

DELMORE

ROADING AND ACCESS

Vineway Ltd



MCKENZIE & CO.

DOCUMENT CONTROL RECORD

PROJECT: Delmore

CLIENT: Vineway Ltd

PROJECT LOCATION: 53A, 53B & 55 Russell Road and 88, 130 & 132 Upper Ōrewa Road

Revision	Date	Originator	Checker	Approver	Description
A	19/12/24				Substantive Application
B	31/01/25				Substantive Application
C	04/02/25				Substantive Application
D	08/02/25				Substantive Application
E	10/02/25				Substantive Application
F	11/02/25				Substantive Application
G	02/07/25				Substantive Application
H	15/12/25				Substantive Application

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1. EXECUTIVE SUMMARY

Vineway Ltd proposes a 109-hectare residential development at 53A, 53B & 55 Russell Road and 88, 130 & 132 Upper Ōrewa Road, comprising approximately 1,213 lots. McKenzie & Co have prepared this Report to address critical roading, cycling, pedestrian, and public transport considerations in support of the Resource Consent application.

The site is zoned Future Urban and is currently used for agricultural activities. Access will be provided from Grand Drive to the northeast, Russell Road and Upper Ōrewa Road to the south. Key infrastructure includes the extension of Grand Drive (NoR 6), 2 collector roads, 27 local roads, and 39 private Jointly Owned Access Lots (JOALs). Where practicable, road designs follow established standards from the Auckland Transport Design Manual (TDM) and Austroads, ensuring appropriate design speeds, sight lines, and safe stopping distances.

Key Design Features

Road Network: An arterial road (NoR 6) with a 60 km/h design speed, collector roads with a 50km/h design speed and local roads designed for 30 km/h with traffic-calming measures.

Road Geometry & Standards: Vertical and horizontal alignments comply with TDM and Austroads requirements, although a departure is needed for grades above 8% due to steep topography.

Stormwater Management: Runoff is captured via catchpits and conveyed to Gross Pollutant Traps before flowing into communal raingardens for treatment, retention, and detention. Overland flow paths are contained within road reserve, safely discharging to streams with energy dissipation at outlets.

Pedestrian & Cycling: Provision of footpaths, pram crossings, raised tables, and off-road cycle lanes along the arterial route, with future bus stops planned when demand necessitates.

Utilities & Safety: All services are routed in berms/footpaths, while streetlighting and signage will meet TDM and NZTA standards.

Overall, the proposed design supports multimodal connectivity, addresses environmental considerations, and aligns with relevant local regulations and standards, ensuring a safe and efficient transport network for this new residential community.

2. INTRODUCTION

McKenzie & Co have been engaged by Vineway Ltd to provide an Access and Roading Report in support of the Delmore substantive application under the Fast Track Approvals

Act 2024, by addressing the critical roading, cycling, public transport and pedestrian matters that relate to this proposal. It is important to note that this report only covers the movement network, while other infrastructure matters, including earthworks, stormwater, overland flow paths, wastewater, water supply, and utility servicing works are addressed in separate infrastructure reports.

To fully comprehend this report, it should be read together with the substantive application, plan drawings, and other supporting documents referred to in this report.

Refer to Mckenzie & Co's Stormwater Engineering Report for further information on the proposed stormwater system to service the transport network as part of this development.

The roading network has been designed with Commute Transport and this report should also be read in conjunction with Commute's Technical report (transport) – 2025.

3. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The proposed development site is legally described as Lot 1 DP 336616, Lot 1 DP 497022 & Lot 2 DP 497022, Lot 2 DP 418770, Lot 1 DP 153477 & Lot 2 DP 153477.

The site is zoned as Future Urban. The site is accessed from Grand Drive in the northeast, and Russell Road and Upper Ōrewa Road from the south.

Currently, the site is used for agricultural purposes with livestock roaming across a significant portion of the site. Some bush areas subject to consent notices that are proposed to remain for the most part, and a pine tree stand that will be removed for development.

The location of the development is shown below in Figure 1.

