16 August 2024

State Assessment and Referral Agency
Darling Downs South West Regional Office
PO Box 825
TOOWOOMBA QLD 4350

Cc: The Assessment Manager
Toowoomba Regional Council
PO Box 3021
TOOWOOMBA QLD 4350

RECEIVED
16/08/2024
TOOWOOMBA
REGIONAL COUNCIL

Attention: **Mr Anthony Sapuppo**
By Email: Anthony.Sapuppo@dsdmip.qld.gov.au

Dear Anthony

RESPONSE TO CONCURRENCE AGENCY INFORMATION REQUEST – SECTION 68, PLANNING ACT 2016 & PART 3, SECTION 13, DEVELOPMENT ASSESSMENT RULES – DEVELOPMENT APPLICATION - RECONFIGURING A LOT - BOUNDARY REALIGNMENT (2 INTO 2 LOTS) - 5712 NEW ENGLAND HIGHWAY, GLENAVEN – LOT 83 & 84 CA311090 (SARA Ref: 2404-39852 SRA, Council Ref: RAL/2024/1294)

I act on behalf of the applicant, Lenard Spierenburg and Robyn Helena Spierenburg, in respect of the above matter.

I refer to the State Assessment and Referral Agency's (**SARA**) Information Request, dated 22 April 2024, in respect of a Development Application for Reconfiguring a Lot for a Boundary Realignment (2 into 2 Lots) on land at 5712 New England Highway, Glenaven, being that land described as Lot 83 and 84 CA311090.

The following advice provides a response to the matters raised in the Concurrence Agency Information Request issued by SARA. For ease of comprehension, each item raised in the Information Request has been reproduced in bold print followed by the associated response.

ISSUES AND RESPONSES

1. STATE-CONTROLLED ROAD ACCESS

1.1. Issue:

SARA has identified safety concerns regarding the proposed access location of proposed Lot 1 to the New England Highway (a state-controlled road).

Performance outcome 15 of SDAP 'State code 1: Development in a state-controlled road environment,' seeks to ensure that the location of a new access to a state-controlled road does not compromise the safety of users of the state-controlled road. Additionally, DTMR's 'Vehicular Access Policy' states that vehicular access to state-controlled roads will not be permitted if it significantly worsens road safety or results in an unacceptable impact to road safety.

The access location to proposed Lot 1 is situated on a section of the highway marked with double barrier lines indicating the extent of restricted overtaking sight distance due to horizontal and/or vertical curves

in the road alignment. The access is therefore proposed in a location that has already been determined to pose a risk to road users due to reduced visibility. The proposed access also appears to be required to be located within an embankment which could potentially limit its visibility to users of the highway and result in reduced sight distances for vehicles entering or exiting this driveway.

Action:

1. ***Provide information on whether the proposed access to the New England Highway can be feasibly located in an alternative location; or***
2. ***If the proposed access cannot be relocated, provide a safety assessment of the proposed access location in accordance with TMR's 'Road Planning & Design Manual' and Austroads' 'Standards for Safe Intersection Sight Distance (SISD) – Sight distance at property entrances'. The safety assessment must be prepared by a suitably qualified RPEQ.***

Response

In response to the above item, reference is made to the Traffic Engineering Advice, dated 16 July 2024, prepared by RMA Engineers and attached at **Appendix A**.

The Traffic Engineering Advice provides an investigation of the access location for the proposed site and has been undertaken with respect to DTMR's 'Vehicular Access Policy' principles of Safety, Function and Future Intent. The investigation also includes consideration of feasibility of access locations, noting the construction constraints for access location to the frontages of the site.

The access investigation considers the following:

- Site context (site layout, key roads and crash history)
- Identification of potential access locations for the site
- Evaluation of access locations using safety and constructability criteria to determine the preferred access location
- Consideration of the preferred access location with respect to the DTMR's 'Vehicular Access Policy' principles of Safety, Function and Future Intent

From the outset, it is noted that Proposed Lot 1 also has frontage to Skinner Road to the norther-east, however this road frontage does not provide a viable access location noting it is not a formed (or traversable) road and does not have an established intersection with the New England Highway. The Traffic Engineering Advice notes that significant earthworks required to construct Skinner Road and the intersection with the highway may also result in restriction of sight distance due to remaining residual embankment.

The Traffic Engineering Advice assessed two other potential access locations fronting the New England Highway, in addition to Skinner Road. From the evaluation of three potential access locations, it was identified that Access Location 2 on the New England Highway (Ch. 56.330km – 56.380km) is the preferred access location for Proposed Lot 1. The engineering correspondence notes that this access meets all the relevant safety and constructability criteria, and no unacceptable or adverse traffic and transport engineering matters have been identified that should preclude approval of the access at the recommended preferred location. The preferred location is identified in Figure 9 of the Traffic Engineering Advice at **Appendix A**.

SUMMARY

The above response addresses each of the items raised in SARA's Information Request. In accordance with the requirements of section 13.4 of the Development Assessment Rules 2017, a copy of this response has been forwarded to the Assessment Manager, Toowoomba Regional Council.

Pursuant to Section 68(1) of the *Planning Act 2016* and Part 3, Section 13 of the *Development Assessment Rules*, we hereby confirm that this response provides a response to all of the items included in the Information Request. Having regard to the information provided, we request that SARA proceed with the concurrence agency assessment of the application.

Should you require any additional information or clarification please do not hesitate to contact the undersigned on phone 07 4632 2535, mobile 0427 875 871 or by email at kim@precinctplan.com.au.

Yours sincerely

Kim Reeve
Precinct Urban Planning

APPENDIX A – TRAFFIC ENGINEERING ADVICE

RMA Engineers

Brisbane
Level 4, 35 Boundary St
South Brisbane Qld 4101
T 07 3846 5885

Bundaberg
16A Crofton St
Bundaberg Qld 4670
T 07 4130 5646

Toowoomba
9 Bowen St
Toowoomba Qld 4350
T 07 4639 4100

Our Ref 240716 24E-0188 TRA Letter 01

Contact Adam Gwatking / Christian Tedman

16 July 2024

Precinct Urban Planning
PO Box 3038
TOOWOOMBA QLD 4350
Attention: Kim Reeve

Dear Kim,

Project Name: Subdivision – 5712 New England Highway | Glenaven
Project No: 24E-0188

RMA Engineers has been engaged by L and RH Spierenburg to provide engineering advice in relation to a proposed access location of a residential driveway at 5712 New England Highway, Glenaven (the subject site).

The development application comprises of reconfiguring two (2) lots into two (2) lots (Lot's 83 – 84 on CA311090 into 'Lot 1' and 'Lot 2') via boundary realignment only. The proposed boundary realignment plans are provided in Enclosure 1.

This letter has been prepared in response to the traffic and transport items raised in the State Assessment and Referral Agency (SARA) *Information Request* (IR) (ref: 2404-39852 SRA), dated 22 April 2024. In particular, this letter responds to Item 1 of the IR in relation to the State-controlled access (refer to Figure 1). The information request document is provided in Enclosure 2.

SARA information request – Item 1

Item 1 identified by SARA is shown below in Figure 1.

State-controlled road access	
1.	**Issue:** SARA has identified safety concerns regarding the proposed access location of proposed Lot 1 to the New England Highway (a state-controlled road). Performance outcome 15 of SDAP 'State code 1: Development in a state-controlled road environment,' seeks to ensure that the location of a new access to a state-controlled road does not compromise the safety of users of the state-controlled road. Additionally, DTMR's 'Vehicular Access Policy' states that vehicular access to state-controlled roads will not be permitted if it significantly worsens road safety or results in an unacceptable impact to road safety. The access location to proposed Lot 1 is situated on a section of the highway marked with double barrier lines indicating the extent of restricted overtaking sight distance due to horizontal and/or vertical curves in the road alignment. The access is therefore proposed in a location that has already been determined to pose a risk to road users due to reduced visibility. The proposed access also appears to be required to be located within an embankment which could potentially limit its visibility to users of the highway and result in reduced sight distances for vehicles entering or exiting this driveway. **Action:** 1. Provide information on whether the proposed access to the New England Highway can be feasibly located in an alternative location; or 2. If the proposed access cannot be relocated, **p**rovide a safety assessment of the proposed access location in accordance with TMR's 'Road Planning & Design Manual' and Austroads' 'Standards for Safe Intersection Sight Distance (SISD) – Sight distance at property entrances'. The safety assessment must be prepared by a suitably qualified RPEQ.

Figure 1: SARA IR Item 1

Response

An investigation of the access location for the proposed site has been undertaken in response to Item 1 of the SARA IR, with respect to DTMR's 'Vehicular Access Policy' principles of Safety, Function and Future Intent. In addition, it is noted that the majority of the verge in the vicinity of the site has steep cut or fill embankments that provide construction constraints for an access. Therefore, feasibility of implementing an access has also been considered as part of the investigation due to such constraints.

It is acknowledged that the existing Lot 83 on CA311090 currently does not have any access location and would require similar investigation concerning access to the New England Highway regardless of any development application.

