PROJECT: PROPOSED SUBDIVISION

PLANSET: CONCEPT STORMWATER MANAGEMENT PLAN

CLIENT: CLARENCE PROPERTY



LOCALITY PLAN NOT TO SCALE

LGA: BYRON SHIRE COUNCIL

15 TORAKINA ROAD, BRUNSWICK HEADS, NSW LOT 13 DP 1251383

	REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT		
2	Н	MINOR AMENDMENTS	13/03/2023	JS	TW	SL	SL				CT	CLARENCE PROPERTY		Consulting Er
JARE	G	MINOR AMENDMENTS	01/03/2023	YI	TW	SL	SL							Environment
SC	F	MINOR AMENDMENTS	24/02/2023	YI	TW	SL	SL		DISCLAIMER &	COPYRIGHT		PROJECT NAME/PLANSET TITLE	martens	Water
USEF	E	MINOR AMENDMENTS	23/02/2023	NP/YI	TW	SL	SL		This plan must not the principal certifying a		on unless signed as approved by	PROPOSED SUBDIVISION		
1	D	MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT		All measurements in		therwise snerified		& Associates Pty Ltd	Geolecinical
	C	MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT				whole or part without prior written	CONCEPT STORMWATER MANAGEMENT PLAN		Civii
Ë	В	MINOR AMENDMENTS	03/09/2021	JS	EZ	SL	GT		consent of Martens	& Associates Pty Ltd.		LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 George St, Hornsby, NSW 2077 Australia Pho	ione: (02) 9476 9999
PRIN	A	INITIAL RELEASE	17/08/2021	JS	EZ	SL	GT		(C) Copyright M	lartens & Associa	tes Pty Ltd		Email: mail@martens.com.au Internet:	
	A1 / A3 L	ANDSCAPE (A1LC_v02.0.01)		•		•	•	•				•		

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DRAWING	LIST								
DWG NO.	REV	DWG TITLE							
GENERAL									
PS03-A000	н	COVER SHEET							
DRAINAGE									
PS03-E600	D	ON SITE DETENTION CATCHMENT PLAN, MODEL & RESULTS (SHEET 1)							
PS03-E601	D	ON SITE DETENTION CATCHMENT PLAN, MODEL & RESULTS (SHEET 2)							
PS03-E700	E	WATER QUALITY CATCHMENT PLAN, MODEL & RESULTS (TTE)							
PS03-E701	G	STAGE 1 - WATER QUALITY CATCHMENT PLAN (NORBE)							
PS03-E702	G	STAGE 1 - WATER QUALITY MODEL & RESULTS (NORBE)							
PS03-E703	D	STAGE 1 TO 2 - WATER QUALITY CATCHMENT PLAN (NORBE)							
PS03-E704	D	STAGE 1 TO 2 - WATER QUALITY MODEL & RESULTS (NORBE)							
PS03-E705	E	STAGE 1 TO 3 - WATER QUALITY CATCHMENT PLAN (NORBE)							
PS03-E706	D	STAGE 1 TO 3 - WATER QUALITY MODEL & RESULTS (NORBE)							
PS03-E707	A	STAGE 1 TO 4 - WATER QUALITY CATCHMENT PLAN (NORBE)							
PS03-E708	A	STAGE 1 TO 4 - WATER QUALITY MODEL & RESULTS (NORBE)							
PS03-E709	A	STAGE 1 TO 5 - WATER QUALITY CATCHMENT PLAN (NORBE)							
PS03-E710	A	STAGE 1 TO 5 - WATER QUALITY MODEL & RESULTS (NORBE)							

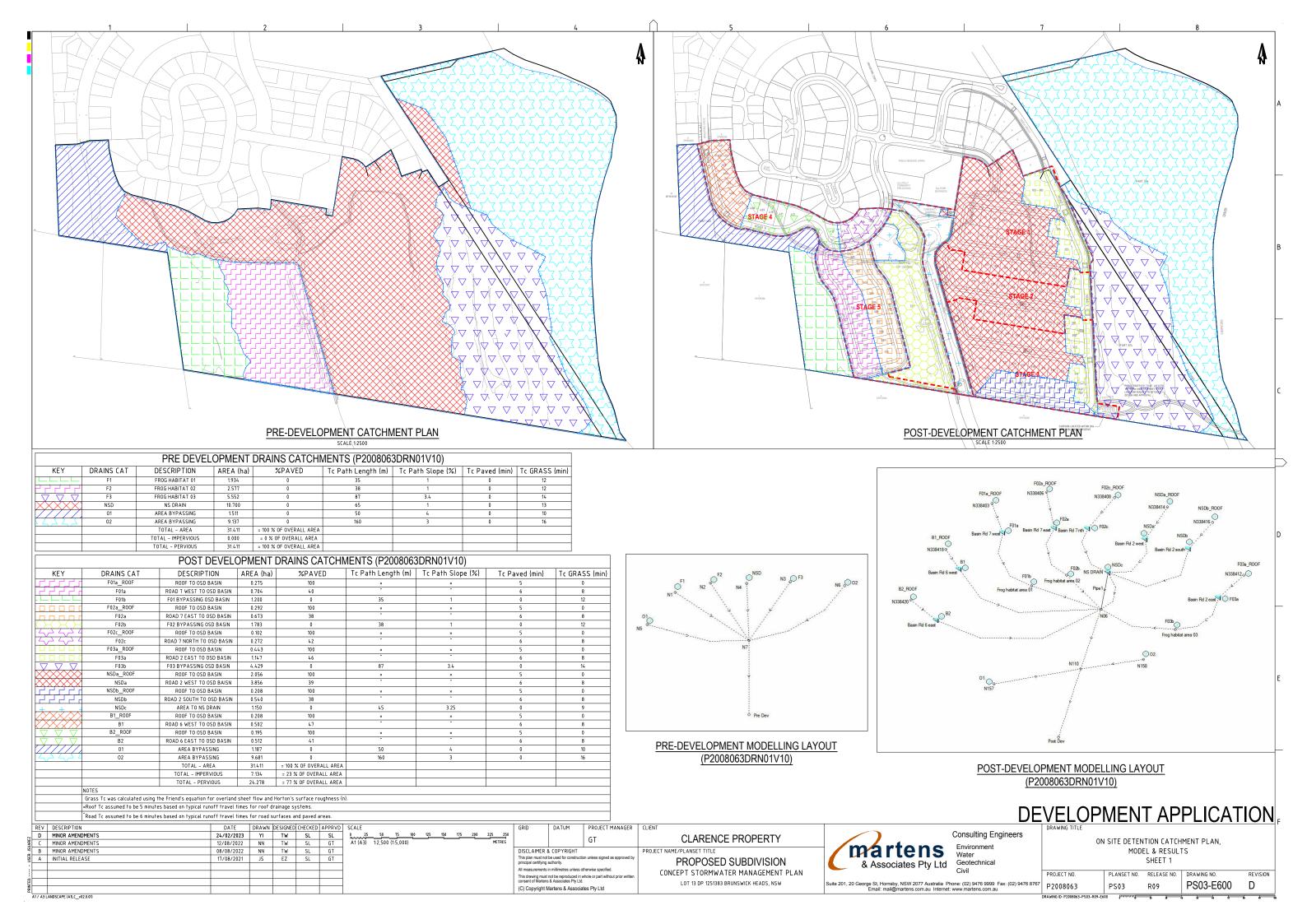
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DEVELOPMENT APPLICATION

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999 Fax m.au COVER SHEET

	PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
c: (02) 9476 8767	P2008063	PS03	R09	PS03-A000	Н
	DRAWING ID: P2008063-PS03-R09-A0	100 haaaaf		* * *	<u>ii i i</u>



							DRAINS	PRE VS PO	ST DEVELO	PMENT M	ODELLING	RESULTS (P	2008063DI	(N01V10)							
		1			2			5			10			20			50			100	
DURATION	PRE	POST	DIFFERENCE	PRE	POST	DIFFERENCE	PRE	POST	DIFFERENCE	PRE	POST	DIFFERENCE	PRE	POST	DIFFERENCE	PRE	POST	DIFFERENCE	PRE	POST	DIFFERENC
5 min	0.438	0.225	-0.213	1.532	0.835	-0.697	2.756	1.517	-1.239	4.103	2.277	-1.826	5.036	2.941	-2.095	6.806	4.538	-2.268	7.708	5.219	-2.489
10 min	1.164	0.637	-0.527	2.838	1.604	-1.234	4.834	3.143	-1.691	7.173	4.887	-2.286	8.718	6.431	-2.287	11.723	9.966	-1.757	13.204	11.558	-1.646
15 min	1.469	0.923	-0.546	3.594	2.581	-1.013	6.175	4.511	-1.664	9.263	7.697	-1.566	11.094	9.547	-1.547	14.732	12.218	-2.514	16.469	13.576	-2.893
20 min	2.042	1.275	-0.767	4.286	3.112	-1.174	7.253	6.169	-1.084	10.476	9.117	-1.359	12.686	11.125	-1.561	16.346	13.783	-2.563	18.328	15.316	-3.012
25 min	2.135	1.496	-0.639	4.594	3.490	-1.104	7.696	6.989	-0.707	11.153	9.987	-1.166	13.397	12.012	-1.385	16.266	14.136	-2.130	18.165	15.682	-2.483
30 min	1.891	1.440	-0.451	4.332	3.284	-1.048	7.282	6.518	-0.764	10.667	9.483	-1.184	12.866	11.482	-1.384	15.784	13.681	-2.103	17.799	15.319	-2.480
45 min	1.897	1.540	-0.357	4.192	3.203	-0.989	7.142	6.403	-0.739	10.358	9.027	-1.331	12.430	10.783	-1.647	15.685	13.349	-2.336	17.625	14.896	-2.729
1 hour	2.838	2.218	-0.620	5.233	4.476	-0.757	8.014	7.838	-0.176	11.243	10.373	-0.870	13.324	12.139	-1.185	16.144	14.294	-1.850	18.197	16.020	-2.177
1.5 hours	3.117	2.530	-0.587	5.764	5.536	-0.228	8.628	8.564	-0.064	11.180	10.576	-0.604	13.138	12.236	-0.902	15.542	14.150	-1.392	17.392	16.409	-0.983
2 hours	3.323	2.668	-0.655	6.346	5.999	-0.347	9.415	8.822	-0.593	11.817	10.710	-1.107	13.769	12.293	-1.476	16.272	14.813	-1.459	18.280	17.318	-0.962
3 hours	1.718	1.562	-0.156	4.534	3.595	-0.939	6.865	6.710	-0.155	8.980	8.362	-0.618	10.632	9.725	-0.907	12.396	11.153	-1.243	13.857	12.658	-1.199