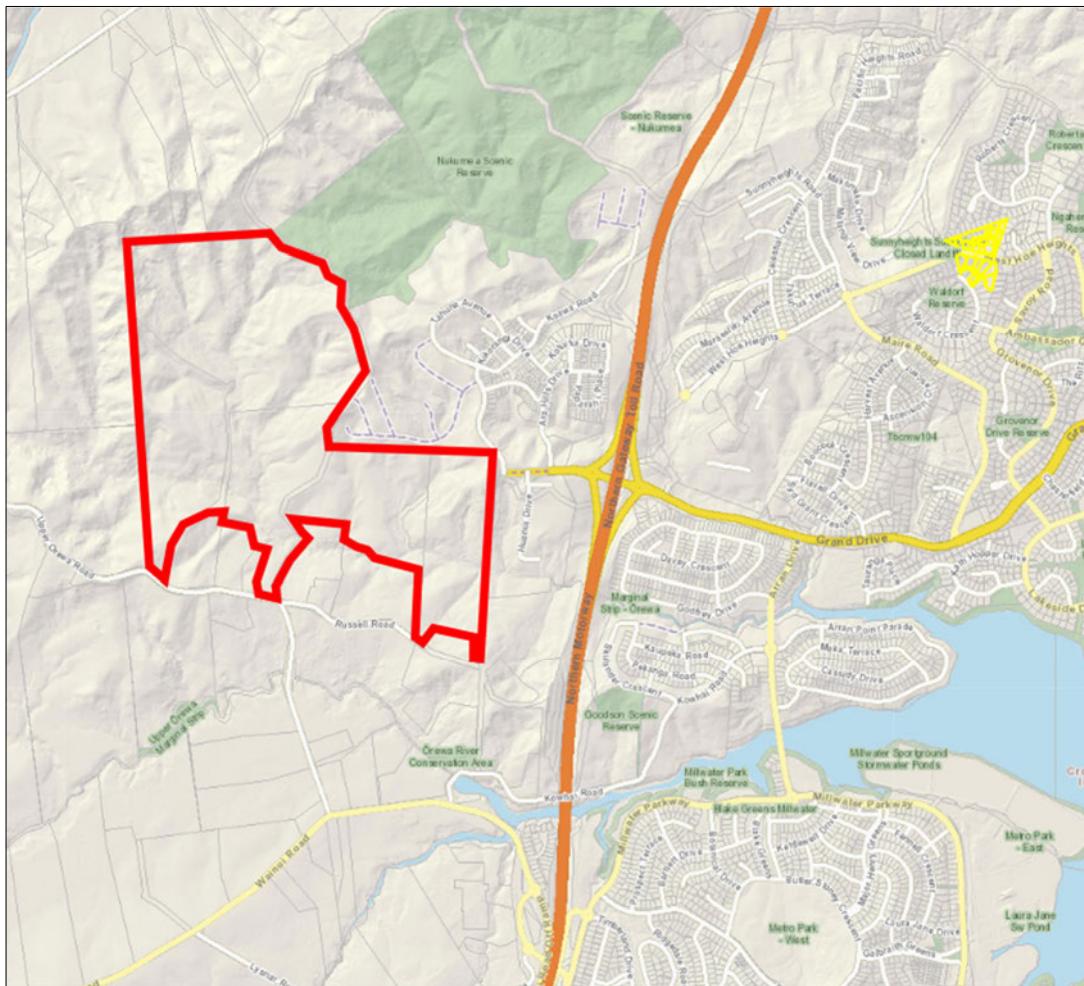


Figure 1 – Site location

DESIGN STANDARDS

Public roads have been designed in accordance with the below requirements, and reports:

- Transport Design Manual, Auckland Transport (TDM);
- Austroads Guide to Road Design (Austroads);
- Alignment and typical cross section, generally in accordance with Notice of Requirement No. 6. (NoR 6);
- Commute – Transportation Assessment Report;
- Mckenzie & Co Stormwater Report;
- NZS4404:2010; and
- E27 Transport of the Auckland Unitary Plan.

The development comprises of approximately 1213 residential lots. The internal road network will connect to Grand Drive to the east via an existing roundabout / interchange, and a new connection to Upper Ōrewa Road is proposed. The masterplan is shown below in Figure 2.

