

12 June 2024

SB Civil
C/-
Laila Alkamil
Senior Planner
Williamson Water and Land Advisory

RESPONSE TO ADDITIONAL INFORMATION REQUEST – 1618 ARARIMU ROAD, PAPAKURA

The following is a response to the additional information requests received from Auckland Council/Auckland Transport. This letter follows a request-comment format, where requests/suggested change comments from Council are shown in *italic blue font* followed by our response.

Request 29:

The TIA provided by the applicant has estimated that the truck traffic entering the site during the proposed managed fill operation will be 58-87 trucks per day, or 116-174 truck movements per day (in and out). The TIA mentions that the existing traffic volume on Ararimu Road (rural, local road) around the site is 299 vehicles per day with 10% of them (approx. 30 vehicles) being heavy vehicles. Given that the proposal significantly increases the heavy vehicle traffic on Ararimu Road and that the consent is sought for a 35-year period, Auckland Transport (AT) considers that the proposal may have potential adverse effects on the road pavement which would result on the safety of the road users.

To ensure that any adverse effects to the pavement structure is appropriately mitigated, please provide a Pavement Impact Assessment (PIA) (500m on both sides from the proposed crossing location) including, but not limited to the following information:

- a. Falling weight deflectometer test data on Ararimu Road for existing and projected traffic.*
- b. Review of carriageway width demonstrating whether the existing width is adequate for the projected truck traffic.*
- c. Pavement assessment for the proposed consent period design life and remaining lives with projected traffic environment.*
- d. Stability assessment of ground for any potential road widening considering the high frequency of heavy vehicle movements.*

Response 29:

It is agreed that this information relating to pavement strength, longevity, and overall stability should be provided, however it is considered that it would be more appropriate as a condition of consent, prior to site operation; as it represents additional pre-consent costing, with outcomes of testing results largely tying back to any resultant EPA (for widening if required), or in terms of ongoing maintenance/mitigation.

With respect to the width of the road, currently the road serves approximately 30 heavy vehicles per day for farming, forestry, or other rural industrial activities. Considering this, there is an established baseline of heavy vehicle functionality of the road. This is further supported by the crash history for the area, which was expanded from the original assessment along Ararimu Road between Gelling Road and Paparimu Road, and had no significant trends within the data which would suggest the road carriageway is too narrow. From this

a total of 10 crashes were reported over the 5.7 km length, over a 10-year period (2014-2024). The crashes are summarised as:

- Intersection of Ararimu Road and Gelling Road:
 - May 2014: Driver turning through intersection, lost control due to wet road conditions and ended in ditch. No injuries were reported.
- Midblock along Ararimu Road:
 - October 2016: Driver of a stolen vehicle intentionally reversed vehicle into a patrol car while evading enforcement. No injuries were reported.
 - November 2018: Inexperience motorcyclist experiencing target fixation and left the carriageway. No injuries were reported.
 - August 2019: Motorcyclist swung wide through bend and left sealed carriageway, losing control in metaled shoulder. A serious injury was reported.
 - April 2020: Motorcyclist lost control while turning due to a medical illness and went off road into the ditch. A minor injury was reported.
 - June 2022: Driver lost control presumably due to excessive speed and hit the road bank multiple times. A minor injury was reported.
- Intersection of Ararimu Road and Paparimu Road:
 - November 2020: Driver overtaking on right, failed to identify that vehicle in front was turning right at intersection, resulting in a sideswipe collision. No injuries were reported.
- Intersection of Ararimu Road and Paparimu Road:
 - July 2020: Driver travelling at excessive speed, lost control while turning through curve and hitting loos material on road. No injuries were reported.
 - December 2020: Motorcyclist travelling at excessive speed, lost control at bend and went off road. A minor injury was reported.
 - June 2023: Inexperienced driver under influence of alcohol, lost control while turning through bend, and went into ditch. A minor injury was reported.

Request 30:

Section 3.3.2 of the TIA provides a Safe Intersection Sight Distance (SISD) assessment in accordance with Austroads Part 4A with a 1.5 second reaction time to determine that adequate visibility is available at the crossing. Austroads guidelines recommends using 1.5 second reaction time only in constrained situations where the drivers will be alert. Given that Ararimu Road is a long rural road with 80km/h average 85th percentile speed, AT considers it is not reasonable to expect that approaching drivers will be alert enough to identify turning traffic movements.

To ensure that drivers on Ararimu Road has appropriate SISD in a high-speed environment, please provide an updated SISD assessment under Normal Design Domain (NDD) criteria with a 2 second reaction time. If compliance for SISD under NDD is unable to be achieved at the crossing, please provide an assessment regarding how any potential adverse effects to road user safety will be avoided or mitigated.

Response 30:

The preceding statement by Council is incorrect. As part of the original assessment a reaction time of 1.5 seconds has NOT been utilised in determining sight distance requirements.

Within Section 3.3.2, it is noted that's observation time has been reduced to 1.5 seconds, and reaction time remains unchanged at 2 seconds. For a total decision time of 3.5 seconds. Under the EDD, the table below identifies the conditions where observation time is permissible to reduced. Decision time is the length of time given to a driver to detect a problem ahead (e.g. a truck turning) [observation time], and then react to the necessary action [reaction time]. In the surrounding area, as there are curves within the carriageway in both directions, it is reasonable to expect that a driver is paying attention to the road in front of them, thereby lowering required observation time (compared to that of a long, straight rural road where drivers can be more prone to distraction / zoning out). For this reason, a lower observation time has been determined to be appropriate for use.

A.2.4 Observation Times for EDD Safe Intersection Sight Distance

The observation times used for the base cases under EDD safe intersection sight distance are given in Table A 8. A range of values are given depending on factors such as the complexity of the intersection and traffic volume. The observation times used for the check cases are given in the note to Table A 8.

Table A 8: Driver observation time for safe intersection sight distance under EDD

Observation time OT (sec)	Typical use
1.5	T-intersections on single carriageway roads (two-lane, two-way roads and one-way roads) that have a traffic volume < 4000 veh/d Cross intersections on single carriageway roads (two-lane, two-way roads and one-way roads) that have a traffic volume < 400 veh/d Simple intersection arrangements e.g. left in, left out on all roads
2.0	T-intersections on single carriageway roads (two-lane, two-way roads and one-way roads) that have a traffic volume ≥ 4000 veh/d Cross intersections on single carriageway roads (two-lane, two-way roads and one-way roads) that have a traffic volume ≥ 400 veh/d
2.5	T-intersections and cross intersections on multi-lane roads Intersections in overtaking lanes Complex intersection layouts Situations in which drivers may be distracted by other features

Note: The observation times in this table are applicable to the norm-day and truck-day base cases. The minimum observation times for the check cases are given below:

- *mean-day and skill-day as per this table*
- *norm-night, truck-night, mean-night and skill-night use 1.0 sec less than the values given in this table. Use of the lower observation times is associated with the additional cues drivers are given by observing the glow of the oncoming vehicle headlights.*

Request 31:

Given that truck traffic from the site is estimated around 58-87 trucks per day, or 348-522 equivalent car movements/day (ecm/d), AT considers that the proposed crossing should be considered as an intersection with high traffic volume in accordance with NZTA Planning Policy Manual Appendix 5B. Please provide an assessment of the access design in accordance with the relevant NZTA standards to ensure road user safety for Ararimu Road.

Response 31:

It is acknowledged that the site access will see a high volume of vehicle movements over the course of a day, especially when factoring in ecm/d. However, the NZTA PPM, provides guidance for accesses onto State Highways which can be generally assumed to carry higher traffic volumes and a higher proportion of heavy vehicles on the mainline volume. Through the PPM, traffic volumes along roads are taken as either > 10,000, or < 10,000. In the context of the proposal, there is considered to be a significant difference between a road which carries ~5,000 vehicles or 9,000 vehicles per day, compared to that of Ararimu Road, which carries approximately 300 vehicles per day. From this, it is considered that providing an access in accordance with Diagram E of the PPM would be an excessive requirement to mitigate any effects arising from the proposal. Diagram E, effectively provides a sealed should which enables informal passing of vehicles which may be looking to turn into an access; and as such allows the mainline to continue to flow, albeit under lower speed conditions. With low volumes along Ararimu Road, pre and post operation of the subject site, any approaching vehicles behind a queued truck are not anticipated to be delayed for any significant amount of time, given the opposing volumes also being low, allowing vehicles to turn into the site relatively freely. Sidra modelling to this effect can be provided, but as peak hour volumes are anticipated to be less than 50 movements, it is considered unnecessary to carryout this additional assessment at present.

Further, when utilising the Austroads Warrant Nomographs and expanding for ecm/h for the site, the access is still below the threshold for the implementation of an auxiliary turn lane as shown in **Figure 1**.

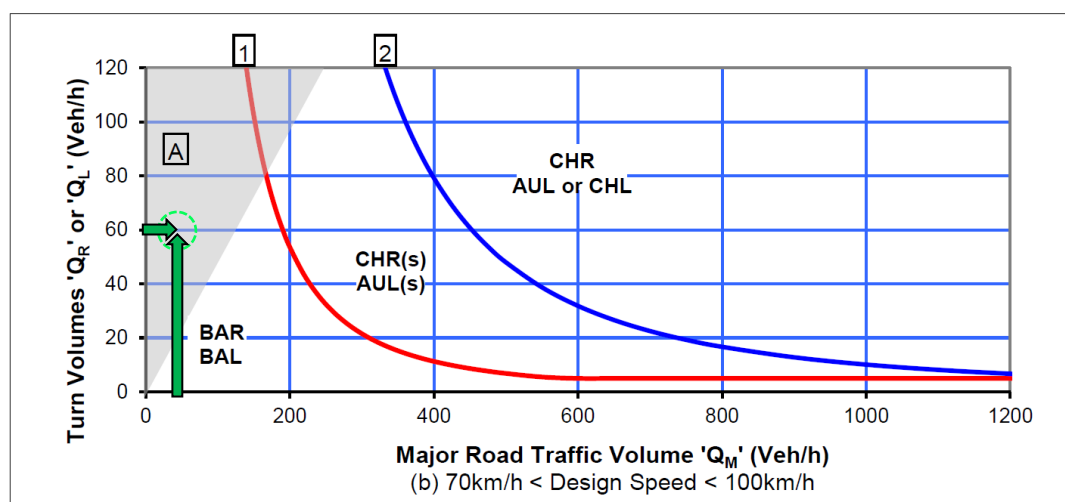


Figure 1: Auxiliary Turn Lane Warrant Nomograph (Truck adjusted ecm/h)

From the warrant nomograph, with appropriate sightlines at the access location there is no considered need to provide an auxiliary turn lane at this access location.

