

Transport Engineering Report

Proposed Mixed-Use Development

At 16 Poole Way, Bushland Beach

On behalf of BG Constructions





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1. Introduction

1.1. Purpose

Colliers International Engineering and Design (TTMC) Pty Ltd has been engaged by Poole Way No. 2 PTY LTD to prepare a transport engineering report investigating a proposed mixed-use development located at 16 Poole Way, Bushland Beach. It is understood this report will accompany a Development Application (DA) to be lodged with Townsville City Council ('Council').

1.2. Scope

This report examines the transport-related aspects of the proposed development. The scope of the investigation includes the following:

- Reviewing the prevailing traffic and transport conditions surrounding the site
- Identifying parking supply required to cater for the future 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 site and the public road network for cars, service vehicles, cyclists and pedestrians
- Assessing the internal service vehicle layouts to provide efficiency and safety for on-site service vehicle operation
- Reviewing access to a suitable level of public and active transport provisions
- Identification of expected traffic volumes and traffic distribution from the development and the likely traffic impacts of development on the surrounding road network

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

- Townsville City Council Planning Scheme, specifically:
 - 9.3.5 Transport Impact, Access and Parking Code
- Australian Standards for Parking Facilities, specifically:
 - Part 1: Off-street car parking (AS2890.1:2004).
 - Part 2: Off-street commercial vehicle facilities (AS2890.2:2018).
 - Part 6: Off-street parking for people with disabilities (AS2890.6:2022).
- Austroads 'Guide to Traffic Management Part 2: Traffic Theory Concepts' (2020).
- Transport for New South Wales (TfNSW) 'Guide to Transport Impact Assessment' (2024).

2. Site Location

The subject site is located at 16 Poole Way, Bushland Beach, with dual frontages to Lynwood Avenue along the southern boundary and Poole Way along the eastern boundary. The property is legally described as Lot 6 on SP333154 and is currently vacant. The site falls within a Local Government Infrastructure Plan (LGIP) Area and is zoned Low Density Residential. The site location is illustrated in Figure 2-1 and Figure 2-2.

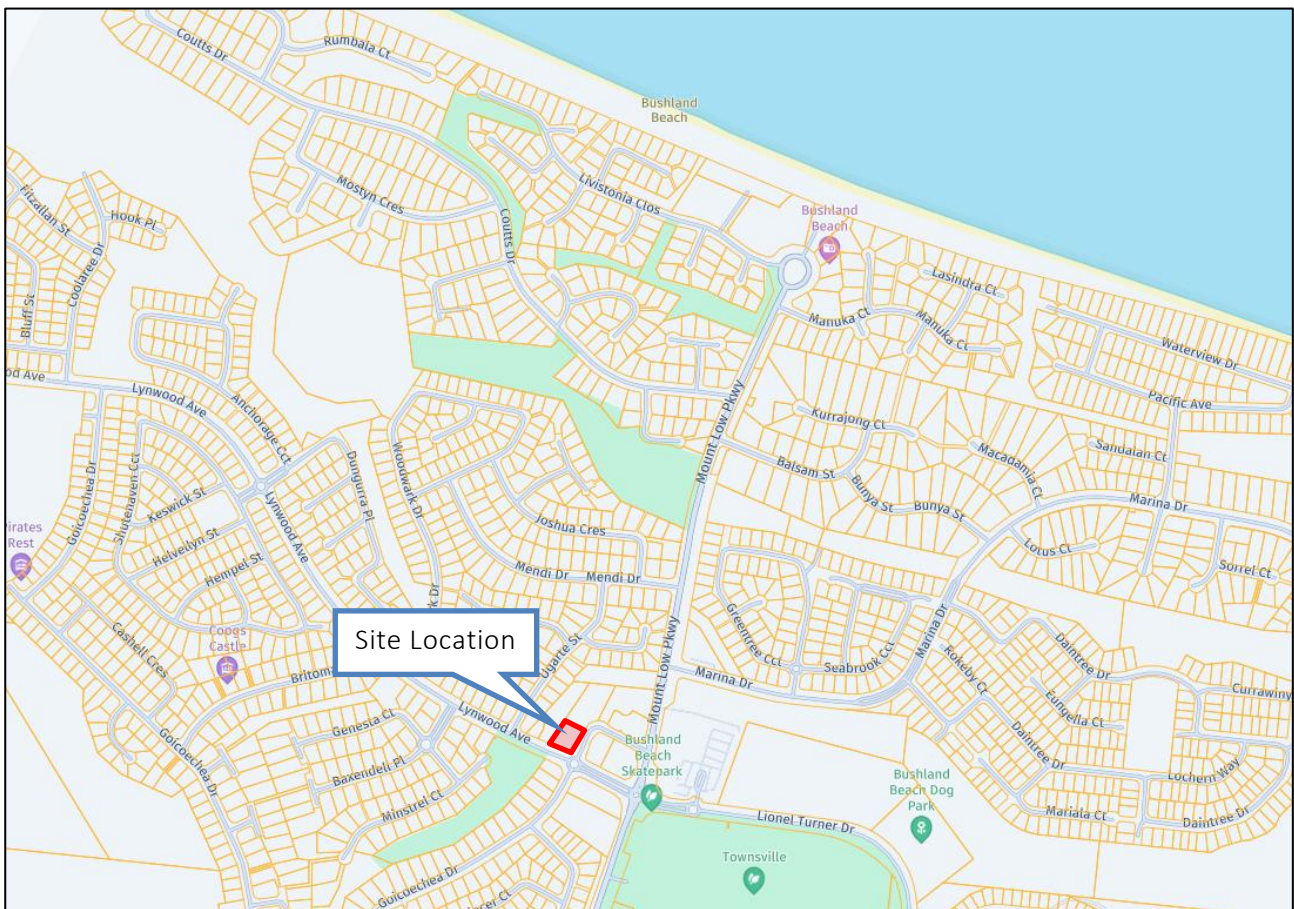


Figure 2-1: Site Location – Surrounding Context (Source: Nearmap)



Figure 2-2: Approximate Site Location – Immediate Context (Source: Nearmap)

3. Site Travel Environment

3.1. Road Network

All roads within the immediate vicinity of the site fall under the jurisdiction of Townsville City Council (TCC). Key nearby intersections include the Poole Way / Lynwood Avenue / Goicoechea Drive roundabout and the Mount Low Parkway / Lynwood Avenue roundabout, both of which are configured as four-leg roundabouts. The Poole Way / Mount Low Parkway intersection is as a priority-controlled T-intersection accommodating left-in / left-out movements only. Additionally, the Lynwood Avenue / Ugarte Street intersection, located to the west of the site, operates as a priority-controlled T-intersection with all movements permitted. The hierarchy and characteristics of these roads are summarised in Table 3-1.

Table 3-1: Local Road Hierarchy

| Road | Speed Limit | Lanes/Configuration | Classification | Authority |
|-------------------|---------------------|---------------------------------------|---|-----------|
| Poole Way | 50km/h ¹ | 2 lanes, two-way, undivided | Local Street | Council |
| Lynwood Avenue | 60km/h | 2 lanes, two-way, divided in sections | Major Collector | Council |
| Mount Low Parkway | 60km/h | 2 lanes, two-way, divided in sections | Major Collector (north of Lynwood Ave) Sub Arterial (south of Lynwood Ave) | Council |
| Goicoechea Drive | 50km/h ¹ | 2 lanes, two-way, undivided | Local Street | Council |
| Ugarte Street | 50km/h ¹ | 2 lanes, two-way, undivided | Local Street | Council |

¹ Default speed limit along unsigned roads in built-up areas in Queensland.

3.2. Transport Planning

Colliers has reviewed Council’s LGIP planning maps to identify any potential road works in the vicinity of the site. There are no planned works in the area that would affect, or be affected by, the proposed development.

3.3. Public Transport and Pedestrian Facilities

Bus Services

Bus stops are located on Lynwood Avenue between Poole Way and Mount Low Parkway, approximately 80m east of the subject site. This stop is serviced by Translink Route 233, which operates between Bushland Beach and Townsville Shopping Centre, with stops at Mount Low, Jensen, Deeragun, Burdell, Garbutt, and Domain Central. Services operate Monday to Saturday, with weekday frequencies of approximately every 45–60 minutes between 6:05 AM and 6:20 PM, and Saturday services operating every 1–2 hours between 7:42 AM and 5:42 PM.

Pedestrians

Pedestrian footpaths are provided along the western and northern sides of Poole Way, with additional footpaths along Mount Low Parkway, Lynwood Avenue and Lionel Turner Drive. Pedestrian crossing facilities, including refuge islands and kerb ramps, are located on Mount Low Parkway and Lynwood Avenue.

4. The Proposed Development

4.1. Development Profile

The proposed development consists of Health Care Services, Food and Drink Outlet/Shop and Dual Occupancy uses, as detailed in Table 4-1.

Table 4-1: Proposed mixed-use development

| Use | Extent |
|-----------------------|-----------------------|
| Health Care Services | 480m ² GFA |
| Food and Drink Outlet | 113m ² GFA |
| Shop | 68m ² GFA |
| Dual Occupancy | 2 units |

A copy of the proposed site plan, prepared by Blackburne Jackson, is included in **Appendix A**.

4.2. Parking

The development proposal includes a parking supply of 34 spaces, provided as follows:

- 28 general car spaces, including 1 VAN space
- 4 residential parking spaces
- 1 People with Disability (PWD) parking space, with shared area.
- 1 dedicated ambulance bay

Further details regarding the proposed car and bicycle parking provisions are included in Sections 5 and 9.2.1

4.3. Access

The following access arrangements are proposed for the site:

- An entry only (left in/right in) 4.1m wide General Wide Crossover from Lynwood Avenue (Entry Only)
- An all movement 6.2m wide General Wide Crossover to/from Poole Way

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

4.4. Servicing

The development incorporates the following servicing arrangements:

- Servicing demands for the Health Care Services, Food and Drink Outlet, and Shop tenancies will be accommodated by vans and 6.4m Small Rigid Vehicles (SRVs). A dedicated ambulance bay and a designated van bay are provided on-site.

