

# 13-19 Canberra Avenue, St Leonards Proposed Mixed-Use Development Transport and Parking Impact Assessment



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## **APPENDICES**

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Appendix A – Public Transport Provision  
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# 1.0 Introduction

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## 1.1 Background

Transport Strategies has been commissioned by Hyecorp to prepare a transport and parking impact assessment (TPIA) for a proposed mixed-use development at 13-19 Canberra Avenue, St Leonards.

## 1.2 Purpose of this Report

This report has been prepared to seek an Alterations and Additions Development Application (DA) approval from the Lane Cove Council for the proposed development. The structure of the report is as follows:

- Chapter 2: Describes the existing site and transport conditions
- Chapter 3: Describes the proposed development
- Chapter 4: Assesses the parking requirements and adequacy of the proposed parking provision
- Chapter 5: Assesses transport impacts
- Chapter 6: Assesses vehicle access and car parking layout
- Chapter 7: Assesses pedestrian safety and carpark management
- Chapter 8: Discuss the green travel plan
- Chapter 9: Summarises the study's findings

## 1.3 References

- Lane Cove Development Control Plan (DCP) 2009
- State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development (SEPP 65)
- State Environment Planning Policy – Housing 2021 (Housing SEPP 2021)
- AS 2890.1:2004 – Parking Facilities, Part 1: Off-Street Car Parking
- AS 2890.2:2018 – Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities
- AS 2890.3:2015 - Parking Facilities Bicycle Parking
- AS 2890.6:2022 – Parking Facilities, Part 6: Off-Street Parking for People with Disabilities
- Other documents and data are referenced in this report.



## 2.0 Existing Transport Conditions

### 2.1 Existing Site

The site is a consolidation of Lots 11, 12, 13, and 14 in DP7259, occupying a total area of 2,629.3m<sup>2</sup>. It is currently zoned as R4 High-Density Residential in the local government area of Lane Cove. The site has a frontage of 61m to Canberra Avenue and is located just to the south of the St Leonards Town Centre. The site is currently under construction with vehicle access on Canberra Avenue.

The immediate surrounding area comprises older-style single-dwelling residences and more recent apartment/townhouse buildings. The St Leonards Town Centre comprises retail/commercial buildings and a large hospital complex extending along the Pacific Highway and north of the Highway.

The site layout and surrounding environs are shown in Figure 2.1.

**Figure 2.1: Site Layout and Surrounding Environs**





### 2.2 Existing Road Network

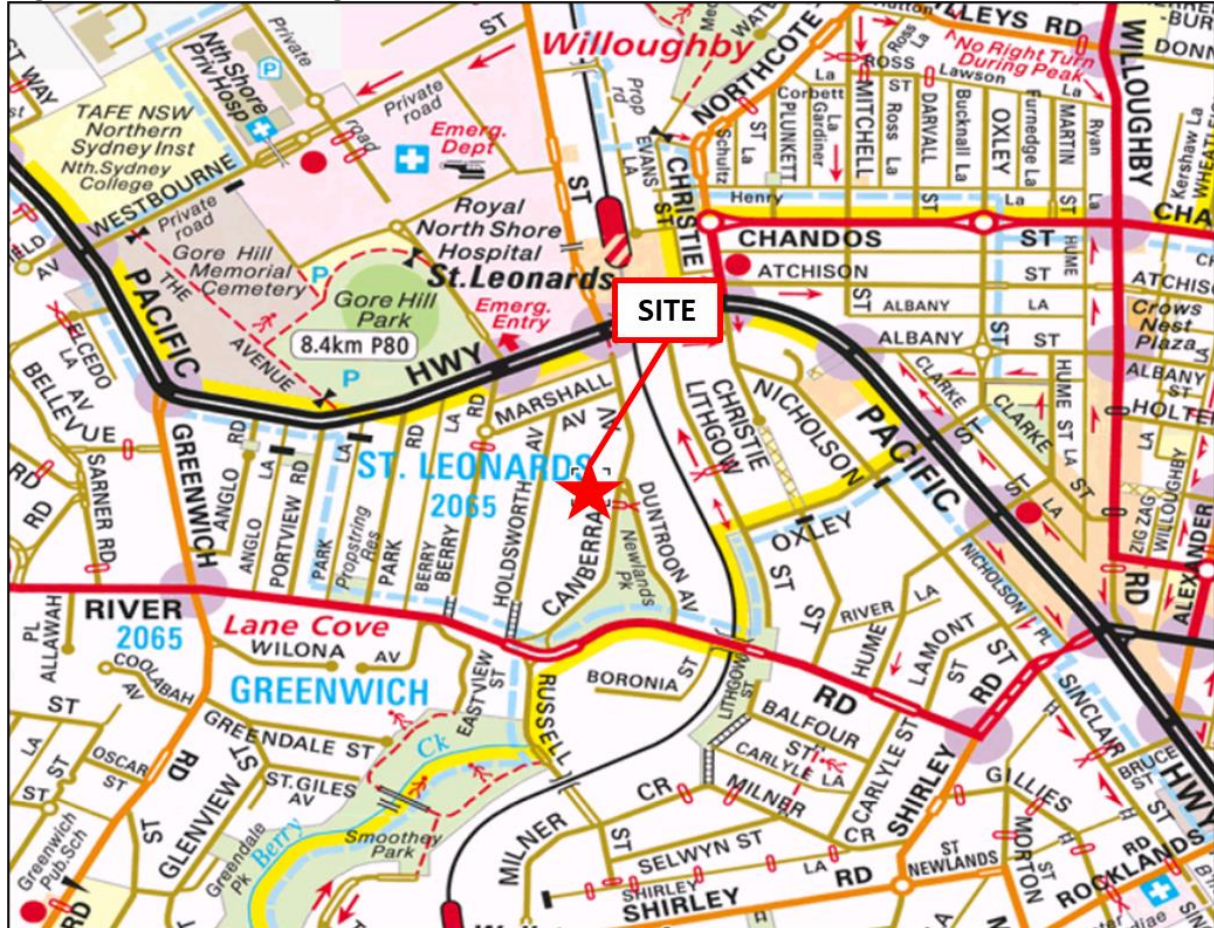
The surrounding road network includes:

- Pacific Highway – a State Road which connects to Arthur Street/High Street/Lavender Street/ Middlemiss Street/Alfred Street South to the southeast and George Street/Peats Ferry Road to the northwest. In the vicinity of the site, Pacific Highway generally runs in a southeast-northwest direction with six traffic lanes configurations subject to peak period tidal flow arrangements. The road has a posted speed limit of 60km/h with a 40km/h school zone limit where applicable.
- Marshall Avenue – a local Road which connects to Canberra Avenue to the east and Berry Road to the west. The road runs in an east-west direction with one traffic lane and one parking lane for both directions. Time-restricted parking is allowed on both sides of the road. The road has a speed limit of 50km/h.
- Canberra Avenue – a local cul-de-sac which connects to River Road to the south. The road runs in a north-south direction with one traffic lane for both directions. Time-restricted kerbside parking is allowed on both sides of the road on north of Duntroon Avenue/Canberra Avenue and on the west side of the road on south of Duntroon Avenue/Canberra Avenue. The road has a posted speed limit of 50km/h.
- Holdsworth Avenue – a local cul-de-sac which connects to Marshall Avenue to the north. The road runs in a north-south direction with one traffic lane and one parking lane for both directions. The road has a speed limit of 50km/h.
- River Road – a Regional Road which connects to Shirley Road to the east and Northwood Road to the west. The road runs in an east-west direction with one traffic lane and one parking lane for both directions. The road has a posted speed limit of 50km/h.

The surrounding road network is shown in Figure 2.2.



Figure 2.2: Surrounding Road Network



### 2.3 Key Intersections

The key intersections in the vicinity of the site comprise:

- Roundabout at Holdsworth Avenue/Marshall Avenue intersection
- Give-way intersections at:
  - Duntroon Avenue/Canberra Avenue
  - Canberra Avenue/Marshall Avenue
  - Canberra Avenue/River Road

### 2.4 Existing Traffic Conditions

Traffic conditions are detailed through data from the Roads and Maritime Services and traffic surveys from this study. The RMS data expresses average annual daily traffic (AADT), with the latest recorded volumes near the site summarised as follows:

	AADT
River Road at Greenwich Road	26,798
River Road at Shirley Road	16,647
Pacific Highway at Shirley Road	29,609



Observations of traffic activity in the vicinity of the development site during morning and afternoon peak periods reveal some queuing occurs at times along Duntroon Avenue and Canberra Avenue along the site frontage. Traffic along River Road and Pacific Highway is generally free-flowing, assisted by traffic signals providing regular gaps in flow.

### 2.5 Existing Public Transport Services

The site is well-serviced by a public transport network, with the nearest bus stop located at 280m walking distance from the site along Pacific Highway northeast of the site. This bus stop is serviced by the following bus routes:

- 252 – Gladesville to City King Street Wharf via North Sydney
- 254 – Riverview to McMahons Point via North Sydney
- 265 – Lane Cove to North Sydney via Greenwich
- 286 – Denistone East to Milsons Point via St Leonards & North Sydney
- 287 – Ryde to Milsons Point via St Leonards & North Sydney
- 290 – Epping to City Erskine St via North Sydney (Night Service)
- 291 – Epping to McMahons Point via North Sydney
- 320 – Green Square to Gore Hill
- 602X – Bella Vista Station to North Sydney (Express Service)
- 612X – Castle Hill to North Sydney (Express Service)
- 622 – Dural to Milsons Point via Cherrybrook
- 114 – Balmoral to Royal North Shore Hospital
- 144 – Manly to Chatswood via St Leonards
- 200 – Bondi Junction to Gore Hill
- N90 – Hornsby to City Town Hall via Chatswood (Night Service)
- N91 – Bondi Junction to Macquarie Centre via City Town Hall (Night Service)

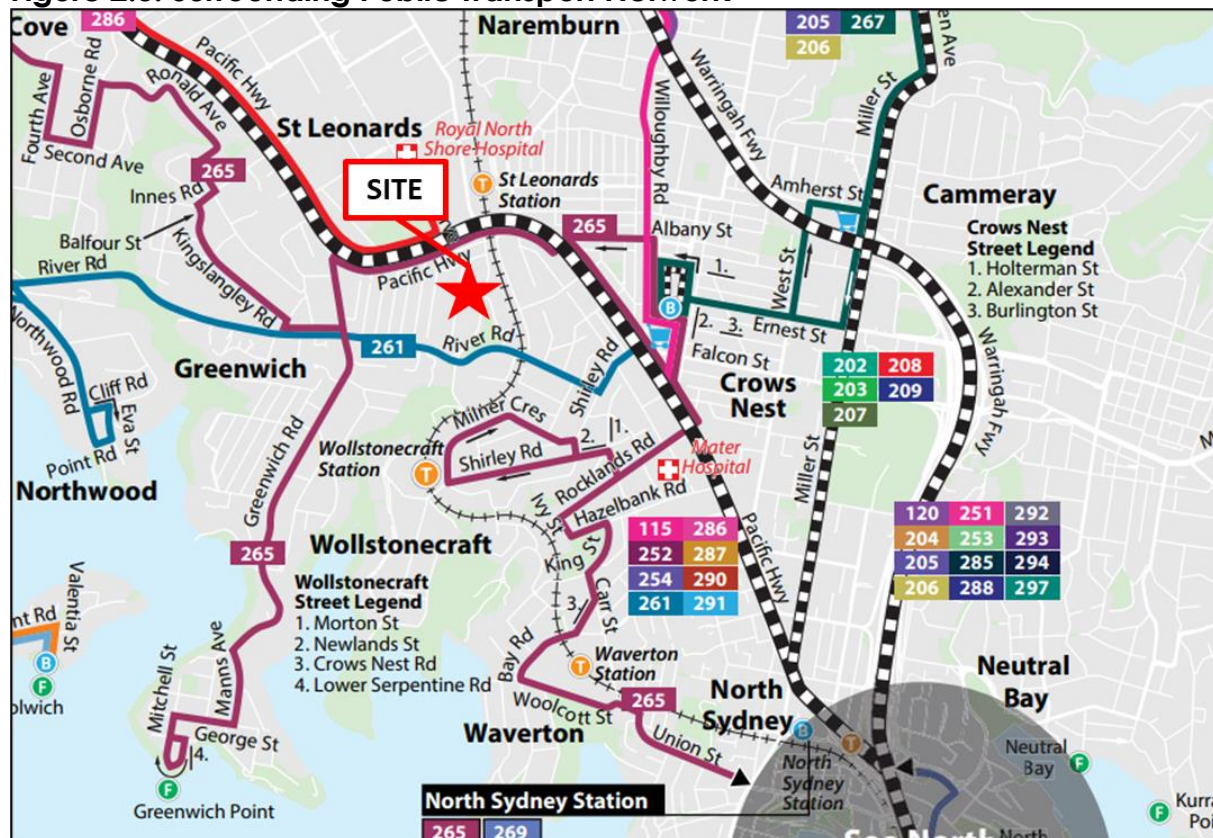
Other bus stops within 350m walking distance southwest along River Road from the site are serviced by the following bus route no. 261 which provide connections between Lane Cove to City King Street Wharf via Longueville.

St Leonards Train Station, within a 7-minute walk or 450m north of the site, is serviced by T1 – North Shore & Western Line, T9 – Northern Line, and Central Coast & Newcastle Line.

Details of surrounding public transport services are provided in Figure 2.3 and detailed in Appendix A.



**Figure 2.3: Surrounding Public Transport Network**



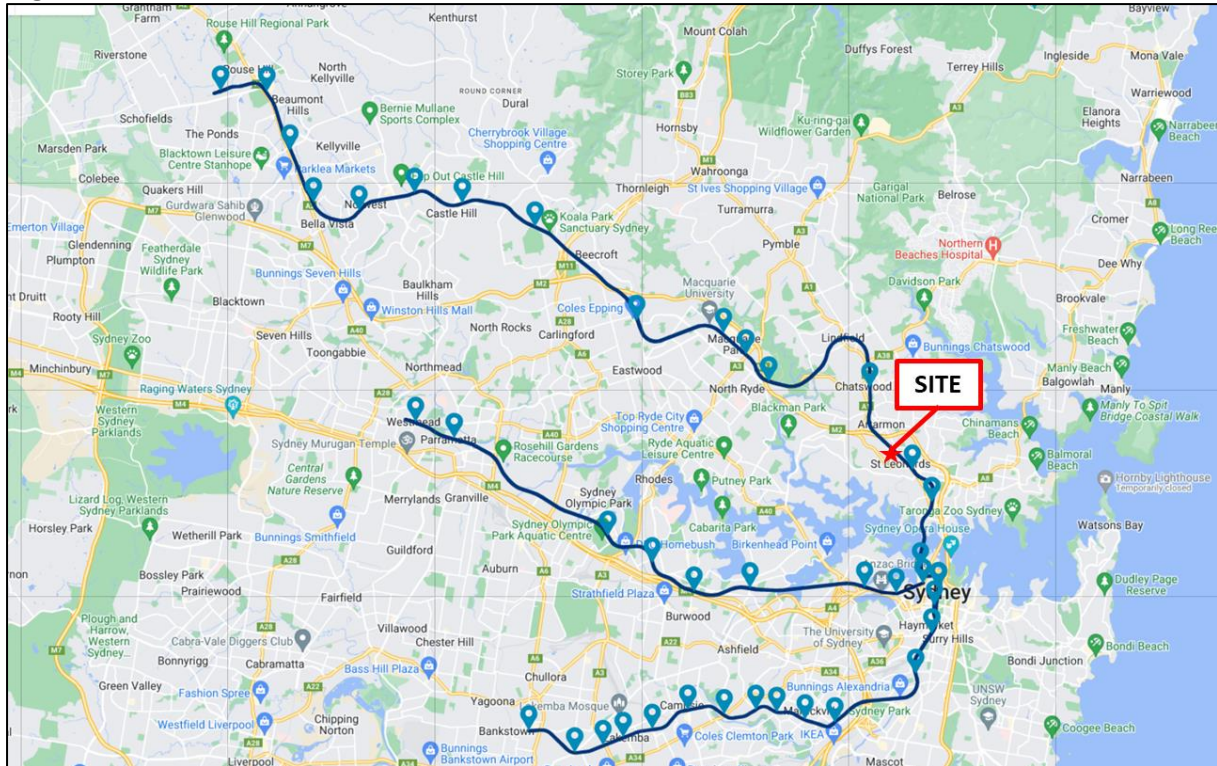
### **Future Crows Nest Sydney Metro Station**

The site is within 400m of the Crows Nest Metro Station, which is currently under construction as part of the Sydney Metro City and Southwest Line. After completion in 2024, this station will provide metro trains every four minutes during peak hours and connect the area to Sydney Central Business District, Northwest Sydney, and Southwest Sydney. The site is expected to benefit greatly from the Sydney Metro project, given the increased incentives to travel by train on the regular fast service.

The station locations and rail alignment of the Sydney Metro are shown in Figure 2.4.