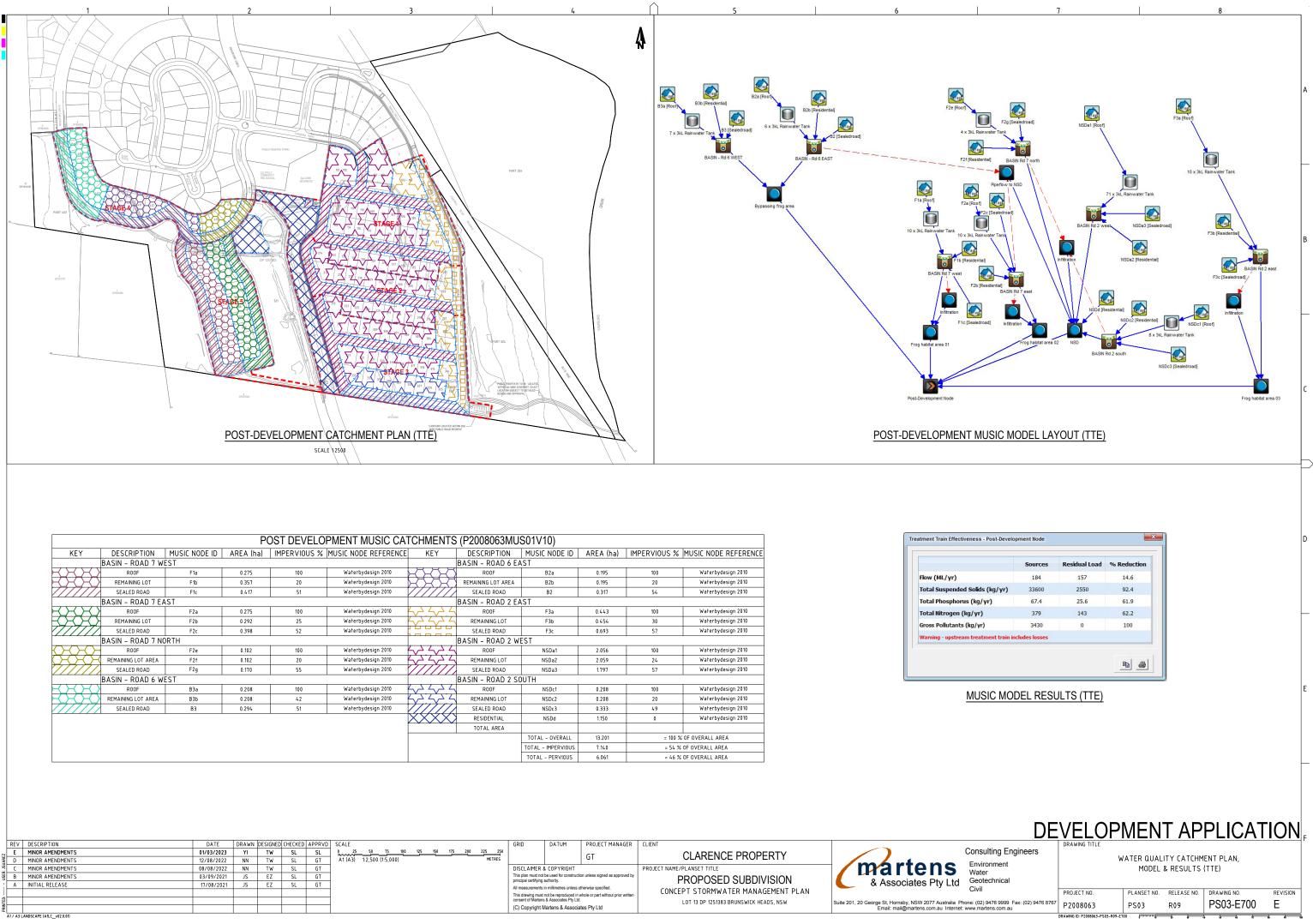
OVERFLOWS FROM BIORETENTION BASINS ENTERING FROG HABITATS												
			(P2008	063DRN	101V10)							
Storm Event	Wal	lum Frogle	et 01	Wal	lum Frogle	et 02	Wall	lum Frogle	et 03			
	1	2	5	1	2	5	1	2	5			
5 min	0	0	0	0	0	0	0	0	0			
10 min	0	0	0	0	0	0	0	0	0			
15 min	0	0	0	0	0	0	0	0	0			
20 min	0	0	0.167	0	0	0.170	0	0	0.293			
25 min	0	0	0.242	0	0	0.244	0	0	0.415			
30 min	0	0.021	0.201	0	0.026	0.203	0	0.073	0.349			
45 min	0	0.103	0.199	0	0.103	0.199	0	0.181	0.340			
1 hour	0	0.120	0.344	0	0.119	0.341	0.026	0.207	0.575			
1.5 hours	0.038	0.191	0.434	0.039	0.193	0.429	0.069	0.340	0.714			
2 hours	0.054	0.206	0.408	0.053	0.206	0.403	0.090	0.357	0.670			
3 hours	0.062	0.101	0.255	0.062	0.104	0.251	0.107	0.196	0.418			

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT		
N D	MINOR AMENDMENTS	24/02/2023	YI	TW	SL	SL				CT	CLARENCE PROPERTY		Consulting Engine
) AR	MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT							Environment
ST B	MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT		DISCLAIMER			PROJECT NAME/PLANSET TITLE	martens	Water
A RE	INITIAL RELEASE	17/08/2021	JS	EZ	SL	GT		This plan must not principal certifying		on unless signed as approved by	PROPOSED SUBDIVISION	& Associates Ptv Ltd	Geotechnical
									in millimetres unless of	therwise specified.			Civil
										whole or part without prior written	CONCEPT STORMWATER MANAGEMENT PLAN		Olvin .
									& Associates Pty Ltd.		LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 George St, Hornsby, NSW 2077 Australia Ph	
R.								(C) Copyright I	fartens & Associa	tes Pty Ltd		Email: mail@martens.com.au Internet:	: www.martens.com.au
A1 / A	B LANDSCAPE (A1LC_v02.0.01)												

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ON SITE DETENTION CATCHMENT PLAN, MODEL & RESULTS

			SHEET 2		
	PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
ax: (02) 9476 8767	P2008063	PS03	R09	PS03-E601	D
	DRAWING ID: P2008063-PS03-R09-E6	01 p oooog			<u>k k</u>



			PC	OST DEVELC	PMENT MUSIC CAT	CHMENTS	6 (P2008063MU	S01V10)					
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE	KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE		
	BASIN - ROAD 7 W	ËST				BASIN – ROAD 6 EAST							
KXXX	ROOF	F1a	0.275	100	Waterbydesign 2010		ROOF	B2a	0.195	10.0	Waterbydesign 2010		
KXXX	REMAINING LOT	F1b	0.357	20	Waterbydesign 2010	XXXX	REMAINING LOT AREA	B2b	0.195	20	Waterbydesign 2010		
	SEALED ROAD	F1c	0.417	51	Waterbydesign 2010	//////	SEALED ROAD	B2	0.317	54	Waterbydesign 2010		
	BASIN – ROAD 7 EA	\ST					BASIN – ROAD 2 E	AST					
$\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}$	ROOF	F2a	0.275	100	Waterbydesign 2010		ROOF	F3a	0.443	10.0	Waterbydesign 2010		
КХХУ	REMAINING LOT	F2b	0.292	25	Waterbydesign 2010	4	REMAINING LOT	F3b	0.454	30	Waterbydesign 2010		
	SEALED ROAD	F2c	0.398	52	Waterbydesign 2010		SEALED ROAD	F3c	0.693	57	Waterbydesign 2010		
	BASIN - ROAD 7 NO	DRTH					BASIN - ROAD 2 W	EST					
$\phi\phi\phi\phi$	ROOF	F2e	0.102	100	Waterbydesign 2010	$\langle \gamma, \langle \gamma \rangle, \langle \gamma \rangle \rangle$	ROOF	NSDa1	2.056	10.0	Waterbydesign 2010		
$\mathcal{C}\mathcal{C}\mathcal{C}\mathcal{C}\mathcal{C}\mathcal{C}\mathcal{C}\mathcal{C}\mathcal{C}\mathcal{C}$	REMAINING LOT AREA	F2f	0.102	20	Waterbydesign 2010	4	REMAINING LOT	NSDa2	2.059	24	Waterbydesign 2010		
	SEALED ROAD	F2g	0.170	55	Waterbydesign 2010		SEALED ROAD	NSDa3	1.797	57	Waterbydesign 2010		
	BASIN - ROAD 6 W	EST					BASIN – ROAD 2 S	OUTH					
$\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}$	ROOF	B3a	0.208	100	Waterbydesign 2010		ROOF	NSDc1	0.208	10.0	Waterbydesign 2010		
$\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}\mathcal{K}$	REMAINING LOT AREA	B3b	0.208	42	Waterbydesign 2010	4	REMAINING LOT	NSDc2	0.208	20	Waterbydesign 2010		
	SEALED ROAD	B3	0.294	51	Waterbydesign 2010	//////	SEALED ROAD	NSDc3	0.333	49	Waterbydesign 2010		
						XXXX	RESIDENTIAL	NSDd	1.150	0	Waterbydesign 2010		
							TOTAL AREA						
								TOTAL - OVERALL	13.201	= 100 %	6 OF OVERALL AREA		
								TOTAL - IMPERVIOUS	7.140	= 54 %	GOF OVERALL AREA		
								TOTAL - PERVIOUS	6.061	= 46 %	GOF OVERALL AREA		