- For the Dual Occupancy units, the largest anticipated service vehicle is an 8.8m Medium Rigid Vehicle (MRV), primarily associated with furniture deliveries. The internal layout allows an MRV to temporarily stand within the parking aisle without impeding one-way circulation.
- Refuse collection will be undertaken on-site by a 10.507m Front-Lift Refuse Collection Vehicle (RCV), with entry via Lynwood Avenue and exit via Poole Way.

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

5. Car Parking Arrangements

5.1. Council's Parking Supply Requirement

Table SC6.10.2.1 of TCC's Transport Access and Parking (TIAP) Code outlines the parking requirements applicable to the proposed on-site uses. These requirements, along with the proposed parking provisions, are summarised in Table 5-1.

Table 5-1: Parking Supply Requirement

| Land Use | Council's Minimum Requirement | Extent | TCC Recommended | Provided |
|-----------------------|---|--|--|--|
| Health Care Services | 1 space per 20m ² of GFA, OR 4 spaces per medical practitioner (whichever is the greater) AND 1 space for ambulance vehicle pick-up and set down | 480m ² GFA 6 practitioners | 24 spaces 1 ambulance bay 24 spaces total + 1 ambulance bay | 20 spaces total 1 ambulance bay |
| Food and Drink Outlet | 1 space per 10m ² of GFA available to the public 1 space per 50m ² of GFA for food preparation AND 1 space per 100m ² of GFA used for storage | 71m ² GFA 21m ² GFA 21m ² GFA | 7.1 spaces 0.42 spaces 0.21 spaces 7.73 spaces total | 8 spaces |
| Shop | 1 space per 25m ² of total retail area * available to the public AND 1 space for each 100m ² of total storage GFA | 44m ² Public Area 24m ² Storage | 1.76 spaces 0.24 spaces 2 spaces total | 2 spaces |
| Dual Occupancy | 2 spaces / dwelling | 2 units | 4 spaces total | 4 spaces |
| Total | | | 38 spaces | 33 spaces total + 1 ambulance bay |

As outlined in Table 5-1, the parking supply for the Food and Drink Outlet, Shop, and Dual Occupancy uses complies with the minimum requirements of Council's TIAP Code. However, the Health Care Services use may have a slight shortfall of up to four spaces, with 20 spaces provided compared to the 24 spaces recommended under the TIAP Code.

Based on the operational information provided by the end user, a first-principles assessment of likely parking demands has been undertaken to confirm the adequacy of the proposed 20-space Health Care Services use provision. The assessment considers expected staffing levels, consultation durations, and potential patient overlap during peak operating periods.

Current plans indicate the Health Care Services use will comprise ten consulting rooms and two pathology rooms, noting that several consulting rooms will be used for administrative purposes rather than active clinical sessions. Total staffing is expected to include approximately 17 personnel, of which 6–8 would be on site at any one time, including up to six practitioners and two administrative staff. On this basis, the maximum expected full time staff presence at any one time is eight.

For assessment purposes, it has been conservatively assumed that all staff and patients will drive and park on site. Consultations are expected to operate on 30-minute appointments, with each practitioner typically having one patient in consultation and another arriving or waiting. Applying these assumptions results in the following estimated parking demand:

- Staff parking: 8 spaces
- Patient parking: 6 patients in consultation + 6 arriving/waiting = 12 spaces
- Total estimated concurrent demand: 20 spaces

This represents a theoretical peak demand consistent with the 20 spaces proposed, noting that the assumptions adopted do not account for potential mode share changes, drop-off activity, or staggered appointment scheduling, all of which could reduce actual on-site demand.

Accordingly, while the provision falls below the TIAP Code rate, it is considered operationally appropriate given the expected staff structure, patient turnover, and appointment scheduling practices typical of this scale of medical facility.

In addition, it is reasonable to expect a degree of reciprocal parking between the proposed land uses. Visitors attending appointments are likely to undertake linked trips, such as purchasing food, coffee, or convenience items before or after their appointment, thereby utilising the same parking space for multiple purposes. This overlap in parking activity will help reduce overall demand across the site.

On this basis, the proposed parking provisions are considered appropriate and fit-for-purpose, having regard to the anticipated operational characteristics of the development.

5.2. Car Parking Layout

Table 5-2 identifies the characteristics of the proposed parking area with respect to the Council's requirements/ Australian Standard AS2890.1 design provisions.

Table 5-2: Parking Design Requirements

| Design Aspect | Council/ Minimum AS2890.1 Standard | Proposed Provision | Compliance |
|--|---|--|--|
| Parking space length <ul style="list-style-type: none"> Residents (Class 1A) General space (Class 3A) PWD space (Class 4) | 5.4m (min) 5.4m (min) 5.4m (min) | 5.4m 5.4m 5.4m | Compliant Compliant Compliant |
| Parking space width <ul style="list-style-type: none"> Residents (Class 1) General space (Class 3) PWD space (Class 4) | 2.4m (min) 2.6m (min) 2.4m + 2.4m 'Shared Area' (min) | 2.4m 2.5m – 2.6m 2.4m + 2.4m 'Shared Area' | Compliant Performance Solution Compliant |
| Parking Aisle Width | 6.2m (min) | 6.2m | Compliant |
| Maximum Gradient: <ul style="list-style-type: none"> PWD parking Parking aisle / areas | 1:40 (2.5%) maximum 1:20 (5.0%) maximum | To be 1:40 (2.5%) To be 1:20 (5.0%) | Further details below Further details below |
| Height Clearance <ul style="list-style-type: none"> General spaces PWD spaces | 2.2m (min) 2.5m (min) | 2.2m (min) 2.5m (min) | Compliant Compliant |

The development parking layouts are generally consistent with the provisions of the Council/AS2890.1 requirements. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided as follows:

Car Parking Widths

It is noted that four of the 29 non-residential parking spaces have been provided at a width of 2.5m. While this is marginally narrower than the 2.6m width specified for Class 3 parking spaces under AS2890.1:2004, a 2.5m-wide bay is still sufficient to accommodate full door openings (front and rear) in accordance with the standard. The parking aisle is also noted to be wider (6.2m) than the Class 3 recommended minimum of 5.8m

On this basis, the bays are considered to provide adequate opportunity for passenger loading and unloading, as well as for general goods handling. Nevertheless, Colliers recommends that these four bays be designated for staff parking to ensure optimal functionality.

Maximum Gradients/Height Clearances

The following maximum gradients are required in accordance with AS2890.1:2004:

- Maximum gradients General Parking:

- Standard parking: 1 in 20 (5.0%) measured parallel to the angle of parking
- Standard parking: 1 in 16 (6.25%) measured in any other direction to the angle of parking
- Maximum gradients PWD Parking
 - PWD parking and shared space: 1 in 40 (2.5%) in any direction, including associated parking aisle.

6. Site Access Arrangements

6.1. Vehicle Access Arrangements

Two access points are proposed to service the development - one via Lynwood Avenue along the site's southern frontage and one via Poole Avenue along the eastern frontage. The Lynwood Avenue access is proposed as an entry-only crossover permitting left-in and right-in movements, while the Poole Avenue access is proposed as an all-movements crossover. The key design characteristics of each access are summarised in Table 6-1 and Table 6-2.

6.1.1. Lynwood Avenue Access

Table 6-1: Lynwood Avenue Access

| Design Aspect | Council / AS2890 Requirement | Proposed Provision | Compliance |
|-----------------------------|---|--|-------------------------|
| Crossover design type | Type General Wide Flared (RS-051) | Type General Wide (RS-051) | Compliant |
| Crossover width | 3.5m (min) (Entry Only) Subject to swept path assessment | 3.5m (min) | Further details below |
| Sight distance ¹ | 83m (desirable) 65m (minimum) | ~>83m to the west (for vehicles turning right into access) | AS2890.1:2004 compliant |
| Minimum queuing provision | 2 vehicles (12m) | 2 vehicles (1 vehicles per access) | AS2890.1:2004 compliant |
| Entry Grading | 1:20(5%) first 6m into the site (max) | To be 1:20 | Further details below |

¹ Based on a sign-posted speed limit of 60km/h

The proposed access arrangements generally comply with Council, AS2890 requirements. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided below.

Crossover

The proposed crossover is approximately 6.0m wide at the kerb, tapering to 3.5m at the property boundary and is intended to operate as an entry-only access. Swept-path analysis included in **Appendix B** demonstrates that the crossover configuration accommodates the largest design vehicle expected to service the site - a 10.507m Refuse Collection Vehicle (RCV).

Lynwood Avenue Access

It is noted that grading along the Lynwood Avenue frontage will need to be resolved as part of the detailed design. In particular, grading across the verge and into the site is to be designed in accordance with AS2890.1:2004 and the relevant Council standard drawings.

6.1.2. Poole Way Access

Table 6-2: Poole Way Access

| Design Aspect | Council / AS2890 Requirement | Proposed Provision | Compliance |
|------------------------------------|--|--|-------------------------|
| Crossover design type | Type General Wide Flared (RS-051) | Type General Wide (RS-051) | Compliant |
| Crossover width | 6.5m (min) Subject to swept path assessment | 6.2m | Performance Solution |
| Sight distance ¹ | 69m (desirable) 45m (minimum) | ~46m to the east ~48m to the south | AS2890.1:2004 compliant |
| Driveway sight splays ² | 2.0m wide x 2.5m deep (on both sides) | To be 2.0m wide x 2.5m deep (on both sides) | Further details below |
| Minimum queuing provision | 2 vehicles (12m) | 2 vehicles (1 vehicles per access) | AS2890.1:2004 compliant |
| Entry Grading | 1:20(5%) first 6m into the site (max) | To be 1:20 | Further details below |

¹ Based on a sign-posted speed limit of 50km/h

² All landscaping within the pedestrian visibility splay zone, as nominated in the development plans, will need to be limited to a maximum height of 0.6m

The proposed access arrangements generally comply with Council, AS2890.1:2004 and AS2890.2:2018 requirements. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided below.

