KELLEY COVEY
GROUP PTY LTD
Consulting Civil, Structural, Hydraulic, Fire
& Environmental Engineers
Project Management & Planning

162 Marius Street
PO Box 199
Tamworth NSW 2340
Australia
P (02) 6766 1944
E engineers@kelleycovey.com.au
www.kelleycovey.com.au
ABN 37 099 097 800

8 February 2024

Ref: MF/MF/T207542
57188ltr

NickStack Investments Pty Ltd
Attn: Mr Nick Summers
261 Gunnedah Road
WESTDALE NSW 2340

Dear Nick,

Re: Traffic Impact Assessment 171 – 173 Manilla Road Oxley Vale, Response to TfNSW Comments

I refer to your e-mail dated 8 November 2023 including conversations between yourself, Tamworth Regional Council (TRC) and Transport for NSW (TfNSW) regarding the proposed retail development at the abovementioned address. I note some comments from TfNSW included in the e-mail conversation are relevant to the Traffic Impact Assessment (TIA) we prepared for the proposed development in 2020 (Ref: 52352rpt) and require a response from us, including the following;

1. *The traffic counts in TIA Appendix A only show the traffic volume on each movement ID, it is unclear which turn movement did these movement IDs represent and the distribution of traffic movement on frontage road network. It is requested that the surveyed traffic movements is shown diagrammatically to a level of detail sufficient for easy interpretation.*
2. *The TIA should include an assessment of turn treatment warrants in accordance with the Austroads Guide to Traffic Management Part 6 and Austroads Guide to Road Design Part 4A for the site access to the classified (State) road, identifying the need for any turn treatments.*

Our response to the comments is as follows;

1. A Traffic Count Movement Index Sheet has been prepared to provide a diagrammatic representation of the location and type of each traffic movement surveyed, and is included in **Appendix A**.
2. Warrants for intersection turning treatments were not originally considered in the preparation of the Traffic Impact Assessment, as the SIDRA intersection analysis undertaken as part of the TIA indicated the following with regard to the performance of the access point intersection;

   "mid-block carriageway Level of Service "B" will be maintained for Manilla Road, and an assessment of proposed turning movements for vehicles entering/exiting the development determined a Level of Service of "A" for the site"

   This satisfactory Level of Service, along with the relatively small number of off-street parking spaces provided, suggested that it was appropriate to treat the access to the site as an "access facility" to an off-street parking area designed in accordance with Australian Standard AS2890.1 (Ref: AS/NZS 2890/1-2004) rather than as a formal intersection.

   Further, we note that Commentary C9.2 of the *Austroads Guide to Traffic Management, Part 6; Intersections, Interchanges and Crossings Management (Ref: AGTM-06-20)* notes the following with regard to the application of the warrants;

"The warrants are based on the construction of intersections on new roads (i.e. Greenfield sites). Therefore, their most appropriate application is to the selection of turn types for intersections on new roads. However, the warrants may also be used:

- *as a reference for the construction of new intersections on existing roads*
- *as a reference for intervention levels when upgrading existing intersection turn treatments*
- *although not intended for direct application to accesses and driveways, they may be used as a reference for such.*

Notwithstanding, an application of the intersection warrants as per Figure 3.25(c) in Section 3.3.6 of AGTM-06-20 has been undertaken using the following worst-case input parameters as determined in the TIA;

- Design Speed; <70km/h
- Major Road Traffic Volume $Q_{m;}$ 516 veh/h (AM Peak)
- Left Turn Volume Q_L; 76 veh/h (PM Peak)
- Right Turn Volume Q_R; 21 veh/h (AM Peak)

The warrant analysis indicates an AUL(s) may be appropriate for left turn movements, and a BAR may be appropriate for right turn movements.

A preliminary analysis of the existing geometry of the site, noting in particular the proximity of nearby driveways, the marked pedestrian crossing and the grade-separated service road; indicates that a compliant design of both an AUL(s) and a BAR may be difficult to achieve (as per the requirements of the *Austroads Guide to Road Design, Part 4a; Unsignalised and Signalised Intersections (Ref: ARGD4a-17).*

In our opinion, the low-speed traffic environment encountered during both the AM and PM peak periods resulting from the School Zone speed limit restriction to 40km/h, as well as the low traffic volumes outside of each of the AM and PM peak periods, may offset the need for turning treatments at the site.

We note from the TfNSW comments that their preference is for construction of a central median across the frontage of the development to prevent right turn movements in and out of the development. Construction of such a median will eliminate the warrant for a BAR at the site.

If you should you have any questions regarding our submission please don't hesitate to contact our Tamworth office.

Yours faithfully

KELLEY COVEY GROUP PTY LTD

Matthew Ferris
BEng, AdDipMgt
Att.

Appendix A – Traffic Count Movement Index Sheet

NORTH

TRAFFIC COUNT MOVEMENT INDEX

1. MANILLA ROAD WEST BOUND THROUGH TRAFFIC
2. RIGHT TURN FROM MANILLA ROAD TO SERVICE ROAD
3. MANILLA ROAD EAST BOUND THROUGH TRAFFIC
4. LEFT TURN FROM MANILLA ROAD TO SERVICE ROAD
5. MANILLA ROAD RIGHT TURN TO EXISTING SHOP
6. MANILLA ROAD LEFT TURN TO EXISTING SHOP
7. LEFT TURN OUT FROM EXISTING SHOP TO MANILLA RD
8. RIGHT TURN OUT FROM EXISTING SHOP TO MANILLA RD
9. MANILLA ROAD RIGHT TURN INTO SCHOOL CARPARK 1
10. MANILLA ROAD LEFT TURN INTO SCHOOL CARPARK 1
11. PEDESTRIAN CROSSING USAGE - BOTH DIRECTIONS
12. BUS ZONE LEFT TURN OUT TO MANILLA ROAD
13. BUS ZONE RIGHT TURN OUT TO MANILLA ROAD
14. BUS ZONE RIGHT TURN IN FROM MANILLA ROAD
15. BUS ZONE LEFT TURN IN FROM MANILLA ROAD
16. MANILLA RD RIGHT TURN INTO SCHOOL CARPARK 2
17. MANILLA ROAD LEFT TURN INTO SCHOOL CARPARK 2
18. LEFT/RIGHT TURN OUT OF SCHOOL CARPARK 2

Issue	Date	Description	By
A	07.02.2024	INDEX SHEET CREATED TO ACCOMPANY TIA	MF

Checked – MF | Approved – JC
Design – MF | Drawn – MF
Scales – NTS | Date – 07.02.2024
Document Stage – APPROVAL

KELLEY COVEY GROUP PTY LTD
Consulting Civil, Structural and Environmental Engineers
Project Management, Planning and Landscape Architecture
ACN 099 097 800
ABN 3709 9097 800

DIRECTOR:
KEVIN COVEY BEng,CPEng,MIEAust,RPEQ,MSPEPNG
MANAGER:
JUSTIN CANT BEng,CPEng,MIEAust,NPER,RPEQ

ASSOCIATES:
DAMIAN COOK
ANTHONY TJANAVARAS

162 MARIUS STREET
PO BOX 199, TAMWORTH NSW 2340
Ph (02) 6766 1944 Fax (02) 6766 6553
email: engineers@kelleycovey.biz

Drawing title –
TIA – MOVEMENT INDEX

Project –
PROPOSED RETAIL DEVELOPMENT

Client –
MR NICK SUMMERS

Site –
171-173 MANILLA ROAD
OXLEY VALE, NSW 2340

Project T207542 Sheet No. 1 of 1
Digital Ref: INDEX Issue : A

From: "Development North" <Development.North@transport.nsw.gov.au>
Sent: Thu, 31 Aug 2023 11:14:04 +1000
To: "Spicer, Andrew" <a.spicer@tamworth.nsw.gov.au>
Cc: "Court Walsh" <Court.Walsh@transport.nsw.gov.au>
Subject: RE: Proposed expansion of superette at Oxley Vale Tamworth requiring LEP amendment.

Hi Andrew,

I refer to your email about the proposed expansion of the existing commercial development at 171-173 Manilla Road Oxley Vale, it is understood that LEP amendment would be required to facilitate this proposal.

TfNSW have reviewed the information supplied and offer the below preliminary advice/comments, it is advised that further information is required to enable the proper assessment of the proposal:

- The TIA states that a single entrance and single exit cross-over will be provided to separate entering and existing traffic, whilst the submitted site plans show no separation of traffic on eastern cross-over. It is recommended that access to the development to be restricted to one entry and one exit driveway to minimise conflict points and associated No Entry signage to be installed to reflect the circulating flow.
- The site plans should include the swept path analysis for the largest design vehicle entering and leaving the development in forward direction.
- The submitted plans show the potential conflicting uses in the fuel area between vehicles accessing the fuelling facilities and the delivery/service vehicles accessing the loading bay, it is suggested that the development should be designed so that all reversing and other manoeuvring are taken place on site and away from conflicts with pedestrians and other vehicles, vehicles should not queue on the footpath or reverse onto Manilla Road.
- There is no existing kerb and gutter along the site frontage and vehicles are occupying the footpath when refuelling. Any redevelopment of the site should consider reinstatement of the kerb and gutter and footpath to provide continuity along the site frontage for pedestrians and cyclists.
- The traffic counts in TIA Appendix A only show the traffic volume on each movement ID, it is unclear which turn movement did these movement IDs represent and the distribution of traffic movement on frontage road network. It is requested that the surveyed traffic movements is shown diagrammatically to a level of detail sufficient for easy interpretation.
- The TIA should include an assessment of turn treatment warrants in accordance with the Austroads Guide to Traffic Management Part 6 and Austroads Guide to Road Design Part 4A for the site access to the classified (State) road, identifying the need for any turn treatments.
- It is recommended that a central median should be considered to restrict the right turn movements given with the following considerations:
    - For vehicles exiting the development, the minimum gap sight-distance westbound may not be available for right turning vehicles as it is obstructed by the vehicles parked on Manilla Road, particularly during peak school times. In this regard, restrictions need to be placed on right turning movements in accordance with Austroads Guide to Road Design Part 4: Intersections and Crossings – General (Ref: ARGD04-17 dated February 2021)
    - The close proximity to the existing pedestrian/children's crossing and the available road width, the right turn restriction will reduce the conflict points between turning vehicles, through traffic and pedestrians, particularly during peak school times.

- It is noted that the existing site characteristics (no on-site parking available), available road width and parking along the northern side of Manilla Road may discourage the right turn movements to/from the existing site. With the provision of on-site parking and manoeuvring area, it is likely that there would be higher percentage of right turn movements to/from the development site.
- School related vehicles would be tempted to use the development site during school drop off/pick up times, increasing the traffic movements to/from the site from different directions. It would be unlikely to prevent school related vehicle parking at the development site as the objective of the vehicle could not easily be discerned.

TfNSW would like to highlight that these comments are preliminary and based on the information available to us at the time of investigation. They are not to be interpreted as binding upon TfNSW and may change following formal assessment of a submitted planning proposal from the appropriate consent authority.

TfNSW recommends that the abovementioned comments be considered and addressed with updated TIA and plans for further assessment. Should you require further information, TfNSW is available to discuss. Any request for feedback and meeting enquiries can be directed to development.north@transport.nsw.gov.au.

Regards,

Shengxi Lin
Development Services Case Officer
Development Services
Regional and Outer Metropolitan
Transport for NSW

T 1300 207 783 **M** 0476 505 715 **E** development.north@transport.nsw.gov.au

W transport.nsw.gov.au

Newcastle Regional Office, Region North
6 Stewart Avenue, Newcastle NSW 2302
Locked Bag 2030, Newcastle NSW 2302

Transport
for NSW

OFFICIAL

OFFICIAL

From: Spicer, Andrew <a.spicer@tamworth.nsw.gov.au>
Sent: Thursday, 3 August 2023 2:14 PM
To: Development North <Development.North@transport.nsw.gov.au>

Cc: Court Walsh <Court.Walsh@transport.nsw.gov.au>; Vereker, Gina <g.vereker@tamworth.nsw.gov.au>
Subject: Proposed expansion of superette at Oxley Vale Tamworth requiring LEP amendment.

