

Report

Civil Design Report

48-50 Eurobin Avenue, Manly NSW

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Client Stella Maris College c/- Mostyn Copper

Project Stella Maris College

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Contents

1	Introduction4					
	1.1 E	Background	4			
2	The	1e Site5				
3	Proposed Development					
4	Civ	<i>v</i> il Services				
	4.1	Purpose of this Document	8			
	4.2	Reference Documents	8			
	4.3	Civil Scope of Work	8			
	4.4	Limitations	8			
	4.5	Design Criteria	9			
5	Flo	ooding10				
6	5 Proposed Stormwater Drainage12					
	6.1 5	Stormwater Drainage Design Requirements	12			
	6.2	Proposed Stormwater Drainage System	12			
	6.3	On-Site Detention	13			
7	Wa	Nater Quality Management Plan14				
8	Erosion and Sediment Control14					



1 Introduction

SCP Consulting has been engaged by Mostyn Copper on behalf of Stella Maris College to prepare the civil and stormwater design for development application for the proposed development at 48-50 Eurobin Avenue, Manly NSW.

1.1 Background

The development site is in the Northern Beaches Council Local Government Area (LGA). The site is bound by Eurobin Avenue to the north, Stella Marist College to the east and existing residential lots to the south and west. The site currently accommodates residential properties. Refer to Figure 1 below for the site locality.



Figure 1 – Site Locality (Nearmap)



2 The Site

A desktop review was carried out in order to determine the existing drainage infrastructure servicing the development site. A review of Northern Beaches Council's Mapping presented that no existing stormwater drainage is within close proximity to the subject site.

Due to the limited stormwater infrastructure the existing stormwater discharge from these sites is directly to the adjacent kerb and gutter in Eurobin Avenue as is typical of residential streets.

Refer to Figure 2 below for proximity of existing stormwater infrastructure.



Figure 2 – Existing Stormwater Infrastructure (Source: Northern Beaches Council's Mapping)





Figure 3 – Street Frontage View – 50 Eurobin Ave (Source: Google Earth)



Figure 4 – Street Frontage View – 48 Eurobin Ave (Source: Google Earth)



3 Proposed Development

The proposed development proposes to install eight (8) demountable buildings across the site including paths, verandas and landscape. to. Primary access to the demountables will be provided from the adjacent Eurobin Avenue pedestrian footpath.

Refer to Figure 5 for the proposed site plan.



Figure 5 – Site Plan (Source: Platform Architects – A1.03)



4 Civil Services

4.1 Purpose of this Document

The purpose of this document is to describe the civil stormwater services in relation to the development at 48-50 Eurobin Avenue, Manly.

4.2 Reference Documents

This report is based on the following reference documents:-

- Survey Plan by SDG Pty Ltd, undertaken 08/11/2022;
- Geotechnical Report by JK Geotechnics, completed for the adjacent site dated 17 October 2014 (reference 27774ZRpt);
- JDH Architects DA Drawing Set, dated 06/12/2022 and;
- Dial Before You Dig.

4.3 Civil Scope of Work

The Civil Services scope of work consists of the following:-

- Flooding and associated protection works;
- Proposed connection to Council stormwater drainage system;
- Proposed site stormwater drainage design;
- WSUD requirements and;
- Erosion and Sediment control.

The Civil scope for proposed stormwater drainage shall comprise of the in-ground pit and pipe network external to the building and external overland flow paths. For stormwater drainage associated with demountables, refer to the Hydraulic Engineer's design documentation.

4.4 Limitations

This report is based primarily on the information provided by the architect, design team, survey drawings, Dial Before You Dig data, and information communicated during the design development process. Any assumptions made through the design process have been communicated in this report.



4.5 Design Criteria

Table 1: Civil Design Criteria

ITEM	DESIGN CRITERIA		
	NSW Floodplain Development Manual		
Flooding	Northern Beaches Council Water Management for Development Policy		
	Flood Information Report for 48 and 50 Eurobin Avenue, Manly		
Stormwater Quality	Northern Beaches Council Water Management for Development Policy		
Sediment and Erosion Control	Landcom 'Blue Book' – Managing Urban Stormwater Soils and Construction Guideline Edition 4		
On-Site Absorption (OSA)	Northern Beaches Council Water Management for Development Policy		
	Australian Rainfall and Runoff (ARR) 2019		
Stormwater Drainage	AS/NZS 3500.3-2015 – Stormwater Drainage		
	Northern Beaches Council Water Management for Development Policy		



5 Flooding

Flood Information reports were obtained from Council for both 48 and 50 Eurobin Avenue which has identified the development site to be flood affected in the 1% AEP and PMF storm event. The flood level for the 1% AEP and PMF storm event is RL 3.14m AHD and RL 5.62m AHD, respectively. Figures 6 and 7 below present the 1% and PMF flooding respectively.



