Traffic Engineering Report

Proposed Mixed-Use Development – Stage 2

15-21 Wren Street, Bowen Hills

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Revision Record

No.	Author	Reviewed/Approved		Description	Date
1.	T. Kuensel / A. Riddles			DA Report - Draft	22/09/23
2.	T. Kuensel / A. Riddles	R. Watson (RPEQ – 27182)		DA Report – Final	20/12/23
3.					

Contents

1 Introduction

1.1 Background

TTM Consulting has been engaged by Australasian Property Group Pte Ltd to prepare a traffic engineering report investigating Stage 2 of a mixed-use development located at 15-21 Wren Street, Bowen Hills. It is understood that a Development Application (DA) will be lodged with Economic Development Queensland (EDQ).

Stage 2 was previously subject to a previous development approval by EDQ (EDQ Ref: DEV2014/635). A short-term accommodation (STA) facility was previously proposed (and approved by EDQ) for Stage 2. It is now proposed that Stage 2 will comprise of a mixed-use development comprising shop/food & drink outlet land-uses at lower ground, medical (hospital) land-uses at podium level and multiple unit dwelling (MUD) development land-uses above along with a roof top bar. The MUD development land-uses will comprise of a Build-To-Rent (BTR) facility.

1.2 Scope

This report investigates the transport aspects associated with the proposed development. The scope of the transport aspects investigated includes:

- Parking supply.
- Internal car parking design.
- Access configuration.
- Service vehicle provisions and on-site manoeuvring.
- Suitability of internal pedestrian and cyclist provisions.
- Identification of likely traffic volumes generated by the development and possible impacts on the surrounding road network.

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- Bowen Hills Priority Development Area (PDA) Development Scheme (June 2019):
  - *Schedule 3 – Transport, access, parking and servicing.*
- Bowen Hills PDA Infrastructure Plan Background Report
- Brisbane City Council (BCC) Brisbane City Plan 2014 (City Plan) Planning Scheme, specifically:
  - *Bicycle Network Overlay Code.*
  - *Infrastructure Design Planning Scheme Policy (Infrastructure Design PSP).*

  - *Refuse Planning Scheme Policy (Refuse PSP).*
  - *Road Hierarchy Overlay Code.*
  - *Streetscape Hierarchy Overlay Code.*
  - *Transport, Access, Parking and Servicing Code (TAPS Code).*
  - *Transport, Access, Parking and Servicing Planning Scheme Policy (TAPS PSP).*
- *Australian Standards for Parking Facilities* (AS2890 series), namely:
  - *AS2890.1:2004 – Part 1: Off-street car parking* (AS2890.1).
  - *AS2890.2:2002 – Part 2: Off-Street Commercial Vehicle Facilities (AS2890.2).*
  - *AS2890.3:2015 – Part 3: Bicycle parking* (AS2890.3).
  - *AS2890.6:2009 – Part 6: Off-street parking for people with disabilities* (AS2890.6).
- Department of Transport and Main Roads *'Road Planning and Design Manual'.*
- Austroads '*Guide to Road Design (AGRD)*'.
- Austroads '*Guide to Traffic Management (AGTM)*'.

1.3 Site Location

The subject site is located at 15-21 Wren Street, Bowen Hills, as shown in Figure 1.1 to Figure 1.2. The property description is Lot 24 on SP276528 and Lot 23 on RP9941. Key site characteristics from a planning perspective include:

- Located within the Bowen Hills Priority Development Area (PDA) and zoned as "Mixed-use"

The site is currently occupied by a private hospital and a multi-storey car park (MSCP) constructed as part of Stage 1. The portion of the site to be occupied by Stage 2 currently contains several buildings. The building on Campbell Street was previously occupied by a hardware store and service centre whilst the building on Wren Street is currently occupied by a commercial office.

The subject site has road frontages to both Campbell Street and Wren Street.

Vehicular access is currently from Campbell Street and Wren Street via five driveway crossovers, one on Campbell Street and the remaining four on Wren Street. The two southern most driveway crossovers on Wren Street were constructed as part of Stage 1.

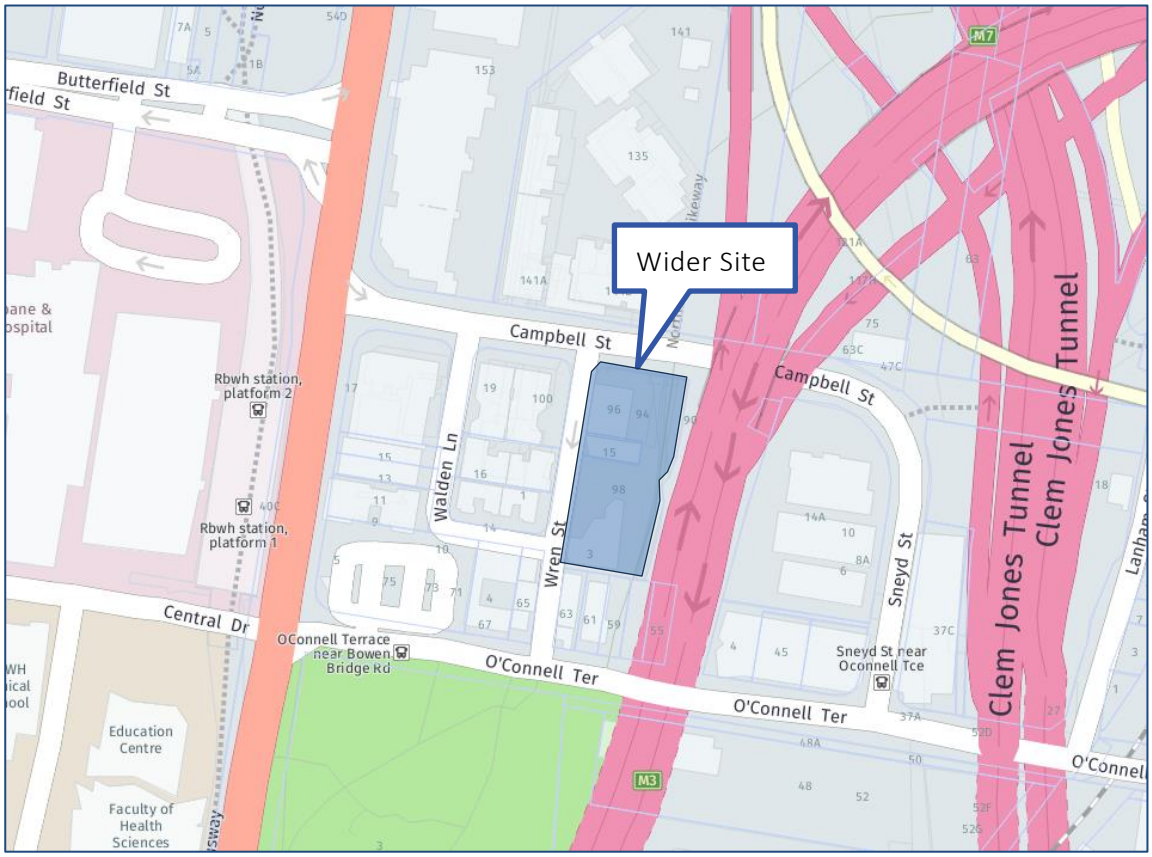

Figure 1.1: Site Location – Broader Context *Source: Nearmap Imagery (2023)*

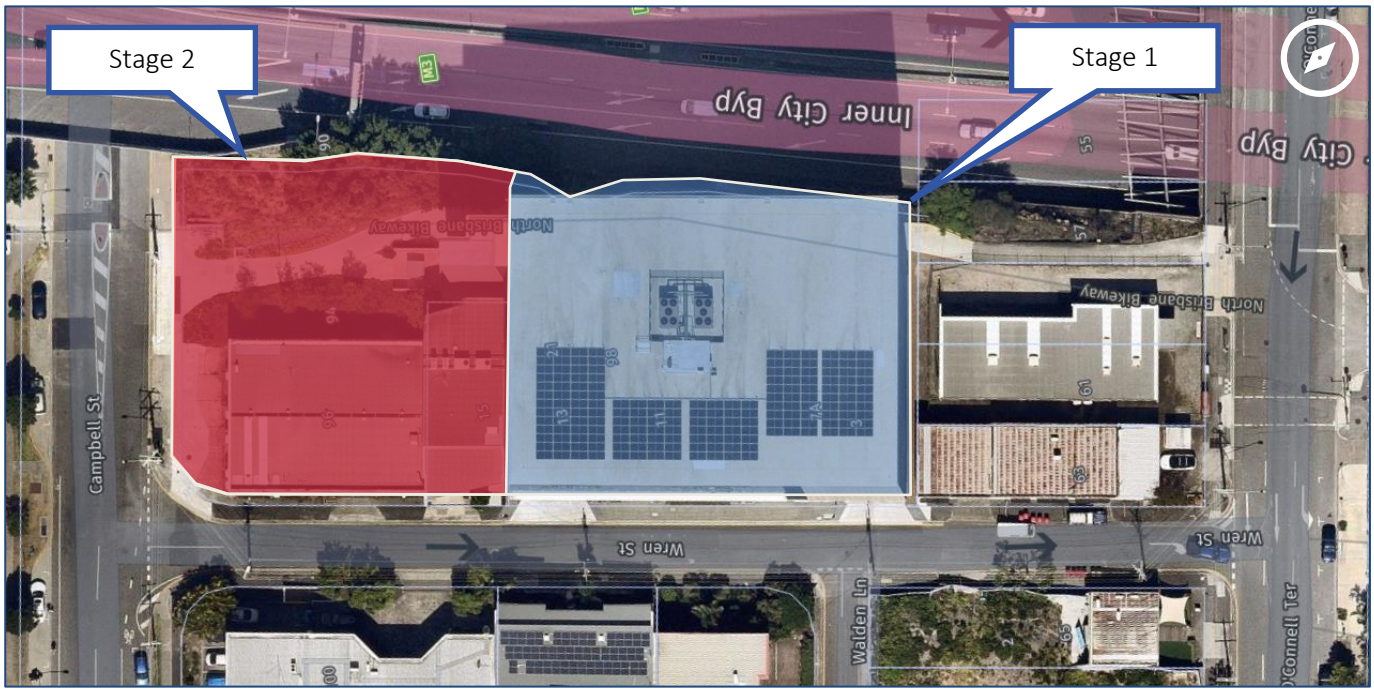

Figure 1.2: Site Location – Local Context *Source: Nearmap Imagery (2023)*

1.4 Development Profile

The proposed development involves the demolition of the existing buildings on the subject site and the construction of Stage 2.

Stage 2 comprises a mixed-use development comprising shop/food & drink outlet land-uses at lower ground, medical (hospital) land-uses at podium level and MUD development land-uses above. A public bar is proposed at the rooftop level. The MUD development land-uses will comprise of a Build-To-Rent (BTR) facility.

The type and scale of the proposed land-uses are summarised in Table 1.1.

Table 1.1: Proposed Land-Uses

Land-Use	Area/Qty
MUD Development: • Studio • 1 Bedroom • 2 Bedroom • 3 Bedroom **Total:**	 42 76 103 19 **240 units**
Medical (Hospital)	**5,847m² GFA**
Shop/Food & Drink Outlet	**78m² GFA**
Public Bar	**539 m² GFA**

A copy of the development plans is included in Appendix A.

1.5 Access

Vehicular access to the podium parking areas will be achieved via the existing driveway crossover facilitating access to the MSCP within Stage 1 at Wren Street.

Vehicular access to the service vehicle area (which will be shared between Stages 1 and 2) will be achieved via the existing driveway crossover which currently facilitates access to the basement parking area within Stage 1 at Wren Street. It is proposed that the basement parking area within Stage 1 will be removed and repurposed with the parking currently provided at this location for staff accommodated within the areas of the MSCP being retained.

Vehicular access to the ambulance bay (which will be shared between Stages 1 and 2) will be achieved via a new driveway crossover on Wren Street.

Further details in relation to the proposed vehicular access arrangements is included in Section 3.

1.6 Parking

The development plan for Stage 2 includes the following parking supply:

- A total of 147 car parking spaces (including 6 PWD parking spaces), 6 car share spaces, 15 motorcycle spaces and bicycle parking spaces, including:
  - 124 car parking spaces (including 5 PWD parking spaces), 6 car share spaces, 15 motorcycle spaces and 290 bicycle parking spaces for residents at the BTR facility.
  - 23 car parking spaces (including 1 PWD parking space) and 24 bicycle parking spaces for visitors at the BTR facility.
  - 30 bicycle parking spaces for employees and 12 bicycle parking spaces for visitors at the medical land-uses.

It is proposed that the parking areas at basement level and level 4 within Stage 1 will be removed and repurposed. Given the removal of the parking area at basement level within Stage 1, it is proposed that 2 van bays will be provided at level 5 within the MSCP. Furthermore, it is proposed that 2 parking spaces at level 5 within the MSCP will be converted to passenger loading for patients at the medical (hospital) land-uses. Consequently, following the completion of Stage 2 a total of 242 parking spaces will be provided within Stage 1, which represents a reduction of 52 parking spaces when compared to the existing situation. It is proposed that the 242 parking spaces within Stage 1 will be allocated as follows:

- 39 parking spaces for the medical (hospital) land-uses (within Stage 1); &
- 203 parking spaces for commercial parking within the MSCP.

A passenger loading zone for private cars, taxi's and rideshare vehicles is proposed at Campbell Street. The provision is intended to compliment the proposed passenger loading area at level 5 within the MSCP for patients at the medical (hospital) land-uses. Suitable wayfinding signage will be provided to direct users to the passenger loading area at level 5.

Further details regarding the proposed parking provisions are included in Sections 4 and 6, respectively.

1.7 Servicing

The proposed development includes the following service vehicle provisions:

- 1 medium rigid vehicle (MRV) bay, 1 small rigid vehicle (SRV) bay and 1 ambulance bay.

As discussed above, given the removal of the basement parking area within Stage 1, it is proposed that 2 van bays will be provided at level 5 within the MSCP.

Further details in relation to the proposed service vehicle provisions is included in Section 5.

2 Existing Transport Infrastructure

2.1 The Road Network

All roads in the immediate vicinity of the site are administered by BCC. The hierarchy and characteristics of roads in the immediate vicinity of the site are shown below in Table 2.1.

Table 2.1: Local Road Hierarchy

Road	Speed Limit	Lanes	Carriageway Width	Classification
Bowen Bridge Road	60kph	6 lanes, 2-way (undivided)	20.5m	Arterial Road
Campbell Street	50kph*	2 lanes, 2-way (undivided plus marked kerbside parking)	12.0m	Suburban Road
O'Connell Terrace	60kph	3 lanes, 1-way (undivided plus marked kerbside parking) west of Wren Street intersection 3 lanes, 2-way (undivided plus marked kerbside parking) east of Wren Street intersection	12.5m	Suburban Road
Sneyd Street	50kph*	2 lanes, 2-way (undivided)	9.5m	Suburban Road
Wren Street	50kph*	1 lane, 1-way south of Walden Lane intersection 2 lanes, 2-way (undivided) north of Walden Lane intersection	5.5m	Suburban Road south of Walden Lane District Road north of Walden Lane
Walden Lane	50kph*	2 lanes, 2-way (undivided)	4.5-5.0m	Neighbourhood Road

*Default speed limit on unsigned roads is 50 kph in built-up areas in Queensland.

Whilst Wren Street is categorised as a Suburban Road south of Walden Lane and a District Road north of Walden Lane, given the fact it does not operate as a major through route and only provides access to a limited number of properties, the traffic volumes along Wren Street are more similar to that typically expected along a Neighbourhood Road (i.e., less than 300vph and 3,000vpd).

Table 2.2 below outlines the intersection characteristics for the surrounding local road network.

Table 2.2: Local Intersection Characteristics

Intersection	Characteristics
Bowen Bridge Road / O'Connell Terrace	Signalised 4-way intersection, with all-turns permitted on the minor approaches and through and left-turns only permitted on the major approaches
Bowen Bridge Road / Campbell Street	Signalised T-intersection, with no right-out movements on the minor approach and all movements permitted on the major approaches
Campbell Street / Walden Lane	Priority-controlled T-intersection, with all-turns permitted
Campbell Street / Wren Street	Priority-controlled T-intersection, with all-turns permitted
Sneyd Street / O'Connell Terrace	Priority-controlled T-intersection, with all-turns permitted
Wren Street / O'Connell Terrace	Priority-controlled T-intersection, with left-out movements only
Wren Street / Walden Lane	Priority-controlled T-intersection, with all-turns permitted

Figure 2.1 demonstrates the directional flow and priorities on the adjacent road network.

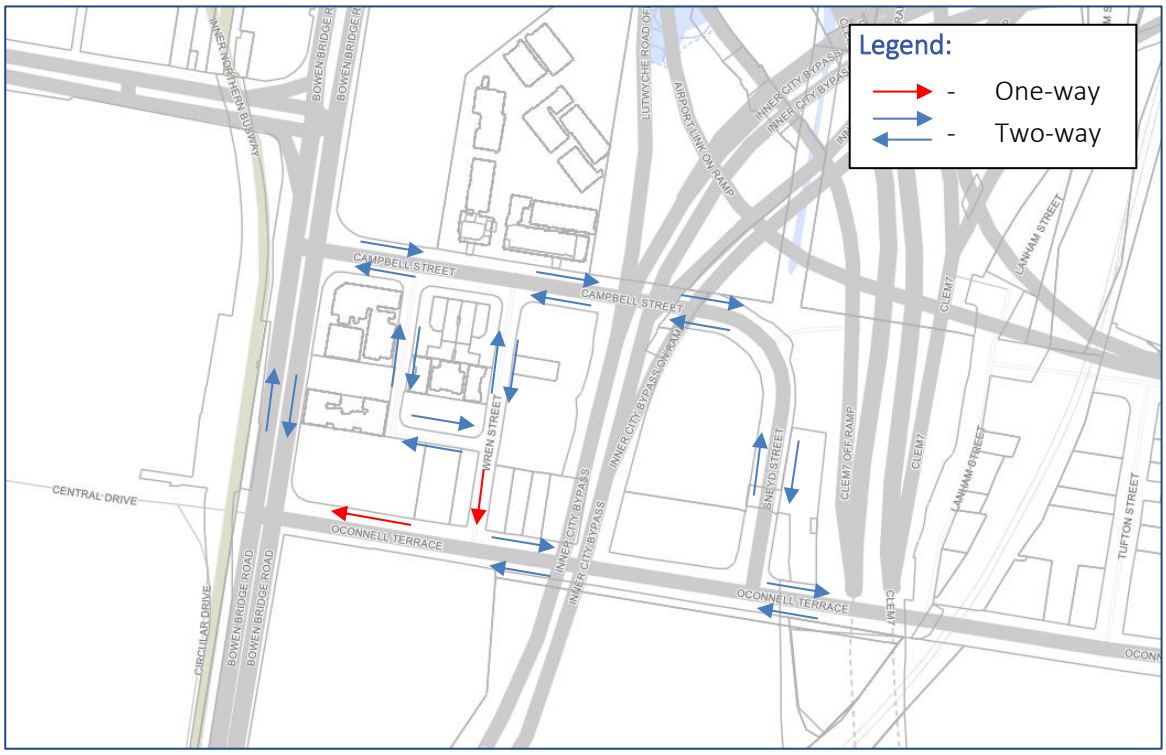

Figure 2.1: Local Road Priorities Source: BCC Interactive Mapping (2021)

2.2 Road Planning

As the site is within the Bowen Hills PDA, EDQ are responsible for the major road network planning, although they do work with BCC, as BCC ultimately manages and maintains the road network.

It is understood that discussions are ongoing between EDQ, BCC and other stakeholders regarding proposed changes to the directional flow and priorities along O'Connell Terrace and Wren Street in the vicinity of the subject site. Irrespective of the proposed changes, it is understood that the section of Wren Street between Campbell Street and Walden Street will still operate two-way.

A standard condition of approval will be the construction/repair and reinstatement of pedestrian footpaths across the frontage of the site subsequent to construction activity on the site.

2.3 On-Street Parking

The site is located within the 'Brisbane Central Traffic Area' where on-street parking is restricted to 2 hours (2P) between 7:00am and 6:00pm on weekdays and also 7am and 12pm on Saturdays, unless signed otherwise.

Limited on-street parking is provided on O'Connell Terrace and Campbell Street in the vicinity of the site. The parking duration of these spaces on O'Connell Terrace is generally 4P (metered) between 9:00am and 4:00pm, Monday to Friday, and is generally unrestricted on weekends.

For the parking spaces on Campbell Street towards the Bowen Bridge Road intersection, the parking duration is generally 2P (metered) between 7:00am and 6:00pm, Monday to Friday and 7:00am and 12:00pm on weekends. Parking spaces on Campbell Street towards Sneyd Street, the parking duration is generally 9P (metered) between 8:00am and 5:00pm, Monday to Friday, and is generally unrestricted on weekends.

2.4 Public Transport and Pedestrian Facilities

2.4.1 Train

Presently, the closest main line train station is the Bowen Hills station approximately 1.1km away from the subject site. The Bowen Hills station services the Sunshine Coast, Ipswich, Rosewood, Springfield, Gold Coast, Beenleigh, Cleveland, Ferny Grove, Cleveland, Doomben, Airport, Shorncliffe, Redcliffe Peninsula and Nambour-Caboolture lines, with services operating every 2 to 3 minutes (approximately) in peak periods and every 10 minutes in the off-peak.

As part of the Cross River Rail (CRR) project, the Exhibition Station located 400m away from the subject site is currently being upgraded. The CRR project is designed to provide 10.2km of rail line connecting Dutton Park to Bowen Hills. This new rail link will provide a second north south link across the Brisbane River running between Dutton Park and Herston, with new stations at Woolloongabba, Brisbane CBD (Albert Street) and Exhibition. The alignment of the new rail link created by CRR is shown in Figure 2.2.

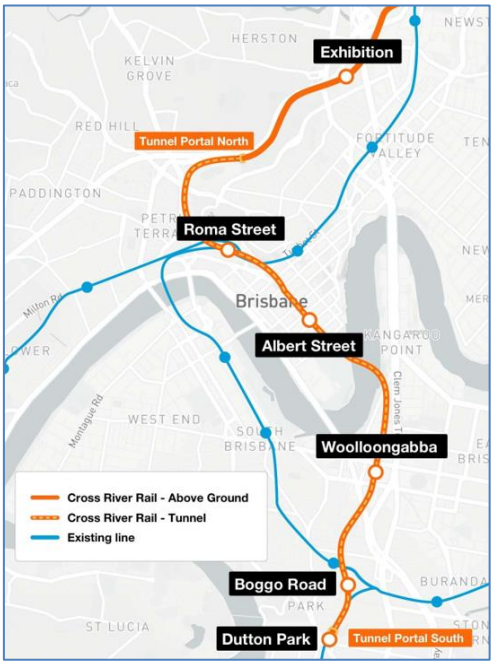

Figure 2.2: Cross River Rail (CRR) Network

Buses

As shown in Figure 2.3, the subject site is located in close proximity (i.e., less than 300m) to the elevated Royal Brisbane and Women's Hospital (RBWH) Inner Northern Busway and an existing bus stop along O'Connell Terrace.

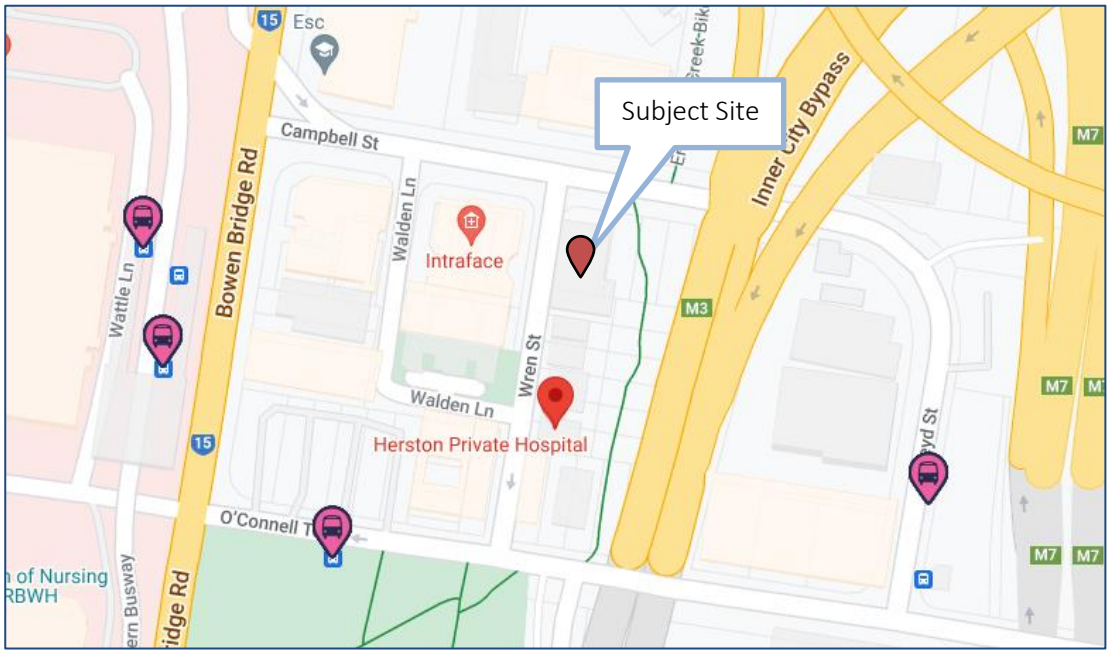

Figure 2.3: Bus Stop Locations (Source: www.translink.com.au)

The RBWH Inner Northern Busway station services in excess of 19 different bus routes (most connecting the northern suburbs of Brisbane and Fortitude Valley/Brisbane CBD) with approximately 1,100 bus services running through the station (two-way) on a typical weekday. During morning and evening commuter peaks, the station has a one-way bus frequency (in direction of peak travel) of 1 bus every 70 seconds on average. Direct access to the station is available via Bowen Bridge Road.

