


18A Davis Street and 32 Grundy Avenue, Nyora
Traffic and Transport Assessment

2 August 2018

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APPENDICES

APPENDIX A.	COMPREHENSIVE DEVELOPMENT PLAN VER2 DATED 01/03/2018 BY BEVERIDGE WILLIAMS
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1 PREAMBLE

1.1 Introduction

Beveridge Williams has been engaged by Kufner Textiles (Australia) P/L to prepare a Traffic Impact Assessment report for the proposed residential subdivision located at 18A Davis Street and 32 Grundy Avenue, Nyora. It is understood that the subdivision will comprise of approximately 56 residential lots and one superlot.

The following report sets out the findings of this assessment based on the investigations undertaken by Beveridge Williams.

1.2 Objectives

Based on the scope of Beveridge Williams engagement the information contained within this assessment has been prepared to respond the following objectives:

- Traffic Impact Considerations; and
- Design Considerations.

1.3 Facts and Matters Relied Upon

In preparing this assessment, Beveridge Williams have relied upon the following facts, matters and information:

- South Gippsland Planning Scheme;
- Site inspection observations;
- Traffic survey data collected; and
- Combined Development Plan version 2 dated 01/03/2018 prepared by Beveridge Williams.

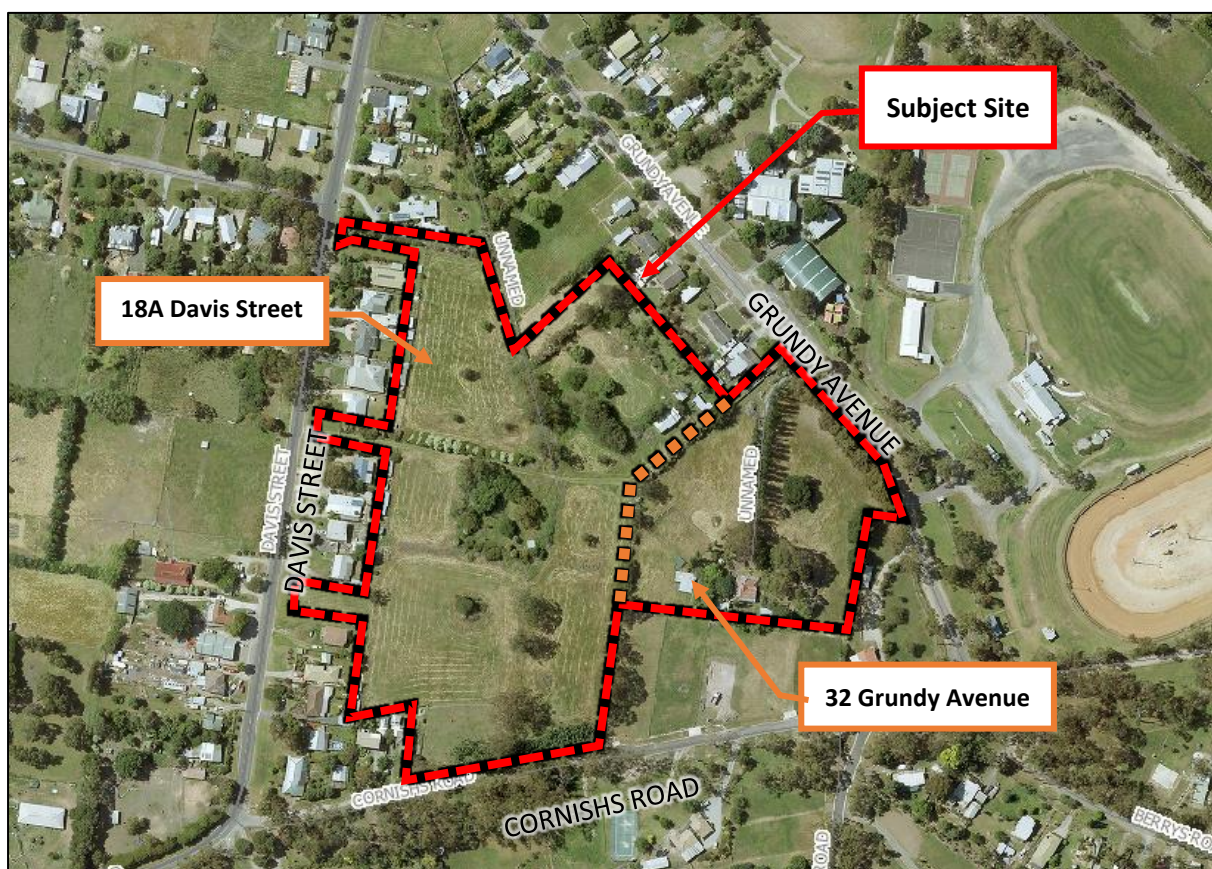
2 EXISTING CONDITIONS

2.1 Subject Site

The subject site is located at 18A Davis Street and 32 Grundy Avenue in Nyora. The subject site is irregular in shape and comprises of 2 parcels of land with frontages onto Grundy Avenue of approximately 113m and approximately 110m to Cornishs Road. The subject site also has three separate frontages onto Davis Street, these frontages are located between; 10 and 12 Davis Street, 18 and 20 Davis Street, and 28 and 30 Davis Street. The parcels of land are currently vacant. The subject site encompasses an area of approximately 5.899 ha.

The subject site and the 2 parcels of land which comprise it are displayed in Figure 1.

