



2 Mt Fyffe Road, Kaikōura Residential Development

Traffic Impact Assessment

Prepared for Vicarage Views
Limited

April 2023

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Introduction

1.1. Background

This report has been prepared in response to a request from Vicarage Views Limited to carry out a Traffic Impact Assessment (TIA) in relation to industrial development at 2 Mt Fyffe Road, Kaikōura, namely the Vicarage Views Residential Subdivision.

The proposed development site is zoned 'Residential B' under the Kaikōura District Plan. The site is proposed to be subdivided into 67 residential lots. Two of the lots, ranging in size from 3,566 to 3,730 m², are proposed to accommodate 20 elderly people's housing. The other 65 lots are to accommodate residential dwellings, with areas ranging from 500 to 864 m².

One new public road is to be formed and connected to the site. A new road intersection with Mt Fyffe Road is to be created. Currently, the site is accessed via an existing access off Mt Fyffe Road, which provides for one existing residential dwelling.

Based on the scale of the proposed development and the immediate surrounding environment, the primary transport considerations are as follows:

- the level of traffic that is likely to be generated by the proposed residential development;
- the likely effect traffic generation will have on the surrounding transport network;
- the ability of the site and its surroundings to meet the access demands created by development;
- address any road safety issues created by the proposed development in the vicinity of the site;

These and other matters are addressed in the body of the report.

2. Existing Transport Infrastructure

2.1. Site Location

The site is located at 2 Mt Fyffe Road in the 'Residential B' zone of Kaikōura. As such, it requires compliance with Kaikōura 's District Plan and adopted standards and guidelines of the Road Controlling Authority (RCA).

The site is located in the western region of Kaikōura Town. Access to the site is provided from Mt Fyffe Road at the intersection with Ludstone Road. Currently, this is the only vehicle access provided to and from the site, which is located approximately 250 m from the intersection. A railway overbridge runs parallel to Ludstone Road in the vicinity of the intersection, crossing over Mt Fyffe Road.

The site location map is shown in Figure 1.

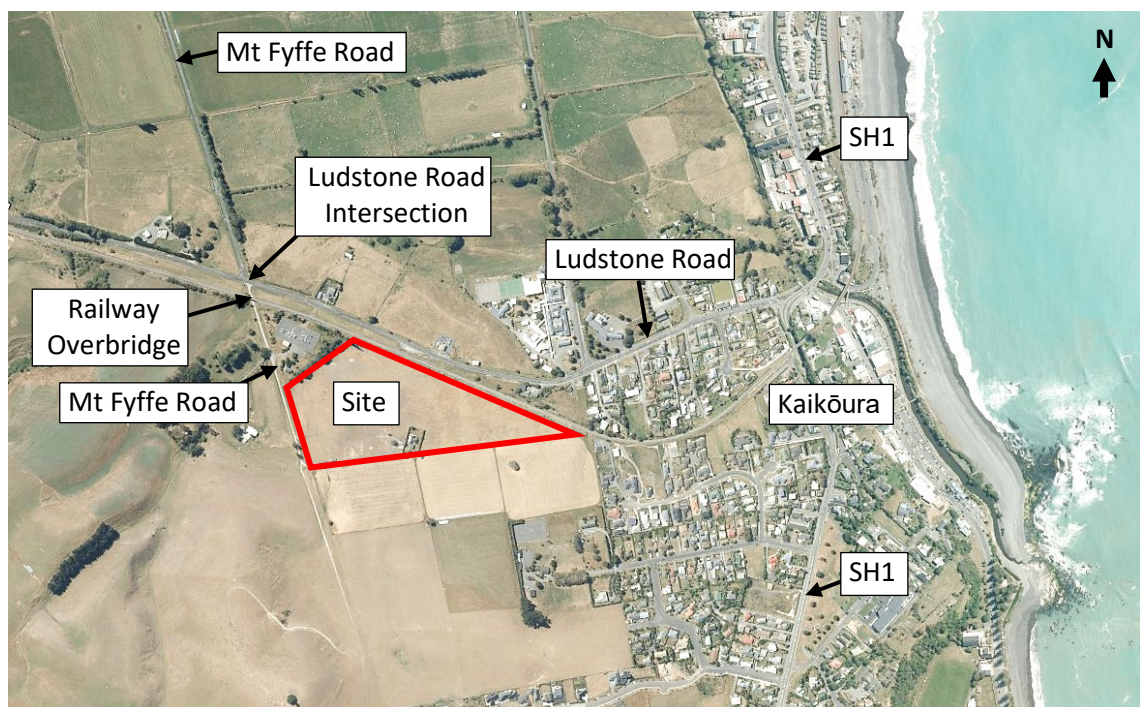


Figure 1: Site Location

2.2. Existing Road Layout

2.2.1. Mt Fyffe Road

Mt Fyffe Road is approximately 350 m long south of the intersection with Ludstone Road. It is approximately 6 m wide and sealed at the site frontage, with no centreline or edgeline markings in the vicinity of the site.

The cross-section is narrowed to 4.6 m wide in the vicinity of the Railway Overbridge that runs parallel to Ludstone Road, with a 50 m long single-lane flow established from 40 m south of the Overbridge to immediately north of it. Centreline markings are provided throughout this section. The cross-section underneath the Overbridge is 7.8 m wide, with 2.3 m wide lanes and 1.6 m wide berms. No footpaths are provided.

Single-lane/give-way signs (RG 19) are provided south of the Overbridge, and Single lane priority signs (RG20) are provided north of it, establishing, therefore, the priority for southbound traffic (departing the intersection with Ludstone Road). The vertical clearance underneath the bridge is 4 m.

The posted speed limit is 30 km/h immediately south of the Overbridge and 60 km/h north of this point.

The road is unformed south of the existing accessway to the site. It is noted that a paper road is shown in the Kaikōura District Council maps south of the site. Therefore, an extension to the south and connection to SH1 could potentially occur in a future opportunity.

The cross-sections of the road are shown in Figures 2 to 4.



