



Transport Impact Statement

Project: Proposed Residential Development
25 The Esplanade, Mount Pleasant

Client: Pyramid Constructions WA

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Contents

1.	Introduction	1
1.1.	Proponent	1
1.2.	Site Location	1
2.	Proposed Development.....	3
2.1.	Land Use.....	3
3.	Traffic Management on Frontage Streets.....	4
3.1.	Road Network	4
3.1.1.	Existing Road Layout and Hierarchy	4
3.1.2.	Carriageway and Cross Section	4
3.2.	Traffic Volumes.....	5
4.	Vehicle Access and Parking.....	6
4.1.	Vehicle Access.....	6
4.1.1.	Vehicle Sight Distance	6
4.1.2.	Pedestrian Sight Distance	7
4.1.3.	Access Width.....	8
4.1.4.	Access Control	9
4.2.	Parking Supply.....	10
4.3.	Parking Layout.....	11
4.3.1.	Swept Paths	11
4.4.	Provision for Service Vehicles.....	11
5.	Daily Traffic Volumes	12
6.	Pedestrian and Cyclist Access	13
6.1.	Accessibility	13
6.2.	Bicycle Parking	14
7.	Public Transport Access	15
8.	Site Specific Issues and Safety Issues.....	16
8.1.	Crash History	16



9. Conclusion	17
Appendix A – Swept Paths.....	18

Figures

Figure 1: Site Location.....	2
Figure 2: Aerial View (December 2020).....	2
Figure 3: Site Layout	3
Figure 4: Existing Road Network Hierarchy.....	4
Figure 5: Average Weekday Traffic	5
Figure 6: Austroads Typical Mid-block Capacities for Urban Roads.....	5
Figure 7: Sight Distance Check	6
Figure 8: RDC Pedestrian Sight Distance Requirements	7
Figure 9: RDC Pedestrian Sight Distance Check and Potential Mirror Location	8
Figure 10: Ramp Access Control.....	9
Figure 11: Pedestrian / Cyclist Accessibility	13
Figure 12: Bus Stop Locations	15
Figure 13: Crash History January 2016 to December 2020	16

Tables

Table 1: Road Configuration.....	4
Table 2: Canning Bridge Activity Centre Residential Car Parking Requirements (Q2).....	10
Table 3: AS2890.1 Car Parking Compliance	11
Table 4: Proposed Development Vehicle Trip Generation	12



1. Introduction

1.1. Proponent

Shawmac Pty Ltd has been engaged by Pyramid Constructions WA to prepare a Transport Impact Statement (TIS) for proposed residential development in Mount Pleasant.

This TIS has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 4 – Individual Developments*. The assessment considers the following key matters:

- Details of the proposed development.
- Vehicle access and parking.
- Provision for service vehicles.
- Hours of operation.
- Daily traffic volumes and vehicle types.
- Traffic management on frontage streets.
- Public transport access.
- Pedestrian access.
- Cycle access and end of trip facilities.
- Site specific and safety issues.

1.2. Site Location

The site address is 25 The Esplanade, Mount Pleasant. The local authority is the City of Melville.

The general site location is shown in **Figure 1**. An aerial view of the existing site is shown in **Figure 2**.



Figure 1: Site Location



Figure 2: Aerial View (December 2020)

2. Proposed Development

2.1. Land Use

The proposed development is a new residential building with a basement and four levels above the ground.

The building will comprise 12 apartments including 11 three-bedroom apartments and 1 two-bedroom apartment. Three of the apartments are proposed as dual-key apartments which could potentially be leased to multiple occupants.

A total of 22 car bays and 25 bicycle spaces are proposed on the basement level. 2 of the car bays are proposed as electrical vehicle charging bays. An additional bicycle rack is proposed along the Helm Street frontage for visitors.

Vehicle access is proposed from a new crossover on Helm Street at the western edge of the property.

The site layout and ground floor plan is shown in **Figure 3**.

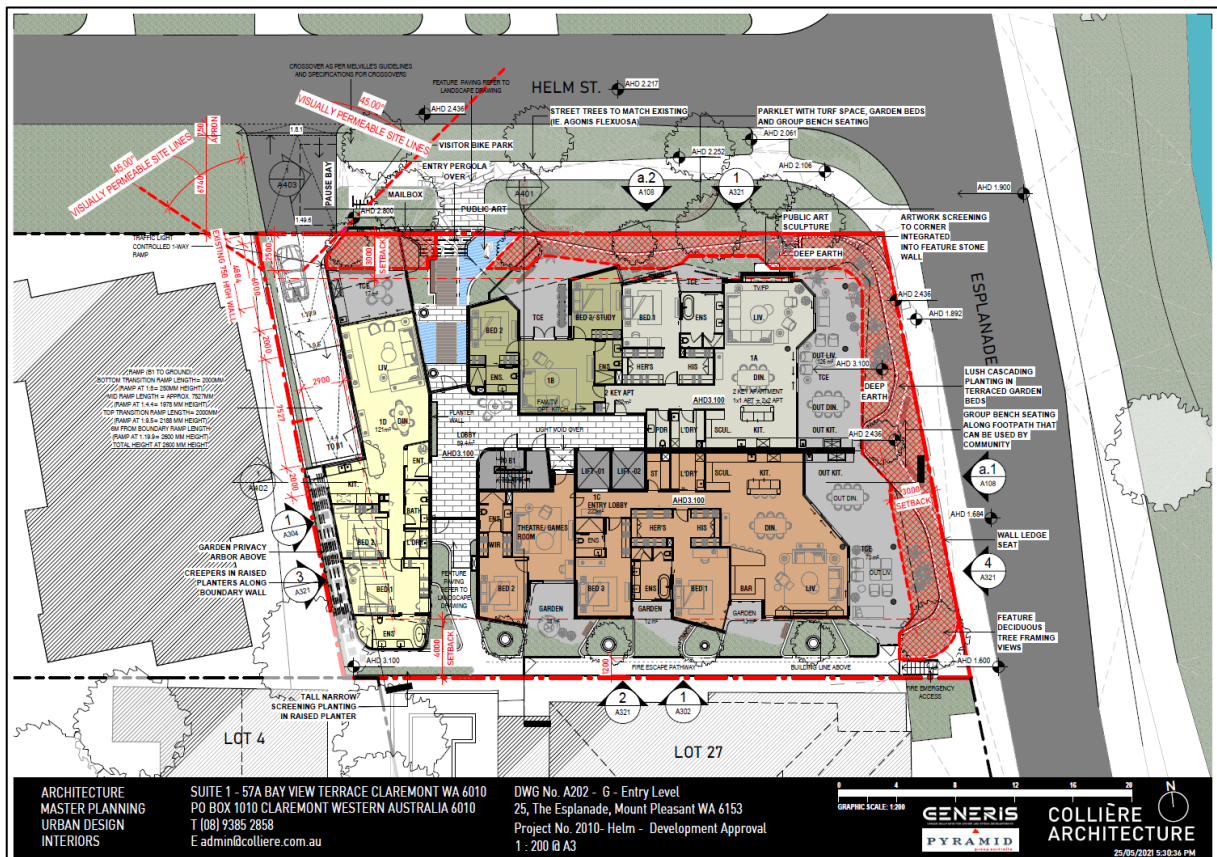


Figure 3: Site Layout

3. Traffic Management on Frontage Streets

3.1. Road Network

3.1.1. Existing Road Layout and Hierarchy

The layout and hierarchy of the existing local road network according to the Main Roads WA *Road Information Mapping System* is shown in **Figure 4**.

