Proposed Student Accommodation
13-23 Gibbons Street, Redfern

Transport Impact Assessment

Prepared for:

The Trust Company (Australia) Ltd as Trustee for the WH Gibbons Trust

17 December 2018

The Transport Planning Partnership

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Version: Final

Date: 17 December 2018

TTPP Reference: 18077

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
Final	17/12/18	Kenta Lam	Jessica Ng	Michael Lee	

Table of Contents

Tables

Figures

APPENDICES

A. ARCHITECTURAL PLANS

B. SWEPT PATH DIAGRAMS

1 Introduction

1.1 Background

The Transport Planning Partnership (TTPP) has prepared this transport and accessibility impact assessment (TIA) report, on behalf of The Trust Company (Australia) Ltd as Trustee for the WH Gibbons Trust, to accompany a State Significant Development Application (SSDA).

A SSDA is to be lodged with the Department of Planning and Environment (DPE) seeking approval to demolish an existing building and construct in its place an 18-storey student accommodation building containing 488 beds with a minor retail tenancy and ancillary facilities at 13-23 Gibbons Street, Redfern.

The report assesses the traffic implications associated with the proposed development.

1.2 Secretary's Environmental Assessment Requirements

On 9 August 2018, the Department of Planning and Environment (DPE) issued the modified Secretary's Environmental Assessment Requirements (SEARs) for SSD 9194. Specifically, a transport and accessibility impact assessment of the operational aspects of the proposed student accommodation development is required as part of the SSDA, in accordance with the SEARs for the proposed development.

The issues raised in the SEARs have been considered during the preparation of this TIA and are summarised in Table 1.1.

Table 1.1: Review of Compliance with SEARs

SEARS	Report Reference
Transport, Traffic, Parking and Access – Operation	
• current daily and peak hour traffic generation (light and heavy vehicle), public transport network, walking and cycling movements, existing traffic and transport facilities located within the vicinity of the proposed development	Sections 2 and 6.1
• estimated daily and peak hour traffic generation (light and heavy vehicle), public transport, point to point transport, walking and cycling trip generation during operation	Section 6.1
• an assessment of the car parking, loading and servicing facilities for the proposed development and compliance with appropriate parking codes and justification for the amount of car parking, loading and servicing facilities provided on the site	Section 5
• access to, from and within the site from the road network including intersection locations, design and sight distance (i.e. turning lanes, swept paths, sight distance requirements)	Section 4
• proposed access arrangements, service vehicles, emergency vehicles and loading areas for the development	Section 4

SEARS	Report Reference
• sustainable travel initiatives for employees, students and visitors, particularly for the provision of, green travel plans and wayfinding strategies	Section 7
• details of bicycles parking facilities as these facilities need to be provided in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance	Section 5.2 Section 6.2
• the existing, proposed and any temporary pedestrian and bicycle routes as well as measures to maintain road and personal safety in accordance with CPTED principles	Section 6.2
• an assessment of predicted impacts on road safety	Section 6.1
• provisions for end of trip facilities and on-site bicycle parking in accordance with relevant RMS/Council guidelines and Australian Standards	Section 5
• demonstrate adequate provision for servicing of the site in relation to loading demands, size of waste collection area and method of collection to/from and within the site.	Section 4.2

In addition to this, during the preparation of the TIA report, consultation with City of Sydney Council, Roads and Maritime Services and Sydney Coordination Office (Transport for NSW) has commenced seeking comments on the proposal. This is further detailed in Section 3.

1.3 Report Structure

The remainder of the report is set out as follows:

- Chapter 2 discusses the existing conditions surrounding the site
- Chapter 4 provides a brief description of the proposed development
- Chapter 5 assesses the proposed on-site parking provision and internal layout
- Chapter 6 examines the traffic generation and its impact
- Chapter 7 presents a green travel plan framework for the site, and
- Chapter 8 presents the conclusions of the assessment.

2 Existing Conditions

2.1 Site Description

The subject site is located at 13-23 Gibbons Street, Redfern, and falls within the local government area of City of Sydney Council. The site is bounded by Gibbons Street and Margaret Street along the west and south boundary respectively.

It is currently occupied by a residential flat building, with existing vehicular access provided directly off Margaret Street via a combined two-way driveway.

The location of the site and its surround is presented in Figure 2.1.

Figure 2.1: Locality Plan

Base Map Source: Google Maps Australia

The surrounding land use predominately comprises a mix of residential, commercial and retail shop/café use. In addition to this, the Redfern Railway Station (Redfern Station) is located approximately 200m (walking distance) north-west of the site and provides various rail service connections to numerous destinations across Sydney.

In addition to the existing Redfern Railway Station, the State Government is currently constructing Stage 2 of the Sydney Metro Project (City and Southwest). The Metro Project includes a new station at the corner of Raglan Street and Cope Street which is approximately 400m walking distance or approximately six-minute walk from the subject site. The Metro Project is expected to be operational by 2024 and provides an additional alternative to public transport services in the area.

2.2 Road Network

2.2.1 Gibbons Street

Gibbons Street is a one-way northbound State Road that extends along the western boundary of the site. The road is configured as four lanes with two-hour restricted and unrestricted kerbside parking provided on the eastern and western sides respectively. The speed limit is signposted as 50 km/h.

2.2.2 Margaret Street

Margaret Street is a two-way local road that extends along the south boundary of the site. The street provides good connectivity between Regent Street and Gibbons Street to the east and west ends respectively. No parking is provided on either side of the street.

2.2.3 William Lane

William Lane (north of the site) is a two-way laneway that extends in a north-south alignment. The laneway provides rear access to properties for parking and loading activities. Access to the laneway is provided off Marian Street. No parking is provided on either side of the laneway.

2.3 Existing Site Access

As indicated previously, vehicular access to the site is currently provided directly off Margaret Street. This vehicular access provides access to the basement level car park.

In addition to this, residents can currently enter the building via Margaret Street and William Lane. There are two pedestrian accesses from Margaret Street which allows entry directly into the building, whereas the pedestrian access from William Lane provides entry/exit via the outdoor common area of the building.

Figure 2.2 shows the location of the vehicle and pedestrian access to the existing building.

Figure 2.2: Existing Vehicle and Pedestrian Access to Site

Base Map Source: Nearmap

2.4 Public Transport Facilities

The subject site is located within close proximity to existing high frequency services, being located 200m south-east of the Redfern Station (approx. three-minute walk). The station is serviced by a number of railway lines that provide connections to various destinations across the Sydney Metropolitan area including the Sydney CBD.

In addition to this, there are a number of bus stops located within the immediate vicinity of the site, which provide good public transport connectivity to surrounding suburbs including Mascot, Matraville, Eastgardens and City suburbs.

Figure 2.3 shows the available public transport facilities within close proximity to the site.

Figure 2.3: Surrounding Public Transport Facilities

Base Map Source: Google Maps Australia

Table 2.1 and Table 2.2 present a summary of the existing train and bus services and associated frequencies during the weekday morning and evening peak periods respectively.

Table 2.1: Existing Train Services and Frequencies at Redfern Station

Route	Route Description	Typical Weekday Frequency	
		Morning Peak	Evening Peak
T1 North Shore, Northern, and Western Line	Berowra to City via Gordon	3-6 mins	3 mins
	City to Berowra via Gordon	3 mins	3-5 mins

Route	Route Description	Typical Weekday Frequency	
		Morning Peak	Evening Peak
	Hornsby to City via Strathfield	15 mins	15 mins
	City to Hornsby via Strathfield	15 mins	15 mins
	Emu Plains or Richmond to City	3 mins	3-7 mins
	City to Emu Plains or Richmond	3-7 mins	3 mins
T2 Inner West and Leppington Line	Parramatta or Leppington to City	2-5 mins	5-12 mins
	City to Parramatta or Leppington	2-5 mins	2-6 mins
T3 Bankstown Line	Liverpool or Lidcombe to City via Bankstown	3-6 mins	3-15 mins
	City to Liverpool or Lidcombe via Bankstown	4-15 mins	4-15 mins
T4 Eastern Suburbs and Illawara Line	Waterfall or Cronulla to Bondi Junction	3 mins	3 mins
	Bondi Junction to Waterfall or Cronulla	3-6 mins	3 mins
T8 Airport and South Line	Macarthur to City via Airport of Sydenham	15 mins	-
	City to Macarthur via Airport of Sydenham	-	15 mins
Blue Mountains Line	Bathurst and Lithgow to Central	30 mins	-
	Central to Bathurst and Lithgow	-	30 mins
Central Coast and Newcastle Line	Newcastle Interchange to Central via Strathfield or Gordon	30 mins	-
	Central to Newcastle Interchange via Strathfield or Gordon	-	30 mins
South Coast Line	Bomaderry or Port Kembla to Central and Bondi Junction	20 mins	20 mins
	Bondi Junction and Central to Bomaderry or Port Kembla	30 mins	20 mins

