

Project: North Terrace Rezoning – Access Report – Technical Memorandum

Date: 6 June 2016

Our Ref: 16-001551– North Terrace – Access Report – Final

1 INTRODUCTION

1.1 BACKGROUND

In October 2015, Knight Frank Town Planning submitted a Request for Pre-Gateway Review for 3R Kavanagh Street, Jerrabomberra ('North Terrace') ('the Site') to the NSW Department of Planning and Environment (DPE) on behalf of North Terrace Developments Pty Ltd (NTD). A response was received from DPE on 26 October 2015, requesting additional information on the application. Knight Frank Town Planning responded to this application on 12 November 2015. A formal response was subsequently provided from DPE on 18 December 2015, which included comments from Queanbeyan City Council regarding the provision of access from Southbar Road to the Site and ceased the Pre Gateway assessment

Calibre Consulting was engaged by North Terrace Developments Pty Ltd (NTD) to complete a review of comments provided by Queanbeyan City Council (now Queanbeyan and Palerang Regional Council (QPRC)) relating to access to the Site, and identification of engineering issues for providing access to the Site.

1.2 SCOPE OF WORKS

Calibre Consulting has been engaged by NTD to:

- Complete a review of background information;
- Undertake a site inspection along the length of Southbar Road, adjacent to the Site;
- Determine potential access locations;
- Review of engineering issues at the access locations; and
- Prepare a brief memorandum outlining the findings.

1.3 LOCATION

Refer to Figure 1-1 for the location of the Site.



Figure 1-1: Location of 3R Kavanagh Street, Jerrabomberra

1.4 BACKGROUND INFORMATION AND PREVIOUS STUDIES

The following correspondence summarises the history of the key traffic and access issues surrounding the proposed development.

1.4.1 REQUEST FOR PRE-GATEWAY REVIEW – OCTOBER 2015

Knight Frank Town Planning lodged a Request for Pre-Gateway Review in October 2015, which stated that access to the Site via trafficable roads had not been provided, and had potential access to an existing collector road (Southbar Road). The Pre-Gateway Review stated that the Site could be largely serviced by nearby existing services and public transport facilities.

1.4.2 REQUEST FOR ADDITIONAL INFORMATION – OCTOBER 2015

DPE completed an initial assessment of the Request for Pre-Gateway Review in October 2015. DPE requested further information:

- Proposed access / egress arrangements to and from the Site; and
- Confirmation of the likely number of dwellings.

1.4.3 REQUEST FOR ADDITIONAL INFORMATION – RESPONSE – NOVEMBER 2015

Knight Frank Town Planning provided a response to DPE on 12 November 2015, which stated that access / egress to and from the proposed development would be provided via a single access point provided by upgrading the existing Southbar Road / Tharwa Road intersection to either a roundabout, or a four way intersection. It was recommended that the proposed access be confirmed by technical investigations from a traffic engineering view point.

1.4.4 FORMAL DPE RESPONSE – DECEMBER 2015

A formal response from DPE was provided on 18 December 2015, which stated that DPE would cease assessment of the Pre-Gateway Application, primarily for the proponent to address biodiversity concerns raised by relevant planning Authorities. As part of the DPE response, QPRC correspondence was included, which identified several issues including comments from Council's Development Infrastructure Directorate that access from Southbar Road was not supported. However it is noted Council did not provide any specific design reasons as to why access could not be achieved. Specifically QPRC stated that they could not support the development due to the following access concerns:

- Site servicing constraints due to topography; and
- Access from Southbar Road was not supported on the basis of difficulty and cost of servicing the access road.

2 POTENTIAL INTERSECTION ARRANGEMENTS

2.1 ENGINEERING ISSUES FOR CONSIDERATION

The length of Southbar Road and the existing intersection of Southbar Road and Tharwa Drive was inspected on 3 June 2016 to identify any engineering issues that may prevent access from Southbar Road to the Site. This inspection was supplemented by a Dial Before You Dig enquiry, and information supplied by QPRC.