Fl	ow (ML/yr)
Т	otal Suspended Solids (I
To	otal Phosphorus (kg/yr
To	otal Nitrogen (kg/yr)
G	ross Pollutants (kg/yr)
w	arning - upstream treatme

REV DESCRIPTION DATE DRAWN DESIGNED CHECKED APPRVD SCALE GRID DATUM PROJECT MANAGER CLIENT GI CLIENT GI CLIENT GI CLIENT														
D MINOR AMENDMENTS 12/08/2022 NN TW SL GT CLAREINCE PROPERTY C MINOR MERDMENTS 09/08/2022 NN TW SL GT DISCLAIMER & COPYRIGHT PROJECT NAME/PLANSET TITLE Disclaimes usade romativation unless signed as approval PROJECT NAME/PLANSET TITLE PROJECT NAME/PLANSET TITLE PROJECT NAME/PLANSET TITLE PROJECT NAME/PLANSET TITLE Disclaimes usade romativation unless signed as approval PROJECT NAME/PLANSET TITLE		REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT	
D INICA NICA <	4	Е	MINOR AMENDMENTS	01/03/2023	YI	TW	SL	SL	0 25 50 75 100 125 150 175 200 225 250			CT		Consulting
c MINOR AMENDMENTS 08/08/2022 NN TW SL GT b 01/08/2012/01 JS EZ SL GT a INITIAL RELEASE 17/08/2021 JS EZ SL GT a INITIAL RELEASE 17/08/2021 JS EZ SL GT a INITIAL RELEASE 17/08/2021 JS EZ SL GT a INITIAL RELEASE	IARE	D	MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT	A1 (A3) 1:2,500 (1:5,000) METRES					
b Initial Release Optical orifying autority. PROPOSED SUBDIVISION & Associates Pty Ltd Geotechnics 0 11/08/2021 JS EZ SL GT 1 Initial Release 11/08/2021 JS EZ SL GT 1 Initial Release Ini	ISL 3	С	MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT]	DISCLAIMER	COPYRIGHT		PROJECT NAME/PLANSET TITLE	
A INTIAL RELEASE III/06/2021 JS EZ SL GT A Integrating institute structures otherwise specified. This drawing institute in millimeters unititienters unititienter	RE	В	MINOR AMENDMENTS	03/09/2021	JS	EZ	SL	GT				on unless signed as approved by		
Image: Contract of the reproduced in whole or part without prior with		Α	INITIAL RELEASE	17/08/2021	JS	EZ	SL	GT	1			thanuica enacified		& Associates Pty Ltd Geolecinic
Description Consent of Matters & Associates Pty Ltd. LOT 13 DP 1251383 BRUNSWICK HEADS, NSW Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 999 Email: mail@martens.com.au Internet: www.martens.com.au Internet: www.martens.com Email: mail@martens.com.au Internet: www.martens.com									1				CONCEPT STORMWATER MANAGEMENT PLAN	Civii
Image: Second	Ë								1	consent of Martens	& Associates Pty Ltd.			Suite 201, 20 George St. Hornsby, NSW 2077 Australia Phone: (02) 9476 99
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POST DEVELOPMENT MUSIC CATCHMENTS (P2008063MUS01V11 - STAGE 1)													
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE								
	BASIN – ROAD 2 EAST												
. ~ . ~ . 4	ROOF	F3a	0.209	10.0	Waterbydesign 2010								
	REMAINING LOT	F3b	0.221	41	Waterbydesign 2010								
	SEALED ROAD	F3c	0.319	58	Waterbydesign 2010								
	RESI	F3d	2.883	0	Waterbydesign 2010								
(111111111	FOREST	F3e	0.618	0	Waterbydesign 2010								
	FROG HABITAT AREA (RESI)	F3f	1.606	0	Waterbydesign 2010								
	BASIN - ROAD 2 WEST												
	ROOF	NSDa1	0.966	100	Waterbydesign 2010								
.4.4.4.2	REMAINING LOT	NSDa2	0.969	29	Waterbydesign 2010								
	SEALED ROAD	NSDa3	0.802	49	Waterbydesign 2010								
	BASIN - ROAD 2 SOUTH												
\times	RESIDENTIAL	NSDd	0.905	0	Waterbydesign 2010								
	ADDITIONAL NSD CATCHME	NT			1								
	RESIDENTIAL TO FROG NS DRAIN	NSDa	6.237	0	Waterbydesign 2010								
	TOTAL AREA												
	TOTAL - OVERALL		15.735	= 100 %	OF OVERALL AREA								
	TOTAL - IMPERVIOUS		2.118		OF OVERALL AREA								
	TOTAL - PERVIOUS		13.617	= 87 %	OF OVERALL AREA								

PRE DEVELOPMENT MUSIC CATCHMENTS (P2008063MUS01V11 - STAGE 1)	
	PRE DEVELOPMENT MUSIC CATCHMENTS (P2008063MUS01V11 - STAGE 1)

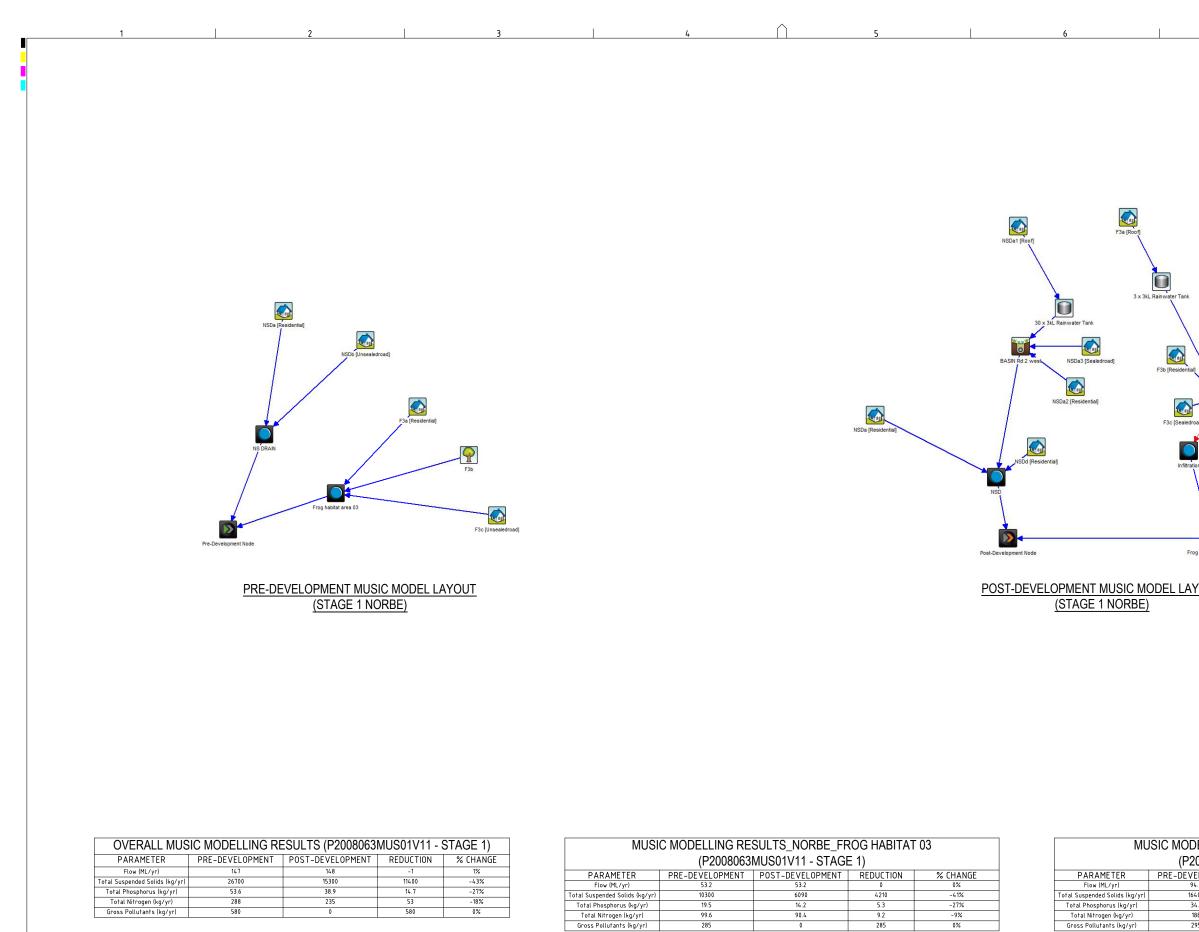
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE	
	RESIDENTIAL TO FROG HABITAT 03	F3a	3.899	0	Waterbydesign 2010	
	FOREST TO FROG HABITAT 03	F3b	0.618	0	Waterbydesign 2010	
	UNSEALED ROAD TO FROG HABITAT 03	F3c	1.035	50	Waterbydesign 2010	
	RESIDENTIAL TO NS DRAIN	NSDa	9.114	0	Waterbydesign 2010	
	UNSEALED ROAD TO NS DRAIN	NSDb	1.071	50	Waterbydesign 2010	
	TOTAL AREA					
		TOTAL - OVERALL	15.737	= 100 %	OF OVERALL AREA	
		TOTAL - IMPERVIOUS	1.053	= 7 % OF OVERALL AREA		
		TOTAL - PERVIOUS	14.684	= 93 % OF OVERALL AREA		

[REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT		
~	G	MINOR AMENDMENTS	13/03/2023	JS	TW	SL	SL	0 25 50 75 100 125 150 175 200 225 250			CT	CLARENCE PROPERTY		Consulting Eng
JAR	F	MINOR AMENDMENTS	24/02/2023	ΥI	TW	SL	SL	A1 (A3) 1:2,500 (1:5,000) METRES						Environment
5	Е	MINOR AMENDMENTS	23/02/2023	NP/YI	TW	SL	SL		DISCLAIMER			PROJECT NAME/PLANSET TITLE		Water
INSEE	D	MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT		This plan must not principal certifying		on unless signed as approved by	PROPOSED SUBDIVISION		Geotechnical
:[C	MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT			in millimetres unless of	therwise snerified		& Associates Pty Ltd	Civil
	В	MINOR AMENDMENTS	03/09/2021	JS	EZ	SL	GT		This drawing must	t not be reproduced in v	whole or part without prior written	CONCEPT STORMWATER MANAGEMENT PLAN		CIVII
Ê	А	INITIAL RELEASE	17/08/2021	JS	EZ	SL	GT		consent of Marten:	s & Associates Pty Ltd.		LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 George St, Hornsby, NSW 2077 Australia Ph	hone: (02) 9476 9999 Fa
Na l									(C) Copyright M	Martens & Associa	ites Pty Ltd		Email: mail@martens.com.au Internet:	
,	A1 / A3 I	LANDSCAPE (A1LC_v02.0.01)					•							

Iting Engineers

STAGE 1 - WATER QUALITY CATCHMENT PLAN (NORBE)

	PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
99 Fax: (02) 9476 8767 n.au	P2008063	PS03	R09	PS03-E701	G
	DRAWING ID: P2008063-PS03-R09-E7	01 600000	20 30 4	* * *	



	REV DESCRIPTION	DATE	DRAWN	N DESIGNED	D CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT		
2	G MINOR AMENDMENTS	13/03/2023	JS	TW	SL	SL				CT	CLARENCE PROPERTY	Coi	onsulting E
JARE	F MINOR AMENDMENTS	24/02/2023	YI	TW	SL	SL							nvironment
ISL 3	E MINOR AMENDMENTS	23/02/2023	NP/YI	I TW	SL	SL		DISCLAIMER	& COPYRIGHT		PROJECT NAME/PLANSET TITLE	martens 🖩	lotor
USEF	D MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT		This plan must not principal certifying		on unless signed as approved by	PROPOSED SUBDIVISION		eotechnica
1	C MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT		1	in millimetres unless of	thenvise snerified		& Associates Pty Ltd	eolecinica
	B MINOR AMENDMENTS	03/09/2021	JS	EZ	SL	GT				whole or part without prior written	CONCEPT STORMWATER MANAGEMENT PLAN	G	IVII
Ë	A INITIAL RELEASE	17/08/2021	JS	EZ	SL	GT		consent of Marten	s & Associates Pty Ltd.		LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone:	(02) 9476 999
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	RESULTS_NORB			_
2008063M	JS01V11 - STAG	E 1)	2/ CHANCE	_
2008063M		E 1)	% CHANGE	_
2008063MI VELOPMENT 94.2 16400	JS01V11 - STAG POST-DEVELOPMEN 95.3 9220	E 1) T REDUCTION -1.1 7180	1% -44%	_
2008063MI VELOPMENT 94.2	JS01V11 - STAG POST-DEVELOPMEN 95.3	E 1) T REDUCTION -1.1	1%	_
2008063MI VELOPMENT 94.2 16400 34.1	US01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7	E 1) T REDUCTION -1.1 7180 9.4	1% -44% -28%	_
20008063MI VELOPMENT 94.2 16400 34.1 188	US01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145	E 1) T REDUCTION -1.1 7180 9.4 4.3	1% -44% -28% -23%	_
20008063MI VELOPMENT 94.2 16400 34.1 188	US01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145	E 1) T REDUCTION -1.1 7180 9.4 4.3	1% -44% -28% -23%	_
22008063MI VELOPMENT 94.2 16400 34.1 188 295	JS01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145 0	E 1)	1% -44% -28% -23% 0%	
22008063MI VELOPMENT 94.2 16400 34.1 188 295	JS01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145 0	E 1)	1% -44% -28% -23% 0%	
22008063MI VELOPMENT 94.2 164.00 34.1 188 295	JS01V11 - STAG POST-DEVELOPMEN 95.3 9520 24.7 145 0 EVELOP	E 1)	1% -44% -28% -23%	
22008063MI VELOPMENT 94.2 16400 34.1 188 295	JS01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145 0 EVELOPE DRAWING TITLE	E 1) T REDUCTION -11 7180 9.4 43 295 MENT AI	1% -28% -23% 0% PPLICATI	е • •
22008063MI VELOPMENT 94.2 164:00 34.1 188 295 D 9 9 9 9 9 9 9 9 9 9 9 9 9	JS01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145 0 EVELOPE DRAWING TITLE	E 1) T REDUCTION -11 7180 9.4 43 295 MENT AI	1% -44% -28% -23% 0%	е • •
22008063MI VELOPMENT 94.2 16400 34.1 188 295 D 9 9 9 9 9 9 9 9 9 9 9 9 9	JS01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145 0 EVELOPE DRAWING TITLE	E 1) T REDUCTION -11 7180 9.4 43 295 MENT AI	1% -28% -23% 0% PPLICATI	е • •
22008063MI VELOPMENT 94.2 16400 34.1 188 295 D 9 9 9 9 9 9 9 9 9 9 9 9 9	JS01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145 0 EVELOPE DRAWING TITLE	E 1) T REDUCTION -11 7180 9.4 43 295 MENT AI	1% -44% -28% -23% 0% PPLICATI	е • •
2008063MI VELOPMENT 94.2 16400 33.1 188 295	JS01V11 - STAG POST-DEVELOPMEN 95.3 9220 24.7 145 0 EVELOP DRAWING TITLE STAGE 1 - PROJECT NO.	E 1) T REDUCTION -11 7180 9.4 43 295 MENT AI WATER QUALITY MOD	1% -44% -28% -23% 0% PPLICATI	е) Р



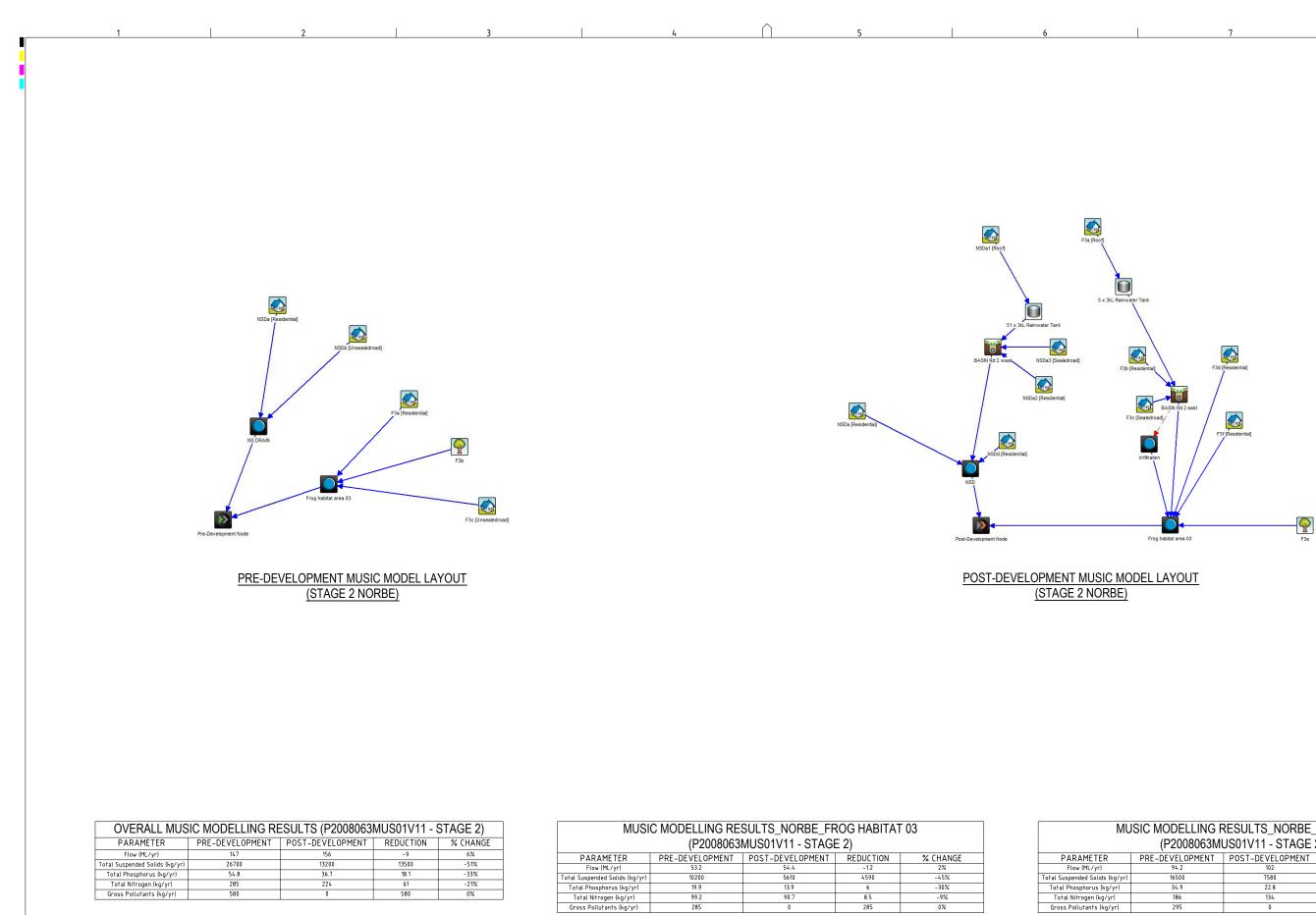
POST	DEVELOPMENT MU	SIC CATCHME	NTS (P2008	3063MUS01V	11 - STAGE 2)		
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCI		
	BASIN – ROAD 2 EAST						
. 4 . 4 . 4	ROOF	F3a	0.280	100	Waterbydesign 2010		
2,22,22	REMAINING LOT	F3b	0.291	41	Waterbydesign 2010		
	SEALED ROAD	F3c	0.446	58	Waterbydesign 2010		
	RESI	F3d	2.596	0	Waterbydesign 2010		
(111111111	FOREST	F3e	0.618	0	Waterbydesign 2010		
	FROG HABITAT AREA (RESI)	F3f	1.606	0	Waterbydesign 2010		
	BASIN - ROAD 2 WEST						
- 4,2 4,2 /	ROOF	NSDa1	1.507	100	Waterbydesign 2010		
. 4 . 4 . 2	REMAINING LOT	NSDa2	1.510	29	Waterbydesign 2010		
//////	SEALED ROAD	NSDa3	1.269	49	Waterbydesign 2010		
	BASIN - ROAD 2 SOUTH						
\times	RESIDENTIAL	NSDd	0.905	0	Waterbydesign 2010		
	ADDITIONAL NSD CATCHME	NT					
	RESIDENTIAL TO FROG NS DRAIN	NSDa	4.707	0	Waterbydesign 2010		
	TOTAL AREA						
	TOTAL - OVERALL		15.735	= 100 %	OF OVERALL AREA		
	TOTAL - IMPERVIOUS		3.229	= 21 %	= 21 % OF OVERALL AREA		
	TOTAL – PERVIOUS		12.506	= 79 %	OF OVERALL AREA		