Figure 1: Subject Site



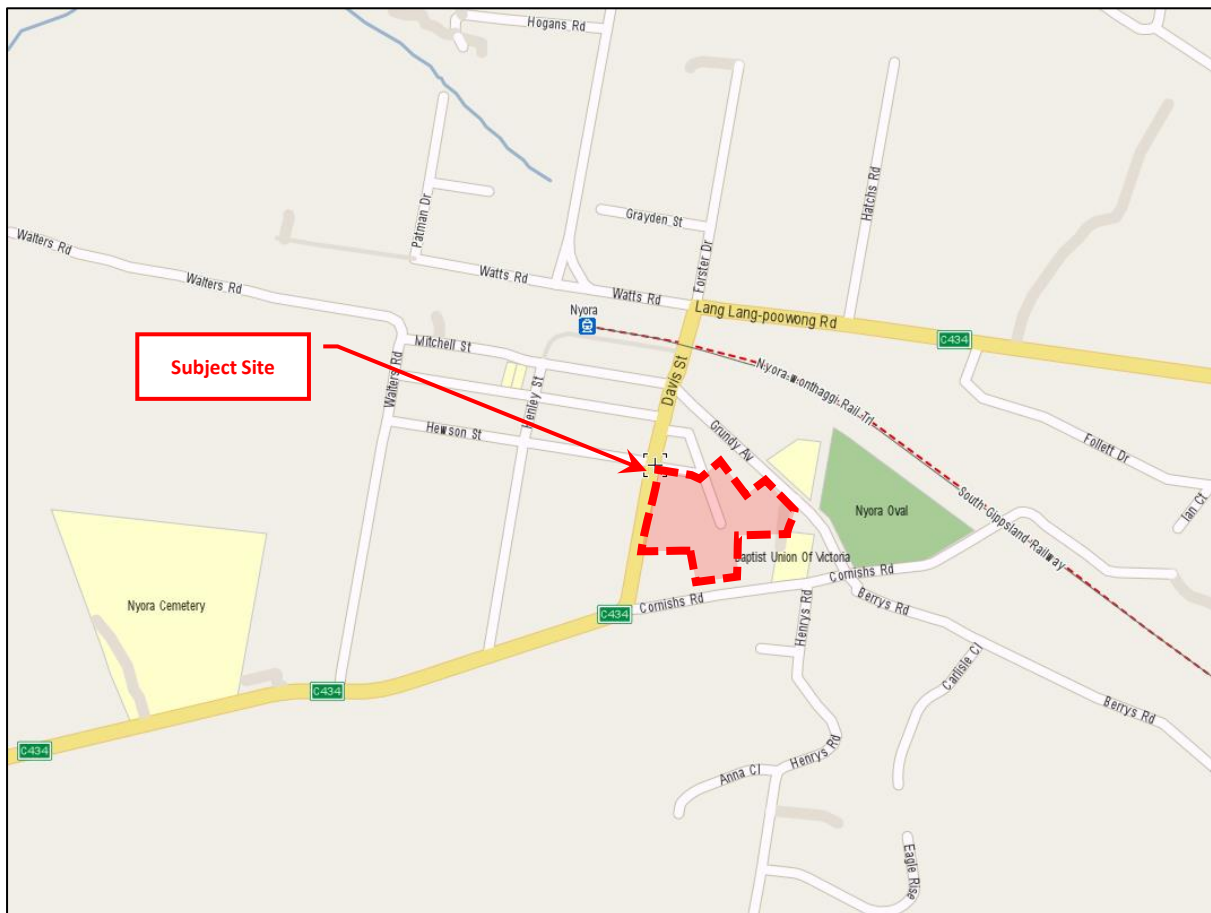
2.2 Subject Site Context

The land immediately surrounding the development is predominately residential in nature with the subject site lying within the community of Nyora. The subject site is zoned as General Residential (GRZ1).

On the east side of Grundy Avenue lies the Nyora Recreation Reserve which includes sporting facilities and a motor track, the Nyora Primary School is also located on Grundy Avenue just north of the Recreation Reserve.

The subject site and surrounding area are illustrated in Figure 2 below.

Figure 2: Subject Site Locality



2.3 Road Network

2.3.1 Davis Street (Lang Lang-Poowong Road)

Davis Street (Lang Lang-Poowong Road) is a VicRoads declared arterial road generally aligned in a north-south fashion in the vicinity of the site from Watts Road in the north and Cornishs Road in the south. In the wider context Davis Street extends to the south-west to the South Gippsland Highway and to the east to provide connection to Poowong.

In the vicinity of the subject site Davis Street currently comprises a sealed carriageway approximately 8m in width housed within a road reserve approximately 30m in width. In the vicinity of the subject site Davis Street operates with a posted speed limit of 60km/h.

Davis Street in the vicinity of the subject site is shown in Figure 3 and Figure 4 facing north and south respectively.

Figure 3: Davis Street Facing North Along Site Frontage



Figure 4: Davis Street Facing South Along Site Frontage



2.3.2 Grundy Avenue

Grundy Avenue is a local road generally aligned in a northwest-southeast fashion from Davis Street in the north to Cornishs Road in the south.

In the vicinity of the subject site Grundy Avenue currently comprises of a sealed carriageway approximately 7m in width housed within a road reserve approximately 30m in width. In the vicinity of the subject site Grundy Avenue operates with a posted permanent speed limit of 40km/h along the site frontage.

Grundy Avenue in the vicinity of the subject site is shown in Figure 5 and Figure 6 facing northwest and southeast respectively.

Figure 5: Grundy Avenue Facing North-West Along Site Frontage



Figure 6: Grundy Avenue Facing South-East Along Site Frontage



2.3.3 Cornishs Road

Cornishs Road is a local road generally aligned in an east-west fashion with the road reserve extending from Davis Street in the west to Grundy Avenue in the east and continues along the motor track's southern boundary. Along the site frontage Cornishs Road is discontinuous and does not currently connect between Davis Street and Grundy Avenue.

The section of Cornishs Road accessed from Davis Street is an unsealed carriageway and functions as a shared driveway for the residential dwellings at 2, 3 and 5 Cornishs Road. The section accessed from Grundy Avenue consists of a sealed carriageway approximately 7m in width with a court bowl treatment ending at the site's eastern frontage.

In the vicinity of the subject site Cornishs Road operates with a default speed limit of 50km/h.

Cornishs Road in the vicinity of the subject site is shown in Figure 7 and Figure 8 facing east and west respectively.