Figure 2: Mt Fyffe Road in the site frontage

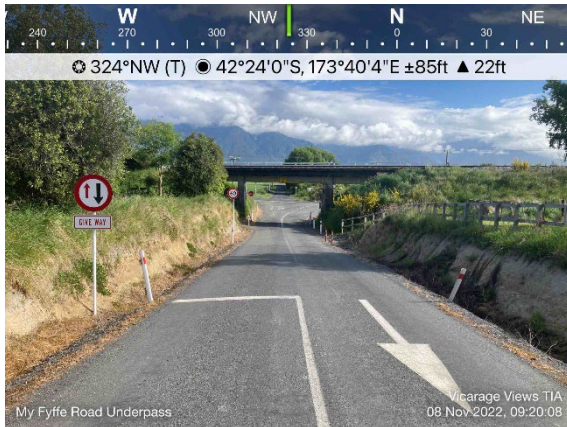


Figure 3: Mt Fyffe Road south of the railway overbridge



Figure 4: Mt Fyffe Road north of the railway overbridge

2.2.2. Ludstone Road

Ludstone Road provides the east-west connection to Kaikōura and SH1 (east of the site). It is approximately 7 m wide in the vicinity of the intersection with Mt Fyffe Road, with 3.5 m wide lanes. The posted speed limit is 60 km/h through the intersection, increasing to 80 km/h approximately 50 m west of it.

Ludstone Road and Mt Fyffe Road form a crossroads intersection. The priority flow is east-west, through Ludstone Road. The intersection is stop-controlled at its southern side and give-way controlled at the north side. No right-turn facilities are provided. A short section of shoulder widening is constructed on the south side of the road to assist left-turn movements onto Mt Fyffe Road (south). No splitter islands are provided at the intersection. The intersection is unlit.

Existing views of Ludstone Road are shown in Figures 5 to 7.

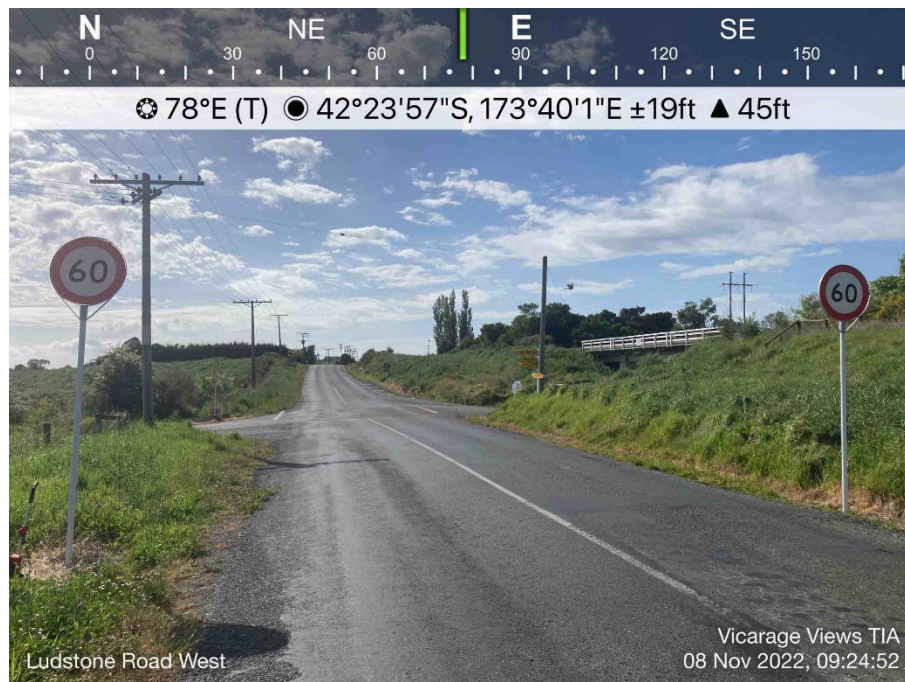


Figure 5: Ludstone Road in the vicinity of the intersection with Mt Fyffe Road



Figure 6: Ludstone Road/Mt Fyffe Road intersection (south)

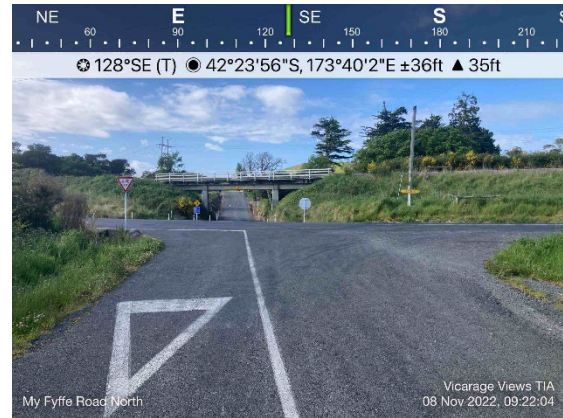


Figure 7: Ludstone Road/Mt Fyffe Road intersection (north)

2.3. Existing Accessway

One existing access currently provides for the site, located approximately 350 m south of the Ludstone Road intersection. It serves one existing residential dwelling. The access is approximately 6.5 m wide and sealed. A speed hump is provided at the connection with Mt Fyffe Road. Refer to Figure 8.

