean Annual Load (kg/yr), 15.4, 17.6, 21.8, 37.9, 61.1, 58.7, 29.3, 45.5, 21.1, 166, 53.3  
 OUT - Mean Annual Flow (ML/yr), 0.211, 0.326, 0.439, 0.482, 1.17, 0.771, 0.793, 92.0E-3, 0.00, 4.84, 47.1E-3  
 OUT - TSS Mean Annual Load (kg/yr), 5.50, 8.85, 10.5, 43.4, 137, 90.6, 93.4, 10.2, 0.00, 341, 5.82  
 OUT - TP Mean Annual Load (kg/yr), 30.7E-3, 49.6E-3, 63.0E-3, 0.122, 0.337, 0.235, 0.228, 26.0E-3, 0.00, 0.423, 13.1E-3  
 OUT - TN Mean Annual Load (kg/yr), 0.383, 0.614, 0.809, 1.17, 3.13, 2.10, 2.09, 0.263, 0.00, 4.84, 0.136  
 OUT - Gross Pollutant Mean Annual Load (kg/yr), 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 97.3, 0.00  
 Flow In  
 (ML/yr), 0.635885, 0.726836, 0.90093, 1.57895, 2.54676, 2.44491, 1.22245, 1.89732, 0.878618, 7.3351, 2.19974  
 ET Loss (ML/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.00469175  
 Infiltration Loss (ML/yr), 0.431031, 0.404748, 0.466981, 0, 0, 0, 0, 0, 2.49922, 2.14716  
 Low Flow Bypass Out (ML/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 High Flow Bypass Out (ML/yr), 0, 0, 0, 0, 0, 0, 0, 0, 3.66755, 0  
 Orifice / Filter Out  
 (ML/yr), 0.211072, 0.321489, 0.434339, 0.425196, 0.698078, 0.616966, 0.744862, 0.0753098, 0, 1.16828, 0  
 Weir Out (ML/yr), 0, 0.00491425, 0.00422325, 0.0563205, 0.475553, 0.154191, 0.048056, 0.016703, 0, 0.0470848  
 Transfer Function Out (ML/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 Reuse Supplied (ML/yr), 0, 0, 0, 1.11952, 1.37893, 1.69151, 0.429883, 1.86734, 0.941199, 0, 0  
 Reuse Requested (ML/yr), 0, 0, 0, 1.46227, 1.82472, 2.95932, 0.49321, 5.91865, 4.92901, 0, 0  
 % Reuse Demand Met, 0, 0, 0, 76.5601, 75.5697, 57.1585, 87.1603, 31.5501, 19.0951, 0, 0  
 % Load Reduction, 66.8066, 55.0926, 51.3211, 69.504, 53.9168, 68.4587, 35.1372, 95.1504, 100, 34.0727, 97.8595  
 TSS Flow In  
 (kg/yr), 130.268, 152.701, 181.244, 341.266, 541.006, 496.075, 254.369, 403.015, 182.367, 625.772, 454.225  
 TSS ET Loss (kg/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 TSS Infiltration Loss (kg/yr), 5.7507, 6.13847, 6.49711, 0, 0, 0, 0, 0, 0, 66.7642  
 TSS Low Flow Bypass Out (kg/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 TSS High Flow Bypass Out (kg/yr), 0, 0, 0, 0, 0, 0, 0, 0, 312.886, 0  
 TSS Orifice / Filter Out  
 (kg/yr), 5.50418, 8.05274, 10.1303, 35.4084, 73.8099, 71.0211, 87.3559, 8.19976, 0, 28.4071, 0  
 TSS Weir Out (kg/yr), 0, 0.800355, 0.386676, 7.94725, 63.0702, 19.5764, 6.06435, 2.00979, 0, 5.81636  
 TSS Transfer Function Out (kg/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 TSS Reuse Supplied (kg/yr), 0, 0, 0, 22.272, 33.4079, 46.9572, 9.91213, 43.4378, 17.4006, 0, 0  
 TSS Reuse Requested (kg/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 TSS % Reuse Demand Met, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 TSS % Load Reduction, 95.7747, 94.2023, 94.1973, 87.2956, 74.699, 81.7371, 63.2738, 97.4667, 100, 45.4605, 98.7195  
 TP Flow In  
 (kg/yr), 0.265578, 0.306165, 0.375139, 0.654252, 1.07798, 1.02249, 0.493641, 0.806306, 0.357166, 0.645411, 0.884118  
 TP ET Loss (kg/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 TP Infiltration Loss (kg/yr), 0.0590658, 0.0578253, 0.064513, 0, 0, 0, 0, 0, 0, 0.28538  
 TP Low Flow Bypass Out (kg/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0, 0  
 TP High Flow Bypass Out (kg/yr), 0, 0, 0, 0, 0, 0, 0, 0, 0.322705, 0