**Figure 2.4: Sydney Metro Route**



## 2.6 Walking and Cycling Infrastructures

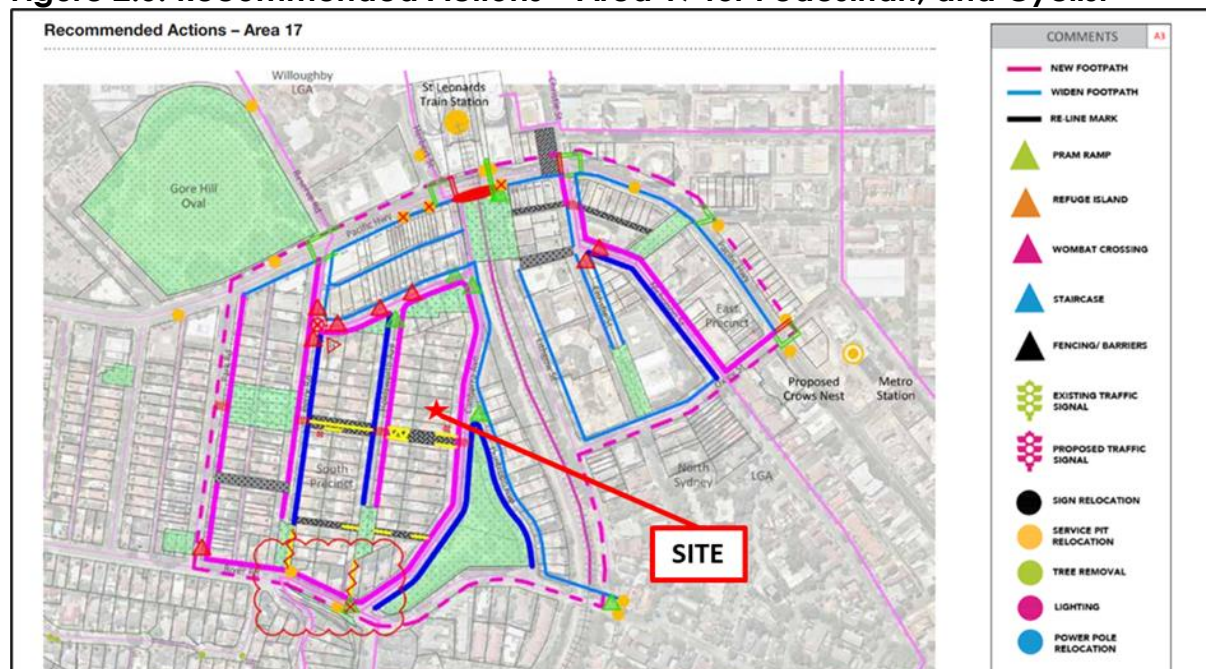
The site provides a high-level pedestrian connectivity to public transport services and the surrounding residential and commercial precincts. There are generally established and wide pedestrian footpaths on both sides of the local road network in the vicinity of the site.

The signalised pedestrian crossings at the Pacific Highway intersecting with Reserve Road and Berry Road provide formal and safe crossing facilities between the site and nearby bus stops on Pacific Highway.

Parking & Traffic Consultants (ptc.), in conjunction with Lane Cove Council, prepared a Pedestrian Access and Mobility Plan (issued 2018) which recommended actions for pedestrian and cyclist infrastructures in Area 17, in the Precinct (see Figure 2.5).



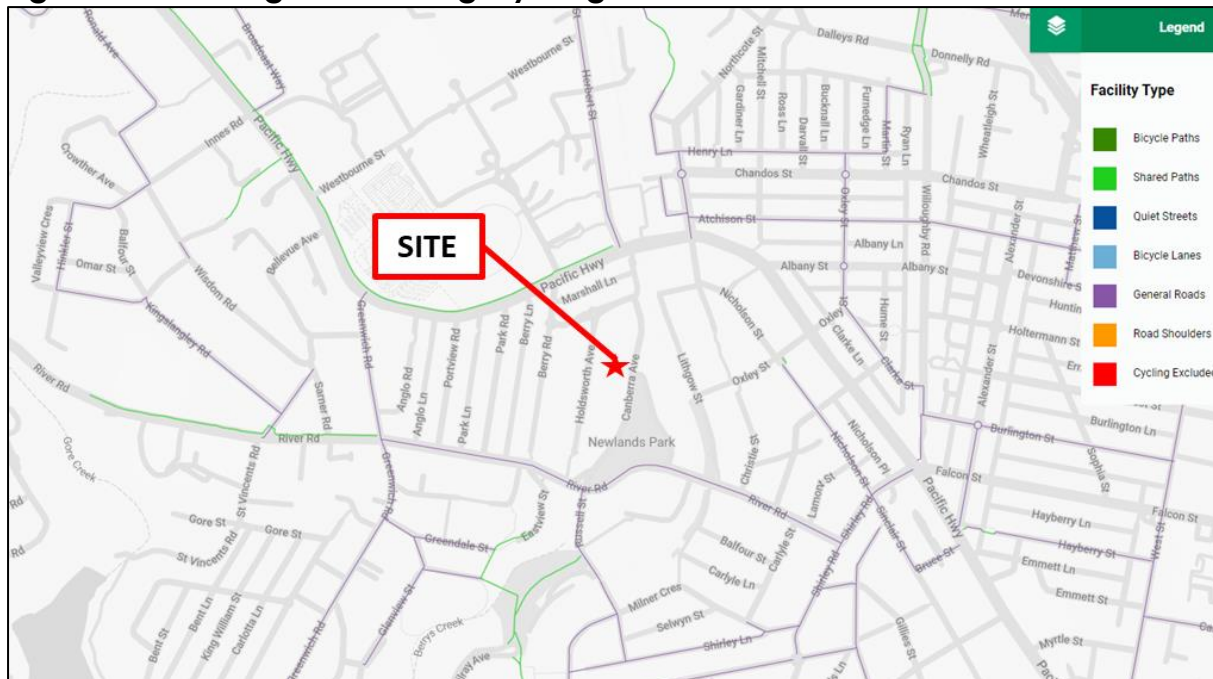
**Figure 2.5: Recommended Actions – Area 17 for Pedestrian, and Cyclist**



The site is well situated within Sydney's cycle network, with cycle routes surrounding the site with the nearest route along River Road to the south of the site. The bicycle network surrounding the site is shown in Figure 2.6. The bike plan developed by Lane Cove Council in 2019 proposes a new shared path along Canberra Avenue, Holdsworth Avenue, and Berry Road providing east-west connections for cyclists. Figure 2.7 illustrates the recommended bicycle network upgrade in St Leonards South & East Precinct presented in the Council Bike Plan. The site is expected to benefit from new shared user paths (SUP). These new SUP routes will aid in improving safety, convenience, and mobility for cyclists.



**Figure 2.6: Existing Surrounding Cycling Routes**



**Figure 2.7: Recommended Bicycle Network Upgrade in St Leonards South & East Precinct (Source: St Leonards Cumulative Transport and Accessibility Study)**



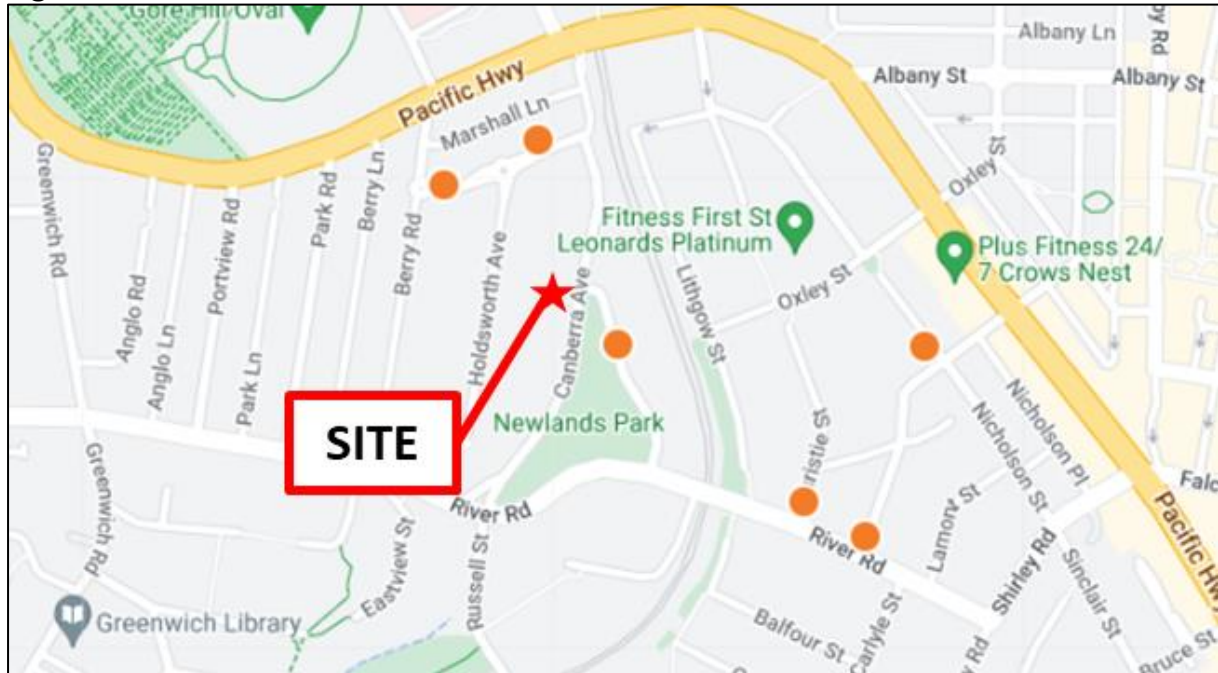
## 2.7 Local Car Share

Six GoGet car-sharing pods are located within walking distance of the site. The nearest pod is located 1-minute or 100m walking distance east of the site along



Duntroon Avenue. GoGet car pod locations are shown in Figure 2.8.

**Figure 2.8: Pod location**





## 3.0 Approved and Proposed Development

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### 3.1 Approved Development

On 27 June 2022, the North Sydney Planning Panel granted consent (DA162/2021) for the 'Demolition of existing structures and construction of a mixed-use development (12 storeys) comprising 81 apartments, childcare centre for 60 children, community facility, restaurant/café and basement parking for 116 vehicles, east-west public pedestrian link and stratum/strata subdivision'.

The latest approved modified scheme (S4.55 (1A) Modification Application to DA 162/2021) comprises:

- One studio
- 25 x one-bedroom apartments
- 22 x two-bedroom apartments
- 30 x three-bedroom apartments

**Total: 78 dwellings**

A total of 113 car spaces is approved within the 4-level basement carpark.

### 3.2 Proposed Development

The proposed development scheme involves the demolition of existing buildings and excavation of the site to construct 19 storeys building over a 4-level basement car park.

The current alterations and Additions DA proposal is for provision of five additional storeys with additional 24 units (including 23 affordable housing units). This results in a total of 102 units.

The proposed development will comprise:

#### Residential (9,968m<sup>2</sup> GFA)

- One studio
- 33 x one-bedroom apartments (including 7 adaptable units and 14 affordable units)
- 24 x two-bedroom apartments (including 4 adaptable units and 7 affordable units)
- 43 x three-bedroom apartments (including 6 adaptable units and 2 affordable units)
- 1 x five-bedroom apartment

**Total: 102 dwellings (including 17 adaptable units and 23 affordable units)**



## Transport Strategies

Childcare Centre (428m<sup>2</sup> GFA)  
60 children

12 babies aged 0-2  
20 toddlers aged 2-3  
28 pre-schoolers aged 3-5

14 employees

Retail  
40m<sup>2</sup> GFA

Vehicle access will be located on Canberra Avenue at the south-eastern boundary.

A total of 140 car spaces, in addition to 10 motorcycle and 41 bicycle spaces, is proposed within the 4-level basement carpark in the following breakdown:

- 101 x resident spaces (including 20 accessible space)
- 17 x visitor spaces (including 2 accessible space)
- 7 x childcare staff spaces
- 10 x childcare spaces (including 1 accessible space)
- 1 x retail space (including 1 accessible space)
- 2 x car wash space
- 2 x car share spaces

Architectural details of the development proposal are provided on the plans prepared by SJB Architects and Hyecorp, reproduced in Appendix B.



## 4.0 Parking Requirements

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### 4.1 DCP Car Parking Rate

It should be noted that the site is located within 400m of St Leonards Train Station and is therefore subject to reduced parking rates.

Lane Cove Council's DCP specifies the following parking provision in relation to the residential component of the proposed development scheme.

Studio	0.5 space
One-Bed apartment	0.5 space
Two-Bed apartment	0.9 space
Three-Bed apartment	1.4 spaces
Five-Bed apartment	2 spaces
	1 disabled space for each adaptable housing unit
Visitors	1 space per 5 apartments
	1 disabled visitor space per 10 visitor spaces (minimum 1 space - inclusive)
Car wash bay	1 space per 50 units (For developments over 20 units)

Lane Cove Council's DCP specifies the following parking provision in relation to the childcare and retail component of the proposed development scheme.

Childcare centre	1 space per 2 employees
Kiss and Drop	1 space per 6 children
	1 disabled space per 50 car spaces (minimum 1 space)
Retail/Shop	1 space per 110m <sup>2</sup>
	1 disabled space per 20 car spaces (minimum 1 space)

Lane Cove Council's DCP specifies that on-site car share spaces may be provided in lieu of private parking at a rate of 1 per 3 spaces.

Application of this development criteria would indicate the following:

1 x Studio	0.5 space
33 x One-Bed apartments	16.5 spaces (including 7 accessible spaces)
24 x Two-Bed apartments	22 spaces (including 4 accessible spaces)
43 x Three-Bed apartments	60 spaces (including 6 accessible spaces)
1 x Five-Bed apartments	2 spaces



Subtotal – Resident	101 spaces (including 17 accessible spaces)
Visitors (102 apartments)	20 spaces (including 2 accessible spaces)
Car wash bay (102 apartments)	2 car wash space
<b>Total - Residential</b>	<b>124 spaces (including 19 accessible spaces)</b>
14 x childcare centre employees	7 spaces
60 x childcare centre children	10 kiss and drop spaces (including 1 accessible space)
<b>Total – CCC</b>	<b>17 spaces (including 1 accessible space)</b>
Retail (40m <sup>2</sup> )	minimum 1 accessible space
<b>Grand Total</b>	<b>142 spaces (including 21 accessible spaces)</b>

#### 4.2 SEPP 2021 car parking rates

The Housing SEPP 2021 states that for infill affordable housing, the following minimum parking is to be provided for affordable housing dwellings:

- 0.5 resident car spaces per one-bedroom dwelling
- 1 resident car space per two-bedroom dwelling
- 1.5 resident car spaces per three or more-bedroom dwellings.

It is noted that the Housing SEPP 2021 does not specify any rates for visitor car, motorcycle and bicycle parking.

Application of this development criteria would indicate the following:

14 x One-Bed (affordable) apartments	7 spaces
7 x Two-Bed (affordable) apartments	7 spaces
2 x Three-Bed (affordable) apartments	3 spaces
<b>Subtotal – Resident Affordable Apartments</b>	<b>17 spaces</b>
1 x Studio	0.5 space
19 x One-Bed apartments	9.5 spaces (including 7 accessible spaces)
17 x Two-Bed apartments	15.3 spaces (including 4 accessible spaces)
41 x Three-Bed apartments	57.4 spaces (including 6 accessible spaces)
1 x Five-Bed apartments	2 spaces
<b>Subtotal – Resident Standard Apartments</b>	<b>85 spaces (including 17 accessible spaces)</b>
Visitors (79 apartments)	16 spaces (including 2 accessible spaces)



Car wash bay (102 apartments)	2 car wash spaces
<b>Total - Residential</b>	<b>120 spaces (including 19 accessible spaces)</b>
14 x childcare centre employees	7 spaces
60 x childcare centre children	10 kiss and drop spaces (including 1 accessible space)
<b>Total – CCC</b>	<b>17 spaces (including 1 accessible space)</b>
Retail (40m <sup>2</sup> )	minimum 1 accessible space
<b>Grand Total</b>	<b>138 spaces (including 22 accessible spaces)</b>

#### 4.3 SEPP 65 and the Apartment Design Guide rates

Residential SEPP 65 and the Apartment Design Guide states that developments located in the following areas should provide the minimum residential car parking requirement as specified in the TfNSW Guide 2002, or the car parking requirement prescribed by the relevant council, whichever is less:

- on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area, or
- on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre.

Given the site is located within 800 metres of St Leonards Train Station and the future Crows Nest Metro Station, this requirement applies to the proposal.