Based on the site accommodating 1.56 million m³ of fill over the next 16 years, the site is estimated to receive approximately 97,500 m³ of fill per annum. Based on an average single body truck fill volume of 6 m³, approximately 16,250 trucks can be anticipated each year to the site, or 55 trucks per working day (Monday-Saturday, ~300 days per year). Over an approximate 10-hour operation day (Monday-Saturday), this equates to 6 trucks each hour, or 12 truck movements (split equally between in-out of the site) each hour, on average.

Request 32:

The TIA does not specify details regarding the predominant route which the trucks will be using to import earth to the site. It is assumed that the predominant route to the site will be via SH1 motorway with the Ramarama off-ramp located 15km west of the site. There are two schools (Ramarama School and Ararimu School) located on this route and there are potential adverse safety effects on students and the school community in relation to those schools due to the high number of truck movements which has not been assessed.

- a. Please advise the primary route(s) that trucks are expected to use to and from the site.*
- b. Please provide a safety assessment in relation to the schools, students and associated road users and any proposed mitigation measures to address potential road, pedestrian and cyclist safety.*

Response 32:

Trucks travelling to/from the site are largely anticipated to follow a direct route via Ararimu Road from SH1. This would see vehicle movements past both Ararimu School and Ramarama School as identified by Council within the RFI. **Figure 2** displays the primary route trucks would be anticipated to take, along with traffic volume estimates along the route.

At Ararimu School, the main access to school is off Steel Road. Along Ararimu Road near the school peak hour volumes are approximately 130-140 vehicles, with 11% medium and heavy vehicles. With the proposal adding up to nine peak hour truck movements, this would see the two-way volume along Ararimu Road, near Ararimu School increase to 150 vehicles, with 16% medium/heavy vehicles.

At Ramarama School, along Ararimu Road near the school peak hour volumes are approximately 280 vehicles, with 16% medium and heavy vehicles. With the proposal adding up to nine peak hour truck movements, this would see the two-way volume along Ararimu Road, near Ramama School increase to 290 vehicles, with 19% medium/heavy vehicles.

Ararimu School has an enrolment of 122 students and Ramarama School has an enrolment of 201 students. From this it can be expected that the schools will see relatively low volumes (comparatively to other schools). Reviewing census data from Waka Kotahi's "Commuter" website, indicates that education-based trips in the Ararimu census district sees mode share of 3% walking and 2% bicycling. Therefore, with the generally rural surrounds it is likely that there will be relatively low levels of walking/cycling trips to the respective schools.

More specifically, at Ararimu School, additional truck volumes along Ararimu Road are not anticipated to adversely impact onto the overall safety/functionality in the area, as the intersection of Ararimu Road and Steel Road has generally good sightlines and targeted speed limit reductions during school peak periods.

Near Ramarama School, sightlines towards the school's frontage are good and a signalised pedestrian crossing is provided allowing pedestrians to safely cross Ararimu Road. Similarly, targeted speed limit reductions during school peak periods are present. The increased of trucks along this section of road is not anticipated to adversely impact onto the overall road safety, noting the relatively low volumes (9 per hour, or one every 6-7 minutes), and the reduced operating speeds.

From the above, it is not considered that any mitigation measures would be required near Ararimu School or Ramarama School in response to the proposal.

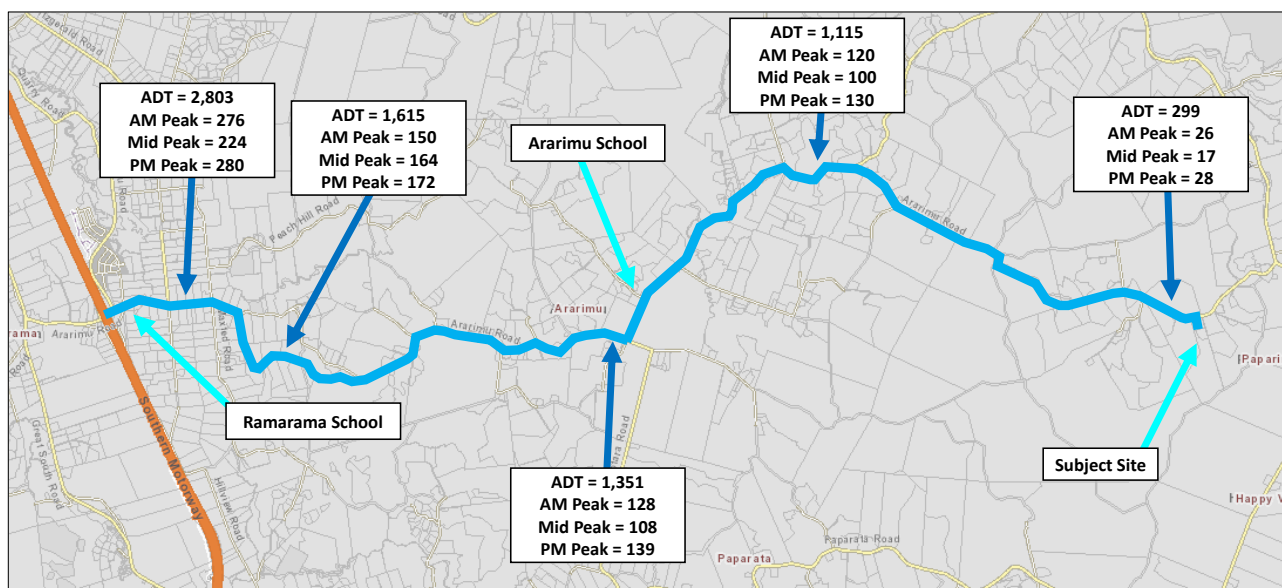


Figure 2: Site Typical Haul Route

Request 38:

In relation to the above queries regarding staging, please clarify whether the access road will need to be extended to access each stage?

Please also confirm the material of the access on any steeper locations.

Response 38:

It is anticipated that access for the site will extend to a central decanting site, where other plant will relocate material on site, or alternatively trucks will decant directly into or near the fill location. This will be subject to on-site traffic operation plans, which will be a living document, being updated to reflect current operations. Within the site, accesses will be formed to ensure suitable manoeuvrability and safety. As the site operations will evolve over time, with fill being deposited in different locations, it is likely that routes/practices will change, apart from the initial vehicle crossing and access for the site.

It is understood that the proposal will have the access be gravelled within the site. While the civil plans denote gravel access near the site's vehicle crossing, this is recommended to be sealed from the carriageway edge into the site by approximately 20 metres, to reduce potential for debris to be tracked into the road.

Request 85:

Please provide tracking of the 17m Dump Truck and Trailer around the bends of the internal driveway to ensure truck stays within the internal driveway.

Response 85:

Vehicle tracking curves for the internal access have been prepared and are included in the **Attachment**.

Request 86:

Please provide visibility assessment of the 17m Dump Truck and Trailer around the bends of the internal driveway to ensure inter-visibility of trucks entering/exiting is achieved.

Response 86:

The existing topography through the bends of the site's access is generally consistent towards a low point in the middle between passing locations. Signage provided on-site will establish a priority direction (inbound), so to prevent any inbound queuing effects. **Figure 3** displays the indicative inter-visibility between these locations both in plan view and a corresponding view taken from the carriageway. Sightlines through here are anticipated to extend approximately 100 metres in a straight line.



Figure 3: Indicative Access Inter-Visibility

Request 87:

Please provide revised tracking diagrams of the 17m truck and trailer off 23m wide vehicle access after providing analysis as per NZTA's Planning Policy Manual Appendix 5B.

Response 87:

Updated vehicle tracking has been provided within the **Attachment** for the 17m truck and trailer, based off the vehicle crossing design as per NZTA PPM – Diagram E. It is noted that trucks can enter/exit the site with relative ease, however this is not unexpected as the increased curve radius and lane widening provides additional space. It is however noted that within increased width and radii, trucks can be expected to enter and exit the site at higher speeds compared to that of the preferred design.

Request 88:

Please provide signage and markings plan annotating all traffic engineering infrastructure.

Response 88:

Detailed design with respect to signage and marking is anticipated to be made available post an approved Resource Consent application. A consent condition to this effect is welcomed. Preliminary signage and markings are included in **Sheet 15** of the **Attachment**.

Comment/Recommendation 1:

It is understood that the proposed new 23m wide vehicle crossing has been designed in accordance with AT TDM standards for a rural vehicle crossing. However, AT notes that the section of Ararimu Road adjacent to the site is identified as a low to medium collective risk, but a medium to high personal risk on the KiwiRAP road safety risk rating. Given the collective risk rating is influenced by existing low traffic volume and that the proposal would increase the truck traffic by 93% - 197% in a high operating speed environment, AT consider that consideration should be given to upgrading the crossing in accordance with the NZTA Planning Policy document to mitigate the user safety risks.

Comment/Recommendation Response 1:

Auckland Transport refer to the KiwiRAP risk profiles for Ararimu Road and suggest that because the corridor is classified as a medium-high personal risk and a low-medium collective risk, the corridor may be unsuitable for a site access, unless provided in accordance with NZTA PPM guidelines.

In our opinion, the use of the KiwiRAP information for the purpose it has been used for is inappropriate.