Translink Service No'.s 393 and 924 (to/from Ascot, Albion, Bowen Hills, Fortitude Valley, Newstead, Spring Hill & Teneriffe) utilise the bus stop on O'Connell Terrace on weekdays, with services typically at 15 minute intervals during the commuter peaks and at 30 minute intervals in the off peaks.

Pedestrians

The subject site is adequately serviced in terms of pedestrian facilities. Footpaths are provided on both sides of all roads surrounding the site. Dropped kerbs have generally also been provided at all road intersections to assist footpath users crossing the side roads.

Pedestrian crossing facilities are provided at nearby traffic signal-controlled intersections.

Cyclists

Dedicated off road cycle paths are provided within the vicinity of the site, with the nearest route passing through the eastern portion of the wider site via an easement.

Figure 2.4 shows the bicycle routes within the Bicycle Overlay Code within the immediate vicinity of the site.

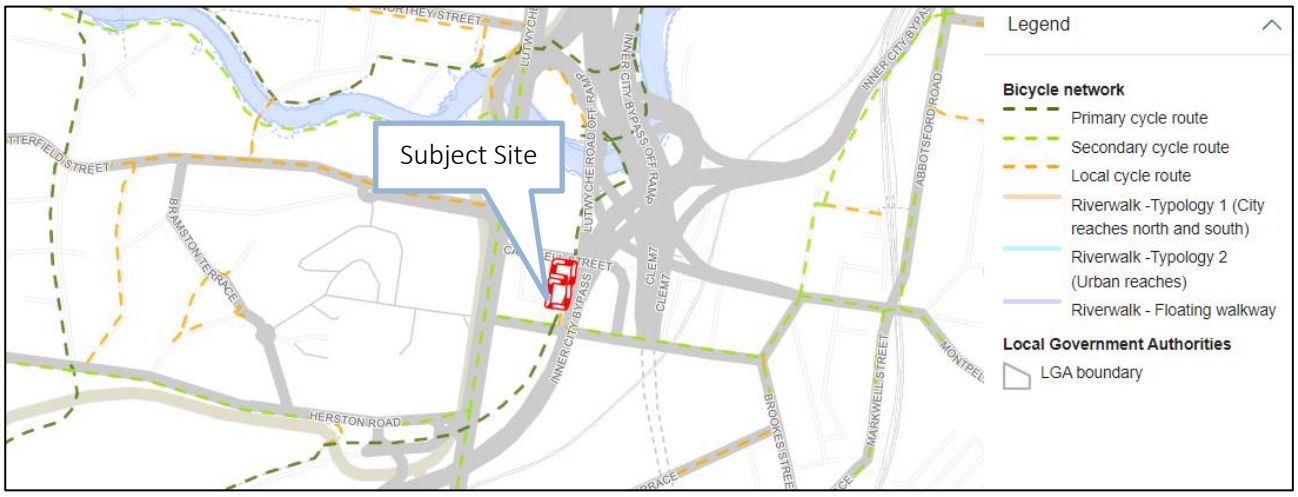

Figure 2.4: Cycle facilities Source: BCC Interactive Mapping (2021)

3 Site Access Arrangements

3.1 Proposed Access Arrangements & Their Suitability

The proposed access arrangements are summarised below.

- Vehicular access to the podium parking areas will be achieved via the existing driveway crossover facilitating access to the MSCP within Stage 1 at Wren Street. Given the site constraints (in relation to topography and the provision of the cycle path along the eastern portion of the wider site) in addition to the flooding issues along Campbell Street, there is no opportunity to provide a separate driveway crossover to the podium parking areas within Stage 2.
- Vehicular access to the service vehicle area (which will be shared between Stages 1 and 2) will be achieved via the existing driveway crossover facilitating access to the basement parking area within Stage 1 at Wren Street. It is proposed that the basement parking area within Stage 1 will be removed and repurposed.
- Vehicular access to the ambulance bay (which will be shared between Stages 1 and 2) will be achieved via a new driveway crossover on Wren Street.

Further information regarding the proposed access arrangements is provided below.

Schedule 3 of the Bowen Hills PDA Development Scheme specifies that all driveway crossovers are to be located and designed in accordance with BCC's TAPS PSP.

3.2 Driveway Crossover for Podium Parking Areas

Whilst the existing driveway crossover facilitating vehicular access to the MSCP within Stage 1 at Wren Street was previously approved by EDQ, given the additional parking spaces to be accessed via the driveway it was considered appropriate to reassess its suitability in relation to the driveway type, the width of the driveway crossover and queuing provisions.

Table 3.1 identifies the characteristics of the driveway crossover facilitating vehicular access to the podium parking areas for Stages 1 and 2 with respect to the requirements outlined in BCC's TAPS PSP. The last column identifies the compliance of each design aspect. Where compliance is not achieved, further information is provided below.

Table 3.1: Typical Requirements for the Driveway Crossover for Podium Parking Areas

Design Aspect	TAPS PSP Requirement	Proposed Provision	Compliance
Driveway Type	Type C2*	Modified Type B2	Performance Solution
Width	12m*	7.4m	Performance Solution
Minimum Queuing Provisions	9 vehicles (54m)**	2 vehicles (12.7m)***	Performance Solution

*Based on the driveway crossover being located on a major road and facilitating vehicular access to 407 low/medium turnover parking spaces.

**Based on 407 parking spaces provided between Stages 1 and 2.

***Measured between the property boundary and the entry boom gate.

It is evident that the design of the driveway crossover facilitating vehicular access to the podium parking areas for Stages 1 and 2 does not strictly satisfy the requirements outlined in BCC's TAPS PSP. Consequently, these aspects are resolved with performance solutions.

3.2.1 Driveway Type & Width

Whilst the existing driveway crossover facilitating vehicular access to the MSCP on Wren Street, which is provided as a 7.4m wide modified Type B2 driveway crossover, does not strictly satisfy the requirements outlined in BCC's TAPS PSP, it is considered appropriate in this instance given that the proposed development (inclusive of Stages 1 and 2), as noted in Section 7, will generate less traffic when compared to the type and scale of the land-uses previously approved by EDQ.

3.2.2 Queuing Provisions

Whilst the queuing provisions at the driveway crossover facilitating vehicular access to the MSCP on Wren Street (where a queuing provision for 2 vehicles or 12.7m is provided between property boundary and the entry boom gate) does not strictly satisfy the requirements outlined in BCC's TAPS, it is understood that the entry boom gate has a servicing capacity of 350 vehicles per hour (vph). This equates to average service time of 10.3 seconds per vehicle. It is expected that the parking areas associated with Stages 1 and 2 will have a peak inflow of 140vph in the AM peak-hour period.

The probability (using Formula 4.3 of AGTM Part 2: Traffic Theory Concepts) of more than 2 vehicles queuing at the boom gate, is less than 5%. As such, the queuing provision is sufficient to cater for the 95th percentile demand. On this basis, the queuing provisions at the driveway crossover and entry boom gate is considered adequate. Furthermore, it should be noted that the queuing provided to the first internal parking space at level 5 within the MSCP is appreciably greater than 2 vehicles or 12.7m.

As noted in Section 7, the proposed development (inclusive of Stages 1 and 2) will generate less traffic when compared to the type and scale of the land-uses previously approved by EDQ.

3.3 Driveway Crossover for the Service Vehicle Area for Stages 1 and 2

Given that vehicular access to the service vehicle area, which will be shared between Stages 1 and 2, will be achieved via the existing driveway crossover facilitating access to the basement parking area within Stage 1 at Wren Street, which will be repurposed and reconfigured, it is not considered necessary to reassess the suitability of these access arrangements given that they have been operation for a number of years and were previously approved by EDQ. The suitability of the service vehicle area is discussed in further detail in Section 5.

3.4 Driveway Crossover for the Ambulance Bay

Table 3.2 identifies the characteristics of the driveway crossover facilitating vehicular access to the ambulance bay with respect to the requirements outlined in BCC's TAPS PSP. The last column identifies the compliance of each design aspect. Where compliance is not achieved, further information is provided below.

Table 3.2: Typical Requirements for the Driveway Crossover to the Ambulance Bay

Design Aspect	BCC Requirement	Proposed Provision	Compliance
Distance from:			
• A minor intersection	20m (min)	30m	TAPS PSP Compliant
• A major intersection	30m (min)	30m	TAPS PSP Compliant
• Another driveway	15m (min)	1m	Performance Solution
• Traffic Signals	Clear of queuing areas and turning lanes	N/A	N/A
Sight Distance - 50kph	Desirable - 90m (min) Minimum – 70m (min)	43m to the north (towards the Campbell Street/Wren Street priority-controlled intersection) and 40m to the Wren Street/Walden Street priority-controlled intersection	Performance Solution
Driveway Type	Type B1*	Modified Type B1	Performance Solution
Width	6m*	3.5m	Performance Solution
Gradient	1:20 (5%) for 6m for downhill gradients or 1:6 (16.7%) for uphill gradients	1:14.2 (7%) for uphill gradient**	TAPS PSP Compliant
Pedestrian Visibility Splays	2m x 5m	2m x 2.5m on northern side and 1.3m x 2.5m on southern side	Performance Solution

*Based on the driveway crossover being located on a major road and facilitating vehicular access for ambulances (equating to a small rigid vehicle (SRV)).

**Measured along the northern side of the driveway crossover and represents the maximum gradient provided to resolve the crossfall at this location. For instance, the gradient along the southern side of the driveway crossover measures 1:20 (5%). Beyond the first 2m, the driveway crossover/ambulance bay is generally flat.

The location and design of the driveway crossover facilitating vehicular access to the ambulance bay generally complies with the requirements outlined in BCC's TAPS PSP; however, the following issues are resolved with alternative solutions.

3.5 Distance from Another Driveway

The driveway crossover facilitating vehicular access to the ambulance bay will be located directly adjacent to the driveway crossover facilitating vehicles access to the service vehicle area (which will be shared between Stages 1 and 2). It should be noted that the location of the driveway crossover facilitating vehicular access to the ambulance bay has been largely dictated by the desire to maximise the separation to the Campbell Street/Wren Street priority-controlled intersection and the topography along Wren Street (with the longitudinal gradient of the carriageway noticeably steeper further to the north and closer the intersection).

Whilst it is generally not desirable for driveway crossovers to be located adjacent to each other, in this instance there are several reasons why the design is considered acceptable.

- It is anticipated that the service vehicle demands will be limited.
- The ambulance bay will only be used in the event of emergencies.
- Whilst Wren Street is classified as a major road, given the fact it does not operate as a key through route and only provides access to a limited number of properties, the traffic volumes along Wren Street are more similar to that typically expected along a minor road.
- Wren Street is a relatively low speed environment.

On the basis of the above, it is expected that level of conflict between the two driveway crossovers will be negligible.

3.5.1 Sight Distance

Vehicular traffic exiting the driveway crossover will have a clear unobstructed view of both the Campbell Street/Wren Street and Wren Street/Walden Lane priority-controlled intersections. Given the proximity of these intersection and the relatively constrained geometry along Wren Street, the speed of traffic turning from both Campbell Street and Walden Lane onto Wren Street and circulating along Wren Street (in both directions) is relatively low and well below the default speed limit of 50kph.

3.5.2 Driveway Type & Width

Whilst the driveway crossover facilitating vehicular access to the ambulance bay on Wren Street, which is to be provided as a 3.5m wide modified Type B1 driveway crossover, does not strictly satisfy the requirements outlined in BCC's TAPS PSP, it is considered appropriate in this instance given that it will only facilitate one-way operation (with ambulances having to reverse into the bay from Wren Street before exiting in a forward gear). Its width has also been largely dictated by the desire to minimise the crossing distance (across the various driveway crossovers) for pedestrians traversing this section of Wren Street.

3.5.3 Pedestrian Visibility Splays

The pedestrian visibility splays provided on both the northern and southern sides of the driveway crossover facilitating vehicular access to the ambulance bay do not strictly satisfy the requirements outlined in BCC's TAPS PSP. Whilst the pedestrian visibility splay on the northern side satisfies the requirements outlined in AS2890.1, the pedestrian visibility splay on the southern side does not. Whilst this driveway crossover will only be used in the event of emergencies, in order to enhance pedestrian safety at this location it is proposed that warning lights complimented by "WATCH FOR ENTERING TRAFFIC" signage will be installed.

3.6 Conclusion

Overall, the location and design of the access arrangements are considered acceptable.

4 Car Parking Arrangements

4.1 EDQ Parking Supply Requirement

Schedule 3 of the Bowen Hills PDA Development Scheme specifies that parking for residential land-uses are provided at an average rate of 0.75 spaces per unit for residents plus 0.15 parking spaces per unit for visitors. For non-residential uses the Bowen Hills PDA Development Scheme defers to parking rates provided in BCC's TAPS PSP. It is noted that the subject site is located within the City Frame, and therefore a maximum parking rate of 1 space per 100m^2 GFA applies to all non-residential uses.

The following additional parking supply provisions are also outlined in BCC's TAPS PSP:

- In parking areas containing more than 50 spaces, a minimum of 2% the required parking supply are to be provided in the form of motorcycle parking.
- In fully reserved parking areas, up to 20% of the parking supply can be provided as small car (50th percentile) parking spaces, provided such spaces are no smaller than 2.3m wide x 5m long and are appropriately signed as being for small cars only.
- A minimum of 1 PWD space per 50 standard parking spaces is provided.

The parking requirements and subsequent parking provisions are identified in Table 4.1.

Table 4.1: Parking Supply Requirements

Land-Use	EDQ/ BCC Requirement	Extent	Requirement	Provision
Residential:				
Residents	0.75 space per unit	240 units	180 parking spaces	124 parking spaces (incl. 6 PWD spaces), 6 car share spaces and 15 motorcycle spaces
Visitor	0.15 space per unit	240 units	36 parking spaces	23 parking spaces (including 1 PWD space)
Sub-Total			**216 parking spaces**	**147 parking spaces (incl. 6 PWD spaces), 6 car share spaces and 15 motorcycle spaces**
Non-Residential (incl. medical (hospital) and shop/food & drink outlet)	1 space per 100m^2 GFA (max)	6,464m^2 GFA	0 (min) - 65 parking spaces (max)	0 spaces
Total			**216 spaces (min) – 281 spaces (max)**	**147 parking spaces (incl. 6 PWD spaces), 6 car share spaces and 15 motorcycle spaces**

13 motorcycle spaces are provided, which satisfies the requirements outlined in BCC's TAPS PSP.

Within the reserved car parking areas, 17 out of the 124 parking spaces have been provided as small parking spaces. This provision equates 13.7% of the overall reserved parking provision, which satisfies the requirements outlined in BCC's TAPS PSP. Given the structural design and the desire to maximise efficiency, it is proposed that 1 small parking space will be provided within the visitor parking area at level 5.

The general requirement is a minimum of 1 PWD space per 50 standard car parking spaces. Given that the resident parking spaces are effectively not classed as 'standard spaces' for the purposes of determining PWD provisions, the requirement is therefore based on the 23 non-resident parking spaces. As such, 1 PWD spaces would normally be required. Notwithstanding this, a total of 6 PWD parking spaces (including 5 PWD parking spaces for residents and 1 PWD parking spaces for visitors) are provided, which satisfies the requirements outlined in BCC's TAPS PSP.

The proposed parking supply is less than requirement in accordance with BCC's TAPS PSP, hence a performance solution is proposed with respect to resident and visitor parking provisions, which are proposed at rates of approximately 0.5 spaces per unit and 0.1 spaces per unit, respectively. The performance solution in relation to the resident parking supply revolves around the BTR strategy and the additional provisions proposed with respect to alternative and innovative modes of transport and building management which are available to this form of development as opposed to a traditional multiple unit dwelling development. The performance solution in relation to the visitor parking supply revolves around the high proportion of "small" studio and 1-bedroom units, the high level of alternative transport provisions available, the availability of parking within the adjacent MSCP (within Stage 1) at the evenings and at weekends (when visitor parking demand is at its greatest).

The following sections provide supporting information in relation to the performance solution in respect to resident and visitor parking supply.

4.2 Parking Performance Solution

4.2.1 Resident Parking Supply

4.2.1.1 General Transport Planning Principles

Transport policy globally is focused on travel demand management - with a key objective to reduce the reliance on the use of private vehicles and promote the use of alternative forms of transport. This is considered crucial to achieve the objectives of climate change policy through reduced emissions.

BCC's parking policy as outlined in the TAPS PSP generally reflects this objective for non-residential land-uses within City frame, with maximum parking rates specified, however the EDQ`s parking policy for residential land-uses is not strictly aligned with the objective of reducing reliance on private vehicle use. Whilst it is acknowledged that parking for residential land-uses, which should be provided at an average rate of 0.75 spaces per unit is less than that required by BCC for residential land-uses outside the City Core, EDQ's parking policy still requires an "average" or "minimum" parking supply focused on ensuring parking demands are accommodated within development, thus minimizing the potential for overflow parking onto the adjacent road network.

Whilst this may be appropriate for some types of residential development, it is considered somewhat inflexible and inconsistent with the overall transport policy. Essentially the policy lacks recognition of the variety of residential markets – particularly the BTR market – which offers a new paradigm in residential development, particularly the ongoing management of the building.

BTR is a new concept in residential development that provides an opportunity for EDQ to re-align the residential parking policy with fundamental transport planning objectives, as well as providing consistency with parking policy for non-residential development. Whilst in its infancy, the BTR concept has already been recognised by other States and local authorities who have re-aligned their residential parking policies to suit. For example, the updated Housing Diversity State Environmental Planning Policy (SEPP) released by the NSW Planning, Industry & Environment Department states that the "SEPP proposes to introduce four new definitions in the Standard Instrument Local Environmental Plan (LEP) that will improve stability in the rental sector and provide more clarity for stakeholders. BTR housing will provide large scale apartment development with long term leases and on-site management".

Table 4.2 sets out the key requirements for the new housing types.

Table 4.2: Comparison of Development Standards for New Housing Types (Source: Updated Housing Diversity SEPP)

	BTR Housing	Co-Living	Student Housing	Boarding Housing
Tenant	No restriction for market rent dwellings	No restriction	Students	Eligibility based on income
Affordable	Local provisions apply	No minimum requirement	No minimum requirement	Yes – 100%
Tenancy	3 years or more	Minimum 3 months	No minimum	Minimum 3 months
Communal Living Area	New design guidance will be developed	Required	Required	Required
Room/Apartment Size	New design guidance will be developed	30-35m²	10m²	12-25m²
Minimum Car Parking Provision	0.5 spaces per dwelling	0.5 spaces per room	No minimum requirement	0.5 spaces per room; *or* 0.2 spaces per room for social housing providers

4.2.1.2 Parking Policy

It is generally accepted that limiting car ownership (through limiting the parking supply for residential developments) is the most effective means to discourage private vehicle use and encourage use of public transport or alternative transportation options. Furthermore, the location of the subject site and the alternative transport strategy to be adopted (as discussed below) will encourage lower private vehicle mode share in lieu of public transport, walking and cycling due to alternative transport provisions (and the complementary land-uses) provided in the vicinity of the subject site.

4.2.2 On-Street Parking

A key characteristic of the strategy to reduce the resident parking supply for a BTR project is to ensure that there is limited ability for residents to create overflow parking onto the adjacent road network. In this instance there is limited availability of on-street parking for residents to utilise.

The subject site is located within the 'Brisbane Central Traffic Area' where on-street parking is restricted to 2 hours (2P) between 7:00am and 6:00pm on weekdays and also 7am and 12pm on Saturdays, unless signed otherwise.

A summary of the existing on-street parking allocation in the vicinity of the subject site is shown in Figure 4.1.

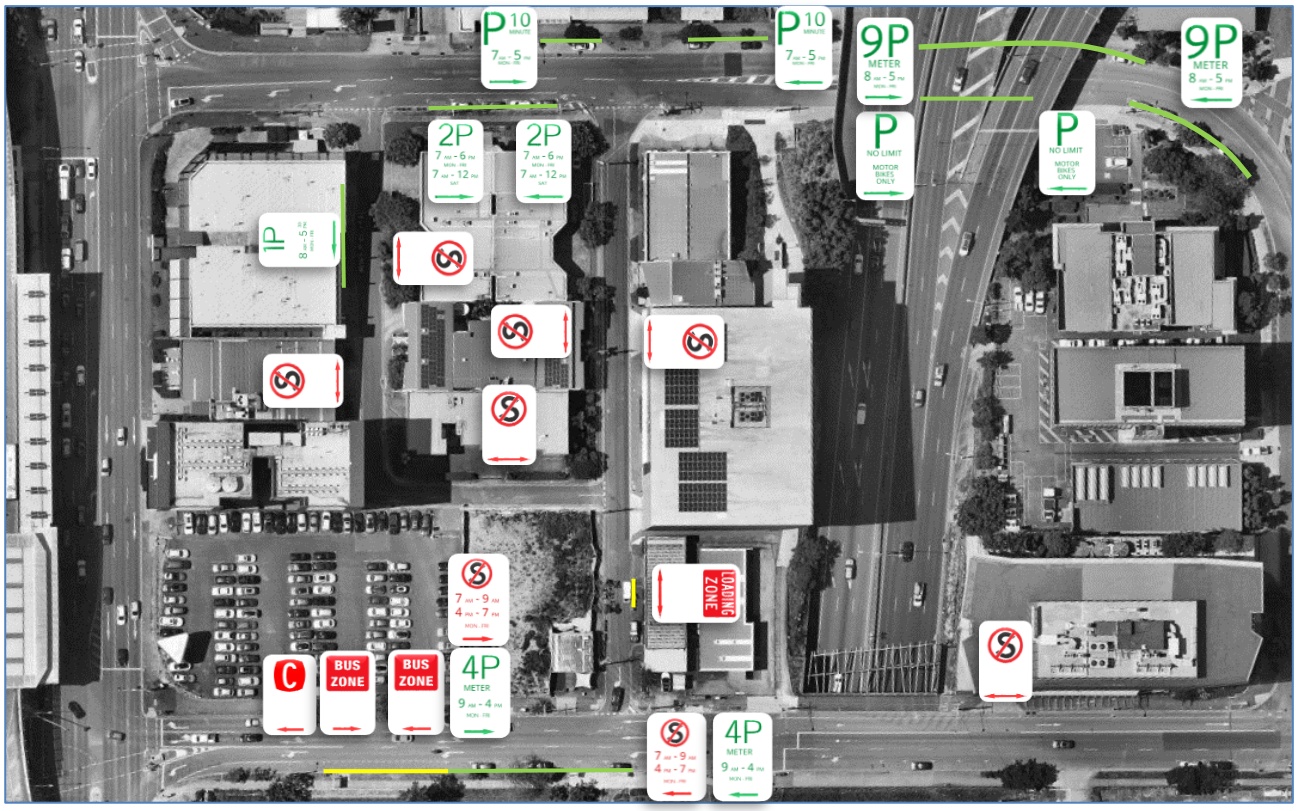

Figure 4.1: Existing On-Street Parking

Figure 4.1 above identifies the kerbside allocation in the vicinity of the subject site and confirms that the majority of the on-street parking (albeit limited) is restricted to short duration only. This is the typical allocation during daytime hours. These parking spaces (whether metered or not) revert to uncontrolled parking overnight and at weekends; however, these spaces are not considered reliable, long-term sources of on-street parking. Furthermore, the site is constrained by major roads (including the Inner-City Bypass (ICB)) in all directions, further deterring residents from seeking on-street parking on the adjacent road network.

Following the implementation of the recommendations of the Council Brisbane Parking Taskforce in 2015, residents of all new residential and student accommodation developments within traffic control areas are no

longer eligible for resident parking permits for time/fee exempt parking on the streets surrounding their residences.

Therefore, given that there is essentially no ability to park on the streets surrounding the subject site for extended periods of time, this factor plays a significant role in the consideration of prospective occupants. Any residents considering renting a unit that does not provide an on-site parking space will likely need to consider their car ownership situation (i.e., either not proceed with occupying the unit or sell their vehicle before moving in) given there is essentially no ability to park vehicles on-site or on the street.