The parking requirements for metropolitan regional centres, as defined by the RMS Guide, have been assessed and detailed below:

One-bedroom	0.4 spaces
Two-bedroom	0.7 space
Three-bedroom	1.2 spaces
Visitors	1 space per 7 dwellings

The proposed development generates the following minimum RMS Guide parking requirements:

<b><u>Dwelling</u></b>	<b><u>Spaces Required</u></b>
34 x studio & one-bedroom	14 spaces
24 x two-bedroom	17 spaces
44 x three-bedroom or more	53 spaces
Visitor (102 apartments)	15 spaces



**Total**

**99 spaces**

#### 4.4 Disabled car parking

The Council's DCP specifies the following requirements:

Residential (residents)	1 space per each adaptable housing units
Residential (visitors)	1 disabled space per 10 visitor spaces (minimum 1 space)
Shop / Restaurant or Cafe	1 accessible space per 20 car spaces (minimum 1 space)
Childcare centre (customers/visitors)	1 accessible space per 50 car spaces (minimum 1 space)

#### 4.5 Adequacy of Car Parking Provision

A total of 140 spaces are provided in the basement levels with the following breakdown:

- 101 x resident spaces (including 20 accessible spaces)
- 17 x visitor spaces (including 2 accessible spaces)
- 7 x childcare staff spaces
- 10 x childcare spaces (including 1 accessible space)
- 1 x retail space (including 1 accessible space)
- 2 x car wash spaces
- 2 x car share spaces

The car parking will be provided in-line with the requirements of Council's DCP, considering that the car parking associated with the 23 affordable housing units are assessed against the Housing SEPP 2021 rates.

In addition, the car parking provision far exceeds the RMS Guide parking requirement for sites located within metropolitan regional centres.

On the above basis, the proposed parking provisions are adequate for the likely car parking demand associated with the residents and visitors with no reliance on the on-street parking spaces.

A total of 24 disabled spaces (20 spaces for adaptable units, 2 spaces for visitor use, 1 space for retail use, and 1 space for childcare use) are provided in the basement levels in satisfaction of the BCA requirements.



#### 4.6 DCP Bicycle Parking Rate

Council's DCP specifies a bicycle parking requirement as follows:

<b>Proposed Use</b>	<b>Residents / Employees</b>	<b>Visitors</b>
<b>Residential flat buildings</b>	1 space per 4 dwellings	1 rack + 1 rack per 10 dwellings
<b>Child care centre</b>	1 per 10 staff	2 racks per centre
<b>Shop</b>	1 per 50m <sup>2</sup> GFA	2 racks + 1 rack per 200m <sup>2</sup> over 200m <sup>2</sup> GFA

The development is required to provide a total of 36 bicycle spaces (23 resident/employee spaces and 13 visitor spaces), in accordance with Council's DCP requirements, with the following breakdown:

##### **Affordable Housing Use:**

0 spaces

##### **Residential Use:**

20 spaces for residents

9 bicycle racks for visitors

##### **Child Care Centre Use:**

2 spaces for staff

2 bicycle racks for centre

##### **Shop Use:**

1 space for employee

2 bicycle racks

The development provides 41 bicycle spaces (28 resident/employee spaces and 13 visitor spaces) in accordance with Council's DCP.

#### 4.7 DCP Motorcycle Parking Rate

Council's DCP specifies a motorcycle parking requirement of 1 motorcycle parking space per 10 car parking spaces for the proposed development.

Application of this criteria to the proposed development would indicate the following minimum car parking provision of 10 spaces with the following breakdown:



## Transport Strategies

- Residential Flat Building (79 apartments) 8 spaces
- Child Care Centre 1 space
- Shop 1 space

A total of 10 motorcycle spaces are provided on Basement 3, and Basement 2, in satisfaction with Council's DCP.



## 5.0 Traffic Impacts

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### 5.1 Council's Precinct Study

Council has undertaken AIMSUN modelling of the St Leonards South Precinct in an effort to support the rezoning of the precinct. The model took into consideration the cumulative traffic impacts of the existing and future site developments of up to 2,400 dwellings within Areas 1 to 23 of the precinct.

The following traffic generation rates were adopted for new residential developments in the St Leonards South precinct:

AM Peak: 0.14 vtpd per apartment

PM Peak: 0.07 vtpd per apartment

The outcome of the study recommended the following infrastructure upgrades be undertaken as part of the rezoning:

- replacement of the roundabout on the Marshall Avenue/Berry Road intersection with a GIVE-WAY traffic control
- a new road linkage between Berry Road and Park Road.

The following table summarises all DAs which were approved and refused within the Precinct. Based on above table, a total of 1,498 apartments have been planned/approved within Areas 1, 2, 4, 7 through 20, 22 and 23 with only four Areas - Areas 3, 5, 6 and 21 remained without any DA submissions. It is apparent that the planned/approved number of dwellings is significantly less than those 2,400 dwellings assessed within the precinct.

The approved St. Leonards South (Areas 7-11) site is located at 21 to 41 Canberra Avenue and 18 to 32 Holdsworth Avenue just to the south of the site, comprising 319 apartments. It is noted that the proposed development is significantly lower (a reduction of 53 apartments) than the 472 dwellings assumed in the AIMSUN traffic modelling.

The proposed development is located within Area 5, which accounts for approximately 4% of the total permissible GFA of the precinct, which equates to a total of 97 apartments. The development currently proposes 102 dwellings (a very minor increase of approximately 5% (5 units) in dwelling yield compared to the Council's Aimsun model of the precinct).

The traffic increase resulting in the minor increase in yield can easily off-set by the reduction of 53 apartments within Areas 7-11.



Furthermore, the proposed development of 102 includes a number of dwellings that aligns more closely with the 97 apartments outlined in the Council's Aimsun model.

Site	Status	Number of Units	Approval Date
<b>New Hope</b> SLS Area 1+2+4 DA79/2022 4-8 Marshall Ave, 1-5 Canberra Ave, 2-8 Holdsworth Ave (St Leonards South)	Approved	230 Apartments	05/10/2023
<b>Top Spring</b> SLS Area 7+8+9+10+11 DA99/2021 21-41 Canberra Ave, 18-32 Holdsworth Ave, (St Leonards South)	Approved	319 Apartments	15/01/2024
<b>New Golden</b> SLS Area 12 DA187/2021 10-12 Marshall Ave, 1-3 Holdsworth Ave (St Leonards)	Approved	96 Apartments	21/08/2023
<b>Altis</b> DA115/2022 SLS Area 16+17 12-20 Berry Road, 11-19 Holdsworth Ave, (St Leonards)	Refused	130 Apartments	-
DA60/2022 SLS Area 18+19+20 22-34 Berry Road, 21-31 Holdsworth Ave, 42-46 River Road (St Leonards South)	Approved	230 Apartments	27/02/2023
DA154/2022 SLS Area 22+23 26-50 Park Road, 27-47 Berry Road, 48-54 River Road (St Leonards)	Approved	306 Apartments	08/11/2023
DA56/2023 SLS Area 13+14+15 14-16 Marshall Ave, 2-10 Berry Road, 5-9 Holdsworth Ave (St Leonards)	Approved	187 Apartments	01/03/2024
<b>Total</b>		<b>1,498 Apartments</b>	



### **Comparison between Modelled Traffic and Proposed Development Traffic within Areas 5 and 7-11**

Based on the adopted traffic generation rates, the projected peak hour traffic generations are lower than the modelled traffic, as shown in the following:

Site	No. of Apartments		Modelled		Proposed Development Traffic		Change in Traffic	
	Modelled	Approved/Proposed	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Areas 7-11	472	319	67	34	45	43	-22	-9
Area 5	96	102	14	7	15	8	+1	+1
<b>Total</b>	<b>568</b>	<b>413</b>	<b>81</b>	<b>41</b>	<b>60</b>	<b>51</b>	<b>-21</b>	<b>-10</b>

Based on the above assessments, the proposed developments will result in a reduction of 21 vtp/h and 10 vtp/h during the AM and PM peak hours, respectively, compared to that under the AIMSUN model.

#### **5.2 Residential Component**

Using the adopted traffic generation rates for the precinct, the proposed residential component of 102 apartments will generate some 15 and 8 vtp/h in the AM and PM peak periods, respectively, compared to that under the AIMSUN model.

The above traffic generation will be discounted by the existing 4 dwellings at the RMS rate of 0.85 vtp/h (i.e., 4 vtp/h). As such, the projected 'additional' vehicle generation of the development during the peak traffic periods will therefore be:

AM			PM		
IN		OUT	IN		OUT
2		9	3		1

#### **5.3 Childcare Centre Component**

Given there is no change in the childcare component, the traffic generation will remain consistent with the approved DA scheme.

#### **5.4 Traffic Impact**

In summary, the residential component traffic will be similar to those modelled by Council. The projected increase in traffic activity as a consequence of the development proposal is minimal. It will clearly not have any unacceptable traffic implications in terms of road network capacity. In addition, the proposal is consistent with the zoning objectives of the precinct and the traffic implications of the proposal have already been assessed to be acceptable by Council as part of the rezoning of the precinct.



### 5.5 Closure of Canberra Avenue

Based on the consultation with the Council, the traffic island and raised crossing on Canberra Avenue will be removed as part of the proposed development. The removal of these existing traffic facilities is acceptable given that Canberra Avenue (north of River Road) will be closed and no longer serve as a throughfare between River Road and Pacific Highway. The proposed closure will result in significantly lower traffic and vehicular-pedestrian conflicts.



## 6.0 Access, Internal Circulation, and Servicing

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### 6.1 Access

Access is proposed via a single 6.85-metre-wide (minimum) entry/exit driveway located near the southeastern site boundary.

The proposed access driveway accords with the design requirements of AS2890.

Canberra Avenue is relatively straight and level at this location, where there are excellent sight distances available for exiting vehicles.

### 6.2 Internal Circulation

The geometry of the proposed internal circulation arrangement has been designed in accordance with AS2890.1, 2, and 6. Residential, employee and visitor parking bays are a minimum of 2.4 x 5.4 metres, while the aisles are a minimum of 5.8 metres wide.

CCC visitor parking bays are provided at a minimum of 2.5 x 5.4 metres. The 6.3-metre-wide aisle allows adequate vehicle manoeuvring and pedestrian movement areas within the basement carpark for safe and efficient set-down and pick-up activities.

The shared disabled space has been designed in accordance with the current standard AS2890.6-2009, with a 2.4m wide x 5.4m long space with a similar-sized shared zone.

Details of the vehicle turning assessment indicating a satisfactory provision in this regard are provided in Appendix C.

### 6.3 Servicing

As discussed, the original approval comprises of 81 apartments.

The provision of the loading space for an 8.8m medium rigid vehicle (over a 12.5m heavy rigid vehicle) will remain adequate for the proposed development of 102 apartments. The additional 21 apartments will not make a difference in the number of loading bay provision with the proposed loading dock management plan.

Based on the above, the proposed loading space on the ground floor loading dock management plan and measures to minimise vehicular conflicts, will remain consistent as per the approved development scheme is considered adequate to accommodate the servicing demands of the site.



## 7.0 Pedestrian Safety, Carpark Management and On-Street Parking Restriction

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### 7.1 Pedestrian Safety

The proposed safety arrangements and features for pedestrians will remain consistent as per the approved development scheme.

### 7.2 Carpark Management

The carpark management operation will remain consistent as per the approved development scheme.

### 7.3 On-Street Parking Restriction

The 4 existing crossovers along Canberra Avenue will be consolidated into a single access. The redundant driveways will be removed, and the kerb inverts will be reinstated to match the adjacent footpath and kerbing.

To accommodate trucks turning left from Canberra Avenue into the new driveway, the existing unrestricted kerbside parking on the western side of Canberra Avenue (17m in length) will be converted to a No Stopping zone, resulting in the loss of three on-street parking spaces.



## 8.0 Green Travel Plan

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### 8.1 Green Travel Plan

Green Travel Plans (GTPs) have proven to be a successful way of changing travel behaviour for residential, commercial, and industrial developments throughout Australia and overseas. A GTP is a way in which a development manages the transport needs of staff and visitors. The aim of the plan is to reduce the environmental impact of travel to and from a given site and in association with its operation. In essence, the plans encourage more efficient use of motor vehicles as well as alternatives to single-occupant car usage.

It is anticipated that there would be a significant shift in the future travel patterns to/ from and within the local and regional areas associated with the Sydney Metro projects. The frequency, capacity, and nature of metro services will transform the areas along the proposed Sydney Metro route, with high-density residential developments either in planning or under construction. Large commercial entities are also continuing to be drawn to the area. The GTP would put in place measures to further influence the travel patterns of those people living and working at the development with a view to encouraging modal shift away from cars.

### 8.2 Actions

To reduce car parking demand from the development, the most straightforward actions should be addressed first:

#### **I. Implementation of the GTP**

- Appoint a Travel Plan Coordinator (TPC) to ensure the successful implementation and monitoring of the GTP.
- Conduct annual travel surveys to establish travel patterns in the area and assess the success of the GTP. This would be managed by the appointed TPC. Allow surveys to incorporate suggestions from residents and staff to improve green travel arrangements.
- Create a site-specific GTP website.

#### **II. Increase walking, running, and cycling to work and other destinations (errands, recreational, social) by staff and residents. The development should also include innovative transport solutions to manage travel demand and reduce reliance on private vehicles through:**

- Provision of bicycle spaces in accordance with the DCP requirements.
- Provision of green toolkits, including puncture repair equipment and bicycle pumps.
- Promoting bicycle-friendly shops in St Leonards. A loyalty card program could be organised between staff who cycle and cafes/ shops.



### **III. Increase public transport use:**

- Providing timetables on-site with public transport maps and timetables to promote public transport usage.
- Provision of good quality, accurate, and useful directional signage to promote walking and cycling to the nearby railway station.

### **IV. Increase carpool:**

- Implementation of a rideshare system, which could include encouraging childcare centre staff to participate in a peak-hour car-pooling club. This may be coordinated by a 'transport champion,' an appointed worker, a building manager, or a formally appointed TPC.
- Providing priority parking or reduced parking costs for staff that carpool.

### **V. Increase residents, staff, and visitor awareness and knowledge of available transport options:**

- Provision of a Transport Access Guide (TAG), which should be given to every resident, staff and regular visitor. The TAG should include public transport timetables, stop/ station locations, walking times/ distances, etc.
- Provide information on public transport arrival/ departure times with a display to show train departure times from St Leonards station and surrounding bus stops, as well as estimated walking times to each location.
- A half-yearly newsletter could be provided to every resident and staff for up to two years after occupation, bringing the latest news on sustainable travel initiatives in the area.

### 8.3 Monitoring and Reviewing

There is no standard methodology for the implementation and management of sustainable transport initiatives. However, as part of the GTP, these initiatives should be monitored to ensure that they are achieving the desired benefits.

The monitoring of the GTP would require travel surveys to be undertaken with a focus on establishing travel patterns, including the mode share of trips to and from the site.

The implementation of the GTP will need a formal TPC, who will have responsibility for developing, implementing, and monitoring the GTP. The TPC will be an appointed staff member of the proposed development or an independent expert.

It will also be necessary to provide feedback to residents, staff, and regular visitors to ensure that they can see the benefits of sustainable transport.

There are several key elements to the development and implementation of a successful GTP. These include:



- Communication – Good communication is an essential part of the GTP. It will be necessary to explain the reason for adopting the plan, promote the benefits available, and provide information about the alternatives to driving alone.
- Commitment – GTPs involve changing established habits or providing the impetus for people in new developments to choose a travel mode other than private car use. To achieve cooperation, it is essential to promote positively the wider objectives and benefits of the plan. This commitment includes the provision of the necessary resources to implement the plan, beginning with the introduction of the 'carrots' or incentives for changing travel modes upon occupation.
- Building consensus – It will be necessary to obtain broad support for the introduction of the plan from the tenants.

Once the plan has been adopted, it is essential to maintain interest in the scheme. Each new initiative in the plan will need to be publicised, and marketing the project will be important.



## 9.0 Conclusion

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A Development Application is to be submitted to Lane Cove Council for a proposed residential development at 13-19 Canberra Avenue at St Leonards. The traffic, transport, and parking assessment provided in this report confirm that:

- The site is one of the areas (Area 5) within the St Leonards South precinct, which has been identified by Council for an uplift in the density of development.
- The site is strategically well located within convenient walking distance to public transport (including the future Crows Nest Metro Station) and pedestrian and cycle networks.
- The site will have ready access to educational, retail, entertainment, and employment facilities within the nearby St Leonards Town Centre.
- A preliminary Green Travel Plan has been included as part of this assessment with a view to encouraging residents, staff, and visitors to utilise non-car travel modes to travel to/from the site.
- The car, motorcycle, and bicycle parking provisions are in accordance with the Council's DCP and Housing SEPP 2021.
- The proposed access, internal circulation, and servicing arrangements will be appropriate to the current requirements of relevant Australian Standards (i.e., AS2890.1, AS2890.2, and AS2890.6).
- The proposed development is expected to generate minor cumulative additional AM and PM peak hour traffic generations of 11 and 4 vtp/h, respectively, and will not present any adverse traffic/safety implications.
- It is expected that the road network would operate satisfactorily, as demonstrated in the Council's modelling report.

