1 GARNER STREET, SAINT MARYS PROPOSED RESIDENTIAL FLAT BUILDING **STORMWATER CONCEPT PLANS**



						Certification By:	Archite
С	MINOR ARCHITECTURAL AMENDMENTS	11/05/2018	RPG	JTF	JAB	(A 0)	Bai
В	COUNCIL COMMENTS	23/11/2016	RPG	MBR	MBR	UL Alton	Emai
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LOCALITY PLAN N.T.S

DRAWING INDEX Drawing No. DESCRIPTION COVER SHEET PLAN 000 101 STORMWATER CONCEPT PLAN BASEMENT LEVEL SHEET 1 OF 2 102 STORMWATER CONCEPT PLAN BASEMENT LEVEL SHEET 2 OF 2 103 STORMWATER CONCEPT PLAN SHEET 1 OF 2 104 STORMWATER CONCEPT PLAN SHEET 2 OF 2 105 WATER SENSITIVE URBAN DESIGN DETAILS SHEET **ON-SITE DETENTION DETAILS & CALCULATION SHEETS** 106 107 MISCELLANEOUS DETAILS SHEET

ini Design : www.bainidesign.com.au NE: 0410 516 041

Penrith City Council



GINEERS PTY LTD - A.C.N. 084 059 941 ONSULTING SHOP 2-141 CONCORD RD NORTH STRATHFIELD NSW 2137 ENGINEERS. PH: (02) 9763 1500 FX: (02) 9763 1515 EMAIL: info@aceeng.com.au

USTRALIAN

1 GARNER ST ONSULTING PROPOSED RESID STORMWATE DEVELOPM

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REET, SAINT MARYS DENTIAL FLAT BUILDING ER CONCEPT PLAN	COVER SHEET PLAN							
ENT APPLICATION	Scale A1 N.T.S.	Project No. 180644	Dwg. No. 000	lssue C				



BASEMENT PERIMETER WITH RAINWATER OUTLETS AT 10m INTERVALS.





AUSTRALIAN **1 GARNER STR** CONSULTING PROPOSED RESID Baini Design C MINOR ARCHITECTURAL AMENDMENTS 11/05/2018 | RPG | JTF | JAB Penrith City Council ENGINEERS. COUNCIL COMMENTS 23/11/2016 | RPG | MBR | MBR В Email: www.bainidesign.com.au **STORMWATE** ISSUE FOR DEVELOPMENT APPLICATION 22/04/2016 | SSC | MBR | MBR AUSTRALIAN PTY LTD - A.C.N. 084 059 941 Α SCALE 1:100 @ A1 PHONE : 0410 516 041 DEVELOPME CONSULTING SHOP 2-141 CONCORD RD NORTH STRATHFIELD NSW 2137 Drawn Design Checked Issue Description Date ENGINEERS. PH: (02) 9763 1500 FX: (02) 9763 1515 EMAIL: info@aceeng.com.au 20cm 1cm at full size

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WARNING PUMP OUT SYSTEM FAILURE IN BASEMENT WHEN LIGHT IS FLASHING AND SIREN SOUNDING

BASEMENT PUMP OUT FAILURE WARNING SIGN SIGN SHALL BE PLACED IN A CLEAR AND VISIBLE

LOCATION WHERE VEHICLES ENTER THE BASEMENT

<u>COLOURS:</u> "WARNING" = RED BORDER AND OTHER LETTERING = BLACK

DANGER

CONFINED SPACE NO ENTRY WITHOUT CONFINED SPACE TRAINING

CONFINED SPACE DANGER SIGN

A) A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED IN A LOCATION AT ALL ACCESS POINTS, SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANK/S CONFINED SPACE.