Good Afternoon
Following my discussion with Court this afternoon please find attached relevant information.
This is not a formal referral.

However, the key aspect of the matter is traffic and access and, now a TIA has been provided, I have undertaken to discuss the matter with Transport for NSW before progressing further.
It would be much appreciated if the a high level review could be undertaken to identify any major issues that may make the proposal unviable.
It would be much appreciated if we could convene a meeting with Court, Liz Smith and myself next week if possible.
At present, I have some time available on 9/8/23: 10.30-1400, 10/8/23: 1500-1700, and 11/8/23: 1300-1700 if that helps.

Thank you for your assistance with this matter. Please contact me with any questions you may have.

Thanks,
Andrew Spicer
Manager Future Communities
Tamworth Regional Council
0448 538 607

Email from the proponent:

> As discussed a few months ago in our pre DA meeting for the development proposal i presented for 171-173 Manilla road Oxley Vale.
>
> I have now spoken with the department of education and Main roads.
>
> 1) The Department of education has come back to me with full support for the development. Please see attached email correspondence.
>
> 2) Main Roads put in writing to me what was required to fulfill their concerns. The Main thing they wanted was a traffic impact assessment completed. This report has now been finalized and you will find it attached to this email.
>
> Main roads advised once the report was completed, to come back to council and continue through the process. Can someone please advise what the next step would be to help with the request to consider the zone change in the up and coming LEP please.

Thank you and i look forward to hearing from you

Summers Oxley Vale Superette & Bottle-O

KELLEY COVEY
GROUP PTY LTD
Consulting Engineers

TRAFFIC IMPACT ASSESSMENT

FOR

PROPOSED SUPERMARKET & SERVICE STATION DEVELOPMENT

AT

171 – 173 MANILLA ROAD, OXLEY VALE

FOR

NICKSTACK INVESTMENTS

PROJECT NO: T207542

REPORT NO: 52352RPT ISSUE A

OCTOBER 2020

DOCUMENT ISSUE APPROVAL

Project No: T207542

Title: Traffic Impact Assessment

Client: Nickstack Investments

Date: October 2020

Issue No: A

Distribution: Nickstack Investments - One (1) hard copy

Nickstack Investments - One (1) electronic copy

Kelley Covey Group Pty Ltd - One (1) copy

Author: Matthew Ferris

BEng, AdDipMgt

Approved: Justin Cant

BEng, CPEng, MIEAust, NPER, RPEQ(15162)

CONTENTS

LIST OF APPENDICES	
APPENDIX A	Traffic Count Data
APPENDIX B	Site Plans prepared by D&C Projects
APPENDIX C	Results of SIDRA Intersection Modelling

1.0 Introduction

Kelley Covey Group (KCG) was engaged by Mr Nick Summers of Nickstack Investments to conduct a Traffic Impact Assessment for a proposed commercial development located at 171 – 173 Manilla Road, Oxley Vale. The proposed development includes a supermarket, liquor retail outlet and service station, and is considered a Traffic Generating Development pursuant to Schedule 3 of State Environmental Planning Policy (Infrastructure) 2008.

The site has a combined total area of 2434m^2 over two lots and is currently occupied by an existing general store, liquor outlet and fuel station on one lot and a residence on the other. The proposed development involves demolition of all existing structures and construction of a supermarket, liquor outlet and loading dock with a total combined area of 825m^2, a fuelling area of 105m^2 and a hardstand area of 1,442m^2 that includes 31 car parking spaces and vehicle manoeuvring areas.

This report provides and evaluation of the existing traffic movements on Manilla Road and neighbouring roadways, as well as an assessment of predicted traffic generation from the proposed development on the surround roadways, and in particular the interaction of traffic generated by the development and the traffic generated by the existing primary school during drop off/pick-up times.

2.0 Existing Traffic Conditions

2.1 Site Description

The site of the proposed development is situated on the southern side of Manilla Road (Peel Street) between Higgins Lane and Glengarvin Drive, Oxley Vale as shown in Figure 2.1. It consists of two parcels; Lots A & B in DP 161758. Lot A has a site area of approximately 894m^2 and is occupied by an existing residential dwelling, and Lot B has a site area of approximately 1,540m^2 and is occupied by an existing commercial development consisting of a general store (superette), liquor outlet and fuel service station. A primary school (Oxley Vale Public School) is located immediately to the east of the proposed development site and occupies a 140m frontage of Manilla Road, and the remaining land uses surrounding the site are categorised as low-density residential.

Manilla Road (MR63) is a classified road linking Tamworth city to townships to the north-west, including Manilla, Barraba and Bingara. In the vicinity of the proposed development the carriageway formation consists of a bitumen sealed two-lane, two way road approximately 12m wide with parking lanes and kerb/gutter on each side. A one-way service road along the northern side of the corridor (opposite the proposed development) extends from the western side of the site to the eastern boundary of the adjacent primary school, and provides access to dwellings along the northern side of Manilla Road. The service road is separated from the main Manilla Road carriageway by a paved median approximately 2m wide. The service road is grade separated from Manilla Road. The posted speed limit in the vicinity of the development is 60km/h, with school zone restrictions of 40km/h also in place during peak school times.

A pedestrian crossing, which also functions as a patrolled children's crossing before and after school times, is located at the front of the public school and approximately 30m east of the proposed development, and provides a supervised crossing pathway between the school and the service road. The closest intersections are Kirkham Crescent, a loop road that forms T-intersections approximately 210m east and west of the site. On-street parking is restricted in the vicinity of the pedestrian/children's crossing, and additional parking restrictions are in place on both sides of Manilla Road as well as the service road during morning and afternoon school drop-off and pick-up times.

There is no kerb and gutter along the immediate frontage of the existing site, and vehicles are able to cross from the carriageway to the fuel servicing area virtually unrestricted.

Figure 2.1: Location of Proposed Development

2.2 Existing Development

The site is currently occupied by an existing commercial development (Oxley Vale Superette) on Lot A, which consists of a general store, retail liquor outlet and fuel service station. Lot B consists of an existing residential dwelling.

The buildings associated with the existing commercial development cover approximately 435 square metres, whilst the residential development covers approximately 190 square metres. There are no dedicated off-street parking spaces at the existing commercial development, and loading/unloading is done at the rear of the existing building. The service station component consists of a single, un-covered fuel bowser located against the street boundary. The area between the building and the boundary is concrete hardstand.

Figure 2.2: Existing Development

Figure 2.3: Frontage of Existing Superette

2.3 Existing Pedestrian Facilities

A 1.2m wide concrete footpath extends across the primary school frontage in Manilla Road as well as a portion of the development site frontage, terminating roughly halfway along the frontage of Lot B. The 1.2m footpath connects to a recently constructed 2m wide cyclepath at the eastern end of the school that is continuous with the wider cyclepath network throughout the Tamworth urban area.

The pedestrian/children's crossing is equipped with a 1.2m wide concrete ramp that provides access to the service road and then to an isolated section of footpath along the northern side of the service road, presumably to provide all weather access during school drop-off/pick-up times.

There are no pedestrian facilities to the west of the site on either side of Manilla Road.

2.4 Existing Traffic Conditions

The local environment surrounding the development is dominated by through traffic along Manilla Road (with origin-destination nodes external to the locality) with the exception of traffic generated by drop-off and pick-up trips at the adjacent primary school.

A search of the RMS Traffic Counts database does not provide any data relevant to the locality. Traffic count data has been provided by Tamworth Regional Council for two sites as follows and as demonstrated by Virtual Day graphs below;

Location	AADT	% Heavy Vehicles	AM Peak	PM Peak
Manilla Road - 60m north of Glengarvin Drive (2016)	4203	10.8	8am – 9am 334	3pm – 4pm 356
Manilla Road – 10m north of Orley Drive (2020)	8872	7.5	8am – 9am 694	3pm – 4pm 807

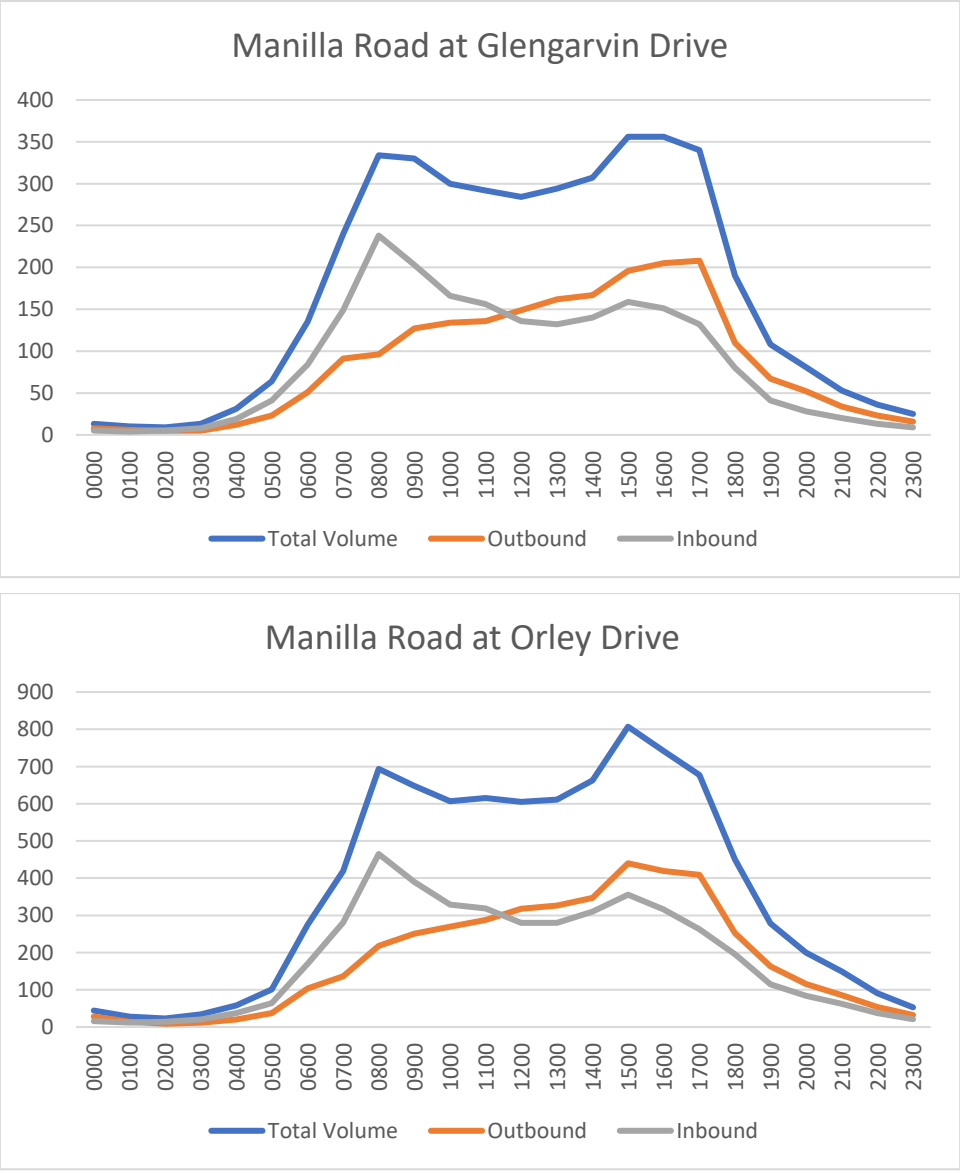


Figure 2.4: Virtual Day for Existing TRC Traffic Counts

The volumes at Orley Drive are significantly higher than those at Glengarvin Drive, and this can be attributed to the following;

- The 2020 counts at Orley Drive would include a significant number of trips generated by the origin/destination pathway between the Tamworth CBD and the majority of the Oxley Vale locality, including established areas around Lemon Gums Drive and Kirkham Crescent north of Manilla Road and Heritage Park Estate and Glengarvin Estate to the south. The 2016 Glengarvin Drive counts are on the fringe of the urban area and are not along this origin/destination pathway;
- The counts at Glengarvin Drive are four (4) years older than the Orley Drive counts, and need to be adjusted for growth;

The counts indicate a consistent and typical traffic volume profile over a virtual day, with defined AM and PM peaks (around 8% of AADT – *typical AM/PM peak flows are around 10% of AADT*), with lower volumes during working hours before dropping off to low volumes outside of working hours and overnight (between midnight and 4am total hourly volumes are around 1% of AADT at each location). This pattern is considered to be consistent with that of a regional highway in an urban fringe location.

