

Appendix A

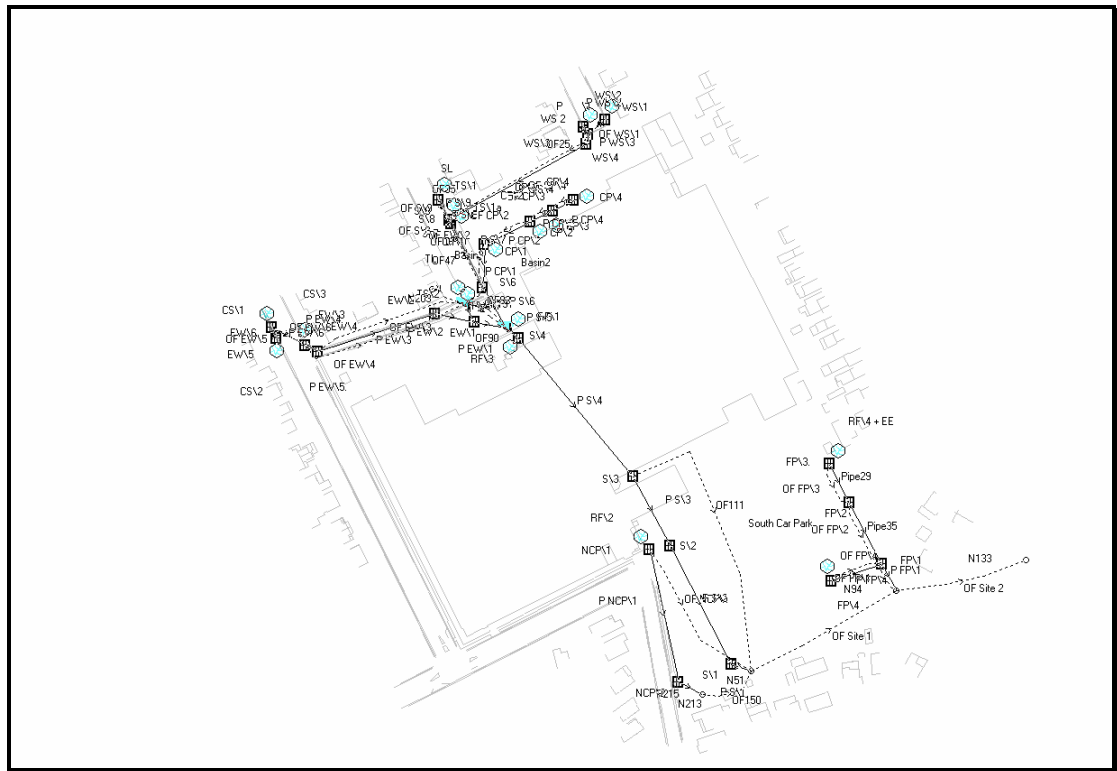
Existing Catchment Summary

Table A2 – Existing catchment Condition

Catchment Name	Area (ha)	Percentage Impervious (%)	Percentage Pervious (%)
WS\1	1.78	70	30
WS\2	0.24	100	0
SL	0.27	70	30
TS\1	1.83	70	30
TS\2	0.06	100	0
TL	2.7	70	30
CP\1	0.06	100	0
CP\2	0.04	100	0
CP\3	0.05	100	0
CP\4	0.15	100	0
RF\3	1.35	100	0
CS\1	5.73	80	20
CS\2	0.88	70	30
CS\3	0.25	100	0
RF\1	0.53	100	0
RF\2	1.32	100	0
RF\4 + EE	1.5	80	20
SCP	1.1	100	0

Appendix B

Existing Condition – DRAINS Model Input and Output



DRAINS Model Name and File Path: F:\AA001875\02-Calculations\E-Stormwater\C-DrainsDesignFiles\4000-AA001875-00 Existing 2008-09-18.drn														
DRAINS Version: 2008.06-15 May 2008														
Modeller's Name: Darlan Castro														
Description: Clemton Park Redevelopment														
PIT - NODE DETAILS														
Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down id	id	Part Full Shock Loss
WS 1	OnGrade	NSW Dept. of Hous	2.4 m lintel (all grades)	10	4	28.9	0.2	0	0.2	324617.765	6244950.73	No		1 x Ku
WS3	Sag	NSW Dept. of Hous	1.68 m lintel (all grades)	10	0.8	28.6	0.2	0	0.5	324608.617	6244942.974	No		3 x Ku
WS4	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.8	28.85		0	0.2	324607.572	6244937.536	No		101 x Ku
S8	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		2	27.2		0	0.2	324533.885	6244896.852	No		12 x Ku
S7	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.5	27.07		0	0.2	324534.796	6244894.924	No		51 x Ku
S6	OnGrade	Unlimited	Unlimited		0.8	25.5		0	0.2	324552.095	6244860.644	No		61 x Ku
S4	OnGrade	Unlimited	Unlimited		0.1	24.86		0	0.2	324571.274	6244833.246	No		141 x Ku
S3	OnGrade	Unlimited	Unlimited		0.5	21.84		0	0.2	324632.623	6244759.234	No		131 x Ku
S2	OnGrade	Unlimited	Unlimited		0.5	21.67		0	0.2	324652.78	6244722.193	Yes		32 x Ku
S1	OnGrade	Unlimited	Unlimited		2	20.75		0	0.2	324655.229	6244655.788	Yes		33 x Ku
N51	Node					20.4		0		324695.932	6244655.193			117
WS 2	OnGrade	NSW Dept. of Hous	3.6 m lintel (all grades)		4	28.78		0	0.2	324606.137	6244946.549	No		21 x Ku
S9	OnGrade	NSW Dept. of Hous	1.68 m lintel (all grades)		4	27.93		0	0.2	324528.354	6244907.854	No		41 x Ku
EW5	OnGrade	Unlimited	Unlimited		2	27.21		0	0.2	324441.352	6244833.676	No		101 x Ku
EW6	OnGrade	Unlimited	Unlimited		0.5	27.18		0	0.2	324438.712	6244839.035	No		11 x Ku
EW4	OnGrade	NSW Dept. of Hous	1.8 m lintel (all grades)		0.5	27.02		0	0.2	324456.811	6244829.681	No		91 x Ku
EW3	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.8	26.86		0	0.2	324463.441	6244826.221	No		184 x Ku
EW2	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.8	25.43		0	0.2	324526.479	6244846.755	Yes		172 x Ku
EW1	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.8	25.4		0	0.2	324547.429	6244842.022	Yes		44 x Ku
CP4	OnGrade	Unlimited	Unlimited		2	27.57		0	0.2	324601.051	6244907.356	No		161 x Ku