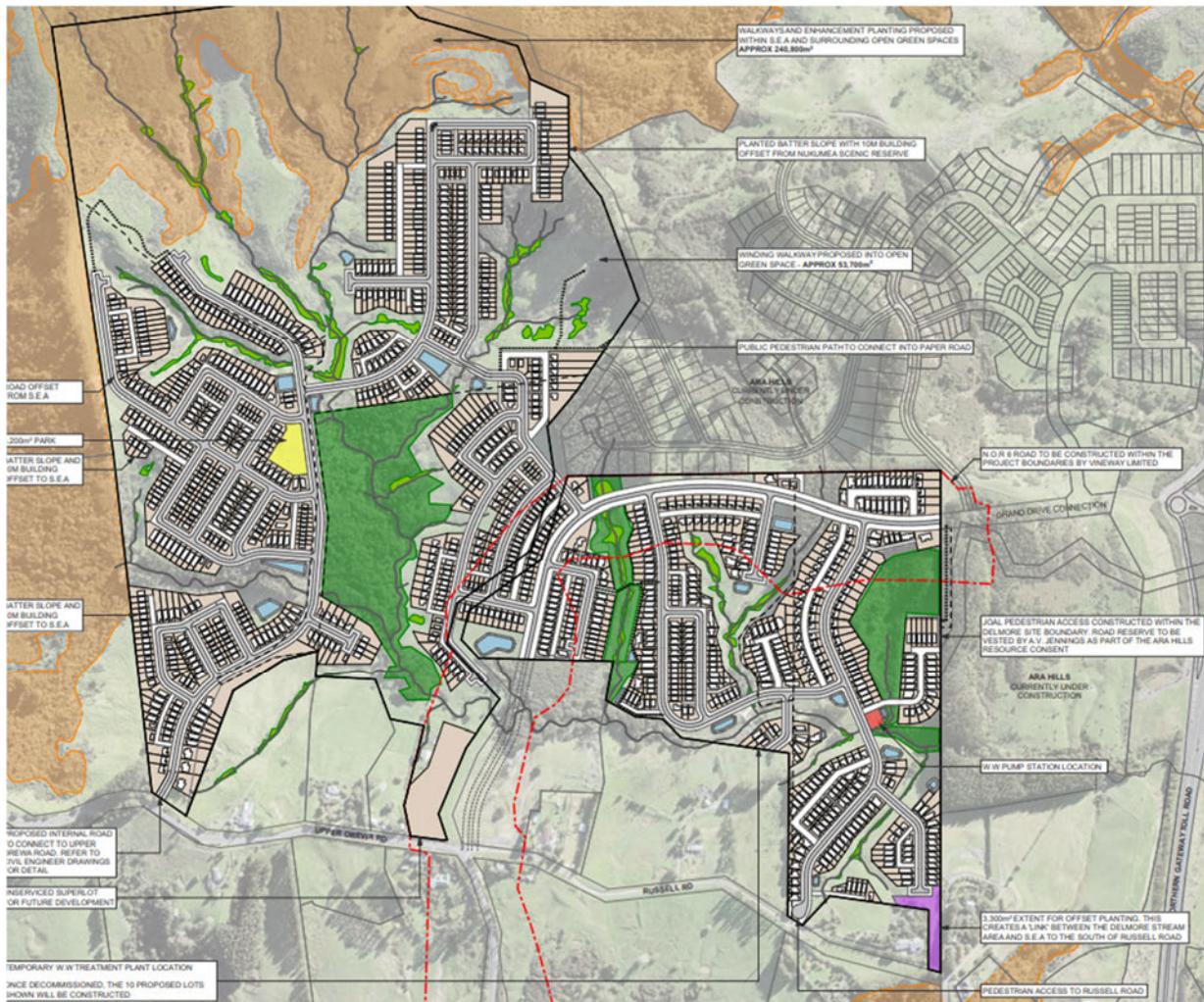


Figure 2 - Proposed development layout

4. DESIGN PARAMETERS

4.1. Design Speeds

- Arterial Road (NoR 6) – 60km/h;
- Collector Roads – 50km/h;
- Internal roading network, posted speed 50km/hr. However, with the addition of traffic calming measures, a design speed of 30km/h is proposed.

4.2. Design Vehicle – Tracking

- Local – Local - 10.3m Truck, using full width of road. This results in intersection radii

of 7m.

- Local – Collector – 10.3m Truck, using full width of road. This results in intersection radii of 7m.
- Collector – Arterial – 10.3 Rear steer truck, for vehicle tracking, can turn onto central median but not oncoming lane. This means that a radius of 15m has been adopted for Arterial/local roads.
- Local – Arterial – 10.3 Rear steer truck, for vehicle tracking, can turn onto central median but not oncoming lane. This means that a radius of 10.3m has been adopted for Arterial/local roads.
- Local road corners – corners have been tracked and tapers adjusted to suit. More detailed tracking will be undertaken at detailed design stage.

4.3. Visibility for safety

In Stage 2, the intersection of Road 17 with Upper Ōrewa Road has been checked for sight lines in both directions and complies with Austroads guidelines. Some vegetation clearing will be required on the inside corner of Upper Ōrewa Rd, and replanted with low planting to ensure vegetation heights remain low.

4.4. Design for Maintenance

No manholes or utility lids are located in the Carriageway.

Road 1 Cul-de-sac radius has been designed to cater for turning circle for a 6m long “Sucker truck” to access the waste from WWTP. There is also a Commercial Vehicle crossing (with restricted access) to be built between Road 1 cul-de-sac and Russel Road.

4.5. Horizontal Alignment

The proposed development involves the construction of an arterial road, which runs along the northern boundary of the property, and is noted as NoR 6, and a local road network. The arterial road is within the NoR 6 designation boundaries and aligns with the AT design road.

There are also a number of private JOALs serving lots from the rear. The JOALs have various widths, depending on the number of dwellings that are access from it. All horizontal curves are compliant with Austroads Chapter 3. Widening has been undertaken on corners where required for vehicle tracking to enable a 95th percentile car to pass a 10.3m rubbish truck.

4.6. Vertical Alignment & Longitudinal Grades

Road Design Part 3: Geometric design, Table 8.7 and Figure 8.9 have been used to determine minimum K values for crest and sag curves.

Minimum K-values	Crest	Sag
	Desirable minimum: 3.5 Absolute minimum: 2.9	Desirable minimum: 3 Absolute minimum: 1
40km/h	Desirable minimum: 6.8 Absolute minimum: 5.4	Desirable minimum: 4 Absolute minimum: 2
50 km/h		

4.6.1. Arterial Road (NoR 6)

The steepest vertical grade on the arterial road is less than 8%. The designed minimum vertical k values are within the above with Austroads Chapter 3.

4.6.2. Collector Roads

The steepest vertical grade on the collector roads is less than 8%, due to topographical constraints.

4.6.3. Local Roads

The steepest vertical grade on the local roads is 12.5%, due to geographical constraints. This is steeper than TDM section 5.3 however the constraints do not allow for flatter grades. A departure from standard will be required for roads over 8%.

4.6.4. Private Jointly Owned Access Lot (JOAL)

JOALs have a minimum 4m platform at maximum grade of 5% adjacent to the road reserve, to satisfy Table E27.6.4.4.1 of the AUP(OP). Maximum longitudinal grades have been designed to be a maximum of 20%. Changes of grades greater than 12.5% have been designed to have a transition to avoid a car striking the ground.

