

Ms E Key
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26 April 2022

Copy via email: EvitaK@barker.co.nz

Dear Evita,

TRAFFIC ASSESSMENT REPORT – NEW WORLD KHANDALLAH

Further to your instruction, we are pleased to provide this traffic assessment in respect to the proposed car park and vehicle access changes at New World Khandallah in Wellington. The existing car park and vehicle access on Ganges Road is proposed to remain, and new parking spaces constructed on three neighbouring residential sites to the west. New and/or modified vehicle accesses on Dekka Street and Nicholson Road will provide access to the proposed parking spaces.

1 THE PROPOSAL

Figure 1 shows the location of the existing supermarket and proposed works.

Figure 1: Site Location



The existing area of the supermarket is **1,317 m² GFA¹** and there are a total of **38 parking spaces**. The proposed area of the supermarket is not proposed to change however the car parking provision is proposed to increase to **102 parking spaces²**.

Figure 2 shows the proposed layout of the new car park and vehicle accesses.

Figure 2: Proposed New Car Park and Vehicle Accesses



2 THE EXISTING SUPERMARKET AND THE PROPOSED CHANGES

To summarise the proposed changes, Table 1 shows the differences between the existing supermarket and the proposed supermarket.

¹ 800 m² of retail trading area, 304 m² of back of house service and storage areas, a 60 m² foyer and 153 m² mezzanine level staff facilities.

² Comprising 68 new parking spaces, and a net loss of 4 parking spaces within the existing car park.

Table 1: GFA and Parking Provisions – Existing vs Proposed

Feature	Existing Supermarket	Proposed Development	Difference
GFA	1,317 m ²	1,317 m ²	NC
Parking Spaces	38	102	+64 spaces

The effects of these changes are discussed in the following sections.

3 SITE LOCATION

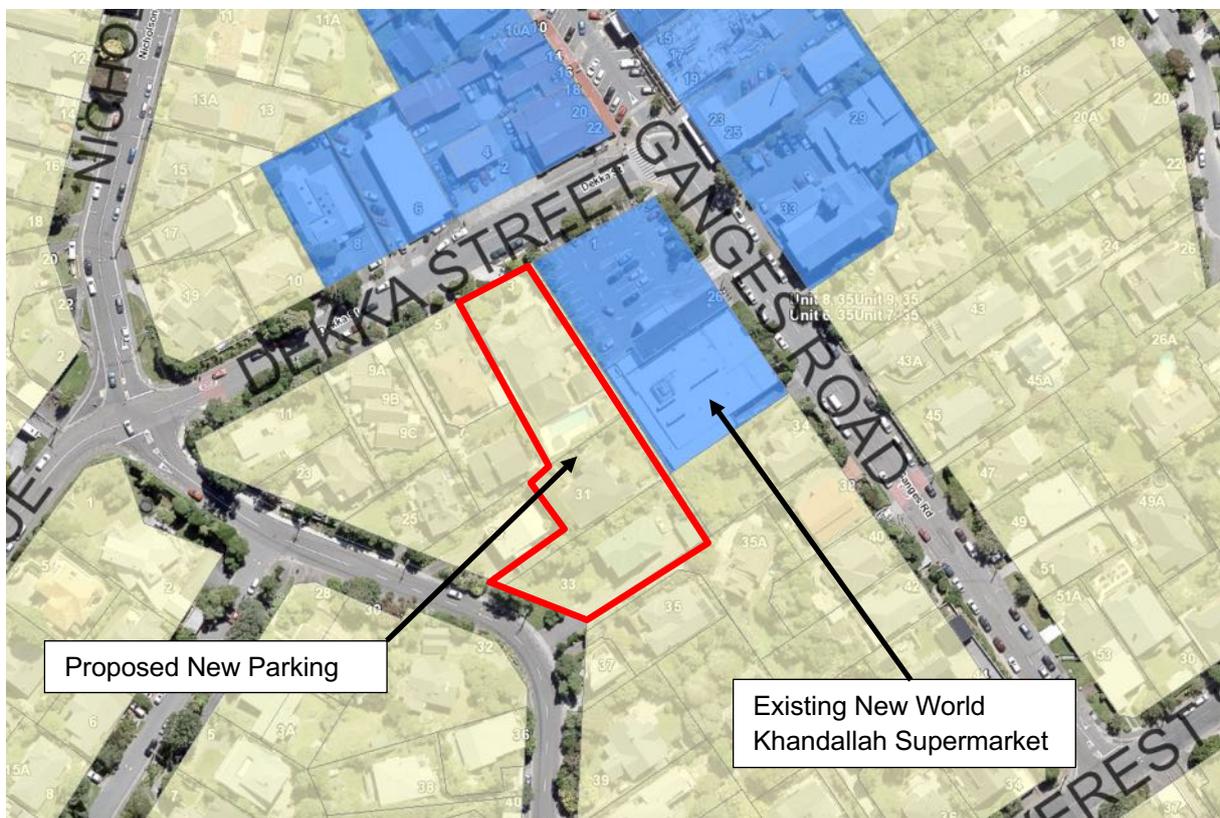
The existing supermarket and car park is located in the ‘Centre’ zone and is subject to a ‘secondary frontage’ rule in the Wellington City Council District Plan (District Plan).

As noted, the proposed development plans to establish additional parking on three neighbouring sites:

- 3 Dekka Street – ‘Outer Residential’ zone;
- 31 Nicholson Road – ‘Outer Residential’ zone, and
- 33 Nicholson Road – ‘Outer Residential’ zone.

Figure 3 shows the District Plan zones.