KiwiRAP is a method of classifying different types of roads to assist Road Controlling Authorities when making decisions on road and traffic infrastructure improvements. In identifying ways to improve high risk roads, KiwiRAP indicates:

“Road crashes are almost always multi-factor events involving a driver, vehicle and/or the environment, including the road. There are many elements of the road that contribute to safety outcomes. These include road width, alignment, the presence and type of intersections, and roadside hazards such as trees, poles and ditches.”

“By modifying roads to make them safer, we can reduce the number of crashes that happen and the severity of those that do occur. By identifying the highest risk roads and fixing them first, we can reduce the consequences of crashes on our roads over time.”

KiwiRAP is not a tool that is used to determine the effects of a particular activity or the design of a particular vehicle access. This is shown by multiple vehicle crossings serving rural industry activity (which would see more than one slow/heavy/long vehicle movement per week) and have not been formed to the NZTA PPM Diagram D or E.

Based on additional assessment provided earlier within this information request response, providing a vehicle access for the site in accordance with NZTA PPM Diagram E is not required in order for the site access to operate safely and efficiently. Should Council agree to the proposed vehicle access arrangement, further mitigation could be considered to increase forward visibility towards the access. This will help increase the safety of the access. As such, existing scrub vegetation within the road's north berm should look to be removed, along with potential for berm regrading to open sightlines. Sightline information is provided on **Sheet 13** of the **Attachment**.

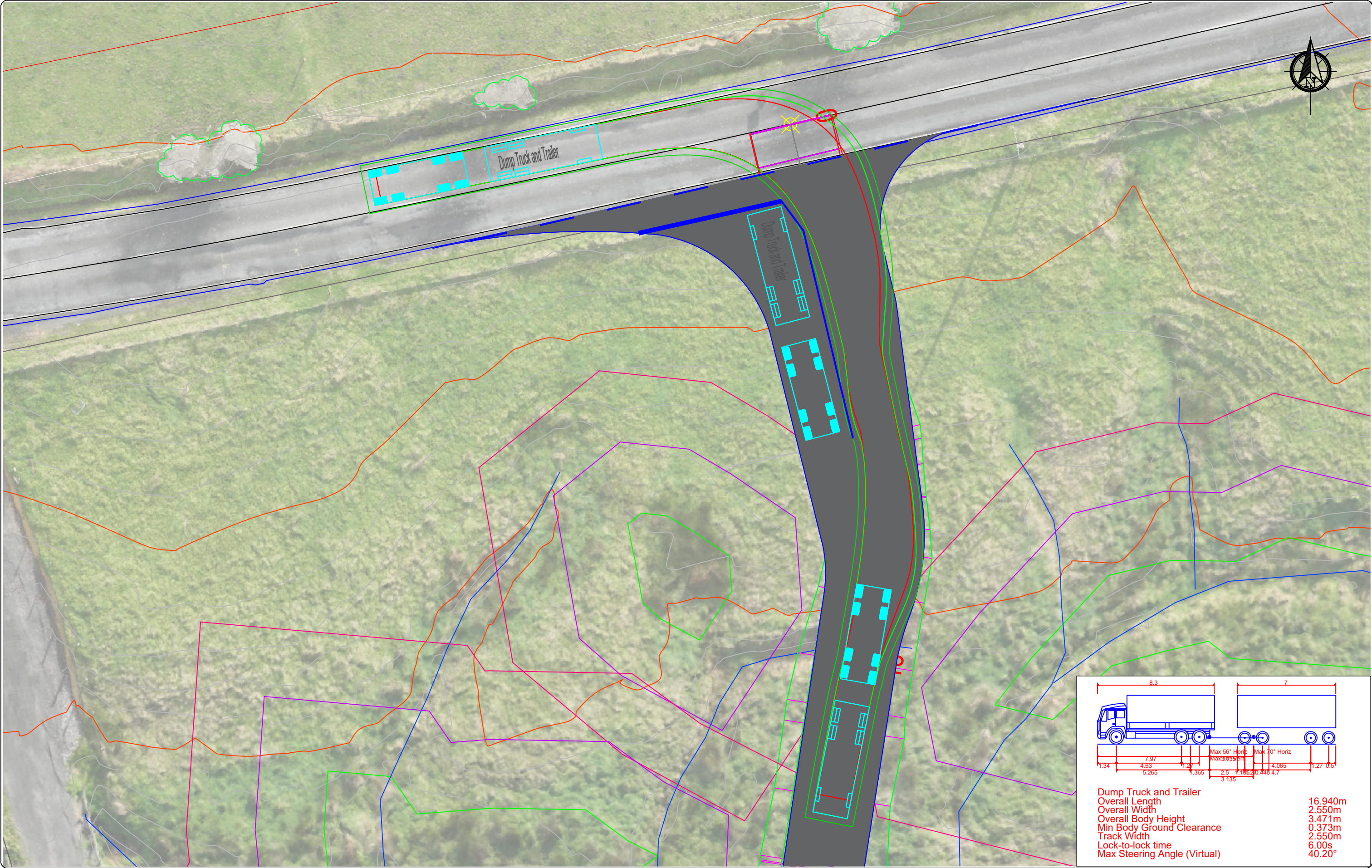
We trust that the preceding provides sufficient additional information as related to your request. However, should you have any queries or require further clarification, please contact the undersigned.

Kind Regards,

TRAFFIC PLANNING CONSULTANTS LTD

A handwritten signature in black ink, appearing to be 'Peter Kelly', with a long horizontal stroke extending to the right.

Peter Kelly
Senior Transportation Engineer
E: peter@trafficplanning.co.nz
P: 09 817 2500 Ext 811
M: 021 212 9644



Rev	Revisions	By	Date

TPC

TRAFFIC PLANNING CONSULTANTS LTD

Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title

Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title

Proposed Vehicle Crossing Arrangement
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed PK

Checked PK

Drawn PK

Approved PK

Project No - (Sheet No)

220863-VTB - (1)

Scale

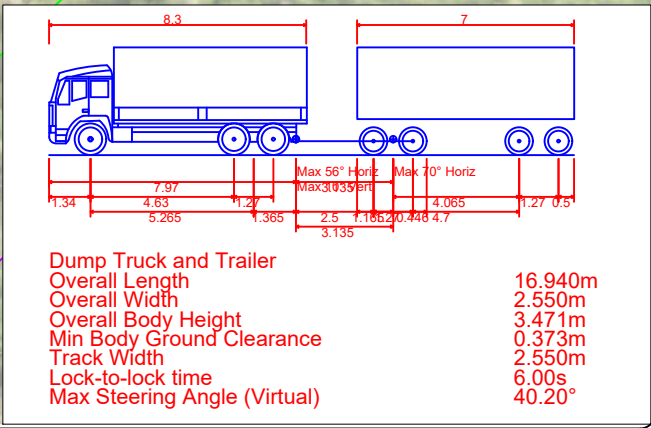
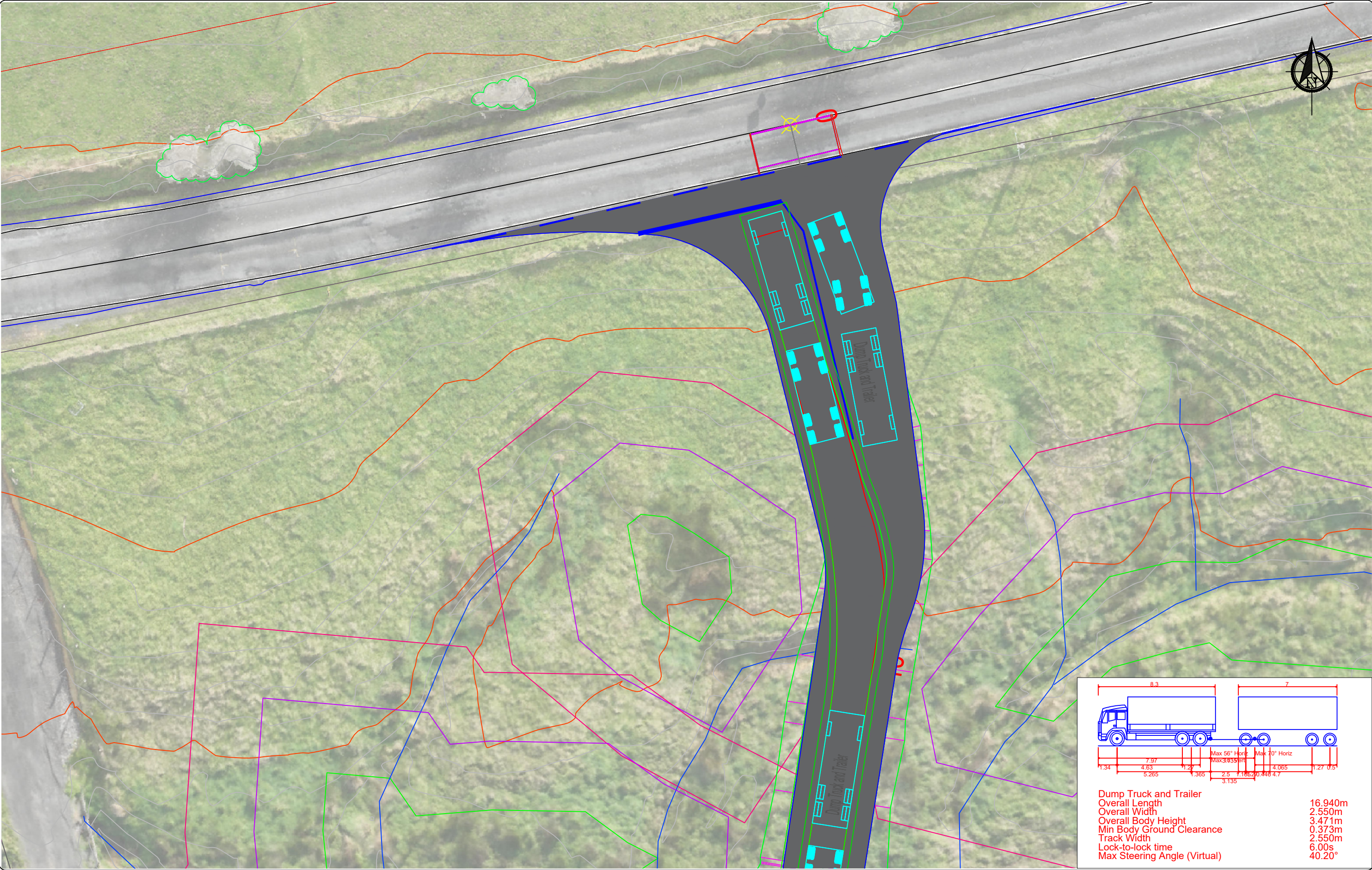
1:250 (A3)

Date

13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.

