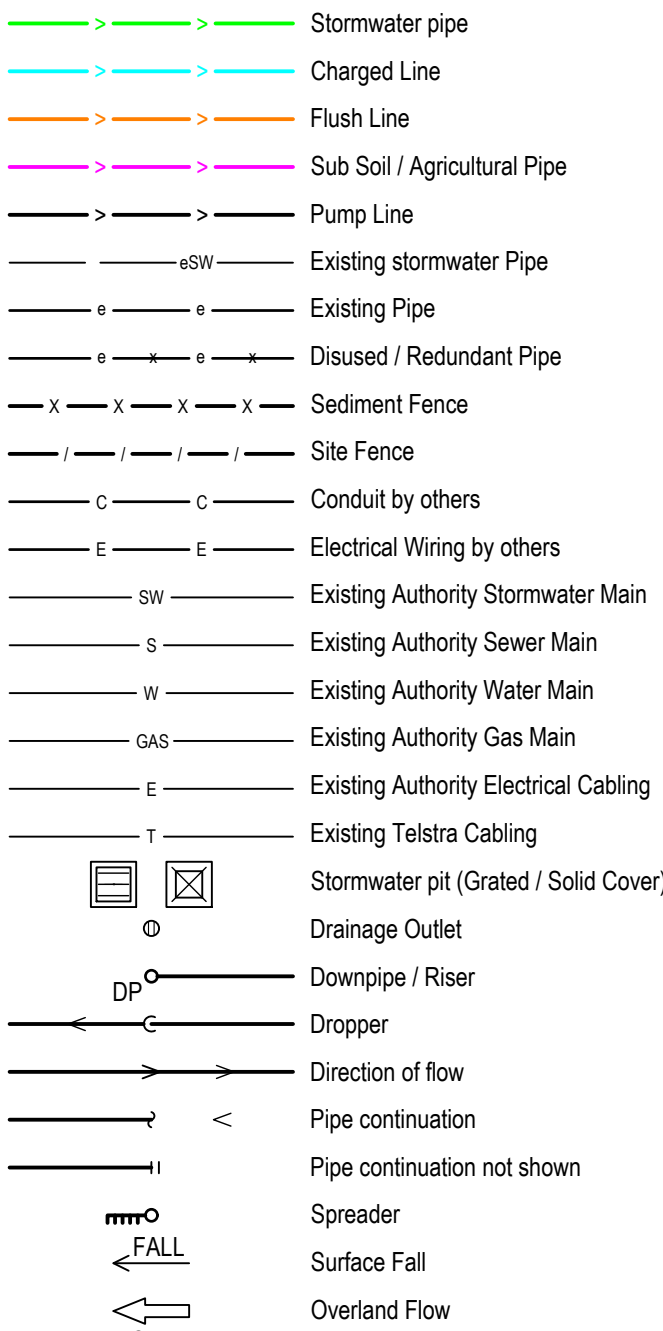


5 Roosevelt Avenue, Allambie Heights

Concept Stormwater Drainage

LEGEND:



ABBREVIATIONS:

AG	Agricultural Line
AP	Aerial Pipe
BG	Box Gutter
BO	Balcony Outlet
CO	Clearout
CL	Charged Line
DP	Downpipe
EG	Eave Gutter
FW	Floor Waste
Galv.	Galvanised
GD	Grated Drain
HD	Heavy Duty
HP	High Point
IL	Invert Level
IO	Inspection Opening
L	Litres
LS	Level Spreader
L/s	Litres Per Second
L/s/m	Litres Per Second Per Metre
LD	Light Duty
m	Meters
m ²	Square Meters
m ³	Cubic Meters
mm/h	Millimetres per Hour
O/F	Overflow
OLF	Overland Flow
OSD	On Site Detention
PDO	Planter Drain Outlet
PL	Pump Line
PVC	Poly Vinyl Chloride
PVC-U	Poly Vinyl Chloride - Unplasticised
RH	Rainwater Head
RHS	Rectangular Hollow Section
RL	Reduced Level
RWT	Rainwater Tank
RWO	Rainwater Outlet
S	Sump
SW	Stormwater Pipe
TB	Thrust Block

GENERAL NOTES:

- All work is to be performed in accordance with AS3500.3 and council codes where applicable.
- The Plumber/ Drainer shall inspect the site and confirm the existing site structures, services and conditions prior to proceeding. If any discrepancies found, contact the engineer for further instructions.
- All underground pipes shall be P.V.C-U, laid at min. 1:100, unless noted otherwise.
- All connections to P.V.C. pipes are to be solvent welded to manufacturers specification
- All prefabricated pits, drains etc. are to be of heavy duty concrete construction unless noted other.
- Precise location of down pipes shall be nominated by others. Locations shown are for hydraulic design purposes only.
- Precise location of pits shall be nominated by others. Locations shown are for hydraulic design purposes only.
- All eaves gutters shall be of minimum cross sectional area of 7800mm² unless noted otherwise.
- This design covers the collection and disposal of rainwater from ROOF AREAS ONLY. Any paved areas not noted on the supplied architectural drawings are not included, unless shown.
- This design does not cover sub surface hydraulic flows.
- The installer is encouraged to use the 'Dial Before You Dig' service prior to excavation. No underground services have been noted or surveyed in this design. Dig at your own risk.
- IF IN DOUBT ASK. Consult the design engineer for any changes, omissions and discrepancies.
- System design has been produced to reflect reduced levels shown on architect supplied drawings.
- Pipe cover for uPVC pipes:
 - a. Single dwellings, no vehicular loading - 100mm
 - b. Single dwellings, vehicular loading without pavement - 450mm
 - c. Single dwellings, heavy vehicular loading on concrete - 100mm below underside of concrete
 - d. Single dwellings, no vehicular loading on un-reinforced concrete/pavers - 50mm below underside of concrete/pavers
 - e. Single dwellings, light vehicular loading on un-reinforced concrete/pavers - 75mm below underside of concrete/pavers
- Silt arrestor pit and rain guards must be regularly inspected and cleaned.
- Location of Stormwater Systems, including downpipes, pipes, pits and rainwater tank are indicative only. Exact locations shall be determined on site to suit site conditions.
- Sub-soil drains for retaining walls shall be installed by the builder and connected to Stormwater lines. All AG Lines shall be 100mm DIA, unless noted otherwise.
- Levels are approximate only. The plumber/drainer shall confirm the levels prior to proceeding. If any discrepancies found, contact the engineer for further instructions.
- Inspection and certification, if required, shall be done prior to backfilling, allow 48 hour notice for the engineer to carry out the inspection.
- Any damage to services during construction shall be repaired immediately at the plumber/drainers own expense.
- Areas & Geometry calculated are approximate and dependent on Surveyors & Architects drawings.
- It is essential that areas calculated are within plus/minus 5% range.
- Provide adequate access and overland flow routes out of property and not into adjoining properties
- Provide minimum 75mm clearance under all gates and operable external doors as to not impede overland flow
- Water entry and backflow into buildings should be prevented at all times
- All finished ground surfaces should fall away from structures
- Charged lines are to be flushed regularly and flush/arrestor pits are to be regularly inspected and cleaned
- All pipes entering a water tank shall have a first flush device installed. First flush device is to be sized as per document "BASIX Interim Rainwater Harvesting Systems Guidelines".
- All water tanks will be insect proofed by others
- If tanked water is being reused for drinking or sanitary purposes, appropriate disinfecting by others should be considered.
- Schedule of calculations is based on plan areas
- Plumber to provide 'leaf guard' or similar over all gutter, rainheads & sumps
- Atlantis Blockade or similar recommended to be installed in all underground pipes to prevent blockages forming in the pipes during the construction phases



LOCALITY PLAN
Not to scale

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DA approval

Rev.	Date	Amendment Description	By	App.
01	20.11.2024	Amended as requested	CO	BM
02	27.11.2024	Amended as requested	CO	BM
03	06.12.2024	Amended as per revised architectural	CO	BM
04	14.03.2025	Amended as per Council's comments	CO	BM
05	26.03.2025	Amended to match driveway long-sections	CO	BM
06	30.04.2025	Amended as per Council's comments	CO	BM



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ARCHITECT:

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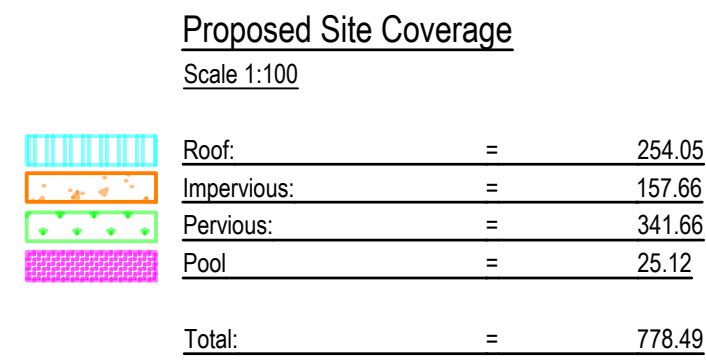
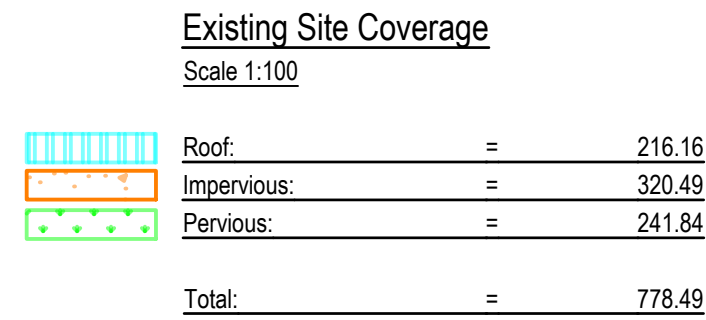
Job Description:

Proposed Additions & Alterations
To Residence

Stormwater Engineering Title:

Concept Stormwater Drainage
Project Information Sheet

Original Sheet Size: A1	Scale: 1:100, 1:20, 1:5	Drawn: NL	Design: CO
Date: November 2024	Job No.: 2425-038	Sheet No.: 01 of 06	Rev.: 06

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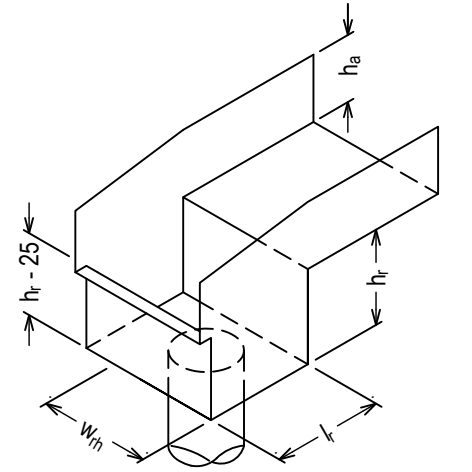
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Stormwater Engineering Title:			
Existing & Proposed Site Coverage			
Original Sheet Size: A1	Scale: 1:100, 1:20, 1:5	Drawn: NL	Design: CO
Date: November 2024	Job No: 2425-038	Sheet No: 02 of 06	Rev: 06

