53A Warriewood Road, Warriewood

Residential Subdivision

Transport Impact Assessment

Prepared by CTP Consult Pty Ltd
for PVD No. 21 Pty Ltd

53A Warriewood Road, Warriewood

Residential Subdivision

Transport Impact Assessment

Client	Job Number
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A	22/6/2021	Submission	Matthew Houlden	Matthew Houlden	

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1. Introduction

1.1 Background

A development application is to be submitted to Northern Beaches Council for a proposed residential subdivision on land located at 53A Warriewood road in Warriewood. The proposed development proposed the subdivision of the property into 21 residential lots.

This development will be assessed under Part 4 of the EP & A act and primarily the following documents:

> Pittwater LEP 2014
> Pittwater 21 DCP
> Pittwater 21 DCP – Appendices.

This development is not of a size that requires referral to TfNSW (Roads and Maritime) under Schedule 3 of the State Environmental Planning Policy (Infrastructure) 2007.

It has been estimated that this development would cater for approximately 61 new residents.

CTP Consult was commissioned by PVD No. 21 Pty Ltd in June 2021 to undertake a transport impact assessment of the proposed development.

1.2 Scope and Objectives of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

1) the active transport requirements (pedestrians and cyclists)
2) the public transport in the vicinity of the site
3) the existing conditions surrounding the site
4) the suitability of the proposed accessway for the site
5) the loading, service and emergency vehicle requirements
6) the transport generating characteristics of the proposed development
7) the transport impact of the proposal on the surrounding road network.

1.3 References

The following were referenced as part of the preparation of this report:

> Pittwater LEP 2014
> Pittwater 21 DCP
> Pittwater 21 DCP – Appendices
> Northern Beaches Council Waste Management Guidelines Chapter 3
> Austroads Guide to Road Design
> plans for the proposed development prepared by Saturday Studio, Drawing Number 20023/100:01, Revision K, dated 11/6/21
> Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004

- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2018
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- Warriewood Valley Roads Masterplan 2018
- Additional documents and data identified throughout the report.

2. Existing Conditions

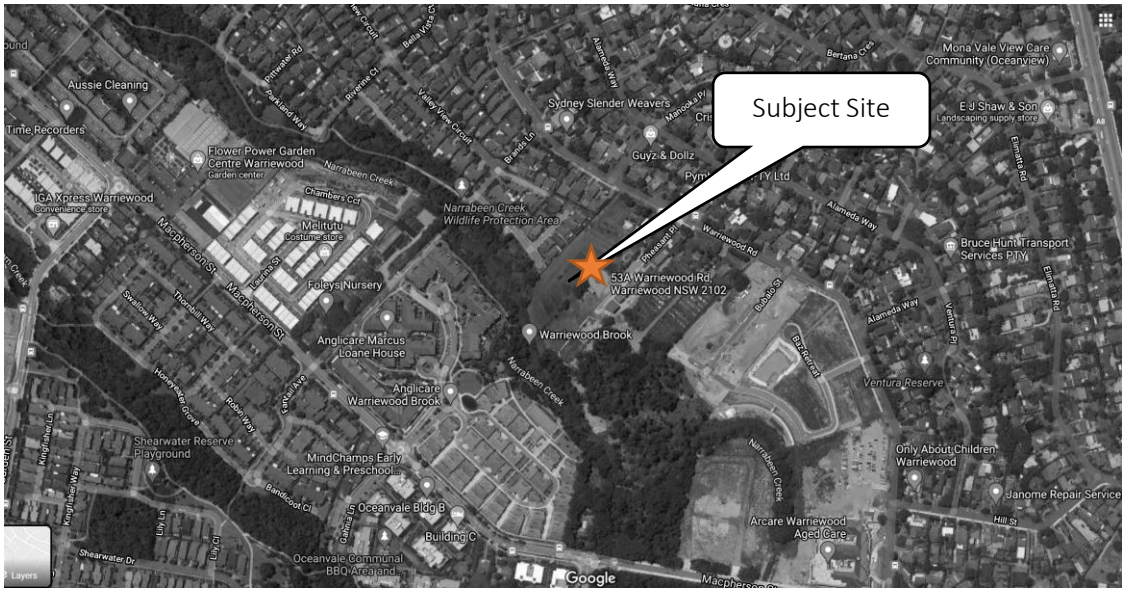
2.1 Site Location

The subject site is located at 53 Warriewood Road in Warriewood. The site has a frontage of approximately 46m to Warriewood Road and a total site area of approximately 9,251m^2. The site is currently zoned as R3 in the Pittwater Local Environmental Plan 2014 and is occupied by a single dwelling.

The surrounding properties predominantly include residential uses. To the west of the site on the opposite side of Narrabeen Creek is an aged care facility.