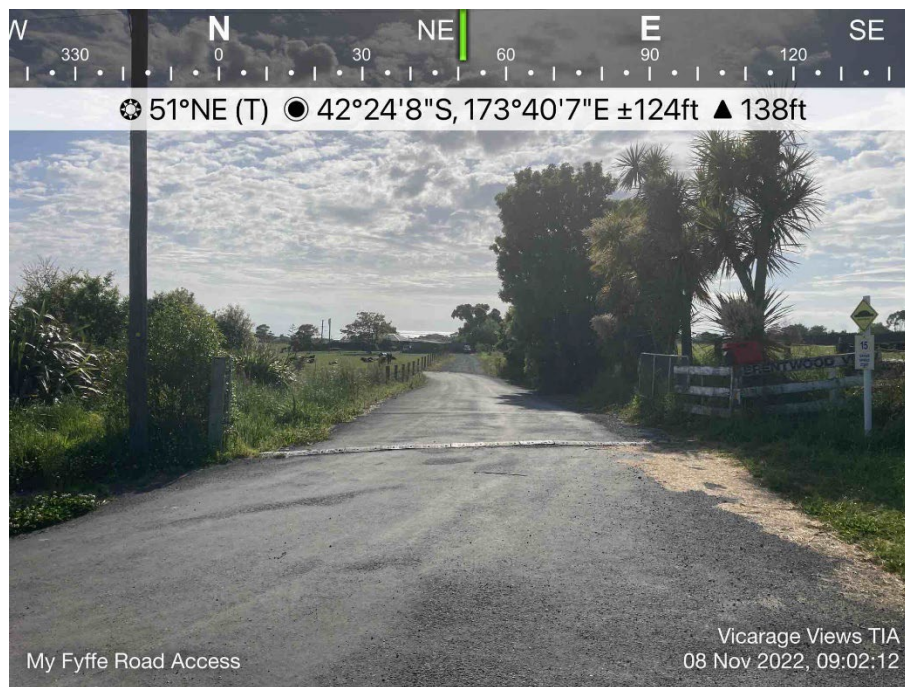


Figure 8: Existing access

2.4. Walking, Cycling and Public Transport

An informal shared path is currently provided in the vicinity of the site. This shared path was formed as part of the North Canterbury Transport Infrastructure Recovery (NCTIR) Alliance (i.e. Kaikōura Earthquake Rebuild). However, this shared path does not currently provide adequate signage, surfacing and maintenance (including vegetation control).

No public bus services travel along Ludstone Road or Mt Fyffe Road in the vicinity of the site. This is in context with the suburban area where the site is located.

A shared user path (SUP) is currently being progressed in the vicinity of the site, including:

- 2.5 m wide SUP on the south side of Ludstone Road;
- 2.5 m wide SUP on the east side of Mt Fyffe Road (connecting to the site);
- Proposed crossing and SUP west of the Ludstone Road/Mt Fyffe Road intersection;
- Construction is expected to start in 2023.

3. Travel Patterns

3.1. Peak Hour Traffic Volumes

A peak period traffic count survey has been undertaken to observe traffic volumes, flow conditions and split of trips at the Ludstone Road/Mt Fyffe Road intersection. The survey was carried out in the network AM peak hour, undertaken from 7:45 to 9:00 AM, on Tuesday, 8 November 2022. The AM peak flows at the intersection during this period have been confirmed to be from 8:00 to 9:00 AM. The existing flows in the AM peak hour are further detailed in Table 1 and Figure 9.

Table 1: AM Peak Hour Traffic Volumes

Road Name	Peak Hour Traffic Volume (vph)		
	In	Out	Total
Mt Fyffe Road (south of the intersection)	0	1	1
Mt Fyffe Road (north of the intersection)	13	21	34
Ludstone Road (east of the intersection)	42	26	68
Ludstone Road (west of the intersection)	16	23	39

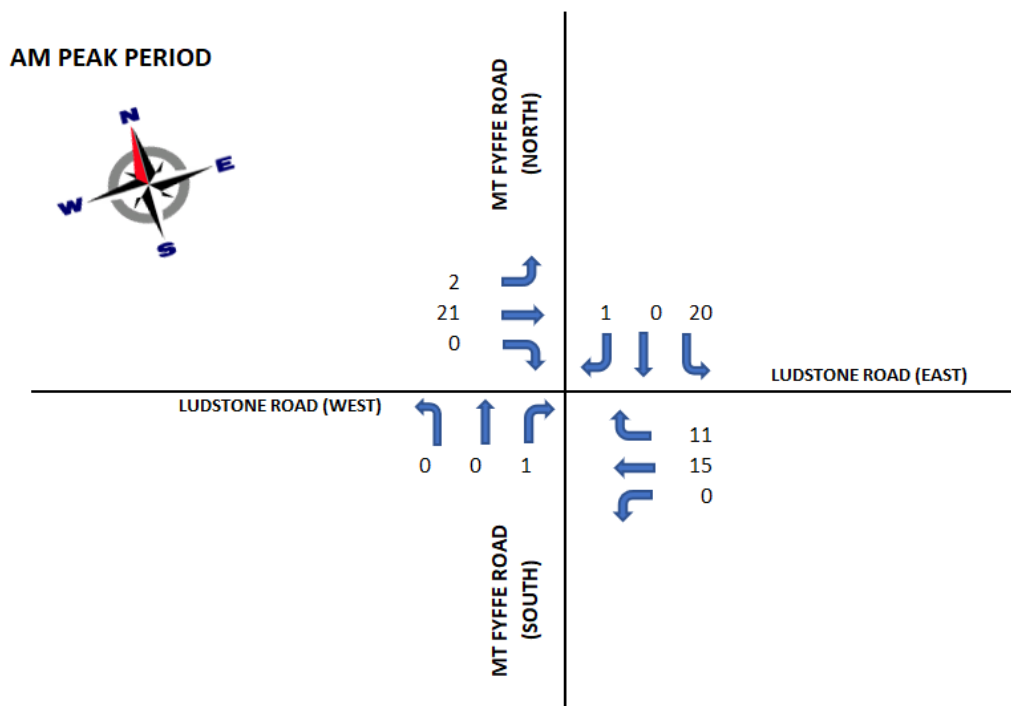


Figure 9: AM Peak Hour traffic count

3.2. Daily Traffic Volumes

The estimated Annual Average Daily Traffic (AADT) on Mt Fyffe Road and Ludstone Road has been obtained from the Kaikōura District Council. The majority of the traffic data obtained is out of date. Therefore, updated daily volumes have been estimated based on peak hour volumes being 8 to 10% of the AADT, as recommended by Austroads Guide to Traffic Management Part 6, 2020, Figure 3.25 notes for urban situations. The daily traffic data is provided in Table 2.

Table 2: Daily Traffic Volumes

Road Name	Two-way daily flows (vpd)	% of HCVs	Traffic Count Year	Daily flows based on peak-hour flows (vpd)
Mt Fyffe Road (south of Ludstone Road)	20	10%	2014	10 – 13
Mt Fyffe Road (north of Ludstone Road)	250	10%	2014	340 – 425
Ludstone Road (east of Mt Fyffe Road)	1,142	6%	2019	680 – 850
Ludstone Road (west of Mt Fyffe Road)	630	10%	2014	390 – 488

The higher daily volumes between the traffic data obtained from the Kaikōura District Council and the peak-hour-based flows obtained in the traffic survey have been used in this report on a conservative basis.

3.3. Existing Site Traffic

Presently, one residential dwelling is located within the site. This residential dwelling is expected to generate 10 vehicles per day (vpd) and 1 vehicle per hour (vph) in the adjacent roading network.

