



Traffic Impact & Parking Assessment

Proposed Student Accommodation Development 4-18 Doncaster Avenue, Kensington

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1. Introduction

TRAFFIX has been commissioned by Blue Sky Commercial Asset Managers Pty Ltd to undertake a Traffic Impact and Parking Assessment for a proposed student accommodation development at 4-18 Doncaster Avenue, Kensington. A State Significant Development (SSD) Application seeks approval for the construction of a three-storey student accommodation development, comprising of 259 beds and the provision of a basement level car park.

The proposed development is located within the Randwick City Council Local Government Area (LGA) and has been assessed under that Council's controls, as well as having regard for relevant matters raised in the Secretary's Environmental Assessment Requirements (SEARs).

The report is structured as follows:

- ➊ Section 2: Describes the site and its location
- ➋ Section 3: Documents existing traffic conditions
- ➌ Section 4: Describes the proposed development
- ➍ Section 5: Assesses the parking requirements
- ➎ Section 6: Assesses traffic impacts
- ➏ Section 7: Discusses access and internal design aspects
- ➐ Section 8: Outlines construction traffic management
- ➑ Section 9: Presents the overall study conclusions



2. Location and Site

The site is located at 4-18 Doncaster Avenue, Kensington and is approximately 180 metres south of Centennial Park and 4.5 kilometres southeast of Sydney central business district (CBD). More specifically, it is bounded by Doncaster Avenue to the west and the Sydney Light Rail Randwick Stabling Yard to the east.

The site is rectangular in configuration with a total site area of 4,273.3m². It currently accommodates a total of four (4) residential dwellings, with vehicular access available for each dwelling available from Doncaster Avenue.

The site has a northern and eastern boundary to the Sydney Light Rail Randwick Stabling Yard of 40.2 metres and 106.4 metres, respectively. The southern boundary is shared with a neighbouring residential property of 40.2 metres, and the western frontage to Doncaster Avenue is 106.4 metres.

The Location Plan and Site Plan are shown in **Figure 1** and **Figure 2**, respectively. Reference should also be made to the Photographic Record presented in **Appendix A**, which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

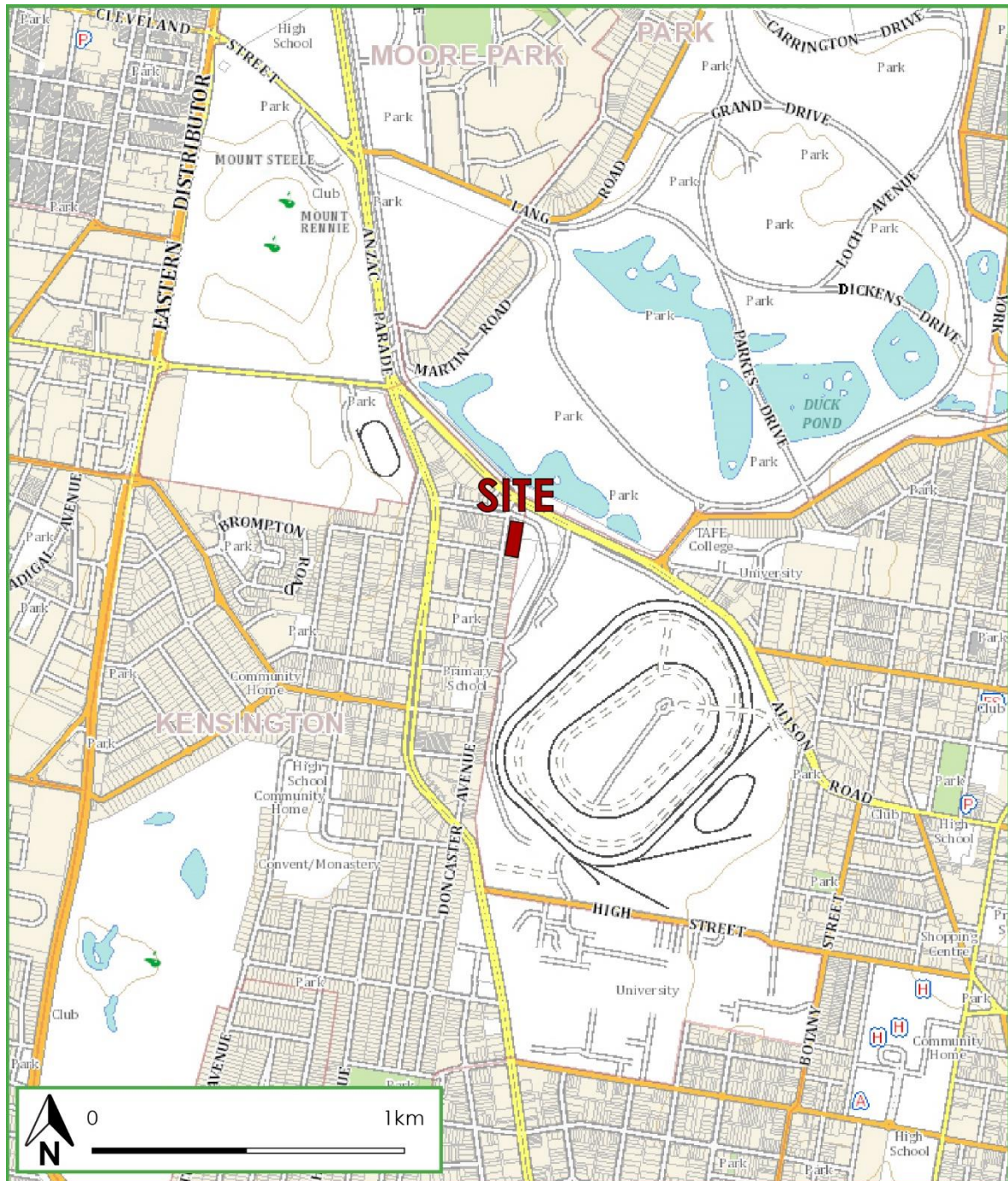


Figure 1: Location Plan

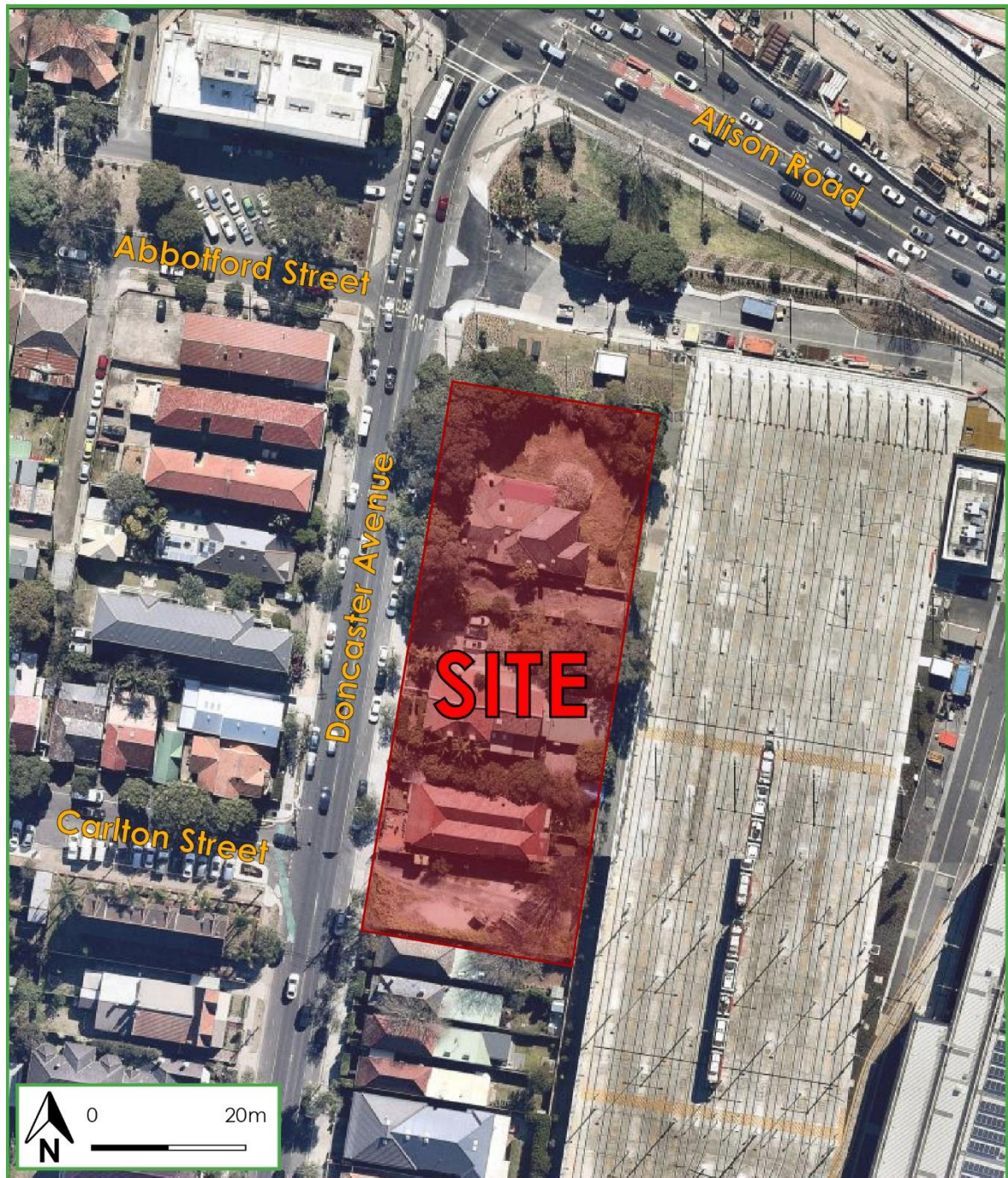





Figure 2: Site Plan



3. Existing Traffic Conditions

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

-  Anzac Parade: an RMS main road (MR 171) that traverses in a north-south direction between Moore Park Road in the north and La Perouse Point in the south. Due to on-going construction of the Sydney Light Rail, it is generally subject to a 50km/hr speed zoning and accommodates a single lane of traffic in each direction within the vicinity of the site. Anzac Parade does not permit kerbside parking.
-  Alison Road: an RMS main road (MR 327) that generally traverses in an east-west direction between Beach Street in the east and Anzac Parade in the west. Due to on-going construction of the Sydney Light Rail, it is generally subject to a 50km/hr speed zoning and accommodates two (2) lanes of traffic in each direction within the vicinity of the site. Alison Road permits sections of time restricted kerbside parking.
-  Doncaster Avenue: an RMS unclassified regional road (RR 7331) that traverses in a north-south direction between Alison Road in the north and Gardeners Road in the south. It is subject to 50km/hr speed zoning however, a '40km/hr School Zone' speed restriction operates between 8:00-9:30am and 2:30-4:00pm on school days. Doncaster Avenue accommodates a single lane of traffic in each direction and permits kerbside parking with various restrictions. It is noted that Doncaster Avenue comprises two (2) sections, separated by Kensington Park.

It can be seen from Figure 3 that the site is conveniently located with respect to the arterial and local road systems serving the region, with connectivity to the east and west (via Alison Road) using Doncaster Avenue. It is therefore able to effectively distribute traffic onto the wider road network, minimising traffic impacts.

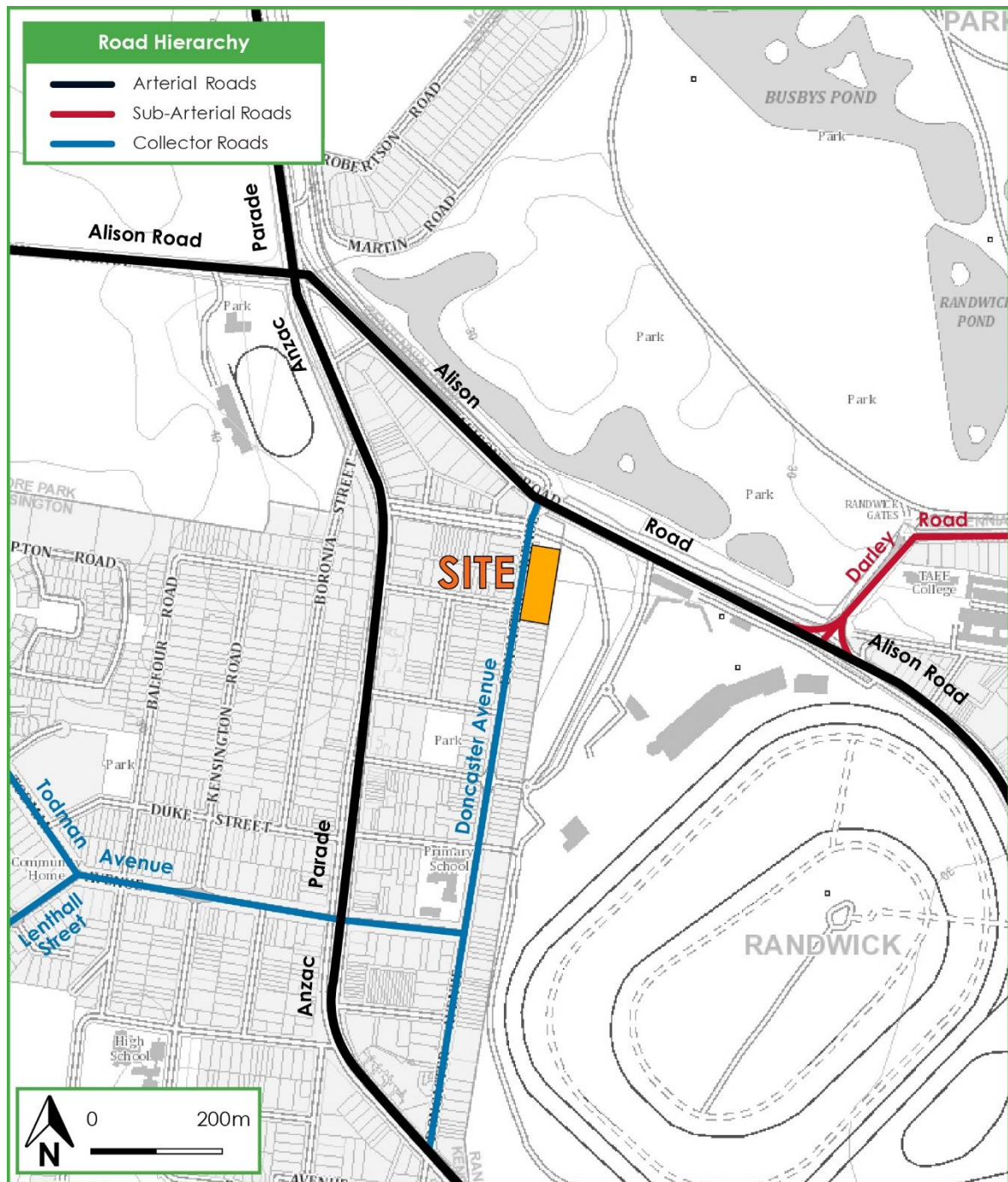


Figure 3: Road Hierarchy



3.2 Public Transport

The public transport services in the locality are illustrated in **Figure 4**, with these services discussed in detail, below.

