Transport Engineering Report

Proposed Build-to-Rent,
10-16 Campbell Street, Bowen Hills

New Urban Villages

Revision Record

No.	Author	Reviewed/Approved		Description	Date
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1	Ryan Bellamy	Darryl Watkins RPEQ #23854		DA Report (FINAL)	13/03/2025

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1. Introduction

1.1. Purpose

Colliers has been engaged by New Urban Villages to prepare a Transport Engineering Report (TER) for a proposed build-to-rent (BtR) development to be located at 10-16 Campbell Street, Bowen Hills. It is understood this report will accompany a Development Application (DA) to be lodged with Economic Development Queensland (EDQ), with referral to Brisbane City Council ('Council') City Planning & Sustainability Development Services.

1.2. Background

Prior to the completion of this report, Colliers has consulted with the development team to identify an efficient design for the site for traffic operations.

The current approval for the site (DEV2024/1502) was issued by EDQ on 22 November 2024.

1.3. Scope

The scope of the transport aspects investigated includes:

- Reviewing the prevailing traffic and transport conditions surrounding the site.
- Identifying the parking supply required to cater for development demands.
- Assessing the parking layout to provide efficient and safe internal circulation and manoeuvring.
- Assessing the access configuration to provide efficient and safe manoeuvring between the subject site and the public road network for cars, service vehicles, cyclists and pedestrians.
- Identifying the service vehicle needs for the subject site and assessing the internal layout to provide efficiency and safety for on-site service vehicle operations.
- Identification of the likely traffic impacts of development on the surrounding road network.

The development plans have been assessed against the following guidelines and planning documents:

- EDQ Bowen Hills Priority Development Area (PDA) Development Scheme.
- Brisbane City Plan 2014, specifically the Transport, Access, Parking and Servicing (TAPS) Code and Planning Scheme Policy (PSP).
- Australian Standards for Parking Facilities (where required), specifically:
  - Part 1: Off-street car parking (AS2890.1:2004).
  - Part 2: Off-street commercial vehicle facilities (AS2890.2:2018).

- Part 3: Bicycle parking (AS2890.3:2015).
- Part 6: Off-street parking for people with disabilities (AS2890.6:2009).

- Department of Transport and Main Roads 'Guide to Traffic Impact Assessment' (GTIA).

2. Site Location

The subject site is located at 10-16 Campbell Street, Bowen Hills, as shown in Figure 2.1. The property description is Lots 3 to 5 on RP10074 and Lot 1 on RP144614. The subject site has road frontage to Campbell Street (north), Hurworth Street (west) and an unnamed laneway (south).

Source: NearMap

Figure 2.1: Site Location (Immediate Context)

The subject site is vacant on the eastern side (10-12 Campbell Street), with the western side (14-16 Campbell Street) currently containing a single commercial building.

Typical cross-sections for the key roads surrounding the subject site are provided in Figure 2.2 overleaf.

 Image 1 – Campbell Street (looking west – subject site on left)	 Image 2 – Services Laneway (looking east – subject site on left)
 Image 3 – Markwell Street (looking south)	 Image 4 – Hurworth Street (looking south)

Source: Google StreetView

Figure 2.2: Carriageway Cross-Sections

3. Site Travel Environment

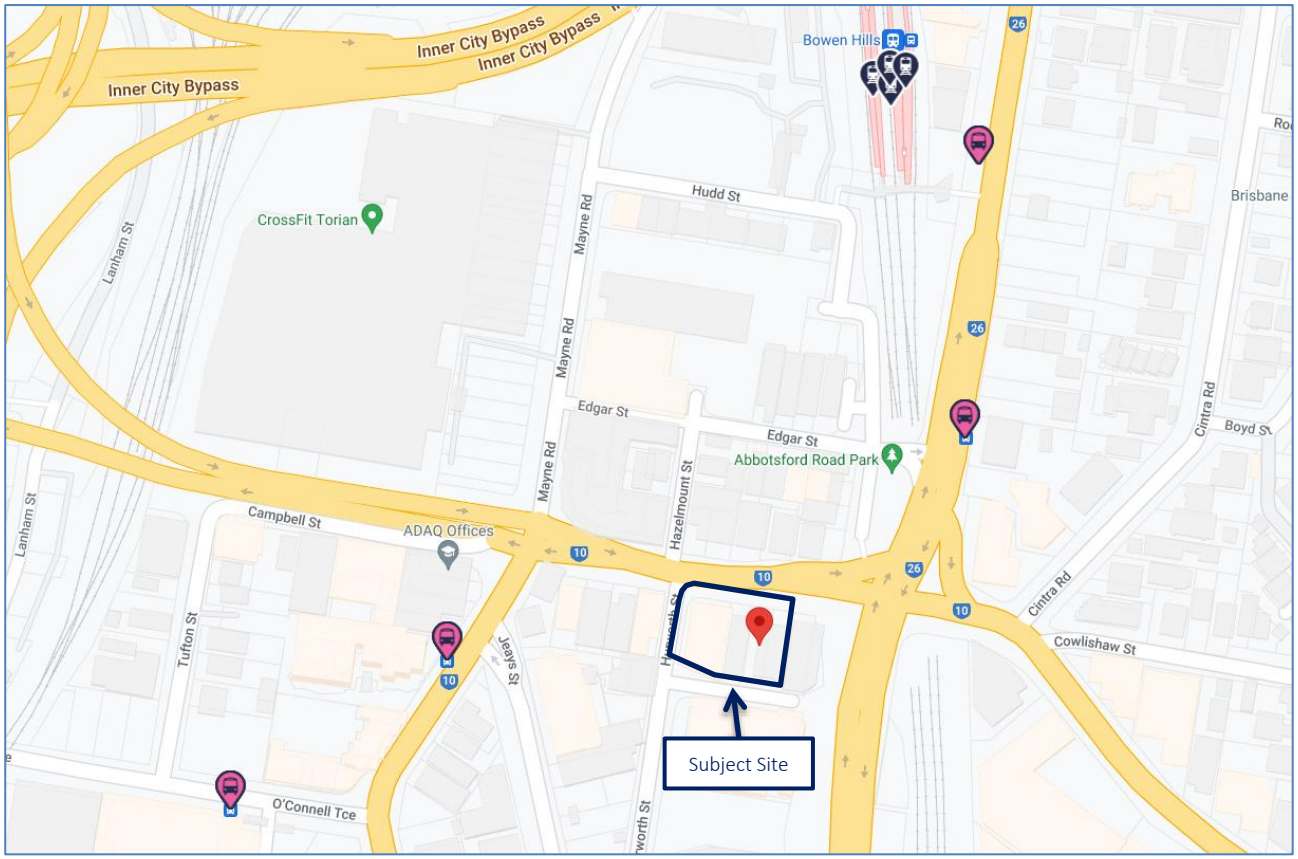
3.1. Public Transport Facilities and Services

3.1.1. Train Services

The subject site is located in close proximity to rail infrastructure, with the Bowen Hills railway station approximately 250m walking distance to the north. This railway station is serviced by all suburban and interurban lines within the SEQ rail network, with the exception of the Exhibition line. This includes the Airport, Beenleigh, Caboolture, Cleveland, Doomben, Ferny Grove, Gold Coast, Ipswich / Rosewood, Redcliffe Peninsula, Shorncliffe, Springfield and Sunshine Coast lines.

3.1.2. Bus Services

There are several bus services which operate in the Bowen Hills area, in the vicinity of the subject site. Figure 3.1 identifies TransLink bus stops in the immediate vicinity of the subject site, located along Abbotsford Road, Hamilton Place and O'Connell Terrace.



Source: TransLink

Figure 3.1: TransLink Bus Stops in the Vicinity of the Subject Site

Table 3.1 outlines the routes that service these nearby stops, detailing their respective weekday and weekend headways (peak and off-peak) as well as operating hours. It is noted that several other routes that utilise these stops are school services only (924 and 928 to 931).

Table 3.1: Bus Routes and Operating Hours/Frequency Near the Subject Site

Route	Description	Weekday	Saturday	Sunday + Public Holidays
301	Toombul to City	6:00am to 11:15pm Peaks ~ 30 min Off-peak ~ 60 min	7:30am to 11:15pm All-day ~ 45-60 min	8:30am to 8:15pm All-day ~ 60-90 min
320	Chermside to City	5:15am to 10:15pm Peaks ~ 15-20 min Off-peak ~ 30-45 min	7:00am to 6:45pm All-day ~ 90 min	10:00am to 6:00pm All-day ~ 80 min
393	Teneriffe ferry terminal to Kelvin Grove and RBWH (loop)	6:30am to 6:45pm Peaks ~ 15-20 min Off-peak ~ 60 min	N/A	N/A

In addition to these services, there are a significant number of other services which travel along Breakfast Creek Road and Wickham Terrace / Ann Street, approximately 500m walking distance to the east of the subject site.

3.1.3. Summary

The subject site is generally well serviced by public transport options, particularly train services, which is typical for development within inner-city Brisbane.

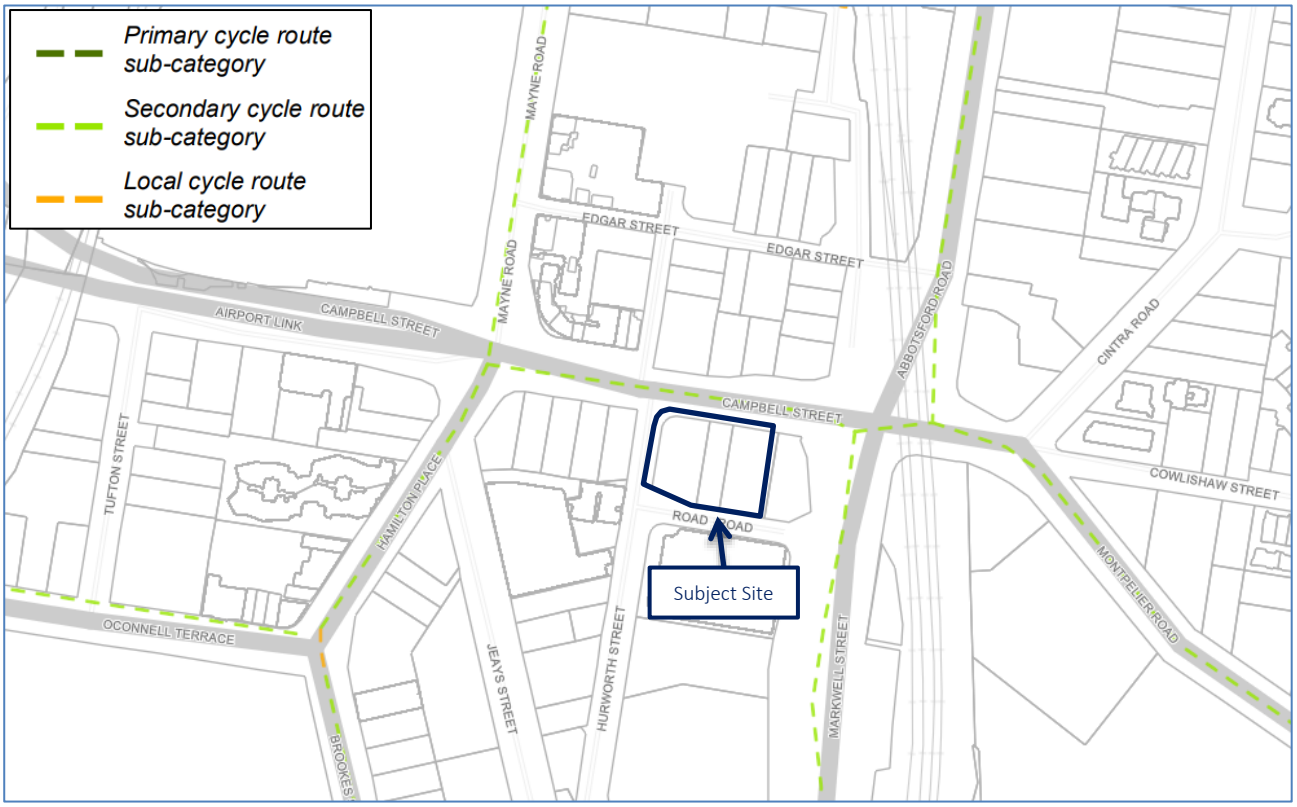
The subject site's location has been assessed using the "Transit Score" location performance tool. This tool assesses the relative "usefulness" of nearby routes, based on the distance to the nearest stop on the route, the frequency of the route and type of route. It provides a numerical score between 1 and 100, with 1 being heavily car-dependent.

The site achieves a score of 91 out of 100, which is described as a "Rider's Paradise", whereby "world-class public transportation" is accessible nearby.

3.2. Active Transport Facilities

3.2.1. Bicycles

Figure 3.2 overleaf illustrates the surrounding cycle routes, as defined by Council's Bicycle Network Overlay.



Source: Council's Interactive Mapping – Bicycle Network Overlay

Figure 3.2: Bicycle Network Overlay in the Vicinity of the Subject Site

This overlay identifies that most roads in the surrounding local network are classified as 'secondary cycle routes'.

Cycling accessibility for the subject site is satisfactory, with both on- and off-road cycling infrastructure / facilities surrounding the subject site.

3.2.2. Pedestrians

Pedestrian footpaths are currently provided within both verges of all roads in the vicinity of the subject site. Connections are provided to public transport infrastructure / facilities. Signalised crossings are provided at all major intersections, to facilitate movement across all major roads and access to the broader network.

Existing walkability surrounding the subject site is reasonably good, with connections also provided to surrounding public transport facilities.

The subject site's location has been assessed using the "Walk Score" location performance tool. This tool considers the number of facilities and amenities in close proximity and provides a numerical score between 1 and 100, with 1 being heavily car-dependent and 100 reflecting a location that is easily accessible to abundant facilities by foot.

The site achieves a score of 92 out of 100, which is described as a "Walker's Paradise", whereby "daily errands do not require a car".

3.3. Road Network

3.3.1. Road Hierarchy

The characteristics of the existing road network surrounding the subject site are summarised in Table 3.2. It is noted that all roads within the vicinity of the subject site are under Council jurisdiction.

Table 3.2: Characteristics of the Surrounding Road Network

Road	Speed Limit	Road Configuration			Classification
		Reserve Width	Carriageway Width	Lane Configuration	
Campbell Street	60km/h	20.0m-27.0m	12.5m	Two-way, four-lane, undivided	Suburban
Services Laneway	50km/h[1]	10.0m	5.0m	Two-way, two-lane, undivided	N/A
Hurworth Street	50km/h[1]	12.0m-14.0m	8.5m	Two-way, two-lane, undivided	Neighbourhood
Markwell Street	60km/h	N/A	15.0m	Two-way, four-lane, undivided	Arterial
Abbotsford Road	60km/h	25.0m	20.0m	Two-way, six-lane, undivided	Arterial
Montpelier Road	60km/h	20.0m	12.5m	Two-way, two-lane, undivided	Arterial

[1] Default speed limit on unsigned roads in built-up areas in Queensland.