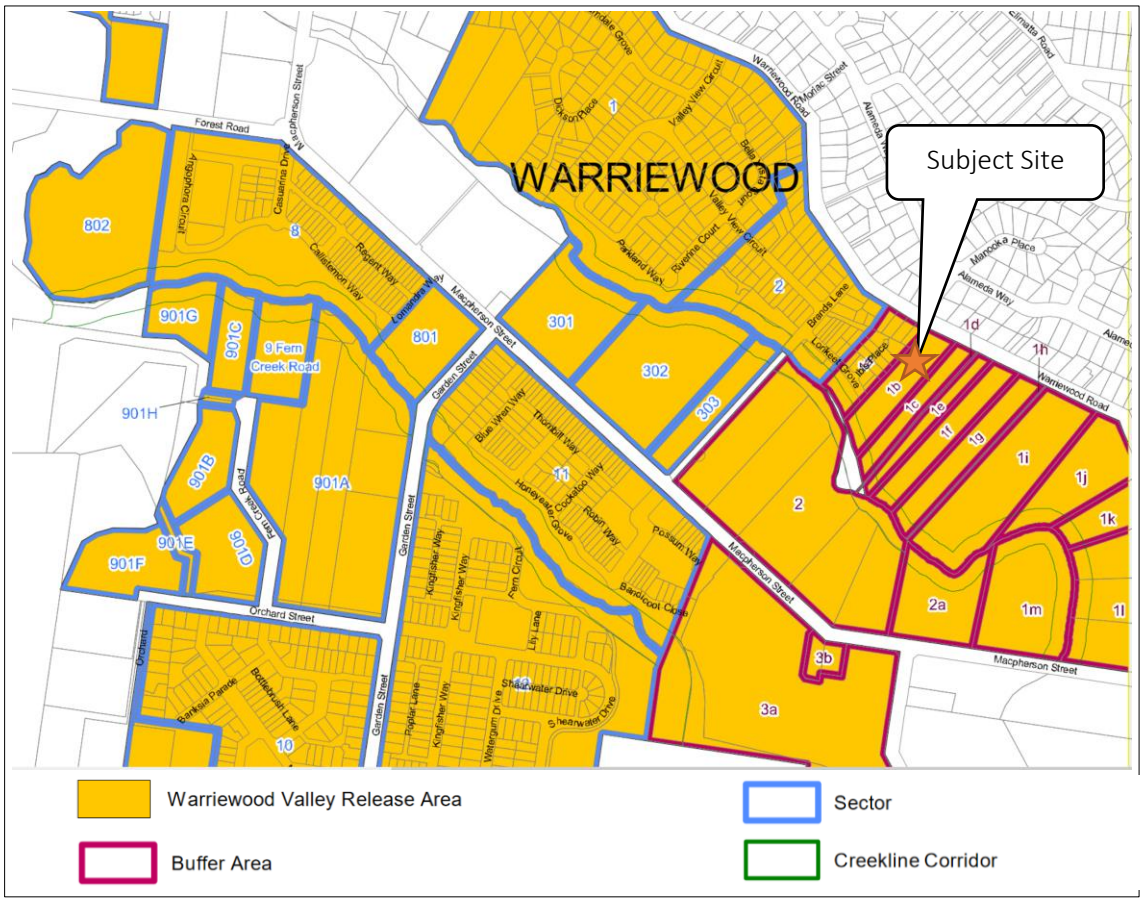
The location of the subject site and its surrounds is shown in Figure 2.1.

Figure 2.1: Subject Site and Its Surrounds



The site is located in the Warriewood Valley Release Area which is shown in Figure 2.2.

Figure 2.2: Pittwater LEP 2014 Urban Release Area Map



Base Map Source: https://eplanningdlprod.blob.core.windows.net/pdfmaps/6370_COM_URA_012_010_20150921.pdf - Accessed 15/6/21

Figure 2.2 indicates that the subject site is identified as Buffer Area 1b.

2.2 Local Area Travel Statistics

CTP Consult has reviewed the local area travel statistics from the 2016 census to understand how the people living in the new development could potentially travel to and from the subject site. The travel statistics are shown in Figure 2.3.