Further interrogation of the TRC traffic counts reveals a distinct AM peak period for vehicles travelling towards the CBD followed a much smaller PM peak in the same direction. In the outbound direction (away from the CBD) there is not a defined AM peak. Rather, traffic volumes build throughout the day before peaking at two separate times; firstly around 3pm (presumably influenced by school based traffic) and then again around 5pm, which is presumed to be attributed to vehicles travelling home from work in the CBD.

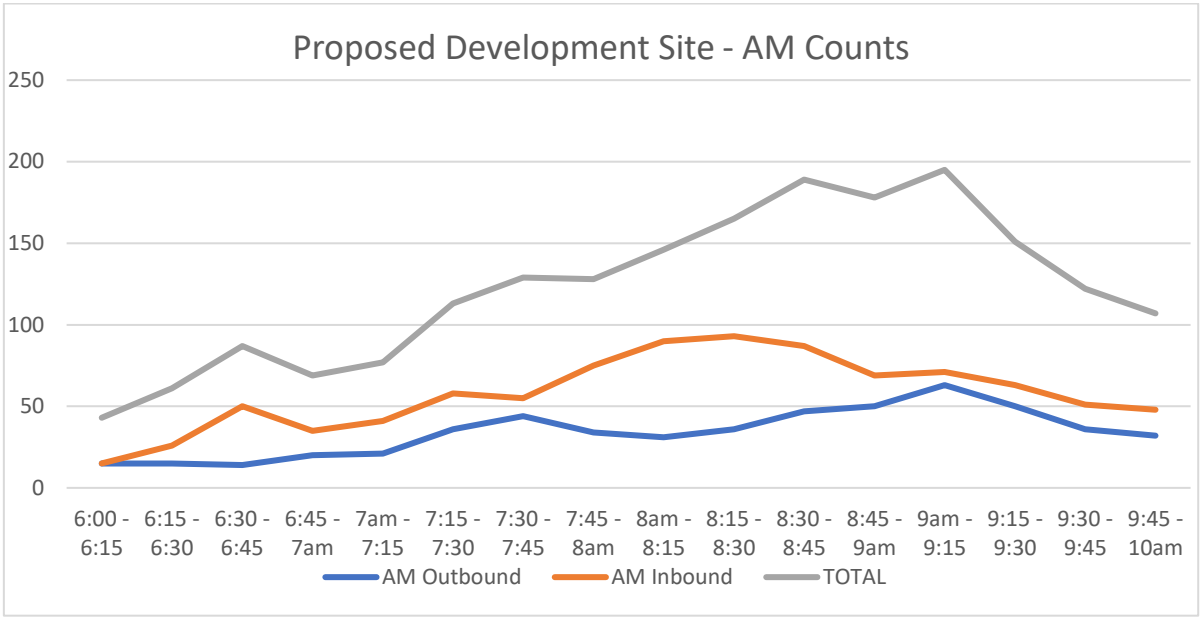
2.5 Manual Site Traffic Counts

To determine the volume and nature of traffic in the immediate vicinity of the proposed development, manual traffic counts were undertaken at the following times;

1. **Monday, 21st September 2020; 2:45pm – 4:15pm** – Observations to understand the nature and flow of traffic, particularly in the context of school pick up times;
2. **Wednesday, 23 September 2020; 6am – 10:30am** – manual counts of all traffic movements in the vicinity of the proposed development to determine AM peak conditions;
3. **Thursday, 24 September 2020; 2:30pm – 6:30pm** – manual counts of all traffic movements in the vicinity of the proposed development to determine PM peak conditions;

The counts were undertaken generally in accordance with the *Austroads Guide to Traffic Management, Part 3 – Traffic Studies and Analysis* and involved manual counting of traffic in both primary directions on Manilla Road, as well as records of vehicle turning movements where the origin/destination was either the existing superette or the primary school (and associated parking in the vicinity of the school). The counts included a breakdown of heavy vehicles as well as school buses, and also noted the frequency of use of the children's crossing during supervised periods.

The detailed results of the traffic counts are included in Appendix A of this document, and graphs of the AM and PM periods are included below;



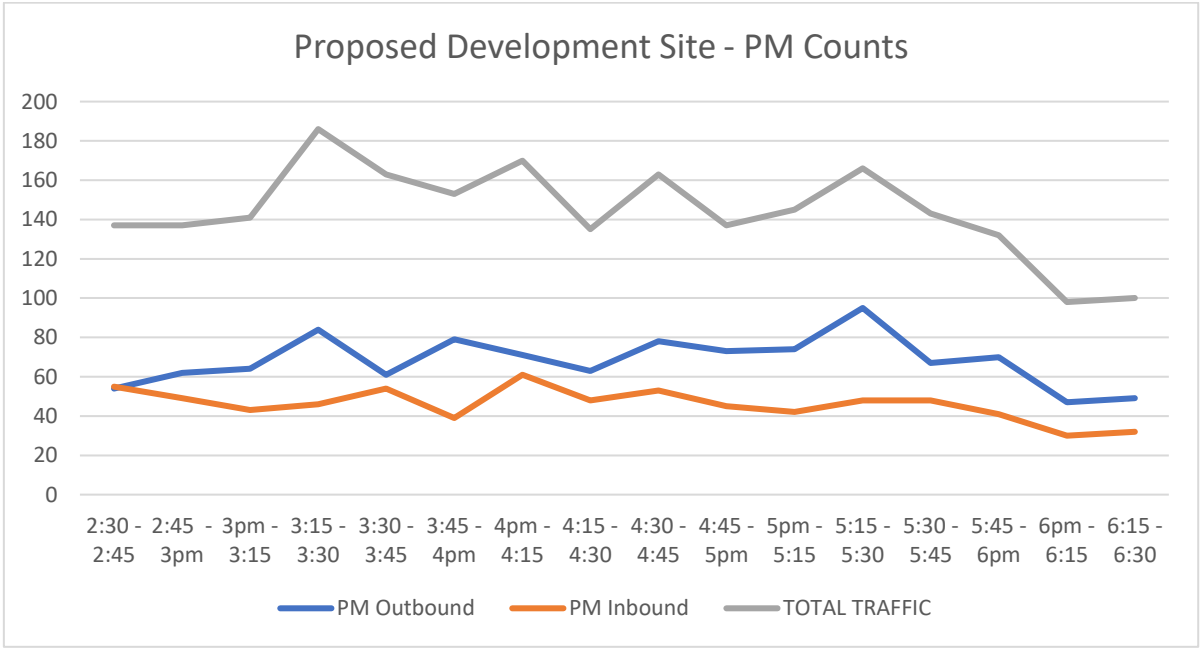


Figure 2.5: AM and PM peak periods for manual traffic counts

In summary, the counts revealed the following;

AM Counts

- During the overall AM period approximately 81% of the total vehicle movements were through traffic (either northbound or southbound on Manilla Road), 9% of movements were related to entry/exit to the superette whilst the remaining 10% were school-related movements.
- However, during the AM peak period, which was identified as 8:15 – 9:15am and corresponds to school drop off time, approximately 21% of vehicles were identified as being related to the primary school and 4.4% of vehicles were identified as being related to the existing superette;
- The peak period for vehicles using the superette was between 6:15 – 7:15am (54 trips per hour, all movements included), and was dominated by outbound (towards Manilla) vehicles making a left-turn into the shop frontage parking area and a left-turn out of the shop to continue their outbound journey. Observations made during the count indicate that the majority of these vehicles were trade-associated, including utility and tray-back vehicles.
- Traffic volumes gradually increased during the morning period to a peak at 8:30am, which was following by a rapid decrease to almost half of the peak volume by 10am;

- Approximately 63% of through traffic was inbound (towards Tamworth CBD) during the morning period, which correlates with the TRC data from Glengarvin Drive and Orley Drive.

PM Counts

- During the overall PM period approximately 83.7% of the total vehicle movements were through traffic (either northbound or southbound on Manilla Road), 9.5% of movements were related to entry/exit to the superette whilst the remaining 6.8% were school-related movements.
- However, during the PM peak period, which was identified as 3:15 – 4:15pm and corresponds to school drop off time, approximately 12.4% of vehicles were identified as being related to the primary school and 8.9% of vehicles were identified as being related to the existing superette.
- It is important to note that during the PM peak it was at times difficult to discern the objective of vehicles parking at the frontage of the superette, and it was observed that many vehicles parked at the shop were actually related to pick-up at the adjacent primary school.
- The peak period for vehicles using the superette was between 5:15 – 6:15pm (69 trips per hour, all movements included), and was again dominated by outbound (towards Manilla) vehicles making a left-turn into the shop frontage parking area and a left-turn out of the shop to continue their outbound journey. Observations made during the counts indicate the majority of these vehicles were trade-associated, including utility and tray-back vehicles, and the observations also indicate that alcohol sales were the dominant purpose of these trips.

During both AM and PM counts, heavy vehicles accounted for approximately 7% of the total traffic volume.

2.5.1 Existing Carriageway Capacity

The manual traffic counts during both the peak AM and PM times reveal peak volumes of approximately 300 vehicles per direction per hour. The peak direction alternates between inbound and outbound during for the AM and PM peaks respectively, and the volumes for the opposing directions during both the AM and PM peaks are approximately 200 vehicles per hour.

Table 4.3 of the *RTA Guide to Traffic Generating Developments* states that the mid-block lane capacity for urban roads with interrupted flow is 900 vehicles per hour, and Table 4.4 indicates that a peak volume of 300 vehicles per direction per hour provides a Level of Service of B, indicating that "*traffic is in the zone of stable flow and drivers still have reasonable freedom to select their desired speed and manoeuvre within the traffic stream*".

In that regard, it is considered the existing traffic volumes on Manilla Road in the vicinity of the development are within the capacity of the road and there is residual capacity to cater for increased flow conditions. Growth rates of 2% over a 10 year horizon indicate the Level of Service of B will be maintained.

2.5.2 Primary School Pick-Up/Drop-Off

Observations made during the manual traffic counts, and supported by the data collected during the counts, indicate that the primary school generates a significant amount of localised traffic during the drop-off and pick-up periods in the morning and afternoon respectively. The manual traffic counts suggest that up to 150 vehicle movements during both the peak AM and PM periods could be attributed to the primary school, including private vehicles parking on nearby private roads, staff vehicles entering and leaving the school grounds, and school bus movements. Additionally, the supervised children's crossing was used around 23 times during both the peak AM and PM periods.

The primary school does not have any specific infrastructure to co-ordinate drop-off/pick-up functions, nor did it appear to have any formal procedures in place other than to have two staggered release times for children during the afternoon period. Vehicles are required to park on an ad-hoc basis on surrounding streets and parents either drop-off or pick-up their children at the front entrance on Manilla Road, or children walk by themselves to/from waiting vehicles.

During the three peak school periods observed, cars were recorded as parking up to 300m away on Manilla Road, and during the brief peak periods immediately prior to and following school times there was no on-

street parking availability in Manilla Road between Glengarvin Drive and Kirkham Street, including the service road.

It was interesting to note that the service road was used as a temporary loop for vehicles that could not find a park; primarily during PM period peaks vehicles would drive west along Manilla Road, then perform a U-turn into the service road, follow the road to the end and then turn right back onto Manilla Road. Several vehicles were observed to perform this manoeuvre multiple times until their child exited the school and was able to be picked up either at the front of the school or on the service road adjacent to the children's crossing.