A summary of the various intersection treatments along Campbell Street, Montpelier Road, Abbotsford Road and Hamilton Place, surrounding the subject site, is shown in Figure 3.3.

Source: NearMap

Figure 3.3: Existing Intersection Treatments

3.4. Alternative Parking

In addition to the car parking supply provided on-site, there is a limited supply of kerbside parking within the surrounding road network, which is located within the Brisbane Central Traffic Area. The on-street parking restrictions within this area are active between 7:00am and 6:00pm Monday to Friday, as well as 7:00am and 12:00pm on Saturday, for a 2-hour parking limit.

There is also a small supply of off-street paid parking facilities in the vicinity of the subject site, including along Jeays Street and Montpelier Road.

3.5. Transport Planning

Council's Local Government Infrastructure Plan (LGIP) has been reviewed, indicating that there are no planned works in the vicinity of the subject site which will impact upon or be impacted by the proposed development.

3.6. Anticipated Travel Patterns

The proposed development is heavily public and active transport-centric, with its close proximity to major public and active transport infrastructure reflected by its location within the City Frame and subsequent maximum car parking requirements. The site is also in close proximity to the Brisbane CBD and other major attractors.

4. Proposed Development

4.1. Development Profile

The proposed build-to-rent development is comprised of a single building (26 levels). A total of 297 units are proposed, with a mix of one- and two-bedroom unit configurations (as well as studios). A detailed breakdown of the unit yield is provided in Table 4.1.

Table 4.1: Proposed Development Yield

Unit Configuration	Units
Studio	69
One-Bedroom	137
Two-Bedroom	91
Total	**297**

Architectural plans for the proposed development, prepared by Nettletontribe, are included in Appendix A.

4.2. Parking

The architectural plans for the proposed development include the following parking supply:

- 127 car spaces – including one (1) PWD space – located across four (4) car parking levels, comprised of one (1) Basement Level and three (3) Podium Levels.
- The 127 space overall car parking is split between residents (96) and visitors (31 – incl. 1 PWD space).
- Six (6) car share spaces, included in the resident car parking supply on Podium Level 3.
- 17 motorcycle spaces.
- 262 bicycle spaces, split between residents (211) and visitors (51).

Further details regarding the proposed parking provisions are included in Section 5.

4.3. Access

The architectural plans include the following access arrangements:

- Type B2 (6.5m) crossover at the southern edge of the site's Hurworth Street frontage, accommodating car movements only – all movements / turns permitted.
- Type B2 (7.0m) crossover at the eastern edge of the site's rear laneway frontage, accommodating service vehicle movements only.
- Pedestrian access via the Campbell Street frontage only.

- Cyclist access via the Campbell Street and Hurworth Street frontages (Ground and Podium Level bicycle parking respectively), with the lifts and car park ramps to be utilised for podium level access.

Further details regarding the proposed access arrangements are included in Section 6.

4.4. Servicing

The development plans allow for occasional access of vehicles up to the size of an 8.8m Medium Rigid Vehicle (MRV) for deliveries and regular access for vehicles up to the size of a 10.24m rear-lift Refuse Collection Vehicle (RCV).

A loading dock is provided on the Basement Level, which is accessible via the rear laneway from Hurworth Street.

Further details regarding the proposed servicing arrangements are included in Section 7.

5. Parking Arrangements

5.1. Parking Supply

5.1.1. Car Parking

The car parking supply requirements for the proposed residential land use have been determined in line with Schedule 3 of the Bowen Hills PDA Development Scheme. Car parking rates for the multiple dwelling land use are specified.

Table 5.1 outlines the car parking requirements for the proposed development, including resident and visitor parking, and the proposed provisions.

Table 5.1: Council's TAPS PSP Car Parking Requirements and Provisions

User	Car Parking Requirement	Extent	Requirement	Provision
Resident	EDQ – 0.75 spaces per unit	297 units	223 spaces	96 spaces
Visitor	EDQ – 0.15 spaces per unit		45 spaces	31 spaces
Total			**268 spaces**	**127 spaces**

As seen in Table 5.1, the development scheme proposes a total of 127 car parking spaces, including one (1) PWD bay, for a total provision rate of **0.43 spaces per unit**.

Resident parking is proposed at a rate of 0.32 spaces per unit. Further discussion regarding the suitability of this rate of provision is included in the following section (5.1.2), as well as the technical note included as Appendix C to this report.

A visitor car parking supply of 31 spaces is proposed, equivalent to 0.10 spaces per unit. While this is less than the EDQ minimum requirement of 0.15 spaces per unit, it falls in the range between the City Core (0.05 spaces per unit) and City Frame (0.15 spaces per unit) requirements of Council's TAPS PSP.

It is also noted that Council has endorsed a draft Planning Scheme amendment, which revises the respective City Core and City Frame boundaries. Once this amendment has been incorporated, the subject site would be located within the City Core, instead of the City Frame. This would have an associated decrease in the visitor car parking rate, from 0.15 spaces per unit to 0.05 spaces per unit.

5.1.2. Build to Rent (BtR) Parking Supply

Colliers has prepared a technical note containing commentary regarding Build to Rent car parking and the anticipated characteristics for the proposed development.

The commentary contained within this technical note indicates that the proposed car parking provision is considered acceptable, noting the following:

- **0.43 car spaces per unit**, increasing to **0.51 car spaces per unit** when accounting for the six (6) car share equivalency – one (1) car share space equates to at least five (5) standard car spaces.

- The site's proximity to major public transport infrastructure (Bowen Hills railway station) and employment / activity nodes.
- Colliers research indicates that the target market for Build to Rent is quite different from traditional residential. Multiple Unit Dwellings have an average occupancy of 2.6 persons per dwelling, while Build to Rent have an average occupancy of **1.45 persons per dwelling**. A lower population associated with the development translates to a reduction in the need for private vehicles.
- The proposed development scheme being comprised of mostly one-bedroom (46%, 137 of 297) and studio (23%, 69 of 297) apartments - (69%, 206 of 297).
- The subject site is located within the Brisbane Central Traffic Area. A review of the kerbside inventory surrounding the site indicates that, within 500m walking distance, there are no long-term parking options. As such, it is impractical to live in the development as a car owner, without leasing an on-site parking space.
- The building management is expected to separate parking spaces from dwellings and lease these separately. This identifies the full cost of car storage to residents, further discouraging car ownership.
- It is anticipated that a Sustainable Green Transport Plan (SGTP) will be conditioned, which will include measures relating to car share, bicycle parking and e-mobility.

5.1.3. PWD Parking

Council's TAPS PSP identifies the following requirements for PWD parking:

- A provision rate of one (1) PWD space for every 50 'ordinary' spaces, with a minimum of one (1) space.
- A minimum of one (1) visitor PWD space for multiple dwelling land uses.
- PWD spaces are provided as close as possible to the main building entrance.

For the proposed development, the number of 'ordinary' parking spaces is considered to be 31, which is equal to the visitor car parking supply. Resident car parking is not included within this total, given the Building Code of Australia (BCA) does not nominate any PWD requirements for Class 2 (residential) buildings. Based on a total of 31 'ordinary' spaces, a minimum of one (1) PWD space is therefore required.

The proposed development includes an allowance for one (1) PWD space in the Basement Level car park, satisfying the requirements of Council's TAPS PSP and the BCA.

5.1.4. Motorcycle Parking

Council's TAPS PSP identifies that 2% of the parking provision shall be provided in the form of motorcycle spaces, in car parks with more than 50 spaces. This conservatively equates to a relative requirement of six (6) motorcycle parking spaces (if based on a total requirement of 268 car spaces, rather than the reduced car parking provision of 133 car spaces).

The proposed development includes an allowance for up to 17 motorcycle parking spaces, which meets and exceeds Council's TAPS PSP minimum requirement.

5.1.5. Bicycle Parking

The Bowen Hills PDA Development Scheme refers to Council's TAPS PSP for the relevant bicycle parking rates. The bicycle parking supply requirements for the proposed development land use have therefore been determined in line with Table 21 of Council's TAPS PSP.

However, given the subject site's inner-city location and availability of public and active transport options, alternative parking supply rates have also been considered. The Austroads *Cycling Aspects of Austroads Guide* document identifies alternative provision rates for resident and visitor bicycle parking for residential apartment buildings.

Table 5.2 outlines the bicycle parking requirements for the proposed development (Council and Austroads), including resident and visitor parking, and the proposed provisions.

Table 5.2: Council's TAPS PSP and Austroads Bicycle Parking Requirements

User	TAPS PSP Rates	Extent	TAPS PSP Requirements	Austroads Rates	Extent	Austroads Requirements
Resident	1 space per unit	297 units	297 spaces	1 space per 4 bedrooms	388 bedrooms	97 spaces
Visitor	1 space per 4 units		75 spaces	1 space per 16 bedrooms		25 spaces
Total		**297 units**	**372 spaces**	**Total**	**388 bedrooms**	**122 spaces**

The proposed development scheme includes a total of 262 bicycle spaces, designated as 211 for residents and 51 for visitors. This bicycle parking provision is proposed to be accommodated as follows:

- Resident spaces will be located across the Ground, Mezzanine and Podium levels.
- Visitor spaces would be provided across the Basement and Ground levels, as well as on-street.

Table 5.3 outlines the locations of bicycle parking by level, for residents and visitors, as well as totals.

Table 5.3: Bicycle Parking Provision Locations

Level	Resident	Visitor	Total
Basement	-	35	35
Ground	121	16	137
Mezzanine	51	-	51
Level 1	13	-	13
Level 2	13	-	13
Level 3	13	-	13
Total	**211**	**51**	**262**

A summary of the proposed development's bicycle parking provisions, against Council's TAPS PSP and Austroads requirements, is outlined in Table 5.4 overleaf.

Table 5.4: Council and Austroads Requirements Comparison to Proposed Provision

User	TAPS PSP Requirement	Austroads Requirement	Proposed Provision
Resident	297 spaces	97 spaces	211 spaces
Visitor	75 spaces	25 spaces	51 spaces
Total	**372 spaces**	**122 spaces**	**262 spaces**

While the resident and visitor bicycle parking supplies are less than Council's TAPS PSP rates, both the proposed resident and visitor bicycle parking supplies meet and exceed) the relevant Austroads rates. These bicycle parking supplies are considered appropriate, given the accessibility by public and active transport, as well as private transport (ride share).

5.2. Parking Layout

The proposed development will provide car parking across both Basement and Podium Levels. Table 5.5 overleaf identifies the characteristics of the proposed parking layout, with respect to Council's TAPS PSP design provisions, as identified by the Bowen Hills PDA Development Scheme.

Table 5.5: Council's TAPS PSP Parking Design Requirements and Provisions

Design Aspect	TAPS PSP Requirement	Proposed Provision	Compliance
Car Parking			
Space length: • Resident space (Class 3) • Visitor space (Class 3) • Share car space • PWD space (Class 5)	 • 5.4m (min) • 5.4m (min) • 5.4m (min) • 5.4m (min)	 • 5.4m • 5.4m • 5.4m • 5.4m	 TAPS PSP compliant TAPS PSP compliant TAPS PSP compliant TAPS PSP compliant
Space width: • Resident space (Class 3) • Visitor space (Class 3) • Share car space • PWD space (Class 5)	 • 2.6m (min) • 2.6m (min) • 2.6m (min) • 2.4m + 2.4m 'Shared Area'	 • 2.4-2.6m • 2.4m-2.6m • 2.6m • 2.6m + 2.6m 'Shared Area'	 See Parking Design Aspect 1 See Parking Design Aspect 2 TAPS PSP compliant TAPS PSP compliant
Aisle width: • Parking aisle • Circulation road/ramp (two-way, 25-100 vph)	 • 6.2m (min) • 6.2m (min) + clearance to walls	 • 6.2m • 6.2m + clearance to walls	 TAPS PSP compliant TAPS PSP compliant
Parking envelope clearance	Located as per Figure m of TAPS PSP	Located as per Figure 5.2 of AS2890.1:2004	See Parking Design Aspect 3
Maximum gradient: • PWD parking • Parking aisle • Ramp	 • 1:40 (2.5%) • 1:20 (5.0%) • 1:6 (16.7%)	 • Flat • 1:20 (5.0%) • 1:5 (20.0%)	 TAPS PSP compliant TAPS PSP compliant See Parking Design Aspect 4
Maximum gradient transitions	1:8 (12.5%) summit[1] 1:6.67 (15.0%) sag[1]	1:8 (12.5%) summit 1:10 (10.0%) sag	AS2890.1 compliant
Parking aisle extension	2.0m beyond the last bay or 8.0m aisle width	1.0m beyond the last bay	See Parking Design Aspect 5
Minimum height clearance: • General minimum • Over PWD space	 • 2.3m • 2.5m	 • >2.3m • >2.5m	 TAPS PSP compliant TAPS PSP compliant
Motorcycle Parking			
Space length	2.5m (min)	2.5m	TAPS PSP compliant
Space width	1.35m (min)	1.35m	TAPS PSP compliant
Bicycle Parking			
Wall-mount rack length	1.2m (min)	1.2m	AS2890.3 compliant
Rack spacing	0.5m (min)	0.5m	AS2890.3 compliant
Manoeuvring / access paths	1.0m (min)	1.5m	AS2890.3 compliant

[1] Council's TAPS PSP is silent regarding this matter. Per Section 1.2 of Council's TAPS PSP, revert to AS2890.1:2004.

[2] Council's TAPS PSP is silent regarding this matter. Per Section 1.2 of Council's TAPS PSP, revert to AS2890.3:2015.

Car manoeuvring for a typical podium level car park is illustrated by Colliers Drawing 23BRT0800-16 within Appendix B. This indicates that, in order to accommodate two-way passing at the top end of the ramps

(north-eastern corner of each car parking level), the column on the inside corner would need to be offset 340mm further south (away from the parking aisle) – also shown on the aforementioned drawing.

The proposed development's parking layout is generally consistent with the provisions of Council's TAPS PSP. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided below.

Parking Design Aspect 1

Resident car parking is provided with a mix of 2.4m and 2.6m bay widths. The proposed 2.4m widths, in conjunction with a 6.2m wide parking aisle, would provide the equivalent of User Class 1 / 1A spaces, as defined by Australian Standards (AS)2890.1:2004. Therefore, the proposed bay and aisle widths are considered acceptable, noting that this meets the typical requirements under AS2890.1:2004 for resident car parking.

Parking Design Aspect 2

It is noted that some of the visitor car parking spaces do not meet Council's TAPS PSP, which identifies a 2.6m minimum width. Visitor car parking is provided with a mix of 2.4m, 2.5m and 2.6m bay widths.