Figure 7: Cornishs Road Facing East Along Site Frontage Towards Grundy Avenue



Figure 8: Cornishs Road Facing West Along Site Frontage



2.4 Existing Traffic Volumes

Beveridge Williams commissioned the collection of traffic volume data at the intersection of Lang Lang-Poowong Road, Watts Road, Davis Street and Forster Drive on Thursday 8 February 2018. Traffic volumes were collected between 6:30-9:30am and 3-6pm, the surveys indicated that the AM peak hour occurred between 8:15-9:15am with the PM peak hour occurring between 3:30-4:30.

The results indicated that during the peak hours the traffic volume along Davis Street was 121 vph in the AM and 145 vph in the PM, or approximately 1,450 vehicles per day.

2.5 Traffic Incident History

Review of the VicRoads' CrashStats database revealed 1 crash had been recorded in the last 5 years within the vicinity of the site. The recorded accident involved a single vehicle which veered off the left side of the carriageway on Cornishs Road and collided with vegetation, the incident did not include any serious injuries. The incident occurred approximately 30m east of the intersection of Cornishs Road and Davis Street.

The single incident is not considered to be an indicator of potential hazards in the surrounding road network from a traffic engineering perspective.

3 PROPOSAL

3.1 General

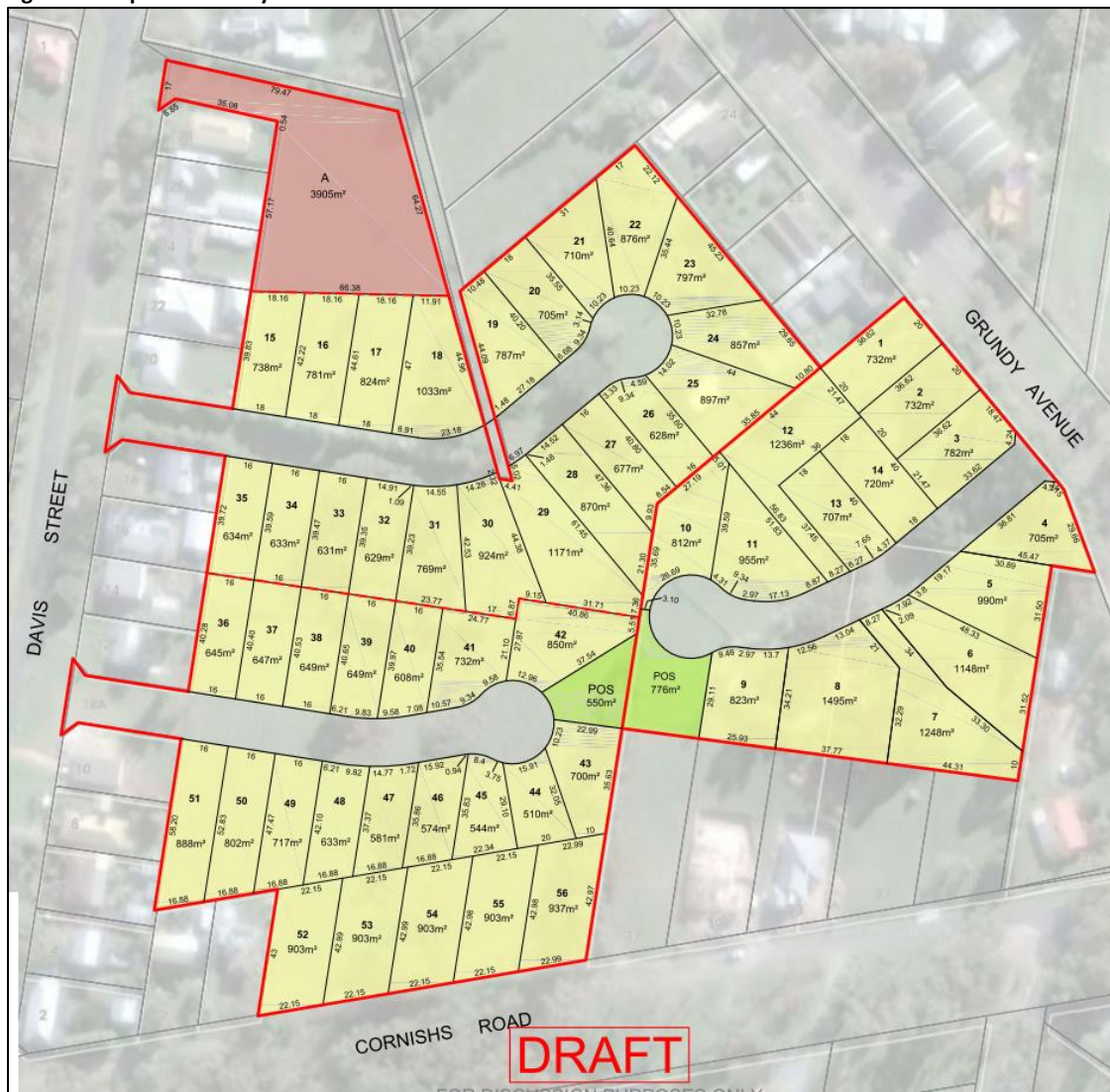
Based on the Combined Development Plan version 2 dated 01/03/2018, prepared by Beveridge Williams (APPENDIX A) it is proposed to develop the land at 18A Davis Street and 32 Grundy Avenue in Nyora into a residential subdivision comprising of 56 lots and a separate 3,905 sqm superlot. Two parcels of unencumbered passive open space are provided centrally to the proposal which ultimately provide a pedestrian connection between Grundy Avenue and Davis Street.

The proposed internal road network will consist of 3 separate Access Streets of 16m width as per the IDM, with court bowl treatments to facilitate vehicle turning around. Of these Access Streets, 2 will be accessed from Davis Street and the third from Grundy Avenue. The internal road network will provide access to the majority of residential lots with 5 lots gaining access directly from Cornishs Road along the southern boundary and a further 2 lots directly to Grundy Avenue on the eastern boundary.

It is understood that the development of the superlot will occur at a later stage and will be subject to a separate planning application.

