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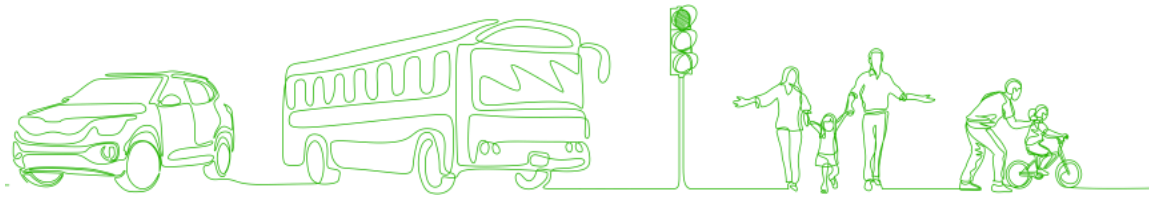
Transport Impact Assessment

86 Bryant Street, Padstow NSW 2211

Subdivision & Construction of Industrial Warehouse

April 2025



Type of Report: Transport Impact Assessment

Site Location: 86 Bryant Street, Padstow NSW

Prepared for: Xiang Lin He

Prepared by: Fernway Engineering

ACN 642 585 546

www.fernway.net.au

Version	Author	RPEQ	Position	Release Date
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1. Introduction

Fernway Engineering has been engaged by the Applicant to provide a traffic impact assessment for the proposed subdivision of the site located at 86 Bryant Street, Padstow NSW.

The scope of this report is as follows:

- Review the project background along with the existing traffic and parking conditions in the vicinity of the subject site,
- Assess the sufficiency of the proposed on-site car parking and servicing provisions, based on the statutory parking provision requirements applicable to the proposal,
- Review the proposed on-site car parking, pedestrian, servicing and site access designs against the relevant AS2890 Australian Standard requirements, as relevant to the proposed modifications,
- Identify the anticipated additional traffic generations from the proposed development and assess the potential impacts this may have on the safety and operations of the local road network; and,
- Make a conclusion on the proposed development from a traffic and parking perspective, based on the above findings,

2. Background

2.1 Site Context

The subject site is located at 86 Bryant Street, Padstow NSW. The land is approximately 567.5m² with a 15.24m frontage to Bryant Street. The site is currently occupied by an automotive repair business.

The site lies within the centre of a Light Industrial (E1) zone, and is typical in size and character to the surrounding land use. Some significant features near the site include:

- The M5/A6 interchange abuts the northeast boundary of the site,
- The nearest residential precinct is 450m west,
- The nearest school, being Padstow North Public School, is 1.18km travel from the site,
- The site is not proximate to any hospitals, schools, local centres or other sensitive sites,

Figure 1 shows the site location from an aerial perspective.

Figure 2 shows the site frontage as seen from a street view.

Figure 3 shows the site in the context of the wider road network.

Figure 1: Aerial View of the Subject Site (Source: Nearmaps)

Figure 2: Streetview of Subject Site on Bryant Street, Facing East (Source: Google maps)

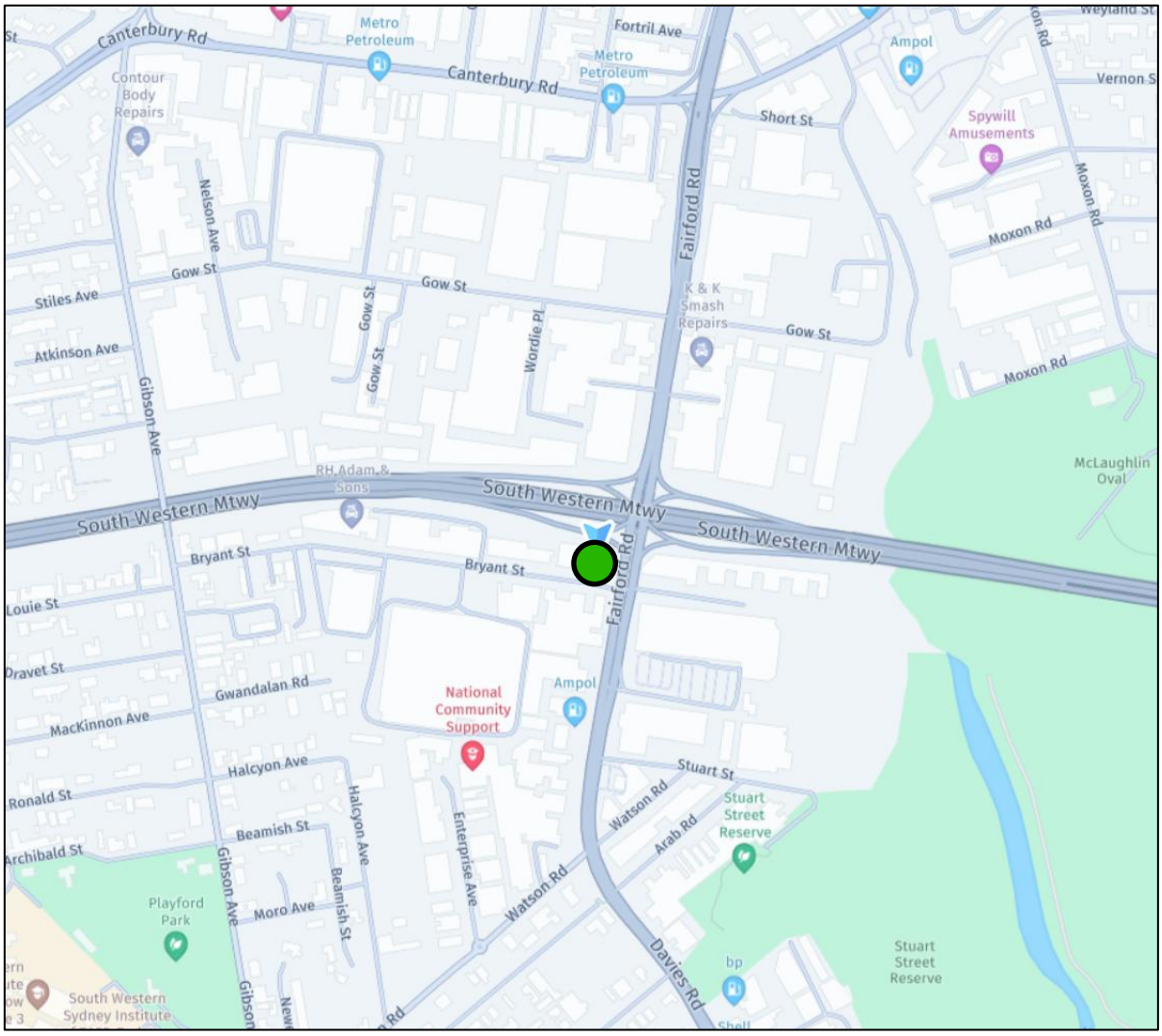


Figure 3: Map of Local Road Network (Source: Nearmaps)

2.2 The Proposal

The application proposes to subdivide the property into two lots, as well as demolish the existing building and construct two adjoining warehouse units. This will result in a net GFA increase of 139.2m².