A small portion of the visitor parking supply– six (6) bays, ~19% – are provided with reduced 2.4m width, effectively being 'Small Car' visitor spaces. It is noted that within Council's TAPS PSP, up to 20% of car parking supplies can be of 'Small Car' design. The proposed 'Small Car' spaces within the visitor car parking allocation is considered acceptable. Further, the wider (6.2m) parking aisle provides additional space for manoeuvring of vehicles – when compared to the minimum parking aisle width of 5.8m for User Class 2.

It is considered acceptable that User Class 2 (2.5m width) would be acceptable design parameter for the remaining visitor spaces, given the expected low to medium turnover of these visitor parking spaces. This width meets the relevant A2890.1:2004 minimum requirement.

Parking Design Aspect 3

The development plans make allowance for structure / walls within the allowable envelopes adjacent to car spaces, as per Figure 5.2 of AS2890.1:2004. This differs slightly from the provision of Figure m within Council's TAPS PSP.

Notably, there is only a 50mm difference in acceptable column locations closest to the parking aisle and allowance for additional columns to be located adjacent to bays towards the front/end of the parking spaces. However, this difference is not expected to have any adverse impacts on the ability for vehicles to manoeuvre into or out of car spaces or open doors, the two key considerations guiding these design envelopes around car spaces.

The provisions of AS2890.1:2004 are based on extensive research of the particular needs for both front and rear door opening, irrespective of whether vehicles enter in a forward gear or reverse-in. As such, this is considered an acceptable design solution to adopt.

Parking Design Aspect 4

Table 17 of Council's TAPS PSP requires that circulation ramps have a maximum grade of 1 in 6 (16.7%). However, Clause 2.5.3(b) within AS2890.1:2004 allows for varied maximum gradients in a private / residential car park setting. A maximum gradient of 1 in 5 (20.0%) is specified for ramps that cater for resident only parking.

The ramp connecting the Basement and Mezzanine / Podium Levels has a primary gradient of 1 in 5 (20.0%) and therefore matches the maximum grade permitted by AS2890.1:2004.

Parking Design Aspect 5

Council's TAPS PSP requires that either terminated aisles extend for at least 2.0m past the last car bay in an aisle or the parking aisle is widened to a minimum of 8.0m, to provide sufficient manoeuvring area for the last bay. While the proposed aisle extension of 1.0m is reduced from Council's minimum requirement, it does match the minimum requirement of AS2890.1:2004 (Figure 2.3) and is therefore considered appropriate.

Parking Layout Summary

Overall, the proposed parking layout is generally designed in accordance with Council's TAPS PSP, apart from the identified performance solutions, which are deemed fit-for-purpose.

6. Access Arrangements

6.1. Vehicular Access – Hurworth Street

The development plans include a vehicular access to / from Hurworth Street – a Type B2 (6.5m) crossover at the southern edge of the site frontage, accommodating all car movements only, with all movements / turns permitted. The design provisions of the Hurworth Street access and the respective provisions of Council's TAPS PSP are detailed in Table 6.1.

Table 6.1: Hurworth Street Access Arrangements

Design Aspect	TAPS PSP Requirement	Proposed Provision	Compliance
Width / crossover type to accommodate: • Cars[1,2]	Type B2	Type B2 (6.5m)	TAPS PSP compliant
Distance from: • Minor intersection[1] • Adjacent driveway[1]	10m (min) 3m (min)	0m >3m	See Access Design Aspect 1 TAPS PSP compliant
Sight distance[1,2]	90m (desirable) 70m (minimum)	Clear sight to the Campbell Street and rear laneway intersections	TAPS PSP compliant
Driveway sight splays	2.0m wide x 2.0m deep (on each side)	2.0m wide x 2.0m deep (on each side)	TAPS PSP compliant
Minimum queuing provisions	5 vehicles / 30m	2 vehicles / 12m	See Access Design Aspect 2
Maximum driveway grade	1:20 (5.0%) maximum within first 6m	1:8 (12.5%) maximum within first 6m	See Access Design Aspect 3

[1] Based on Hurworth Street being classified as a 'minor road' and a speed limit of 50km/h.

[2] Based on the access servicing low / medium turnover car parking spaces.

The proposed Hurworth Street access arrangements are generally consistent with the provisions of Council's TAPS PSP. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided below.

Access Design Aspect 1

It is noted that the location of the proposed crossover is within the 10m minimum separation to a minor intersection identified by Council's TAPS PSP. The reduced crossover separation is considered acceptable, given the local road environment, and noting that the overall arrangement of the Hurworth Street access maximises sight lines to the rear laneway (which will have very low traffic volumes).

Access Design Aspect 2

A queue storage of approximately 12m, sufficient for two (2) car lengths, is provided within the property boundary. While this is less than the applicable TAPS PSP requirement, this is considered an acceptable performance solution, give the reduced parking supply and subsequent traffic volumes expected to be generated by the proposed development.

Access Design Aspect 3

It is noted that there is a gradient on the Hurworth Street vehicle access that exceeds the 1:20 (5%) for 6m from the property boundary as identified by Council TAPS PSP and AS2890.1:2004. It is noted that the northern (entry) side of the Hurworth Street crossover has a gradient of ~17% and the southern (exit) side of the crossover is 1:8 (12.5%), noting that there is gradient / crossfall on Hurworth Street.

The entry gradient of ~17% is considered acceptable as it is only slightly steeper than the standard 1:20 (5%) and connects to the next internal circulation area that is flatter than 1:20 (5%).

Within AS2890.1:2004, the gradient leading up to the property boundary can be increased to 1:8 (12.5%) if the following criteria (Clause 3.3a) is met:

- The grade is downgrade for traffic leaving the property and entering the frontage road.
- The user class is Class 1, 1A or 2 only.
- The maximum car park size is (2) for entry onto a local road – 100 car spaces.

Based on the above, the first two criteria are clearly met by the parking access of the proposed development to Hurworth Street. For the third criteria, while the number of car parking spaces (127 spaces) accessed with the Hurworth Street access is slightly higher than 100 spaces, this is considered acceptable given that there is only a minor exceedance and that the majority of spaces are resident (Class 1 / 1A) spaces.

Therefore, noting that the increased grades on the Hurworth Street access driveway / crossover while not strictly compliant with Council's TAPS PSP / AS2890.1:2004 are considered acceptable and operationally safe and efficient.

6.2. Vehicular Access – Rear Laneway

The development plans include a vehicular access to / from the rear laneway – a Type B2 (7.0m) crossover at within the southern site frontage, accommodating service vehicle movements only. The access design provisions of the rear laneway access and respective parameters of Council's TAPS PSP are detailed in Table 6.2 overleaf.

Table 6.2: Rear Laneway Access Arrangements

Design Aspect	TAPS PSP Requirement	Proposed Provision	Compliance
Width / crossover type to accommodate: • Service Vehicles[1,2]	Type B2 (7.0m)	Type B2 (7.0m)	TAPS PSP compliant
Distance from: • Minor intersection[1] • Adjacent driveway[1]	10m (min) 3m (min)	~35m >3m	TAPS PSP compliant TAPS PSP compliant
Sight distance[1]	90m (desirable) 50m (minimum)	~35m to the west, clear sight to the Hurworth Street intersection	TAPS PSP compliant
Driveway sight splays	2.0m wide x 2.0m deep (on each side)	N/A	See Access Design Aspect 1
Maximum driveway grade	1:20 (5.0%) maximum within first 6m	1:43 (2.33%) section for portion of first 6m	TAPS PSP compliant

[1] Based on the rear laneway being classified as a 'minor road', with a speed limit of 50km/h.

[2] Based on the access servicing design service vehicles up to the size of an RCV/MRV.

The proposed rear laneway access arrangements are generally consistent with the provisions of Council's TAPS PSP. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided below.

Access Design Aspect 1

In line with the existing approval, it is not anticipated that pedestrians will be approaching the proposed development via the services laneway, given it is a dead-end road and the preferred pedestrian access is via the Campbell Street frontage, with easy access to the lobby / lifts.

Notwithstanding, a convex mirror can be provided in the vicinity of the access (detailed design consideration), to assist with visibility between egressing vehicles and any pedestrians.

6.3. Active Transport Access

Pedestrian access can be achieved along the Campbell Street frontage only, connecting to the proposed development's lobby.

Cyclists will be able to achieve access via both of the Campbell Street and Hurworth Street frontages. Bicycle parking is provided within the Ground Level and Podium Level car parks, which can be accessed via either the lifts or ramps connecting each level.

7. Service Vehicle Arrangements

7.1. Council Requirements

Section 3 of Council's TAPS PSP identifies the following requirements in relation to design service vehicles and loading bays for the proposed residential land use. These requirements, along with the proposed provisions, are summarised in Table 7.1.

Table 7.1: Council's TAPS PSP Service Vehicle Requirements and Provisions

Land Use	Design Vehicle		Loading Bay Requirements
	Regular Access	Occasional Access	RCV
Multiple Dwelling	RCV	LRV	1[1]
Proposed Provisions	**RCV**	**MRV**	**1 MRV + 1 SRV**

LRV = 10.7m Large Rigid Vehicle | MRV = 8.8m Medium Rigid Vehicle | RCV = Refuse Collection Vehicle

[1] Section 3.3 of Council's TAPS PSP indicates that a minimum of one (1) loading bay is required for the regular access vehicle, if no specific loading bay provisions are indicated in Tables 2, 3 or 4.

Council's TAPS PSP also details the following with respect to vehicle manoeuvring and on-site standing.

Occasional Access Service Vehicles

- The design service vehicle can perform a reverse movement, regardless of frontage road classification, for one (1) movement to / from the site.
- The vehicle can stand wholly contained within the site, clear of the verge.
- No formal loading bay provision is required.

Regular Access Service Vehicles

- This vehicle can enter and leave the site in a forward gear.
- This vehicle parks/stands in a dedicated on-site loading bay.
- A minimum of one (1) loading bay is required for the regular access vehicle for each land use.

7.2. Proposed Loading Provisions

7.2.1. Design Vehicles

The development scheme proposes to adopt an MRV as the occasional access service vehicle (deliveries) and a rear-lift RCV as the regular access service vehicle (refuse servicing).

It is considered appropriate that the largest design service vehicle will be an RCV (Council 10.24m length rear-lift) design vehicle, complemented by an MRV design vehicle (largest) for deliveries.

7.2.2. Loading Bay Provisions

The development scheme makes allowance for two (2) loading bays on the Basement Level within a separate Loading Dock area. Operationally, these bays would be shared between the RCV and delivery service vehicles – as an RCV would straddle both bays, based on the swept paths provided in Colliers Drawings 23BRT0800-13 and 23BRT0800-14 within Appendix B. The western bay has been designated for SRV use, while the eastern bay has been designated for MRV use.

Given the anticipated infrequent demand for service vehicles, this provision / arrangement is considered acceptable. Additionally, basic management strategies for the Loading Dock can be applied, such as ensuring that deliveries are not permitted during regular refuse servicing times (once established).

7.2.3. Refuse Collection Provisions

Given the nature and scale of the development use, bulk bins serviced by a rear-lift RCV has been considered the optimal strategy for refuse collection. A permanent bin store will be located on the Basement Level, adjacent to the Loading Dock.

The rear-lift RCV – Council 10.24m design service vehicle – would enter the site in a forward gear to access the loading area, straddling the two (2) loading bays. Once refuse collection has been completed, the vehicle would turn around within the Loading Dock and exit the subject site in a forward gear.

7.3. Proposed Service Vehicle Design Provisions

In terms of service vehicle operations for the proposed development, all vehicles will be able to enter and exit the subject site in a forward gear. Swept path analysis for the RCV, MRV and SRV design service vehicles to access the site and Loading Dock, before turning around and egressing, are demonstrated by Colliers Drawings within Appendix B.

Table 7.2 overleaf identifies the service vehicle design provisions, with respect to Council's TAPS PSP requirements.

Table 7.2: Council's TAPS PSP Service Vehicle Design Requirements and Provisions

Design Aspect	TAPS PSP Requirement	Proposed Provision	Compliance
Loading bay length: • MRV bay • SRV bay	 • 9.0m (min) • 7.0m (min)	 • 9.0m • 7.0m	 TAPS PSP compliant TAPS PSP compliant
Loading bay width: • MRV bay • SRV bay	 • 3.5m (min) • 3.5m (min)	 • 3.5m • 3.5m	 TAPS PSP compliant TAPS PSP compliant
Loading grades: • MRV standing • SRV standing • RCV standing	 • 1:25 (4.0% max) • 1:20 (5.0% max) • 1:20 (5.0% max)	 • Flat • Flat • Flat	 TAPS PSP compliant TAPS PSP compliant TAPS PSP compliant
Height clearance: • MRV • SRV • RCV (rear-lift)	 • 4.5m (min) • 3.5m (min) • 3.6m (min)	 • >4.5m • >4.5m • >4.5m	 TAPS PSP compliant TAPS PSP compliant TAPS PSP compliant
Vehicle manoeuvring	Occasional access vehicles can complete reverse-in movement from road for one (1) movement. Regular access vehicles are required to turn around wholly on-site. Demonstrate access to all loading bays for the design vehicles, while maintaining minimum 0.3m manoeuvring clearance to all obstructions.	All service vehicles can enter and exit the site in a forward gear. All service vehicles can access the loading bay/area, while maintaining the minimum 0.3m manoeuvring clearance to all obstructions.	TAPS PSP compliant

The proposed servicing arrangements are therefore considered appropriate and generally consistent with the requirements of Council's TAPS PSP.

8. External Road Network Impact

8.1. Proposed Development Traffic Generation

The proposed development scheme includes a total of 297 units, with a total car parking provision of 127 spaces.

Typically, for high-density residential uses, peak hour traffic generation rates of 0.19 and 0.15 vehicles per hour (vph) per unit are adopted for the weekday AM and PM peak hour periods respectively. While it is acknowledged that these rates are typical for residential development within inner-city areas such as Bowen Hills, these would only be applicable where a car parking supply matching or exceeding the minimum EDQ or Council requirements is provided.

Therefore, the proposed development's on-site car parking provision will dictate its peak hour traffic generations, rather than unit yield. Therefore, instead of utilising the 'per unit' peak hour traffic generations identified above, it is considered more appropriate to calculate the peak hour traffic generations for the proposed development on a 'per car space' basis.

In order to estimate these traffic generations, reference is made to data taken by Colliers across traffic surveys for several residential developments in the inner-city Brisbane area. A total of seven (7) residential developments were surveyed, with the peak hour traffic generations and on-site parking provisions identified for each of the sites surveyed, also allowing 'per unit' and 'per car space' generation rates calculated for each. These calculations are outlined in Table 8.1.

