Crows Nest Over Station Development – Site B

Car Parking Strategy and Management Plan

Prepared for: Thirdi Crows Nest Commercial Developments Pty Ltd

Ref: 301351270 | Date: 5 September 2024

Revision

Revision	Date	Comment	Prepared By	Approved By
A	5 September 2024	Final for Submission	S.Hong	D. Salangsang

Dave Salangsang

For and on behalf of

Stantec Australia Pty Ltd

Level 9, 203 Pacific Highway, St Leonards NSW 2065

Acknowledgment of Country

In the spirit of reconciliation, Stantec acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present, and extend that respect to all Aboriginal and Torres Strait Islander peoples.

Limitations

REF: \\AU2012-PPNTAP01.CORP.ADS\SHARED_PROJECTS\301351270\PROJECT DOCUMENTATION\TRANSPORTATION ENGINEERING\TRANSPORTATION REPORTS\CPSMP\RPT_240905_51270_CROWS_NEST_OSD_SITE_B_CPSMP_FINAL.DOCX

301351270

CONTENTS

CAR PARKING STRATEGY AND MANAGEMENT PLAN

Crows Nest Over Station Development – Site B

1. Introduction

1.1 Background

It is understood that a State Significant Development Application (SSDA) is to be lodged with the Department of Planning, Housing and Infrastructure (DPHI) for a mixed use development (predominantly residential) above the Crows Nest Metro Station, otherwise known as Crows Nest Over Station Development (OSD) Site B. The subject site will be one of three OSD sites (identified as sites A, B and C).

A concept SSDA was lodged with the DPHI (SSD-9579) for all three sites and was approved in 2020.

Stantec was commissioned by Thirdi Group to prepare a Transport and Accessibility Impact Assessment (TAIA) to support the proposed SSDA for Site B.

The location of the subject site and the surrounding road network is shown in Figure 1.

Figure 1: Subject site and its environs

Base image source: Nearmap

Crows Nest OSD Site B is a 14 storey tower above the Crows Nest Metro Station.

The site area is 1,872m^2. The concept approval includes a maximum height to the top of the service zone of RL 158m and includes a maximum residential FSR of 13,000m^2.

The Metro Station is comprised of three levels:

- Ground Level – Hume Street includes the OSD tower lobby, retail, and back of house spaces.
- Level 01 includes a retail mezzanine, back of house, and a loading dock which is used for OSD garbage collection and is a future easement for rail authority access.
- Level 02 contains plant rooms for the metro station.

The OSD car parking levels are located on level 5 and 6. These are naturally ventilated with 27 car spaces on level 5 and 28 car spaces on level 6. There is a total of 55 spaces.

Apartments are located from level 7 to 18. Level 19 and 20 contain penthouses.

The roof terrace on level 17 includes communal gardens and pools, as well as private penthouse terraces.

- Level 7-8: 10 apartments per floor
- Level 9-18: 11 apartments per floor
- Level 19: 8 apartments (5 x two storey)
- Level 20: 3 apartments
- Total number of apartments: 130

1.2 Consolidated Conditions of Consent

This CPSMP has been written to address Condition B20 of the Consolidated Conditions of Consent for SSD-9579 (Concept Development Application for a mixed-use development over the approved Crows Nest Metro Station).

The condition is outlined below.

Condition B20

Future development applications must include a Car Parking Strategy and Management Plan adopting the maximum car and motorcycle parking limits above.

It is noted that this CPSMP pertains to the car park within Site B only.

1.3 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- development proposal
- development parking provision
- access arrangement and ustilisation of mechanical system for access
- suitability of mechanical car lift

1.4 References

In preparing this report, reference has been made to the following:

- SSD-9579 Consolidated Consent.
- North Sydney Council Development Control Plan (DCP) 2013.
- Australian/New Zealand Standard, Parking Facilities (AS 2890).
- plans for the proposed development prepared by Woods Bagot.

2. Development Proposal

2.1 Overview

The proposed development will comprise of 130 units and 347m^2 GFA of retail space. Pedestrian access to the site is proposed along Hume Street frontage, whilst vehicular access to the Level 5 and 6 car parks will be off the Clarke Lane frontage.