Figure 3: District Plan Zones



The secondary frontage rule is described in Map 48, Volume 3 of the District Plan. Figure 4 shows the affected site frontages.

Figure 4: District Plan Secondary Frontage Rule



Notably, these frontages do not apply to the modified accesses located on Dekka Street (3 Dekka Street site) and Nicholson Road (31 and 33 Nicholson Road sites). All roads fronting the site are local roads (not defined as Collector Road or above in Map 33 of the District Plan). Dekka Street and Ganges Road near the site have a posted speed limit of 30 km/hr while Nicholson Road is 50 km/hr.

4 TRIP GENERATION

4.1 GENERAL

The proposed development plans to provide additional parking spaces to serve the existing supermarket. This is a direct consequence of observed issues at the site with on-site parking provisions frequently unable to accommodate parking demand.

In assessing trip generation, traditionally a survey of the existing supermarket would have been undertaken. However in this case, the relatively small parking provision likely constrains vehicle movements to and from the site, and therefore alternative assessment methodologies are required. We have therefore considered both published data, as well as surveys of a comparable sized supermarket (with greater on-site parking provisions), to estimate the likely trip generation of the proposed development (with its greater parking provision).

The reason for assessment in regards to Rule 7.3.1 which requires activities in centres providing more than 70 parking spaces to consider the *movement of vehicular traffic to and from the site and the impact on the roading network*.

4.2 PUBLISHED DATA

The peak hour traffic generation rates for supermarkets typically range from 14 trips per 100 m² GFA up to 17 trips per 100 m² GFA in the peak hours. As such, for the 1,317 m² GFA supermarket, peak hour trips are estimated to be 184 to 224 vehicle movements per hour.

4.3 SURVEY DATA

Traffic surveys of the existing New World Island Bay supermarket were undertaken on Thursday 31 March 2022 and Saturday 2 April 2022. The results of the surveys³ are summarised in Table 2 and Table 3.

Table 2: Thursday Survey Results

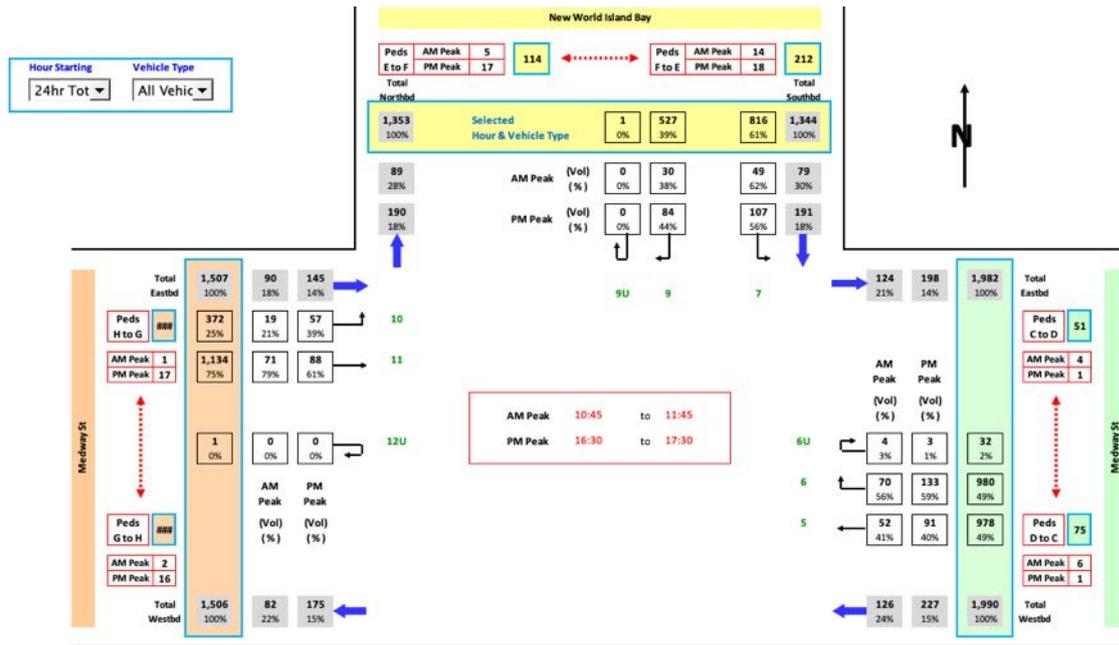
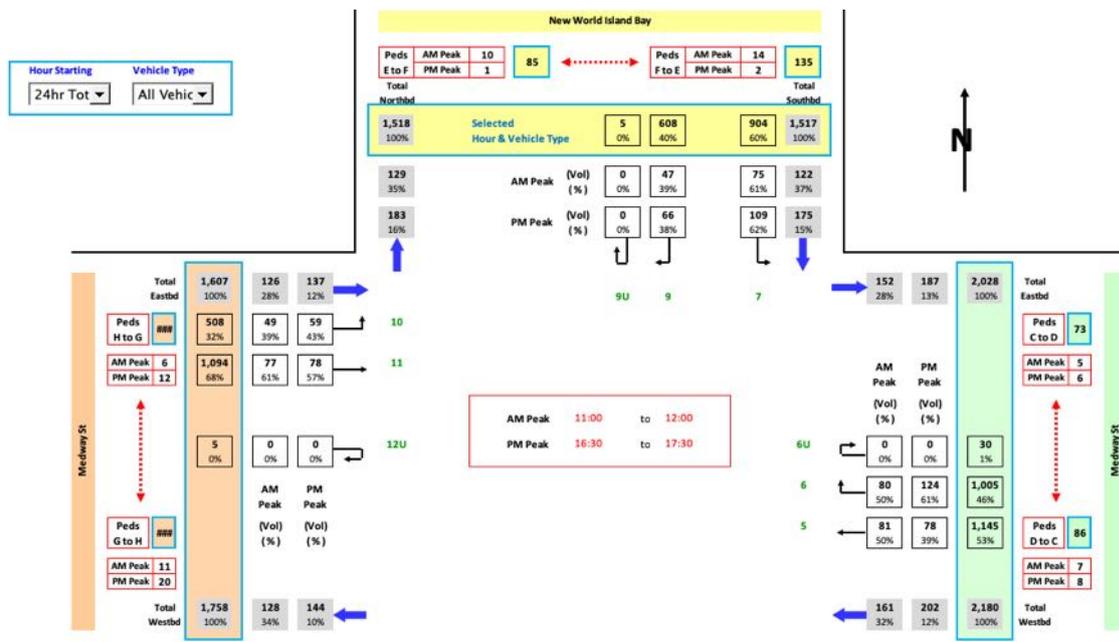