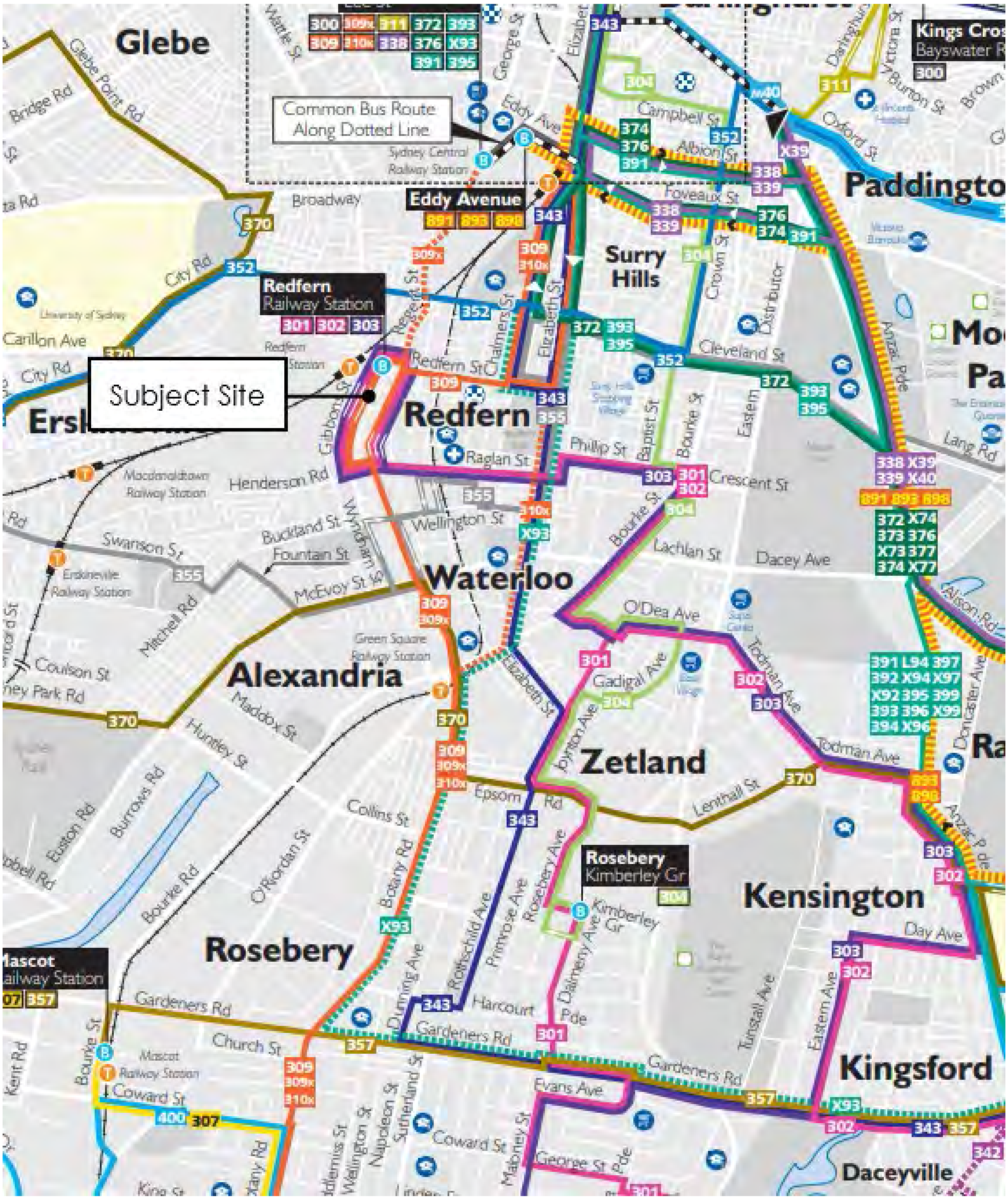
Table 2.2: Existing Bus Services and Frequencies

Route	Route Connectivity	Typical Weekday Frequency During Peak Hour
305	Mascot and Central	20 mins
308	City and Marrickville Metro via Redfern	20 mins
309	Matraville and Central	10 mins
310	Eastgardens and Central via Botany Road	12 mins

L09	Matraville and Redfern	15 mins
N11	City and Cronulla	N/A; Night ride bus only
N20	City and Riverwood	N/A; Night ride bus only

A map of the existing bus routes within the immediate vicinity of the site is shown in Figure 2.4.

Figure 2.4: Existing Bus Routes Map



Source: State Transit Eastern Suburbs

2.5 Sydney Metro Project – Waterloo Station

The Sydney Metro is Australia's biggest public transport project which will deliver 31 metro stations and will increase the capacity of train services entering the Sydney CBD from about 120 services an hour today to up to 200 services beyond 2024.

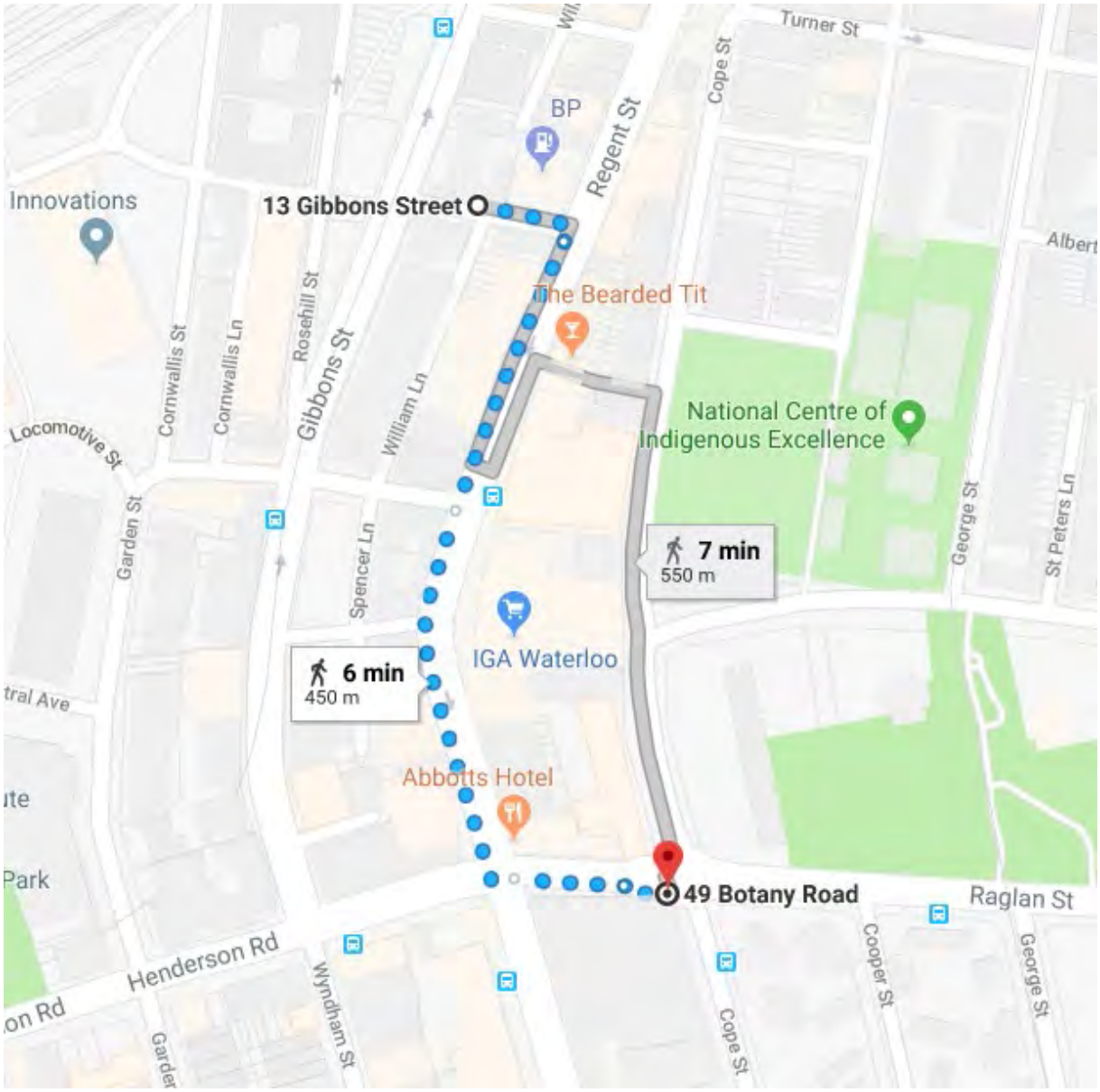
Waterloo Station will be an underground station that will be along the future Sydney Metro Line. The station is located approximately 400m south from the site and is currently under construction as shown in Figure 2.5.