The access investigation considers the following:

- Site context (site layout, key roads and crash history)
- Identification of potential access locations for the site
- Evaluation of access locations using safety and constructability criteria to determine the preferred access location
- Consideration of the preferred access location with respect to the DTMR's 'Vehicular Access Policy' principles of Safety, Function and Future Intent

Site context

Site layout

The subject site is bordered by the New England Highway to the northeast, Skinner Road to the northwest, Genrich Road to the southeast, and an easement to the southwest. Although Skinner Road is mapped, it is not a formed (or traversable) road and does not provide an established intersection with the New England Highway.

The location of the subject site and its environs is shown below in Figure 2.

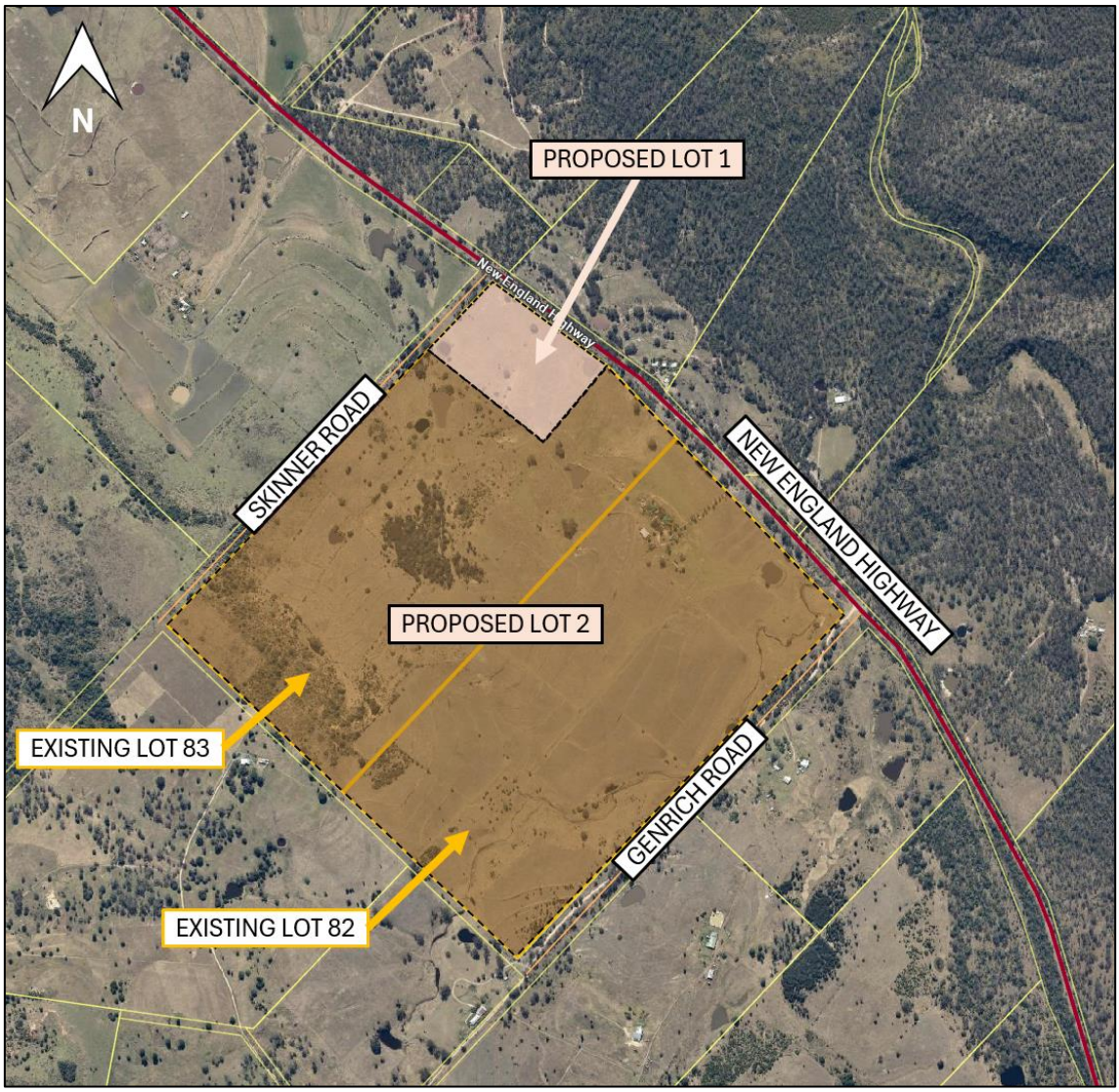


Figure 2: Subject site location

Key roads – New England Highway

The New England Highway is the key road that provides access to the subject site. The New England Highway predominantly runs north-south and is a two lane, two-way road that connects northern localities and townships (such as Glenaven) to Toowoomba. It extends from The Pacific Highway in the south (near Newcastle) to the D'Aguilar Highway in the north (at Yarraman), a total distance of 883 kms. The New England Highway is part of Australia's National Highway network and is a state-controlled road. This section of the highway is 22A and is a State Strategic Road.

In the vicinity of the subject site, the New England Highway has the following characteristics (refer to Figure 3):

- Two-way undivided carriageway
- Centre line and edge line markings
- Varying road reserve width of 40m and 50m
- Approximately 3.0m wide traffic lanes
- No footpath provisions
- Posted speed limit of 100km/h
- The New England Highway at this location has an AADT (2022) of 1,414 vehicles per day, 120 vehicles per peak hour, with 14% heavy vehicles.

Figure 3: New England Highway (looking south along the site boundary)

Crash history

Queensland Government crash data was examined for the most recent available five-year period. Data was obtained from *Queensland Globe (transportation – road crash locations).* No crashes have been recorded between Ch. 56km – 59km (2km either side of the subject site) on the New England Highway.

Given the limited number of recorded crashes, no adverse safety issues, or crash patterns could be determined from the available crash data.

Turn warrant consideration

Austroads Guide to Traffic Management Part 6 indicates that turn warrants are not intended for direct application to accesses and driveways, however, they may be used as a referred for such. However, given the low turning volumes (i.e. one vehicle per peak hour) and the relatively low volumes of New England Highway (120vph), turn warrants result in simple left and simple right requirements for the access. As such, no channelisation is required for an access to Lot 1.

Identification of potential access locations for the site

From a site inspection, three potential access locations were nominated for the proposed Lot 1 site. These locations were identified based on available sight distance, roadside characteristics and constructability (i.e. embankment constraints).

These three potential access locations are illustrated in Figure 4 and consist of:

1. New England Highway (Chainage 56.205km – 56.225km)
2. New England Highway (Chainage 56.330km – 56.380km)
3. Skinner Road

It should be noted that the chainages have been measured via a desktop review and are approximate only.