Table 3: Saturday Survey Results



³ Source: Matrix Traffic and Transport Data

As shown above, the New World Island Bay supermarket generates a maximum of 381 vehicle movements on a Thursday (between 4:30 pm and 5:30 pm) and a maximum of 358 vehicle movements on a Saturday (between 4:30 pm and 5:30 pm). There were 251 vehicle movements during the Saturday midday peak (between 11:00 am and 12:00 pm). This is much higher than the RTA data, and is indicative of smaller supermarkets having similar attractiveness and customer demand to the larger stores.

The New World Island Bay supermarket is a similar size to the New World Khandallah supermarket and therefore the Island Bay volumes have been used to estimate the New World Khandallah traffic volumes once a greater parking provision is available.

5 EFFECTS ON ROAD NETWORK

5.1 SURVEYED TRAFFIC DATA

Traffic surveys of existing traffic volumes and operating speeds were measured on Dekka Street and Nicholson Road near the proposed vehicle accesses. The data was collected using automatic tube counters installed at the following locations:

- Dekka Street near 2 Dekka Street, and
- Nicholson Road near 36 Nicholson Road.

Table 4 summarises the tube count data.

Table 4: Tube Count Data Summary

	Dekka Street	Nicholson Road
5-day ADT volume	3,705 vpd	1,585 vpd
7-day ADT volume	3,520 vpd	1,494 vpd
Weekday morning peak hour volume	314 vph (8:15-9:15 am) (133 vph EB and 181 vph WB)	234 vph (8:00-9:00 am) (139 vph NB and 96 vph SB)
Weekday evening peak hour volume	346 vph (4:30-5:30 pm) (103 vph EB and 243 vph WB)	141 vph (5:00-6:00 pm) (84 vph NB and 57 vph SB)
Saturday midday peak hour volume	331 vph (11:00 am-12:00 pm) (108 vph EB and 223 vph WB)	124 vph (2:30-3:30 pm) (53 vph NB and 71 vph SB)
Heavy vehicle %	3%	7%
85 percentile vehicle speeds	39.4 km/hr EB 36.5 km/hr WB	35.8 km/hr NB 30.4 km/hr SB

As shown, the peak hour for assessment purposes is the weekday evening peak hour (highest volumes along Dekka Street and Nicholson Road). This aligns with the New Island supermarket data which recorded the highest supermarket-related volumes during the evening peak hour.

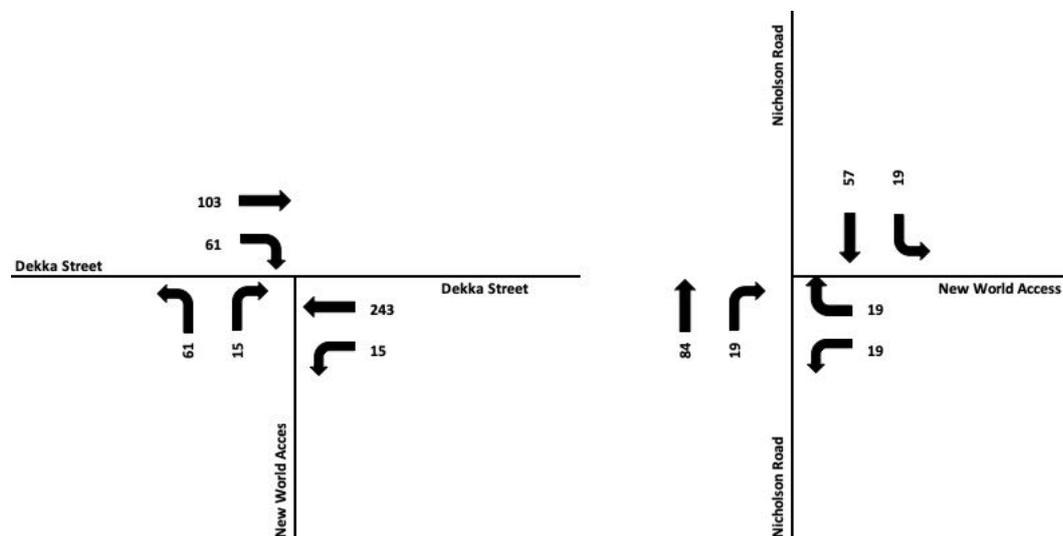
5.2 TRAFFIC DISTRIBUTION

The distribution of traffic from the proposed supermarket site taking into account the new vehicle accesses on Dekka Street and Nicholson Road is difficult to predict however the following is assumed:

- 157 vehicle movements per hour in the weekday evening peak hour (critical weekday period for assessment as supermarket volumes are lower in the morning) and 200 vehicle movements per hour in the Saturday midday peak hour.
- General split as follows:
 - 40% use Ganges Road access (existing access)
 - 40% use Dekka Street access (new access), and
 - 20% use Nicholson Road access (new access).
- 50% inbound/ 50% outbound split for both the weekday evening peak hour and Saturday midday peak hour.
- Directional split as follows:
 - Ganges Road access – 50% to/from north, 50% to/from south;
 - Dekka Street Access – 80% to/from west, 20% to/from east, and
 - Nicholson Road Access – 50% to/from north, 50% to/from south.