4.7. Cross-Fall

All roads have carriageways with 3% cross fall, and berms and footpaths have 2% cross fall.

Some roads have single cross fall where these benefit local topography, to enable better vertical geometry changes. Overland flowpaths (OLFPs) have been checked for these roads to ensure flow widths remain within allowable limits, as specified in Auckland Transport's Transport Design Manual (TDM).

4.8. Intersection Design

Vehicle tracking has shown that compound curves are not required where the local roads intersect with the arterial road and collector roads. A truck can manoeuvre over the flush central median, in accordance with the TDM.

Local to Local Road kerb returns are 7m radii.

For details of vehicle tracking refer to the Transportation Report prepared by Commute Transportation.

Two roundabouts are proposed to be provided, where the collector roads intersect the NOR.

Two future roundabouts (to be built by others) shown in drawings to provide context. These are between

- NoR 6 and Russel Road
- Road 17 and Russel Road

4.9. Road Reserve and Lane Widths

Road cross sections are shown on 3725-1-3600 to 3602.

Road reserve widths are shown below in Table 1.

Table 1 - Road reserve widths

Road type	Road reserve width	Lane width	Other modes
NOR/Grand Drive extension	24m	3.8m in either direction, plus 2.5m median.	2m footpath, and two way cycle lane on one side.
Collector Rd – Stage 1	17m	3.5m in either direction	1.8m footpath on both sides
Collector Rd – Stage 2	21.5m	3.5m in either direction	3.2m two way cycle lane, 1.8m footpath on both sides
Local roads	16m	3m in either direction	1.8m footpath on both sides

The roads have been designed with localised widening at the bends to accommodate truck movements. Vehicle tracking has been undertaken by Commute Transport which confirms that vehicle manoeuvring can be accommodated within the masterplan. Further refinement will occur during detailed design.

With specific reference to the wastewater holding tank in the Road 1 cul-de-sac (refer to the Water and Wastewater Report), appropriate space for manoeuvring has been provided at the turning head.

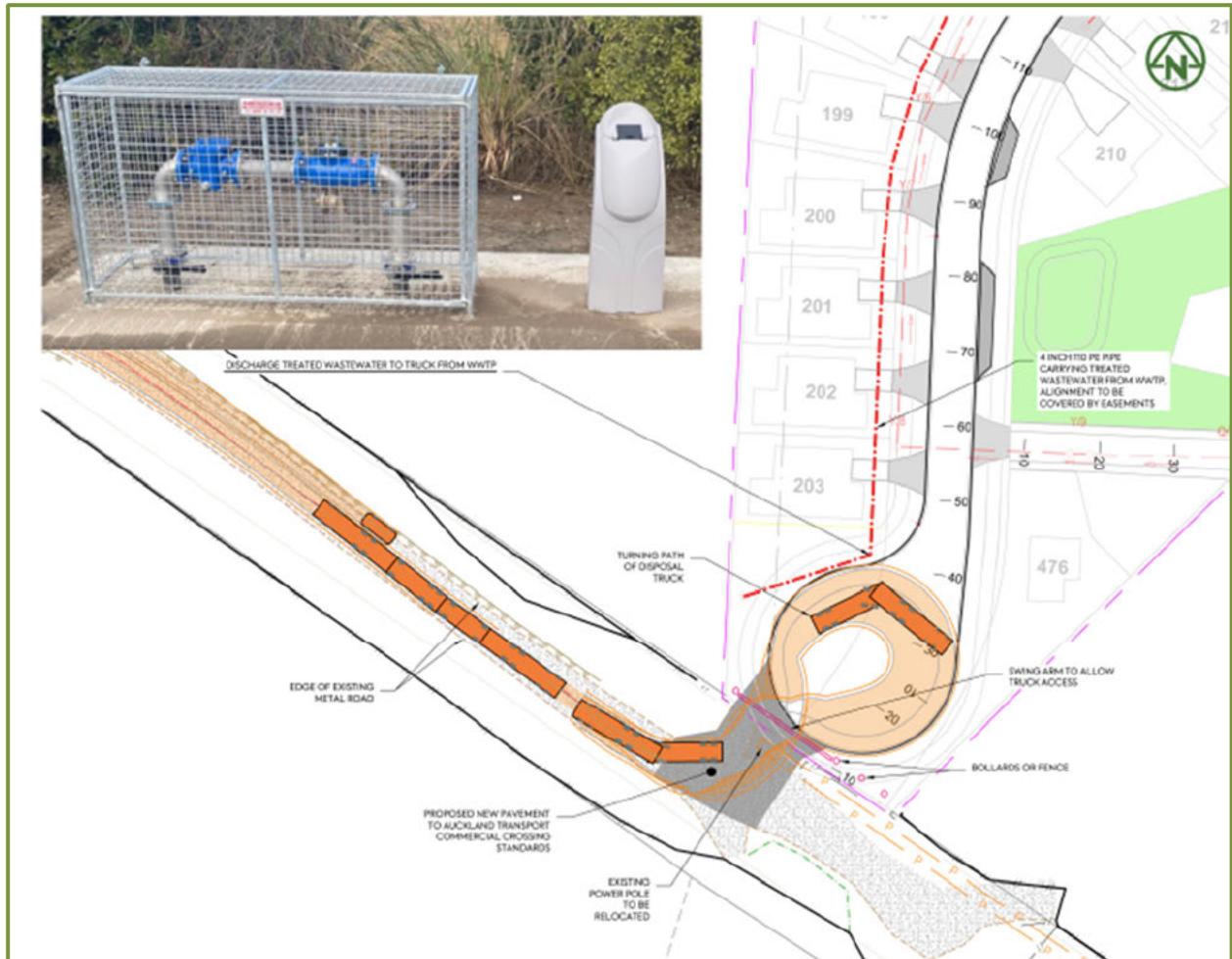


Figure 3: Turning head for trucks in Road 1 cul-de-sac.