CP3	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.5	27.34		0	0.2	324589.465	6244901.675	No		151 x Ku
CP2	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.5	27.2		0	0.2	324577.793	6244895.922	No		141 x Ku
CP1	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.8	26.58		0	0.2	324552.926	6244883.601	No		131 x Ku
FP3	OnGrade	Unlimited	Unlimited		4	21.43		0	0.2	324738.123	6244766.309	No		191 x Ku
FP2	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.5	20.95		0	0.2	324748.739	6244745.249	No		301 x Ku
FP1	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.8	20.33		0	0.2	324766.097	6244712.303	No		201 x Ku
N94	Node					19.81		0		324774.049	6244698.16			247
FP4	OnGrade	NSW Dept. of Hous	RM.7 Grated Accessway Pit at		0.8	20.34		0	0.2	324739.026	6244703.358	No		21 x Ku
N133	Node					19.81		0		324843.384	6244714.285			393
N203	Node							0		324524.744	6244859.536			127275443
NCP1	OnGrade	Unlimited	Unlimited		0.5	22.08		0	0.2	324641.503	6244720.03	No		144281704
NCP2	OnGrade	Unlimited	Unlimited		2	21.22		0	0.2	324657.054	6244649.242	Yes		144281706
N213	Node					20.64		0		324670.087	6244642.257			144281707
DETENTION BASIN DETAILS														
Name	Elev	Volume	Init Vol. (cu.m)	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length
Basin2	23.38	0		0 Culvert		1				324564.335	6244839.129	No		
	24.7	8.22												
	24.75	15.54												
	24.8	25.56												
	24.85	38.303												
	24.9	53.593												
	24.95	71.53												
	25	92.57												
	25.05	117.11												
	25.1	150.07												
	25.15	202.75												
	25.2	269.34												
	25.25	348.5												
	25.3	439.31												
	25.35	541.24												
	25.4	659.54												
	25.45	804.15												
	25.5	969.99												
	25.55	1153.14												
	25.6	1340.32												
	25.65	1530.32												
	25.7	1723.03												
	25.75	1917.64												
	25.8	2113.53												
	25.85	2310.53												
	25.9	2506.56												
	25.95	2707.36												
	26	2907.35												
	26.05	3107.98												
	26.1	3309.34												
	26.15	3511.4												
	26.2	3714.13												
Basin3	24.58	0		0 Culvert		0.5				324542.416	6244851.661	No		
	25.35	1.31												
	25.4	2.5												
	25.45	5.9												
	25.5	12.3												
	25.55	21.8												
	25.6	35.64												
	25.65	54.74												
	25.7	79.22												
	25.75	108.24												
	25.8	141.25												
	25.85	177.56												
	25.9	216.94												
	25.95	259.42												
	26	305.5												
	26.05	354.62												
	26.1	406.83												
	26.15	462.11												
	26.2	520.32												

SUB-CATCHMENT DETAILS															
Name	Pit or Node	Total Area (ha)	Paved Area (%)	Grass Area (%)	Supp Area (%)	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope (%)	Grass Slope (%)	Supp Slope (%)	
WS1	WS 1	1.779	70	30	0	6	8	0							