Figure 2.5: Location of Future Waterloo Station

Base Map Source: Nearmap

The future Waterloo Station is proposed to be located at the corner of Raglan Street and Cope Street. As such, the site will be conveniently located an approximate six-minute walk to/from the Waterloo Station, as shown in Figure 2.6.

Figure 2.6: Walking Route to Waterloo Station



Source: Google Maps Australia

The Sydney Metro Line will provide an alternative public transport option for students living in the proposed student accommodation development. It is expected the Sydney Metro Line will be in operation by 2024.

2.6 Pedestrian Infrastructure

Pedestrian facilities are generally well provided within the immediate vicinity of the subject site being located near Redfern Station. Sealed pedestrian paths are provided on both sides along surround streets, including Gibbons Street, Margaret Street, Marian Street and Regent Street. In addition to this, a signalised pedestrian crossing is provided across Gibbons Street to provide safe and dedicated passage to/from Redfern Station.

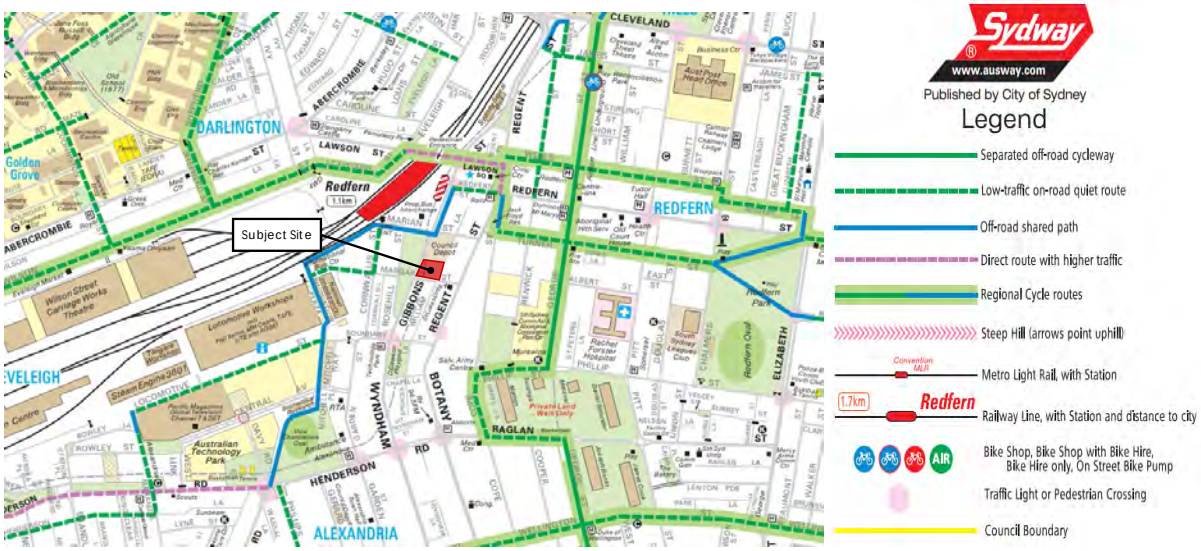
No footpaths are provided along William Lane just north of the site. However, this road is characterised as low-traffic service lane which generally only serves as access to parking areas of adjacent developments.

2.7 Cycle Infrastructure

An off-road shared path is provided along Gibbons Street and Marian Street north of the site which provides good cycle linkages to Redfern Station and commercial and retail establishments. This shared path also connects to on-road and off-road cycling paths towards University of Sydney, University of Technology Sydney, University of Notre Dame, TAFE and Sydney CBD.

The existing cycling network within the vicinity of the site is shown in Figure 2.7.

Figure 2.7: Existing Cycle Routes and Infrastructure



Source: Sydney Cycleways

3 Consultation

3.1 City of Sydney Council

On Friday 26 October 2017, a meeting was held with City of Sydney Council to discuss the proposed development.

The key traffic comments and outcomes from the meeting were as follows:

- Council does not support the idea of a porte cochere as it will create too many vehicular crossings on Margaret Street, and
- vehicles reversing out of the site onto Margaret Lane will not be approved.

Following this meeting, the design of the proposal was revised to remove the porte cochere along Margaret Street as per Council comments. Ongoing consultation will be carried out as part of the SSDA process to address any other traffic items as required. This document will be updated as required to address any comments raised during this consultation process.

3.2 Roads and Maritime Services

On 5 December 2018, TTPP sought feedback from Roads and Maritime in relation to the proposed development. On 11 December 2018, Roads and Maritime advised that they will review the technical reports and provide feedback accordingly. As such, TTPP will continue to work with Roads and Maritime to address any comments and/or concerns raised during the SSD application process. This document will be updated as required to address any comments raised during this consultation process.

3.3 Sydney Co-ordination Office

On 5 December 2018, TTPP sought feedback from the Sydney Co-ordination Office (SCO) in relation to the proposed development. No feedback from SCO has yet been received. This consultation is ongoing. This document will be updated as required to address any comments raised during this consultation process.

4 Proposed Development

4.1 Proposal Description

The proposed development involves the demolition of existing buildings on-site and the construction of an 18-storey student accommodation building with ancillary facilities and a small retail component.

The proposed development comprises 488 beds and will be primarily occupied by students attending nearby tertiary educational facilities (e.g. University of Sydney and University of Technology Sydney), given the site's proximity to a number of tertiary educational establishments.

In addition, it is proposed to provide a new private through site link along the eastern boundary of the site connecting Margaret Street and William Lane as part of the proposed development. The through site link will be accessible to service and waste vehicles associated with the proposed development, as well as pedestrians and cyclists.

The proposed site layout plan is shown in Figure 4.1, with full architectural layout plans provided in Appendix A.

Figure 4.1: Proposed Site Layout Plan

Source: AJ+C Architects

4.2 Proposed Waste Collection and Loading Facilities

All loading and unloading activities will be undertaken on-site within the private through site link along the eastern boundary of the site.

Access to the through site link has been designed to accommodate vehicles up to and including a 9.54m long City of Sydney Council waste truck. It is however anticipated that all other loading and unloading activities associated with the site would be carried out by small trucks/light commercial vans (equivalent to an Australian Standard 5.2m B99 vehicle).

Swept path analysis has been undertaken and these demonstrate appropriate accessibility to/from the private through site link for a 9.54m long Council waste truck. This swept path analysis is provided in Appendix B.

Notwithstanding this, it is noted that all student loading and unloading activities would be managed via a booking system or similar to ensure appropriate allocation is provided on-site and that all deliveries can be satisfactorily managed throughout the day. This booking system would be particularly imperative during typical move-in periods, such as February and March.

All tenants would be made aware and agree to the measures and conditions as part of their tenancy agreement. However, it is noted that all units will be fully furnished and therefore, no large deliveries and/or loading and unloading activities are expected from the students residing in the building.

In addition to this, collapsible bollards or similar barrier will be placed on both ends of the proposed through site link to restrict local through traffic. The facility building manager will remove the bollards prior to any waste collection and/or pre-organised loading and unloading activities. Notwithstanding this, it is noted that the collapsible bollard or similar barrier will be offset towards the south to allow a 24/7 service area for the adjacent substations located on the ground floor. The exact location of the bollard would be subject to further detail of the substation serviceability during design development stage.

