

# TRAFFIC IMPACT ASSESSMENT

182-186 Gertrude Street, Gosford

**PREPARED FOR:**

Linfield Group Pty Ltd

**REFERENCE:**

0541r01v03

**DATE:**

10/03/2023



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## 182-186 Gertrude Street, Gosford

Prepared for: Linfield Group Pty Ltd

ABN: 64 607 987 333

Reference: 0541r01v03

Date: 10/03/2023

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### Revision History

VERSION	DATE	PREPARED	REVIEWED	APPROVED	SIGNED
01	8/09/2022	Jay Wu	Maria Mulholland	Paul Corbett	Original Signed
02	8/11/2022	Jay Wu	Maria Mulholland	Paul Corbett	Original Signed
02	10/03/2023	Jay Wu	Julius Boncato	Paul Corbett	

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# 1. Introduction

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## 1.1. Overview

PDC Consultants has been commissioned by Linfield Group Pty Ltd to undertake a traffic impact assessment of a Development Application (DA) relating to a residential flat building development at 182-186 Gertrude Street, Gosford. Specifically, the DA proposes the demolition of the existing buildings and the construction of an eight-storey residential flat building consisting of:

- 39 residential apartments comprising of:
  - Five (5) one-bedroom apartments;
  - 23 two-bedroom apartments;
  - 11 three-bedroom apartments.
- 47 residential car spaces on-site.
- 5.5-metre-wide entry / exit driveway onto an access road.

Having regard for the above, it is evident that the development is not of a scale that requires referral of the DA to Transport for New South Wales (TfNSW), under the provisions of the State Environmental Planning Policy (Transport and Infrastructure) 2021.

The site falls within the Central Coast Council (Council) Local Government Area (LGA) and specifically, within the Gosford City Centre Area. Accordingly, the proposed development has been assessed in accordance with Gosford City Centre Development Control Plan 2018 (GCC DCP 2018).

## 1.2. Structure of this Report

This report documents the findings of our investigations in relation to the anticipated traffic and parking impacts of the proposed development and should be read in the context of the Statement of Environmental Effects (SEE), prepared separately. The remainder of this report is structured as follows:

- Section 2: Describes the site and existing traffic and parking conditions in the locality;
- Section 3: Describes the proposed development;
- Section 4: Assesses the parking requirements of the development;
- Section 5: Assesses the traffic impacts of the development;
- Section 6: Discusses the proposed access and internal design arrangements;
- Section 7: Presents the overall study conclusions.

### 1.3. References

In preparing this report, reference has been made to the following guidelines / standards:

- Gosford City Centre Development Control Plan 2018 (GCC DCP 2018).
- State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP Transport and Infrastructure 2021);
- SEPP No 65 – Design Quality of Residential Apartment Development (SEPP 65);
- NSW Apartment Design Guide (ADG);
- NSW Guidelines for Walking and Cycling (NSW GWC);
- Disability (Access to Premises – Buildings) Standards 2010 (Disability Standard 2010);
- Australian Standard AS 2890.1-2004, Part 1: Off-Street Car Parking (AS 2890.1);
- Australian Standard AS 2890.2-2018, Part 2: Off-Street Commercial Vehicle Facilities (AS 2890.2);
- Australian Standard AS 2890.3-2015, Part 3: Bicycle Parking Facilities (AS 2890.3);
- Australian Standard AS 2890.6-2009, Part 6: Off-Street Parking for People with Disabilities (AS 2890.6);
- RMS<sup>1</sup> Guide to Traffic Generating Development 2002 (RMS Guide);
- RMS<sup>1</sup> Technical Direction TDT 2013/04a - Guide to Traffic Generating Developments, Updated Traffic Surveys (RMS Guide Update).

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<sup>1</sup> Roads and Maritime Services (RMS) has joined with Transport for NSW, with reference to RMS now taken legally to automatically mean TfNSW.

## 2. Existing Conditions

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### 2.1. Location and Site

The subject site is located at 182-186 Gertrude Street, Gosford, being approximately 680 metres northeast of Gosford Railway Station. More specifically, it is located to the west of an access road between its intersections with Gertrude Street to the north and south.

The site is a consolidation of three (3) lots, legally described as Lot1 DP17128 and Lot 24 & 25 Sec 3 DP1591. The site is rectangular in configuration with a total area of approximately 1,808m<sup>2</sup>. It has one (1) street frontage being an access road which runs parallel with Gertrude Street to the east, having a length of approximately 40 metres. The northern, southern and western boundaries border residential dwellings, having lengths of approximately 45 metres to the north and south and 40 metres to the west.

The site currently accommodates three (3) residential dwellings. Each dwelling has a 3.5-metre-wide driveway and provides vehicle access onto the access road.

**Figure 1** and **Figure 2** provide an appreciation of the site's location in both a local and board context, respectively.

### 2.2. Road Network

The road hierarchy in the vicinity of the site is shown by **Figure 2**, with the following roads considered noteworthy:

- **Henry Parry Drive:** a classified state road (MR 673) that generally runs in a north-south direction between Pacific Highway (HW10) in the north and York Street (HW30) in the south. Near the site, Henry Parry Drive is subject to 60km/h speed zoning restrictions and accommodates a single lane of traffic in each direction. Time unrestricted parallel parking is permitted along both kerbsides with designated parking lanes.
- **Mann Street:** an unclassified regional road that generally runs in a north-south direction between Pacific Highway (HW10) in the north and Central Coast Highway (HW30) in the south. Near the site, Mann Street is subject to 60km/h speed zoning restrictions and accommodates a single lane of traffic in each direction. Time restricted parallel parking is permitted along both kerbsides, generally subjecting to 1P or 2P restrictions from 8:30am to 6pm, Monday to Friday and from 8:30am to 12:30pm on Saturday.
- **Gertrude Street:** a local road that runs in a north-south direction between Glennie Street in the north and Beane Street in the south. Near the site, it is subject to 50km/h speed zoning restrictions and accommodates a single lane of traffic in each direction. Unrestricted parallel parking is permitted along both kerbsides.
- **Access Road:** a short service laneway that runs in a north-south direction, connecting with Gertrude Street at both the north and south. The Service Road accommodates a single lane of traffic in each direction and is subject to 'No Stopping' restrictions along both kerbsides for the entire length. The primary function of the Service Road is to provide vehicle access to six (6) residential properties which includes the subject site.





Figure 1: Site Plan



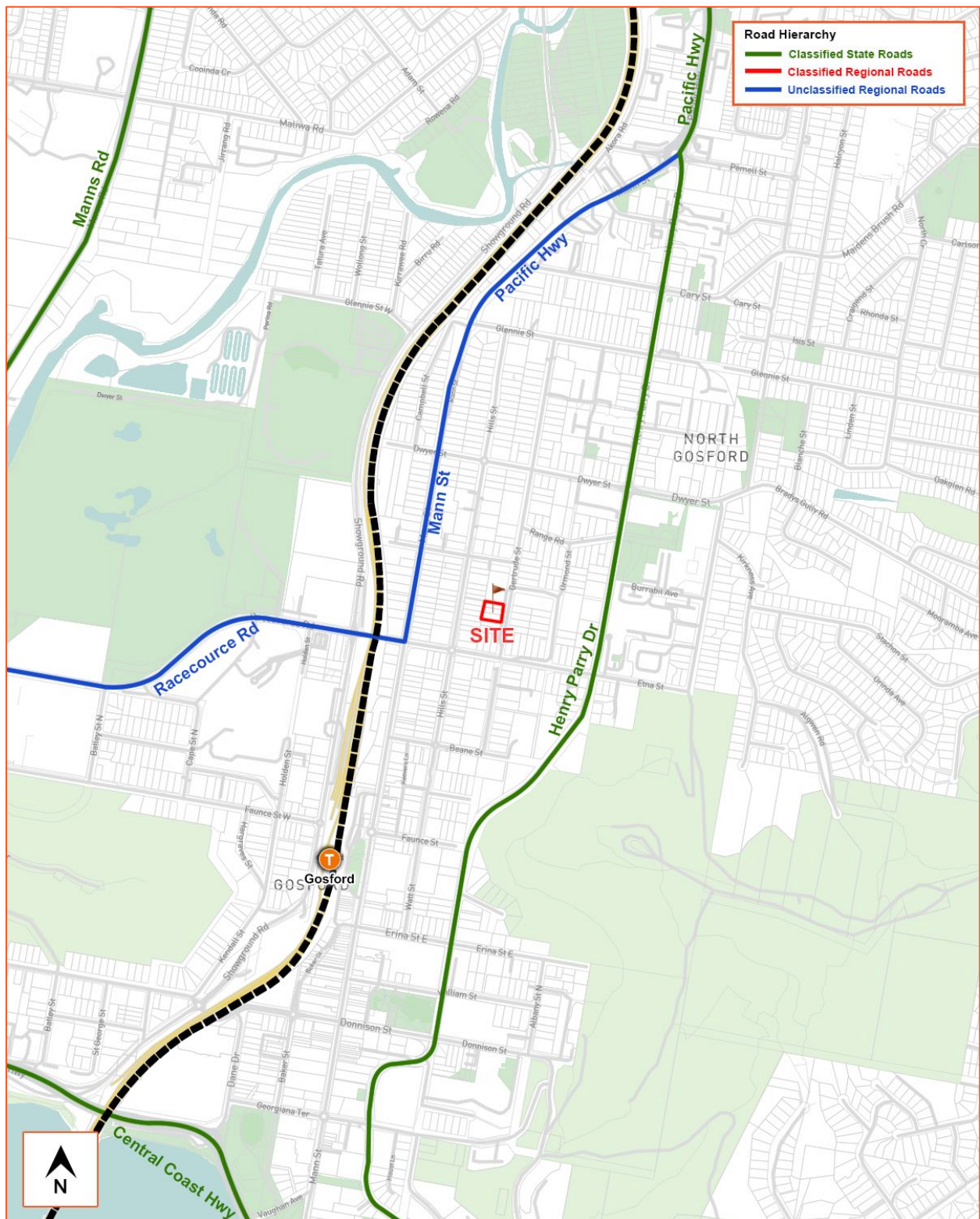


Figure 2: Location and Road Hierarchy Plan



## 2.3. Public and Active Transport

### 2.3.1. Bus Services

The Integrated Public Transport Service Planning Guidelines, Rural and Regional NSW, states that the walking catchment for regional bus services includes all areas within an 800-metre radius of a bus stop. As can be seen from **Figure 3**, the site is situated within 800 metres of several bus stops located along Mann Street and Hills Street and hence, falls within the walking catchment area. These bus stops are serviced by 10 bus routes as per **Table 1** and **Figure 3**. Residents and visitors are expected to utilise these services for journeys to / from the proposed development.

**Table 1** shows the notable town centres that are accessible via these bus services, and the average service headways during peak and off-peak periods.