4.10. Road Drainage and Utilities

The stormwater discharge from the development is subject to a discharge consent however is proposed to be adopted under Auckland Council's Region Wide Network Discharge Consent (NDC) as a Greenfield Development, within Schedule 10 at the time the land is rezoned from FUZ. To comply with the NDC, a comprehensive Stormwater Management Plan has been developed. This plan outlines how stormwater quality and quantity will be managed on-site through the application of best practice methods.

Runoff from impervious surfaces within the road reserve will be captured by catchpits and conveyed through a pipe network. The runoff will then pass through a Gross Pollutant Trap (GPT) before being discharged into communal raingardens. These raingardens will provide treatment, retention, and detention of stormwater flows. For storm events exceeding the 95th percentile, excess flows will bypass the raingardens and discharge directly to the stream outlet. The stream outlet will be designed to reduce flow energy before entry into the stream to prevent erosion. This will be achieved using rip rap and other energy dissipation measures. For additional stormwater strategy detail, refer to the Stormwater Report provided with this application.

Multiple communal raingardens will be utilized to manage water quality, and to provide retention and detention for impervious surface runoff from public roads and private JOALs. The design and operational details of these raingardens are provided in the Stormwater Report and illustrated in the 400 series drawings. The design adheres to the standards outlined in Auckland Council's Stormwater Management Devices in the Auckland Region (GD01) 2017, version 4. No on-road raingardens are proposed.

OLFPs have been modelled to confirm flow depths and velocities, with results presented in plans 3725-1-4600 to 4650. The modelling confirms that OLFPs can be contained within the road carriageways and safely discharged into receiving streams. The OLFP discharge points will be protected using rip rap and other energy dissipation devices to minimize erosion risks.

DxV values mostly comply with the allowable limits of 0.04 to ensure pedestrian and vehicle safety in overland flow conditions. Some minor areas are between 0.4 to 0.6, however these areas are in 'no obvious danger' areas, and as such does not increase risk to pedestrians. No pedestrian crossings will be located in these areas.

All underground services, including utility infrastructure, will be located within berms and footpaths. No manholes or utility access chambers are proposed within the carriageway to maintain road surface integrity and reduce maintenance disruption.

4.11. Road Safety Features (Barriers, Clearance, Sight Distance)

All site distance and safe stopping distances have been checked by Commute Transportation Consultants as part of its traffic assessment. Refer to the Integrated Traffic Assessment (ITA) to confirm compliance.

Traffic barriers are shown where there is non-recoverable risk to vehicles. These are primarily shown above culverts and retaining walls.

Mid-block pedestrian crossings have been proposed along the NoR 6 alignment, to facilitate pedestrian and cyclists cross the road at key locations. A refuge island is proposed at each location.

4.12. Car Parking

Car parking bays are located within the front berm. They are a minimum of 2.1 wide, and have 45 splays at each end to facilitate manoeuvring. They have been located at a minimum distance of 1m from driveways and 6m from intersections. Refer to Commute's ITA for more detail on requirements for on-site and off-site parking.

4.13. Streetlighting

Indicative locations for streetlighting are shown in Appendix A, below. A full lighting design to meet TDM requirements will be provided at the Engineering Plan Approval stage.