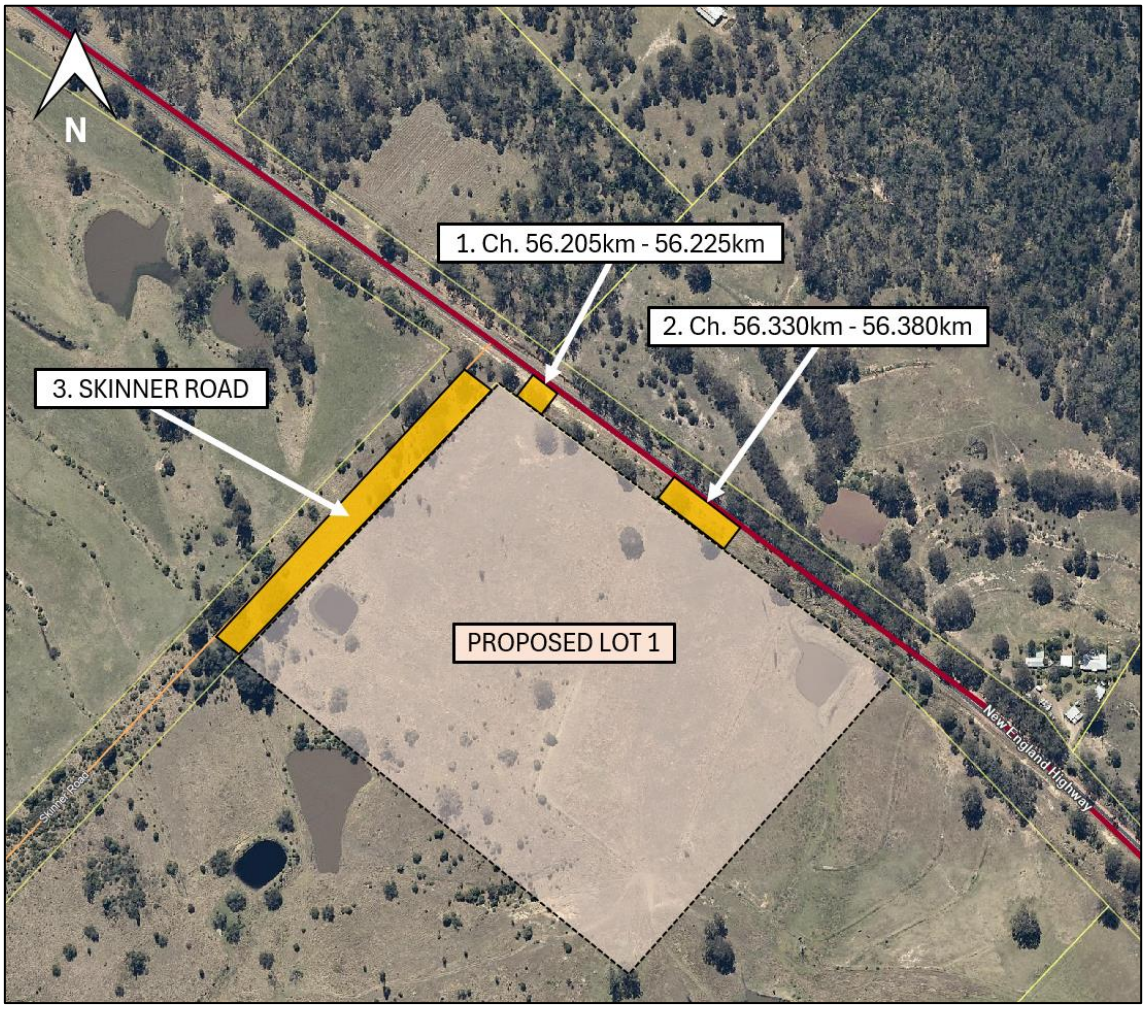


Figure 4: Proposed access locations

Location 1 - New England Highway (Ch. 56.205km – 56.225km)

This location was selected on-site due to available sight distance and roadside characteristics. As shown in Figure 5 and Figure 6, traversable gravel shoulders are located on either side of the road. If an access were to be located between Ch. 56.205km and 56.225km, it is expected that a vehicle could maneuver around a propped right-turning vehicle accessing Lot 1.

It should be noted that the proposed access would require to be cut into the existing embankment, resulting in significant earthworks and restricting sight distance due to the remaining residual embankment impeding on sight lines.

Figure 5: Proposed access location 1 (Ch. 56.205km – 56.225km) (facing south-west)

Figure 6: Proposed access location 1 (Ch. 56.205km – 56.225km) (facing north-east)

Location 2 - New England Highway (Ch. 56.330km – 56.380km)

This location was selected on-site due to available sight distance, and the potential of reduced earthworks when compared to the previously assessed location (Ch. 56.205km – 56.225km).

Similarly to the previously assessed location, as indicated in Figure 7 and Figure 8, traversable gravel shoulders are located on either side of the road. It is expected that a vehicle could maneuver around a propped right-turning vehicle accessing Lot 1.

It should be noted that shoulder width is restricted closer to Ch.56.380km along the north-eastern verge where a steep fill embankment (drop-off) is located.

Figure 7: Proposed access location 2 (Ch. 56.330km – 56.380km) (facing south-west)

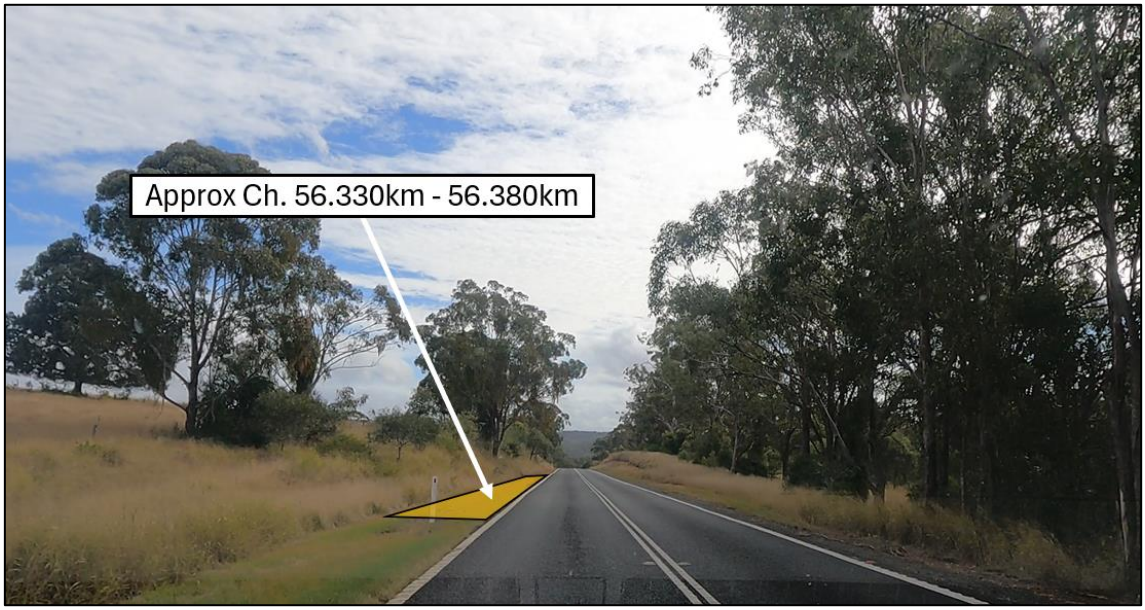


Figure 8: Proposed access location 2 (Ch. 56.330km – 56.380km) (facing north-east)

Location 3 - Skinner Road

If direct access to the New England Highway cannot be achieved, access via Skinner Road was also considered. It is noted that although Skinner Road is mapped, it does not form an intersection with the New England Highway nor is it currently traversable. As such, significant earthworks would be required to accommodate an access. This works may also result in the restriction of sight distance due to the remaining residual embankment impeding on sight lines.

Evaluation of potential access locations for the site

To determine the most suitable and feasible access location, the three options have been evaluated using the following criteria:

1) Safety – Crash history
2) Safety – Sight availability
3) Safety – Risk assessment scoring
4) Constructability – feasibility of construction of an access with regards to embankment constraints.

These criteria and associated assessment scoring are detailed at Appendix C.

The outcome of the options assessment is illustrated in Table 1.

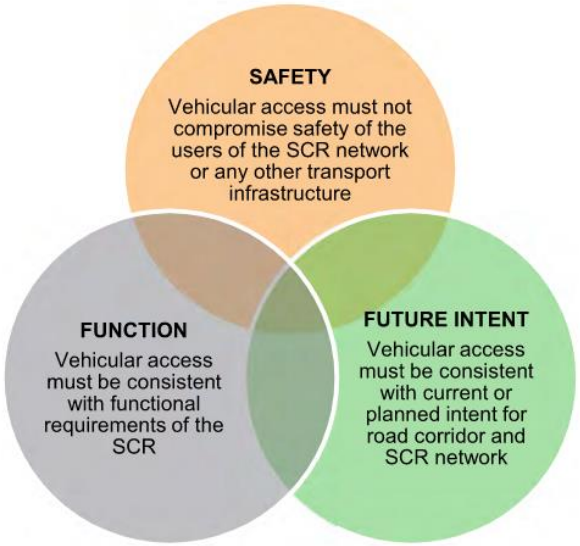
Table 1: Summary of access evaluation

Criteria	**Location 1 – New England Highway (Ch. 56.205km – 56.225km)**	**Location 2 – New England Highway (Ch. 56.330km – 56.380km)**	**Location 3 – Skinner Road**
Crash history	No adverse safety issues, or crash patterns could be determined from the available crash data.	No adverse safety issues, or crash patterns could be determined from the available crash data.	No adverse safety issues, or crash patterns could be determined from the available crash data.
Sight availability	Deficient Southbound sight distance requirements that generally do not meet the EDD SISD check cases, SSD and MGSD.	Meets all EDD SISD check cases, SSD, MGSD and AS2890.1 requirements.	Generally meets most of the sight requirements, however is deficient for the Northbound direction with the EDD Normal Day base case and SSD requirements.
Risk assessment	Medium risk score. No high risks were identified.	Medium risk score. No high risks were identified.	Medium risk score. No high risks were identified.
Constructability	Large steep cut slopes that will make the access construction cost prohibitive.	Feasible construction - smaller slopes to consider as the verge profile changes from cut to fill in the vicinity of this location.	Large steep cut slopes that will make the access construction cost prohibitive.
Outcome	This access location is not recommended.	Preferred access location, meets all relevant safety and constructability criteria.	This access location could be feasible if the construction and sight can be mitigated.

Preferred access location

From the evaluation of the three access locations, and as illustrated in Table 1 and Appendix C, the most suitable location for an access to Lot 1 is **Location 2 - New England Highway (Chainage 56.330km – 56.380km)**. This option is the preferred location as it meets all the relevant safety and constructability criteria.

This preferred location has also been assessed in accordance with the DTMR's 'Vehicular Access Policy' principles of Safety, Function and Future Intent as per Tables 2 to 5 below.