Parking at the front of the existing superette was observed to be wholly occupied by school-related vehicles during the brief (30 minute) peak periods immediately prior to and following school times.

2.5.3 Existing Superette Access/Egress and Trip Generation

Several clear pattens of traffic use specific to the existing superette were observed during the manual counts and are supported by the data obtained. During the AM observation period, 70% of the movements were left-in or left out, with the remainder being right-in or right-out. During the PM period, 86% of the movements were left-in or left-out, with the remainder being right-in or right-out.

During the AM period, and prior to school-related parking restrictions becoming valid, inbound vehicles tended to park on the left hand side of the road (adjacent to the service road median) and the drivers walked across Manilla Road to access the superette. During the school zone period, inbound vehicles tended to turn right into the site and park adjacent to the shop, and then turn right out of the site to continue in their original direction.

Fuel-related trips accounted for three (3) trips in the AM period and six (6) in the PM period, with the remainder of trips attributed to either the convenience store or liquor related sales.

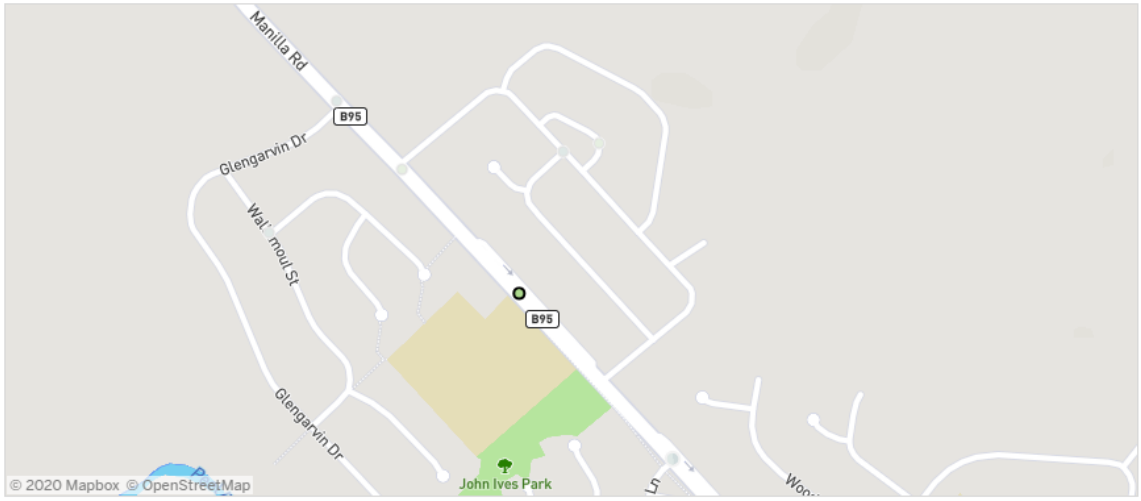
2.5.4 Linked Trips

Analysis of the traffic movements and general site observations made during the manual counts suggests it is reasonable to assume that trips associated with the superette can be categorised as linked trips (as per the definitions in *Commentary 8 of the Austroads Guide to Traffic Management, Part 12 – Traffic Impacts of Development*). More specifically, it is likely that a large proportion of trips are undiverted drop-in trips, defined as an intermediate stop on a trip that is made from an origin to a destination that previously passed the subject site. This conclusion is supported by environmental conditions including the location of the superette on the outer fringe of the urban area, as well as being located on a sub-arterial road between major origin/destination nodes without any other significant origin/destination nodes or collector/sub-arterial roads in the immediate vicinity. Driver behaviour also supports this conclusion; as the majority of trips to the superette involved vehicles entering and exiting the site in the same direction (whether inbound or outbound) during both AM and PM peak periods.

Therefore, insertion of the new development, or an increased developed scope, could be considered to not have a significant impact on traffic growth at a regional and local level, as diverted and undiverted drop-in trips would already be on the network.

2.5.5 Accident Statistics

A search of crash and casualty statistics on the NSW Centre for Road Safety website (roadsafety.transport.nsw.gov.au) indicates just one reported accident in the immediate vicinity of the site in the previous five (5) years. The accident is described as a "rear-end" and did not cause any injuries. The specific circumstances of the accident are unknown.



Reporting ..	Crash ID	Degree of crash	RUM - code	RUM - description	Type of location	Natural lighting	Longitude	Lattitude	No Killed	No Injured
2015	1075914	Non-casualty (t..	30	Rear end	2-way undivided	Daylight	150.895399	-31.057719	-	-

Figure 2.6: Crash Statistics in Vicinity of Site (source: NSW Centre for Road Safety, retrieved October 2020)

3.0 Proposed Development and Potential Impacts

3.1.1 Scope of Proposed Development

The proposed development involves a re-development and expansion of the existing commercial operation to provide a supermarket, retail liquor outlet and fuel service station. The existing buildings will be demolished and new buildings constructed towards the rear of the site. A large hardstand area including 31 off-street car parks will be provided at the front of the site, integral with the fuel bowsers. A plan of the proposed development is included in the Figure below and included in Appendix B;

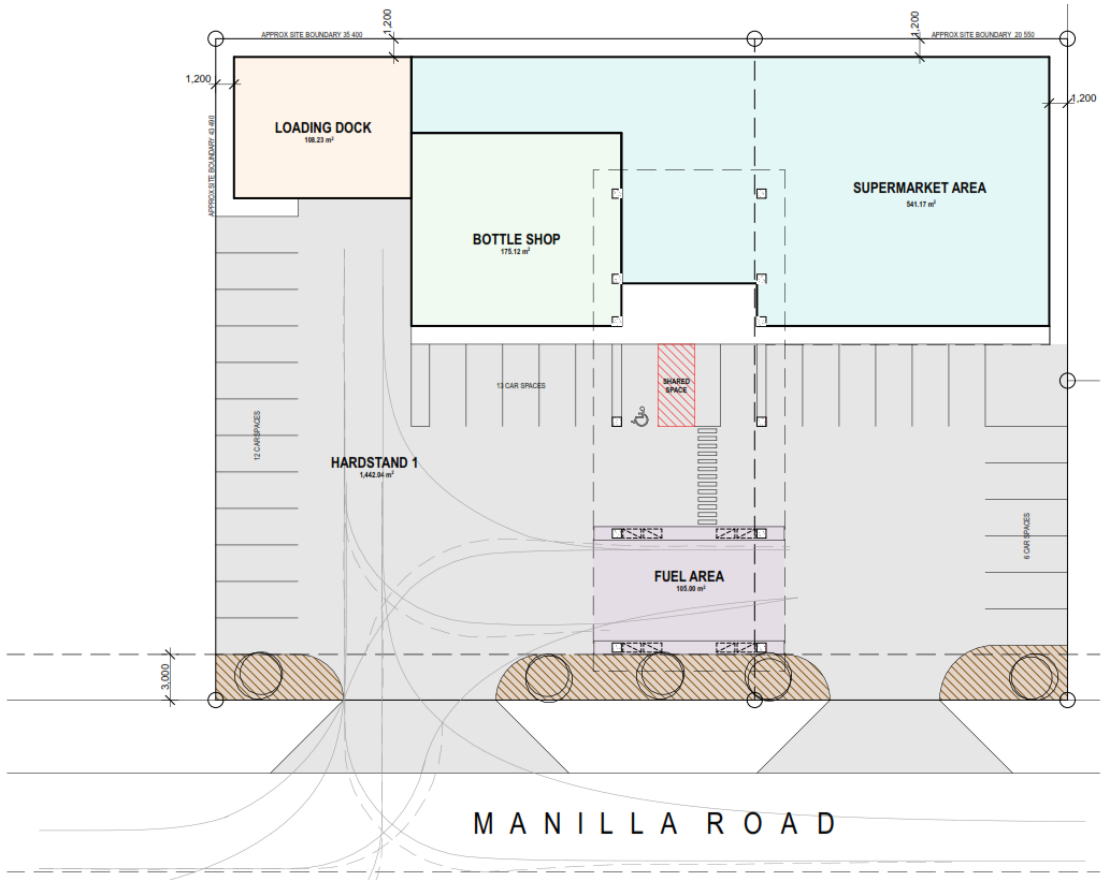


Figure 3.1 – Plan of Proposed Development

Loading and unloading for the supermarket will be via a dedicated loading dock at the eastern end of the building. The fuelling area is proposed to include eight (8) bowsers, with an awning covering the area between the supermarket building and bowsers.

A single entrance and single exit cross-over will be provided, separating entering and existing traffic. A 3m vegetated setback is proposed along the street frontage.

3.1.2 Traffic Generation of Proposed Development

For the purposes of estimating the traffic generated by the proposed development, the proposal can be considered a combination of supermarket, specialty store (liquor outlet) and service station. The *RTA Guide to Traffic Generating Developments (2002)* suggests the following trip generation rates for each of these land uses during the Thursday PM peak period;

- Supermarket; 155 trips per 1,000 square metres of Gross Leasable Floor Area (GLFA);
- Specialty Store; 46 trips per 1,000 square metres of Gross Leasable Floor Area (GLFA);
- Service Station 0.04 trips per square metre of site area;

Note that the RTA Guide suggests that the Gross Leasable Floor Area (GLFA) typically represents approximately 75% of the Gross Floor Area, and excludes stairs, amenities, lifts, corridors and other public areas, but includes all stock storage areas (and presumably loading/unloading areas). In the absence of detailed internal floor plans, this ratio will be adopted for the proposed development.

The trip generation rate of the service station area as per the RTA Guide is based on site area – which has been determined as the remaining area following removal of the supermarket, loading dock and liquor outlet areas from the overall site area. This is considered to over-estimate the trips generated by the service station, as a significant proportion of the remaining hardstand area is reserved for parking associated with the supermarket/liquor outlet, however for the purposes of conservative estimation, the entire area will be used.

Therefore, based on the area of the proposed development as detailed in the site plans, the following trip generation rates for the Thursday PM peak period can be determined;

Use Type	Rate	GLFA or Site Area (m^2)	Trips/hr
Supermarket	155 per 1000 square metres GLFA	(541.17 + 108.23) x 0.75 = 487	**76**
Specialty Store (Liqour Outlet)	46 per 1,000 square metres GLFA	175.12 x 0.75 = 132	**6**
Service Station (Fuel Only)	0.04 per square metre of site area	1609	**64**
TOTAL			**146**

Table 3.1: Trip Generation Based on RTA Guidelines

Overall trip generation has been adjusted for growth over a 10 year horizon, resulting in an overall rate of 173 trips per hour generated at the end of the horizon timeline.

Note that a trip is defined as a one-way vehicular movement from one point to another excluding the return journey. Therefore, a vehicle entering a leaving the development is counted as two trips.

3.2 Trip Distribution of Proposed Development

Based on an observation of existing traffic movements and identification of trip generation origin/destination points within the local traffic environment, it has been assumed that vehicles arriving and departing the proposed medical centre would do so in accordance with the distribution shown in Table 3.2.

The distribution closely resembles existing movements in the vicinity of the site, which is considered reasonable given the existing superette and liquor store are also considered traffic generating developments. A visual representation of the trip distribution pathways as detailed in Table 3.2 is shown as Figure 3.1.

It has been assumed that trip generation is the same during the AM peak as the PM peak. This does not necessarily correlate with the data gathered during the manual counts, however it will provide a worst-case scenario for the purposes of determining the impact of the proposed development.