4. Crash History

A review of the current safety performance has been undertaken to determine the nature of crash types and severity along Mt Fyffe Road and the vicinity of the Ludstone Road intersection. Crash information has been extracted from Waka Kotahi's Crash Analysis System (CAS) database for the last ten-year period (2012 to 2021), in addition to the current year (2022). The extent of the assessment is shown in Figure 10.



Figure 10: Extent of safety assessment

One single minor-injury crash was recorded in the ten-year period. This was a side-impact type crash involving a vehicle driving south on Mt Fyffe Road (north of the intersection) that drove straight through it, crashing with a westbound vehicle on Ludstone Road. Driver distraction was recorded as a crash factor.

The crash history indicates no safety issues along Mt Fyffe Road and at the intersection with Ludstone Road, given the low crash frequency (one crash in 10 years) and severity.

5. The Proposal

The site is proposed to be developed to accommodate 67 residential lots. Two of the lots are to range from 3,566 to 3,730 m² – these lots are designed to accommodate 20 elderly people’s housing. The other 65 lots are to accommodate single residential dwellings, with areas ranging in size from 500 to 864 m².

The site is to be accessed from a new public road and new road intersection onto Mt Fyffe Road. Most of the lots are to have direct access to the new public road. Some lots are to have shared private right-of-ways connecting to the new public road. This is further discussed in Section 8.

The existing access is to be permanently closed out, and the existing residential dwelling removed.

This assessment considers the traffic to be generated by the development in full by the development. The concept plan is shown in Figure 11.

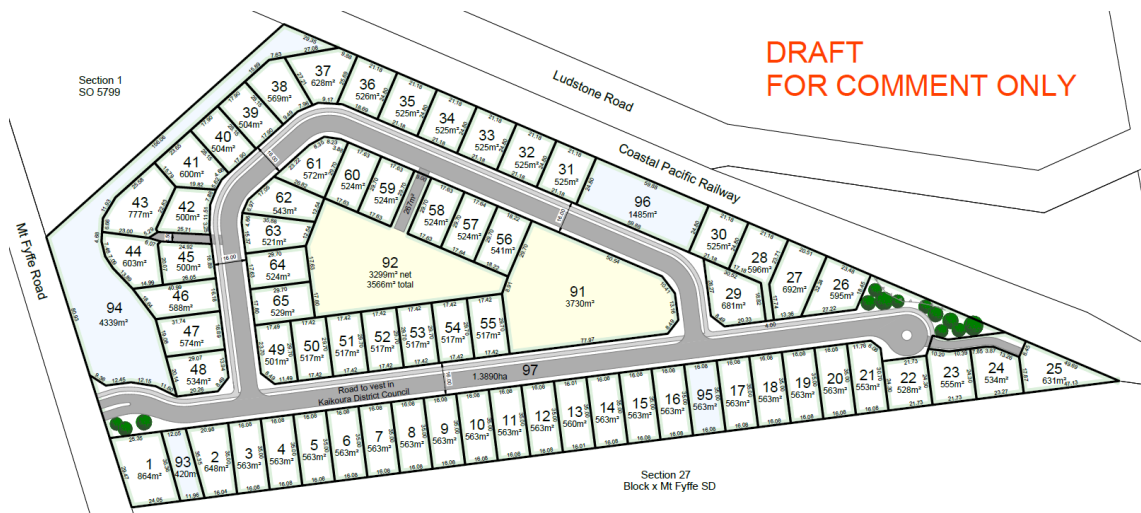


Figure 11: Site plan

6. Traffic Generation and Distribution

6.1. Traffic Generation Assessment

The 67 proposed lots on the site are expected to generate approximately 821 vpd and 88 vph in the peak hour. This is based on trip generation rates for residential dwellings and senior adult housing. Single residential dwellings are typically expected to generate 9.4 to 10.9 vpd and 0.8 to 1.2 vph in the peak hour. Senior adult housing units are generally predicted to generate 2.6 to 5.6 vpd and 0.3 to 0.49 vph in the peak hour. Conservatively, the higher trip generation rates have been used in this report for a more robust assessment of effects.

Trip rates derived for the development and the expected site's trip generation are detailed below in Table 3.

Table 3: Site's trip generation

Dev. Type	Lots / Units	Daily Rate (vpd/unit)	Peak Hour Rate (vph/unit)	Total Daily Trips (vpd)	Peak Hour Trips (vph)
Residential dwelling (suburban)	65	10.9 ¹	1.2 ¹	709	78
Senior Adult Housing	20	0.49 ²	5.6 ²	112	10
Total				821	88

¹ NZTA Trips and Parking related to land use November 2011

² ITE Trip Generation Manual 10th Edition September 2017

6.1. Traffic Distribution

Due to the fact that Mt Fyffe Road is currently a no-exit road, the traffic to be generated by the site is expected to travel 100% to and from the north, towards the Ludstone Road intersection. At this intersection, the directional split of 90:5:5 to the east:west:north is predicted – this is similar to the split obtained in the traffic survey during the AM peak period. The in:out split is expected to be 15:85 in the AM peak period and the reverse in the PM peak, typical for residential areas. This is expected to generate mostly right-turn movements out of Mt Fyffe Road (south) in the AM peak period and left-turn movements onto Mt Fyffe Road in the PM peak period.

The traffic flows obtained during the AM peak hour have been updated to represent a future condition (10-year flows, i.e. 2032). A standard growth rate of 3% per annum has been applied, given that no historical data for the site vicinity was available.

Furthermore, the traffic flows obtained in the AM peak period have been assumed to be the reverse in the PM peak period. The distribution of trips to be generated by the proposed development in the peak periods is illustrated in the traffic diagrams (shown in Figures 12 and 13).