Table 8.1: Colliers Survey Inner-City Brisbane Residential Development on 'Per Unit' and 'Per Car Space' Basis

Residenital Site	No. of units	No. of Resident Parking Spaces	Survey Date	AM Road Peak Period					PM Road Peak Period				
				IN	Out	Total	Generation (vph/unit)	Generation (vph/space)	IN	Out	Total	Generation (vph/unit)	Generation (vph/space)
8 Musgrave Street, West End	112	116	Tuesday 16th September 2014	8	16	24	0.214	0.207	20	4	24	0.214	0.207
26 Donkin Street, West End	99	*99*	Tuesday 16th September 2014	5	15	20	0.202	0.202	12	9	21	0.212	0.212
9 Edmondstone Street, South Brisbane "Arena"	191	228	Tuesday 10th March 2015	8	25	33	0.173	0.145	33	13	46	0.241	0.202
45 Boundary Street, South Brisbane "Canvas"	141	131	Tuesday 10th March 2015	4	17	21	0.149	0.160	17	12	29	0.206	0.221
66 Manning Street, South Brisbane "The Plaza"	169	151	Tuesday 10th March 2015	11	20	31	0.183	0.205	15	9	24	0.142	0.159
336-342 Water Street, Fortitude Valley "Central Village (Stages 1 & 2)"	325	206	Wednesday 9th September 2015	12	27	39	0.120	0.189	34	17	51	0.157	0.248
			Thursday 10th September 2015	13	37	50	0.154	0.243	16	14	30	0.092	0.146
Unknown, so conservatively assumed same as number of units				**Average Generation**			**0.171**	**0.193**	**Average Generation**			**0.181**	**0.199**
				85th Percentile Generation			**0.203**	**0.210**	**85th Percentile Generation**			**0.217**	**0.224**

Based on the information outlined above, it is considered appropriate to adopt a 'per car space' generation rate of 0.22 vph per car space, for both the weekday AM and PM peak hour periods.

This indicates the following weekday peak hour traffic generation rates should be adopted for the proposed land use.

Multiple Dwelling

- AM and PM peak hours: 0.22 vph per car space.

Regarding directional splits, in line with generally accepted traffic engineering practice, these are estimated to be:

- AM peak hour: 25% inbound / 75% outbound.
- PM peak hour: 65% inbound / 35% outbound.

Application of the above generation rate and directional splits would result in proposed development traffic demand estimates as shown in Table 8.2.

Table 8.2: Proposed Development Peak Hour Traffic Generation Estimates

Land Use	Yield	Peak Hour Generation Rate	AM Peak Hour (vph)			PM Peak Hour (vph)		
			In	Out	Total	In	Out	Total
Multiple Dwelling	127 car spaces	0.22 vph per car space	7	22	29	19	10	29

8.2. Warrants for Further Assessment

Acceptable Solution AO2 of the Road Hierarchy Overlay Code details that the development traffic impacts be quantified and mitigated for an 'assessable development for material change of use' which meets any of the following triggers:

- is classified as a major development (defined as a total peak hour vehicle generation rate greater than 25 vph);
- involves an access driveway to a major road; or
- involves an access driveway within 100m of a signalised intersection.

The primary driveway is provided to Hurworth Street (a minor road) and is not within 100m of a signalised intersection. The development traffic generation is expected to be up to 29 vph in peak hours, which technically makes it a 'major development' under Council's TAPS PSP, indicating that a Traffic Impact Assessment (TIA) may be warranted.

However, when considered in the context of the existing and approved uses over the site, it is noted that the approved conference centre over the subject site would have an anticipated traffic generation of 8 vph for both weekday peak hour periods. This results in a net increase of only 21 vph for the proposed residential development in both weekday peaks.

Based on the above information, Colliers does not consider a revised detailed Traffic Impact Assessment (TIA) to be necessary and it is expected the proposed development will have no adverse impacts on the surrounding road network.

9. Summary of Findings

The following is a summary of the findings of the transportation engineering assessment for the proposed build-to-rent development, to be located at 10-16 Campbell Street, Bowen Hills.

9.1. Proposed Development

The proposed build-to-rent development is comprised of a single building (26 levels). A total of 297 units are proposed, with a mix of one- and two-bedroom unit configurations (as well as studios).

Architectural plans for the proposed development, prepared by Nettletontribe, are included in Appendix A.

9.2. Parking Arrangements

Car parking supply requirements for the proposed development – located in the City Frame – have been determined in accordance with the Bowen Hills PDA Development Scheme (residential).

The proposed development includes an on-site car parking provision of 127 spaces, which is a shortfall when compared to the minimum EDQ requirement of 268 spaces.

The proposed resident car parking is considered suitable, with a supporting technical note (see Appendix C) including commentary regarding typical Build-to-Rent car parking characteristics and how this is applicable to the proposed development.

One (1) PWD space is provided in the Basement Level car park, which meets the requirements of Council's TAPS PSP and the BCA.

Car parking is provided across Basement and Podium Levels. The proposed car parking layout is generally compliant with the requirements of Council's TAPS PSP and AS2890.1:2004 (where applicable), noting the recommended minor modification (0.34m) of the column at the top of the Podium ramps.

9.3. Access Arrangements

The proposed development includes provision of a Type B2 (6.5m) vehicular access to / from Hurworth Street and Type B2 (7.0m) vehicular access to / from the rear laneway. These would be utilised by cars and service vehicles respectively.

The proposed vehicular access arrangements are generally consistent with Council's TAPS PSP, noting that the increased grades on the Hurworth Street access driveway / crossover while not strictly compliant with Council's TAPS PSP / AS2890.1:2004 are considered acceptable and operationally safe and efficient.

Pedestrian and cyclist access points are provided along the site's Campbell Street and Hurworth Street frontages.

9.4. Service Vehicle Arrangements

Council's TAPS PSP identifies occasional and regular access for an LRV and RCV respectively.

The development scheme proposes to accommodate an 8.8m MRV and rear-lift RCV for occasional and regular access respectively. A loading dock is provided on-site, including two loading bays within the Basement Level – one (1) MRV and one (1) SRV. All service vehicles will be able to enter and exit the subject site in a forward gear.

Bulk bins are to be serviced by a rear-lift RCV, with a permanent bin store located adjacent to the Basement Level Loading Dock.

Operationally, these bays would be shared between the RCV, MRV and SRV design service vehicles – as an RCV would straddle both bays based on the swept paths provided in Colliers Drawings within Appendix B.

Given the anticipated infrequent demand for service vehicles, this provision / arrangement is considered acceptable. Additionally, basic management strategies for the Loading Dock can be applied, such as ensuring that deliveries are not permitted during regular refuse servicing times (once established).

The proposed servicing arrangements are generally consistent with Council's TAPS PSP and therefore considered appropriate.

9.5. Traffic Impact Assessment

An approximate peak hour traffic generation rate of 0.22 vph per car space was adopted for the proposed development scheme, resulting in a weekday AM and PM peak hour traffic generations of 29 vph.

The existing approval over the site (conference centre) is estimated to have corresponding peak hour traffic generations of 8 vph, resulting in a net increase of 21 vph.

Therefore, Colliers does not consider a revised detailed Traffic Impact Assessment (TIA) to be necessary and it is expected the proposed development will have no adverse impacts on the surrounding road network.

9.6. Conclusion

From the assessments undertaken and outlined in this report and, provided that the recommendations identified are adopted, Colliers does not see any transport engineering reason that would prohibit approval of the proposed development.

Appendix A Development Plans

DEVELOPMENT SUMMARY

Property Address: 10-16 Campbell St, Bowen Hills, 4006

Lot Plan: Lot 1 on RP144614
Lot 3-5 on RP10074

Zone: EC Emerging Community

Site Area: 2081.62 m²

Site Cover Tower: 1041.43 m² (50.03%)

Site Cover Podium: 1984.97 m² (95.36%)

Building Height: 30 Storeys (297 Units)

Landscaped area: 1214.27 m² (58.33%)

Proposed Carparking:

Resident Car Parks: 96 Car Parking Bays

Visitor Car Parks: 30 + 1 Accessible Car Parking Bays

Total car parks: 127

Motorcycle: 19 Resident Motorcycle Bays

Proposed Bicycle Parking

Resident Bicycle: 201 Bays

Visitor Bicycle = 41 Bays internal + 10 Bays external

Total Bycycles: 252

Service Vehicle: Medium Rigid Vehicle (MRV)

	2 Bed	1 Bed + MPR	1 Bed	Studio	Total	GFA	Landscaped Area	
LMR	Roof Terrace and BTR Communal and Services							
Roof Deck	BTR Communal and Services					100.32	226.12	sqm
Lower Roof						343.15	86.59	sqm
Level 26	4	5	1	3	13	852.83	11.18	sqm
Level 25	4	5	1	3	13	852.83	22.62	sqm
Level 24	4	4	2	3	13			sqm
Level 23	4	5	1	3	13	852.83	22.62	
Level 22	4	5	1	3	13	852.83	11.18	sqm
Level 21	4	5	1	3	13	852.83	22.62	sqm
Level 20	4	4	2	3	13	846.04	11.18	sqm
Level 19	4	5	1	3	13	852.83	22.62	sqm
Level 18	4	5	1	3	13	852.83	11.18	sqm
Level 17	4	5	1	3	13	852.83	22.62	sqm
Level 16	4	4	2	3	13	846.04	11.18	sqm
Level 15	4	5	1	3	13	852.83	22.62	sqm
Level 14	4	5	1	3	13	852.83	11.18	sqm
Level 13	4	5	1	3	13	852.83	22.62	sqm
Level 12	4	4	2	3	13	846.04	11.18	sqm
Level 11	4	5	1	3	13	852.83	22.62	sqm
Level 10	4	5	1	3	13	852.83	11.18	sqm
Level 9	4	5	1	3	13	852.83	22.62	sqm
Level 8	4	4	2	3	13	846.04	11.18	sqm
Level 7	4	5	1	3	13	852.83	22.62	sqm
Level 6	4	5	1	3	13	852.83	11.18	sqm
Level 5	4	5	1	3	13	852.83	22.62	sqm
Podium Deck	3	4	1	3	11	865.73	364.45	sqm
Podium Level 3	Carpark and BTR Communal					159.22	36.15	sqm
Podium Level 2	Carpark and BTR Communal					238.15	33.98	sqm
Podium Level 1	Carpark and BTR Communal					248.79	36.72	sqm
Mezzanine	Services and BTR Communal							
Ground	BTR Communal					719.50	51.52	sqm
Lower Ground	Carpark and BTR Communal					43.75	6.94	sqm
Sub Total	91	109	28	69	297	21433.67	1214.27	
	30.64%	36.70%	9.43%	23.23%	100%	refer to drawing 14284_SK40	58.33%	Ratio to Site Area

Note 1: All areas are approximate only and are to be confirmed by surveyor.

Note 2: GFA (Gross Floor Area) - Brisbane City Council Definition:

Gross floor area, for a building, means the total floor area of all storeys of the building, measured from the outside of the external walls and the centre of any common walls of the building, other than areas used for—

- building services, plant or equipment; or
- access between levels; or
- a ground floor public lobby; or
- a mall; or
- parking, loading or manoeuvring vehicles; or
- unenclosed private balconies, whether roofed or not.


REFER TO SK05 FOR CONTINUATION OF ACTIVATED STREET EDGES/ PLANTER CONFIGURATION
PROPOSED VERGE SETBACK
EXISTING BOUNDARY LINE
31 VISITOR CARS
VISITOR CARPARKING
PLANTER ADDRESSING ROAD FRONTAGE
PERMEABLE FACADE DETAIL - CARPARK VENTILATION - QUANTUM TBA
25# BIKE STORES
HURWORTH STREET
VISITOR BIKE PARKING
10 BIKE SPACES MIN.
BALCONY TO CORNER ABOVE
PLANTER
RAMP 1:20
PARKING ENTRANCE OFF HURWORTH STREET
RAMP 1:39
RAMP 1:10
RAMP 1:5
CW METER & BPD
FIRE SPRINKLER & HYD BOOSTER
FIRE STAIR EGRESS PATHS UNDER RAMP
COLD WATER & BOOSTER PUMP ROOM
MAIN SWITCH ROOM
BIN CONVEYOR
ROLLER SHUTTER
WASTE MANAGEMENT ROOM
PLATFORM LIFT
LOADING STORAGE
C'PK PLANT (EXHST)
M'GR WK. SHOP
LOADING DOCK
MRV
ZONE TO ACCOMODATE BOUNDARY RETENTION + PODIUM STRUCTURE
RIGHT OF WAY SETBACK LINE
EXISTING BOUNDARY LINE AT CORNER/ GRID A
EXISTING BATTERED BANK
TRUCK LOADING ENTRY OFF LANEWAY
STORMWATER PIT & OVERFLOW
ROAD VERGE NEAREST POINT SETBACK
VERGE SETBACK
3750
2500
1560
2725.6
SETBACK
8700
8400
5800
7100
10200

Client

Issue	Description	Date
5	Pre-DA Review issue	2025.02.21
4	Pre-DA Consultant issue	2025.02.06
3	Footpath RL Development / Civil issue	2025.01.08
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Builder

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan

Drawing Title: **GA B01 PLAN**

Author: CL | Checker: JW | Sheet Size: A1 | Scale: 1:100

Drawing Number: **14284_SK05** | Issue: **5**

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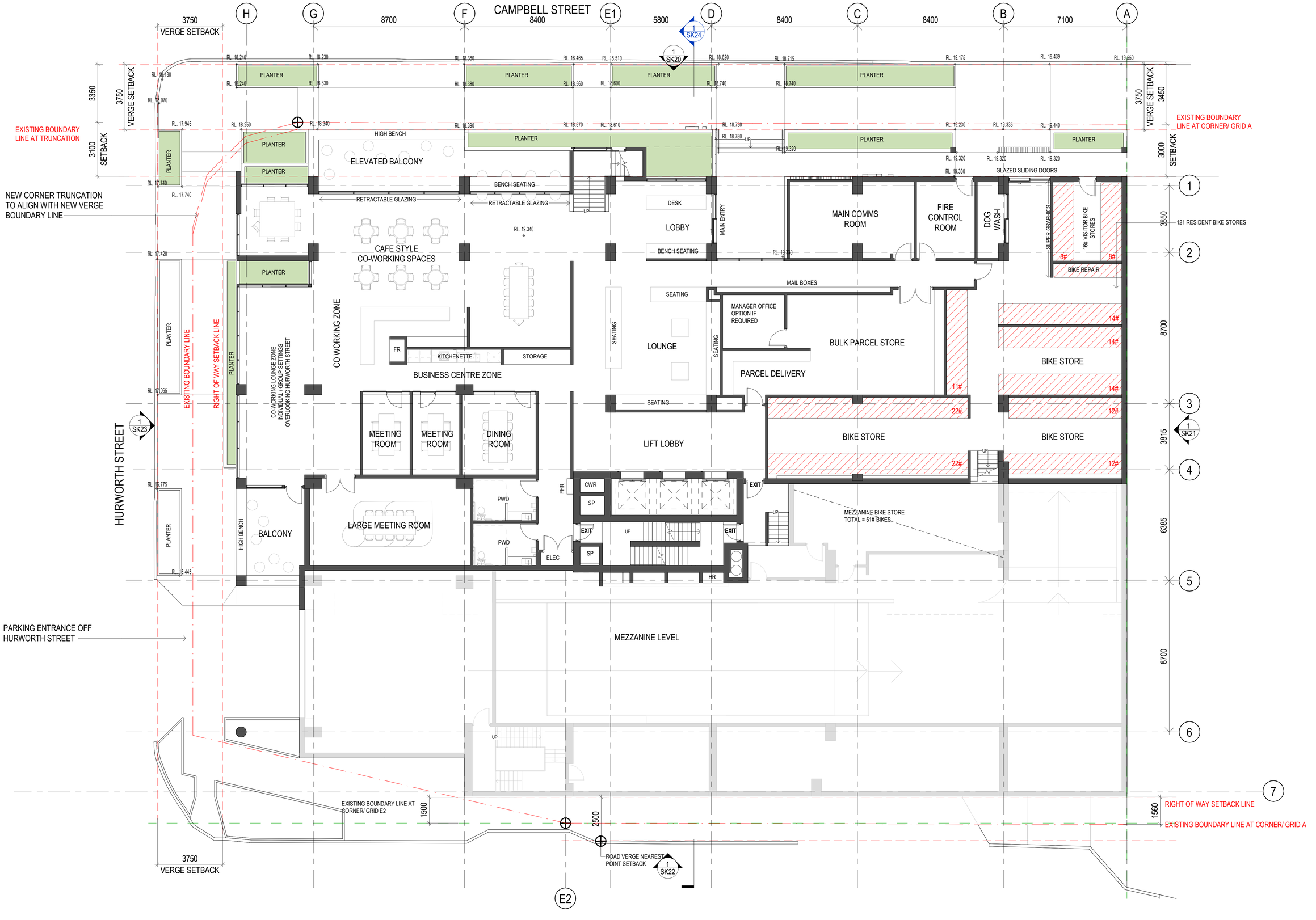