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



Transport Strategies

# **Appendix A**

## **Public Transport Provisions**



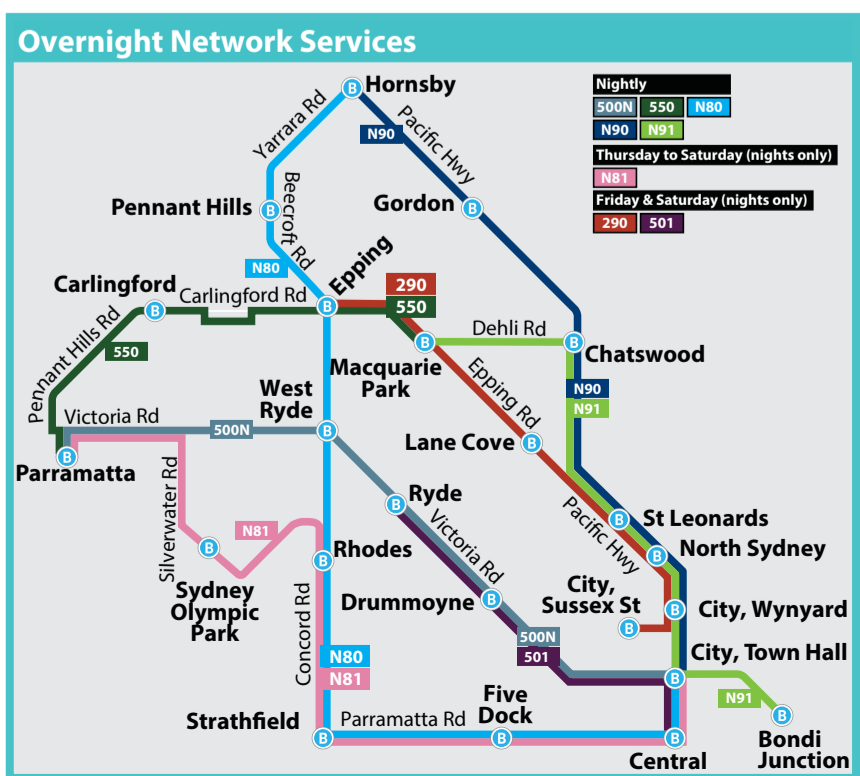
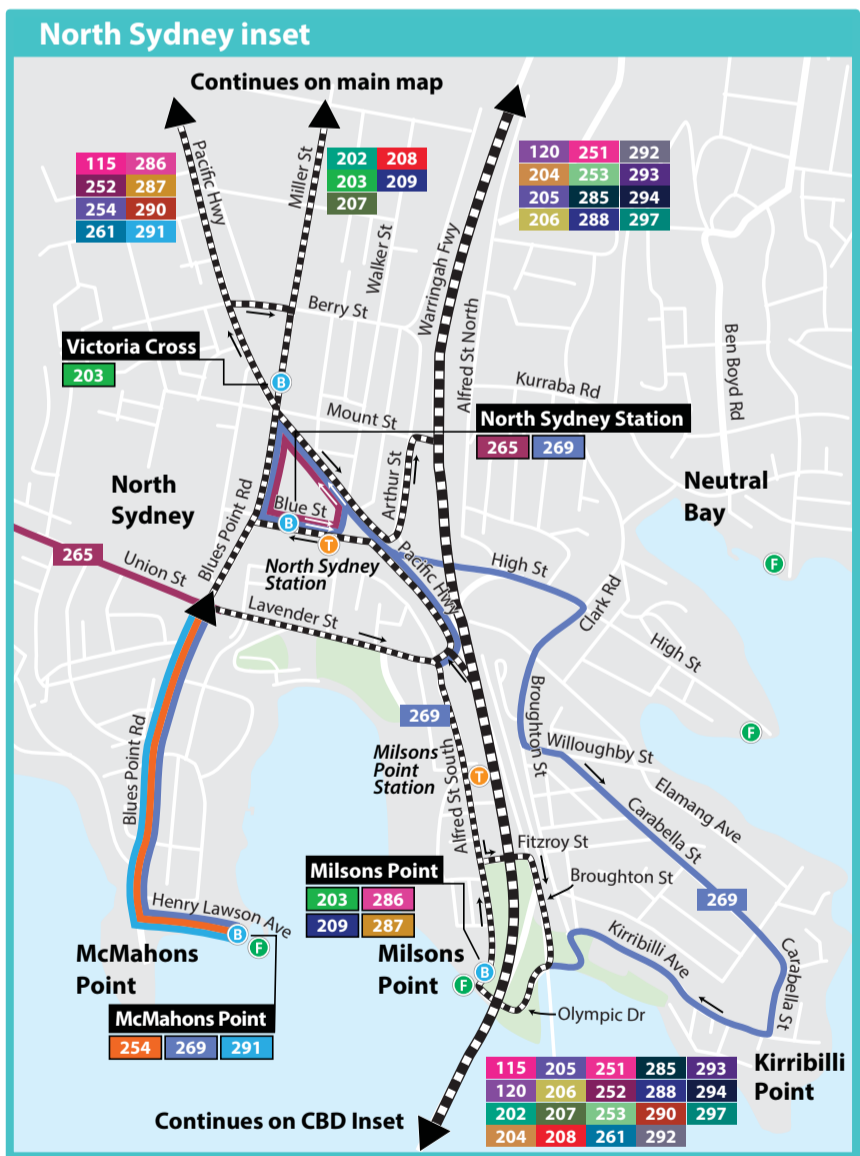
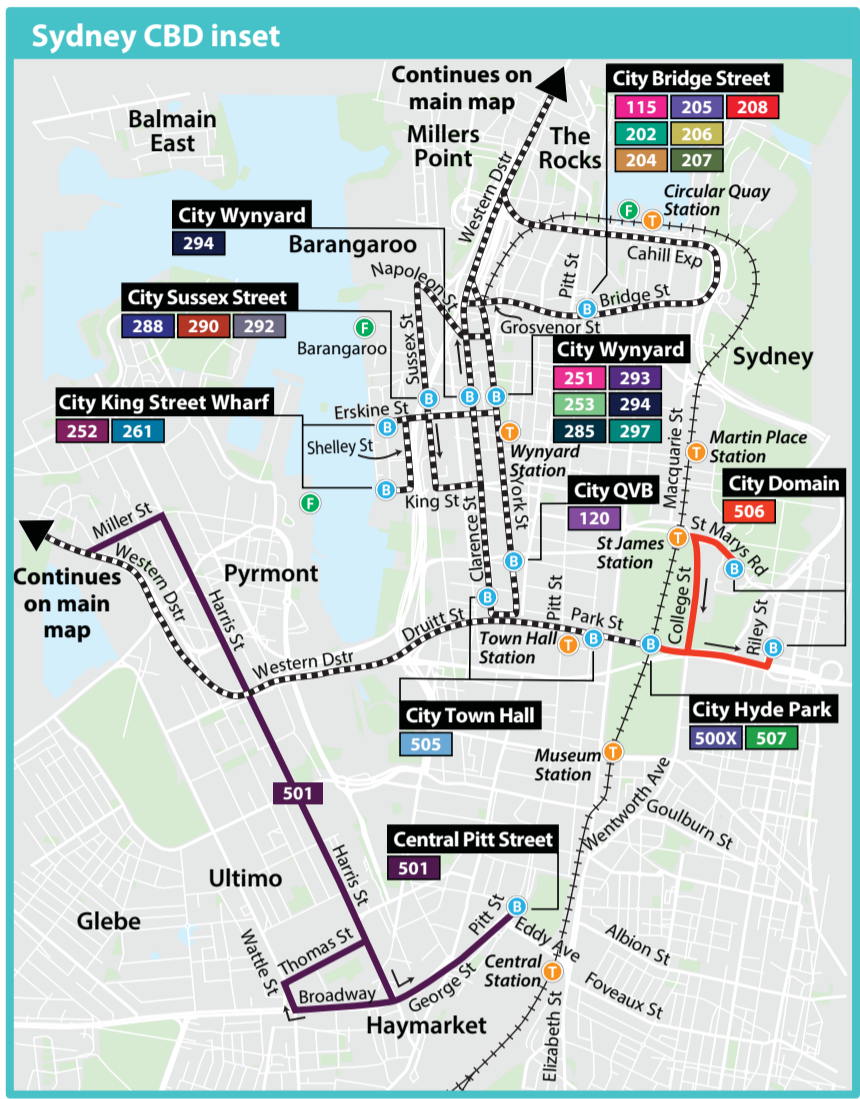
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251	Lane Cove West to City, Wynyard via Freeway
252	Gladstones to City, King St Wharf via North Sydney
253	Riverview to City, Wynyard via Freeway
254	Riverview to McMahons Point
255	Chatswood to Colwell Cres (loop service)
256	Chatswood to Fullers Rd (loop service)
258	Chatswood to Mars Rd
259	Macquarie Centre to Chatswood via North Ryde
261	Lane Cove to City, King St Wharf via Longueville Rd

263	Lane Cove to North Sydney via Greenwich
267	Chatswood to Crows Nest
269	McMahon's Point (loop) via North Sydney Station & Kirribilli
275	Castlecrag to Chatswood
285	Lane Cove West, Mars Rd to City, Wynyard via Freeway
286	Denistone East to Milsoms Point via St Leonards & North Sydney
287	Ryde to Milsoms Point via St Leonards & North Sydney
288	Epping to City, Erskine St
290	Epping to City Erskine St via Macquarie University & North Sydney
291	Epping to McMahons Point

292	Marsfield to City, Erskine St via Macquarie Park
293	Marsfield to Wynyard via Lane Cove Tunnel & Freeway
294	Epping to Wynyard via Freeway
295	North Epping to Epping (loop service)
297	Denistone East to Wynyard via Tunnel & Freeway
501	Paramatta to Central, Pitt St via Victoria Rd
505	Woolwich to City, Town Hall
506	Macquarie University to City, Domain via East Ryde
507	Meadowbank to Gladesville & City, Hyde Park
513	Carlingford to West Ryde

515	Eastwood to Ryde
517	Macquarie Centre to Ryde
518	Macquarie University to Meadowbank Wharf
521	Parramatta to Eastwood
523	West Ryde to Parramatta
524	Ryde to Parramatta via West Ryde
525	Parramatta to Strathfield via Sydney Olympic Park
533	Sydney Olympic Park to Chatswood via Rhodes & North Ryde
536	Gladesville to Chatswood via Hunters Hill
538	Gladesville to Woolwich

540	Auburn to Newington
541	Epping to Eastwood
543	Eastwood to West Ryde
544	Macquarie Centre to Auburn via Eastwood
545	Parramatta to Macquarie Park (Lachlan's Estate)
546	Parramatta to Epping via Outlands & North Rocks
549	Parramatta to Epping via North Rocks
550	Parramatta to Macquarie Park via Epping
551	Eastwood to Busaco Rd
552	Parramatta to Outlands

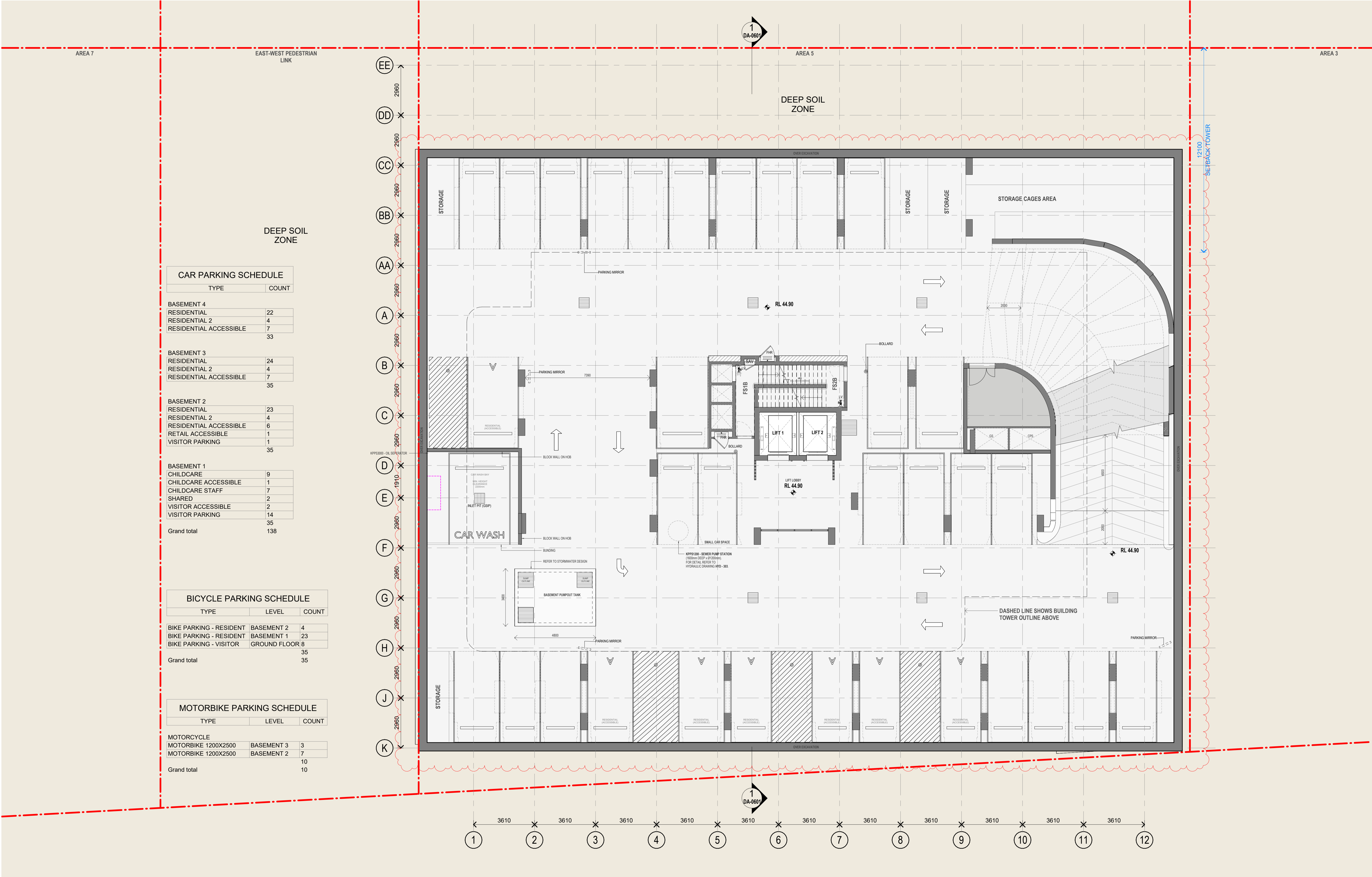




Transport Strategies

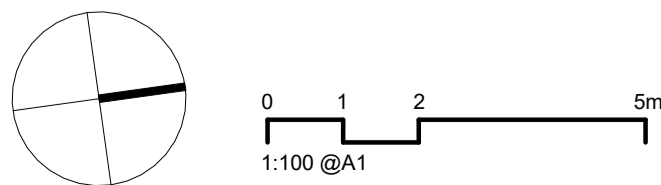
# **Appendix B**

## **Architectural Plans**

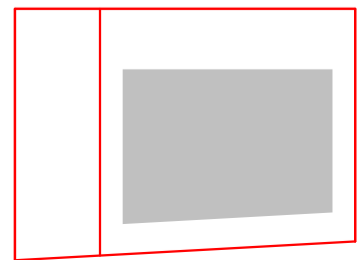


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DA32	03/09/2021	FINAL DRAFT FOR DA	LL	AH
DA36	24/09/2021	FINAL DRAFT FOR DA	LL	AH
DA37	28/09/2021	FINAL DRAFT FOR DA	LL	AH
DA40	08/10/2021	FINAL DRAFT FOR DA	LL	AH
DA42	13/10/2021	FOR DA APPLICATION	LL	AH
DA45	29/04/2022	RESPONSE TO RFI	LL	AH
DA49	14/10/2022	FOR S4.55 MODIFICATION	AR	MS
DA50	18/11/2022	ISSUED FOR MOD3	AR	ST
DA51	27/07/2023	ISSUED FOR MOD 6	RP	ST
DA66	27/03/2024	ISSUED FOR MOD	TK	ST



