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To whom it concerns,

RE: Traffic Impact Statement for the Proposed Boarding House Development at 17 Broughton Road, Strathfield NSW

Fernway Engineering has been engaged by MODERINN Pty Ltd to provide a traffic impact statement for the proposed boarding house development (under NSW State Environmental Planning Policy affordable rental housing), at 17 Broughton Street in Strathfield ('subject site').

Background

The subject site is currently occupied by a single residential dwelling (R2 zoned) and includes a total land area of approximately 975 square metres. Vehicle access to the current site is provided off Broughton Road through two driveways, located on either side of the site. At the site frontage, Broughton Road is a collector road with one travel lane and kerbside parking in each direction. The immediate vicinity of the site is characterised by low density residential land uses.

Figure 1 illustrates the location of the site in aerial view.

Subject Proposal

The subject proposal relates to the construction of boarding house comprising 10 suites and a manager's room. A total of 6 on-site car parking spaces (including one disability accessible car space and one manager's car space) will be provided within the basement level with vehicle access through a one-way driveway off Broughton Street.

Figure 1: Location of the Subject Site
(source: Google maps)

Public Transport Accessibility

The subject site is located within easy walking distance (<10-minute walk) to access the following bus routes, on Beresford Road and Albert Road:

- Bus route 407: Burwood to Strathfield
- Bus route 408: Rookwood Cemetery to Burwood via Flemington
- Bus route 480 and 483: Strathfield to Central Pitt Street via Homebush Road

In addition to the above bus services, the residents at the proposed site can also utilise train services operating through Homebush train station, which is located approx. 800m to the north of the site (10-minute walk). Homebush train station services the following lines:

- T1 – City to Emu Plains or Richmond
- T1 – City to Berowra via Gordon
- T1 – Emu Plains or Richmond to City
- T2 – Parramatta or Leppington to City
- T2 – City to Parramatta or Leppington
- T3 – City to Liverpool or Lidcombe via Bankstown

Figure 2 below provides the public transport map for the subject site area.