The combined gross floor area of the two proposed units is 560.1m² space, inclusive of a proposed mezzanine level. With respect to vehicle arrangements, the site proposes the following provisions:

- Reposition and widen the single existing driveway.

- Provision of 1 parking space for each lot
- Provision of one SRV loading bay for each unit.

The proposed site plan has been provided below.

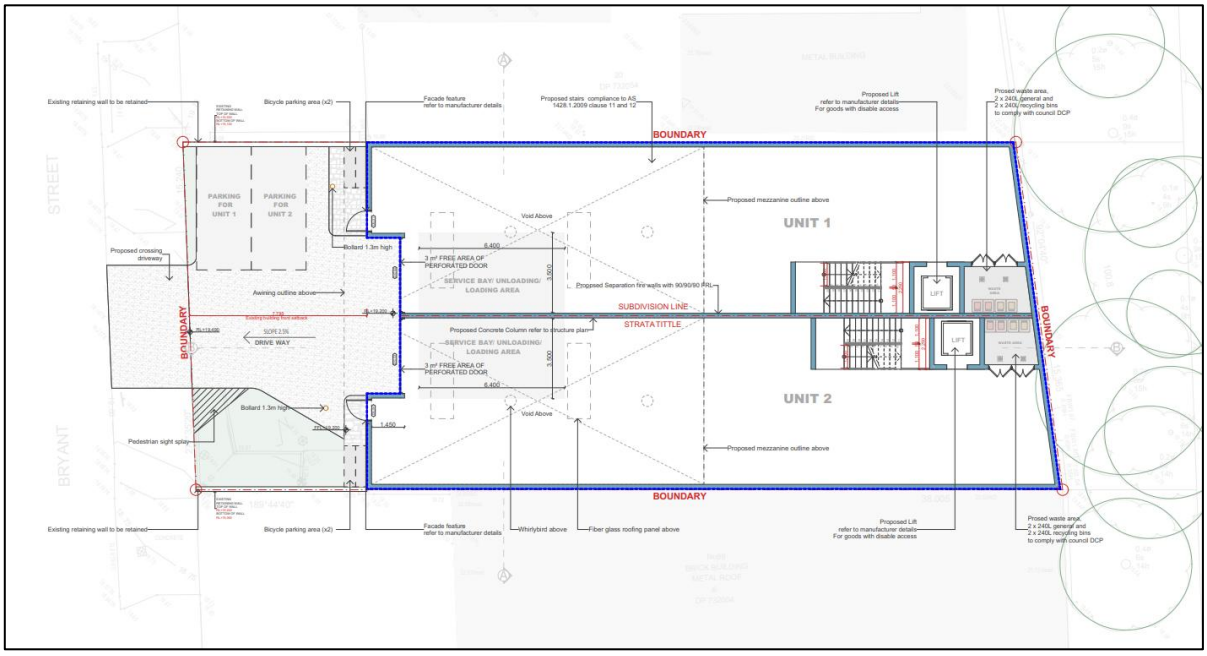


Figure 4: Proposed Site Plan

2.3 Local Road Network

The local road network is summarised as follows:

Table 1 - Local Road Network Summary

Road	Description
Bryant Street (Site Access)	**Description:** A local two-way, two-lane road aligned east-west between Fairford Street and Gibson Ave. It primarily serves as access for adjoining properties. **Proximate Intersections:** 1. Unsignalised 4-leg intersection (minor leg) with Fairford Road (Stop Controlled) **Restrictions:** None. **Road Authority:** Council **Signed speed limit:** 50kph (Local Traffic Area) **Parking:** Typically unrestricted both sides. **Bus Route:** No. **Bike Path:** No dedicated facilities. **Footpath:** None present. **Traffic Calming:** None present. **School Zone:** No.
Fairford Road (A6)	**Description:** Fairford Road is a divided two-way, 6-lane arterial road forming part of the major A6 north-south corridor. **Proximate Intersections:** 1. Signalised level separated interchange with M5. 2. Unsignalised 4-leg intersection (major leg) with Bryant Street Road (Stop Controlled) **Restrictions:** No Right Turn, from Fairford Road into Bryant St. **Road Authority:** Transport for NSW **Signed speed limit:** 70kph **Parking:** Subject to Clearway restrictions. . **Bus Route:** Yes – M91. **Bike Path:** No. **Footpath:** Present on both sides. **School Zone:** No.
South Western Motorway (M5)	**Description:** The M5 motorway is a divided two-way, 6-lane motorway forming the southern corridor of Sydneys Orbital Road Network. **Proximate Intersections:** 1. Signalised level separated interchange with A6. **Road Authority:** TfNSW **Signed speed limit:** 100kph **Parking:** No parking permitted. **Bus Route:** Yes – numerous routes. **Bike Path:** Marked paths on shoulders. **Footpath:** None. **School Zone:** No.