PRE	DEVELOPMENT MUS	IC CATCHMEN	TS (P20080	63MUS01V11	- STAGE 2)	
KEV	DESCRIPTION				MUSIC NODE DEEEDENCE	

		KE	EΥ			DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE
	\sum	$\overline{\ }$	\times	$\overline{\ }$	/	RESIDENTIAL TO FROG HABITAT 03	F3a	3.899	0	Waterbydesign 2010
Γ	\sum	$\overline{\ }$	\sum	$\overline{\ }$	Ν	FOREST TO FROG HABITAT 03	F3b	0.618	0	Waterbydesign 2010
	\sum	\sum	\sum	/	\sum	UNSEALED ROAD TO FROG HABITAT 03	F3c	1.035	50	Waterbydesign 2010
P		RESIDENTIAL TO NS DRAIN		NSDa	9.114	0	Waterbydesign 2010			
					[UNSEALED ROAD TO NS DRAIN	NSDb	1.071	50	Waterbydesign 2010
						TOTAL AREA				
Γ							TOTAL - OVERALL	15.737	= 100 %	OF OVERALL AREA
Γ							TOTAL - IMPERVIOUS	1.053	= 7 %	OF OVERALL AREA
					TOTAL - PERVIOUS	14.684	= 93 % OF OVERALL AREA			

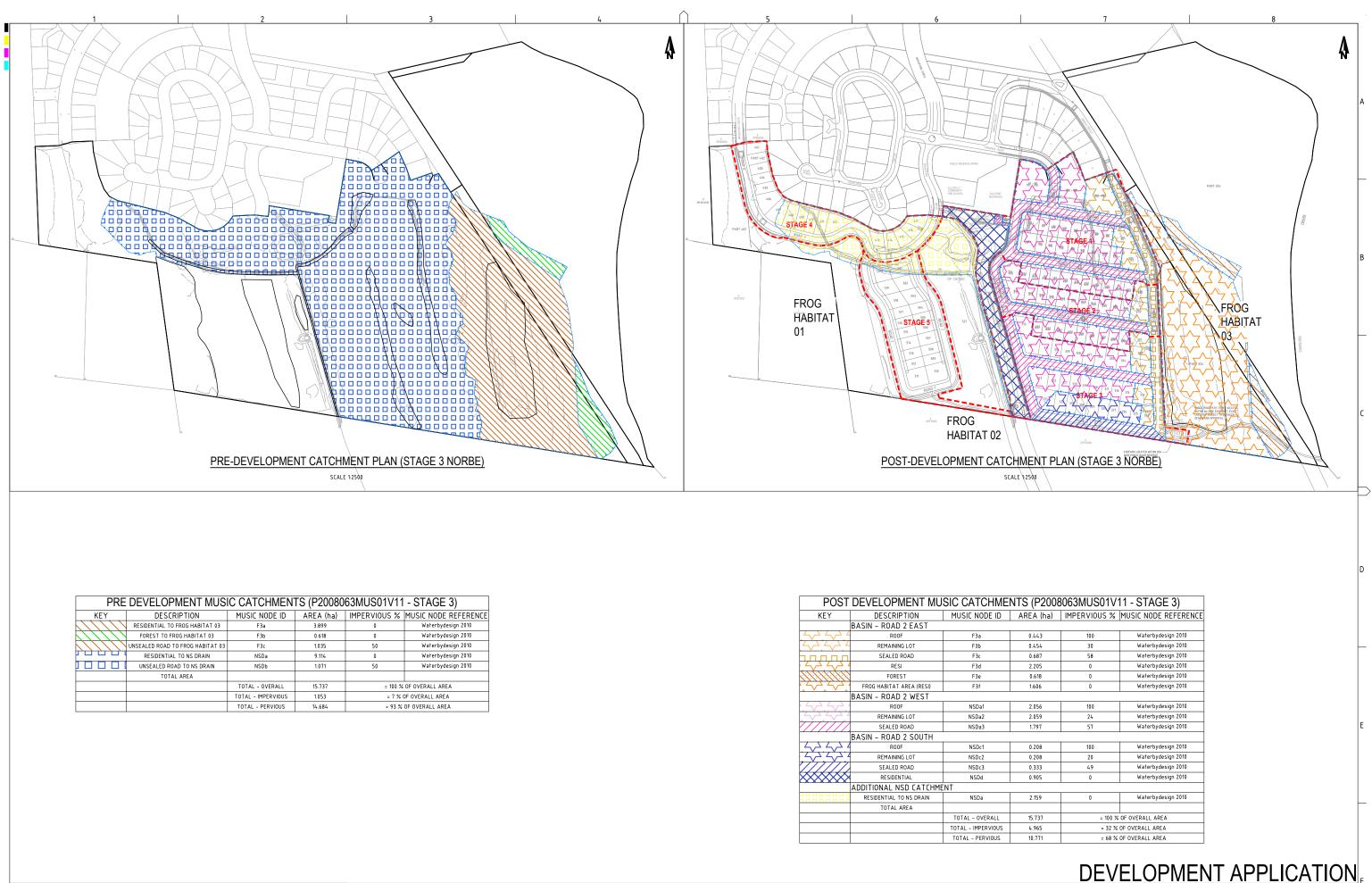
	REV DESCRIPTION	DATE	DRAWN	DESIGNE	ED CHECKEI	APPRVD	SCALE	GRID	DATUM	PROJECT M	IANAGER CLIENT			DRAWING TITLE				· · · · ·
	D MINOR AMENDMENTS	13/03/2023	JS	TW	SL	SL	<u>0 25 50 75 100 125 150 175 200 225 250</u>			ст	CLARENCE PROPERTY		Consulting Engineers					
TARE	C MINOR AMENDMENTS	24/02/2023	ΥI	TW	SL	SL	A1 (A3) 1:2,500 (1:5,000) METRES						montone Environment	STAGE 1 TO :	2 – WATER	QUALITY CA	CHMENT PLAN (NO	RBE)
S S	B MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT		DISCLAIMER	& COPYRIGHT		PROJECT NAME/PLANSET TITLE							
- ISI	A MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT		This plan must no principal certifying	ot be used for constri a authority	uction unless signed as	PROPOSED SUBDIVISION							
- :L								1	ts in millimetres unles	ss otherwise specified.			& Associates Pty Ltd Geotechnical					
										in whole or part without	t prior written CONCEPT STORMWATER MANAGEMENT PLAN		Givii	PROJECT NO.	PLANSET NO.	RELEASE NO.		REVISION
빌									ns & Associates Pty		LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite	201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 876	P2008063	PS03	R09	PS03-E703	р
æ								(C) Copyright	Martens & Asso	ciates Pty Ltd			Email: mail@martens.com.au Internet: www.martens.com.au				1000 2700	0
A	1 / A3 LANDSCAPE (A1LC_v02.0.01)													DRAWING ID: P2008063-PS03-R09-E	703 ជួយមួយជួញ	N 9	10 1 3 10 1	1 1 1 10

DEVELOPMENT APPLICATION



	REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT		
2	D	MINOR AMENDMENTS	13/03/2023	JS	TW	SL	SL	-			CT	CLARENCE PROPERTY		Consulting En
ARE	С	MINOR AMENDMENTS	24/02/2023	YI	TW	SL	SL	-			61			Environment
IS.	В	MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT	-	DISCLAIMER	COPYRIGHT		PROJECT NAME/PLANSET TITLE	martens	Motor
USEF	А	MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT		This plan must not principal certifying		on unless signed as approved by	PROPOSED SUBDIVISION		Geotechnical
									1	in millimetres unless of	No		& Associates Pty Ltd	Geolecinical
- 11												CONCEPT STORMWATER MANAGEMENT PLAN		Civil
ä								-		not be reproduced in v & Associates Ptv Ltd.	whole or part without prior written			
빌												LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 George St, Hornsby, NSW 2077 Australia Ph	
훒									(C) Copyright I	Aartens & Associa	tes Pty Ltd		Email: mail@martens.com.au Internet:	: www.martens.com.au
	A1 / A3 L	ANDSCAPE (A1LC v02.0.01)												

						E
DELLING R	ESULTS_NORBE	E NS DR	AIN			
	JS01V11 - STAGE					
EVELOPMENT	POST-DEVELOPMEN	,	TION	% CHANGE		
94.2	102	-7.		8%		
16500	7580	892	20	-54%		
34.9	22.8	12.	.1	-35%		
186	134	52	2	-28%		_
295	0	29	5	0%		
		MEN	T AP	PLICA		F
Engineers nt cal	STAGE 1 TO 2	- WATER Q	UALITY MOD	DEL & RESULTS	5 (NORBE)	
Jai						
	PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION	
999 Fax: (02) 9476 876 m.au	P200005	PS03	R09	PS03-E70	4 D	
	DRAWING ID: P2008063-PS03-R09-E70	* <u>hoooof</u>	N 8	น่ มี ผ่	* * * *	•