The estimated traffic movements at the two new access locations are shown in Figure 5. The remaining site traffic movements (some 152 vehicle movements per hour) occur at the Ganges Road access and are considered reasonable based on the existing parking provision at that location (38 spaces). This is the equivalent to a parking space turning over once every half hour (two entry movements and two exit movements per parking space, per hour).

Figure 5: Thursday Evening Peak Hour – Estimated Traffic Movements



The new Dekka Street and Nicholson Road accesses have been modelled in SIDRA and the results are shown in Table 5 and Table 6 respectively.

Table 5: Dekka Street Access Operation – Weekday Evening Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: New World														
1	L2	61	2.0	64	2.0	0.072	4.3	LOS A	0.3	2.0	0.36	0.53	0.36	38.1
3	R2	15	2.0	16	2.0	0.072	6.2	LOS A	0.3	2.0	0.36	0.53	0.36	37.8
Approach		76	2.0	80	2.0	0.072	4.7	LOS A	0.3	2.0	0.36	0.53	0.36	38.0
East: Dekka Street														
4	L2	15	2.0	16	2.0	0.142	3.5	LOS A	0.0	0.0	0.00	0.03	0.00	40.0
5	T1	243	2.0	256	2.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	39.9
Approach		258	2.0	272	2.0	0.142	0.2	NA	0.0	0.0	0.00	0.03	0.00	39.9
West: Dekka Street														
11	T1	103	2.0	108	2.0	0.104	0.6	LOS A	0.4	3.0	0.28	0.20	0.28	39.0
12	R2	61	2.0	64	2.0	0.104	4.5	LOS A	0.4	3.0	0.28	0.20	0.28	38.8
Approach		164	2.0	173	2.0	0.104	2.1	NA	0.4	3.0	0.28	0.20	0.28	38.9
All Vehicles		498	2.0	524	2.0	0.142	1.5	NA	0.4	3.0	0.15	0.16	0.15	39.3

Table 6: Nicholson Road Access Operation – Weekday Evening Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Nicholson Road														
2	T1	84	2.0	88	2.0	0.058	0.1	LOS A	0.1	0.9	0.07	0.09	0.07	39.6
3	R2	19	2.0	20	2.0	0.058	3.8	LOS A	0.1	0.9	0.07	0.09	0.07	39.4
Approach		103	2.0	108	2.0	0.058	0.8	NA	0.1	0.9	0.07	0.09	0.07	39.6
East: New World														
4	L2	19	2.0	20	2.0	0.033	3.6	LOS A	0.1	0.9	0.17	0.47	0.17	38.4
6	R2	19	2.0	20	2.0	0.033	4.4	LOS A	0.1	0.9	0.17	0.47	0.17	38.1
Approach		38	2.0	40	2.0	0.033	4.0	LOS A	0.1	0.9	0.17	0.47	0.17	38.2
North: Nicholson Road														
7	L2	19	2.0	20	2.0	0.042	3.4	LOS A	0.0	0.0	0.00	0.12	0.00	39.8
8	T1	57	2.0	60	2.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	39.6
Approach		76	2.0	80	2.0	0.042	0.9	NA	0.0	0.0	0.00	0.12	0.00	39.7
All Vehicles		217	2.0	228	2.0	0.058	1.4	NA	0.1	0.9	0.06	0.17	0.06	39.4

As shown above, there are no issues with operation of either access with the higher traffic volumes expected as a result of the car park expansion.

6 PARKING

6.1 GENERAL

The proposed new parking spaces are located on residential zoned sites. The relevant rule for assessment is as follows:

- Rule 5.6.1.3 – Vehicle Parking

The rule previously used to contain minimum parking rates however these have since been removed due to the requirements of the National Policy Statement on Urban Development (NPS-UD) which removed minimum parking rates from Tier 1 Territorial Authorities. As such, the number of parking spaces meets District Plan standards.

In terms of parking gradients and parking space dimensions, Rule 5.6.1.3 states:

“all parking must be provided and maintained in accordance with sections 1, 2, and 5 of the joint Australian and New Zealand Standard 2890.1 – 2004, Parking Facilities, Part 1: Off-Street Car Parking.”

The proposed new parking spaces have been designed to meet these requirements, specifically:

- All new spaces are 2.6 m wide x 5.4 m deep with a minimum manoeuvring aisle width of 6.6 m (these meet *User Class 3A* standards);
- Spaces at the end of blind aisles are wider (3.5 m) to accommodate difficult manoeuvres at the end of aisles, and
- The maximum gradient for new spaces is 1:16 (6.25%). This satisfies Rule 2.4.6.1 of AS/NZS2890.1.

Vehicle tracking is shown in **Attachment A** confirming the acceptability of the design.

6.1.1 ACCESSIBLE PARKING

NZS4121 requires accessible parking to be provided as a proportion of the total parking on-site (102 parking spaces). Table 7 summarises these requirements.