Client

Issue	Description	Date
5	Pre-DA Review issue	2025.02.21
4	Pre-DA Consultant issue	2025.02.06
3	Footpath RL Development / Civil issue	2025.01.08
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Builder

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan
0 2000 5000

Drawing Title:
GA L00 PLAN

Author:	Checker:	Sheet Size:	Scale:
CL	JW	A1	1:100

Drawing Number: **14284_SK06**

Issue: **5**

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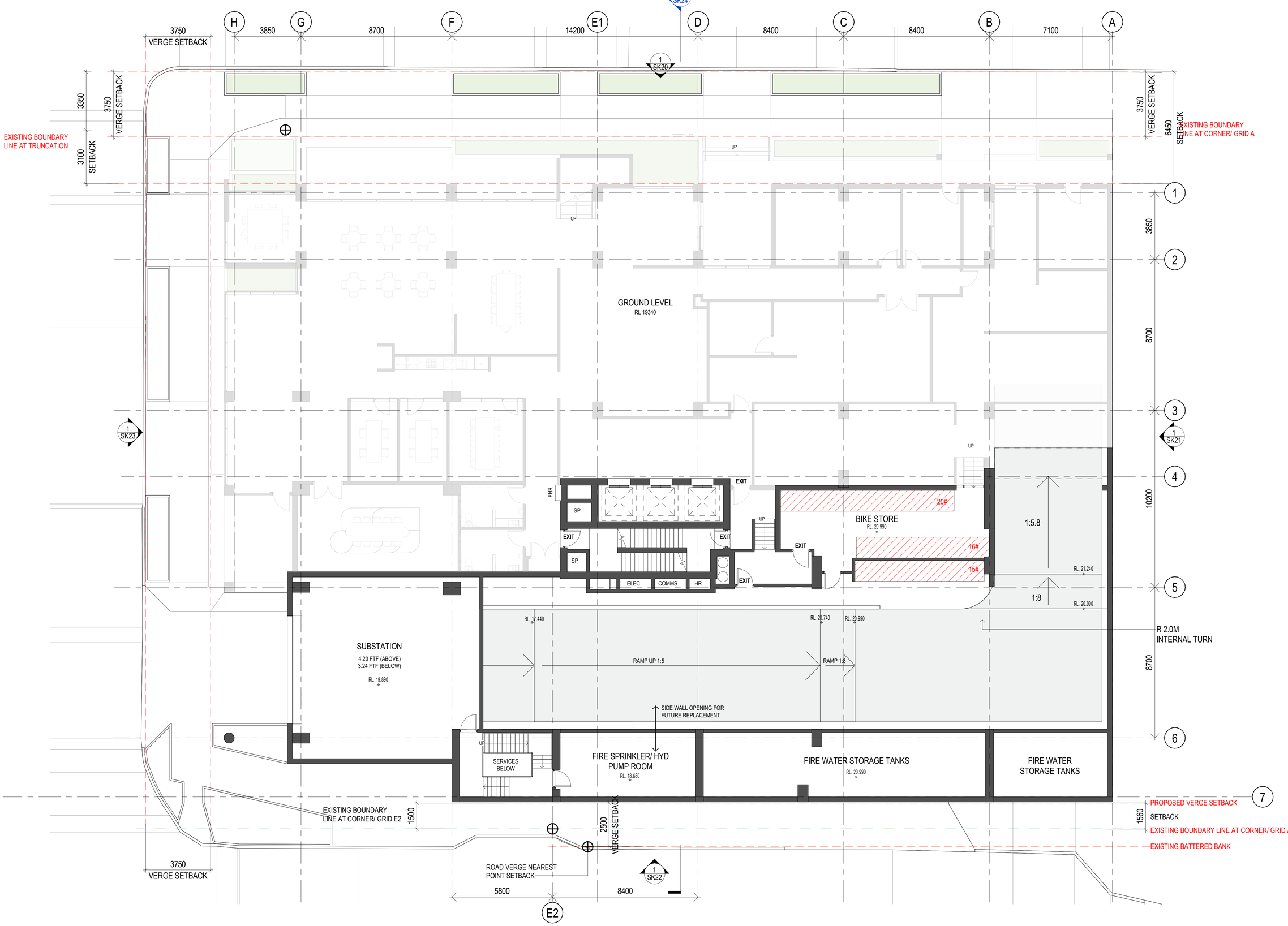

Client

CFMEU QLD/NT

Issue	Description	Date
5	Pre-DA Review issue	2025.02.21
4	Pre-DA Consultant issue	2025.02.06
3	Design coordination updated issue	2024.12.10
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Builder

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan
0 2000 5000

Drawing Title:
GA MEZZANINE LVL PLAN

Author:	Checker:	Sheet Size:	Scale:
CL	JW	A1	1:100

Drawing Number: **14284_SK07**

Issue: **5**

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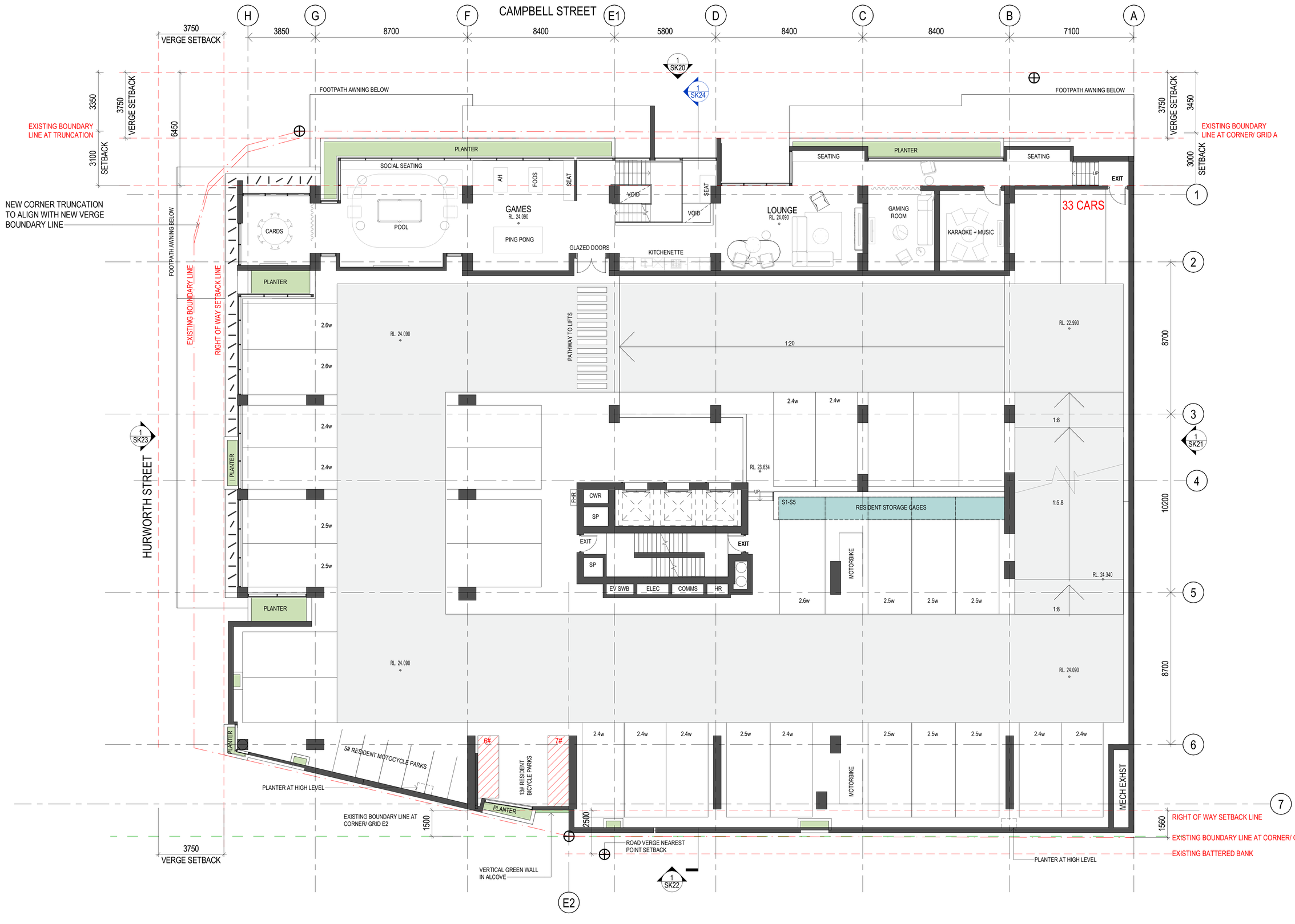

Client

CFMEU QLD/NT

Issue	Description	Date
4	Pre-DA Review issue	2025.02.21
3	Pre-DA Consultant issue	2025.02.06
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Builder

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan
0 2000 5000

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Drawing Title:
GA L01 PODIUM PLAN

Author:	Checker:	Sheet Size:	Scale:
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Drawing Number: **14284_SK08**

Issue: **4**

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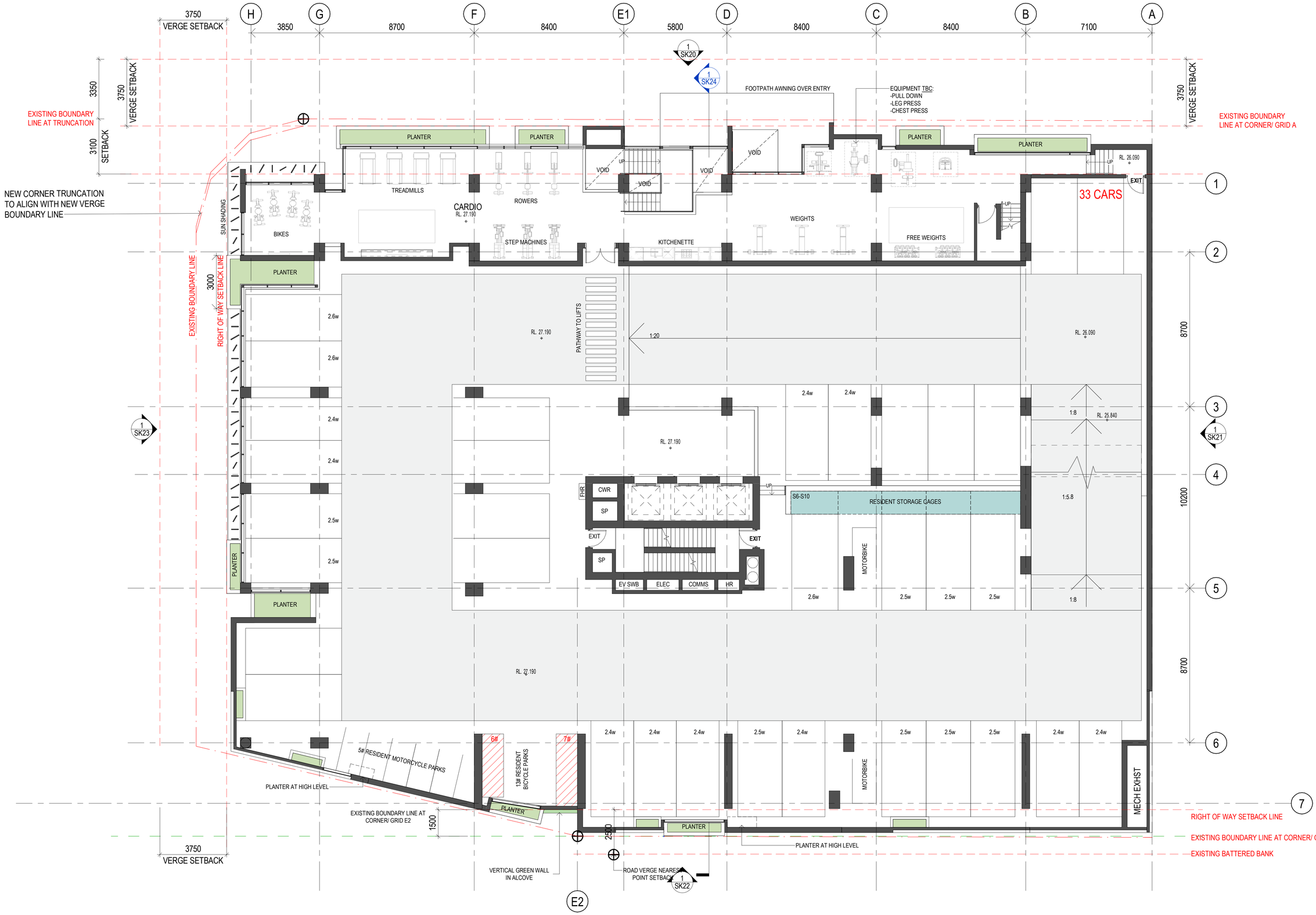

Client

CFMEU QLD/NT

Issue	Description	Date
4	Pre-DA Review issue	2025.02.21
3	Pre-DA Consultant issue	2025.02.06
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Builder

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan
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Drawing Title:
GA L02 PODIUM PLAN

Author:	Checker:	Sheet Size:	Scale:
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Drawing Number: **14284_SK09**