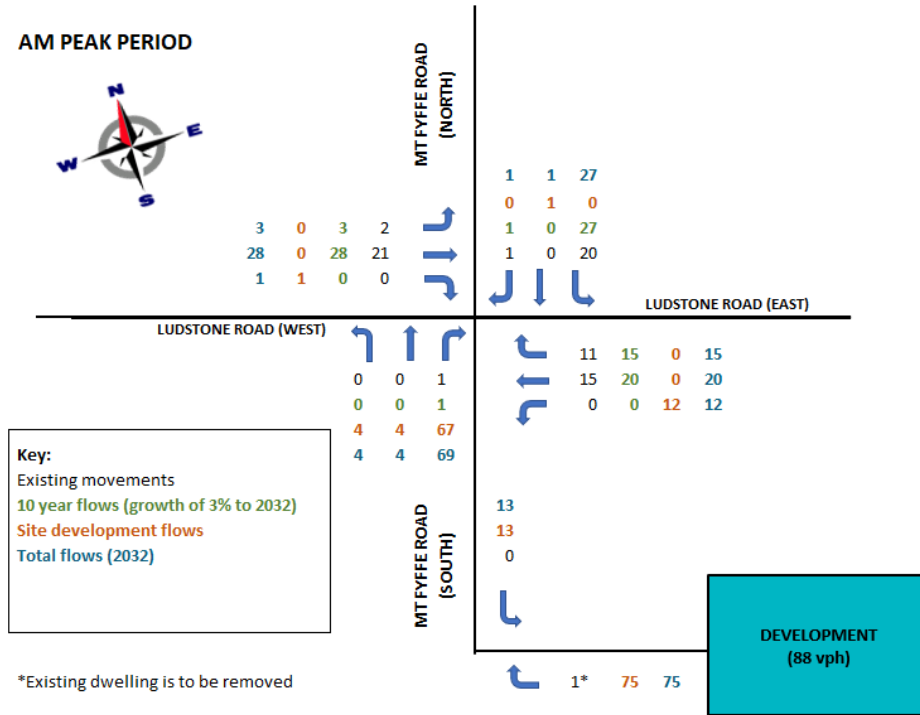


Figure 12: AM peak hour traffic flows

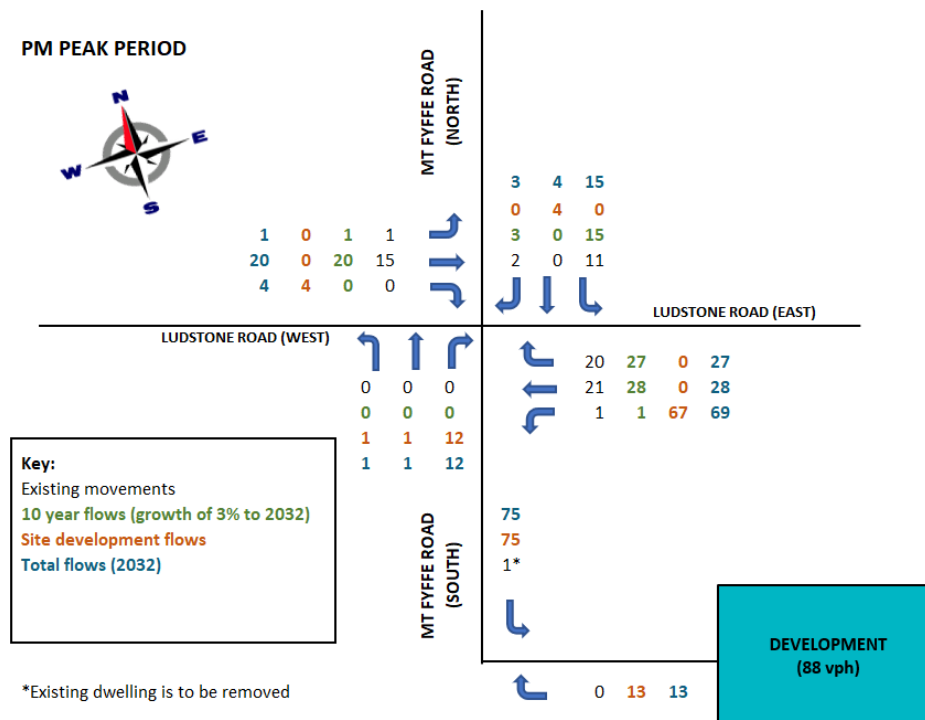


Figure 13: PM peak hour traffic flows

7. Traffic Effects

7.1. Intersection Performance

The impact of the expected traffic generated by the developed site applied to the volumes of the existing roading network (including 10-year assessment) has been assessed to determine the Practical Absorption Capacity of intersections in the vicinity of the site. This has the purpose of assessing the ability of the intersections to absorb the traffic generated by the proposed development during peak hours. The results are shown in Table 4.

Table 4: Practical Absorption during Peak Hours

Summary	Scenario	Peak period	Total Turn volume (vph)	Practical Absorption Capacity of Minor Approach (vph)	Remaining Available Capacity (vph)	Degree of saturation
Ludstone Road/ Mt Fyffe Road intersection	Existing	AM	33	772	739	0.23
	10-year (w/ development)		122	1,333	1,211	0.27
	Existing	PM	33	537	504	0.25
	10-year (w/ development)		67	834	767	0.26

* Based on critical acceptance gaps and follow-up headways from Austroads GRD Part 4A, Table 3.5

It is assessed that the required capacity is significantly less than the practical absorption capacity of the intersection in the vicinity of the site, indicating that the surrounding network can absorb the traffic to be generated by the developed site.

Degrees of saturation at the Ludstone Road/Mt Fyffe Road intersection range from 0.23 in the existing situation to 0.27 in the AM peak for the developed situation. This indicates that the intersection would operate at a maximum of 27% of the available capacity in the future condition, suggesting that vehicles would be very unlikely to experience poor levels of service. Delays and queueing would likely be minimal.

Therefore, it is concluded that the traffic flows are expected to be appropriately accommodated in the adjacent roading network with no significant adverse impacts.

8. Layout and Design

8.1. Internal Road Design

The proposed road reserves comply with or exceed the requirements of the Kaikōura District Plan (Transport and Subdivision sections). The following road configuration is proposed for the developed site:

- Public road to serve all 67 lots, consisting of:
 - 16 m wide road reserve;
 - 8 m wide sealed carriageway;
 - 2 m wide footpath on one side of the road;
 - 1.5 to 2.5 m wide grassed berms;
- Private right-of-ways to serve 3 to 4 lots, consisting of:
 - 4.5 to 6 m wide road reserve;
 - 3.5 to 4.5 m wide sealed carriageway;
- Private right-of-way to serve the elderly people's housing lot (Lot 92), consisting of:
 - 9 m wide road reserve;
 - 5 m wide sealed carriageway;
 - 2 m wide grasses berms;
- Private right-of-way to serve rear lot 28 (single residential dwelling), consisting of:
 - 4 m wide road reserve and sealed carriageway;

The proposed road reserves comply with or exceed the requirements of the Kaikōura District Plan (Transport and Subdivision sections).