B) MINIMUM DIMENSIONS OF THE SIGN - 300mm x 450mm (LARGE ENTRIES, SUCH AS DOORS) -250mm x 180mm (SMALL ENTRIES SUCH AS GRATES & MANHOLES)

C) THE SIGN SHALL BE MANUFACTURED FROM COLOUR BONDED ALUMINUM OR POLYPROPYLENE

D) SIGN SHALL BE AFFIXED USING SCREWS AT EACH CORNER OF THE SIGN

COLOURS: "DANGER" & BACKGROUND = WHITE ELLIPTICAL AREA = RED RECTANGLE CONTAINING ELLIPSE = BLACK BORDER AND OTHER LETTERING = BLACK

STREE

GARNER

PUMP HOLDING TANK NOTE:

THE PUMP HOLDING TANK IS TO BE BUILT TO THE CORRECT LEVELS & SIZE AS PER THIS DESIGN. ANY VARIATIONS ARE TO BE DONE UNDER CONSULTATION FROM OUR OFFICE ONLY. ANY AMENDMENTS WITHOUT OUR APPROVAL WOULD **RESULT IN ADDITIONAL FEES FOR REDESIGN AT** OC STAGE OR IF A SOLUTION CANNOT BE FOUND, **RECONSTRUCTION IS REQUIRED UNDER THE** CONTRACTOR'S EXPENSES.

STANDARD PUMP OUT DESIGN NOTES

THE PUMP OUT SYSTEM SHALL BE DESIGN TO BE OPERATED IN THE FOLLOWING MANNER:

- 1 THE PUMP SHALL BE PROGRAMMED TO WORK ALTERNATELY TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.
- 2 A FLOAT SHALL BE PROVIDED TO ENSURE OF THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS AT THE MINIMUM WATER LEVEL. THE SAME FLOAT SHALL BE SET TO TURN ONE OF THE PUMPS ON UPON THE WATER LEVEL IN THE TANK RISING TO APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL. THE PUMP SHALL OPERATE UNTIL THE TANK IS DRAINED TO THE MINIMUM WATER LEVEL.
- 3 A SECOND FLOAT SHALL BE PROVIDE AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHALL START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
- 4 AN ALARM SYSTEM SHALL BE PROVIDE WITH A FLASHING STROBE LIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.
- 5 A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINT TO THE PUMP-OUT STORAGE TANK IN ACCORDANCE WITH THE UPPER PARRAMATA RIVER CATCHMENT TRUST OSD HANDBOOK.

	NOT FOR CONS	TRUCTION	▶
Drawing Title STORM BASEM SHEET	WATER CONO ENT LEVEL 1 OF 2	CEPT PL	AN
Scale A1 1:100	Project No. 180644	Dwg. No. 101	lssue C
	Drawing Title STORM BASEM SHEET Scale A1 1:100	Drawing Title STORMWATER CONC BASEMENT LEVEL SHEET 1 OF 2 Scale A1 Project No. 1:100 180644	Drawing Title STORMWATER CONCEPT PL BASEMENT LEVEL SHEET 1 OF 2 Scale A1 Project No. 101



CORRECT LEVELS & SIZE AS PER THIS DESIGN. ANY VARIATIONS ARE TO BE DONE UNDER CONSULTATION FROM OUR OFFICE ONLY. ANY **RECONSTRUCTION IS REQUIRED UNDER THE** CONTRACTOR'S EXPENSES.

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<u>COLOURS:</u> "WARNING" = RED BORDER AND OTHER LETTERING = BLACK

			PUN	/IP CALCU	LATIONS						
Project A	ddress:	2	Rawson Avenu	e, Penrith							
HL=(3.35x10e	e6xQ/(d^2	.63xC))^1.852			h1=kv^2/2	g			D. M.C. I	1.201.4	
HL(m/100m),	Q(L/s(, d	(mm)			k(cum), v(ı	m/s), g=9.8(n	n l	H(total h	ead)=Hf+h	1+Elevatio	n Hea
					v(m/s)=	0.00		Elevation	Head(m)=	4.5	P
		d(mm)=	80	Bend	Losses, Kb=	3.06					
				Valve	Losses, Kv=	2.13		Hazen - V	/ <mark>ill</mark> iams C=	145	Haze
			E	ntry/Exit	Losses, Ke=	5.00					125-
				Cum	Losses, K=	10.19					135-
											140-
		Start Flow=	0								145-
		Increment=	1								
Q(L/s)				0	1	2	3	4	5	6	
HL(m/100m)				0.00	0.06	0.23	0.50	0.85	1.28	1.79	
Hf(m)	H	L x pipe Lengt	:h/100	0.00	0.01	0.04	0.07	0.13	0.19	0.27	0
v(m/s)	Q(L/s) / a	area of pipe cr	ossing section	0.00	0.20	0.40	0.60	0.80	0.99	1.19	
h1(m)	k(cum) x v(m/s)	^2/2xg	0.00	0.02	0.08	0.19	0.33	0.51	0.74	
H(m)	=H	If+H1+Elevation	on Head	4.50	4.53	4.62	4.76	4.96	5.21	5.51	