A breakdown of the land use is shown in Table 1 and the site plan shown in Figure 2.

Table 1: Breakdown of land-use

Land-use	Unit type	No. of units/ GFA
Residential	1-bedroom	44 units
	2-bedroom	64 units
	3-bedroom	22 units
	Total	**130 units**
Retail	-	347m^2 GFA

Figure 2: Site Plan – Level 01

Source: Woods Bagot (2024)

3. Parking Facilities and Provision

The development will provide 55 car parking spaces across two levels of car park (Levels 5 & 6) which will be accessed via a mechanical car lift, located along the Clarke Lane frontage. The car parking provision will include six accessible spaces (three on each level) with associated shared bays. The car park layout is shown in Figure 3 and Figure 4. No motorcycle parking spaces will be provided.

Figure 3: Level 5 layout

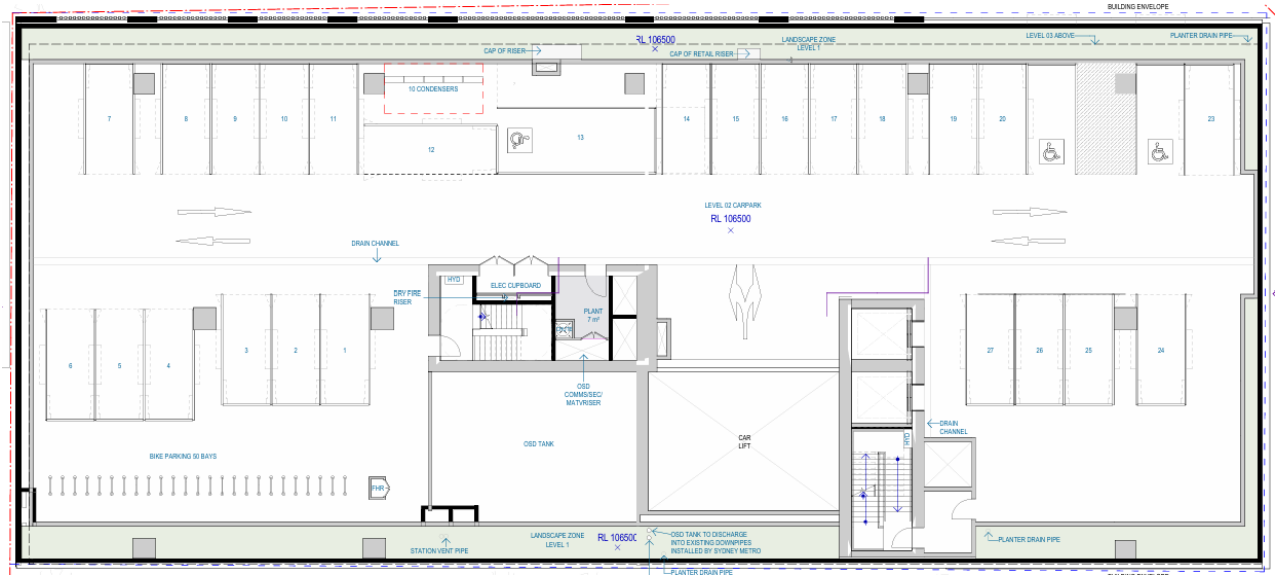
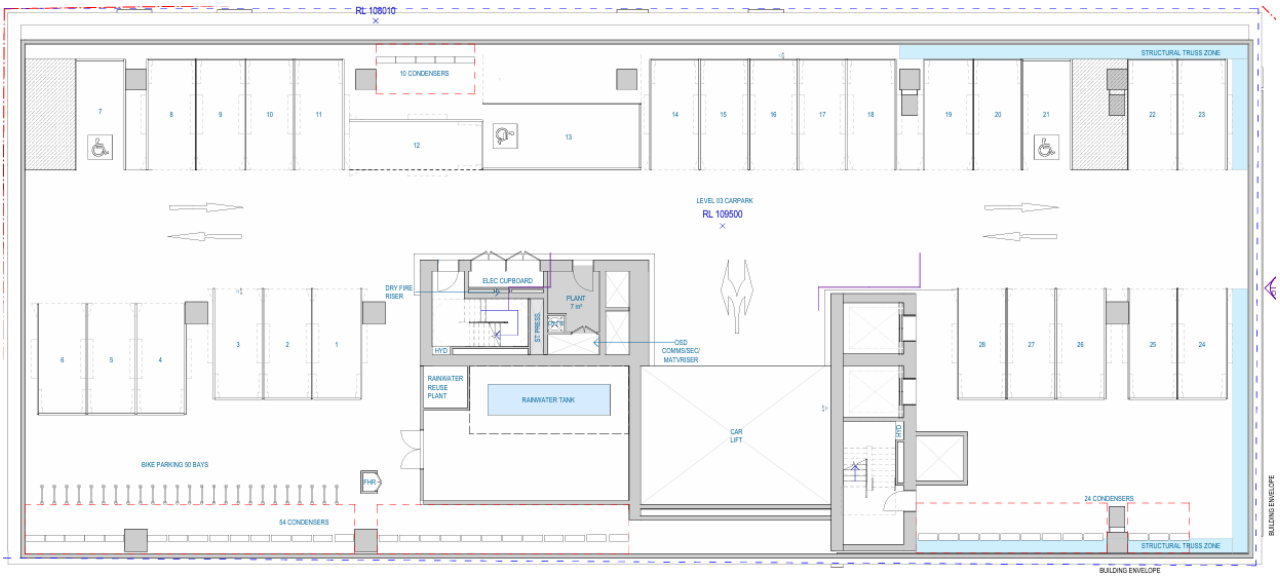