SL	S6	0.268	70	30	0	4	6	0							
TS1a	S7	0.0025	100	0	0	1	0	0							
TS2	S6	0.0624	100	0	0	3	0	0							
RP1	Basin2	0.5464	100	0	0	3	0	0							
RP3	S4	1.3426	100	0	0	3	0	0							
WS2	WS 2	0.243	100	0	0	3	0	0							
TS1	S9	1.83	70	30	0	6	8	0							
CS2	EW5	0.833	100	0	0	5	7	0							
CS1	EW6	5.73	80	20	0	6	8	0							
CS3	EW4	0.337	100	0	0	3	0	0							
CP4	CP4	0.1576	100	0	0	3	0	0							
CP3	CP3	0.055	100	0	0	2	0	0							
CP2	CP2	0.045	100	0	0	1	0	0							
CP1	CP1	0.0618	100	0	0	1	0	0							
RP4 + EE	FP3	1.5	80	20	0	5	7	0							
South Car Pa	FP4	1.09	100	0	0	3	0	0							
TL	Basin3	2.68	70	30	0	6	8	0							
RP2	NCP1	1.321	100	0	0	3	0	0							
PIPE DETAILS															
Name	From	To	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Type	Dia (mm)	I.D. (mm)	Rough	Pipe Is	No. Pipes	Chg From	At Chg	
P WS1	WS 1	WS3	11.9936	28.1	27.92	1.5	Concrete, und	375	375	0.3	New	1	WS 1	0	
P WS3	WS3	WS4	5.55281	27.68	27.597	1.49	Concrete, und	450	450	0.3	New	1	WS3	0	
P WS4	WS4	S8	83.8155	27.597	26.3	1.55	Concrete, und	450	450	0.3	New	1	WS4	0	
P S8	S8	S7	2	26.3	26.22	4	Concrete, und	450	450	0.3	New	1	S8	0	
P S7	S7	S6	38.4	26.19	24.35	4.27	Concrete, und	450	450	0.3	New	1	S7	0	
P S6	S6	Basin2	24.7214	24.55	23.67	3.56	Concrete, und	600	600	0.3	NewFixed	1	S6	0	
P S5	Basin2	S4	9.86316	23.38	22.99	3.95	Concrete, und	1050	1070	0.3	NewFixed	1	Basin2	0	
P S4	S4	S3	104.78	22.96	20.04	2.79	Sydney Water1.143W x 1.371H			0.3	Existing	1	S4	0	
P S3	S3	S2	33.5221	20.04	19.872	0.5	Sydney Water1W x 1H			0.3	NewFixed	2	S3	0	
P S2	S2	S1	71.127	19.872	19.19	0.96	Sydney Water1W x 1H			0.3	Existing	2	S2	0	
P S1	S1	N51	11.1875	19.19	19.05	1.25	Concrete, und	1050	1070	0.3	New	1	S1	0	
P WS2	WS 2	WS3	4.35108	28.09	27.92	3.91	Concrete, und	450	450	0.3	New	1	WS 2	0	
P S9	S9	S8	12.02	26.87	26.3	4.74	Concrete, und	375	375	0.3	New	1	S9	0	
P EW6	EW5	EW6	5.97442	26.51	26.5	0.17	Concrete, und	450	450	0.3	New	1	EW5	0	
P EW5	EW6	EW4	20	25.96	25.69	1.35	Concrete, und	1050	1070	0.3	New	1	EW6	0	
P EW4	EW4	EW3	6.7062	25.69	25.489	3	Concrete, und	1050	1070	0.3	New	1	EW4	0	
P EW3	EW3	EW2	66.7511	25.46	23.96	2.25	Concrete, und	1050	1070	0.3	New	1	EW3	0	
P EW2	EW2	EW1	37.644	23.926	23.55	1	Concrete, und	1050	1070	0.3	New	1	EW2	0	
P EW1	EW1	Basin2	16.1	23.541	23.38	1	Concrete, und	1050	1070	0.3	NewFixed	1	EW1	0	
P CP4	CP4	CP3	12.8864	26.86	26.66	1.55	Concrete, und	225	225	0.3	New	1	CP4	0	
P CP3	CP3	CP2	13.0134	26.62	26.4	1.69	Concrete, und	225	225	0.3	New	1	CP3	0	
P CP2	CP2	CP1	27.7544	26.36	25.84	1.87	Concrete, und	300	300	0.3	New	1	CP2	0	
P CP1	CP1	S6	22.9733	25.7	24.5	5.22	Concrete, und	300	300	0.3	New	1	CP1	0	
Pipe29	FP3	FP2	23.3659	20.29	19.842	1.9	Concrete, und	675	675	0.3	New	1	FP3	0	
Pipe35	FP2	FP1	37.241	19.842	19.47	1	Concrete, und	675	675	0.3	New	1	FP2	0	
P FP1	FP1	N94	16.6647	19.39	18.94	2.7	Concrete, und	675	675	0.3	New	1	FP1	0	