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TP Orifice / Filter Out
(kg/yr),0.0306958,0.0481393,0.061538,0.106308,0.19196,0.184163,0.214315,0.0211328,0,0.100071,0
TP Weir Out (kg/yr),0,0.001446,0.00144775,0.0159455,0.144822,0.0508705,0.0136,0.0048235,0,0,0.013143
TP Transfer Function Out (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
TP Reuse Supplied (kg/yr),0,0,0,0.16226,0.213243,0.274294,0.064615,0.285907,0.134821,0,0
TP Reuse Requested (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
TP % Reuse Demand Met,0,0,0,0,0,0,0,0,0,0,0,0
TP % Load Reduction,88.4419,83.8044,83.21,81.314,68.7582,77.0136,53.8297,96.7808,100,34.495,98.5134
TN Flow In
(kg/yr),1.80912,2.10808,2.60256,4.53906,7.37153,7.06956,3.51141,5.54139,2.55742,7.34647,6.30632
TN ET Loss (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
TN Infiltration Loss (kg/yr),0.759938,0.749199,0.801392,0,0,0,0,0,0,0,4.41517
TN Low Flow Bypass Out (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
TN High Flow Bypass Out (kg/yr),0,0,0,0,0,0,0,0,0,3.67324,0
TN Orifice / Filter Out
(kg/yr),0.382627,0.596056,0.797204,1.02596,1.83182,1.69723,1.95743,0.212863,0,1.16563,0
TN Weir Out (kg/yr),0,0.0183583,0.0114108,0.146092,1.29967,0.407498,0.128148,0.0498033,0,0,0.136066
TN Transfer Function Out (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
TN Reuse Supplied (kg/yr),0,0,0,2.14361,2.80911,3.68746,0.842083,3.96,1.86757,0,0
TN Reuse Requested (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
TN % Reuse Demand Met,0,0,0,0,0,0,0,0,0,0,0,0
TN % Load Reduction,78.8501,70.8544,68.93,74.1785,57.5191,70.2283,40.6056,95.2599,100,34.1335,97.8424
GP Flow In
(kg/yr),15.4018,17.602,21.8145,37.8808,61.098,58.6543,29.3271,45.5182,21.0788,166.242,53.2614
GP ET Loss (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
GP Infiltration Loss (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
GP Low Flow Bypass Out (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
GP High Flow Bypass Out (kg/yr),0,0,0,0,0,0,0,0,0,83.1209,0
GP Orifice / Filter Out (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
GP Weir Out (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
GP Transfer Function Out (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
GP Reuse Supplied (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
GP Reuse Requested (kg/yr),0,0,0,0,0,0,0,0,0,0,0,0
GP % Reuse Demand Met,0,0,0,0,0,0,0,0,0,0,0,0
GP % Load Reduction,100,100,100,100,100,100,100,100,100,50,100

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### Generic treatment nodes

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Location,GPT2,GPT1,GPT3
ID,9,10,34
Node Type,GPTNode,GPTNode,GPTNode
Lo-flow bypass rate (cum/sec),0,0,0
Hi-flow bypass rate (cum/sec),100,100,100
Flow Transfer Function
Input (cum/sec),0,0,0
Output (cum/sec),0,0,0
Input (cum/sec),10,10,10
Output (cum/sec),10,10,10
Input (cum/sec), , ,
Output (cum/sec), , ,
Input (cum/sec), , ,
Output (cum/sec), , ,
Input (cum/sec), , ,
Output (cum/sec), , ,
Input (cum/sec), , ,
Output (cum/sec), , ,
Input (cum/sec), , ,
Output (cum/sec), , ,
Input (cum/sec), , ,
Output (cum/sec), , ,
Input (cum/sec), , ,
Output (cum/sec), , ,
Gross Pollutant Transfer Function
Input (kg/ML),0,0,0
Output (kg/ML),0,0,0
Input (kg/ML),15,15,15
Output (kg/ML),0.4,0.4,0.4
Input (kg/ML), , ,
Output (kg/ML), , ,
Input (kg/ML), , ,
Output (kg/ML), , ,
Input (kg/ML), , ,
Output (kg/ML), , ,
Input (kg/ML), , ,
Output (kg/ML), , ,

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Output (kg/ML), , ,
Input (kg/ML), , ,
Output (kg/ML), , ,
Input (kg/ML), , ,
Output (kg/ML), , ,
Input (kg/ML), , ,
Output (kg/ML), , ,
Input (kg/ML), , ,
Output (kg/ML), , ,
Total Nitrogen Transfer Function
Input (mg/L),0,0,0
Output (mg/L),0,0,0
Input (mg/L),50,50,50
Output (mg/L),45,45,45
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Total Phosphorus Transfer Function
Input (mg/L),0,0,0
Output (mg/L),0,0,0
Input (mg/L),5,5,5
Output (mg/L),3.5,3.5,3.5
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Total Suspended Solids Transfer Function
Input (mg/L),0,0,0
Output (mg/L),0,0,0
Input (mg/L),1000,1000,1000
Output (mg/L),150,150,150
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
Input (mg/L), , ,
Output (mg/L), , ,
IN - Mean Annual Flow (ML/yr),8.11,1.21,4.84
IN - TSS Mean Annual Load (kg/yr),1.34E3,101,341
IN - TP Mean Annual Load (kg/yr),2.87,0.298,0.423