The proposed subject site layout is shown in Figure 9.

Figure 9: Proposed Site Layout



4 TRAFFIC IMPACT CONSIDERATIONS

4.1 Traffic Generation

It is generally accepted that residential lots generate a vehicular traffic at a rate of 9 vehicle movements per day (with 10% of movements occurring in the peak hours). Based on case study data for similar proposals, the rate of 9 vehicle movements per day per lot has been adopted.

Application of this rate to the proposed 56 lots equates to a daily traffic generation of 504 movements or 50 in the peak hours. This traffic generation is inclusive of all trip types and includes work, recreation and educational trips.

4.2 Traffic Distribution

4.2.1 Daily Traffic Volumes

Review of the development plans shows that multiple accesses will be provided via internal roads to Davis Street and Grundy Avenue while a limited number of dwellings front, and gain access, directly from Cornishs Road.

The number of lots gaining access from each road or frontage are as indicated below:

- Davis Street northern access – 21 lots
- Davis Street southern access – 16 lots
- Grundy Avenue access – 12 lots
- Grundy Avenue frontage – 2 lots
- Cornishs Road frontage – 5 lots

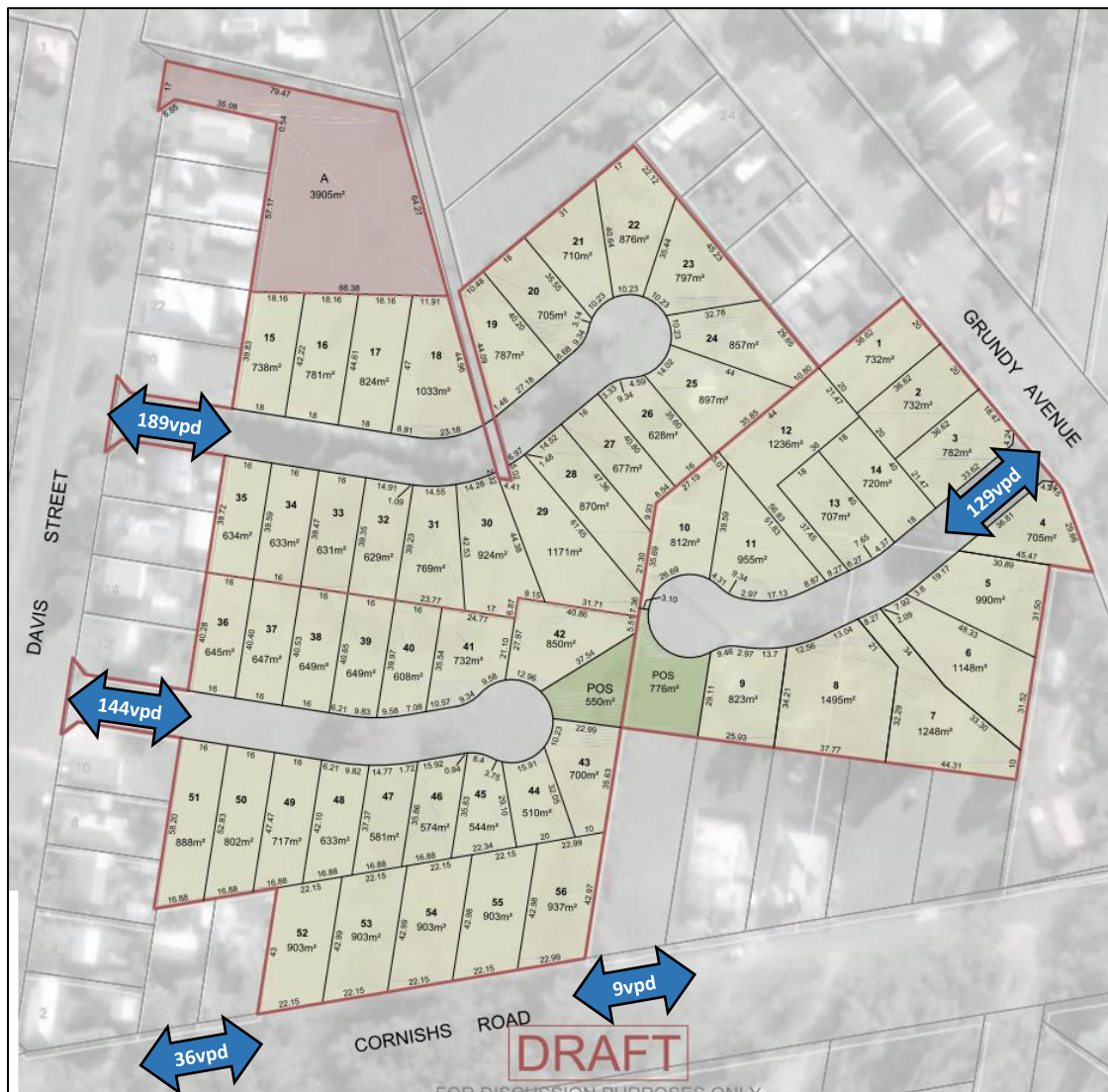
The lots fronting onto Cornishs Road are anticipated to predominately distributed to Davis Street, for the purposes of this assessment it was assumed 80% of the traffic generated on Cornishs Road by the development would be distributed via Davis Street.

Based on the site access locations and the proposed number of lots, the anticipated daily traffic volumes internal to the site are presented in Figure 10.

The anticipated daily traffic volumes within the internal road network are within the daily environmental capacity of an Access Street and as such the proposed internal road network hierarchy is considered adequate.

Cornishs Road intersections are increases in volumes as a result of the development and are not inclusive of existing turning movements.

Figure 10: Anticipated Internal Daily Traffic Generation



4.2.2 Peak Hour Volumes

Peak hour traffic generations for residential dwellings generally display the following characteristics:

- AM Peak Hour
 - 20% of traffic inbound; and
 - 80% of traffic outbound.
- PM Peak Hour
 - 60% of traffic inbound; and
 - 40% of traffic outbound.