P FP4	FP4	FP1	27	19.57	19.46	0.41	Concrete, und	450	450	0.3	New	1	FP4	0	
Pipe47	Basin3	EW1	10.664	24.58	24.26	3	Concrete, und	450	450	0.3	NewFixed	1	Basin3	0	
NCP1	NCP1	NCP2	80.4	20.17	19.47	0.87	Concrete, und	675	675	0.3	New	2	NCP1	0	
N215	NCP2	N213	4	19.46	19.42	1	Concrete, und	1050	1070	0.3	New	1	NCP2	0	
DETAILS OF SERVICES CROSSING PIPES															
Pipe	Chg (m)	Bottom Elev (m)	Height of Service (m)	Chg (m)	Bottom Elev (m)	Height of Service (m)	Chg (m)	Bottom Elev (m)	Height of Service (m)	etc					
CHANNEL DETAILS															
Name	From	To	Type	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Base Width (m)	L.B. Slope (1:?)	R.B. Slope (1:?)	Manning n	Depth (m)	Roofed		
OVERFLOW ROUTE DETAILS															
Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storms (m)	SafeDepth Minor Storms (m)	Safe DxDV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %		id	
OF WS1	WS 1	WS3	0.3				Dummy used	0.2	0.05	0.6	1	0		337	
OF35	WS3	S8	1.5				Dummy used	0.2	0.05	0.6	1	0		345	
OF S8	S8	S7	0.1				Dummy used	0.2	0.05	0.6	1	0		355	
OF47	S7	S6	0.8				Dummy used	0.2	0.05	0.6	1	0		363	
OF90	S6	Basin3	0.1				Dummy used	0.2	0.05	0.6	1	0		4784/75	
OF111	S3	N51	1				Dummy used	0.2	0.05	0.6	1	0		14510804	
OF Site 1	N51	N94	1				Dummy used	0.2	0.05	0.6	1	0		369	
OF25	WS 2	WS3	0.1				Dummy used	0.2	0.05	0.6	1	0		332	
OF S9	S9	S8	0.2				Dummy used	0.2	0.05	0.6	1	0		351	
OF EW5	EW5	EW6	0.1				Dummy used	0.2	0.05	0.6	1	0		304	
OF EW6	EW6	EW4	0.2				Dummy used	0.2	0.05	0.6	1	0		306	
OF EW4	EW4	Basin3	1.2				Dummy used	0.2	0.05	0.6	1	0		310	
OF EW3	EW3	Basin3	1.2				Dummy used	0.2	0.05	0.6	1	0		321	
OF CP4	CP4	CP3	0.1				Dummy used	0.2	0.05	0.6	1	0		370	
OF CP3	CP3	CP2	0.1				Dummy used	0.2	0.05	0.6	1	0		374	
OF CP2	CP2	CP1	0.5				Dummy used	0.2	0.05	0.6	1	0		376	
OF CP1	CP1	S6	0.25				Dummy used	0.2	0.05	0.6	1	0		385	
OF FP3	FP3	FP2	0.1				Dummy used	0.2	0.05	0.6	1	0		476	
OF FP2	FP2	FP1	0.5				Dummy used	0.2	0.05	0.6	1	0		479	
OF FP1	FP1	N94	0.1				Dummy used	0.2	0.05	0.6	1	0		485	
OF Site 2	N94	N133	0.1				Dummy used	0.2	0.05	0.6	1	0		395	
OF FP4	FP4	FP1	0.5				Dummy used	0.2	0.05	0.6	1	0		482	
OF131	Basin3	Basin2	0.1	25.5	5	1.6	Dummy used	0.2	0.05	0.6	1	0		119613074	
OF93	Basin3	Basin2	0.1	25.55	30	1.6	Dummy used	0.2	0.05	0.6	1	0		4784/78	
OF EW2	N203	Basin3	0.5				Dummy used	0.2	0.05	0.6	1	0		323	
OF NCP1	NCP1	N51	1.2				Dummy used	0.2	0.05	0.6	1	0		144281726	
OF150	N213	N51	0.5				Dummy used	0.2	0.05	0.6	1	0		144281733	

DRAINS Model Name and File Path: F:\AA001875-D-Calculations\E-Stormwater\C-DrainsDesignFiles\4000-AA001875-00-Existing-2008										RESULTS 100 YEAR ARI	
DRAINS Version:		2008.06.15 May 2008									
Modeller's Name:		Darlan Castro									
Description:		Clemton Park Redevelopment									
DRAINS results prepared 02 October, 2008 from Version 2008.06											
PIT / NODE DETAILS				Version 8							
Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint				
WS 1	28.71		1.086		0.19	0.974	Inlet Capacity				
WS3	28.46	28.8	1.025	10	0.14	0.9	None				
WS4	28.21				0.64		None				
S3	27.2		2.004		0	2.132	Outlet System				
S7	26.77		2.133		0.3	2.077	Inlet Capacity				
S6	25.5		2.118		0	3.066	Outlet System				
S4	23.73		0.962		1.13		None				
S3	21.84		0		0	3.543	Outlet System				
S2	21.84		0		-0.17		Outlet System				
S1	21.83		0		-1.08		Outlet System				
N51	21.8		4.405								
WS 2	28.61		0.174		0.17	0.065	Inlet Capacity				
S9	27.43		1.117		0.5	1.009	Inlet Capacity				
EW5	27.21		0.53		0	0.445	Outlet System				
EW6	27.18		3.999		0	2.073	Outlet System				
EW4	27.01		2.289		0.01	2.181	Inlet Capacity				
EW3	26.86		0		0	0.211	Outlet System				
EW2	26.54		0		-1.11		Outlet System				
EW1	26.29		0		-0.89		Outlet System				
CP4	27.57		0.113		0	0.066	Outlet System				
CP3	27.34		0.105		0	0.061	Outlet System				
CP2	26.89		0.094		0.31	0.042	Inlet Capacity				
CP1	26.42		0.087		0.16	0.037	Inlet Capacity				
FP3	21.43		0.975		0	0.431	Outlet System				
FP2	20.46		0.431		0.49	0.378	Inlet Capacity				
FP1	20.21		1.058		0.12	1.005	Inlet Capacity				
N94	19.25		5.949								
FP4	20.22		0.781		0.12	0.728	Inlet Capacity				
NCP1	22.08		0.947		0	0.028	Outlet System				
NCP2	21.9		0		-0.68		Outlet System				
N213	21.8		0								
SUB-CATCHMENT DETAILS											
Name	Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm				
WS1	1.086	0.8	0.286	6	8	0	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1				
SL	0.173	0.127	0.046	4	6	0	AR&R 100 year, 15 minutes storm, average 173 mm/h, Zone 1				
TS1a	0.002	0.002	0	1	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
TS2	0.045	0.045	0	3	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
RF1	0.392	0.392	0	3	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
RF3	0.962	0.962	0	3	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
WS2	0.174	0.174	0	3	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
TS1	1.117	0.823	0.294	6	8	0	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1				
CS2	0.53	0.395	0.135	5	7	0	AR&R 100 year, 15 minutes storm, average 173 mm/h, Zone 1				
CS1	3.557	2.943	0.614	6	8	0	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1				
CS3	0.242	0.242	0	3	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
CP4	0.113	0.113	0	3	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
CP3	0.039	0.039	0	2	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
CP2	0.032	0.032	0	1	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
CP1	0.044	0.044	0	1	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
RF4 + EE	0.975	0.813	0.162	5	7	0	AR&R 100 year, 15 minutes storm, average 173 mm/h, Zone 1				
South Car Pa	0.781	0.781	0	3	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
TL	1.635	1.205	0.431	6	8	0	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1				