Issue: **4**

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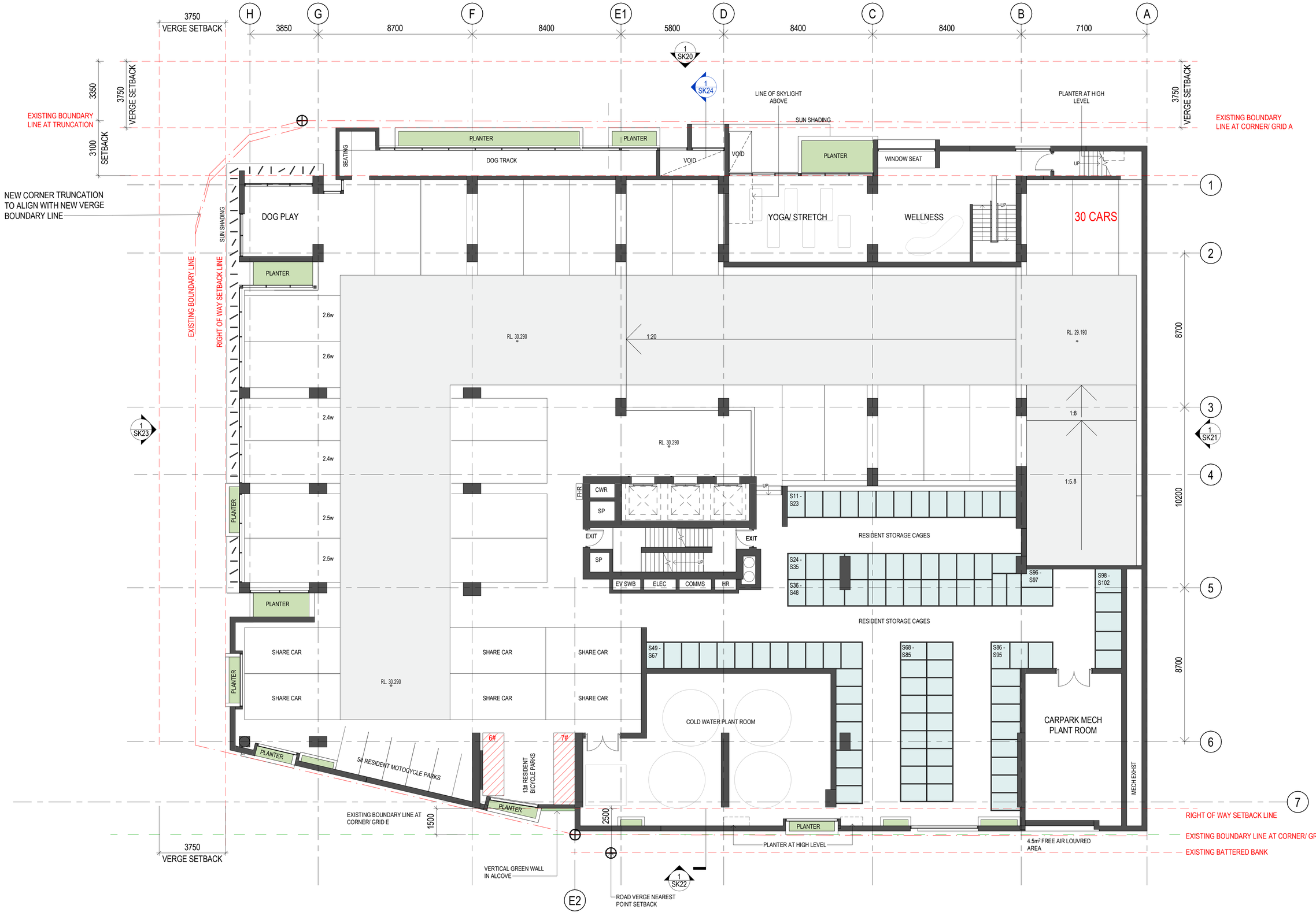

Client

CFMEU QLD/NT

Issue	Description	Date
5	Pre-DA Review issue	2025.02.21
4	Pre-DA Consultant issue	2025.02.06
3	Design coordination updated issue	2024.12.10
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Builder

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan
0 2000 5000

Drawing Title:
GA L03 PODIUM PLAN

Author:	Checker:	Sheet Size:	Scale:
CL	JW	A1	1:100

Drawing Number: **14284_SK10**

Issue: **5**

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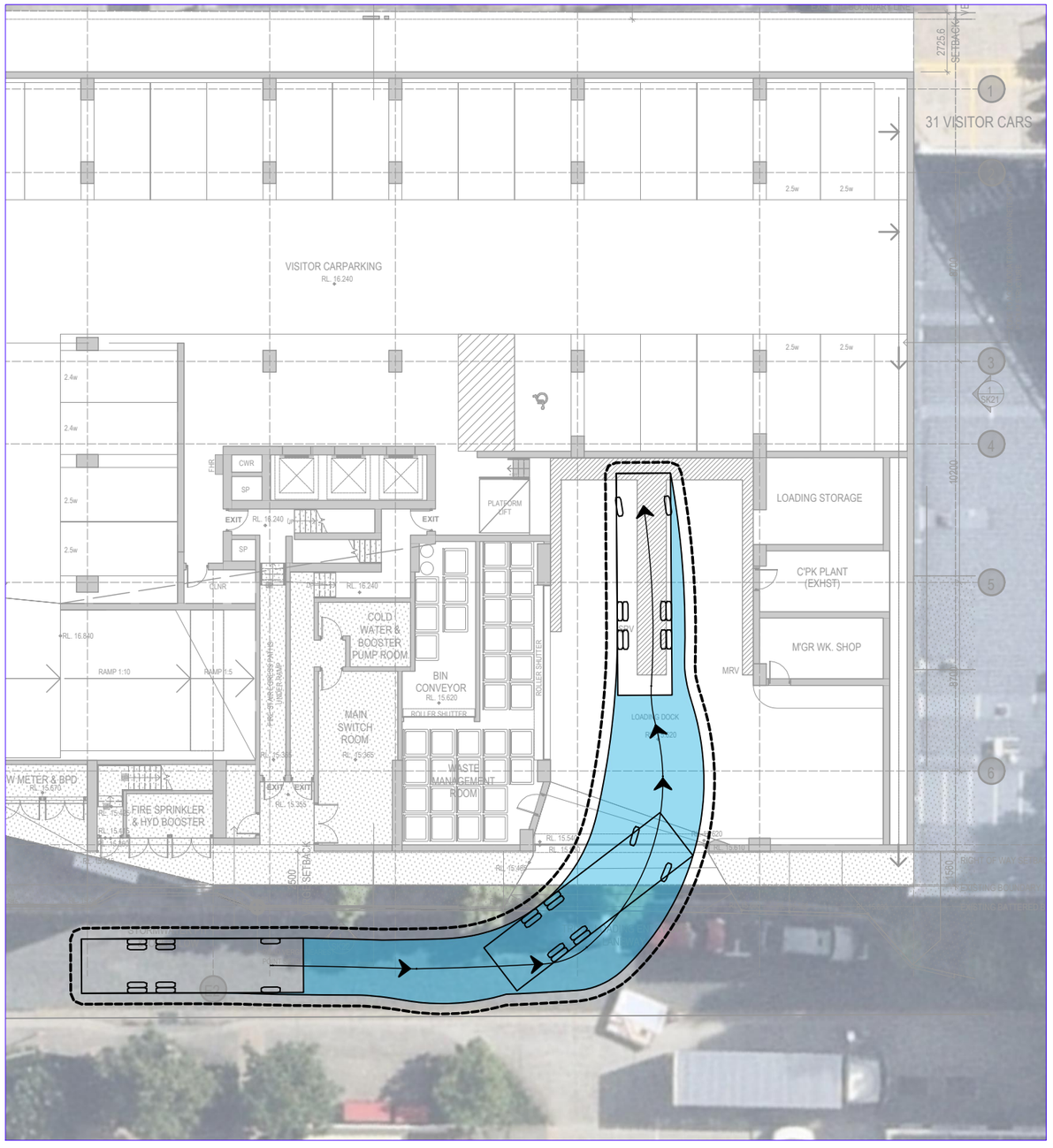
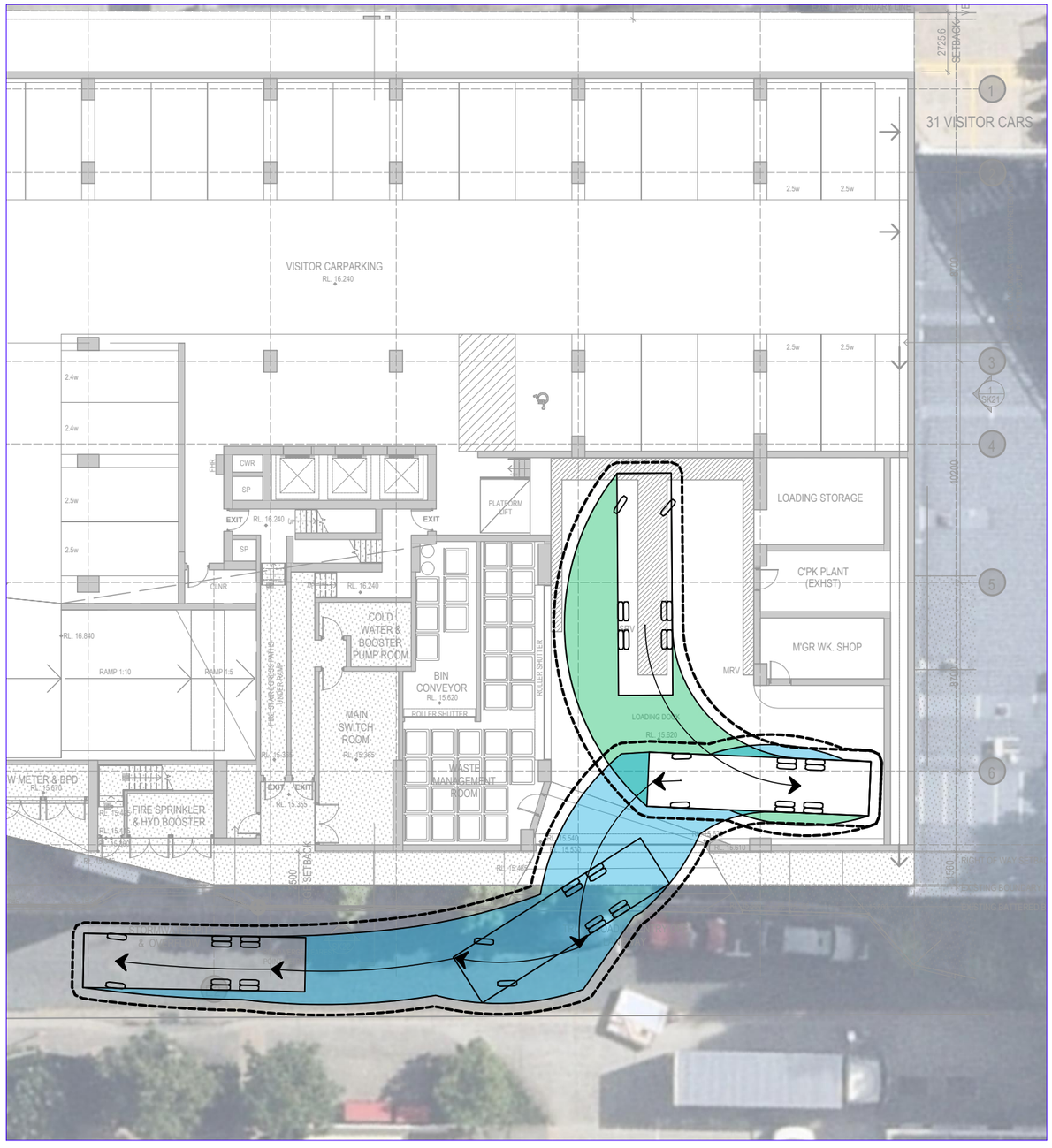
21/02/2025 12:11:33 PM Autodesk Docs://14284 10-16 CAMPBELL ST BYK/14284_CAMPBELL ST BYK_AR_ARCH.rvt

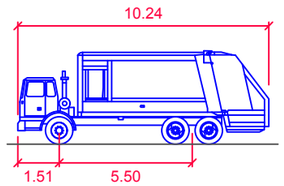
Appendix B Colliers Drawings



INGRESS MANOEUVRE



EGRESS MANOEUVRE



BCC Rear Loading	
Overall Length	10.240m
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
Steering Angle	38.9°
Design Speed Forward	5.00km/h
Clearance Envelope	0.500m

D.S Watkins
SENIOR ASSOCIATE DIRECTOR
DARRYL WATKINS RPEQ 23854
APPROVED 12 March 2025

0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
B	12-03-25	REVISED ARCHITECTURAL BASE	DSF	RNB	DW
A	18-02-25	ORIGINAL ISSUE	DSF	RNB	DW

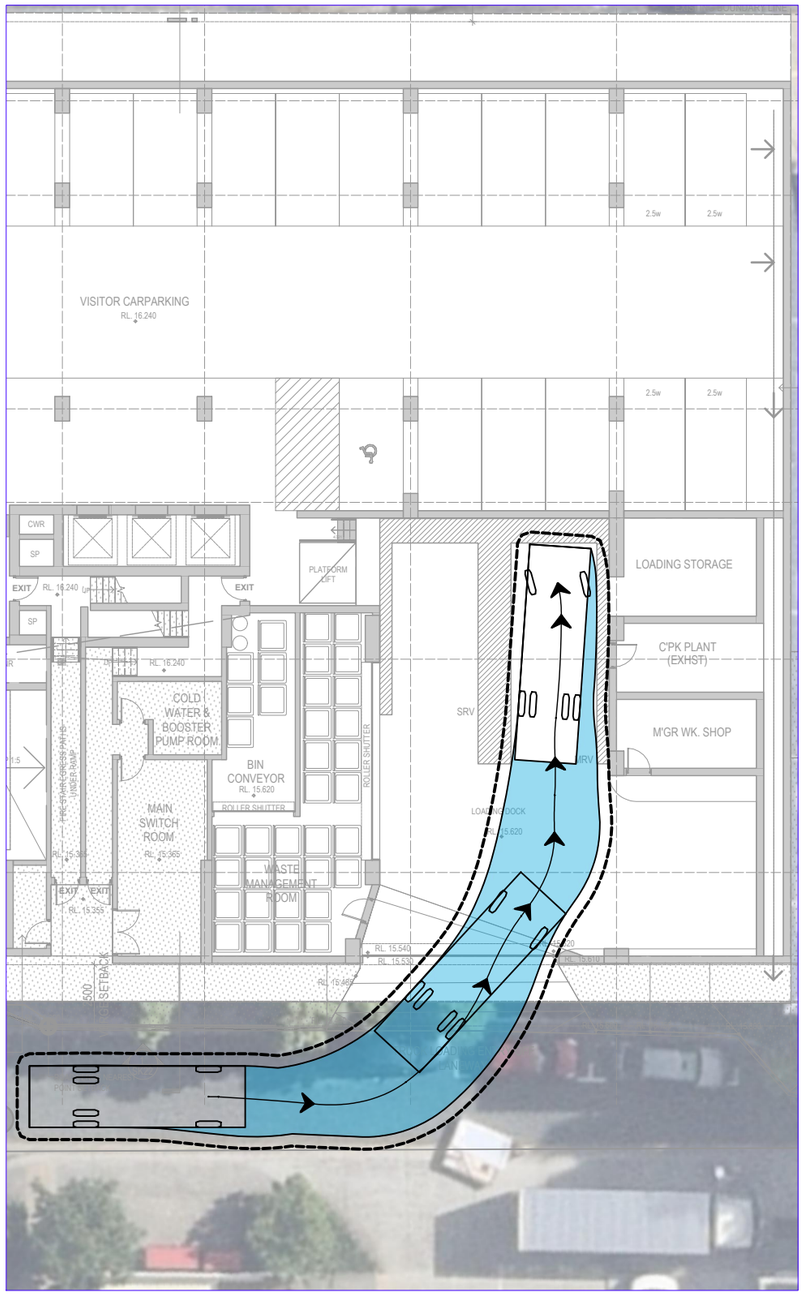
SCALE 0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE
NORTH
CLIENT: NEW URBAN VILLAGES (NUV)