© Copyright 2023 Traffic Planning Consultants Ltd



Rev	Revisions	By	Date

TPC

TRAFFIC PLANNING CONSULTANTS LTD

Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title

Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title

Proposed Vehicle Crossing Arrangement
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed PK

Drawn PK

Project No - (Sheet No)

Scale 1:250 (A3)

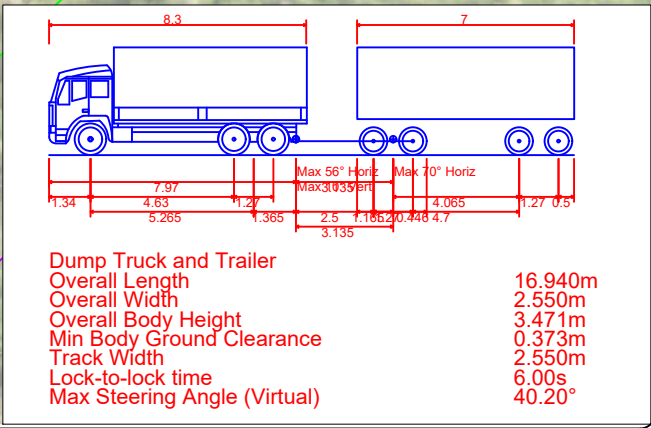
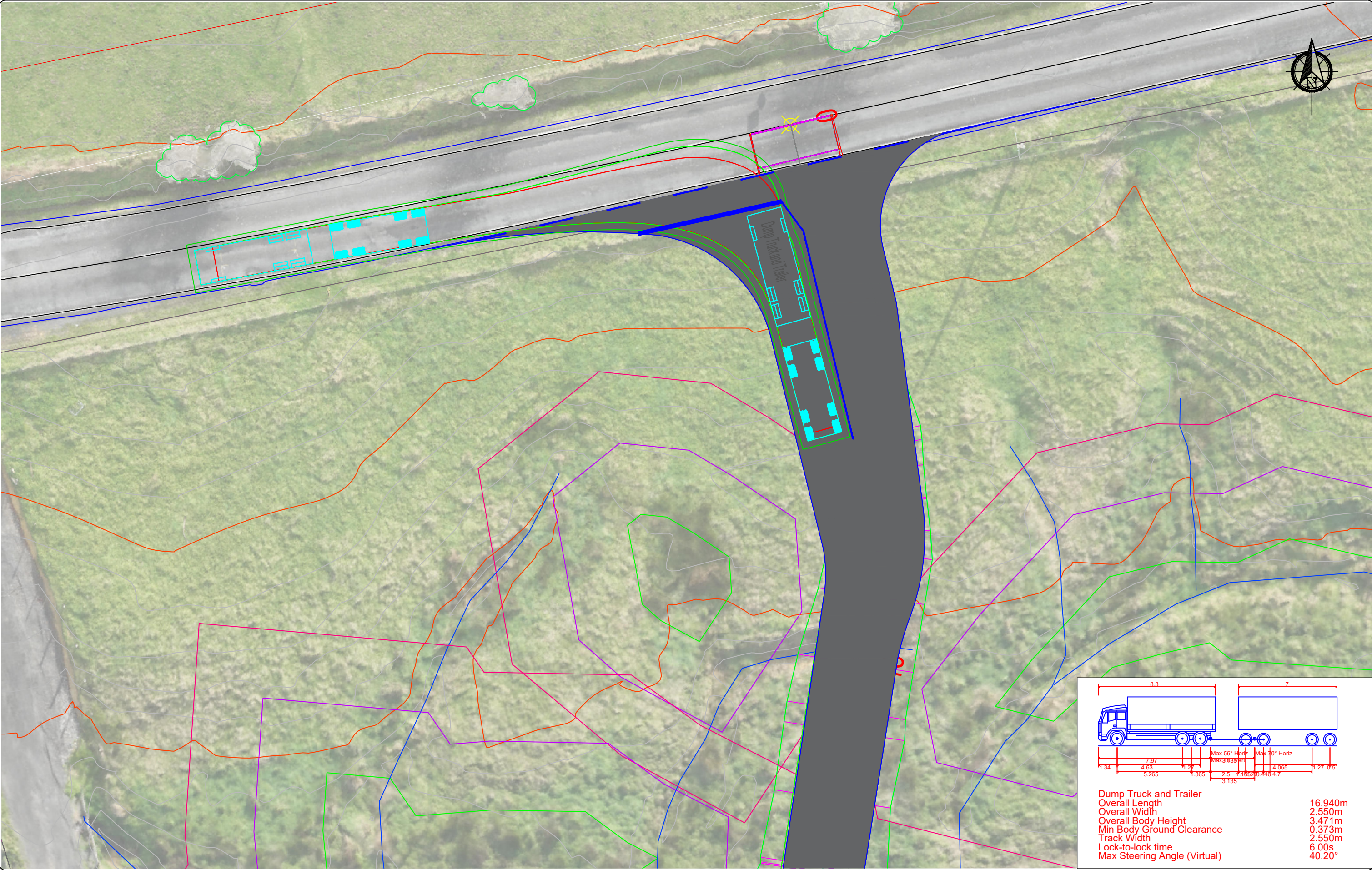
Checked PK

Approved PK

220863-VTB - (2)

Date 13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2023 Traffic Planning Consultants Ltd



Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

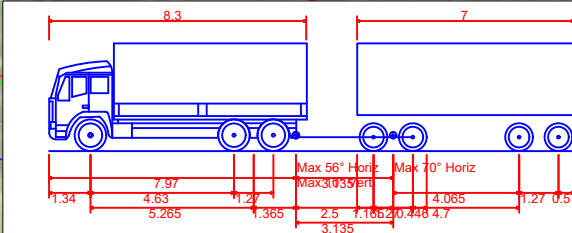
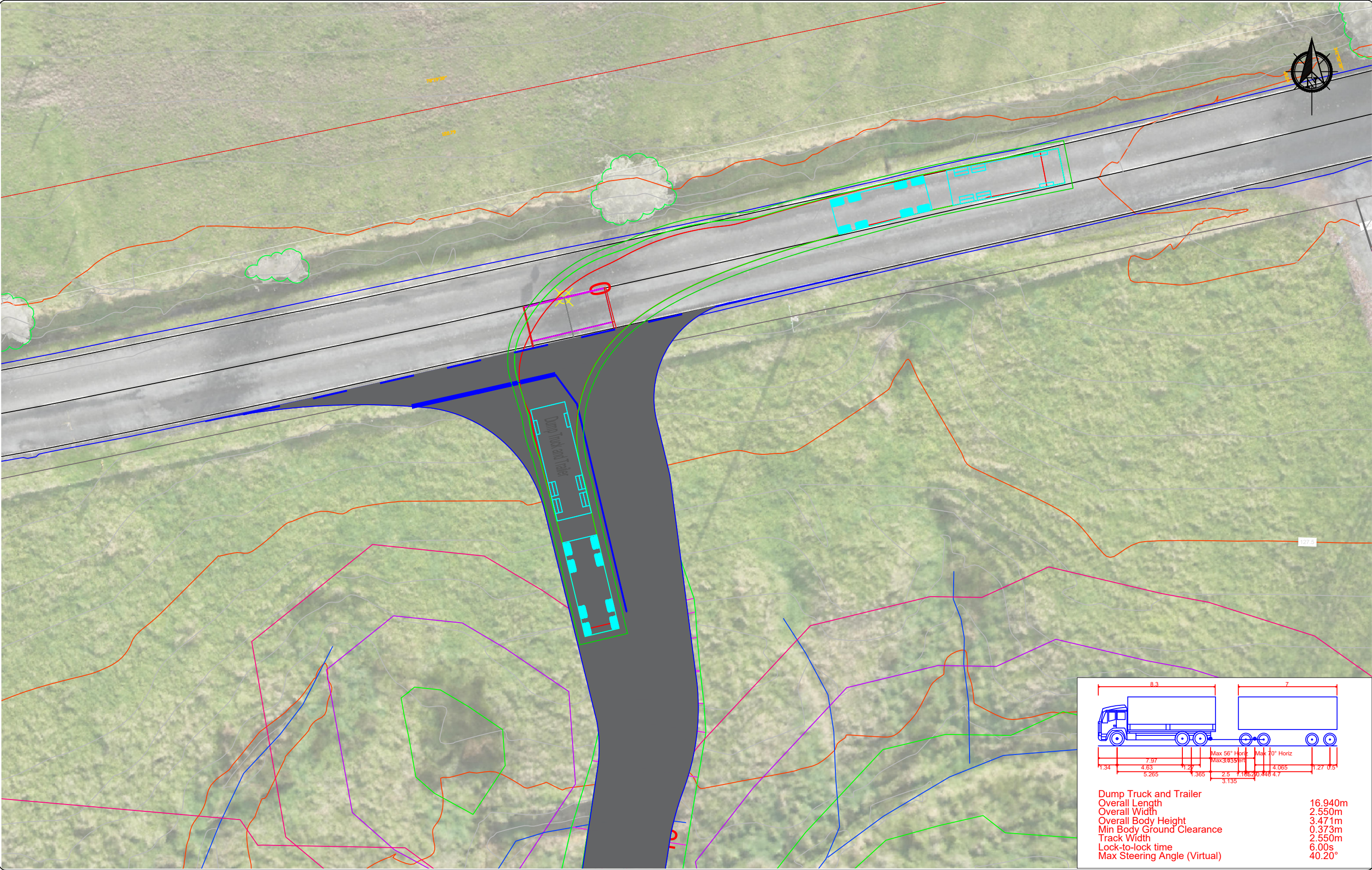
Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Proposed Vehicle Crossing Arrangement
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed PK Drawn PK Project No - (Sheet No) 220863-VTB - (3) Scale 1:250 (A3)