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IN - TN Mean Annual Load (kg/yr),22.1,2.91,4.84  
 IN - Gross Pollutant Mean Annual Load (kg/yr),120,0.00,97.3  
 OUT - Mean Annual Flow (ML/yr),8.11,1.21,4.84  
 OUT - TSS Mean Annual Load (kg/yr),201,15.2,51.2  
 OUT - TP Mean Annual Load (kg/yr),2.01,0.209,0.296  
 OUT - TN Mean Annual Load (kg/yr),19.9,2.62,4.35  
 OUT - Gross Pollutant Mean Annual Load (kg/yr),3.20,0.00,2.60  
 Flow In (ML/yr),8.10625,1.20972,4.83593  
 ET Loss (ML/yr),0,0,0  
 Infiltration Loss (ML/yr),0,0,0  
 Low Flow Bypass Out (ML/yr),0,0,0  
 High Flow Bypass Out (ML/yr),0,0,0  
 Orifice / Filter Out (ML/yr),0,0,0  
 Weir Out (ML/yr),0,0,0  
 Transfer Function Out (ML/yr),8.10625,1.20972,4.83593  
 Reuse Supplied (ML/yr),0,0,0  
 Reuse Requested (ML/yr),0,0,0  
 % Reuse Demand Met,0,0,0  
 % Load Reduction,0,0,0  
 TSS Flow In (kg/yr),1340.33,101.114,341.271  
 TSS ET Loss (kg/yr),0,0,0  
 TSS Infiltration Loss (kg/yr),0,0,0  
 TSS Low Flow Bypass Out (kg/yr),0,0,0  
 TSS High Flow Bypass Out (kg/yr),0,0,0  
 TSS Orifice / Filter Out (kg/yr),0,0,0  
 TSS Weir Out (kg/yr),0,0,0  
 TSS Transfer Function Out (kg/yr),201.02,15.1672,51.1923  
 TSS Reuse Supplied (kg/yr),0,0,0  
 TSS Reuse Requested (kg/yr),0,0,0  
 TSS % Reuse Demand Met,0,0,0  
 TSS % Load Reduction,85.0022,85,84.9995  
 TP Flow In (kg/yr),2.87317,0.298019,0.422775  
 TP ET Loss (kg/yr),0,0,0  
 TP Infiltration Loss (kg/yr),0,0,0  
 TP Low Flow Bypass Out (kg/yr),0,0,0  
 TP High Flow Bypass Out (kg/yr),0,0,0  
 TP Orifice / Filter Out (kg/yr),0,0,0  
 TP Weir Out (kg/yr),0,0,0  
 TP Transfer Function Out (kg/yr),2.01105,0.208614,0.295943  
 TP Reuse Supplied (kg/yr),0,0,0  
 TP Reuse Requested (kg/yr),0,0,0  
 TP % Reuse Demand Met,0,0,0  
 TP % Load Reduction,30.0058,30,30  
 TN Flow In (kg/yr),22.0883,2.91334,4.83888  
 TN ET Loss (kg/yr),0,0,0  
 TN Infiltration Loss (kg/yr),0,0,0  
 TN Low Flow Bypass Out (kg/yr),0,0,0  
 TN High Flow Bypass Out (kg/yr),0,0,0  
 TN Orifice / Filter Out (kg/yr),0,0,0  
 TN Weir Out (kg/yr),0,0,0  
 TN Transfer Function Out (kg/yr),19.8802,2.622,4.35499  
 TN Reuse Supplied (kg/yr),0,0,0  
 TN Reuse Requested (kg/yr),0,0,0  
 TN % Reuse Demand Met,0,0,0  
 TN % Load Reduction,9.99678,10.0002,10.0001  
 GP Flow In (kg/yr),119.933,0,97.3249  
 GP ET Loss (kg/yr),0,0,0  
 GP Infiltration Loss (kg/yr),0,0,0  
 GP Low Flow Bypass Out (kg/yr),0,0,0  
 GP High Flow Bypass Out (kg/yr),0,0,0  
 GP Orifice / Filter Out (kg/yr),0,0,0  
 GP Weir Out (kg/yr),0,0,0  
 GP Transfer Function Out (kg/yr),3.19821,0,2.59532  
 GP Reuse Supplied (kg/yr),0,0,0  
 GP Reuse Requested (kg/yr),0,0,0  
 GP % Reuse Demand Met,0,0,0  
 GP % Load Reduction,100,100,100

#### Other nodes

Location,Dummy Out,J1,J2,J3,J4,Jstage1  
 ID,1,2,16,20,21,35  
 Node Type,ReceivingNode,JunctionNode,JunctionNode,JunctionNode,JunctionNode,JunctionNode  
 IN - Mean Annual Flow (ML/yr),14.2,14.2,5.38,0.559,2.16,3.10  
 IN - TSS Mean Annual Load (kg/yr),267,267,870,112,359,442  
 IN - TP Mean Annual Load (kg/yr),2.52,2.52,1.86,0.227,0.784,0.998