3.2.1 Bus Services

The subject site benefits from excellent bus services with several bus stops provided within optimal walking distance (400 metres) of the site. These bus services and routes are outlined in **Table 1** below.

Table 1 – Bus Services and Routes

Bus Service	Route	Bus Service	Route
338	Clovelly to Central Railway Square	396	Maroubra Beach to City Circular Quay
339	Clovelly to City Gresham Street	397	South Maroubra to City Circular Quay
372	Coogee to Central Railway Square	399	La Perouse to City Circular Quay via Malabar Beach and Maroubra Junction
373	Coogee to City Circular Quay via Belmore Road	L94	La Perouse to City Circular Quay
374	Coogee to City Circular Quay via Bream Street	M10	Maroubra Junction to Leichhardt via City
376	Maroubra Beach to Central Railway Square	M50	Coogee to Drummoyne
377	Maroubra Beach to City Circular Quay	X92	Little Bay to City Museum
391	La Perouse or Port Botany to Central Railway Square	X94	Le Perouse to City Museum
392	Little Bay to City Circular Quay via Eastgardens and Prince Henry Hospital	X96	Maroubra Beach to City Museum
393	Little Bay to Central Railway Square via Maroubra and Kingsford	X97	South Maroubra to City Museum
394	City Circular Quay to La Perouse via Maroubra and Kingsford	X99	Little Bay to City Museum
395	Maroubra Beach to Central Railway Square		

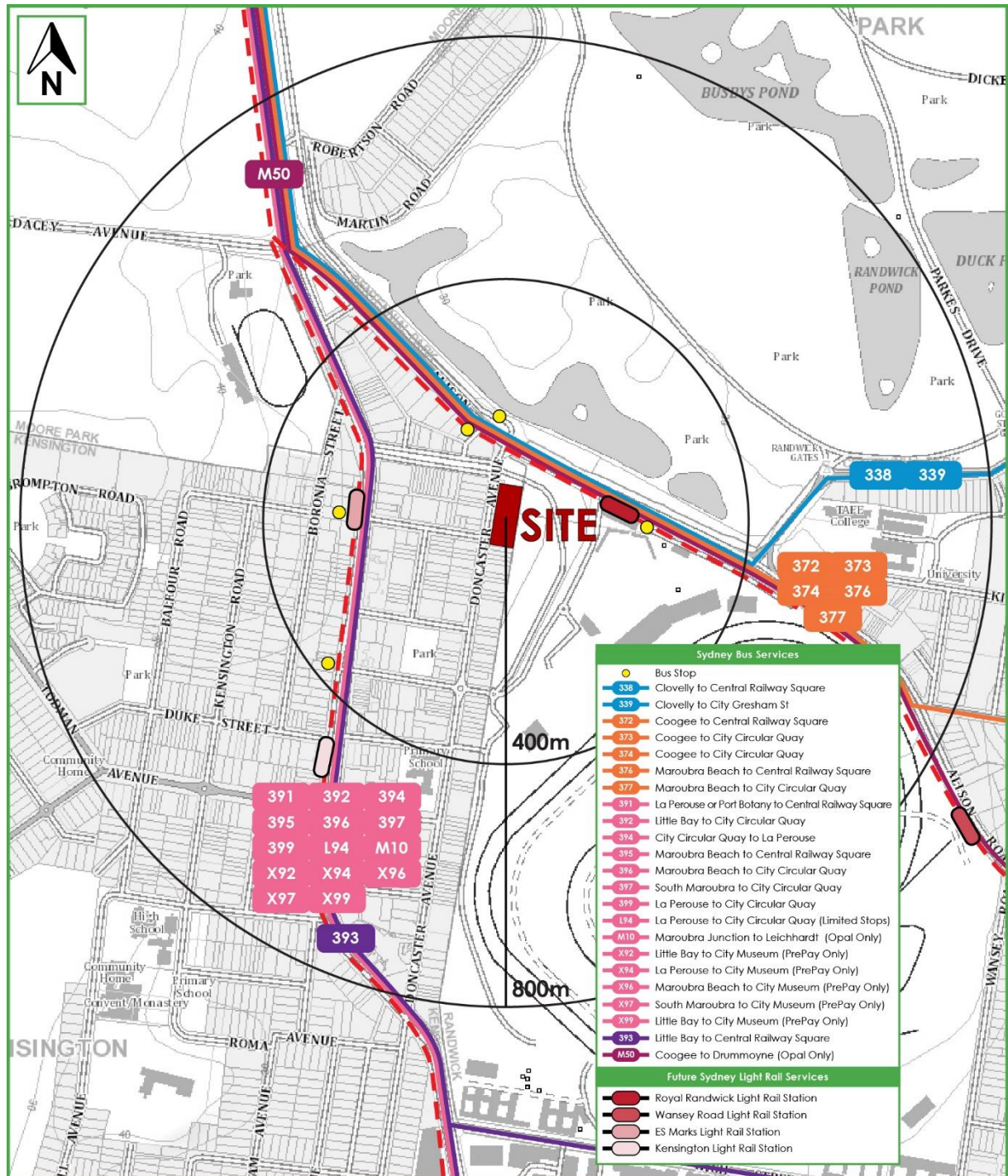


Figure 4: Public Transport



3.2.2 Light Rail Services

The subject site is located within close proximity to two (2) future light rail stations for the CBD and South East Light Rail (CSELR), with the closest station being the Alison Road-Royal Randwick Station (approximately 180 metres east of the site) and Carlton Street-ES Marks (approximately 250 metres west of the site). Once completed, the CSELR network will feature a total of 19 stations as outlined below and presented in **Figure 5**.

- | | |
|---------------------------|------------------------------|
| ➤ Circular Quay | ➤ Carlton Street-ES Marks |
| ➤ Bridge Street | ➤ Nine Ways |
| ➤ Wynyard | ➤ Kensington |
| ➤ Queen Victoria Building | ➤ Kingsford |
| ➤ Town Hall | ➤ UNSW Anzac Parade |
| ➤ China Town | ➤ UNSW High Street |
| ➤ Haymarket | ➤ Alison Road-Royal Randwick |
| ➤ Central Chalmers Street | ➤ Randwick |
| ➤ Surry Hills | ➤ Wanseley Road |
| ➤ Moore Park | |



Figure 5: CBD and South East Light Rail Map

(Source: TfNSW)



3.2.3 Train Services

It is evident from the information related to bus services and proposed Sydney Light Rail Stations, that the subject site has access to several public transport services that provide regular routes to various railway stations. The primary railway station these routes service is Central Railway Station. This station provides frequent services to the routes summarised in **Table 2** below:

Table 2 – Train Services and Routes (Central Station)

Train Service	Routes	Train Service	Routes
CCN	Central Coast and Newcastle Line	BMT	Blue Mountains Line
SHL	Southern Highlands Line	T1	North Shore, Northern and Western Line
SCO	South Coast Line	T2	Inner West and Leppington Line
Regional NSW	North Coast NSW	T3	Bankstown Line
	North West NSW	T4	Eastern Suburbs and Illawarra Line
	Southern NSW	T7	Olympic Park Line
	Western NSW	T8	Airport and South Line

3.3 Walking and Cycling Infrastructure

3.3.1 WalkScore

Footpaths are provided along both sides of Doncaster Avenue, Abbotsford Street, Carlton Street and other roads in the vicinity. Footpaths are also provided on both sides of Alison Road, though currently, while CSELR is being built, sections of the footpath have been temporarily closed.

The subject site is located within walking distance of several amenities such as restaurants, cafés, bars, supermarkets, shopping centres, parks and schools. WalkScore is an excellent way of measuring the 'walkability' of the subject site in relation to these nearby amenities based on distance and pedestrian friendly areas. Application of the subject site results in the walk scores presented in **Figure 6**.

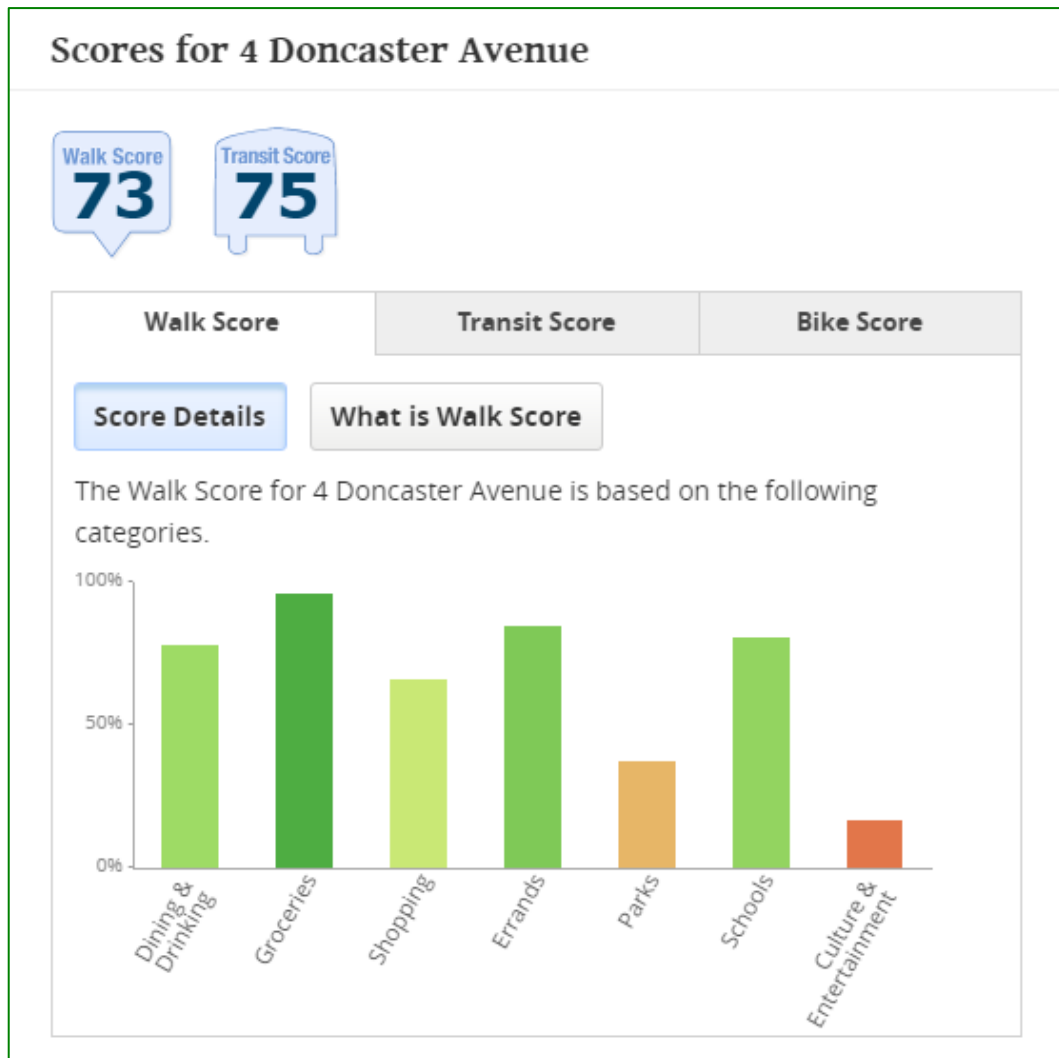


Figure 6: WalkScore – 4 Doncaster Avenue

Figure 6 demonstrates that the subject site is considered very walkable to most amenities and has excellent access to public transport with a Walk Score of 73 and Transit Score of 75, respectively. As such, the location of the site is such that most errands can be accomplished on foot, while also providing convenient public transport options for various areas.



3.3.2 Cycleways

In addition to the various walking routes, the subject site is also located within close proximity to several dedicated bicycle lanes, off-road shared paths and bicycle friendly roads available throughout the area. These cycleways can be used concurrently with other bicycle routes to provide connections to various areas. The local cycle network is illustrated in **Figure 7**, with the primary cycleways summarised as follows:

	Designated Bicycle Lanes	Doncaster Avenue accommodates dedicated lanes. These lanes provide access to areas such as Randwick Racecourse and the University of New South Wales (UNSW).
	High-Traffic Direct Routes	Doncaster Avenue, Todman Avenue, Day Avenue and Lenthall Street accommodates direct routes, as well as sections of designated bicycle lanes. These routes provide access to areas such as Green Square, Zetland and Maroubra. Bi-directional lanes are also to be installed in sections of Doncaster Avenue (eastern side, in front of the site), Houston Road, General Bridges Crescent and Sturt Street.
	Low-Traffic On-road Routes	Boronia Street, Doncaster Avenue, High Street and areas of Centennial Park accommodate low-traffic on-road quiet routes. These routes provide access to areas such as Kingsford, Randwick and La Perouse.
	Off-Road Shared Paths	Alison Road, South Dowling Street and Cleveland Street accommodate off-road shared paths for bicycles. These routes provide access to areas towards Moore Park and the Sydney CBD.
	Regional Cycle Routes	Alison Road, High Street, Bourke Street, South Dowling Street and Cleveland Street accommodate regional cycle routes. These routes provide access to areas such as Surry Hills, Moore Park, Centennial Park, Bondi, UNSW and Randwick.