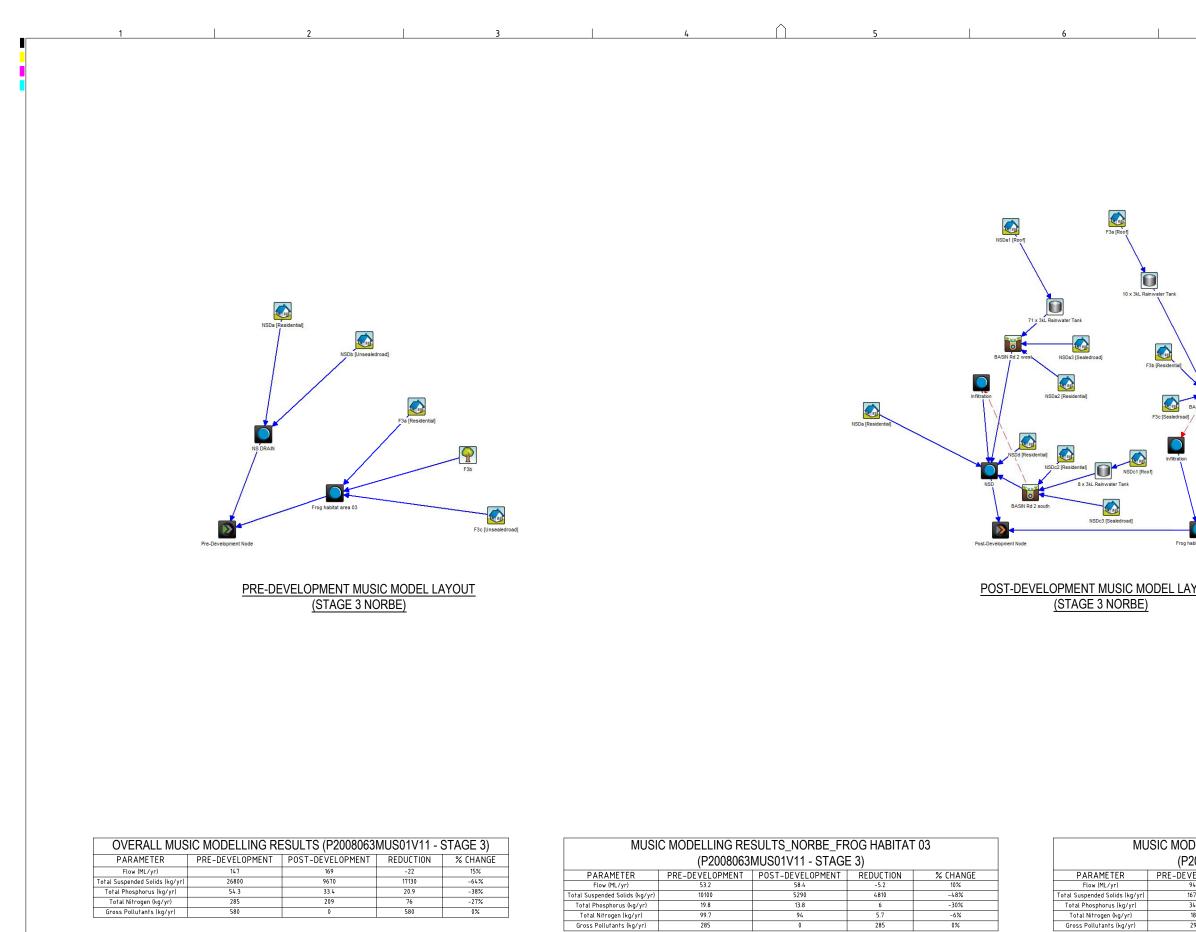


POST	DEVELOPMENT MU	SIC CATCHME	NTS (P20
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)
	BASIN – ROAD 2 EAST		
	ROOF	F3a	0.443
<u> </u>	REMAINING LOT	F3b	0.454
	SEALED ROAD	F3c	0.687
	RESI	F3d	2.205
111111111	FOREST	F3e	0.618
	FROG HABITAT AREA (RESI)	F3f	1.606
	BASIN – ROAD 2 WEST		
	R00F	NSDa1	2.056
	REMAINING LOT	NSDa2	2.059
	SEALED ROAD	NSDa3	1.797
	BASIN – ROAD 2 SOUTH		
	ROOF	NSDc1	0.208
	REMAINING LOT	NSDc2	0.208
	SEALED ROAD	NSDc3	0.333
\times	RESIDENTIAL	NSDd	0.905
	ADDITIONAL NSD CATCHME	INT	
	RESIDENTIAL TO NS DRAIN	NSDa	2.159
	TOTAL AREA		
		TOTAL - OVERALL	15.737
		TOTAL - IMPERVIOUS	4.965
		TOTAL - PERVIOUS	10.771

					,
PRE	DEVELOPMENT MUS	IC CATCHMEN	TS (P20080	63MUS01V11	- STAGE 3)

		K	EΥ			DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE		
Γ	$\overline{\ }$	$\overline{\ }$	\times	$\overline{\ }$	Z	RESIDENTIAL TO FROG HABITAT 03	F3a	3.899	0	Waterbydesign 2010		
Γ	\sum	$\overline{\ }$	\sum	$\overline{\ }$	Ν	FOREST TO FROG HABITAT 03	F3b	0.618	0	Waterbydesign 2010		
	\sum	\sum	Ζ	/	\sum	UNSEALED ROAD TO FROG HABITAT 03	F3c	1.035	50	Waterbydesign 2010		
P						RESIDENTIAL TO NS DRAIN	NSDa	9.114	0	Waterbydesign 2010		
						UNSEALED ROAD TO NS DRAIN	NSDb	1.071	50	Waterbydesign 2010		
						TOTAL AREA						
							TOTAL - OVERALL	15.737	= 100 %	OF OVERALL AREA		
							TOTAL - IMPERVIOUS	1.053	= 7 %	OF OVERALL AREA		
							TOTAL - PERVIOUS 14.684 = 93 % OF OVERALL AREA					

REV	DESCRIPTION	DATE	DRAWN [DESIGNED CH	IECKED AP	PRVD	SCALE	GRID	DATUM	PROJECT N	MANAGER CLIENT				DRAWING TITLE				
N E	MINOR AMENDMENTS	13/03/2023	JS	TW	SL	SL	0 25 50 75 100 125 150 175 200 225 250			CT	CLARENCE PROPERTY			Consulting Engineers					
D	MINOR AMENDMENTS	01/03/2023	ΥI	TW	SL	SL	A1 (A3) 1:2,500 (1:5,000) METRES							Environment	STAGE 1 TO	3 – WATER	QUALITY CA	TCHMENT PLAN (NO	DRBE)
S C	MINOR AMENDMENTS	23/02/2023	NP/YI	TW	SL	SL		DISCLAIMER	& COPYRIGHT	Г	PROJECT NAME/PLANSET TITLE		rartens	Water					
B B	MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT		This plan must no principal certifying	t be used for constru-	ruction unless signed a	PROPOSED SUBDIVISION								
A	MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT		All measurements	s in millimetres unles	ss otherwise specified		× •	& Associates Pty Lt	Civil		_			
								This drawing mus	t not be reproduced	in whole or part witho	CONCEPT STORMWATER MANAGEMENT PLAN			Civil	PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
8								consent of Marter	ns & Associates Pty	Ltd.	LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 Gec	orge St, Hornsby, NSW 2077 Australia	a Phone: (02) 9476 9999 Fax: (02) 9476 8767	7 P2008063	PS03	R09	PS03-E705	E
PRIP								(C) Copyright	Martens & Asso	ciates Pty Ltd			Email: mail@martens.com.au Inte	rnet: www.martens.com.au	P2000005	PS05	RU9	F 303-L703	L
A1 / A	LANDSCAPE (A1LC_v02.0.01)														DRAWING ID: P2008063-PS03-R09-6	705 ដូចចចចដ្ឋ	ที่ ที่		<u>é é s</u>



	REV	DESCRIPTION	DATE	DRAWN	DESIGNED	D CHECKED	D APPRVI	D SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT		
z	D	MINOR AMENDMENTS	13/03/2023	JS	TW	SL	SL				CT	CLARENCE PROPERTY		Consulting E
JARE	C	MINOR AMENDMENTS	23/02/2023	NP/YI	TW	SL	SL							Environment
ISL :5	В	MINOR AMENDMENTS	12/08/2022	NN	TW	SL	GT		DISCLAIMER			PROJECT NAME/PLANSET TITLE	martens	Water
USEF	А	MINOR AMENDMENTS	08/08/2022	NN	TW	SL	GT		This plan must not principal certifying		on unless signed as approved by	PROPOSED SUBDIVISION		Geotechnica
1										n millimetres unless o	therwise snerified		& Associates Pty Ltd	Civil
1											whole or part without prior written	CONCEPT STORMWATER MANAGEMENT PLAN		CIVII
Ë										& Associates Pty Ltd.		LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 George St, Hornsby, NSW 2077 Australia P	hone: (02) 9476 999
PRIN									(C) Copyright M	lartens & Associa	tes Pty Ltd		Email: mail@martens.com.au Internet	
	A1 / A3 L	ANDSCAPE (A1LC v02.0.01)						•				•		-