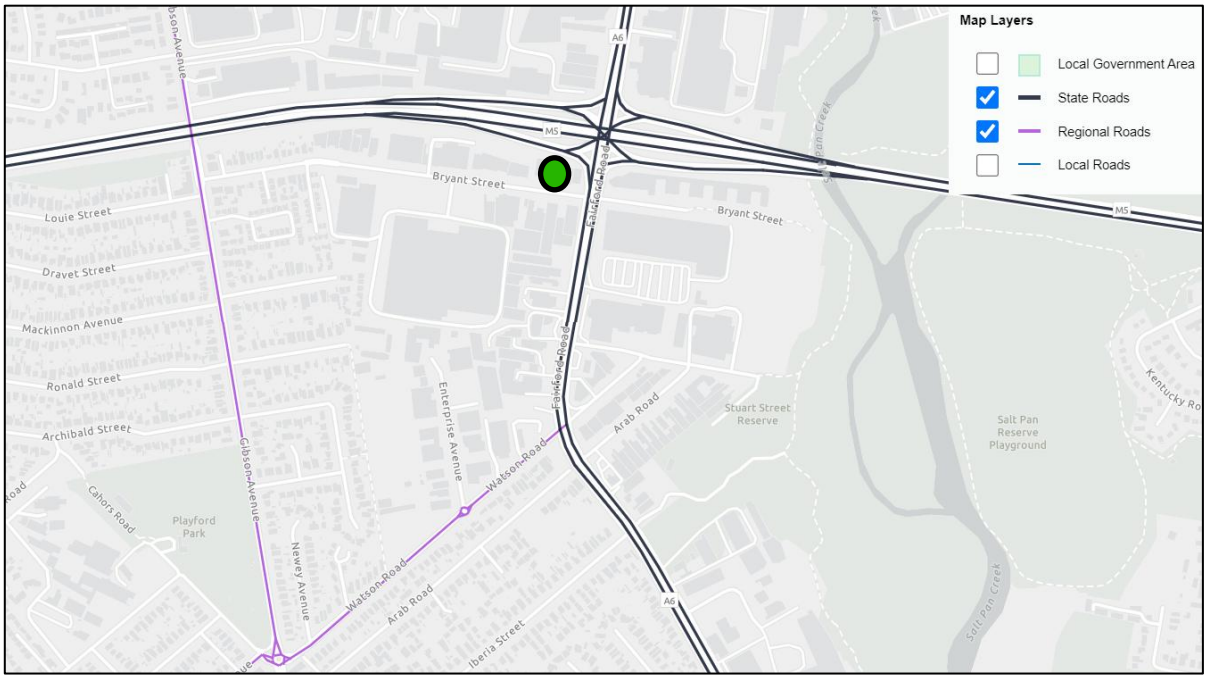


Figure 5: Classified Road Network (Source: TfNSW)

2.4 Public Transport Accessibility

The subject site has been assessed in the context of accessibility via public transport.

With regard to trains, the site is a 20-minute walk to Padstow Station. This is considered lying outside the typical 'comfortable' walking catchment, but is nonetheless a feasible transport option for many potential staff, and offers regular train services across a wide catchment of Sydney.

With respect to buses, the site is better served, being located less than 100m from the high frequency M91 service amongst other local routes.

In summary, the site has good access via public transport, noting the high frequency of nearby services, and coverage of key centres including Parramatta, Hurstville and Blacktown.

Details of the public transport services are provided in the table below.

Table 2 – Local Public Transport Services

Service	Coverage	Peak Frequency	Proximity to Site (Walking)
BUSES			
M91 (Fairford Rd)	Hurstville to Parramatta via Padstow & Chester Hill	10 minutes (Weekdays) 20 minutes (Weekends)	80m (1 minute)
927 (Gibson Ave)	One Tree Point to Padstow	30 minutes (Weekdays)	700m (10 minutes)
960 (Gibson Ave)	Sutherland to Bankstown	15 minutes (Weekdays) 20 minutes (Weekends)	700m (10 minutes)

2.5 Active Transport Accessibility

The site has also been assessed for its accessibility by means of walking and cycling by staff.

With regard to walking, it was found that the 1km catchment does not comprise a dense residential population, and as such, walking is not expected to form a significant form of travel to this site, notwithstanding multi-modal trips with buses.

With regard to cycling, however, the 30-minute cycling catchment encompasses a much greater residential population. With respect to cycling infrastructure, the site is quite well situated, being located adjacent to several key cycling corridors, including:

- M5 offers a significant east-west corridor via a combination of marked shoulders and off-road routes)
- Salt Pan Creek Track offers a significant north-south corridor via off-road paths

In summary, the site is relatively well situated for cycling, which may offer an attractive option for some staff.