## Stage 1 Model

### Source nodes

Location, Roof-4, Non Roof-4, Road-4 plus BRS2, Main Road plus BRS1  
 ID, 1, 6, 8, 9  
 Node Type, UrbanSourceNode, UrbanSourceNode, UrbanSourceNode, UrbanSourceNode  
 Total Area (ha), 0.2, 0.13, 0.064, 0.056  
 Area Impervious (ha), 0.2, 0.090555795847751, 0.0512293522734171, 0.0448576130638014  
 Area Pervious (ha), 0, 0.039444204152249, 0.0127706477265829, 0.0111423869361986  
 Field Capacity (mm), 50, 50, 50, 50  
 Pervious Area Infiltration Capacity coefficient - a, 50, 50, 50, 50  
 Pervious Area Infiltration Capacity exponent - b, 2, 2, 2, 2  
 Impervious Area Rainfall Threshold (mm/day), 1, 1, 1, 1  
 Pervious Area Soil Storage Capacity (mm), 150, 150, 150, 150  
 Pervious Area Soil Initial Storage (% of Capacity), 25, 25, 25, 25  
 Groundwater Initial Depth (mm), 50, 50, 50, 50  
 Groundwater Daily Recharge Rate (%), 0.65, 0.65, 0.65, 0.65  
 Groundwater Daily Baseflow Rate (%), 0.85, 0.85, 0.85, 0.85  
 Groundwater Daily Deep Seepage Rate (%), 0, 0, 0, 0  
 Stormflow Total Suspended Solids Mean (log mg/L), 2.2, 2.2, 2.2, 2.2  
 Stormflow Total Suspended Solids Standard Deviation (log mg/L), 0.32, 0.32, 0.32, 0.32  
 Stormflow Total Suspended Solids Estimation Method, Stochastic, Stochastic, Stochastic, Stochastic  
 Stormflow Total Suspended Solids Serial Correlation, 0, 0, 0, 0  
 Stormflow Total Phosphorus Mean (log mg/L), -0.45, -0.45, -0.45, -0.45  
 Stormflow Total Phosphorus Standard Deviation (log mg/L), 0.25, 0.25, 0.25, 0.25  
 Stormflow Total Phosphorus Estimation Method, Stochastic, Stochastic, Stochastic, Stochastic  
 Stormflow Total Phosphorus Serial Correlation, 0, 0, 0, 0  
 Stormflow Total Nitrogen Mean (log mg/L), 0.42, 0.42, 0.42, 0.42  
 Stormflow Total Nitrogen Standard Deviation (log mg/L), 0.19, 0.19, 0.19, 0.19  
 Stormflow Total Nitrogen Estimation Method, Stochastic, Stochastic, Stochastic, Stochastic  
 Stormflow Total Nitrogen Serial Correlation, 0, 0, 0, 0  
 Baseflow Total Suspended Solids Mean (log mg/L), 1.1, 1.1, 1.1, 1.1  
 Baseflow Total Suspended Solids Standard Deviation (log mg/L), 0.17, 0.17, 0.17, 0.17  
 Baseflow Total Suspended Solids Estimation Method, Stochastic, Stochastic, Stochastic, Stochastic  
 Baseflow Total Suspended Solids Serial Correlation, 0, 0, 0, 0  
 Baseflow Total Phosphorus Mean (log mg/L), -0.82, -0.82, -0.82, -0.82  
 Baseflow Total Phosphorus Standard Deviation (log mg/L), 0.19, 0.19, 0.19, 0.19  
 Baseflow Total Phosphorus Estimation Method, Stochastic, Stochastic, Stochastic, Stochastic  
 Baseflow Total Phosphorus Serial Correlation, 0, 0, 0, 0  
 Baseflow Total Nitrogen Mean (log mg/L), 0.32, 0.32, 0.32, 0.32  
 Baseflow Total Nitrogen Standard Deviation (log mg/L), 0.12, 0.12, 0.12, 0.12  
 Baseflow Total Nitrogen Estimation Method, Stochastic, Stochastic, Stochastic, Stochastic  
 Baseflow Total Nitrogen Serial Correlation, 0, 0, 0, 0  
 OUT - Mean Annual Flow (ML/yr), 2.55, 1.39, 0.727, 0.636  
 OUT - TSS Mean Annual Load (kg/yr), 520, 282, 147, 130  
 OUT - TP Mean Annual Load (kg/yr), 1.04, 0.569, 0.307, 0.262  
 OUT - TN Mean Annual Load (kg/yr), 7.32, 4.04, 2.08, 1.85  
 OUT - Gross Pollutant Mean Annual Load (kg/yr), 61.1, 33.4, 17.6, 15.4  
 Rain In (ML/yr), 2.80375, 1.82243, 0.8972, 0.78505  
 ET Loss (ML/yr), 0.256999, 0.430728, 0.168781, 0.147683  
 Deep Seepage Loss (ML/yr), 0, 0, 0, 0  
 Baseflow Out (ML/yr), 0, 0.0237383, 0.007791, 0.006817  
 Imp. Stormflow Out (ML/yr), 2.54675, 1.15877, 0.651968, 0.570472  
 Perv. Stormflow Out (ML/yr), 0, 0.204222, 0.0670268, 0.0586485  
 Total Stormflow Out (ML/yr), 2.54675, 1.36299, 0.718995, 0.629121  
 Total Outflow (ML/yr), 2.54675, 1.38673, 0.726786, 0.635937  
 Change in Soil Storage (ML/yr), 0, 0.00497875, 0.001634, 0.00142975  
 TSS Baseflow Out (ML/yr), 0, 0.321702, 0.106137, 0.0923863  
 TSS Total Stormflow Out (ML/yr), 519.981, 281.81, 146.63, 130.191  
 TSS Total Outflow (ML/yr), 519.981, 282.131, 146.736, 130.284  
 TP Baseflow Out (ML/yr), 0, 0.003969, 0.001304, 0.00113975  
 TP Total Stormflow Out (ML/yr), 1.03883, 0.564816, 0.305662, 0.260748  
 TP Total Outflow (ML/yr), 1.03883, 0.568785, 0.306966, 0.261887  
 TN Baseflow Out (ML/yr), 0, 0.051562, 0.016904, 0.0148075  
 TN Total Stormflow Out (ML/yr), 7.31957, 3.99072, 2.05968, 1.83921  
 TN Total Outflow (ML/yr), 7.31957, 4.04228, 2.07659, 1.85402  
 GP Total Outflow (ML/yr), 61.0982, 33.4254, 17.6146, 15.4128

### No Imported Data Source nodes

### USTM treatment nodes

Location, BRS1, BRS2, RWT3  
 ID, 2, 3, 5  
 Node Type, MediaFiltrationNode, MediaFiltrationNode, RainWaterTankNode