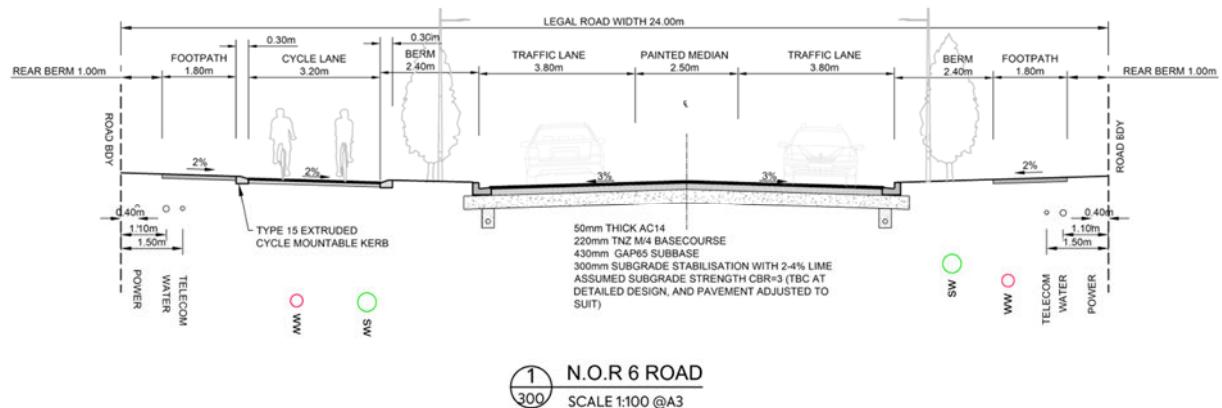
4.13.1. JOAL Lighting

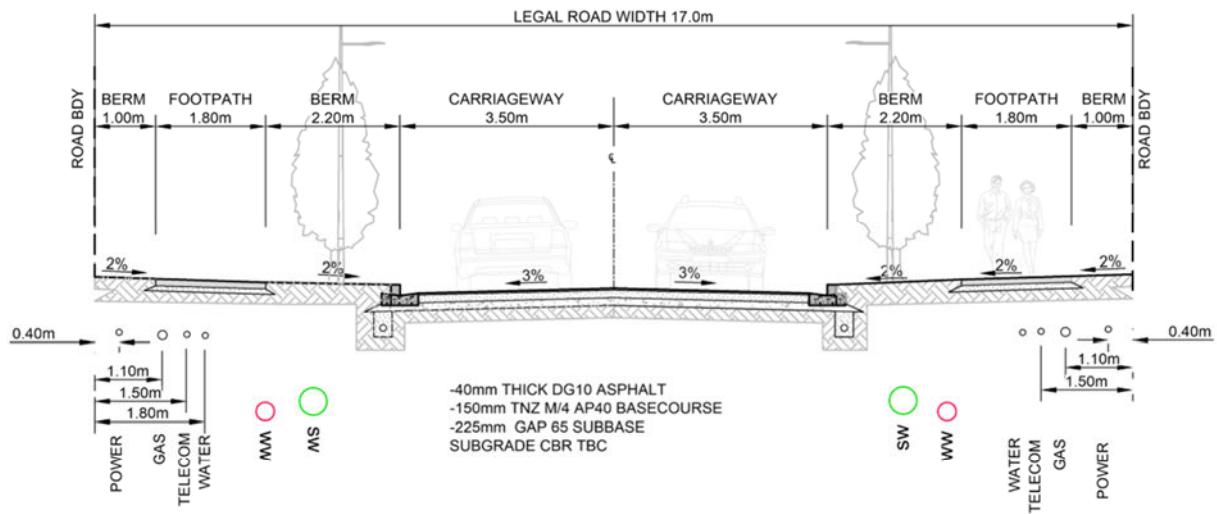
It is proposed that JOAL lighting will be achieved through the use of solar enabled lights and poles.

4.14. Road Cross Sections

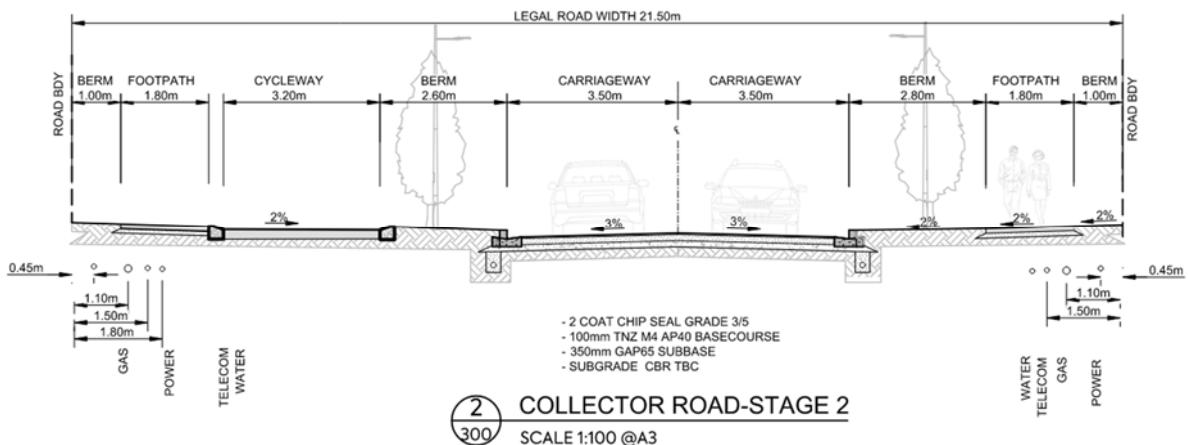
The arterial road is an extension of Grand Drive and is part of Supporting Growths future growth network. Provision has been made for pedestrians, and an offroad cycle lanes in each direction. The cycle lanes will be integrated with bus stops in the future when future bus stops are installed. This is addressed in more detail in section 4.4.

Typical cross sections are shown below in Figure 4, and detailed in Appendix A.