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			_
			В
n F3d [Residentia] BASN Rd 2 east road] F3t [Residentia]			 C
Frog habitat area 03	F3e		
LAYOUT			
			D
IODELLING RESULTS_NORB (P2008063MUS01V11 - STAG 0EVELOPMENT POST-DEVELOPMEN 94.2 111 15700 4380 15700 4380	SE 3) NT REDUCTION 9 -16.8 12320	6 CHANGE 18% -74%	E
34.5 19.5 186 115 295 0	15 71 295	-43% -38% 0%	-
			ON ₅
ng Engineers	3 - WATER QUALITY MO	DEL & RESULTS (NORB	E)
nnical			25/46101
6 9999 Fax: (02) 9476 8767 PR0JECT NO. s.com.au P2008063	PLANSET NO. RELEASE NO. PS03 R09		REVISION D
DRAWING ID: P2008063-PS03-R09-	E706 puuuu <u>s</u> <u>s</u>	à à à k	

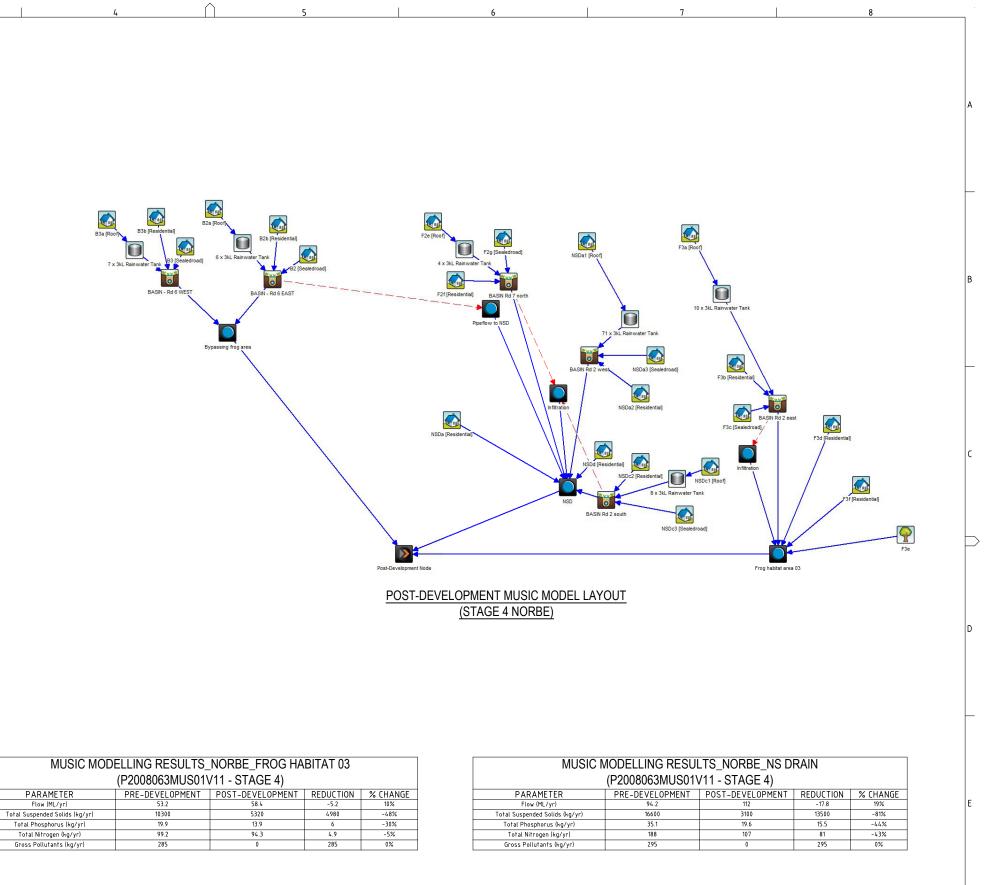


	POST DEVELOPMENT MUSIC CATCHMENTS (P2008063MUS01V11 - STAGE 4)													
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE	KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE			
E	BASIN – ROAD 7 NORTH	•					BASIN - ROAD 2 WEST							
XXX	ROOF	F2e	0.102	100	Waterbydesign 2010	2 2 2 2 2 2 2	ROOF	NSDa1	2.056	100	Waterbydesign 2010			
XXX	REMAINING LOT AREA	F2f	0.102	20	Waterbydesign 2010	.~~.~.	REMAINING LOT	NSDa2	2.059	24	Waterbydesign 2010			
	SEALED ROAD	F2g	0.170	55	Waterbydesign 2010		SEALED ROAD	NSDa3	1.797	57	Waterbydesign 2010			
E	BASIN – ROAD 6 WEST						BASIN – ROAD 2 SOUTH							
XXX	ROOF	B3a	0.208	100	Waterbydesign 2010		ROOF	NSDc1	0.208	100	Waterbydesign 2010			
XXX	REMAINING LOT AREA	B3b	0.208	42	Waterbydesign 2010		REMAINING LOT	NSDc2	0.208	20	Waterbydesign 2010			
	SEALED ROAD	B3	0.294	51	Waterbydesign 2010		SEALED ROAD	NSDc3	0.333	49	Waterbydesign 2010			
E	BASIN – ROAD 6 EAST						RESIDENTIAL	NSDd	0.905	0	Waterbydesign 2010			
imes $ imes$ $ ime$	ROOF	B2a	0.195	100	Waterbydesign 2010		ADDITIONAL NSD CATCH	IMENT						
XXX	REMAINING LOT AREA	B2b	0.195	20	Waterbydesign 2010		RESIDENTIAL TO NS DRAIN	NSDa	1.045	0	Waterbydesign 2010			
	SEALED ROAD	B2	0.317	54	Waterbydesign 2010		TOTAL AREA							
E	BASIN – ROAD 2 EAST							TOTAL - OVERALL	16.417	= 100 %	OF OVERALL AREA			
	ROOF	F3a	0.443	100	Waterbydesign 2010			TOTAL - IMPERVIOUS	6.037	= 37 %	OF OVERALL AREA			
	REMAINING LOT	F3b	0.454	30	Waterbydesign 2010			TOTAL - PERVIOUS	10.380	= 63 %	OF OVERALL AREA			
	SEALED ROAD	F3c	0.693	57	Waterbydesign 2010									
	RESI	F3d	2.205	0	Waterbydesign 2010]								
	FOREST	F3e	0.618	0	Waterbydesign 2010]								
	FROG HABITAT 03 AREA (RESI)	F3f	1.606	0	Waterbydesign 2010									

PRE	DEVELOPMENT MUS	C CATCHMEN	TS (P20080	63MUS01V11	- STAGE 4)		
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE		
////	RESIDENTIAL TO FROG HABITAT 03	F3a	3.899	0	Waterbydesign 2010		
	FOREST TO FROG HABITAT 03	F3b	0.618	0	Waterbydesign 2010		
////	UNSEALED ROAD TO FROG HABITAT 03	F3c	1.035	50	Waterbydesign 2010		
	RESIDENTIAL TO NS DRAIN	NSDa	9.114	0	Waterbydesign 2010		
	UNSEALED ROAD TO NS DRAIN	NSDb	1.071	50	Waterbydesign 2010		
	AREA BYPASSING FROG HABITAT 01	F4	0.680	0	Waterbydesign 2010		
	TOTAL AREA						
		TOTAL - OVERALL	16.417	= 100 %	OF OVERALL AREA		
		TOTAL - IMPERVIOUS	12.518	= 76 % OF OVERALL AREA			
		TOTAL - PERVIOUS	11.900	= 72 % OF OVERALL AREA			

REV	DESCRIPTION	DATE	DRAWN DE	SIGNED CH	ECKED APP	RVD SC	SCALE GF	RID DATUM PROJECT MANAGER	CLIENT		DRAWING TITLE				
N A	INITIAL RELEASE	13/03/2023	JS	TW	SL S	LLL	0 25 50 75 100 125 150 175 200 225 250	CT.	CLARENCE PROPERTY	Consulting Engineers					
JARE						A	A1 (A3) 1:2,500 (1:5,000) METRES	61		Environment	STAGE 1 TO 4	4 – WATER QUAI	LITY MODEL	L & RESULTS (NO	ORBE)
IST 2							DI	ISCLAIMER & COPYRIGHT	PROJECT NAME/PLANSET TITLE	Wartens Environment Water					
USE							Thi	his plan must not be used for construction unless signed as approved rincipal certifying authority.	PROPOSED SUBDIVISION						
:								Il measurements in millimetres unless otherwise specified		& Associates Pty Ltd Geotechnical					
								his drawing must not be reproduced in whole or part without prior writh	CONCEPT STORMWATER MANAGEMENT PLAN	Civil	PROJECT NO.	PLANSET NO. RE	ELEASE NO. D	DRAWING NO.	REVISION
ë							cor	onsent of Martens & Associates Pty Ltd.	LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 George St. Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767					•
PRIN							(C	C) Copyright Martens & Associates Pty Ltd		Email: mail@martens.com.au Internet: www.martens.com.au	P2008063	PS03 R(09 I	PS03-E707	A
A1 / A3	ANDSCAPE (A1LC_v02.0.01)	-									DRAWING ID: P2008063-PS03-R09-E	707 00000	* 4	ม้ ผ่ ส่	

DEVELOPMENT APPLICATION



NSDa [Residentia] NSDb [Unsealedroad] Fa [Residentia] Fa [Residentia]
Pre-Development Node
Bypassing Frog Area 01 F4 [Residentia]

PRE-DEVELOPMENT MUSIC MODEL LAYOUT (STAGE 4 NORBE)

MUSIC MOD	ELLING RESULTS_	NORBE_FROG HA	BITAT 03												
	(P2008063MUS01V11 - STAGE 4)														
AMETER	PRE-DEVELOPMENT	POST-DEVELOPMENT	REDUCTION	% CHANGE		PARAI									
w (ML/yr)	53.2	58.4	-5.2	10%		Flow (I									
nded Solids (kg/yr)	10300	5320	4980	-48%		Total Suspende									
sphorus (kg/yr)	19.9	13.9	6	-30%		Total Phosph									
trogen (kg/yr)	99.2	94.3	4.9	-5%		Total Nitro									
llutants (kg/yr)	285	0	285	0%		Gross Pollut									