Colliers International Engineering & Design (TTMC) Pty Ltd
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

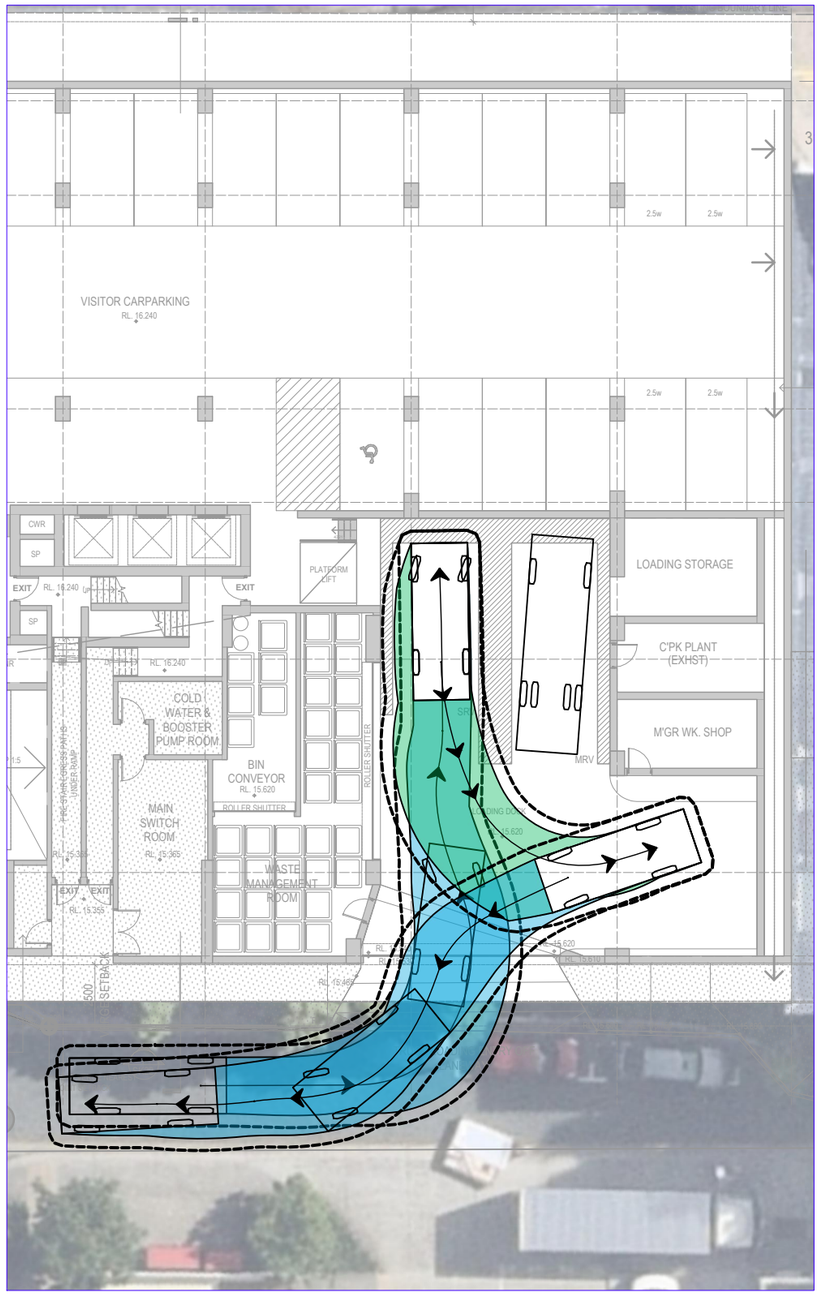
PROJECT: 14284 CAMPBELL ST at 10-16 CAMPBELL STREET, BOWEN HILLS
DRAWING TITLE: SWEPT PATH ANALYSIS
10.24m REAR LOADING REFUSE COLLECTION VEHICLE

PROJECT NUMBER	ORIGINAL SIZE
23BRT0800	A3
DRAWING NUMBER	REVISION
23BRT0800-13	B
DATE	SHEET
12 Mar 2025	1 OF 1

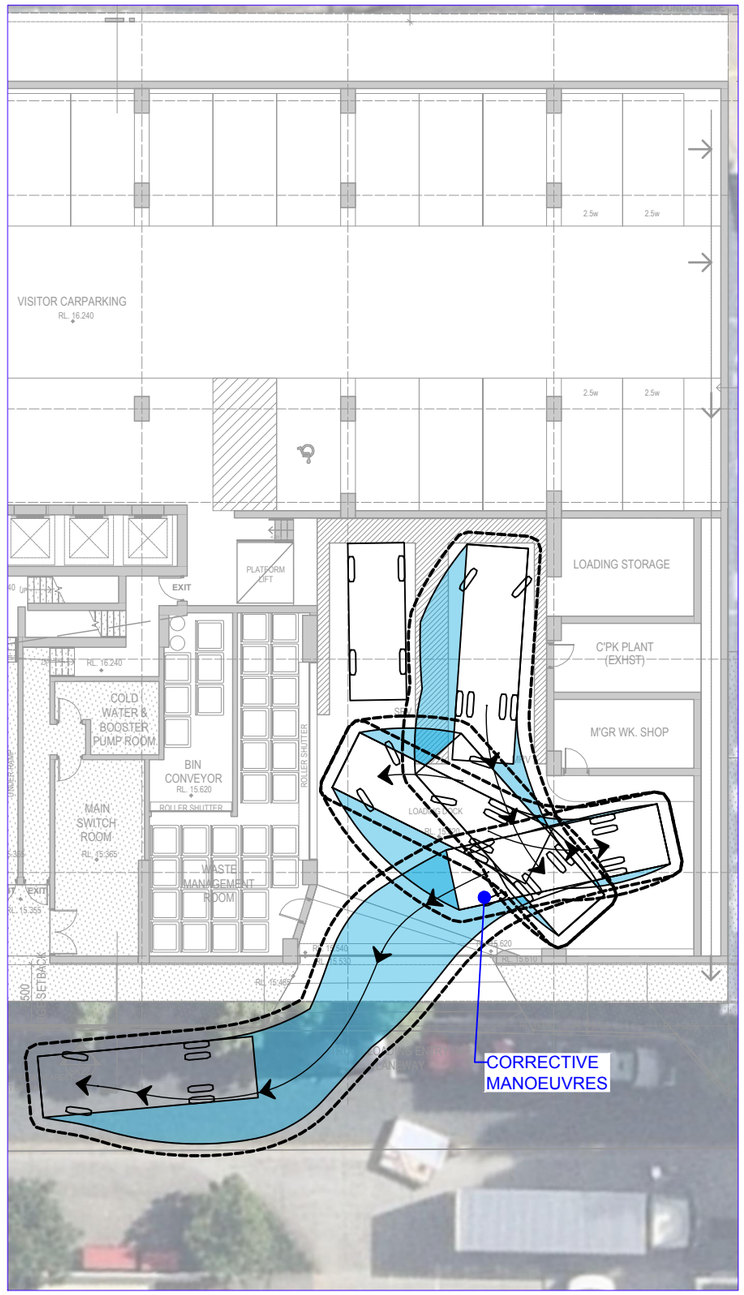
23BRT0800-F07 V00 EXTRA LOT CONCEPT.DWG



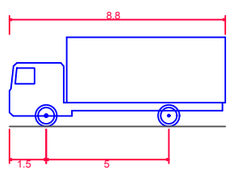
INGRESS MANOEUVRE - 8.8m MEDIUM RIGID VEHICLE



SMALL RIGID VEHICLE ACCESS MANOEUVRES (WEST BAY)

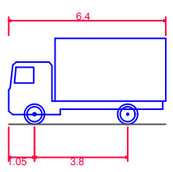


EGRESS MANOEUVRE - 8.8m MEDIUM RIGID VEHICLE



MRV - Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	10.000m
Design Speed Forward	5.00km/h
Clearance Envelope	0.500m



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	6.00s
Curb to Curb Turning Radius	7.100m
Design Speed Forward	5.00km/h
Clearance Envelope	0.500m

PRELIMINARY ADVICE ONLY

12 March 2025

0 2.5 5 7.5 10 12.5m

SCALE 1:250 AT ORIGINAL SIZE

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
B	12-03-25	REVISED ARCHITECTURAL BASE	DSF	RNB	DW
A	21-02-25	ORIGINAL ISSUE	DSF	RNB	DW

SCALE 0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE

NORTH

CLIENT: NEW URBAN VILLAGES (NUV)

Colliers International Engineering & Design (TTMC) Pty Ltd
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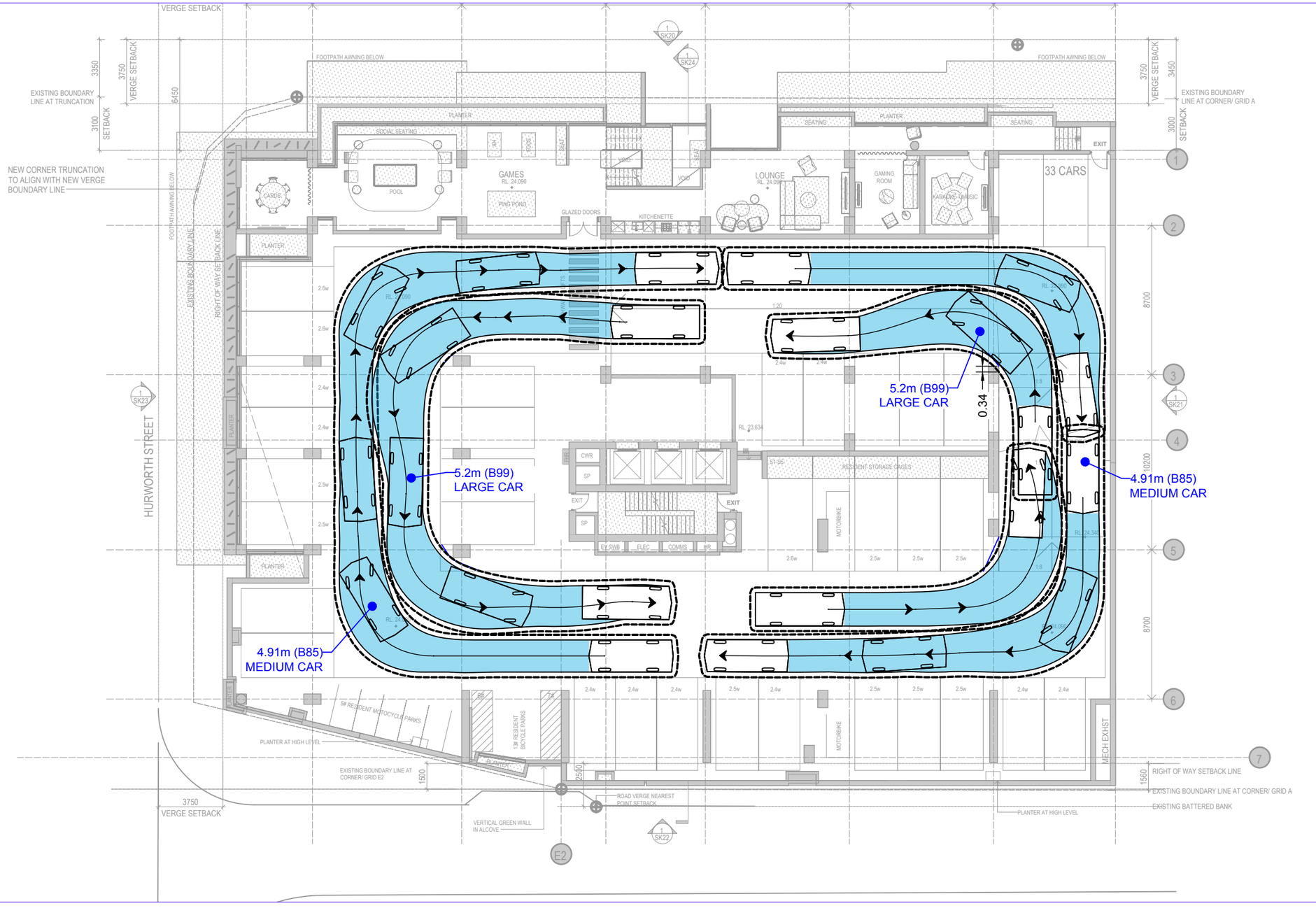
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT: **14284 CAMPBELL ST at 10-16 CAMPBELL STREET, BOWEN HILLS**

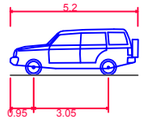
DRAWING TITLE: **SWEPT PATH ANALYSIS**
8.8m MEDIUM RIGID VEHICLE & 6.4m SMALL RIGID VEHICLE

PROJECT NUMBER	23BRT0800
ORIGINAL SIZE	A3
DRAWING NUMBER	23BRT0800-14
REVISION	B
DATE	12 Mar 2025
SHEET	1 OF 1

23BRT0800-F07 V00 EXTRA LOT CONCEPT.DWG

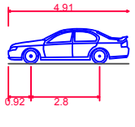


INGRESS MANOEUVRE - 8.8m MEDIUM RIGID VEHICLE



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	6.00s
Curb to Curb Turning Radius	6.250m
Design Speed Forward	5.00km/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	6.00s
Curb to Curb Turning Radius	5.750m
Design Speed Forward	5.00km/h
Clearance Envelope	0.300m

PRELIMINARY ADVICE ONLY

12 March 2025

0 2.5 5 7.5 10 12.5m

SCALE 1:250 AT ORIGINAL SIZE

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
B					
A	12-03-25	ORIGINAL ISSUE	DSF	RNB	DW

SCALE 0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE

NORTH

CLIENT: NEW URBAN VILLAGES (NUV)

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

PROJECT: **14284 CAMPBELL ST at 10-16 CAMPBELL STREET, BOWEN HILLS**

DRAWING TITLE: **SWEPT PATH ANALYSIS - PODIUM LEVEL 1 (CLEARANCE)**
5.2m (B99) LARGE CAR (INSIDE) PASSING 4.91m (B85) MEDIUM CAR

PROJECT NUMBER	ORIGINAL SIZE
23BRT0800	A3
DRAWING NUMBER	REVISION
23BRT0800-16	A
DATE	SHEET
12 Mar 2025	1 OF 1

23BRT0800-F07 V00 EXTRA LOT CONCEPT.DWG

Appendix C Build to Rent (BtR) Parking Supply Technical Note

13 March 2025
Our Ref: 23BRT0800

Attention: Tim Johnson

New Urban Villages
Science House – Level 4, 157 Gloucester Street
Sydney NSW 2000

Dear Tim,

RE: 10-16 Campbell Street, Bowen Hills
Build to Rent Development – Car Parking Advice

1. Introduction

Colliers International Engineering & Design (TTMC) Pty Ltd has been engaged by New Urban Villages to provide transport engineering advice for the proposed Build to Rent (BTR) development to be located at 10-16 Campbell Street, Bowen Hills.