Table 7: Accessible Parking Requirements (NZS4121:2001)

Total Number of Parking Spaces	Minimum Parking Rate	Parking Spaces Required
1-20	Not less than 1	N/A
21-50	Not less than 2	2
For every additional 50 parking spaces	Not less than 1	2
TOTAL		4

For a total of 102 parking spaces on-site, a total of 4 accessible parking spaces are required to be provided on-site.

A total of 4 accessible spaces are provided on-site on the ground level near the pedestrian access to the store as shown in **Attachment A**. The number of accessible parking spaces complies with NZS4121 requirements.

7 LOADING

No changes to the existing loading provisions currently occurring on-site are proposed. The loading area is currently located on Ganges Road and is not proposed to change.

8 ACCESS

8.1 GENERAL

The supermarket activity is existing and located at 26 Ganges Road in Khandallah. Two vehicle crossings currently serve the supermarket on Ganges Road and these will remain as part of the proposal. The new parking spaces are located on three residential sites to the west of the existing supermarket. Two new/ modified vehicle crossings are proposed to serve the new parking spaces as follows:

- A two-way crossing on Dekka Street (in a similar location to the existing vehicle crossing at 3 Dekka Street), and
- A two-way crossing on Nicholson Road (with existing vehicle crossings reinstated as footpath and berm).

The existing and proposed vehicle crossings are shown in Figure 6.

Figure 6: Existing and Proposed Vehicle Crossings



A two-way internal connection between the existing and proposed parking areas is also proposed. With respect to the proposed two-way connection, we note that Rule 7.6.1.5.3 states that:

“The gradient for carparking circulation routes shall not be more than 1 in 8.”

In accordance with the civil plans (C301), the maximum gradient does not exceed 1:8.

This access requires keeping the existing ground levels of a thin access strip between the existing car park and the 3 Dekka Street site hence its vertical geometry. Pedestrians will also need to negotiate these gradients however they are considered acceptable given their short length (each incline is less than 10 m).

8.2 DISTRICT PLAN REQUIREMENTS

The proposed new/ modified vehicle crossings are located on residential zoned sites. The relevant rule for assessment is as follows:

- Rule 5.6.1.4 – Site Access

Each of the relevant sub-rules is discussed in Table 8.

Table 8: District Plan Access Rules

Rule		Comment
5.6.1.4.1	Sites with one road frontage shall have a maximum of one vehicle access.	A single two-way crossing serves the site at 3 Dekka Street. A single two-way crossing serves the two sites at 31 to 33 Nicholson Road. The number of vehicle crossings therefore complies.
5.6.1.4.2	Sites with two or more road frontages may have one vehicle access per frontage, subject to 5.6.1.4.3 - 5.6.1.4.5.	Not applicable. Sites only have one frontage.
5.6.1.4.3	Sites with road frontages to: <ul style="list-style-type: none"> • a State highway, or an Arterial, Principal or Collector Road; and • one or more local roads or sub-collector roads (that do not have restricted road frontages) may only have vehicle access to the local or sub-collector roads.	Not applicable. Sites do not front State Highway, Principal or Collector Roads.

Rule		Comment
5.6.1.4.4	<p>Sites with two or more road frontages that are all categorised as:</p> <ul style="list-style-type: none"> • a State highway; or • restricted road frontage; or • Arterial, Principal or Collector roads <p>shall have a maximum of one vehicle access. This vehicle access shall not be from a State highway or a restricted road frontage.</p>	Not applicable. Sites do not have two or more frontages and do not front State Highway, Principal or Collector Roads.
5.6.1.4.5	No vehicle access is permitted to a site across any restricted road frontage.	Not applicable. See Figure 4.
5.6.1.4.6	Site access for vehicles must be formalised by a legal right of way instrument where not directly provided from a public road, and must be provided and maintained in accordance with Section 3 of the joint Australian and New Zealand Standard 2890.1-2004, Parking Facilities, Part I: Off-Street Car Parking.	Not applicable. Sites are directly accessed from a public road.
5.6.1.4.7	<p>The maximum width of any vehicular access is:</p> <ul style="list-style-type: none"> • 3.7 metres in the Inner Residential Area and within the Residential Coastal Edge • in Medium Density Residential Areas 3.7 metres for sites containing up to 6 units, and 6.0 metres for sites containing 7 or more units • 6.0 metres in the Outer Residential Area (excluding the Residential Coastal Edge). 	<p>The new parking spaces are located on sites in the Outer Residential Area and therefore require a maximum vehicle access width of 6.0 m.</p> <p>The Dekka Street access is 7.0 m wide at the site boundary and is considered appropriate based on the vehicle tracking (Attachment A). Similarly, the Nicholson Road access is 6.6 m wide but is some 8.0 m wide at the site boundary (this is largely due to the access not being perpendicular to the boundary). Again, the site access is considered acceptable based on vehicle tracking.</p>

As shown above, the only rule not satisfied is the width of the proposed accesses as per Rule 5.6.1.4.7. The effects of this additional width however are considered negligible.

8.3 SIGHT DISTANCES

8.3.1 STANDARDS

The RTS-6 Guidelines for Visibility at Driveways document (RTS-6 Guide) is typically used for assessing sight distance in urban residential areas.

8.3.2 DEKKA STREET CROSSING

For a high volume driveway⁴ accessing a 'local road', with a 40 km/h operating speed⁵, the required sight distance is 30 m. The available sight distances from the proposed Dekka Street crossing are shown in Photograph 1 and Photograph 2.