Crossover

The development plans propose a 6.2m wide crossover at the Poole Way access. While 6.5m is the prescribed width to accommodate service vehicles, it is noted that larger service vehicles (MRVs and RCVs) will instead access the site via the Lynwood Avenue entry. Smaller service vehicles such as vans, ambulances, and Small Rigid Vehicles (SRVs), will be permitted to access the site from either crossover.

Driveway Sight Splays

In accordance with AS2890.1:2004, pedestrian sight triangles measuring 2.0m wide by 2.5m deep are required for both sides of the driveway. There is sufficient area on both sides of the proposed driveway to accommodate this splay. It is Colliers' recommendation that the sight splay be shown on the development plans, and that only low-height landscaping be planted and maintained within this area to maintain visibility.

Entry Grading

The development plans indicate that the driveway grading will be generally flat. In accordance with AS2890.1:2004, the first 6.0 m into the site should be constructed at a maximum grade of 1 in 20 (5%).

If the above recommendations regarding lane widening and grading are adopted, Colliers considers the proposed access arrangements to be fit for purpose and compliant with relevant standards.

7. Service Vehicle Arrangements

To assess the required number of service bays for the development, Colliers has referred to the Council requirements for service vehicles. Table 9.3.5.3 of the *Transport impact, access and parking code* states:

Provision is made for the on-site loading, unloading, manoeuvring and access by service vehicles that:

- are adequate to meet the demands generated by the development;
- are able to accommodate the design service vehicle requirements; and
- does not unduly impede vehicular, cyclist and pedestrian safety and convenience both within the site and external to the site

In accordance with these requirements, the servicing arrangements for each proposed land use have been assessed as follows.

7.1. General Servicing

Health Care Services

Service vehicles associated with the Health Care Services component are expected to include ambulances, vans, and 6.4m Small Rigid Vehicles (SRVs). A dedicated ambulance bay and a designated van bay are provided on site. Pathology pick-ups and other low-impact commercial deliveries can be accommodated within the designated van bay or, where appropriate, within adjacent general parking spaces.

Food and Drink Outlet and Shop

Servicing demands for the food and drink outlet and shop tenancies will predominantly comprise van-based deliveries, with occasional SRV access. The on-site van bay provides a suitable location for routine delivery activity. Given the available aisle width and the low frequency of larger deliveries, temporary standing by an SRV within the parking aisle can be accommodated without adversely affecting on-site circulation.

Dual Occupancy Units

For the residential component, the anticipated largest service vehicle is an 8.8m Medium Rigid Vehicle (MRV), primarily associated with furniture deliveries. Routine servicing demands will more typically involve smaller vehicles such as courier vans for parcel deliveries and, from time to time, food delivery (e.g., Uber Eats). These vehicles can be accommodated within the general parking aisle or the designated van bay. The internal layout allows a MRV to temporarily stand within the parking aisle while still maintaining one-way passing opportunities.

7.2. Refuse Collection

Refuse collection for the development will be undertaken by a 10.5m front-lift Refuse Collection Vehicle (RCV). The RCV will access the site via the Lynwood Avenue entry and proceed along the internal parking aisle to the dedicated bin storage area located in the north-western corner of the site. Following servicing, the vehicle will exit the site in forward gear via the Poole Way access.

The development plans indicate that the internal circulation road will be generally flat. In accordance with AS2890.2:2018, all areas where service vehicles would stand would need to have a maximum gradient of 1 in 25 (4.0%).

Swept-path analysis has been undertaken, as included in **Appendix B**. These include the following drawings:

- Colliers Drawings 25BRT0474-01 shows the ingress/egress of a 6.4m SRV (entry/exit via Poole Way access). The use of a 6.4m SRV is intended to simulate an ambulance manoeuvring to/from the designated ambulance bay.
- Colliers Drawings 25BRT0474-02 shows the circulation of a 10.5m Front Lift RCV.
- Colliers Drawings 25BRT0474-03 shows a b99 Passenger Vehicle passing a standing RCV.

While the trafficable areas of the site are generally open to air, the following minimum height clearances are required where any building element, awning, or other structure overhangs a trafficable area:

- SRV – 3.5 m
- MRV – 4.5 m
- Front-Lift RCV – 6.5 m

Overall, Colliers considers the service vehicle arrangements to be suitable for the proposed development.

8. Development Transport Demands

8.1. Estimated Development Traffic Generation

A first-principles approach has been adopted to estimate vehicle trips associated with the Health Care Services use. The assessment is based on the anticipated operating profile of the clinic, including expected staffing levels, consultation scheduling, and the timing and overlap of patient attendance. The relevant assumptions have been outlined below:

Staff - assume 8 on-duty staff arrive in the AM peak and 8 depart in the PM peak:

- 8 vph (AM peak hour)
- 8 vph (PM peak hour)

Patients - assume 6 patients in consultation and 6 arriving/waiting (i.e., 12 arrivals) and that all 12 complete and depart within the same peak hour (i.e., 12 departures).

- 24 vph (AM peak hour)
- 24 vph (PM peak hour)

Note: These estimates are considered highly conservative. In practice, staff start/finish times are staggered, and not all 12 patient arrivals and departures would cluster entirely within the peak hours.

Daily movements:

- Staff: 17 staff × 2 movements (enter and exit once) = 34vpd
- Patients: 12 arrivals/hour × 9 hours (8am–5pm) = 108 arrivals and 108 departures = 216 vpd

For the purposes of calculating the traffic generation potential associated with the other on-site uses, reference has been made to the NSW Government *Guide to Transport Impact Assessment* (TS 00085 v1.1). The anticipated traffic generation, based on the land-use-specific rates prescribed in this guide, is summarised in Table 8-1.

Table 8-1: Development Traffic Peak Hour Generation (Proposed)

| Land Use | Yield | Generation Rate | AM Peak | PM Peak | Daily |
|------------------------------------|---|--|--------------|--------------|---------------|
| Dual Occupancy | 2 units | <ul style="list-style-type: none"> 0.41vph per dwelling (AM peak hour) 0.60vph per dwelling (PM peak hour) 3.67 vehicles per dwelling (daily) | 1vph | 2vph | 8vpd |
| Food and Drink Outlet ¹ | 113m ² GFA | <ul style="list-style-type: none"> 5 vph per 100m² GFA (AM & PM peak hour) 5 vph per 100m² GFA (AM & PM peak hour) 60 vehicles per 100m² GFA (daily) | 6vph | 6vph | 68vpd |
| Shop | 68m ² GFA | <ul style="list-style-type: none"> 4.98 vph per 100m² GFA (AM peak hour) 4.98 vph per 100m² GFA (PM peak hour) 51.53 vehicles per 100m² GFA (daily) | 4vph | 4vph | 36vpd |
| Health Care Services | <ul style="list-style-type: none"> Traffic generation as per first principles assessment | | 32vph | 32vph | 250vpd |
| Total | | | 43vph | 44vph | 362vpd |

¹Restaurant traffic generation rate adopted for Food and Drink Outlet use

While Table 8-1 indicates an estimated 43–44 vehicle movements in the AM and PM peak hours, it is important to recognise that these values represent a conservative upper-bound estimate.

The Health Care Services component assumes all rostered staff arrive and depart during peak commuter periods, conditions that are unlikely to occur in practice given staggered staff start/finish times. In addition, no allowance has been made for linked trips between uses (e.g. patrons purchasing food or convenience items before or after appointments), nor for diverted or pass-by trips generated by vehicles already travelling near the site.

The assessment further adopts the conservative assumption that all Health Care Services trips are private vehicle based, with no proportion assigned to public or active travel modes. Finally, the temporal profiles of the individual uses differ: Food and Drink Outlet traffic is expected to peak at lunchtime, early evenings, and on weekends, whereas the Health Care Services component will operate only during business hours and is unlikely to contribute to evening or weekend peaks. Taken together, these factors indicate that the combined peak-hour traffic generation identified in Table 8-1 overstates the likely operational traffic conditions for the development.

8.2. Warrants for Traffic Impact Assessment

As detailed in Table 8-1, the proposed development is estimated to generate approximately 43–44 vehicle movements in the AM and PM peak hour periods. When translated across a full peak hour, this equates to roughly one vehicle movement every 1.5 minutes, during peak hour periods. When distributed across the surrounding local road network, even the conservative peak-hour estimates represent a negligible contribution to overall traffic volumes and are not expected to affect intersection capacity, performance, or safety. On this basis, Colliers considers that no detailed traffic impact analysis is warranted.

9. Active & Public Transport

9.1. Public Transport

The subject site has access to public transport, with a bus stop located on Lynwood Avenue within approximately 80m of the site. This stop is serviced by a single bus route, providing connections to key local centres and destinations with services operating Monday to Saturday.

9.2. Pedestrian Access

Pedestrian access to the site is supported by formal footpaths along the western and northern sides of Poole Way, as well as along Mount Low Parkway, Lynwood Avenue, and Lionel Turner Drive. Pedestrian crossing facilities, including refuge islands and kerb ramps, are also provided on Mount Low Parkway and Lynwood Avenue.

9.2.1. Cyclists Requirements

For bicycle parking provisions, reference has been made to the Cycling Aspects of the Austroads Guide, which specifies bicycle parking rates, as shown in Table 9-1:

Table 9-1: Parking Supply Requirement

| Land Use | Austroads Recommendations | Extent | Recommendation |
|-----------------------|---|--------------------------------|----------------|
| Health Care Services | 1 space per 400m ² GFA for staff 1 space per 200m ² GFA for visitor | 480m ² GFA | 4 spaces |
| Food and Drink Outlet | 1 space per 100m ² GFA for staff 1 space per 50m ² GFA for visitors | 113m ² GFA | 4 spaces |
| Shop | 1 space per 300m ² GFA for staff 1 space per 500m ² GFA for visitors | 68m ² GFA | 2 spaces |
| Dual Occupancy | 1 per 4 lodging rooms for residents 1 per 16 lodging rooms for visitors | 6 rooms (3 rooms per dwelling) | 2 spaces |

The development plans currently do not indicate any designated bicycle parking spaces. Based on the recommendations in Table 9-1, the Health Care Services and Food and Drink Outlet components generate the highest demand, with a recommendation of approximately four (4) bicycle parking spaces for each use.