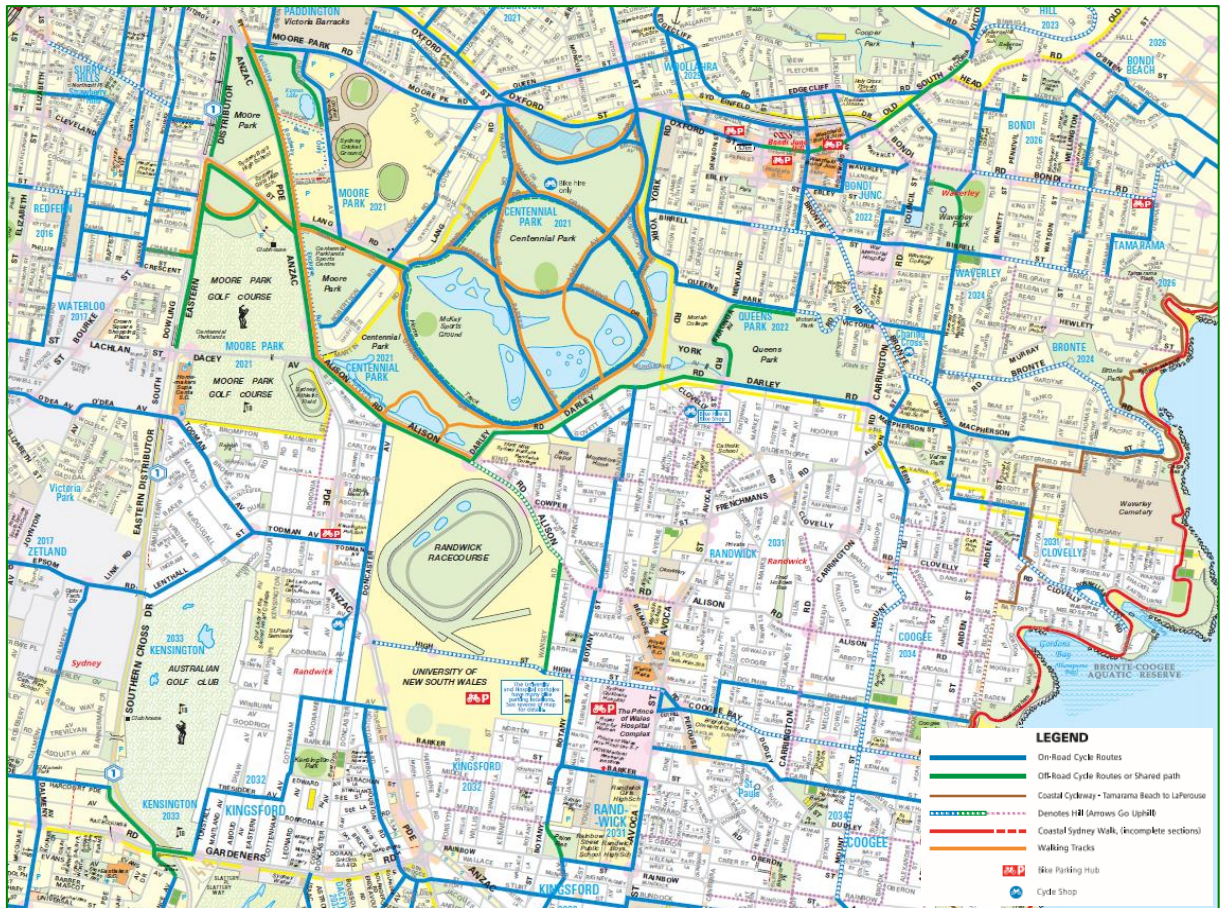


Figure 7: Cycleways in Randwick

(Source: Cycling Map – Northern Section)

3.4 Car Share Services

The subject site is situated within optimal walking distance (400 metres) of four (4) GoGet car pods. This car share service is able to cater for short-term car related trips. The location of these GoGet pods is summarised as follows:

- 📍 Carlton Street, near Doncaster Avenue;
- 📍 Abbotford Street, near Anzac Parade;
- 📍 Goodwood Street, near Elsmere Street;
- 📍 Salisbury Road, near Boronia Street.

In addition, it is noted that additional GoGet pods can be requested closer to and / or within the site, should there be a demonstrated demand.



3.5 Existing Site Traffic Generation

As previously mentioned, the subject site currently accommodates four (4) low density residential dwellings. In accordance with the RMS Guide to Traffic Generating Developments Technical Direction (TDT 2013/04a), low density residential dwellings would attract a trip rate of 0.95 trips per dwelling and 0.99 trips per dwelling during the AM and PM peak periods, respectively. Application of these rates to the four (4) existing residential dwellings results in the following traffic generation:

- 4 vehicle trips per hour during the morning peak period (1 in, 3 out); and
- 4 vehicle trips per hour during the afternoon peak period (3 in, 1 out).

This traffic generation is considered negligible, but still needs to be taken into account in the assessment of traffic impacts as discussed in **Section 6**.



4. Description of Proposed Development

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the development for which approval is now sought, comprises of the following components:

- ➊ Demolition of existing structures;
- ➋ Retention of the heritage building for use of the student accommodation;
- ➌ Construction of a three-storey student accommodation, with a total provision of 259 beds, comprising the following:
 - 176 x beds within single studio units;
 - 36 x beds within twin studio units;
 - 12 x beds within six-bedroom clusters; and
 - 35 x beds within seven-bedroom clusters.
- ➍ Construction of a basement level car park comprising the following:
 - 55 x student residential car parking spaces (including five (5) car share spaces); and
 - 1 x manager car parking space; and
 - 55 x motorcycle parking spaces.

The parking requirements and traffic impacts arising from this development are discussed in **Section 5** and **Section 6**, respectively. Reference should also be made to the architectural drawings submitted separately to Council, for which plans for the student accommodation and basement level car park has been presented at reduced scale in **Appendix B**.



5. Parking Requirements

5.1 Car Parking

5.1.1 Council and State Controls

The subject site is located within the Randwick City Council's LGA. The Randwick Council Development Control Plan 2013 (DCP) Section B7, Table 1 states that the parking provision for boarding houses will be referred to the State Environmental Planning Policy (Affordable Rental Housing) 2009 (SEPPARH).

Clause 29 (e) of the SEPPARH provides the car parking rates and provisions for boarding house developments that are considered to be located in an 'accessible area'. These rates are summarised below:

- ➊ Minimum of 0.2 parking spaces per boarding room (on behalf of a social housing);
- ➋ Minimum of 0.5 parking spaces per boarding room (not on behalf of social housing); and
- ➌ Maximum of one (1) space for each person employed who is a resident on-site.

It is noted the proposed development is *not* carried out by or on behalf of a social housing provider however, the applicable rate of 0.2 parking spaces per boarding room has been adopted. This rate is considered acceptable and appropriate given the reasons discussed further in **Section 5.1.2**. Application of the above rates to the total provision of 241 boarding rooms (259 beds minus the second be included in twin rooms) results in the car parking rates and provisions summarised in **Table 3** below.

Table 3 – SEPPARH Parking Requirements and Provisions

Type	Number of Rooms / Staff	SEPP Car Parking Rate	Parking Required ²	Parking Provided
<i>Student Boarding House</i>				
Residential	241 rooms	a minimum of 0.2 car parking spaces per boarding room	48	55
Manager ¹	4 staff	a maximum of 1 car parking space for each person employed	4	1
Total			52	56

¹ – Each person employed in connection with the development and who is a resident on-site.

² – Total number was rounded to the nearest whole number.



It can be seen from Table 3 that the development is nominally required to provide a minimum of 52 parking spaces for residents and a maximum of four (4) parking spaces for staff. In response, the proposed development provides 55 parking spaces for residents and a single parking space for the on-site manager. The adoption of the 0.2 parking spaces per room parking rate, is considered acceptable and appropriate given the reasons discussed below.

5.1.2 TRAFFIX Support for Parking Provision

TRAFFIX has given consideration to the reduced car parking provision and finds the development supportable on traffic engineering grounds based on the following reasons:

- ➊ In reference to the Passenger Transport Act 1990, a site is classified as being in an accessible area with the following definition:

“Land that is within 400m walking distance of a bus stop used by a regular bus service that has at least one bus per hour serving the bus stop between 06.00 and 22.00 each day from Monday to Friday (both days inclusive and between 08.00 and 18.00 on each Saturday and Sunday”.

As outlined previously, the subject site is located within 400 metres (optimal walking distance) to several existing bus stations. These bus stations provide regular services to various areas, as well as connections to major railway stations, such as Central and Bondi Junction.

Accessibility to public transport will also be significantly increased with the completion of the CSELR, with the Alison Road-Royal Randwick and Carlton Street-ES Marks Light Rail stations located in close proximity to the subject site. The future light rail network will provide commuters with access to UNSW and various other areas locations within the Sydney CBD, as well as connections to the wider public transport network. As such, the subject site would have a reduced parking demand, given the amount of existing and future public transport services in the locality.

- ➋ The subject site benefits from being in a convenient location to surrounding amenities, such as restaurants, cafés, bars, supermarkets, shopping centres, parks and schools. In reference with WalkScore.com, the resultant Walk Score and Transit Score is 73 and 75, respectively. This walk score in conjunction with the various cycleways in the locality suggests that the majority of errands can be accomplished using active travel modes.
- ➌ The proposed reduced parking rate is in line with similar student accommodation developments located throughout Australia, developed by Blue Sky. These comparable developments are summarised below:



- Regent Street, Woolloongabba – accommodates 309 beds and a parking provision of 48 spaces. This student accommodation was found to utilise 21 spaces of the total car parking provision. This results in a car space usage / bed ratio of 6.7%, with a parking space rate of 0.155 spaces per bed.
 - Merivale Street, South Brisbane – accommodates 824 beds and a parking provision of 17 spaces, including five (5) car share spaces. This student accommodation was found to utilise nine (9) spaces of the total car parking provision. This results in a car park usage / bed ratio of 1.1%, with a parking space rate of 0.02 spaces per bed.
 - Glen Road, Toowong – accommodates 532 beds and a parking provision of 120 spaces. This student accommodation was found to utilise 20 spaces of the total car parking provision. This results in a car park usage / bed ratio of 3%, with a parking space rate of 0.22 spaces per bed.
 - 66-68 Barker Street, Kingsford – accommodates 40 rooms and a parking provision of nine (9) spaces. This student accommodation was found to utilise one (1) space of the total car parking provision. This results in a car park usage / room ratio of 11.1%, with a parking space rate of 0.23 spaces per room.
- ② There are other examples of student accommodation that provide no parking provision. These existing and future (currently in construction) developments are summarised below:
- Waymouth Street, Adelaide – accommodates 448 beds.
 - La Trobe Street, Melbourne – accommodates 771 beds.
 - Peel Street, Melbourne – accommodates 576 beds.
 - Wellington Street, Perth – accommodates 713 beds.
- ② The proposed development, being student accommodation, is envisaged to have a high proportion of residents enrolled at UNSW. Although UNSW is located approximately 1.3 kilometres south of the site (16 minute walk), the aforementioned public transport network and active travel routes would provide alternative modes of transportation to and from UNSW, thereby reducing the parking demand of the development.
- ② Blue Sky has advised that the average stay length of a typical student is approximately nine (9) months. This is regarded as a short-term stay and given the financial constraints of an average student, it is expected that the majority of students would be discouraged in purchasing a vehicle to utilise for such a short time period.



- 2 There are also other alternative modes of transportation available in the locality, being car and bicycle share services. These alternatives are summarised below:
- Car Share services can provide an economic alternative to privately owned vehicles. Currently there are four (4) GoGet Car pods located within optimal walking distance (400 metres) of the subject site. Blue Sky has proposed to provide a total of five (5) GoGet car share parking spaces within the basement car park. These Car Share services in the locality and within the development would assist in reducing the number of cars on the road and alleviate traffic congestion within the area of the site.
 - As discussed in previous sections of this report, the subject site is ideally located within the vicinity of various off-road and on-road cycle-ways. The emergence of bike-sharing schemes will assist in providing residents the ability to travel short distances throughout the area without the need to personally own a bicycle.
- 2 A Green Travel Plan can be developed for the proposed development, with the primary objectives summarised as follows:
- Promote the use of sustainable transport modes, thus reducing congestion and pollution in the local area;
 - Encourage a positive image for the development as an innovative and environmentally-aware place of residence; and
 - Encouraging healthier travel options for residents, such as walking and cycling to promote a healthier lifestyle.

Within the Green Travel Plan a Travel Access Guide (TAG) would be provided. A TAG is prepared to reduce the reliance on private vehicle usage associated with the proposed development. The provision of this information to residents and visitors will ensure that they are aware of the public transport options and frequencies available to them, as well as the location of relevant services. As such, a reduction in car-oriented trips to and from the site is expected over a comparable development without a Green Travel initiative. Furthermore, increasing the number of journey-to-work trips by public and active transport is considered to be one of the most relevant State Government policies that are applicable to the subject site.

In summary, the adoption of above parking rate of 0.2 parking spaces per room is considered appropriate for the location and nature of the proposed student accommodation development. The combination of an abundance of public transport options, the promotion of active transport modes (bicycle/walking infrastructure) in the vicinity of the site, favorable survey results of similar affordable



housing developments throughout Australia, reinforce the adoption of the lesser and more appropriate parking rate in this instance.

5.2 Accessible Parking

The Randwick DCP 2013 states that accessible parking is to be provided for all developments in accordance with the Building Code of Australia (BCA). The development is classified as a Class 1b Building, being a boarding house development. As per the BCA, accessible parking is to be provided at the following rate:

- ② 1 space for every 100 car parking spaces or part thereof (Class 1b)

Application of this rate to the total proposed provision of 56 car parking spaces results in a requirement for a single accessible parking space. In response, the proposed development provides a single accessible parking space, complying with the BCA and DCP.

5.3 Bicycle Parking

Clause 30 of the SEPPARH provides the minimum bicycle parking rates for boarding house developments and are summarised in **Table 4** below.

Table 4 – SEPPARH Minimum Bicycle Parking Rates and Provisions

Type	Number of Rooms	SEPP Minimum Bicycle Parking Rate	Parking Required ¹	Parking Provided
<i>Student Boarding House</i>				
Residents	241	1 bicycle parking space per 5 boarding rooms	48	178
Total			48	178

¹ – Total number was rounded to the nearest whole number.

Table 4 shows that the development is required to provide a minimum of 48 bicycle parking spaces. In response, the proposed development provides a total of 178 bicycle parking spaces, comprising 28 spaces on the ground floor and 150 spaces within the basement level car park. It is noted that bicycles are not permitted on the vehicular access ramp and are required to use the lift to access bicycle parking spaces within the basement. This total provision is compliant with the SEPP and DCP.



5.4 Motorcycle Parking

Clause 30 of the SEPPARH provides the minimum motorcycle parking rate for a boarding house development is 1 motorcycle parking space per 5 boarding rooms.

