



# **Eastlakes Shopping Centre Early Works SSDA Integrated Water Management Plan**

**CLIENT/ Builtcom Developments Eastlakes Pty Ltd**

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# 1. Introduction

This report supports the State Significant Development Application (SSDA) (SSD-105575706) for the construction of a mixed-use residential building at 19A Evans Avenue, Eastlakes (the site). The site is also known as Eastlakes Town Centre or Shopping Centre – Stage 2 or legally described as Lot 30 in DP 1246820 within Bayside Council LGA.

The proposal aims to:

- Enable site establishment, erosion and sediment control, tree removal, bulk excavation, remediation and basement retention to ensure the site is suitable for the future proposed mixed-use development.
- Facilitate the early works required for the site under MP09\_146 relating to the sites stage 2 development, which will establish a vibrant mixed-use precinct.

## 1.1. Site Description

The site is located at 19A Evans Avenue, Eastlakes. It is situated within the Bayside Council LGA and is located approximately 6.0km south of the Sydney CBD and 3.5km North East to Sydney Airport. The site forms stage 2 (south stage) of the Eastlakes Shopping Centre redevelopment, consisting of one lot which is legally described as Lot 30 DP 1246820. An aerial photo of the site is shown at Figure 1 below.



**Figure 1 Site Aerial Map**

Source: Nearmaps,

## 1.2. Early Works SSDA

There is an existing approval on the site (MP09\_0146, and associated modifications) granted in 2013 that allows for basement excavation and construction of a mixed-use development. Works have recently commenced on site including demolition of existing structures and basement excavation under this approval.

A new State Significant Development (SSD) approval (SSD-105575706) is sought for 'Early Works' for the following:

- Site establishment
- Erosion and sediment control
- Bulk excavation
- Construction and anchoring of piled shoring wall and capping beam
- Infrastructure services coordination and deviation

This Early Works application will be followed by a later separate 'Main Works' SSDA for the mixed-use development (the buildings).

## 1.3. Secretary's Environmental Assessment Requirements

In accordance with section 4.39 of the Environmental Planning & Assessment Act 1979 (EP&A Act), Secretary's Environmental Assessment Requirements (SEARs) (SSD - 1246820) have been issued. This report has been prepared to respond to the issued SEARs, as set out in the table below.

*Table 1 SSD- 1246820 SEARs*

| <b>SEAR</b>                                                                                                                                                                                                                                                   | <b>Response / Location Addressed in Report</b>                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>11. Water Management</b> <ul style="list-style-type: none"> <li>■ Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development</li> </ul>                                                                | <ul style="list-style-type: none"> <li>■ Drainage design has been discussed in detail in Section 4 of this report. Electrical, gas, sewer and potable water infrastructure is present around site on, Evans Ave and Barber Avenue for the development to connect into.</li> </ul>                                                       |
| <ul style="list-style-type: none"> <li>■ Demonstrate how the development complies with council's drainage requirements and identify proposed stormwater treatment and water quality management measures to minimise adverse environmental impacts.</li> </ul> | <ul style="list-style-type: none"> <li>■ Council drainage requirements have been complied with as discussed in Section 4 of this report. On-Site Detention tanks have been designed as per Bayside Council requirements and stormwater treatment devices have incorporated to achieve Council's pollutant reduction targets.</li> </ul> |

## 2. Scope of Report

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The scope of this report is to discuss the water management strategy for this site, including:

- Stormwater management, including On-Site Detention (OSD);
- Water Sensitive Urban Design; and
- Sediment and Erosion Control

### 2.1. Supporting Documentation

The following documentation should be read in conjunction with this report:

- Architectural SSDA drawings by CQ Studio (Ref: DA02-070 to 301)
- Civil Engineering Drawings by AT&L (Reference: DA2000 series)

## 3. Flooding

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The proposed flooding for the development will be addressed in the main works SSDA which will include pre and post development flood analysis for the building and public domain works. This is due to the early works SSDA scope being limited to the excavation and in-ground structural support on management of construction soil and water management as addressed in this report.

Refer to the flood impact risk assessment prepared for the earlyworks by ADP for more information on the flood planning requirements associated with the basement excavation.

## 4. Stormwater Management

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### 4.1. Design Criteria

The design criteria has been adopted from the requirements stipulated in the following documents:

- Bayside Council Development Control Plan (DCP) 2022
- Bayside Council Technical Specification – Stormwater Management April 2023
- Managing Urban Stormwater Soil and Construction (2004) by Landcom ('The Blue Book')
- AS/NZS3500.3 (2025) Plumbing and Drainage
- Australian Rainfall and Runoff (ARR) 2019

#### 4.1.1. Hydrology

As per Bayside Council requirements, this stormwater network has been preliminarily designed by AT&L to accommodate both a minor (5% AEP) and major (1% AEP) storm event as outlined by clause 3.4.2 in the Bayside Council Technical Specification.

DRAINS is used as the hydrology and hydraulic modelling software. The ILSAX method has been utilised when modelling the stormwater network within DRAINS.

Further parameters include:

- Rainfall intensities have been sourced from Bureau of Meteorology's (BOM) rainfall IFD Data System.
- Runoff coefficients shall be calculated in accordance with the ARR.
- Blockage factors have been considered as 20% and 50% for on-grade and sag pit respectively.