The inter-relationship between the three policy principles

Table 2 – DTMR's 'Vehicular Access Policy' principles of Safety

SAFETY	TMR Principle / performance outcome	Preferred Access Location response
Strategy 1	**Vehicular access to SCRs will not be permitted if it significantly worsens road safety or results in an unacceptable impact to road safety.** Vehicular access to a SCR will not be permitted at locations considered to be unsafe including, for example, near motorways and motorway on and off ramps, intersections, pedestrian crossings and bus stops.	The proposed vehicular access does not significantly worsen the road safety of the New England Highway for the following reasons: ▪ The access is for a rural residential lot which would generate low traffic volumes. ▪ The access location has sufficient separation from other private accesses, intersections and roadway features. ▪ The sight distance meets the applicable sight stipulated in Austroads (EDD SISD), MGSD, SSD and the sight requirements for domestic accesses in the AS2890.1. ▪ A risk assessment for the access results in a medium risk score. No high risks were identified that are related to an access at this location. ▪ No residual impacts are identified from the construction of such an access driveway at this location. ▪ The operation of the access doesn't trigger channelisation. Turn warrants result in simple left and simple right provisions (i.e. no widening is warranted). ▪ The access is similar and consistent to surrounding domestic accesses along the corridor.
Strategy 2	**Vehicular access to SCRs will not be permitted where it significantly worsens safety for users of other transport infrastructure.** Other transport infrastructure includes rail, light rail, public passenger and active transport infrastructure. In terms of public passenger transport and active transport, new or changed vehicular access must not impede the ability of patrons, pedestrians and cyclists to safely access and use this infrastructure.	The proposed vehicular access does not significantly worsen the road safety for users of other transport infrastructure of the New England Highway.

Strategy 3	**The safety of the users of the SCR network will be the primary consideration for all works in a SCR corridor.** The construction, maintenance and operation of a vehicular access must ensure that the safety of the users of the SCR network is maintained or improved.	The access design, construction and maintenance will be in accordance with relevant Australian and DTMR standards. No adverse safety issues are identified with the operation of the access that would impact the road users of New England Highway.
Strategy 4	**The planning and design of road infrastructure projects must make provision for the location and design of existing vehicular accesses to ensure there is no significant worsening of or unacceptable impact to road safety.** In circumstances where a project identifies there is the potential for significant worsening of road safety, measures must be undertaken to avoid, manage or mitigate the issue. This may include relocating, modifying or removing the existing vehicular access.	The proposed vehicular access does not impact on existing vehicular accesses. The access location has sufficient separation from other private accesses, intersections and roadway features.

Table 3 – DTMR's 'Vehicular Access Policy' principles of Function

FUNCTION	TMR Principles	Preferred Access Location response
Strategy 1	**Vehicular access to SCRs will not be permitted on higher order roads such as motorways and limited access roads, except where specified in a limited access road policy.**	The access complies as the 22A section of the New England Highway is not classed as a limited access road and domestic accesses exist along the corridor length.
Strategy 2	**Vehicular access to SCRs will not be permitted where access can be feasibly obtained from a local road.** Vehicular access must be from a local road where a feasible alternative to SCR access exists. Where safe access to the local road network is not feasible, access may be permitted if sufficient justification is provided and the vehicular access is located and designed to minimise any impacts.	Access using the adjacent Skinner Road road reserve is not feasible due to: ▪ Skinner Road is not constructed or traversable ▪ The intersection of Skinner Road / New England Highway is not established and infeasible to construct given the large cut embankment slope and potential residual issues that would arise regarding the slope (SISD and ASD sight).
Strategy 3	**The number of access points to a SCR will be minimised to ensure the through traffic carrying function of the road is maintained.** The preferred options for managing multiple access points to a SCR are to consolidate vehicular accesses, redirect access via a service road, or to construct shared access for adjoining properties. Where appropriate, development involving any new or extended local road networks should also make provision for future connectivity to adjacent land and/or local road corridors (such as the provision of road stubs).	The preferred access location is proposed as a single domestic access driveway. It is the minimal number of accesses for the site.
Strategy 4	**Vehicular access to SCRs must not compromise the public passenger transport or active transport function of the SCR.** Vehicular access must not impede the efficient operation of public passenger transport and active transport networks. Any new or changed vehicular access must be designed and constructed to minimise conflict points with public transport vehicles, pedestrians and cyclists.	The preferred access location does not compromise public or active transport functions.

Table 4 – DTMR's 'Vehicular Access Policy' principles of Future Intent

FUTURE INTENT	TMR Principles	Preferred Access Location response
Strategy 1	**Vehicular access must not impede the operation of existing transport infrastructure or the delivery of planned corridor improvements.** Planned corridor improvements include road widening, bus infrastructure (including bus stops), turning lanes, footpaths, and cycle routes.	The preferred access location does not impede on the existing or future operation of the New England Highway road corridor.
Strategy 2	**Vehicular access must not impede the delivery of planned upgrades to the SCR network.** Planned upgrades include extensions, upgrades or duplication of SCRs.	N/A - No planned upgrades are identified in the vicinity of the site.
Strategy 3	**The standard of vehicular access works must ensure the configuration of the SCR frontage is consistent with the current or documented intended form of the SCR corridor.** Any new or changed vehicular access must be designed and constructed to enable the continuity of: ▪ footpaths and cycling infrastructure along the frontage ▪ drainage (kerb and channel, stormwater infrastructure and so on) along the frontage ▪ public utility plants (electricity, gas, telecommunications, water and sewerage infrastructure) along the frontage ▪ noise barriers.	The access design, construction and maintenance will be in accordance with relevant Australian and DTMR standards and will ensure the frontage is consistent with the SCR corridor. This will include the provision of PUP and drainage as required.

From the above, the preferred access aligns with DTMR's 'Vehicular Access Policy' principles, and no adverse issues are identified.

Therefore, from the outcomes of the access assessment with respect to safety and constructability, and the consideration of DTMR's 'Vehicular Access Policy' principles, the preferred access (Location 2) can be implemented without any adverse issues. Figure 9 illustrates the recommended access location for Lot 1 on the New England Highway.

Figure 9: Recommended access location (Ch. 56.330km – 56.380km)

Summary

RMA Engineers has been engaged by L and RH Spierenburg to provide engineering advice in relation to a proposed access location of a residential driveway at 5712 New England Highway, Glenaven (the subject site).

The development application comprises of reconfiguring two (2) lots into two (2) lots (Lot's 83 – 84 on CA311090 into 'Lot 1' and 'Lot 2') via boundary realignment only. The proposed boundary realignment plans are provided in Enclosure 1.

This letter has been prepared in response to the traffic and transport items raised in the State Assessment and Referral Agency (SARA) *Information Request* (IR) (ref: 2404-39852 SRA), dated 22 April 2024. In particular, this letter responds to Item 1 of the IR in relation to the State-controlled access.

From the evaluation of three potential access locations, it was identified that **Access Location 2 (Ch. 56.330km – 56.380km)** is the preferred access location for Lot 1. This access meets all the relevant safety and constructability criteria.

From the above, no unacceptable or adverse traffic and transport engineering matters have been identified that should preclude approval of the access at the recommended preferred location (refer to Figure 9).

We trust the above adequately covers the issues raised. Please contact the undersigned if any further information is required.

Yours sincerely,

NER, CPEng, RPEQ: 15158

Adam Gwatking

Associate | Principal Engineer (Traffic and Transport)

RMA ENGINEERS PTY LTD

Enclosures:

1: Proposed plan

2: SARA information request

3: Evaluation Assessment Technical Note

Enclosure 1 – Proposed plan

328
C8263

1
RP157568

2
SP171000

3
SP171000

393
CSH356

ENGLAND HIGHWAY

NEW

341·664

231·343

570·311

82
CA311090

SKINNER ROAD

1116·08

83
CA311090
64.7500ha

1148·744

84
CA311090
64.7500ha

1118·896

GENRICH ROAD

10
SP225613

//
SP225613

80
CA311090

568·501

569·305

TROST ROAD

NOTE:

This plan was created as a proposed lot reconfiguration to support and accompany a Development Application to Toowoomba Regional Council for 5712 New England Highway (Lots 83 & 84 on CA311090) and it should not be used for any other purpose without the express permission of Sunrise Surveying or the client whose name appears in the Titleblock.

Areas and Dimensions shown on this plan are compiled from subject documentation only and are subject to council approval and final survey. No reliance should be placed on these values for financial, commercial or construction purposes.

This plan should not be distributed without this note.