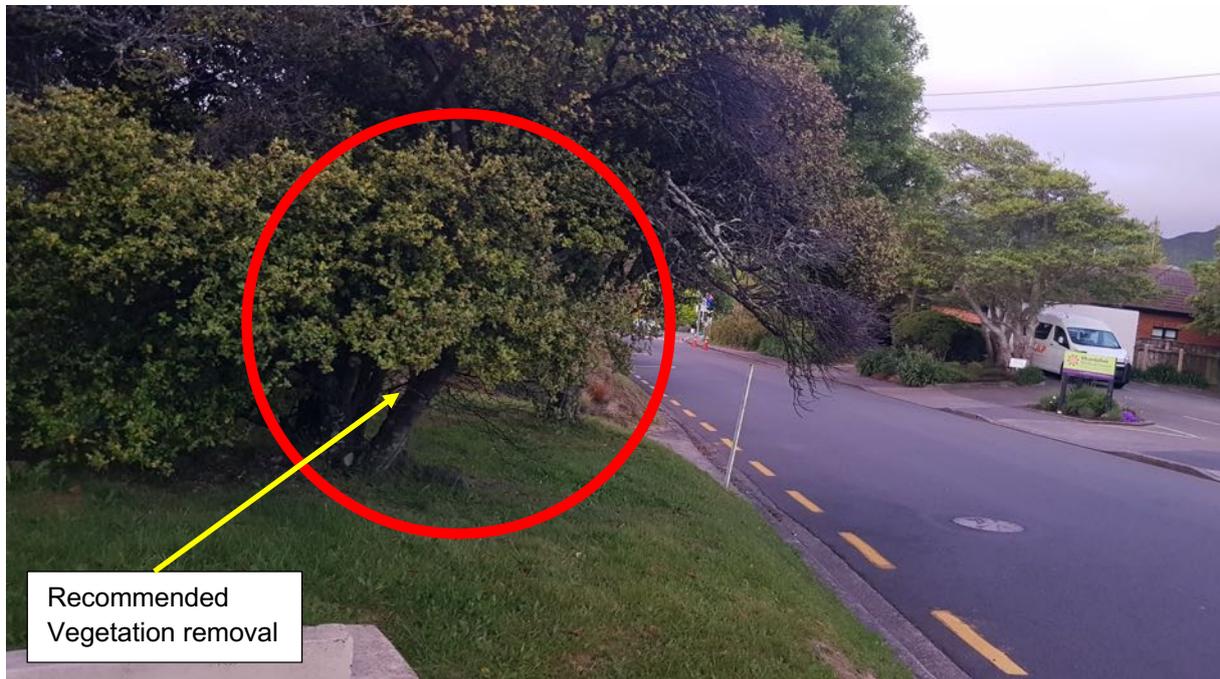
Photograph 1: Dekka Street Crossing – Sight Distance to East



⁴ More than 200 trips per day

⁵ Refer Table 4 of this report

Photograph 2: Dekka Street Crossing – Sight Distance to West



There is greater than 30 m visibility to the east and west satisfying RTS-6 requirements. For completeness, we have also assessed sight distance in accordance with Austroads. The Safe Intersection Sight Distance (SISD) requirement for a 40 km/hr design speed is 73 m. This distance can be satisfied to the west (some 83 m to the red banding and 30 km/hr speed limit on Dekka Street) and 60 m to the Ganges Road/ Dekka Street intersection. While this does not meet the 73 m requirement, speeds are lower in this location due to the raised zebra crossing immediately to the west of Ganges Road.

We recommend that vegetation in road reserve to the east and west of the Dekka Street crossing is removed to maximise sight distances as per the notes in the above photographs. Replacement trees could be planted closer to the road boundary where they do not affect visibility.

It should be noted that on occasion, buses waiting within the bus stop adjacent to the proposed vehicle crossing affect visibility to the east. Observations reveal this only occurs occasionally, and we do not anticipate a high number of right turning movements out of the site at this access (they will instead travel internally within the site and exit onto Ganges Road). Given the low observed speeds on Dekka Street, this operation is considered acceptable (low likelihood of crashes given temporary nature of buses being parked, and when crashes do occur, they are unlikely to cause death or serious injury).

8.3.3 NICHOLSON ROAD CROSSING

For a high volume driveway accessing a 'local road', with a 40 km/h operating speed⁶, the required sight distance is 30 m. The available sight distances from the proposed Nicholson Road crossing are shown in Photograph 3 and Photograph 4.

⁶ Refer Table 4 of this report. 40 km/hr used for assessment, 36 km/hr measured on-site.

Photograph 3: Nicholson Road Crossing – Sight Distance to North



Photograph 4: Nicholson Road Crossing – Sight Distance to South



There is greater than 30 m visibility to the east and west satisfying RTS-6 requirements. Again, for completeness, we have also assessed sight distance in accordance with Austroads. The Safe Intersection Sight Distance (SISD) requirement for a 40 km/hr design speed is 73 m. This distance can be satisfied to the north and south.

We have also assessed sight distance from northbound vehicles to vehicles potentially waiting to turn right into the site (i.e. to avoid potential rear end collisions). For this assessment, Austroads Stopping

Sight Distance⁷ is considered the most appropriate. The required Stopping Sight Distance for an approach speed of 40 km/hr is 40 m. Figure 7 shows the required sight distance.

Figure 7: Sight Distance to Vehicle Turning Right into Nicholson Road Access



In order to achieve the required sight distance, vegetation will need to be removed on the inside of the bend within road reserve. Photograph 5 shows the required vegetation removal.