4.2.2.1 Target Market

The market for the BTR project is specifically targeted at a demographic that are sensitive to affordability and sustainability. That is, residents that generally do not want to pay for a parking space and / or are attracted to using alternative modes of transport from either a cost saving or sustainability perspective.

This is a clear differentiation from the traditional residential market. Whilst the traditional MUD development can vary its price point, there is little control over rental versus owner occupier. Furthermore, there is also little control over the demographic that live within a traditional multiple unit dwelling development.

4.2.2.2 Building Management and Operation

A single operator will have ongoing control over both the leasing of the units and the allocation of parking spaces, which provides opportunity to manage parking demands more effectively, particularly given the target market. A key aspect of this holistic management of the units and the parking areas is that parking spaces will be de-coupled from the units and leased to tenants on an as needs basis. This arrangement ensures that all parking spaces are effectively utilised, unlike traditional MUD developments with allocated parking. It is not uncommon in MUD developments with allocated parking that a proportion of the residents do not own cars yet have an allocated parking space – which sits vacant.

With a single operator controlling the leasing, it also provides the ability to be selective in leasing units to potential tenants based on car ownership. If all the parking spaces are leased, the selection process for new tenants can be filtered in a manner that only attracts tenants without cars.

Another key aspect of the ongoing management and operation of the proposed development will be the implementation of a Sustainable Green Travel Plan (SGTP).

4.2.2.2.1 Sustainable Green Travel Plan

The implementation of a SGTP (which will be developed during the detailed design stage) will install a culture within the building that encourages tenants to adopt sustainable travel choices.

The key objectives of the SGTP include:

- Actively promote alternative modes of travel such as public transport, cycling, walking and car sharing for residents.

- Reducing the dependency on travel by private cars which subsequently reduces greenhouse gas emissions and congestion on the surrounding road network.
- Manage parking supply to ensure parking demand does not exceed supply.
- Improve opportunities for those without access to a car.

The SGTP to be prepared will consist of a package of measures to be implemented and is considered as a dynamic document to be monitored on an on-going basis. The measures which will be considered for the proposed development include:

Car Share Scheme

A car share scheme with a maximum of 6 vehicles provided of varying types to suit user's needs. The provision of the car share scheme is also considered a significant benefit in attracting tenants that do not own a car but do require a car for incidental trips e.g., recreational trip to the Gold Coast on the weekend.

It is intended that the 6 car share parking spaces will offset the shortfall in the resident parking supply identified in Table 4.1 (i.e., 61 parking spaces) with each car share space accounting for approximately a 10-parking space reduction in the resident parking supply. This allowance is consistent with that accepted in other major urban centres around Australia. For instance, the Land & Environmental Court of NSW previously accepted that each car share scheme can replace between 10 and 12 private vehicles in MUD developments.

Bicycle Parking

Bicycle parking for residents will be provided in accordance with EDQ's requirements (as outlined in BCC's TAPS PSP).

It is intended that a bicycle mechanic will attend the site on a regular basis in order to undertake maintenance.

E-Bike & E-Scooter

Hire helmets will be available to residents for use of nearby e-mobility services.

Motorcycle Parking

13 motorcycle spaces will be provided.

Public Transport Accessibility

The building will incorporate "real time" information in relation to the public transport services available in close proximity to the subject site.

Set Down Area

A passenger set down area for private vehicles, taxi's and rideshare vehicles is proposed along Campbell Street.

Welcome Pack

Each resident will be provided with a welcome pack in order to encourage sustainable travel from the outset. The welcome pack will include:

- Public transport information (including maps), explaining what buses and trains operate in the vicinity of the subject site.
- Complimentary Go Cards with $20.
- Walking and cycling maps showing local walking and cycling routes.
- Information about the SGTP and any other measures (including share cars and bicycles) provided to support sustainable travel.

Travel Plan Co-Ordinator

A Travel Plan Co-ordinator will be appointed. The co-ordinator will oversee the day-to-day running and management of the plan. The duties of the Travel Plan Co-ordinator, will include:

- Acting as the SGTP contact point for residents.
- Championing the measures outlined within the SGTP.
- Coordinating and maintaining the proposed measures.
- Monitoring the progress of the SGTP.
- Managing use of parking spaces, share cars and hire bicycles / scooters.
- Maintaining communication with residents (potentially via a Community App).
- Maintaining external communications including liaising with the local authority and other interested parties such as Translink and rideshare operators.
- Providing up to date travel information and making this information available as and when changes occur.

It is TTM's expectation that EDQ will condition the preparation of a detailed SGTP as part of the relevant approvals.

4.2.2.3 Site Location - Surrounding Development

Whilst the availability of alternative forms of active and public transport is critical in terms of reducing reliance on private vehicle use, the location of the site in the context of facilities and services is also critical. Proximity to complimentary land-uses, i.e., employment, retail, and entertainment (and recreation), is critical in terms of the appropriateness if using the alternative modes of transport.

The subject site is located in close proximity to the RBWH, which facilitates employment opportunities. Furthermore, King Street, which facilitates employment, dining and entertainment opportunities, is located within 700m walking distance to the south of the subject site.

4.2.2.4 Public Transport, Pedestrian & Cyclist Facilities

The accessibility of the subject site to the existing and future train and bus networks will provide residents with a high level of accessibility to public transport services. The frequency and coverage of these services provides residents with a viable form of alternative transport.

4.2.2.5 Summary

Based on the target market for the proposed development, combined with the ongoing management of the building (including the parking spaces which will be de-coupled from the apartments) and the implementation of a comprehensive SGTP, it is concluded that the proposed resident parking supply is suitable, which will subsequently reduce the reliance on the use of private vehicles and resulting parking demand.

4.2.3 Visitor Parking Supply

This visitor parking provision is considered acceptable for the following reasons:

- The proposed development is comprised of a high proportion of "small" studio and 1-bedroom units. The probability of visitors to these small sized dwellings is expected to be less than that of the more traditional larger apartments, for which the BCC's TAPS PSP visitor parking provision also caters for. This is due to the lower expected population per unit (which is directly proportional to the potential for visitors) and also the fact that the physical size of the apartments is not conducive of attracting a significant amount visitors. For example, residents are limited in the number of people able to visit concurrently given the small amount of entertaining/communal space in the units.
- As noted previously, the subject site is located in close proximity to a high level of public transport provisions, which provides visitors with a realistic alternative for travel to/from site (particularly for visitors/friends of residents who also live in the inner-city areas for easy alignment with the public transport services at the other end of the journey).
- TTM considers that the proposed visitor parking supply of 0.1 spaces per unit provides a suitable compromise between the visitor parking requirement within the CBD (and also within the proposed Kuripla Precinct) and the more conservative requirement of 0.15 spaces per unit which would apply to any other development within City Frame, regardless of the location/characteristics of the site (for example, a with reduced access to public transportation provisions).
- The MSCP within Stage 1 caters for all types of visitor parking demand. Given the surrounding land-uses including the medical (hospital) land-uses it is expected that there is adequate parking availability within the MSCP in the evenings and at weekends (when visitor parking demand is at its greatest).

- It is proposed that bicycle parking for visitors will be provided in accordance with the industry recommendations as outlined in AGTM Part 11: Parking Management Techniques.

Based on the commentary provided above, TTM considers that the provision of 23 spaces (equating to 0.1 spaces per unit) is an appropriate visitor parking supply for the proposed development.

4.2.4 Conclusion

Overall, the parking supply is considered acceptable.

4.3 Design of Parking Areas

4.3.1 Introduction

BCC's TAPS PSP is adopted as the design standard for parking areas in developments under the assessment of EDQ.

4.3.2 Car Park Layout

The proposed development intends to retain much of the existing parking arrangements including the circulation ramps between the parking areas at podium level. Given the fact that the existing parking areas have been in operation for a number of years and were previously approved by EDQ, it is not proposed to reassess the suitability of these areas as the function of the parking area will remain relatively unchanged. In summary, the key new car parking elements which have been assessed as part of this redevelopment include:

- The new parking areas at levels 5-10.
- The new circulation ramping arrangements between levels 9 and 10.

Table 4.3 identifies the characteristics of the proposed parking areas with respect to the requirements outlined in BCC's TAPS PSP. The last column identifies the compliance of each design aspect. Where compliance is not achieved, further information is provided below.

Table 4.3: Parking Design Requirements

Design Aspect	TAPS PSP Requirement	Proposed Provision	Compliance
Parking space length: • General bay • PWD bay • Small car bay	 5.4m (min) 5.4m (min) 5.0m (min)	 5.4m 5.4m 5m	 TAPS PSP Compliant TAPS PSP Compliant TAPS PSP Compliant
Parking space width: • Resident bay • Visitor bay • PWD bay • Small car bay	 2.6m (min) 2.6m (min) 2.4m (plus 2.4m 'shared space') 2.3m (min)	 2.4-2.7m 2.4m 2.4m (plus 2.4m 'shared space') 2.3m	 Performance Solution Performance Solution TAPS PSP Compliant TAPS PSP Compliant
Parking envelope clearance – Column adjacent to bay	Located between 0.8m and 1.8m of aisle	Generally, located between 0.75m and 1.75m of aisle	Performance Solution
Parking envelope clearance – space adjacent to wall	Spaces 0.3m clear of wall	Generally, spaces 0.3m clear of wall	TAPS PSP Compliant
Aisle Width: • Parking aisle • Circulation road/ramp (two-way, one-lane, up to 25vph)**	 6.2m (min) 5.3m (min) between walls	 6-6.2m 6.2m (min) between walls	 TAPS PSP Compliant* TAPS PSP Compliant
Parking Aisle Extension	2m beyond last bay or 8m aisle width	Varies	Performance Solution
Maximum Gradient: • PWD parking • Parking bay • Parking aisle • Ramp	 1:40 (2.5%) 1:14 (7.1%) 1:14 (7.1%) 1:6 (16.7%)	 Flat Flat Flat 1:6 (20%)	 TAPS PSP Compliant TAPS PSP Compliant TAPS PSP Compliant TAPS PSP Compliant
Maximum Change in Grade	1:12 (8.3%) summit & sag	1:10 (10%) summit & sag	Performance Solution
Height Clearance • General Min. • Over PWD bay	 2.3m 2.5m	 2.3m*** 2.5m	 TAPS PSP Compliant TAPS PSP Compliant

* The new circulation roads/ramps facilitating vehicular access to the parking areas within Stage 2 will carry no more than 25vph.

**Whilst the width of the parking aisle reduces to 6m at one location at level 10, in accordance with the requirements outlined in BCC's TAPS PSP the width of the adjacent parking spaces has been widened accordingly (i.e. for every 0.4m reduction in the width of the parking aisle width, the width of the adjacent parking spaces needs to be widened by 0.1m).

***Whilst a height clearance of 2.3m is provided over the circulation roads/ramps, the parking aisles and the standard parking spaces with 2.5m provided over the PWD parking spaces and shared areas within the new parking areas within Stage 2, the height clearance within the new parking areas is constrained by the height clearance provided at the existing driveway crossover to the MSCP on Wren Street, which is signed as 2.25m. Whilst this height clearance, which represents an existing issue, does not strictly satisfy the requirements outlined in BCC's TAPS PSP, it does satisfy the requirements outlined in AS2890.1.

In general, the proposed design provisions for the new parking areas generally comply with the requirements outlined in BCC's TAPS PSP. Whilst the design of the parking areas will be further refined as the project progresses, the following issues will be resolved with performance solutions.

4.3.2.1 Width of Parking Spaces for Residents & Visitors

Inspection of the development plans confirms that the resident parking spaces are 2.4m wide, which have been provided in order to maximise efficiency. It should be noted that the width of the resident parking spaces complies with the requirements set out in AS2890.1 and is considered appropriate for an inner-city apartment building such as this one, where the average size of tenant's cars is likely to be smaller than that owned by the general populace. For instance, as the proposed development comprises largely of smaller studio, 1- and 2-bedroom units from a practical viewpoint it is expected that most residents will own smaller vehicles. As there is little scope for more traditional larger families to reside in these units, the expectation of residents owning larger 'family' sized vehicles (e.g., people movers or 4WDs) will be significantly lower. In short, most residents of this building will be singles or couples and will generally only own smaller hatchbacks or sedans. The need for loading and unloading of significant numbers of passengers or goods from these vehicles will be lower (i.e., parents not escorting children in/out of vehicles), which is the primary reason as to why Table 16 of BCC's TAPS PSP indicates that 2.6m wide parking bays are necessary for resident parking.

The minimum width of the resident parking spaces provided is also consistent with that provided at developments of a similar scale granted recent approval by EDQ and BCC within the CBD/fringe areas.

The 2.4m wide parking spaces are generally accessed via parking aisles measuring a minimum of 6.2m wide, which exceeds the 5.8m minimum requirement specified within AS2890.1. It is considered that manoeuvrability to/from the resident (and visitor) parking spaces from the 6.2m wide parking aisles will not be significantly compromised as a result of the provision of the 2.4m wide parking spaces. In addition, given that the parking spaces will be allocated to specific residents, the resident parking areas will generally only be accessed by regular users, all of which who will become familiar with the easiest way to manoeuvre into/out of their parking spaces given the vehicle they own and location of the space.

Whilst the spaces allocated for visitors have also been provided at 2.4m wide it should be noted that this provision has again been dictated by the desire to maximise efficiency.

Interestingly, BCC's TAPS PSP does not differentiate between low turnover visitor parking spaces at multiple unit dwelling developments and moderate/high turnover car parking spaces at suburban shops. It is considered that the required door opening for visitors is significantly less than that for customers at suburban shops. Given that the visitor parking spaces are relatively low turnover and only utilised for short discrete periods during the week it is considered that the provision of 2.4m wide parking spaces is an acceptable outcome.

4.3.2.2 Location of Columns

BCC's TAPS PSP specifies that columns should be located at least 0.8m away from the parking aisle and no further than 1.8m from the parking aisle. The development plans include for columns to be located 0.75m away from the parking aisle. Empirical testing has confirmed that the 0.05m difference in column locations will not impact manoeuvrability to/from adjacent parking spaces given the provision of the 6.2m wide

parking aisle. Furthermore, a 0.75m column setback from the parking aisle is compliant with the provisions outlined in AS2890.1.

4.3.2.3 Blind Aisle Extension

Inspection of the development plans confirms that the terminated aisle treatments provided adjacent to the end parking spaces do not strictly comply with the requirements set out in BCC's TAPS PSP

Typical manoeuvrability to/from the end parking spaces, using Autotrack software, is demonstrated on Drawing No. 23BRT0197-01 included in Appendix B.

4.3.2.4 Ramp Transitions

BCC's TAPS PSP specifies that at any change in grade does not exceed 1:12 (8.3%). Maximum transitions of 1:10 (10%) are provided on the ramp facilitating vehicular access to the parking areas at podium level, which satisfy the requirements outlined in AS2890.1. Empirical testing has confirmed that the provision of 1:10 (10%) transitions as being adequate to prevent ground clearance issues (i.e., scraping/bottoming out) for both Australian Standard B99 and B85 design vehicles.

4.3.2.5 Summary

Based on the information provided above, TTM considers the layout of the parking areas acceptable through compliance with a combination of design aspects from BCC's TAPS PSP and AS2890.1.

4.4 Passenger Loading Zone on Campbell Street

A passenger loading zone for private cars, taxi's and rideshare vehicles is proposed at Campbell Street. The passenger loading zone as shown on Drawing No. 23BRT0197-05 (included in Appendix C) has been designed in accordance with BCC Standard Drawing No. BSD-3162. In order to maintain a suitably wide verge adjacent to the passenger loading zone is it is proposed that the building line (at lower ground and ground level) and the kerb line along the nearside of the carriageway will be realigned with the width of the westbound lane reduced to a minimum of 3.7m. The realigned kerb line along the nearside of the carriageway ties-in adequately with the existing edge line on the opposite side of the Campbell Street/Wren Street priority-controlled intersection.

It should be noted that given the topography and specifically the longitudinal gradient of the carriageway there is no opportunity to provide a passenger loading zone along Wren Street instead.

4.5 Conclusion

Overall, the proposed parking arrangements are considered suitable.

5 Service Vehicle Arrangements

5.1 Introduction

The Bowen Hills PDA Development Scheme provides no commentary regarding the servicing provisions required for any particular development. As such, TTM has referred to the requirements outlined in BCC's TAPS PSP.

5.2 TAPS PSP Requirements

BCC's TAPS PSP specifies the following requirements in terms of access/design vehicles for the respective land-uses.

5.2.1 MUD Development Land-Use

- Regular access for a refuse collection vehicle (RCV)
- Occasional access for a large rigid vehicle (LRV)

5.2.2 Medical (Hospital) Land-Uses

- Regular access for an RCV
- Occasional access for an articulated vehicle (AV)

5.2.3 Shop/Food & Drink Outlet Land-Use

- Regular access for an SRV
- Occasional access for a Van

5.2.4 Bar Land-Use

- Regular and occasional access for an RCV

With respect to the requirements for service vehicle bays, these also vary depending on the size and types of land uses being proposed. A summary of the TAPS PSP service vehicle bay provisions for each land-use, including total/maximum of all land-uses, is detailed in Table 5.1.

Table 5.1: Summary of TAPS PSP Service Vehicle Bay Requirements

Land-Use	Extent	Number of Service Vehicle Bays				
		VAN	SRV	MRV	LRV/RCV	AV
MUD Development	240 units	-	-	-	1	-
Medical (Hospital)	9,348m² GFA*	-	-	-	1	1
Shop/Food & Drink Outlet	88m² GFA	-	1	-	-	-
Bar		-	-	-	1	-
Total		**-**	**1**	**-**	**3**	**1**
Maximum of Any Single Land Use		**-**	**1**	**-**	**1**	**1**

*Combined GFA for the medical (hospital) land-uses within Stages 1 and 2.

5.3 Practical Demands

5.3.1 MUD Land-Use

The primary servicing demand generated by MUD developments is furniture delivery vehicles. As the proposed development comprises largely of smaller studio, 1- and 2-bedroom units from a practical viewpoint, the majority of furniture delivery vehicles requiring access to the site will be much smaller than the LRV design vehicle required under BCC's TAPS PSP. Guidance from furniture removalist companies indicates that such sized units typically require removal of 10-20m³ of furniture. This volume of furniture can be accommodated within delivery vehicles representative of an SRV (storage capacities typically up to 20m³) or as a worst case an MRV (storage capacity up to 35m³). Furthermore, given that the proposed development is a BTR facility, all of the units will be occupied by renters. Such residents typically undertake removals themselves using Utes, Vans and SRVs. For reference also, drivers holding an Open C class licence are also only allowed to rent trucks up to the size of an SRV.

In addition to the above, it is possible to manage furniture deliveries in a manner that controls the size of the vehicle accessing the site and also the time at which the residents move in/out of the development. The building manager allocates a specific time period to the tenants to lock off a lift and use the service vehicle area. On this basis, it is TTM's view that a MRV is the appropriate design vehicle for the furniture truck. This method of controlling the size of vehicles (limited to an MRV) for furniture deliveries has previously been approved on numerous other MUD developments in the CBD/fringe area.

On the basis of the above, an MRV is considered the largest design vehicle for the MUD development land-use.

5.3.2 Medical (Hospital) Land-Uses

Based on TTM's previous experience with medical (hospital) land-uses, the estimated service vehicle demands are as follows:

- Kitchens typically operate as reheat-only kitchens with up to one (1) food delivery daily.
- Considering the constrained road environment and access arrangements to the site, oxygen deliveries, which are typically undertaken by AVs at large hospitals at unconstrained locations as per the

requirements outlined in BCC's TAPS PSP, are expected to be managed through deliveries via small tanks and transported directly to the oxygen room, with up to four (4) deliveries per week.

- Two (2) linen deliveries per week (outside of peak hours).
- Three (3) deliveries of general supplies and consumables per week (maximum).
- Fuel deliveries to service the back-up generators expected on an 'as needed' basis, no more than once (1) every few months.

Based on this assessment, the typical number of general servicing deliveries expected per week is in the order of 10 deliveries, equating to approximately two (2) deliveries per day. It is expected that these deliveries will occur mostly by SRV and MRV sized vehicles.

In addition to these typical demands, medical (hospital) land-uses are also required to include provisions for ambulances.

On the basis of the above, an MRV is considered the largest design vehicle for the medical (hospital) land-use.

5.3.3 Shop/Food & Drink Outlet Land-Use

Given that the shop/food & drink outlet land-use will comprise a café tenancy it is considered that most regular vehicles servicing these premises will be those delivering stock, equipment and consumables (typically by Vans or SRVs).

On the basis of the above, an SRV is considered the largest design vehicle for the shop/food & drink outlet land-use.

5.3.4 Public Bar Land-Use

Service vehicle demands for the public bar will typically include deliveries of stock, equipment and consumables (typically by Vans or SRVs). These vehicles are likely to access the site a number of times per week. Given the scale of the public bar, it is expected that keg deliveries by vehicles up to the size of an MRV will occur on a weekly basis.

5.3.5 Refuse Collection

Whilst refuse generated by MUD development land-uses is typically collected by BCC's Waste & Resource Recovery Services (WaRRS), with the management structure associated with a BTR facility, it is expected that it would be acceptable for a private refuse contractor to undertake all refuse collection at the proposed development.

Private refuse contractors have a range of vehicles and bin options, however, it is noted that most contractors can service inner-city developments with rear-loading vehicles the same size, if not smaller, than the BCC's WaRRS RCVs.

Using a private refuse contractor provides the ability to schedule refuse collection for the MUD development land-uses at a time that minimises conflicts with other deliveries, hence ensuring safe and efficient operation of the service vehicle area.

5.3.6 Summary

It is expected that the largest vehicle that the proposed development will need to accommodate is an RCV.

5.4 Proposed Service Vehicle Provisions

It should be noted that the service vehicle provisions have been dictated by the site constraints (in relation to topography and the provision of the cycle path along the eastern portion of the wider site)

It is proposed that 5 service vehicle bays will be provided to cater for the service vehicle demands associated with Stages 1 and 2, including:

- 1 MRV bay
- 1 SRV bay
- 1 ambulance bay
- 2 Van bays

Given the removal of the parking area at basement level within Stage 1, it is proposed that 2 van bays will be provided at level 5 within the MSCP. Suitable wayfinding signage will be provided to direct users to the van bays.

Shared use of the MRV bay is proposed for refuse collection.

It is proposed that a comprehensive Service Vehicle Management Plan will be implemented to assist the efficient servicing of the development.

Whilst it is anticipated that the Service Vehicle Management Plan will be further developed as part of the detailed design stage, key aspects of the plan are outlined in Appendix D.

It should be noted that the strategies outlined Service Vehicle Management Plan are consistent with that successfully implemented at other mixed-use developments within the CBD/fringe area.

Overall TTM considers that the ability to effectively manage and screen the service vehicle movements (through the implementation of the Service Vehicle Management Plan) will ensure that the proposed service vehicle bay provisions are adequate to cater for the various service vehicle demands.

5.5 Design of Service Vehicle Areas

The dimensions of the service vehicle bays (i.e. 3.5m wide x 9m long for the MRV bay, 3.5m wide x 7m long for the SRV bay, 3.5m wide x 11m long for the ambulance bay and 3m wide x 5.4m long for the Van bays)

satisfy the requirements outlined in BCC's TAPS PSP (or that specified by the Queensland Ambulance Service (QAS) in respect to the ambulance bay).

Whilst existing crossfalls of 1:13.5 (7.4%) and 1:10.6 (9.4%) are provided at the driveway crossovers facilitating vehicular access to the service vehicle area for Stages 1 and 2 and the ambulance bay, respectively, the crossfalls (and gradients) where the various service vehicles (including ambulances) will unload/load are much gentler and generally satisfy the requirements outlined in BCC's TAPS PSP or that specified by QAS.

The height clearance over the service vehicle bays (including the ambulance bay) is a minimum of 4.5m, which satisfies the requirements outlined in BCC's TAPS PSP or that specified by QAS.

Overall, the design of the service vehicle areas is considered acceptable.

5.6 Vehicle Manoeuvrability

It is necessary for vehicles to reverse into the service vehicle bays from Wren Street before exiting in a forward gear. It should be noted that this arrangement generally aligns with the requirements outlined in the Bowen Hills PDA Development Scheme where it is stipulated that service vehicle areas *"are designed to enable all vehicles to exit loading and servicing areas in forward gear"*.

Whilst Wren Street is classified as a major road, given the fact it does not operate as a key through route and only provides access to a limited number of properties, the traffic volumes along Wren Street are more similar to that typically expected along a minor road. Furthermore, given the relatively constrained carriageway width along Wren Street, it operates as a low-speed environment. Consequently, it is not expected that manoeuvring to/from the service vehicle areas will noticeably impact road safety at this location.

Detailed swept path analysis (using Autotrack software) demonstrating manoeuvring to/from the service vehicle bays is shown on Drawing No. 23BRT0197-02-03-04 included in Appendix B.