Movement	Approach/Departure Route	AM	PM	AM	PM
Entry	1 - Manilla Road Outbound – Left-turn in	76%	87%	66	76
	2 - Manilla Road Inbound – Right-turn in	24%	13%	21	11
Exit	3 - Manilla Road – Left-turn out - Outbound	63%	85%	55	74
	4 - Manilla Road – Right-turn out - Inbound	37%	15%	32	13

Table 3.2: Trip Distribution for Proposed Development

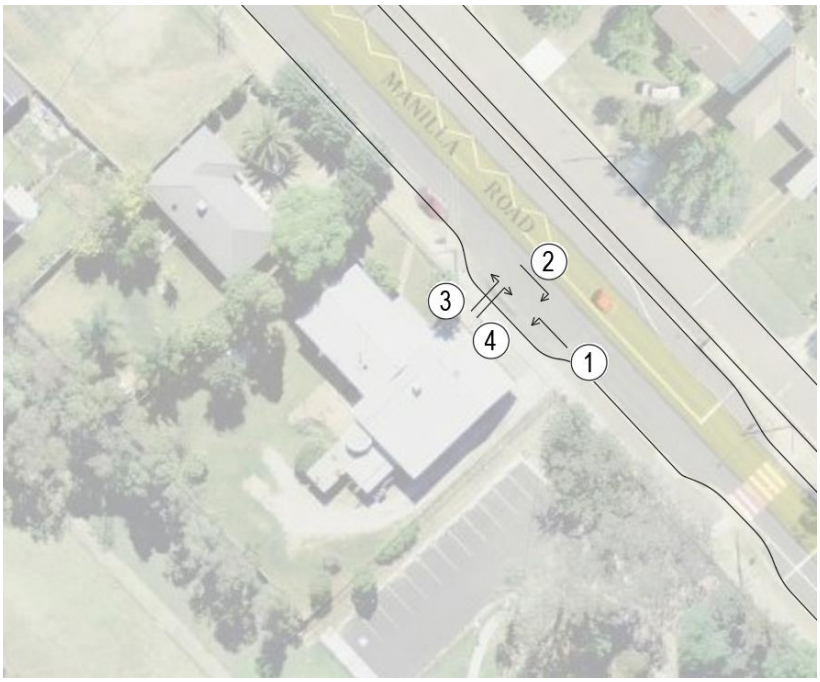


Figure 3.2: Trip Distribution Movements for Proposed Development

3.3 Impact on Carriageway Capacity

As stated in Section 2.5.3, trips generated by the increased scope of the development are likely to be linked trips and will not have a significant impact on the growth of traffic at the regional and local levels.

However, if a conservative approach is taken and the additional trips generated by the development *are* added to the overall traffic scheme, the resultant increased volumes will have little effect on the current mid-block carriageway capacity or Level of Service. The current very good Level of Service "B" along all roads would continue to prevail.

3.4 Impact on Parking Availability

The existing development does not provide any off-street parking, other than a shared space along the street frontage that is allocated for the fuel bowsers but is more often used as parking.

The proposed development will provide 31 spaces (including one disabled parking space as per AS2890.6). Car parking demand rates are discussed in Section 5.7 of the RTA Guide as follows;

- Supermarkets; 42 spaces per 1,000 square metres of GLFA;
- Speciality Stores; 45 spaces per 1,000 square metres of GLFA;
- Service Stations (fuelling only); Sufficient parking for staff;

It is assumed that staff of the supermarket will also be responsible for fuelling-related tasks, however as a conservative estimate, we have assumed that one (1) staff member will be dedicated to the service station and will require an additional parking space.

Therefore, the parking demand for the development is calculated as follows;

Total Demand = (42x487 + 45x132) / 1000 + 1 = 28 spaces.

Therefore, the provision of 33 spaces is sufficient to meet the anticipated demand, and in fact provides additional off-street parking capacity.

The provision of off-street parking will improve the amenity of the existing roadside environment, as there are currently no off-street parking spaces provided for the existing development, and will improve the availability of on-street parking availability during the busy drop-off/pick-up times at the adjacent primary school.

3.5 Impact on Local Traffic Environment

The local traffic environment is dominated by through traffic on Manilla Road, with the exception of school drop-off/pick-up times.

To determine the impact on the local environment outside of school times, trip generation attributed to the proposed development was analysed in SIDRA intersection modelling software (Version 9.0). The site was modelled as a T-intersection, with the development site being the minor leg and Manilla Road forming the major leg. Expected peak period trip volumes and distribution for Manilla Road and the proposed development were added to the model, as were the movements recorded for the pedestrian/children's crossing.

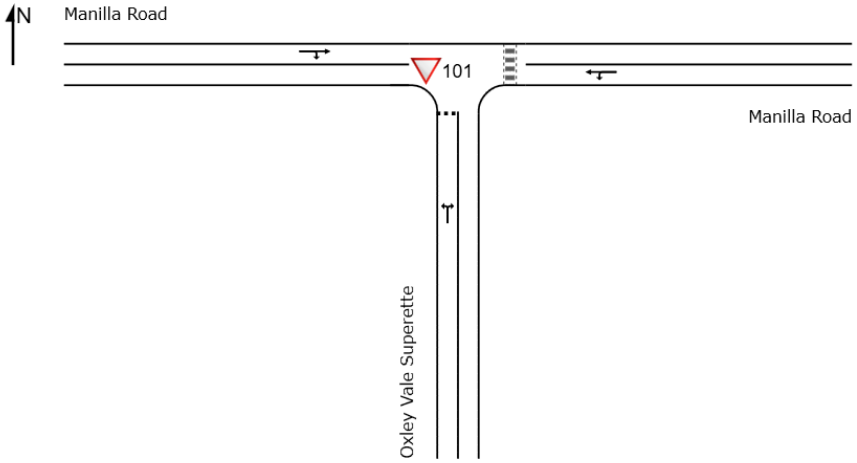


Figure 3.3: Schematic Representation of Entry/Exit Movements at Proposed Development

Results for the SIDRA analysis are included in Appendix C. In summary;

- The intersection performs at a Level of Service "A" across the 10 year growth horizon.
- The highest degree of saturation is 0.224, calculated for eastbound vehicles during the PM peak.
- Queue lengths do not exceed more than one vehicle at any of the approaches during either AM or PM peak times.

It is more difficult to accurately model or assess the impact of the proposed development on the local traffic environment during school drop-off/pick-up times. Increased numbers of pedestrians on Manilla Road and vehicles that have the primary school as the origin/destination with limited parking availability increase the conflict points and risk of collision between pedestrians and vehicles and vehicle/vehicle collisions.

In our opinion the inclusion of dedicated entry/egress points and off-street parking/manoeuvring areas at the proposed development will mitigate these issues to a degree, and may improve the safety at the site compared to the current situation, although this is difficult to quantify and confirm.

3.6 Consideration of Local Area Traffic Management strategies (LATM)

In its Technical Comment of Provided Design (Ref: NTH20/00183/01 dated 17 August 2020), the RMS required "*consideration be given to opportunities to reduce conflict between turning vehicles, through traffic and pedestrians*". In particular, RMS suggested the development proposal "*should consider the benefits of a central median, limiting access to left-turn movements*" (*this has been interpreted as a typographical error, and should instead read* "limiting access to right-turn movements*"*).

The benefits and constraints of central medians and other measures to restrict right-turn movements are discussed in Section 7 of the Austroads Guide to Road Design Part 4: Intersections and Crossings – General (Ref: ARGD04-17 dated June 2017). Table 7.2 of ARGD04-17 states the following in regard to property access considerations on urban roads;

> *"Restrictions should be placed on right-turning movements where minimum gap sight distance is unavailable. This can be achieved through;*
>
> - *linemarking with double dividing lines or painted medians, to an extent*
> - *by providing isolated raised medians as a physical barrier to the turn."*

Minimum gap sight distance (MGSD) is defined in Section 3.2.3 of the Austroads Guide to Road Design Part 4a – Intersections and Crossings – Unsignalised Intersections (Ref: AGRD04A-17 dated June 2017) and can be calculated using Tables 3.4 and 3.5. For an approach speed 85th percentile of 60km/h, the MGSD for vehicles turning right into the development is at least 67m in both directions. It is confirmed from sight observations of the vertical and horizontal alignments as well as existing obstructions such as trees, signage, buildings and other roadside furniture that this sight distance requirement can be achieved, and therefore right-turn movement restrictions should not be required for sight-distance reasons alone.

Figure 3.4: Sight distance for east-bound vehicles on Manilla Road from the front of the proposed development

Figure 3.5: Sight distance for west-bound vehicles on Manilla Road from the front of the proposed development

Note: The minimum sight-distance westbound for vehicles exiting the development may only be achieved if the exit cross-over is on the eastern side of the development. Parked vehicles on Manilla Road may obstruct sight-distance if the exit cross-over is on the western side of the development.

Advantages of right-turn restrictions in association with the proposed development include the following;

- reduced conflict points between vehicles and pedestrians, particularly during peak school times;
- reduced likelihood of rear-end crashes;
- improved traffic flow;

Disadvantages of right-turn restrictions in association with the proposed development include the following;

- Restriction of access to the proposed development from eastbound vehicles, which will likely increase the demand for parking on the northern side of Manilla Road and the service road;
- Likely increases in pedestrian movements across Manilla Road as drivers walk from the northern side of the road to the development;
- Potential increase in U-Turn movements upstream and downstream of any median as drivers attempt to access the development;

In our opinion, the low accident rate at the site and spare carriageway and intersection capacity (particularly low queue rates for right-turning vehicles on Manilla Road), along with the projected low rate of right-turn movements into and out of the development, negates the need for a median to restrict right-turn movements, and the increased risks of having vehicles park and access the development from the northern side of Manilla Road and the service road may outweigh the intended benefits.

Notwithstanding, the projected vehicle/pedestrian conflict points are valid, and the risk of collision between pedestrians and vehicles entering/existing the development, particularly during the high pedestrian activity times associated with school pick-up and drop-off, should be addressed.

3.7 Primary School Drop-off/Pick-up

The lack of designated parking during the school drop-off/pick-up period creates significant strain on on-street parking availability and increases the risk of vehicle/pedestrian collisions as multiple conflict points are created during these times. The existing superette is affected by this lack of parking as vehicles congregate along the site frontage and prevent legitimate customers from accessing the site.

Strategies to improve the efficiency of the primary school drop-off/pick-up procedures to reduce vehicle/pedestrian conflict points and reliance on on-street parking are not within the scope of this report, however based on site observations the following could be considered;

- The existing 75m long off-street bus drop-off area at the front of the school appears under-utilised, and could be considered for use as a “kiss-and-ride” type arrangement as seen at other primary school in the city;
- The existing 12 space car park along the western boundary could be utilised/re-designed as an off-street designated drop-off/pick-up area (subject to site constraints and detailed design);
- The existing service road, which has connectivity to the school via a supervised children’s crossing and concrete footpaths, could be utilised as a designated drop-off/pick-up area (with appropriate supervision and co-ordination).

Each of these strategies involve two principle objectives; to provide a single, designated drop-off/pick-up point, and to reduce the casual movement of children, adults and vehicles along the Manilla Road frontage.

Implementation of these strategies may reduce the likelihood that the off-street parking provided at the proposed development will instead be used by vehicles associated with the primary school.

3.8 Strategies for the Proposed Development

Strategies to reduce the vehicle/pedestrian conflict points at the proposed development, particularly during school drop-off/pick-up times, may include the following;

- Ensuring that the off-street parking provided at the development site for use by users of the development, are not occupied by vehicles associated with the primary school. This may be achieved by signage and/or open dialogue between the owners of the development and the primary school and communication with parents/carers via newsletters etc.
- Provision of clearly marked entry/exit cross-overs at the proposed development and ensuring all manoeuvres for parking, loading/unloading and other site access are undertaken internally and do not rely on the site frontage or Manilla Road carriageway.
- Ensuring that all vegetation planted within the 3m wide setback along the Manilla Road frontage are low-height, well-spaced species that do not obstruct either vehicle or pedestrian sight lines to ensure safe sight distances are maintained.
- Placement of signage in the vicinity of the development alerting both pedestrians and vehicles to the presence of the other.

4.0 COVID-19 Impacts of Traffic Estimation

Restrictions on travel, school attendance and work conditions in Tamworth during the time of the manual traffic counts (September 2020) were minimal and are not considered to impact the veracity of the collected data or the conclusions drawn from use of the data. Schools were fully open to students, there were no local or regional restrictions on travel, and most businesses are operating as usual with varying degrees of occupancy restrictions in place.