⁷ 2.0 second reaction time

Photograph 5: Required Vegetation Removal



With the proposed vegetation removal, the sight distance is considered acceptable. It should also be noted that based on the traffic modelling, the probability of vehicles waiting onto Nicholson Road to enter the site is very low.

9 CONCLUSION

From a review of the proposal for new parking areas at the existing New World Khandallah supermarket, we conclude the following:

- No change to the existing supermarket GFA is proposed however a net increase of 64 parking spaces is proposed.
- Based on surveys of a similar sized supermarket in Island Bay, we predict traffic volumes could increase to 380 vehicle movements per hour at peak times;
- Based on this increase in vehicle movements, the proposed Dekka Street and Nicholson Road accesses can operate acceptably. The operation of the existing Ganges Road access is not expected to change significantly;
- All parking spaces are designed in accordance with AS/NZS2890.1 standards in terms of dimensions and maximum gradients. This satisfies District Plan standards;
- The proposed site accesses on Dekka Street and Nicholson Road meet District Plan standards with the exception of width. The additional width is considered appropriate to accommodate vehicle tracking, and
- The sight distance provisions for the new accesses are considered acceptable but vegetation is recommended to be removed (see Section 8.3).

Overall, it is concluded that the development is acceptable and there are no traffic engineering or transportation planning reasons to preclude approval of the proposed new parking areas.

Yours sincerely

Commute Transportation Consultants

Mike Nixon

A handwritten signature in blue ink, appearing to read 'M Nixon', with a long horizontal flourish extending to the right.

Principal Transport Consultant

mike@commute.kiwi

ATTACHMENT A – VEHICLE TRACKING



Revision notes:		
Rev:	Date:	Notes:

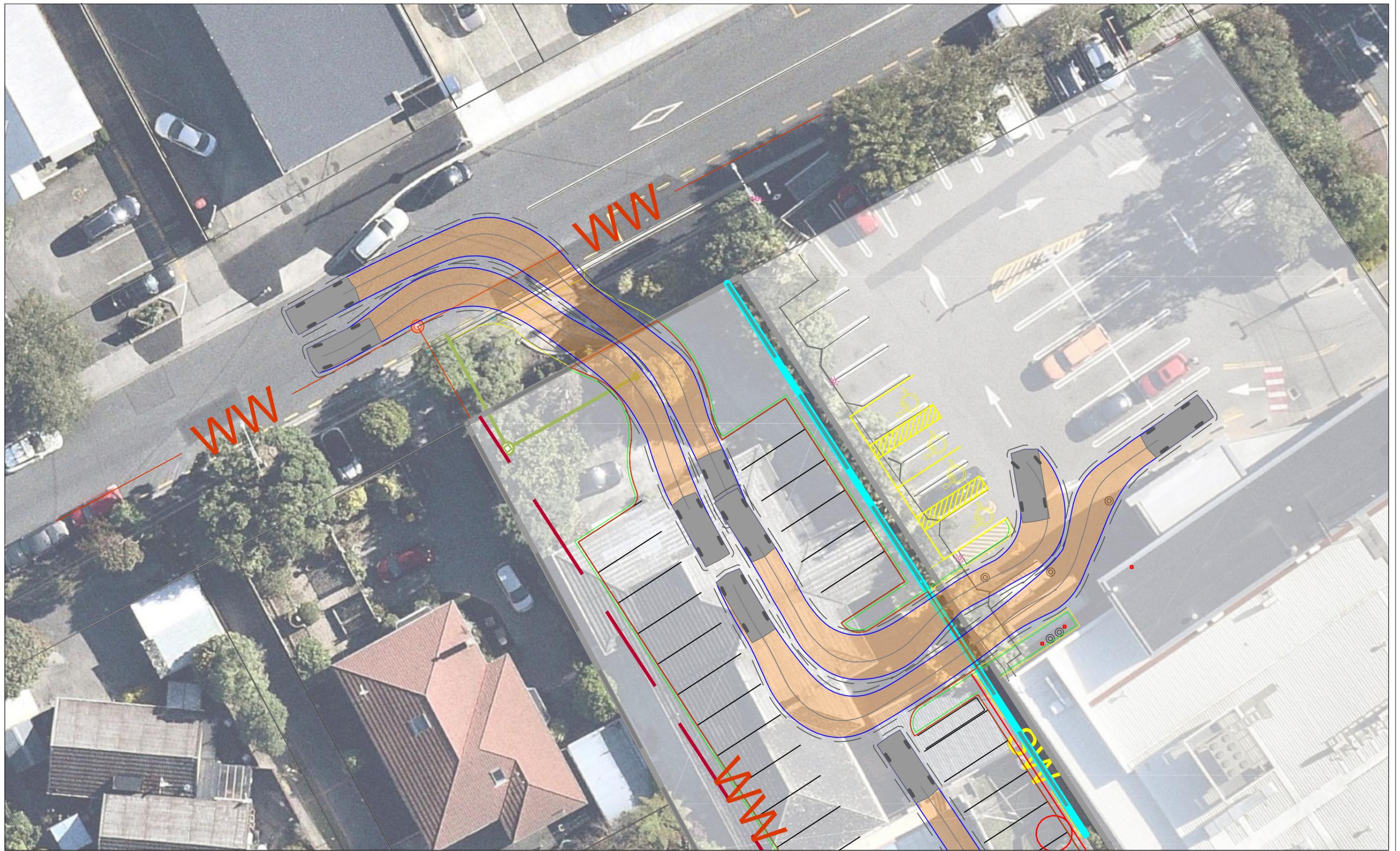
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Client: FOODSTUFFS NORTH ISLAND LTD