**Table 1: Bus Services**

ROUTE NO.	ROUTE (TO / FROM)	ROUTE DESCRIPTION	AVERAGE HEADWAY
32	Spencer to Gosford	Via Never fail, Lower Mangrove, Greengrove, Mangrove Mountain, Central Mangrove, Somersby	Weekdays: 2 Services Weekends: No Services
32/4	Mangrove Mountain to Gosford via Kariong	Via Central Mangrove, Somersby, Kariong	Weekdays: 3 Services Weekends: 2 Service
33	Somersby to Gosford via Industrial Estate & West Gosford	Via Kariong, West Gosford, North Gosford	Weekdays: 5 Services Weekends: No Services
33/4	Gosford to Somersby industrial Estate and Kariong (Loop Service)	Via Kariong	Weekdays: 4 Services Weekends: No Services
34	Gosford to Kariong (Loop Service)	-	Weekdays: 30 minutes Weekends: 1 hour
36	Westfield Tuggerah to Gosford via Niagara Park	Via Kangy Angy, Ourimbah, Niagara Park, Narara	Weekdays: 1 hours Weekends: 1 hour
37	Tuggerah to Gosford via Lisarow	Via Kangy Angy, Ourimbah, Wyoming, North Gosford	Weekdays: 30- 60 minutes Weekends: 1 hour
37/8	Ourimbah to Gosford via Wyoming	Via Niagara Park, Narara, Wyoming	Weekdays: 2 Services Weekends: No Services
38	Gosford to Wyoming (Loop Service)	Via North Gosford	Weekdays: 30 minutes Weekends: 30-60 minutes
40	North Gosford to Gosford (Loop Service)	-	Weekdays: 1 hours Weekends: 1 hour

### 2.3.2. Rail Services

The Integrated Public Transport Service Planning Guidelines, Rural and Regional NSW, does not stipulate a recommended walking catchment for regional railway stations. The walking catchment radius of a regional bus stop is therefore adopted, which includes all areas within an 800-metre radius of a station. It can be seen from **Figure 3** that Gosford Railway Station is located at approximately 680 metres from the site and hence, falls within the walking catchment area. Accordingly, it is expected that residents and visitors of the development would have convenient access to the railway services operating at Gosford Railway Station for journeys to and from the development.

Gosford Railway Station is serviced by one (1) regional railway line, being the Central Coast & Newcastle Line. **Table 2** shows the notable town centres that are accessible along the Central Coast & Newcastle Line and the average service headways during peak and off-peak periods.

**Table 2: Rail Services**

RAILWAY LINE	NOTABLE TOWN CENTRES ALONG LINE	AVERAGE HEADWAY
Central Coast & Newcastle Line	Redfern, Sydney CBD, North Sydney, Epping, Chatswood, Hornsby, Berowra, Gosford, Wyong & Newcastle	Weekdays: 3 – 20 minutes during AM peak / 7 – 20 minutes during PM peak Weekends: 30 minutes all day

### 2.3.3. Cycle Network

**Figure 3** shows that the site has access to the local bicycle network with on-road cycle paths provided along Mann Street. This cycle path provides connections to the wider bicycle and active transport network and will encourage an uptake of cycling for residents and visitors of the subject development.

## 2.4. Existing Trip Generation

As discussed in Section 2.1 of this report, the site currently accommodates three (3) residential dwellings. The RMS Guide Update recommends application of a peak period traffic generation rate of 0.95 trips per dwelling during the 7-9am (AM) peak period and 0.99 trips per dwelling during the 4-6pm (PM) peak period. Application of these rates to the existing single dwellings results in the following traffic generation:

- 3 vehicle trips / hour (1 in, 2 out), during the AM peak period;
- 3 vehicle trips / hour (2 in, 1 out), during the PM peak period.

The above assumes a 20% inbound and 80% outbound distribution during the AM peak period noting that residents would typically depart the site for work in the morning, and vice versa for the weekday PM peak period. Notwithstanding, it is considered that the most relevant use of the above is to determine the net change in traffic generation as a result of the proposed development, as is discussed in Section 5.1 of this report.

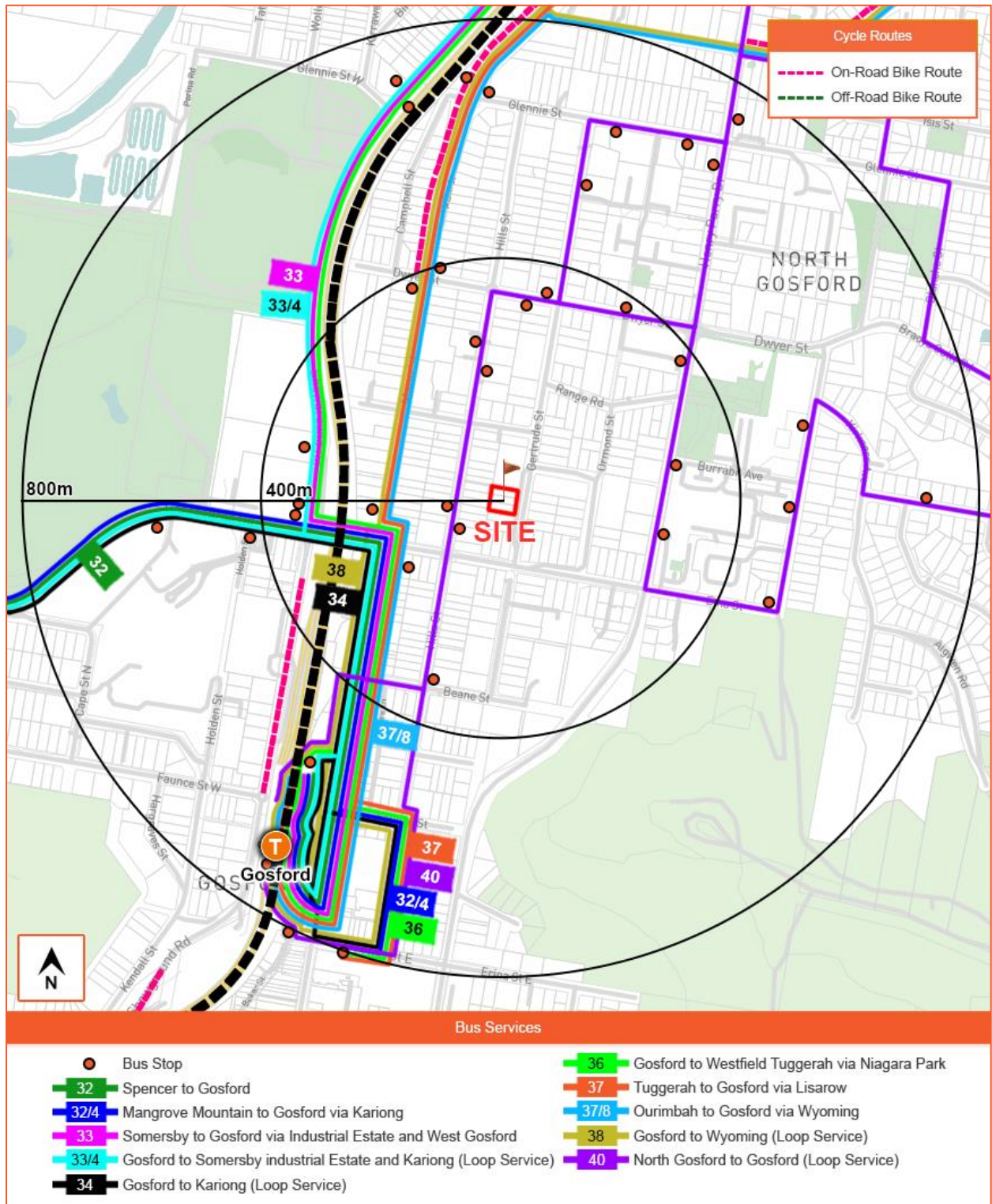


Figure 3: Public & Active Transport Services

### 3. Proposed Development

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A detailed description of the proposed development for which approval is now sought, is outlined in the SEE prepared separately. In summary, the DA proposes the demolition of the existing buildings and the construction of an eight-storey residential flat building, consisting of:

- 39 residential apartments comprising of:
  - Five (5) one-bedroom apartments;
  - 23 two-bedroom apartments;
  - 11 three-bedroom apartments.
- 47 residential car spaces on-site.
- 5.5-metre-wide entry / exit driveway onto a service road.

The parking and traffic implications arising from the proposed development are discussed in Sections 4 and 5 respectively. A copy of the relevant architectural drawings, prepared by Texco Design, are included in **Appendix A**.

## 4. Parking Requirements

### 4.1. Car Parking

The site is located within 120 metres of land zoned B4: Mixed Use Zone in the nominated regional centre of Gosford. In accordance with Clause 30(1)(a) of the SEPP 65 the car parking requirement for the proposed residential flat building will therefore be assessed in accordance with both the GCC DCP 2018 and ADG.

As stated by Objective 3J-1 of the ADG, the minimum car parking requirement for residential apartments is set out in the RMS Guide or Council's DCP, whichever is less. In this regard, the car parking requirement for the proposed residential flat building development has been assessed separately against both the RfMS Guide and GCC DCP 2018, as discussed below.

**Table 3** below shows the car parking requirement for the development under application of both the RMS Guide and GCC DCP 2018.

**Table 3: Car Parking Requirements**

TYPE	NO.	RMS PARKING RATE	DCP PARKING RATE	RMS REQUIREMENT	DCP REQUIREMENT	PROPOSED PROVISION
One Bedroom	5	0.6 space / dwelling	1.0 space / dwelling	3	5	47
Two Bedroom	23	0.9 spaces / dwelling	1.2 spaces / dwelling	21	28	
Three Bedroom	11	1.4 spaces / dwelling	1.5 spaces / dwelling	15	17	
Visitor	39	0.2 spaces / dwelling	0.2 spaces / dwelling	8	8	
<b>TOTAL</b>				<b>47<sup>1</sup></b>	<b>57<sup>1</sup></b>	<b>47</b>

<sup>1</sup> Standard rounding applied.

It is evident from **Table 3** above that the proposed residential flat building requires a minimum of 47 car parking spaces under the RMS Guide and 57 car parking spaces under the GCC DCP 2018. Application of Objective 3J-1 of the ADG requires the development to provide the lesser, being the RMS Guide requirement of 47 car spaces including, 39 resident spaces and eight (8) visitor spaces.

In response, the development proposes a total of 47 car parking spaces on-site, thereby satisfying the requirements of RMS Guide. The proposed car parking provision is therefore considered acceptable and will ensure that all car parking demands are accommodated on-site, with no reliance on on-street parking.

### 4.2. Accessible Car Parking

The GCC DCP 2018 stipulates a minimum accessible parking rate of "not less than 10% of the required resident and visitor space" for residential flat building developments. The proposed development is required to provide 47 car parking spaces on-site under RMS Guide and is therefore required to provide five (5) accessible parking spaces. In response, the proposed development provides five (5) accessible parking spaces within the basement car park and therefore satisfies the minimum requirements of the GCC DCP 2018.



### 4.3. Motorcycle Parking

The GCC DCP 2018 stipulates a minimum motorcycle parking rate of one (1) space per 15 dwellings (or part thereof) for residential flat building developments. The proposed development provides 39 dwellings on-site and is therefore required to provide three (3) motorcycle parking spaces. In response, the proposed development provides three (3) motorcycle parking spaces within the basement car park and therefore satisfies the minimum requirements of the GCC DCP 2018.

### 4.4. Bicycle Parking

**Table 4** below shows the bicycle parking requirement for the development under application the GCC DCP 2018 and the proposed provision in response.