Each of the lots is to have one vehicle crossing, which is to be sealed and between 3 and 6 m wide to comply with the requirements of the District Plan for residential land use. It is recommended that the vehicle crossings for corner lots be constructed from the road expected to generate the lowest traffic flows.

A turning head (cul-de-sac) is proposed to be provided at the end of the new public road, which allows turnaround opportunities for service vehicles. A minimum turning head radius of 9.5 m for residential areas is recommended to be adopted.

The existing posted speed limit of 30 km/h on Mt Fyffe Road is recommended to be extended through the new public road.

8.2. Mt Fyffe Road

The site is expected to generate approximately 821 vpd additional on Mt Fyffe Road; therefore, approximately 841 vpd in total would be expected to be generated on this road considering the existing traffic volumes.

This road is currently approximately 6 m wide, narrowing down to 4.6 m wide underneath the Railway Overbridge. In its existing form, Mt Fyffe Road does not comply with the requirements of the District Plan for roads up to 1,000 vpd. Therefore, it is recommended that the carriageway be widened to 8 m wide to accommodate the additional traffic flows.

An assessment of the single-lane section has been undertaken to identify the probability of opposing vehicles meeting simultaneously throughout the section. This aims to establish the probability of potential issues in the vicinity (for instance, queueing back onto Ludstone Road).

Peak hour volumes of 75 vph departures and 13 vph arrivals are predicted to occur in the AM peak period – this equates to one vehicle every 48 seconds and 277 seconds for departures and arrivals, respectively. A probability of 25% of a vehicle departing this one-way section, considering 12 seconds of exposure time through the section (50 m at 15 km/h), is calculated. The probability of arrivals is 4.3%, based on the same exposure time. Therefore, the probability of two vehicles meeting at the same time is 1.1%. No adverse effects are therefore expected due to increased traffic volumes through the single-lane section.

A shared path is currently provided on Mt Fyffe Road and Ludstone Road. However, this informal shared path does not provide adequate surfacing, signage and maintenance. It was formed as part of the NCTIR (Kaikōura Earthquake Rebuild) but has been virtually inoperative since then, with overgrown vegetation encroaching over the path.

A disconnect could be expected to be generated with the site development since footpaths are proposed to be provided throughout the site. Site residents could be expected to walk on the live lane, as the berm is generally relatively steep and has overgrown vegetation, which is considered to cause safety risks for these vulnerable road users, especially the elderly.

However, a shared user path (SUP) is currently being designed in the site vicinity. The SUP is expected to be constructed on the east side of Mt Fyffe Road and connected to another SUP section on the southern side of Ludstone Road. This SUP is expected to safely provide for walking and cycling trips to and from the site. The construction is expected to start in 2023.

8.3. Railway Overbridge

The existing Railway Overbridge has a 4 m height clearance, having a width of approximately 7.8 m between pillars.

The typical maximum height above ground for heavy vehicles is 4.3 m. It is assessed, therefore, that some larger vehicles could not be able to access the site for not being able to pass under the Overbridge.

However, typically, heavy vehicles travelling to and from the site would be likely to have the appropriate access as long as they are limited to 4 m in height. This includes rubbish trucks, emergency vehicles and moving trucks.

8.4. Intersection design

8.4.1. Ludstone Road/Mt Fyffe Road intersection

Austrroads GTM 2017 Part 6:2020 Figure 3.25 (provided in Figure 14) indicates that no left-turn treatment or right-turn bay is warranted at this intersection. This assessment used traffic flows from Figure 13. Left-turn and right-turn in volumes are expected to be greatest in the PM peak.

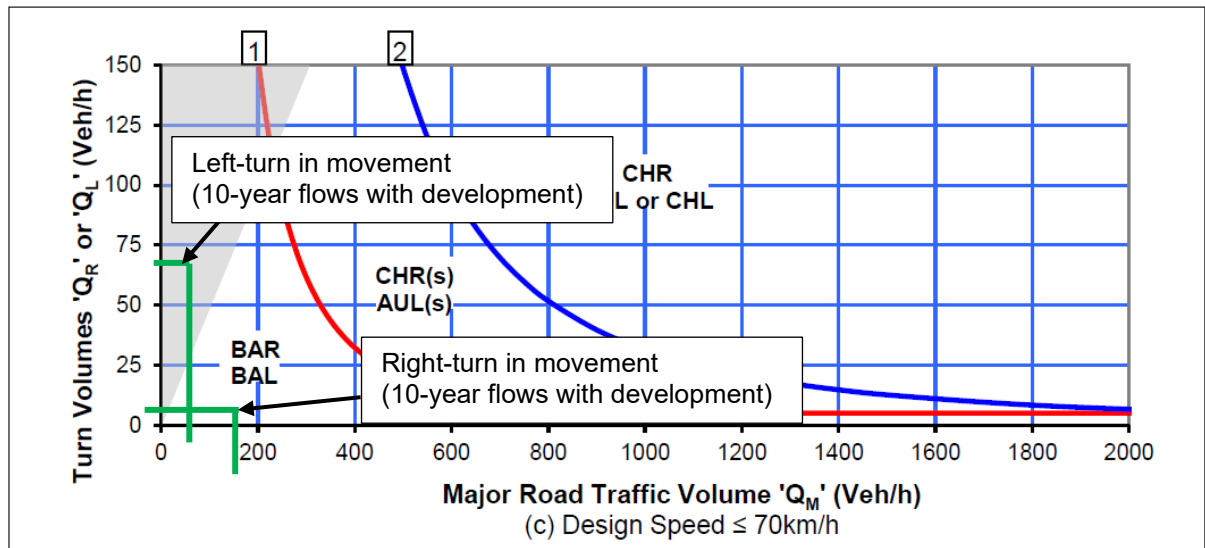


Figure 14: Turning warrants at the Ludstone Road/Mt Fyffe Road intersection (Figure 3.25(c) Austrroads GTM Part 6)

8.5. Parking Requirements

Table 12.8.1 of the Kaikōura District Plan determines minimum parking requirements for different activities. Two parking spaces per residential dwelling are required to be provided. This is expected to be easily achieved within each of the residential lots.