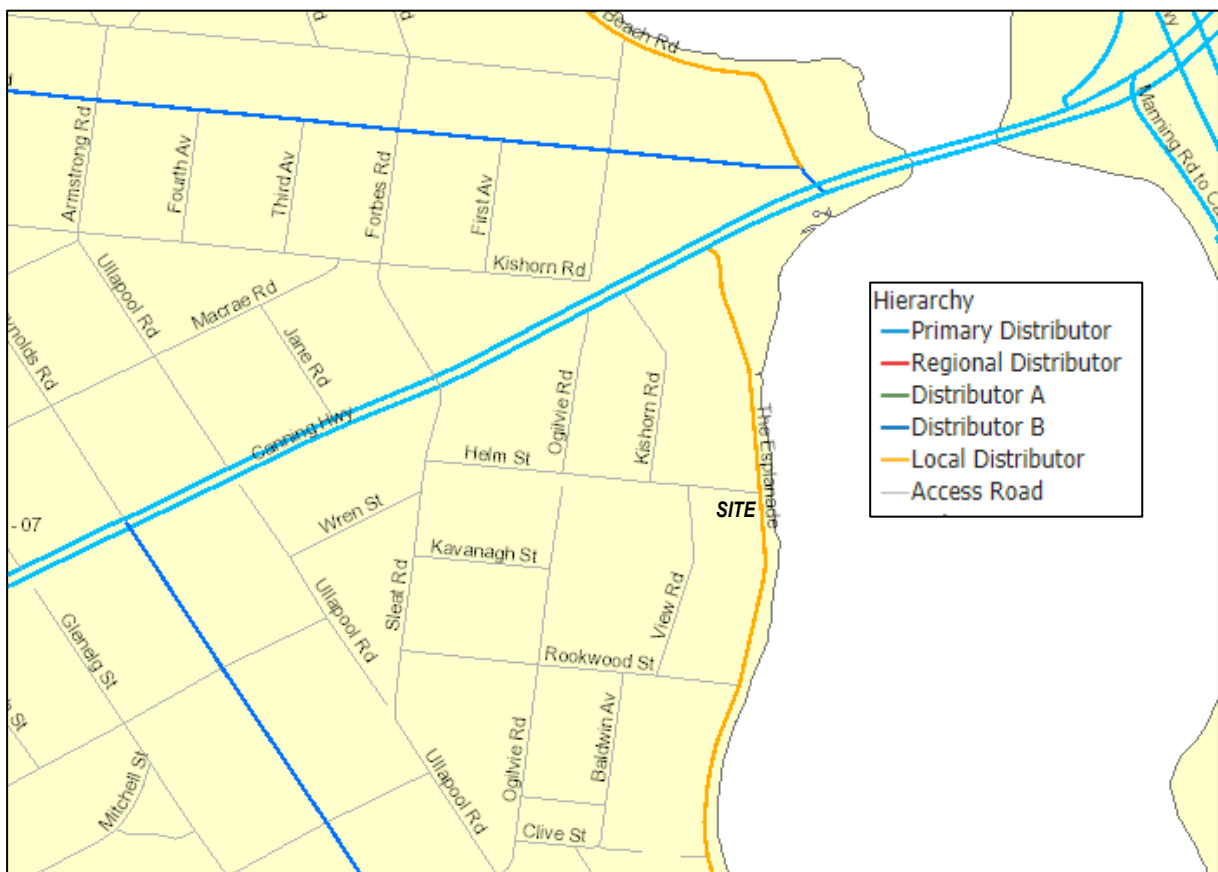


Figure 4: Existing Road Network Hierarchy

3.1.2. Carriageway and Cross Section

The configuration of the relevant existing roads is summarised in **Table 1**.

Table 1: Road Configuration

Road and Location	Road Type	Cross Section	Speed Limit (km/h)
The Esplanade	Local Distributor	2-lane single carriageway	50km/h
Helm Street	Access Road	2-lane single carriageway	50km/h

3.2. Traffic Volumes

The latest traffic volumes on the street have been provided by the City of Melville as summarised in **Figure 5**.

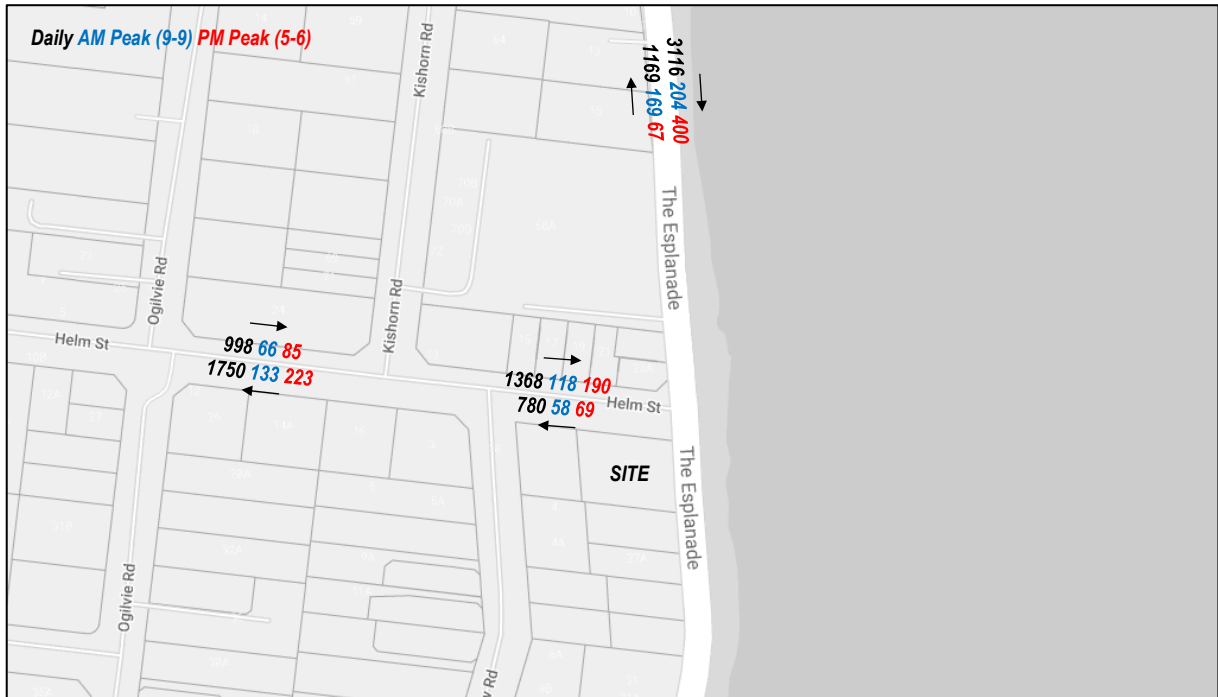


Figure 5: Average Weekday Traffic

The WAPC Guidelines refers to Austroads for assessment of the impact of changes in traffic flows on the surrounding road network. The typical mid-block capacities for urban roads according to Austroads *Guide to Traffic Management Part 3: Traffic Studies and Analysis* are detailed in **Figure 6**.