2
300 COLLECTOR ROAD-STAGE 1 (ROAD 1)
SCALE 1:100 @A3



2
300 COLLECTOR ROAD-STAGE 2
SCALE 1:100 @A3

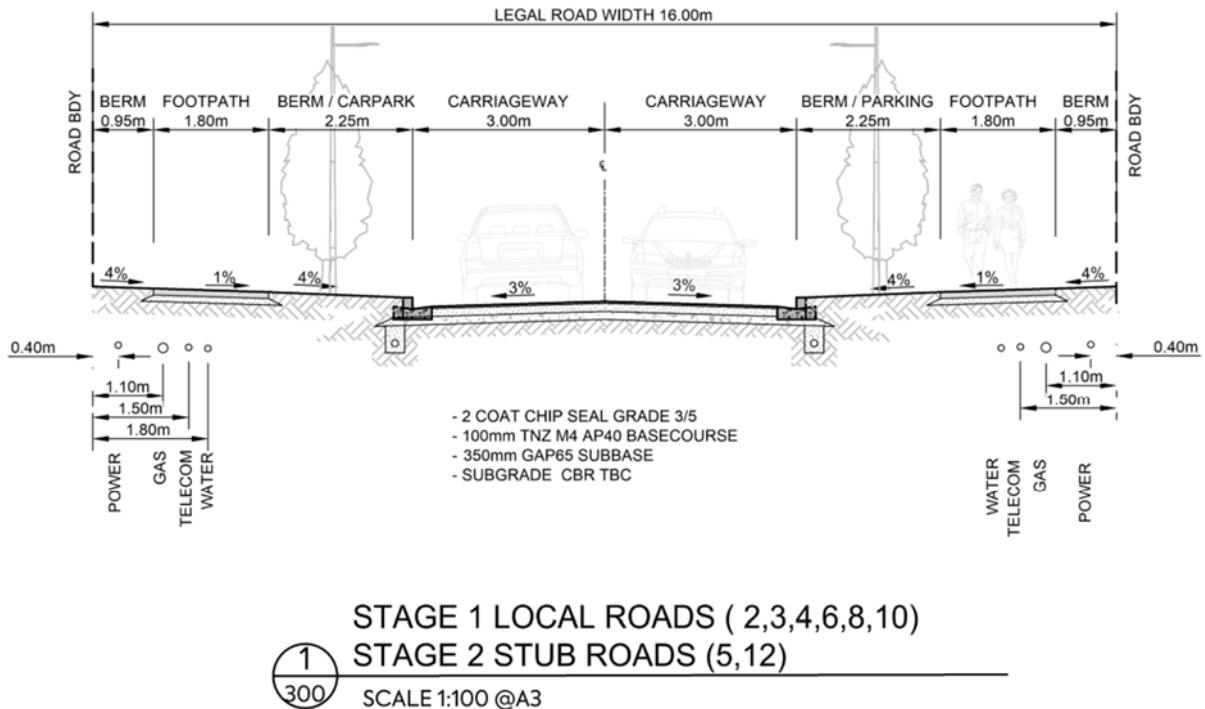


Figure 4 - Typical Road Cross Sections

The pavement design will be confirmed at time of Engineering Approval, and further testing to confirm subgrade CBRs.

4.15. Intersections

Where local roads intersect the arterial road, a raised table will be provided to provide traffic calming and level pedestrian and cycling crossings. Where local roads intersect the collector roads, a give way treatment will be provided.

Where the collector road intersects the Arterial, a roundabout will be provided.

All intersections will have pram crossings with tactile pavers.

Vehicle tracking has been provided by Commute Transportation, refer to the ITA. Minor updates are required in Stage 2 for some local road to local road intersections. This will be dealt with at detailed design stage.

4.16. Public Transport

Public transport has been addressed in Commute's ITA. The arterial road is the primary bus route through the site. No bus stops are proposed to be constructed as part of this development, however bus stops are expected to be installed in the future, when demand requires it. The cycle lane can be narrowed and road marking installed to alert cyclists to the hazard. An example of how the cycle lane can be narrowed to allow for future bus stop provision is shown below in Figure 5.

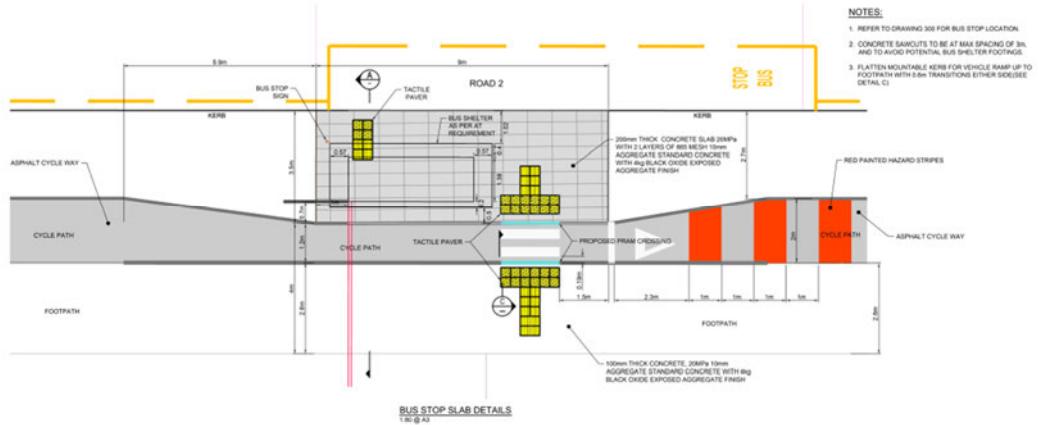


Figure 5 - Proposed Future bus stop provision.

4.17. Vehicle Tracking

Commute Transportation has undertaken vehicle tracking for this development, and reference should be made to the ITA.

4.18. Signage and Road Marking

Road marking and signage will be provided to meet TDM and the NZTA Manual of Traffic Signs and Markings.