The District Plan also requires one parking space per Elderly persons housing unit. Therefore, lots 91 and 92 are required to allocate a total of 20 parking spaces. Similarly, this provision is expected to be achieved in these lots, complying with the requirements of the District Plan.

8.6. Visibility Assessment

Table 12.8.5(2) of the Kaikōura District Plan requires minimum sight distances of 85 m and 115m for posted speeds of 50 km/h and 60 km/h, respectively. The visibility assessment at the intersection to/from the site is presented below.

8.6.1. Ludstone Road/Mt Fyffe Road intersection

Table 5: Visibility from the Ludstone Road/Mt Fyffe Road intersection

Required Sight Distance	Achieved visibility			
	West	Comply/Not Comply	East	Comply/Not Comply
115 m	170 m	✔	120 m	✔



Figure 15: Sight distance from the Ludstone Road/Mt Fyffe Road (south) intersection to the west

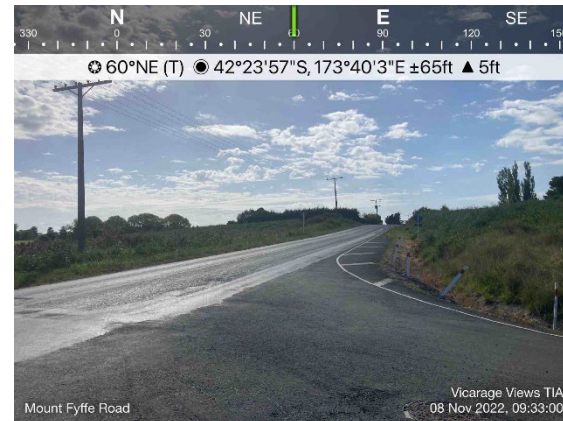


Figure 16: Sight distance from the Ludstone Road/Mt Fyffe Road (south) intersection to the east



Figure 17: Sight distance from the Ludstone Road/Mt Fyffe Road (north) intersection to the west



Figure 18: Sight distance from the Ludstone Road/Mt Fyffe Road intersection (north) to the east

The intersection is currently give-way controlled on its northern side. This control is considered incorrect due to the fact that appropriate visibility is not achieved from a point 9 m from the limit line. It is recommended that Mt Fyffe Road be updated to stop control on the north side of the intersection.

The intersection is also currently unlit. Flag lighting is recommended to be provided at the intersection, given the increased traffic flows on Mt Fyffe Road. This is expected to increase overall safety during dark periods.

Furthermore, vegetation is overgrown on both the south and north approaches. It is recommended that vegetation is trimmed/removed (and permanently maintained) in the vicinity of the intersection to improve visibility.

8.6.2. New Road intersection with Mt Fyffe Road

Table 6: Visibility from the new road intersection onto Mt Fyffe Road

Required Sight Distance	Achieved visibility			
	South	Comply/Not Comply	North	Comply/Not Comply
85 m	> 150 m	✔	> 150 m	✔

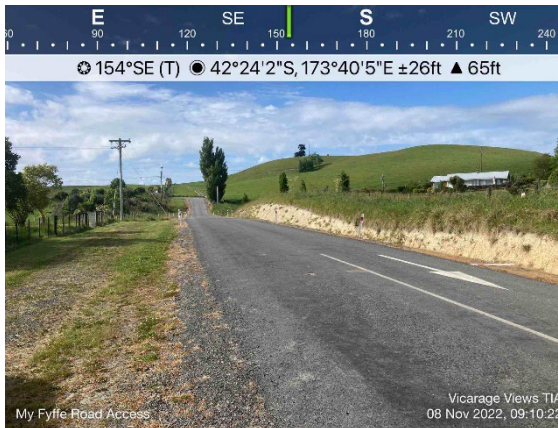


Figure 19: Typical visibility on Mt Fyffe Road to the south



Figure 20: Typical visibility on Mt Fyffe Road to the north

8.7. Intersection Separation Distance

The Kaikōura District Plan requires a minimum separation distance between intersections from 125 m to 160 m on 50 km/h and 60 km/h posted speed limit zones, respectively (Table 12.8.5(1)).

The new proposed intersection off Mt Fyffe Road is located approximately 300 m south of the Ludstone Road intersection and, therefore, exceeds this requirement.

The new road intersection within the site is located approximately 80 m east of the Mt Fyffe Road/New Road intersection (as shown in Figure 21). This represents a shortfall from the requirements of the District Plan. However, no adverse effects are expected to occur as a result of the shortfall for the following:

- A posted speed limit of 30 km/h is recommended to be adopted within the site. This is expected to reduce the separation distance requirement and the shortfall;
- Separation distances are typically required in order to provide enough observation time for the provision of safe turning movements at potential conflict points (i.e., intersections). The proposed distance between intersections in relation to the posted speed limit is assessed to be adequate for safe movements to be undertaken at the intersection. Stopping sight distances of 40 m and 55 m are required for design speeds of 40 km/h and 50 km/h, respectively (Austroads GRD Part 3) – this establishes a reduced risk for any conflicts to occur at the intersection;

- A horizontal curve is proposed in the approach/departure of the new intersection off Mt Fyffe Road. This is expected to reduce vehicles' operating speeds further, controlling their speeds. This is expected to create more safe gap opportunities for turning movements at the new intersection within the site.