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Project

13-19 Canberra Ave, St Leonards

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27/03/2024

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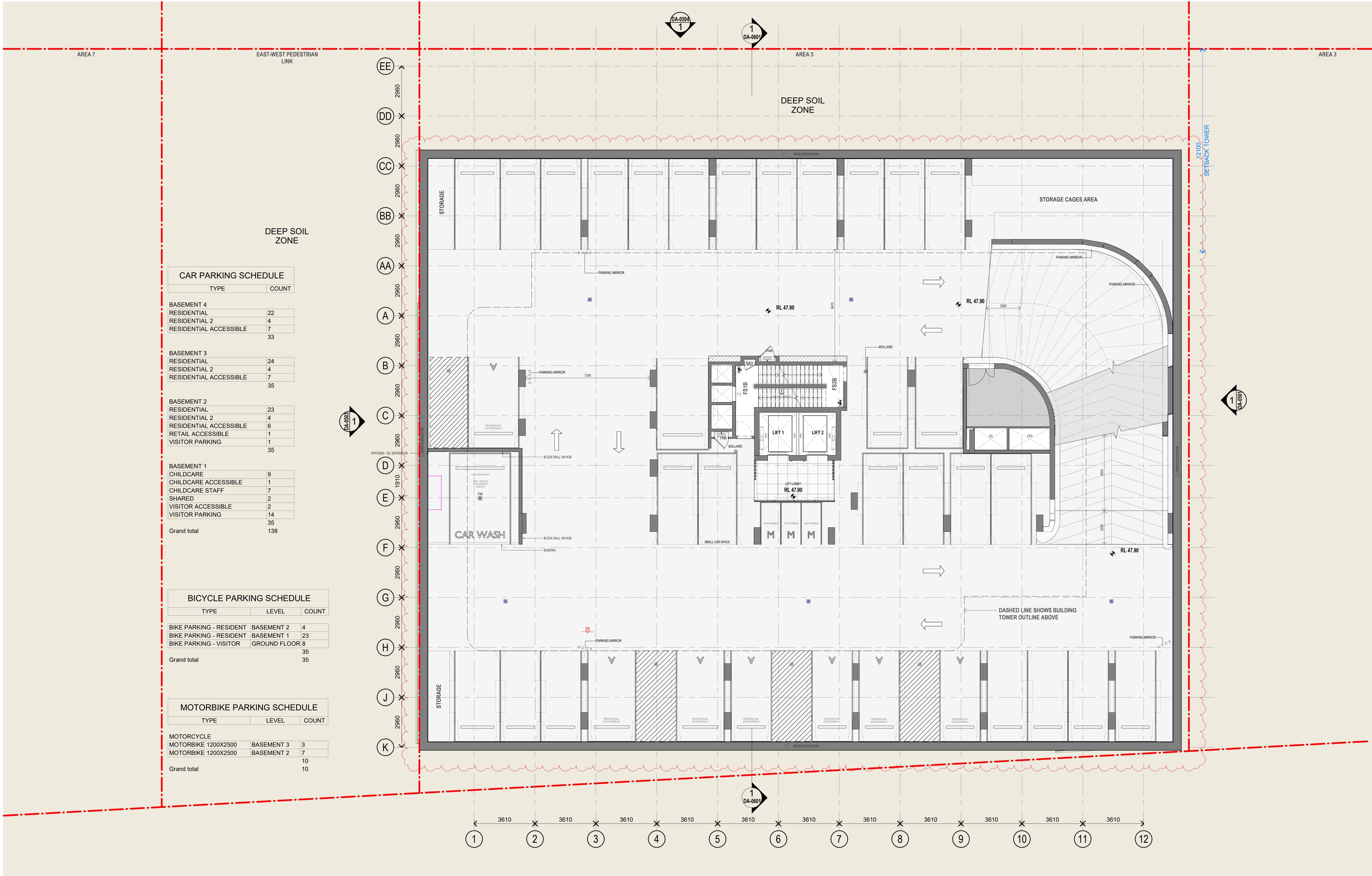
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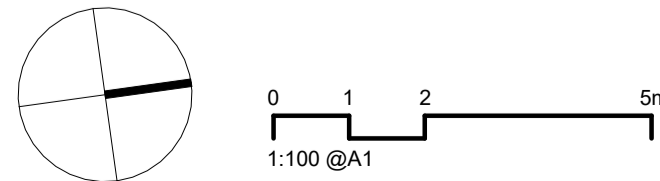
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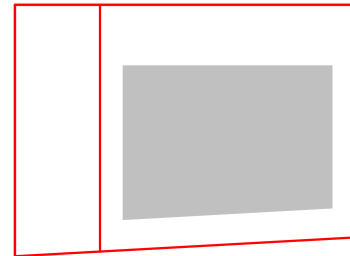


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DA37	28/09/2021	FINAL DRAFT FOR DA	LL	AH
DA40	08/10/2021	FINAL DRAFT FOR DA	LL	AH
DA42	13/10/2021	FOR DA APPLICATION	LL	AH
DA45	29/04/2022	RESPONSE TO RFI	LL	AH
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DA50	18/11/2022	ISSUED FOR MOD3	AR	ST
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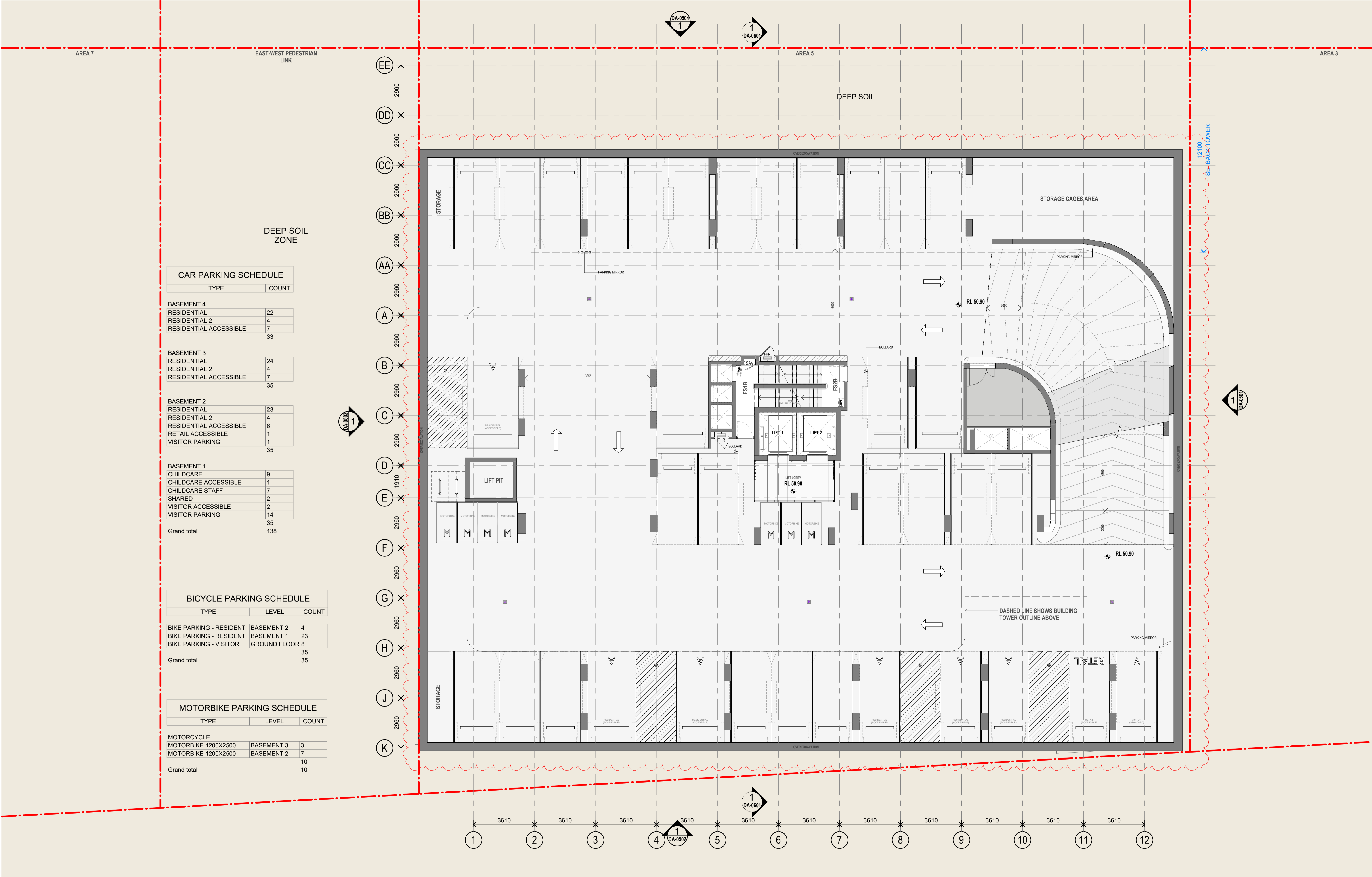
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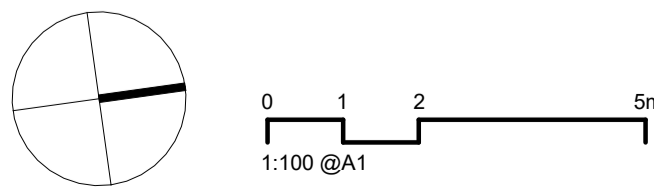
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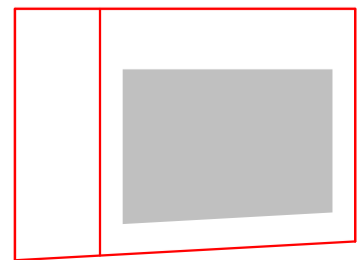


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DA37	28/09/2021	FINAL DRAFT FOR DA	LL	AH
DA40	08/10/2021	FINAL DRAFT FOR DA	LL	AH
DA42	13/10/2021	FOR DA APPLICATION	LL	AH
DA45	29/04/2022	RESPONSE TO RFI	LL	AH
DA49	14/10/2022	FOR S4.55 MODIFICATION	AR	MS
DA50	18/11/2022	ISSUED FOR MOD3	AR	ST
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DA66	27/03/2024	ISSUED FOR MOD	TK	ST



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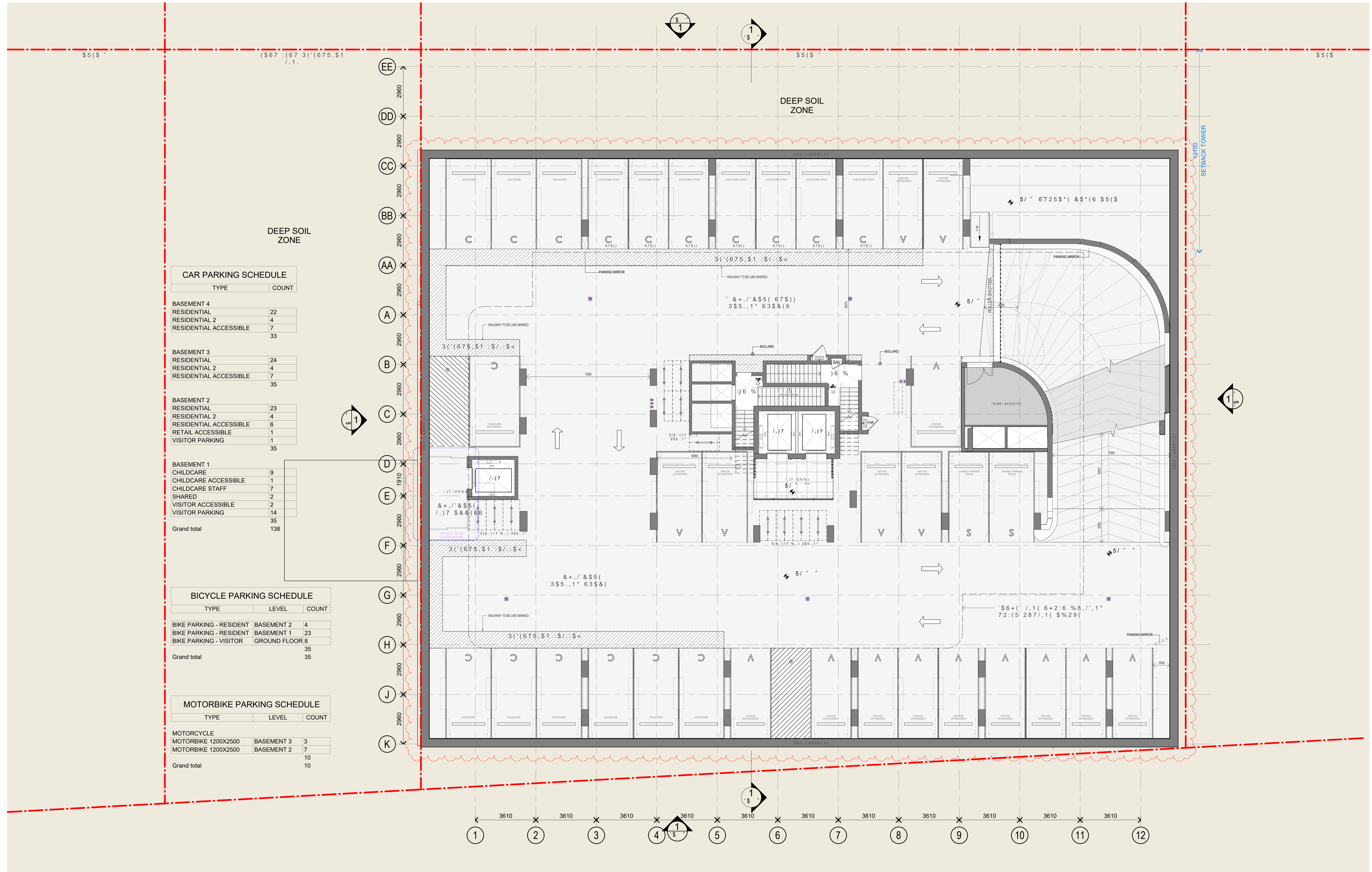
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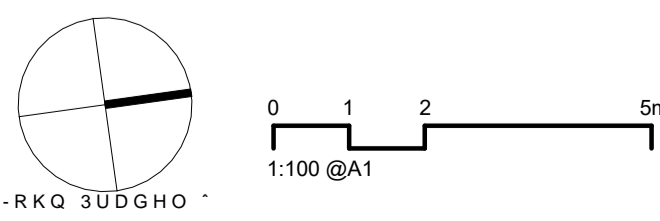
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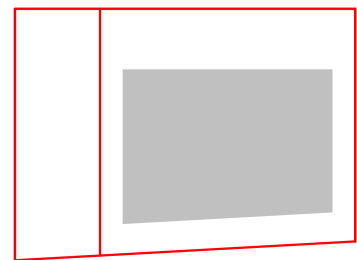


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DA50	18/11/2022	ISSUED FOR MOD3	AR	ST
DA51	27/07/2023	ISSUED FOR MOD 6	RP	ST
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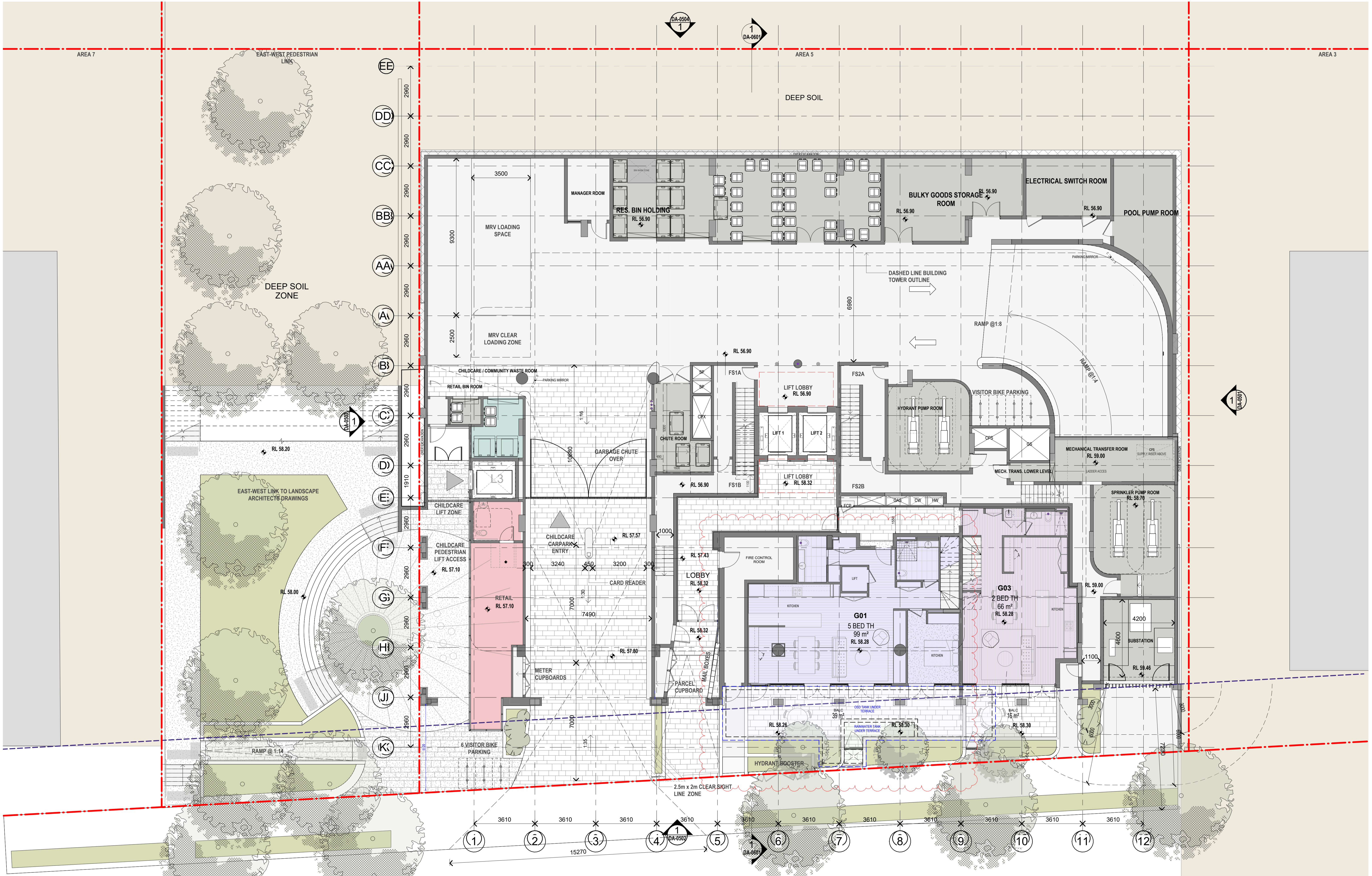
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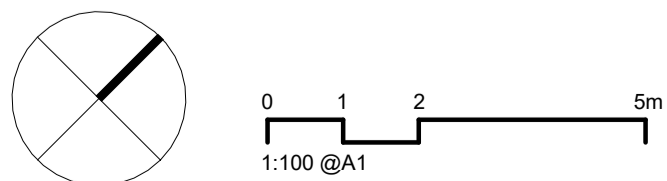
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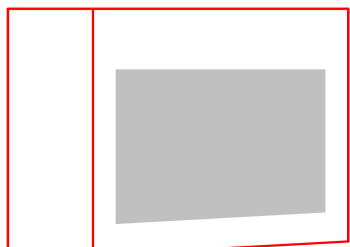


