



16 – 18 Thredbo Terrace, Jindabyne

Stormwater Management Report



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S202460 – 16-18 Thredbo Terrace, Jindabyne - Stormwater Management Report

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1. INTRODUCTION

This report has been prepared to support the Development Application (DA) for the redevelopment of a NSW Police Station at 16 – 18 Thredbo Terrace, Jindabyne NSW.

The scope of this report includes an assessment of the requirements for stormwater management within the site, including stormwater network and On-Site Detention (OSD), and details of the proposed stormwater management for the development.

The following information and documents were used for this investigation:

- Snowy River Shire Council – Development Design Specification ‘D5 – Stormwater Drainage Design’ (2004);
- Snowy River Shire Council – Handbook of Drainage Design Criteria (2004); and

This report should be read in conjunction with Northrop Engineer’s Civil Engineering Drawings for the DA submission (Project reference 202460 Rev 02, dated 25/01/2021).

2. STORMWATER MANAGEMENT

2.1 Background

The objective is to provide stormwater controls, which ensure that the proposed development does not adversely impact on the stormwater flows and water quality of flow paths within, adjacent and downstream of the site.

Increased impervious surfaces and alteration of the natural topography due to land development has the potential to increase peak storm flows and tend to concentrate these flows. This has the potential to impact on the flowrates and erosion of the downstream drainage system.

To avoid any adverse impact on the downstream drainage systems, the site stormwater system is required to be planned correctly to ensure safe conveyance of flows through the site and within the capacity of the downstream trunk drainage systems.

2.2 Key Issues

Mitigating measures to be employed within the proposed development site address the issue of managing stormwater quantity. Increased impervious surfaces (such as roofs, driveways, etc) have the potential to increase the stormwater flows from the site during storm events. To avoid impacting on the downstream drainage system, the site stormwater system has been designed to safely convey the flows through the site for treatment in the proposed On-Site Detention (OSD) system, prior to discharging to the existing downstream system.

2.3 The Site

The site is 0.44 ha and located next to the Jindabyne local Town Centre. It is situated between Thredbo Terrace and commercial businesses to the north, recreational park to the south, and residential properties to the east and west. The current site comprises of the Police Station on the western portion of the site, and residential buildings on the eastern portion of the site. Refer to Figure 1 for site location and aerial map.



Figure 1: AERIAL IMAGE OF THE SUBJECT SITE

2.4 Design Objectives

The site based stormwater management and planning elements are to be designed and constructed in accordance with the Snowy River stormwater design guidelines discussed in Section 1.

This includes the provision of OSD to limit the stormwater discharge rates from the development site to flowrates similar to those prior to its development both in the minor storm (5 year ARI event) and major storm (100 year ARI event).

3. STORMWATER QUANTITY CONTROL

3.1 Introduction

The main criterion for the stormwater quantity control is to ensure that the post-developed peak flows do not exceed the drainage capacity downstream of the development site.

3.2 Proposed Drainage System

The drainage system for the proposed development is designed to operate as follows:

- Collect the majority of site flows (including proposed driveways and access ways, buildings, carports and landscaped areas) via a series of pit and pipes and discharge to the proposed OSD system for water quantity treatment. Outflows from the OSD are conveyed off site to the kerb and gutter on Thredbo Terrace;
- Bypass the upstream catchment via a concrete swale along the southern site boundary which directs the bypass flows to a separate site pit and pipe network and discharges flows to the kerb and gutter on Thredbo Terrace;

The drainage system proposed for the development therefore includes:

- A pipe network system to collect minor storm (5 year ARI) runoff through the site;
- A bypass pipe network system to collect bypass flows and convey off site;
- Overland flow paths to carry major storm (100 year ARI) through the site;
- A below-ground OSD storage tank with orifice control to manage site flows.

3.3 On-Site Stormwater Detention (OSD) Requirements

OSD has been provided this development site as per the requirements of Snowy River Council, in the form of a below-ground detention tank with orifice and weir control. The proposed OSD is located at the southeast corner of the site with a footprint of 40 m², and has been designed using DRAINS hydrological and hydraulic modelling software. Calculations for the design are summarised in Table 1 below:

Table 1: OSD Design Calculations

Site	Total Site Flows (L/s)		Site Storage Volume (m ³)
	Pre-Development	Post-Development	Post-Development
Minor Storm (5 year ARI)	70	67	13
Major Storm (100 year ARI)	181	179	

A catchment map illustrating OSD and bypass catchments are provided in Northrop Engineer's Civil Engineering drawing No. JIN-CE-08.01.

4. CONCLUSION

This report provides documentation to support the stormwater management plan proposed as part of the NSW Police Station site at 16-18 Thredbo Terrace, Jindabyne NSW. Based on preliminary investigations, analysis and design of the stormwater drainage system, the proposed development has been generally designed in accordance with relevant guidelines and objectives.