RF2	0.947	0.947	0	3	0	0	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1				
Outflow Volumes for Total Catchment (16.2 impervious + 3.66 pervious = 19.9 total ha)											
Storm	Total Rainfall cu.m	Total Runoff cu.m	Impervious Runoff (Runoff) cu.m	Pervious Runoff (Runoff) cu.m	Runoff (%)						
R&R 100 year	4275.12	3774.50	88.33	3325.38	95.34	449.12	(57.0%)				
AR&R 100 year	6727.52	6150.92	91.45	5325.96	97.08	824.96	(66.6%)				
AR&R 100 year	8599.96	7959.00	92.58	6853.52	97.11	1105.48	(69.8%)				
AR&R 100 year	10074.71	9377.62	93.18	8056.51	98.13	1321.11	(71.2%)				
AR&R 100 year	11433.47	10678.61	93.91	8165.08	98.33	1513.53	(71.9%)				
AR&R 100 year	12527.11	11723.44	93.10	8057.34	98.16	1666.10	(72.2%)				
AR&R 100 year	15509.75	14585.99	94.12	4290.43	98.20	2095.56	(73.3%)				
AR&R 100 year	17697.03	16678.85	94.14	4274.78	98.24	2404.08	(73.7%)				
AR&R 100 year	20580.25	19411.63	94.16	16626.51	99.27	2785.12	(73.5%)				
AR&R 100 year	22668.1	21373.94	94.18	18329.71	99.30	3044.23	(72.9%)				
AR&R 100 year	26247.27	24727.46	94.19	21246.37	99.34	3481.10	(72.0%)				
AR&R 100 year	30154.54	28339.92	94.24	24432.45	99.39	3907.47	(70.3%)				
PIPE DETAILS											
Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm						
P WS1	0.112	1	28.493	28.461	AR&R 100 year, 15 minutes storm, average 173 mm/h, Zone 1						
P WS3	0.346	2.2	28.268	28.214	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P WS4	0.346	2.2	28.021	27.72	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P S8	0.326	2.1	26.786	26.769	AR&R 100 year, 4.5 hours storm, average 33.7 mm/h, Zone 1						
P S7	0.377	4.6	26.419	25.5	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P S6	0.819	2.9	25.62	26.185	AR&R 100 year, 1.5 hours storm, average 69 mm/h, Zone 1						
P S5	3.521	7.6	23.928	23.728	AR&R 100 year, 1 hour storm, average 89 mm/h, Zone 1						
P S4	4.142	7.1	23.47	21.84	AR&R 100 year, 1.5 hours storm, average 69 mm/h, Zone 1						
P S3	3.188	1.6	21.84	21.838	AR&R 100 year, 1.5 hours storm, average 69 mm/h, Zone 1						
P S2	3.188	1.6	21.836	21.833	AR&R 100 year, 1.5 hours storm, average 69 mm/h, Zone 1						
P S1	3.188	3.5	21.802	21.8	AR&R 100 year, 1.5 hours storm, average 69 mm/h, Zone 1						
P WS2	0.109	0.8	28.465	28.461	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P S9	0.108	1	27.232	27.2	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P EW6	0.253	1.6	27.189	27.18	AR&R 100 year, 3 hours storm, average 44 mm/h, Zone 1						
P EW5	2.303	2.6	27.072	27.009	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P EW4	2.411	2.7	26.883	26.86	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P EW3	2.411	2.7	26.713	26.54	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P EW2	2.411	2.7	26.392	26.295	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P EW1	2.591	2.9	26.207	26.185	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P CP4	0.068	1.7	27.43	27.34	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P CP3	0.102	2.6	27.21	26.885	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P CP2	0.145	2	26.787	26.421	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P CP1	0.192	2.7	26.142	25.5	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