Whilst a BCC's WaRRS RCV (if required) could encroach the beyond the property boundary by approximately 0.2m, this arrangement is permitted under, the Queensland Road Rules, Section 313A, which indicates that 'garbage truck drivers' are exempt from being prohibited from "obstructing access to and from a footpath, driveway, etc." as detailed in Section 198 on the provision that:

"a. the driver is engaged in the collection of garbage, waste or goods for recycling;

b. it is not practicable for the driver to comply with the provision;

c. the truck or vehicle is displaying a flashing light; &

d. the driver is acting safely."

TTM consider that all four (4) of the criteria apply in this instance and therefore the exemption will apply for these refuse collection activities.

The above assertion has been endorsed by the Department of Transport & Main Roads (DTMR) who have confirmed that RCV's are exempt from being prohibited to stop on or block a driveway, as the vehicle is still considered to be "in operation" whilst emptying bins.

5.7 Conclusion

Overall, TTM consider the proposed servicing arrangements acceptable.

6 Active Transport

6.1 Pedestrian Access

Pedestrian access to the site will be facilitated via Wren Street.

6.2 Bicycle Parking Arrangements

6.2.1 Bicycle Parking Supply

BCC's TAPS PSP is adopted as a guide for bicycle provisions for developments under the assessment of EDQ.

A summary of the bicycle parking requirements for the proposed development (in line with Table 21 of BCC's TAPS PSP) is provided in Table 6.1. Given that it is unclear at this juncture how many beds will be provided within the medical (hospital) land-use, conservatively, the bicycle parking requirements for this particular land-use has been assessed based on an office land-use instead.

Table 6.1: Bicycle Parking Requirements

Land-Use	TAPS PSP Requirements	Extent	Requirement
MUD Development:			
– Residents	1 bicycle space per unit	240 units	240 bicycle spaces
– Visitors	0.25 bicycle space per unit	240 units	60 bicycle spaces
Medical (Hospital):			
– Employees	1 bicycle space per 200m² GFA	5,847m²*	30 bicycle spaces
– Visitors	1 bicycle space per 500m² GFA	5,847m²*	12 bicycle spaces
Total			342 bicycle spaces

*GFA associated with the medical (hospital) land-uses within Stage 2.

The bicycle parking provisions for the proposed development are summarized as follows:

- 290 bicycle parking spaces for residents at the BTR facility
- 24 bicycle parking spaces for visitors at the BTR facility
- 30 bicycle parking spaces for employees at the medical (hospital) land-uses
- 12 bicycle parking spaces for visitors at the medical (hospital) land-uses

Whilst the bicycle parking supply for residents at the BTR facility and employees and visitors at the medical (hospital) land-uses adequately satisfies the requirements outlined in BCC's TAPS PSP, the bicycle parking supply for visitors at the BTR facility has been provided in accordance with the requirements outlined in AGTM Part 11: Parking Management Techniques, which is considered more appropriate based on expected demand. AGTM – Part 11 Parking Management Technique specifies that bicycle parking for visitors should be provided at a rate of either 1 space per 16 habitable rooms or 1 space per 12 flats (units), which would necessitate the provision of between 20 and 24 bicycle parking spaces for visitors.

The bicycle parking provisions are considered suitable to cater for expected demand.

6.2.2 Design of Bicycle Parking Areas

The design of the bicycle parking areas generally satisfies the requirements outlined in AS2890.3. In order to maximise efficiency within the bicycle storage area for residents at the BTR facility and employees at the medical (hospital) land-uses, it is necessary for the Cora E3DT-GP multi-tiered bicycle rack (specifications included in Appendix E) to be installed.

6.3 Conclusion

Overall, TTM consider the proposed active transport arrangements acceptable.

7 Development Traffic Impacts

7.1 Introduction

Given the changes to the proposed land-use within Stage 2, the increased overall parking supply and the changes to the parking allocation within Stage 1 it is considered prudent to compare the traffic generation associated with the proposed development and the traffic generation associated with the type and scale of the land-uses previously approved by EDQ.

For information purposes, it was previously proposed (and approved by EDQ) that Stages 1 and 2 would comprise of the following:

- Medical (hospital) land-uses with a GFA of 4,068m² and 39 parking spaces within Stage 1.
- Commercial parking facility containing 189 parking spaces within the MSCP within Stage 1.
- STA land-uses containing 239 rooms within Stage 2 and 70 parking spaces within Stage 2.

It is now proposed that Stages 1 and 2 will comprise of the following:

- Medical (hospital) land-uses with a GFA of 10,173m² and 39 parking spaces within Stages 1 and 2.
- Commercial parking facility containing 242 parking spaces within the MSCP within Stage 1.
- MUD land-uses containing 240 units within 147 parking spaces (inclusive of car share facility and visitor parking) within Stage 2.

7.2 Traffic Generation

Table 7.1 compares the traffic generation associated with the proposed development (inclusive of Stages 1 and 2) with the traffic generation associated and the type and scale of the land-uses previously approved by EDQ.

Table 7.1: Comparison of Traffic Generation Potential

Development Component	Quantity	AM Peak-Hour Generation Rate	PM Peak-Hour Generation Rate	AM Peak-Hour Generation	PM Peak-Hour Generation
Previously Approved by EDQ (to be removed):					
Medical (Hospital) Land-Use – Stage 1	39 parking spaces	0.45vph/space*	0.45vph/space*	-18vph	-18vph
Commercial Parking Facility with MSCP – Stage 1	189 parking spaces	0.49vph/space**	0.47vph/space**	-93vph	-89vph
STA Land-Use – Stage 2	239 rooms & 70 parking spaces	0.2vph/room (set down) & 0.17vph/space (parking area)***	0.2vph/room (set down) & 0.17vph/space (parking area)***	-60vph	-60vph
Sub-Total				**-171vph**	**-167vph**
Proposed Development:					
Medical (Hospital) Land-Use – Stages 1 and 2	39 parking spaces	0.45vph/space*	0.45vph/space*	+18vph	+18vph
Commercial Parking Facility with MSCP – Stage 1	203 parking spaces	0.49vph/space**	0.47vph/space**	+100vph	+96vph
MUD Development Land-Use – Stage 2	147 parking spaces	0.15vph/space****	0.12vph/space****	+22vph	+18vph
Sub-Total				**+140vph**	**+132vph**
Net Change				**-31vph**	**-35vph**

* Sourced from traffic surveys undertaken by TTM at existing hospitals around SEQ. Using the parking supply and traffic generation for each hospital, the equivalent "per parking space" peak hour traffic generation has been determined to be 0.45vph per space.

**Sourced from BCC CBD Traffic & Parking Study (1988).

*** Sourced from the Howard Smith Wharves Preliminary Traffic Study Report commissioned by BCC (completed by SKM) in 2008. In this study, SKM conducted traffic generation surveys for the existing Marriott Hotel and Medina Apartment Hotel developments in the Petrie Bight to estimate traffic generation rates for typical STA facilities within the CBD/fringe area. These surveys also broke down traffic generation in terms of both arrival/departures from the parking area and vehicle set-down movements.

****Sourced from RMS Guide to Traffic Generating Developments – Updated Traffic Surveys.

Whilst both the overall parking supply and the number of parking spaces allocated for commercial parking within the MSCP have increased, it is estimated that the proposed development (inclusive of Stages 1 and 2) will generate less traffic when compared to the type and scale of the land-uses previously approved by EDQ. This is specifically due to the fact that the STA land-use is no longer proposed within Stage 2 with an MUD development (with reduced parking) now proposed instead.

7.3 Conclusion

It is estimated that the proposed development (inclusive of Stages 1 and 2) will generate less traffic when compared to the type and scale of the land-uses previously approved by EDQ. On this basis, no additional traffic analysis is considered necessary.

8 Code Responses

A response to the TAPS Code is included in Appendix F.

9 Summary and Conclusions

9.1 Site Access Arrangements

The proposed access arrangements are summarised below.

- Vehicular access to the podium parking areas will be achieved via the existing driveway crossover facilitating access to the MSCP within Stage 1 at Wren Street. Given the site constraints (in relation to topography and the provision of the cycle path along the eastern portion of the wider site) in addition to the flooding issues along Campbell Street, there is no opportunity to provide a separate driveway crossover to the podium parking areas within Stage 2.
- Vehicular access to the service vehicle area (which will be shared between Stages 1 and 2) will be achieved via the existing driveway crossover facilitating access to the basement parking area within Stage 1 at Wren Street. It is proposed that the basement parking area within Stage 1 will be removed and repurposed.
- Vehicular access to the ambulance bay (which will be shared between Stages 1 and 2) will be achieved via a new driveway crossover on Wren Street.

It has been demonstrated that existing driveway crossover facilitating vehicular access to the MSCP within Stage 1 at Wren Street is suitable to cater for the additional parking provided.

The location and design of the driveway crossover facilitating vehicular access to the ambulance bay is considered suitable given that Wren Street is a lightly trafficked, low speed environment in additional to the fact that it will only be utilised in the event of emergencies.

The proposed access arrangements are considered suitable.

9.2 Parking Arrangements

The proposed parking supply is less than requirement in accordance with BCC's TAPS PSP, hence a performance solution is proposed with respect to resident and visitor parking provisions, which are proposed at rates of 0.5 spaces per unit and 0.1 spaces per unit, respectively. The performance solution in relation to the resident parking supply revolves around the BTR strategy and the additional provisions proposed with respect to alternative and innovative modes of transport and building management which are available to this form of development as opposed to a traditional multiple unit dwelling development. The performance solution in relation to the visitor parking supply revolves around the high proportion of "small" studio and 1-bedroom units, the high level of alternative transport provisions available, the availability of parking within the adjacent MSCP (within Stage 1) at the evenings and at weekends (when visitor parking demand is at its greatest).

The layout of the parking areas is considered acceptable through compliance with a combination of design aspects from BCC's TAPS PSP and AS2890.1.

A passenger loading zone for private vehicles, taxi's and rideshare vehicles is proposed at Campbell Street.

The proposed parking arrangements are considered suitable.

9.3 Service Vehicle Arrangements

It is considered that the proposed on-site servicing provisions are sufficient to cater for the expected demands generated by the proposed development on the proviso that a comprehensive Service Vehicle Management Plan is implemented to assist the efficient servicing of the development.

Whilst it is necessary for vehicles to reverse into the service vehicle bays from Wren Street before exiting in a forward gear, this arrangement generally aligns with the requirements outlined in the Bowen Hills PDA Development Scheme where it is stipulated that service vehicle areas *"are designed to enable all vehicles to exit loading and servicing areas in forward gear"*.

Whilst Wren Street is classified as a major road, given the fact it does not operate as a key through route and only provides access to a limited number of properties, the traffic volumes along Wren Street are more similar to that typically expected along a minor road. Furthermore, given the relatively constrained carriageway width along Wren Street, it operates as a low-speed environment. Consequently, it is not expected that manoeuvring to/from the service vehicle areas will noticeably impact road safety at this location.

The proposed service vehicle arrangements are considered suitable.

9.4 Active Transport

Whilst the bicycle parking supply for residents at the BTR facility and employees and visitors at the medical (hospital) land-uses adequately satisfies the requirements outlined in BCC's TAPS PSP, the bicycle parking supply for visitors at the BTR facility has been provided in accordance with the requirements outlined in AGTM Part 11: Parking Management Techniques. The bicycle parking provisions are considered suitable to cater for expected demand.

The design of the bicycle parking areas generally satisfies the requirements outlined in AS2890.3.

The proposed active transport arrangements are considered suitable.

9.5 Development Traffic Impacts

It is estimated that the proposed development (inclusive of Stages 1 and 2) will generate less traffic when compared to the type and scale of the land-uses previously approved by EDQ. On this basis, no additional traffic analysis is considered necessary.

9.6 Conclusion

Based on the assessment contained within this report, TTM see no traffic engineering reason why the relevant approvals should not be granted.

Appendix A Development Plans

Stage 2			Proposed (stage 2)														Existing (stage 1)	
			Overall Area		GFA	Communal Area		GFA	NLA	Studio Apartment	1 Bed Apartment	2 Bed Apartment	3 Bed Aptartment	Car Parking		GFA	Car Parking
			Internal	External		Internal	External										
	Level 30	*Common Amenities for BTR*				630	446	539	415								
30	Level 29	BTR Apartments	1045	162	950					1	5	5	1		30		
29	Level 28	BTR Apartments	1045	162	950					1	5	5	1		29		
28	Level 27	BTR Apartments	1045	162	950					1	5	5	1		28		
27	Level 26	BTR Apartments	1045	162	950					2	4	5	1		27		
26	Level 25	BTR Apartments	1045	162	950					2	4	5	1		26		
25	Level 24	BTR Apartments	1045	162	950					2	4	5	1		25		
24	Level 23	BTR Apartments	1045	162	950					2	4	5	1		24		
23	Level 22	BTR Apartments	1045	162	950					2	4	5	1		23		
22	Level 21	BTR Apartments	1045	162	950					2	4	5	1		22		
21	Level 20	BTR Apartments	1045	162	950					2	4	5	1		21		
20	Level 19	BTR Apartments	1045	162	950					2	4	5	1		20		
19	Level 18	BTR Apartments	1045	162	950					2	4	5	1		19		
18	Level 17	BTR Apartments	1045	162	950					2	4	5	1		18		
18	Level 16	BTR Apartments	1045	162	950					2	4	5	1		18		
16	Level 15	BTR Apartments	1045	162	950					2	4	5	1		16		
15	Level 14	BTR Apartments	1045	162	950					2	4	5	1		15		
14	Level 13	BTR Apartments	1045	162	950					2	4	5	1		14		
13	Level 12	BTR Apartments	1900	240	989					3	3	5	1		13		
12	Level 11	BTR Apartments	2617	165	1131					2	2	7	1		12		
		BTR Common Amenities				-	750	441									
11	Level 10	BTR Apartment & Car Parking	2658	57.2	255					2	0	2	0	48	11		0
		BTR Common Amenities						89									
10	Level 9	BTR Apartment & Car Parking	1000	57.2	255					2	0	2	0	14	10		48
		BTR Common Amenities						89									
9	Level 8	BTR Apartment & Car Parking	1000	57.2	255					2	0	2	0	14	9		49
		BTR Common Amenities						89									
8	Level 7	Car Parking	1056	0										23	8		49
7	Level 6	Car Parking	1056	0										23	7		49
6	Level 5	Car Parking	1056	0										19	6		47
5	Level 4	Medical Suite	1757	0	1652				1622						5	845	
4	Level 3	Medical Suite	1285	0	1160				1152						4	840	
3	Level 2	Medical Suite	1285	0	1160				1152						3	917	
2	Level 1	Day Surgery	1285	0	1160				1152						2	844	
	Mezzanine	Tenancy	623	0	363				241								
1	Ground	Foyer / Concierge & Tenancy	963	70	352				796					-4	1	880	4
LG	Lower Ground	Café / Bike Parking	451	465	78				64								
		Total	**37306**	**3865.6**	**24960**	**630**	**1196**	**1247**	**6179**	**42**	**76**	**103**	**19**	**137**			
					GFA	Communal Area		GFA	NLA	Studio Apartment	1 Bed Apartment	2 Bed Apartment	3 Bed Aptartment	Car Parking		**4326**	**246**
		Total No BTR Apartments	N/A	N/A	240					18%	32%	43%	8%			GFA	Car Parking
Combined Total GFA (Existing + Proposed)			N/A	N/A	**30533.0**					**Total number of Carparks (Stage 1 + 2)**				**383**			
Combined Total Car Parking (Existing + Proposed)			N/A	N/A	**383**					**Total number of Units**				**240**			

DEVELOPMENT APPLICATION

Wren Street Stage 2
7-15 Wren Street, Bowen Hills, QLD

AustralAsian Property Group Pte Ltd

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thomson adsett

DEVELOPMENT SUMMARY

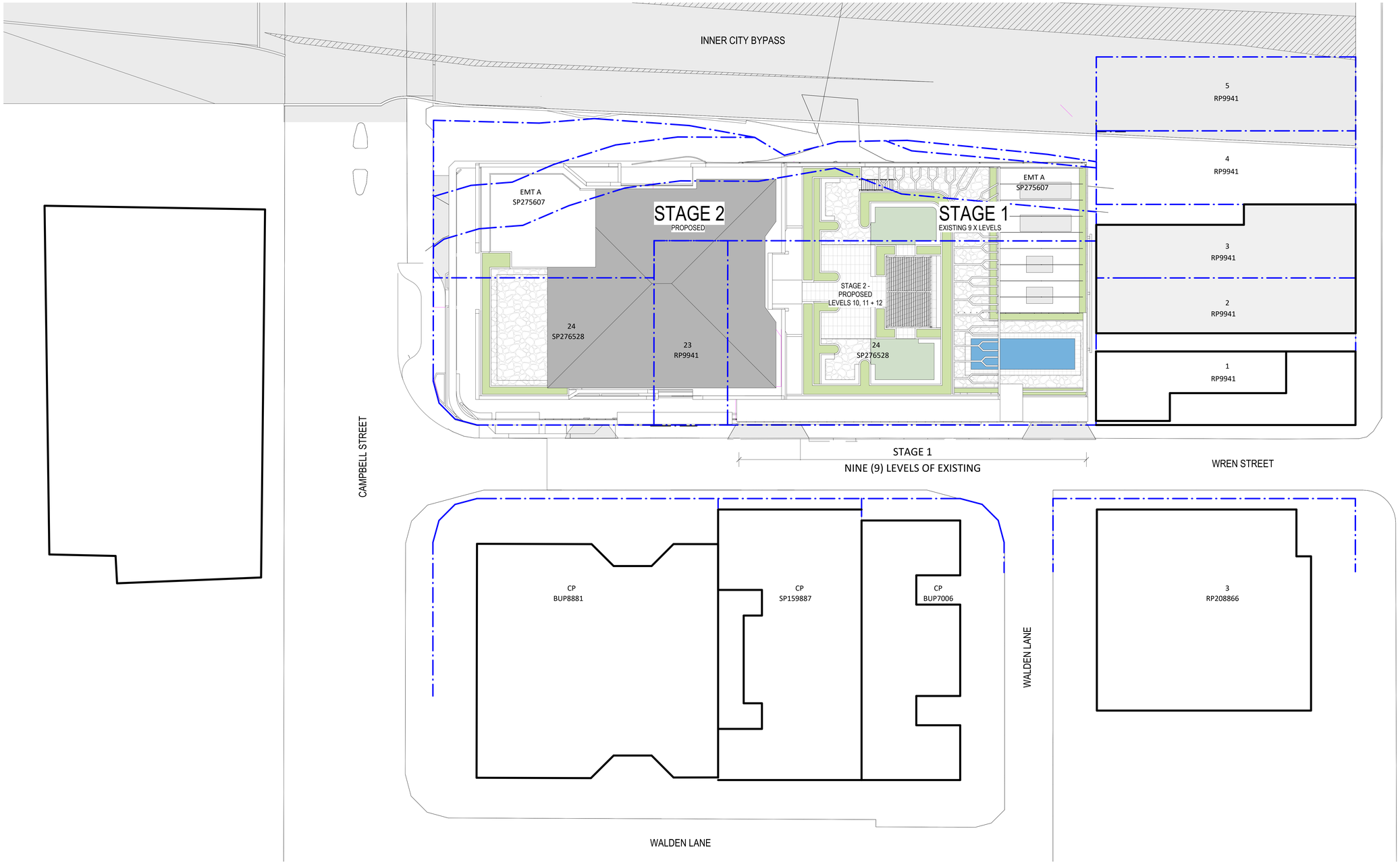
27-11-2023

TA # 22.0169.17 **DA01.01** **rev. 6**

AREA

SITE AREA - 3500m2

BUILDING FOOTPRINT - 3000m2 85%



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SITE PLAN

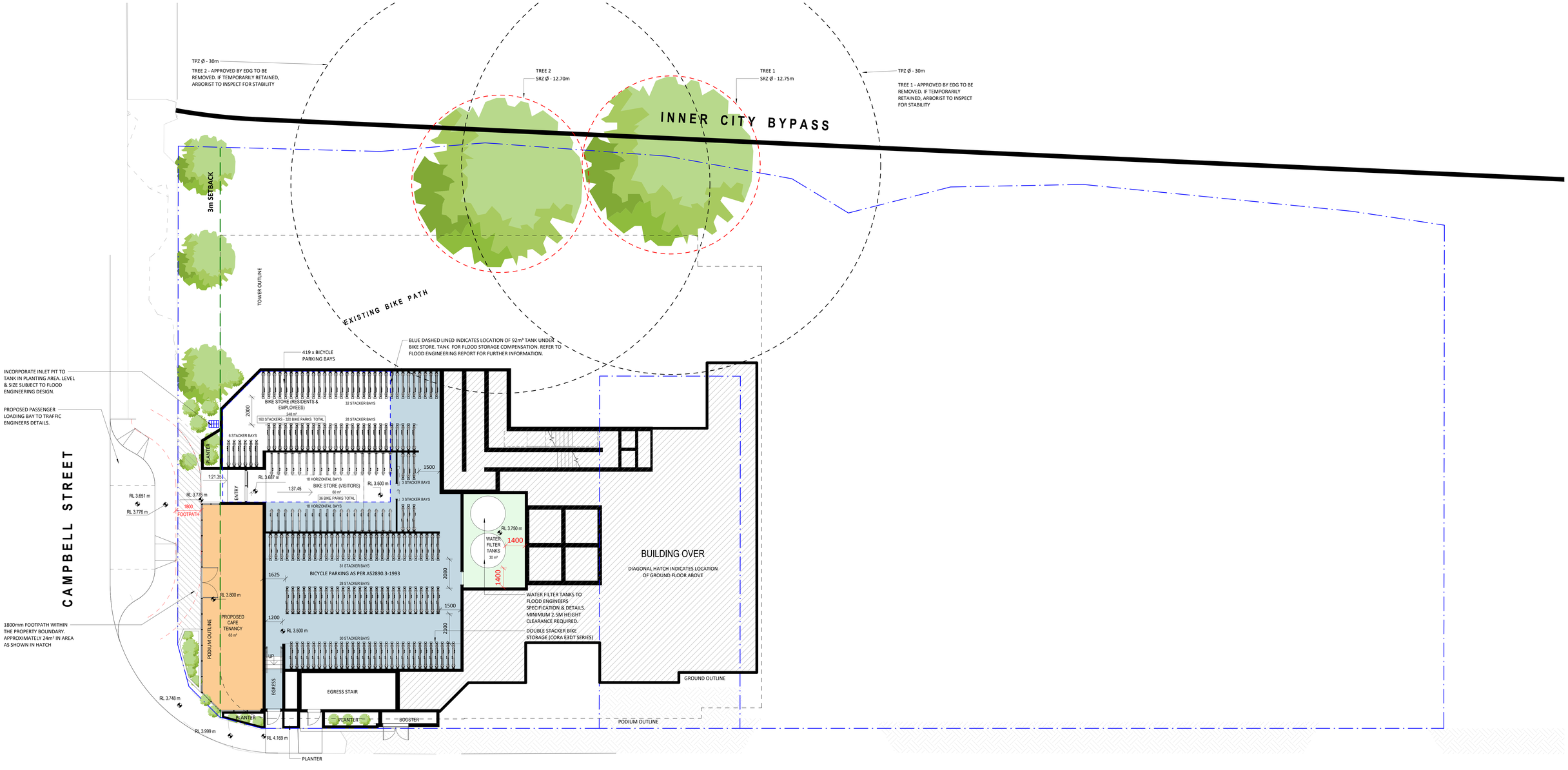
1 : 200 @ A0

01-09-2023

TA # 22.0169.17

DA01.02

rev. 4



BASEMENT LEVEL

- OUTLINE OF GROUND ABOVE
- PROPOSED LIFT LOBBY
- PROPOSED TENANCY
- MED WASTE
- STORAGE
- CLEANERS

GROSS FLOOR AREA

TENANCY	63
TOTAL	63m²

BIKE BAYS

VISITORS	36
RESIDENTIAL / EMPLOYEES	320
TOTAL	356

EXISTING INDICATIVE STRUCTURAL ROOT ZONE (INNER RED DASH) AND TREE PROTECTION ZONE (OUTER BLACK DASH). REFER LANDSCAPE DRAWINGS