Anecdotal evidence from parents of children attending Oxley Vale Primary School indicates that the 12 bay off-street carpark has not been utilised since the coronavirus outbreak. This has not been confirmed by the school, and the impact on traffic movements into/out of the school due to the carpark not being in use is considered low.

5.0 Summary & Conclusions

5.1 Summary

The proposed re-development of an existing superette, retail liquor outlet and fuel service station has a site area of 2434 m^2 and a proposed combined commercial building area of 825m^2. A total of 31 off-street carparks are included as well as off-street loading/unloading facilities.

The main vehicular access to and from the proposed development will be from Manilla Road. All vehicles will enter and exit the car park in a forward direction.

The proposed development will generate approximately 146 trips during the afternoon peak hour. An assessment of these trips, including assumptions on turning movements and origin/destination nodes based on existing traffic observations, has determined that the traffic generated by the proposed development would have minimal effect on the current levels of service for the regional and local traffic environments. The current mid-block carriageway Level of Service "B" will be maintained for Manilla Road, and an assessment of proposed turning movements for vehicles entering/existing the development as determined a Level of Service of “A” for the site. The majority of trips are considered to be linked-trips, and would not significantly contribute to traffic volume growth as diverted and undiverted drop-in trips would already be on the network.

The provision of off-street parking spaces meets the requirements of the RTA Guide, as does the geometric layout of entry/exist cross-overs to the site.

The adjacent primary school and the lack of dedicated and co-ordinated drop-off/pick-up infrastructure and procedures creates a significant burden on the surrounding roadside environment during peak school times, as the majority of drop-off/pick-up trips involved vehicles finding on-street parking up to 300m away on Manilla Road and parents/children walking to/from vehicles. This burden affects the adjacent superette development, as parking along the street frontage is utilised by school-related vehicles.

Conflicts points between pedestrians and vehicles may be created by the proposed development, however these can be mitigated and managed by controlling vehicle access and egress from the site, managing sight-

lines and sight-distances and by co-ordination and dialogue between the school and the owners of the development.

5.2 Conclusions

We are of the opinion the opinion that the existing road network has sufficient residual capacity, both-mid block and for turning movements in the immediate vicinity of the site, to cater for the peak traffic generation of the proposed development, and no additional roadway or intersection capacity is require to accommodate the development in the proposed format.

We recommend that the strategies outlined in Section 3.7 are given consideration during the detailed design and determination of any development applications, and we encourage consideration by relevant authorities of strategies to improve the efficiency and safety of drop-off/pick-up procedures at the adjacent primary school.

The potential conflict points between pedestrians and vehicles, particularly during school drop-off/pick-up times, is considered the most significant traffic related risk associated with the proposed development, and measures should be put in place to manage this risk as part of the planning, design and approval process for the development.

6.0 Commercial in Confidence

This report has been undertaken for the specific purposes of Nickstack Investments Pty Ltd

This report should only be used in full, and may not be used to support objectives other than those set out herein, except where written approval with comments are provided by Kelley Covey Group Pty Ltd (KCG).

7.0 References

1. Roads and Traffic Authority of NSW (2002) "Guide to Traffic Generating Developments".
2. Tamworth Regional Council, 2010. "Tamworth Regional Development Control Plan, 2010". Amendment No.12
3. Austroads Guide to Road Design – Set, dated June 2017;
4. Austroads Guide to Traffic Management – Set, dated April 2020

APPENDIX A

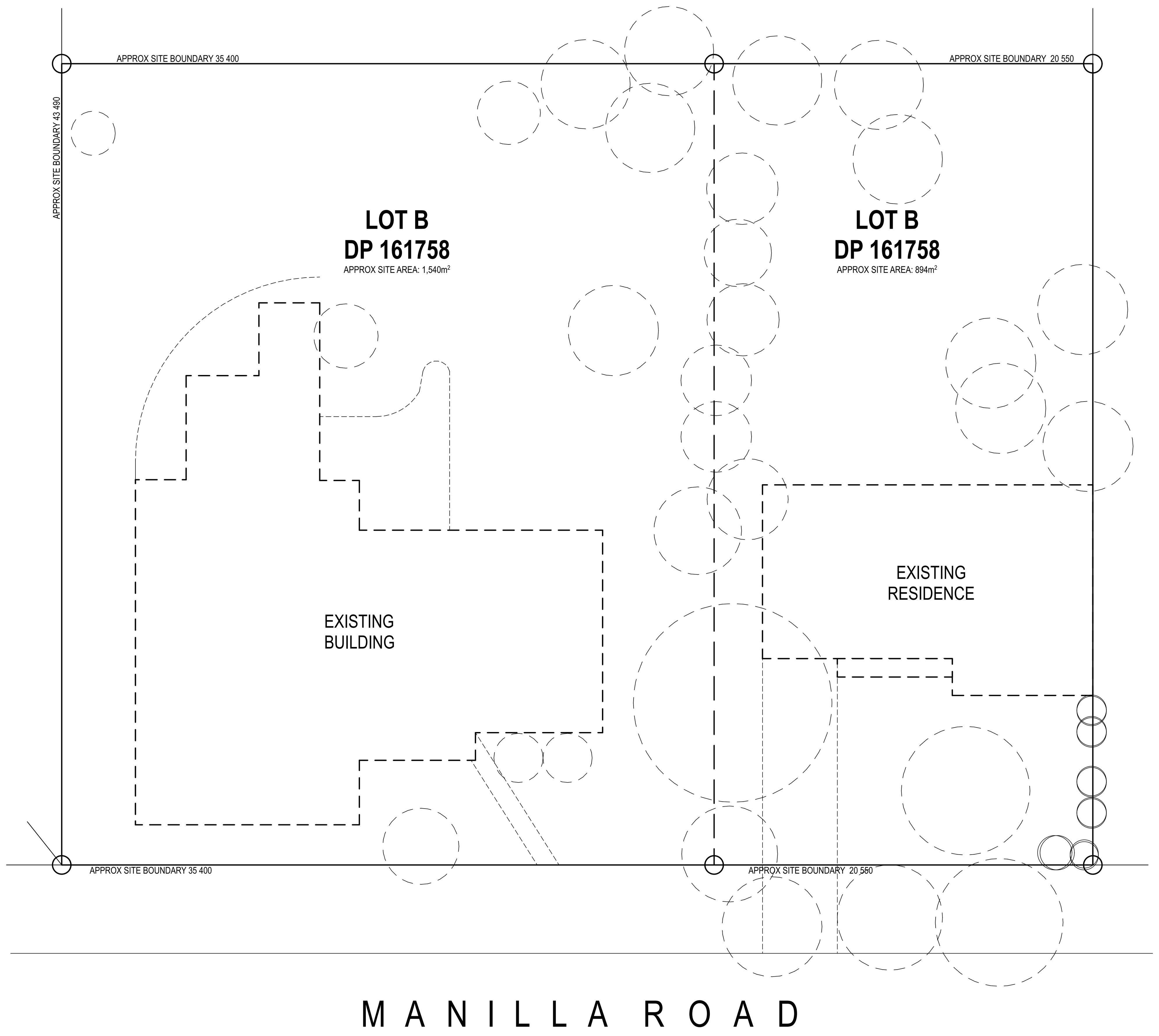
DETAILED TRAFFIC COUNT DATA

AM COUNTS																							
Light Vehicles																							
Time	Movement ID																						
	1 (OUT)	2	3 (IN)	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	SUM	HV	TOTAL	Through
6:00 - 6:15	15	0	15	0	0	4	3	1	0	0	0	0	0	0	0	0	0	0	38	5	43	33
6:15 - 6:30	15	0	26	0	2	5	4	1	0	0	0	0	0	0	0	0	0	0	53	8	61	49
6:30 - 6:45	14	0	50	0	4	7	6	2	0	0	0	0	0	0	0	0	0	0	83	4	87	68
6:45 - 7am	20	0	35	0	1	2	6	3	0	0	0	0	0	0	0	0	0	0	67	2	69	57
7am - 7:15	21	0	41	0	3	4	1	3	0	0	0	0	0	0	0	0	0	0	73	4	77	66
7:15 - 7:30	36	0	58	0	1	3	4	1	0	1	0	0	0	0	0	0	0	0	104	9	113	103
7:30 - 7:45	44	0	55	0	3	6	5	2	0	0	0	0	0	1	0	0	2	0	118	11	129	110
7:45 - 8am	34	0	75	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	117	11	128	120
8am - 8:15	31	0	90	0	1	3	3	0	0	2	0	1	0	1	0	0	7	0	139	7	146	128
8:15 - 8:30	36	4	93	4	1	5	2	2	1	0	2	1	0	1	0	0	4	1	157	8	165	137
8:30 - 8:45	47	2	87	26	0	4	0	2	0	0	6	2	2	4	0	0	2	1	185	4	189	138
8:45 - 9am	50	11	69	12	1	4	3	2	0	0	6	0	1	1	0	0	7	0	167	11	178	130
9am - 9:15	63	15	71	15	0	3	2	1	0	0	9	1	3	3	0	0	3	0	189	6	195	140
9:15 - 9:30	50	5	63	4	0	3	2	2	0	0	7	0	2	2	0	3	4	0	147	4	151	117
9:30 - 9:45	36	3	51	3	1	8	3	2	0	0	0	0	0	0	0	0	2	0	109	13	122	100
9:45 - 10am	32	0	48	2	2	6	6	4	0	0	0	0	0	0	0	0	0	0	100	7	107	87
TOTAL	544	40	927	66	22	69	52	30	1	3	30	5	8	13	0	3	31	2		114	1960	1583