OVERALL MUS	OVERALL MUSIC MODELLING RESULTS (P2008063MUS01V11 - STAGE 4)														
PARAMETER	PRE-DEVELOPMENT	POST-DEVELOPMENT	REDUCTION	% CHANGE											
Flow (ML/yr)	153	178	-25	16%											
Total Suspended Solids (kg/yr)	27700	8460	19240	-69%											
Total Phosphorus (kg/yr)	57	36.2	20.8	-36%											
Total Nitrogen (kg/yr)	299	210	89	-30%											
Gross Pollutants (kg/yr) 580 0 580 0%															

	REV	DESCRIPTION	DATE	DRAWN DESIGNED CHECKED APPRVD	SCALE GRID	D [DATUM	PROJECT MANAGER	CLIENT				DRAWING TITLE				
м	Α	INITIAL RELEASE	13/03/2023	JS TW SL SL				CT.	CLARENCE PROPERTY			Consulting Engineers					
TARE												Environment	STAGE 1 TO 4	- WATER C	QUALITY MOD	EL & RESULTS (NO	DRBE)
IST 2					DISCLA	CLAIMER & C	OPYRIGHT		PROJECT NAME/PLANSET TITLE		mariens	Water					
USEF					This plan	plan must not be u pal certifving auth	used for construction	n unless signed as approved by	PROPOSED SUBDIVISION								
; E					All measu	easurements in mi	illimetres unless off	nerwise specified			& Associates Pty Lto	Civil					
					This draw	drawing must not b	be reproduced in wi	hole or part without prior written	CONCEPT STORMWATER MANAGEMENT PLAN			OIVII	PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
E						ent of Martens & A			LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 20	01, 20 George St, Hornsby, NSW 2077 Australia Email: mail@martens.com.au Interr	Phone: (02) 9476 9999 Fax: (02) 9476 8767	02000042	PS03	R09	PS03-E708	Δ
Ē					(C) Cop	Copyright Mart	tens & Associate	es Pty Ltd			Email: mail@martens.com.au Interr				KV9	1 000-1/00	~
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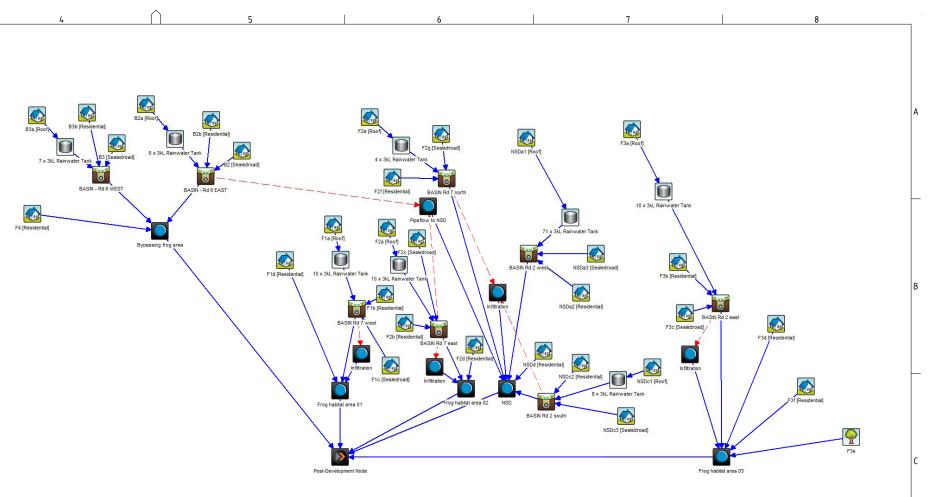
DEVELOPMENT APPLICATION

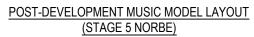


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PRE D	EVELOPMENT MUSIC	CATCHMEN	TS (P2008	3063MUS01V	11 - STAGE 5)
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE
	RESIDENTIAL TO FROG HABITAT 01	F1	1.771	0	Waterbydesign 2010
////	RESIDENTIAL TO FROG HABITAT 02	F2a	2.436	0	Waterbydesign 2010
$\langle / / / \rangle$	UNSEALED ROAD TO FROG HABITAT 02	F2b	0.142	50	Waterbydesign 2010
	RESIDENTIAL TO FROG HABITAT 03	F3a	3.899	0	Waterbydesign 2010
\sim	FOREST TO FROG HABITAT 03	F3b	0.618	0	Waterbydesign 2010
$\langle \rangle \rangle \rangle \rangle \rangle$	UNSEALED ROAD TO FROG HABITAT 03	F3c	1.035	50	Waterbydesign 2010
	RESIDENTIAL TO NS DRAIN	NSDa	9.114	0	Waterbydesign 2010
00000000	UNSEALED ROAD TO NS DRAIN	NSDb	1.071	50	Waterbydesign 2010
///////	BYPASS AREA	F4	0.793	0	Waterbydesign 2010
	TOTAL AREA				
		TOTAL - OVERALL	20.878	= 100 %	OF OVERALL AREA
		TOTAL - IMPERVIOUS	1.124	= 5 %	OF OVERALL AREA
		TOTAL - PERVIOUS	19.754	= 95 %	OF OVERALL AREA

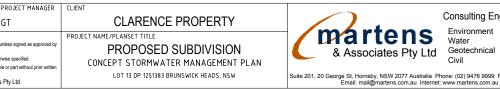
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ä								-			consent of Marten			lor written	LOT 13 DP 1251383 BRUNSWICK HEADS, NSW	Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (0	(02) 0476 00
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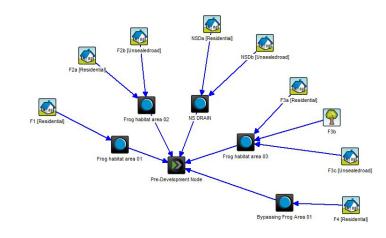




MUSI		ESULTS_NORBE 3MUS01V11 - ST		r 03
PARAMETER	PRE-DEVELOPMENT	POST-DEVELOPMENT	REDUCTION	% CHANGE
Flow (ML/yr)	53.2	58.4	-5.2	10%
Total Suspended Solids (kg/yr)	10300	5340	4960	-48%
Total Phosphorus (kg/yr)	19.6	13.9	5.7	-29%
Total Nitrogen (kg/yr)	101	94.2	6.8	-7%
Gross Pollutants (kg/yr)	285	0	285	0%

MUSIC MODELLIN	IG RESULTS_NC	RBE_NS DRAIN	(P2008063MUS01	V11 - STAGE 5)
PARAMETER	PRE-DEVELOPMENT	POST-DEVELOPMENT	REDUCTION	% CHANGE
Flow (ML/yr)	94.2	114	-19.8	21%
Total Suspended Solids (kg/yr)	16900	2140	14760	-87%
Total Phosphorus (kg/yr)	34.6	18.5	16.1	-47%
Total Nitrogen (kg/yr)	188	99	89	-47%
Gross Pollutants (kg/yr)	295	0	295	0%





PRE-DEVELOPMENT MUSIC MODEL LAYOUT (STAGE 5 NORBE)

OVERALL MU	ISIC MODELLING	RESULTS (P200	8063MUS01V11	- STAGE 5)
PARAMETER	PRE-DEVELOPMENT	POST-DEVELOPMENT	REDUCTION	% CHANGE
Flow (ML/yr)	193	224	-31	16%
Total Suspended Solids (kg/yr)	34100	11800	22300	-65%
Total Phosphorus (kg/yr)	69.7	46.3	23.4	-34%
Total Nitrogen (kg/yr)	378	268	110	-29%
Gross Pollutants (kg/yr)	619	0	619	0%

MUSIC MODELLING RESULTS_NORBE_FROG HABITAT 01 (P2008063MUS01V11 - STAGE 5)						
PARAMETER	PRE-DEVELOPMENT	POST-DEVELOPMENT	REDUCTION	% CHANGE		
Flow (ML/yr)	15.5	22.2	-6.7	43%		
Total Suspended Solids (kg/yr)	2250	1500	750	-33%		
Total Phosphorus (kg/yr)	5.08	4.75	0.33	-6%		
Total Nitrogen (kg/yr)	30.6	27.7	2.9	-9%		
Gross Pollutants (kg/yr)	0	0	0	0%		

MUSIC MODELLING RESULTS_NORBE_FROG HABITAT 02 (P2008063MUS01V11 - STAGE 5)						
PARAMETER	PRE-DEVELOPMENT	POST-DEVELOPMENT	REDUCTION	% CHANGE		
Flow (ML/yr)	23.2	18.5	4.7	-20%		
Total Suspended Solids (kg/yr)	3700	2320	1380	-37%		
Total Phosphorus (kg/yr)	8.09	5.5	2.59	-32%		
Total Nitrogen (kg/yr)	45.8	32.5	13.3	-29%		
Gross Pollutants (kg/yr)	39.1	0	39.1	0%		

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
Α	INITIAL RELEASE	13/03/2023	JS	TW	SL	SL

GRID	DATUM	PROJECT MANAGER	CLIENT	
		GT	CLARENCE PROPERTY	
DISCLAIMER 8	COPYRIGHT		PROJECT NAME/PLANSET TITLE	- / n
This plan must not principal certifying		on unless signed as approved by	PROPOSED SUBDIVISION	
All measurements	n millimetres unless o	therwise specified.	CONCEPT STORMWATER MANAGEMENT PLAN	
This drawing must consent of Martens	not be reproduced in v & Associates Ptv Ltd.	whole or part without prior written		
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MODELLING RESULTS NORBE FROG HABITAT 01

DEVELOPMENT APPLICATION

Consulting Engineers

STAGE 1 TO 5 - WATER QUALITY MODEL & RESULTS (NORBE)

	PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
9999 Fax: (02) 9476 8767 com.au	P2008063	PS03	R09	PS03-E710	A
	DRAWING ID: P2008063-PS03-R09-E7	10 ប្រមាមមណ្ណ	N 10 1		