Table 5.1: Typical mid-block capacities for urban roads with interrupted flow

Type of lane	One-way mid-block capacity (pc/h)
Median or inner lane	
Divided road	1000
Undivided road	900
Middle lane (of a 3 lane carriageway)	
Divided road	900
Undivided road	1000
Kerb lane	
Adjacent to parking lane	900
Occasional parked vehicles	600
Clearway conditions	900

Source: Table 5.1 in Austroads (2013).

Figure 6: Austroads Typical Mid-block Capacities for Urban Roads

The current peak hour traffic flows are within the capacity of the existing roads.

4. Vehicle Access and Parking

4.1. Vehicle Access

Vehicle access is proposed from a new crossover on Helm Street at the western edge of the property.

4.1.1. Vehicle Sight Distance

Sight distance requirements from vehicle exit points are defined in Figure 3.2 of Australian Standard AS2890.1-2004 *Parking facilities Part 1: Off street car parking (AS2890.1)* which are based on the Austroads Stopping Sight Distance. Based on the 50km/h speed limit along Helm Street, the minimum required Stopping Sight Distance is 55m. The available sight distance is shown in **Figure 7**.



Figure 7: Sight Distance Check

As shown, the 55m stopping sight distance is achieved in all directions except towards vehicles turning left from The Esplanade. It is noted that vehicles turning from The Esplanade will be travelling well below 50km/h and so the actual sight distance requirement would be much lower.

Vertically, Helm Street grades down towards the Esplanade and there are no crests that would impede sight distance.

4.1.2. Pedestrian Sight Distance

To allow for visibility between pedestrians and vehicles on the driveway, AS2890.1 requires visual truncations to be kept clear of obstructions as shown in **Figure 8**.

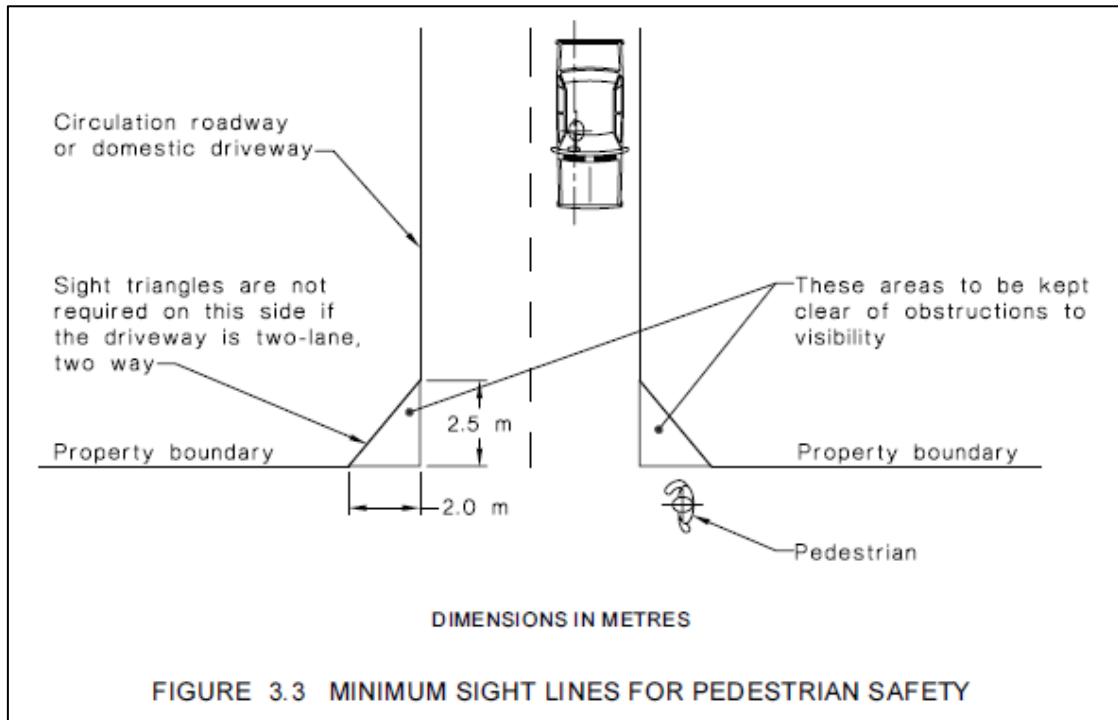


Figure 8: RDC Pedestrian Sight Distance Requirements

As there is no footpath to the west and the proposed footpath on the east side of the driveway is offset from the boundary by more than 2.5m, the truncation between the driveway and the actual footpath is clear and so adequate visibility between vehicles and pedestrians is achieved in accordance with AS2890.1.

The City has requested that the development allows for the future provision of a path to the west of the driveway and also for the potential realignment of the path along the site boundary. The City also notes that there is no guarantee that pedestrians would not walk along the grassed verge close to the site boundary.

As shown in **Figure 9**, the 2.5m truncation is achieved at the boundary on the east side of the crossover but is partially obstructed by the existing boundary fence on the west side. It is noted that the boundary fence is partially permeable but the solid portion may be higher than the 0.75m allowable under the Residential Design Codes. The City has suggested a mirror as a potential solution to improve sight lines to the west of the driveway. A potential mirror location that would provide visibility towards the west is also shown.



Figure 9: RDC Pedestrian Sight Distance Check and Potential Mirror Location

As there is currently no path towards the west and it appears unlikely that a path would be constructed directly along the site boundary, the timing of implementing a mirror or other design solution to achieve visibility may need to be negotiated with the City.

4.1.3. Access Width

The car park access is 3.5m wide (2.9m between kerbs) which is only wide enough for one vehicle at a time. AS2890.1 suggests that subject to consideration of traffic volumes, driveways less than 5.5m may be provided. As a guide, 30 or more movements in a peak hour would require provision of two-way access. As discussed later in this statement, the proposed development would generate a maximum of 12 vehicle movements in the PM peak hour which is well below the threshold.

As the development is only residential, most vehicle trips would be outbound in the morning and inbound in the afternoon and so the likelihood and frequency of two vehicles passing each other in opposing directions is considered to be sufficiently low to justify the single width driveway. The crossover itself is approximately 4.8m wide at the boundary and so an entering vehicle is able to hold on the crossover to allow an already exiting vehicle to pass.