**Table 4: Bicycle Parking Requirements**

TYPE	NO.	DCP PARKING RATE	MINIMUM REQUIREMENT	PROPOSED PROVISION
Resident	39	1.0 space / 3 dwelling	13	16
Visitor		1.0 spaces / 12 dwelling	3	
Total			16	16

It is evident from **Table 4** above that the proposed residential flat building requires a minimum of 16 bicycle parking spaces under GCC DCP 2018. In response, the proposed development provides 16 bicycle spaces within the basement and therefore satisfies the minimum requirements of the GCC DCP 2018.

### 4.5. Service Vehicle Parking & Waste Collection

#### 4.5.1. Service Vehicle Parking

The GCC DCP 2018 does not specify a rate for the provision of service vehicle parking. Accordingly, reference was made to the RMS Guide which provides recommended service vehicle parking rates for residential flat building developments. **Table 5** shows the service vehicle parking requirement under the applicable 'residential flat building' service vehicle parking rates of the RMS Guide, and the proposed provision in response.

**Table 5: Service Vehicle Parking Requirement & Provision**

TYPE	NO.	RMS PARKING RATE	RMS REQUIREMENT	PROPOSED PROVISION
Residential Flat Building	39	1.0 space / 50 units (under 200 units)	1	1
<b>TOTAL:</b>			<b>1</b>	<b>1</b>

It is evident from **Table 5** that the development is required to provide one (1) service bay under the RMS Guide. In response, the proposed development provides a single loading bay on Level 01 which can accommodate vehicles up to and including a 6.4-metre-long truck with a maximum height of 2.2 metres. This vehicle size includes typical high-top vans and tradesman utes which is considered acceptable for the proposed development.

#### 4.5.2. Waste Collection

Waste collection of the development shall be undertaken within the designated loading bay located on the Level 01, using a 6.4-metre-long truck with a maximum vehicle height of 2.2 metres and will be undertaken by a private waste contractor. In this regard, a loading bay is provided near the bin room on Level 01. The waste truck will enter the site in a forward direction. The waste contractors will then proceed to transfer the bins between the truck and the bin room. After collection, the waste truck will exit the site in a forward direction.

Swept path analysis has been undertaken of the proposed service vehicle parking arrangements, with the use of a 6.4-metre-long truck with a reduced head height of 2.2 metres. The results are provided as **Appendix B** and confirm that satisfactory entry and exit manoeuvres will be achieved to the service bay and service vehicles will enter and exit the site in a forward direction.

The proposed waste collection and service vehicle parking arrangements are therefore considered to be acceptable and will ensure that waste can be collected safely and efficiently, whilst also being consistent with comparable developments in the area.

## 5. Traffic Impacts

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### 5.1. Trip Generation

#### 5.1.1. Residential

The RMS Guide Update recommends application of a traffic generation rate of 0.53 trips / apartment / hour for the AM peak period and 0.32 trips / apartment / hour for the PM peak period, for high density residential developments in regional areas. Application of an average trip rate of the aforementioned traffic generation rates to the 39 apartments proposed, results in the following peak period traffic generation:

- 21 vehicle trips / hour (4 in 17 out) during the AM peak period;
- 12 vehicle trips / hour (10 in 2 out) during the PM peak period.

The above assumes a 20% inbound and 80% outbound distribution during the AM peak period noting that residents would typically depart the site for work in the morning, and vice versa for the weekday PM peak period.

#### 5.1.2. Net Trip Generation

The above is not a net increase in traffic generation, as it does not take into consideration the generation of the existing development. In this regard the net increase in generation as a result of the proposed development is expected to be as follows:

- 18 vehicle trips / hour (3 in, 15 out), during the AM peak period;
- 9 vehicle trips / hour (8 in, 1 out), during the PM peak period.

### 5.2. Traffic Impacts

The proposed development will result in a net increase in traffic generation of 18 vehicle trips / hour during the AM peak period and nine (9) vehicle tips / hour during the PM peak period. This equates to one (1) additional vehicle trip every 3-4 minutes during the AM peak period and one (1) additional vehicle trip every 6-7 minutes during the PM peak period, which will have no material impact on the performance of the external road network and accordingly, no external improvements will be required to facilitate the development.

Furthermore, computer modelling techniques available to analyse intersection performances are not sensitive to such small changes in traffic volumes and hence, such an assessment is not considered to be required. The traffic impacts of the proposed development are therefore considered acceptable.

## 6. Design Aspects

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### 6.1. Access

With 47 car parking spaces of User Class 1A, the proposed development requires a Category 1 Driveway under Table 3.1 of AS 2890.1, being a combined entry / exit driveway of width 3.0 metres to 5.5 metres. In response, the development proposes a combined entry / exit driveway of width 5.5 metres onto the Service Road, and therefore satisfies the requirements of AS 2890.1.

The proposed arrangements have also been assessed using swept path analysis which confirms compliance with AS 2890.1 and AS 2890.2, and that the proposed access arrangements will operate safely and efficiently. The results of this analysis are included in **Appendix B** for reference.

The proposed design of the access is therefore considered acceptable and complies with the relevant requirements of AS 2890.1 and AS 2890.2.

### 6.2. Internal Design

The proposed internal parking arrangements comply with the relevant requirements of AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6, with the following design aspects considered noteworthy:

#### 6.2.1. Driveway / Ramp

- The first 6 metres of the Level 02 – Level 01 driveway / ramp has the following grade inside the property boundary, due to stormwater design requirements:
  - 8% (1 in 12.5) for 2 metres
  - Flat for 2 metres
  - 10% (1 in 10) for 2 metres
- The vehicular ramp has a maximum grade of 20% (1 in 5) with 2.0 metre transitions of 10% (1 in 10) along the inside edge of the ramp.
- The Level 02 – Level 01 ramp has a width of 5.5 metres for the first 12 metres inside the site boundary and reduces to 4.4 metres wide at the curve. The ramp will therefore accommodate one-lane, two-way traffic flow, as demonstrated by the swept path analysis results included in **Appendix B**. This arrangement complies with AS 2890.1 and is considered acceptable given the low traffic generation and tidal nature (i.e. most vehicles departing the site in the morning and arriving at the site in the evening).
- The vehicle circulation ramps between basement levels will have maximum grades of 25% (1 in 4) with 2.0 metre transitions of 12.5% (1 in 8) at both ends, thereby satisfying Clause 2.5.3 of AS2890.1.

- The vehicle circulation ramps between basement levels have a minimum width of 3.6 metres between kerbs and will accommodate one-lane, two-way traffic flow as demonstrated by the swept path analysis results in **Appendix B**, therefore complies with AS 2890.1 and is considered acceptable.
- Due to the one-lane, two-way vehicle ramps and constrained intervisibility from one end of the ramp to the other, the use of traffic signals is required to manage the internal vehicle circulation within the basement levels. In this regard, the architectural plans, provided in **Appendix A**, show that traffic signals will be provided at the vehicle access and within the basement levels to manage traffic flow and ensure that vehicle movements occur safely and efficiently.

### 6.2.2. Parking Modules

- All car parking spaces are provided in accordance with the User Class 1A requirements of AS2890.1, having a minimum space width of 2.4 metres and length of 5.4 metres, with minimum aisle widths of 5.8 metres.
- The accessible car parking space is provided with a minimum space width of 2.4 metres and length of 5.4 metres, with an aisle width of 5.8 metres. Additionally, this space is located immediately adjacent to a 2.4-metre-wide and 5.4-metre-long shared area, thereby satisfying the requirements of AS 2890.6.
- The loading bay on Level 01 is provided with a width of 3.5 metres and length of 6.4 metres, which can accommodate vehicles up to and including a 6.4-metre-long truck with a maximum height of 2.2 metres.
- All walls are located outside of the space design envelope, as required under Figure 5.2 of AS 2890.1.
- A 1.0 metre blind aisle extension has been provided beyond the last parking spaces, in accordance with Figure 2.3 of AS 2890.1.

### 6.2.3. Head Heights

- A minimum clear head height of 2.2 metres is required above all traffic circulation and car parking areas in accordance with Clause 5.3.1 of AS 2890.1.
- A minimum clear head height of 2.5 metres is required above the accessible car parking space and shared areas, in accordance with Clause 2.4 of AS 2890.6.

### 6.2.4. Other Design Aspects

- A 2.5m by 2.0m visual splay is provided on the egress side of the driveway, at the property boundary, in accordance with Figure 3.3 of AS 2890.1.
- All bicycle parking spaces are provided as Security Level B facilities, in accordance with AS 2890.3.
- All motorcycle spaces are provided in accordance with Clause 2.4.7 of AS 2890.1.

In summary, the internal parking arrangements have been designed in accordance with AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6. Any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.



### 6.3. Traffic Signal System

To ensure that vehicle movements to / from the site access and within the basement levels are managed safely and efficiently, a traffic signal system will be provided for the vehicle ramps. This will involve the provision of red / green traffic signals (traffic signals) and waiting bays within the car parking levels, as shown by the architectural drawings provided as **Appendix A**.

The signals provided at the vehicle access would be configured in a 'passive green' state such that vehicles entering the site would always be given a green signal on arrival. This will ensure that entering drivers would (generally) not experience any delays, minimising the potential for any on-street queuing to occur. The only exception to this would be if a driver was to enter the site at the same time that a driver was exiting from the basement levels, which is a very low probability event. In this instance, the following would occur:

- The exiting driver would manoeuvre out of their parking space and into a waiting bay in the basement. This would trigger the traffic signal at the vehicle access to a 'red' state, such that both signals are now 'red'.
- After a safety delay period of approximately 30 seconds, the traffic signal in the basement would change to 'green' and remain in this state for a period of approximately 40 seconds whilst the driver exits the site. During this period the signal at the access would remain 'red'.
- The signal in the basement would then revert to 'red'.
- After a safety delay period of approximately 30 seconds, the signals would revert to their passive state whereby the signal at the access would revert to 'green' and the signal in the basements would remain 'red'.

It is noted that the times provided above are indicative only and would be confirmed with a signal specialist at Construction Certificate (CC) stage.

Induction loops will be provided within the waiting bays on Level 02, Level 01, Basement 01 and Basement 02. This would link the waiting bays to the traffic signals for automatic operation of the traffic signal system.

The proposed traffic signal system is considered acceptable for the management of the vehicle ramp. It is also common practice for small - moderate scale developments such as that proposed which are provided with one-lane, two-way ramps and generate moderate and tidal traffic volumes during peak periods.