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DA36	24/09/2021	FINAL DRAFT FOR DA	LL	AH
DA37	28/09/2021	FINAL DRAFT FOR DA	LL	AH
DA39	07/10/2021	GF UPDATE	LL	AH
DA40	08/10/2021	FINAL DRAFT FOR DA	LL	AH
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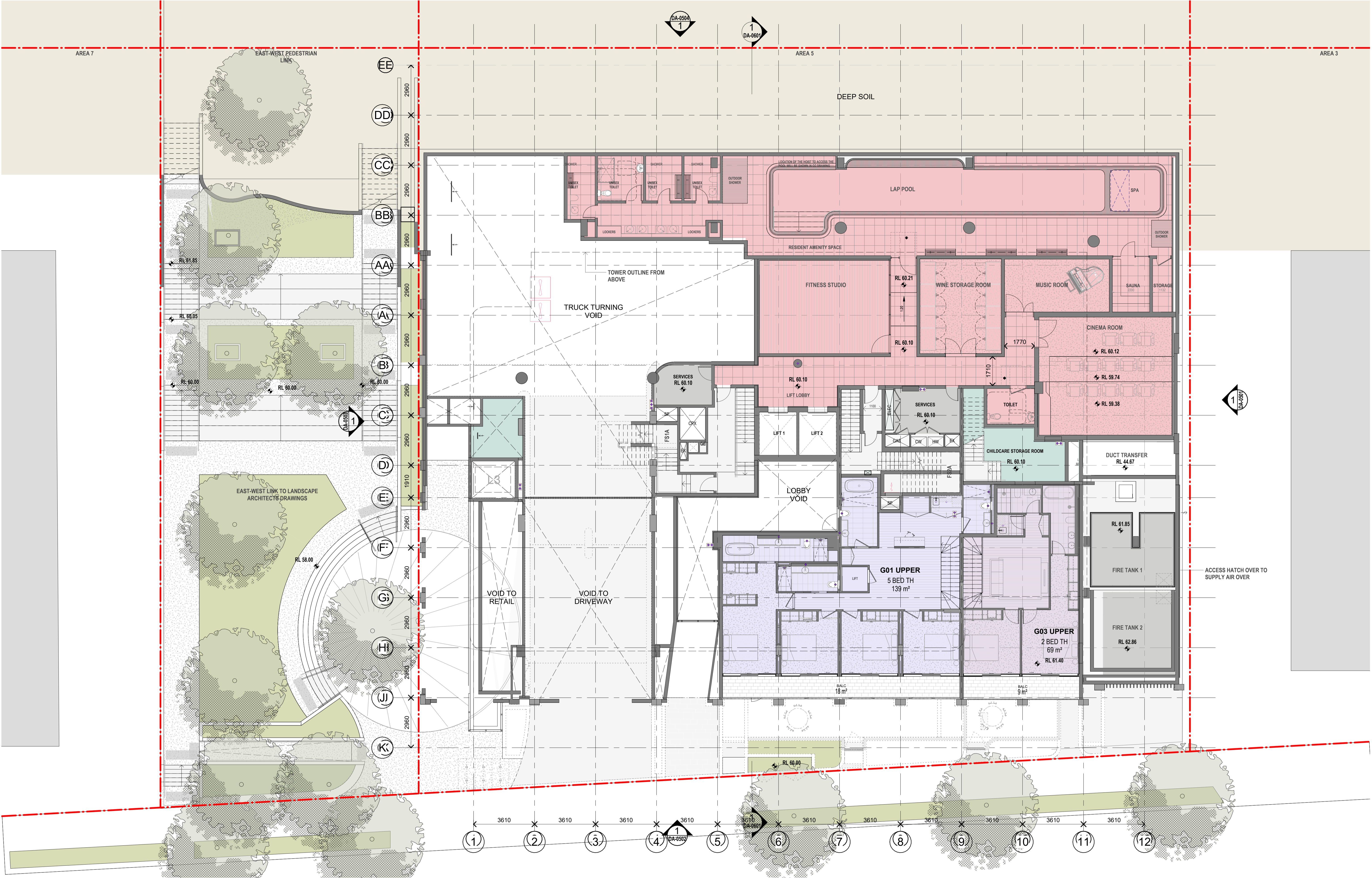
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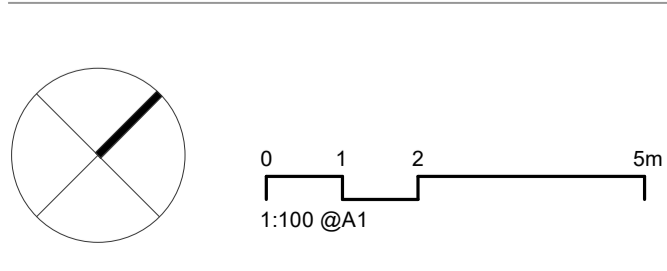
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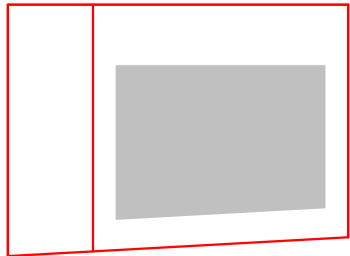


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05/04/2024

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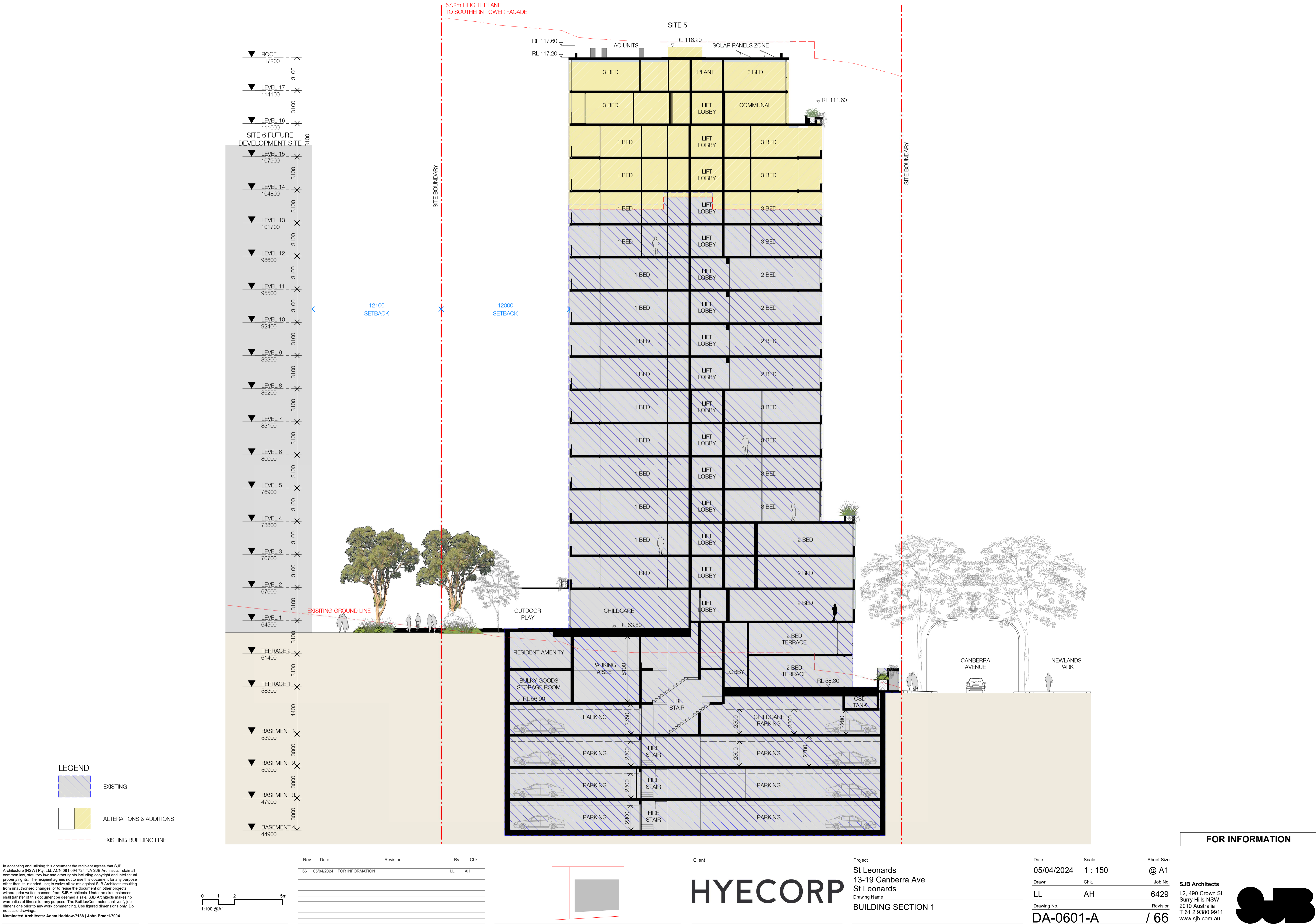
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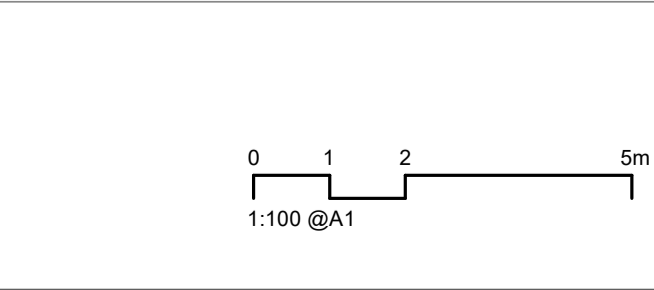
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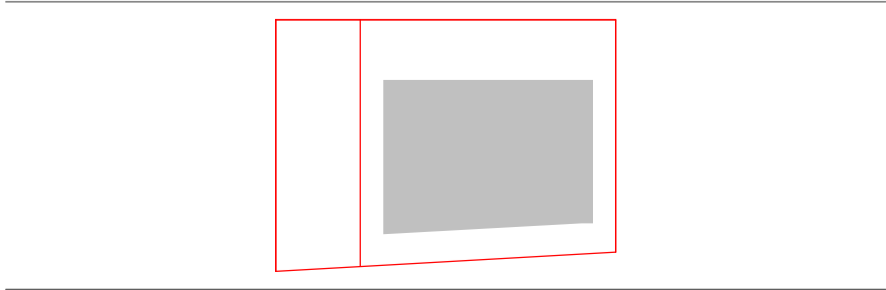


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Nominated Architects: Adam Haddow-7188 | John Pradel-7004



Rev	Date	Revision	By	Chk.
66	05/04/2024	FOR INFORMATION	LL	AH



Client

**HYECORP**

Project

St Leonards  
13-19 Canberra Ave  
St Leonards

Drawing Name  
BUILDING SECTION 1

Date	Scale	Sheet Size
05/04/2024	1 : 150	@ A1
Drawn	Chk.	Job No.
LL	AH	6429
Drawing No.	Revision	
DA-0601-A	/ 66	

FOR INFORMATION

SJB Architects  
L2, 490 Crown St  
Surry Hills NSW  
2010 Australia  
T 61 2 9380 9911  
www.sjb.com.au



# **Appendix C**

## **Compliance Review**

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Plotted by Muhammad Raza

- NOTES:
- MAXIMUM CHANGE IN GRADE FOR CARS SHOULD BE 1:8 OVER 2m
  - A MINIMUM HEIGHT CLEARANCE OF 2.2m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE CIRCULATION AISLES AND PARKING SPACES.
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LEGEND:



PROPOSED SIGN POST

ENSURE 4.5m HEIGHT CLEARANCE IS PROVIDED FOR SERVICE VEHICLE ACCESS. REFER TO NOTES AND SWEEP PATH FOR MORE DETAILS

PROVIDE 1.5m WIDE ACCESS TO BIKE PARKING

RECOMMEND TO PROVIDE COLUMN PROTECTIONS AND PAINT WITH HIGH VISIBILITY COLOR (e.g. YELLOW)



CANBERRA AVENUE

REMOVE EXISTING TRAFFIC ISLAND

EXISTING NO STOPPING RESTRICTION TO BE RETAINED

DUNTROON AVENUE

13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - GROUND  
CONCEPT LAYOUT



Transport Strategies

207A/30 CAMPBELL STREET, BLACKTOWN NSW 2148  
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PHONE 0424 007 141

**PRELIMINARY PLAN**  
FOR DISCUSSION PURPOSES  
ONLY SUBJECT TO CHANGE  
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21144-01-V6  
01 OF 11  
5 April 2024

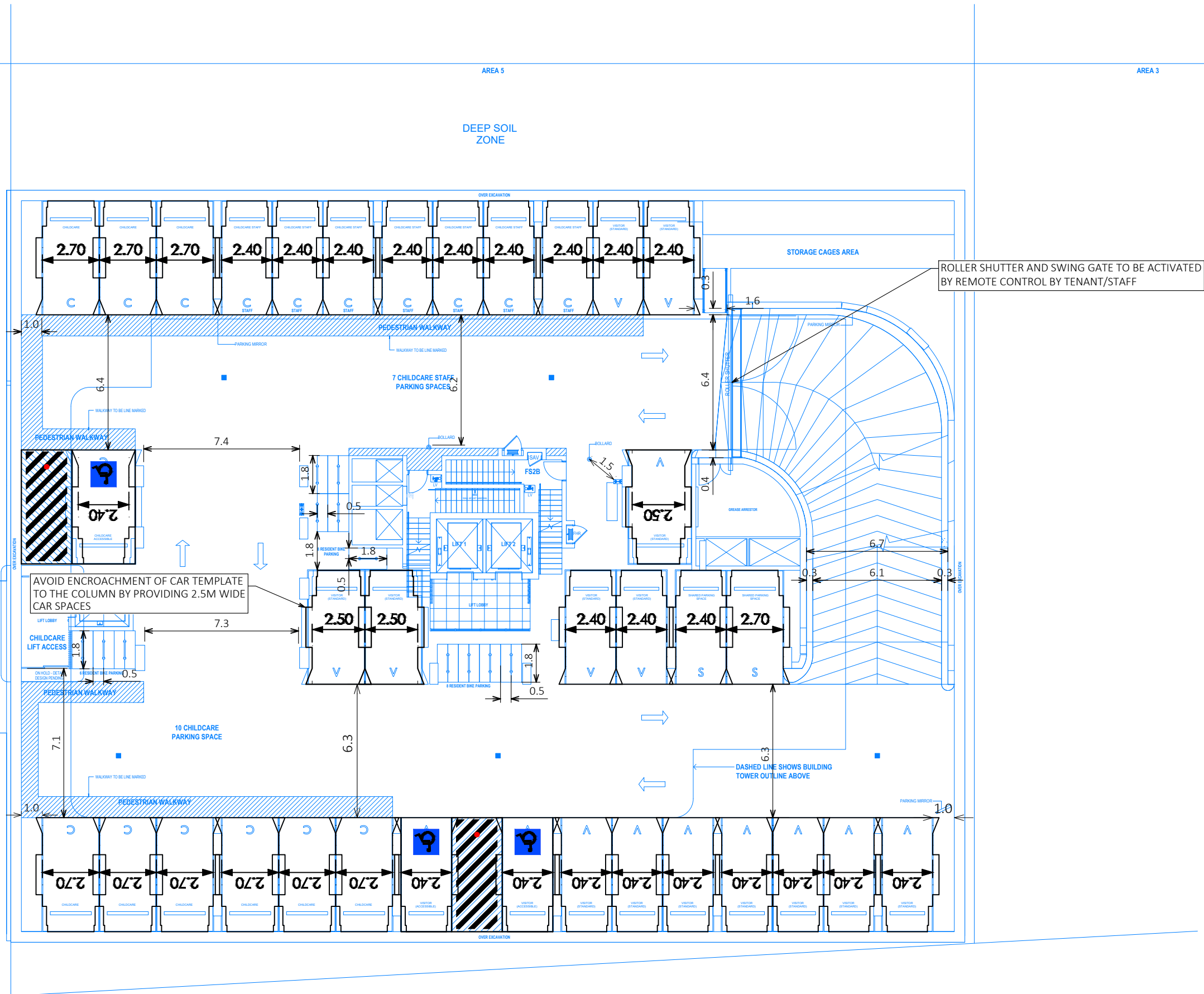
DESIGNED BY  
Y.HUANG

APPROVED BY  
M.KONG

SCALE  
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13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - BASEMENT 1  
CONCEPT LAYOUT



