

STORMWATER DESIGN STATEMENT

REF: 17DZ1289.DSWC1

March 28th, 2017

PROJECT: PROPOSED NEW DEVELOPMENT

LOCATION: 29-31 CASTLEREAGH STREET, PENRITH

ELEMENTS: INTERNAL STORMWATER DRAINAGE SYSTEM AND MUSIC MODELLING

ZAIT Engineering Solution Pty Ltd have been engaged by the owner of the subject property to undertake the stormwater design of the proposed new development at 29-31 Castlereagh Street, Penrith.

ZAIT Engineering Solutions Pty Ltd have modelled the catchment in MUSIC in accordance with the following guidelines & parameters. These are;

- Music version 6.1.0
- "Penrith City Council WSUD Technical Guidelines", Version 1 (Dec 2013)
- SF Chamber node modelled with 'k' values set to 1
- Rainfall Station 67113 Penrith Lakes Aws, 6 Minute Time Step From 1999 To 2008
- Penrith City Council Source Node(s) utilizing modified % impervious area, rainfall threshold, soil properties & pollutant concentrations
- No drainage routing between nodes.

We have modelled the systems to meet the current Penrith City Council WSUD Technical Guideline targets of;

- 85% TSS Reduction
- 60% TP Reduction
- 45% TN Reduction.

Treatment Systems Required

As per the MUSIC design the following Stormwater360 products are required for the project. These are;

- **Supply of 5No. EnviroPods Series 200 filters by Stormwater360,**
- **Supply & Installation of 6-cartridge (460mm PSorb) Detention StormFilter system.**

In addition to using our own devices we have also modelled detention as part of the treatment train of devices. Details are;

- StormFilter Chamber utilising 6.5m² of surface area within the tank for cartridge installation.

All treatment systems create a hydraulic loss in order for them to function as per design. Stormwater360 does not quote k factors and only provides the following hydraulic losses at full treatment flow. These are;

- 310mm Cartridge – 550mm hydraulic loss
- 460mm Cartridge – 700mm hydraulic loss
- 690mm Cartridge – 930mm hydraulic loss

In the case of Detention StormFilters the hydraulic drop in the tank for detention purposes will provide the necessary hydraulic losses and driving head for the cartridges to function as per design.


Our conceptual design is based on the detention tank being connected with pipes from the total catchment areas. The cartridges will be located within a section in the detention tank which discharges to the stormwater. There will need to be access to the detention tank via a manhole to access the cartridges for periodic maintenance.

ZAIT Engineering Solutions Pty Ltd have designed the stormwater drainage in accordance with Council's Stormwater Management Specifications and the general requirements as AS3500.3.

Drawing number **17DZ1289/D01 - D12 Issue A** was issued for Development Application purposes.

Please note this is not a Part 4a certificate.

Signed _____


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