Checked PK Approved PK Date 13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2023 Traffic Planning Consultants Ltd



Dump Truck and Trailer
Overall Length 16.940m
Overall Width 2.550m
Overall Body Height 3.471m
Min Body Ground Clearance 0.373m
Track Width 2.550m
Lock-to-lock time 6.00s
Max Steering Angle (Virtual) 40.20°

Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

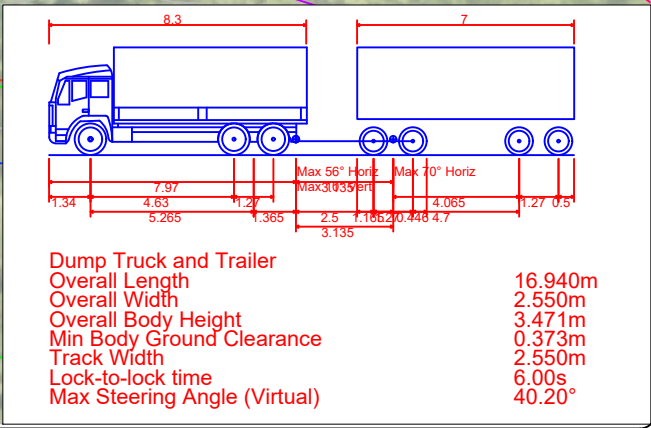
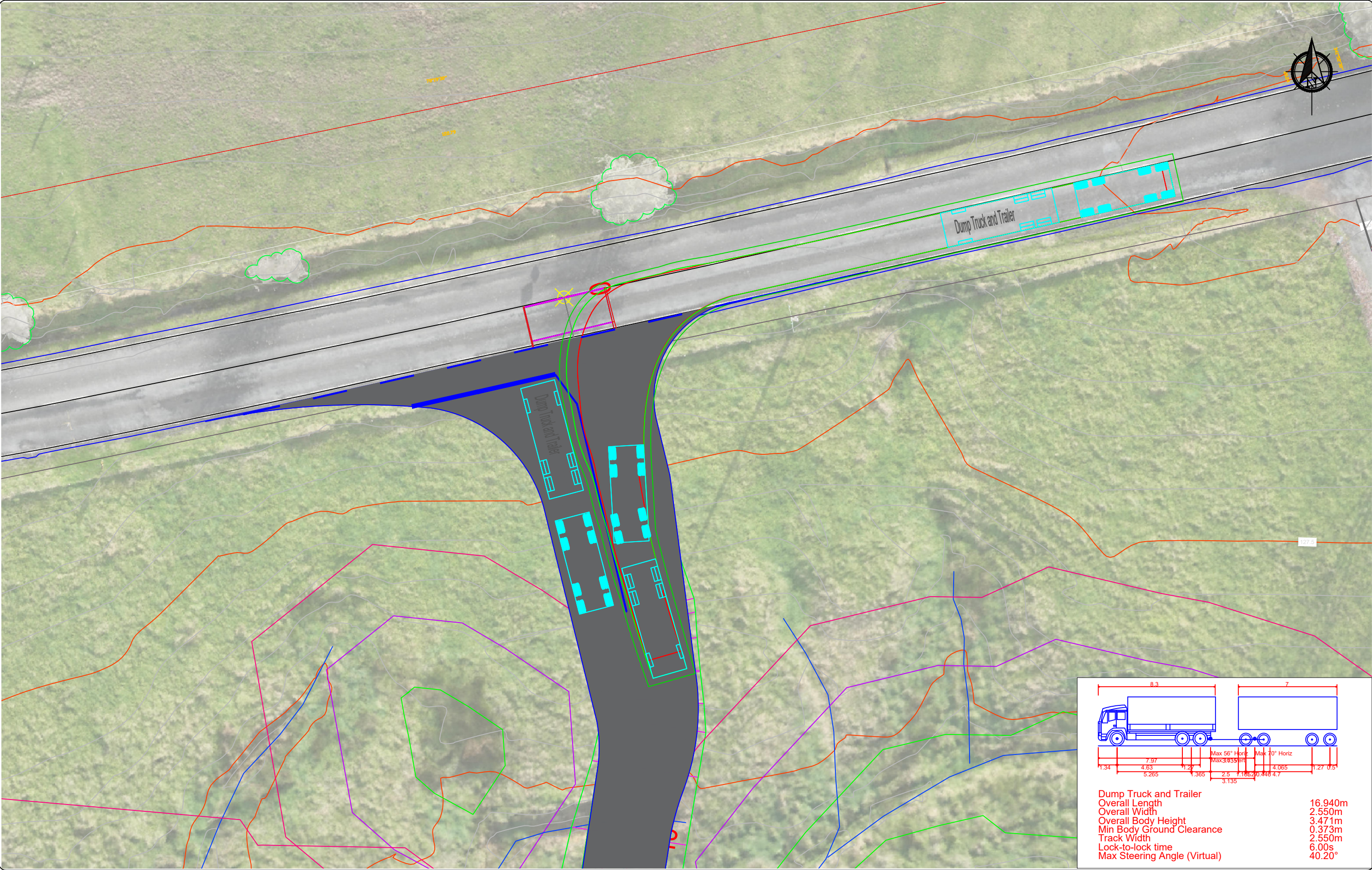
Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Proposed Vehicle Crossing Arrangement
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed PK Drawn PK Project No - (Sheet No) Scale 1:250 (A3)
Checked PK Approved PK 220863-VTB - (4) Date 13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2023 Traffic Planning Consultants Ltd



Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

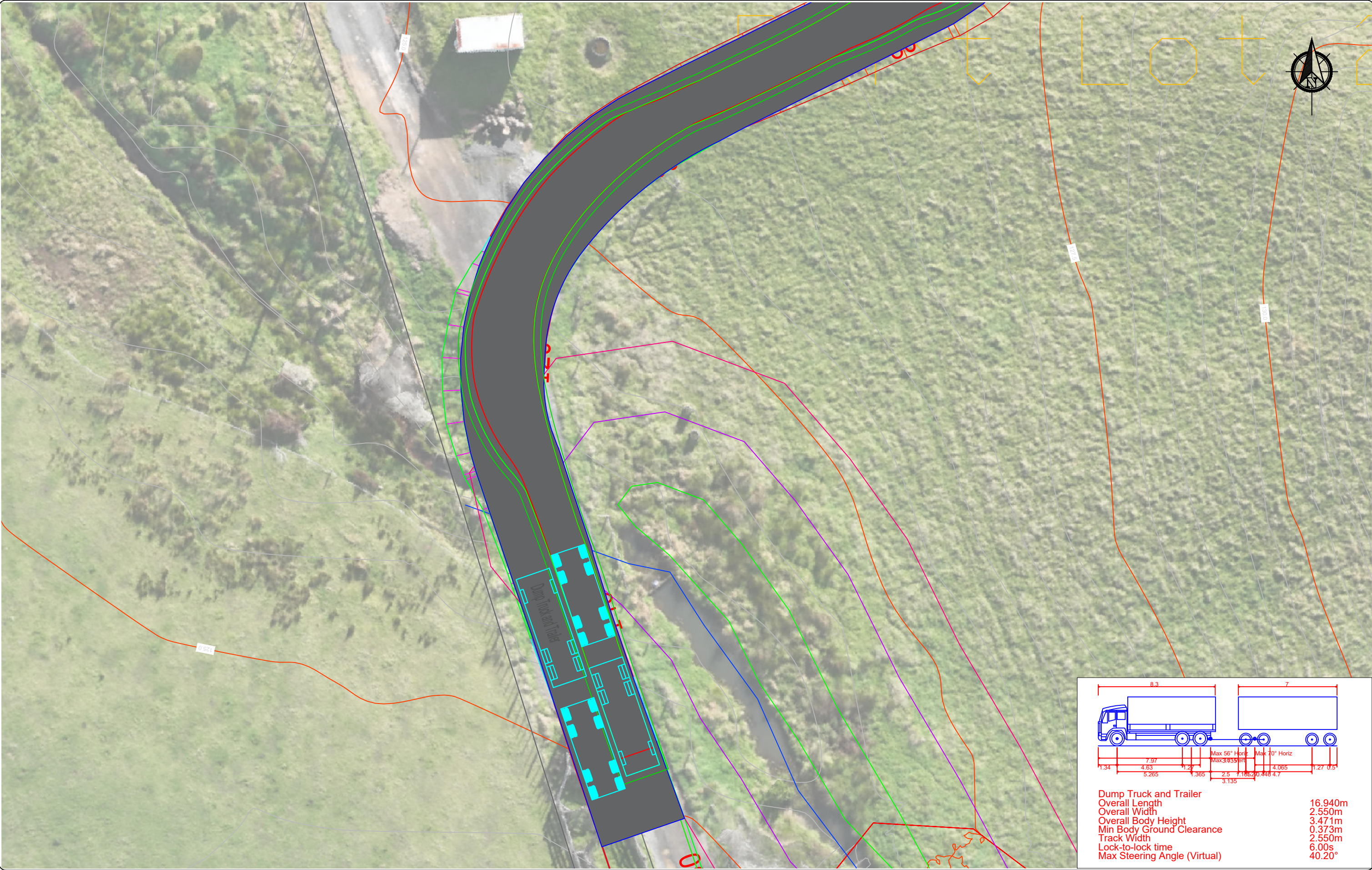
Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Proposed Vehicle Crossing Arrangement
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed	PK	Drawn	PK	Project No - (Sheet No)	Scale
Checked	PK	Approved	PK	220863-VTB - (5)	1:250.0001 (A3) 13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2023 Traffic Planning Consultants Ltd



Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

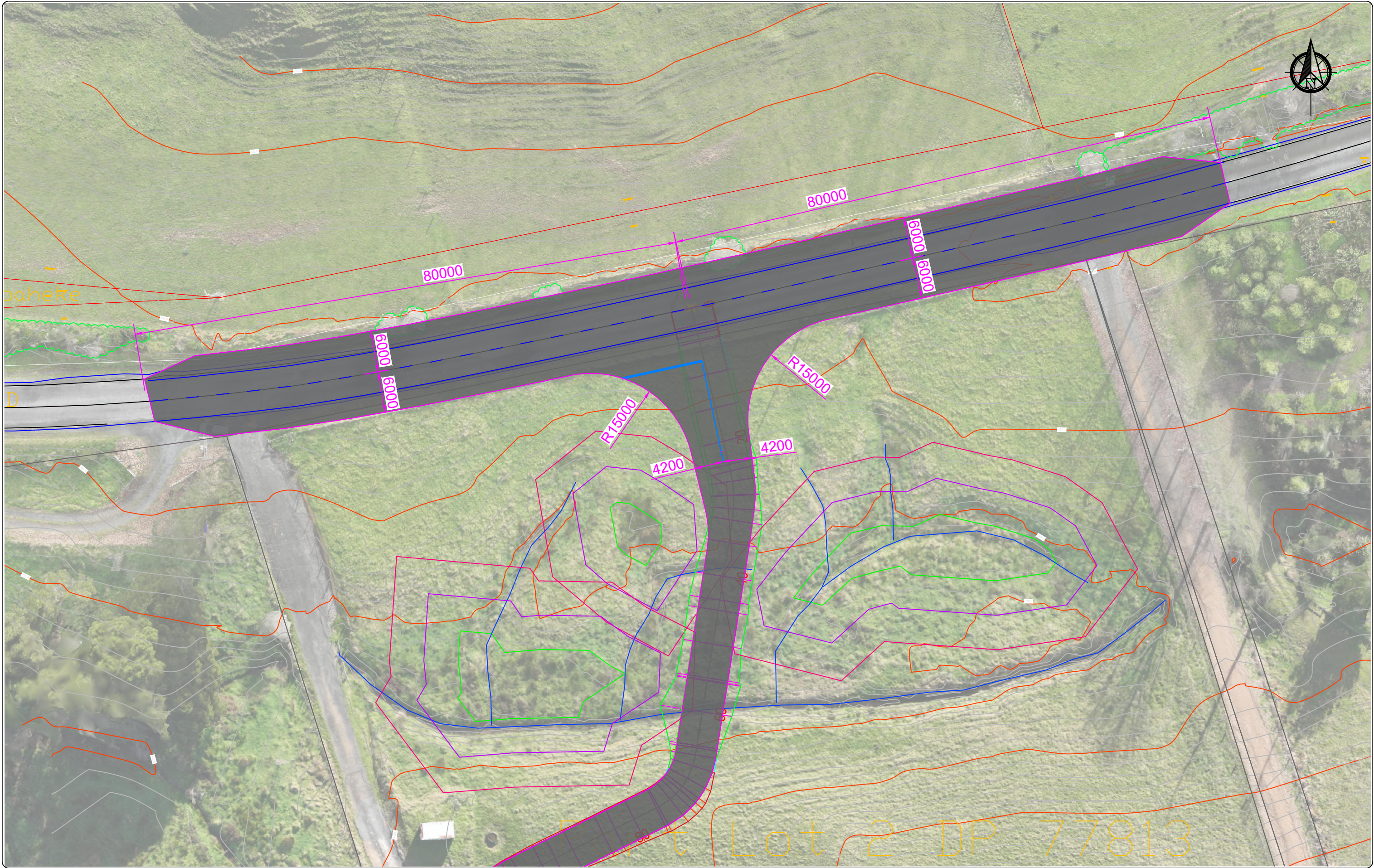
Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Proposed Vehicle Crossing Arrangement
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed	PK	Drawn	PK	Project No - (Sheet No)	Scale	1:250 (A3)
Checked	PK	Approved	PK	220863-VTB - (7)	Date	13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2023 Traffic Planning Consultants Ltd



Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

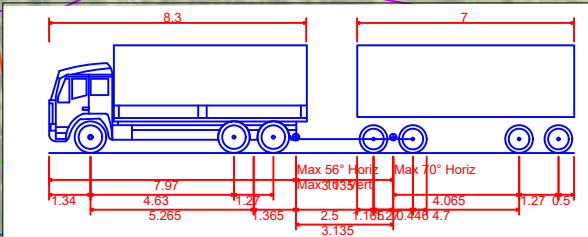
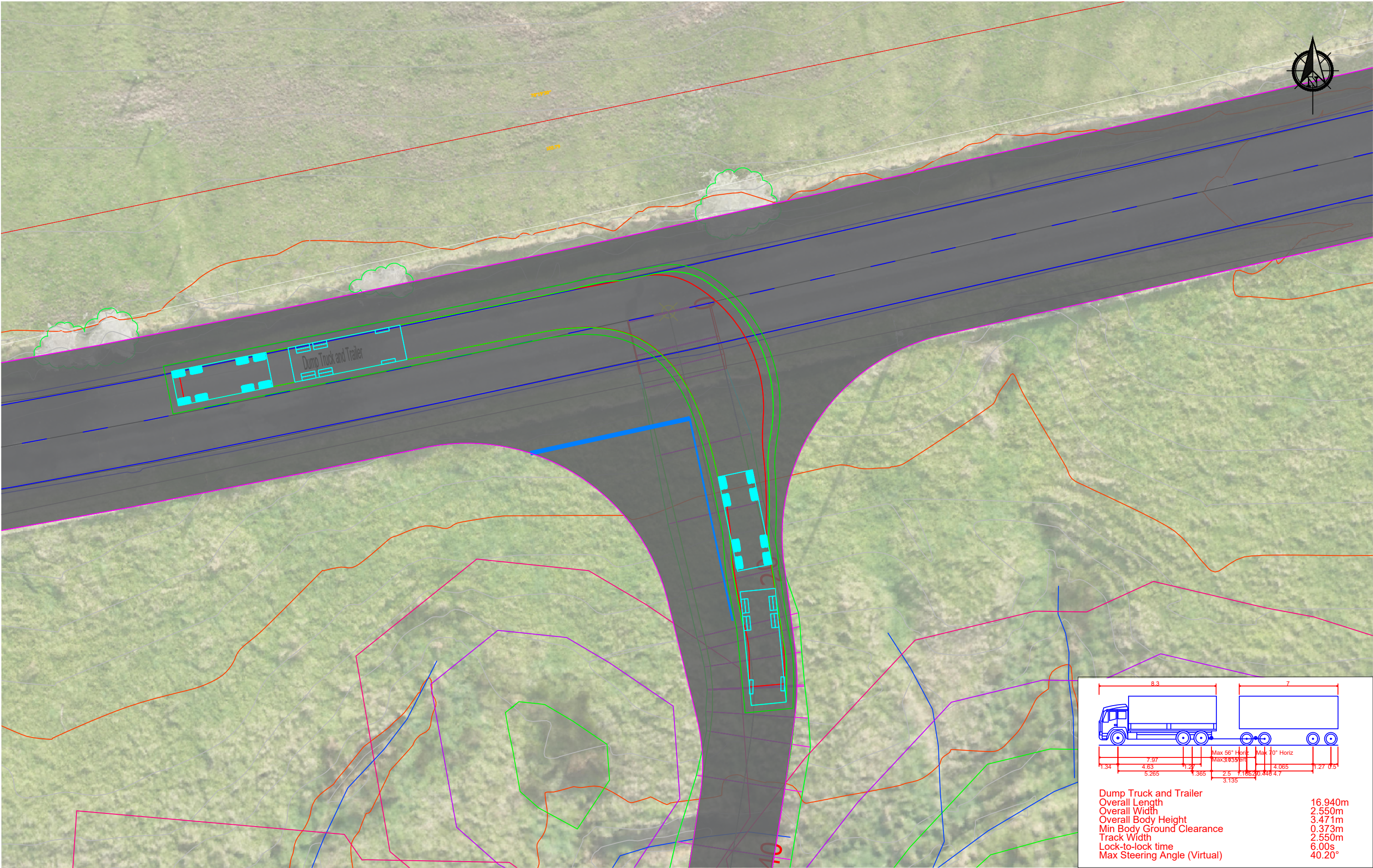
Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Vehicle Crossing Design - NZTA PPM: Diagram E

Designed	IY	Drawn	IY	Project No - (Sheet No)	Scale	1:500 (A3)
Checked	PK	Approved	PK	220863-VTB - (8)	Date	13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2024 Traffic Planning Consultants Ltd



Dump Truck and Trailer	
Overall Length	16.940m
Overall Width	2.550m
Overall Body Height	3.471m
Min Body Ground Clearance	0.373m
Track Width	2.550m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	40.20°

Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Vehicle Crossing Design - NZTA PPM: Diagram E
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed IY
Checked PK

