

WATER CYCLE MANAGEMENT STUDY

**C James
2 Murac St
Goulburn**

5th March 2025

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Table of Contents

1. Site Location	3
• Figure 1 Aerial View	3
• Figure 2 Site Conditions	4
• Figure 3 Site Conditions	4
• Figure 4 Site Conditions	5
• Figure 5 Site Conditions	5
2. Proposed Development	6
3. Catchment details	7
4. MUSIC Parameters & Additional Water Quality Issues	7
5. Proposed Treatment	8
6. Pre & Post Development Comparisons	8
7. Cumulative Frequency Graphs	9
8. Stormwater Concept Plan	11
9. Bioretention Details	12

1. Site Location

The proposed works are to be undertaken at No. 2 Murac St Goulburn. The area of affected catchment is 620 sq.m. The site slopes to the south east towards Murac St & Maud St intersection.. The lot is within an existing residential & commercial area. There are no stormwater treatment measures provided.



Figure1— Aerial View of 2 Murac St Goulburn from maps.six.nsw.gov.au.



Figure 2 – Access from Murac St



Figure 3 – Access from Maud St



Figure 4 – Existing site conditions



Figure 5 – Discharge point to the kerb

2. Proposed Developments

SITE CHARACTERISTICS	
Site Location:	2 Murac St Goulburn
Drinking Water Catchment:	8 - Mulwaree River
Rainfall & PET Zone:	1
Affected Catchment Area:	0.062 Ha
Pre Development Site gradient:	1-2%
Post Development Site Gradient:	1-2%
Soil Landscape:	Clay Loam
Existing watercourses through the site?	No
Overland flow draining onto the site?	No
Soils suitable for infiltration?	Yes
Site sewerred?	Yes
Pre Development Details	
Pre development characteristics:	The site is currently used for truck parking & storage of materials, an existing 50 sq.m shed is on the site with the remainder a trafficable gravel surface
Post Development Details	
Development characteristics:	A new industrial building is to be built with sealed driveway & parking areas

3. Catchment Details

The site slopes from the west to the south east & towards the Murac St & Maud St intersection. The existing site discharges as overland flow to the kerb.

Catchment areas are based on flow paths to discharge point. Pre development as single treatment train & post development flows are through a bio retention basin.

Land use / Surface area	Total Area (Ha)		
Pre Development			
Gravel Access Driveway	0.057		
Shed Roof	0.005		
Total	0.062		
Post Development		Bioretention	Untreated
Roof	0.041	0.041	
Pavement	0.018	0.168	
Overland flow untreated	0.003		0.003
Total	0.062		

4. MUSIC Parameters & Additional Water Quality Issues

The site is located in the Mulwaree River Catchment & so rainfall data for Zone 1 was used for the meteorological template.

Default rainfall threshold values from Table 4.3 of Using MUSIC in Sydney's Drinking Water Catchment were used for Roofs, sealed roads & unsealed roads.

The dominant soil type would be described as Clay loam & the corresponding data was used for pervious area parameters from Table 4.4 of Using MUSIC in Sydney's Drinking Water Catchment.

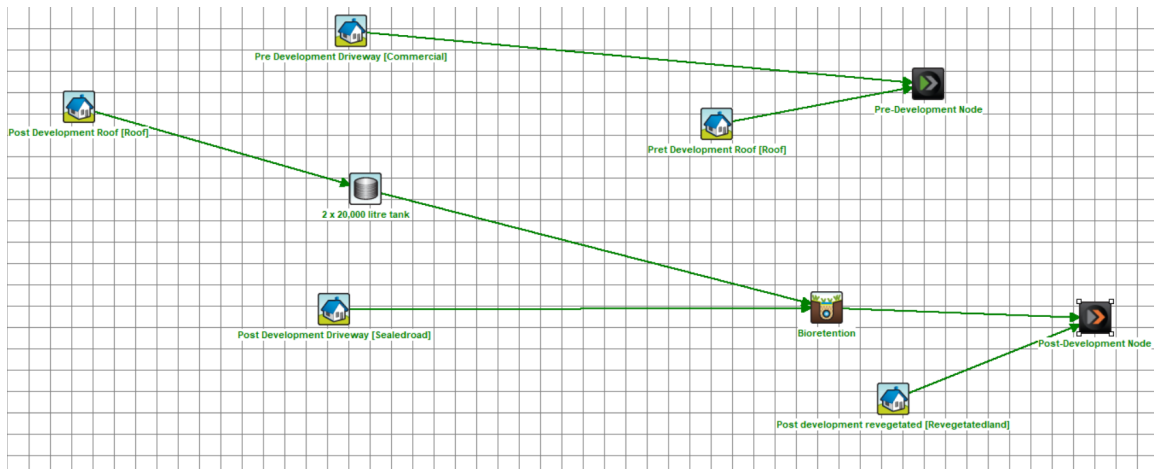
Stormwater pollutant parameters from Table 4.6 & 4.7 of Using MUSIC in Sydney's Drinking Water Catchment. were used for roofwater run off & sealed roads run off.

5. Proposed Treatment

This section should be read in conjunction with the attached drawings 01-36227 issue A dated 5th March 2025

- Roofwater from the building will be piped through charged lines into 2 water tanks with a combined 40,000 litre capacity, with harvested water to be re used for toilet flushing , external hose cocks & irrigation purposes.
- Overflow from the rainwater tanks will be piped directly to a bio retention basin, with 5 sq.m. of filter material 300mm deep & 38 sq.m. of extended detention 100mm deep.
- Overland flows from the driveway & parking will be graded to the bio retention basin.
- The discharge from the bio retention basin will be piped to the kerb in Murac St.

6. Pre & Post Development Comparisons



Results post development after modelling treatment procedures;

	Pre Development	Post Development	% reduction
Flow (ML/yr)	0.217	0.205	
Total Suspended Solids (kg/yr)	32.5	1.71	94
Total Phosphorus (kg/yr)	0.057	0.016	72
Total Nitrogen (kg/yr)	0.457	0.184	59
Gross Pollutants (kg/yr)	7.93	0	

The above results would suggest that the development with the proposed treatment would achieve a beneficial effect on the quality of water discharged from the site.

7. Cumulative Frequency Graphs