Lo-flow bypass rate (cum/sec),0,0,0  
 Hi-flow bypass rate (cum/sec),1,1,1  
 Inlet pond volume, , ,0  
 Area (sqm),100,70,50  
 Extended detention depth (m),0.25,0.25,0.01  
 Permanent Pool Volume (cubic metres), , ,100  
 Proportion vegetated, , ,0  
 Equivalent Pipe Diameter (mm), , ,100  
 Overflow weir width (m),2,2,10  
 Notional Detention Time (hrs), , ,59.6E-3  
 Orifice Discharge Coefficient, , ,0.6  
 Weir Coefficient,1.7,1.7,1.7  
 Number of CSTR Cells,3,3,2  
 Total Suspended Solids - k (m/yr),1000,1000,400  
 Total Suspended Solids - C\* (mg/L),12,12,12  
 Total Suspended Solids - C\*\* (mg/L), , ,12  
 Total Phosphorus - k (m/yr),500,500,300  
 Total Phosphorus - C\* (mg/L),0.13,0.13,0.13  
 Total Phosphorus - C\*\* (mg/L), , ,0.13  
 Total Nitrogen - k (m/yr),50,50,40  
 Total Nitrogen - C\* (mg/L),1.3,1.3,1.4  
 Total Nitrogen - C\*\* (mg/L), , ,1.4  
 Threshold Hydraulic Loading for C\*\* (m/yr), , ,3500  
 Horizontal Flow Coefficient, , ,  
 Extraction for Re-use,Off,Off,On  
 Annual Re-use Demand - scaled by daily PET (ML), , ,0  
 Annual Re-use Demand - scaled by daily PET - Rain (ML), , ,0  
 Constant Daily Re-use Demand (kL), , ,5  
 User-defined Annual Re-use Demand (ML), , ,0  
 Percentage of User-defined Annual Re-use Demand Jan, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Feb, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Mar, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Apr, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand May, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Jun, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Jul, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Aug, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Sep, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Oct, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Nov, , ,8.33333333333333  
 Percentage of User-defined Annual Re-use Demand Dec, , ,8.33333333333333  
 User-defined Re-use File, , ,  
 Filter area (sqm),90,65,  
 Filter perimeter (m), , ,  
 Filter depth (m),1,1,  
 Filter Median Particle Diameter (mm),5,5,  
 Saturated Hydraulic Conductivity (mm/hr),100,100,  
 Infiltration Media Porosity,0.3,0.3,  
 Length (m), , ,  
 Bed slope, , ,  
 Base Width (m), , ,  
 Top width (m), , ,  
 Vegetation height (m), , ,  
 Vegetation Type, , ,  
 Total Nitrogen Content in Filter (mg/kg), , ,  
 Orthophosphate Content in Filter (mg/kg), , ,  
 Is Base Lined?, , ,  
 Is Underdrain Present?, , ,  
 Is Submerged Zone Present?, , ,  
 Submerged Zone Depth (m), , ,  
 B for Media Soil Texture,-9999,-9999,-9999  
 Proportion of upstream impervious area treated, , ,  
 Exfiltration Rate (mm/hr),10,10,0  
 Evap Loss as proportion of PET, , ,0  
 Depth in metres below the drain pipe,0.05,0.05,  
 TSS A Coefficient,0.52,0.52,  
 TSS B Coefficient,-0.39,-0.39,  
 TP A Coefficient,1.28,1.28,  
 TP B Coefficient,-0.19,-0.19,  
 TN A Coefficient,1.67,1.67,  
 TN B Coefficient,-0.09,-0.09,  
 Sfc, , ,  
 S\*, , ,  
 Sw, , ,  
 Sh, , ,