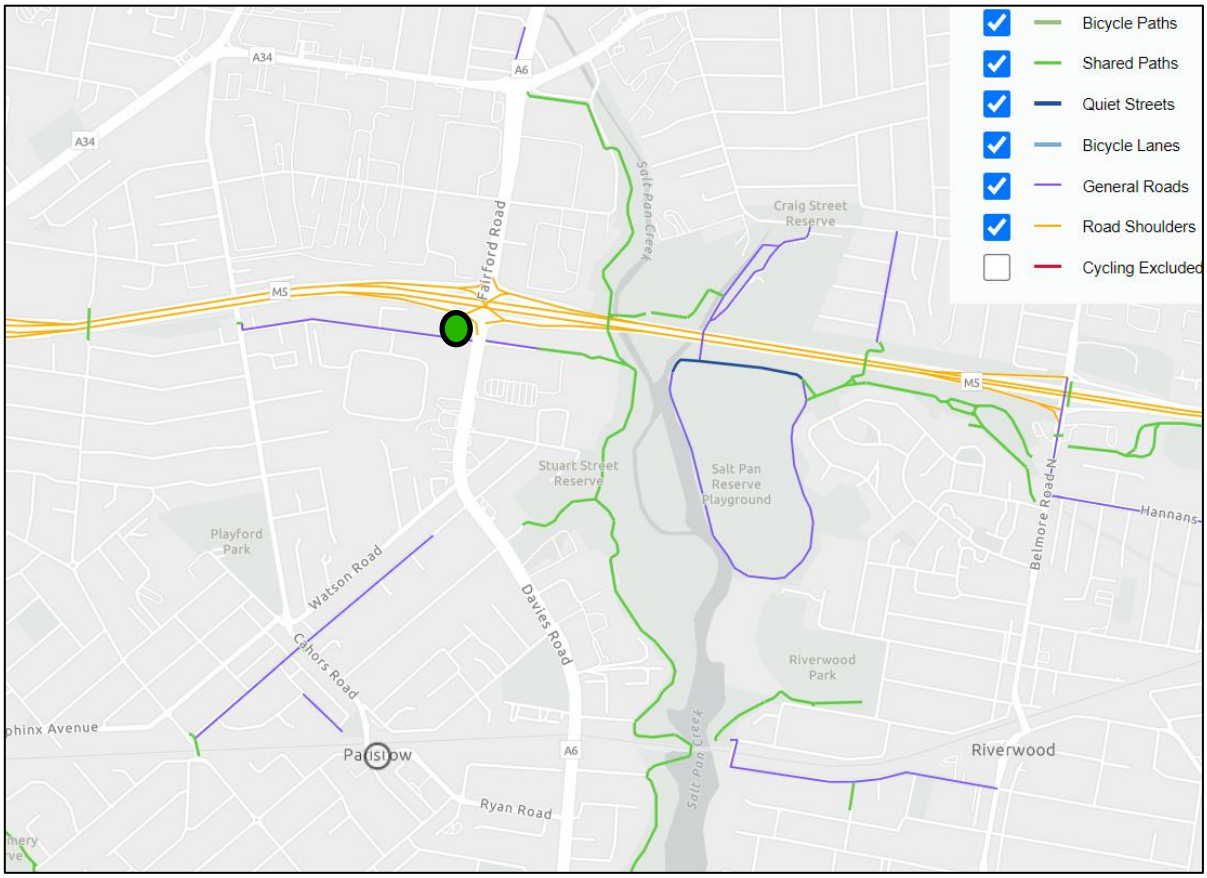


Figure 6: Local Cycling Network (Source: TfNSW Cyclefinder)

3. Parking Provision Assessment

3.1 Car Parking Provisions

Car parking provisions for the proposed development have been determined with reference to the Canterbury Bankstown Development Control Plan (DCP) 2023.

The applicable car parking provisions for warehouses are provided in the Off-Street Parking Schedule of Chapter 3.2 of the DCP. This has been applied to both the existing scenario (vehicle repair business) and the proposal, as per the table below.

Table 3 - Parking Provision Summary

Component	Rate	Unit of Measurement	Required Provision	On-Site Provision	Status
EXISTING					
Vehicle Body Repair Workshop	6 spaces per work bay	2 workbays	12	3	**Shortfall (-9 spaces)**
PROPOSED					
Warehouse	1 space/300m² GFA	560.1m²	2	2	**Compliant**

The proposed parking provisions satisfy DCP parking requirements.

3.2 Accessible Parking Provisions

Section 2.7 of the DCP stipulates that, for facilities with less than 10 car spaces, disabled parking is not required.

3.3 Bicycle Parking Provisions

The applicable *bicycle* parking provisions for warehouses are provided in the Off-Street Parking Schedule of Chapter 3.2 of the DCP. This has been applied to the proposal as per the table below.

Table 4: Bicycle Parking Summary

Bicycle Requirement	Total Staff	Required Bicycle Spaces	Proposed Bicycle Spaces	Status
1 space per 20 staff	Below 20	1	2	**Compliant**
	TOTAL:	**1**	**2**	**Compliant**

The application therefore satisfies the bicycle parking requirements of the DCP.

3.4 Service Vehicles

A loading bay has been allocated within each unit. Each loading bay has been designed for up to 6.4m Small Rigid Vehicles (SRV), with 6.4mx3.5m dimensions and level gradients. Swept path analysis confirmed that an SRV may enter and exit each loading bay in a standard 3-point manoeuvre. A single reverse movement is required either from, or onto the roadway to achieve this. This is permitted under AS2890.2:2018 Section 3,2,3,2 for minor roads, and is considered appropriate for the scale of this proposed development, Swept paths are provided in **Appendix A**.

4. Parking and Access Design Review

The proposed parking arrangements have been reviewed in accordance with AS2890.1:2004 (Car Parking Facilities), AS2890.2 (Commercial vehicles), AS2890.3:2015 (Bicycle Facilities) and AS2890.6:2009 (Accessible Parking). Swept path testing has similarly been carried out for critical parking and circulation movements as per swept path testing guidelines outlined in AS2890.1:2004. The outcome of this assessment is provided below.

4.1 AS 2890 Design Compliance

A review of parking design elements has been summarised in the table below. This review found the development to be in full compliance with the relevant sections of AS2890 parking standards.

Table 5 - Car Park Compliance Summary

Design Element	Requirement	Able to Comply	Compliant	Note
ACCESS				
Access Category				**Section 4.2**
Located outside restricted intersection clearances	Figure 3.1, AS2890.1		✓	
Pedestrian Sight Splays maintained	Figure 3.3, AS2890.2		✓	
Driveway Sight Distances	Figure 3.3, AS2890 Part 2		✓	**Section 4.5**
PARKING MODULES				
Parking Class	1			
Bay Width (min)	2.4m		✓	
Bay Length (min)	5.4m		✓	
Aisle Width (min)	5.8 +300mm to wall		✓	
Door Clearances and entry splays (min)	0.3m As per Figure 5.2, AS2890.1		✓	
Blind Aisle extensions (min)	1m		✓	
Pavement Slope (maximum)	5%		✓	
CIRCULATION – See Note 1				

Maximum grade within 6m of property boundary	5%		✓	
Maximum Grade (AS2890.2)	1:6.5 (15.4%)		✓	
Maximum Transition (AS2890.2)	1:16 (6.25%) over 7m		✓	
Circulation Road Width	3.5m for a single lane (AS2890.2)		✓	
SERVICE BAYS				
Service Bay	3.5m x 8.8m (MRV) 3.5m x 6.4m (SRV)	✓		**Note 1**
Service Area Headroom	4.5m		✓	
Service Area Grade	1:25 (4%)		✓	
HEADROOM				
Minimum Clearance	2.2m		✓	
Minimum Clearance above Disabled Parking bays	2.5m		✓	
Service Vehicle Headroom	4.5m			
BICYCLE PARKING (AS2890.3)				
Horizontal Bay	1.8m x 0.5m		✓	
COMMENTS				
Note 1	The architectural plans shall be updated to indicate loading bays in each unit with dimensions 3.5m x 6.4m. This requirement can be conditioned for construction certification.			
Note 2	This table is intended to represent a summary of key design elements, and is not an exhaustive list of all design elements assessed in accordance with AS2890.			

