INROADS:GROUP

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11 November 2015

Liverpool City Council
Locked Bag 7064
Liverpool BC NSW 1871

For the Attention of the Development Assessment Manager

Proposal: Section 96 Application
Address: 20 Shepherd Street, Liverpool (The Paper Mill Development)
Subject: Traffic Statement

Dear Sir / Madam,

This letter has been prepared to accompany a Section 96 Application for modifications to the design of the residential development on the site at 20 Shepherd Street, Liverpool, (DA-1010/2014) which was determined for approval by the Joint Regional Planning Panel (Sydney South West) on 8 October 2015.

The key modifications which are the subject of this Section 96 Application include:

- adjustment to the basement footprint to increase setback from the river on the eastern boundary of the site;
- addition of a third level of basement to achieve adequate car parking on the site, in light of the reduction on the basement footprint as discussed above;
- modification to the ground floor design due to repositioning of the basement entry and ramping arrangements; and
- modifications to apartment positions / layouts on ground floor and level 1.

The modified scheme also removes Level 15 of the building (thereby reducing the apartment yield), in accordance with the conditions of the consent.

The traffic implications of the above modifications, and the key traffic elements of the modified development (as shown in the plans included as **Attachment A**), are discussed in the following sections.

Reference should be made to the Traffic Report which accompanied the previous development application for the approved development (DA-1010/2014), as well as the subsequent Traffic Report which accompanied the separate application for the fitout and usage of heritage building as local retail precinct (lodged on 30 October 2015 (DA-1056/2015).

Car Parking Provision

The approved development provided a total of 313 parking spaces to service 250 residential apartments, and approximately 1,732m^2 GFA of retail space.

However as previously discussed, the modified scheme removes the upper level of the building (level 15) in accordance with the conditions of the consent, thereby reducing the apartment yield from 250 to 241 apartments.

The application of Liverpool City Council's Development Control Plan (DCP) parking rates to the modified (S96) development scheme provides the parking requirements as outlined in **Table 1** below.

Table 1: Parking Requirements based upon Council's DCP Parking Rates

Component of Development	Number / Area	DCP Parking Rate	Number of Car Parking Spaces Required	Number of Car Parking Spaces Proposed
Residential				
Studio	4	0.5 spaces per apartment	2	
1-bedroom	68	1.0 spaces per apartment	68	
2-bedroom	153	1.0 spaces per apartment	153	
3-bedroom	16	1.5 spaces per apartment	24	
Residential Visitor	241	1.0 spaces per 10 apartments	24	
Retail	1,732m^2	1.0 spaces per 100m^2 GFA	17	
TOTAL			**288**	**288**

The current proposal provides 288 car parking spaces (including 25 accessible parking spaces to service 25 accessible apartments), and therefore meets Council's DCP requirements in this regard.

Bicycle Parking

The Liverpool Development Control Plan 2008 requires 1 bicycle space per 200sqm of gross floor area, with 15% of this requirement to be accessible to visitors.

The overall GFA of the modified (S96) scheme is 24,510m^2, requiring a total of 123 bicycle parking spaces, with 18 of these to be available for visitor use.

As shown in the Section 96 plans included as **Attachment A**, a total of 123 bicycle parking spaces are proposed by way of bicycle racks on the three basement parking levels. Notwithstanding this, it is suggested that visitor bicycle parking may be more appropriately provided for by way of bicycle racks or rails in a central location on the ground level, in proximity to the entrance/s to the residential and retail buildings. This is considered to be a detailed design issue which could reasonably be addressed as a suitable condition of consent.

Motorcycle Parking

The Liverpool Development Control Plan 2008 stipulates that provision is to be made for motorcycle parking at the rate of 1 motorcycle space per 20 car spaces, for all development.

Given a total of 288 car parking spaces are proposed, a total of 14 motorcycle parking spaces are required.

As shown in the Section 96 plans included as **Attachment A**, a total of 14 motorcycle parking spaces are proposed, distributed across the three (3) basement levels. The revised proposal therefore meets Council's requirements in this regard.

Vehicular Access and Car Park Design

As previously discussed, the scheme which is the subject of this Section 96 Application includes a reduction in the basement footprint to increase setback from the river on the eastern boundary of the site. As such, an additional (third) basement level is now proposed, rather that two basement levels as previously approved, to enable Council's required parking rates to be achieved within the reduced basement footprint area.