Figure 2.3: Warriewood Census Travel Statistics

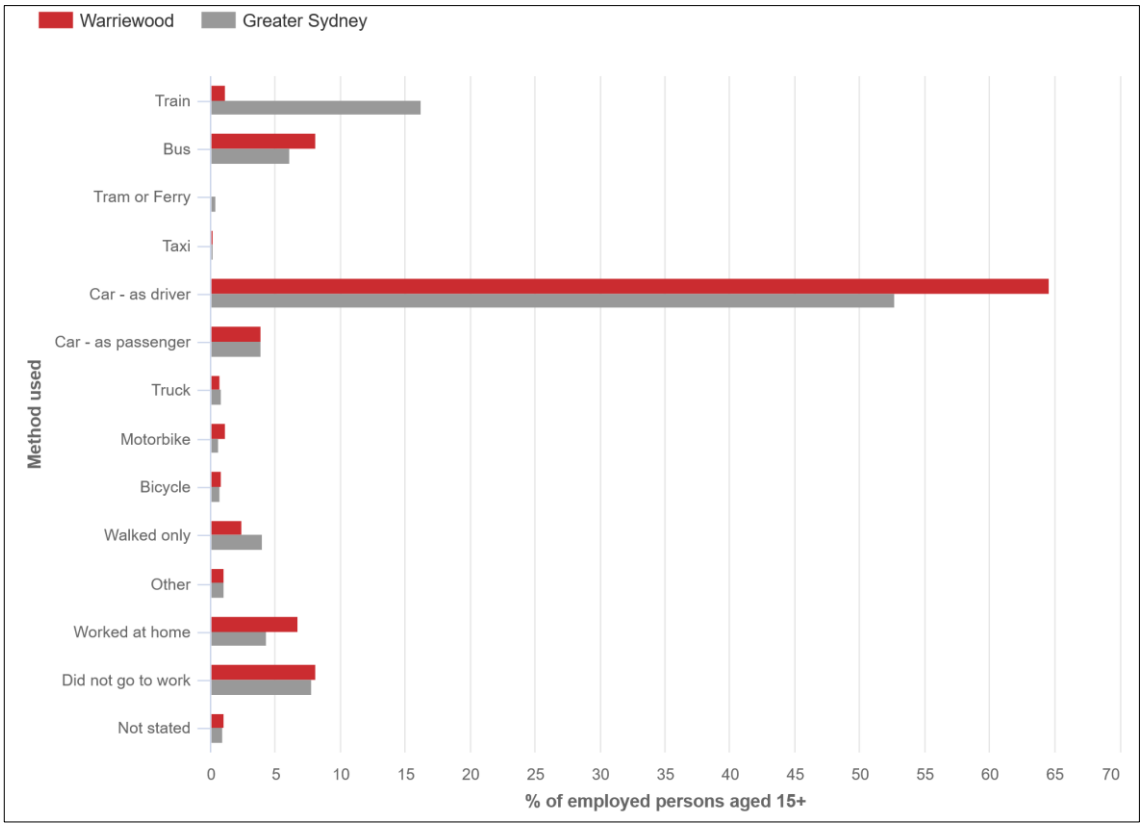


Figure 2.3 indicates that when compared to the Sydney average, more people from Warriewood on average take the bus to work, more people work at home and more people drive to work.

2.3 Pedestrian Facilities

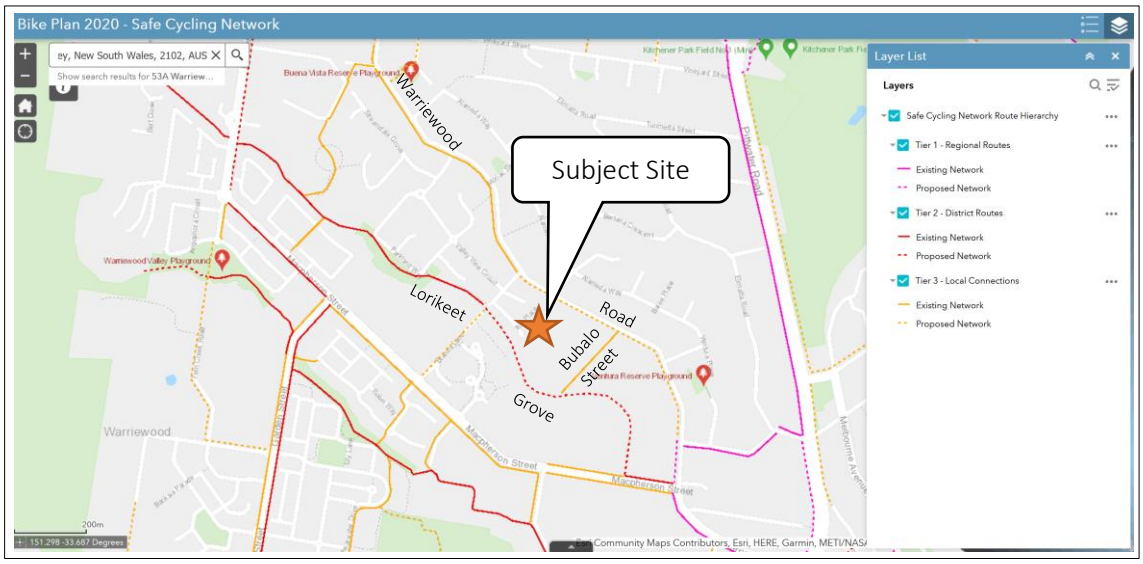
Pedestrian paths in the vicinity of the subject site are described as follows:

> There are currently no footpaths adjacent to the subject site on Warriewood Road.
> Footpaths are currently being constructed on the southern side of Warriewood Road as properties adjacent to Warriewood Road are developed.
> There are no formal crossing points on Warriewood Road in the vicinity of the subject site.

2.4 Cycle Facilities

The existing cycle facilities in the vicinity of the subject site is shown in Figure 2.4.

Figure 2.4: Existing Cycle Network



Basemap Source: https://northernbeaches.maps.arcgis.com/apps/webappviewer/index.html?id=abedc5db2afb4951a5596b64acc2641e – accessed 14/6/21

Figure 2.4 indicates that there are existing Tier 3 local connections along Warriewood Road to the west of the site and there is a connection between Warriewood Road and Lorikeet Grove via Bubalo Street.

2.5 Public Transport

A review of the public transport available in the vicinity of the site is shown in Figure 2.5 and are summarised in Table 2.1.

Figure 2.5: Public Transport in the Vicinity of the Subject Site

Table 2.1: Public Transport Provision

Mode	Route	Route Description	Location of Nearest Stop	Frequency On/Off peak
Bus	185	Mona Vale to Narrabeen via Warriewood Valley	Approximately 80m to 130m (1-2 minutes) to the east	10 minutes peak / 30 minutes off peak

2.6 Road Network

The road network in the vicinity of the subject site is described in the following sections.

2.6.1 Adjoining Roads

Details of the roads in close proximity to the site are provided in Table 2.1 as outlined in the Warriewood Valley Roads Masterplan, August 2018.

Table 2.2 Summary of Adjoining Roads

Road Name	Classification	Orientation	Configuration	Approx. Width	Target Daily Volume [1]	On-Street Restrictions
Warriewood Road (north of MacPherson Street)	Collector	East-West	1 lane in each direction	7m	5,000	Unrestricted car parking
Lorikeet Grove	Local Street	East-West	1 lane in each direction	5.5m to 7.5m	2,000	Unrestricted car parking
Pheasant Place	Access Street	North-South	One-way road, one land northbound	6m	<300	Unrestricted car parking on the eastern side of the street
Brands Lane	Access Street	North-South	1 lane in each direction	7.5m with a 5.5m wide threshold treatment near Warriewood Road	<300	Unrestricted car parking on the eastern side of the street
Bubalo Street	Access Street	North-South	1 lane in each direction	7.5m	<300	Unrestricted car parking

[1] As outlined in the Warriewood Valley Roads Masterplan, August 2018

2.6.2 Surrounding Intersections

The existing intersections in the vicinity of the site are summarised in Table 2.3.

