



**Eastlakes Town Centre Redevelopment
Evans Avenue and Barber Street
Eastlakes**

Stormwater Management Report

**Prepared By
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1. Introduction

This report has been prepared to supplement the Eastlakes Town Centre redevelopment application.

The scope of this report includes a comprehensive assessment of requirements for stormwater management for the proposed redevelopment. The report describes the principles and operation of the proposed stormwater system as well as the primary components of the drainage. The proposed measures are preliminary and are not for construction. Final plans will be prepared in conjunction with the construction certificate and will require concurrence from Botany Bay Council.

The stormwater management works will include the following;

1. Relocation of two drainage easements on the southern site;
2. A system of pipe designed to collect stormwater runoff from minor and major storm events;
3. On-site detention.

The water quality and rainwater harvesting characteristics of this development have been outlined in the Water Quality Report and will not be covered in this report.

Information on following documents has been used for this investigation:

- Concept Architectural drawings by Rice Daubney
- Concept Civil drawings by VDM Consulting Engineers
- City of Botany Bay – Guidelines for the design of stormwater drainage systems within City of Botany Bay.

2. Existing Site Details

2.1 Location

The proposed development is situated approximately 200m south of Gardeners Road, Eastlakes. It comprises of 2 sites, the northern of which (Site 1) is located adjacent to Gardeners Road and Evans Avenue, and the southern site (Site 2) is bordered by Evans Avenue, Barber Avenue and Eastlakes Reserve.



Figure 1 - Site Location

2.2 Site Characteristics

The existing site 1 is 0.6 ha in area and consists of a number of small shops along the northern boundary with the remainder of the site a carpark grading towards Evans Avenue. The site is graded from approximately RL 20.1 in the north eastern corner of the carpark to RL 18.0 in the south west at approximately 2.5%.

The existing site 2 is 1.8 ha in area and consists of a medium to large shopping centre. The primary structure on the site is a single story trading floor with underground parking and a small portion of rooftop parking. The remainder of the site is a small single story structure with an outdoor carpark adjacent to Evans Ave and Eastlakes Reserve. The site grades from northeast to southwest from RL 18.6 to RL 16.4 respectively.

Currently site 1 discharges stormwater into an existing 375 diameter pipe in Evans Avenue and site 2 discharges stormwater into an existing 825 diameter pipe in Barber Avenue. The location of these discharge points are shown on drawing DA011 and DA013 in Appendix 1.

3. Stormwater Control

The proposed development consists of a single level trading floor shopping centre with 2 levels of basement parking. Levels above include numerous apartment blocks of varying sizes surrounding a central courtyard.

3.1 Design Guidelines

The development stormwater management and planning elements are to be designed and constructed in accordance with following where not otherwise specified by Council:

1. Guidelines for the design of stormwater drainage systems within City of Botany Bay Section 5.1 – Minimum Design Storm Criteria;
2. Guidelines for the design of stormwater drainage systems within City of Botany Bay Section 4.0 – Stormwater Reuse.

3.2 Proposed Stormwater Drainage

The drainage system for the proposed development shall be designed to collect all concentrated flows from impermeable surfaces such as courtyards and roof structures. Where practical, runoff will also be collected from pervious areas.

The proposed system for the development includes:

- Stormwater pipes designed to collect runoff from minor and major storm events.
- Stormwater detention.
- Roofwater harvesting & retention.

3.2.1 On-site Stormwater Detention (OSD)

Council has required that all stormwater events shall not exceed the 1 in 5 year peak flow event under 'State of Nature' condition. All storm flows as such are to be reduced by means of an on-site stormwater detention system. The 'State of Nature' flows and the minimum storages required have been specified in drawing DA011 and DA013 in Appendix 1.

3.2.2 Stormwater Re-use

City of Botany Bay requires the re-use of stormwater for non-potable uses (Guidelines for the Design of Stormwater Drainage Systems within City of Botany Bay - Section 4 Stormwater Re-use). All roofwater is to be diverted to the rainwater tanks immediately upstream of the onsite detention tanks. The rainwater tanks for Site 1 and 2 are 40k and 100k litres respectively. The rainwater tank details have been outlined in Section 3.3 of the Music report submitted with this application.

4. Stormwater Easement Diversion

The existing development has two stormwater easements running through Site 2, refer Figure 1 for locations. The City of Botany Bay Council does not allow construction over drainage easements and as such the easements are to be diverted.

The western easement connects to a drainage pipe crossing Evans Avenue on the North West corner of Site 2. The easement runs adjacent to the western boundary of Site 2 for a distance of approximately 95 m, then turns right angles to cross Eastlakes Reserve. It is proposed to divert the pipe within the road reserve west along Evans Avenue and then south through Eastlakes Reserve. The path chosen for the pipe has been selected to best preserve the existing trees within the park. The existing 525 mm diameter pipe will be replaced by a 600 mm diameter reinforced concrete pipe (RCP) that will convey the upstream flows around Site 2.

The southern easement contains a pipe that connects a pit on Barber Avenue at the south east corner of Site 2 through to a pit near the intersection of St Helena Parade and Barber Avenue. This pipe is proposed to be diverted along the road under the existing kerb and gutter. Two additional pits will be constructed along Barber Avenue to divert the replacement 600 mm diameter pipe around the south east corner of Site 2 to the existing downstream 750 diameter pipe.

For details on the relocation of easements refer to drawings DA012 and DA013.

5. Conclusion

The proposed development meets the following council design requirements as nominated in the Guide to Design of Stormwater Drainage for the City Of Botany Bay:

- All pipes designed to contain a minimum of the 1 in 20 year peak event,
- Overland flow path accommodating the 1 in 100 year peak event,
- The On-Site stormwater detention tanks will reduce the maximum design peak flow such that it does not exceed the 1 in 5 year peak flow event under 'State of Nature' condition;
- All roofwater to be directed to rainwater reuse tanks and rainwater tanks provided exceed the minimum volume requirements of 1 litre for every 1 sq.m of roofed area;
- Diverted stormwater pipes match or exceed existing pipe sizes and will have no adverse effects on the upstream drainage system.

The use of on-site detention and rainwater reuse tanks will greatly improve downstream drainage conditions by reducing all flows entering the council stormwater drainage.

Appendix 1 Civil Plans