Potential issues found within close proximity of the Southbar Road and Tharwa Road intersection included:

- Existing grades of Tharwa Road on the approach to Southbar Road provides inadequate Approach Sight Distance (ASD).
- Existing vegetation within the southern and northern verges of Southbar Road restrict vision of the intersection.
- Proposed intersection sight distances - Safe Intersection Sight Distance, Stopping Sight Distance and Approach Sight distance requirements may be difficult to achieve with the existing terrain.
- The existing level difference between the existing road and the southern verge of Southbar Road, east of Tharwa Drive may require extensive earthworks to provide access to the Site.
- The southern verge of Southbar Road contains a 600mm diameter stormwater main approximately 10m to the east of Tharwa Road. This stormwater main passes under Southbar Road into the western verge of Tharwa Road and is the primary means of draining the catchment from the undeveloped area south of Southbar Road.
- Overhead electricity is located within the southern verge of Southbar Road.
- Underground electricity is located within the northern verge of Southbar Road.
- An existing Telstra conduit is aligned diagonally across the intersection of Southbar Road and Tharwa Road.
- Two water mains (300mm and 375mm diameter) are located within the southern verge of Southbar Road. These water mains typically run parallel with Southbar Road before turning north east to cross Southbar Road, to the west of The Scar.

NORTH TERRACE REZONING – ACCESS REPORT

- There are an additional two water mains (300mm and 375mm diameter) which connect to the two water mains within the southern verge of Southbar Road. These water mains diagonally cross Southbar Road, and continue along the eastern verge of Tharwa Road.
- The Site boundary along the southern verge of Southbar Road extends from approximately 10m to the west of the intersection of Southbar Road and Tharwa Road to approximately 20m to the east of the intersection.

2.2 OPTION 1 – FOURTH LEG OF EXISTING INTERSECTION

From a review of the existing site conditions, it was found that a fourth leg of the existing intersection of Southbar Road and Tharwa Road could be utilised to provide access to the Site. The following engineering issues will need to be addressed to provide access to the Site:

- Sight distances including Safe Intersection Sight distance (SISD), Stopping Sight distance (SSD) and Approach Sight Distance (ASD). Sight distances are restricted by:
 - Existing vegetation on the approaches to the intersection (Tharwa Road approach).
 - The existing earth mounding within the southern verge of Southbar Road.
- Impact on services:
 - Existing overhead electricity may be required to be undergrounded.
 - Protection of existing water mains, or lowering/relocation of existing water mains.
 - Protection or relocation of existing Telstra conduit.
 - Extension or upgrade (to cater for the proposed development) of the existing 600mm stormwater main.

There are three potential intersection arrangements at this location. The advantages and disadvantages of each intersection arrangement is outlined in Table 2-1.

Table 2-1: Fourth Leg of Existing Intersection – Proposed Arrangements – Advantages and Disadvantages

Intersection Arrangement	Advantages	Disadvantages
Four way unsignalised intersection / priority controlled.	• Least cost intersection arrangement at this location. • Pedestrian safety facilities (concrete median islands) can be incorporated.	• Potentially the most unsafe intersection arrangement due to large number of conflict points and traffic volumes of Southbar Road. • May require auxiliary lanes to accommodate turning vehicles to provide unimpeded through movements, resulting in increased costs. • Greater delays to the existing right turn from Tharwa Road into the westbound lanes of Southbar Road will be experienced.
Roundabout	• Minimal impact on roadside verges. • Roundabouts have less severe crashes than signalised intersections with similar traffic volumes. • Lower travel speeds through the intersection (20-40km/h). • Improvement to amenity for existing vehicles utilising the intersection of Tharwa Road / Southbar Road to enter / exit nearby Karabar residential estate. • A roundabout could have less delays than a signalised intersection. • Pedestrian facilities can be incorporated into the concrete median islands.	• QPRC may require the roundabout to have a concrete pavement, resulting in increased construction costs. • Roundabouts can cause difficulties for cyclists, and unless adequate provisions are made (on- or off-road lanes), an increase in cyclist related accidents may occur. • Roundabout construction requires adequate intersection reserve width in order to provide appropriate deflection. This may prevent the use of roundabouts at some locations.

NORTH TERRACE REZONING – ACCESS REPORT

Intersection Arrangement	Advantages	Disadvantages
Four way signalised intersection	• May have a positive effect on intersection safety. • Pedestrians could be provided with a signalised crossing.	• Potentially the most expensive intersection arrangement as auxiliary lanes may be required to accommodate turning vehicles and unimpeded through movements. • Will require liaison with RMS to obtain RMS approval of a traffic signal warrant.