4.1.4. Access Control

It is proposed to coordinate traffic along the access ramp using a traffic lights and two holding bays at each end of the ramp as shown in **Figure 10**.

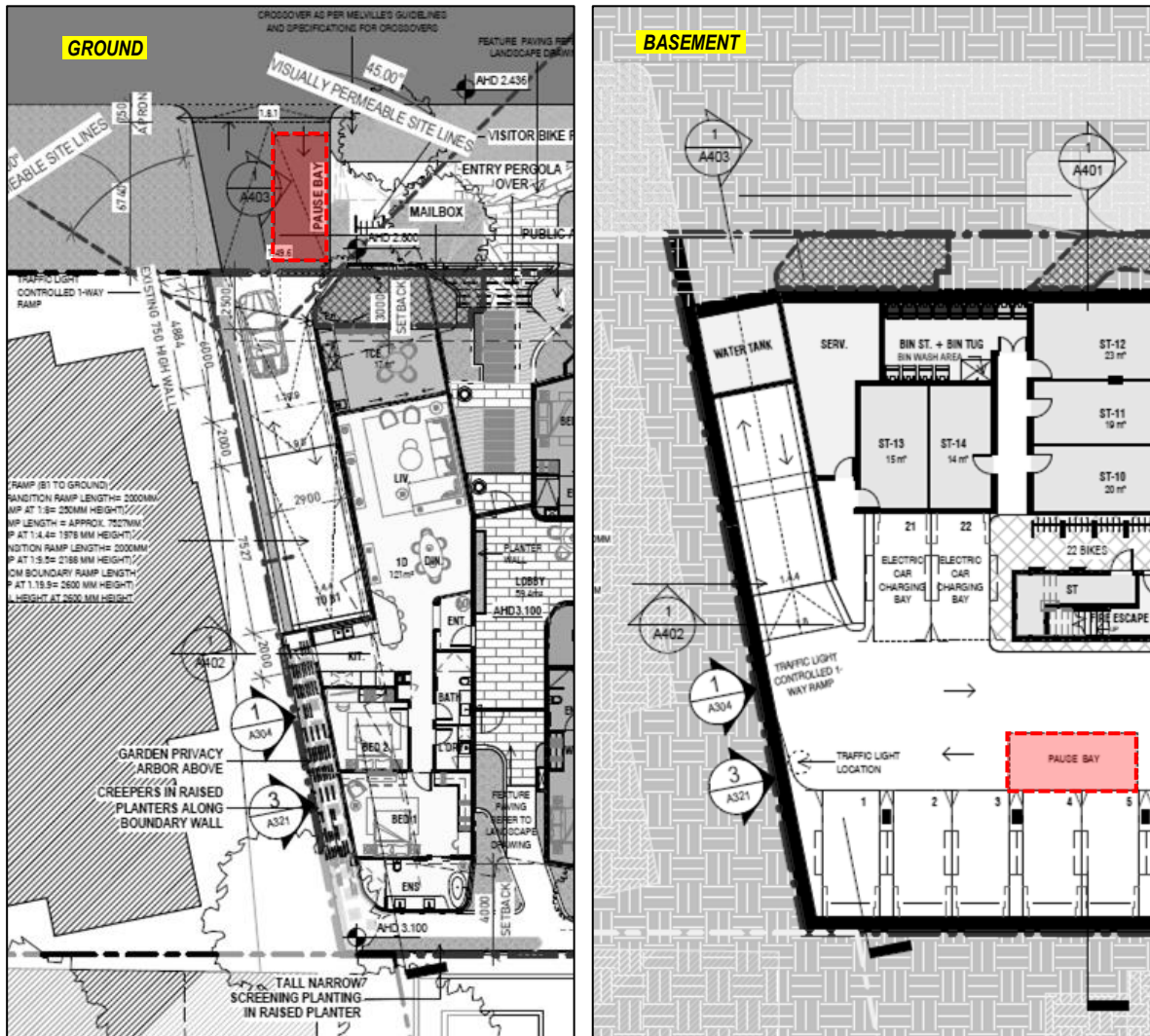


Figure 10: Ramp Access Control

It is recommended that priority is assigned to entering vehicles to minimise the likelihood of queuing on the street. The traffic signal at the ground level would display a continuous green signal until an exiting vehicle is detected. Due to the car parking layout, an in-ground loop may not effectively detect all exiting vehicle movements and so another system such as push buttons may be needed to activate the green signal in the basement. Flashing sequences can be implemented to indicate when a signal is about to change.

Additional measures to include would be convex mirrors and signs displaying “STOP HERE ON RED SIGNAL” or a similar message. The detailed specifications of the ramp control will need to be prepared by a traffic control system provider.

4.2. Parking Supply

The car parking requirements for residential developments located within the Canning Bridge Activity Centre Structure Plan are outlined in **Table 2**.

Table 2: Canning Bridge Activity Centre Residential Car Parking Requirements (Q2)

Land Use	Unit	Requirement (bays per dwelling)	Quantum	Required Bays
Apartment	1 bedroom dwellings	Min 0.75, Max 1.0	0	0
	2-3 bedroom dwellings	Min 1.0, Max 1.5	12	Min 12, Max 18
	4+ bedroom dwellings	Min 1.25, Max 2.0	0	0
	Visitor	No visitor parking required in Q2	12	0
Total Provided				22 resident bays

As above, the minimum car parking requirements are met. However, the 22 bays exceeds the maximum allowance by 4 bays. Two of the proposed bays are communal electric car charging bays that will not be allocated to an individual dwelling.

It is noted that three of the apartments are designed as dual key apartments which at times may be occupied by multiple occupants and so it is reasonable to allow at least two car bays for each of these apartments. On this basis the minor surplus is considered to be justifiable.

The following is also noted:

- The development provides a substantial amount of bicycle parking above the minimum requirements to encourage alternative transport as much as possible.
- All proposed car parking is underground which has not visual impact to the building or adds to the size of the building.

4.3. Parking Layout

The layout and dimensions of the car parking areas have been assessed for compliance with Australian Standards AS2890.1-2004 *Parking facilities Part 1: Off street car parking* (AS2890.1) as detailed in **Table 3**.

Table 3: AS2890.1 Car Parking Compliance

Dimension	Requirement	Provided
90 degree parking – Class 1A – Residential, domestic and employee parking		
Car Bay Width	2.4m	2.5m
Car Bay Length	5.4m	5.5m
Parking Aisle Width	5.8m	6.0m
Blind Aisle Extension	1.0m	1.4m

The proposed entry ramp has also been designed in consultation with the City of Melville to comply with the relevant gradient requirements of AS2890.1.

4.3.1. Swept Paths

A swept path assessment has been undertaken using Autodesk Vehicle Tracking to demonstrate the manoeuvrability of the car parking area. The B85 vehicle template has been used to test the most critical bays which are the bays close to the entrance and the bays at the end of the parking aisle. The swept paths are attached in **Appendix A** which demonstrate that all bays can accommodate the B85 sized vehicle.