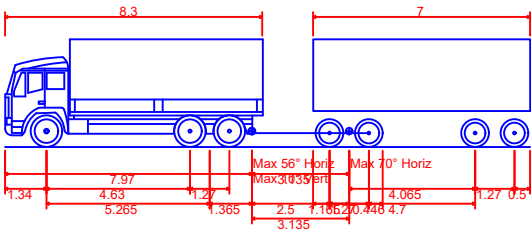
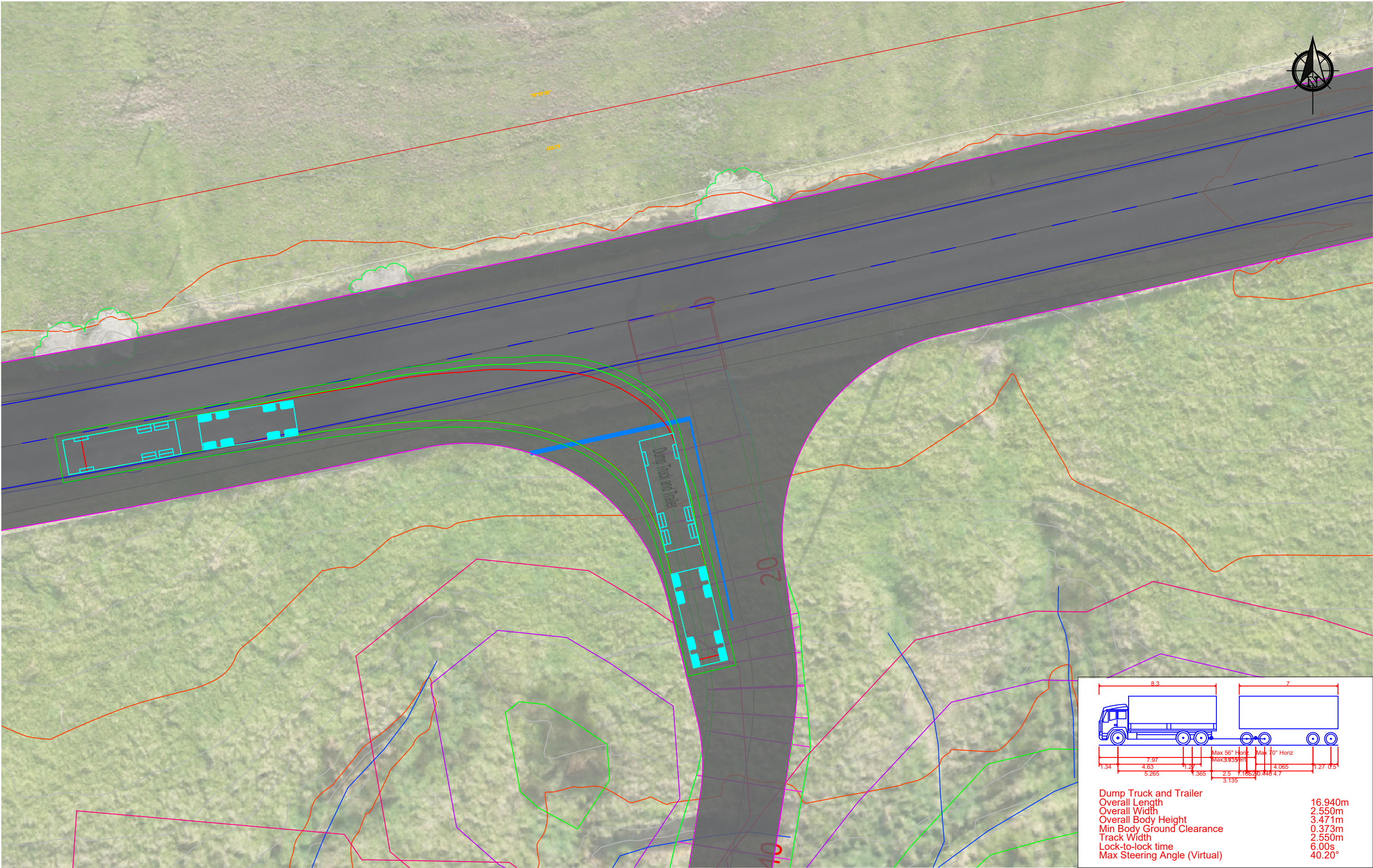
Drawn IY
Approved PK

Project No - (Sheet No)
220863-VTB - (9)

Scale
1:250 (A3)

Date
13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2024 Traffic Planning Consultants Ltd



Dump Truck and Trailer
Overall Length 16.940m
Overall Width 2.550m
Overall Body Height 3.471m
Min Body Ground Clearance 0.373m
Track Width 2.550m
Lock-to-lock time 6.00s
Max Steering Angle (Virtual) 40.20°

Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

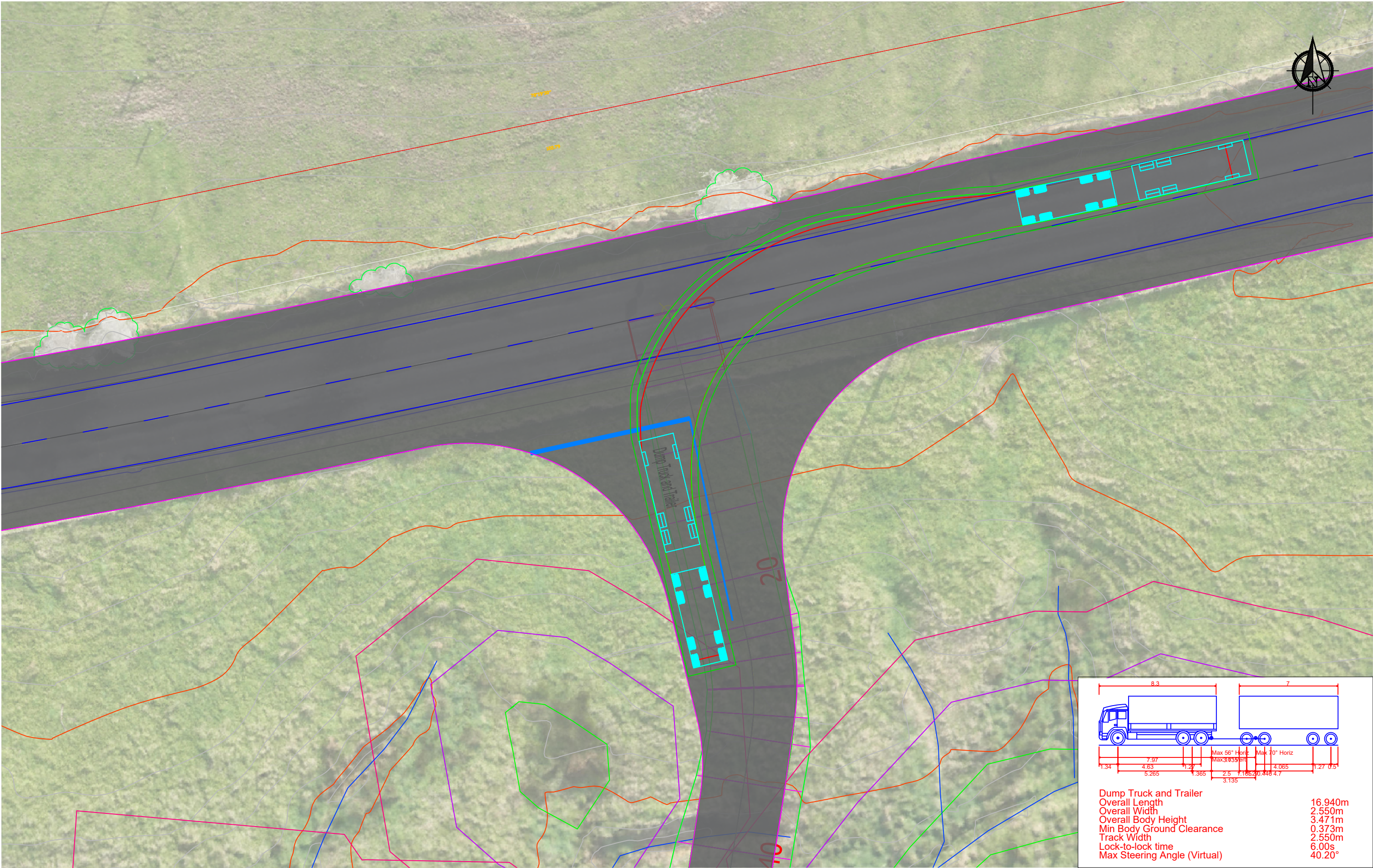
Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Vehicle Crossing Design - NZTA PPM: Diagram E
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed	IY	Drawn	IY	Project No - (Sheet No)	Scale
Checked	PK	Approved	PK	220863-VTB - (11)	Date
					1:250 (A3)
					13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2024 Traffic Planning Consultants Ltd



Rev	Revisions	By	Date

TPC

TRAFFIC PLANNING CONSULTANTS LTD

Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title

Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title

Vehicle Crossing Design - NZTA PPM: Diagram E
Vehicle Tracking - 17m Dump Truck and Trailer (500mm Clearance)

Designed

IY

Drawn

IY

Project No - (Sheet No)

220863-VTB - (12)

Scale

1:250 (A3)