4.2 Vehicle Manoeuvrability Conditions

To investigate the anticipated manoeuvrability conditions of vehicles entering and exiting the proposed parking spaces, swept path assessments were undertaken using AutoTURN software (the industry standard vehicle swept path assessment software).

It is noted that the design vehicle, being the largest anticipated on-site during operation, is a 6.4m Small Rigid Vehicle (SRV).

The swept path assessment demonstrated the following:

- An SRV may access and egress each loading bay in a standard 3-point turn.
- Vehicles may enter and exit the site in a forwards direction when accessing each of the proposed parking bays.
- All staff parking spaces can be accessed in a standard 3-point turning manoeuvre by a B85 vehicle.
- All turning manoeuvres can maintain a 300mm safety clearance to physical obstructions.

Attachment A shows the results of the swept path tests obtained. The **Black** colour of the swept paths indicates the vehicle body envelope, while the **blue** lines indicate the wheel path and the **Red** lines indicate the 300mm clearance envelope of vehicles).

4.3 Driveway Sight Distance

The sight distance of the proposed driveway has been assessed against the requirements of AS2890.2, Figure 3.3. Bryant Street has a signed speed limit of **50kph**. As such, a minimum safe intersection sight distance (SISD) of 69m must be achieved, with the desirable 8s gap being 111m.

Figure 7: SISD Assessment of the Proposed Driveway

When undertaking this SISD assessment, the following road conditions were noted:

- Bryant Street has a straight horizontal alignment in both directions
- To the west, there is a road crest, however, this is located approximately 110m from the driveway, beyond the minimum SISD.
- Bryant Street terminates 38m to the east, at the intersection with Fairford Road. Whilst this is less than the minimum 5s gap for a 50kph road, traffic entering from Fairford Road can be expected to be travelling below 50kph when turning into Bryant Street. On this basis, there is considered to be reasonable separation from the intersection with Fairford Road. It is noted that this is an existing condition, along with several other driveways that

are similarly operating within 69m of the intersection. Crash data does not indicate any historical crash patterns associated with this arrangement.

- Some areas of the SISD splay coincide with on-street parking areas, which is generally unavoidable in urban areas. Whilst on-street parking may result in partial and non-permanent visual obstructions, the risk is considered relatively low, noting that this is a pre-existing condition.
- On-street parking also creates a traffic calming effect, and in practice, enables vehicles to pull further into the road before entering the effective through-traffic lane.
- Whilst parking restrictions are not recommended in this report, Council manage on-street parking based on internal policies, and may determine whether parking restrictions are warranted.

In light of the above, the sight distance availability at the proposed driveway in considered acceptable.

5. Traffic Impact Assessment

An assessment has been undertaken to identify the traffic generating potential of the site, and assess the implications of that traffic on the local road network. For warehouse development, TfNSW (formerly RMS) conducted and published two sets of relevant survey data:

- *Guide to Traffic Generating Developments (2002)*
- *Updated Traffic Surveys (TDT 2013/04),*

The original guide is considered applicable to both the existing and proposed site.

5.1 Site Traffic Generation

Under this application, the proposed land use shall be for warehouse/storage.

The proposal will result in a GFA increase of 139.2m², being a slight increase in scale. Applying the traffic generation rates of Guide to Traffic Generating Developments (2002) for *warehouses*, results in predicted net traffic increases of 1-2 trips in the peak hour, and 7 daily trips overall. This is summarised in the Table below.

Table 6- Traffic Generation Summary of ***Proposed*** *Site*

Weekday Rates	**Rate per 100m² GFA**	**Net GFA (m²)**	**Net Additional Trips**
Daily vehicle trips	5	139.2	**7**
Morning peak hour vehicle trips	1	139.2	**1-2**

With regard to type of traffic, the RMS Updated Traffic Surveys (TDT 2013/04a) identified that for industrial estates, commercial vehicles made up between 6-28%. For this development, it is assumed around 17% of vehicles at this site will be commercial service vehicles.

When assessing the potential impact on road operations based on the above information, the following considerations were noted:

- The net traffic increase of 1-2 peak hour trips is marginal.
- In practice, the existing utilisation of the site as a car repair station is considered being among the higher traffic generating land uses for industrial applications. This redevelopment has the potential to generate considerably less traffic as warehouse units.
- The proposed access point is in a similar location to existing.

As such, the proposal is not likely to have any material impact on the existing operating performance of the local road network.

5.2 Crash Review and Traffic Safety

This section considered potential safety implications of the proposal on the road network. A review of crash statistics was carried out in the immediate area, using NSW Centre of Road Safety statistics, which currently shows data for the 5 year period between 2018-2022.

This review identified that there is a large volume of crashes at the interchange of the M5 and A6. This is not uncommon for an interchange, and must be considered in the context of the high volume of traffic passing through the intersection. Notwithstanding, as road manager, TfNSW regularly reviews and seeks to improve safety performances on the classified road network.

The review also identified quite a significant crash rate between Bryant Street and Fairford Road, with a total of 20 crashes occurring in this 5 year period. The

prevailing pattern of crashes is related to cross traffic collisions. Whilst a detailed crash analysis lies outside the scope of this report, this may be due to the significant number of lanes on Fairford Road that traffic on Bryant St may cross, being 4 in the northbound direction and 3 in the southbound direction. The proposed application is not expected to have a material influence on this existing crash pattern, given that it will generate very similar traffic characteristics to the present situation. Notwithstanding, the high volume of crashes places this intersection in the 'Black Spot' category, and should be considered by the Road Manager for safety upgrades under this funding program. It is recommended that prospective staff are made aware of the hazards of this intersection, and to drive with caution.

Finaly, on Bryant Street itself, 2 crashes have been recorded in the past 5 years. These are located along different sections of the road, and do not suggest a crash pattern.