Table 2.3 Existing Intersections in the Vicinity of the Site

Intersection	Intersection Control
Warriewood Road / Monooka Place	Priority Controlled T-Intersection
Warriewood Road / Hill Street	Roundabout
Warriewood Road / MacPherson Street	Roundabout

3. Proposed Development

3.1 Overview

The proposed development shown in Figure 3.1 includes the construction of 21 dwellings.

Based on the 2016 Census and an average of 2.9 people per dwelling[1], this equates to a total of approximately 61 residents.

Figure 3.1: Proposed Subdivison

3.2 Pedestrian and Bicycle Facilities

A 1.5m wide pedestrian footpath is proposed on the western side of the central accessway linking Warriewood Road and Lorikeet Drive.

A 2.5m wide shared path is proposed on the southern side of Lorikeet Grove.

The suitability of the proposed pedestrian facilities is discussed in Section 4.1 of this report with the bicycle facilities discussed in Section 4.2.

3.3 Vehicle Access

A central accessway connecting Warriewood Road and Lorikeet Drive is proposed with a 5.5m threshold carriageway treatment width at each end and a 7.0m carriageway width in the middle.

The suitability of the proposed access arrangements is discussed in Section 6 of this report.

[1] https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC14173 - accessed 14/6/21

4. Sustainable Transport

4.1 People who Walk

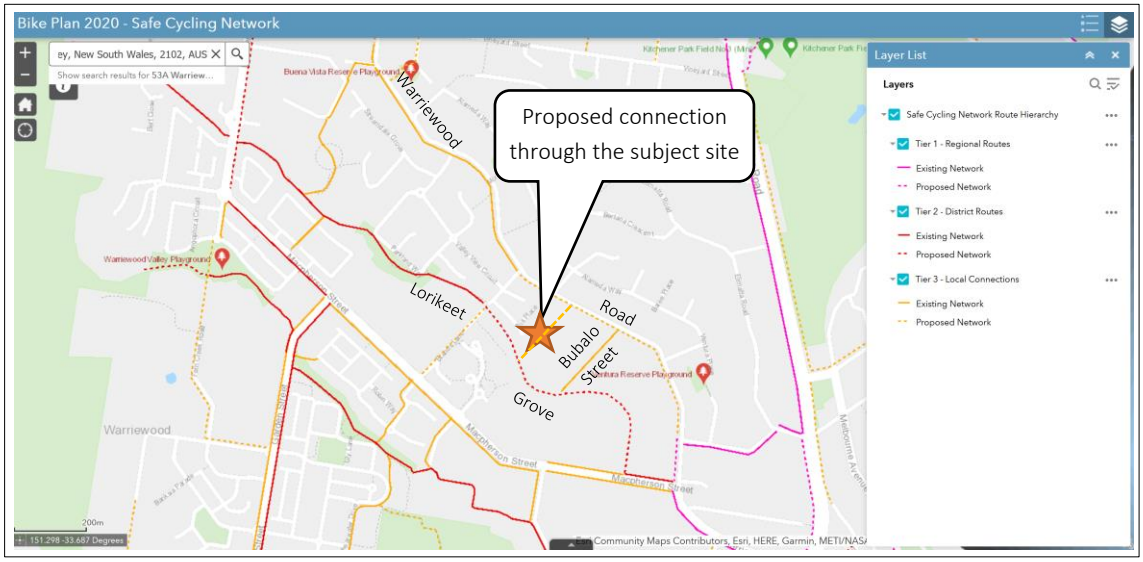
Pedestrian access between the proposed development and surrounding network is provided by the 1.5m footpath on the western side of the central accessway. A 2.1m wide footpath is proposed on Warriewood Road adjacent to the site. The footpath adjacent to the central accessway provides access to Warriewood Road and Lorikeet Grove. As the adjoining properties are developed, the footpath network on Warriewood Road and Lorikeet Grove will be completed, providing formal access throughout the wider area.

The proposed footpaths and shared path on one side of the central accessway and adjacent to the site on Warriewood Road are considered satisfactory to cater for residents on both sides of the central accessway and contribute to improved access between Warriewood Road and Lorikeet Grove for residents of the wider area.

4.2 People who Ride a Bicycle

The provision of the central accessway connects Warriewood Road and Lorikeet Grove as shown in Figure 4.1.

Figure 4.1: Proposed Cycling Connection



Basemap Source: https://northernbeaches.maps.arcgis.com/apps/webappviewer/index.html?id=abedc5db2afb4951a5596b64acc2641e – accessed 14/6/21

The proposed connection between Warriewood Road and Lorikeet Grove improves bicycle connectivity in the Warriewood Valley and is considered satisfactory and a good outcome for residents of the proposed development and nearby properties that ride a bicycle. The 2.5m wide shared path is proposed on Lorikeet Grove will form part of the proposed Tier 2 route connecting Brands Land and Macpherson Street.

4.3 People who take Public Transport

The Transport for NSW Integrated Public Transport Service Planning Guidelines – Sydney Metropolitan Area identify that 90% of households should be within 400m (as the crow flies) of a local bus stop. The site is accessible by public transport with a bus stop within a 1 to 2 minute walk of all dwellings as shown in Figure 4.2.