Based on the above analysis it is recommended that a roundabout be adopted for Option 1. The nearby intersection of Donald Road / Southbar Road has been overlaid with an aerial image to indicate the potential intersection arrangements to provide access to the Site. Refer Figure 2-1 for the future intersection. It is noted that the exact configuration of the intersection will need to be confirmed by undertaking traffic analysis and further design work.

Existing services could be relocated to accommodate the proposed roundabout. Earthworks to the existing earth mounding within the southern verge of Southbar Road could be undertaken to achieve appropriate sight distance requirements for the proposed access road approach. Trimming or removal of existing vegetation could be undertaken to assist in sight distance requirements for the Tharwa Road approach could also be undertaken. Provision of providing access via the existing intersection of Southbar Road / Tharwa Drive may reduce the amount of developable area within the Site due to the requirement to grade the southern verge of Southbar Road.



Figure 2-1: Intersection - Option 1 – Roundabout

2.3 OPTION 2 - STAGGERED T INTERSECTION

From a review of the engineering issues surrounding the Site, it was found that there may be an alternate means of accessing the Site. The Site may be accessed via a T intersection located to the east of the existing intersection of Southbar Road and Tharwa Road. This will result in a staggered T intersection arrangement along Southbar Road. Issues which will need to be addressed to provide access to the Site at this location include:

- Intersection grading. The proposed intersection may require earthworks to the earth mounding located in the southern verge of Southbar Road to provide a means to access the Site.
- Impact on services:
 - Existing overhead electricity may be required to be undergrounded.
 - Protection of existing water mains, or lowering of existing water mains.
- Land ownership:
 - The proposed intersection would be located to the east of the extents of the Site boundary, and an access road will be required to pass through land to the south of Southbar Road to provide access to the Site.

The advantages and disadvantages of providing access to the Site via Option 2 has been outlined in Table 2-2.

Table 2-2: Staggered T Intersection – Proposed Arrangements – Advantages and Disadvantages

Intersection Arrangement	Advantages	Disadvantages
Staggered T Intersection	• Potentially most cost effective arrangement. • The staggered T intersection arrangement has the least number of potential traffic conflict points and conflict streams. • Reduction in crash frequency and severity compared to cross intersections. • Minimised turning conflict between opposing turning traffic. • Minimal modifications to the existing southern verge of Southbar Road are expected.	• Earthworks required to provide access to the Site. • Discussions with adjacent landowner to obtain permission to construct road through property or purchase of land.

The proposed location of the staggered T intersection is provided in Figure 2-2. It is noted that the exact configuration of the intersection will need to be confirmed by undertaking traffic analysis.

The existing services could be relocated or protection provided to accommodate the proposed intersection and access road. Earthworks within the southern verge of Southbar Road will be required to provide the access road to the Site. Earthworks to the existing earth mounding within the southern verge of Southbar Road would be minimised as the proposed intersection is located at the bend in Southbar Road and would achieve the appropriate sight distance requirements. Despite this, significant earthworks will be required to provide an access road from this location due to the topography of the Site. It is noted that Option 2 would have less impact on the developable area than intersections considered in Option 1, as grading to provide access to the Site will not be required.

Should access be provided to the Site via the staggered T arrangement noted in Option 2, there is potential for the road to provide nearby residents and recreational users access to the Mt. Jerrabomberra reserve. This could be encouraged through the provision of parking spaces along the length of the road.



Figure 2-2: Intersection - Option 2 – Staggered T Intersection

3 RECOMMENDATIONS

The proposed staggered T intersection arrangement (Option 2) is a suitable engineering means of providing access to the Site as it minimises the amount of potential conflicting traffic movements and is likely to require less services adjustments than what may be required in Option 1. Despite this, it may be difficult or expensive to obtain approval or purchase land from the adjacent land owner to provide an access road to the Site. On this basis it is recommended that the existing intersection of Southbar Road / Tharwa Road be adjusted to encompass a roundabout, and provide a fourth leg at this intersection to access the Site.

It is recommended that a detailed traffic impact assessment and preliminary design be undertaken to confirm the appropriate intersection form and determine the footprint of the proposed intersection. This traffic impact assessment could also be utilised to assist in the approval process of a Development Application.