It is anticipated that traffic accessing the site via Davis Street will be distributed evenly to the north and south, while all traffic accessing Grundy Avenue was anticipated to be distributed northwards. Based on these distributions the anticipated peak hour volumes generated by the proposal are illustrated in Figure 11 and Figure 12 for Davis Street and Grundy Avenue respectively.

Figure 11: Davis Street Anticipated Peak Hour Traffic Generation

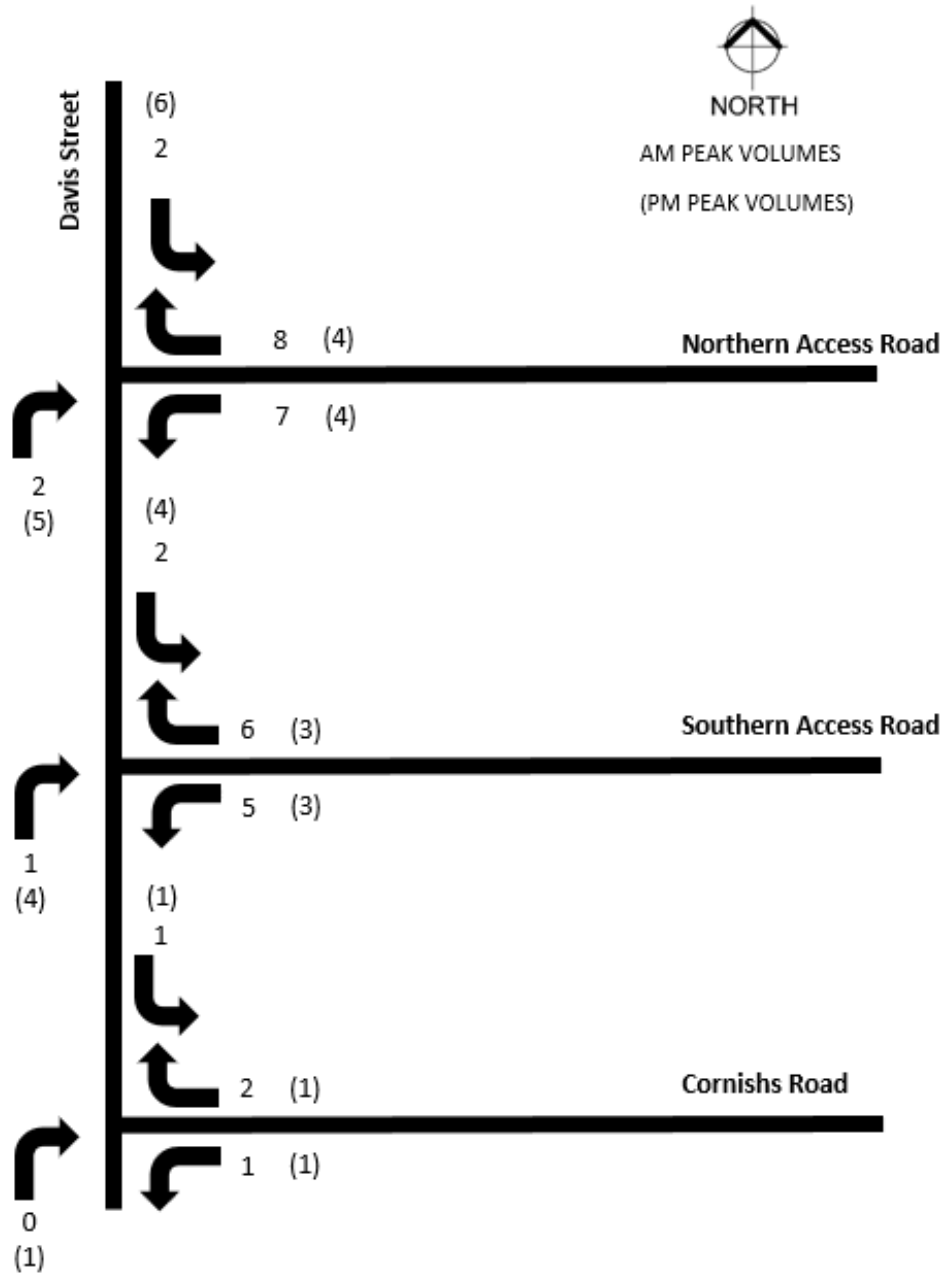
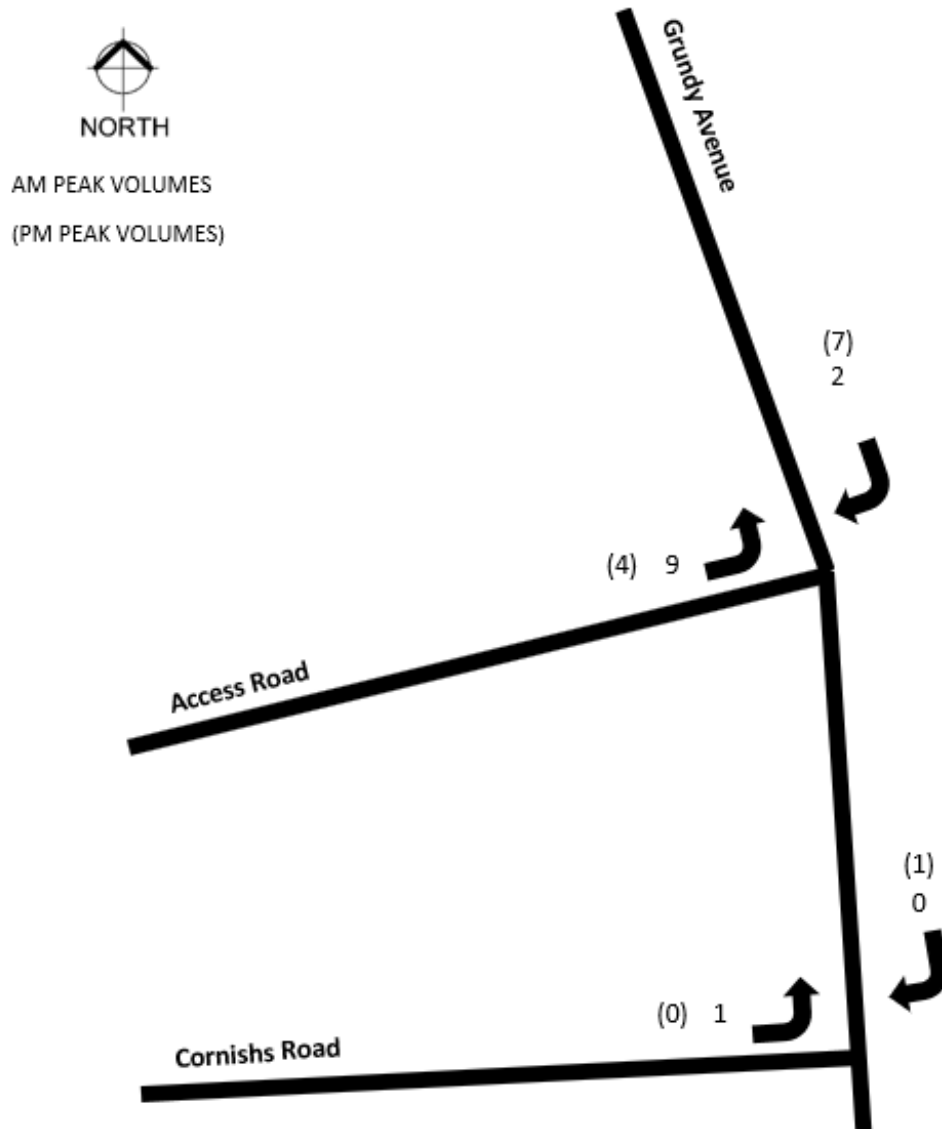