For the residential component, it is expected that bicycle storage will be accommodated internally within garages or individual units.

Accordingly, Colliers recommends that a minimum of four (4) shared bicycle parking spaces be provided on site. These spaces would appropriately support the anticipated demand across the different land uses.

10. Summary and Conclusions

10.1. Proposed Development

The proposed mixed-use development comprises Health Care Services, a Food and Drink Outlet, a Shop tenancy and two Dual Occupancy units. A copy of the proposed site plan, prepared by Blackburne Jackson, is included in **Appendix A**.

10.2. Car Parking Arrangements

The development provides a total of 34 on-site car parking spaces, including one ambulance bay, one van bay and one PWD space. While the Health Care Services component adopts a nominal shortfall against the Transport Impact, Access and Parking Code, a first-principles assessment confirms that the proposed 20 spaces should sufficiently accommodate the expected staff and patient parking demand. Parking associated with the Food and Drink Outlet, Shop and Dual Occupancy units meets Council's minimum requirements.

The car parking layout generally complies with AS2890.1 standards.

Overall, Colliers considers the proposed car parking arrangements for this development to be appropriate.

10.3. Access Arrangements

Two driveway crossovers are proposed to service the site: an entry-only crossover from Lynwood Avenue, and an all-movements crossover from Poole Way. Access arrangement generally meets Council, AS2890.1, and IPWEAQ standards.

Overall, the proposed access arrangements are considered adequate to meet the needs of the proposed development.

10.4. Service Vehicle Arrangements

Servicing requirements for the various land uses have been considered with respect to likely vehicle types, which will predominantly include vans, SRVs, and periodic MRVs. The internal layout accommodates these vehicle types, with swept-path assessments confirming that each can enter, manoeuvre within and exit the site.

Refuse collection will be undertaken by a 10.5m front-lift RCV, with access provided via the Lynwood Avenue entry and forward-gear egress via Poole Way.

Overall, the proposed service vehicle arrangements are considered adequate to meet the needs of the proposed development.

10.5. Impact on Surrounding Road Network

The development is anticipated to generate approximately 43–44 vehicle movements during peak hours, equating to around one vehicle movement every 1.5 minutes, during the peak hour period. When

distributed across the local road network, this volume represents a negligible proportion of existing traffic demand and is not expected to affect the operational performance of surrounding intersections or road links. Given the conservative nature of the assessment assumptions, actual impacts are likely to be lower. As such, no further detailed traffic impact analysis is warranted.

10.6. Active Transport Facilities

The subject site has access to public transport, with a bus stop located on Lynwood Avenue approximately 80m from the site. Pedestrian facilities include formal footpaths along Poole Way, Mount Low Parkway, Lynwood Avenue, and Lionel Turner Drive, with crossing facilities provided on Mount Low Parkway and Lynwood Avenue.

Colliers has made the recommendation that five (5) bicycle parking spaces be provided on the site to accommodate arrivals via this mode of transport.

10.7. Conclusion

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

Appendix A Development Plans



01 SITE LOCATION
1:1000

PROJECT SUMMARY

LOT 6 ON SP 333154
LOCAL AUTHORITY : TOWNSVILLE CITY COUNCIL
LOCATION : BUSHLAND BEACH
SITE AREA 2433m²

PROPOSED DEVELOPMENT

| | |
|----------------------|-----------------------------|
| GROSS FLOOR AREA | |
| GROUND FLOOR LEVEL | |
| RETAIL T1 & T2 | = 153m ² |
| MEDICAL CENTRE | = 480m ² |
| OUTDOOR DINING | = 50m ² |
| LEVEL 2 | |
| RESIDENTIAL UNITS | = 219m ² |
| TOTAL | = 902m² |
| SITE COVER | = 996m ² (40.9%) |
| LANDSCAPING REQUIRED | = 243m ² (10%) |
| LANDSCAPING PROVIDED | = 351m ² (14%) |

| CAR PARKING | | REQUIRED | PROVIDED |
|----------------------------|-------------------|---------------------|------------------------|
| HEALTH CARE SERVICES | 480m ² | 28 + 1 AMBULANCE | 19 + 1 AMBULANCE |
| FOOD & DRINK OUTLET / SHOP | 203m ² | 10 | 10 |
| RESIDENTIAL UNITS x2 | 219m ² | 2 | 4 |
| TOTAL: | | 40 | 29 |
| SERVICE VEHICLES | | 1 VAN | 1 VAN + 1 AMBULANCE |

NOTES :

- ALL CARPARKING IN ACCORDANCE WITH AS2890.1
- ALL BICYCLE PARKS IN ACCORDANCE WITH AS 2890.3
- BICYCLE STORAGE AS SHOWN
- MINIMUM TYPICAL DIMENSIONS: ALL AISLES : 6.2m WIDE
SINGLE CAR : 5.4m x 2.6m

PROPOSED MIXED USE DEVELOPMENT,
16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

LOCATION PLAN & NOTES

DEVELOPMENT APPROVAL

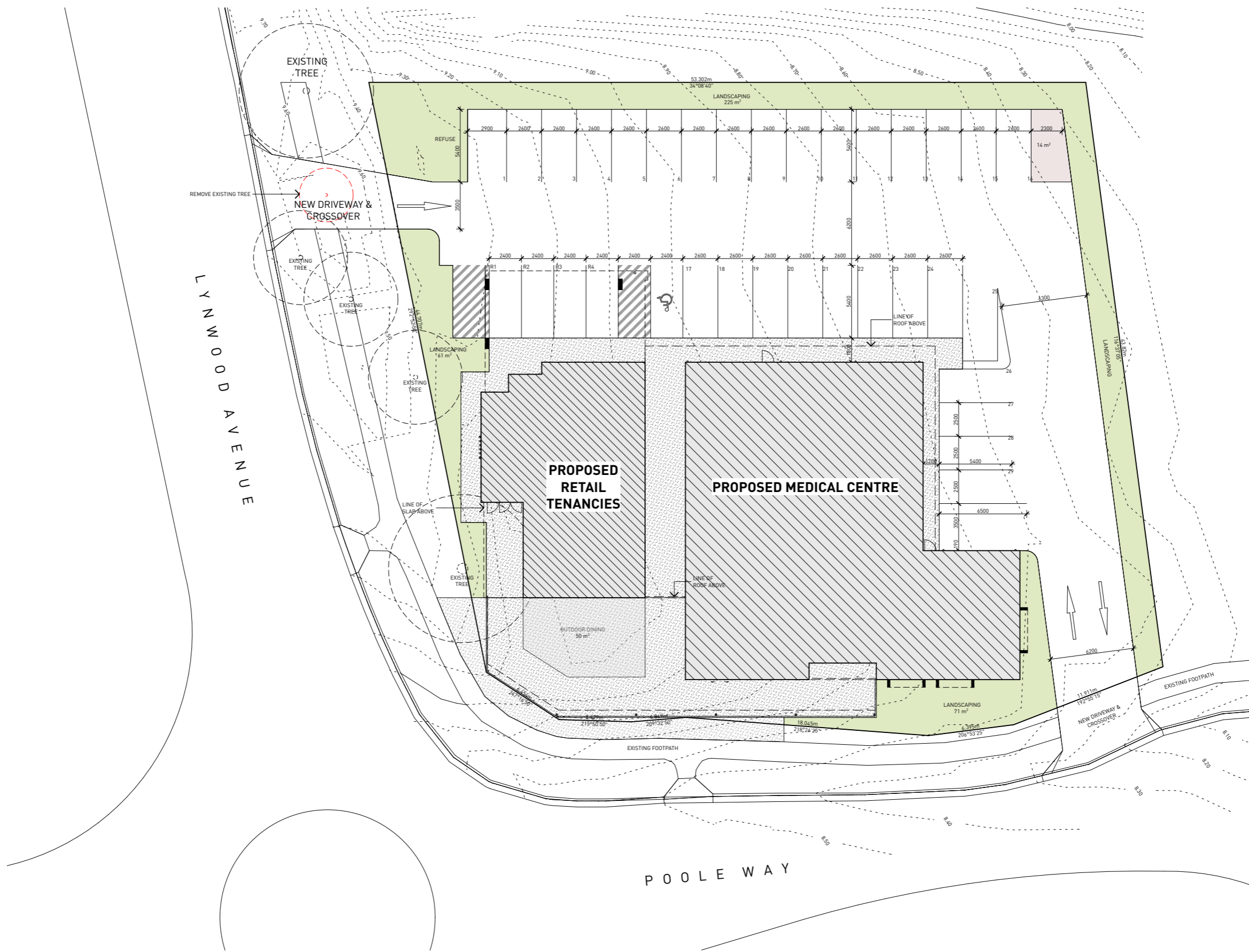
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issue : 02 date : 16-10-25

5819-DA01



BLACKBURNE JACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT

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01

SITE PLAN
1:150

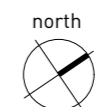
PROPOSED MIXED USE DEVELOPMENT,
16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

SITE PLAN

DEVELOPMENT APPROVAL
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issue: 03 date: 16-10-25