DEVELOPMENT APPLICATION

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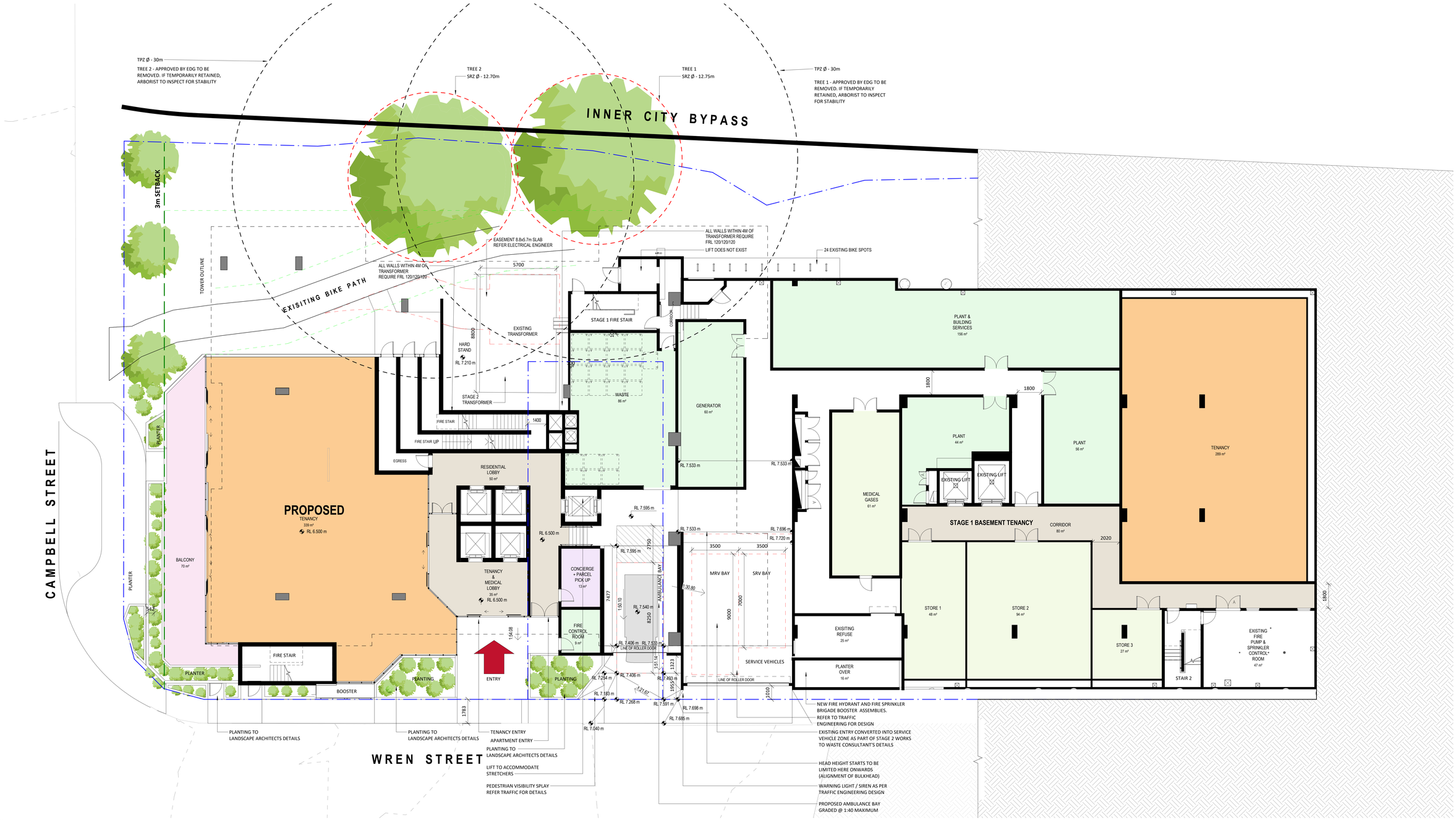
TA # 22.0169.17

LOWER GROUND FLOOR PLAN

As indicated @ A0 | 27-11-2023

DA02.01 | **rev. 7**



GROUND LEVEL

- MEDICAL / OFFICE
- LOBBY
- EXISTING INDICATIVE STRUCTURAL ROOT ZONE (INNER RED DASH) AND TREE PROTECTION ZONE (OUTER BLACK DASH). REFER LANDSCAPE DRAWINGS

0 1 2 3 5 10m

GROSS FLOOR AREA

PROPOSED (STAGE 2) - TENANCY	339
PROPOSED (STAGE 1) - TENANCY	459
CONCIERGE PARCEL PICK UP	13
TOTAL	810m²

DEVELOPMENT APPLICATION

Wren Street Stage 2
7-15 Wren Street, Bowen Hills, QLD

AustralAsian Property Group Pte Ltd

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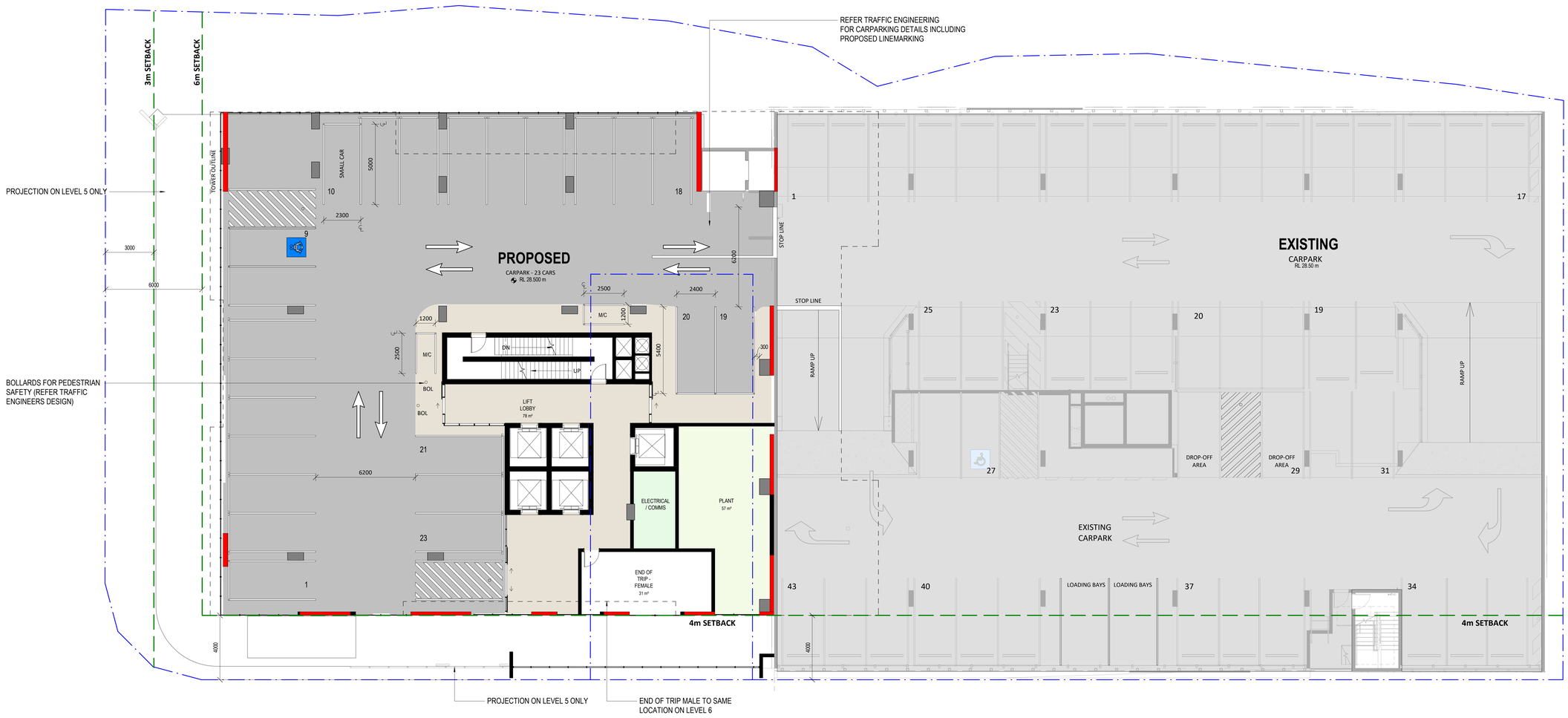
GROUND FLOOR PLAN - LOBBY

As indicated @ A0 | 27-11-2023

TA # 22.0169.17 | **DA02.02** | **rev. 13**



LEVEL 5

- PROPOSED (STAGE 2) PARKING
- PROPOSED LIFT LOBBY
- PROPOSED STORAGE

GROSS FLOOR AREA

PROPOSED LIFT LOBBY 73m²

PARKING

PROPOSED (STAGE 2) 23 BAYS

0 1 2 3 5 10m

DEVELOPMENT APPLICATION

Wren Street Stage 2

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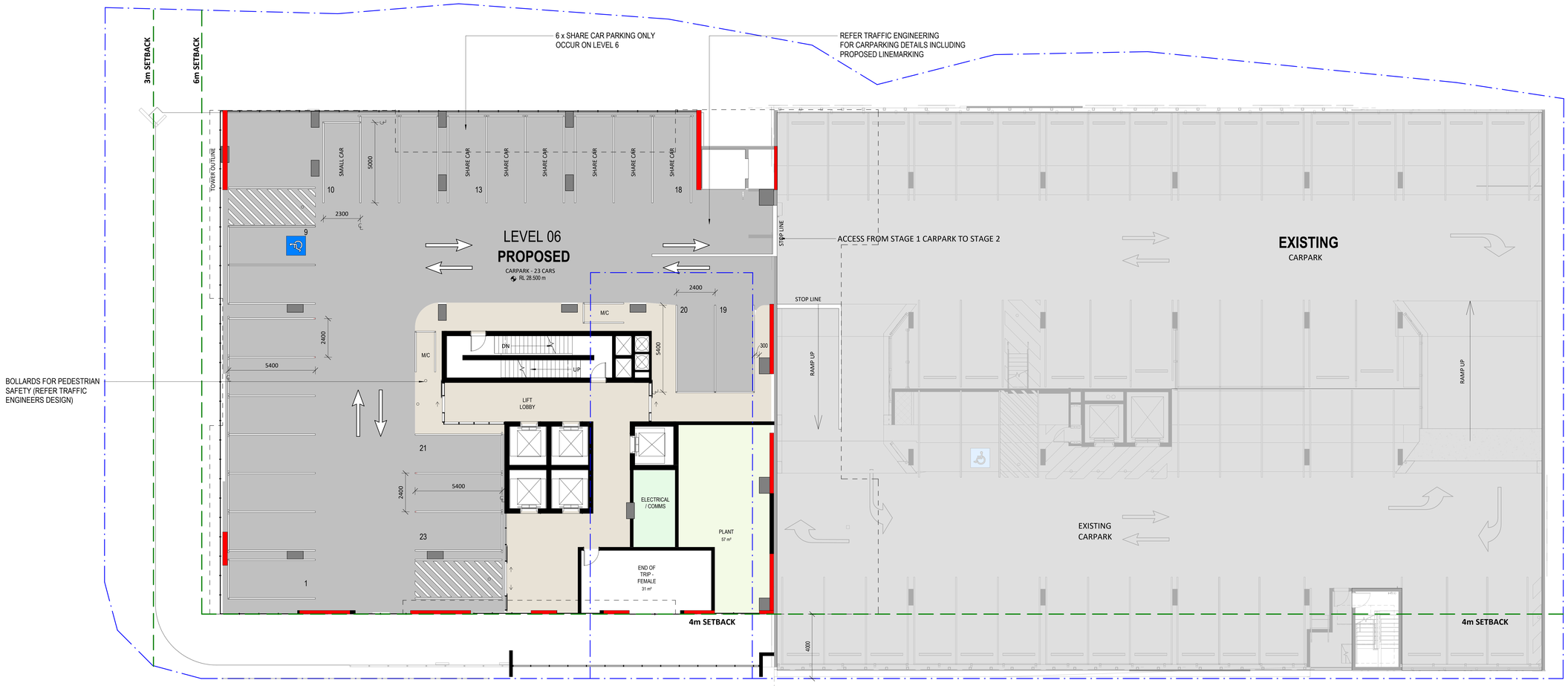
TA # 22.0169.17

LEVEL 5 PLAN - PARKING

As indicated @ A0 27-11-2023

DA02.07 **rev. 8**



LEVEL 5

- PROPOSED (STAGE 2) PARKING
- PROPOSED LIFT LOBBY
- PROPOSED STORAGE

GROSS FLOOR AREA
PROPOSED LIFT LOBBY 73m²

PARKING
PROPOSED (STAGE 2) 23 BAYS

0 1 2 3 5 10m

DEVELOPMENT APPLICATION

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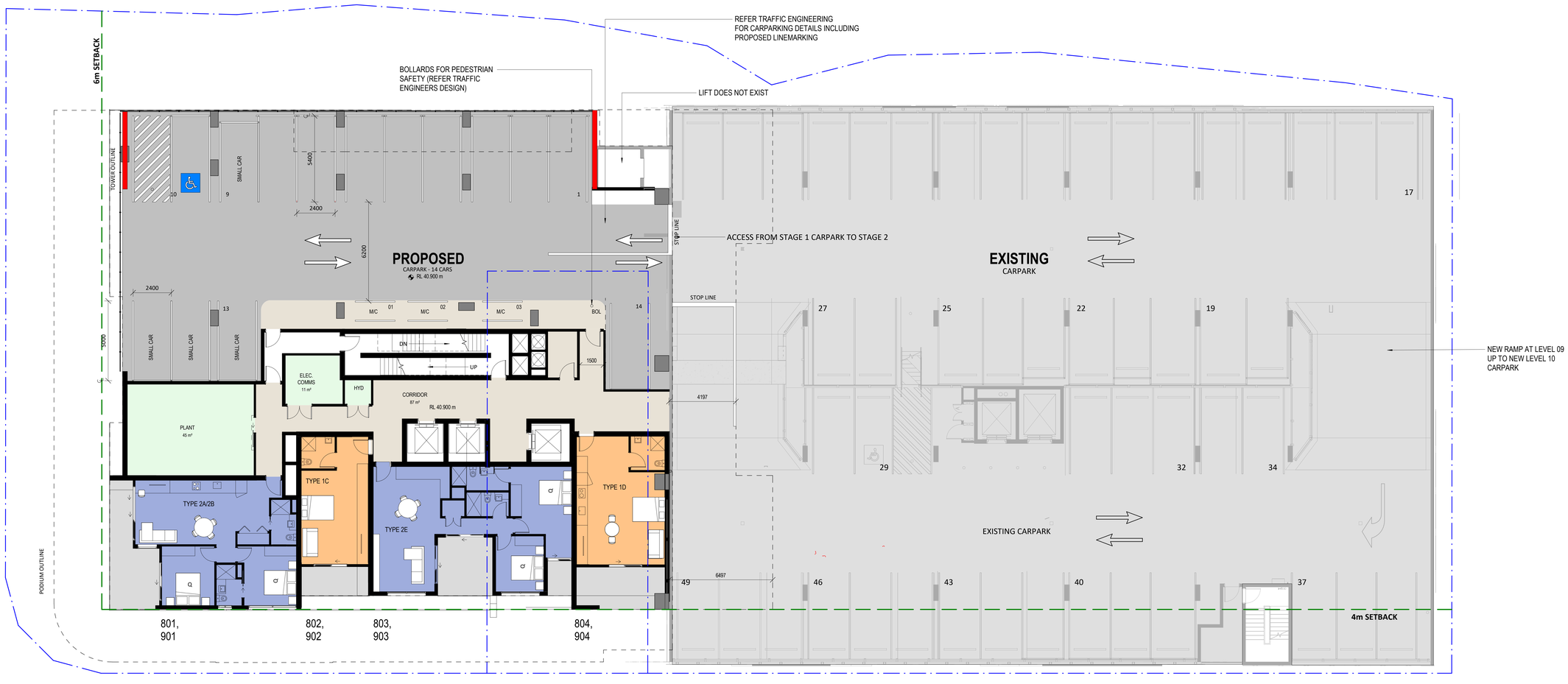
LEVEL 6 TO 7 PLAN - PARKING

As indicated @ A0 27-11-2023

TA # 22.0169.17 **DA02.08** **rev. 8**



LEVELS 8 TO 9

STUDIOS	2	
2 BEDROOM	2	
TOTAL	4	

GROSS FLOOR AREA

STAGE 2 UNITS	225
STAGE 2 LIFT LOBBY	87
TOTAL	312m²

PARKING

STAGE 2	14 BAYS

0 1 2 3 5 10m

DEVELOPMENT APPLICATION

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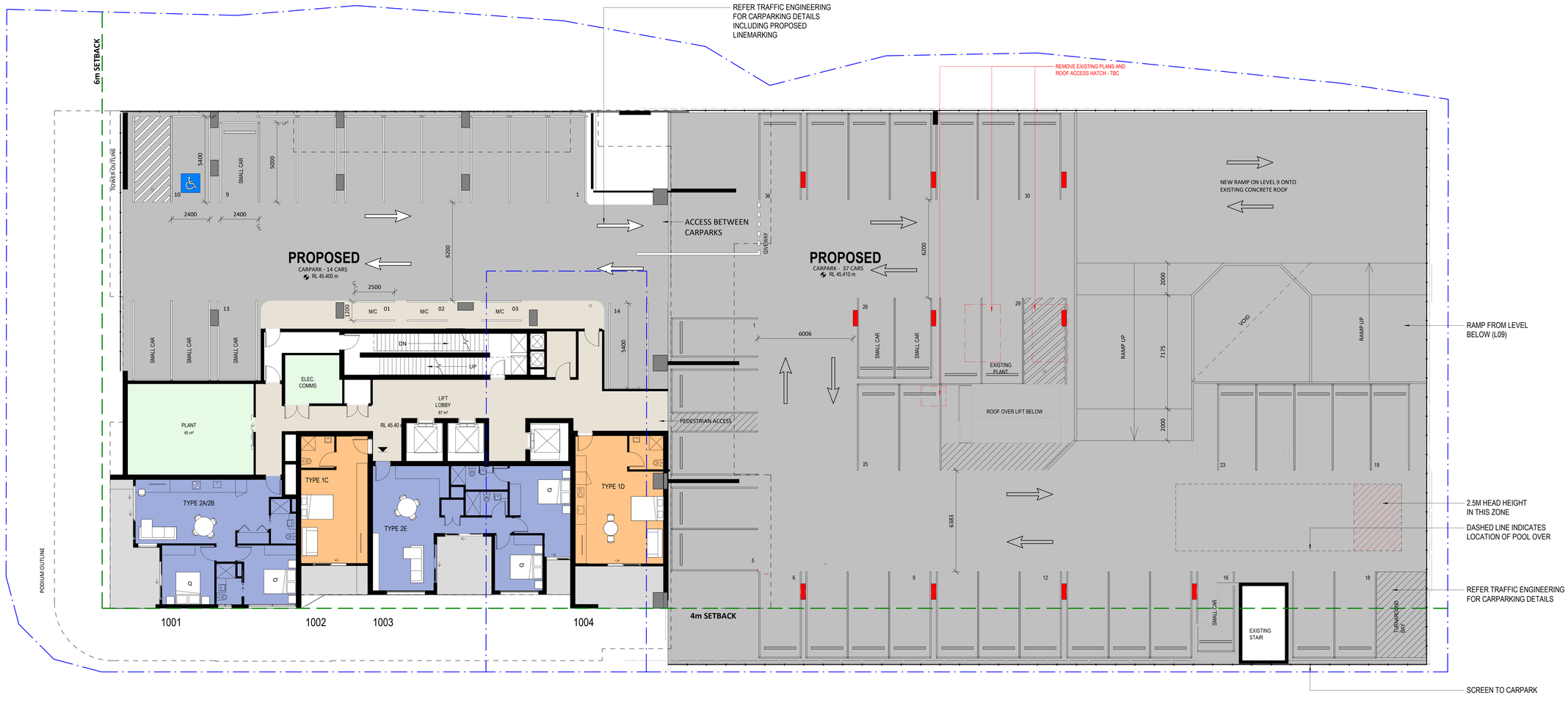
TA # 22.0169.17

LEVEL 8 to 9 PLAN - UNITS & CARPARKS

As indicated @ A0 | 27-11-2023

DA02.09 | **rev. 10**



LEVELS 10

- PROPOSED (STAGE 2)
- EXISTING (STAGE 1)
- STUDIOS 2
- 2 BEDROOM 2

TOTAL 4

GROSS FLOOR AREA

STAGE 2 UNITS	255
STAGE 2 LIFT LOBBY	87
TO TAL	342m²

PARKING

STAGE 1*	36 cars
STAGE 2	14 cars
TOTAL	50 Cars

NOTE:
*PROPOSED (NEW) ADDITIONAL FLOOR BUILT OVER STAGE 1

0 1 2 3 5 10m

DEVELOPMENT APPLICATION

Wren Street Stage 2

7-15 Wren Street, Bowen Hills, QLD

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TA # 22.0169.17

LEVEL 10 PLAN - CARPARKS & STAGE 1 ROOF

As indicated @ A0 | 27-11-2023

DA02.10 | **rev. 10**

LEVEL 05

CAR PARK ALLOCATIONS

- CAR PARKS ALLOCATED TO BTR VISITOR BAYS x 23
- CAR PARKS ALLOCATED TO BTR RESIDENTS
- ACCESSIBLE CAR PARKS
- DROP-OFF AREA
- LOADING BAYS

Wren Street Stage 2

7-15 Wren Street, Bowen Hills, QLD

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TA # 22.0169.17

CARPARK ALLOCATION - LEVEL 5

1 : 100 @ A0

27-11-2023

DA02.15

rev. 8

LEVEL 06

CAR PARK ALLOCATIONS

- CAR PARKS ALLOCATED TO BTR VISITOR BAYS
- CAR PARKS ALLOCATED TO BTR RESIDENTS x 23
- ACCESSIBLE CAR PARKS
- DROP-OFF AREA
- LOADING BAYS

1

Wren Street Stage 2

7-15 Wren Street, Bowen Hills, QLD

AustralAsian Property Group Pte Ltd

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TA # 22.0169.17

CARPARK ALLOCATIONS - LEVEL 6

1 : 100 @ A0 | 27-11-2023

DA02.16 | **rev. 7**

LEVEL 07

CAR PARK ALLOCATIONS

- CAR PARKS ALLOCATED TO BTR VISITOR BAYS
- CAR PARKS ALLOCATED TO BTR RESIDENTS x 23
- ACCESSIBLE CAR PARKS
- DROP-OFF AREA
- LOADING BAYS

Wren Street Stage 2

7-15 Wren Street, Bowen Hills, QLD

AustralAsian Property Group Pte Ltd

Telephone +61 7 3840 9999
bne@thomsonadsett.com
Level 9, 470 St Pauls Terrace
Fortitude Valley
Qld 4006 Australia
thomsonadsett.com

thomson adsett

TA # 22.0169.17

CARPARK ALLOCATIONS - LEVEL 7

1 : 100 @ A0

27-11-2023

DA02.17

rev. 7

LEVEL 08
CAR PARK ALLOCATIONS

- CAR PARKS ALLOCATED TO BTR VISITOR BAYS
- CAR PARKS ALLOCATED TO BTR RESIDENTS x 13
- ACCESSIBLE CAR PARKS x 1
- DROP-OFF AREA
- LOADING BAYS

Wren Street Stage 2
7-15 Wren Street, Bowen Hills, QLD

AustralAsian Property Group Pte Ltd

ABN 76 105 314 654
Dimensions take precedence over scaling. Do not measure off drawings as print sizes may vary

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Qld 4006 Australia
thomsonadsett.com

thomson adsett

TA # 22.0169.17

CARPARK ALLOCATIONS - LEVEL 8

1 : 100 @ A0 | 27-11-2023

DA02.18 | **rev. 7**

LEVEL 09
CAR PARK ALLOCATIONS

- CAR PARKS ALLOCATED TO BTR VISITOR BAYS
- CAR PARKS ALLOCATED TO BTR RESIDENTS x 13
- ACCESSIBLE CAR PARKS x 1
- DROP-OFF AREA
- LOADING BAYS

Wren Street Stage 2
7-15 Wren Street, Bowen Hills, QLD

AustralAsian Property Group Pte Ltd

ABN 76 105 314 654
Dimensions take precedence over scaling. Do not measure off drawings as print sizes may vary

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thomson adsett

CARPARK ALLOCATIONS - LEVEL 9

TA # 22.0169.17

1 : 100 @ A0 | 27-11-2023

DA02.19 | **rev. 7**

LEVEL 10

CAR PARK ALLOCATIONS

- CAR PARKS ALLOCATED TO BTR VISITOR BAYS
- CAR PARKS ALLOCATED TO BTR RESIDENTS x 50
- ACCESSIBLE CAR PARKS x 1
- DROP-OFF AREA
- LOADING BAYS

Wren Street Stage 2
7-15 Wren Street, Bowen Hills, QLD

AustralAsian Property Group Pte Ltd

ABN 76 105 314 654
Dimensions take precedence over scaling. Do not measure off drawings as print sizes may vary