Based on this, the proposed loading facilities are considered adequate and appropriate to manage the servicing requirements for the site.

5 Parking Assessment

5.1 Parking Requirement

The parking assessment for the site has been based off travel surveys conducted at a similar site at the existing student accommodation site Urbanest at Quay Street, Ultimo.

The parking requirements for the proposed student accommodation development has been assessed with reference to the following documents:

- State Environmental Planning Policy (Affordable Rental Housing) 2009
- Sydney Local Environmental Plan (SLEP) 2012 and Sydney Development Control Plan (SDCP) 2012
- City of Sydney Boarding Houses Development Control Plan (DC) 2004

5.1.1 SEPP Affordable Housing

Clause 29(2) of State Environmental Planning Policy (Affordable Rental Housing) 2009 (SEPP Affordable Housing) provides circumstances in which a development cannot be refused by a consent authority, where the particular requirements of the Clause are achieved. In relation to car parking:

- at least 0.5 parking spaces are provided for each boarding room
- not more than 1 parking space is provided for each person employed.

This equates to a minimum of 247 car parking spaces (based on 488 beds and assuming the student accommodation would have three employees). However, in accordance with Clause 29(4) of the SEPP Affordable Housing, a consent authority can approve a development proposal with proposed parking provision at a lesser parking rate if it considers it reasonable in the circumstances. In this case, it is proposed to provide parking at a lesser parking rate (nil car parking) for reasons explained in Section 5.2.

The SEPP Affordable Housing also requires at least one bicycle parking space and one motorcycle parking space for every five boarding rooms. Therefore, 98 bicycle and 98 motorcycle spaces would need to be provided to satisfy the SEPP Affordable Housing.

5.1.2 Sydney Local Environmental Plan 2012 and Sydney Development Control Plan 2012

The Sydney Local Environmental Plan (SLEP) 2012 does not contain any car parking rates specifically for student accommodate use. Similarly, the Sydney Development Control Plan (SDCP) 2012 does not specify any bicycle rates for student accommodation use.

The SDCP states that *"in all buildings that provide onsite parking, 1 motorcycle parking space for ever 12 car parking spaces is to be provided"*. On this basis, as no car parking will be provided on-site, no motorcycle parking spaces will be required under the SDCP2012. As such, it is not proposed to provide any motorcycle parking spaces in accordance with the SDCP2012.

5.1.3 City of Sydney Boarding Houses Development Control Plan 2004

The Boarding Houses DCP requires bicycle parking spaces to be provided at a rate of two racks per six bedrooms. Therefore, the Boarding Houses DCP requires 163 bicycle spaces (based on 488 beds proposed) to be provided.

5.1.4 Summary of Parking Requirements

Table 5.1 summarises the parking requirements contained within various guidelines and codes.

Table 5.1: Parking Requirements and Proposed Provision

Parking Requirements	SEPP Affordable Housing	Boarding Houses DCP	LEP/DCP	Proposed Provision
Car	247	LEP/DCP	§	0
Bicycle	98	163	§	163
Motorcycle	98	§	0	0

§ - no specific requirements

As shown in Table 5.1, the proposed development will provide 163 bicycle parking spaces and nil car and motorcycle parking spaces. The provision of nil car and motorcycle parking will encourage students to use more sustainable modes of transport to/from the site.

It is expected that any students requiring a car and/or motorcycle parking space would not reside at this site as tenancy agreements would not permit students to provide vehicle/motorcycle onto the site. This is discussed in further detail below.

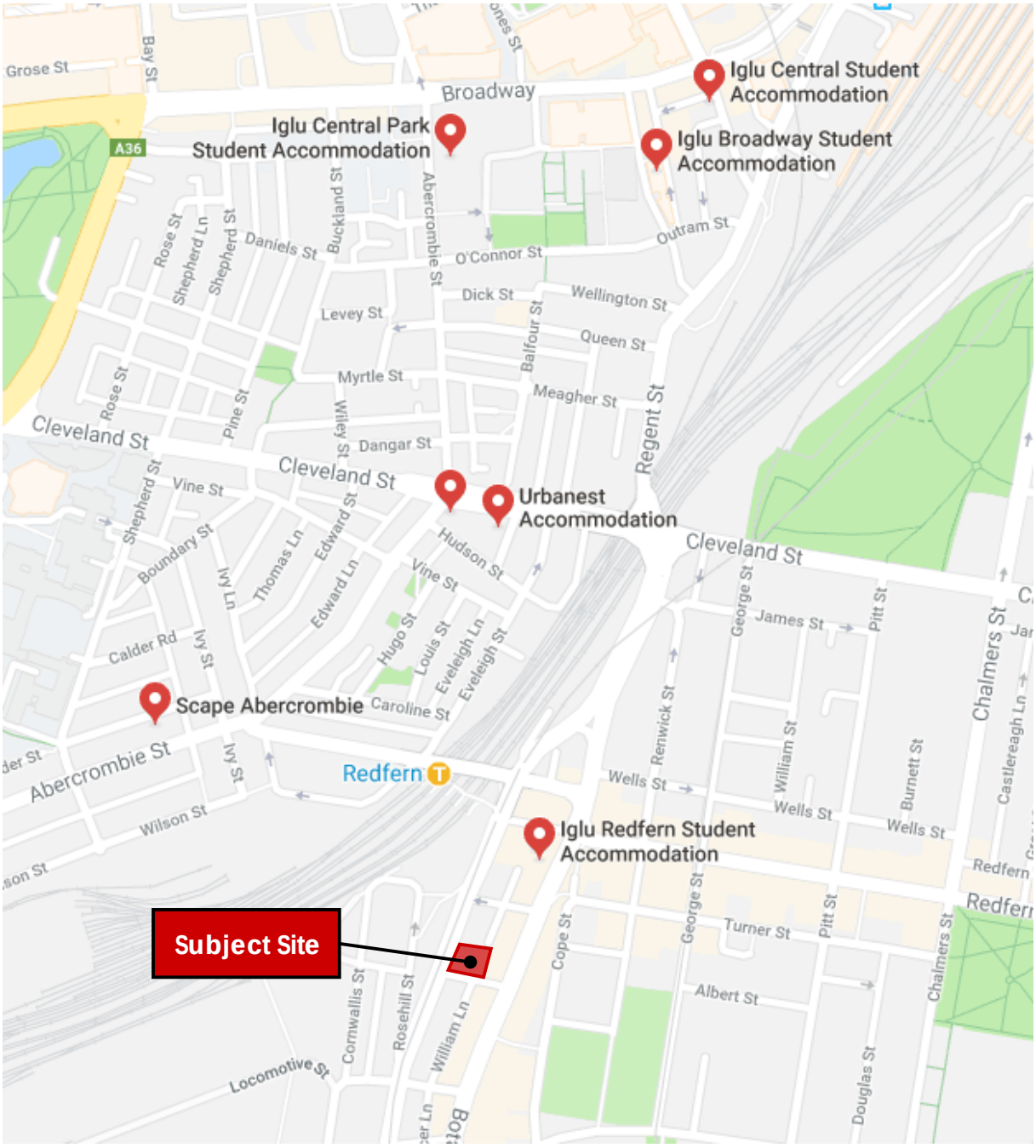
5.2 Proposed Parking Provision

Student accommodation sites do not typically do not include onsite car parking provision as these are specifically targeted at students who do not typically own a car. In addition, student accommodations are typically located near tertiary education campuses within walking distance. In addition to this, the subject site is well-serviced by high frequency public transport services, including local amenities, services and recreational facilities.

For these reasons, it is acceptable for the proposed student accommodation development not to provide any onsite car parking. If any potential student requires an onsite car parking space, this means the potential student would not consider this.

There are multiple student accommodation developments in proximity of the subject site as shown in Figure 5.1.

Figure 5.1: Student Accommodation Sites in the Nearby Area



Base Map Source: Google Maps Australia

TTPP understands that the student accommodation sites shown in Figure 5.1 do not provide any on-site car parking. Similar to the proposal, the existing student accommodation sites are located within close proximity to tertiary education campuses with good transport links and social centres.