It is noted that the bays at the end of the car park may require multiple point turns which is typical for many large vehicles. The majority of vehicles are smaller than the B85 template and will be able to manoeuvre more easily than shown in the swept paths.

4.4. Provision for Service Vehicles

Waste from the development will be stored in ventilated bin stores on each of the apartment levels. The building caretaker will be responsible for transporting the bins to the kerb along Helm Street for collection. On this basis, there is no need to accommodate service vehicles on-site.



5. Daily Traffic Volumes

The volume of traffic generated by the proposed building has been estimated using trip generation rates from the NSW Roads and Maritime Services (RMS) *Guide to Traffic Generating Developments* as detailed in **Table 4**.

The peak hour trip rates are based on the peak hour of the adjacent road network typically occurring between 7 to 9am and between 4 to 6pm.

Table 4: Proposed Development Vehicle Trip Generation

Land Use	Units	Quantity	Generation Rate			Number of Trips		
			Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Low Density Residential Buildings	Dwellings	12	10.7	0.95	0.99	128	11	12

As shown, the proposed building is predicted to generate approximately 128 vehicle trips per day including 11 trips during the morning peak hour and 12 during the afternoon peak hour.

This volume of traffic is considered to be low and can be accommodated within the existing capacity of the road network.

6. Pedestrian and Cyclist Access

6.1. Accessibility

There are existing paths along both sides of The Esplanade including a shared path along the east (river) side. There is also a path along the north side of Helm Street. The external path network is well established and considered to be adequate for pedestrians and cyclists to safely travel between the site and surrounding areas.

Internally, pedestrian access from the street will be via a single access point on Helm Street as shown in **Figure 11**. Cyclist access could either be via the pedestrian access or via the vehicle access leading to the bicycle parking on the basement level. It is proposed to extend the path network along the Helm Street frontage of the site which would connect the external path network to the site access points.

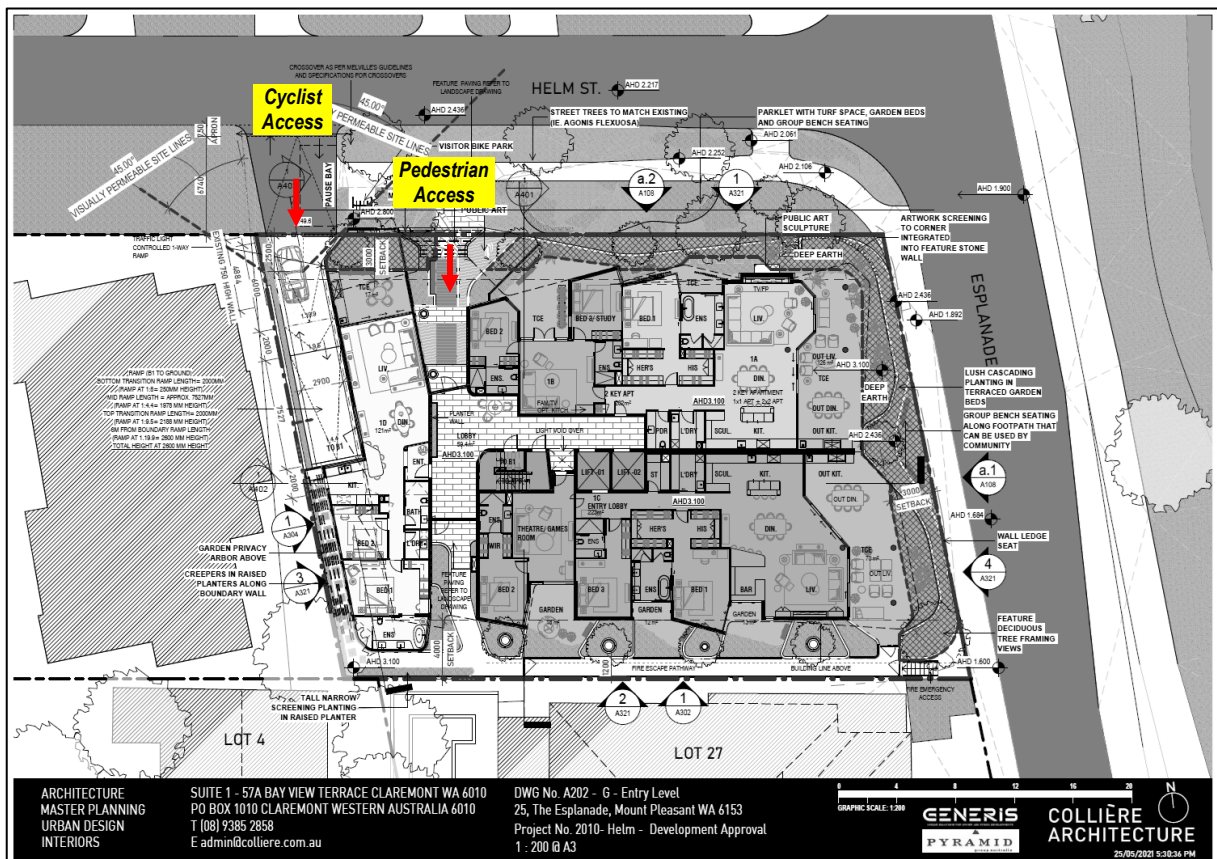


Figure 11: Pedestrian / Cyclist Accessibility



6.2. Bicycle Parking

The bicycle parking requirement for residential developments located within the Canning Bridge Activity Centre Structure Plan is 1 bay for every dwelling. No visitor bicycle parking is required for developments within Q2 of the activity centre.

Based on 12 apartments, 12 bicycle spaces are required. Bicycle parking is proposed on the basement floor with provision for 25 bikes which exceeds the minimum requirements and would be adequate to meet the bicycle parking demand.

7. Public Transport Access

The site has excellent access to public transport.

There are numerous Transperth Bus services operating along Canning Highway including Route 910 which is a high frequency bus service operating between Perth and Fremantle Station. The closest stops are located along Canning Highway west of Kishorn Road, approximately 450m walking distance from the site.

The site is also approximately 1km walking distance of Canning Bridge Station which accesses the Perth – Mandurah Train Line as well as other bus routes.

A summary of the available public transport services is shown in **Figure 12**.