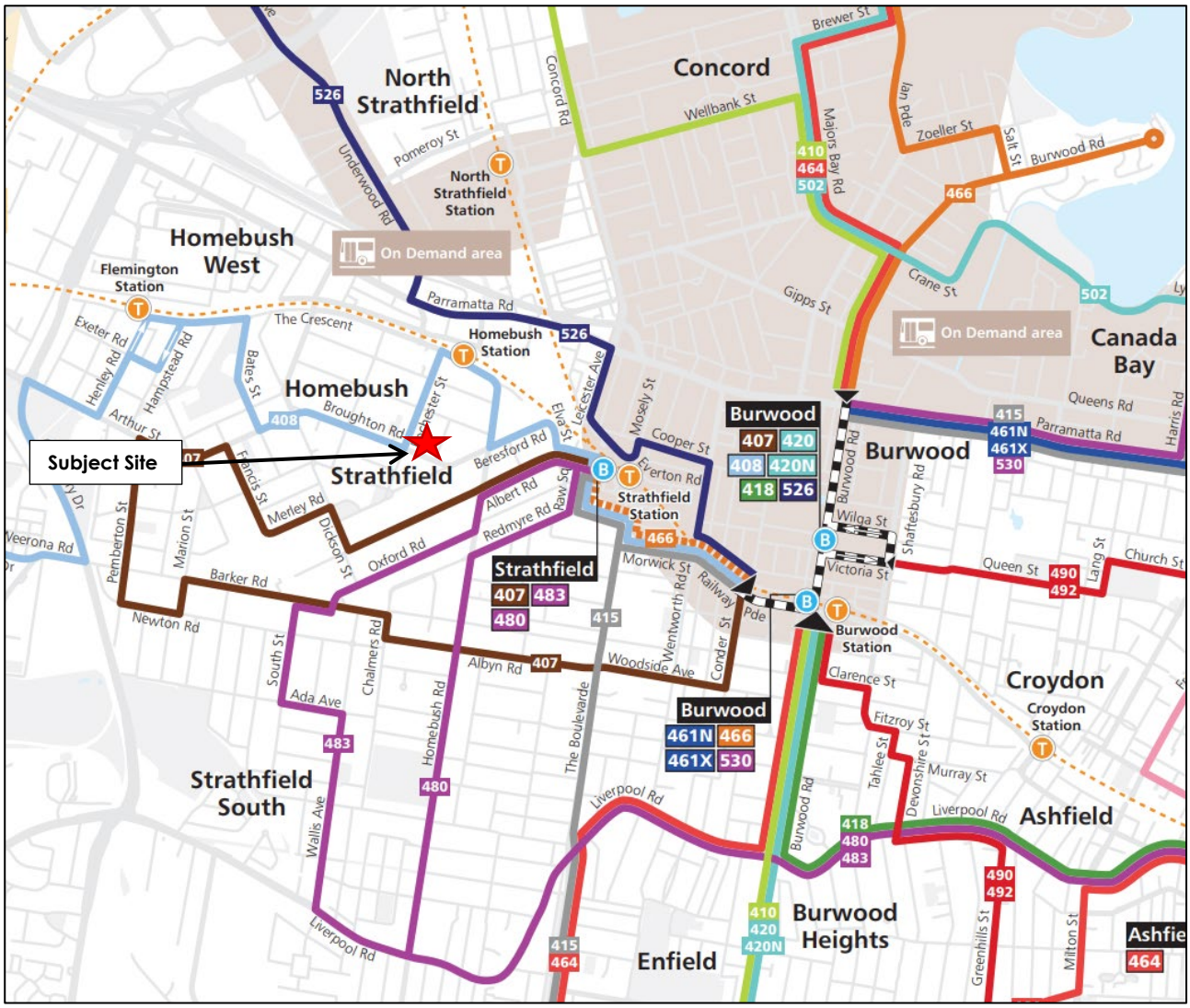


Figure 2: Local public transport map

Statutory Parking Provision Requirements

Car Parking Provisions

The subject development application is not made by a Social Housing Provider.
The NSW State Environmental Planning Policy (affordable rental housing) 2009 stipulates the following car parking rate for boarding houses*:

Provide 0.5 parking spaces / boarding room (1 space/ 2 boarding rooms)

*Car parking standards for boarding houses, except where provided by a Social Housing Provider, are now 0.5 spaces per room in all locations. This standard is contained at Clause 29(2)(e) of the ARHSEPP, and remains a 'standard which cannot be used to refuse consent'. This means councils cannot refuse a boarding house proposal if it meets this standard, but that they may consider a lower car parking rate if appropriate. The new car parking provisions for boarding houses were effective from the day they were notified on the NSW Legislation website. The amendments were notified on 1 June 2018. https://www.planning.nsw.gov.au/policy-and-legislation/state-environmental-planning-policies-review/draft-amendment-to-parking-provisions-for-boarding-houses

Application of the above parking rate to the proposed development which includes a total of 11 boarding rooms (including the manager's room), leads to a requirement of 6 car parking spaces (rounded up). The proposed development includes provision for 6 car parking spaces (including 2 disability accessible spaces) within the basement level – thus satisfying the above requirement.

Bicycle and Motorcycle Parking Provisions

In relation to boarding houses, the NSW State Environmental Planning Policy (affordable rental housing) 2009 stipulates a requirement of at least one bicycle space and one motorcycle space, for every 5 boarding rooms. The subject proposal with 11 boarding rooms (including the manager's room) includes a requirement for 3 bicycle and 3 motorcycle spaces (rounded up). The proposal includes provision for 3 bicycle and 3 motorcycle spaces within the basement level car park – which satisfies the minimum requirement applicable.

Parking Design Compliance Review

Regular Car Spaces

All the proposed car parking spaces (except for the two disability accessible spaces) can be categorised under user class 1A (residential/ domestic parking) in AS 2890.1:2004. The minimum bay and aisle requirements stipulated in the AS 2890.1:2004 for user class 1A spaces are 2.4m width, 5.4m length and 5.8m aisle width. The proposed car spaces satisfy the above dimensions. Additionally, when car spaces are located adjacent to vertical obstructions (higher than 150 mm), a further 300 mm clearance beyond the minimum space width has been provided as required in AS 2890.1.