Scale Bar 1:5000

0 50 125 250 500

Project:

REV.	DATE	DESCRIPTION	DRAWN	SURV	CHKD
A	26/02/24	Issued for Information	AJC	-	AJC

SUNRISE SURVEYING

Brisbane (Head Office)
Ground Floor, 18 Finchley St, Milton
admin@sunrisesurveying.com.au
Toowoomba
Tenancy 1, 4 Laurel St, Toowoomba
toowoomba@sunrisesurveying.com.au
Rockhampton
Level 1, 159 Denison St, Rockhampton
rockhampton@sunrisesurveying.com.au
Yeppoon
47 Normanby St, Yeppoon
yeppoon@sunrisesurveying.com.au

CLIENT.
L & RH Spierenburg

PROJECT.
5712 New England Highway

HORIZONTAL DATUM.
MGA20 (Vide DCDB)

VERTICAL DATUM.
RL:

DRAWING DESCRIPTION.
Proposal Plans
Existing Configuration

Sheet 1 of 3

DRAWING NAME:
24052 5001 001-A

SCALE.
1: 5000 @ A3

SITE ADDRESS.
5712 New England Highway
Glenhaven, Qld

LOCAL AUTHORITY
Toowoomba Regional Council

SURVEY DATE
-

CONTOUR INTERVAL
Minor: -
Major: -

REV
A

Drawing Plotted Monday, February 26, 2024 13:41:31 by AlexCook

328
C8263

1
RP157568

2
SP171000

3
SP171000

393
CSH356

ENGLAND HIGHWAY

NEW

PROPOSED ACCESS
341·664

801·654

PROPOSED
LOT
1
8.0937ha

216·637

PROPOSED
LOT
2
121.40ha

SKINNER ROAD (1116·08)

899·443

1118·896

GENRICH ROAD

10
SP225613

11
SP225613

82
CA311090

80
CA311090

1137·806

TROST ROAD

Scale Bar 1:5000

0 50 125 250 500

NOTE:

This plan was created as a proposed lot reconfiguration to support and accompany a Development Application to Toowoomba Regional Council for 5712 New England Highway (Lots 83 & 84 on CA311090) and it should not be used for any other purpose without the express permission of Sunrise Surveying or the client whose name appears in the Titleblock.

Areas and Dimensions shown on this plan are compiled from subject documentation only and are subject to council approval and final survey. No reliance should be placed on these values for financial, commercial or construction purposes.

This plan should not be distributed without this note.

Project:

REV.	DATE	DESCRIPTION	DRAWN	SURV	CHKD
A	26/02/24	Issued for Information	AJC	-	AJC

SUNRISE SURVEYING

Brisbane (Head Office)
Ground Floor, 18 Finchley St, Milton
admin@sunrisesurveying.com.au

Toowoomba
Tenancy 1, 4 Laurel St, Toowoomba
toowoomba@sunrisesurveying.com.au

Rockhampton
Level 1, 159 Denison St, Rockhampton
rockhampton@sunrisesurveying.com.au

Yeppoon
47 Normanby St, Yeppoon
yeppoon@sunrisesurveying.com.au

CLIENT.
L & RH Spierenburg

PROJECT.
5712 New England Highway

HORIZONTAL DATUM.
MGA20 (Vide DCDB)

VERTICAL DATUM.
RL:

DRAWING DESCRIPTION.
Proposal Plans
Proposed Configuration

Sheet 2 of 3

DRAWING NAME:
24052 5001 001-A

SCALE.
1: 5000 @ A3

SITE ADDRESS.
5712 New England Highway
Glenhaven, Qld

LOCAL AUTHORITY
Toowoomba Regional Council

SURVEY DATE
-

CONTOUR INTERVAL
Minor: -
Major: -

REV
A

Drawing Plotted Monday, February 26, 2024 13:42:01 by AlexCook

NOTE:

This plan was created as a proposed lot reconfiguration to support and accompany a Development Application to Toowoomba Regional Council for 5712 New England Highway (Lots 83 & 84 on CA311090) and it should not be used for any other purpose without the express permission of Sunrise Surveying or the client whose name appears in the Titleblock.

Areas and Dimensions shown on this plan are compiled from subject documentation only and are subject to council approval and final survey. No reliance should be placed on these values for financial, commercial or construction purposes.

This plan should not be distributed without this note.

Project:

REV.	DATE	DESCRIPTION	DRAWN	SURV	CHKD
A	26/02/24	Issued for Information	AJC	-	AJC

SUNRISE SURVEYING

Brisbane (Head Office)
Ground Floor, 18 Finchley St, Milton
admin@sunrisesurveying.com.au
Toowoomba
Tenancy 1, 4 Laurel St, Toowoomba
toowoomba@sunrisesurveying.com.au
Rockhampton
Level 1, 159 Denison St, Rockhampton
rockhampton@sunrisesurveying.com.au
Yeppoon
47 Normanby St, Yeppoon
yeppoon@sunrisesurveying.com.au

CLIENT.
L & RH Spierenburg

PROJECT.
5712 New England Highway

HORIZONTAL DATUM. MGA20 (Vide DCDB)
VERTICAL DATUM.
RL:

DRAWING DESCRIPTION.
Proposal Plans
Proposed Configuration with Imagery

Sheet 3 of 3

DRAWING NAME:
24052 5001 001-A

SCALE.
1: 5000 @ A3

SITE ADDRESS.
5712 New England Highway
Glenhaven, Qld

LOCAL AUTHORITY
Toowoomba Regional Council

SURVEY DATE
-

CONTOUR INTERVAL
Minor: -
Major: -

REV
A

Drawing Plotted Monday, February 26, 2024 13:54:49 by AlexCook

Enclosure 2 – SARA information request

Queensland Government

SARA reference: 2404-39852 SRA
Applicant reference: 2024-028
Council reference: RAL/2024/1294

22 April 2024

L & RH Spierenburg
PO Box 3038
TOOWOOMBA QLD 4350
kim@precinctplan.com.au

Attention: Kim Reeve

Dear Ms Reeve

SARA information request - 5712 New England Highway, Glenaven

(Given under section 12 of the Development Assessment Rules)

This notice has been issued because the State Assessment and Referral Agency (SARA) has identified that information necessary to assess your application against the relevant provisions of the State Development Assessment Provisions has not been provided.

State-controlled road access	
1.	**Issue:** SARA has identified safety concerns regarding the proposed access location of proposed Lot 1 to the New England Highway (a state-controlled road). Performance outcome 15 of SDAP 'State code 1: Development in a state-controlled road environment,' seeks to ensure that the location of a new access to a state-controlled road does not compromise the safety of users of the state-controlled road. Additionally, DTMR's 'Vehicular Access Policy' states that vehicular access to state-controlled roads will not be permitted if it significantly worsens road safety or results in an unacceptable impact to road safety. The access location to proposed Lot 1 is situated on a section of the highway marked with double barrier lines indicating the extent of restricted overtaking sight distance due to horizontal and/or vertical curves in the road alignment. The access is therefore proposed in a location that has already been determined to pose a risk to road users due to reduced visibility. The proposed access also appears to be required to be located within an embankment which could potentially limit its visibility to users of the highway and result in reduced sight distances for vehicles entering or exiting this driveway. **Action:** 1. Provide information on whether the proposed access to the New England Highway can be

Darling Downs South West regional office
128 Margaret Street, Toowoomba
PO Box 825, Toowoomba QLD 4350

	feasibly located in an alternative location; or 2. If the proposed access cannot be relocated, **p**rovide a safety assessment of the proposed access location in accordance with TMR's 'Road Planning & Design Manual' and Austroads' 'Standards for Safe Intersection Sight Distance (SISD) – Sight distance at property entrances'. The safety assessment must be prepared by a suitably qualified RPEQ.

How to respond

You have three months to respond to this request and the due date to SARA is 22 July 2024**.**
You may respond by providing either: (a) all of the information requested; (b) part of the information requested; or (c) a notice that none of the information will be provided. Further guidance on responding to an information request is provided in section 13 of the Development Assessment Rules (DA Rules).

It is recommended that you provide all the information requested above. If you decide not to provide all the information requested, your application will be assessed and decided based on the information provided to date.

You are requested to upload your response and complete the relevant tasks in MyDAS2.

As SARA is a referral agency for this application, a copy of this information request will be provided to the assessment manager in accordance with section 12.4 of the DA Rules.

If you require further information or have any questions about the above, please contact Anthony Sapuppo, Principal Planning Officer, on 0734527815 or via email ToowoombaSARA@dsdilgp.qld.gov.au who will be pleased to assist.

Yours sincerely

Rodney O'Brien
Principal Planning Officer

cc Toowoomba Regional Council, development@tr.qld.gov.au

Development details	
Description:	Development permit Reconfiguring a Lot – Boundary Realignment (2 into 2 Lots)
SARA role:	Referral agency
SARA trigger:	Schedule 10, Part 9, Division 4, Subdivision 2, Table 1 (Planning Regulation 2017) Reconfiguring a lot near a state transport corridor
SARA reference:	2404-39852 SRA
Assessment criteria:	SDAP state code 1

Enclosure 3 – Evaluation Assessment Technical Note

TECHNICAL NOTE

Report details	
RMA project name	Domestic Driveway – 5712 New England Highway
RMA project number	24E-0188
Technical note	Evaluation of potential access locations for the site
Date	13 / 07 / 2024
Author	C Tedman and A Gwatking
Reviewer	A Gwatking
Approval for issue	NER, CPEng, RPEQ: 15158

1. Introduction

RMA Engineers has been engaged by L and RH Spierenburg to provide engineering advice in relation to a proposed access location of a residential driveway at 5712 New England Highway, Glenaven (the subject site).