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В	COUNCIL COMMENTS	23/11/2016	RPG	MBR	MBR	U. Mha
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SCALE 1:10

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Architect Baini Design Email: www.bainidesign.com.au PHONE : 0410 516 041	Council Penrith City Council	Scale 0 200 400 600r SCALE 1:10 @ A1 0 1 2 3 SCALE 1:50 @ A1	AUSTRALIAN AUSTRALIAN CONSULTING AUSTRALIAN CONSULTING AUSTRALIAN CONSULTING PTY LTD - A.C.N. 084 059 941 SHOP 2-141 CONCORD RD NORTH STRATHFIELD NSW 2137 PH: (02) 9763 1500 FX: (02) 9763 1515	^{Triject} 1 GARNER STREET, SAINT MARYS PROPOSED RESIDENTIAL FLAT BUILDING STORMWATER CONCEPT PLAN DEVELOPMENT APPLICATION	Drawing Title STORM BASEM SHEET	WATER CONCE ENT LEVEL 2 OF 2 Project No.		↓N Issue
		SCALE 1:50 @ A1	ENGINEERS. PH: (02) 9763 I500 FX: (02) 9763 I515 EMAIL: info@aceeng.com.au	DEVELOPMENT APPLICATION	Scale A1 As Shown	Project No. 180644	Dwg. No. 102	lssue C



PUMP STORAGE VOLUME CALCULATION

- = 54.9 mm/hour •
- PUMP STORAGE CATCHMENT AREA: A = 72.7 m² = 0.00727 ha • Q = C x I x A / 360 WHERE C = 1.0 (REFER TO AS3500.3.5.4.6 (a)) = 1.0 x 54.9 x 0.00727 / 360 $= 0.001108 \text{ m}^3/\text{s}$
- = 1.108 L/s • THEREFORE, THE PUMP HOLDING TANK VOLUME IS:
- $V = 1.108 \times 1.5 \times 3600$ = 5.99 m³

UNDERGROUND PUMP - OUT SUMP STAGED STORAGE CALCULATIONS

DEPTH (mm)	AREA (m²)	CUMULATIVE VOLUME (m ³)
0	6.2	0
100	6.2	0.465
200	6.2	1.085
300	6.2	1.705
400	6.2	2.325
500	6.2	2.945
600	6.2	3.565
700	6.2	4.185
800	6.2	4.805
900	6.2	5.425
1000	6.2	6.045
1050	6.2	6.355

NOT FOR CONSTRUC	TION
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LEGEND





TREES TO BE RETAINED

TREES TO BE REMOVED

Ø65 RISER WITH **NON-RETURN VALVE**



MARK

GENERAL NOTES

- MAINTENANCE PURPOSES 2. ALL LEVELS SHALL RELATE TO THE ESTABLISHED BENCH
- 3. THE BUILDER SHALL ENSURE THAT THE STORMWATER ENGINEERS DRAWINGS CORRESPOND TO THE ARCHITECTURAL, STRUCTURAL AND LANDSCAPING DRAWINGS. IF THERE EXISTS AND DISCREPANCIES BETWEEN THE DRAWINGS, THE BUILDER SHALL REPORT THE DISCREPANCIES TO THE ENGINEER PRIOR TO

COMMENCEMENT OF ANY WORKS

- ALL MULCHING TO BE USED WITHIN THE AREA DESIGNATED AS ONS-SITE DETENTION STORAGE SHALL BE OF A NON-FLOTABLE MATERIAL SUCH AS DECORATIVE RIVER GRAVEL. PINE BARK MULCHING SHALL NOT BE USED WITHIN THE DETENTION STORAGE AREA.
- ALL RETAINING WALLS SHALL BE CONSTRUCTED COMPLETELY WITHIN THE PROPERTY BOUNDARY LIMITS TO DETAILS PREPARED BY THE STRUCTURAL ENGINEER. WALLS FORMING 12. ALL PITS IN DRIVEWAYS TO BE 450x450 CONCRETE AND ALL THE ON-SITE DETENTION SYSTEM SHALL BE OF MASONARY/BRICK CONSTRUCTION AND WATER TIGHT.