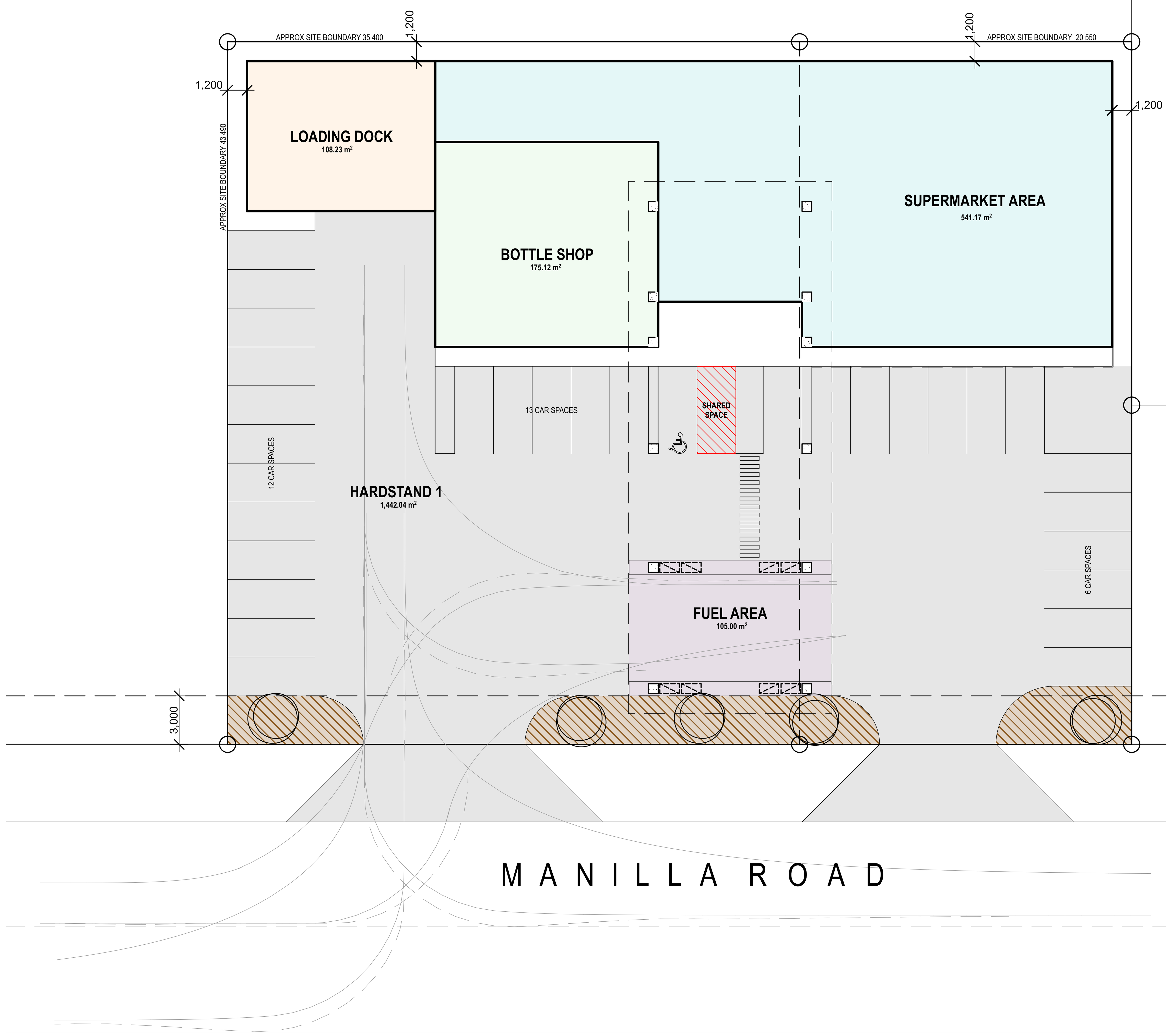
PM COUNTS																						
Light Vehicles																						
Time	Movement ID																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	SUM	HV	TOTAL	Through
2:30 - 2:45	54	4	55	4	0	6	0	1	0	1	0	0	1	0	0	1	0	1	128	9	137	118
2:45 -3pm	62	8	49	2	0	2	2	0	0	0	0	0	0	0	0	0	0	1	126	11	137	122
3pm - 3:15	64	5	43	3	0	3	3	0	0	0	8	1	1	2	0	1	0	1	135	6	141	113
3:15 - 3:30	84	19	46	4	0	5	4	2	0	1	11	0	2	2	0	0	1	1	182	4	**186**	134
3:30 - 3:45	61	8	54	3	1	10	5	2	0	1	4	1	0	1	0	0	0	4	155	8	**163**	123
3:45 - 4pm	79	2	39	1	2	7	4	1	0	0	1	2	0	2	0	0	0	3	143	10	**153**	128
4pm - 4:15	71	1	61	0	1	7	8	1	0	2	0	0	0	1	0	0	0	5	158	12	**170**	144
4:15 - 4:30	63	0	48	1	0	5	5	1	0	0	0	0	0	0	0	0	0	2	125	10	135	121
4:30 - 4:45	78	4	53	0	3	9	8	1	0	1	0	0	0	0	0	0	0	0	157	6	163	**137**
4:45 - 5pm	73	1	45	1	0	5	6	0	0	0	0	0	0	0	0	0	0	2	133	4	137	**122**
5pm - 5:15	74	4	42	0	2	5	6	2	0	0	0	0	0	0	0	0	0	0	135	10	145	**126**
5:15 - 5:30	95	0	48	2	1	9	5	0	0	0	0	0	0	0	0	0	0	0	160	6	166	**149**
5:30 - 5:45	67	3	48	2	2	6	10	0	0	0	0	0	0	0	0	0	0	0	138	5	143	120
5:45 - 6pm	70	1	41	0	2	8	6	2	0	0	0	0	0	0	0	1	0	0	131	1	132	112
6pm - 6:15	47	3	30	0	0	9	8	1	0	0	0	0	0	0	0	0	0	0	98	0	98	77
6:15 - 6:30	49	0	32	1	1	8	5	1	0	0	0	0	0	0	0	0	0	0	97	3	100	84
TOTAL	**1091**	**63**	**734**	**24**	**15**	**104**	**85**	**15**	**0**	**6**	**24**	**4**	**4**	**8**	**0**	**3**	**1**	**20**	**2201**	**105**	**2306**	**1930**

APPENDIX B

SITE PLANS OF PROPOSED DEVELOPMENT



EXISTING SITE PLAN SCALE 1:200@A1



PROPOSED SITE PLAN SCALE 1:200@A1

ARTIST IMPRESSION

NOT OT SCALE @A1

D&C PROJECTS

REV	DATE	AMENDMENT	DT
01	09/06/20	ISSUED FOR CLIENT REVIEW & SIGNOFF	SB
02	29/06/20	ISSUED FOR CLIENT REVIEW & SIGNOFF	SB
03	07/07/20	ISSUED FOR CLIENT REVIEW & SIGNOFF	SB

DEVELOPMENT NOTES

ALL BUILDING WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA.

PROVIDE DOWN PIPES IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA & AS2180 METAL RAINWATER GOODS.

PROVIDE LIFT OFF HINGES TO WC DOORS IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA.

PROVIDE WATERPROOFING SYSTEM TO ALL WET AREAS IN ACCORDANCE WITH PART F1-7 OF THE BUILDING CODE.

PROVIDE TERMITE PROTECTION IN ACCORDANCE WITH AS3660.1

PROVIDE TIE DOWN AND BRACING IN ACCORDANCE WITH AS1684.2 AND STRUCTURAL ENGINEERS RECOMMENDATIONS

BUILDER TO ENSURE A SMOKE DETECTION SYSTEM IS INSTALLED IN ACCORDANCE WITH AS2441

ALL ACCESSIBLE BATHROOMS TO HAVE A THERMOSTATIC MIXING VALVE INSTALLED IN ACCORDANCE WITH AS1428.1

PROVIDE ACCESSIBLE SIGNAGE IN ACCORDANCE WITH AS1428.1

FIRE HOSE REELS TO BE INSTALLED IN ACCORDANCE WITH AS2441

INSULATION MUST BE INSTALLED IN ACCORDANCE WITH SECTION J1.5 &J1.6 &J1.3 OF THE BUILDING CODE.

ALL LEVELS ARE INDICATIVE AND SHOULD BE CONFIRMED.

ACCESSIBLE CAR PARKS TO BE DONE IN ACCORDANCE WITH AS2890.6

ALL RAMPS/STAIRS TO BE INSTALLED IN ACCORDANCE WITHAS1428.1. AND HAS SLIP RESISTANT SURFACES IN ACCORDANCE WITH TABLE D2.14 OF THE BUILDING CODE OF AUSTRALIA

PROVIDE TACTILE INDICATORS IN ACCORDANCE WITH AS1428.4

BUILDER/ELECTRICIAN TO PROVIDE EMERGENCY LIGHTING IN ACCORDANCE WITH AS2293

ENSURE STAFF ROOM DOOR IS OPERABLE WITH A FORCE LESS THEN 20N IN ACCORDANCE WITH CLAUSE 13.5 OF AS1428

ACCESSIBLE TOILET SEATS MUST HAVE A LUMINANCE CONTRAST OF 30% TO THE BACKGROUND IN ACCORDANCE WITH AS1428.1

EXIT DOOR TO BE PROVIDED WITH SIGNAGE IN ACCORDANCE WITH D2.23 OF THE BUILDING CODE OF AUSTRALIA.

CONSTRUCTION JOINTS TO BE PROTECTED IN ACCORDANCE WITH AS1530.4 AND THE BUILDING CODE OF AUSTRALIA.

DESIGN AND OPERATION OF EXIT SIGNS TO COMPLY WITH AS2293.1 OR SPECIFICATION E4.8 OF THE BUILDING CODE

ROOF SHEETING TO BE INSTALLED IN ACCORDANCE WITH AS1562.1 AND AS1562.3 AND THE BUILDING CODE.

ENTRY/EXIT DOORS TO BE CLEARLY MARKED IN ACCORDANCE WITH AS1428.1

FIRE EXTINGUISHERS MUST BE PROVIDED IN ACCORDANCE WITH TABLE E1.6 OF THE BUILDING CODE OF AUSTRALIA

OUTDOOR LIGHTING TO BE CARRIED OUT IN ACCORDANCE WITH AS1158.3.1. ALL INSTALLED LIGHTING TO BE PROVIDED IN ACCORDANCE WITH AS4282

ENSURE ALL CAR PARK LINE MARKINGS AND ARROWS ARE CARRIED OUT IN ACCORDANCE WITH RELEVANT BUILDING CODES AND AUSTRALIAN STANDARDS

LOADING/UNLOADING ZONE TO BE CLEARLY MARKED IN ACCORDANCE WITH TRC DCP 2010

LIGHTWEIGHT CONSTRUCTION MUST BE CARRIED OUT IN ACCORDANCE WITH SPECIFICATION C1.8 OF THE BCA

LEGEND

SWP	STORMWATER PIT
BOL	BOLLARD
SC	STEEL COLUMN
DP	DOWN PIPE
RC	REINFORCED CONCRETE
WM	WATER METER
CL	CLOTHES LINE
HWU	HOT WATER UNIT
MSB	MAIN SWITCH BOARD
FFL	FINISHED FLOOR LEVEL
FSL	FINISHED SLAB LEVEL
EGL	EXISTING GROUND LEVEL
FGL	FINISHED GROUND LEVEL

N

CAR PARKING REQUIREMENTS

SHOPS <1000m² = 1 SPACE PER 25m²
AS PER TRC DEVELOPMENT CONTROL PLAN

541.2 + 175.1 + 108.2 = 824.5
824.5 / 25
= 32.98 CAR SPACES REQUIRED

TOTAL = 33 SPACES REQUIRED
= 31 SPACES PROVIDED

NOTE:

ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE CLAUSES
C1.10 FIRE HAZARD PROPERTIES
D2.19 OPERATION OF POWER OPERATED DOORS
D2.21 OPERATION OF LATCHES
D3.6 BRAILLE AND TACTILE SIGNAGE
F1.7 WATERPROOFING OF WET AREAS
F1.13 GLAZED ASSEMBLIES
G1.3 OUTDOOR PLAY AREAS TO BE ENCLOSED AND AS1428.1

All boundary locations and levels to be confirmed by a registered surveyor.
All underground service location's to be confirmed.
Obtain and confirm all service connection approvals and requirements before commencing onsite.