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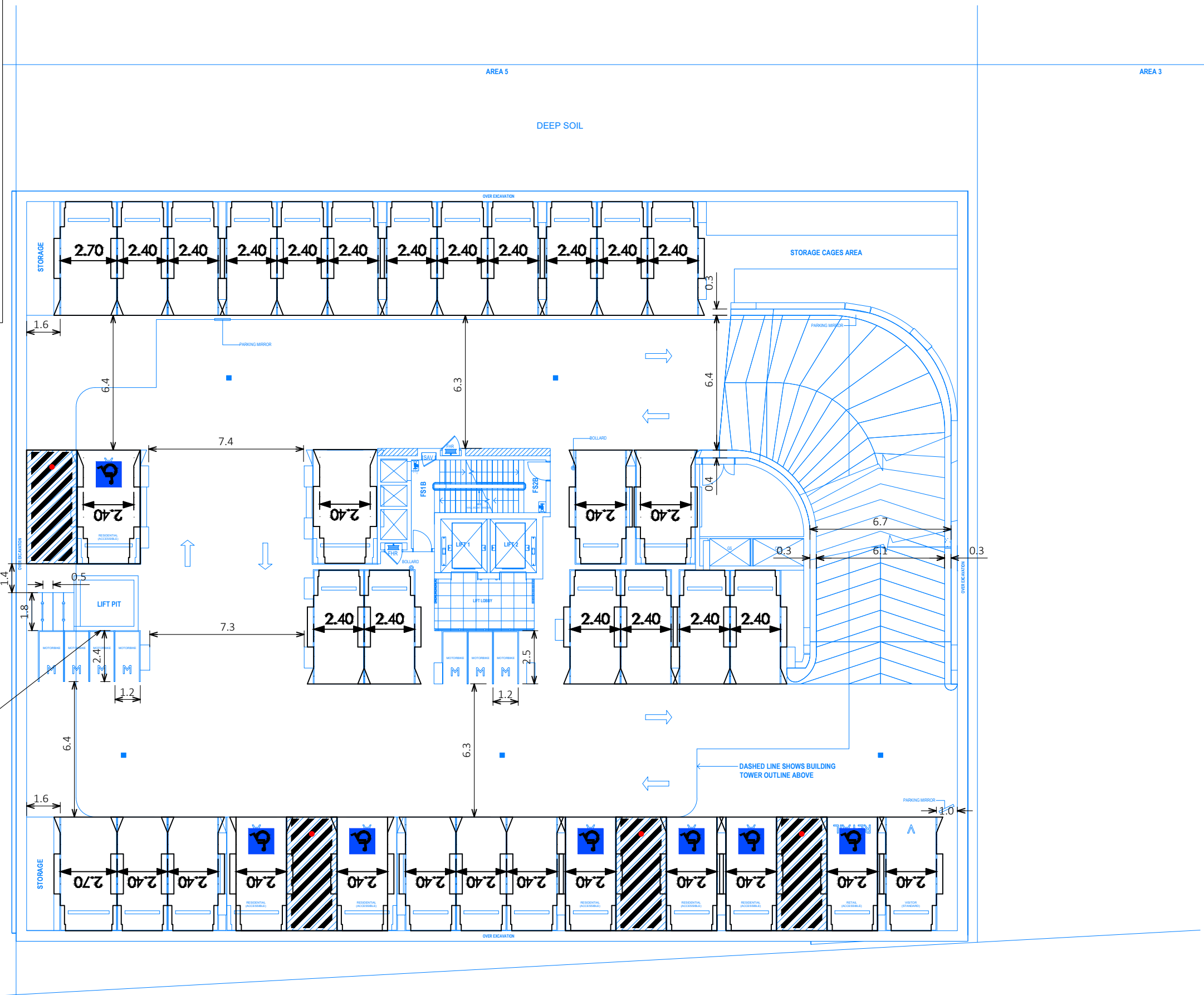
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02 OF 11  
5 April 2024

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Y.HUANG  
APPROVED BY  
M.KONG  
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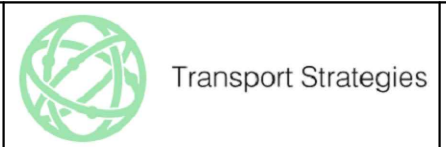
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MOTORCYCLE PARKING SHOULD BE MINIMUM 2.5m X 1.2m



13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - BASEMENT 2  
CONCEPT LAYOUT



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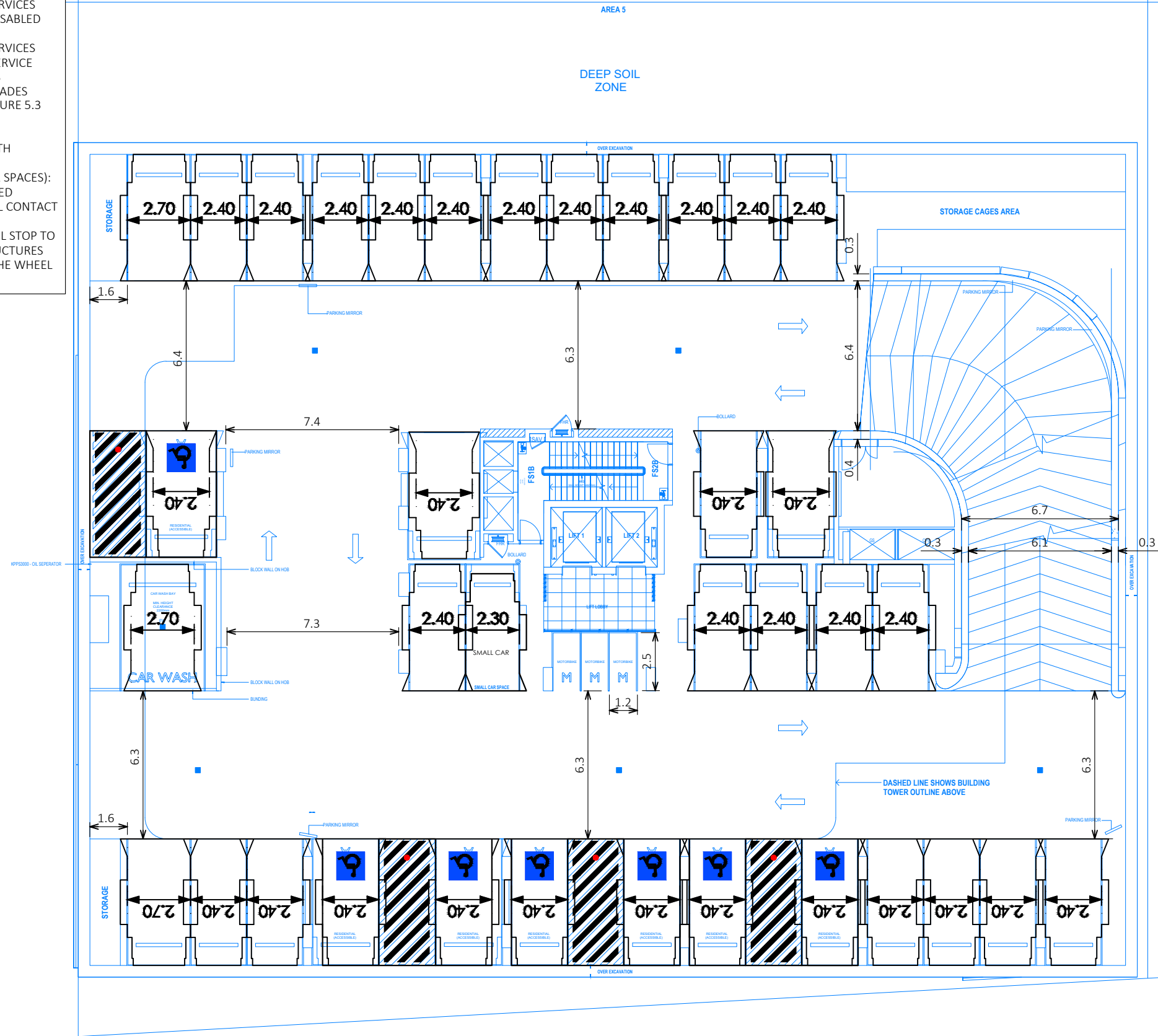
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APPROVED BY  
M.KONG  
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13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - BASEMENT 3  
CONCEPT LAYOUT



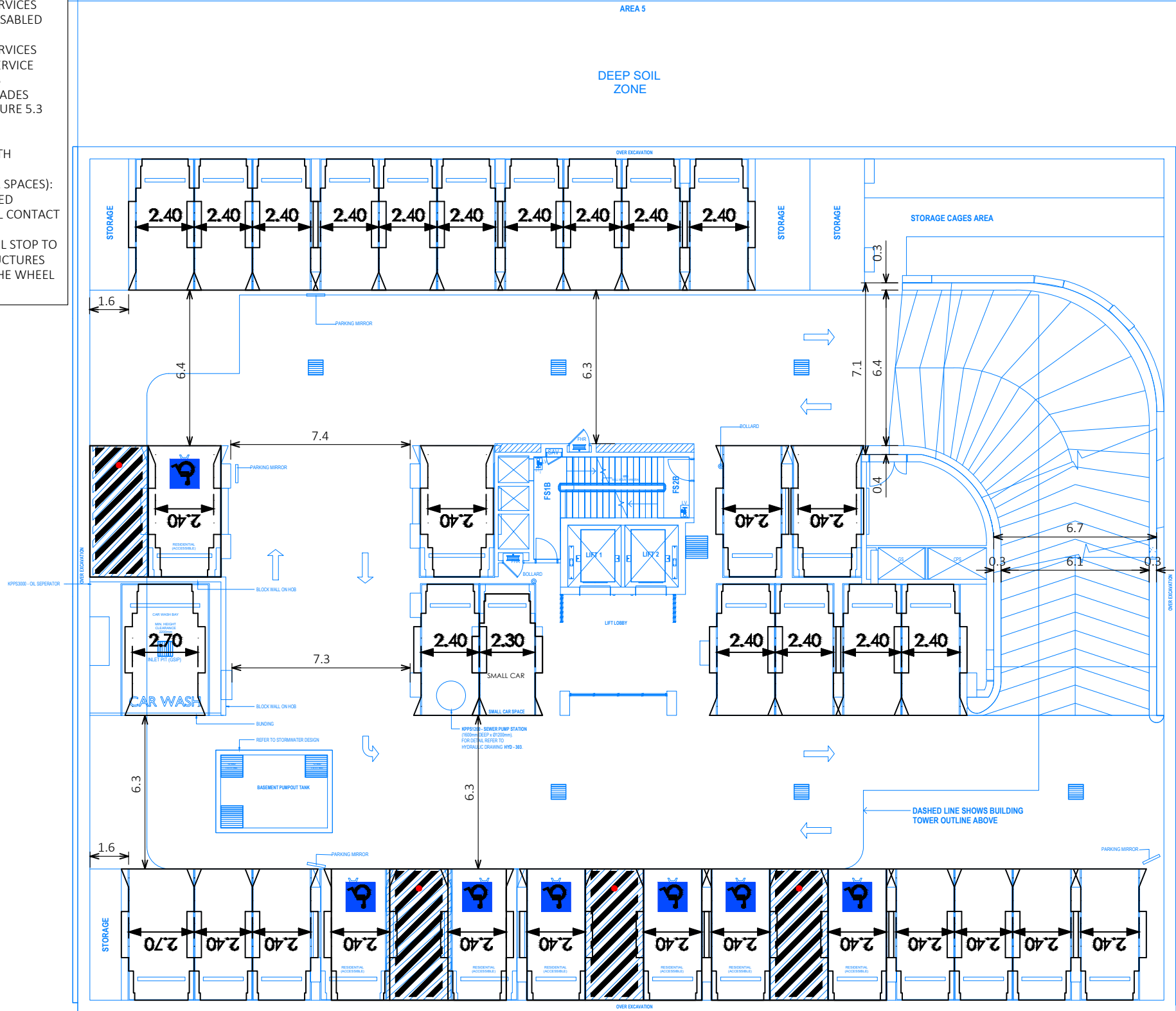
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5 April 2024

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APPROVED BY  
M.KONG  
SCALE  
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13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - BASEMENT 4  
CONCEPT LAYOUT



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Plotted by Muhammad Raza

13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - GROUND  
SWEEP PATH ASSESSMENT