Figure 6 - 1% AEP Flood Extent Map – 48 Eurobin Avenue (Source: NBC Flood Information Report)



Figure 7 - PMF Flood Extent Map – 48 Eurobin Avenue (Source: NBC Flood Information Report)



In accordance with the Flood Information Reports received from Northern Beaches Council, the flood planning level (FPL) is 3.64m AHD (1% AEP flood level plus 0.5m freeboard). All electrical connections, air conditioning units and external power points are to be set above the FPL.

The new development has been designed to adhere to the following development controls:

- Any new portion of the building that is lower than the applicable Flood Planning Level (FPL) must be built from flood compatible materials specified by the structural engineer
- All new services associated with the development shall be flood proofed to the habitable floor level.
- Structures up to the habitable floor must be able to withstand the forces of floodwater, debris, and buoyancy in a 1% AEP flood event, as determined by suitably qualified engineer.

The flooding shown in Figure 6 confirms that the extent of flood impact is experienced across the whole of 48 Eurobin Avenue. It is proposed to build up the demountable buildings on piers so that flood waters can flow under the buildings removing any change to the flood conditions experienced in the current site and surrounds.

A flood evacuation plan has been prepared with consultation from council's Project Engineer. The evacuation route consists of ramp leading from the eastern entrance of the proposed demountable building to the adjacent existing Scholastica Building and the southern side of the campus. The evacuation route shall be entirely above the flood planning level.

In addition, an automatic alarm shall be set at the 5% AEP flood level. At least one designated flood watch personnel shall be on-site all times during school operating hours. The flood watch personnel shall monitor the SES published flood warning and the flood alarm, begin to prepare the evacuation once the flood depth reaches the 5% AEP level and evacuate via the proposed evacuation route. All staff working at the demountable building shall be inducted with the flood evacuation plan.

As the flooding at the site is determined to be lagoon flooding due to the back-rising from Manly Creek, evacuation at 5% AEP flood event will provide sufficient respond time prior to 1% AEP and PMF events. The proposed evacuation route is above the FPL and fully within Low Risk Precinct, therefore provides safe evacuation for the occupants.

Refer to Appendix A for the Flood Information Reports and Appendix B for the flood evacuation route.



6 Proposed Stormwater Drainage

6.1 Stormwater Drainage Design Requirements

6.1.1 Stormwater Drainage Requirements

With reference to Northern Beaches council's Water Management for Development Policy; the stormwater requirements are as follows: -

- The minor (piped) drainage system must be designed to convey stormwater runoff for storm events up to, and including, the 5% Annual Exceedance Probability (AEP) storm event, and;
- The major (overland) drainage system must be designed to convey stormwater runoff for storm events up to, and including, the 1% AEP storm event.

6.1.2 On-Site Detention (OSD) Requirements

With reference to the Northern Beaches Council's Water Management for Development Policy, OSD is to be provided in the form of infiltration, where feasible, or detention to limit site discharge. OSD is not required for proposed developments where the site of the development is located within a Council established 1% AEP flood plain.

6.2 Proposed Stormwater Drainage System

The proposed site development area is 0.0935Ha. The proposed demountable roof areas will be captured through downpipes which will connect directly into the stormwater drainage system proposed across the site.

The existing kerb outlets for both 48 and 50 Eurobin Avenue are to be retained and reconstructed as RHS connections with flows to each outlet design to be no greater than 30 L/sec discharge are required by Northern Beaches Council.

Refer to Figure 8for the proposed stormwater layout plan.





Figure 8 – Proposed Stormwater Layout Plan

6.3 On-Site Detention

Council's Water Management Development Policy requires properties in the Region 3, Zone 2 catchment to provide On-Site Absorption (OSA) for new developments. OSA has not been provided for the proposed development in line with exception criteria listed in Council's policies.

Inclusion of On-Site Detention will result in extending peak stormwater flows from the site during larger storm events resulting in a potential increase in peak flows in the adjacent road reserve as upstream catchment flows may coincide with the restricted site flows.



7 Water Quality Management Plan

As per Council's Water Management for Development Policy, stormwater quality treatment is not required for developments with site area less than 0.100Ha. The proposed development site area is 0.0935Ha and will therefore, not require stormwater quality treatment.

A boundary pit with silt arrestor has been included to limit gross pollutants and larger suspended solids entering the Council Stormwater system.

8 Erosion and Sediment Control

An Erosion and Sediment Control Plan has been prepared in accordance with Landcom's Soil and Construction manual (commonly known as the Blue Book). The Contractor for the works is required to provide the specified measures in accordance with the general requirements outlined in the ESC plans including: -

- Temporary stabilised site access
- Sediment control including, fences, sandbags and geofabric silt traps
- Dust control
- Stockpiling

All erosion and sediment controls will be maintained to ensure they remain operational for the duration of the construction activities.



Appendix A Flood Information Reports