Emax (m/day), , ,  
 Ew (m/day), , ,  
 IN - Mean Annual Flow (ML/yr),0.636,0.727,2.55  
 IN - TSS Mean Annual Load (kg/yr),130,147,520  
 IN - TP Mean Annual Load (kg/yr),0.262,0.307,1.04  
 IN - TN Mean Annual Load (kg/yr),1.85,2.08,7.32  
 IN - Gross Pollutant Mean Annual Load (kg/yr),15.4,17.6,61.1  
 OUT - Mean Annual Flow (ML/yr),0.211,0.326,1.17  
 OUT - TSS Mean Annual Load (kg/yr),5.46,8.34,134  
 OUT - TP Mean Annual Load (kg/yr),31.4E-3,50.0E-3,0.343  
 OUT - TN Mean Annual Load (kg/yr),0.401,0.592,3.10  
 OUT - Gross Pollutant Mean Annual Load (kg/yr),0.00,0.00,0.00  
 Flow In (ML/yr),0.635885,0.726836,2.54676  
 ET Loss (ML/yr),0,0,0  
 Infiltration Loss (ML/yr),0.431031,0.404748,0  
 Low Flow Bypass Out (ML/yr),0,0,0  
 High Flow Bypass Out (ML/yr),0,0,0  
 Orifice / Filter Out (ML/yr),0.211072,0.321489,0.694839  
 Weir Out (ML/yr),0,0.00491425,0.478802  
 Transfer Function Out (ML/yr),0,0,0  
 Reuse Supplied (ML/yr),0,0,1.37892  
 Reuse Requested (ML/yr),0,0,1.82472  
 % Reuse Demand Met,0,0,75.5688  
 % Load Reduction,66.8066,55.0926,53.9164  
 TSS Flow In (kg/yr),130.229,146.674,519.981  
 TSS ET Loss (kg/yr),0,0,0  
 TSS Infiltration Loss (kg/yr),5.68503,5.99436,0  
 TSS Low Flow Bypass Out (kg/yr),0,0,0  
 TSS High Flow Bypass Out (kg/yr),0,0,0  
 TSS Orifice / Filter Out (kg/yr),5.45522,7.74142,73.1187  
 TSS Weir Out (kg/yr),0,0.600267,61.2967  
 TSS Transfer Function Out (kg/yr),0,0,0  
 TSS Reuse Supplied (kg/yr),0,0,36.7603  
 TSS Reuse Requested (kg/yr),0,0,0  
 TSS % Reuse Demand Met,0,0,0  
 TSS % Load Reduction,95.8111,94.3128,74.1499  
 TP Flow In (kg/yr),0.2619,0.30698,1.03883  
 TP ET Loss (kg/yr),0,0,0  
 TP Infiltration Loss (kg/yr),0.0590128,0.0578373,0  
 TP Low Flow Bypass Out (kg/yr),0,0,0  
 TP High Flow Bypass Out (kg/yr),0,0,0  
 TP Orifice / Filter Out (kg/yr),0.0313705,0.0478535,0.198319  
 TP Weir Out (kg/yr),0,0.0020965,0.144885  
 TP Transfer Function Out (kg/yr),0,0,0  
 TP Reuse Supplied (kg/yr),0,0,0.219181  
 TP Reuse Requested (kg/yr),0,0,0  
 TP % Reuse Demand Met,0,0,0  
 TP % Load Reduction,88.0219,83.7286,66.9624  
 TN Flow In (kg/yr),1.85401,2.07657,7.31957  
 TN ET Loss (kg/yr),0,0,0  
 TN Infiltration Loss (kg/yr),0.767027,0.741487,0  
 TN Low Flow Bypass Out (kg/yr),0,0,0  
 TN High Flow Bypass Out (kg/yr),0,0,0  
 TN Orifice / Filter Out (kg/yr),0.401023,0.579636,1.8405  
 TN Weir Out (kg/yr),0,0.0119073,1.26076  
 TN Transfer Function Out (kg/yr),0,0,0  
 TN Reuse Supplied (kg/yr),0,0,2.93333  
 TN Reuse Requested (kg/yr),0,0,0  
 TN % Reuse Demand Met,0,0,0  
 TN % Load Reduction,78.37,71.5134,57.6305  
 GP Flow In (kg/yr),15.4018,17.602,61.098  
 GP ET Loss (kg/yr),0,0,0  
 GP Infiltration Loss (kg/yr),0,0,0  
 GP Low Flow Bypass Out (kg/yr),0,0,0  
 GP High Flow Bypass Out (kg/yr),0,0,0  
 GP Orifice / Filter Out (kg/yr),0,0,0  
 GP Weir Out (kg/yr),0,0,0  
 GP Transfer Function Out (kg/yr),0,0,0  
 GP Reuse Supplied (kg/yr),0,0,0  
 GP Reuse Requested (kg/yr),0,0,0  
 GP % Reuse Demand Met,0,0,0  
 GP % Load Reduction,100,100,100

#### Generic treatment nodes

Location,GPT2

```

ID,4
Node Type,GPTNode
Lo-flow bypass rate (cum/sec),0
Hi-flow bypass rate (cum/sec),100
Flow Transfer Function
Input (cum/sec),0
Output (cum/sec),0
Input (cum/sec),10
Output (cum/sec),10
Input (cum/sec),
Output (cum/sec),
Input (cum/sec),
Output (cum/sec),
Input (cum/sec),
Output (cum/sec),
Input (cum/sec),
Output (cum/sec),
Input (cum/sec),
Output (cum/sec),
Input (cum/sec),
Output (cum/sec),
Input (cum/sec),
Output (cum/sec),
Gross Pollutant Transfer Function
Input (kg/ML),0
Output (kg/ML),0
Input (kg/ML),15
Output (kg/ML),0.4
Input (kg/ML),
Output (kg/ML),
Input (kg/ML),
Output (kg/ML),
Input (kg/ML),
Output (kg/ML),
Input (kg/ML),
Output (kg/ML),
Input (kg/ML),
Output (kg/ML),
Input (kg/ML),
Output (kg/ML),
Input (kg/ML),
Output (kg/ML),
Input (kg/ML),
Output (kg/ML),
Total Nitrogen Transfer Function
Input (mg/L),0
Output (mg/L),0
Input (mg/L),50
Output (mg/L),45
Input (mg/L),
Output (mg/L),
Input (mg/L),
Output (mg/L),
Input (mg/L),
Output (mg/L),
Input (mg/L),
Output (mg/L),
Input (mg/L),
Output (mg/L),
Input (mg/L),
Output (mg/L),
Input (mg/L),
Output (mg/L),
Input (mg/L),
Output (mg/L),
Total Phosphorus Transfer Function
Input (mg/L),0
Output (mg/L),0
Input (mg/L),5
Output (mg/L),3.5
Input (mg/L),
Output (mg/L),
Input (mg/L),