## 7. Conclusions

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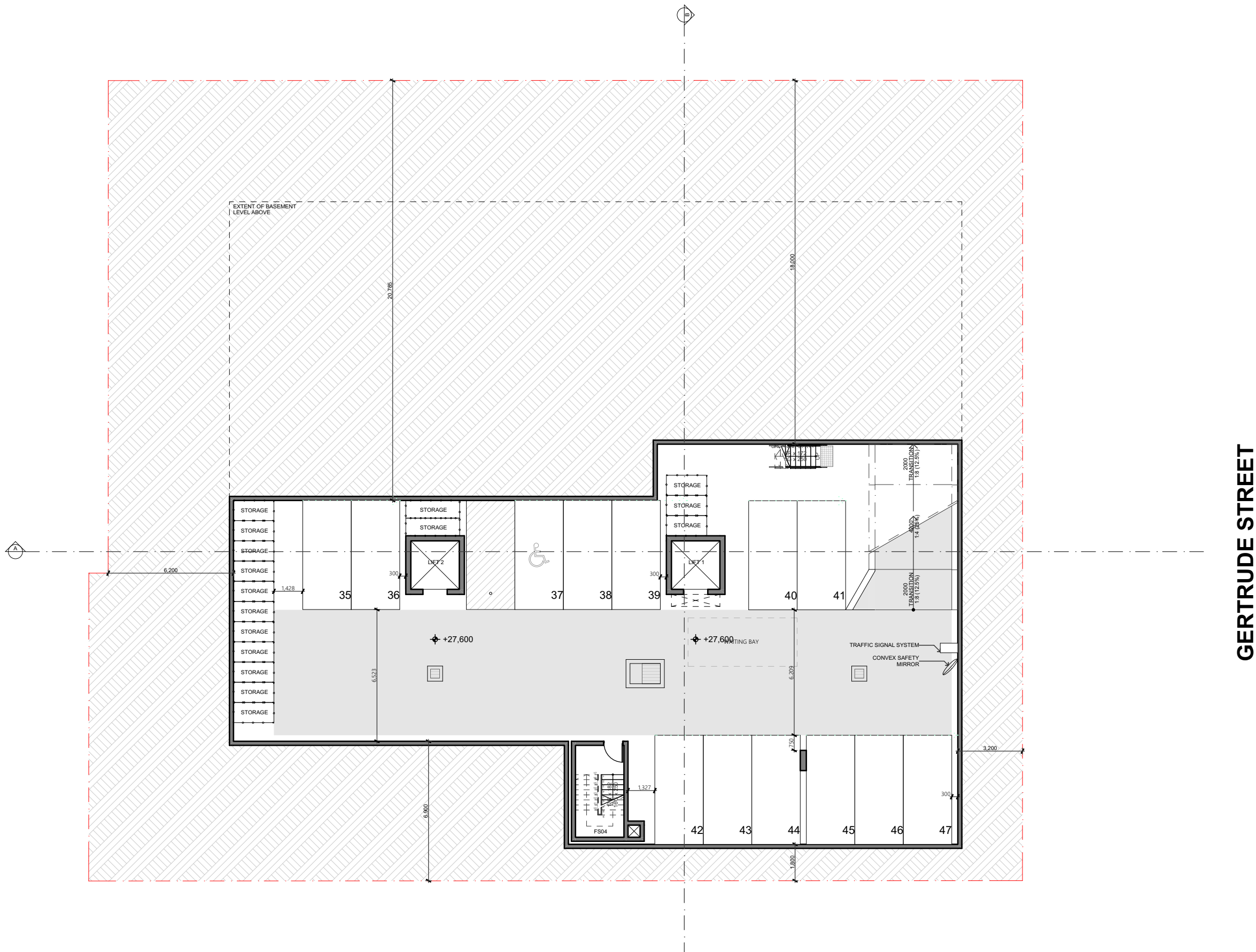
In summary:

- PDC Consultants has been commissioned by Linfield Group Pty Ltd to undertake a TIA of a DA relating to a residential flat building development at 182-186 Gertrude Street, Gosford. Specifically, the DA proposes the demolition of the existing buildings and the construction of an eight-storey residential flat building consisting of:
  - 39 residential apartments comprising of:
    - Five (5) one-bedroom apartments;
    - 23 two-bedroom apartments;
    - 11 three-bedroom apartments.
  - 47 residential car spaces on-site.
  - 5.5-metre-wide entry / exit driveway onto a service road.
- The traffic generation assessment confirms that the development will generate seven 21 vehicle trips / hour during the weekday AM peak period and 12 vehicle trips / hour during the weekday PM peak period. However, once the traffic generation of the existing residential dwelling is taken into consideration, the proposed development would result in a net increase in traffic generation of 18 vehicle trips / hour during the weekday AM peak period and nine (9) vehicle trips / hour during the weekday PM peak period. This equates to one (1) additional vehicle trip every 3-4 minutes during the AM peak period and one (1) additional vehicle trip every 6-7 minutes during the PM peak period, which will have no material impact on the performance of the external road network and accordingly, no external improvements will be required to facilitate the development. The traffic impacts of the proposed development are therefore considered acceptable.
- The RMS Guide / ADG and GCCDCP 2018 requires the development to provide 47 residential car parking spaces on-site including eight (8) visitor car parking spaces. In response, the development provides a total of 47 car parking spaces on-site. The proposed parking provision is therefore considered acceptable and will ensure all car parking demands are accommodated on-site, with no reliance on on-street parking.
- The proposed access and internal parking arrangements generally comply with the relevant requirements of AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6. Any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

It is therefore concluded that the proposed development is supportable on traffic planning grounds.



## Appendix A



GERTRUDE STREET

**NOTE**  
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**Project Partners**  
Refer to consultant documentation when directed

- Builder	- #Builder
- Planning Consultant	- #Planning Consultant
- Structural Engineer	- #Structural Engineer
- Mechanical Engineer	- #Mechanical Engineer
- Hydraulic Engineer	- #Hydraulic Engineer
- Fire Engineer	- #Fire Engineer
- Fire Service	- #Fire Service
- Electrical Engineer	- #Electrical Engineer
- Landscape Designer	- #Landscape Consultant
- Traffic Engineer	- #Traffic Engineer
- Surveyor Consultant	- #Surveyor

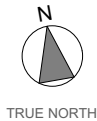
RevID	Issue Date	Approved by	Rev. Note
A	10/11/2022	TZ	ISSUE FOR SUBMISSION
B	6/03/2023	TZ	ISSUE FOR SUBMISSION

**Project Designer**

**TEXCO DESIGN**

Nom Arch: NSW ARB 11348  
P: +61 449 984 889

E: office@texcodesign.com.au



Drawn | Checked MC | TZ |  
Revision Date: 6/03/2023  
Project NO. 2201  
Project Status DA

Client LINDFIELD GROUP  
Site 182-186 GERTRUDE ST NORTH GOSFORD  
Climate Zone 5  
Wind Region A

PAPER  
**A3**  
1:200

DRAWING TITLE :  
**PLANS  
BASEMENT 02 PLAN**

PROJECT NAME :  
**182-186 GERTRUDE ST NORTH  
GOSFORD**

REVISION NO.  
**B**

DRAWING NO.  
**101**







GERTRUDE STREET



SITE REGRADING AS PER  
FLOOD REPORT

#### NOTE

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- Hydraulic Engineer	- #Hydraulic Engineer
- Fire Engineer	- #Fire Engineer
- Fire Service	- #Fire Service
- Electrical Engineer	- #Electrical Engineer
- Landscape Designer	- #Landscape Designer
- Traffic Engineer	- #Traffic Engineer
- Surveyor	- #Surveyor

RevID	Issue Date	Approved by	Rev. Note
A	10/11/2022	TZ	ISSUE FOR SUBMISSION
B	20/02/2023	TZ	ISSUE FOR SUBMISSION

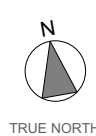
#### Project Designer



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Drawn | Checked  
Revision Date: 20/02/2023  
Project NO. 2201  
Project Status DA

Client: LINDFIELD GROUP  
Site: 182-186 GERTRUDE ST NORTH GOSFORD  
Climate Zone 5  
Wind Region A

PAPER  
**A3**  
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#### DRAWING TITLE :

PLANS  
GROUND FLOOR PLAN

#### PROJECT NAME :

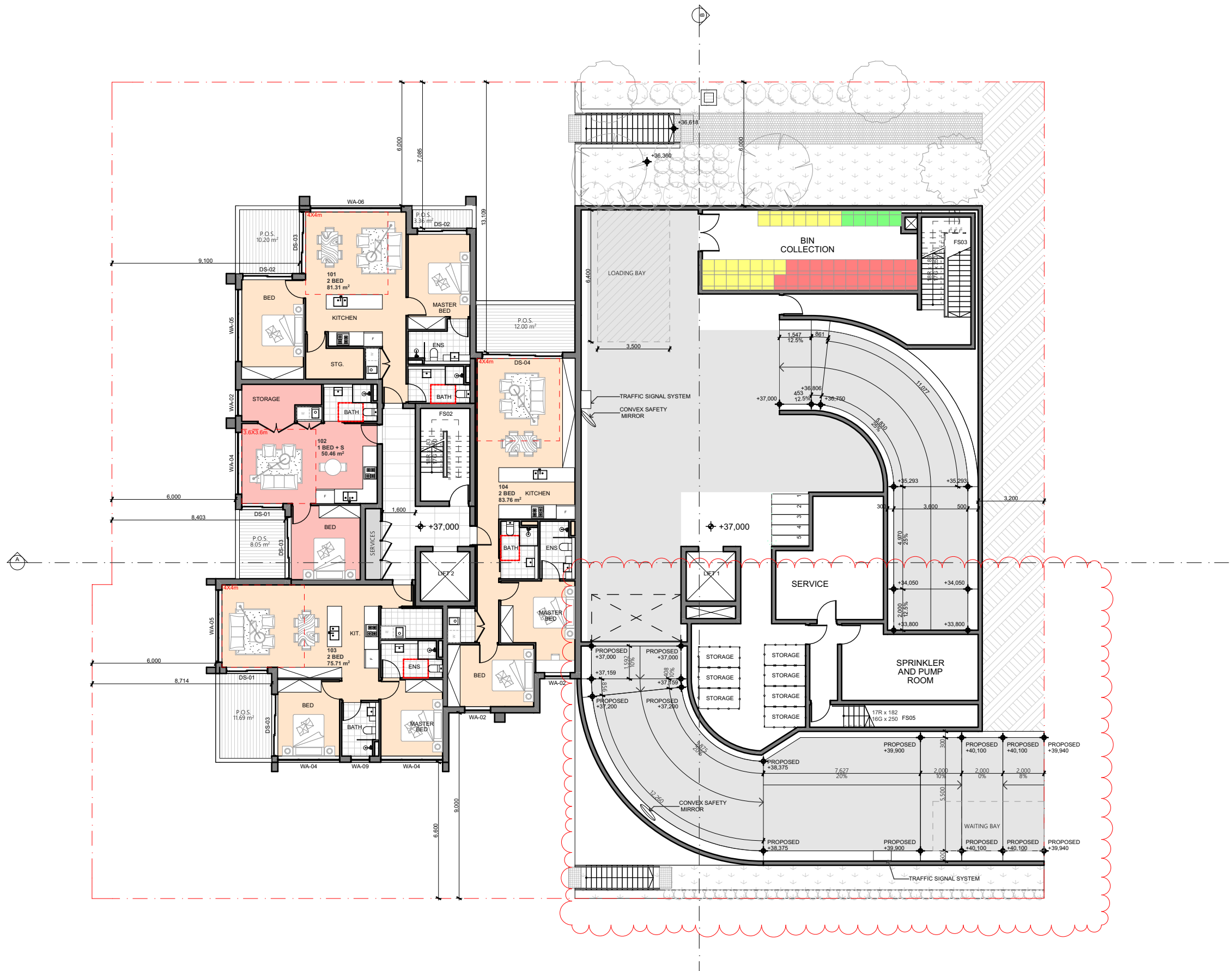
**182-186 GERTRUDE ST NORTH  
GOSFORD**

#### REVISION NO.

**B**

#### DRAWING NO.

**103**



GERTRUDE STREET

**NOTE**  
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**Project Partners**  
Refer to consultant documentation when directed