Figure 4.2: Walking Distance to the Nearest Bus Stops

The proposed central accessway reduces the walking time for residents of the proposed development to walk to the closest bus stops on Warriewood Road. Based on the 61 residents and assuming 66% are in the workforce (40), 8% taking buses to work (an additional 3 people in the peak hour) is not expected to result in additional peak bus capacity requirements.

5. Operational Impacts

5.1 Trip Generation

Traffic generation estimates for the proposed development have been sourced from the TfNSW Guide to Traffic Generating Developments Updated traffic surveys TDT 2013/04.

Estimates of peak hour and daily traffic volumes resulting from the proposal are set out in Table 5.1.

Table 5.1: Traffic Generation Estimates

Period	Traffic Generation Rate (Movements/Dwelling)			Vehicle Movements		
	In	Out	Total	In	Out	Total
AM Peak	0.79	0.20	0.99	4 /hr	17 /hr	21 /hr
PM Peak	0.57	0.38	0.95	/hr	/hr	20 /hr
Daily				112/day	113/day	225/day

Table 5.1 indicates that the site could potentially generate 21 vehicle movements in a peak hour with 225 vehicle movements over the entire day. A total of 21 vehicles per hour equates to approximately 1 vehicle every 3 minutes.

5.2 Transport Impact Assessment

As outlined in the Pittwater LEP Clause 6.1 (3), Buffer Area 1b is to contain *"not more than 24 dwellings or less than 17 dwellings"*. The development proposes 21 dwellings which is within the range envisaged by the masterplan.

As the number of dwellings proposed are within the range identified in the LEP, no additional road upgrades are proposed beyond those already envisaged and against existing traffic volumes in the vicinity of the site, the additional traffic generated by the proposed development is not expected to compromise the safety or function of the surrounding road network.

6. Central Accessway Design

6.1 Design Guidelines

The Warriewood Valley Roads Masterplan 2018 provides guidelines for the design of new roads within the Warriewood Valley. Further guidance is provided in the Pittwater Development Control Plan and the Northern Beaches Council Waste Management Guidelines.

The Warriewood Valley Roads Masterplan states the following:

"Vehicular connections are to be provided within the original or primary sectors/buffer areas in accordance with the original Roads Masterplan 1999 (for example Sectors 301, 302 and 303 are to have an internal network connecting all three sectors), or Pittwater 21 DCP e.g. Buffer Area 1a is to connect to Buffer Area 1b and 1c etc. but Sector 1 is not to connect to Sector 2."

It is noted that a number of roads have been constructed that connect sectors in the vicinity of the subject site. For example, Lorikeet Grove now connects Sector 2 to the subject site.

As outlined in the Pittwater DCP, the desired outcomes for transport and traffic management are *"safe and orderly traffic, pedestrian and cyclist access to and from all development via the surrounding road network and transport infrastructure."*

Based on the Warriewood Valley Roads Masterplan, the central accessway is likely to be identified as an access street. The guidelines for an access street are as follows:

- *"Two way traffic with on-street parking on one side of the street at any location along their length where it is legally permitted to do so.*
- *Cyclists are to share road pavement.*
- *A footpath is to be provided directly adjacent to the kerb on the same side as services.*
- *Services are to be contained within a combined services trench under the shared path.*
- *Driveways entering on the street are to be shared, and designed to have sufficient width that allows for safe entry and exit on to the Access Street."*

The proposed design is described in more detail in the following sections.

6.2 Road Cross Section

The proposed central accessway width is shown in Figure 6.1.

Figure 6.1: Proposed Central Accessway Width

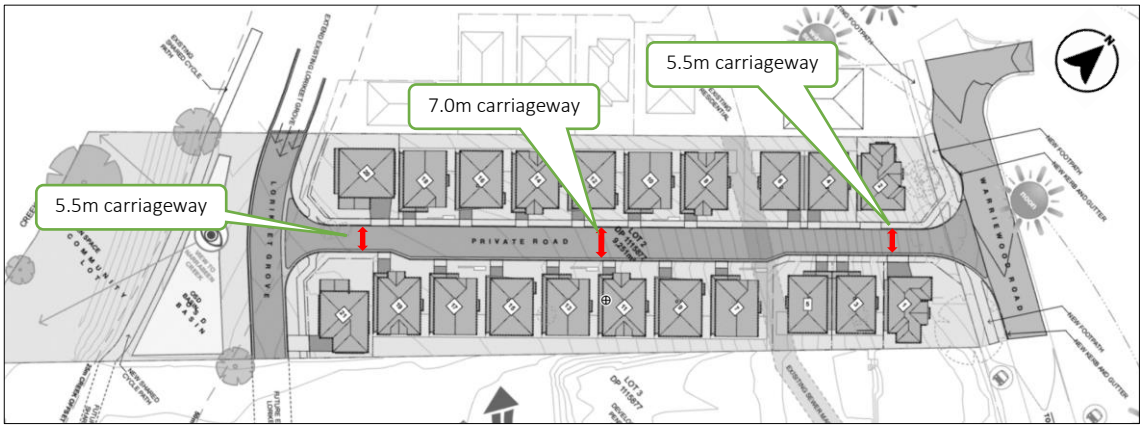


Figure 6.1 indicates that the central accessway has the following widths:

> A threshold treatment 5.5m wide at each end to control vehicle speeds
> Central section 7.0m wide.

Based on Austroads Guide to Traffic Management Part 5: Link Management, Table 5.7 and Table 7.7, the threshold treatments at each end of the central accessway have been proposed to reduce vehicle speed and to provide a more attractive street environment.

The aim of the proposed street design has been to contribute positively in reducing vehicle speed and to increase the safety of people driving, crossing and people riding bicycles on the street.