Give ways are proposed where local roads intersect with the Arterial Road.

4.19. Traffic Calming.

Traffic calming will be provided on local roads throughout the development to achieve a design speed of 30km/h. A lower speed limit will support shared use of the road by motor vehicles and bikes.

Raised tables or other devices will as practicable as possible be provided at 60m spacings between intersections, to slow traffic flow. Refer to Appendix A for calming details.

No traffic calming devices are proposed on the arterial or collector roads.

4.20. Alternate Connection to Grand Drive

Concerns have been raised about the proposed connection to Grand Drive east of the site due to the proposed NoR6 boundaries of the adjacent subdivision (SUB60035991-G). A plan has been included in Appendix A showing an interim solution of how access to the site could still be achieved if the subdivision were to be completed as currently consented.

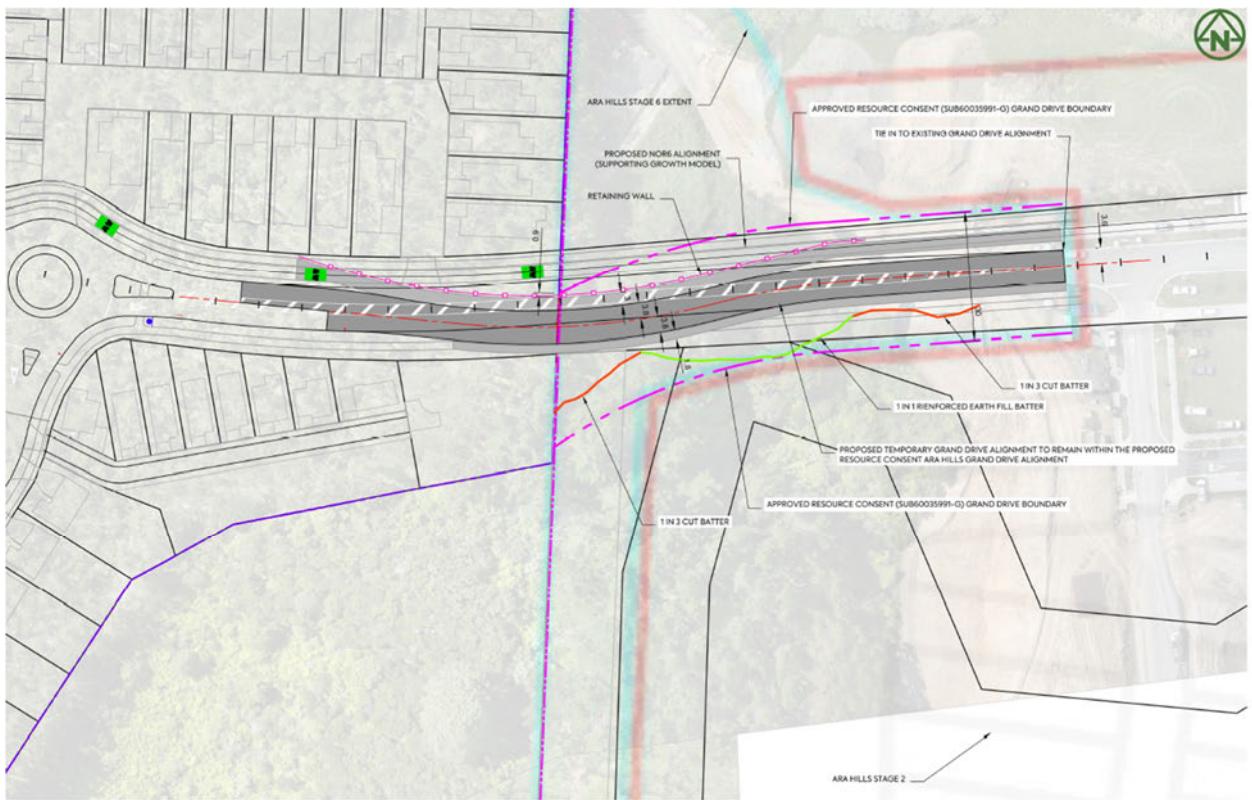


Figure 6 potential interim alignment of NoR6

5. DEPARTURE FROM STANDARDS

5.1. Longitudinal Grades

A departure from standard for longitudinal grades will be required, for local roads with grades >8%. There are a number of roads where the longitudinal grade exceeds 8%, due to geographical constraints. There are no other options available to reduce these grades.

6. CONSULTATION

6.1. NoR 6 Hearing

Under the first Delmore substantive application (lodged on February 25 2025), McKenzie & Co and Commute undertook several meetings and expert conferencing with Auckland Transport. Since this collaboration, the alignment of the NoR 6 road to be delivered within the Delmore site has been adjusted. Please refer to Sheets 3725-1-3000 to 3009 to see the design of the NoR 6 road in detail.

Further consultation with Auckland Transport is on-going in terms of design refinements and the extent of the NoR 6 designation road to be delivered by the applicant.

7. CONCLUSION

The proposed development of Delmore has been designed to provide the required infrastructure necessary for use and enjoyment of the developed lots and follows the AUP

and various Council standards.

The design has taken into consideration the possible impact of the proposed development and has minimised impacts to the receiving environment using accepted engineering practices.

APPENDIX A – ENGINEERING PLANS

BOUND SEPARATELY