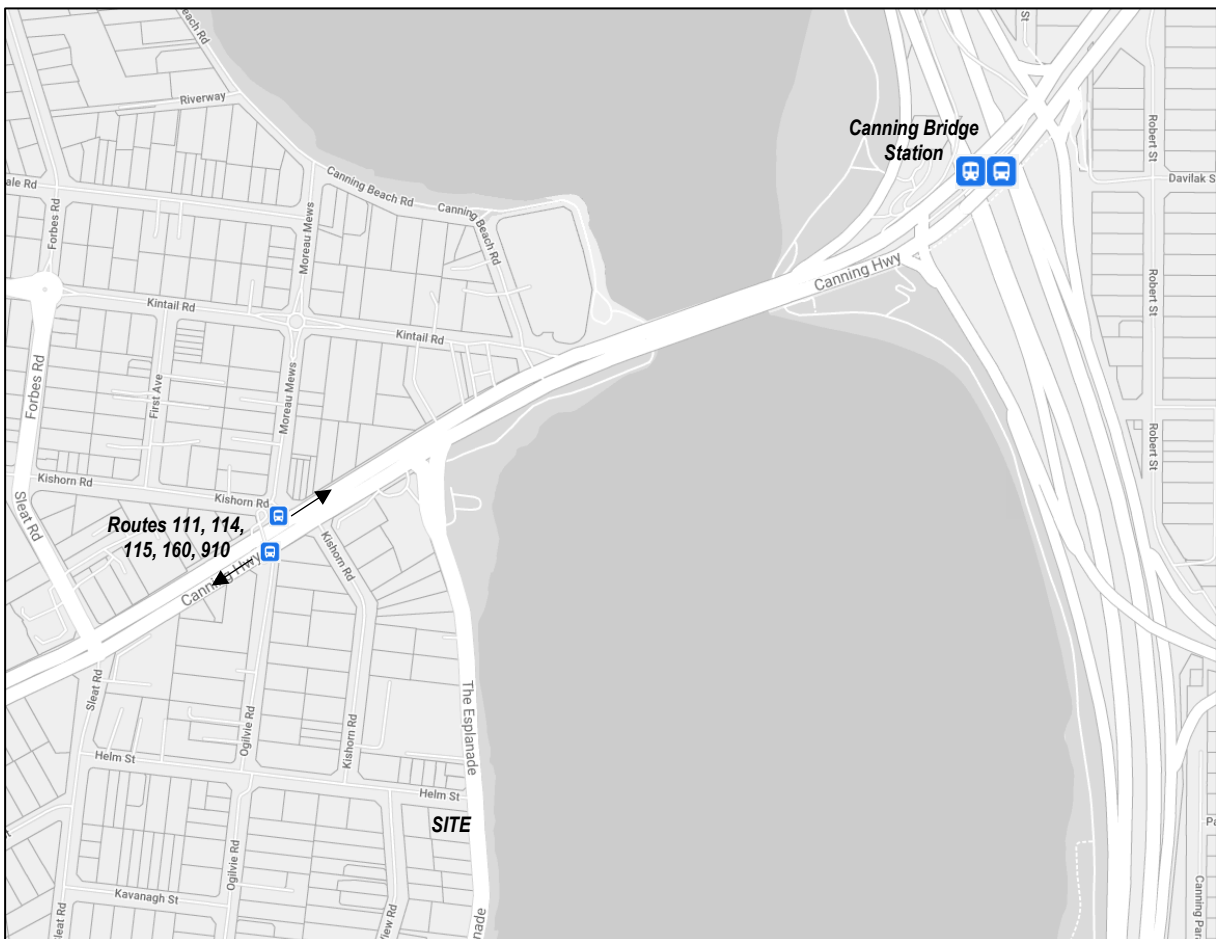


Figure 12: Bus Stop Locations

The existing available services are considered to be adequate to meet the demand for these services.

8. Site Specific Issues and Safety Issues

8.1. Crash History

The crash history of the adjacent road network was obtained from the MRWA Reporting Centre. A summary of the recorded incidents over the five-year period ending December 2020 is shown in **Figure 13**.

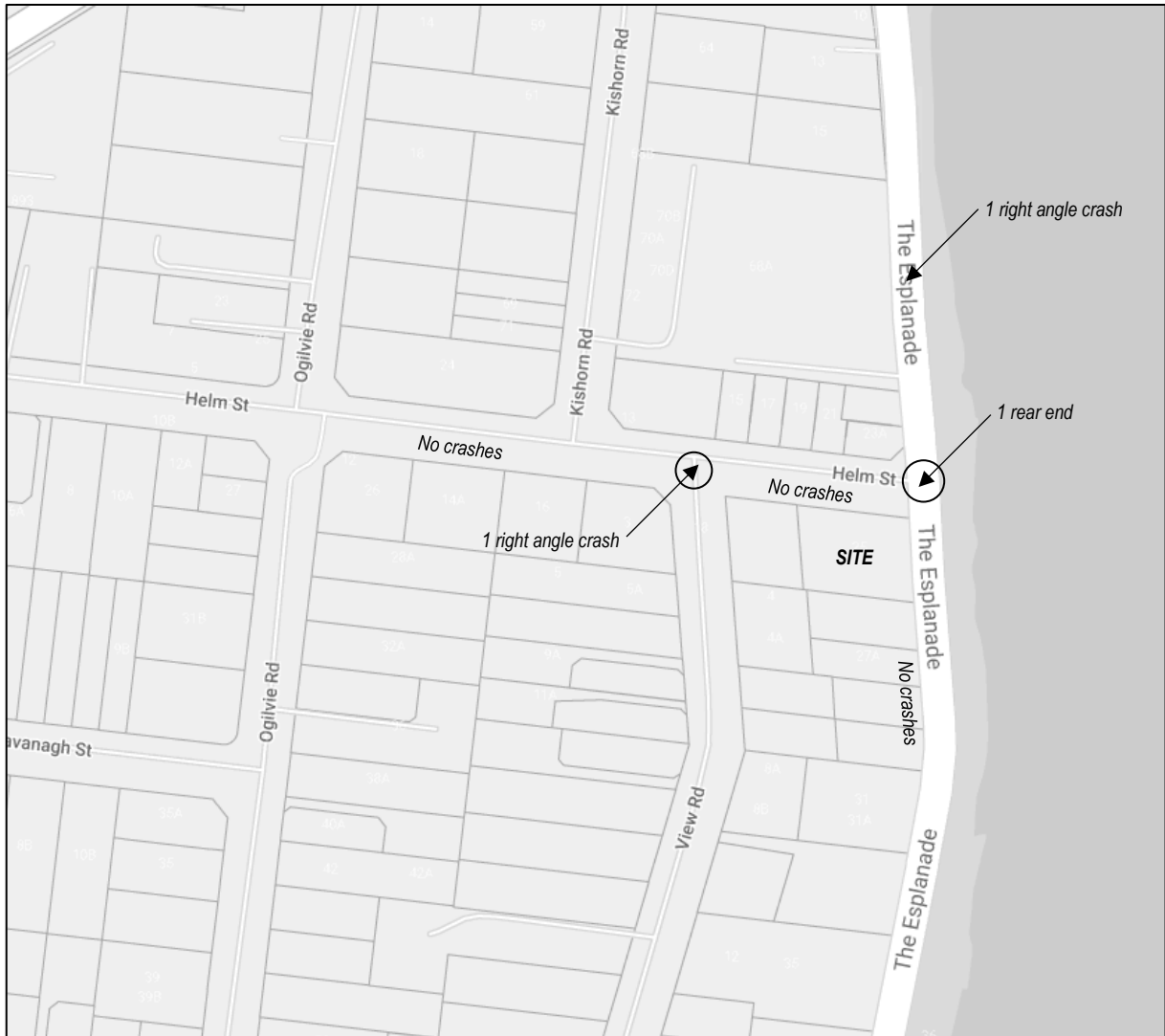


Figure 13: Crash History January 2016 to December 2020

The historic number of crashes is low and there does not appear to be any particular safety issue that needs to be addressed. The proposed development will generate a low volume of traffic and there is no indication that the development would increase the risk of crashes to unacceptable levels.