As outlined on the NSW Towards Zero website, *"Speed is the biggest killer on NSW roads, contributing to around 41 per cent of road fatalities and 24 per cent of serious injuries each year. This means almost 150 lives lost and around 1,270 people seriously injured each year."*[2]

Research published by NACTO has identified that "*There are clear and obvious benefits of slowing traffic on residential streets, primarily the improvement of pedestrian and bicyclist safety. Slower traffic reduces the severity of accidents, reduces noise, and generally improves the livability of residential streets."*[3]

The research has also identified that there is a clear relationship between a narrower street and lower vehicle speeds.

The central 7.0m wide section has been designed to accommodate visitor car parking on the eastern side of the road. Table 5.1 indicates that the subject site is expected to generate up to 21 vehicles per hour.

Due to the layout of the central access road and the connections available to Lorikeet Grove at either end as well as adjoining roads such as Bubalo Street, the central access road is expected to attract minimal trips outside of the adjacent residents.

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2 https://towardszero.nsw.gov.au/campaigns/speed-cameras-save-lives - Accessed 15/6/21

3 https://nacto.org/docs/usdg/narrow_residential_streets_daisa.pdf - Accessed 15/6/21

A 7.0m road width provides the ability for a truck to pass a parked car with additional room to spare. The central accessway is straight and based on the anticipated future volume and the passing opportunities created by the driveways along the road, the proposed road width is considered satisfactory and meets the desired outcomes of the Pittwater DCP identified in 6.1.

6.3 Visitor Car Parking

The Pittwater DCP B6.3 Table 1 identifies a visitor car parking rate of 1 space per 3 dwellings. Based on 21 dwellings this equates to a minimum of 7 car parking spaces. There is sufficient room between the 5.5m thresholds to provide 7 visitor car parking spaces which satisfies this requirement. An additional indented parking space is provided adjacent to the site on Warriewood Road.

6.4 Vehicle Swept Paths and Refuse Collection

As identified in the pre-DA minutes from Council:

"Access from both Warriewood Road and Lorikeet Grove into the private road is to be designed to allow simultaneous movements by 2 B99 design vehicles, and must cater for the single movement of a HRV design vehicle form the appropriate travel lane on either public road without crossing onto the opposite direction of travel."

CTP Consult has undertaken a swept path assessment of the proposed road design. The assessment shows that two B99 vehicles can undertake simultaneous movements and an HRV can turn into the central access road at each end from either direction. The swept path assessment is shown in Appendix A of this report.

Refuse collection is proposed on-street by Council collection vehicles. The swept path assessment demonstrates that heavy vehicles can enter and exit the central accessway satisfactorily.

The 5.5m threshold and 7.0m central accessway provides sufficient width for a garbage vehicle to travel in either direction along the central accessway and provide sufficient width to pass parked vehicles. There are adequate passing and u-turn opportunities along the central accessway created by the driveways along the central accessway.

Based on the above, the proposed refuse collection via the central accessway is considered satisfactory.

6.5 Sight Distance at the Intersections with the Central Accessway

Table 3.2 of the Austroads Guide to Road Design Part 4A identifies that for a 50km/h road and a reaction time of 2 seconds, a Safe Intersection Sight Distance of 97m is required. The available sight distance on Warriewood on approach to the proposed central accessway location is shown in Figure 6.2 and Figure 6.3.

Figure 6.2: Warriewood Road Looking East Towards Central Accessway from 106 Warriewood Road

Figure 6.3: Warriewood Road Looking West Towards Central Accessway from 49 Warriewood Road

Figure 6.4 provides an estimate of the available sight distance at the proposed intersection of the central accessway with Lorikeet Grove.