This car parking advice provides further commentary regarding the car parking provisions of the proposed development scheme, comparing against the relevant requirements of the following documents:

- The Economic Development Queensland (EDQ) Bowen Hills PDA Development Scheme.
- The Brisbane City Council ('Council') Transport, Access, Parking and Servicing Planning Scheme Policy (TAPS PSP), where applicable.

2. Car Parking

The car parking supply requirements for the proposed residential land use have been determined in line with Schedule 3 of the Bowen Hills PDA Development Scheme. Car parking rates for the multiple dwelling land use are specified.

Table 1 overleaf provides a summary of the car parking supply requirements for the proposed development and the proposed provisions.

Table 1: EDQ Car Parking Supply Requirements

Land Use / Component	EDQ Requirement	Extent	Requirement	Provision
Multiple Dwellings (Residents)	EDQ – 0.75 spaces per unit	297 units	223 spaces	96 spaces
Multiple Dwelling (Visitors)	EDQ – 0.15 spaces per unit		45 spaces	31 spaces
Car Parking Total			**268 spaces**	**127 spaces**

As seen in Table 1, the development scheme proposes a total of 127 car parking spaces, which is below the required EDQ provision of 268 spaces. This results in on-site car parking at a rate of **0.43 spaces per unit**, including the visitor supply. Within the car parking supply, there is provision for six (6) car spaces to operate as car share, with one (1) car space also designated for persons with a disability (PWD) use.

Adopting a minimum equivalency rate of one (1) car share space for five (5) standard car spaces, the total car parking provision would be equivalent to 157 car parking spaces or **0.51 spaces per unit**.

The following sections discuss the role and suitability of car parking in a Build to Rent environment, to demonstrate the suitability of this proposal.

3. Build to Rent (BTR) Parking Supply

The City Plan does not currently have a definition / requirement for a BTR residential development and does not have a specific use code.

BTR developments typically have the physical build characteristics of multiple dwellings and, due to on-site management capabilities, the use and demand characteristics of rooming accommodation.

BTR projects have a range of characteristics that provide the ability to constrain parking supply and effectively manage the peak parking demands generated by residents. The proposed development includes key characteristics which relate to the ability to constrain parking supply, summarised as follows:

- Subject site location in close proximity to **major, high-frequency public transport services, major active transport and activity nodes**.
- Tailored management approach, including **de-coupled parking** and **Sustainable Green Transport Plan**, which includes a **private car share scheme** for residents.
- Internal active transport provisions, including ample cyclist parking facilities and accessibility for e-mobility devices.
- Target market, which typically relates to **smaller household size** (2.6 occupants per dwelling for Build to Sell multiple dwellings, compared to 1.45 occupants per dwelling for BTR developments) and the target demographic.

- Restricted on-street parking surrounding the site.

The above characteristics are discussed in more detail in the following sections.

4. Key Characteristics

Proximity to Public and Active Transport Infrastructure

The subject site is extremely well situated, with respect to access to extensive public transport options as well as active transport corridors. Residents within the proposed development will have the ability to travel via public transport at any time of the day to a significant proportion of greater Brisbane.

The Bowen Hills railway station is approximately 250m walking distance to the north and is serviced by high-quality and high-frequency services.

Furthermore, the subject site is within walking/cycle distance of major employment nodes, including Fortitude Valley and the Brisbane CBD.

This level of accessibility to alternative modes of transport significantly reduces the reliance on private vehicle ownership and provides the ability, in combination with the other key characteristics, to provide a lowered parking supply when compared to a standard multiple unit dwelling (MUD) development.

Tailored Management

De-coupled Parking

The applicant/operator will have ongoing control over both the leasing of apartments and the allocation of parking spaces, which provides opportunity to more effectively manage parking demands, particularly given the target market.

A key aspect of this holistic management of apartments and the car park is that parking spaces will be de-coupled from the apartments and leased to tenants on an 'as-needs' basis. This arrangement ensures that all spaces are effectively utilised, unlike traditional residential developments with allocated parking. It is not uncommon for residential developments with allocated parking that a portion of the residents do not own cars, yet have an allocated parking space – which then sits vacant.

With the applicant/operator controlling the leasing, it also provides the ability to be selective in leasing apartments 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.

Additionally, separately leasing spaces presents the real cost of car ownership and storage to residents, which discourages car ownership further, where efficient and cost-effective alternatives (including car share) are readily available.

Sustainable Green Transport Plan (SGTP)

The core element of the parking strategy for Campbell Street, Bowen Hills, is the intention to implement a SGTP. The SGTP provides a mechanism to ensure that the overall objectives of the parking strategy are fulfilled and maintained.

The implementation of a SGTP instils a culture within the community, primarily that encourages travel by sustainable travel modes of transport. This is consistent with the key objectives of Council's *Transport Plan for Brisbane – Strategic Directions*.

The key objectives of the SGTP are:

- Actively promote alternative modes of travel, such as public transport, cycling, walking, e-scooters and car sharing for residents.
- Reducing the dependency on travel by private cars, which subsequently reduces greenhouse gas emissions and congestion within the surrounding road network.
- Manage car parking supply, to ensure parking demand does not exceed supply.
- Improve opportunities for those without access to a car.

The SGTP to be prepared for the proposed development will consist of a package of measures to be considered as a dynamic document, monitored on an ongoing basis. The measures which will be considered for the subject site will include:

- Car Share:
  - Provide six (6) dedicated car share bays managed internally – anecdotal evidence is that one (1) car share space is equivalent to at least five (5) standard spaces, potentially up to ten (10) standard spaces.
  - This car share provision would therefore be equivalent to an additional 24 to 54 standard spaces.
  - Provide information regarding the location of external car share pods, in the vicinity of the subject site.
- E-mobility Centre:
  - Provide an on-site bicycle maintenance service.
  - E-bicycle and scooter charging, provided for the exclusive use of residents.
- Welcome pack for residents, 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.
- Walking and cycling maps showing local walking and cycling routes.
- Information about the SGTP and any other measures (including share cars and hire bicycles / scooters) provided to support sustainable travel.

- Appoint a Travel Plan Co-ordinator. The co-ordinator should 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.
  - Co-ordinating 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 local authorities and other interested parties, such as Translink and ride share operators.
  - Providing up-to-date travel information and making this information available as, and when, changes occur.

- Public Transport Accessibility:
  - Public transport information (including maps), explaining what buses and trains operate in the vicinity of the site, will be provided in the welcome pack.
  - Real-time timetabling information (including service updates) for public transport services operating in the vicinity of the subject site will be provided in the building lobby.

- Active Transport:
  - Secure bicycle stores and end-of-trip facilities provided for residents.
  - A list/map containing all the key nodes within a reasonable walking distance of the site as well as cycling routes in the vicinity of the subject site will be provided in the welcome pack.

It is Colliers' expectation that EDQ will condition the preparation of a detailed SGTP, as part of the sought approvals.

5. Target Market

There is limited flexibility in EDQ and Council parking policy for residential development, with respect to "target market".

The market for BTR projects 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 standpoint.

Colliers has undertaken research into currently operating BTR developments, noting the size and use differs from a standard MUD. Survey data indicates that the average occupancy for a MUD is 2.6 persons per dwelling, as compared to 1.45 persons per dwelling for BTR.

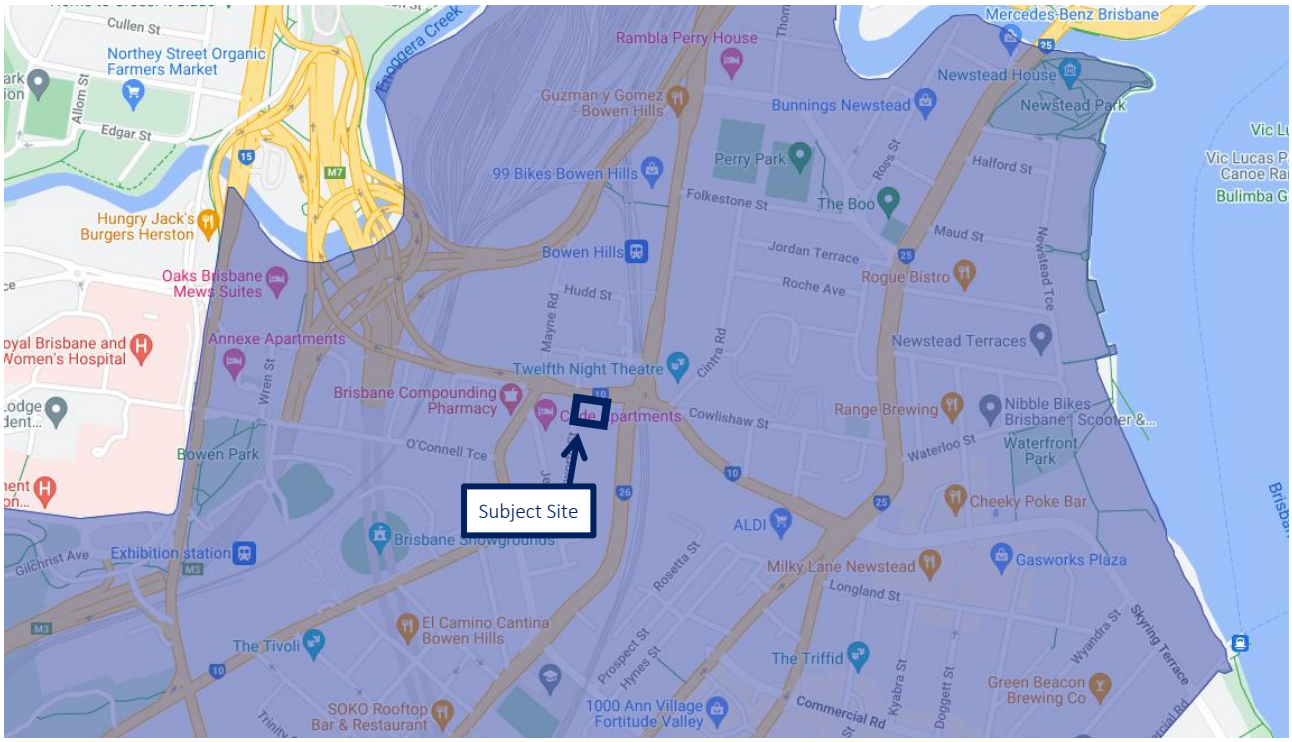
This indicates a lower population associated with this style of dwelling, thus reducing the need for private vehicles. In particular, the proposed development includes 23% studio apartments and a further 46% single bedroom apartments, the vast majority of which would be expected to have a single tenant only.

This is a clear differentiation from the traditional residential market. While traditional residential developments can vary their 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 residential development.

6. On-street Parking Restrictions

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 on the streets surrounding the site. 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 (refer to Figure 1 overleaf). Parking restrictions within this area are active between 7:00am and 6:00pm Monday to Friday as well as 7:00am and 12:00pm on Saturday, with a maximum two-hour parking limit.



Source: Brisbane City Council

Figure 1: Brisbane Central Traffic Area

Figure 2 overleaf identifies the kerbside allocation of parking in the vicinity of the subject site. This is the typical allocation during daytime hours. It is noted that some loading zones and metered parking areas revert to uncontrolled parking areas overnight and on Sundays.

This indicates that there are no parking spaces in the vicinity of the subject site that are signed as unrestricted. There are several spaces alongside one side of Cintra Road that are unsigned (to the east of Abbotsford Road). However, these are still subject to the restrictions of the Brisbane Central Traffic Area.

There is limited metered parking within 200m of the subject site (mostly along Mayne Road). Additional metered parking is located further away (along Jeays Street and east of Abbotsford Road / Markwell Street). However, there is no parking spaces within 500m of the subject site that would allow for private vehicles to be legally parked for extended periods.

Figure 2: Weekday Kerbside Allocation

It is understood that typically the primary concern with respect to insufficient on-site parking being provided is that any excess demand may overflow to the local street system. However, as shown above, the site is located well within the Brisbane Central Traffic Area and there is no opportunity for middle- to long-term parking on any public street within 500m of the subject site. This effectively restricts potential tenants to those who either have no car or those who can lease a car space on-site. There is no practical alternative for residents to park on-street.

7. Conclusions

The proposed development includes a car parking solution which adopts the following planning approach:

- The proposed development scheme includes a total on-site car parking provision of 127 spaces. This results in car parking at a rate of **0.43 spaces per unit**, including the visitor supply. Within the car parking supply, there is provision for six (6) car spaces to operate as car share.

- Adopting a minimum equivalency rate of one (1) car share space for five (5) standard car spaces, the total car parking provision would be equivalent to 151 car parking spaces or **0.51 spaces per unit**.
- Proximity of major public transport infrastructure (Bowen Hills railway station) and employment/activity nodes.
- De-coupling of car spaces, with the leasing of car parking and units separated.
- Colliers research indicates that the target market for Build to Rent has lower occupants per dwelling (1.45), when compared to Build to Sell (2.6).
- The proposed development is comprised of mostly studio (23%) and one-bedroom (46%) apartments, which are anticipated to have a single tenant only.
- The subject site is located within the Brisbane Central Traffic Area, with no potential for middle- to long-term parking in the surrounding road network.
- Preparation of a Sustainable Green Transport Plan, including consideration of the following measures:
  - Provision of an internal car share scheme.
  - Provision of secure resident bicycle parking and end-of-trip facilities.
  - Provision of an e-mobility centre (maintenance, charging).

If you have any queries relating to the information provided herein, please contact Ryan Bellamy on (07) 3327 9500.

Yours sincerely,

Ryan Bellamy
Project Consultant – Transport
Colliers International Engineering & Design (TTMC) Pty Ltd