9051

PROPOSED PIT TO HAVE

PIT 4

600 x 600

SL 29.00

IL 26.60

NS 27

A SURFACE LEVEL 100mm

HIGHER THAN THE PROPOSED

LEVEL OF THE PLANTER BOX.

X

- PRIOR TO COMMENCING ANY WORKS, THE BUILDER SHALL ENSURE THAT THE INVERT LEVELS OF WHERE THE SITE STORMWATER SYSTEM CONNECTS INTO THE COUNCILS KERB/DRAINAGE SYSTEM MATCHED THE DESIGN LEVELS. ANY DISCREPANCIES SHALL BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 8. ALL LINES ARE TO BE Ø90 uPVC 1.0% GRADE UNLESS NOTED **OTHERWISE. CHARGED LINES TO BE SEWERGRADE &** SEALED.
- EXISTING SERVICES LOCATIONS SHOWN INDICATIVE ONLY. 9
- 10. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
- 11. ALL PIPES TO HAVE MIN 150mm COVER IF LOCATED WITHIN PROPERTY
- PITS IN LANDSCAPED AREAS TO BE 450x450PLASTIC.

CONCRETE.

SP 46862

Ø65 RISER WITH

NON-RETURN VALVE

RL 28.70

KRL 28.65

- 18. ALL DP'S TO HAVE LEAF GUARDS.
- TO CONSTRUCTION.

- COUNCIL.
- A.S.3500.3.
- LANDSCAPING.

Baini Design С MINOR ARCHITECTURAL AMENDMENTS 11/05/2018 | RPG | JTF | JAB В COUNCIL COMMENTS 23/11/2016 | RPG | MBR | MBR Email: www.bainidesign.com.au ISSUE FOR DEVELOPMENT APPLICATION Α 22/04/2016 | SSC | MBR | MBR PHONE : 0410 516 041 Issue Description Drawn Design Checked Date 0cm 1cm at full size











PIT 2 BASEMENT DROP PIPE ENVIROPOD **CONFIGURATION SECTION SCALE 1:10**

						Certification By:	Architect	Council	Scale	Г
с	MINOR ARCHITECTURAL AMENDMENTS	11/05/2018	RPG	JTF	JAB	The	Baini Design		0 200 400 600mm	
В	COUNCIL COMMENTS	23/11/2016	RPG	MBR	MBR	U. Miton	Email: www.bainidesign.com.au	Penrith City Council		ľ
Α	ISSUE FOR DEVELOPMENT APPLICATION	22/04/2016	SSC	MBR	MBR	Hall work	PHONE : 0410 516 041		SCALE 1:10 @ A1	A
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WATER
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DONE UND
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RESULT IN
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IS REQUIRE

SITE SPECIFIC DATA REQUIREMENTS										
STRUCTURE ID	STRUCTURE ID 1									
WATER QUALIT	Y FLOW R	ATE (L/S)			-					
PEAK FLOW RA	TE (L/S)				-					
RETURN PERIO	D OF PEA	K FLOW (yrs)			ľ					
# OF CARTRIDG	ES REQUI	IRED (8-22)			2					
CARTRIDGE HE	IGHT (310,	, 460 or 690mm)			690					
MEDIA TYPE (PE	RLITE, PE	RLITE/ZEOLITE	EOR	ZPG)	ZPG					
PRECAST VAULT WEIGHT 3927 kg PRECAST LID WEIGHT 547 kg										
	П.			DIAME	TED					
INI ET PIPE #1	27.90		+	15	0					
INLET PIPE #1	27.30	PVC	+	150	~ n					
INLET PIPE #2	28.20	PVC	+	150	50					
	27.60	PVC		15	<u>~</u>					
	27.00	110		10	•					
PIPE ORIENTATION 90° UPSTREAM FLOW 180° 270°										
ANTI-FLOTATIO	N BALLAS	T N/A		N	I/A					
		N/A		N	I/A					
STORMFILTER TABLE										