Checked

PK

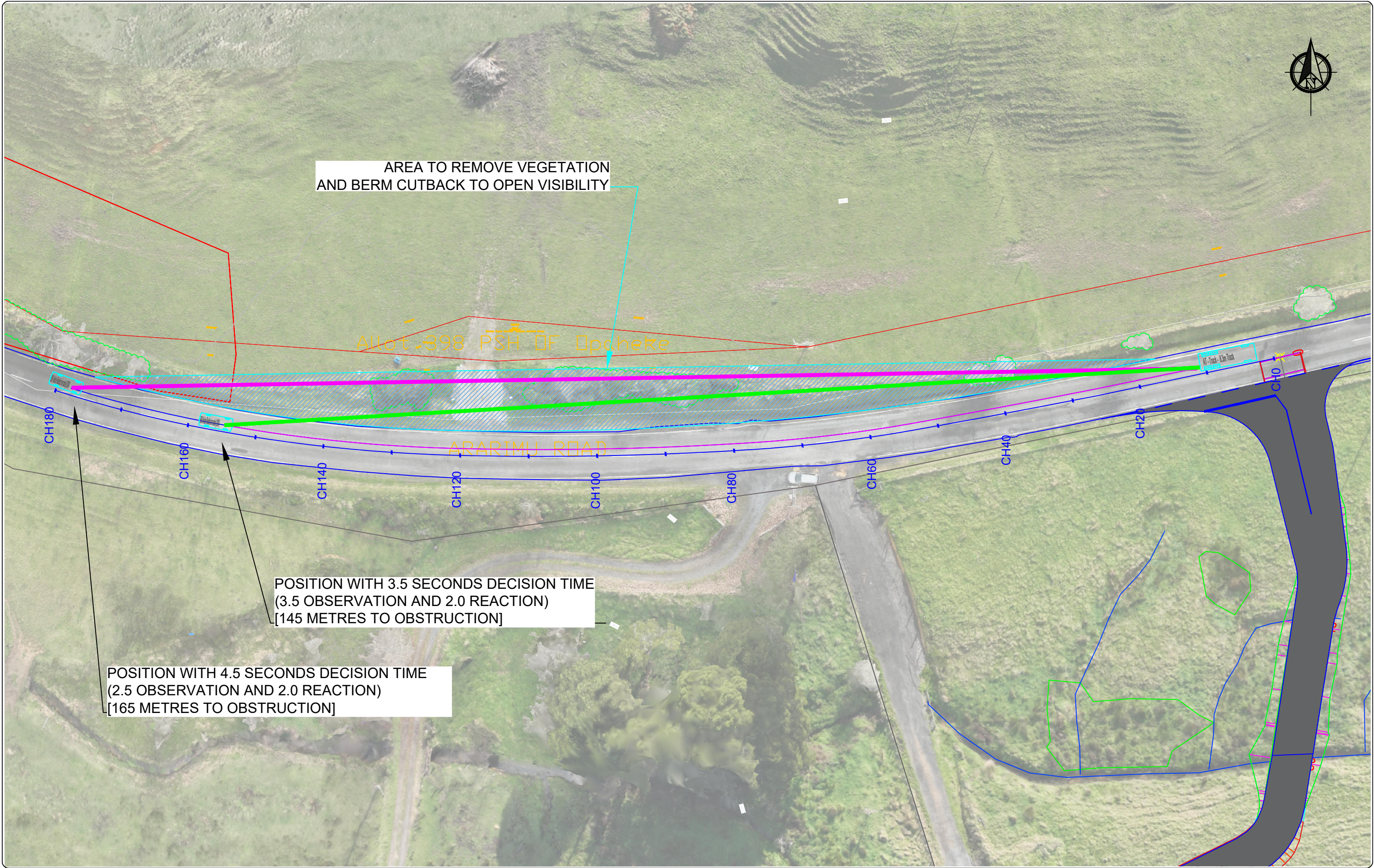
Approved

PK

Date

13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2024 Traffic Planning Consultants Ltd



Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

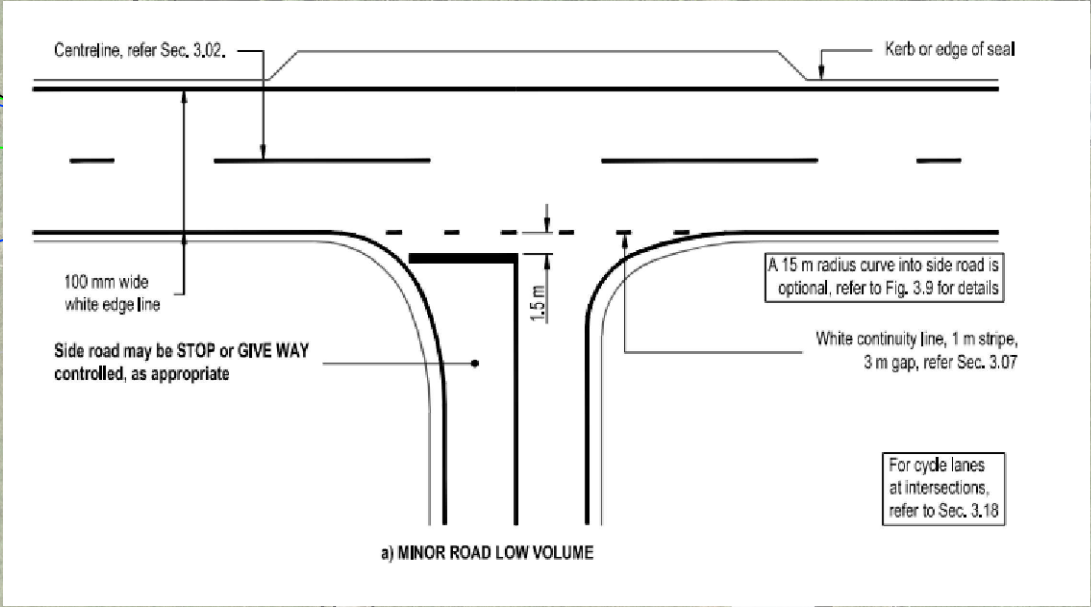
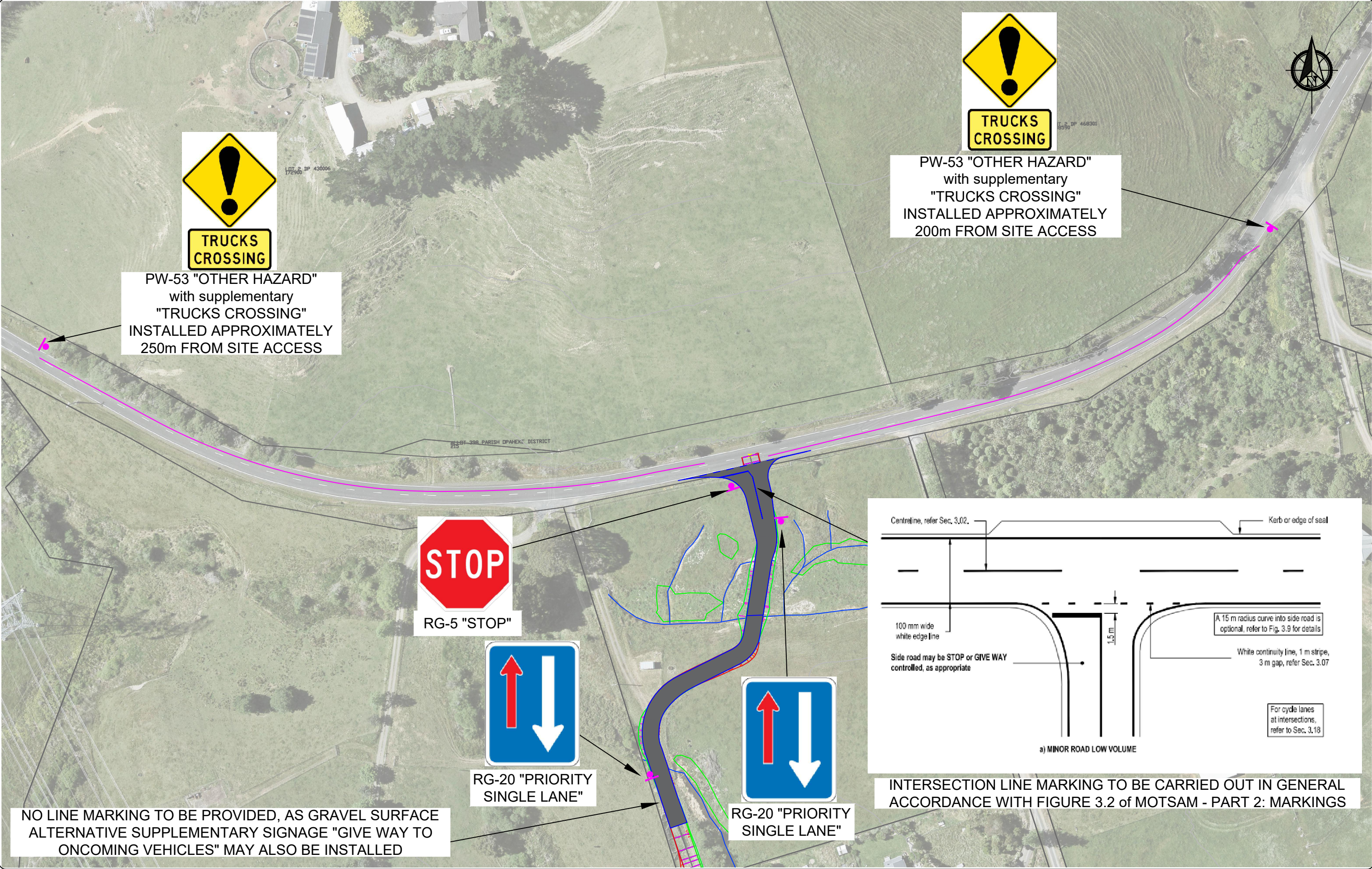
Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Safe Intersection Sight Distance Approaching From West

Designed	IY	Drawn	IY	Project No - (Sheet No)	Scale	1:500 (A3)
Checked	PK	Approved	PK	220863-VTB - (13)	Date	13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2024 Traffic Planning Consultants Ltd



INTERSECTION LINE MARKING TO BE CARRIED OUT IN GENERAL ACCORDANCE WITH FIGURE 3.2 of MOTSAM - PART 2: MARKINGS

Rev	Revisions	By	Date

TPC
TRAFFIC PLANNING CONSULTANTS LTD

Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning.co.nz

Project Title
Earth-Fill Development
1618 Ararimu Road, Papakura

Sheet Title
Concept Road Marking and Signage Plan

Designed IY
Checked PK

Drawn IY
Approved PK

Project No - (Sheet No)
220863-VTB - (14)

Scale
1:1250
(A3)
Date
13.06.24

This drawing is the property of Traffic Planning Consultants Ltd. It is an instrument of service, and as such is a confidential document. It therefore cannot be traced, scanned, copied, reproduced, used or exhibited by any third party without the express permission in writing of Traffic Planning Consultants Ltd.
© Copyright 2024 Traffic Planning Consultants Ltd