A summary of the existing student accommodation sites shown in Figure 5.1 are provided in Table 5.2.

Table 5.2: Other Student Accommodation Sites

Provider	Address	No. of Beds	Approx. Walking Distance to the Closest University	No. of Car Parking Spaces
Iglu – Redfern	66 Regent Street, Redfern	370	900m (University of Sydney, Main Campus)	0
Iglu - Broadway	9 Kensington Street, Chippendale	271	280m (University of Technology Sydney)	0
Iglu - Central	1 Regent Street, Chippendale	98	150m (University of Technology Sydney)	0
Iglu – Central Park	6 Central Park Avenue, Chippendale	770	250m (University of Technology Sydney)	0
Scape – Abercrombie Street	267-269 Abercrombie Street, Darlington	54	450m (University of Sydney, Main Campus)	0
Ubanest – Cleveland Street	142 Abercrombie Street, Redfern	446	885m (University of Sydney, Main Campus)	0

As shown in Table 5.2, there are numerous high occupancy student accommodation developments that provide no car parking. However, it is noted that tenancy agreements have been imposed on these sites to ensure that students do not bring a car to the site and that breach of this agreement could result in termination of their tenancy agreement. Similar arrangements would be incorporated to the proposed development to ensure minimal parking impact on the surrounding streets.

Further to this, as part of Cardno's traffic assessment of the approved student accommodation development at 157-163 Cleveland Street, Redfern, a survey questionnaire was conducted to understand the travel patterns of existing students living at Urbanest Quay Street, Haymarket. It is noted that the student accommodation provided by Urbanest Quay Street, Haymarket also did not have any car parking provisions.

The key findings of the surveys from the Cardno report were as follows:

- 76% of residents studied at either University of Sydney or UTS (within walking distance of either development site)
- For trips with a study purpose, **0% of respondents travelled via car**, 23% used public transport, 65% walked, and 1% travelled via motorbike/scooter
- For trips with a work purpose, **0% of the respondents travelled via car**, 23% used public transport, 59% walked, 2% travelled via motorbike/scooter, and 2% took a taxi
- For trips with a social purpose (going out, dinner etc), **0% of the respondents travelled via car as a driver**, 2% travelled as a car passenger, 33% used public transport, 61% walked, 0% travelled via motorbike/scooter or bicycle and 4% took a taxi

- Bicycles are the transport mode of choice for the respondents; 14% said that they owned or planned to own a bicycle during their stay at Urbanest. This compares with 10% for a car and 6% for a motorbike/scooter
- Of those that took public transport, approximately 70% outlined that this was their preference as it was either faster, cheaper or more convenient than the other alternatives
- 14% of respondents said they either owned, or planned to own, a bicycle during their residences at Quay Street (note that this compares consistently with the requirements of the draft City of Sydney DCP for student accommodation that bicycle parking should be provided at rates of 1 per 6 beds, or approximately 17% of demand).
- Of the residents that owned a car, 40% parked in a paid parking space and 60% used a friend or relatives' space
- For 55% of residents, their friends and relatives did not visit by car and of those visitors who arrived by car, 66% visited once per week or less.

Based on above, it should be noted that 0% of the respondents travelled by car for either study, work or social purposes, respectively with a majority of respondents travelling either by public transport or walking. It is expected that similar travel patterns would arise from the proposed development as it is located within close proximity to public transport services and key tertiary education campuses such as University of Sydney.

Further to this, existing on-street car parking is limited and restricted to short-term car parking and so, students would not be able to park on-street for significant periods of time. Students would be advised of the limited car parking conditions and thus, be discouraged from owning a car or having visitors drive to the site.

In addition to this, having no car and motorcycle parking provision for the proposed student accommodation development would discourage car and motorcycle travel to/from the site, particularly as the site is surrounding by well-established pedestrian and cycle infrastructure, as well as by high frequency public transport services and tertiary educational campuses. This is considered to align with Council's key objectives to maximise walking and cycling and discourage car use, particularly single occupancy car trips.

Taking the above into consideration, the provision of no car and motorcycle parking provision is considered satisfactory and could not be expected to result in any significant impact on existing parking amenities surrounding the road network, nor operate any differently from other existing student accommodation developments within the area and with no parking provisions.

Conditions would be in place for all students and form part of their tenancy agreement to mitigate any parking impact on the surrounding road network. This is further discussed below.

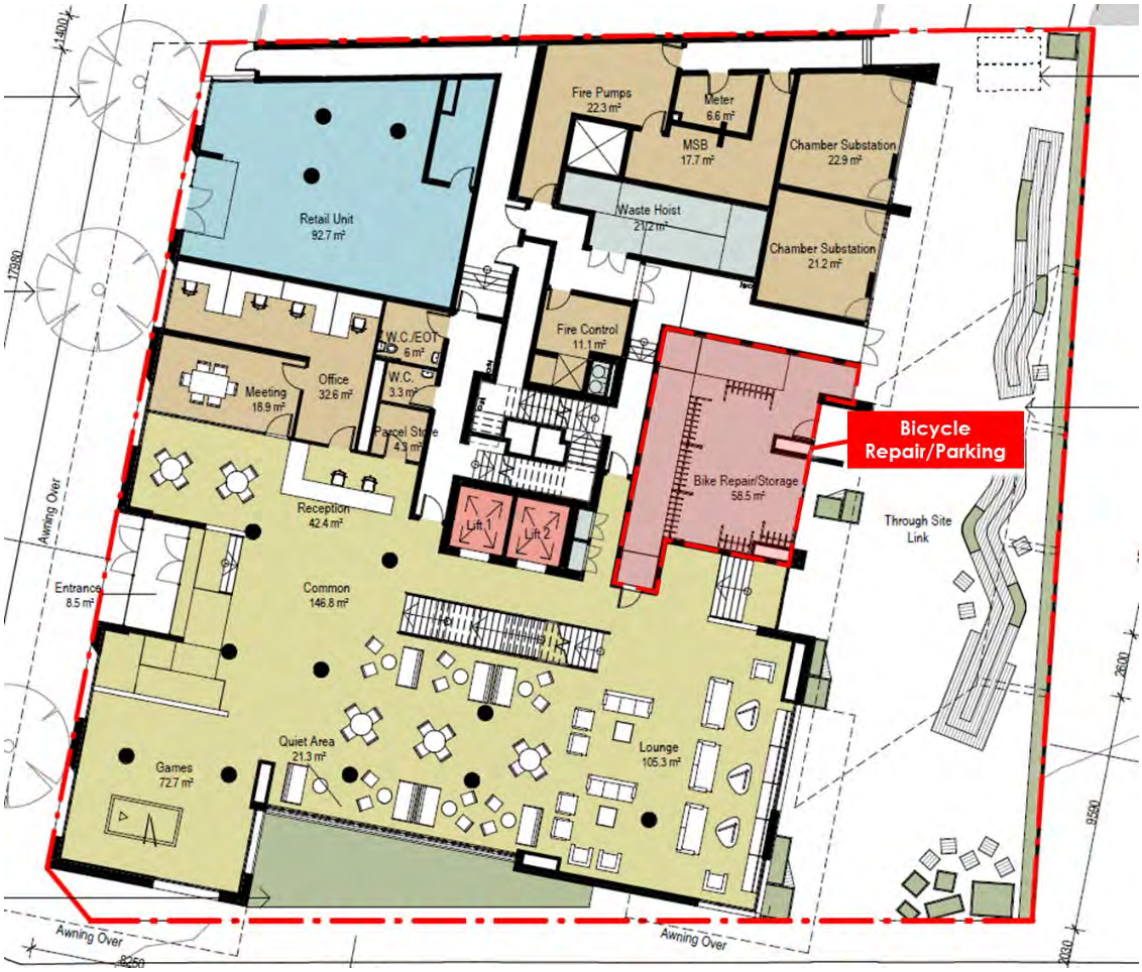
As such, the provision of nil car and motorcycle parking are considered acceptable and favourable from a sustainable transport perspective given the site's proximity to transport connections and university and tertiary establishments.

It is however proposed to provide 163 bicycle parking spaces to promote more sustainable modes of transport, e.g. walking and cycling with a bicycle repair room on the ground floor. Notably, this bicycle provision well exceeds the SEPP bicycle requirement of 98 bicycle spaces for the site. In addition to this, it is not expected that any end of trip facilities will be required as students will be able to use the showers and change rooms within their respective units.