```

Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Total Suspended Solids Transfer Function  
 Input (mg/L),0  
 Output (mg/L),0  
 Input (mg/L),1000  
 Output (mg/L),150  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
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 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 Input (mg/L),  
 Output (mg/L),  
 IN - Mean Annual Flow (ML/yr),3.10  
 IN - TSS Mean Annual Load (kg/yr),430  
 IN - TP Mean Annual Load (kg/yr),0.993  
 IN - TN Mean Annual Load (kg/yr),8.14  
 IN - Gross Pollutant Mean Annual Load (kg/yr),33.4  
 OUT - Mean Annual Flow (ML/yr),3.10  
 OUT - TSS Mean Annual Load (kg/yr),64.6  
 OUT - TP Mean Annual Load (kg/yr),0.695  
 OUT - TN Mean Annual Load (kg/yr),7.32  
 OUT - Gross Pollutant Mean Annual Load (kg/yr),0.890  
 Flow In (ML/yr),3.09759  
 ET Loss (ML/yr),0  
 Infiltration Loss (ML/yr),0  
 Low Flow Bypass Out (ML/yr),0  
 High Flow Bypass Out (ML/yr),0  
 Orifice / Filter Out (ML/yr),0  
 Weir Out (ML/yr),0  
 Transfer Function Out (ML/yr),3.09759  
 Reuse Supplied (ML/yr),0  
 Reuse Requested (ML/yr),0  
 % Reuse Demand Met,0  
 % Load Reduction,0  
 TSS Flow In (kg/yr),430.15  
 TSS ET Loss (kg/yr),0  
 TSS Infiltration Loss (kg/yr),0  
 TSS Low Flow Bypass Out (kg/yr),0  
 TSS High Flow Bypass Out (kg/yr),0  
 TSS Orifice / Filter Out (kg/yr),0  
 TSS Weir Out (kg/yr),0  
 TSS Transfer Function Out (kg/yr),64.525  
 TSS Reuse Supplied (kg/yr),0  
 TSS Reuse Requested (kg/yr),0  
 TSS % Reuse Demand Met,0  
 TSS % Load Reduction,84.9994  
 TP Flow In (kg/yr),0.993351  
 TP ET Loss (kg/yr),0  
 TP Infiltration Loss (kg/yr),0  
 TP Low Flow Bypass Out (kg/yr),0  
 TP High Flow Bypass Out (kg/yr),0  
 TP Orifice / Filter Out (kg/yr),0  
 TP Weir Out (kg/yr),0



TP Transfer Function Out (kg/yr),0.695336  
 TP Reuse Supplied (kg/yr),0  
 TP Reuse Requested (kg/yr),0  
 TP % Reuse Demand Met,0  
 TP % Load Reduction,30.001  
 TN Flow In (kg/yr),8.1362  
 TN ET Loss (kg/yr),0  
 TN Infiltration Loss (kg/yr),0  
 TN Low Flow Bypass Out (kg/yr),0  
 TN High Flow Bypass Out (kg/yr),0  
 TN Orifice / Filter Out (kg/yr),0  
 TN Weir Out (kg/yr),0  
 TN Transfer Function Out (kg/yr),7.32246  
 TN Reuse Supplied (kg/yr),0  
 TN Reuse Requested (kg/yr),0  
 TN % Reuse Demand Met,0  
 TN % Load Reduction,10.0015  
 GP Flow In (kg/yr),33.386  
 GP ET Loss (kg/yr),0  
 GP Infiltration Loss (kg/yr),0  
 GP Low Flow Bypass Out (kg/yr),0  
 GP High Flow Bypass Out (kg/yr),0  
 GP Orifice / Filter Out (kg/yr),0  
 GP Weir Out (kg/yr),0  
 GP Transfer Function Out (kg/yr),0.890291  
 GP Reuse Supplied (kg/yr),0  
 GP Reuse Requested (kg/yr),0  
 GP % Reuse Demand Met,0  
 GP % Load Reduction,100

#### Other nodes

Location,J2,Jstager1  
 ID,7,10  
 Node Type,JunctionNode,JunctionNode  
 IN - Mean Annual Flow (ML/yr),3.10,3.10  
 IN - TSS Mean Annual Load (kg/yr),430,430  
 IN - TP Mean Annual Load (kg/yr),0.993,0.993  
 IN - TN Mean Annual Load (kg/yr),8.14,8.14  
 IN - Gross Pollutant Mean Annual Load (kg/yr),33.4,33.4  
 OUT - Mean Annual Flow (ML/yr),3.10,3.10  
 OUT - TSS Mean Annual Load (kg/yr),430,430  
 OUT - TP Mean Annual Load (kg/yr),0.993,0.993  
 OUT - TN Mean Annual Load (kg/yr),8.14,8.14  
 OUT - Gross Pollutant Mean Annual Load (kg/yr),33.4,33.4