This technical note documents the identification and evaluation of potential access locations for the site, with respect to Item 1 of the SARA IR.

Identification of potential access locations for the site

From a site inspection, three potential access locations were nominated for the proposed Lot 1 site. These locations were identified based on available sight distance, roadside characteristics and constructability (i.e. embankment constraints).

These three potential access locations are illustrated in Figure 1 and consist of:

1. New England Highway (Chainage 56.205km – 56.225km)
2. New England Highway (Chainage 56.330km – 56.380km)
3. Skinner Road

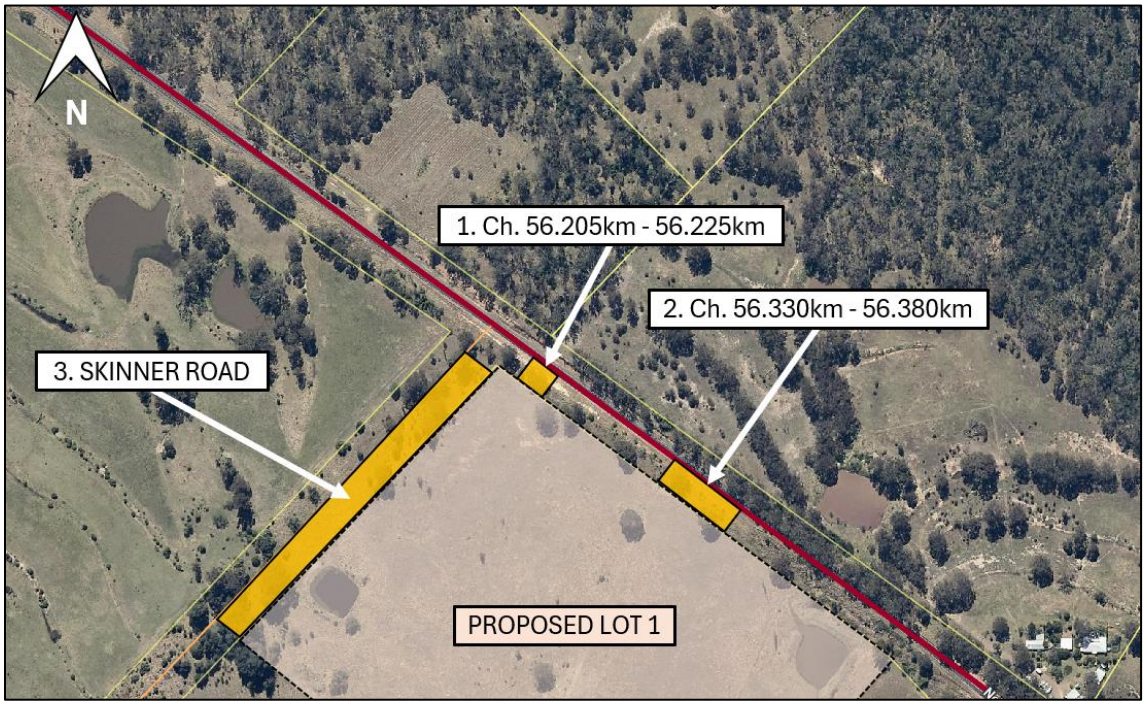


Figure 1: Proposed access locations

Evaluation of potential access locations for the site

Criteria

To determine the most suitable and feasible access location, the three access location options have been evaluated using the following criteria:

1) Safety – Crash history
2) Safety – Sight availability
3) Safety – Risk assessment scoring
4) Constructability – feasibility of construction of an access with regards to embankment constraints.

These criteria are discussed in further detail below.

Crash history

This criterion relates to the history of vehicular crashes that have occurred near the site. Crash history provides crash-based identification of high risk locations, and the determination of risk associated with accesses along the corridor. This data can be used to determine patterns and mitigative measures.

Sight availability

Vehicles entering and exiting the site will need to have adequate sight distance to judge gaps in the opposing traffic (i.e. MGSD). Further to this, motorists travelling along the New England Highway will also require adequate sight distance (i.e. SISD and SSD) to identify a propped or slowed vehicle accessing the driveway and then to slow/stop in time before impacting the propped vehicle.

Risk assessment

A risk assessment has been undertaken at each location to determine the risk associated with the surrounding road environment. An access located within a high risk area, or which causes residual high risks, will not be recommended unless mitigation measures are applied to reduce the risk level.

Constructability

This criterion relates to the feasibility of implementation of an access driveway at the nominated location. The access is deemed feasible if the construction of the driveway is not impeded adversely by constraints. An example of this would be where the driveway can be constructed by predominantly matching into existing verge profiles and typical construction of drainage culverts.

The access is deemed infeasible if the construction of the driveway is adversely impeded by constraints that makes the access construction cost prohibitive. An example of this would be where the driveway is located next to large and steep embankments that would require large cutting or filling works to grade the driveway to the property.

Scoring

The scoring of the criteria has been undertaken similar to a traffic light as follows:

- **green** signifies that the location meets the respective criteria.
- **yellow** signifies that the access doesn't meet the criteria but has potential with mitigative measures (or the access meets absolute minimum values).
- **red** signifies that the location doesn't meet criteria and is not recommended.

Evaluation assessment

The three potential access locations have each been assessed against each of the criteria. The following sections document the assessment outcomes and associated scoring.

Crash history

It is identified that no crashes have been recorded between Ch. 56km – 59km (2km either side of the subject site) on the New England Highway. Therefore, for all three options, no adverse safety issues, or crash patterns could be determined from the available crash data.

Sight availability

Location 1 - New England Highway (Ch. 56.205km – 56.225km)

In reviewing dash cam footage captured on-site at a typically driver's eye level (for a car), the available sight distance was estimated at 140m southbound and 280m northbound, as shown in Figure 2.

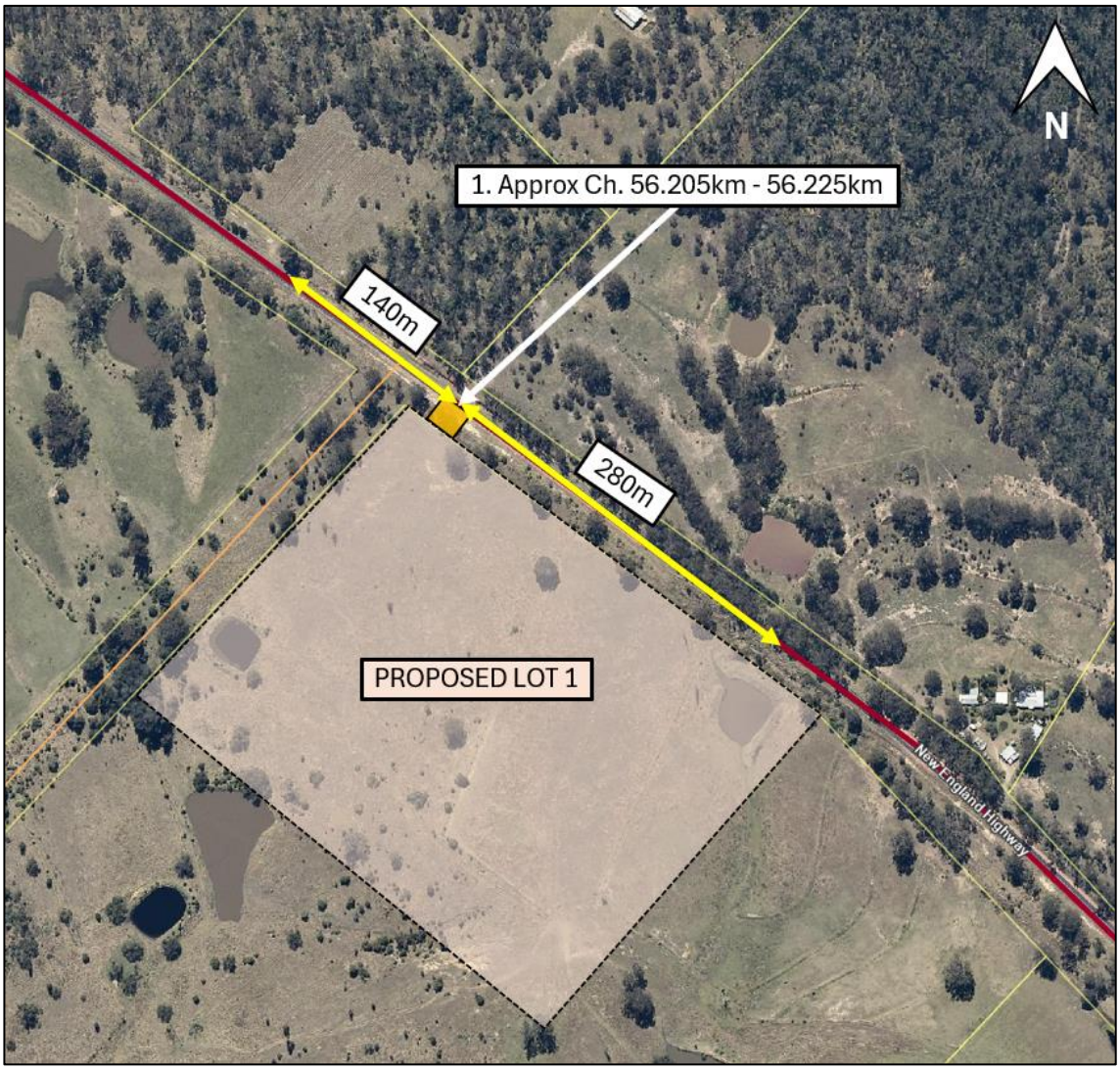


Figure 2: Available sight distance for proposed access location 1 (Ch. 56.205km – 56.225km)

Location 2 - New England Highway (Ch. 56.330km – 56.380km)

In reviewing dash cam footage captured on-site at a typically driver's eye level (for a car), available sight distance was estimated at 190m southbound and 215m northbound, as shown in Figure 3.