9. Conclusion

A Transport Impact Statement for the proposed residential development at 25 The Esplanade in Mount Pleasant concluded the following:

- The existing road network will have sufficient capacity to accommodate the traffic generated by the development and no modifications are required.
- The provision of 22 parking bays satisfies the minimum parking residential parking requirements but is 4 bays over the maximum allowance. The surplus is considered justifiable on the basis that 2 bays are communal electric car charging bays and that several of the apartments are dual-key apartments which may be occupied by multiple occupants and therefore required at least two bays each.
- A review of the parking layout including a swept path assessment concludes that the layout complies with Australian Standards and provides adequate manoeuvrability for vehicles.
- The proposed site access will have adequate sight distance along the road frontage and a concept access management strategy has been proposed to manage the one-way traffic flows along the access.
- A mirror may be required to achieve adequate visibility to any pedestrians along the site boundary.
- The crash history does not indicate any issues with the road network. The traffic generated by the site will be low and is unlikely to increase the risk of crashes to unacceptable levels.
- The existing external path network is considered to be adequate.
- The existing public transport services are considered to be adequate.



Appendix A – Swept Paths



WATER TANK

SERV.

BULKY WASTE ST.

ST-12
23 m²

18

ST-11
19 m²

19

ST-13
15 m²

ST-14
14 m²

ST-10
20 m²

20

1:5

21

22

25 BIKES

CARPARK LOBBY

ELECTRIC CAR CHARGING BAY

ELECTRIC CAR CHARGING BAY

FIRE ESCAPE
ST

LIFT - 01

LIFT - 02

SERV.

17

16

15

14

13

12

11

ST-9
5 m²

ST-8
5 m²

ST-7
4 m²

ST-6
4 m²

ST-5
5 m²

TRAFFIC LIGHT CONTROLLED 1-WAY RAMP

TRAFFIC LIGHT LOCATION

PAUSE BAY

CARPARK B1

22 FRONT ON BAYS
25 BIKE PARKINGS
AHD-0.200

1

2

3

4

5

6

7

8

9

10

ST-1
6 m²

ST-2
5 m²

ST-3
6 m²

ST-4
5 m²



WATER TANK

SERV.

BULKY WASTE ST.

ST-12
23 m²

18

ST-11
19 m²

19

ST-13
15 m²

ST-14
14 m²

ST-10
20 m²

20

1:5

1:11

21

22

25 BIKES

CARPARK LOBBY

FIRE ESCAPE

LIFT - 01

LIFT - 02

SERV.

ST

17

16

15

14

13

12

11

ST-9
5 m²

ST-8
5 m²

ST-7
4 m²

ST-6
4 m²

ST-5
5 m²

TRAFFIC LIGHT CONTROLLED 1-WAY RAMP

TRAFFIC LIGHT LOCATION

PAUSE BAY

CARPARK B1

22 FRONT ON BAYS
25 BIKE PARKINGS
AHD-0.200

1

2

3

4

5

6

7

8

9

10

ST-1
6 m²

ST-2
5 m²

ST-3
6 m²

ST-4
5 m²



WATER TANK

SERV.

BULKY WASTE ST.

ST-12
23 m²

ST-11
19 m²

ST-10
20 m²

ST-13
15 m²

ST-14
14 m²

18

19

20

17

16

15

14

13

12

11

ST-9
5 m²

ST-8
5 m²

ST-7
4 m²

ST-6
4 m²

ST-5
5 m²

ST-1
6 m²

ST-2
5 m²

ST-3
6 m²

ST-4
5 m²

1:5

TRAFFIC LIGHT CONTROLLED 1-WAY RAMP

TRAFFIC LIGHT LOCATION

PAUSE BAY

CARPARK B1

22 FRONT ON BAYS
25 BIKE PARKINGS

AHD-0.200

CARPARK LOBBY

25 BIKES

FIRE ESCAPE

ST

LIFT - 01

LIFT - 02

SERV.

21

22

ELECTRIC CAR CHARGING BAY

ELECTRIC CAR CHARGING BAY

UP

1

2

3

4

5

6

7

8

9

10



WATER TANK

SERV.

BULKY WASTE ST.

ST-12
23 m²

ST-11
19 m²

ST-10
20 m²

ST-13
15 m²

ST-14
14 m²

18

17

16

19

20

15

14

21

22

25 BIKES

CARPARK LOBBY

ELECTRIC CAR CHARGING BAY

ELECTRIC CAR CHARGING BAY

FIRE ESCAPE

LIFT - 01

LIFT - 02

SERV.