Figure 12: Grundy Avenue Anticipated Peak Hour Traffic Generation



Of the proposed external connections, the northern access street to Davis Street is anticipated to experience the highest traffic generation with 19 vehicle movements in the peak hour, or the equivalent to less than 1 movement every 3 minutes.

The anticipated increase in traffic volumes along Davis Street, Grundy Avenue and Cornishs Road is considered modest from a traffic engineering perspective and as such the access street intersections are anticipated to operate effectively and within capacity.

5 DESIGN CONSIDERATIONS

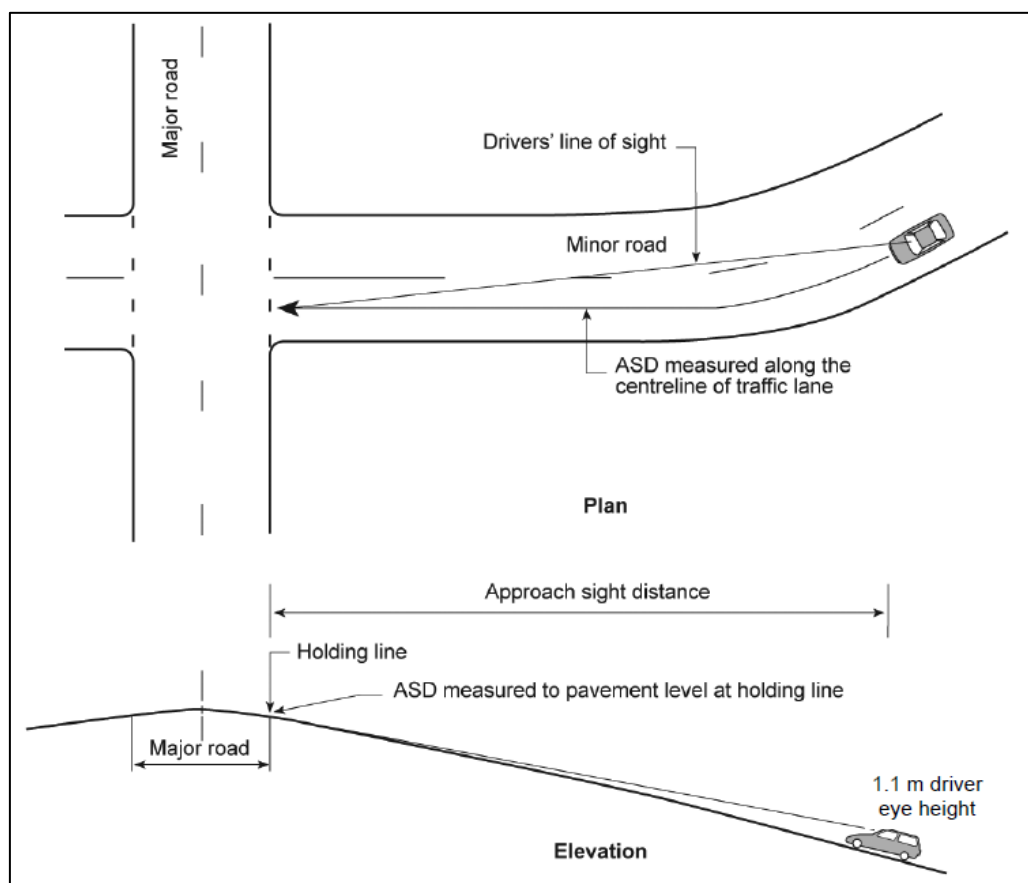
5.1 Sight Distance

To ensure turning manoeuvres at intersections can be undertaken appropriately and assessment of sight lines to Davis Street and Grundy Avenue have been undertaken. The relevant sight distances assessed include:

- Approach Sight Distance (ASD) – Applicable to minor and major roads
- Safe Intersection Sight Distance (SISD) – Applicable to major roads only