Associated design modifications to the basement car park have been made, including:

- relocation of the car park entry driveway on Atkinson Street and ramp approximately 19m to the west (providing separation from the servicing area);

- modification to the ground floor design due to repositioning of the car park entry; and
- modification to internal ramping to achieve a more efficient stacked ramp arrangement.

The amended car park layout is efficient and legible, and designed generally in accordance with the relevant standards (AS2890.1 and AS2890.6). The revised car park access driveway location is approximately 20m from the opposite (closest) kerbline tangent point of the Shepherd Street / Atkinson Street intersection, substantially exceeding the minimum requirement stipulated in AS2890.1 (i.e. 6m separation).

Notwithstanding the above, it is anticipated that a standard condition of consent would be imposed requiring compliance with the relevant standards, and as such, any minor amendments or refinements could be dealt with at detailed design stage, prior to the release of a Construction Certificate.

Servicing / Refuse Collection

Under the approved scheme, a service vehicle bay was proposed on the ground level, directly adjacent to the access to the basement car park (such that both areas were effectively accessed via one wide vehicle crossover). This service bay was intended for use by refuse collection vehicles as well as removalist vehicles, which are considered to constitute the main servicing requirements for the residential component of the development. An additional van bay (for trade / courier vehicles) was proposed in the basement car park on Basement 1 level.

Under the modified (S96) scheme the servicing arrangements are essentially unchanged, with the exception of the provision of separation between the ground floor servicing bay and the access to the basement carpark (as a result of the relocation of the latter to the west, as previously discussed). The effect is a reduction in the driveway width available for service vehicles to manoeuvre into the ground floor servicing bay.

Accordingly, swept path analyses have been undertaken to check manoeuvring for a 9.9m long refuse collection vehicle (as per the specifications for a rear-loading vehicle in Council's *Implementation Note 2: 2014 - Changes to Waste Management Services for residential flat buildings*) based upon the revised driveway arrangements. The resulting drawing included as **Attachment B** demonstrates that a minor modification to the driveway geometry (i.e. the incorporation of a splay or layback on the western side of the driveway) as part of the detailed design process would enable a refuse collection vehicle to reverse into the servicing area from Atkinson Street, before exiting the site in a forward direction.

A minor modification to kerbside parking (opposite the site) on Atkinson Street may also be required, to ensure that a vehicle parked kerbside does not impede access to the servicing area. This is considered to be a detailed design issue which could reasonably be addressed as a suitable condition of consent, noting consultation with the Traffic Management Committee would be required.

In summary, the servicing arrangements are generally consistent with those under the approved scheme and are considered to be acceptable, noting that refinement would be undertaken as detailed design progresses.

Traffic Generation

Traffic analyses were undertaken for a development scheme comprising a total of 242 residential apartments, and 1,911m^2 retail space (refer to the Traffic Report which accompanied the application for the approved development (DA-1010/2014)).

These analyses focused on the Shepherd Street / Riverpark Drive roundabout as the critical intersection in proximity to the site. As a result of the Shepherd Street rail underpass of the railway line to the east, all traffic accessing the precinct bounded by Newbridge Road to the north, the M5 to the south, the Georges River to the east and the rail line to the west, travels through this roundabout.

The results of the intersection modelling demonstrated that the Shepherd Street / Riverpark Drive roundabout is expected to operate well within acceptable capacity limits at Level of Service A during both peak periods, with negligible queuing and delays, with the additional traffic expected to be generated by the previously proposed development.

The scheme which is the subject of this Section 96 application reduces the number of apartments from that previously assessed (i.e. 242 apartments) by one apartment, to 241 apartments. It also marginally reduces the GFA of the retail component from 1,911m^2 GFA, to 1,732m^2 GFA. Accordingly, the result of the previous analyses still hold, with the anticipated traffic generation of the S96 scheme marginally lower that that under the scheme previously assessed. That is, the Shepherd Street / Riverpark Drive roundabout is expected to continue to operate well within acceptable capacity limits with the additional traffic expected to be generated by the modified development which is the subject of this application.

Accordingly, no external infrastructure improvements are required to support this development from a traffic capacity perspective.

Summary and Recommendations

We trust this information adequately addresses the traffic implications of the modifications proposed under this Section 96 Application, and the key traffic elements of the modified development, in the context of the approved development on the subject site.

Based upon the information provided above, it is recommended that the Section 96 Application be approved from a traffic engineering viewpoint.

Should you have any queries regarding the above, please do not hesitate to contact the undersigned.