Disability Accessible Car Spaces

The disability accessible parking spaces shall be designed in accordance with AS 2890.6:2009, as follows;

- The disablity accessible car parking space should be designed at 2.4m width and 5.4m length (with 5.8m aisle width);
- A shared space of equal dimensions shall be provided adjacent to the car parking space; and
- Both the car parking space and the shared space should indicate appropriate line markings. The shared space should include a bollard in order to prevent motorists parking at this location.

It is noted that car spaces 1 and 2 are disability accessible spaces and they comply with the above requirements.

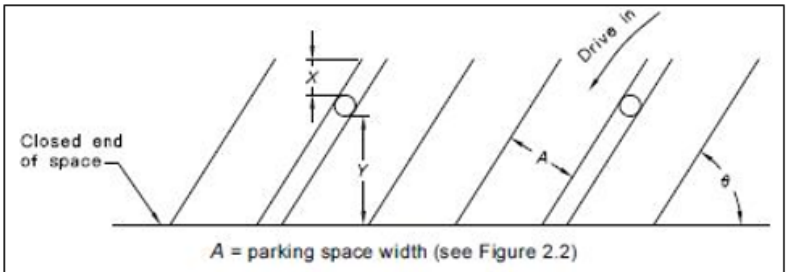
Blind Aisle Clearance

When car spaces are located adjacent to a blind aisle (end of aisle), AS 2890.1 requires the aisle to be extended by an additional 1m in order to allow reverse exit manoeuvres by the vehicles parked in these spaces. It is noted that car spaces 2 and 6 are located adjacent to a blind aisle. While car space 6 can use the aisle behind the turning bay as the blind aisle area, no additional blind aisle clearance width beyond the 300mm clearance from the end wall has been provided for car space 2. However, the vehicle

using this car space can reverse into the turning bay when exiting this space. The **Vehicle Manoeuvrability Conditions** section illustrates the swept path of a vehicle exiting this space by using the turning area.

Column Location

The column positioning requirements of AS 2890.1:2004 are outlined in the extracted figure below. Given the car parking spaces are proposed at 90-degree angles, the proposed columns shall include Xmin dimension of 750mm and Ymin dimension of 3,650mm.



A = parking space width (see Figure 2.2)

Parking angle, θ, degrees	Dimensions, mm	
	X, min.	*Y*, min.
30	375	1825
45	530	2581
60	650	3161
75	724	3526
90	750	3650

FIGURE 5.1 COLUMN LOCATION

Figure 3: Column Positioning Requirements (AS2890.1)

The proposed columns in the basement level comply with the above requirement, i.e. they include Xmin dimension at 750mm and Ymin dimension at 3650mm.

Ramp Width and Grade

Based on AS 2890.1, the proposed access to the car parking area is categorised under access category 1 (<25 car spaces, frontage road local). Therefore, the entry/exit combined access points should provide at least 3m width. Accordingly, the proposed driveway to the basement parking area off Broughton Road is designed at 3m width (with

300mm clearance on either side from vertical obstructions higher than 150mm as required by AS 2890.1).

AS 2890.1 states the grade requirements for straight ramps at private or residential car parks as follows:

(i) Longer than 20 m—1 in 5 (20%) maximum.

(ii) Up to 20 m long—1 in 4 (25%) maximum. The allowable 20 m maximum length shall include any parts of grade change transitions at each end that exceed 1 in 5 (20%).

(iii) A stepped ramp comprising a series of lengths each exceeding 1 in 5 (20%) grade shall have each two lengths separated by a grade of not more than 1 in 8 (12½%) and at least 10 m long.

Furthermore, where the difference in grade between two sections of ramp or floor is greater that 1:8 (12.5 percent) for a summit grade change, or greater than 1:6.7 (15 percent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.

The proposed ramp is <20m long and is therefore includes a maximum grade of 1:4 (25%). Each end of this 1:4 (25%) graded section has been transitioned through 2m long transition sections graded at 1:8 (12.5%), which complies with the above requirements.