GENERAL NOTES

- 1. INLET AND OUTLET PIPING SHALL BE SPECIFIED BY SITE CIVIL ENGINEER (SEE PLANS) AND PROVIDED BY CONTRACTOR. STORMFILTER IS PROVIDED WITH OPENINGS AT INLET AND OUTLET LOCATIONS.
- 2. IF THE PEAK FLOW RATE, AS DETERMINED BY THE SITE CIVIL ENGINEER, EXCEEDS THE PEAK HYDRAULIC CAPACITY OF THE PRODUCT, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED. PLEASE CONTACT STORMWATER360 FOR OPTIONS.
- 3. THE FILTER CARTRIDGE(S) ARE SIPHON-ACTUATED AND SELF-CLEANING. THE STANDARD DETAIL DRAWING SHOWS THE MAXIMUM NUMBER OF CARTRIDGES. THE ACTUAL NUMBER SHALL BE SPECIFIED BY THE SITE CIVIL ENGINEER ON SITE PLANS OR IN DATA TABLE BELOW. PRECAST STRUCTURE TO BE CONSTRUCTED IN ACCORDANCE WITH AS3600.
- 4. FOR SHALLOW, LOW DROP OR SPECIAL DESIGN CONSTRAINTS, CONTACT STORMWATER360 FOR DESIGN OPTIONS. 5. ALL WATER QUALITY PRODUCTS REQUIRE PERIODIC MAINTENANCE
- AS OUTLINED IN THE O&M GUIDELINES. PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS.
- 6. STRUCTURE AND ACCESS COVERS DESIGNED TO MEET
- AUSTROADS T44 LOAD RATING WITH 0-2m FILL MAXIMUM. 7. THE STRUCTURE THICKNESSES SHOWN ARE FOR
- REPRESENTATIONAL PURPOSES AND VARY REGIONALLY. 8. ANY BACKFILL DEPTH, SUB-BASE, AND OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND
- SHALL BE SPECIFIED BY SITE CIVIL ENGINEER. 9.. STORMFILTER BY STORMWATER360: SYDNEY (AU) PHONE: (02) 9525 5833,

BRISBANE (AU) PHONE: (07) 3272 1872.



ENGINEERS. USTRALIAN PTY LTD - A.C.N. 084 059 941 ONSULTING SHOP 2-141 CONCORD RD NORTH STRATHFIELD NSW 2137 ENGINEERS. PH: (02) 9763 1500 FX: (02) 9763 1515 EMAIL: info@aceeng.com.au

SENSITIVE URBAN DESIGN NOTE: TANK IS TO BE BUILT TO THE CORRECT LEVELS PER THIS DESIGN. ANY VARIATIONS ARE TO BE ER CONSULTATION FROM OUR OFFICE ONLY. IDMENTS WITHOUT OUR APPROVAL WOULD ADDITIONAL FEES FOR REDESIGN AT OC STAGE LUTION CANNOT BE FOUND, RECONSTRUCTION ED UNDER THE CONTRACTOR'S EXPENSES.

STORMFILTER DESIGN TABLE

• STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED AND BY REGION SPECIFIC INTERNAL FLOW CONTROLS. CONVEYANCE CAPACITY IS RATED AT 80L/S. • THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CIVIL ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S). • ALL PARTS PROVIDED AND INTERNAL ASSEMBLY BY STORMWATER360 AUSTRALIA UNLESS OTHERWISE NOTED.

RTRIDGE HEIGHT		690		460		310	
STEM HYDRAULIC DROP (H - REQ'D. MIN.)	930		700		550		
EATMENT BY MEDIA SURFACE AREA L/S/m2	1.4	0.7	1.4	0.7	1.4	0.7	
RTRIDGE FLOW RATE (L/s)	1.42	0.71	0.95	0.47	0.63	0.32	







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