RESIDENTIAL DEVELOPMENT

STORMWATER MANAGEMENT REPORT

12-24 STANLEY STREET, KOGARAH

KOGARAH 048 SERVICE PTY LTD ATF KOGARAH 048 TRUST

CONFIDENTIAL

PROJECT NO PS107885
DATE: APRIL 2018

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REV	DATE	DETAILS
A	30/04/2018	Development Application

	NAME	DATE	SIGNATURE
Prepared by:	Steven Hanna	30/04/2018	S.H.
Reviewed by:	Susan Huang	30/04/2018	S.H.
Approved by:	Graeme Deaker	30/04/2018	G.D.

INTRODUCTION

The site is located at 12-24 Stanley Street, Kogarah in the Georges River Council Local Government Area. The site comprises twelve lots in a residential area with frontage to Stanley Street and rearing to Stanley Lane. The site is currently developed with single and duplex style houses.

The proposed works on the site involve a new residential building consisting of 4 basement floors and 11 floors of residential apartments.

This report outlines the stormwater requirements for the site and how the proposed stormwater works will achieve compliance with Georges River / Kogarah Council's policies.

STORMWATER DESIGN STRATEGY

→ Stormwater Management

Stormwater controls were implemented to ensure that the proposed development does not adversely impact on stormwater flows and water quality of the stormwater system downstream of the site.

The principles and operation of the proposed stormwater system for the development and the components of the drainage system are detailed on the Stormwater Management Drawings. The requirements for the provision of OSD and water quality treatment elements, in accordance with Council's specifications and policies, have been discussed below.

→ Stormwater Quantity

- On-site Stormwater Detention (OSD)

OSD has been provided in accordance with Section 3.1 of Georges River / Kogarah Council's 'Water Management Policy', 2006. The policy states that for developments involving areas less than 3,000m^2; a Stormwater Management Tool (available from Council's website) automatically generates the required volumes. The spreadsheet was used to ascertain that 68.3m^3 of On-site Stormwater Detention (OSD) storage is required for the proposed development to comply with Council's Policy. Storage will be provided in the form of a below ground tank. Refer enclosed Stormwater Management Tool outputs.

- General Site Stormwater

The piped discharge system for the development was modelled in the DRAINS software. The drainage system for the development, with conveyance to the OSD tank, will be designed to collect all concentrated flows from the surrounding surfaces. The piped drainage system will be designed to convey the 1 in 20 year ARI with adequate provision for overflows in the event of a 1 in 100 year ARI event in accordance with Georges River / Kogarah Council's 'Water Management Policy', 2006.

- Rainwater Reuse

Due to the minimal landscape area on the site, a 10m^3 rainwater re-use tank has been proposed for the site. The re-use will be provided within the OSD tank with an overflow through a weir and directly into the tank itself. Refer Stormwater Management Drawings for further details.

- Flooding

The site is not known to be subject to flooding. Stormwater runoff from the site is captured and conveyed to the proposed OSD tank and will be controlled manner to avoid adverse impacts to downstream properties.