5819-DA02



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01 FLOOR PLAN LEVEL 1
1:100

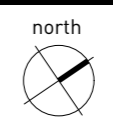
PROPOSED MIXED USE DEVELOPMENT,
16 POOLE WAY, BUSHLAND BEACH

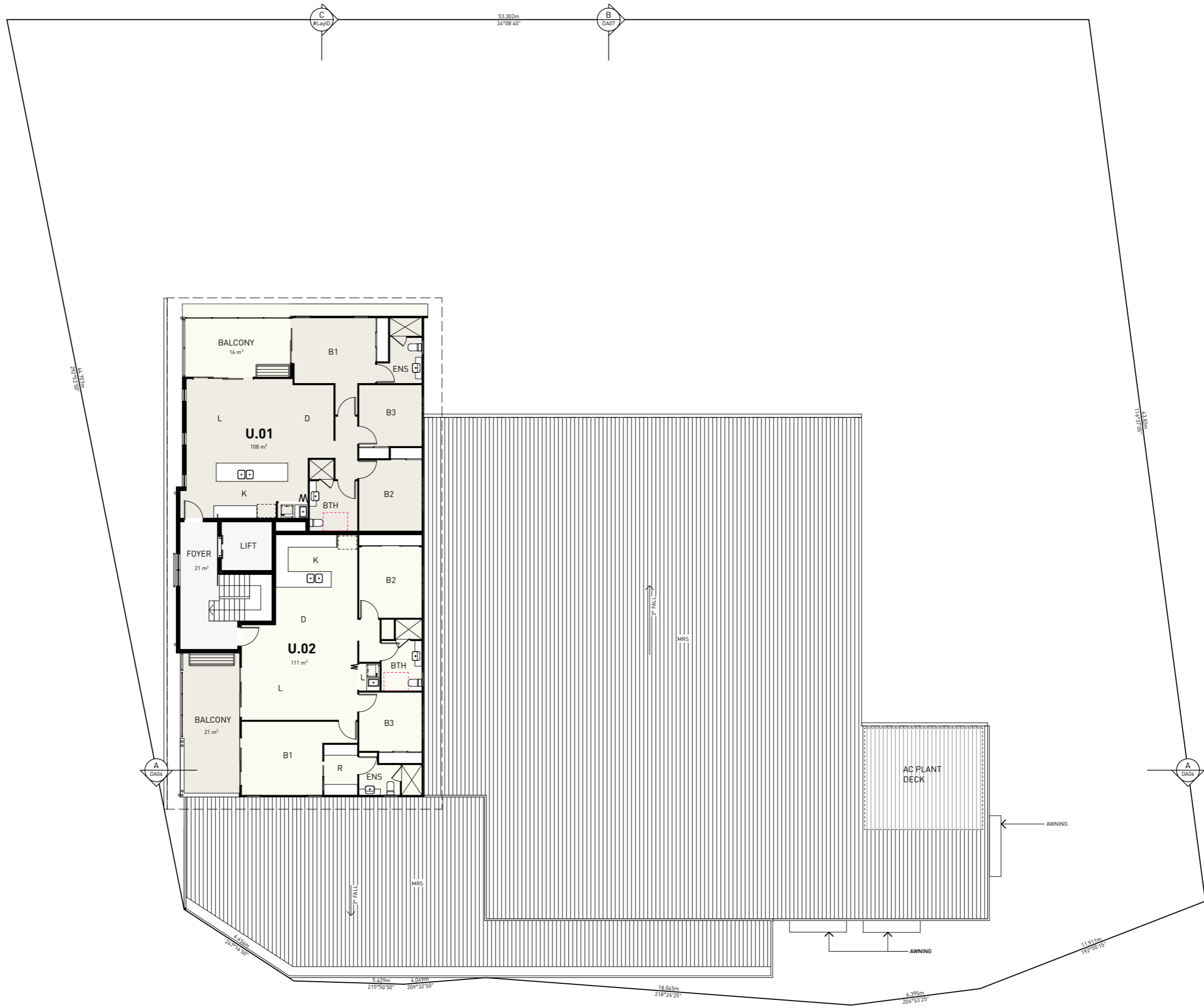
POOLE WAY 2 PTY LTD

FLOOR PLAN - LEVEL 1

DEVELOPMENT APPROVAL
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issue : 04 date : 16-10-25

5819-DA03





01 FLOOR PLAN LEVEL 2
1:100

PROPOSED MIXED USE DEVELOPMENT,
16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

FLOOR PLAN - LEVEL 2

DEVELOPMENT APPROVAL

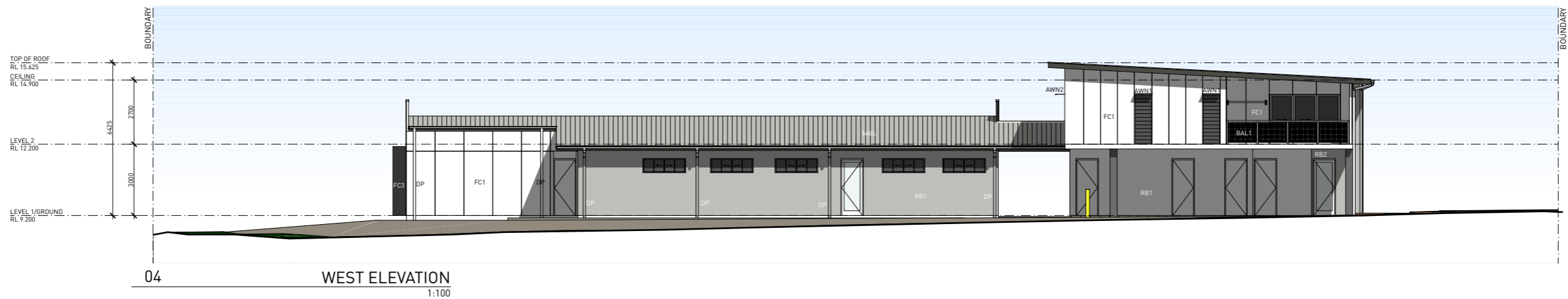
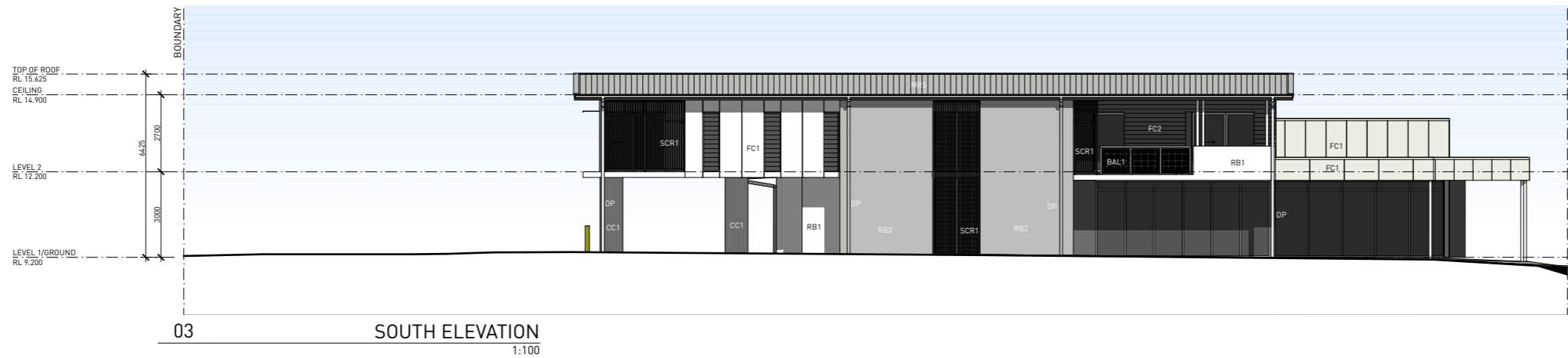
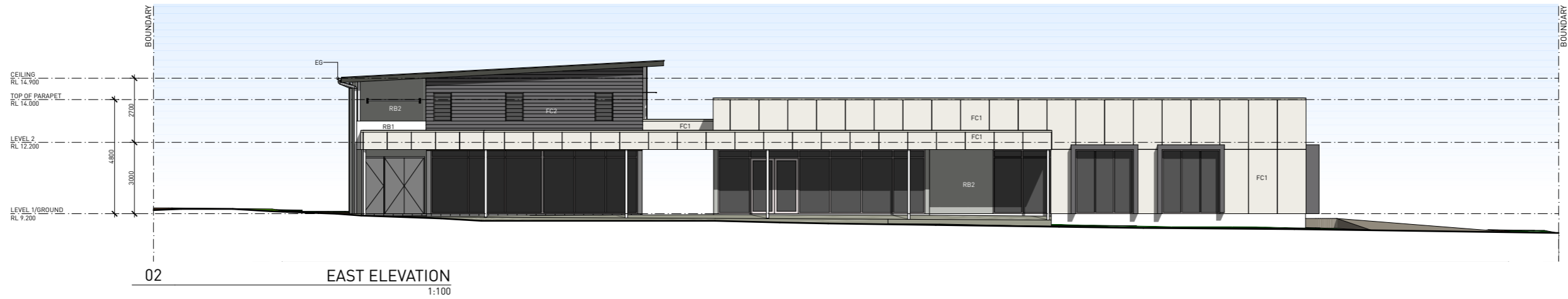
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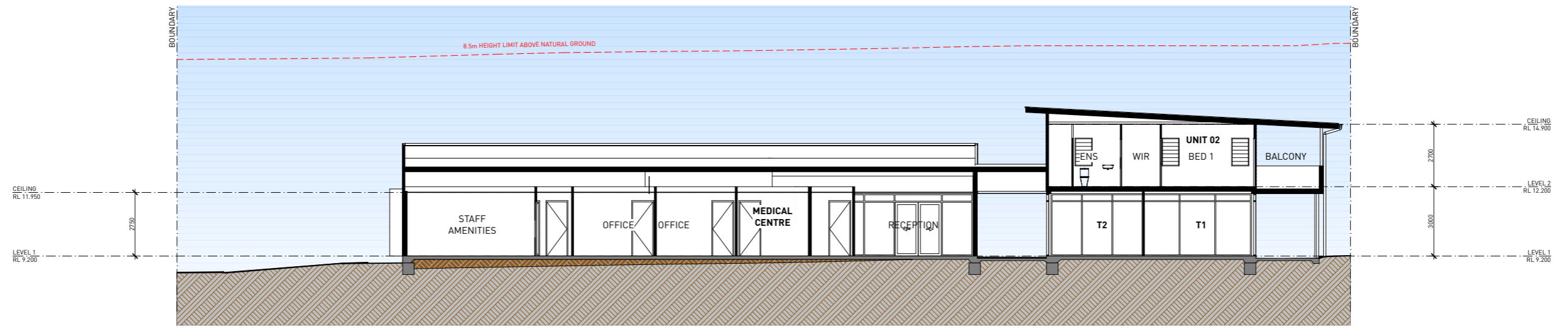
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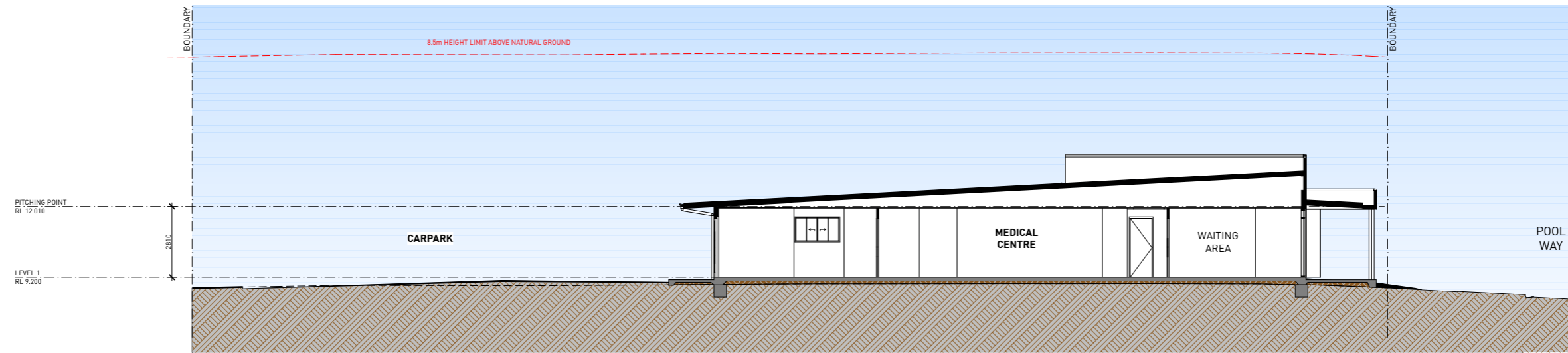
BLACKBURNE JACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT

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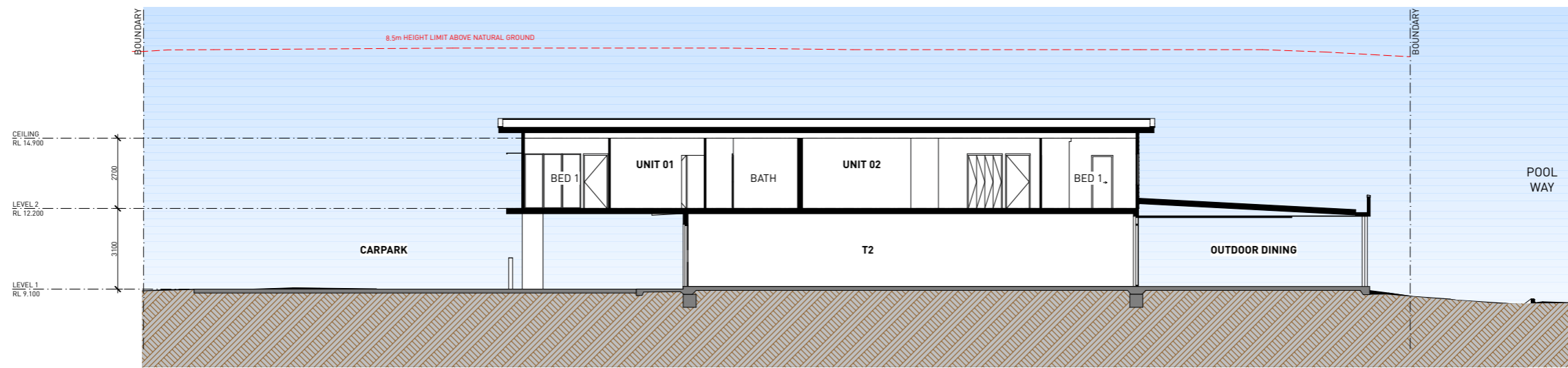




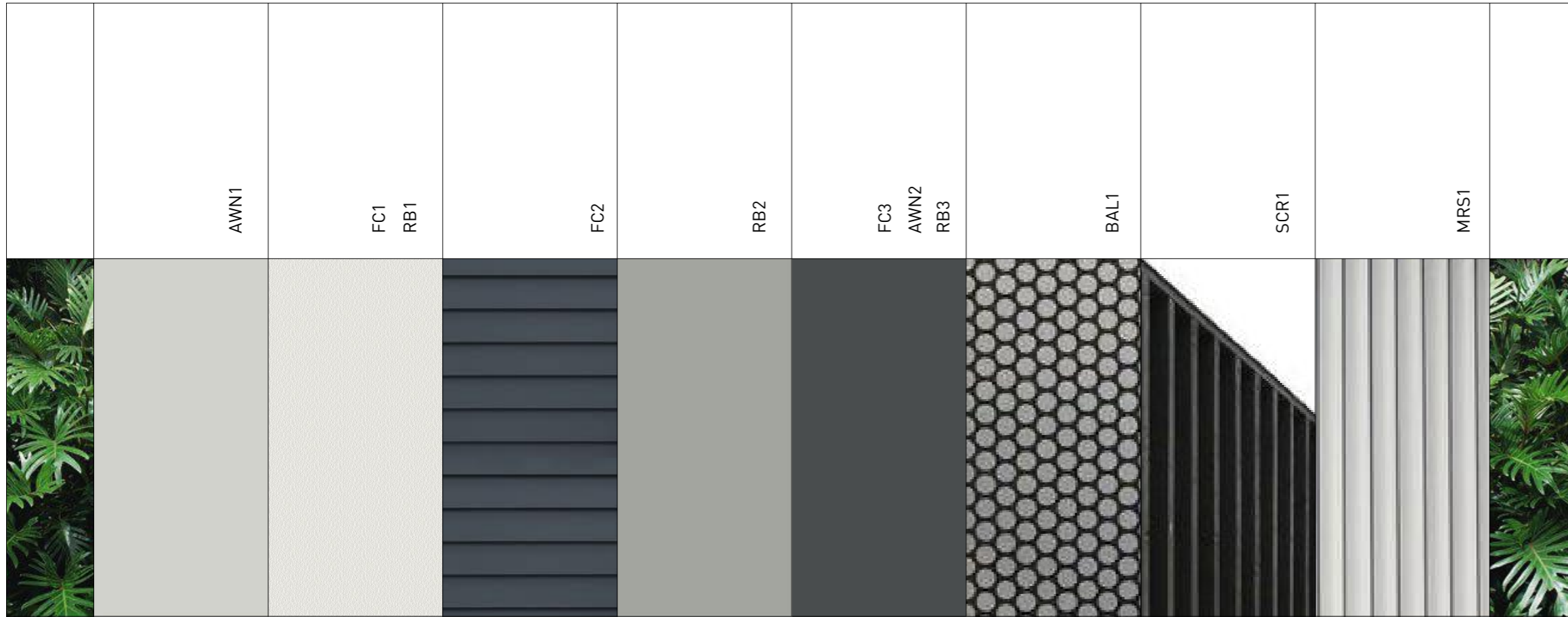
A [DA] SECTION
1:100



B [DA] SECTION
1:100



C [DA] SECTION
1:100



MATERIALS AND FINISHES PALETTE

| CODE | ITEM | DESCRIPTION | MATERIAL | FINISH |
|------|-----------------------|--|------------------------|----------------------------|
| AW01 | SUNSHADE | 600mm WIDE SELF SUPPORTING AWNING | POWDERCOATED ALUMINIUM | DULUX COLORBOND - SURFMIST |
| AW02 | SUNSHADE | 600mm WIDE SELF SUPPORTING AWNING | POWDERCOATED ALUMINIUM | DULUX COLORBOND - BASALT |
| BAL1 | BALUSTRADE | P'C ALUM BALUSTRADE WITH PERFORATED MESH INFILL - LOCKER R04883 OR EQUIVALENT 33% OPEN | POWDERCOATED ALUMINIUM | DULUX CITI SILVER PEARL |
| CC1 | COLUMN | REINFORCED CONCRETE COLUMN | DULUX WEATHERSHEILD | DULUX - BASALT |
| FC1 | FIBRE CEMENT CLADDING | FIBRE CEMENT PANEL CLADDING SYSTEM WITH EXPRESSED JOINTS | PAINT FINISH | DULUX - MANORBURN |
| FC2 | FIBRE CEMENT CLADDING | FIBRE CEMENT WEATHERBOARDS - HARDIES LINEA OR EQUAL | PAINT FINISH | DULUX - BASALT |
| FC3 | FIBRE CEMENT CLADDING | FIBRE CEMENT PANEL CLADDING SYSTEM WITH EXPRESSED JOINTS | PAINT FINISH | DULUX - BASALT |
| GF01 | GLAZING FRAME | COMMERCIAL SHOPFRONT ALUMINIUM GLAZING SYSTEM | POWDERCOATED ALUMINIUM | DULUX CITI SILVER PEARL |
| MRS | METAL ROOF SHEET | LYSAGHT 0.42bmt TRIMDEK PROFILE | COLORBOND | COLORBOND SHALE GREY |
| RB1 | RENDERED BLOCK WORK | CORE FILLED BLOCKWORK WITH APPLIED RENDER FINISH | DULUX WEATHERSHEILD | DULUX - MANORBURN |
| RB2 | RENDERED BLOCK WORK | CORE FILLED BLOCKWORK WITH APPLIED RENDER FINISH | DULUX WEATHERSHEILD | DULUX - SHALE GREY |
| RB3 | RENDERED BLOCK WORK | CORE FILLED BLOCKWORK WITH APPLIED RENDER FINISH | DULUX WEATHERSHEILD | DULUX - BASALT |
| SCR1 | VERTICAL SCREEN | NOM 100x50 RHS SECTIONS AT 100 cts | POWDERCOATED ALUMINIUM | DULUX COLORBOND - MONUMENT |