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- Planning Consultant	- #Planning Consultant
- Structural Engineer	- #Structural Engineer
- Mechanical Engineer	- #Mechanical Engineer
- Hydraulic Engineer	- #Hydraulic Engineer
- Fire Engineer	- #Fire Engineer
- Fire Service	- #Fire Service
- Electrical Engineer	- #Electrical Engineer
- Landscape Designer	- #Landscape Consultant
- Traffic Engineer	- #Traffic Engineer
- Surveyor Consultant	- #Surveyor

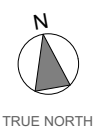
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A	10/11/2022	TZ	ISSUE FOR SUBMISSION
B	20/02/2023	TZ	ISSUE FOR SUBMISSION

**Project Designer**

**TEXCO DESIGN**

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P: +61 449 984 889

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Drawn | Checked MC | TZ |  
Revision Date: 20/02/2023  
Project NO. 2201  
Project Status DA

Client LINDFIELD GROUP  
Site 182-186 GERTRUDE ST NORTH GOSFORD  
Climate Zone 5  
Wind Region A

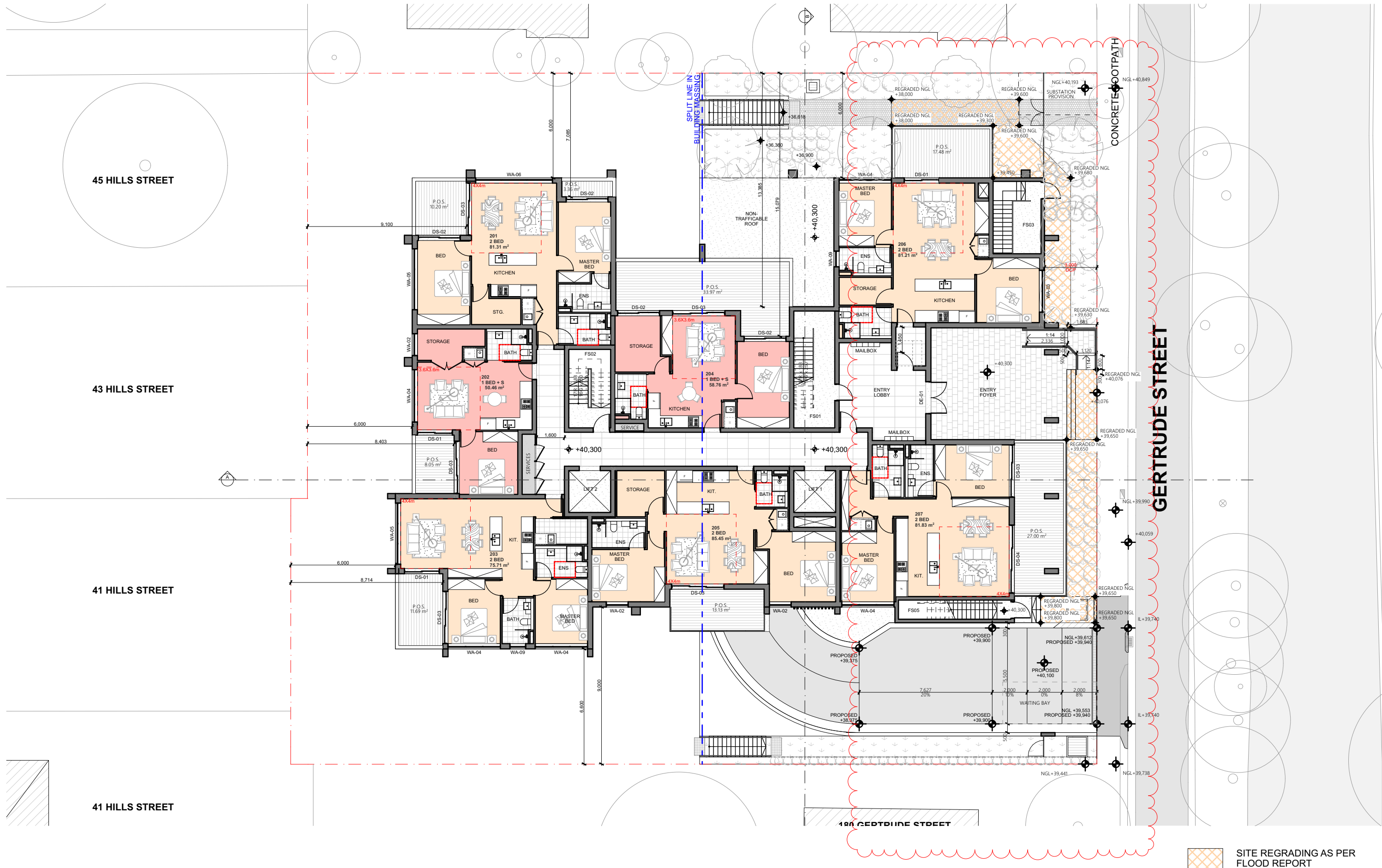
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DRAWING TITLE :  
**PLANS  
LEVEL 01 FLOOR PLAN**

PROJECT NAME :  
**182-186 GERTRUDE ST NORTH  
GOSFORD**

REVISION NO.  
**B**

DRAWING NO.  
**104**



 SITE REGRADING AS PER FLOOD REPORT



## Appendix B





No.	Date	Description	Swept Path Key	North	Drawing Prepared By	Architect	Project	Drawing Title	Drawing No.	Revision No.	
			----- Vehicle Wheel Path		 <p>PDC Consultants Level 14, 100 William Street Woolloomooloo NSW 2011 t: +61 2 7900 6514 w: www.pdcconsultants.com.au ABN: 70 615 064 670</p>	Texco Design	182 - 186 Gertrude Street, North Gosford	Level 02 Plan Vehicle Access Swept Path Analysis Waste Truck Entry & Exit Movements	001	-	
			----- Vehicle Body Envelope							Drawn By	Date
			----- 300mm Vehicle Clearance							JW	10/03/2023
						Client	Project No	Sheet Status	Scale		
						Linfield Group Pty Ltd	0541	NOT FOR CONSTRUCTION	1:200 @ A3		
											