#### 4.1.2. Hydraulics

- A hydraulic grade line HGL design method shall be adopted for pipe drainage design and will be shown on long sections.
- All pipes shall be a minimum Class 4 RCP under council roads unless otherwise approved by Council Engineers.
- Minimum pipe size for public domain is to be DN375 RCP.
- All RCP pipes to be constructed to include rubber ring joints.
- Pipe cover to be minimum 600mm in roadways, and 400mm in footpath and landscaped areas.
- Minimum internal grade of 1% is to be adopted for design. A maximum of 10% is to also be adopted.
- Pipe friction coefficients to be adopted in the DRAINS model will be the standard coefficients set. See table below outlining pipe model properties.

*Table 2- Pipe Details*

| Material | Mannings – n | Colebrook-White - k | Minimum Pipe Class U.N.O |
|----------|--------------|---------------------|--------------------------|
| RCP      | 0.013        | 0.3                 | 4                        |

- All pipes shall be designed for the ultimate service loads and where applicable, construction loads will be accounted for.
- Where tailwater level is unknown, a 150mm freeboard has been adopted for the purpose of design.
- Maximum overland flow limit for pedestrian and shared zone is 50mm deep 1.5m wide and a maximum velocity of 0.4m<sup>2</sup>/s.

#### 4.2. Proposed Stormwater Drainage

The proposed stormwater drainage for the development will be addressed in the main works SSDA which will include On-Site Detention Tanks, WSUD treatment train and construction soil and water management. This is due to the early works SSDA scope being limited to the excavation and in-ground structural support on management of construction soil and water management as addressed in this report.

## 5. Sediment and Erosion Control

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### 5.1. Sediment and Erosion Control (Construction)

This Stormwater Management Plan has been prepared in accordance with the Landcom's Managing Urban Stormwater- Soils and Construction (2004) and the relevant Council guidelines.

### 5.2. Sources of Pollution

The activities and aspects of the works that have potential to lead to erosion, sediment transport, siltation and contamination of natural waters include:

- Earthworks undertaken immediately prior to rainfall periods.
- Work areas that have not been stabilised.
- Clearing of vegetation and the methods adopted, particularly in advance of construction works.
- Stripping of topsoil, particularly in advance of construction works.
- Bulk earthworks and construction of pavements.
- Works within drainage paths, including depressions and waterways.
- Stockpiling of excavated materials.
- Storage and transfer of oils, fuels, fertilisers and chemicals.
- Maintenance of plant and equipment.
- Ineffective implementation of erosion and sediment control measures.
- Inadequate maintenance of environmental control measures; and
- Time taken for the rehabilitation / revegetation of disturbed areas.

### 5.3. Potential Impacts

The major potential impacts on the riparian environment relate to erosion of distributed areas or stockpiles and sediment transportation. Potential adverse impacts from erosion and sediment transportation can include:

- Loss of topsoil.
- Increased water turbidity.
- Decreased levels of dissolved oxygen.
- Changed salinity levels.
- Changed pH levels.
- Smothering of stream beds and aquatic vegetation.
- Reduction in aquatic habitat diversity.
- Increased maintenance costs; and
- Decrease in waterway capacity leading to increased flood levels and durations.

### 5.4. Construction Methodology

The following construction methodology will be followed to minimise the impact of sedimentation due to construction works:

- Diversion of "clean" water away from the disturbed areas and discharge via suitable scour protection.
- Diversion of sediment-laden water into temporary sediment control tanks/basins to capture the design storm volume and undertake flocculation (if required).

- Provision of construction traffic shaker grids and wash-down facilities to prevent vehicles carrying soil beyond the site.
- Provision of catch drains to carry sediment-laden water to sediment tanks/basins.
- Provision of silt fences to filter and retain sediments at source; and
- Provision of geofabric filters to new stormwater pits to retain sediments at source; and
- Where future construction and building works are not proposed, the rapid stabilization of disturbed and exposed ground surfaces with turf or hydro-seeding.

## 5.5. Site Inspection and Maintenance

The inspection and maintenance requirements outlined in this section must be carried out while either earthworks or quarrying is being conducted, and all areas re-established.

The Contractor will be required to inspect the site after every rainfall event and at least weekly, and will:

- Inspect and assess the effectiveness of the SWMP and identify any inadequacies that may arise during normal work activities or from a revised construction methodology. Construct additional erosion and sediment control works as necessary to ensure the desired protection is given to downstream lands, drainage systems, and waterways.
- Ensure that drains operate properly and to affect any repairs.
- Remove spilled sand or other materials from hazard areas, including lands closer than 5 metres from areas of likely concentrated or high velocity flows especially waterways and paved areas.
- Remove trapped sediment whenever less than design capacity remains within the structure.
- Ensure rehabilitated lands have affectively reduced the erosion hazard and to initiate upgrading or repair as appropriate.
- Maintain erosion and sediment control measures in a fully functioning condition until all construction activity is completed and the site has been rehabilitated; and
- Remove temporary soil conservation structures as the last activity in the rehabilitation.

## Appendix A – Civil Drawings

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### **NORTH SYDNEY**

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