Gradient of the Access Driveway

In relation to the gradient of the access driveway, AS 2890.1 requires the first 6m into the car park (from the boundary) to include a maximum grade of 5% (1 in 20). Accordingly, the first 6m into the proposed car park has been graded at a maximum grade of 5% (1 in 20).

Headroom Requirements

For the proposed basement level car parking area, the design vehicle is a disability accessible car. This vehicle requires a headroom clearance of 2.2m along the path of

travel and 2.5m clearance above the disability accessible parking spaces. The proposed design satisfies the above identified minimum headroom clearances.

Gradients within Parking Modules

AS 2890.1 stipulates that parking modules, at maximum, should have a grade of 1 in 16 (measured in any direction other than parallel to the angle of parking). In addition, AS 2890.6 stipulates that the disability accessible car parking space and the shared area shall not exceed the grade of 1:40 in any direction. The proposed parking modules are at grade and therefore comply with the above requirement.

Motorcycle Parking

In relation to motorcycle spaces, AS 2890.1 stipulates a requirement of 2.5m length and 1.2m width. The proposed 3 motorcycle parking spaces can comply with the above identified minimum dimensional requirements (based on their currently proposed location).

Bicycle Parking

AS 2890.3 stipulates a bicycle spacing envelop requirement of 1.8m length and 0.5m width. The proposed 3 bicycle spaces can comply with the above identified minimum dimensional requirements (based on their currently proposed location).

Vehicle Manoeuvrability Conditions

As noted earlier, car space 2 includes a shortfall in the blind aisle clearance since the vehicles exiting this car space are anticipated to use the turning bay located at the opposite side. To investigate the anticipated manoeuvrability conditions of a vehicle exiting car space 2, a swept path assessment was undertaken using AutoTURN software (the industry standard vehicle swept path assessment software). **Figure 4** illustrates the result of this swept path along with the template of the 85th percentile vehicle (B85 vehicle) used to simulate the swept path (this 85th percentile vehicle template has been developed according to the dimensions specified in AS 2890.1:2004).