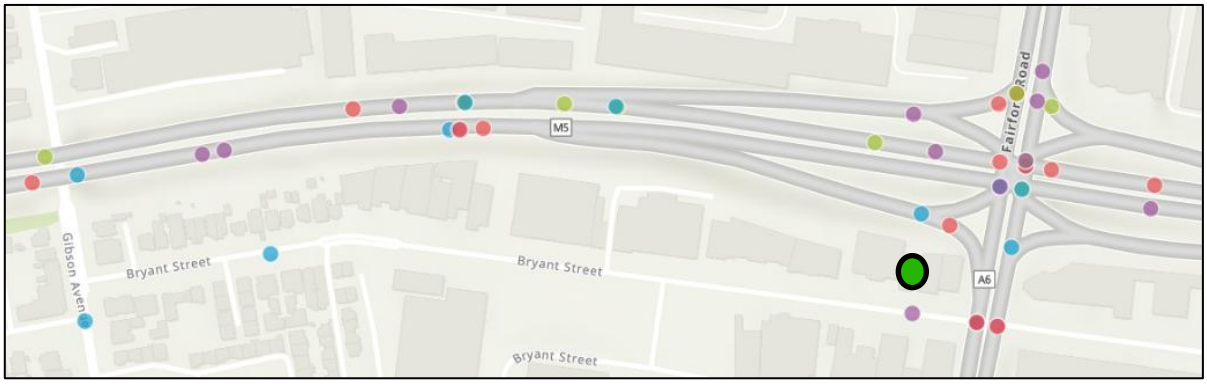


Figure 8: Crash Map (Past 5 Years)

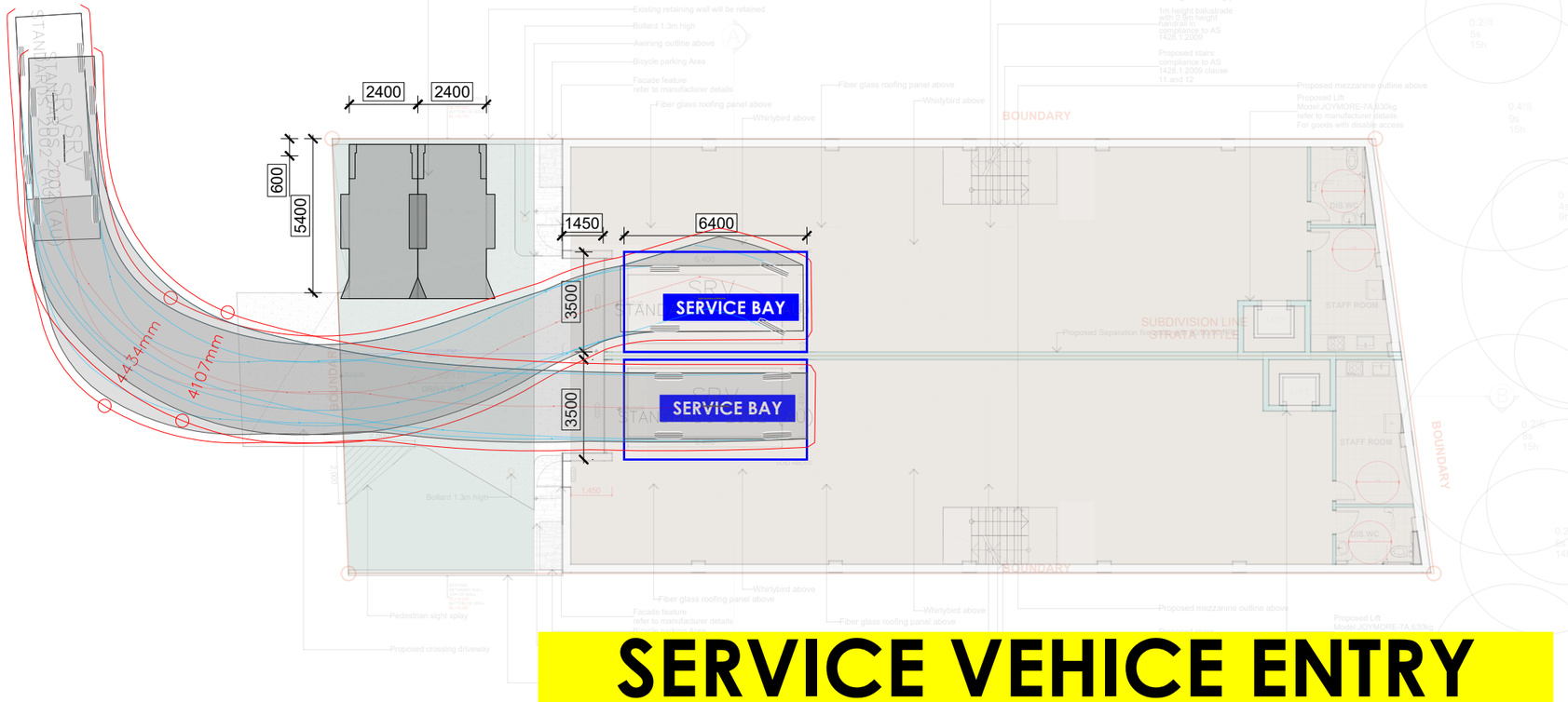
6. Conclusions

Fernway Engineering has conducted a comprehensive traffic and parking assessment of the proposed development at 86 Bryant Street, Padstow NSW. This assessment is summarised as follows:

- The proposal is for a subdivision, demolition of the existing building and the construction of two new warehouse units.
- The provision of 2 parking spaces meets the DCP parking requirements.
- 2 bicycle parking spaces have been provided, exceeding the DCP requirements. This should be considered on merit, noting the site has strong connectivity via several bicycle routes,
- Each unit is proposed to include a covered loading bay designed for SRVs in accordance with AS2890.2:2018,
- A design review of the access, parking and servicing arrangements was carried and confirmed that the facility generally complies with AS2890 Parts 1, 2 and 3. Where any deviations were identified, these were professionally assessed and deemed fit-for-use on the grounds described in this report,
- The proposal could be expected to generate an additional 1-2 trips and 7 trips in the peak hour period and daily period, over an equivalent land-use. In practice however, it is likely to result in lower traffic generations than the existing use as a car repair facility, which tends to generate higher traffic volumes than warehouses, due to the higher visitor volumes.
- The proposal is not anticipated to have any material impact on road operations,
- A safety review was also carried out. It found that the site achieved the relevant AS2890 requirements for safely integrating with a public road, including pedestrian sight splays. Given access is proposed in a similar location, and traffic characteristics are expected to remain similar to existing, there is no reason that the proposal should result in any new or worsening traffic hazards.