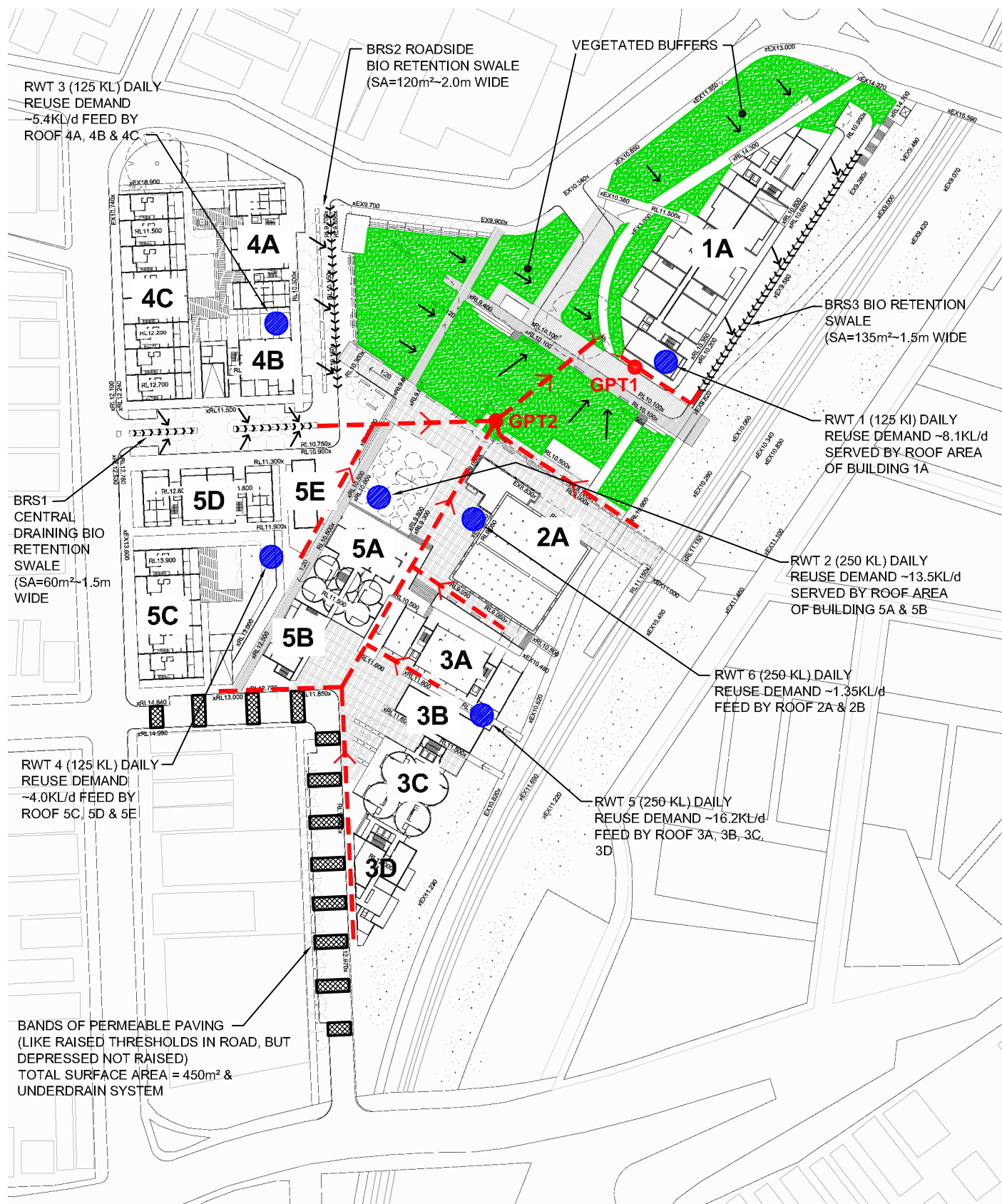
#### Links

Location,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link,Drainage Link  
 Source node ID,1,7,8,9,2,10,6,5,3  
 Target node ID,5,4,3,2,10,7,10,10,10  
 Muskingum-Cunge Routing,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed,Not Routed  
 Muskingum K, , , , , , , , ,  
 Muskingum theta, , , , , , , , ,  
 IN - Mean Annual Flow (ML/yr),2.55,3.10,0.727,0.636,0.211,3.10,1.39,1.17,0.326  
 IN - TSS Mean Annual Load (kg/yr),520,430,147,130,5.46,430,282,134,8.34  
 IN - TP Mean Annual Load (kg/yr),1.04,0.993,0.307,0.262,31.4E-3,0.993,0.569,0.343,50.0E-3  
 IN - TN Mean Annual Load (kg/yr),7.32,8.14,2.08,1.85,0.401,8.14,4.04,3.10,0.592  
 IN - Gross Pollutant Mean Annual Load (kg/yr),61.1,33.4,17.6,15.4,0.00,33.4,33.4,0.00,0.00  
 OUT - Mean Annual Flow (ML/yr),2.55,3.10,0.727,0.636,0.211,3.10,1.39,1.17,0.326  
 OUT - TSS Mean Annual Load (kg/yr),520,430,147,130,5.46,430,282,134,8.34  
 OUT - TP Mean Annual Load (kg/yr),1.04,0.993,0.307,0.262,31.4E-3,0.993,0.569,0.343,50.0E-3  
 OUT - TN Mean Annual Load (kg/yr),7.32,8.14,2.08,1.85,0.401,8.14,4.04,3.10,0.592  
 OUT - Gross Pollutant Mean Annual Load (kg/yr),61.1,33.4,17.6,15.4,0.00,33.4,33.4,0.00,0.00

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## APPENDIX D - TREATMENT TRAIN MASTERPLAN

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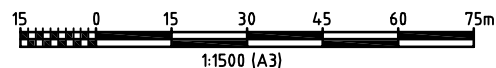


Source: Landscape Plan (HASSELL)  
DATE: 14th MARCH 2011  
ISSUED B



#### LEGEND

- RAINWATER TANK
- GPT
- PIPED DRAINAGE AND DIRECTION OF FLOW (20YR ARI)
- BIO RETENTION SWALE
- PERMEABLE PAVING
- VEGETATED BUFFER
- 5D BUILDING NUMBER



**FIGURE 5**  
**WSUD STRATEGY**  
**SUMMER HILL FLOUR MILL**