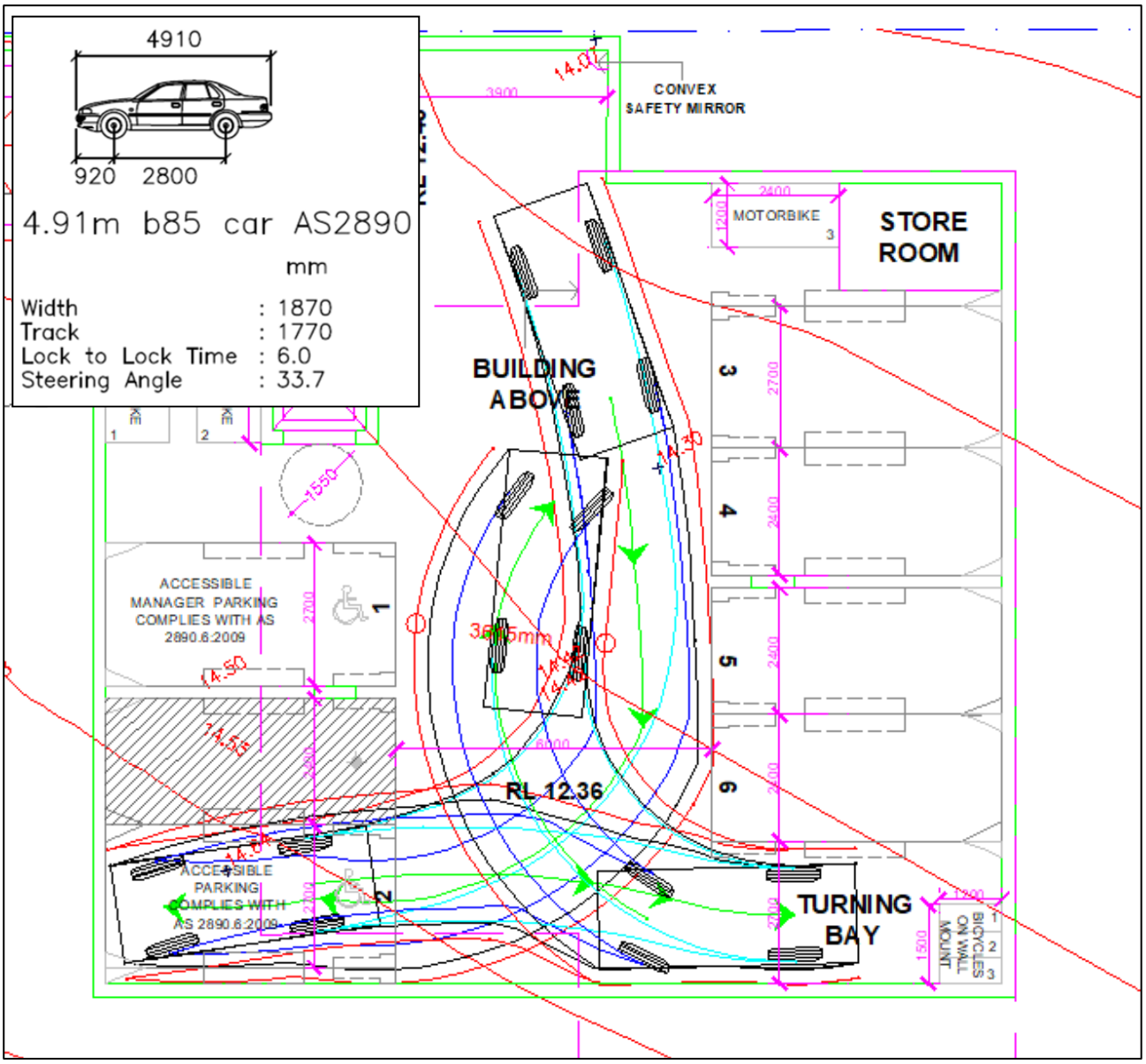


Figure 4: Exit movement of a vehicle at car space 2 sing the turning bay

The Blue and Cyan colour lines in the swept paths indicate the front and rear tyre tracks of the vehicles, respectively, while the Black colour of the swept paths indicate the vehicle body envelop (the Green arrows indicate the centreline of the vehicle travel path while the Red lines indicate the 300 mm clearance envelop of vehicles, as required by AS 2890.1). As can be seen from the swept path result, a vehicle using car space 2 can exit by simply reversing into the turning bay opposite it. As such, the blind aisle shortfall at this car space can be tolerated.

Traffic Generating Potential of the Proposal

According to the *Guide to Traffic Generating Developments (TDT 2013/04)*, a high-density residential building within Sydney, will generate on average:

- 0.19 trips per unit in the AM peak;
- 0.15 trips per unit in the PM peak; and
- 1.52 trips per unit daily.

It is noted that the above trip rates have been established through the surveys undertaken within Sydney, for developments which were (i) close to public transport, (ii) greater than six storeys and (iii) almost exclusively residential in nature. Given that the subject development is similar in nature to the surveyed existing developments, with respect to two out of the above three criteria, these trip rates are deemed to satisfactorily reflect the anticipated trip generation potential of the proposed development.

Notwithstanding the traffic generating potential of the existing residential dwelling at the subject site location, applying the above trip rates to the proposed development (with 10 boarding rooms and 1 manager's room) leads to the following:

- 3 AM peak hour trips;
- 2 PM peak hour trips; and
- 17 daily trips.

The predicted traffic generating potential of the subject development is considered minimal/negligible, as can be seen from the above peak hour and daily trip rates. These number of trips are considered insignificant (they will be realised as turning movements at the midblock of Broughton Street) and would not be expected to generate any noticeable impacts of the existing local road network. As such, no ramifications to the existing traffic and pedestrian conditions are anticipated to result from any traffic generated by the proposed development.

Conclusions

As per the results presented in this technical note, the proposed development is unlikely to have any noticeable impacts on the traffic operations in the local area. The proposed on-site parking provisions satisfy the relevant statutory requirements, and the on-site car parking design is generally compliant against the requirements in AS 2890.1:2004 and AS 2890.6:2009.

Should you require any further information concerning this assessment, please do not hesitate to contact the undersigned.

Yours sincerely,

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