Figure 5.2 and Figure 5.3 shows the locations of the proposed bicycle parking area in the basement level and bicycle parking/repair areas on the ground floor level respectively.

Figure 5.2: Bicycle Storage Area in the Basement Level

Figure 5.3: Bicycle Repair and Storage Area in the Ground Level



Furthermore, it is noted that the Cardno survey indicates that travel demand by motorbike/scooter was 2% or less. Using this metric, there could be up to 10 students who would travel via motorcycles which is considered to a low demand.

However, as the site is not proposing to provide any motorcycle parking, it is expected that students who drive a motorcycle would choose to live elsewhere.

5.3 Tenancy Agreements

As indicated above, conditions would be in place for all students, which would form part of their tenancy agreement. The tenancy agreements would include the following key points:

- no car and motorcycle parking within the proposed student accommodation development are available
- all students would forfeit the right to apply for any resident parking permits, if available
- all students moving into/out of the site would need to coordinate with the management team to ensure appropriate allocation of loading facilities, if required, and to stagger arrival times such that students do not move in at the same time. In addition to this,

students would be required to adhere to their designated time slot for all loading and unloading activities.

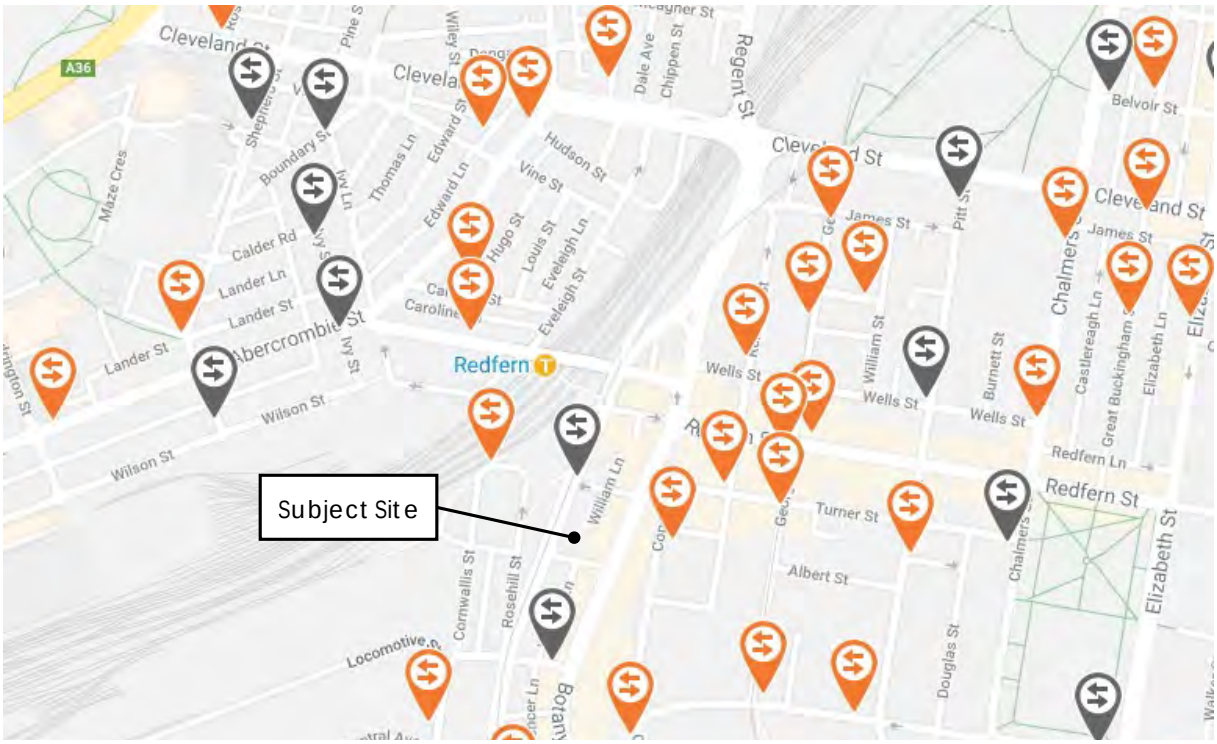
Any breaches in the above agreement could result in termination of the student's residential agreement. In addition to this, a contact phone number would be provided to students to report any potential breaches of parking or other matters.

5.4 Car Sharing Facilities

Car sharing is a flexible, cost effective alternative to car ownership and is a convenient and reliable way for residents to use a car when they need one. GoGet is a car share company operating in Australia, with a number of vehicles positioned within the Redfern Area.

Figure 5.4 shows the location of existing GoGet vehicles and pods within the Redfern area.

Figure 5.4: Location of Existing GoGet Vehicles and Pods



Source: GoGet

Students would be able to use the GoGet car share vehicle when they need to travel via car, without the cost and hassle of car ownership. These GoGet cars are booked based on the number of hours you need or for a full day via their app, mobile site or online booking system. Information regarding these GoGet car share facilities would be provided as part of their information park once they move in.

Notably, the City of Sydney Council has reported that "a single car share vehicle can replace up to 12 private vehicles that would otherwise compete for local parking".

Students also receive low membership fees as part of the GoStudent membership, provided they:

- Study at an Australian university, TAFE or private college
- Have a full-time study load (3 or 4 subjects, or equivalent)
- Apply using a student email address (or show a student ID).

The student accommodation provider would be seeking to negotiate a bulk deal with GoGet to ensure students residing at the proposed development have the best options available.

6 Transport Assessment

6.1 Traffic Generation

Roads and Maritime Services (RMS) provides traffic generation rates for different land uses in their Guide to Traffic Generating Developments (Guide) and in their technical direction TDT 2013/04a containing revised rates. It is noted that the RMS Guide does not have any specific traffic generation rates for student accommodation developments.

As explained in Section 5, the proposed student accommodation development is targeted at students who do not own private vehicles and attend nearby tertiary educational establishments. It is expected that the proposed student accommodation development would not generate any traffic for the following reasons:

- the majority of students would not own a motor vehicle
- on-site parking is not provided for students (noting that students requiring access to an onsite car space would not consider living at this development)
- the site is located within walking distances to nearby public transport nodes including Redfern Railway Station and bus stops on Gibbons Street and Regent Street as well as the future Waterloo Metro Station which would be operational by 2024
- the site is located within walking distances to amenities, services and other recreational facilities
- educational campuses where the students living on the site could be attending are located within walking distances.

As indicated previously, the existing site is currently occupied by a residential flat building. It is understood that site accommodates some 32 residential apartments. Using RMS' peak hour vehicle trip generation rate of 0.15-0.19 trips per unit and daily vehicle trip generation rate of 1.52 trips per unit, the existing site is estimated to generate 5-6 vehicular trips in the peak hour and 49 trips per day.

Notwithstanding the above, based on Cardno's survey, a summary of the projected student modal splits is provided in Table 6.1.

Table 6.1: Anticipated Student Modal Splits

Method of Travel	Per Cent
Car Driver	0%
Car Passenger	0%
Public Transport	30%
Taxi	2%
Motorbike	1%
Bicycle	5%
Walk	62%
Total	**100%**

Table 6.1 indicates that the proposal is expected to generate zero student car trips. Students are expected to predominately walk and/or use public transport to travel to/from the site. It is anticipated that the overall traffic generation for the proposal will be negligible and generally limited to a small number of service vehicle movements (e.g. waste collection).

In the light of the above, any additional traffic arising from the proposed student accommodation development in this development would have negligible traffic effects.

Based on this and the expected trip generation of the proposal (i.e. zero car trips), the proposal is expected to generate less traffic compared to the existing use of the site.

In any event, given the nature of the proposed development and its proximity to key tertiary educational campuses (e.g. University of Sydney), a Green Travel Plan (GTP) would be suitable for this development to encourage sustainable travel and help to satisfy a zero per cent car driver mode share target to/from the site.

6.2 Road and Personal Safety (CPTED Principles)

A number of potential design measures have been considered to maintain road and personal safety in line with the Crime Prevention through Environmental Design (CPTED) principles of surveillance, access control and space and activity management.