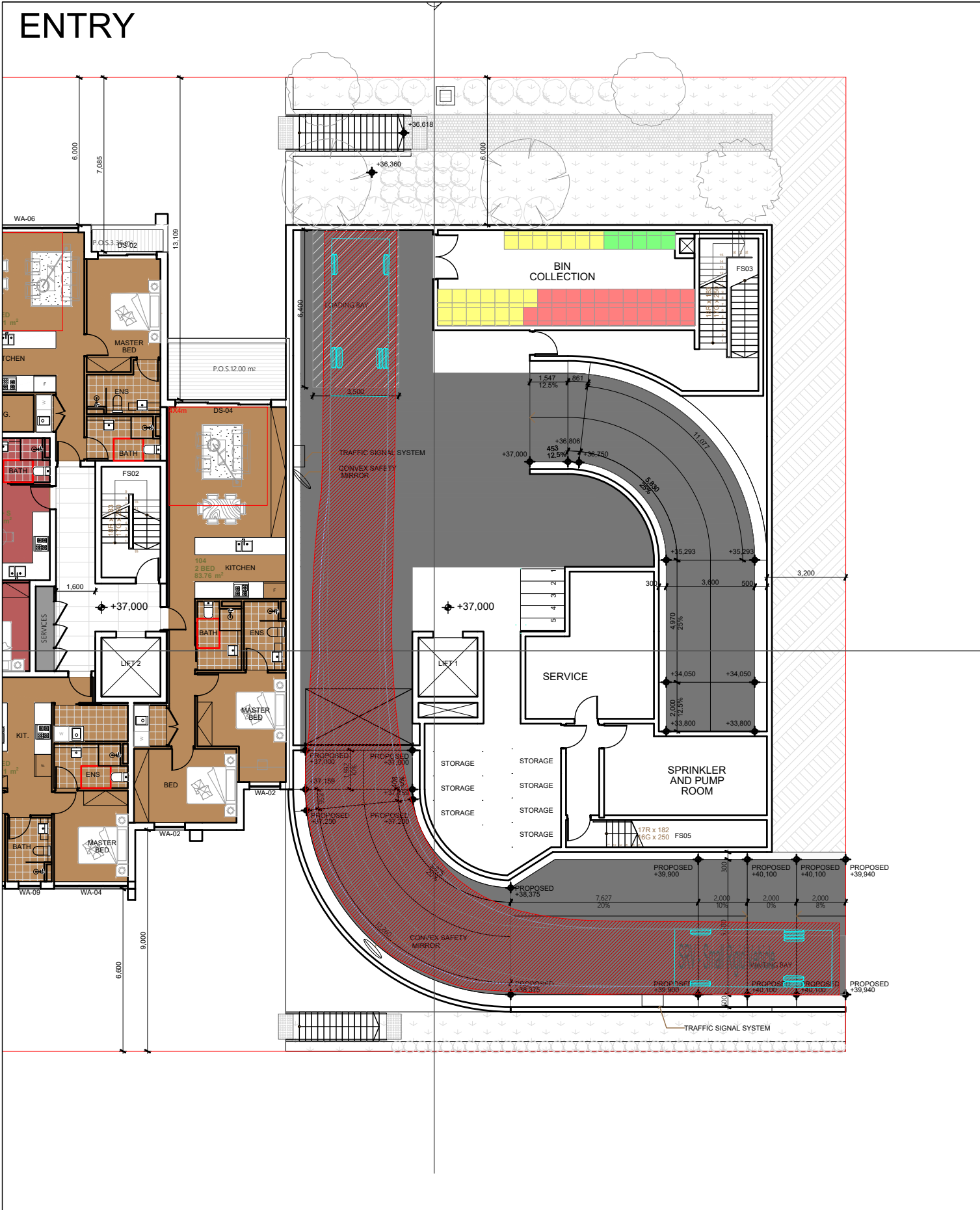




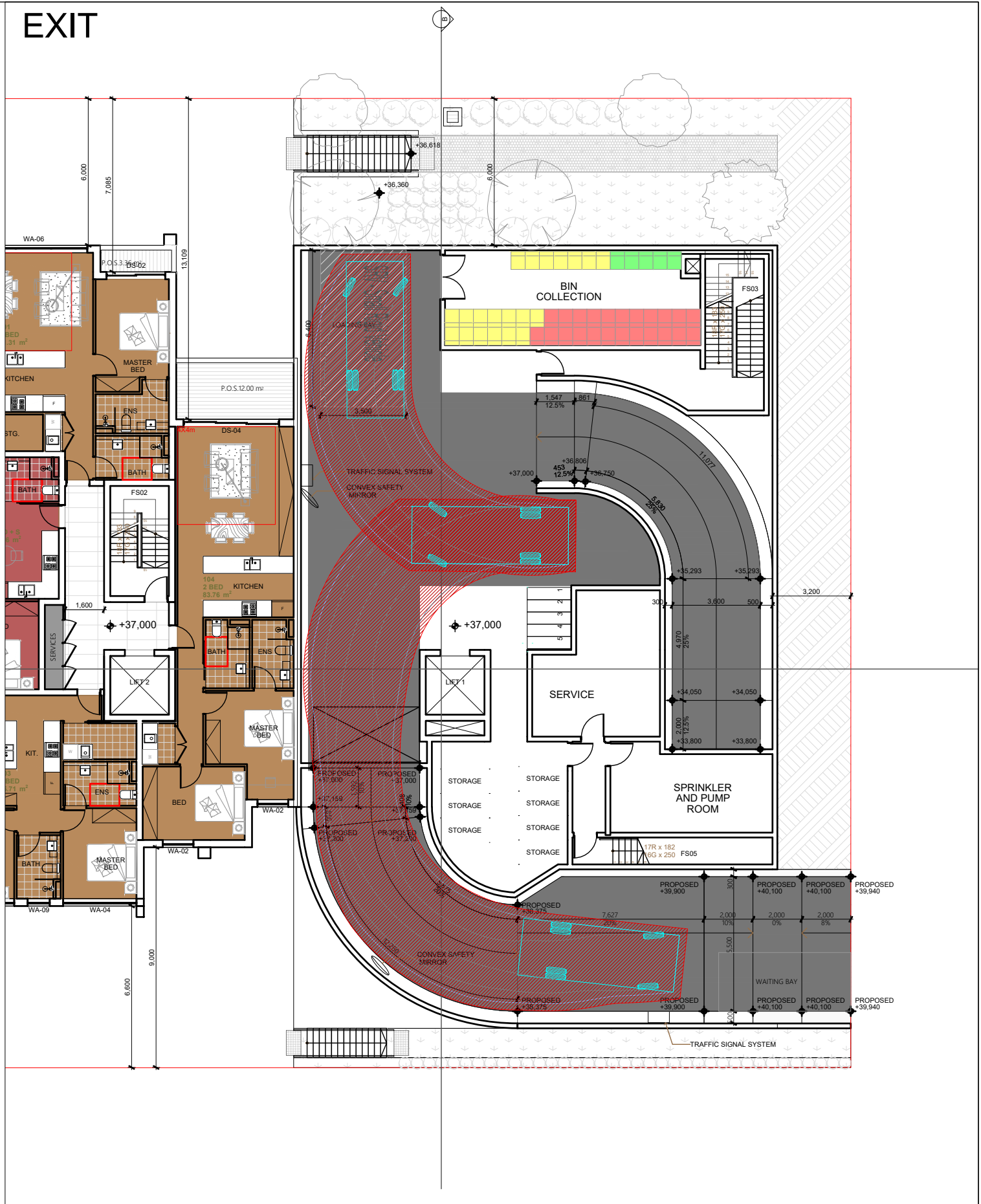
No.	Date	Description	<div>Swept Path Key</div> <div><div>-----</div> Vehicle Wheel Path</div> <div><div>—</div> Vehicle Body Envelope</div> <div><div>—</div> 300mm Vehicle Clearance</div>	North	<div><div><div><div></div></div></div></div>	<div>Drawing Prepared By</div> <div><div><div><div></div></div></div><div><div>PDC Consultants</div><div>Level 14, 100 William Street</div><div>Woolloomooloo NSW 2011</div><div>t: +61 2 7900 6514</div><div>w: <a href="http://www.pdcconsultants.com.au">www.pdcconsultants.com.au</a></div><div>ABN: 70 615 064 670</div></div></div>	Architect	Project	Drawing Title	Drawing No.	Revision No.
							Texco Design	182 - 186 Gertrude Street, North Gosford	Level 02 Plan Vehicle Access Swept Path Analysis B85 & B99 Entry & Exit Movements	002	-
							Client	Project No	Sheet Status	Drawn By	Date
							Linfield Group Pty Ltd	0541	NOT FOR CONSTRUCTION	JW	10/03/2023
										Scale	
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ENTRY

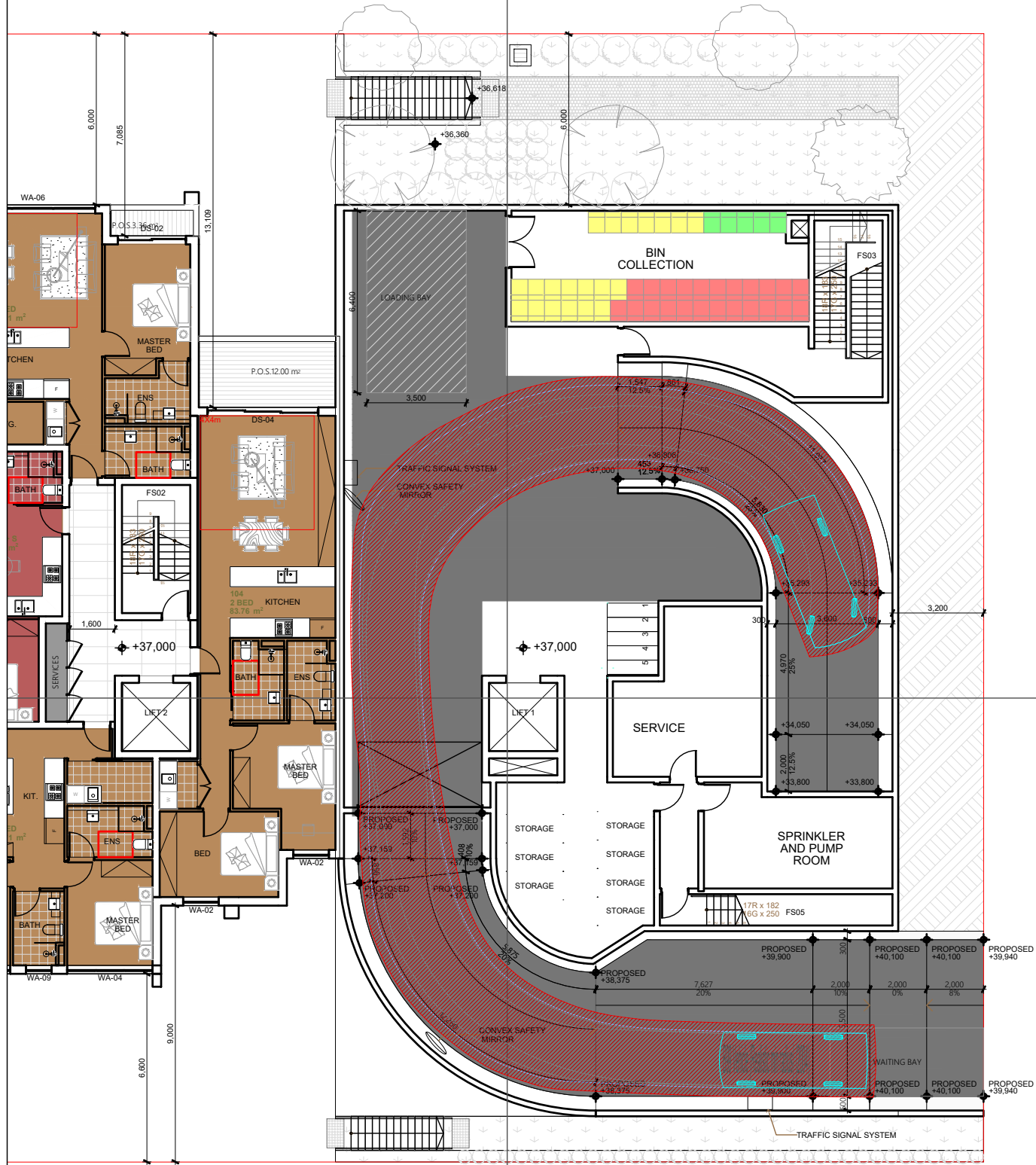


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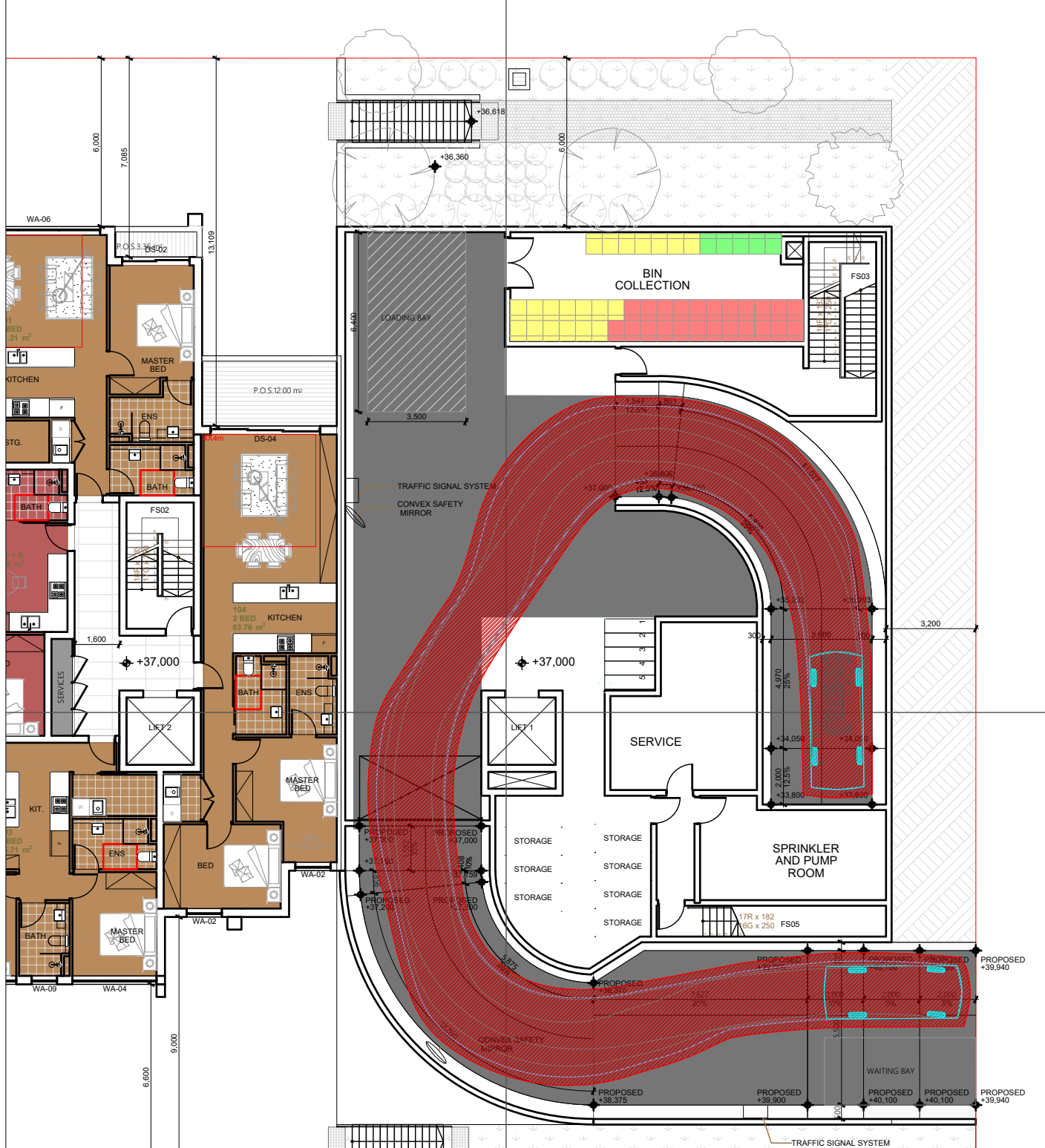