Application of this rate to the total provision of 241 boarding rooms results in a minimum parking provision of 48 motorcycle parking spaces for student residential use. In response, the proposed development provides a total of 55 motorcycle parking spaces located within the basement car park. This total provision is compliant with the SEPP and DCP.

5.5 Car Share

GoGet have indicated their support for the provision for five (5) car share spaces within the basement level car park. These dedicated car share spaces have been identified within the basement car park. A preliminary agreement between Blue Sky and Go Get is provided in **Appendix C**.

5.6 Refuse Collection and General Servicing

The Randwick DCP 2013 and SEPPARH do not provide servicing and refuse collection rates for student boarding developments. Nevertheless, it is proposed that all refuse collection be undertaken within the basement level by a private “mini” waste collection vehicle. This refuse collection vehicle will enter the basement in a forward direction, position to collect refuse within the parking aisle, then exit the basement in a forward direction. It is noted that the applicant does not support any proposal that requires access to the site by Council’s typical refuse collection vehicle as this is unnecessary and will seriously compromise the overall building design solution.

It is proposed that the unloading / loading of goods (which will be infrequent as the rooms are generally provided furnished) will be undertaken by vans (a B99 car) from within the basement level, within an available parking space and this can be managed as may be appropriate by the resident caretaker/manager.



6. Traffic Impacts

6.1 Trip Generation

The RMS Guide to Traffic Generating Developments 2002 and the RMS TDT 2013/04a do not provide traffic generation rates for student accommodation or boarding house developments. As such, this assessment has adopted traffic generation rates proposed by the RMS TDT 2013/04a for High Density Residential Flat Dwellings (Sydney Average), which would attract the following peak period traffic generation rates:

- ② 0.09 vehicle trips per bedroom during the morning peak period; and
- ② 0.07 vehicle trips per bedroom during the afternoon peak period.

Application of the above rates to the proposed provision of 259 beds results in the following anticipated traffic generation:

- ② 23 vehicle trips during the morning peak period (5 in, 18 out); and
- ② 18 vehicle trips during the evening peak period (14 in, 4 out).

6.2 Net Trip Generation

The above traffic generation is not a net increase over existing conditions. When accounting for the existing uses discussed in Section 3.5, the proposed development will generate the following:

- ② +19 vehicle trips per hour during the AM peak period (+4 in, +15 out); and
- ② +14 vehicle trips per hour during the PM peak period (+11 in, +3 out).

6.3 Development Traffic Impacts

The anticipated net increase in traffic generation (14 – 19 vehicles in the peak hours) equates to a single vehicle trip every three (3) minutes during the evening peak period. These volumes would be diluted as distance from the site increases. Accordingly, the increase in traffic volumes at the intersections in the vicinity of the site are predicted to be minimal, and in any case, well within typical fluctuations in



background traffic volumes. This traffic generation is considered minor, thereby resulting in minimal traffic impacts on the surrounding road network, with no external improvements required.

6.4 Cumulative Impacts of Other Developments

The impacts associated with the proposed development are moderate as outlined above and in this context, the need for an assessment of cumulative traffic impacts in the immediate locality is considered onerous and unnecessary. This also has regard for the fact that under RMS Guidelines, an applicant needs to address impacts associated only with the development itself, based on the critical issue of a nexus needing to be demonstrated between the development and the need for any external required road improvements. In the subject case, no external improvements are required and in traffic terms, the development is a low traffic generating use.

To the extent that cumulative impacts may nevertheless need to be assessed, it is considered that this report would provide an input to any strategic studies that are presently underway or proposed by Council and/or RMS and TfNSW in relation to this evolving locality, due principally to the planning opportunities that are afforded by the Light Rail. That is, local and State Government presently carries a clear responsibility to provide the strategic planning framework (including cumulative medium and long term traffic scenarios) for this and other development sites.



7. Access & Internal Design Aspects

7.1 Access and Queuing

7.1.1 Access Arrangement

The development proposes a 4.5 metre wide access driveway (at the property boundary) via Doncaster Avenue in accordance with AS2890.1 for a Category 1 Driveway, with traffic signals providing right of way to vehicles entering and exiting the site. It is noted that the proposed access point makes use of an existing driveway crossing which has historically been used for Randwick Racecourse access / parking. This access was associated with high traffic volumes in connection with public parking. A swept path analysis is also provided in **Appendix D**, which demonstrate satisfactory vehicle entry and egress movements.

7.1.2 Queuing Analysis

In accordance with AS 2890.1 (2004), a queuing analysis was undertaken to determine the required queuing areas at the entry point. The following assumptions were used for this analysis:

- ② There is a total of 111 vehicle spaces comprising 56 car spaces and 55 motorcycle spaces within the basement level car park;
- ② The horizontal distance is approximately 54 metres, measured from Doncaster Avenue (on-street) to the waiting bay at the basement level car park;
- ② The average speed of vehicles was assumed to be 5 km/hr; and
- ② The PM peak traffic generation of 14 vehicle arrivals and four (4) vehicle departures per hour was applied, as this was the largest number of vehicles arriving to site.

In summary, this analysis concluded that there was a 0.7% chance that one (1) vehicle would be in the ramp system and 0.1% chance that two (2) vehicles would be in the ramp system at any given time. As such, no queuing area at the entry is required based on the 98th percentile queue. The detailed results of the queuing analysis are presented in **Appendix E** for reference.



7.2 Internal Design

The basement level car park is to be designed in accordance with AS 2890, with the following matters noteworthy:

7.2.1 Parking Modules

- ② All car parking spaces are to be designed with a minimum width of 2.4 metres and length of 5.4 metres.
- ② All accessible car parking spaces are to be designed with a minimum width of 2.4 metres, a minimum length of 5.4 metres and an adjacent shared zone with the same dimensions.
- ② All motorcycle parking spaces are to be designed with a minimum width of 1.2 metres and a minimum length of 2.5 metres.
- ② All parking aisles are to be designed in accordance with AS 2890.1 (2004).
- ② All spaces located adjacent to obstructions of greater than 150mm in height are to be provided with an additional width of 300mm.
- ② A single tandem parking space is provided in the basement and will be allocated to a single dwelling/room.

7.2.2 Ramps

- ② The vehicular access ramp is to be designed to accommodate the largest design vehicle proposed on site, with the existing configuration capable of accommodating light vehicles.

7.2.3 Clear Head Heights

- ② A minimum head height clearance of 2.2 metres is to be provided for all areas within the basement car park.
- ② A minimum head height clearance of 2.5 metres is to be provided for all accessible car parking spaces within the basement car park.

7.2.4 Other Considerations

- ② Dead-end aisles are to be provided with a minimum 1.0 metre aisle extension from the last parking space.



- ② Appropriate visual splays are to be provided in accordance with the requirements of Figure 3.3 of AS 2890.1 (2004).

In summary, the internal configuration of the basement car park and loading servicing area will be designed in accordance with the relevant Australian Standards and technical guidelines. It is envisaged that a condition of consent could be imposed requiring compliance with these standards and as such any amendments considered necessary can be dealt with prior to the release of any Construction Certificate.



8. Construction Traffic Management Plan

A detailed Construction Traffic Management Plan (CTMP) will be prepared and submitted to Council separate to this Development Application, in response to any future DA Conditions Consent. A Preliminary CTMP (*reference 18.476r03v01*) has been prepared and addresses the overall management principles for the site during the stages of construction. The Preliminary CTMP is presented in **Appendix F**.

It is noted that the preparation of a detailed CTMP report would require significant input from the appointed builder and would heavily rely upon the construction methodology which at this point cannot be confirmed. The following is to be confirmed with the appointed builder for each stage of construction:

- ② Frequency of daily vehicle arrivals and departures
- ② Maximum number of workers on site at any one time

In summary, the Preliminary CTMP addresses the overall traffic and construction management principles, hence a detailed CTMP will be prepared and submitted once a builder is appointed.



9. Conclusions

In summary:

- ② TRAFFIX has been commissioned by Blue Sky Commercial Asset Managers Pty Ltd to undertake a Traffic Impact and Parking Assessment for a proposed student accommodation development at 4-18 Doncaster Avenue, Kensington. A State Significant Development (SSD) Application seeks approval for the construction of a three-storey student accommodation, comprising of 259 beds and the provision of a basement level car park.
- ② The site is conveniently located with respect to the arterial and local road systems serving the region, with connectivity to the east and west (via Alison Road) using Doncaster Avenue.
- ② The site is located in close proximity to an abundance of public transport options, including bus services, future light rail stops, and has excellent connections to nearby walking and cycling infrastructure. In addition to this, numerous car share services are available within 400 metres of the site.
- ② A Green Travel Plan could be prepared for the development with the primary objectives to promote the use of sustainable transport modes and promote a positive image for the development as an innovative and environmentally-aware place of residence. The Green Travel Plan will also encourage healthier travel options for residents, such as walking and cycling to promote a healthier lifestyle.
- ② The subject site benefits from being in a convenient location to surrounding amenities, which are accessible by existing pedestrian footpaths. These pedestrian connections provide safe and efficient routes to surrounding restaurants, cafés, bars, supermarkets, shopping centres, parks and schools. These pedestrian footpaths in addition to the various cycleways in the locality suggests that the majority of errands can be accomplished using active travel modes.
- ② The subject site is also located within close proximity to several dedicated bicycle lanes, off-road shared paths and bicycle friendly roads available throughout the area. These cycleways can be used concurrently with other bicycle routes to provide connections to various areas and will be promoted by the preparation of a Green Travel Plan, if required.



- ② The adoption of the 0.2 parking spaces per room parking rate is considered appropriate for the location and nature of the proposed student accommodation development and discussed in detail in Section 5.1. The combination of an abundance of public transport options, the promotion of active transport modes (bicycle/walking infrastructure) in the vicinity of the site, favorable survey results of similar affordable housing developments throughout Australia, reinforce the adoption of the lesser and more appropriate parking rate in this instance.
- ② The anticipated net increase in traffic generation (14 – 19 vehicles in the peak hours) equates to a single vehicle trip every three (3) minutes during the evening peak period. These volumes would be diluted as distance from the site increases. Accordingly, the increase in traffic volumes at the intersections in the vicinity of the site are predicted to be minimal, and in any case, well within typical fluctuations in background traffic volumes.
- ② All refuse collection will be undertaken within the basement level by a private “mini” waste collection vehicle. This refuse collection vehicle will enter the basement in a forward direction, position to collect refuse within the parking aisle, then exit the basement in a forward direction. It is proposed that the unloading / loading of goods (which will be infrequent as the rooms are generally provided furnished) will be undertaken by vans (a B99 car) from within the basement level, within an available parking space and this can be managed as may be appropriate by the resident caretaker/manager.
- ② The internal configuration of the basement car park and loading servicing area will be designed in accordance with the relevant Australian Standards and technical guidelines. It is envisaged that a standard condition of consent could be imposed requiring compliance with these standards and as such any amendments considered necessary can be dealt with prior to the release of any Construction Certificate.



Appendix A

Photographic Record



Frontage of the existing site on 4A Doncaster Avenue, Kensington.



Frontage of the existing site on 14 and 16 Doncaster Avenue, Kensington.





Frontage of the existing site on 18 Doncaster Avenue, Kensington.



Bicycle lane along the eastern side of Doncaster Avenue.





Bicycle lane along the western side of Doncaster Avenue.



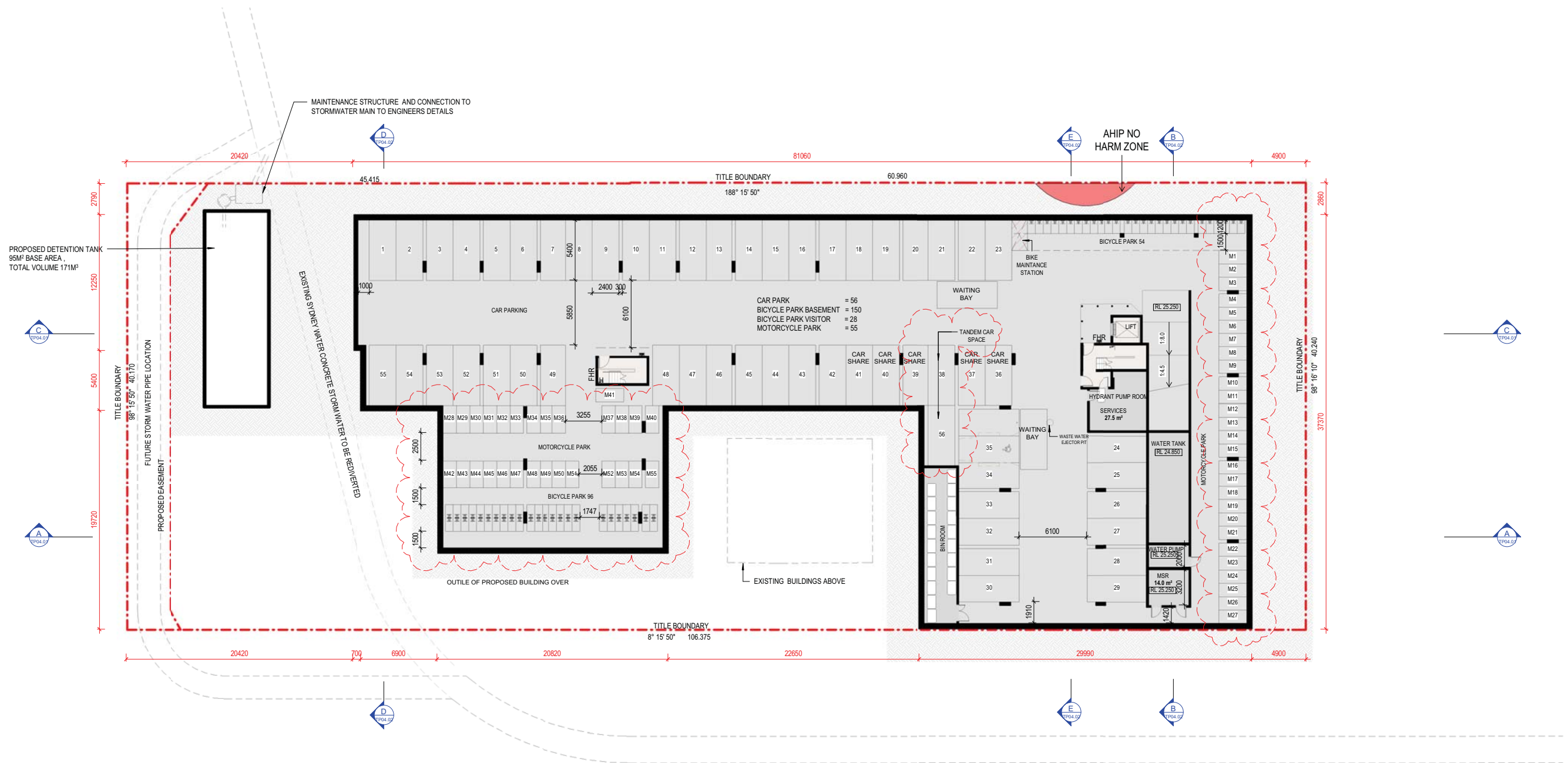
Bus stop on the intersection of Alison Road and Doncaster Avenue.