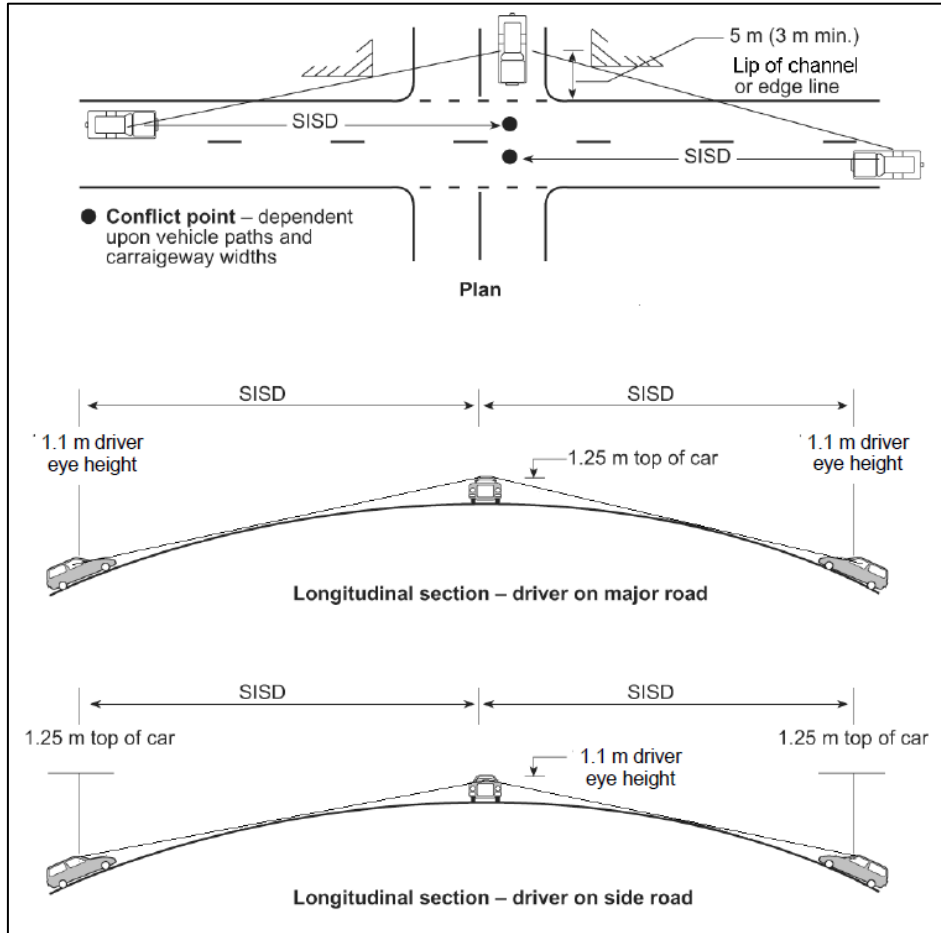
The Approach Sight Distance (ASD) is the minimum level of sight distance which must be available on all approaches to all intersections to ensure that drivers are aware of the presence of an intersection. The ASD as illustrated in the AustRoads Guide to Road Design Part 4A are shown in Figure 13.

Figure 13: Approach Sight Distances Diagram



The safe intersection sight distance (SISD) is the minimum sight distance which should be provided on the major road at any intersection. The SISD as illustrated in the AustRoads Guide to Road Design Part 4A is shown in Figure 14.

Figure 14: Safe Intersection Sight Distance Diagram



5.1.1 Davis Street

As per Table 3.1 of the AustRoads Guide to Road Design Part 4A, ASD for the proposed access streets to Davis Street will be:

- 55m based on a 50km/h speed limit for vehicles on the access street; and
- 73m based on a 60km/h speed limit for vehicles on Davis Street.

As per Table 3.2 of the AustRoads Guide to Road Design Part 4A, SISD for traffic approaching the proposed access streets to Davis Street will be 123m based on a 60km/h speed limit.

The neighbouring properties along the east side of Davis Street are set back from the carriageway by approximately 15m. As Davis Street is relatively straight along the site frontages it is considered that there are no considerable horizontal sight restrictions.

Within the vicinity of the subject site Davis Street consists of two, the first crest is located approximately 80m north of the intersection of Davis Street and Hewson Street, while the other crest is located at the frontage of 8 Davis Street.

Given that the northern access street to the site is located approximately 200m south of the crest located north of Hewson Street, it is considered that this crest does not limit sight lines to the northern access street. Similarly, the northern access street to the site is located approximately 130m north of the crest located approximately at 8 Davis Street and as such it is considered that this crest does not limit sight lines to the northern access street.

The proposed southern access street is located approximately 30m from the crest at 8 Davis Street with clear sight lines to the intersection of Davis Street and Cornishs Road approximately 140m to the south as illustrated in Figure 15.

Figure 15: Southern Sight Line from Southern Access Road on Davis Street



Based on the above, the proposed access street intersections to Davis Street accord with both ASD and SISD sight line requirements as set out in AustRoads Guide to Road Design Part 4A.

5.1.2 Grundy Avenue

It is noted that Grundy Avenue has a posted speed limit of 40km/h, however to provide a robust assessment the sight lines have been assessed for 50km/h. Based on the criteria set out in AustRoads Guide to Road Design Part 4A, the Grundy Avenue intersection requires an ASD of 55m and a SISD of 97m.

An on-site inspection of the proposed access location indicates that continuous sight lines at the proposed access location are available as shown in Figure 16 and Figure 17.

Figure 16: Grundy Avenue Access Looking North



Figure 17: Grundy Avenue Access Looking South



It is noted that the proposed access will be at a higher level than Grundy Avenue and that existing vegetation exists along the site boundary. Detailed design of the access is to be undertaken to ensure that appropriate grades are provided and that vegetation is trimmed to maintain the necessary sight lines.