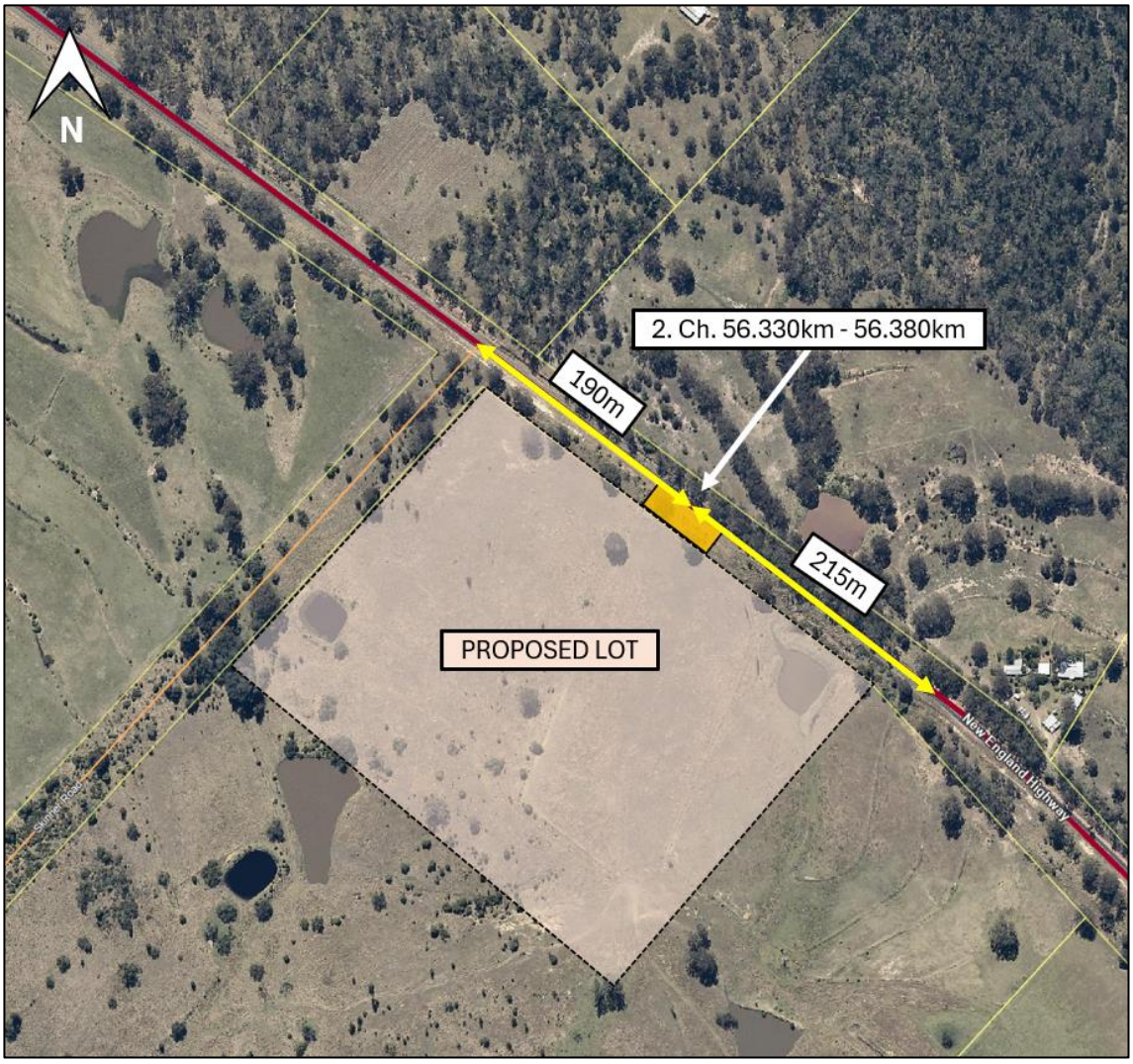


Figure 3: Available sight distance for proposed access location 2 (Ch. 56.330km – 56.380km)

Location 3 - Skinner Road

In reviewing dash cam footage captured on-site at a typically driver's eye level (for a car), available sight distance was estimated at 170m northbound and >500m southbound, as shown in Figure 4.

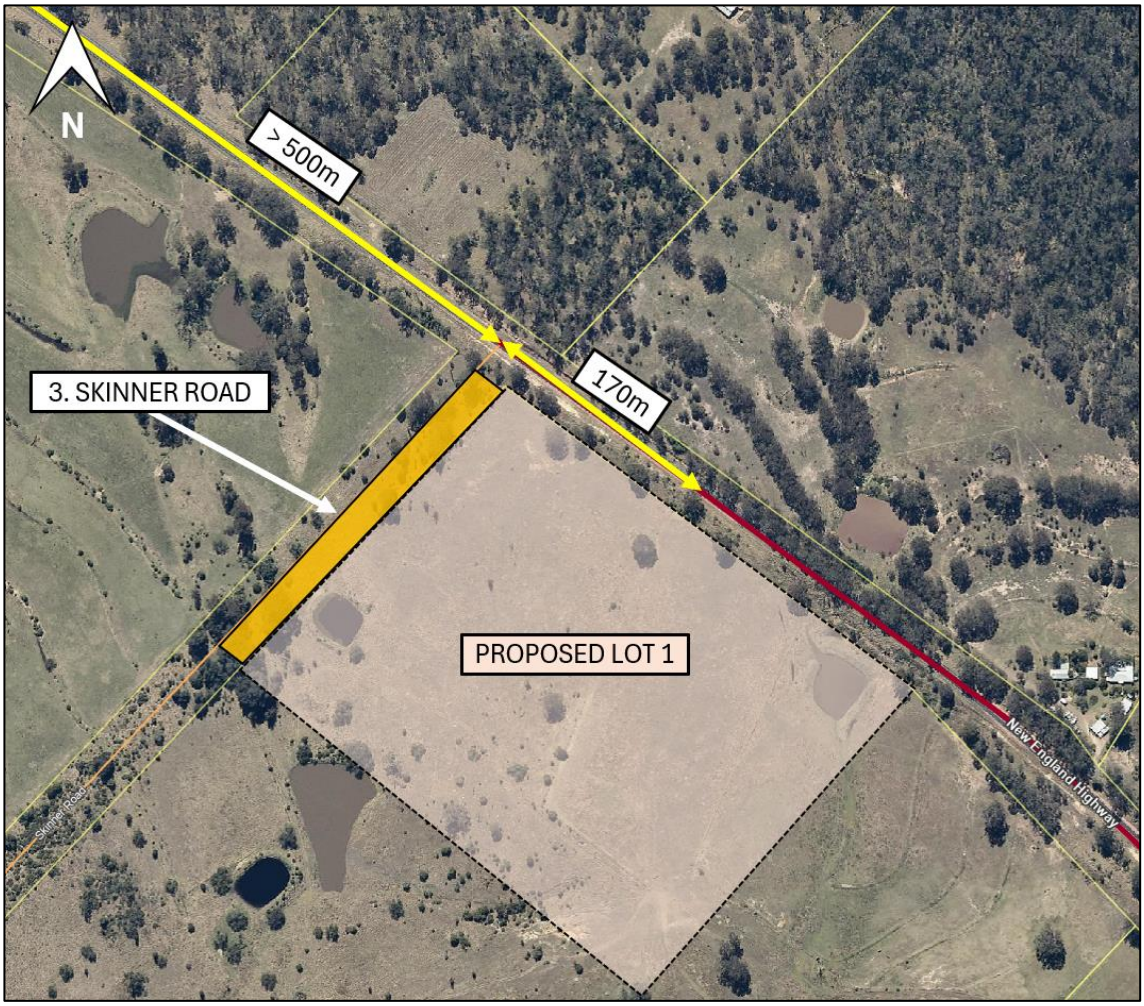


Figure 4: Available sight distance for New England Highway / Skinner Road intersection

Summary of available sight distance

Table 1 summarises the available sight distance at each access location.