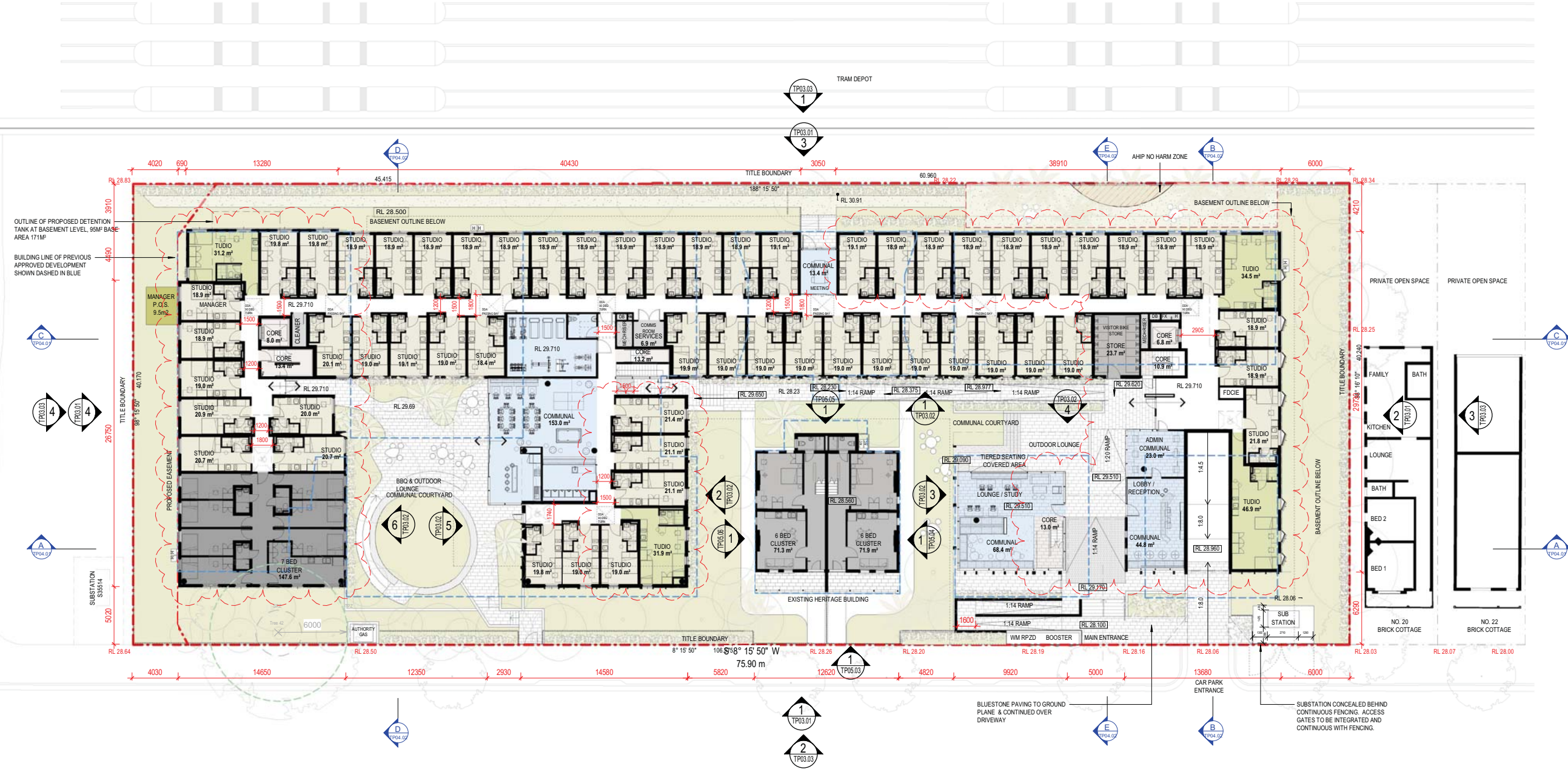
Appendix B

Reduced Architectural Plans



Project Title	Drawing Title	Status	Project No	Drawing No	Revision	Drawn By	Checked By	Date Printed	Scale	FS / JY	JV, EC	4/10/2019 3:31:06 PM	1 : 200@ A1		<table><tr><th>Rev</th><th>Date</th><th>Description</th></tr><tr><td>5</td><td>30/08/2019</td><td>ISSUED FOR INFORMATION</td></tr><tr><td>6</td><td>24/09/2019</td><td>ISSUED FOR COORDINATION</td></tr><tr><td>7</td><td>27/09/2019</td><td>ISSUED FOR COORDINATION</td></tr><tr><td>8</td><td>04/10/2019</td><td>RESUBMISSION FOR DEVELOPMENT APPLICATION</td></tr></table>	Rev	Date	Description	5	30/08/2019	ISSUED FOR INFORMATION	6	24/09/2019	ISSUED FOR COORDINATION	7	27/09/2019	ISSUED FOR COORDINATION	8	04/10/2019	RESUBMISSION FOR DEVELOPMENT APPLICATION	Melbourne : 4/135 Sturt Street Southbank, VIC 3006 T +61 3 9699 3644 Sydney : GroundFloor1 1-1 Buckingham Street, Surry Hills, NSW 2010T +61 2 9660 9329 Brisbane : Level 12, 324 Queen Street, Brisbane Old 4000 T +61 7 3211 9821 ABN: 84006394261 NSW Nominated Architects: Tom Jordan 7521, Richard Leonard 7522, David Tordoff 8028	
Rev	Date	Description																														
5	30/08/2019	ISSUED FOR INFORMATION																														
6	24/09/2019	ISSUED FOR COORDINATION																														
7	27/09/2019	ISSUED FOR COORDINATION																														
8	04/10/2019	RESUBMISSION FOR DEVELOPMENT APPLICATION																														
4-DONCASTER AVE KENSINGTON SYDNEY	BASEMENT PLAN	FOR DEVELOPMENT APPLICATION	2309	TP02.01	8																											

RL EXISTING NATURAL GROUND LEVELS
RL PROPOSED GROUND LEVELS



DONCASTER AVENUE SURVEY

ABBOTSFORD STREET

CARLTON STREET

Project Title	Drawing Title	Status	Project No	Drawing No	Revision	Drawn By	FS / JY	Rev Date	Description	Melbourne
4-DONCASTER AVE KENSINGTON SYDNEY	GROUND FLOOR PLAN	FOR DEVELOPMENT APPLICATION	2309	TP02.02	7	Checked By	EC	4/31/2019	REVISED FOR DEVELOPMENT APPLICATION	4/135 Sturt Street Southbank, VIC 3006 T +61 3 9699 3644
						Date Printed	4/10/2019 3:31:23 PM	5/30/2019	ISSUED FOR INFORMATION	Sydney : Ground Floor 1-1 Buckingham Street, Surry Hills, NSW 20107 +61 2 9660 9329
						Scale	1 : 200 @ A1	6/27/2019	ISSUED FOR COORDINATION	Brisbane : Level 12, 324 Queen Street, Brisbane Qld 4000 T +61 7 3211 9821
								7/04/2019	RESUBMISSION FOR DEVELOPMENT APPLICATION	ABN: 84006394261 NSW Nominated Architects: Tom Jordan 7521, Richard Leonard 7522, David Tordoff 8028



Appendix C

Preliminary Agreement with GoGet

25/10/2018

Attention:

Matthew Hill
Blue Sky Private Real Estate Pty Ltd
Level 34, 120 Collins Street, Melbourne VIC 3000

Car Sharing for proposed development by Blue Sky Private Real Estate Pty Ltd

CarShare Australia would like to confirm our support for at least 5 new GoGet Carshare vehicles on site at **4-18 Doncaster Ave, Kensington**. CarShare Australia is keen to install and manage five (5) car sharing vehicles at this location, for the benefit of owners/tenants and the surrounding community. GoGet has **53 existing members within 250 metres** of this development with only **Two** carshare cars within 250 metres currently.

With the commitment to provision of onsite vehicles and available memberships for tenants/residents of this development scheme, we expect even higher adoption rates of the service, thus allowing residents both within the building and in the surrounding area to no longer need to own private cars and relieves pressure to the limited on-street parking.

A car sharing program offers local residents and businesses access to a fleet of cars parked close to where they live and work for occasional use. The vehicles are parked in a dedicated location, called a pod, and are returned to that spot at the end of each trip. Car sharing services operate to fill a mobility 'gap' that exists between private car ownership, which is inefficient, expensive and unsustainable and public transport, walking and cycling, which can generally suit most local transport needs. A car sharing service in the development would increase transport efficiencies in the area, and encourage public transport usage by new and existing residents. Car sharing is a sustainable form of transport that will contribute to the green credentials of the building.

1 carshare vehicle can comfortably replace 10-12 vehicles in the local area. This is based on available statistical data of the LGA, our membership data and our Annual membership survey data. This number is supported by the NSW land and environment court rulings¹.

A car sharing program provides a reliable, convenient and affordable alternative to private car ownership. It has the following advantages:

1. Allows people to live car-free;
2. Promotes alternative transport options such as public transport, cycling or walking;
3. Decreases car usage which improves local air quality and promotes local businesses;
4. Removes private cars from local streets.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Chris Vanneste'.

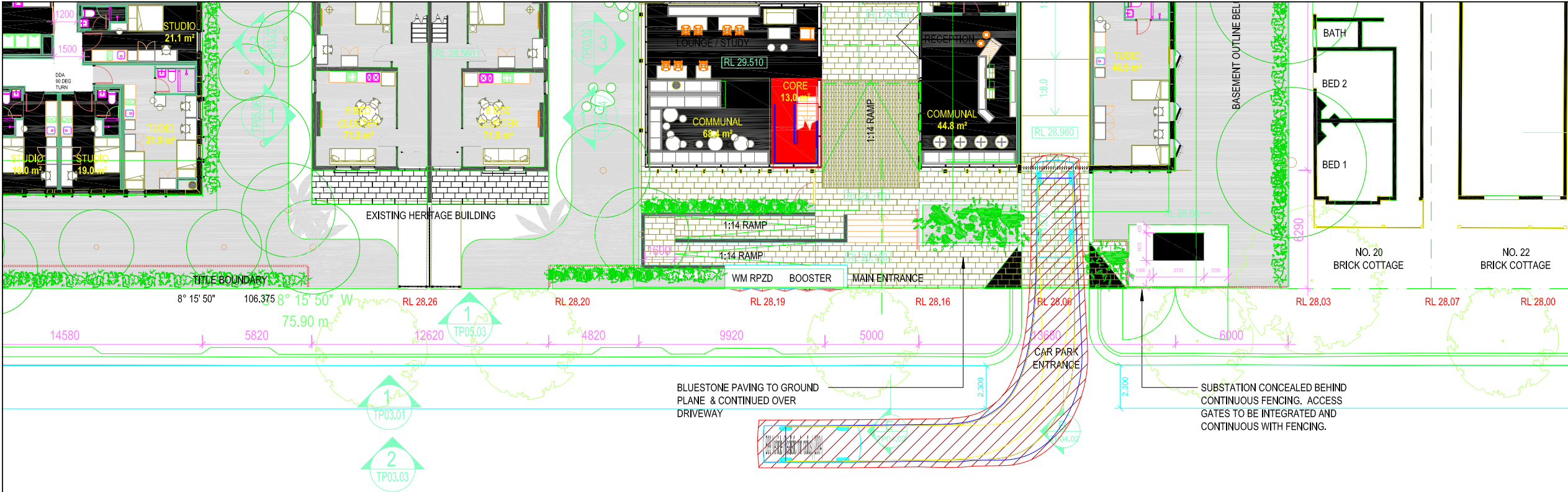
Christopher Vanneste
Chris@goget.com.au
Head of Locations and Partnerships
GoGet CarShare

¹ 2016 *Turner Architects vs Botany Bay Council*

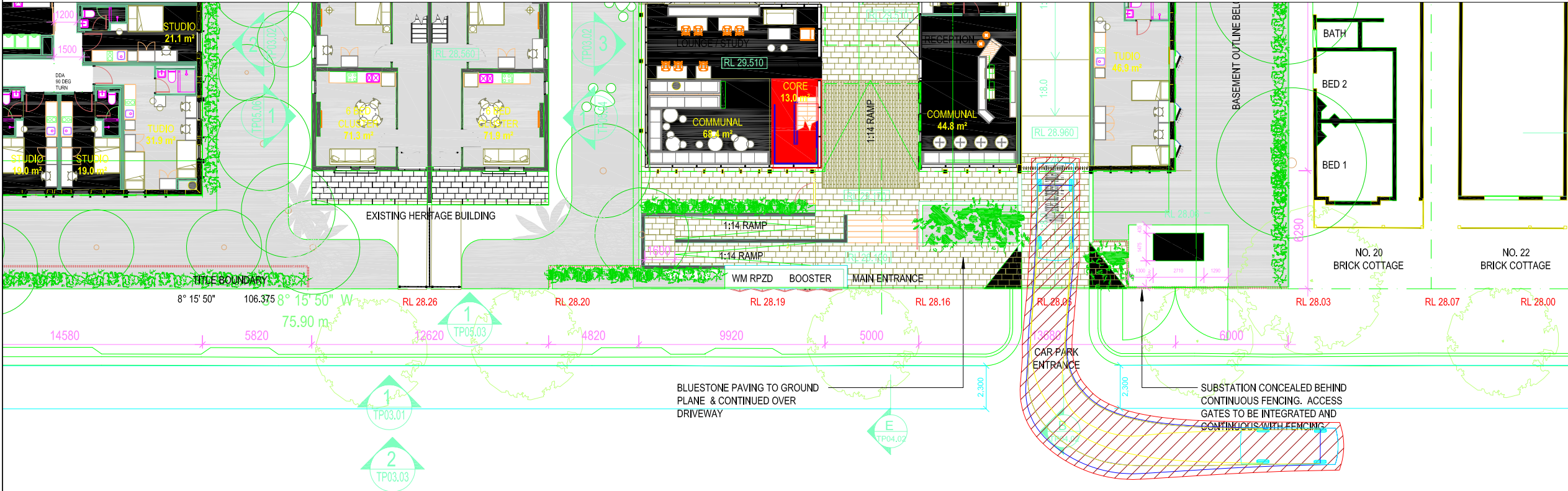


Appendix D

Swept Path Analysis



DONCASTER AVENUE SURVEY



DONCASTER AVENUE SURVEY

Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1-2004 *Parking facilities - Off-street car parking*, and/or AS 2890.2-2002 *Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date
A	Swept Path Analysis	NC	09-01-2019
B	Updated Plans	NC	04-10-2019