6 SUMMARY AND CONCLUSIONS

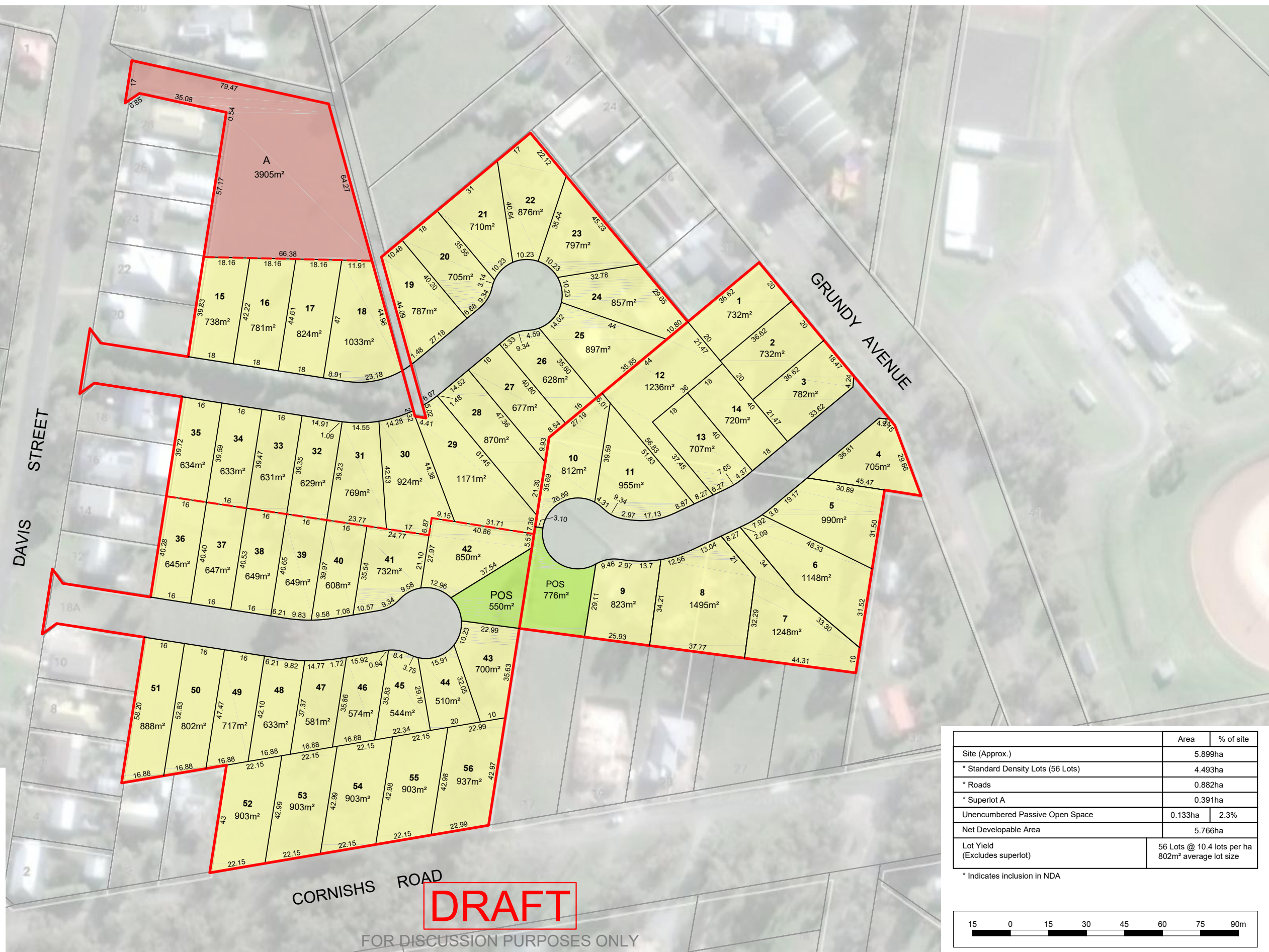
Based on the preceding analysis, the proposed residential subdivision development located at 18A Davis Street and 32 Grundy Avenue is considered appropriate from a traffic engineering perspective, A summary of the proposal is as follows:

- It is proposed to develop the subject site for the purposes of a residential subdivision comprising 56 dwellings and a 3,905 sqm super lot;
- Internal access roads will provide access to 49 of the dwellings via two access streets to Davis Street and one to Grundy Avenue;
- Of the remaining dwellings, 5 are proposed to gain access from Cornishs Road and 2 via Grundy Avenue;
- It is anticipated that the subject site will generate traffic at a rate of 9 vehicle movements per lot per day, equivalent to 504 vehicle movements per day;
- Anticipated increases in traffic volumes along Davis Street, Grundy Avenue and Cornishs Road are considered negligible and are unlikely to have a material impact on road network operations;
- The sight distances for the proposed intersections of the access roads with Davis Street and Grundy Avenue are acceptable.

**APPENDIX A. Comprehensive Development Plan ver2 dated 01/03/2018 by
Beveridge Williams**

LEGEND

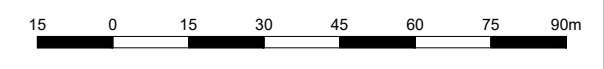
- Title boundary (approx.)
- Internal title boundary (approx.)
- Lots
- Superlot A
- Unencumbered passive open space



- Notes:**
- This plan was prepared as a proposal only and should not be used for any other purpose.
 - This plan is subject to Council approval.
 - All dimensions and areas are subject to survey and final computations.
 - Further investigation may be required for fire buffers, vegetation retention and removal, site access and egress, and aboriginal and cultural heritage.
 - All roads are 16m local access level 1 unless noted otherwise
 - Arc dimensions shown are length of arc (not chord)

	Area	% of site
Site (Approx.)	5.899ha	
* Standard Density Lots (56 Lots)	4.493ha	
* Roads	0.882ha	
* Superlot A	0.391ha	
Unencumbered Passive Open Space	0.133ha	2.3%
Net Developable Area	5.766ha	
Lot Yield (Excludes superlot)	56 Lots @ 10.4 lots per ha 802m² average lot size	

* Indicates inclusion in NDA



Combined Development Plan
 18A Davis Street & 32 Grundy Avenue, Nyora
 Kufner Textiles (Australia) P/L

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02	01.03.18	Plan amended	TG	AB					

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