Pipe29	0.561	3.7	20.588	20.457	AR&R 100 year, 1.5 hours storm, average 69 mm/h, Zone 1						
Pipe35	0.598	2.1	20.346	20.213	AR&R 100 year, 20 minutes storm, average 152 mm/h, Zone 1						
P FP1	0.053	4.5	19.696	19.246	AR&R 100 year, 20 minutes storm, average 152 mm/h, Zone 1						
P FP4	0.703	0.3	26.2	20.213	AR&R 100 year, 10 minutes storm, average 203 mm/h, Zone 1						
P FP7	0.357	2.2	26.295	26.235	AR&R 100 year, 2 hours storm, average 57 mm/h, Zone 1						
P NCP1	0.947	1.3	22.043	21.895	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						
P215	0.947	1.1	21.803	21.8	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1						

CHANNEL DETAILS									
Name	Max Q (cu.m/s)	Max V (m/s)	Chainage (m)	Max HGL (m)	Due to Storm				
OVERFLOW ROUTE DETAILS									
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm	
OF WS/1	0.974	0.974	7.665	0.086	0.08	21.15	0.96	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF35	0.9	0.9	7.665	0.083	0.08	20.61	0.94	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF S/8	2.132	2.132	7.665	0.119	0.14	27.8	1.16	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF47	2.077	2.077	7.665	0.118	0.14	27.62	1.15	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF90	3.066	3.066	7.665	0.138	0.18	31.57	1.28	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF111	3.543	3.543	7.665	0.146	0.19	33.19	1.34	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF Site 1	5.006	5.006	7.665	0.168	0.24	37.68	1.45	AR&R 100 year, 1.5 hours storm, average 69 mm/h, Zone 1	
OF25	0.065	0.065	7.665	0.03	0.01	10.02	0.43	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1	
OF S/9	1.009	1.009	7.665	0.088	0.08	21.51	0.95	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF EW/5	0.445	0.445	7.665	0.062	0.05	16.48	0.77	AR&R 100 year, 15 minutes storm, average 173 mm/h, Zone 1	
OF EW/6	2.073	2.073	7.665	0.117	0.14	27.44	1.16	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF EW/4	2.181	2.181	7.665	0.12	0.14	27.98	1.17	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF EW/3	0.211	0.211	7.665	0.046	0.03	13.25	0.62	AR&R 100 year, 1 hour storm, average 89 mm/h, Zone 1	
OF CP/4	0.066	0.066	7.665	0.03	0.01	10.02	0.44	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1	
OF CP/3	0.061	0.061	7.665	0.029	0.01	9.73	0.43	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1	
OF CP/2	0.042	0.042	7.665	0.026	0.01	8.53	0.39	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1	
OF CP/1	0.037	0.037	7.665	0.024	0.01	7.93	0.39	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1	