No.	Date	Description	Swept Path Key ----- Vehicle Wheel Path ----- Vehicle Body Envelope ----- 300mm Vehicle Clearance	North 	Drawing Prepared By  PDC Consultants Level 14, 100 William Street Woolloomooloo NSW 2011 t: +61 2 7900 6514 w: www.pdcconsultants.com.au ABN: 70 615 064 670	Architect Texco Design	Project 182 - 186 Gertrude Street, North Gosford	Drawing Title Level 01 Plan Loading Bay Swept Path Analysis Waste Truck Entry & Exit Movements	Drawing No. 003  Drawn By JW	Revision No. -  Date 10/03/2023
						Client Linfield Group Pty Ltd	Project No 0541	Sheet Status NOT FOR CONSTRUCTION	Scale 1:200 @ A3 	

ENTRY



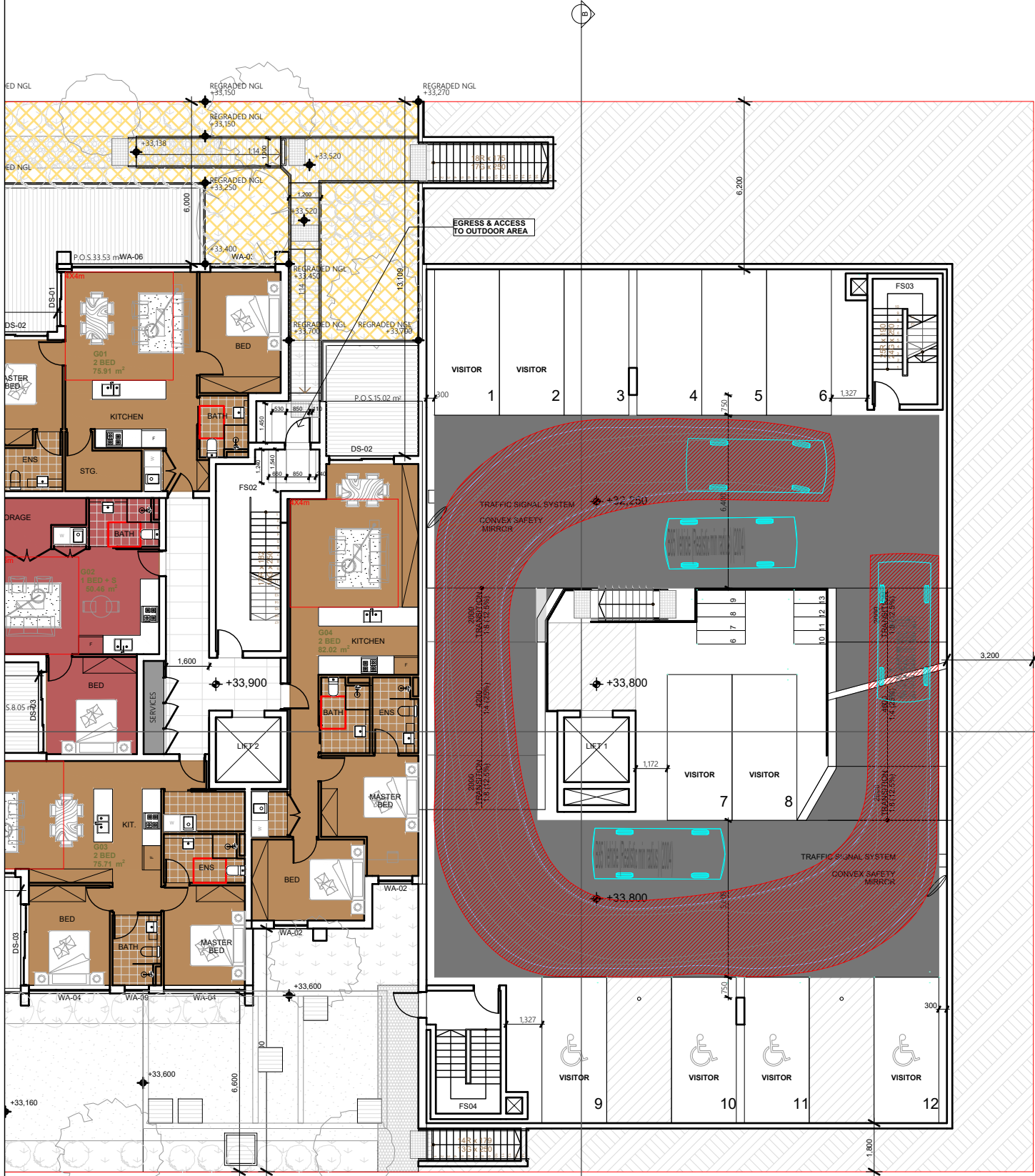
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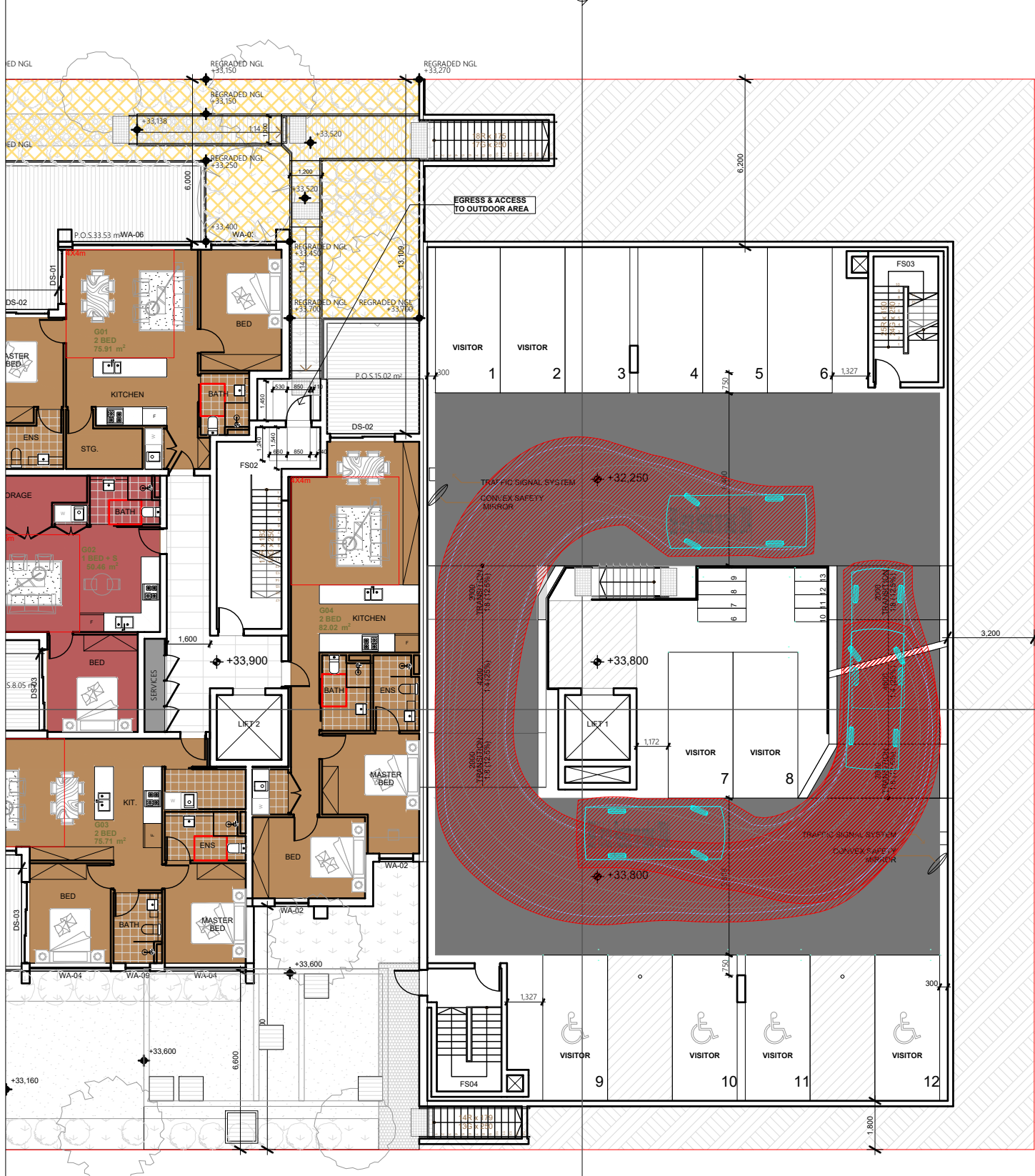
No.	Date	Description	Swept Path Key	North	Drawing Prepared By	Architect	Project	Drawing Title	Drawing No.	Revision No.
			----- Vehicle Wheel Path ----- Vehicle Body Envelope ----- 300mm Vehicle Clearance		 PDC Consultants Level 14, 100 William Street Woolloomooloo NSW 2011 t: +61 2 7900 6514 w: www.pdcconsultants.com.au ABN: 70 615 064 670	Texco Design	182 - 186 Gertrude Street, North Gosford	Level 01 Plan Vehicle Circulation Swept Path Analysis B99 & B85 Entry & Exit Movements	004	-
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ENTRY