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Qld 4006 Australia
thomsonadsett.com

thomson adsett

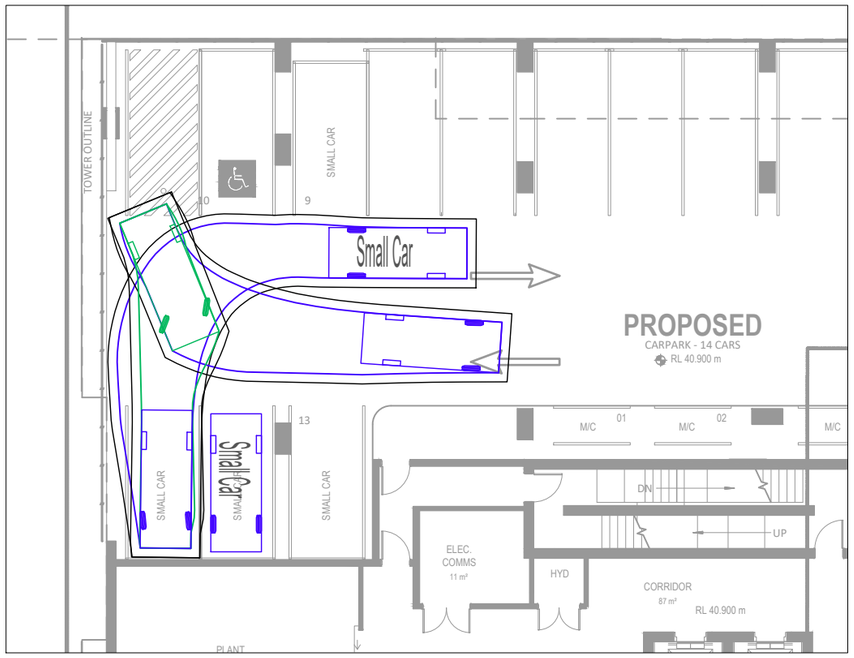
TA # 22.0169.17

CARPARK ALLOCATIONS - LEVEL 10

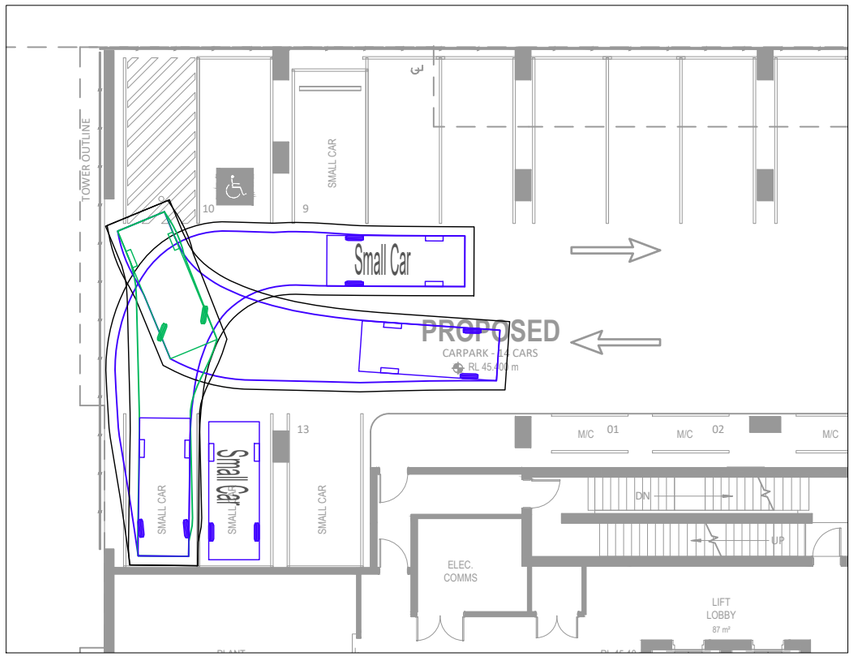
1 : 100 @ A0 | 27-11-2023

DA02.20 | **rev. 7**

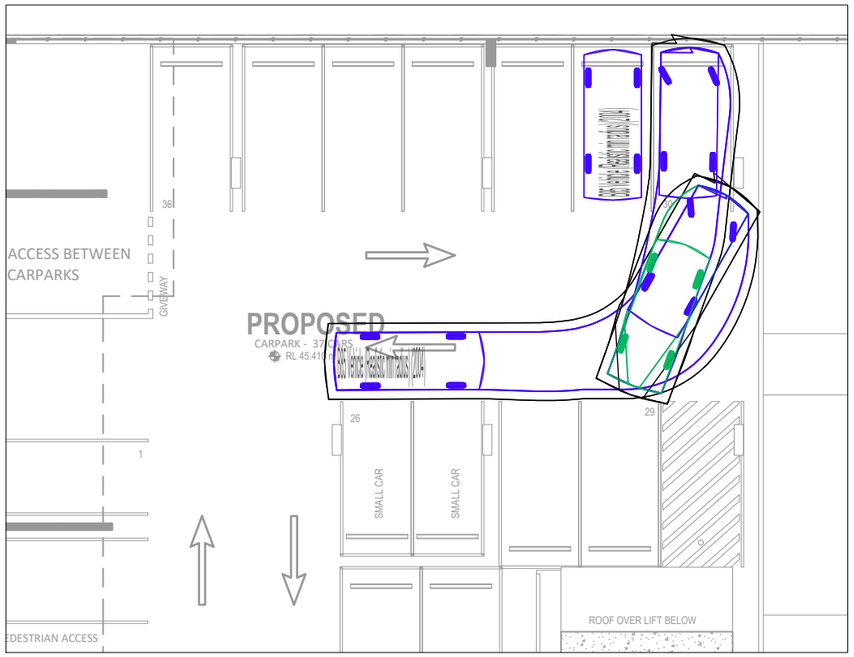
Appendix B Vehicle Swept Paths



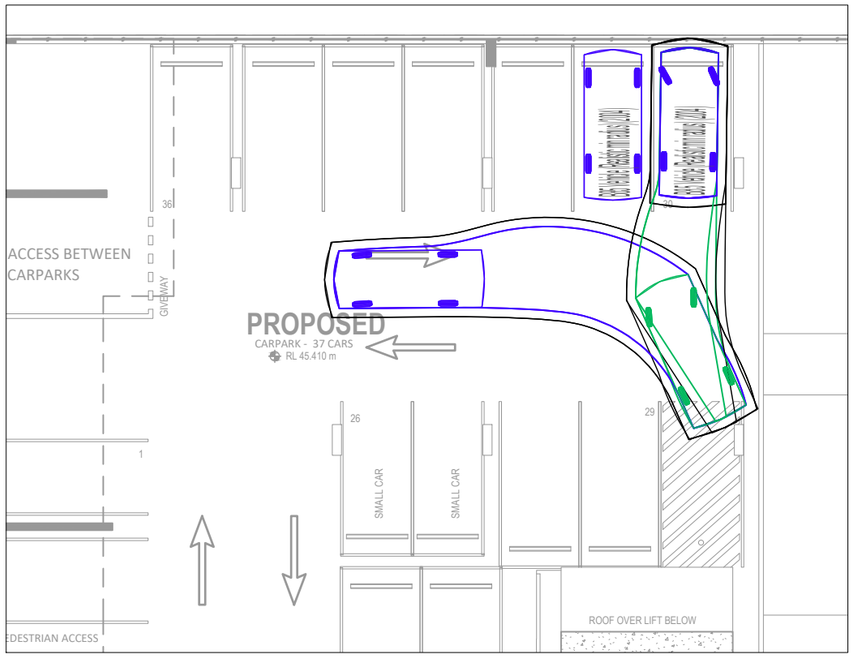
PARKING LEVEL 8 TO 9 - INGRESS AND EGRESS INTO BAY 11: SMALL CAR



PARKING LEVEL 10 - INGRESS AND EGRESS INTO BAY 11: SMALL CAR

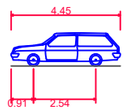


PARKING LEVEL 10 - INGRESS INTO BAY 30: B85



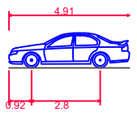
PARKING LEVEL 10 - EGRESS OUT OF BAY 30: B85

VEHICLE PROFILES



Small Car

Overall Length	4.500m
Overall Width	1.650m
Overall Body Height	1.397m
Min Body Ground Clearance	0.239m
Track Width	1.650m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	5.600m
Design Speed Forward	5.0km/h
Clearance Envelope	0.300m



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m
Design Speed Forward	5.0km/h
Clearance Envelope	0.300m

PRELIMINARY ADVICE ONLY

19 December 2023

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	19-12-23	ORIGINAL ISSUE	TK	RW	RW

SCALE 0 2 4 6 8 10m
SCALE 1:200 AT ORIGINAL SIZE

NORTH

CLIENT
AustralAsian Property Group Pte Ltd

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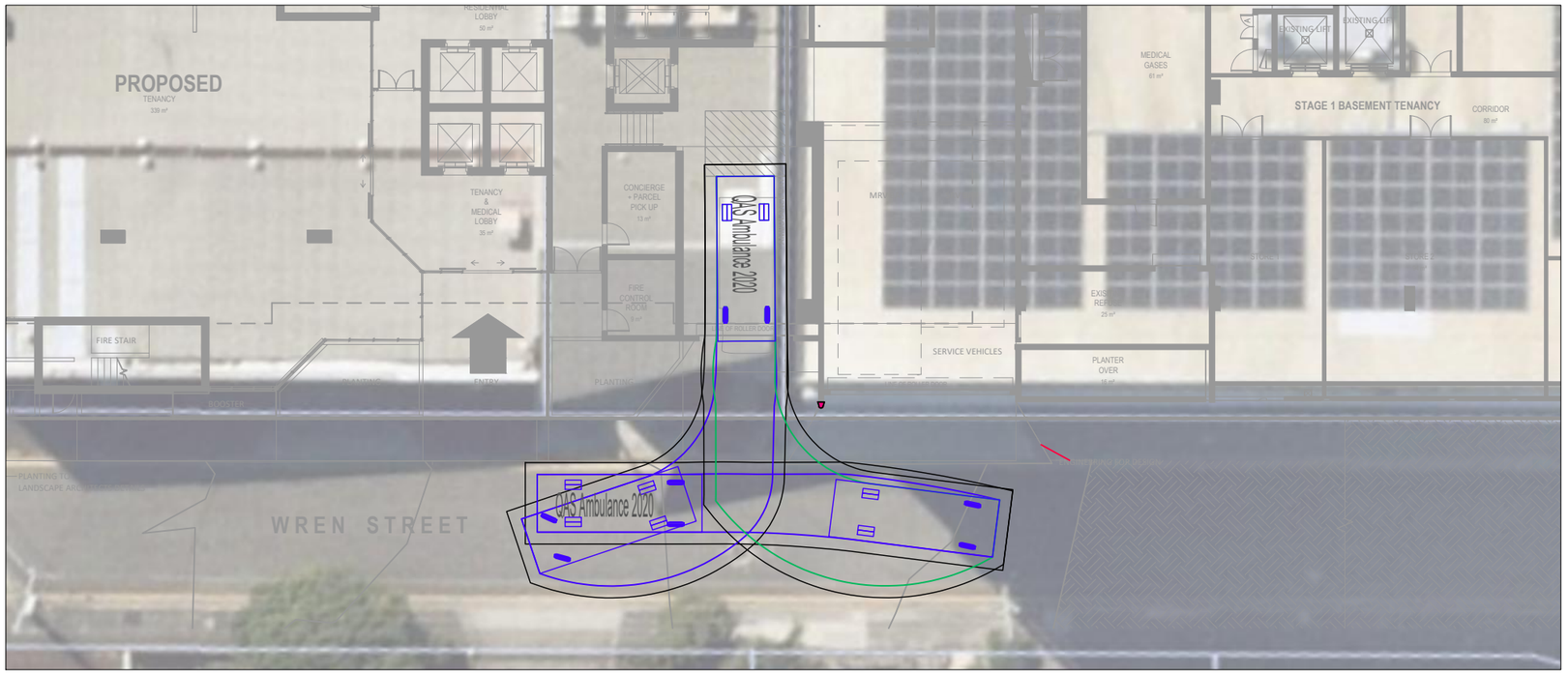
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE QLD 4000
P.O. BOX 12015, BRISBANE QLD 4003
T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

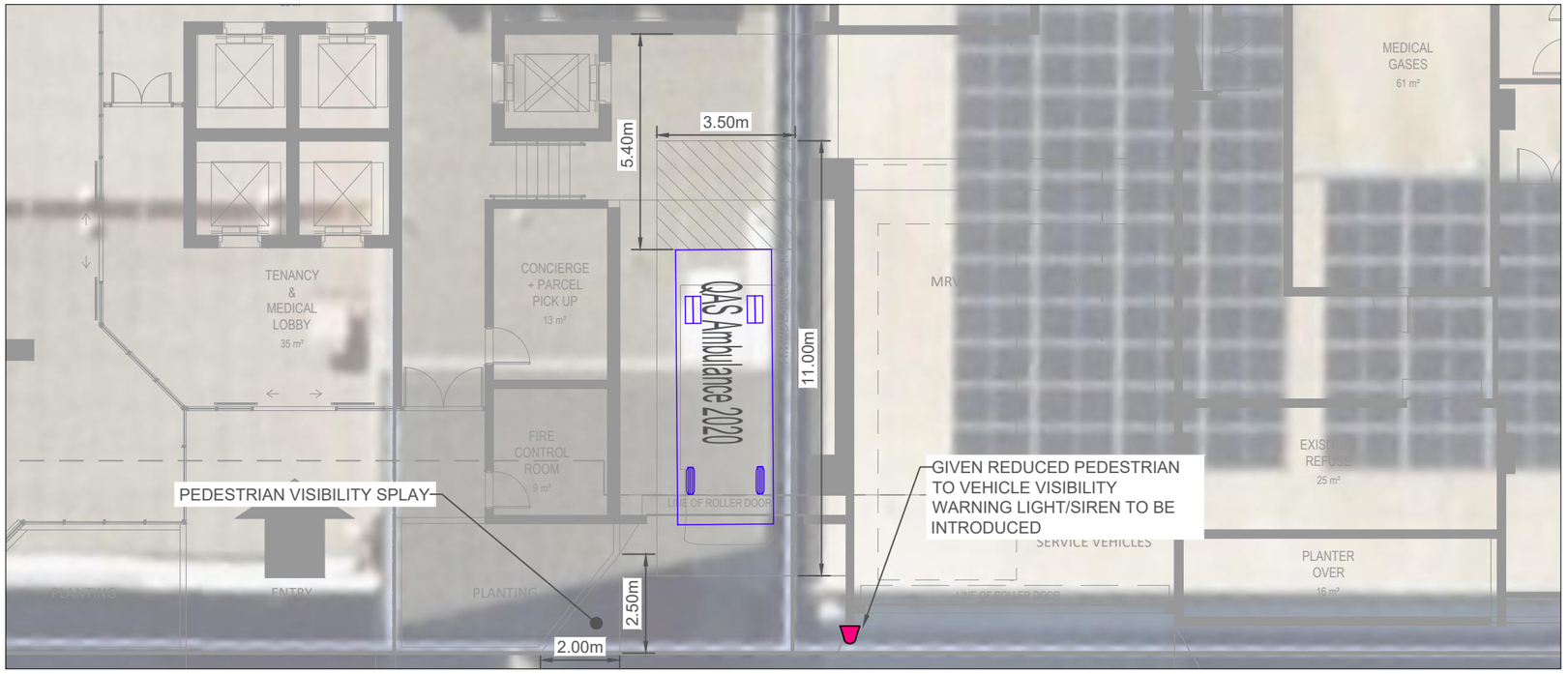
PROJECT
7-15 WREN STREET, BOWEN HILLS - STAGE 2

DRAWING TITLE
VEHICLE ACCESS SWEPT PATHS - PARKING LEVELS 8 TO 10
DESIGN VEHICLE: SMALL CAR AND B85

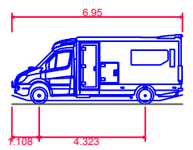
PROJECT NUMBER	23BRT0197
ORIGINAL SIZE	A3
DRAWING NUMBER	23BRT0197-01
REVISION	A
DATE	19 Dec 2023
SHEET	1 OF 1



GROUND LEVEL - INGRESS AND EGRESS: QAS AMBULANCE 2020
SCALE 1:250



GROUND LEVEL - AMBULANCE BAY
SCALE 1:150



VEHICLE PROFILES

QAS Ambulance 2020

Overall Length	6.950m
Overall Width	2.425m
Overall Body Height	2.830m
Min Body Ground Clearance	0.150m
Track Width	1.959m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.895m
Design Speed Forward	5.0km/h
Clearance Envelope	0.500m

PRELIMINARY ADVICE ONLY
19 December 2023

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	19-12-23	ORIGINAL ISSUE	TK	RW	RW

SCALE: AS SHOWN ON PLAN
NORTH
CLIENT: AustralAsian Property Group Pte Ltd

TTM CONSULTING PTY LTD
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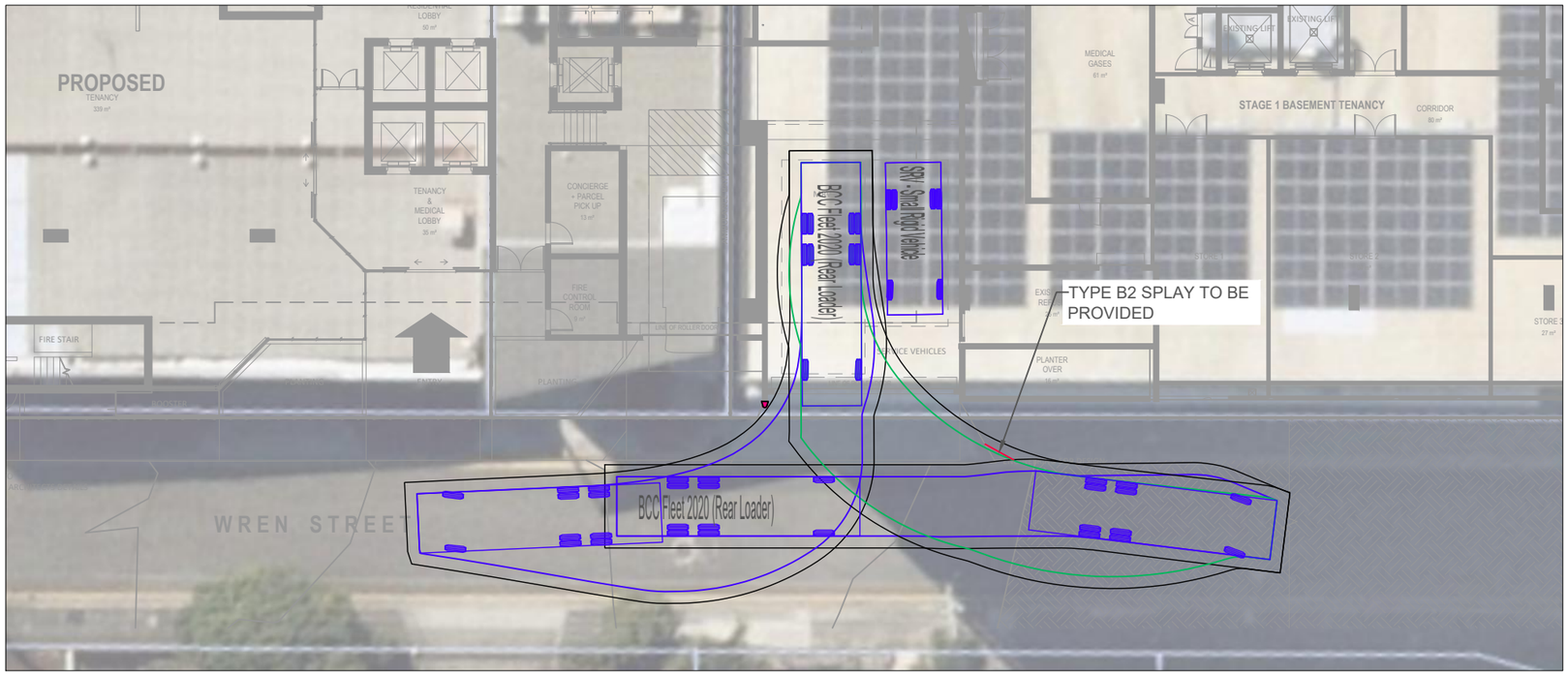
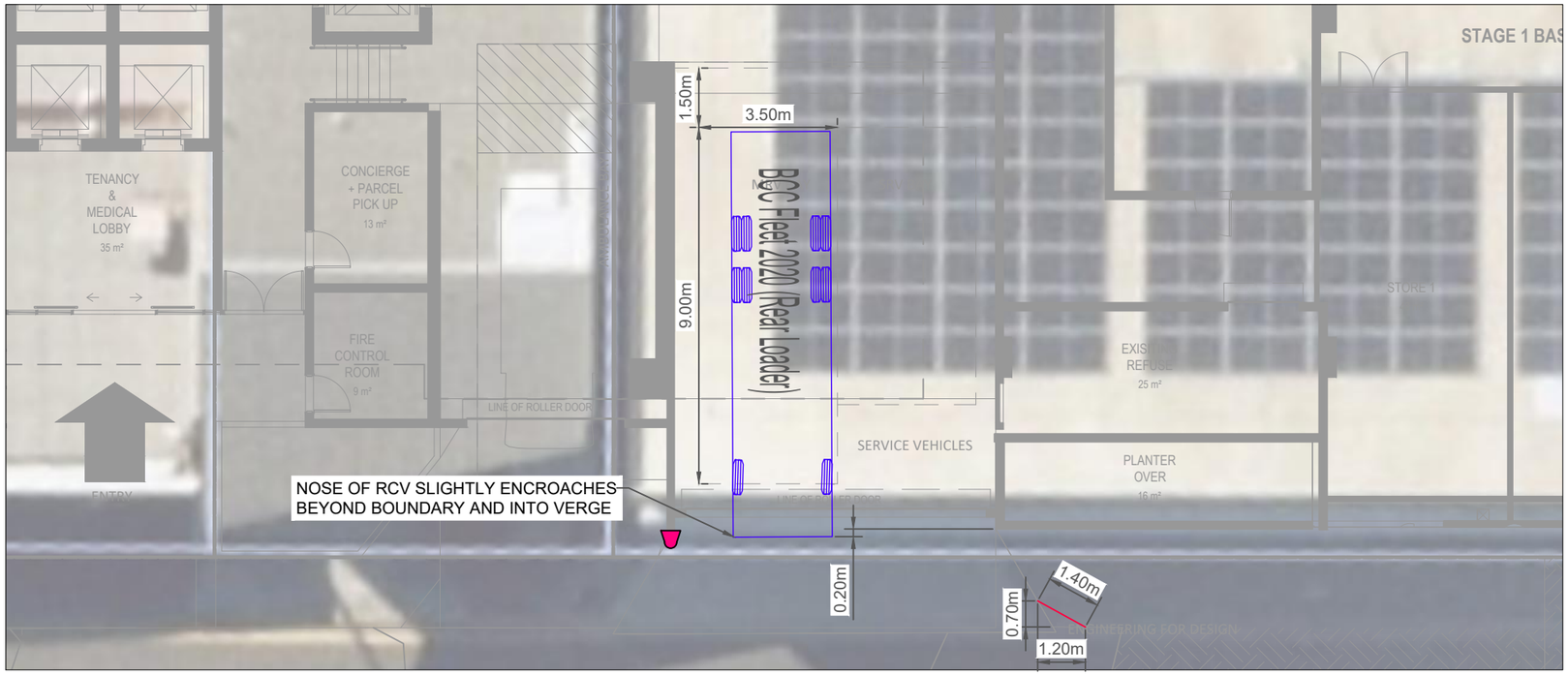
T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT: **7-15 WREN STREET, BOWEN HILLS - STAGE 2**
DRAWING TITLE: **AMBULANCE ACCESS SWEPT PATHS - GROUND LEVEL**
DESIGN VEHICLE: QAS AMBULANCE 2020

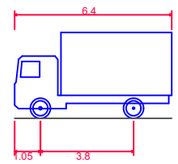
PROJECT NUMBER	ORIGINAL SIZE
23BRT0197	A3
DRAWING NUMBER	REVISION
23BRT0197-02	A
DATE	SHEET
19 Dec 2023	1 OF 1



GROUND LEVEL - INGRESS AND EGRESS: BCC RCV REAR LOADER (2020) MANEUVERING AROUND STANDING SRV
SCALE 1:250



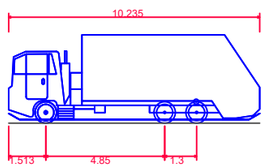
GROUND LEVEL - MEDIUM RIGID VEHICLE (MRV) BAY
SCALE 1:150



VEHICLE PROFILES

SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m
Design Speed Forward	XX.Xkm/h
Clearance Envelope	0.XXXm



VEHICLE PROFILES

BCC Fleet 2020 (Rear Loader)

Overall Length	10.235m
Overall Width	2.500m
Overall Body Height	3.600m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	9.500m
Design Speed Forward	5.0km/h
Clearance Envelope	0.500m

PRELIMINARY ADVICE ONLY
19 December 2023

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	19-12-23	ORIGINAL ISSUE	TK	RW	RW

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CLIENT: AustralAsian Property Group Pte Ltd