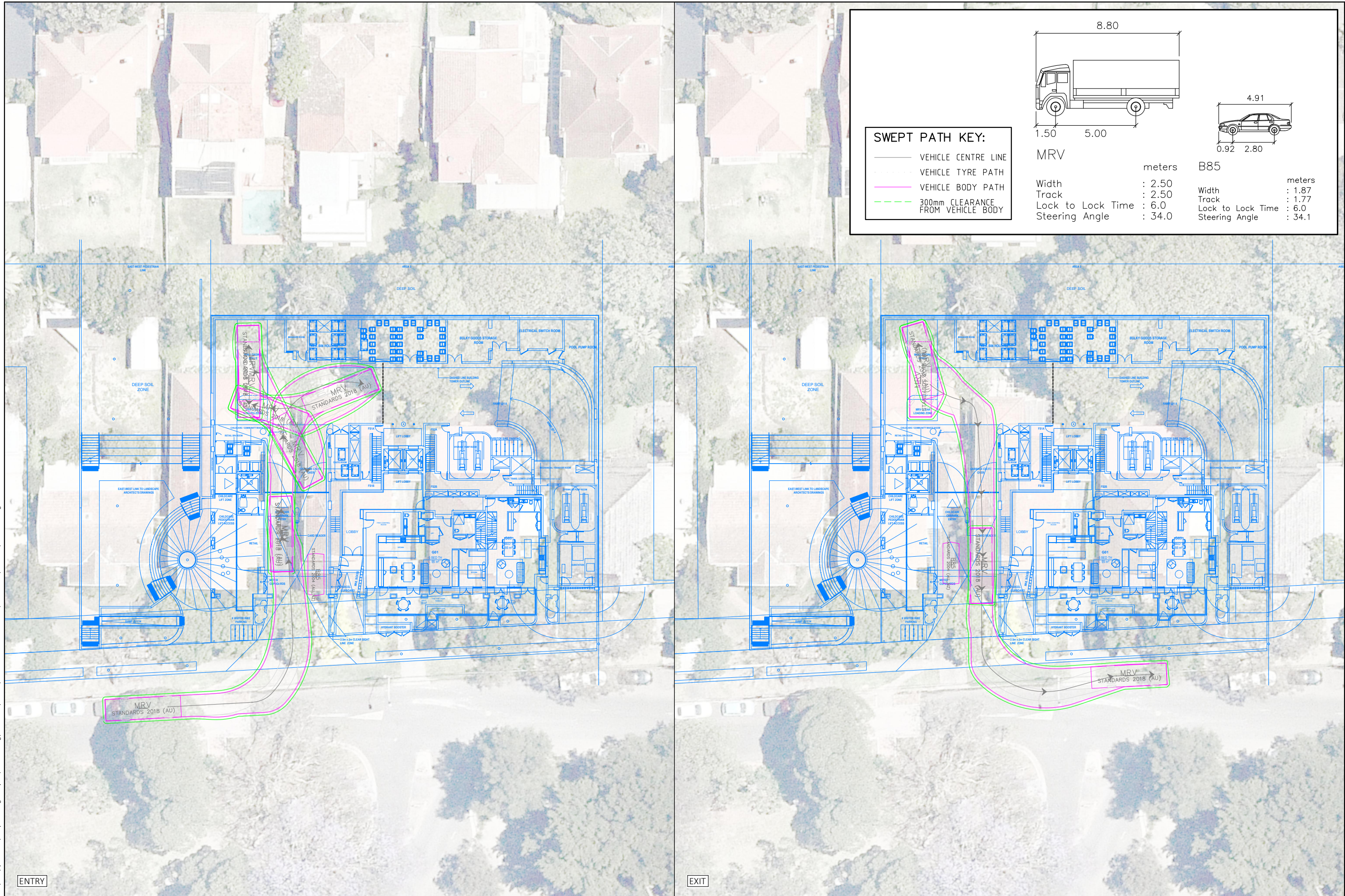


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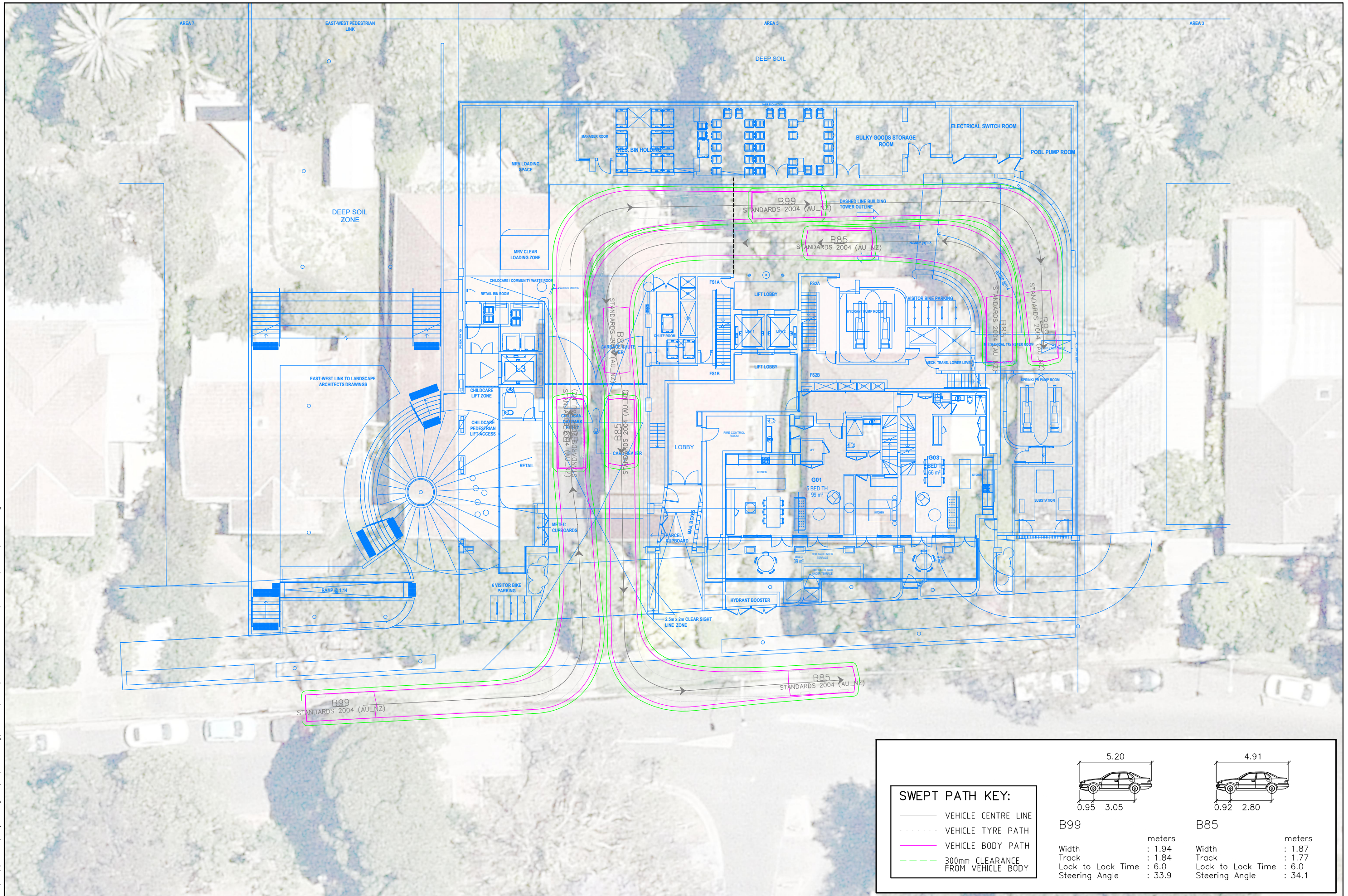
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M.KONG  
SCALE  
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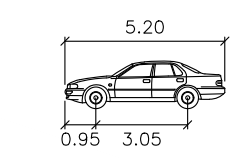


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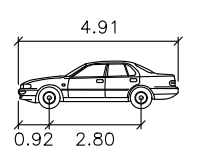
**SWEPT PATH KEY:**

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY



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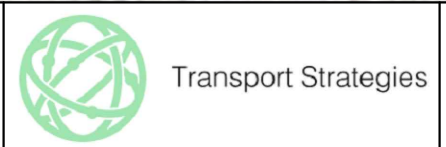
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13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - GROUND  
SWEPT PATH ASSESSMENT



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07 OF 11  
5 April 2024

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SCALE  
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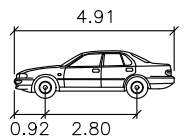
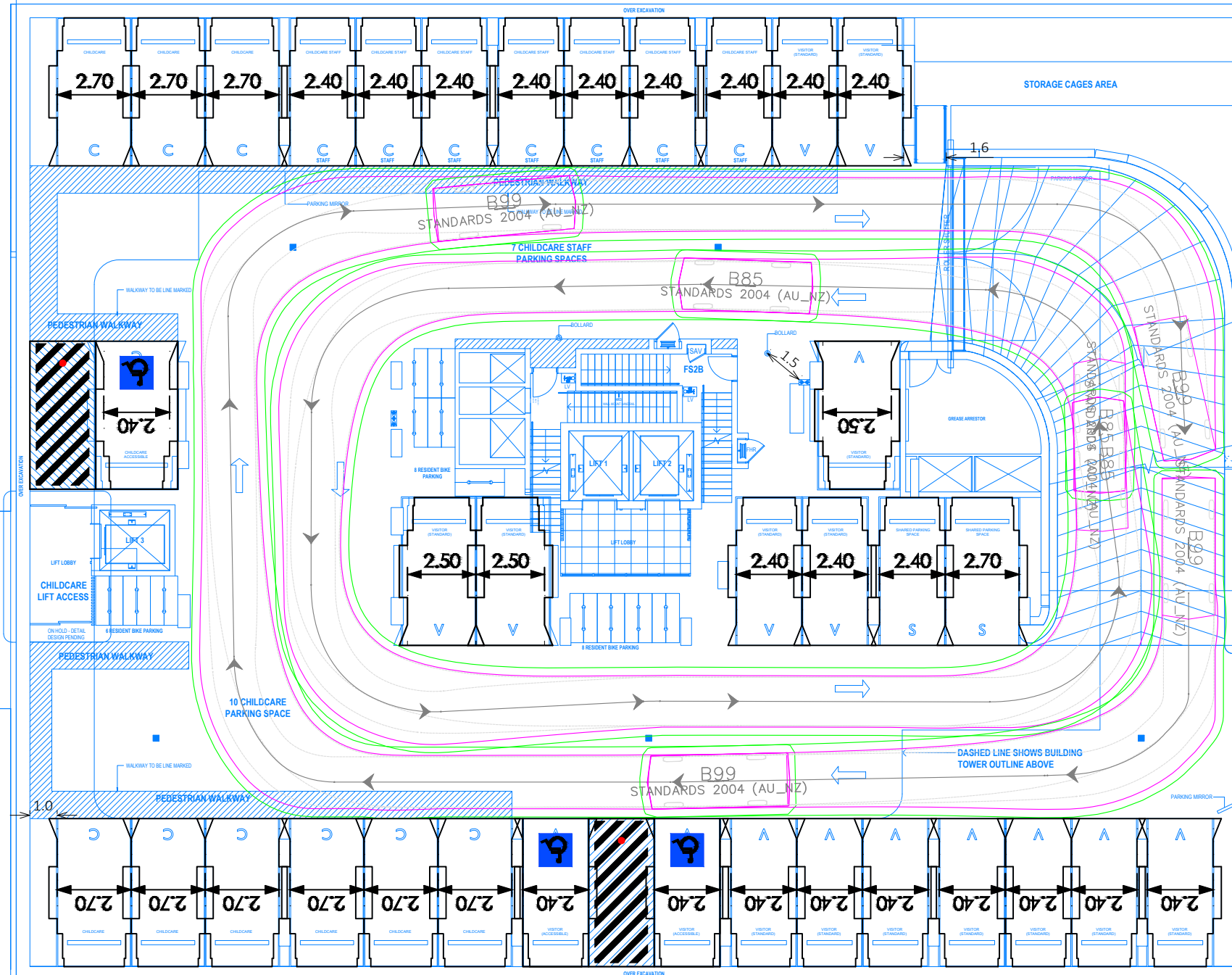
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AREA 3

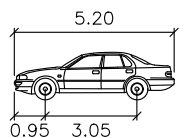
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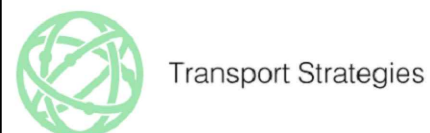
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Steering Angle : 33.9

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- VEHICLE TYRE PATH
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13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - BASEMENT 1  
SWEPT PATH ASSESSMENT



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08 OF 11  
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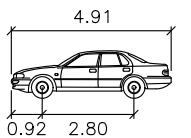
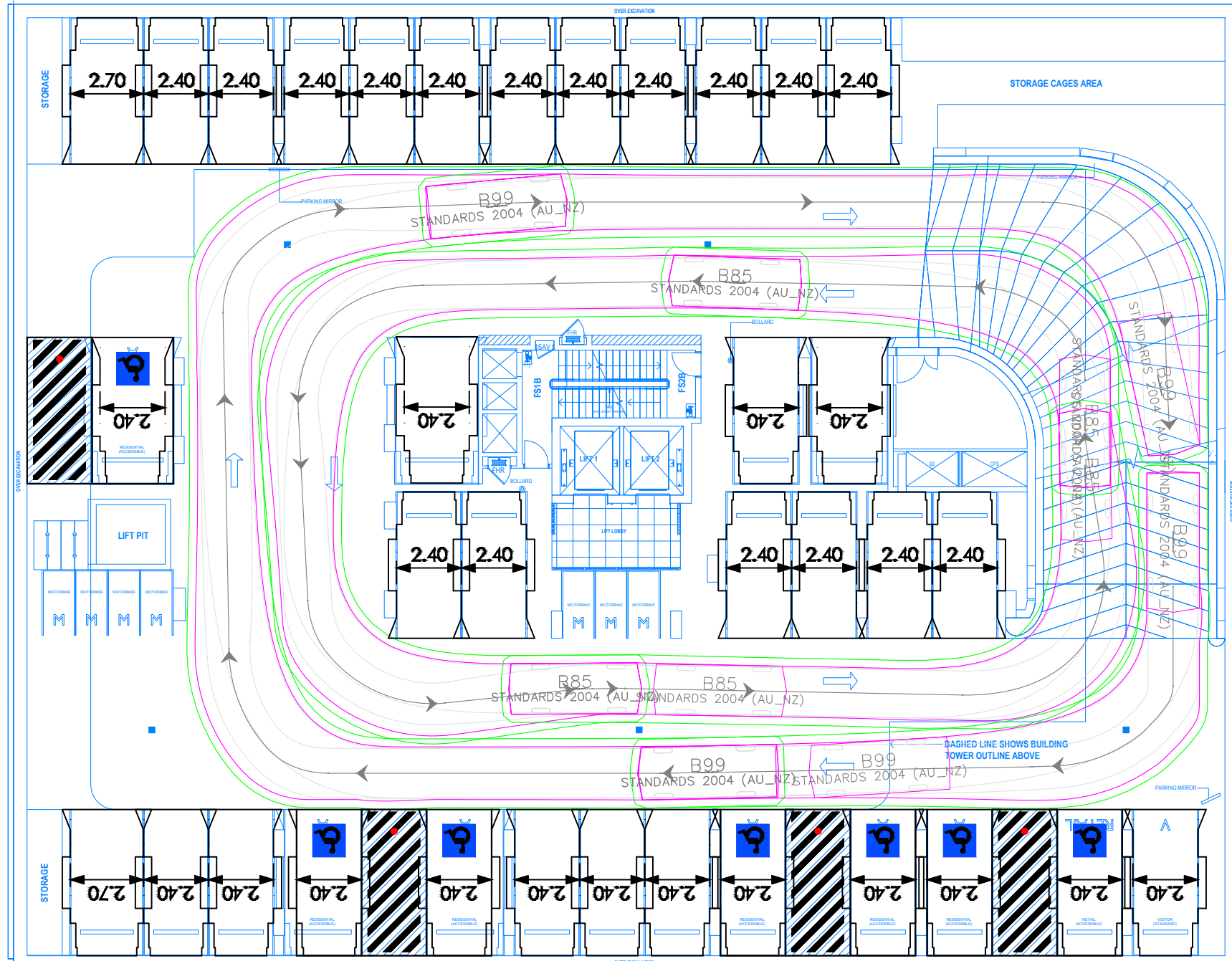
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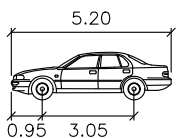
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DEEP SOIL

DEEP SOIL  
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13-19 CANBERRA AVENUE, ST LEONARDS  
CARPARK COMPLIANCE REVIEW - BASEMENT 2  
SWEPT PATH ASSESSMENT



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09 OF 11  
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M.KONG

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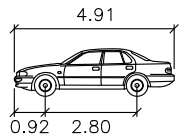
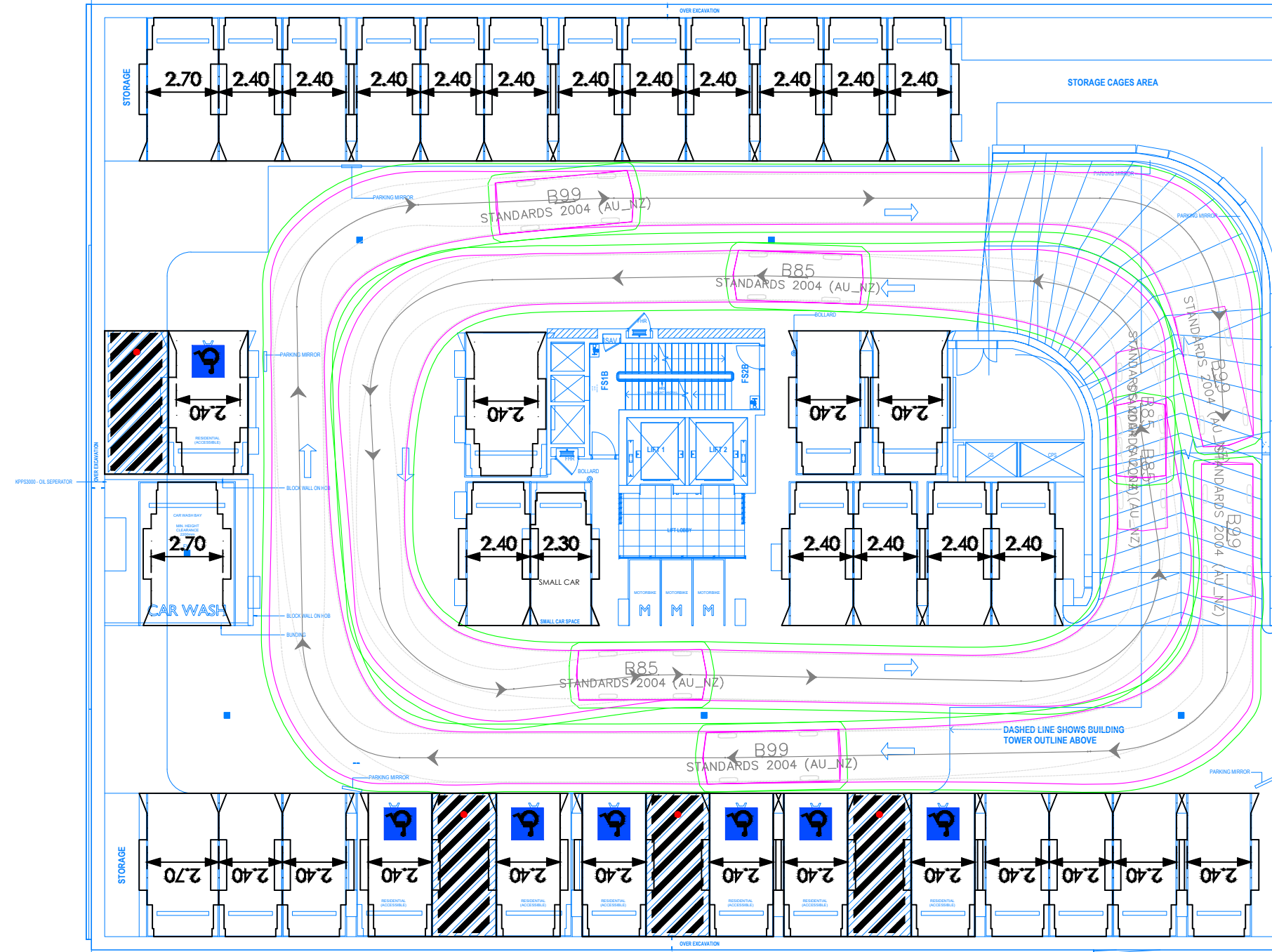
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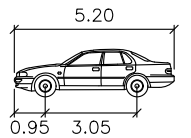
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0 20 40  
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