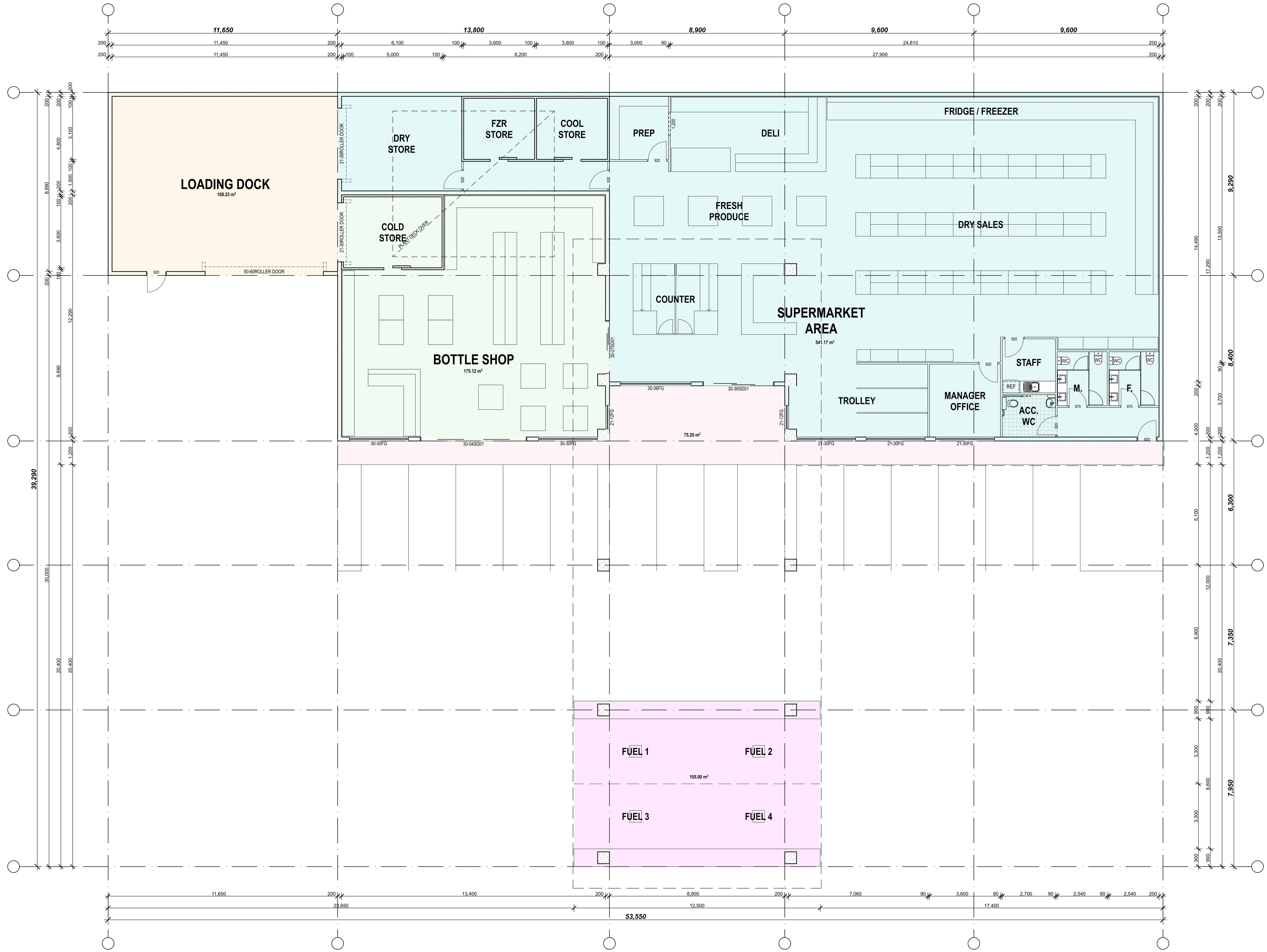
The builder shall check and verify all dimensions and levels on site.
All errors and omissions to be verified with the Designer before commencment on site.
Do not scale the drawings.
Drawings shall not be used for construction purposes until issued for construction.

Client
NICKSTACK INVESTMENTS

Project Name
OXLEYVALE IGA
151-153 MANILLA ROAD
TAMWORTH NSW 2340

Drawing Title:
SITE SETOUT PLAN

Status: PRLIMINARY	Scale: 1:200, 1:1 @ A1
Project No: **20058**	Sheet No.: **WD1**
Plot Date: 7/7/20	



PROPOSED FLOOR PLAN

SCALE 1:100@A1

D&C PROJECTS

REV	DATE	AMENDMENT	DT
01	09/06/20	ISSUED FOR CLIENT REVIEW & SIGNOFF	SB
02	29/06/20	ISSUED FOR CLIENT REVIEW & SIGNOFF	SB
03	07/07/20	ISSUED FOR CLIENT REVIEW & SIGNOFF	SB

DEVELOPMENT NOTES

ALL BUILDING WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA.

PROVIDE DOWN PIPES IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA & AS2180 METAL RAINWATER GOODS.

PROVIDE LIFT OFF HINGES TO WC DOORS IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA.

PROVIDE WATERPROOFING SYSTEM TO ALL WET AREAS IN ACCORDANCE WITH PART F1-7 OF THE BUILDING CODE.

PROVIDE TERMITE PROTECTION IN ACCORDANCE WITH AS3660.1

PROVIDE TIE DOWN AND BRACING IN ACCORDANCE WITH AS1684.2 AND STRUCTURAL ENGINEERS RECOMMENDATIONS

BUILDER TO ENSURE A SMOKE DETECTION SYSTEM IS INSTALLED IN ACCORDANCE WITH AS2441

ALL ACCESSIBLE BATHROOMS TO HAVE A THERMOSTATIC MIXING VALVE INSTALLED IN ACCORDANCE WITH AS1428.1

PROVIDE ACCESSIBLE SIGNAGE IN ACCORDANCE WITH AS1428.1

FIRE HOSE REELS TO BE INSTALLED IN ACCORDANCE WITH AS2441

INSULATION MUST BE INSTALLED IN ACCORDANCE WITH SECTION J1.5 &J1.6 &J1.3 OF THE BUILDING CODE.

ALL LEVELS ARE INDICATIVE AND SHOULD BE CONFIRMED.

ACCESSIBLE CAR PARKS TO BE DONE IN ACCORDANCE WITH AS2890.6

ALL RAMPS/STAIRS TO BE INSTALLED IN ACCORDANCE WITHAS1428.1. AND HAS SLIP RESISTANT SURFACES IN ACCORDANCE WITH TABLE D2.14 OF THE BUILDING CODE OF AUSTRALIA

PROVIDE TACTILE INDICATORS IN ACCORDANCE WITH AS1428.4

BUILDER/ELECTRICIAN TO PROVIDE EMERGENCY LIGHTING IN ACCORDANCE WITH AS2293

ENSURE STAFF ROOM DOOR IS OPERABLE WITH A FORCE LESS THEN 20N IN ACCORDANCE WITH CLAUSE 13.5 OF AS1428

ACCESSIBLE TOILET SEATS MUST HAVE A LUMINANCE CONTRAST OF 30% TO THE BACKGROUND IN ACCORDANCE WITH AS1428.1

EXIT DOOR TO BE PROVIDED WITH SIGNAGE IN ACCORDANCE WITH D2.23 OF THE BUILDING CODE OF AUSTRALIA.

CONSTRUCTION JOINTS TO BE PROTECTED IN ACCORDANCE WITH AS1530.4 AND THE BUILDING CODE OF AUSTRALIA.

DESIGN AND OPERATION OF EXIT SIGNS TO COMPLY WITH AS2293.1 OR SPECIFICATION E4.8 OF THE BUILDING CODE

ROOF SHEETING TO BE INSTALLED IN ACCORDANCE WITH AS1562.1 AND AS1562.3 AND THE BUILDING CODE.

ENTRY/EXIT DOORS TO BE CLEARLY MARKED IN ACCORDANCE WITH AS1428.1

FIRE EXTINGUISHERS MUST BE PROVIDED IN ACCORDANCE WITH TABLE E1.6 OF THE BUILDING CODE OF AUSTRALIA

OUTDOOR LIGHTING TO BE CARRIED OUT IN ACCORDANCE WITH AS1158.3.1. ALL INSTALLED LIGHTING TO BE PROVIDED IN ACCORDANCE WITH AS4282

ENSURE ALL CAR PARK LINE MARKINGS AND ARROWS ARE CARRIED OUT IN ACCORDANCE WITH RELEVANT BUILDING CODES AND AUSTRALIAN STANDARDS

LOADING/UNLOADING ZONE TO BE CLEARLY MARKED IN ACCORDANCE WITH TRC DCP 2010

LIGHTWEIGHT CONSTRUCTION MUST BE CARRIED OUT IN ACCORDANCE WITH SPECIFICATION C1.8 OF THE BCA

LEGEND

TP	125x125 TIMBER POST
BP	350x350 BRICK PEIR
SC	STEEL COLUMN
DP	DOWN PIPE
SNK	SINK
WC	WATER CLOSET
SHR	SHOWER
RC	REINFORCED CONCRETE
WM	WATER METER
FW	FLOOR WASTE
HWU	HOT WATER UNIT
MSB	MAIN SWITCH BOARD
FFL	FINISHED FLOOR LEVEL
FSL	FINISHED SLAB LEVEL
EGL	EXISTING GROUND LEVEL
FGL	FINISHED GROUND LEVEL

N

FLOOR AREAS

SUPERMARKET AREA	541.2m²
BOTTLE-O AREA	175.1m²
LOADING/UNLOADING DOCK AREA	108.2m²
TOTAL	***824.5m²***
FUEL CANOPY AREA	105.0m²
FOOTPATH AREA	75.2m²

NOTE:

ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE CLAUSES
C1.10 FIRE HAZARD PROPERTIES
D2.19 OPERATION OF POWER OPERATED DOORS
D2.21 OPERATION OF LATCHES
D3.6 BRAILLE AND TACTILE SIGNAGE
F1.7 WATERPROOFING OF WET AREAS
F1.13 GLAZED ASSEMBLIES
G1.3 OUTDOOR PLAY AREAS TO BE ENCLOSED AND AS1428.1

All boundary locations and levels to be confirmed by a registered surveyor.
All underground service location's to be confirmed.
Obtain and confirm all service connection approvals and requirements before commencing onsite.

The builder shall check and verify all dimensions and levels on site.
All errors and omissions to be verified with the Designer before commencment on site.
Do not scale the drawings.
Drawings shall not be used for construction purposes until issued for construction.

Client
NICKSTACK INVESTMENTS

Project Name
OXLEYVALE IGA
151-153 MANILLA ROAD
TAMWORTH NSW 2340

Drawing Title:
PROPOSED FLOOR PLAN

Status: PRLIMINARY
Scale: 1:100 @ A1

Project No: **20058**
Sheet No.: **WD2**

Plot Date: 7/7/20

APPENDIX C

RESULTS OF SIDRA INTERSECTION MODELLING

MOVEMENT SUMMARY

Site: 101 [Oxley Vale Superette - AM Peak (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oxley Vale Superette														
1	L2	55	0.0	58	0.0	0.091	3.8	LOS A	0.3	2.3	0.34	0.59	0.34	50.3
3	R2	32	0.0	34	0.0	0.091	5.9	LOS A	0.3	2.3	0.34	0.59	0.34	49.5
Approach		87	0.0	92	0.0	0.091	4.6	LOS A	0.3	2.3	0.34	0.59	0.34	50.0
East: Manilla Road														
4	L2	66	0.0	69	0.0	0.149	8.9	LOS A	0.0	0.0	0.00	0.29	0.00	51.5
5	T1	196	7.7	206	7.7	0.149	0.0	LOS A	0.0	0.0	0.00	0.29	0.00	57.7
Approach		262	5.8	276	5.8	0.149	2.3	NA	0.0	0.0	0.00	0.29	0.00	56.6
West: Manilla Road														
11	T1	320	7.2	337	7.2	0.197	0.1	LOS A	0.2	1.4	0.06	0.06	0.06	59.3
12	R2	21	0.0	22	0.0	0.197	8.4	LOS A	0.2	1.4	0.06	0.06	0.06	46.1
Approach		341	6.8	359	6.8	0.197	0.6	NA	0.2	1.4	0.06	0.06	0.06	58.7
All Vehicles		690	5.5	726	5.5	0.197	1.7	NA	0.3	2.3	0.07	0.21	0.07	57.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Oxley Vale Superette - PM Peak (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oxley Vale Superette														
1	L2	74	0.0	78	0.0	0.085	4.3	LOS A	0.3	2.2	0.41	0.62	0.41	50.4
3	R2	13	0.0	14	0.0	0.085	5.8	LOS A	0.3	2.2	0.41	0.62	0.41	49.5
Approach		87	0.0	92	0.0	0.085	4.6	LOS A	0.3	2.2	0.41	0.62	0.41	50.2
East: Manilla Road														
4	L2	76	0.0	80	0.0	0.224	8.9	LOS A	0.0	0.0	0.00	0.22	0.00	52.2
5	T1	320	7.7	337	7.7	0.224	0.1	LOS A	0.0	0.0	0.00	0.22	0.00	58.1
Approach		396	6.2	417	6.2	0.224	1.8	NA	0.0	0.0	0.00	0.22	0.00	57.4
West: Manilla Road														
11	T1	188	7.2	198	7.2	0.116	0.2	LOS A	0.1	0.8	0.07	0.05	0.07	59.3
12	R2	11	0.0	12	0.0	0.116	9.0	LOS A	0.1	0.8	0.07	0.05	0.07	46.1
Approach		199	6.8	209	6.8	0.116	0.6	NA	0.1	0.8	0.07	0.05	0.07	58.8
All Vehicles		682	5.6	718	5.6	0.224	1.8	NA	0.3	2.2	0.07	0.22	0.07	57.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.