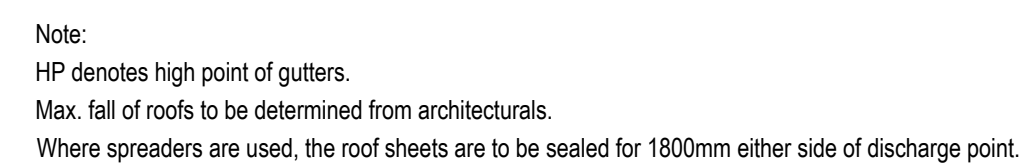


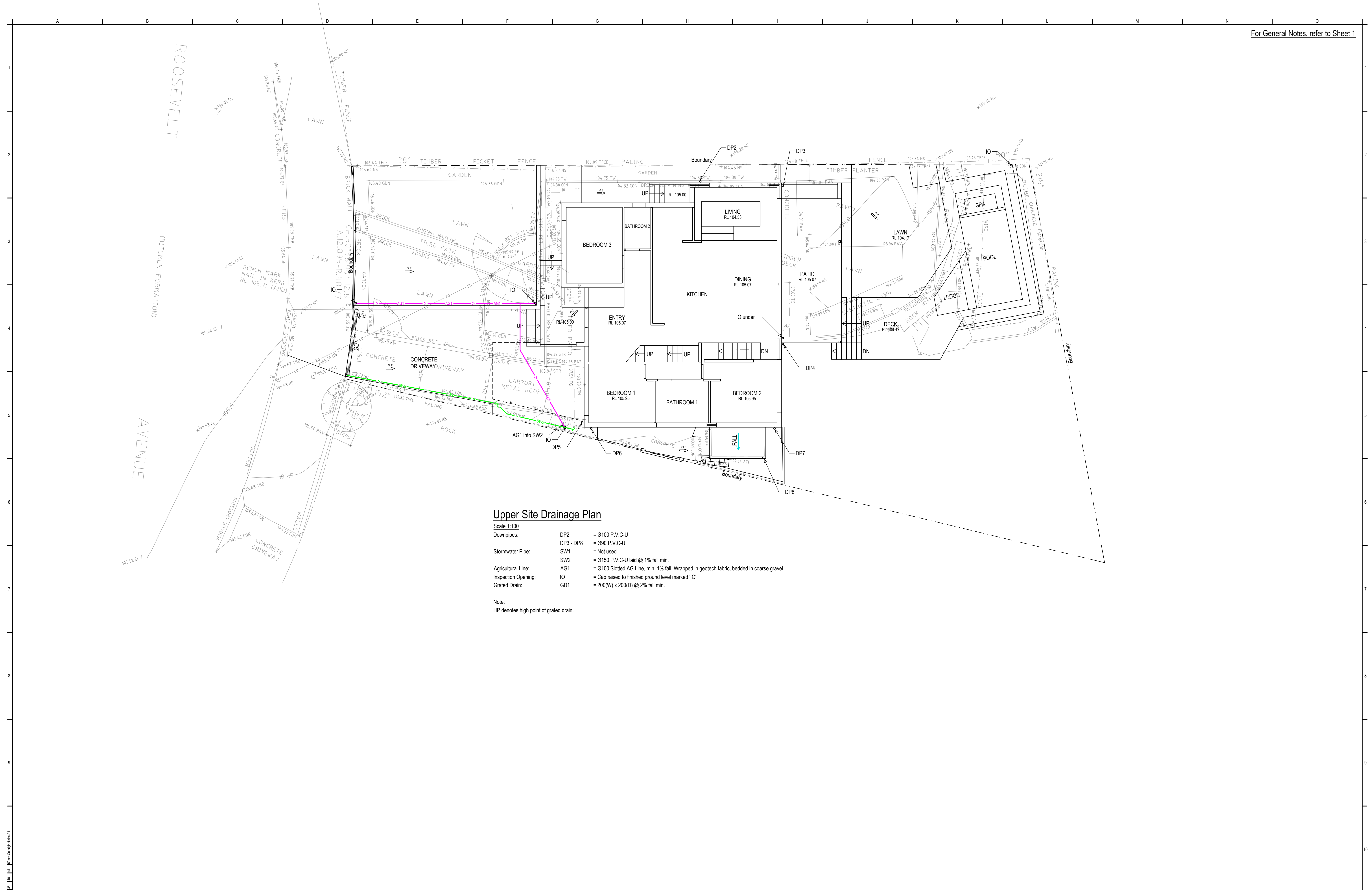
Note:
HP denotes high point of gutters.
Max. fall of roofs to be determined from architectural.

NOT TO SCALE
AS/NZS 3500.3:2015, page 140

Note:

1. All units are in millimetres
2. All values are the minimum required
3. The width of the rainhead is equal to the width of the box gutter
4. Rainhead shall be fully sealed to the box gutter and the front of the Rainhead left open above the overflow weir
5. Min value of $h_f \geq 1.25 D_o$ or $1.25 D_i$





Upper Site Drainage Plan

Scale 1:100

- Downpipes: DP2 = Ø100 P.V.C-U
DP3 - DP8 = Ø90 P.V.C-U
- Stormwater Pipe: SW1 = Not used
SW2 = Ø150 P.V.C-U laid @ 1% fall min.
- Agricultural Line: AG1 = Ø100 Slotted AG Line, min. 1% fall, Wrapped in geotech fabric, bedded in coarse gravel
- Inspection Opening: IO = Cap raised to finished ground level marked 'IO'
- Grated Drain: GD1 = 200(W) x 200(D) @ 2% fall min.

Note:
HP denotes high point of grated drain.

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01	20.11.2024	Amended as requested	CO	BM
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Baikie Corr

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Allambie Heights NSW 2100

Job Description:

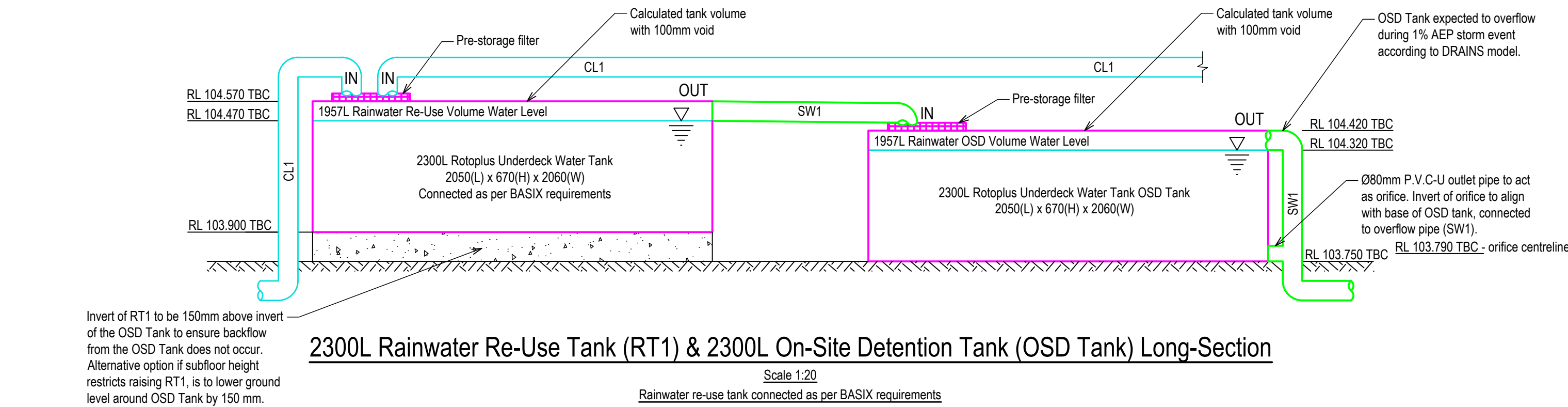
Proposed Additions & Alterations
To Residence

Stormwater Engineering Title:

Upper Site Drainage Plan

Original Sheet Size:	Scale:	Drawn:	Design:
A1	1:100, 1:20, 1:5	NL	CO
Date:	Job No:	Sheet No:	Rev:
November 2024	2425-038	04 of 06	06

SCHEDULE OF CALCULATIONS		
ITEM	VALUE	UNITS
CATCHMENT DATA		
10015 Rainfall intensity - BOM 21-10-24	278	mm/h
2015 Rainfall intensity - BOM 21-10-24	209	mm/h
515 Rainfall intensity - BOM 21-10-24	155	mm/h
Site Area	778.49	m²
EXISTING		
Total Roof Area	216.16	m²
Total Additional Impervious Area	320.49	m²
Total Pervious Area	241.84	m²
Total Pool Area	0.00	m²
Total Runoff for Existing Catchment Q100	48.30	L/s
Total Runoff for Existing Catchment Q20	36.31	L/s
Total Runoff for Existing Catchment Q5	26.93	L/s
PROPOSED		
Total Roof Area	254.05	m²
Total Additional Impervious Area	157.66	m²
Total Pervious Area	341.66	m²
Total Pool Area	25.12	m²
Total Runoff for Proposed Catchment Q100	45.71	L/s
Total Runoff for Proposed Catchment Q20	34.36	L/s
Total Runoff for Proposed Catchment Q5	25.48	L/s
OSD Required as per Northern Beaches Council Water Management for Development Policy Appendix 4, as the primary form of site discharge is a Level Spreader.		
Existing stormwater system discharges via overland flow across rear boundary. Easement refusal letters from downstream property owners as per attached letters (Refer to sheet 06 of 06). On-site Absorption system not feasible due to visible rock outcroppings on surface. Level Spreader and OSD design provided in accordance with Northern Beaches Stormwater Policy Section 5.5.1.2.4 & Appendix 4, to reduce concentrated surface runoff flow into downstream property(s).		
BASIX DATA		
Rainwater Tank Size required by BASIX	1837.50	L
Rainwater Tank Size provided	1957.00	L
Roof Area required to Rainwater Tank	140.00	m²
Roof Area provided to Rainwater Tank	204.22	m²
ON-SITE DETENTION DATA		
Total Existing Site Discharge (20% AEP, 10 min, Storm 8)	24.13	L/s
Total Proposed Site Discharge (1% AEP, 10 min, Storm 1)	45.78	L/s
Permissible Site Discharge, PSD (20% AEP [Q5] state of nature storm event)	17.86	L/s
Total Discharge to OSD Basin (1% AEP, 10 min, Storm 1)	36.55	L/s
Height above orifice	0.65	m
Orifice Diameter	85.00	mm
Orifice Discharge (1% AEP, 20 min, Storm 4)	11.97	L/s
On-Site Detention Volume Required (1% AEP, 20 min, Storm 4)	5.789	m³
On-Site Detention Volume Required with additional 20% for landscaped storage areas as per Northern Beaches Council Water Management for Development Policy Section 9.10.5	6.947	m³
On-Site Detention Volume Provided (without accounting for minimum 1.5% surface slope of OSD Basin)	15.703	m³
On-Site Detention Volume Provided (Accounted for 1.5% minimum surface slope in OSD Basin)	7.088	m³
SITE DISCHARGE DATA		
Total Existing Site Discharge to rear (1% AEP, 5 min, Storm 1)	49.05	L/s
Total Flow Bypassing Level Spreader (1% AEP, 10 min, Storm 1)	7.91	L/s
Total Controlled Flow to Level Spreader (1% AEP, 20 min, Storm 4)	11.97	L/s
Level Spreader Length	7.65	m
Level Spreader Discharge Per Metre (1% AEP, 20 min, Storm 4)	1.57	L/s/m
Total Proposed Site Discharge to rear	19.89	L/s