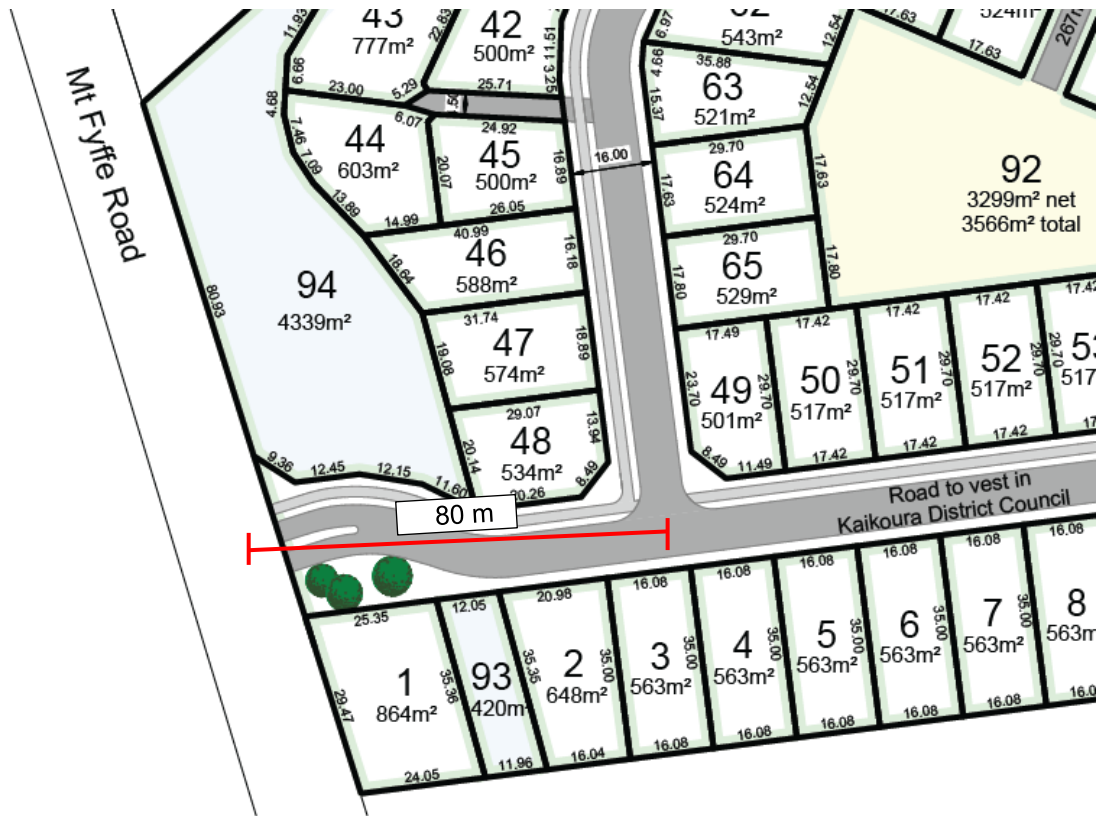


Figure 21: Separation distance within the site

9. Conclusion

On the basis of the assessment detailed above, it is concluded that the proposed residential development can be appropriately accommodated within the local traffic and transportation environment.

The traffic generation of the proposed 67 residential lots is expected to be approximately 821 vpd and 88 vph in the peak hour. While the peak hour traffic flows at the site are likely to coincide with the surrounding network peak, the development's traffic flows are expected to be absorbed in adjacent intersections and the existing roading network, as indicated in practical absorption calculations. Furthermore, the crash history has demonstrated no underlying safety issues on Mt Fyffe Road and Ludstone Road in the vicinity of the site.

The internal roading layout, including the proposed new public road, complies with or exceeds the requirements of the Kaikōura District Plan.

An evaluation has been undertaken to focus on safety performance outcomes of the adjacent intersection. With the additional flows to be generated by the development, no right- or left-turn facilities are warranted at the Ludstone Road/Mt Fyffe Road intersection. This is primarily driven by the relatively low traffic volumes at the intersection and to and from the site. Furthermore, sight distances at the new intersection with Mt Fyffe Road and at the adjacent Ludstone Road/Mt Fyffe Road intersection comply with the requirements of the Kaikoura District Council. Therefore, this is expected to provide for safe turning movements.

The separation distance between the intersection within the site and Mt Fyffe Road does not meet the requirements of the District Plan for a 50 km/h posted speed limit. However, the posted speed limit of 30 km/h is recommended to be adopted throughout the site. Therefore, no adverse effects are expected to be generated due proposed separation distance. The turning movements are expected to be safely undertaken at the intersection, with appropriate observation time due to the relatively low speed environment throughout the site.

Mt Fyffe Road is currently predominately 6 m wide to the south of Ludstone Road, except for the single-lane section through the Railway Overbridge. This road is recommended to be widened to 8 m wide to accommodate the additional traffic flows and alignment with the Kaikōura District Plan.

A future shared path is intended to connect to the site along Mt Fyffe Road and Ludstone Road. This is expected to safely provide for walking and cycling trips to and from the site, enabling connectivity to nearby shops and schools without motorised vehicles. This would be expected to reduce vehicle trips to and from the site; however, this assessment has been undertaken conservatively, with trips allocated in full to test the road network's robustness.

Therefore, it is concluded that the traffic associated with the proposed development is able to be accommodated on the adjacent road network and that there are no traffic planning reasons to preclude the approval of the proposed development provided that the recommendations given in this report are followed.

10. Recommendations

Based on the findings of this report and the associated conclusions, it is recommended that the following be provided at the site:

- Mt Fyffe Road is widened to 8 m wide between the site and the single-lane section (i.e. through the Railway Overbridge);
- Mt Fyffe Road is updated to stop control on the north side of the intersection with Ludstone Road;
- Flag lighting is provided at the Ludstone Road/Mt Fyffe Road intersection;
- Vegetation is trimmed/removed and permanently maintained at the Ludstone Road/Mt Fyffe Road intersection;
- Vehicle crossings are to be sealed and between 3 and 6 m wide;
- Vehicle crossings for corner lots are to be provided from the lower volume road;
- A minimum turning head radius of 9.5 m is to be constructed at the end of the road;
- The speed limit throughout the site is to be 30 km/h;

11. Disclaimer

This report has been prepared by Urban Connection Limited for Vicarage Views Limited and may only be used and relied on by Vicarage Views Limited for the purpose agreed between Urban Connection Limited and Vicarage Views Limited as set out in this report. By default, this means that Vicarage Views Limited can use and rely on this report for the purposes of supporting the consent application.

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The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. Urban Connection Limited has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

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Rev	Date of Issue	Author	Reviewer	
			Name	Signature
0 – DRAFT for client review	21 November 2022	Matheus Boaretto	Jonno Fletcher	
1 – FINAL	28 November 2022	Matheus Boaretto	Jonno Fletcher	
2 – FINAL (minor updates)	11 April 2023	Matheus Boaretto	Jonno Fletcher	