Project: NEW WORLD KHANDALLAH 26 GANGES ROAD, KHANDALLAH, WELLINGTON
Drawing Title: PROPOSED CARPARK LAYOUT

Date: 26 APRIL 2022
Scale @ A3: 1:500
Revision: A



Figure:
1



Revision notes:		
Rev:	Date:	Notes:

Drawn by:
AL
J002039

Client:
FOODSTUFFS NORTH ISLAND LTD

Project:
NEW WORLD KHANDALLAH
26 GANGES ROAD, KHANDALLAH, WELLINGTON

Drawing Title:
VEHICLE TRACKING
DEKKA STREET ACCESS

Date:
26 APRIL 2022

Scale @ A3:
1:250

Revision:
A



Figure:
2



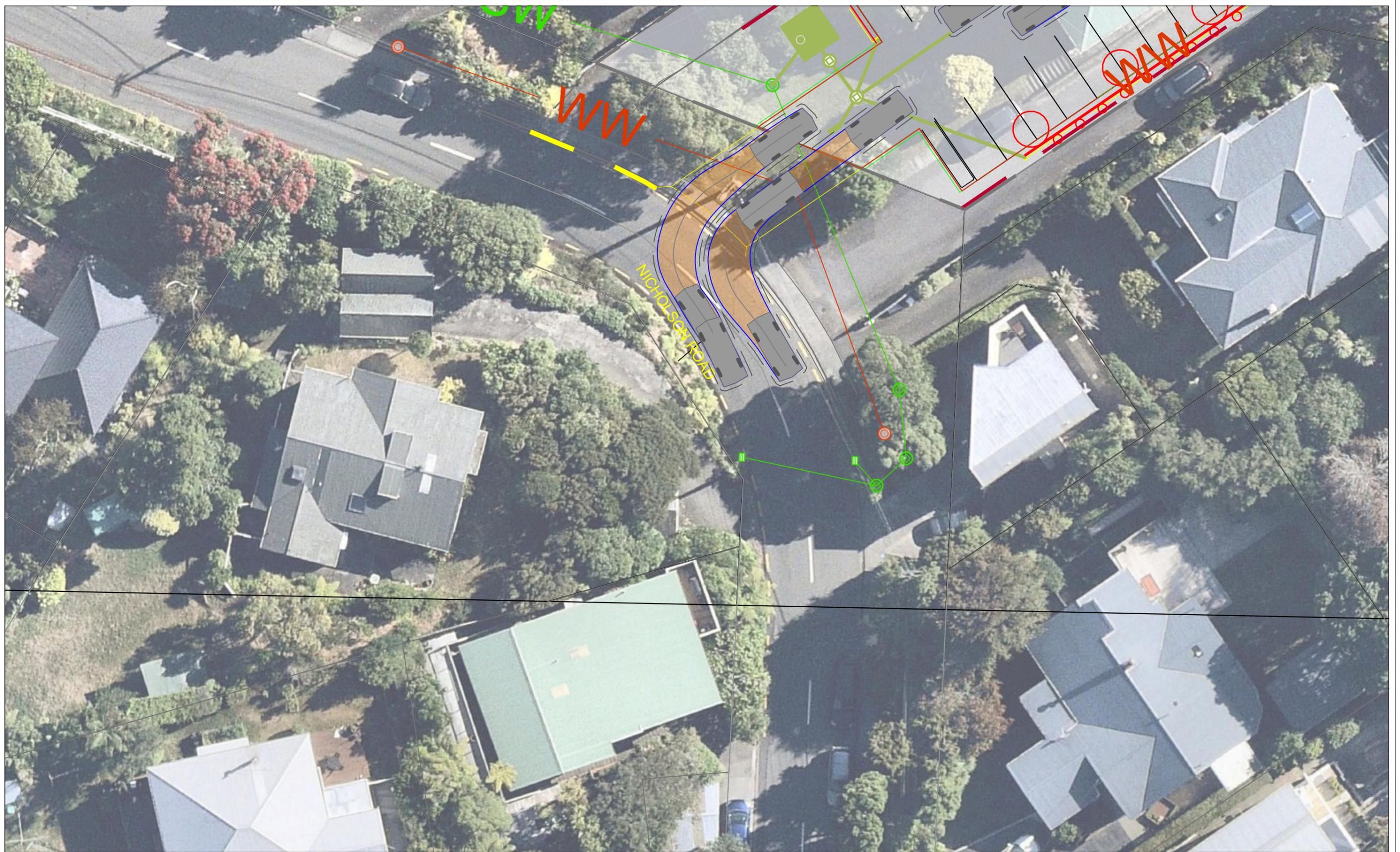
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Rev:	Date:	Notes:

Drawn by: AL J002039	Client: FOODSTUFFS NORTH ISLAND LTD
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Project: NEW WORLD KHANDALLAH 26 GANGES ROAD, KHANDALLAH, WELLINGTON	Drawing Title: VEHICLE TRACKING NEW CARPARK
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Date: 26 APRIL 2022	Scale @ A3: 1:250
Revision: A	





Revision notes:		
Rev:	Date:	Notes:

Drawn by:
AL
J002039

Client:
FOODSTUFFS NORTH ISLAND LTD

Project:
NEW WORLD KHANDALLAH
26 GANGES ROAD, KHANDALLAH, WELLINGTON

Drawing Title:
VEHICLE TRACKING
NEW CARPARK

Date:
26 APRIL 2022

Scale @ A3:
1:250

Revision:
A



Figure:
4