MATERIALS AND FINISHES LEGEND



PROPOSED MIXED USE DEVELOPMENT,
16 POOLE WAY, BUSHLAND BEACH

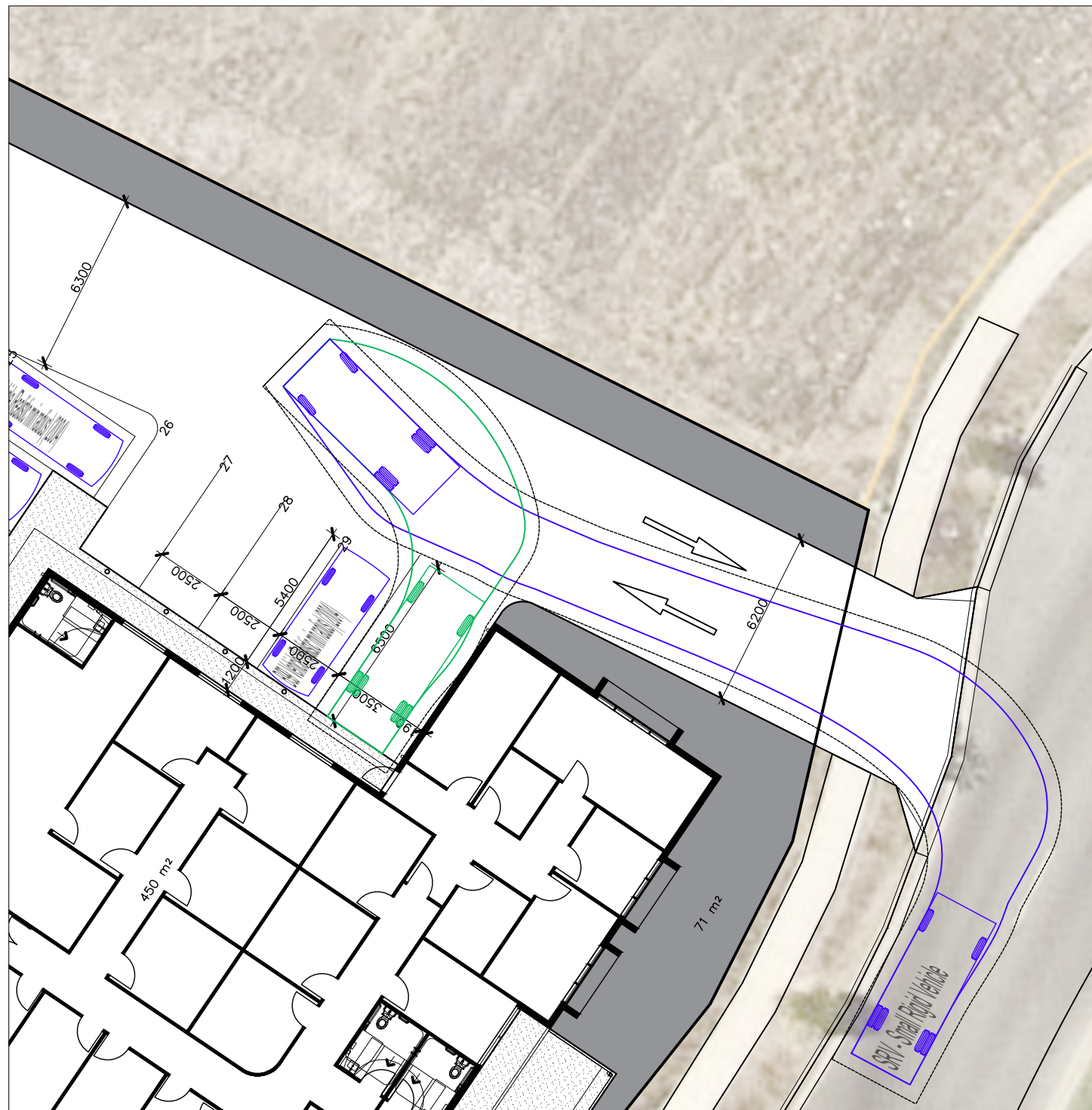
POOLE WAY 2 PTY LTD
PERSPECTIVE VIEWS

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issue : 02 date : 16-10-25
5819-DA08

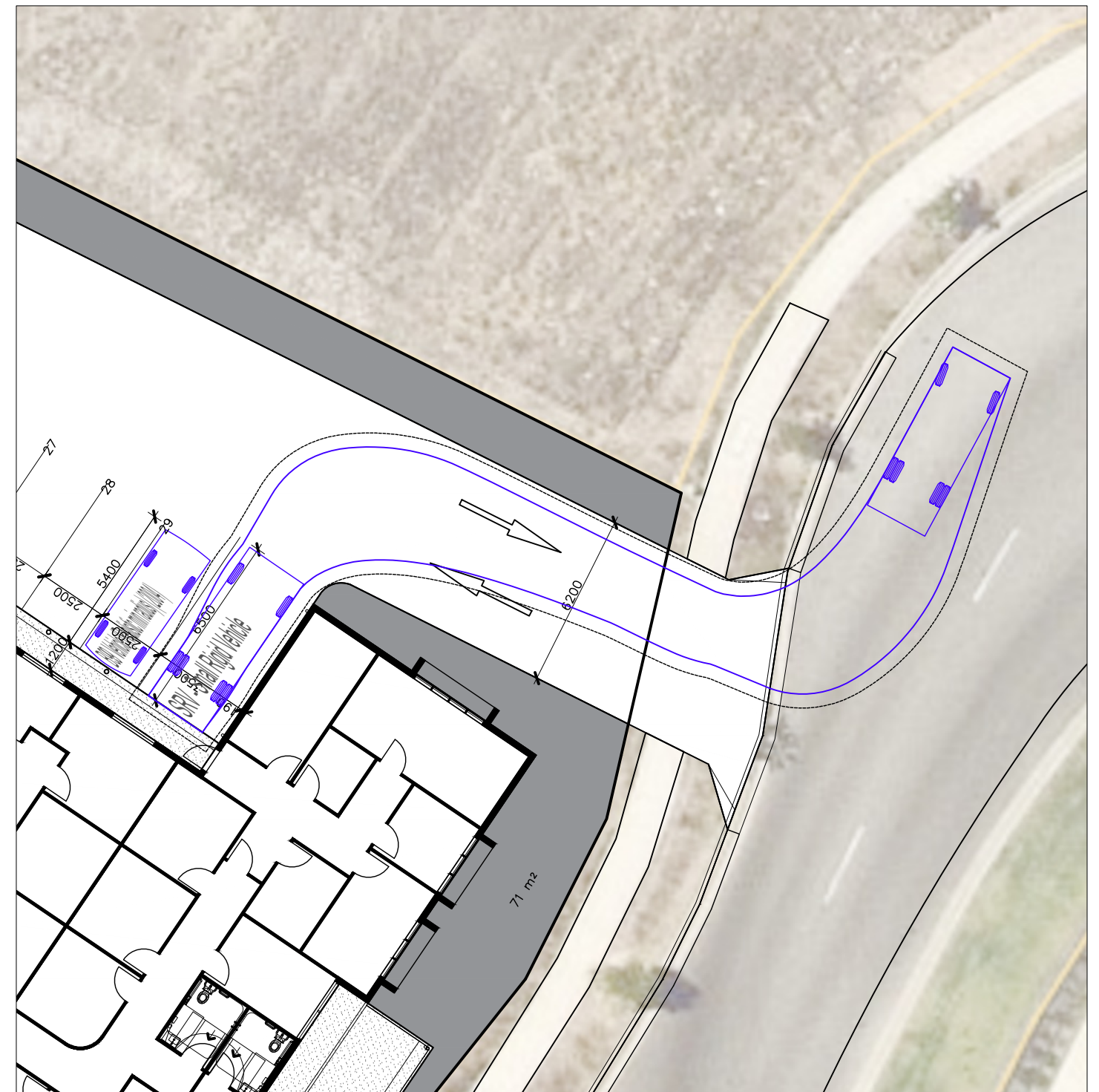
BLACKBURNEL JACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT

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Appendix B Colliers Drawings

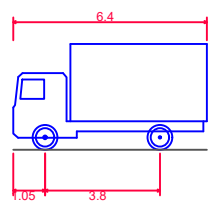


SRV INGRESS



SRV EGRESS

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

**PRELIMINARY
ADVICE ONLY**
18 December 2025

| REV. | DATE | AMENDMENT DESCRIPTION | DRAWN | CHECKED | APPROVED |
|------|------------|-----------------------|-------|---------|----------|
| A | 18.12.2025 | ORIGINAL ISSUE | JH | MGr | MGr |