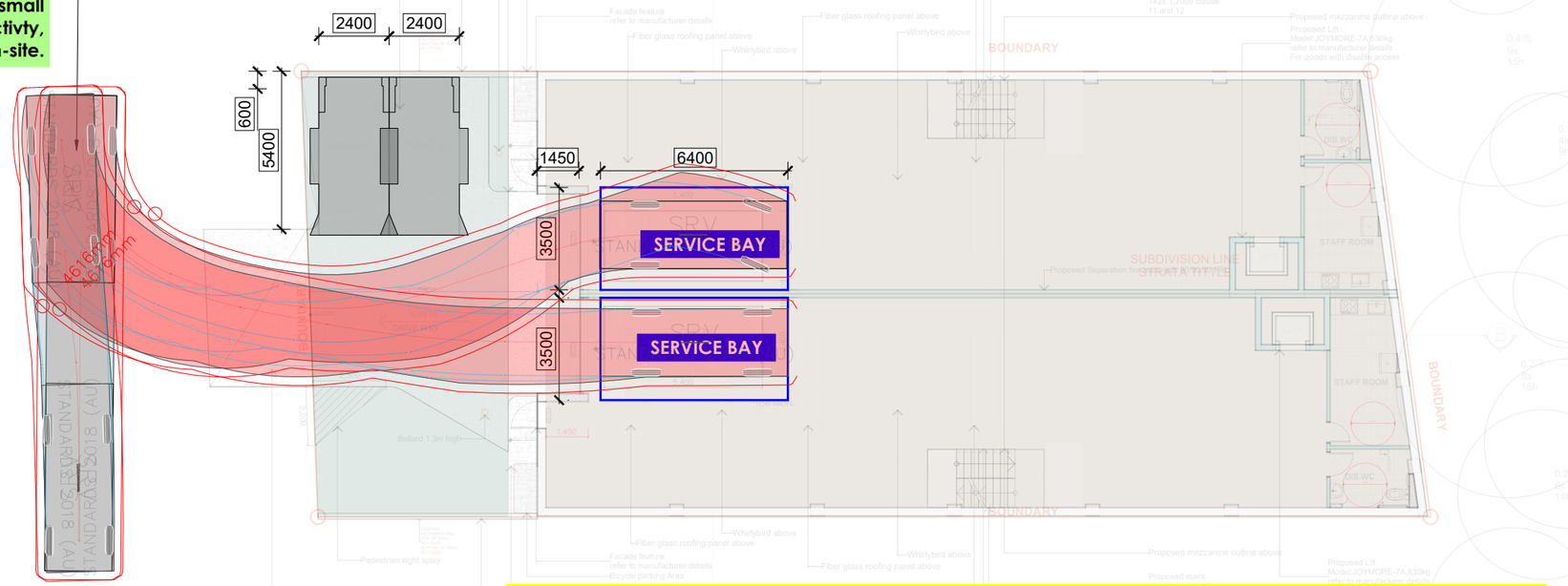
In light of the above, the proposal is considered supportable in the context of parking and traffic. Should you require any further information concerning this assessment, please do not hesitate to contact our office.

ATTACHMENT A – Swept Path Analysis



SERVICE VEHICE ENTRY

AS2890.2:2018 Part 3.2.3.2 (Minor Road Access) allows for service vehicles to make UP TO 1 REVERSE manoeuvre either onto, or off the street. This is considered common practice on Bryant Street, and reasonable given the that this is a small scale industrial site, with minimal vehicular activty, and limited space available on-site.



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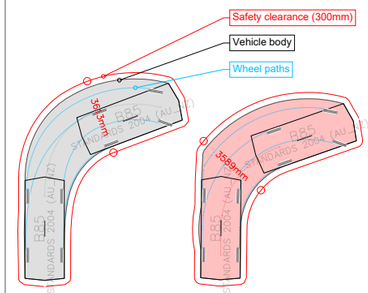

REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

fernway engineering

CLIENT:
Xiang Lin He

SITE:
86 Bryant St, Padstow NSW

TITLE:
Swept Path Analysis

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
1:200	22.8.2024	CS	SP
PROJECT NO:	DRAWING NO:		REVISION:
025-026	TR-001		D

