

WATER CYCLE MANAGEMENT STUDY

8 Lot Subdivision

Lot A DP 5411

34 Hillas St

Taralga

20th September 2023

ADAMS & ASSOCIATES – HYDRAULICS

Phone : 0414 873 354

Email: rob@adamshydraulics.com.au

**Po Box 2094
Malua Bay
NSW 2536**

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1. Site Location

The site, Lot A DP 5411, No. 34 Hillas St Taralga is currently used for agistment of horses, the lot size is 1.8 Ha in area as shown below. The site slopes to the south east to Hillas St & Macarthur St intersection, there is an existing dam on site which is to be filled in & a drainage depression runs through the site graded to the south eastern corner.



Figure1— Aerial View of 34 Hillas St from maps.six.nsw.gov.au



Figure 2 – Hillas St frontage



Figure 3 – Macarthur St Footage



Figure 4 – Existing dam



Figure 5 – Existing Discharge

2. Proposed Developments

SITE CHARACTERISTICS	
Site Location:	34 Hillas St Taralga
Drinking Water Catchment:	14 - Wollondilly River
Rainfall & PET Zone:	1
Affected Catchment Area:	1.8 Ha
Pre Development Site gradient:	1-4%
Post Development Site Gradient:	1-4 %
Soil Landscape:	Clay Loam
Existing watercourses through the site?	Yes a drainage depression runs from Taralga Rd to the south eastern corner & is to be realigned centred within a 20m easement
Overland flow draining onto the site?	No
Soils suitable for infiltration?	Yes
Site sewerred?	Yes
Pre Development Details	
Pre development characteristics:	The site is used for agricultural purposes, currently for the agistment of horses
Post Development Details	
Development characteristics:	An 8 Lot rural residential subdivision is proposed for the site

3. Catchment Details

The site slopes from the north & west to the south east corner towards the intersection of Hills St & Macarthur St

Catchment areas are based on flow paths to discharge point. Pre & Post development as single treatment trains

Land use / Surface area	Total Area (Ha)
Pre Development	
Overland Flow	1.8
Total Catchment	1.8
Post Development	Total
Roadway	0.120
Overland flow	1.68
Total	1.8

4. MUSIC Parameters & Additional Water Quality Issues

The site is located in the Wollondilly 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.

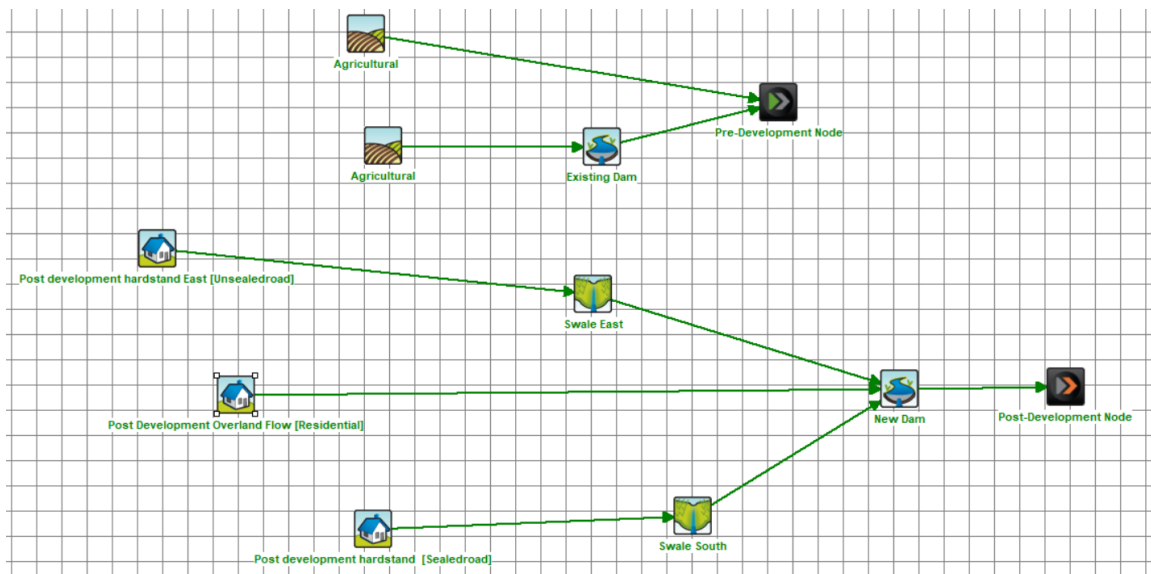
Stormwater pollutant parameters from Table 4.6 & 4.7 of Using MUSIC in Sydney's Drinking Water Catchment. were used for roofwater run off & sealed roads run off.

5. Proposed Treatment

This section should be read in conjunction with the attached drawing 01-36152 issue A dated 20th September 2023

- An existing drainage depression runs through the site, it is to be realigned centrally within a 20m wide easement. An existing dam with surface area of 140 sq.m. is to be filled in.
- A new pond is to be constructed in the South East corner of the site, with 140 sq.m. of surface area, 100mm of extended detention & permanent storage capacity of 50 cu.m.
- The driveway runoff & flows off the site will be directed as overland flow through swales into the pond as above
- Inter allotment drainage is provided with a discharge point on each of the residential lots
- The discharge from the pond & the inter allotment drainage is piped to councils drainage cnr. of Hills & Macarthur St.

6. Pre & Post Development Comparisons



Results post development after modelling treatment procedures;

	Pre Development	Post Development	% reduction
Flow (ML/yr)	1.29	1.53	
Total Suspended Solids (kg/yr)	101	69.7	30
Total Phosphorus (kg/yr)	0.343	0.206	40
Total Nitrogen (kg/yr)	2.84	2.13	25
Gross Pollutants (kg/yr)	0	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