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Hayball
11-17 Buckingham Street
SURRY HILLS NSW 2010

client

Blue Sky
Level 22 Australia Square
264-278 George Street
SYDNEY NSW 2000

scale

1:250 @ A3
0m 2 4 6 8

project

4-18 Doncaster Avenue
KENSINGTON NSW 2033

drawing prepared by

TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
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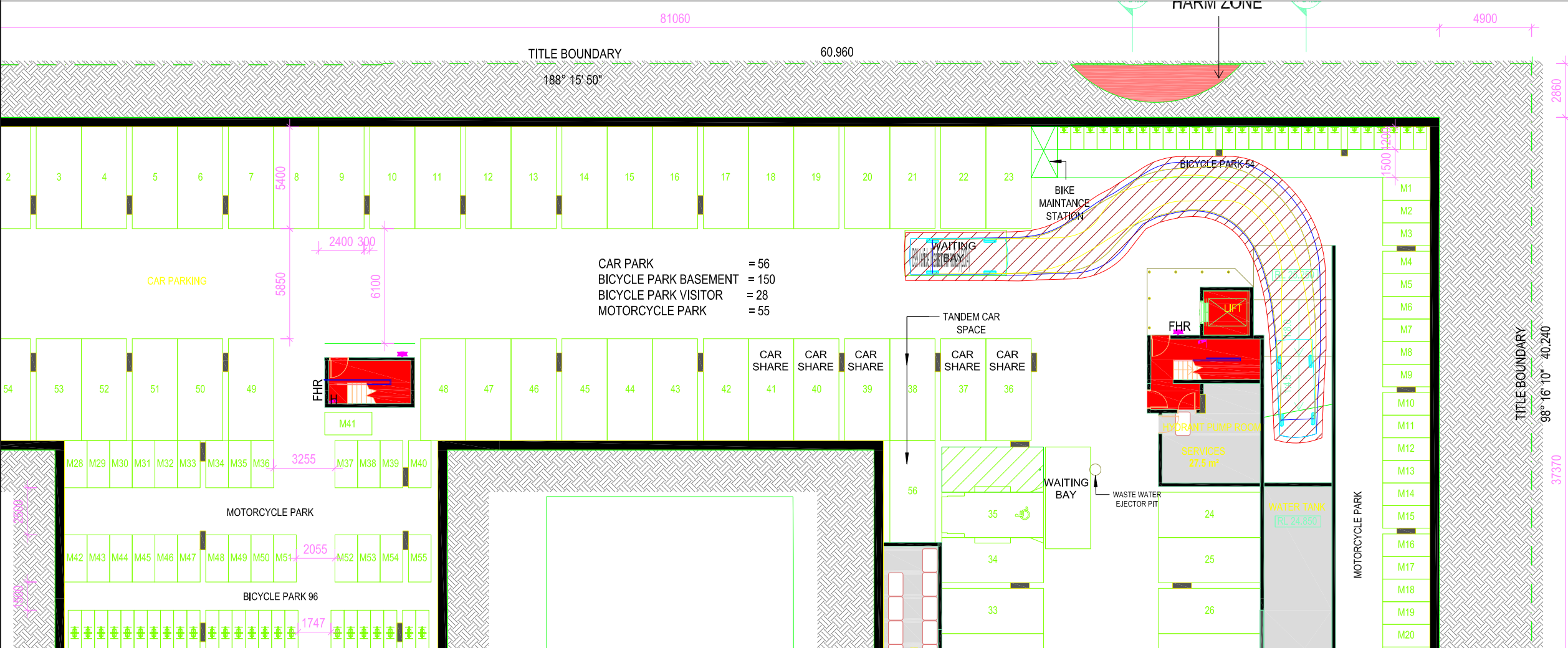
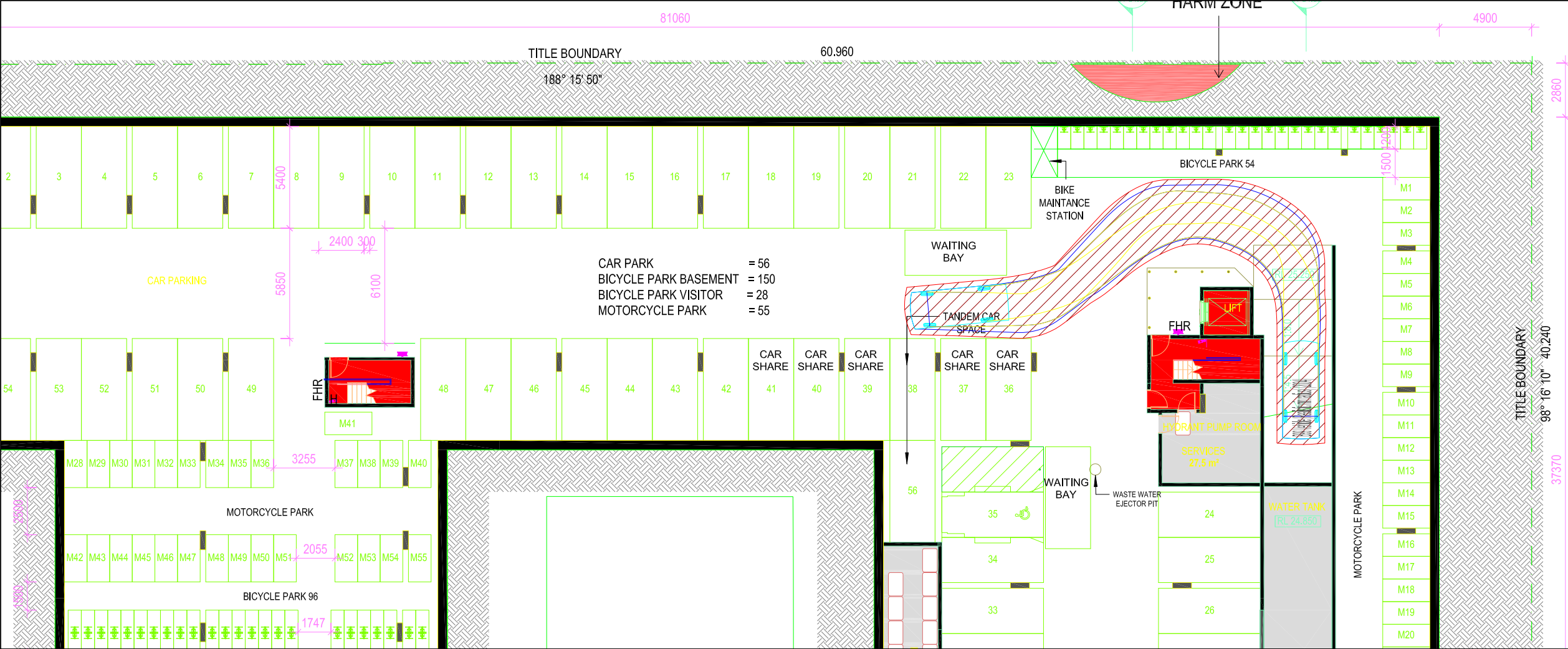
drawing title

Ground Level Access
B99 Design Vehicle
Vehicle Entry and Exit Movements

drawn:	NC	checked:	BL	date:	09-01-2019
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18.473a08v01 TRAFFIX [2019-10-04] - Design Review.dwg

18.473	-	TX.01	B
project no.	drawing phase.	drawing no.	rev



Notes

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no. revision note

A Swept Path Analysis

B Updated Plans

by. date

NC 09-01-2019

NC 04-10-2019

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Hayball
11-17 Buckingham Street
SURRY HILLS NSW 2010

client

Blue Sky
Level 22 Australia Square
264-278 George Street
SYDNEY NSW 2000

scale

1:250 @ A3

0m

2

4

6

8

project

4-18 Doncaster Avenue
KENSINGTON NSW 2033

drawing prepared by

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drawing title

Basement Level Car Park
B99 Design Vehicle
Vehicle Entry and Exit Movements

drawn: NC

checked: BL

date: 09-01-2019

18.473

-

TX.02

B

project no.

drawing phase.

drawing no.

rev



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no. revision note

A Swept Path Analysis

B Updated Plans

by. date

NC 09-01-2019

NC 04-10-2019

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Hayball
11-17 Buckingham Street
SURRY HILLS NSW 2010

client

Blue Sky
Level 22 Australia Square
264-278 George Street
SYDNEY NSW 2000

scale

1:250 @ A3

0m

2

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6

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project

4-18 Doncaster Avenue
KENSINGTON NSW 2033

drawing prepared by

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drawing title

Basement Level Car Park
B99 Design Vehicle
Vehicle Entry and Exit Movements

drawn: NC

checked: BL

date: 09-01-2019

18.473

-

TX.03

B

project no.

drawing phase.

drawing no.

rev



Appendix E

Queuing Analysis

18.473 - 4-18 Doncaster Avenue, Kensington

ARRIVALS

Travel Distance		
Level	No Cars/ Motorcycles	Horiz Distance from G (m)
G	0	0
B1	111	54
Average Travel Distance		54
The Longest Travel Distance		54

Vehicle Arrivals (veh/hr)	14
Travel Speed (m/sec)	1.4
Average Travel Time (sec)	39
Longest Travel Time (sec)	39
Clearance (sec)	2
Average Total Service time	41
Longest Total Service Time	41

Based on the Average Travel Distance

Queuing Theory Factors		
average arrival rate (r)	14.00	*r=(veh/hr)
average service rate (s)	87.80	*s=3600/(Average Total Service Time)
utilisation factor (p)	0.15944	*p=r/s
mean queue (E(m))	0.03024	*E(m)=(p/(1-p))-p

Probability of Vehicles in System (P(n))		
*P(n)=(1-p)p^n		
No. Vehicles in System (n)	Probability (%)	Prob of More than n (%)
0	84.1%	15.9%
1	13.4%	2.5%
2	2.1%	0.4%
3	0.3%	0.1%
4	0.1%	0.0%

Based on the Longest Travel Distance

Queuing Theory Factors		
average arrival rate (r)	14.00	*r=(veh/hr)
average service rate (s)	87.80	*s=3600/(Longest Total Service Time)
utilisation factor (p)	0.15944	*p=r/s
mean queue (E(m))	0.03024	*E(m)=(p/(1-p))-p

Probability of Vehicles in System (P(n))		
*P(n)=(1-p)p^n		
No. Vehicles in System (n)	Probability (%)	Prob of More than n (%)
0	84.1%	15.9%
1	13.4%	2.5%
2	2.1%	0.4%
3	0.3%	0.1%
4	0.1%	0.0%

DEPARTURES

Average Travel Distance		
Level	No Cars/ Motorcycles	Avg. Horiz Distance from G (m)
G	0	0
B1	111	54
Average Travel Distance		54
The Longest Travel Distance		54

Vehicle Arrivals (veh/hr)	4
Travel Speed (m/sec)	1.4
Average Travel Time (sec)	39
Longest Travel Time (sec)	39
Clearance (sec)	2
Average Total Service time	41
Longest Total Service Time	41

Queuing Theory Factors		
average arrival rate (r)	4.00	*r=(veh/hr)
average service rate (s)	87.80	*s=3600/(Average Total Service Time)
utilisation factor (p)	0.04556	*p=r/s
mean queue (E(m))	0.03024	*E(m)=(p/(1-p))-p

Probability of Vehicles in System (P(n))		
*P(n)=(1-p)p^n		
No. Vehicles in System (n)	Probability (%)	Prob of More than n (%)
0	95.4%	4.6%
1	4.3%	0.2%
2	0.2%	0.0%
3	0.0%	0.0%
4	0.0%	0.0%

Queuing Theory Factors		
average arrival rate (r)	4.00	*r=(veh/hr)
average service rate (s)	87.80	*s=3600/(Longest Total Service Time)
utilisation factor (p)	0.04556	*p=r/s
mean queue (E(m))	0.03024	*E(m)=(p/(1-p))-p

Probability of Vehicles in System (P(n))		
*P(n)=(1-p)p^n		
No. Vehicles in System (n)	Probability (%)	Prob of More than n (%)
0	95.4%	4.6%
1	4.3%	0.2%
2	0.2%	0.0%
3	0.0%	0.0%
4	0.0%	0.0%

QUEUING ANALYSIS RESULTS

Probability of 1 Arrival	15.9%
Probability of 1 Departure	4.6%

Probability of 'n' Vehicles Queuing at Access	n	%
	1	0.7%
	2	0.1%
	3	0.0%
	4	0.0%
	5	0.0%

Probability of 1 Arrival	15.9%
Probability of 1 Departure	4.6%

Probability of 'n' Vehicles Queuing at Access	n	%
	1	0.7%
	2	0.1%
	3	0.0%
	4	0.0%
	5	0.0%



Appendix F

Preliminary Construction Traffic Management Plan



Preliminary Construction Traffic Management Plan

4-18 Doncaster Ave, Kensington

Reference: 18.473r03v01 TRAFFIX CTMP Report
Date: 19 November 2018

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Document Verification

Job Number:	18.473			
Project:	4-18 Doncaster Avenue, Kensington			
Client:	Blue Sky			
Revision	Date	Prepared By	Approved By	Signature
v01	21 November 2018	Jay Shanmugam	Jayme Akstein	

Traffic Control Plan Certificates

Prepare a Work Zone Traffic Management Plan			
Name:	Jayme Akstein, TRAFFIX Executive Engineer	Certificate No.	2882053923

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2. Existing Conditions	3
2.1 Location and Site	3
2.2 Road Network	5
2.3 Public Transport	7
3. Traffic Management Arrangements	8
3.1 Construction Program	8
3.2 Available Truck Routes	8
3.3 Access Swept Path Analysis	10
3.4 Pedestrian Control	10
3.5 Crane Requirements	10
3.6 Traffic Control Plan	10
3.7 Employee Vehicles	11
4. Conclusions	12

Appendices

Appendix A: Swept Path Analysis

Appendix B: Traffic Control Plan



1. Introduction

TRAFFIX has been commissioned by Blue Sky to prepare a preliminary Construction Traffic Management Plan (CTMP) report for the construction of a student accommodation development at 4-18 Doncaster Avenue, Kensington. The draft CTMP has been prepared specifically in response to SEARS requirements, in the knowledge that a final CTMP that can only be prepared following the appointment of a nominated builder, at which time the construction methodology will be determined. In that context, the subject report seeks to formulate the “principles” that will guide the final CTMP.