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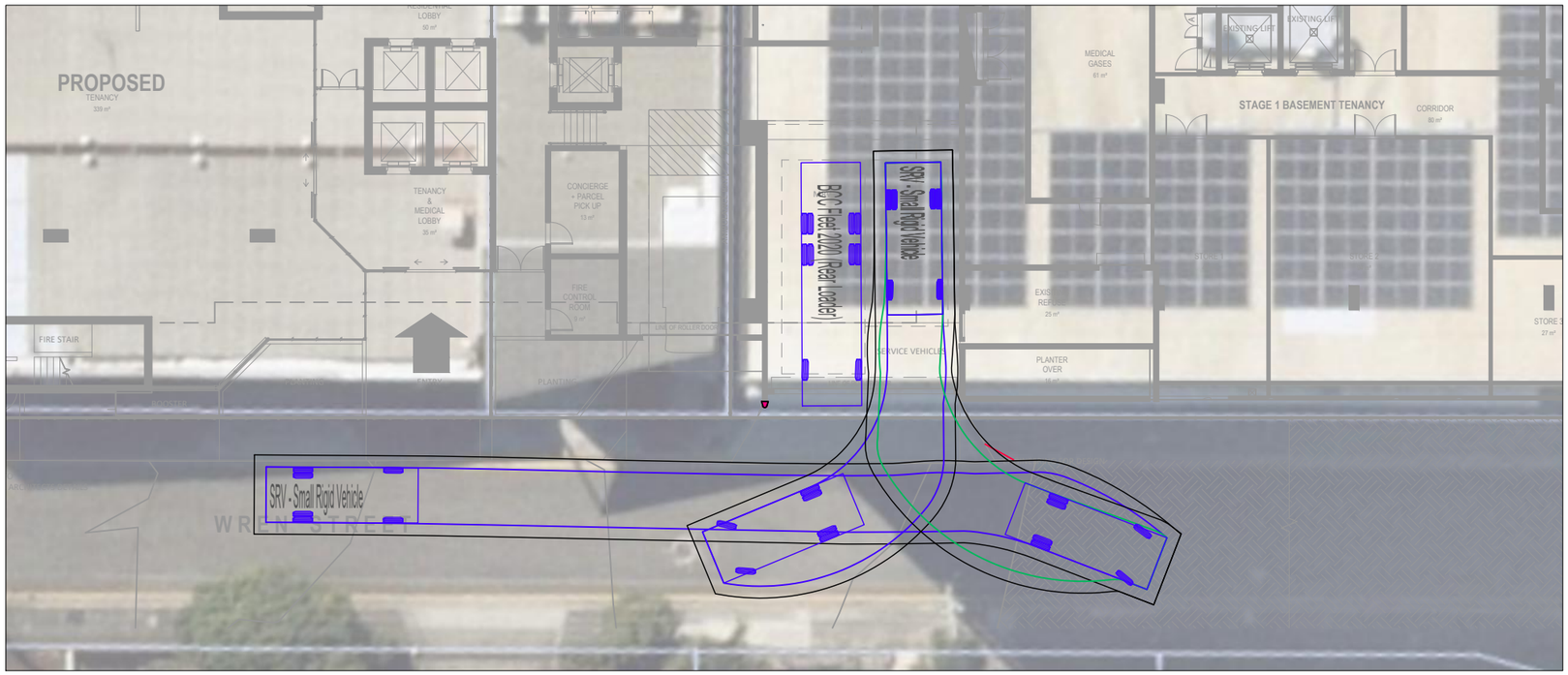
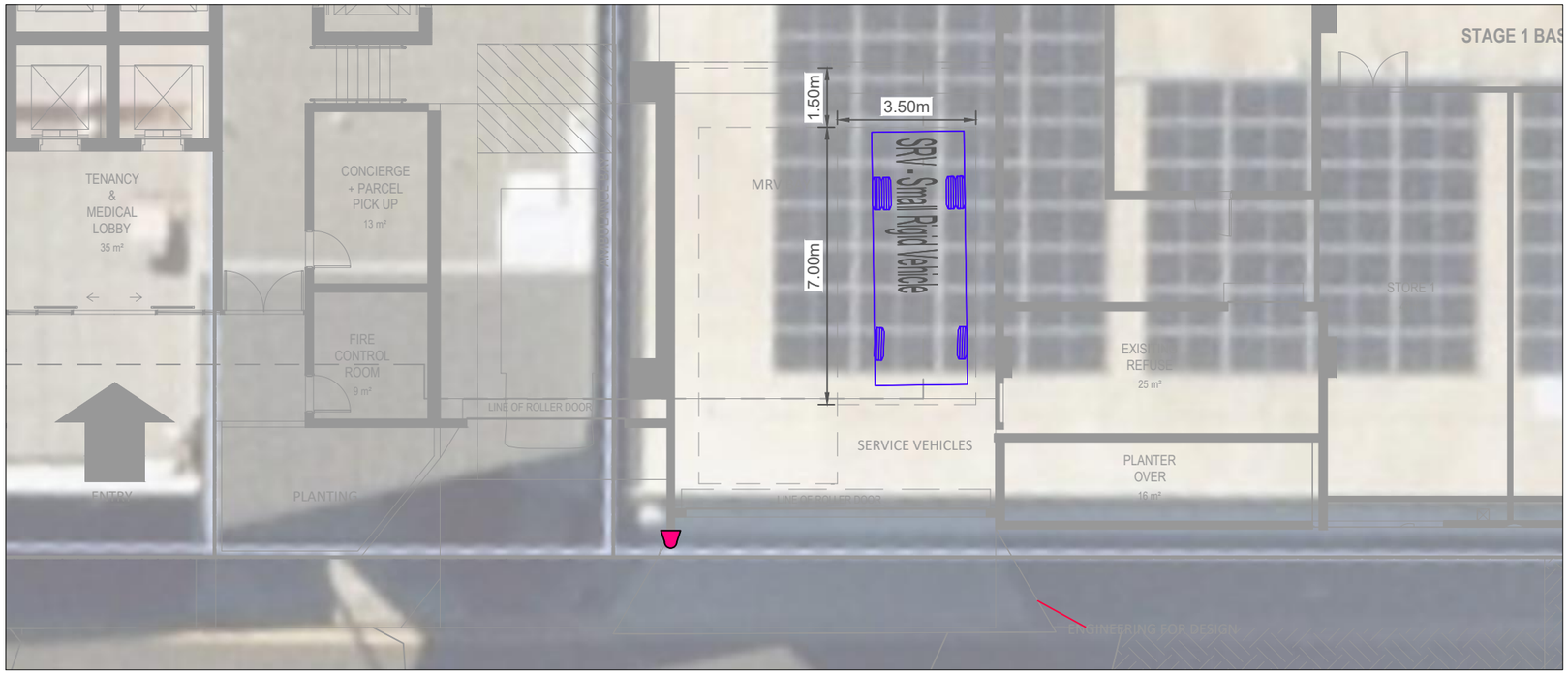
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT: **7-15 WREN STREET, BOWEN HILLS - STAGE 2**
DRAWING TITLE: **SERVICE VEHICLE ACCESS SWEPT PATHS - GROUND LEVEL**
DESIGN VEHICLE: BCC RCV REAR LOADER (2020) AND SRV

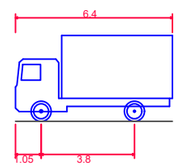
PROJECT NUMBER	ORIGINAL SIZE
23BRT0197	A3
DRAWING NUMBER	REVISION
23BRT0197-03	A
DATE	SHEET
19 Dec 2023	1 OF 1



GROUND LEVEL - INGRESS AND EGRESS: SMALL RIGID VEHICLE (SRV) MANEUVERING AROUND STANDING REAR LOADING RCV
SCALE 1:250



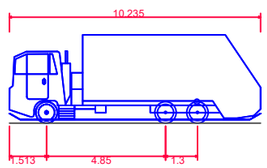
GROUND LEVEL - SMALL RIGID VEHICLE (SRV) BAY
SCALE 1:150



VEHICLE PROFILES

SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m
Design Speed Forward	5.0km/h
Clearance Envelope	0.500m



VEHICLE PROFILES

BCC Fleet 2020 (Rear Loader)

Overall Length	10.235m
Overall Width	2.500m
Overall Body Height	3.600m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	9.500m
Design Speed Forward	XX.Xkm/h
Clearance Envelope	0.500m

PRELIMINARY ADVICE ONLY
19 December 2023

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	19-12-23	ORIGINAL ISSUE	TK	RW	RW

SCALE: AS SHOWN ON PLAN
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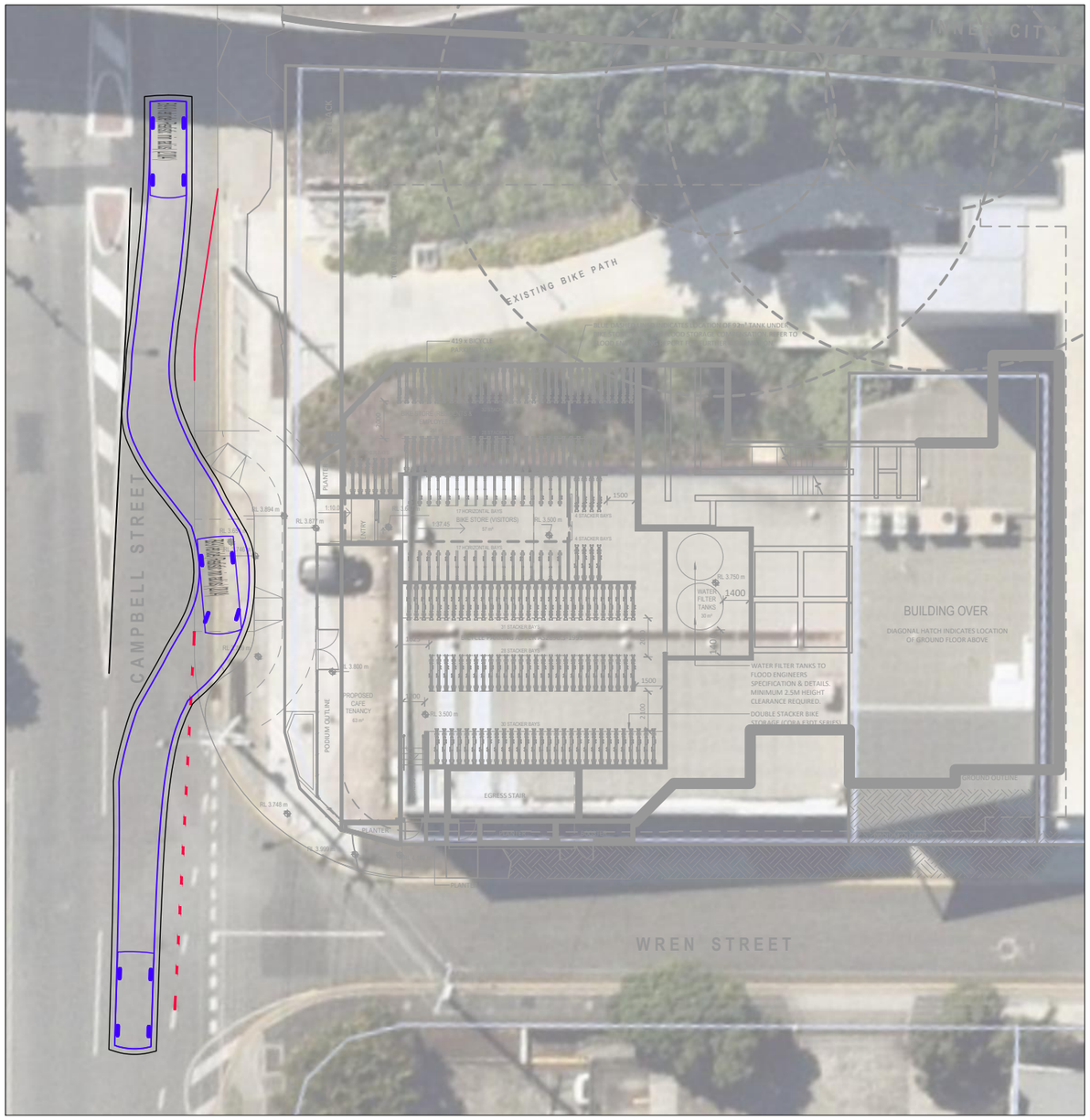
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

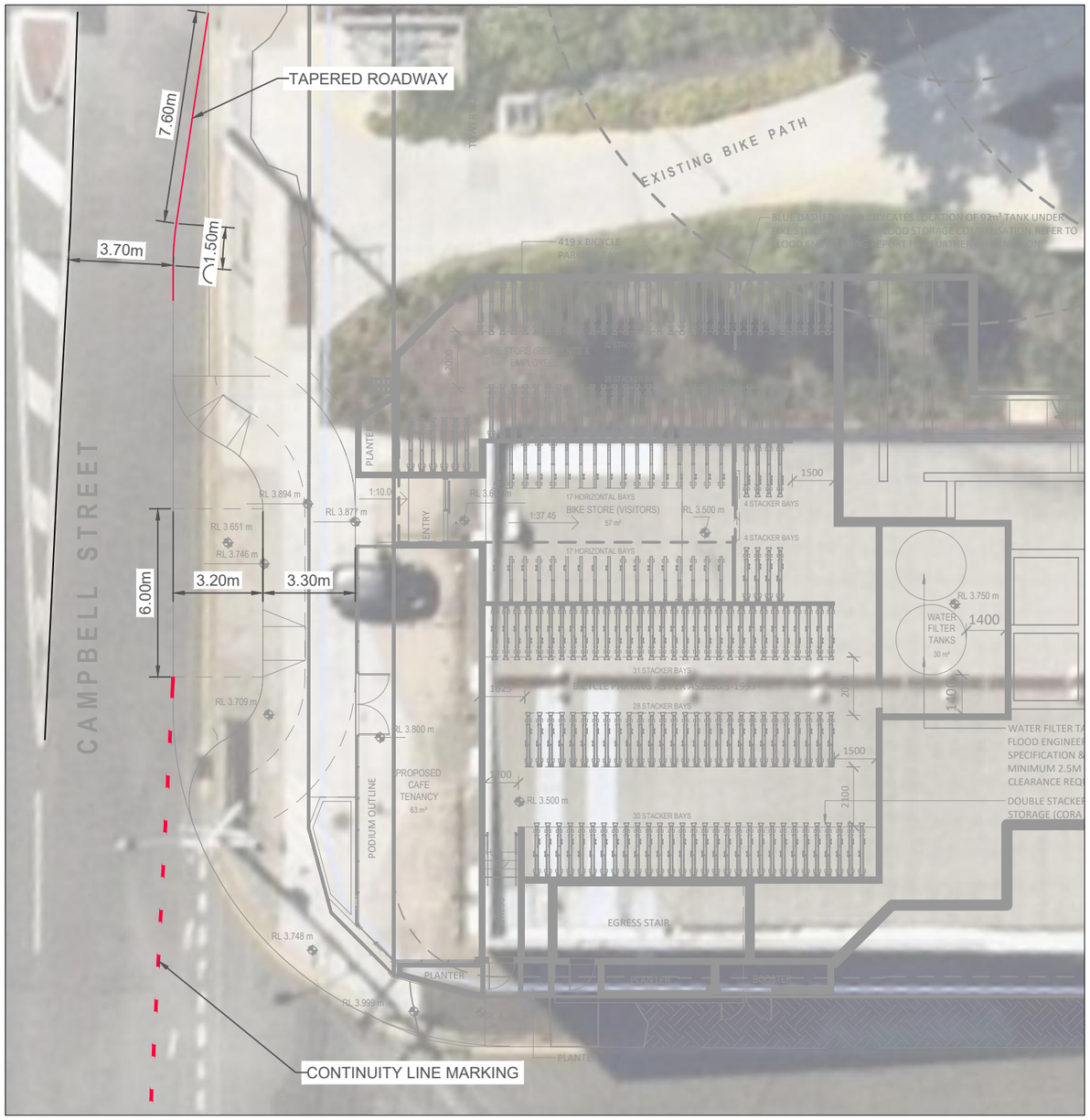
PROJECT: **7-15 WREN STREET, BOWEN HILLS - STAGE 2**
DRAWING TITLE: **SERVICE VEHICLE ACCESS SWEPT PATHS - GROUND LEVEL**
DESIGN VEHICLE:SMALL RIGID VEHICLE (SRV) AND RCV

PROJECT NUMBER	23BRT0197
ORIGINAL SIZE	A3
DRAWING NUMBER	23BRT0197-04
REVISION	A
DATE	19 Dec 2023
SHEET	1 OF 1

Appendix C Passenger Loading Zone

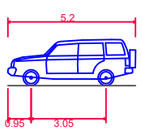


PASSENGER LOADNG ZONE - INGRESS AND EGRESS MANEUVER: B99
INSET A
1:300



PASSENGER LOADING ZONE IN ACCORDANCE WITH BCC STANDARD DRAWING BSD-3162
INSET B
1:200

VEHICLE PROFILES



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m
Design Speed Forward	5.0km/h
Clearance Envelope	0.300m

PRELIMINARY ADVICE ONLY
19 December 2023

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A	19-12-23	ORIGINAL ISSUE	TK	RW	RW

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CLIENT: AustralAsian Property Group Pte Ltd

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P.O. BOX 12015, BRISBANE QLD 4003
T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT: **7-15 WREN STREET, BOWEN HILLS - STAGE 2**
DRAWING TITLE: **PASSENGER LOADING ZONE - LOWER GROUND LEVEL**
DESIGN VEHICLE: B99

PROJECT NUMBER	23BRT0197
ORIGINAL SIZE	A3
DRAWING NUMBER	23BRT0197-05
REVISION	A
DATE	19 Dec 2023
SHEET	1 OF 1

Appendix D Service Vehicle Management Plan

Service Vehicle Management Plan

Whilst it is expected that the Plan will be further developed through negotiations and discussions with the various tenants of the building, key aspects will potentially include:

Loading Dock Delivery Times

- Outside of normal business hours, deliveries will only be permitted if prior written approval is obtained at least 24 hours in advance, or on an ongoing basis if agreed with the building manager (i.e., refuse collection contractors).
- The building manager will reserve the right to temporary close the loading dock, without warning, due to specific operational requirements or during times of peak demands/congestion. During these times, the building manager has the power to turn away vehicles.
- To reduce the risk of delivery vehicles being denied access to the loading dock, it is recommended that tenants inform delivery contractors to schedule deliveries outside of the peak periods of operation.

Vehicle Size Restrictions

- The operational height clearance within the loading dock is 4.5m.
- Other than refuse collection vehicles (RCVs), access to the loading dock is only permitted for vehicles up to the size of an 8.3m long MRV.

Use of Loading Dock

- Access by larger service vehicles (up to the size of an MRV) is restricted to outside the weekday AM and PM peak-hour periods on the adjacent road network.
- The building manager reserves the right to turn away any vehicles on arrival if no prior notice has been given.
- Vehicles are only permitted to park within designated loading bays, unless otherwise instructed by the building manager.
- All drivers are to provide the building manager with an approximate duration of stay. Durations of stay will typically be restricted to 20 minutes, unless otherwise approved by the building manager.
- All drivers are to follow instructions of the building manager.
- No deliveries and/or removal of large quantities of furniture, etc. and no tenancy moves in and out of the development or delivery of fit-out materials are permitted during business hours.
- Outside normal business hours, large deliveries are permitted only if prior written approval is obtained, upon a period of at least 24 hours written notice.
- For large deliveries, a goods lift access form is required to access the main loading dock.

- Any maintenance/services contractors visiting the site and wishing to utilise the loading dock for the purposes of pick-up/drop-off of equipment may do so, as long as the vehicle is unloaded immediately and then removed from the loading dock. Contractors are not to leave vehicles parked within the loading dock unless agreed with the building manager.
- Any delivery or contractors parking within the loading dock are to leave keys with the building manager to allow for vehicles to be moved as required and provide an appropriate contact phone number.
- Contractors are not permitted to work from their vehicles within the loading dock, unless agreed with the building manager.

Miscellaneous

- Storage of goods and/or materials within the loading dock is prohibited, unless agreed with the building manager.
- Delivery drivers are responsible for disposal of any rubbish and materials created whilst on-site.
- No rubbish is to be deposited within the bins located in the loading dock without approval from the building manger.

Agreement with Above Conditions

- All users of the loading dock are expected to have read and agreed to the above information upon presenting themselves on site.
- If there is any uncertainty in relation to the meaning of or compliance with the above conditions, consult the building manger.
- Failure to comply with the above terms may result in removal from site by the building manager. Repeat non-conformance may also result in future access to the loading dock by individuals (or the companies they represent) being prohibited.

Building Manager Details

Name:

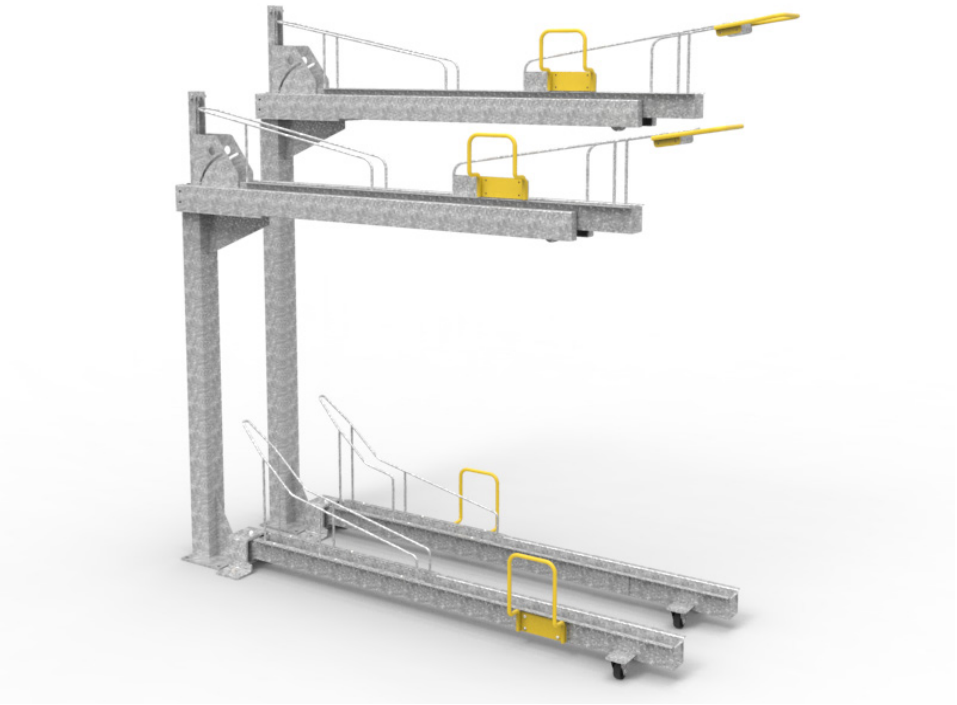
Contact Number:

Email:

Appendix E Specification for Cora E3DT-GP Multi-Tiered Bicycle Rack

CORA BIKE RACK

PRODUCT SPECIFICATION SHEET



E3DT SERIES

E3DT-GP
DYNAMIC UPPER TIER
DYNAMIC LOWER TIER

Australia's ONLY fully dynamic 2 tier system to provide reduced AS2890.3 compliant spacing of 400mm on both tiers. A Dynamic upper tier combined with a dynamic lower tier provides the maximum capacity possible. Upper tier includes gas assist lift for ease of use and is available in alternating heights. Lower tier uses the E3GP bike ground pivot rack that allows users to move the rack left or right for ease of access.