OF FP/3	0.431	0.431	7.665	0.062	0.05	16.3	0.76	AR&R 100 year, 15 minutes storm, average 173 mm/h, Zone 1	
OF FP/2	0.378	0.378	7.665	0.059	0.04	15.76	0.72	AR&R 100 year, 15 minutes storm, average 173 mm/h, Zone 1	
OF FP/1	1.005	1.005	7.665	0.088	0.08	21.51	0.95	AR&R 100 year, 15 minutes storm, average 173 mm/h, Zone 1	
OF Site 2	6.653	6.653	7.665	0.189	0.29	41.81	1.56	AR&R 100 year, 1.5 hours storm, average 69 mm/h, Zone 1	
OF FP/4	0.728	0.728	7.665	0.077	0.07	19.36	0.87	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1	
OF131	1.252	1.252	7.665	0.096	0.1	23.13	1.01	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF93	5.656	5.656	7.665	0.177	0.26	39.47	1.49	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF EW/2	0	0	7.665	0	0	0	0		
OF NCP/1	0.028	0.028	7.665	0.022	0.01	7.33	0.35	AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1	
OF150	0.947	0.947	7.665	0.085	0.08	20.97	0.95	R&R 100 year, 5 minutes storm, average 258 mm/h, Zone 1	
DETENTION BASIN DETAILS									
Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level				
Basin2	26.18	3651.5	3.521	3.521	0				
Basin3	25.79	134.9	7.265	0.357	6.908				
CONTINUITY CHECK for AR&R 100 year, 25 minutes storm, average 138 mm/h, Zone 1									
Node	Inflow (cu.m)	Outflow (cu.m)	Storage Chan (cu.m)	Difference %					
WS 1	924.01	924	0	0					
WS/3	1061.3	1061.28	0	0					
WS/4	487.54	487.55	0	0					
S/8	2151.17	2151.15	0	0					
S/7	2152.55	2152.54	0	0					
S/6	2368.23	2368.16	0	0					
Basin2	7751.74	7751.29	0.01	0					
S/4	8509.9	8509.86	0	0					
S/3	8509.86	8509.82	0	0					
S/2	1290.76	1290.76	0	0					
S/1	1290.76	1290.84	0	0					
N51	9256.25	9256.23	0	0					
WS 2	137.29	137.29	0	0					
S/9	950.5	950.49	0	0					
EW/5	432.92	432.91	0	0					
EW/6	3496.16	3495.77	0	0					
EW/4	3686.19	3685.64	0	0					
EW/3	2782.38	2781.72	0	0					
EW/2	2770.94	2770.35	0	0					
EW/1	2503.44	2502.09	0	0.1					
CP/4	89.04	89.03	0	0					
CP/3	120.1	120.1	0	0					
CP/2	145.52	145.49	0	0					
CP/1	180.4	180.42	0	0					
FP/3	802.21	802.21	0	0					
FP/2	802.21	802.56	0	0					
FP/1	1418.45	1418.41	0	0					
N94	10674.63	10674.62	0	0					
FP/4	615.85	615.85	0	0					
N133	10674.62	10674.62	0	0					
Basin3	5188.4	5188.29	0	0					
N203	0	0	0	0					
NCP/1	746.36	746.36	0	0					
NCP/2	742.58	742.58	0	0					
N213	742.58	742.58	0	0					
Run Log for 4000 run at 11:58:27 on 2/10/2008									
Upwelling occurred at EW/3, S/3, S/8, S/6									
Freeboard was less than 0.15m at NCP/1, FP/4, FP/1, FP/3, CP/4, CP/3, EW/6, EW/5, EW/4, WS/3									
The following detention basins have little effect (less than 2%) in reducing peak discharge: Basin3 You might consider upsizing these, or removing them from the model.									
The low level outflow from the following detention basins may be unstable: Basin3, A common reason for this is that the low level outlet is large compared with the capacity of the syst									