A Location Plan is shown in the following **Figure 1**.

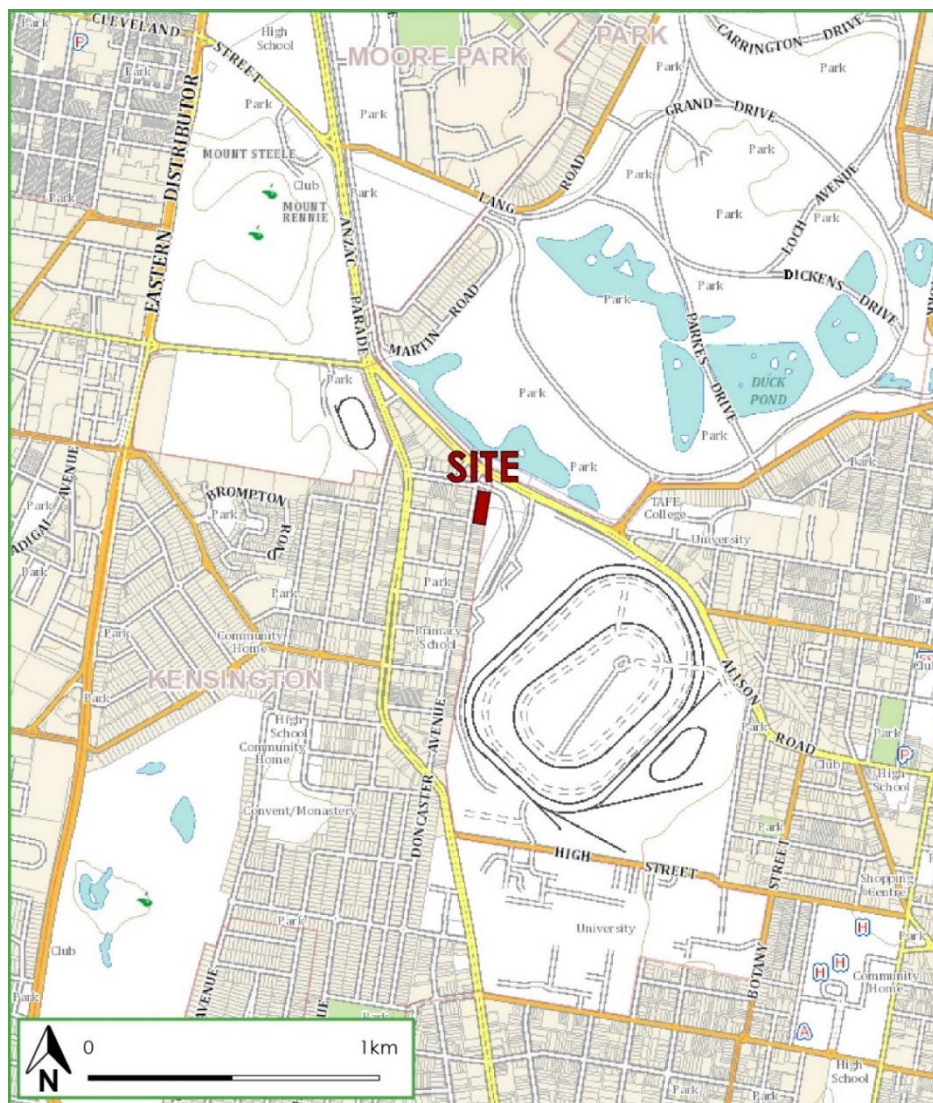


Figure 1: Location Plan



2. Existing Conditions

2.1 Location and Site

The site is approximately 180 metres south of Centennial Park and 4.5 kilometres southeast of Sydney CBD. More specifically, it is bounded by Doncaster Avenue to the west and the Sydney Light Rail Randwick Stabling Yard to the east.

The site is rectangular in configuration with a total site area of 4,273.3m². It currently accommodates a total of five residential dwellings, with vehicular access available for each dwelling available from Doncaster Avenue. The site has a northern and eastern boundary to the Sydney Light Rail Randwick Stabling Yard of 40.17 metres and 106.38 metres, respectively. The southern boundary is shared with a neighbouring residential property of 40.17 metres, and the western frontage to Doncaster Avenue is 106.38 metres.

A Site Plan is provided in **Figure 2** which provides an appreciation of the site in the context of neighbouring properties and surrounding streets.

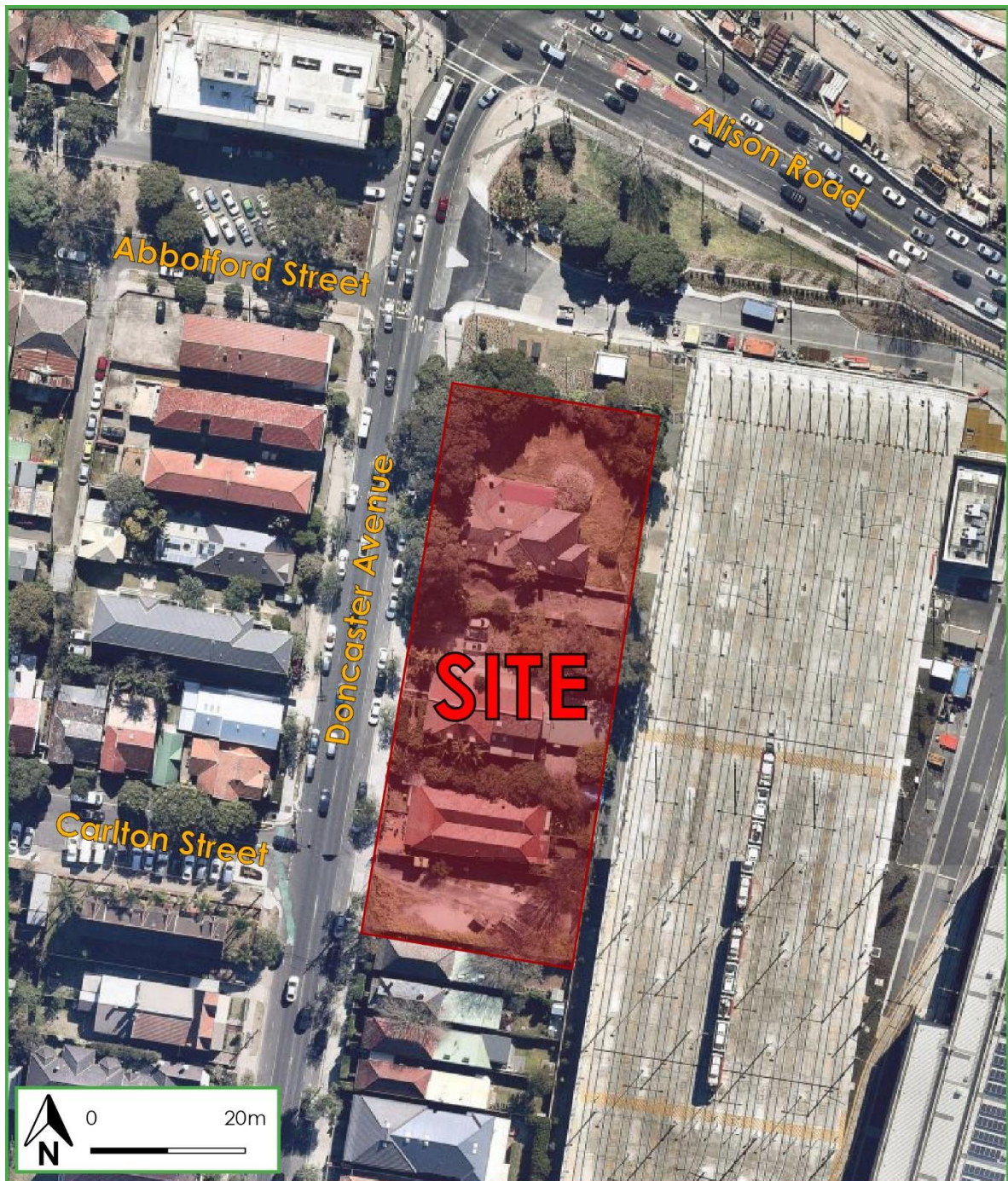





Figure 2: Site Plan



2.2 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

-  **Alison Road:** an RMS main road (MR 327) that generally traverses in an east-west direction between Arden Street in the east and Anzac Parade in the west. Due to on-going construction of the Sydney Light Rail, it is generally subject to a 50km/hr speed zoning and accommodates two lanes of traffic in each direction within the vicinity of the site. Alison Road permits sections of time restricted kerbside parking.
-  **Anzac Parade:** an RMS main road (MR 171) that traverses in a north-south direction between Moore Park Road in the north and Little Bay Road in the south. Due to on-going construction of the Sydney Light Rail, it is generally subject to a 50km/hr speed zoning and accommodates one lane of traffic in each direction within the vicinity of the site. Anzac Parade does not permit kerbside parking.
-  **Doncaster Avenue:** a local road that traverses in a north-south direction between Alison Road in the north and Gardeners Road in the south. It is subject to 50km/hr speed zoning however, a '40km/hr School Zone' speed restriction does apply between 8:00-9:30am and 2:30-4:00pm on school days. Doncaster Avenue accommodates a single lane of traffic in each direction and permits kerbside parking with various restrictions. It is noted that Doncaster Avenue comprises of two sections, separated by Kensington Park.

It can be seen from **Figure 3** that the site is conveniently located with respect to the arterial and local road systems serving the region. It is therefore able to effectively distribute traffic onto the wider road network, minimising traffic impacts.

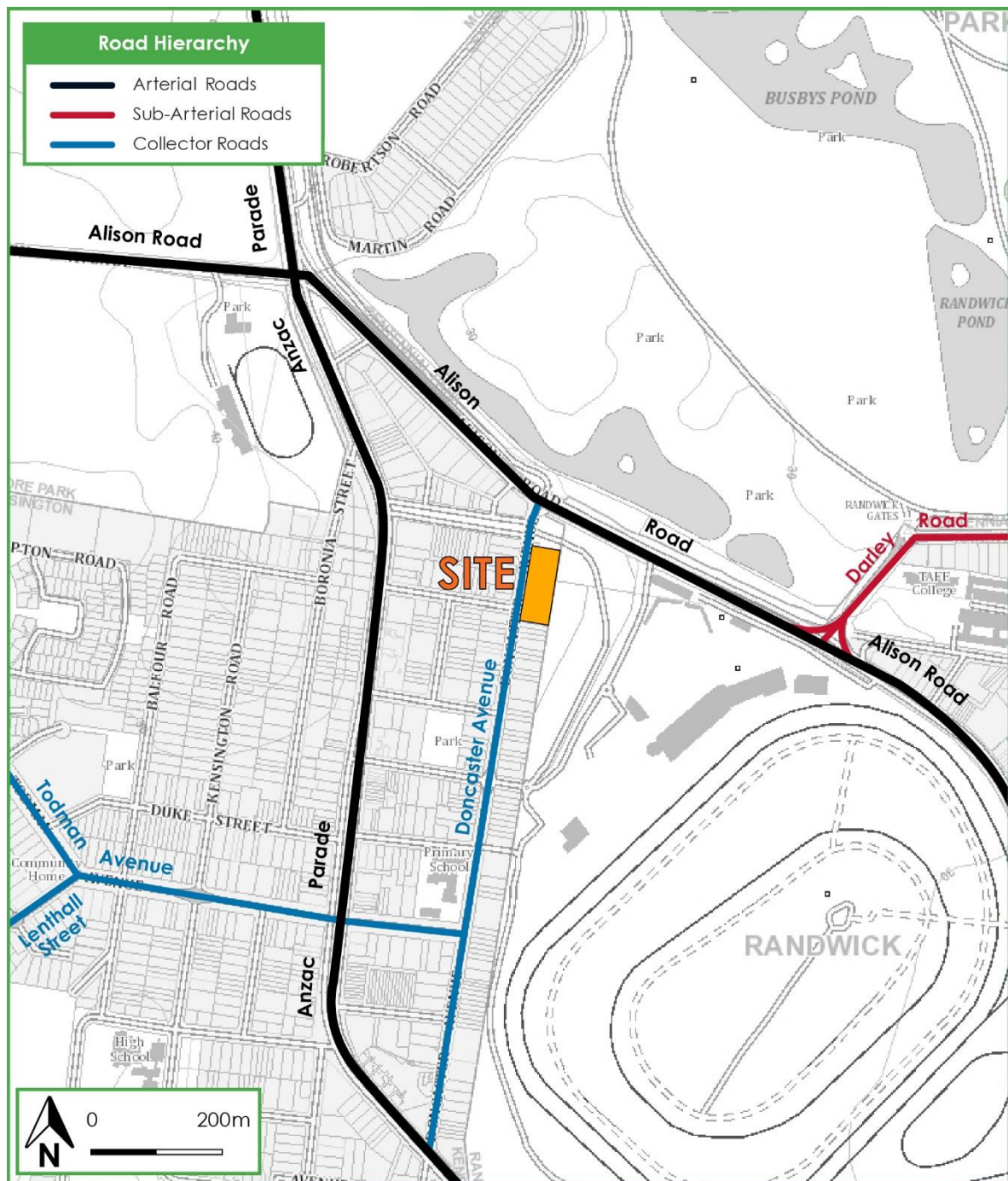


Figure 3: Road Hierarchy



2.3 Public Transport

The subject site benefits from excellent bus services with eight bus stations provided within optimal walking distance (400 metres) of the site. These bus services are outlined in **Table 1** below.