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AUSTRALIA

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Job Description
Proposed Additions & Alterations
To Residence

Stormwater Engineering Title
Lower Site Drainage Plan

Original Sheet Size A1	Scale 1:100, 1:20, 1:5	Drawn NL	Design CO
Date November 2024	Job No. 2425-038	Sheet No. 05 of 06	Rev. 06

Lower Site Drainage Plan

Scale 1:100

Diagram showing the lower site drainage plan. Key features include: Boundary. DP2. DP3. DP4. DP5. DP6. DP7. DP8. SW1. SW2. SW3. SW4. SW5. SW6. SW7. SW8. SW9. SW10. SW11. SW12. SW13. SW14. SW15. SW16. SW17. SW18. SW19. SW20. SW21. SW22. SW23. SW24. SW25. SW26. SW27. SW28. SW29. SW30. SW31. SW32. SW33. SW34. SW35. SW36. SW37. SW38. SW39. SW40. SW41. SW42. SW43. SW44. SW45. SW46. SW47. SW48. SW49. SW50. SW51. SW52. SW53. SW54. SW55. SW56. SW57. SW58. SW59. SW60. SW61. SW62. SW63. SW64. SW65. SW66. SW67. SW68. SW69. SW70. SW71. SW72. SW73. SW74. SW75. SW76. SW77. SW78. SW79. SW80. SW81. SW82. SW83. SW84. SW85. SW86. SW87. SW88. SW89. SW90. SW91. SW92. SW93. SW94. SW95. SW96. SW97. SW98. SW99. SW100. SW101. SW102. SW103. SW104. SW105. SW106. SW107. SW108. SW109. SW110. SW111. SW112. SW113. SW114. SW115. SW116. SW117. SW118. SW119. SW120. SW121. SW122. SW123. SW124. SW125. SW126. SW127. SW128. SW129. SW130. SW131. SW132. SW133. SW134. SW135. SW136. SW137. SW138. SW139. SW140. SW141. SW142. 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Rev.	Date	Amendment Description	By	App.	 ENGINEERS AUSTRALIA	 DIAL BEFORE YOU DIG www.1100.com.au	COPYRIGHT © This plan and design is the property of HARRISON & MORRIS CONSULTANCY PTY LTD and must not be used, reproduced or copied wholly or in part without written permission from the company. Do not scale drawings. Use figured dimensions only. WHEN IN DOUBT, ASK. It is <u>your</u> responsibility. If HARRISON & MORRIS CONSULTANCY has not been engaged or notified to carry out stormwater inspections, no certificate will be issued.	 HARRISON & MORRIS CONSULTANCY PTY LTD. (A.C.N. 123 191 499 A.B.N. 94 123 191 499) CONSULTING STRUCTURAL & CIVIL ENGINEERS Suite G3, 59-61 Macquarie St, SURFERS HILLS NSW 2155 Tel: 9690 2547 Email: enquiries@harrismorris.com.au	ARCHITECT:	Address:	Job Description:	Stormwater Engineering Title:
01	20.11.2024	Amended as requested	CO	BM					Baikie Corr	5 Roosevelt Avenue Allambie Heights NSW 2100	Proposed Additions & Alterations To Residence	Easement Refusal Letters
02	27.11.2024	Amended as requested	CO	BM								
03	06.12.2024	Amended as per revised architectural	CO	BM								
04	14.03.2025	Amended as per Council's comments	CO	BM								
05	26.03.2025	Amended to match driveway long-sections	CO	BM								
06	30.04.2025	Amended as per Council's comments	CO	BM								
						CLIENT:	Aaron Hawkins & Rebecca Sleeman					
Original Sheet Size:		Scale:	Drawn:		Design:							
A1		1:100, 1:20, 1:5	NL		CO							
Date:	Job No:	Sheet No:		Rev:								
November 2024	2425-038	06 of 06		06								