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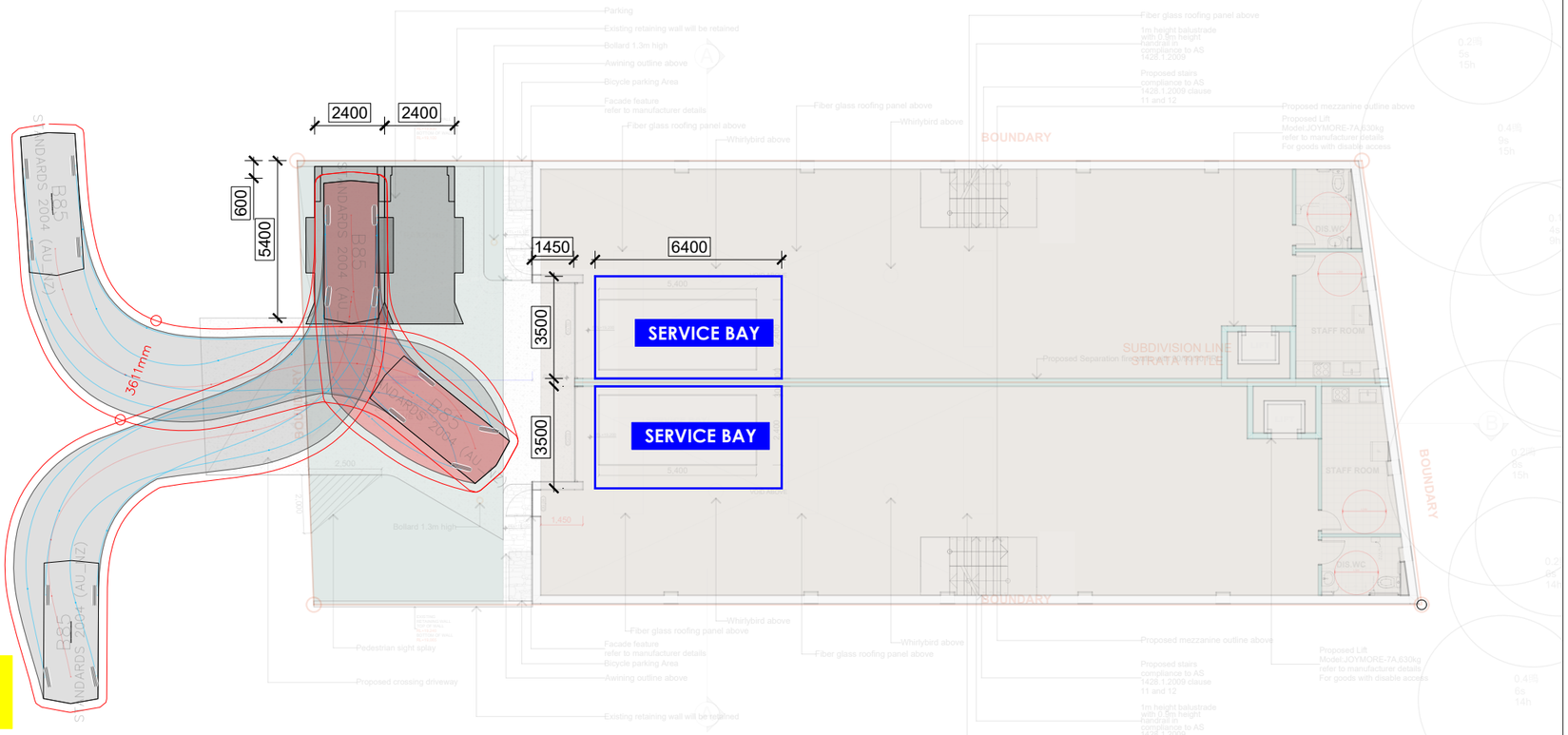

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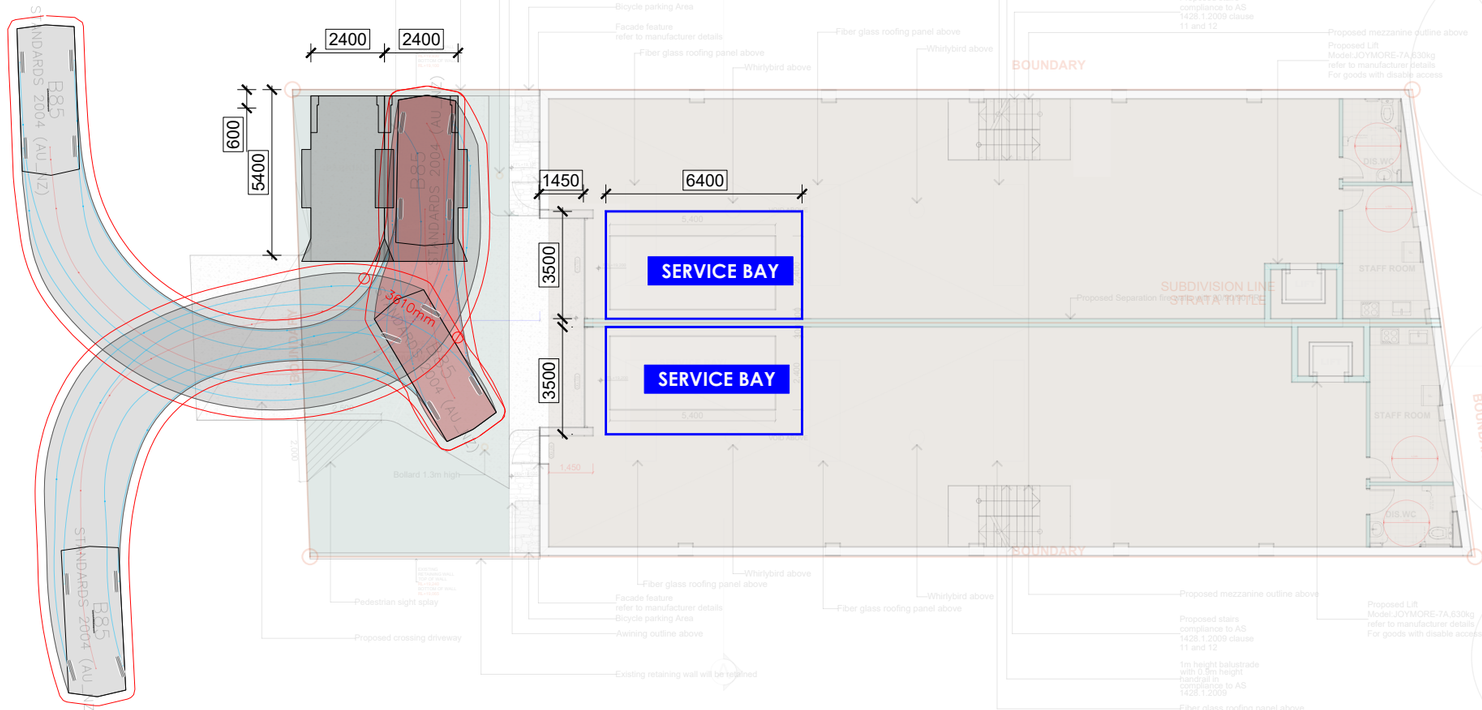

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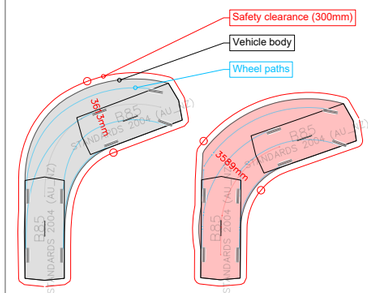

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STATUS:			

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CLIENT:
Xiang Lin He

SITE:
86 Bryant St, Padstow NSW

TITLE:
Swept Path Analysis

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fernway
engineering

ABN 38 475 511 899

traffic engineering and planning

PO Box 75
Artarmon NSW 1570

1300 651 258
info@fernway.net.au
www.fernway.net.au