Regards,

Anne Coutts
Director, InRoads Group
BE (Civil) | MIEAust

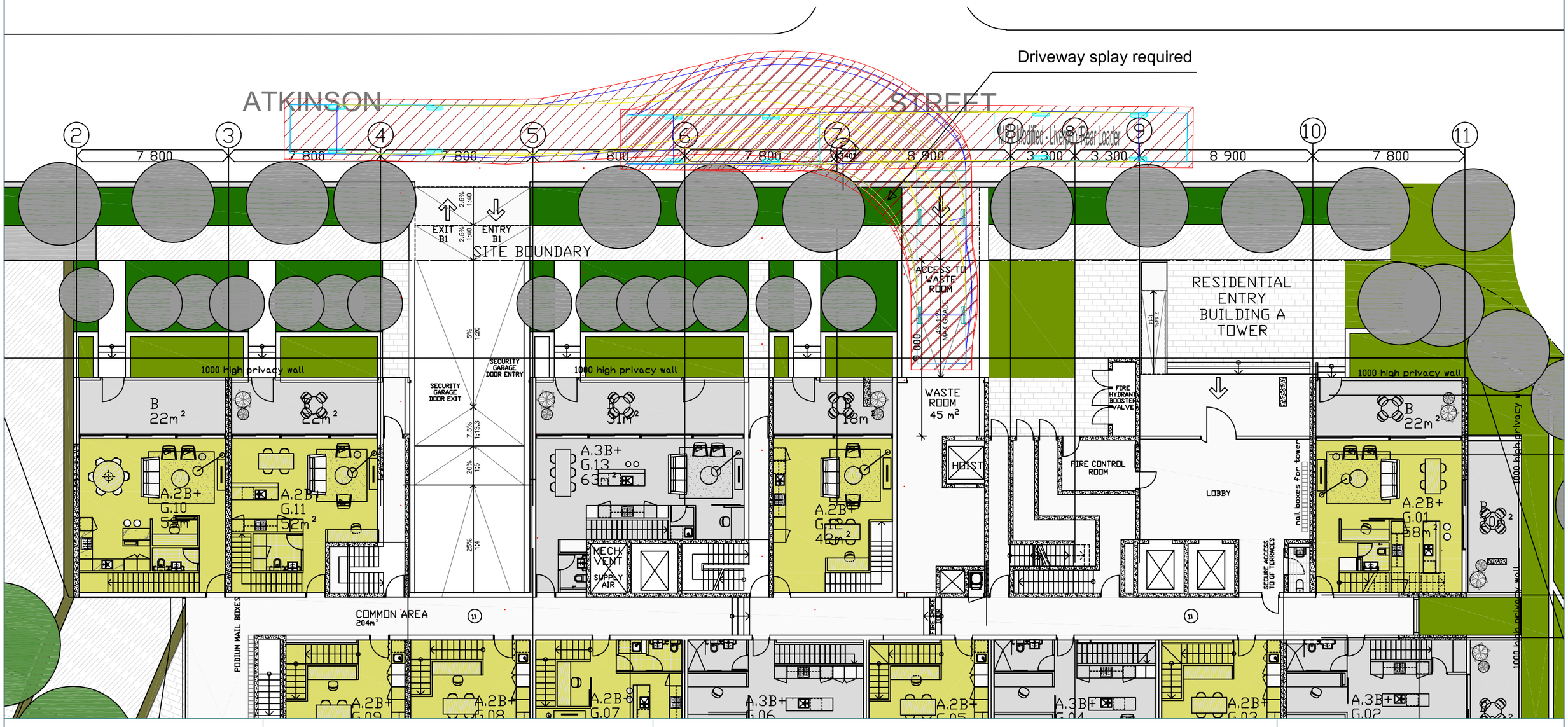
Attachment A

Modified (Section 96) Development Plans

Attachment B

Swept Path Diagram - Service / Refuse Collection Vehicle

NOTE: Swept path diagram shows 9.9m long refuse collection vehicle
(as per the specifications for a rear-loading vehicle in Liverpool City Council's
Implementation Note 2: 2014 - Changes to Waste Management Services
for residential flat buildings)



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drawing prepared by

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project	20 Shepherd Street, Liverpool
drawing title	Refuse Collection Vehicle Manoeuvring

project no.	drawing no.	revision	date	scale
15-002	DWG01	A	10/11/2015	1:300

FOR INFORMATION ONLY - NOT FOR CONSTRUCTION

InRoads Group is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards make allowance for a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.