Figure 6.4: Potential Sight Distance Available at Lorikeet Grove

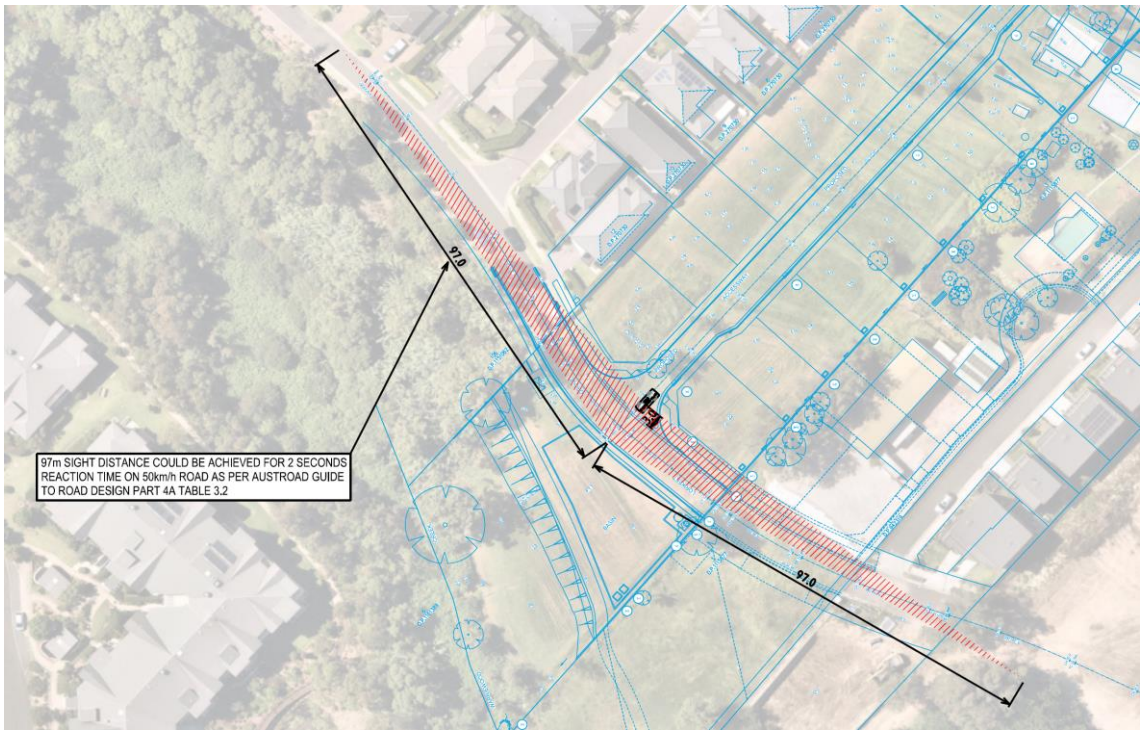


Figure 6.4 indicates that the location of the intersection provides the ability to see the required distance to the north-west for drivers exiting onto Loriket Grove. As Lorikeet Grove isn't constructed to the south-east, and while there appears to be the ability to provide sufficient sight distance in both directions, this would have to be checked in more detail by others as part of the detailed design of Lorikeet Grove.

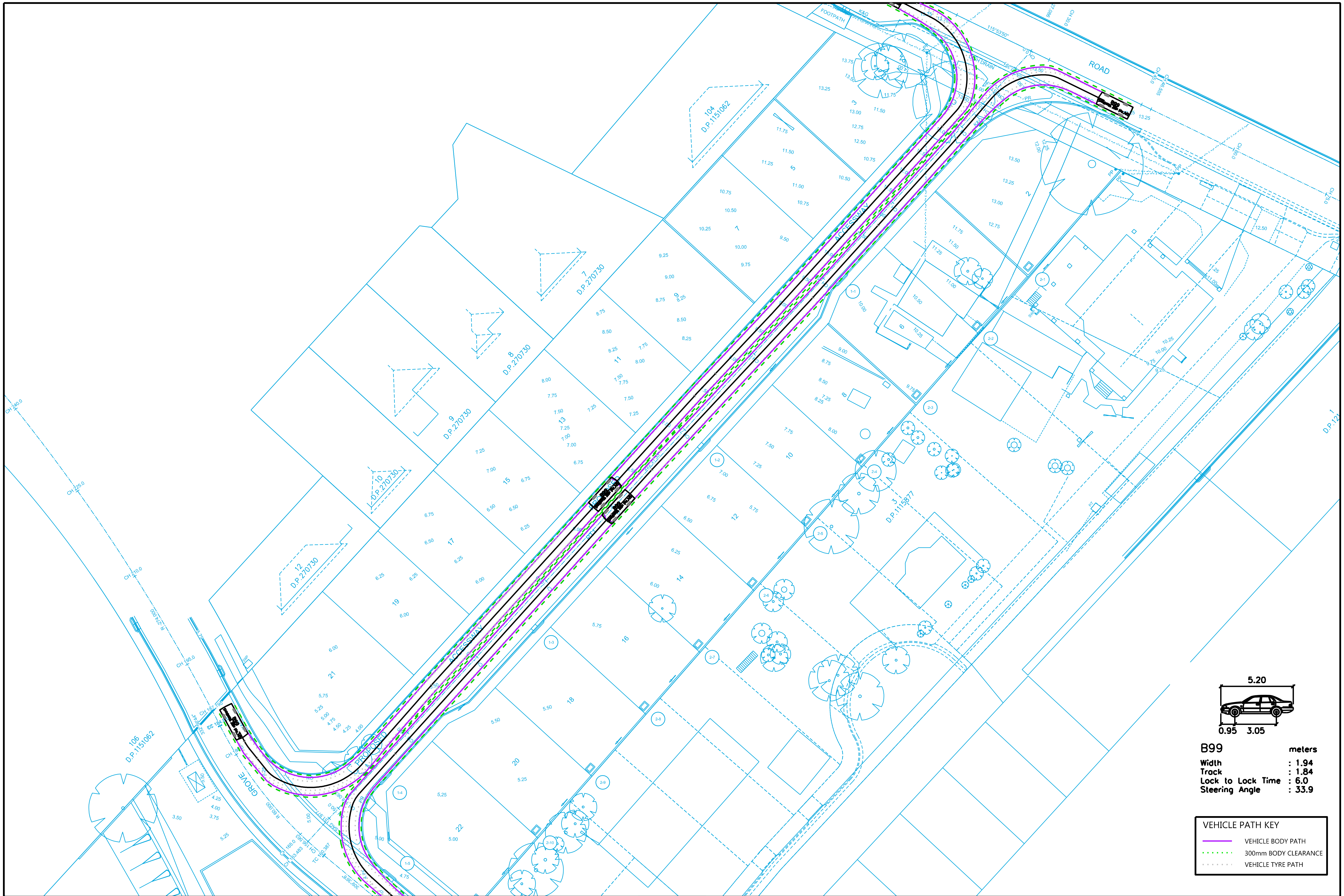
7. Conclusions

Based on the analysis and discussions presented within this report, the following conclusions are made:

1) The proposed development generates a visitor parking requirement of 7 visitor car parking.
2) There is sufficient room to provide a minimum 7 visitor car parking spaces on the eastern side of the central accessway. An indented car parking space is also provided adjacent to the site on Warriewood Road.
3) The site is expected to generate up to 21 and 225 vehicle movements in any peak hour and daily respectively.
4) There is adequate capacity in the surrounding road network to cater for the traffic likely to be generated by the proposed development.
5) The proposed central accessway has been designed to reduce vehicle speeds to increase safety and liveability for future residents. A 7.0m road width with 5.5m thresholds provides the ability for a truck to pass a parked car with additional room to spare. Based on the anticipated future volume and the passing opportunities created by the driveways along the road, the proposed road width is considered satisfactory and meets the desired outcomes of the Pittwater DCP identified in 6.1.
6) CTP Consult has undertaken a swept path assessment of the proposed road design. The assessment shows that two B99 vehicles can undertake simultaneous movements and an HRV can turn into the central access road at each end from either direction. The swept path assessment is shown in Appendix A of this report. Refuse collection is proposed to occur on-street by Council vehicles and there is satisfactory width for this to occur.
7) Satisfactory sight distances can be achieved on Warriewood Road and appear to be achieved on Lorikeet Grove to the north-west. As Lorikeet Grove isn't constructed to the south-east, and while there appears to be the ability to provide sufficient sight distance in both directions when exiting from the central accessway onto Lorikeet Grove, this would have to be checked in more detail by others as part of the detailed design of Lorikeet Grove.

Appendix A

Swept Path Assessment



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THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE VERIFIED ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

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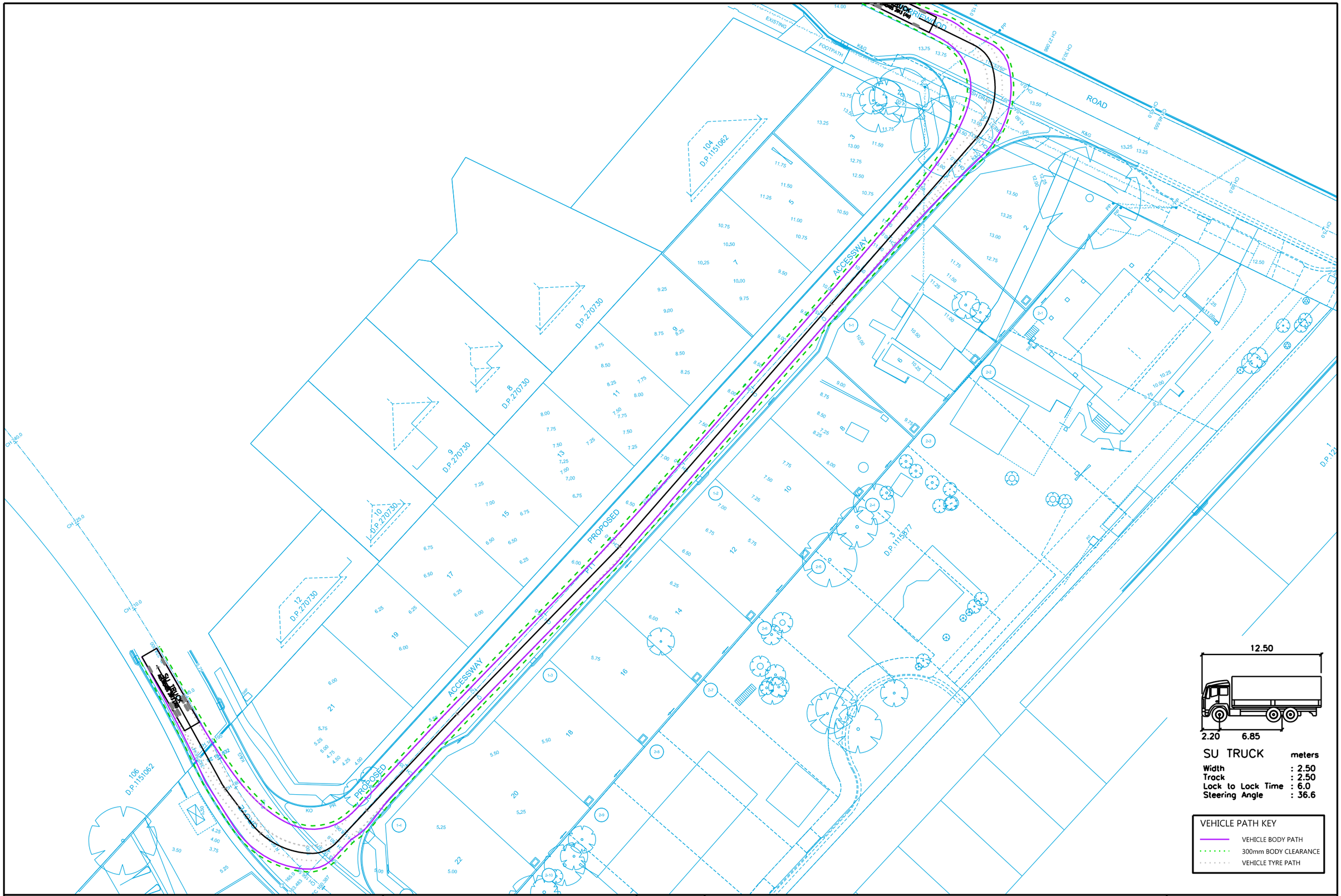
53A WARRIEWOOD ROAD, WARRIEWOOD
PROPOSED CENTRAL ACCESSWAY
SWEPT PATH ASSESSMENT

DRAWING NO. 21-003-01-V3
SHEET NO. 01 OF 02
ISSUE DATE 22 June 2021
SCALE @ A3 0 5 10 1:500



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53A WARRIEWOOD ROAD, WARRIEWOOD
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SWEPT PATH ASSESSMENT

DRAWING NO. 21-003-01-V3
SHEET NO. 02 OF 02
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