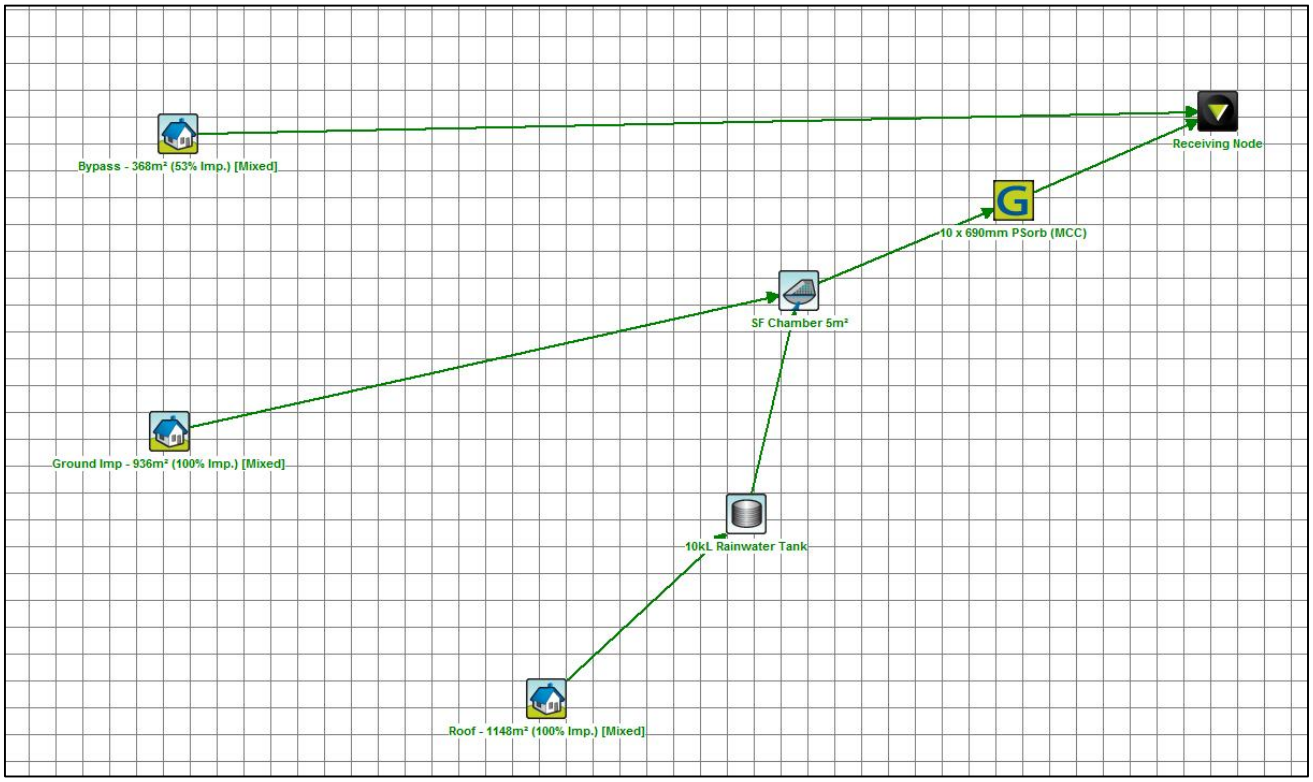
Stormwater management plans have been prepared in accordance with Council's 'Water Management Policy', 2006.

→ Stormwater Quality

- Post Construction

Section 2.2 of Council's 'Water Management Policy' 2006, alongside the Stormwater Management Tool, stipulates water quality treatment measures for the Council area. The water quality modelling software program, MUSIC, was used to establish the effectiveness of the water quality treatment proposal. The program models pollutant loads present in stormwater runoff from a catchment and assess the effectiveness of different treatment devices in terms of pollutant load reduction. The MUSIC modelling for the site was undertaken in accordance with the Draft NSW MUSIC Modelling Guidelines, 2010.

The main methods of treatment within the treatment train of the proposed development include; 10 x Stormfilter Cartridges (PSorb) by Stormwater360, and a Rainwater Tank. These measures were implemented to achieve Council's 'Captured Stormwater Treatment Standards'. The MUSIC model output is presented below.



MUSIC Model Results

- During Construction – Erosion and Sediment Control

An erosion and sediment control plan has been prepared for the development in accordance with Landcom's 'Blue Book', Managing Urban Stormwater - Soils and Construction, Volume 1, 4th Edition March 2004, to reduce the amount of sediment laden runoff leaving the site.

→ Relevant Stormwater Design Standards

The Civil design has been undertaken in accordance with the following design standards / policies:

- AS3500 – 'National Plumbing and Drainage Code' – Part 3: Stormwater Drainage
- Australian Rainfall and Runoff, 2016 – Parts 1 & 2

- Landcom – Managing Urban Stormwater - Soils and Construction, Volume 1, 4th Edition March 2004
- Georges River / Kogarah Council - 'Water Management Policy' August 2006
- Georges River / Kogarah Council – Kogarah Development Control Plan 2013, Part B – General Controls
- BMT WBM for NSW Government - Draft NSW MUSIC Modelling Guidelines, August 2010

→ **Stormwater Management Drawing List:**

Drawing No. PS107885_	Drawing Name	Revision
C000	COVER SHEET, NOTES, LOCALITY PLAN AND DRAWING REGISTER	P1
C010	GENERAL ARRANGEMENT PLAN, GROUND FLOOR LEVEL	P1
C020	GENERAL ARRANGEMENT PLAN, BASEMENT LEVEL 4	P1
C025	CATCHMENT PLAN	P1
C030	OSD TANK DETAILS	P1
C040	STORMWATER DETAILS	P1
C060	SEDIMENT & EROSION CONTROL PLAN AND DETAILS, STAGE 1	P1
C070	SEDIMENT & EROSION CONTROL PLAN AND DETAILS, STAGE 2	P1

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