Capacity

- E3ST-H: 1 bike
- E3ST-L: 1 bike
- E3GP-F: 1 bike
- E3GP-B: 1 bike

Construction

- Heavy duty high quality steel

Fixings

M10 anchor bolts with security nuts

Finishes

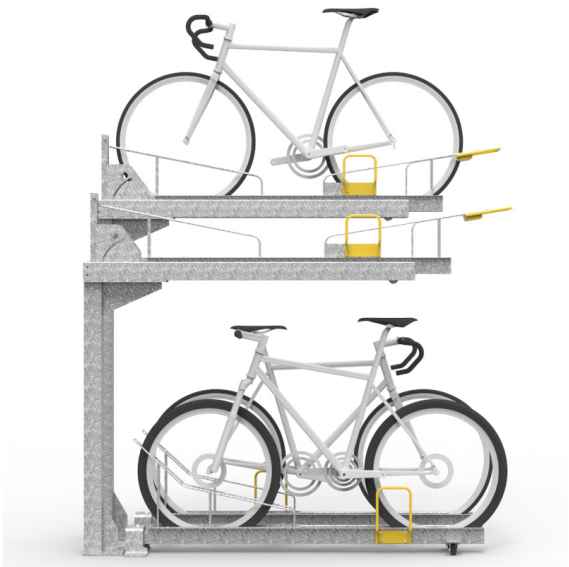
- Galvanised with powder coated accents on handles
- Option - Colour Powder Coat (Cora standard colour range)

Assembly

- Supplied partially assembled for assembly and mounting on site

Compliance

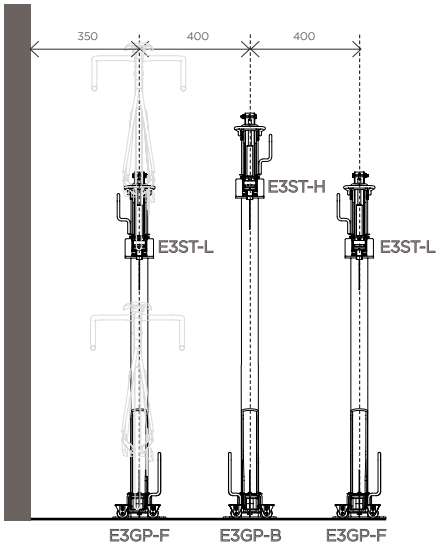
- Rack is AS2890.3 (2015) compliant



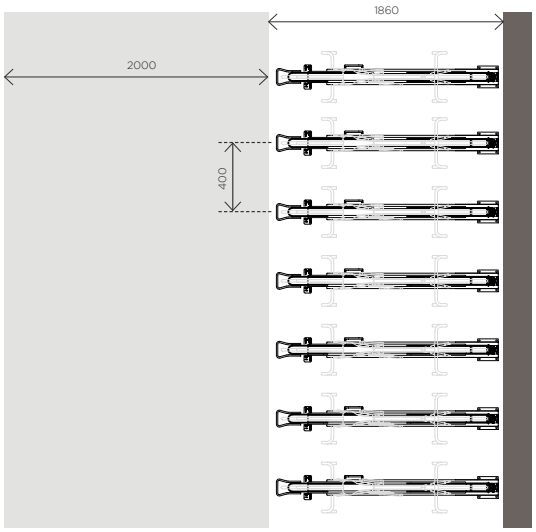
CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

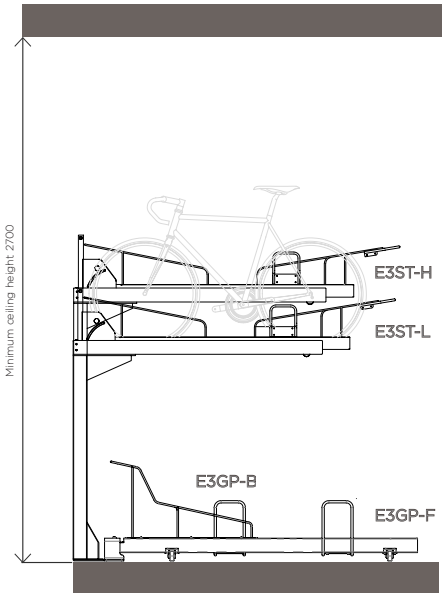
STAGGERED LAYOUT



Front view

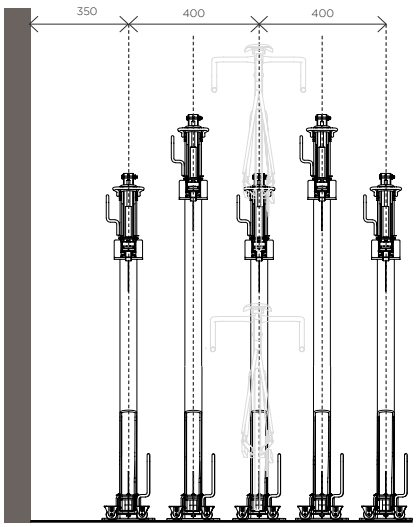


Top view

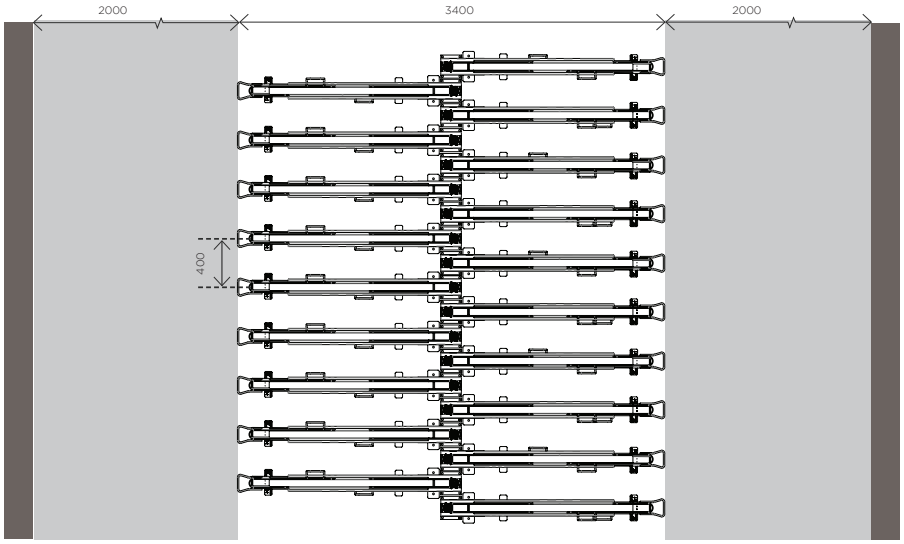


Side view

NESTED LAYOUT



Front view

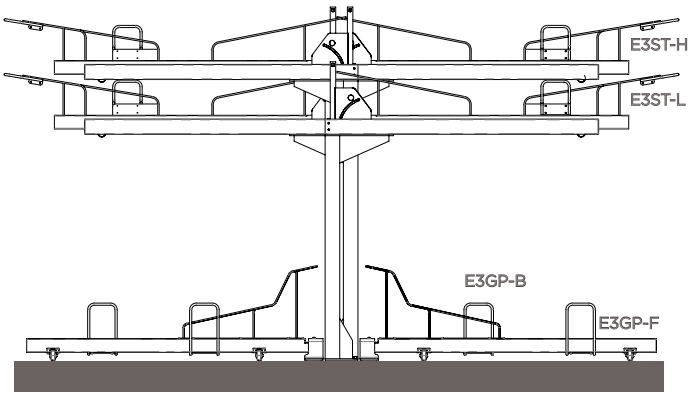


Top view

E3DT-GP DYNAMIC UPPER AND LOWER TIER LAYOUT GUIDE

For specific assembly and installation instructions relating to E3DT-GP series racks, please refer to individual instruction information sheets.

Racks should not be installed, based on the information on this sheet alone.

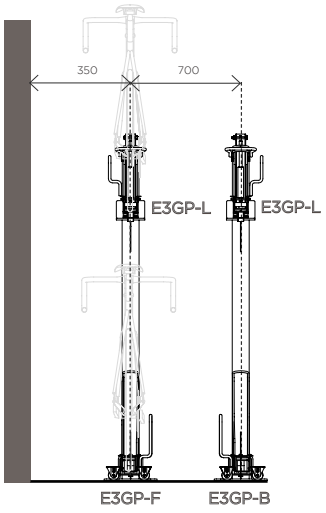


Side view

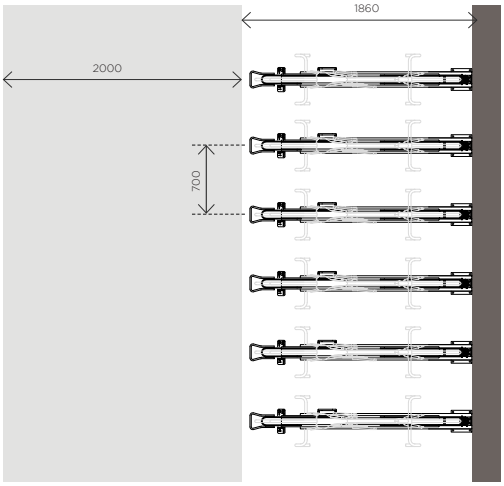
CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

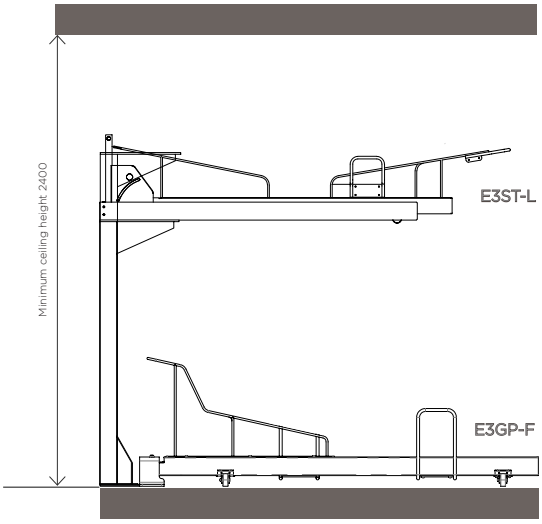
SINGLE LEVEL LAYOUT



Front view



Top view



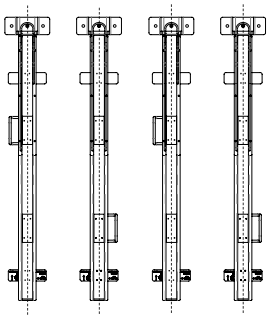
Side view

E3DT-GP DYNAMIC UPPER AND LOWER TIER LAYOUT GUIDE

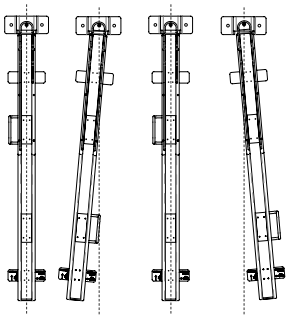
For specific assembly and installation instructions relating to E3DT-GP series racks, please refer to individual instruction information sheets.

Racks should not be installed, based on the information on this sheet alone.

Dynamic side to side movement of lower rack

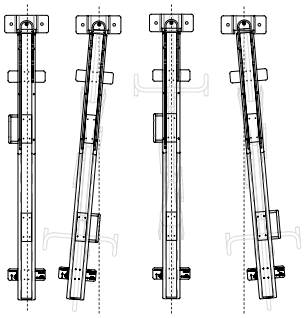


Racks in neutral position



Racks Pivoted

Racks either side of free rack, can be pivoted, to increase access for racking or removal



Bike placed in rack

Bike is wheeled in to rack, either front or rear wheel-in first depending on rack type

CORA BIKERACK

PH 1800 249 878

sales@cora.com.au

www.cora.com.au

Appendix F TAPS Code

Performance Outcomes	Acceptable Outcomes	COMMENTS
PO1 Development is designed: (a) to include a technically competent and accurate response to the transport and traffic elements of the development; (b) in accordance with the standards in the Transport, access, parking and servicing planning scheme policy; (c) to ensure the efficient operation and safety of the development and its surrounds. Note—The acceptable outcome and performance outcome can be demonstrated through a development application that: • is accompanied by sufficient information, including computer modelling input and output data, to allow the proposed development to be properly assessed against the requirements of this code and the standards and guidelines of the Transport, access, parking and servicing planning scheme policy; • is certified by a Registered Professional Engineer Queensland that all plans, documents and dimensioned drawings comply with the requirements of this code and the standards and guidelines of the Transport, access, parking and servicing planning scheme policy; • ensures that any computer modelling input and output data are accurate, reasonable and carried out in accordance with sound traffic engineering practices.	**AO1** Development complies with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome / Acceptable Outcome** Refer to the TTM Traffic Engineering Report for a detailed assessment of the traffic and transport elements of the proposed development in accordance with the Council Transport, Access, Parking and Servicing Planning Scheme Policy (TAPS Policy).

Performance Outcomes	Acceptable Outcomes	COMMENTS
PO2 Development of a major size incorporates on-site provision for integration with the public transport network and the management of vehicles, public transport, pedestrians and cyclists, including providing appropriate pedestrian and cyclist linkages to adjoining uses, public areas and the transport network consistent with the planning by the State Government and Council.	**AO2** No acceptable outcome is prescribed.	**Not Applicable**
PO3 Development provides vehicle access that is located and designed so as to have no significant impact on the safety, efficiency, function, convenience of use or capacity of the road network.	**AO3.1** Development provides site access that is located and designed in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Acceptable Outcome**
	AO3.2 Development provides an easement for a vehicular access benefiting all adjoining landowners and the Council if the vehicular access services more than an individual development or premises.	**Not applicable**
PO4 Development provides walking and cycle routes through the site which: (a) link to the external network and pedestrian and cyclist destinations such as schools, shopping centres, open space, public transport stations, shops and local activity centres along the safest, most direct and convenient routes;	**AO4.1** Development provides walking and cycle routes which are constructed on the carriageway or through the site to: (a) create a walking or cycle route along the full frontage of the site; (b) connect to public transport and existing cycle and walking routes at the frontage or boundary of the site.	**Complies with Acceptable Outcome**

Performance Outcomes	Acceptable Outcomes	COMMENTS
(b) encourage walking and cycling; (c) ensure pedestrian and cyclist safety; (d) provide a direct and legible network. Note—The Infrastructure design planning scheme policy provides additional guidance on how to comply with this performance outcome.	**AO4.2** Development provides walking and cycle routes that are constructed in compliance with the standards in the Transport, access, parking and servicing planning scheme policy and the Infrastructure design planning scheme policy.	**Complies with Acceptable Outcome**
	AO4.3 Development provides walking and cycle routes which do not include a potential entrapment area, blind corner or sudden change in level that restrict sightlines.	**Complies with Performance Outcome**
PO5 Development provides secure and convenient bicycle parking which: (a) for visitors is obvious and located close to the building's main entrance; (b) for employees is conveniently located to provide secure and convenient access between the bicycle storage area, end-of-trip facilities and the main area of the building; (c) is easily and safely accessible from outside the site; (d) does not impact adversely on visual amenity; (e) does not impede the movement of pedestrians or other vehicles;	**AO5.1** Development provides on-site bicycle parking spaces in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome / Acceptable Outcome** Bicycle spaces for BTR Facility and employees and visitors at the medical tenancies satisfies BCC`s TAPS PSP. However, bicycle spaces for visitors at BTR Facility are provided in accordance with AFTM Part 11: Parking Management Techniques.
	AO5.2 Development provides bicycle parking spaces for employees which are co-located with end-of-trip facilities (shower cubicles and lockers) in compliance with the Transport, access, parking and servicing planning scheme policy and AS 2890.3-1993 Bicycle parking facilities.	**Complies with Acceptable Outcome** Bicycle spaces for BTR Facility and employees and visitors at the medical tenancies satisfies BCC`s TAPS PSP. End of trip facilities are not provided as per BCC TAPS PSP.
	AO5.3 Development ensures that the location of visitor bicycle parking is discernible either by direct view or using signs from the street.	**Complies with Acceptable Outcome**

Performance Outcomes	Acceptable Outcomes	COMMENTS
(f) is designed to comply with a recognised standard for the construction of bicycle facilities. Note—For a performance outcome relating to the number of bicycle parking spaces provided, the application must demonstrate how the needs of the intended users of the site differ from the standard rates in the Transport, access, parking and servicing planning scheme policy.		
	AO5.4 Development provides visitor bicycle parking which does not impede pedestrian movement.	**Complies with Acceptable Outcome**
	AO5.5 Development provides bicycle parking which is constructed in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Acceptable Outcome** .
PO6 Development provides shower cubicles and lockers in sufficient numbers to meet the needs and volume of predicted pedestrian and cyclist users. Note—For a performance outcome the application must demonstrate how the needs of the intended users of the site differ from the standard rates in the Transport, access, parking and servicing planning scheme policy.	**AO6** Development provides shower cubicles and lockers for pedestrians and cyclists in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Not Applicable**
PO7 Development provides pedestrian and cyclist access to the site which is designed to provide safe movement and avoid unnecessary conflict between pedestrians, cyclists and motor vehicles.	**AO7** Development provides pedestrian and cycle access that is designed and constructed in compliance with the site access design guidelines, pedestrian facilities standards and cyclist facilities standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome**

Performance Outcomes	Acceptable Outcomes	COMMENTS
PO8 Development provides pedestrian and cyclist access to and from the site which is located to take advantage of safe crossing points of the adjacent road system, key destinations and public transport facilities.	**AO8** No acceptable outcome is prescribed.	**Complies with Performance Outcome** .
PO9 Development provides access driveways in the road area that are located, designed and controlled to: (a) minimise adverse impacts on the safety and operation of the transport network, including the movement of pedestrians and cyclists; (b) ensure the amenity of adjacent premises, from impacts such as noise and light.	**AO9.1** No acceptable outcome for access is prescribed, for a major development (as described in the Transport, access, parking and servicing planning scheme policy).	**Not Applicable**
	AO9.2 Development which is not a major development (as described in the Transport, access, parking and servicing planning scheme policy) provides a single site access driveway in the road area to the lowest order road to which the site has frontage.	**Complies with Performance Outcome** Only one new access servicing Ambulance onto Wren Street is proposed, the rest will be shared between stage 1 and 2 through the existing accesses.
	AO9.3 Development ensures that sight distances to and from all proposed access driveways in the road area and intersections are in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome** See Traffic Report for further details.
	AO9.4 Development provides access driveways in the road area which:	**Complies with Acceptable Outcome**

Performance Outcomes	Acceptable Outcomes	COMMENTS
	(a) are located, designed and controlled in compliance with the standards in the Transport, access, parking and servicing planning scheme policy; (b) (b) are not provided through a bus stop, taxi rank or pedestrian crossing or refuge.	
	AO9.5 Development makes provision for shared access arrangements particularly where it is necessary to limit access points to a major road.	**Not Applicable** .
PO10 Redevelopment provides for: (a) the closure of all access driveways in the road area that no longer comply with the standards in the Transport, access, parking and servicing planning scheme policy; (b) the reinstatement of adjacent footpaths.	**AO10** No acceptable outcome is prescribed.	**Complies with Performance Outcome** .
PO11 Development provides that an internal approach to an access driveway in the road area is designed and located to provide for the safety of pedestrians and cyclists using paths adjacent to the frontage of the site, and motorists.	**AO11.1** Development provides sight distances to and from all proposed access driveways in the road area and intersections which are in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome** See Traffic Report for further details
	AO11.2 Development ensures that convex mirrors are only used in a site:	**Complies with Performance Outcome** Provides 2m deep and 2.5m wide pedestrian sight splay along with a warning light to alert pedestrians of incoming vehicle.

Performance Outcomes	Acceptable Outcomes	COMMENTS
	(a) as a secondary support at access driveways; (b) in addition to acceptable sight splays that comply with the sight distances standards in the Transport, access, parking and servicing planning scheme policy.	
PO12 Development in the City core and City frame as identified in Figure a provides car parking spaces at rates to discourage private car use and encourage walking, cycling and the use of public transport.	**AO12** Development in the City core and City frame as identified in Figure a provides maximum car-parking rates in compliance with the standards in the Transport, access, parking and servicing planning scheme policy. Note—For accepted development subject to compliance with identified requirements including an existing premises, no reduction to existing car parking is required to comply with a maximum car-parking rate in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome**
PO13 Development outside of the City core and City frame as identified in Figure a provides on-site car parking spaces to accommodate the design peak parking demand without any overflow of car parking to an adjacent premises or adjacent street.	**AO13** Development outside of the City core and City frame as identified in Figure a: (a) provides on-site car parking spaces in compliance with the standards in the Transport, access, parking and servicing planning scheme policy; or (b) for self-assessable development does not result in on-street car parking if no parking standard is identified in the Transport,	**Not Applicable**

Performance Outcomes	Acceptable Outcomes	COMMENTS
	access, parking and servicing planning scheme policy. Note—For accepted development subject to compliance with identified requirements including an existing premises, no reduction to existing car parking is required to comply with a maximum car-parking rate in the Transport, access, parking and servicing planning scheme policy.	
PO14 Development ensures that the number of car parking spaces and design of the car parking area: (a) meet the combined design peak parking demand for residential, visitor and business parking; (b) allow for the temporal sharing of car-parking spaces for uses with different peak parking demands. Note—In order to demonstrate that adequate car parking is provided, a traffic impact assessment prepared in compliance with the Transport, access, parking and servicing planning scheme policy is to identify the appropriate number of car parking spaces to be provided.	**AO14.1** Development provides a number of car parking spaces on site equalling the sum of the maximum design peak parking demand for the individual uses at any point in time.	**Complies with Acceptable Outcome**
	AO14.2 Development involving mixed use provides a non-residential car parking area with shared parking for all the businesses in the development.	**Not Applicable**
PO15 Development provides a car park layout which allows for on-site vehicle parking that: (a) is clearly defined, safe and easily accessible; (b) is designed to contain potential adverse impacts within the site; (c) does not detract from the aesthetics or amenity of an area;	**AO15** Development provides parking bays, queue areas and manoeuvring areas which are designed for the design service vehicle to the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Acceptable Outcome**

Performance Outcomes	Acceptable Outcomes	COMMENTS
(d) discourages on-street parking if parking has an adverse traffic management safety or amenity impact; (e) is consistent with safe and convenient pedestrian and cyclist movement.		
PO16 Development creates a safe environment by incorporating the key elements of crime prevention through environmental design.	**AO16** Development incorporates the key elements of crime prevention through environmental design in its layout, building and structure design and landscaping by: (a) facilitating casual surveillance opportunities and including good sightlines to publicly accessible areas such as car parks, pathways, public toilets and communal areas; (b) defining different uses and ownerships through design and restricting access from non-residential uses into private residential dwellings; (c) promoting safety and minimising opportunities for graffiti and vandalism through exterior building design and orientation of buildings and use of active frontages; (d) ensuring publicly accessible areas such as car parks, pathways, public toilets and communal areas are well lit; (e) including way-finding cues; (f) minimising predictable routes and entrapment locations near public spaces such as car parks, public toilets, ATMs and communal areas.	Refer to Town Planning Report and/or Architectural Plans/Report.

Performance Outcomes	Acceptable Outcomes	COMMENTS
PO17 Development minimises the potential for graffiti and vandalism through access control, canvas reduction and easy maintenance selection.	**AO17** Development incorporates graffiti and vandalism prevention techniques in its layout, building and structure design and landscaping, by: (a) denying access to potential canvas through access control techniques; (b) reducing potential canvases through canvas reduction techniques; (c) (c) ensuring graffiti can be readily and quickly removed through easy maintenance selection techniques.	Refer to Town Planning Report and/or Architectural Plans/Report.
PO18 Development is serviced by an adequate number and size of service vehicles.	**AO18** Development ensures that the number and size of design service vehicles selected for the site is in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome**
PO19 Development layout provides for services which: (a) are wholly within the site, other than service vehicle manoeuvring areas which may overhang the verge on a minor road where use of the footpath is not adversely affected; (b) are clearly defined, safe and easily accessible; (c) are designed to contain potential adverse impacts of servicing within the site;	**AO19.1** Development ensures that a service bay provided on site: (a) is provided and designed to comply with the design vehicle table and service area design standards in the Transport, access, parking and servicing planning scheme policy; (b) is located away from street frontages and screened from adjoining premises.	**Complies with Performance Outcome**
	AO19.2 Development provides on-site servicing facilities and associated on-site vehicle manoeuvring areas which	**Complies with Acceptable Outcome**

Performance Outcomes	Acceptable Outcomes	COMMENTS
(d) do not detract from the aesthetics or amenity of the surrounding area.	are designed in compliance with the service area design standards in the Transport, access, parking and servicing planning scheme policy.	
	AO19.3 Development provides service areas for refuse collection in compliance with the standards in the Refuse planning scheme policy, Transport, access, parking and servicing planning scheme policy and the Infrastructure design planning scheme policy.	**Complies with Performance Outcome**
PO20 Development provides service vehicle access routes to and from the site which minimise the impact on: (a) amenity and safety in residential areas; (b) (b) streets not constructed to a standard that accommodate increased heavy vehicle movements.	**AO20** Development ensures that service vehicles use the shortest and most direct route to the major road network in compliance with the heavy vehicle standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Acceptable Outcome**
If for development which is required to be serviced by a b-double (Austroad class 10 vehicle), multi-combination vehicle, over-dimensioned vehicle or any on vehicle identified by the Queensland Government as requiring a permit to operate on the road (freight-dependent development)		
PO21 Development which is freight-dependent development ensures that the traffic generated by the development does not impact on: (a) the operation of the transport network; (b) the safety and amenity of a residential area; (c) a road not constructed to accommodate a non-standard vehicle such as a road only constructed to accommodate a vehicle that	**AO21.1** Development which is freight-dependent development is located on a site which: (a) has frontage to or direct access to the freight network in the Road hierarchy overlay via roads in a zone in the Industry zones category; or (b) can be serviced by a route that can act as a primary freight access route and connect to an existing primary freight route without	**Not applicable**

has a legal right of access to all roads including Austroads vehicles classes 1–9.	impacting on the safe operation of the road network in compliance with the heavy vehicle standards in the Transport, access, parking and servicing planning scheme policy.	
	AO21.2 Development which is freight-dependent development provides any necessary upgrade to a road used as an access route in compliance with the Infrastructure design planning scheme policy.	**Not applicable**