Table 1 – Bus Services and Routes

Bus Service	Route	Bus Service	Route
338	Clovelly to Central Railway Square	396	Maroubra Beach to City Circular Quay
339	Clovelly to City Gresham Street	397	South Maroubra to City Circular Quay
372	Coogee to Central Railway Square	399	La Perouse to City Circular Quay via Malabar Beach and Maroubra Junction
373	Coogee to City Circular Quay via Belmore Road	L94	La Perouse to City Circular Quay
374	Coogee to City Circular Quay via Bream Street	M10	Maroubra Junction to Leichhardt via City
376	Maroubra Beach to Central Railway Square	M50	Coogee to Drummoyne
377	Maroubra Beach to City Circular Quay	X92	Little Bay to City Museum
391	La Perouse or Port Botany to Central Railway Square	X94	Le Perouse to City Museum
392	Little Bay to City Circular Quay via Eastgardens and Prince Henry Hospital	X96	Maroubra Beach to City Museum
393	Little Bay to Central Railway Square via Maroubra and Kingsford	X97	South Maroubra to City Museum
394	City Circular Quay to La Perouse via Maroubra and Kingsford	X99	Little Bay to City Museum
395	Maroubra Beach to Central Railway Square		

In addition, the subject site is located within close proximity to two future light rail stations for the CBD and South East Light Rail (CSELR), with the closest station being the Alison Road-Royal Randwick Station (approximately 180 metres east of the site) and Carlton Street-ES Marks (approximately 250 metres west of the site). These services will be available for both construction workers and visitors to the site during construction.



3. Traffic Management Arrangements

3.1 Construction Program

A Construction Program will be prepared by the Blue Sky in conjunction with the nominated Builder. The program will include, but not be limited to the following components:

- Construction stages and their duration
- Number of construction workers during each stage
- Parking arrangements for workers
- Construction Work Zones
- Crainage requirements
- Pedestrian control and management
- Site access arrangements
- Traffic Control Plans
- Use of cranes, including Road Occupancy License requirements

Guiding principles for some of these matters are considered in the following sections.

3.2 Available Truck Routes

Trucks accessing the site will make use of proposed Works Zone on Doncaster Avenue. The proposed truck routes to and from the works zone are illustrated in **Figure 4** and are summarised as follows:

Routes to Site

1. Trucks will arrive on Alison Road (west)
2. Turn right into Doncaster Avenue (signals)
3. Turn left into the Works Zone



Routes from Site

1. Trucks will turn right from Works Zone into Doncaster Avenue
2. Turn left onto Alison Road (signals)

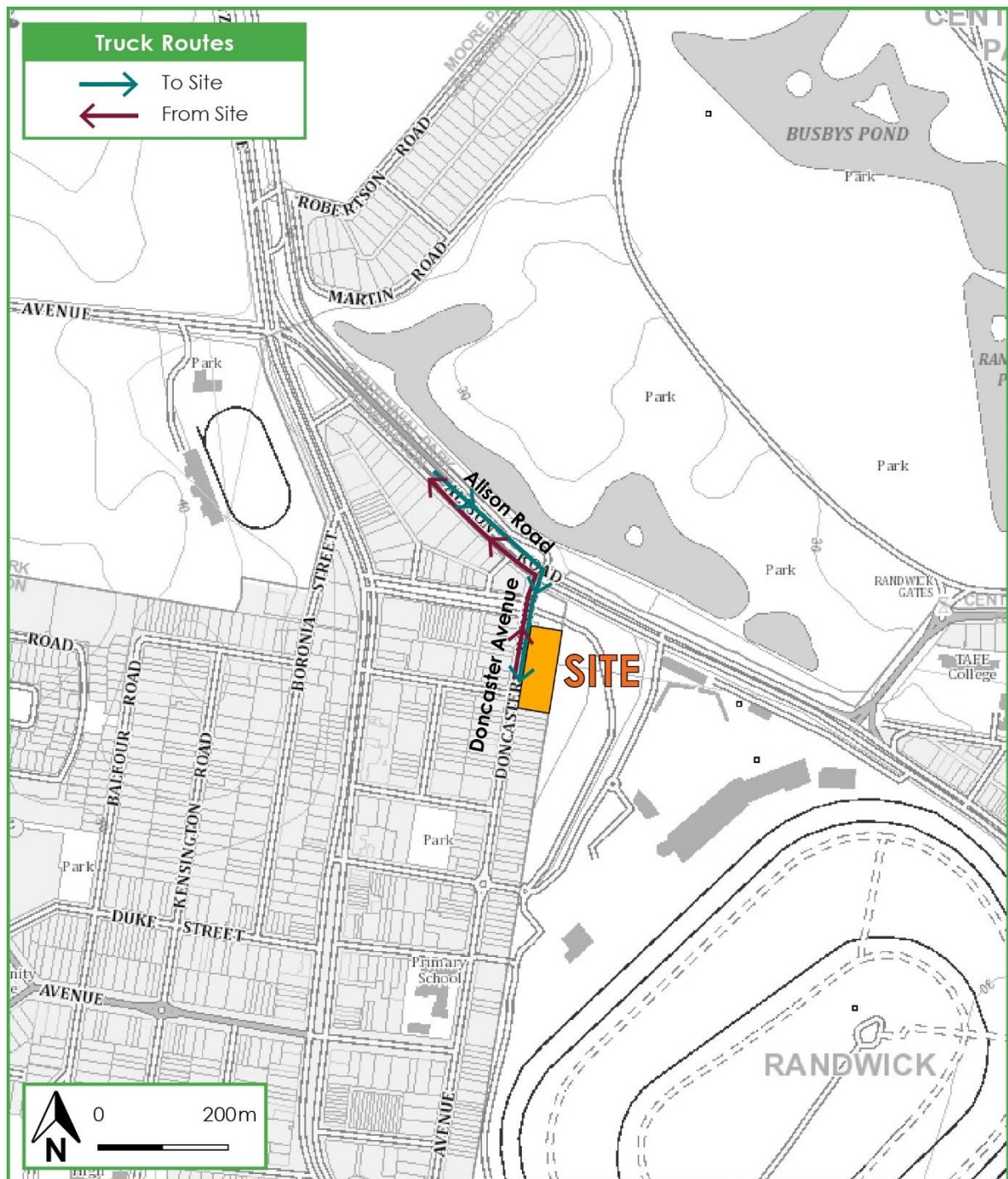


Figure 4: Truck Routes to and from the Site



Details regarding the routes prior to accessing and leaving Alison Road will be provided following commissioning of the Nominated Builder.

The above routes seek to make use of the arterial and collector road network as much as possible with the use of local streets only where required. All truck drivers will also be provided with a copy of these routes and all relevant matters prior to accessing the site. This would form part of their site induction training.

3.3 Access Swept Path Analysis

Swept path analysis has been undertaken at the entrance to the Works Zone, on Doncaster Avenue. These swept paths are provided in **Appendix A** and confirm that satisfactory access to the site or works zone can be achieved, in accordance with the requirements of AS 2890.2 (2002).

3.4 Pedestrian Control

The proposed work will not unduly impact pedestrian movements and their safety will be ensured during all stages of construction. Pedestrian access surrounding the site will be managed safely during all construction stages. Hoarding will be provided along Doncaster Avenue, with pedestrians only impacted by vehicles accessing the site, when gate barriers will be deployed. These arrangements are considered acceptable and will ensure that pedestrian safety is maintained at all times.

3.5 Crane Requirements

Use of crane will be determined following the commissioning of a Nominated Builder.

3.6 Traffic Control Plan

The Traffic Control Plan (TCP) included in **Appendix B** (TCP No. 1 – Works Zone (All Stages of Construction)) shows the indicative signage / traffic management measures to be adopted for the construction stages. The TCP will ensure that truck and pedestrian movements are managed safely and efficiently. This TCP has been designed in accordance with the requirements of the *Roads and Maritime Traffic Control at Work Sites Manual* and AS 1742.3 (2009) and are recommended for adoption.



The final Traffic Control Plan/s should ultimately be implemented taking into account on-site conditions that will occur over the construction period. Accordingly, construction crew will be expected to respond in a pro-active manner to ensure that this plan is implemented to maximum effect, with no obvious safety issues being overlooked. In particular, the following matters are considered noteworthy:

- ➊ All signs are to be placed where clear visibility is available;
- ➋ Installations should be checked intermittently during the course of the day/s; and
- ➌ A minimum of one Roads and Maritimes Services certified Traffic Controllers shall be on-site at all times during work hours to supervise truck movements.

It is noted that the implementation of any CTP will be the responsibility of the project manager/builder.

3.7 Employee Vehicles

As discussed in Section 3.3, the site benefits from good access to public transport services, being situated less than 200 metres from a number of bus stops. In addition to these bus stops, the site is located close to two future light rail stations. This is expected to result in a reasonable level of public transport usage by workers, thereby minimising construction impacts and moderating parking impacts. It is also relevant that on-site secure storage will be available for worker's equipment and tools.

It is noted that contractors will not be permitted to park private vehicles within the proposed Works Zone, which are intended for the loading / unloading of materials and equipment.



4. Conclusions

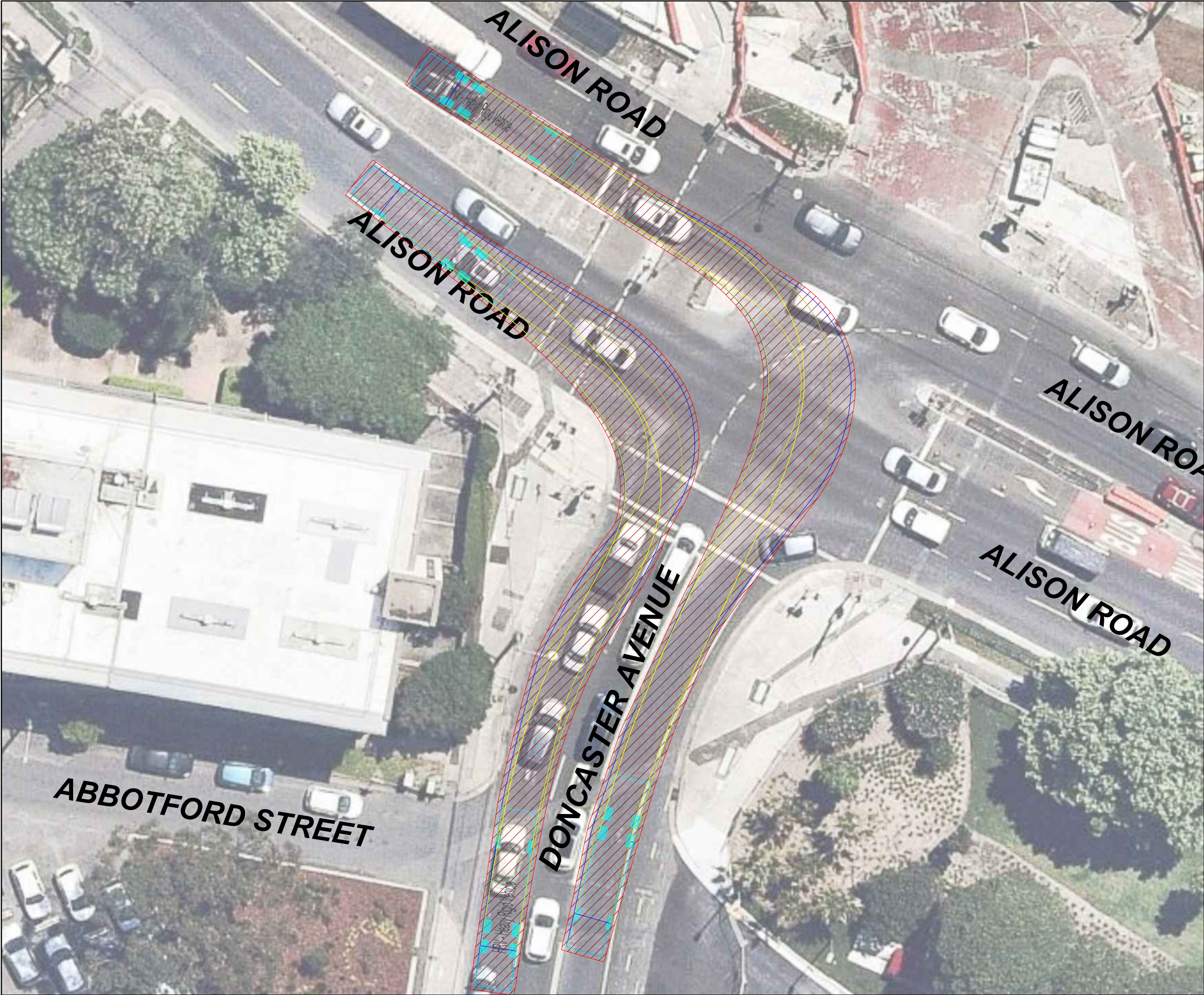
This preliminary Construction Management Plan (CTMP) is considered satisfactory to guide the ongoing construction planning and will minimise disruptions to neighbouring residents, as well as pedestrians in the area. This plan meets all requirements of AS 2890.2, AS 1742.3, *Roads and Maritime Traffic Control at Work Sites Manual* and is recommended for adoption.

The final CTMP will be prepared once a Nominated Builder has been appointed, at which time a detailed construction methodology will be available.



Appendix A

Swept Path Analysis



Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1-2004 *Parking facilities - Off-street car parking*, and/or AS 2890.2-2002 *Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision	note	by.	date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Hayball
11-17 Buckingham Street
SURRY HILLS NSW 2010

client

Blue Sky
Level 22 Australia Square
264-278 George Street
SYDNEY NSW 2000

scale

1:400 @ A3
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project

4-18 Doncaster Avenue
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drawing title

CTMP

drawn: JS	checked: JA	date: 19-11-2018
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project no.	drawing phase.	drawing no.	rev



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0m

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drawn: JS

checked: JA

date: 19-11-2018

18.473

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SK.02

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project no.

drawing phase.

drawing no.

rev



Appendix B

Traffic Control Plan



TCP 1		Date:	19.11.2018	TRAFFIC & TRANSPORT PLANNERS Suite 2.08 50 Holt Street Surry Hills NSW 2010 (02) 8324 8700 info@traffix.com.au
Project:	4-18 Doncaster Avenue, Kensington	Prepared By:	Jayme Akstein	
Project Number:	18.473	Approved By:	Jayme Akstein	
Client:	Built Development Group Pty Ltd	Signature:	