13

12

ST-9
5 m²

TRAFFIC LIGHT CONTROLLED 1-WAY RAMP

CARPARK B1

22 FRONT ON BAYS
25 BIKE PARKINGS
AHD-0.200

ST-8
5 m²

TRAFFIC LIGHT LOCATION

PAUSE BAY

11

ST-7
4 m²

1

2

3

4

5

6

7

8

9

10

ST-1
6 m²

ST-2
5 m²

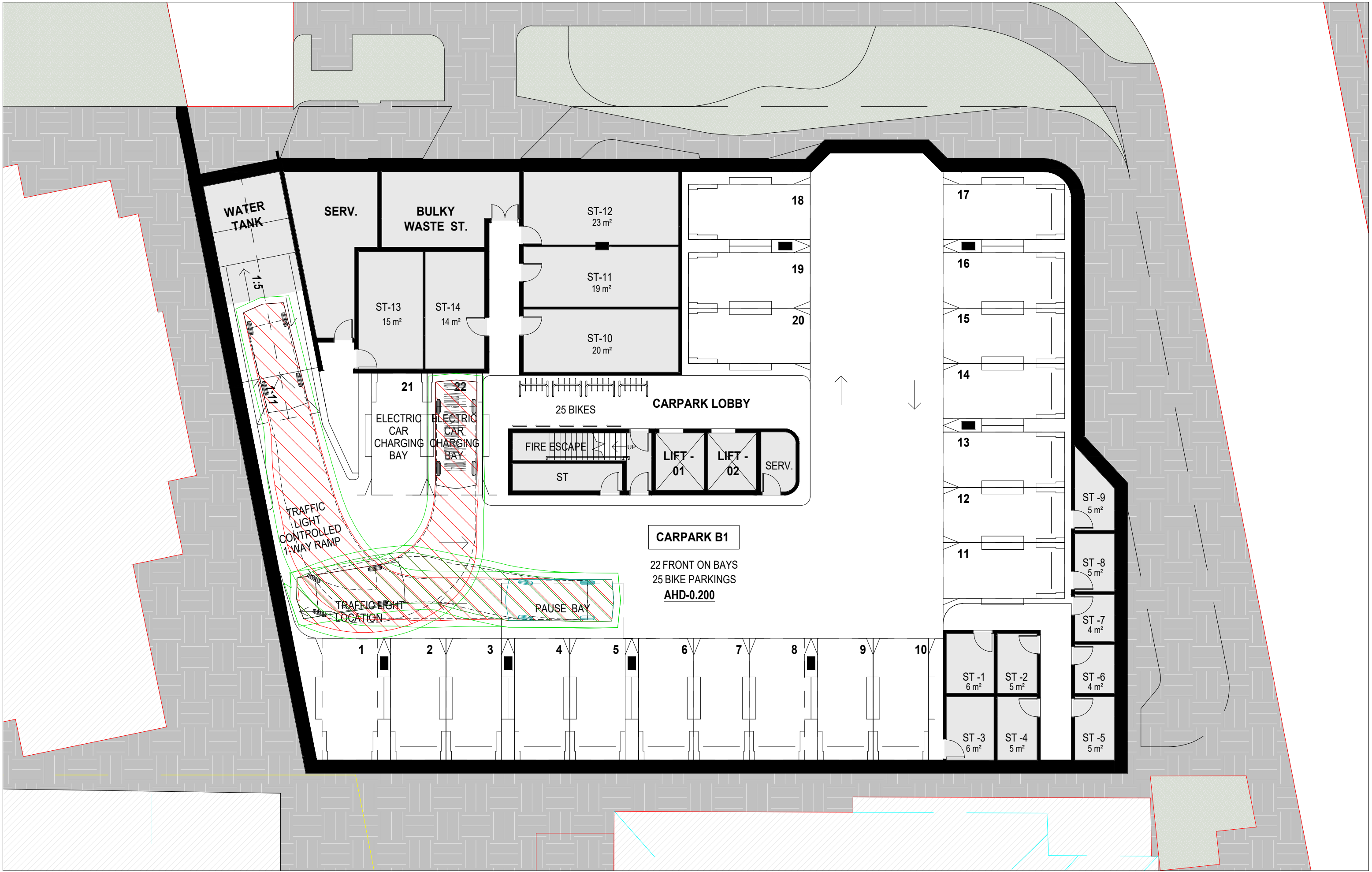
ST-6
4 m²

ST-3
6 m²

ST-4
5 m²

ST-5
5 m²





WATER TANK

SERV.

BULKY WASTE ST.

ST-12
23 m²

18

17

ST-11
19 m²

19

16

ST-13
15 m²

ST-14
14 m²

ST-10
20 m²

20

15

14

1:5

1:1

21

22

25 BIKES

CARPARK LOBBY



ELECTRIC CAR CHARGING BAY

ELECTRIC CAR CHARGING BAY

FIRE ESCAPE
ST

LIFT - 01

LIFT - 02

SERV.

13

12

ST-9
5 m²

TRAFFIC LIGHT CONTROLLED 1-WAY RAMP

CARPARK B1

22 FRONT ON BAYS
25 BIKE PARKINGS
AHD-0.200

11

ST-8
5 m²

TRAFFIC LIGHT LOCATION

PAUSE BAY

ST-7
4 m²

1

2

3

4

5

6

7

8

9

10

ST-1
6 m²

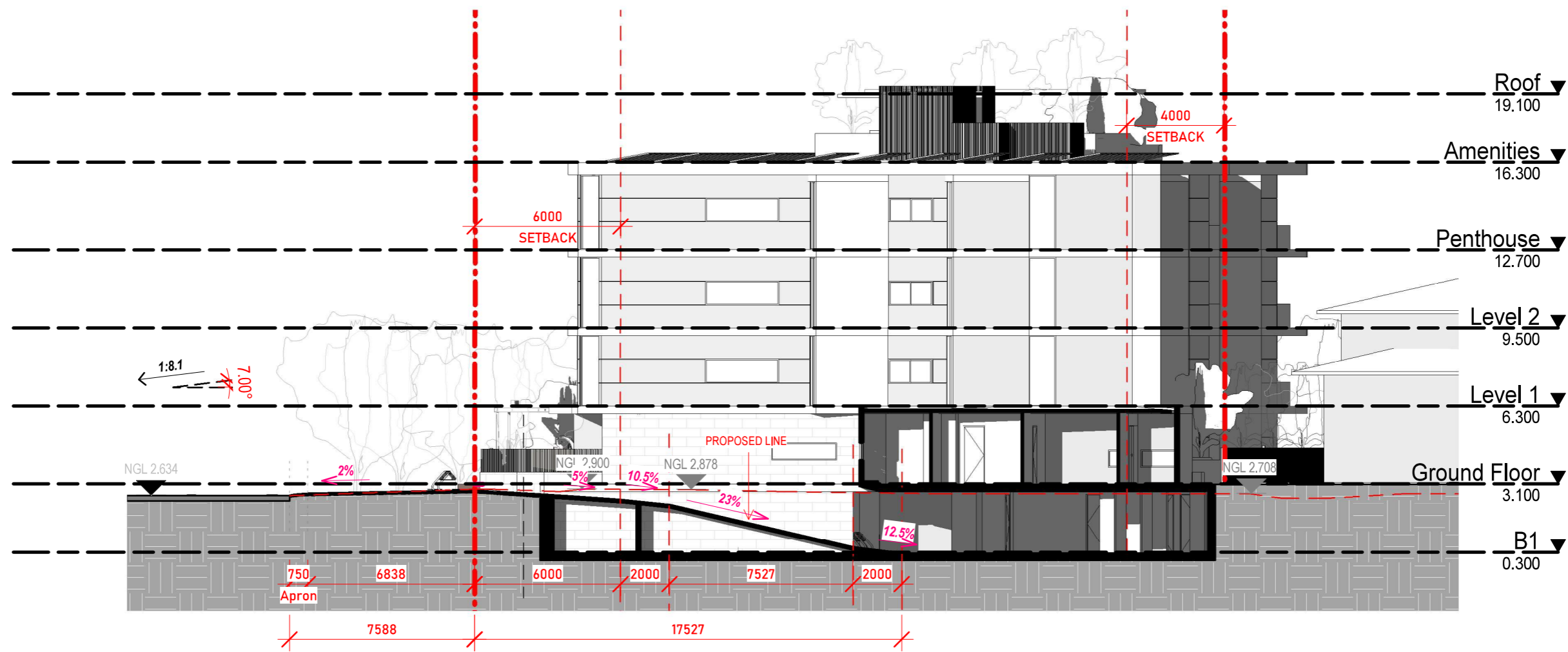
ST-2
5 m²

ST-6
4 m²

ST-3
6 m²

ST-4
5 m²

ST-5
5 m²



1 Ramp Section - 01
 A122 SCALE 1 : 200