Figure 4: Level 6 layout



4. Mechanical Car Lift

As aforementioned, vehicles will access the car park levels via a mechanical car lift, located along the Clarke Lane frontage. There will be two mechanical car lifts, that are expected to operate independently of one another.

A queueing analysis has been completed to determine the maximum queue length associated with the proposed mechanical car lift system. It is noted that queuing on entry would be most critical during the afternoon peak when residents generally return home. The morning peak is not as critical as vehicles generally exit the site and would therefore wait within the car park levels. With only three vehicle trips in any weekday peak hour and an 80:20 directional split favouring the peak flow direction, up to two vehicles could enter the site at any peak hour.

Based on Stantec's experience and understanding of mechanical vertical vehicle transportation systems, a proposed car lift system could include the following operational characteristics:

- 10 seconds to open the door to let the car in;
- approximately 15 seconds to drive in and park in the car lift;
- 10 seconds to close the car lift door;
- 150 millimetres per second for the car lift to transport vehicle up to car park levels (average travel distance of 14.5 metres = 97 seconds)[1]
- 10 seconds to open the car lift door;
- approximately 15 seconds to let the car out at the car park level;
- 10 seconds to close the door; and
- 150 millimetres per second for the car lift to travel back down to street level (average travel distance of 14.5 metres = 97 seconds).

This equates to 264 seconds per cycle or a capacity of 13 vehicles per hour for a single car lifting system. As such, the proposed two car lift system will be able to service a total of 26 vehicles per hour. This cycle time is also conservative as it is based on the longest travel distance between the street level and Level 3 car park.

For the critical afternoon peak hour period, a queue analysis based on the Guide to Traffic Management Part 2: Traffic Theory (Austroads, 2020) concludes that the 95th percentile queue for vehicles entering the site in the afternoon peak hour is expected to be one vehicle at any given time (the 93rd percentile queue is no vehicles). This indicates that it is unlikely that there will be a vehicle queuing on the street level, and theregore will have no adverse impact on the through movement along Clarke Lane. In the event that both car lifts are in use and there is a car waiting, the vehicle can park on the western side of Clarke Lane without obstructing through movement along Clarke Lane.

It is expected that the car lifts will be operated by remote control only, which is considered appropriate noting no visitor access is necessary. The car lifts will also return to the default position, which would be at street level, to ensure that if one car lift is in operation the other would be available.

[1] Travel distance from street level to Level 3 car park is 14.5 metres.

w

Stantec

Connect with us

stantec.com/australia