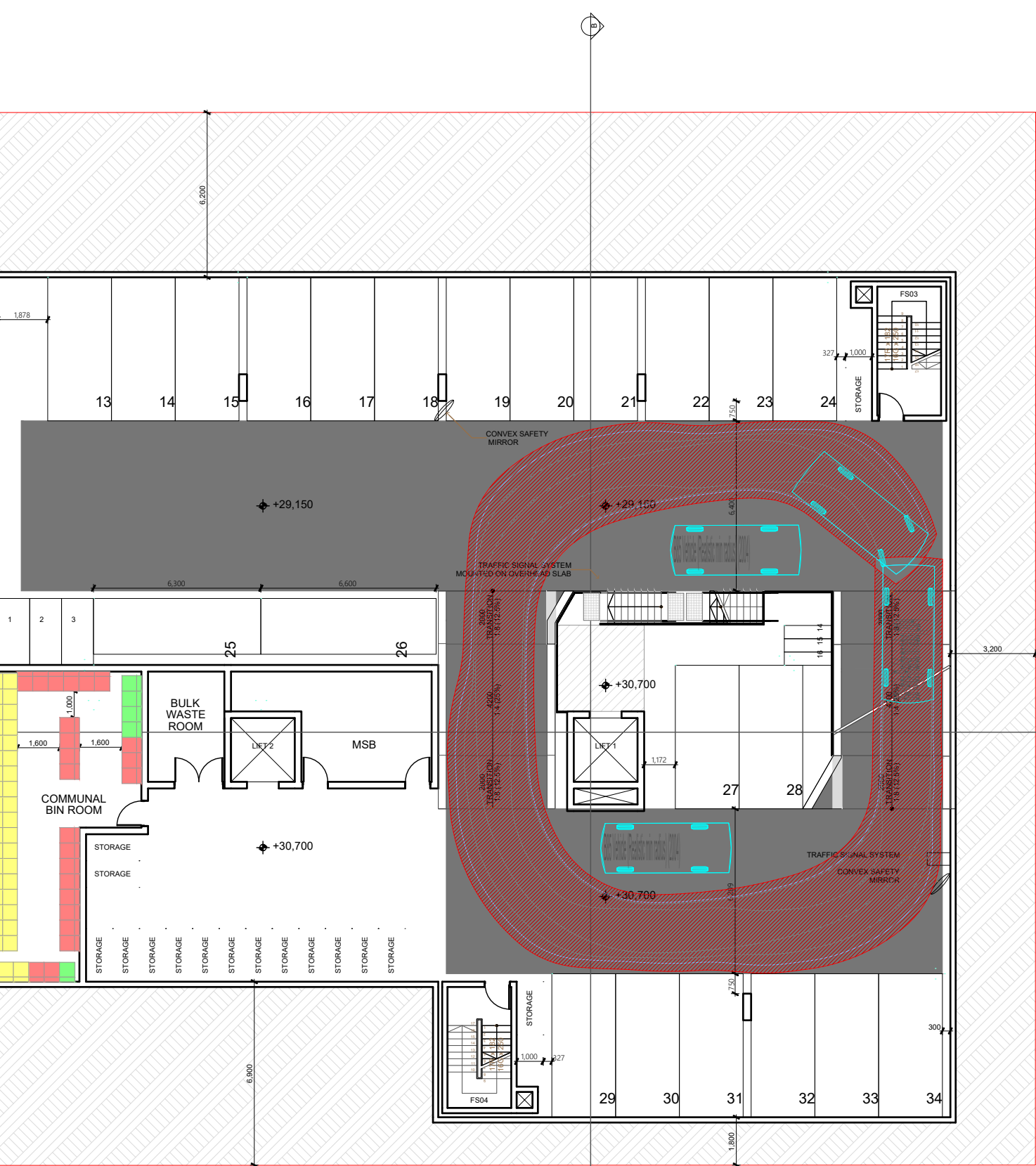


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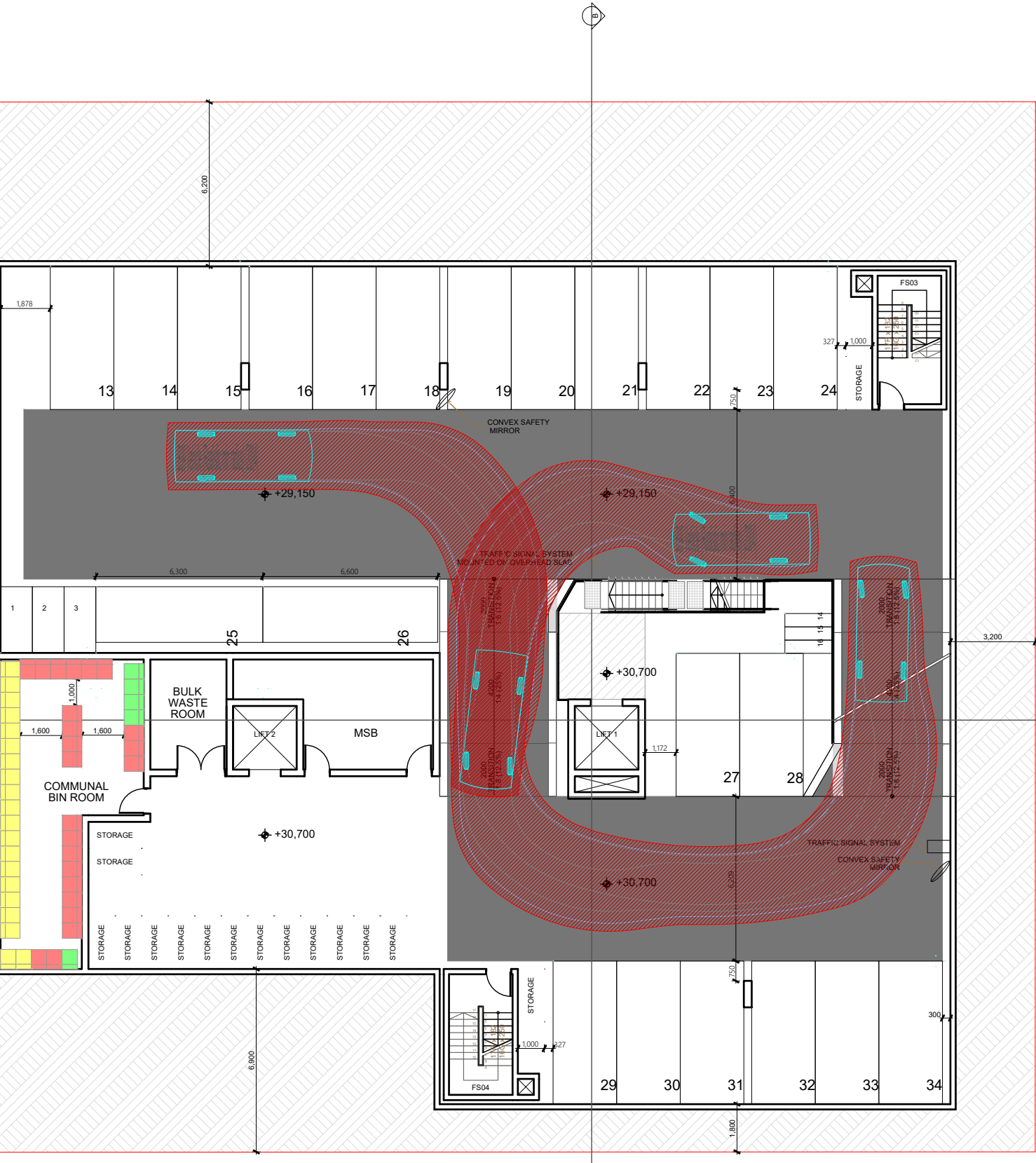


No.	Date	Description	<div>Swept Path Key</div> <div><div>-----</div> Vehicle Wheel Path</div> <div><div>—</div> Vehicle Body Envelope</div> <div><div>—</div> 300mm Vehicle Clearance</div>	<div>North</div> <div></div>	<div>Drawing Prepared By</div> <div> <b>PDC Consultants</b> Level 14, 100 William Street Woolloomooloo NSW 2011 t: +61 2 7900 6514 w: <a href="http://www.pdcconsultants.com.au">www.pdcconsultants.com.au</a> ABN: 70 615 064 670</div>	<div>Architect</div> <div>Texco Design</div>	<div>Project</div> <div>182 - 186 Gertrude Street, North Gosford</div>	<div>Drawing Title</div> <div>Ground Floor Plan Vehicle Circulation Swept Path Analysis B99 &amp; B85 Entry &amp; Exit Movements</div>	<div>Drawing No.</div> <div>005</div>	<div>Revision No.</div> <div>-</div>
						<div>Client</div> <div>Linfield Group Pty Ltd</div>	<div>Project No</div> <div>0541</div>	<div>Sheet Status</div> <div>NOT FOR CONSTRUCTION</div>	<div>Drawn By</div> <div>JW</div>	<div>Date</div> <div>10/03/2023</div>
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ENTRY



EXIT



No.	Date	Description	Swept Path Key	North	Drawing Prepared By	Architect	Project	Drawing Title	Drawing No.	Revision No.
			----- Vehicle Wheel Path ----- Vehicle Body Envelope ----- 300mm Vehicle Clearance		 PDC Consultants Level 14, 100 William Street Woolloomooloo NSW 2011 t: +61 2 7900 6514 w: www.pdcconsultants.com.au ABN: 70 615 064 670	Texco Design	182 - 186 Gertrude Street, North Gosford	Basement Level 01 Vehicle Circulation Swept Path Analysis B99 & B85 Entry & Exit Movements	006	-
						Client Linfield Group Pty Ltd	Project No 0541	Sheet Status NOT FOR CONSTRUCTION	Drawn By JW	Date 10/03/2023
									Scale 1:200 @ A3 	



# ENTRY

EXTENT OF BASEMENT LEVEL ABOVE

The floor plan shows the Entry level with a grid of numbered areas (35-47). Key features include:

- LIFT 1** and **LIFT 2** located in areas 36 and 39 respectively.
- STORAGE** areas are indicated in various locations, including along the top and bottom walls.
- Wheelchair Symbol** is located in area 37.
- Red Hatched Area** is located in the bottom right corner, covering areas 41, 42, 43, 44, 45, 46, and 47.
- Dimensions** are provided for various sections, including 1428, 300, 6523, 1327, 750, 1800, 300, 3200, 18000, and 20785.
- Elevations** are marked as +27,600 in areas 36 and 39.
- FS04** is located in area 42.
- TRAFFIC SIGNAL SYSTEM** and **CONVEX SAFETY MIRROR** are located in area 41.

Architectural floor plan of the first floor of a building. The plan shows a large rectangular building footprint with a grid of rooms numbered 35 through 47. Rooms 35, 36, 37, 38, 39, 40, and 41 are located in the upper section, while rooms 42, 43, 44, 45, 46, and 47 are in the lower section. A central corridor area contains two lifts, labeled LIFT 1 and LIFT 2, each with a storage area above it. A wheelchair symbol is located between rooms 37 and 38. A large, irregularly shaped area on the right side of the plan is shaded in red and labeled 'TRAFFIC SIGNAL SYSTEM' and 'CONVEX SAFETY MIRROR'. This area includes a curved wall and a small rectangular structure. The plan also shows various storage areas, a staircase labeled FS04, and a small rectangular structure labeled FS04. Dimensions are provided for various sections: 20.785, 16.00, 1.428, 3.00, 6.523, 6.800, 1.327, 1.800, 3.200, and 3.00. A large 'EXIT' sign is located at the top left. A note at the top left reads 'POINT OF BASEMENT L ABOVE'. A note at the bottom right reads 'TRAFFIC SIGNAL SYSTEM' and 'CONVEX SAFETY MIRROR'.

No.	Date	Description	<p>Swept Path Key</p> <p>----- Vehicle Wheel Path</p> <p>----- Vehicle Body Envelope</p> <p>----- 300mm Vehicle Clearance</p>	<p>North</p> 	<p>Drawing Prepared By</p>  <p><b>PDC Consultants</b>  Level 14, 100 William Street  Woolloomooloo NSW 2011  t: +61 2 7900 6514  w: www.pdcconsultants.com.au  ABN: 70 615 064 670</p>	<p>Architect</p> <p>Texco Design</p>	<p>Project</p> <p>182 - 186 Gertrude Street, North Gosford</p>	<p>Drawing Title</p> <p>Basement Level 02  Vehicle Circulation Swept Path Analysis  B99 &amp; B85 Entry &amp; Exit Movements</p>	<p>Drawing No.</p> <p>007</p> <p>Drawn By</p> <p>JW</p>	<p>Revision No.</p> <p>-</p> <p>Date</p> <p>10/03/2023</p>
					<p>Client</p> <p>Linfield Group Pty Ltd</p>	<p>Project No</p> <p>0541</p>	<p>Sheet Status</p> <p>NOT FOR CONSTRUCTION</p>	<p>Scale</p> <p>1:200 @ A3</p> 		

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