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

NORTH

CLIENT
**D&V PROPERTY INVESTMENTS
PTY LTD**

Colliers International Engineering & Design

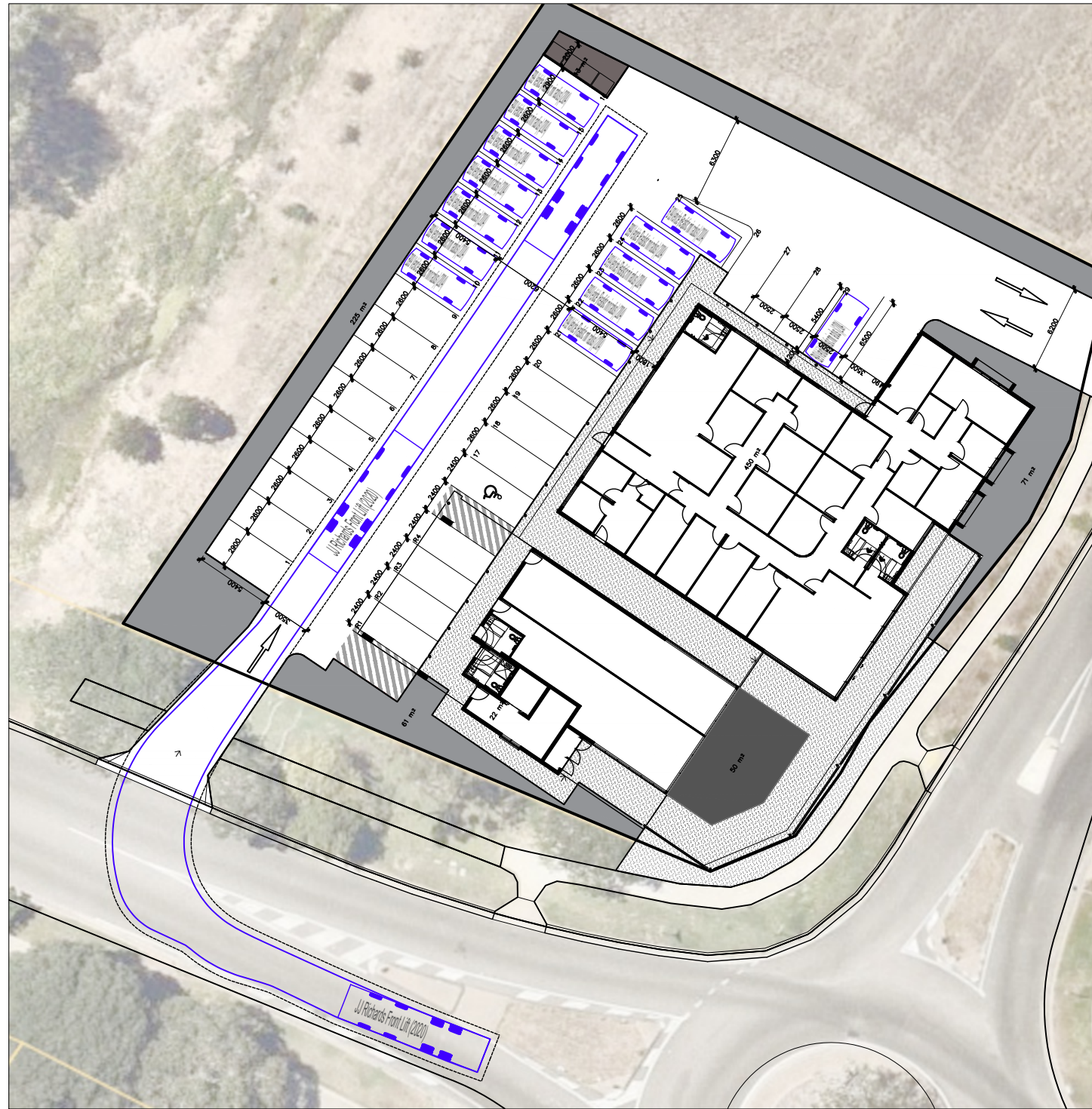
ABN 65 010 868 621
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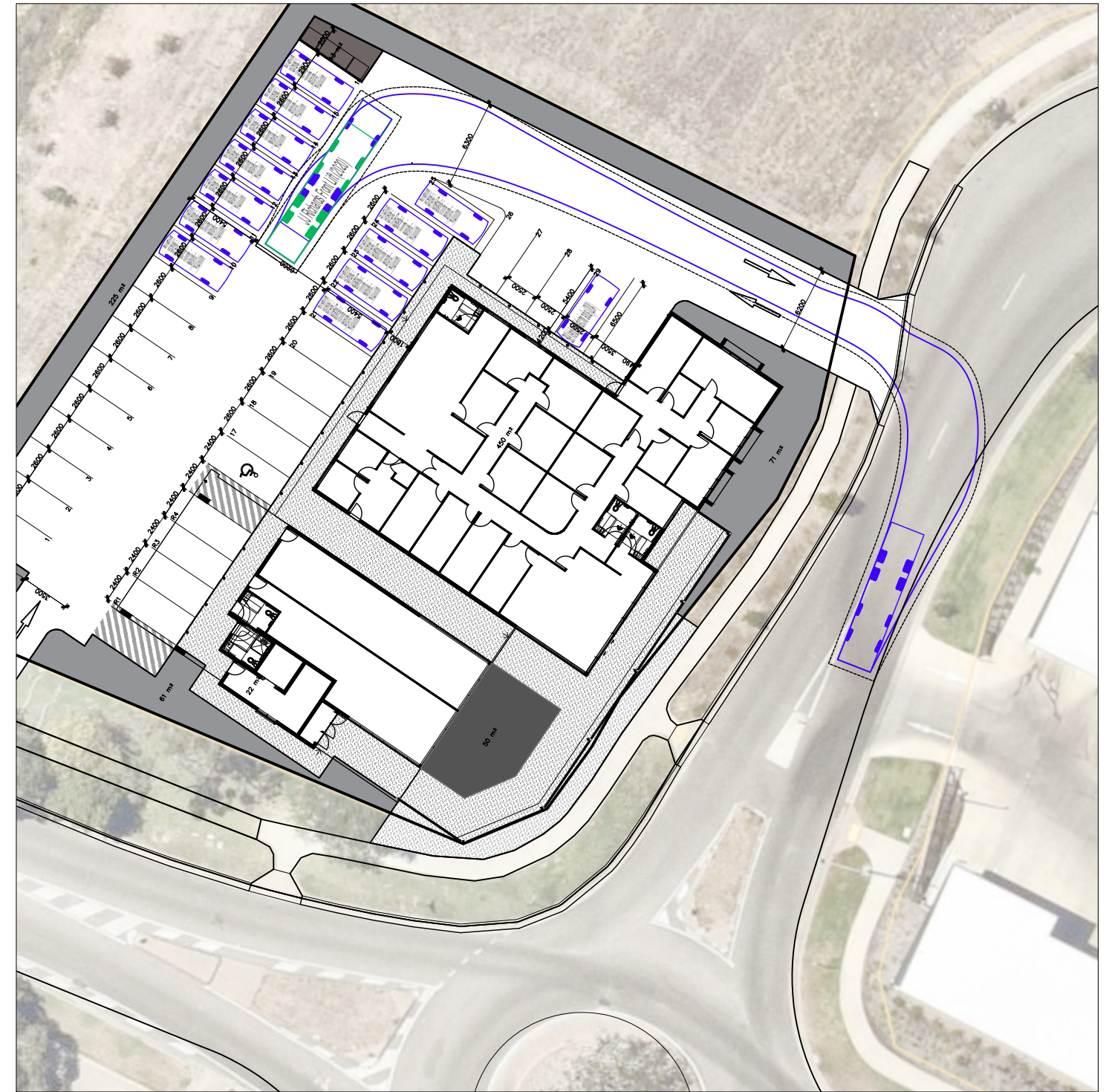
PROJECT
16 POOLE WAY, BUSHLAND BEACH

DRAWING TITLE
**SWEPT PATH ANALYSIS
- 6.4m SMALL RIGID VEHICLE**

| | |
|---------------------------------------|----------------------------|
| PROJECT NUMBER 25BRT0474 | ORIGINAL SIZE A3 |
| DRAWING NUMBER 25BRT0474-01 | REVISION A |
| DATE 18 Dec 2025 | SHEET 1 OF 1 |

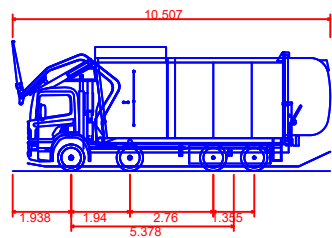


RCV INGRESS



RCV EGRESS

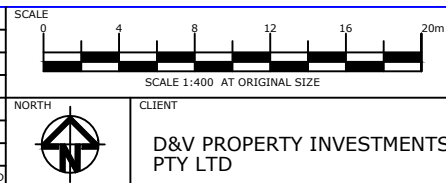
VEHICLE PROFILES



JJ Richards Front Lift (2020)
 Overall Length 10.507m
 Overall Width 2.490m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.150m
 Track Width 2.490m
 Lock-to-lock time 5.00s
 Curb to Curb Turning Radius 10.800m
 Design Speed Forward 5.0km/h
 Clearance Envelope 0.500m

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ADVICE ONLY**
 18 December 2025

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|------|------------|-----------------------|-------|---------|----------|
| A | 18.12.2025 | ORIGINAL ISSUE | JH | MGr | MGr |



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

| | |
|---------------|--|
| PROJECT | 16 POOLE WAY, BUSHLAND BEACH |
| DRAWING TITLE | SWEPT PATH ANALYSIS - FRONT LIFT REFUSE COLLECTION VEHICLE (RCV) |

| | | | |
|----------------|--------------|---------------|--------|
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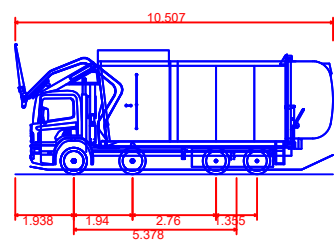


STANDING RCV & B99 PASSING 1

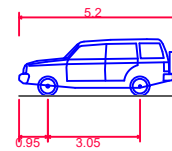


STANDING RCV & B99 PASSING 2

VEHICLE PROFILES



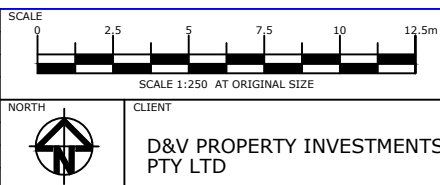
JJ Richards Front Lift (2020)
 Overall Length 10.507m
 Overall Width 2.490m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.150m
 Track Width 2.490m
 Lock-to-lock time 5.00s
 Curb to Curb Turning Radius 10.800m
 Design Speed Forward 5.0km/h
 Clearance Envelope 0.500m



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

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ADVICE ONLY**
18 December 2025

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| A | 18.12.2025 | ORIGINAL ISSUE | JH | MGr | MGr |



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| | | |
|---|--------------------------------|---------------------|
| PROJECT 16 POOLE WAY, BUSHLAND BEACH | PROJECT NUMBER 25BRT0474 | ORIGINAL SIZE A3 |
| DRAWING TITLE SWEPT PATH ANALYSIS - REFUSE COLLECTION VEHICLE (RCV) & B99 PASSENGER VEHICLE PASSING | DRAWING NUMBER 25BRT0474-03 | REVISION A |
| | DATE 18 Dec 2025 | SHEET 1 OF 1 |