The following design measures should be considered as part of the proposed development:

- Ensure appropriate lighting is provided, particularly along Margaret Street and William Lane for students staying at the proposed student accommodation development
- Consistent graffiti removal and damage monitoring on student accommodation properties to be performed especially those which are exposed to public (e.g. signage, outdoor furniture, fences, walls)

- Trim or remove foliage blocking sight lines and ensure there is minimal obstruction to lines of sight near key pedestrian facilities and pedestrian access points,
- Consider the implementation of Closed Circuit Television (CCTV) where practical to maximise surveillance opportunities
- Limit the number of pedestrian access points to the site to reduce opportunities for perpetrators to enter the site
- Ensure regular maintenance is in place including rubbish removal, graffiti removal, repair of light fixtures, trimming of vegetation and/or regular patrols, where feasible, and
- All staff and students should undergo crime awareness training to identify any potential suspicious behaviour and reporting procedures within or near the development.
- Activate the through site link to provide passive surveillance for pedestrians using the through site link.

7 Green Travel Plan

7.1 Overview

The key role of a Green Travel Plan (GTP) is to bring about better transport arrangements to manage travel demands, particularly promoting more sustainable modes of travel, modes which have a low environmental impact such as walking, cycling, public transport and better management of car use.

As part of a GTP, a number of policies and procedures would be put in place at a site to encourage transport choice to and within the site, namely public transport, walking and cycling. These measures would effectively assist in managing the use of private vehicle trips and parking within the area to reduce congestion and cumulative impacts of vehicle emissions upon air quality.

This section provides a framework for the implementation of such a travel plan.

7.2 Transport Plan Framework

The transport sector is a large contributor of Australia's energy-related greenhouse gas emissions through fossil fuels such as petrol, oil, diesel and gas. Whilst transport is a necessary part of life, the effects could be managed through the implementation of a travel plan.

A GTP is a package of coordinated strategies and measures to promote and encourage sustainable travel, such as walking, cycling and public transport etc. Such plans aim to influence the way people move to/from a business, residential complex or any other organisation to deliver better environmental outcomes and a range of travel choices, whilst also reducing the reliance on private car usage, particularly single occupancy car trips.

The planning of the new development would need to accommodate innovative ideas to better manage the transport demand of the project. It would be necessary to introduce new measures to ensure that trips generated by the proposed development are through alternative transport methods such as walking, cycling and the use of public transport.

7.3 Types of Travel Plans

There are two distinct types of travel plan, these being:

1. To change the travel behaviour at an existing site (i.e. reduction of car use, especially if only used by one person). Such plans would be implemented at large administrational buildings (e.g. hospital government). This would aim to achieve a modal shift when compared against a stated benchmark. This would include

monitoring the plan over a period after opening with more measures introduced if stated objectives were not achieved.

2. To influence the travel behaviour of a site prior to it being occupied. This can include such measures as locating the site next to a railway station, reducing on-site parking (especially for commercial buildings). Providing information and ensuring the development ties in with the sustainable active travel initiatives outside of the site. This travel plan would aim to achieve a lower car driver mode upon occupation compared with comparable sites.

The subject site therefore falls into the latter category where the majority of green travel initiatives are provided prior to occupation of the site.

7.4 Proposed Measures

In this regard, the following measures are proposed to be implemented as part of the proposed development to influence travel behaviours:

- locating the site next to high frequency public transport services and mixed land uses e.g. shops and services, such that walking and/or cycling become the natural choices
- no provision of car parking spaces to reflect the site's proximity to public transport and to influence a modal shift to sustainable transport modes from day one of occupation
- provision of good pedestrian and cycle links within the site, including a ground floor communal through site link with landscaping and outdoor seating areas, to promote social interaction and sustainable transport
- provision of bicycle parking facilities to encourage cycling.

7.5 Potential Measures

In addition to the proposed measures outlined in Section 7.4, there are other measures to change travel pattern behaviours to cause a modal shift away from car travel such as the following:

- creation of street networks and associated cycleways, footpaths and links to encourage cycling and walking
- provision of a TAG given to every new occupant of the dwelling
- public transport noticeboards within the development to notify all residents and visitors of the alternate transport options available
- a half yearly newsletter for every household after occupation to outline the latest news on sustainable travel initiatives in the area.

The proposed development would benefit greatly from the implementation of the above green travel initiatives to promote the use of more sustainable modes of travel, pertinently

public transport, car-share, walking and cycling. Although, the above potential measures could only generally be implemented prior occupation.

As such, the full GTP document would be provided as part of the SSDA submission to detail the proposed green travel initiatives as part of the proposed development.

8 Conclusions

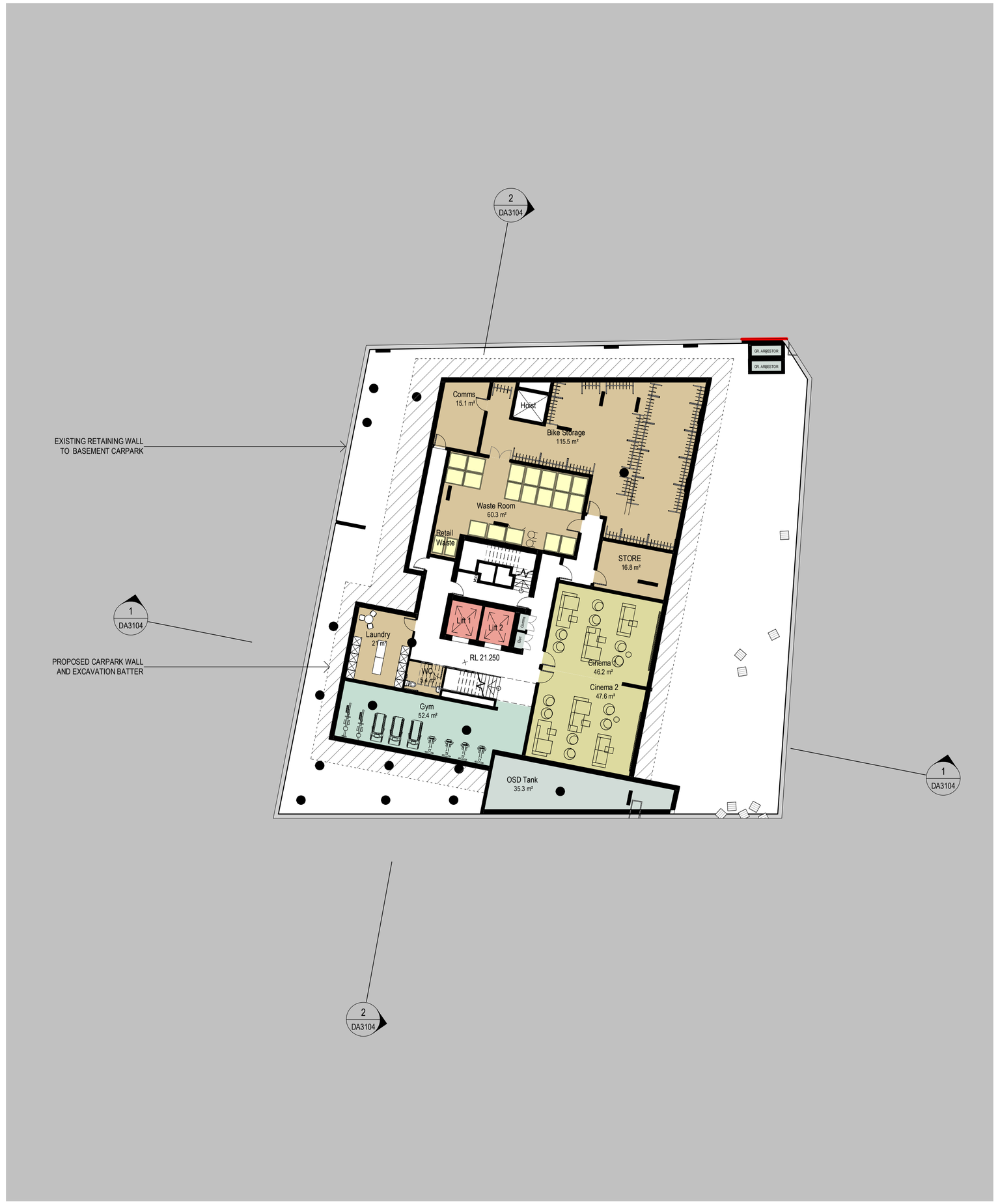
This report discusses the traffic and parking implications of the proposed student accommodation at 13-23 Gibbons Street, Redfern. The key findings of the report are:

- The state significant development application proposes to seek approval for the demolition of existing buildings and the construction of 18-storey student accommodation development comprising of 488 beds and associated retail and ancillary facilities on the ground floor, including 163 bicycle parking spaces.
- A new through site link along the eastern boundary of the site connecting Margaret Street and William Lane will be provided as part of the proposed development. The through site link will be accessible to service and waste vehicles associated with the proposed development.
- Conditions would be put imposed on students through their student handbook, which would be referenced as part of their tenancy agreement, to ensure parking impacts occurred by the students associated with the proposed development are minimal.
- Given the nature of the use and proximity to high frequency public transport services, car ownerships within the proposed development would most likely be low. GoGet car share facilities would be made available for students, should car travel be necessary.
- The proposed development is anticipated to generate little to no traffic due to this proposed development being a student accommodation development catering for students whose demographics include low car ownership rates and high public transport usage. As such, the proposal is not expected to generate any adverse traffic impact on the surrounding road network, nor any operational or safety issues on surrounding key intersections.
- It is proposed that a Green Travel Plan (GTP) would be implemented to ensure mode split targets are achieved for the development. A GTP document has been prepared to accompany the SSDA submission, noting that this GTP would have to be updated post-occupation of the site.

To conclude, the traffic and parking implications associated with the proposed development is not expected to result in any noticeable detriment on the surrounding road network, with management measures in place to ensure minimal traffic and parking impact.

Appendix A

Architectural Plans



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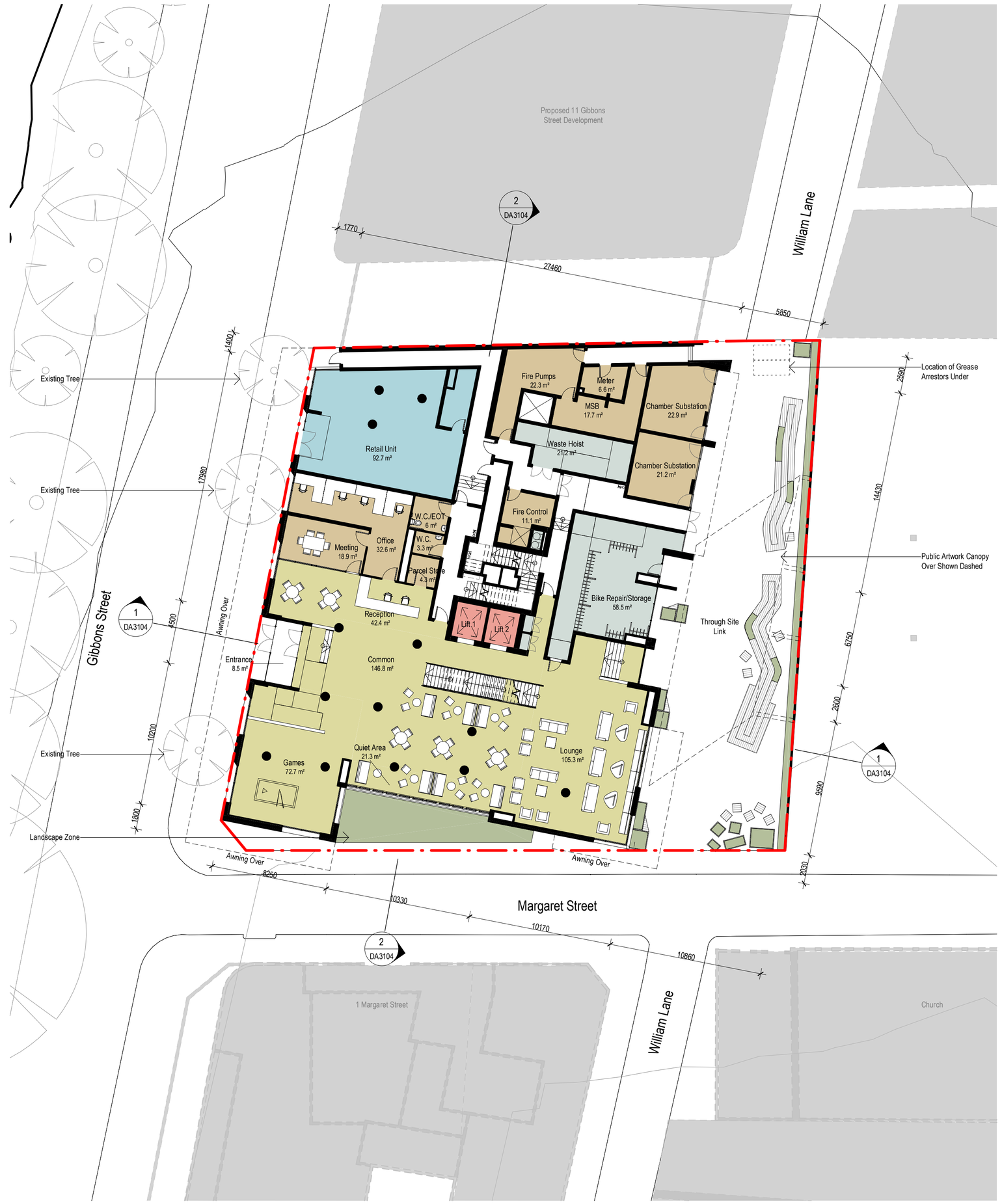

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Revisions				
No.	Date	Description	Ver	App'd
1	09.08.2018	Revision 1		
2	14.12.2018	DA Issue	ALL	AT
3	12.12.2018	Issue to Consultant		

Key

N

Client
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ABN 53 003 782 250

Project
WEE HUR STUDENT HOUSING
13-23 Gibbons Street, Redfern
Proj. No. 18029

Drawing Title
Basement & Level 1 Plan

Sheet Status
NOT FOR CONSTRUCTION

Scale
1 : 200 @A1

Drawing No.
DA2001

Issue
3

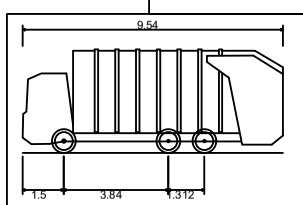
PLOT DATE & TIME: 12/12/2018 11:26:26 AM
PLOTTED & CHECKED BY: SO
REF: D:\Users\Thora\Documents\18029_Master_Ortiea.rvt

Appendix B

Swept Path Diagrams

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



COS 9.5m Long Waste Truck	
Overall Length	9540mm
Overall Width	2600mm
Overall Body Height	3800mm
Min Body Ground Clearance	304mm
Track Width	2500mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10000mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JN	ML	17/12/18

ttpp transport planning

PROJECT

13-23 GIBBONS STREET, REDFERN

TITLE

CITY OF SYDNEY 9.54m LONG WASTE TRUCK SWEPT PATH ANALYSIS
WILLIAM LANE

DWG No. 18077CAD005
FIGURE 1

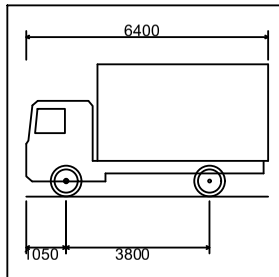
DATE STAMP 17 DECEMBER 2018

PROJECT No.	SCALE	REV.
18077	1:250 @ A3	A

Filename: 18077CAD005-SWEPT PATH-191217.dwg
Date: 17 December 2018
By: Karl.magistrado

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



SRV - Small Rigid Vehicle

Overall Length	6400mm
Overall Width	2330mm
Overall Body Height	3500mm
Min Body Ground Clearance	398mm
Track Width	2330mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7100mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JN	ML	17/12/18

ttpp transport planning

PROJECT: 13-23 GIBBONS STREET, REDFERN

TITLE: AS2890.2.2002 6.4m SMALL RIGID VEHICLE SWEPT PATH ANALYSIS
WILLIAM LANE

DWG No. 18077CAD005
FIGURE 2

DATE STAMP 17 DECEMBER 2018

PROJECT No.	SCALE	REV.
18077	1:250 @ A3	A

Filename: 18077CAD005-SWEPT PATH-191217.dwg Date: 17 December 2018 By: Kiet magistrado

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