Table 1: Summary of available sight distance

Access location	Northbound sight availability	Southbound sight availability
Location 1 – **New England Highway (Ch. 56.205km – 56.225km)**	Car – 280m Truck – 360m	Car – 140m Truck – 175m
Location 2 – **New England Highway (Ch. 56.330km – 56.380km)**	Car – 215m Truck – 280m	Car – 190m Truck – 240m
Location 3 – **Skinner Road**	Car – 170m Truck – 350m	Car – >500m Truck – >500m

Sight distance requirements

Austroads *Guide to Road Design Part 4A* provides guidance regarding sight distance at property entrances. Desirably, sight distance at accesses should comply with the sight distance requirements for intersections, i.e. that approach sight distance (ASD), safe intersection sight distance (SISD), and minimum gap sight distance (MGSD) are achieved. Of these three requirements, SISD typically returns the longest required distance as driver observation time is factored into the measurement.

ASD is not usually considered for access driveway as the users are familiar with the access and location.

Vehicles entering and exiting the site will need to have adequate sight distance to judge gaps in the opposing traffic (i.e. MGSD). Further to this, motorists travelling along the New England Highway will also require adequate sight distance (i.e. SSD as an absolute minimum) to identify a propped or slowed vehicle accessing the driveway and then to slow/stop in time before impacting the propped vehicle.

However, where this is not possible due to constraints, guidance is provided in Appendix A.3 of Austroads to apply extended design domain (EDD) for sight distance at domestic accesses, and the Stopping Sight Distance (SSD) per the AS2890.1:2004 for domestic accesses is also considered.

The calculations for each sight distance requirement is shown in Attachment A.

It is noted that car sight distance has been checked from a site inspection using dash cameras. Truck sight distance has been estimated using Google Streetview camera as the camera height (2.5m) is approximately similar to the truck driver eye height (2.4m).

Table 2 presents the variables adopted for the SISD assessment.

Table 2: Variables adopted for SISD assessment

Variable symbol	Description	Value adopted for assessment		Unit of measure
		Truck	Car	
DT	Decision time (s) = observation time (3 s) + reaction time (s)	5.0	5.0	seconds
V	Operating (85th percentile) speed	110	110	km/h
d	Coefficient of deceleration for cars / trucks *(Guide to Road Design – Part 3: Geometric Design (Austroads 2016))*	0.29	0.36	
a[1]	Longitudinal grade (approach):	Northbound	- 1.3	%
		Southbound	4.5	
R_T	perception/reaction time *(Guide to Road Design – Part 3: Geometric Design (Austroads 2016))*	2.0	2.0	seconds
SISD	$$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$ (Equation 2 *Guide to Road Design - Part 4a*)			

[1]*Longitudinal grade based on desktop elevation profile estimates.*

Where SISD requirements cannot be achieved, SSD is the minimum sight distance that should be achieved on the major road approaches to the intersection and within the intersection.

Table 3 presents the variables adopted for the SSD assessment and requirements respectively.

Table 3: Variables adopted for SSD assessment

Variable symbol	Description	Value adopted for assessment		Unit of measure
		Truck	Car	
V	Operating (85th percentile) speed	110	110	km/h
d	Coefficient of deceleration for cars / trucks *(Guide to Road Design – Part 3: Geometric Design (Austroads 2016))*	0.29	0.36	
a[1]	Longitudinal grade (approach):	Northeast	- 1.3	%
		Southwest	4.5	
R_T	perception/reaction time *(Guide to Road Design – Part 3: Geometric Design (Austroads 2016))*	2.0	2.0	seconds
SSD	$$SSD = \frac{R_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$ (Equation 1 *Guide to Road Design - Part 3*)			

[1]*Longitudinal grade based on desktop elevation profile estimates.*

From the above, it was identified that all proposed locations do not meet the NDD SISD criteria and therefore EDD criteria has also been checked with respect to Appendix A.3 of Austroads for EDD for sight distance at domestic accesses, and the Stopping Sight Distance (SSD) per the AS2890.1:2004 for domestic accesses.

It is noted that the EDD SISD at domestic accesses uses an observation time of 0.5 seconds less than the typical EDD values given in Table A8 of Austroads Part 4A.

From the above, a summary of the outcomes of required sight distances versus actual sight distances are shown in Table 4.

Table 4: Summary of sight distance results

Austroads GTRD Part 3 and 4A: SISD calculations					Access Location 1				Access Location 2				Access Location 3			
Case type			SB	NB	SB	Complies	NB	Complies	SB	Complies	NB	Complies	SB	Complies	NB	Complies
NDD		Car	270	290	140	No	280	No	190	No	215	No	500	Yes	170	No
		Truck	295	325	175	No	360	Yes	240	No	280	No	500	Yes	350	Yes
EDD	Base case	Norm Day	171	183	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	No
		Truck Day	219	248	175	No	360	Yes	240	Yes	280	Yes	500	Yes	350	Yes
	Check Cases	Norm night	140	152	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
		Truck night	188	218	175	No	360	Yes	240	Yes	280	Yes	500	Yes	350	Yes
		Mean Day	154	165	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
		Mean night	128	139	140	Yes	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
	Optional Check	Skill day	155	163	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
		Skill night	125	133	140	Yes	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
SSD calculations																
Case type			SB	NB	SB	Complies	NB	Complies	SB	Complies	NB	Complies	SB	Complies	NB	Complies
NDD		Car	179	198	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	No
		Truck	203	233	175	No	360	Yes	240	Yes	280	Yes	500	Yes	350	Yes
MGSD																
Case type			SB	NB	SB	Complies	NB	Complies	SB	Complies	NB	Complies	SB	Complies	NB	Complies
5 sec (Ta)		Car	153	153	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
6 sec (Ta)		Car	183	183	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	No
AS2890.1 Figure 3.2: SSD/Desirable 5 s gap																
Case type			SB	NB	SB	Complies	NB	Complies	SB	Complies	NB	Complies	SB	Complies	NB	Complies
SSD (NDD)		Car	190	190	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	No
Desirable 5 s gap		Car	153	153	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes

The outcomes of the sight distance review indicates the following:

- All locations do not meet the NDD SISD.
- Access location 1 has deficient Southbound sight distance requirements that generally do not meet the EDD SISD check cases, SSD and MGSD.
- Access location 2 meets all EDD SISD check cases, SSD, MGSD and AS2890.1 requirements
- Access location 3 generally meets most of the sight requirements, however is deficient for the Northbound direction with the EDD Normal Day base case and SSD requirements.

Risk assessment

A risk assessment has been undertaken at each location to determine the risk associated with the surrounding road environment. An access located within a high risk area, or which causes residual high risks, will not be recommended unless mitigation measures are applied to reduce the risk level.

A risk assessment has been undertaken as per the GTIA process. The assessment examines the risks associated with the addition of the proposed access and any noted safety impacts or existing deficiencies. The assessment is based on an on-site inspection.

The safety risk score matrix as extracted from the GTIA is shown in Figure 5.

		Potential consequence				
		Property only (1)	Minor injury (2)	Medical treatment (3)	Hospitalisation (4)	Fatality (5)
Potential likelihood	Almost certain (5)	M	M	H	H	H
	Likely (4)	M	M	M	H	H
	Moderate (3)	L	M	M	M	H
	Unlikely (2)	L	L	M	M	M
	Rare (1)	L	L	L	M	M

Figure 5: Safety risk score matrix (GTIA)

The identified risk items are summarised in Table 5. As shown, no high risks are identified.

Table 5: Risk assessment

Risk item	Risk score with the proposed domestic access			Comments
	Likelihood	Consequence	Risk score	
Risk of crashes due to the addition of an access. Location 1 Location 2 Location 3	2 2 2	4 4 4	M M M	Crashes can occur when sight distance is restrained. Rear end crashes can occur when there are limited areas to pass around a right turning vehicle. All three proposed access locations have traversable gravel shoulders that could be used if a vehicle was required to pass around a propped vehicle. Location 2 has traversable gravel shoulders located on either side of the road. It is expected that a vehicle could maneuver around a propped right-turning vehicle accessing Lot 1 at slow speeds. It should be noted that shoulder width is restricted closer to Ch.56.380km along the north-eastern verge where a steep fill embankment (drop-off) is located. Location 1 and 3 have a more protected and wider shoulder due to the steep cut slope embankment on the opposite side of the access. Although this provides opportunities to pass a propped right turning vehicle, the steep embankment may cause residual issues such as roll-over if struck. Because of the above, all sites have similar risks when considering the surrounding environment for the road corridor. Although they have differences in regards to verge profiles, they are not significant to change the risk score to a higher level. This is also the case with the turn warrant outcomes whereby channelisation is not triggered by any of the potential access locations.

From the risk assessment, all potential access locations result in a medium risk score. No high risks were identified.

Constructability

From a constructability perspective, the implementation of an access at the potential Locations 1 and 3 are constrained by large steep cut slopes that will make the access construction cost prohibitive.

Access 2 has smaller slopes to consider as the verge profile changes from cut to fill in the vicinity of this location. This makes construction of an access to Lot 1 at this location more feasible.

Summary of assessment

From the above access investigation and evaluation, the outcomes are summarised in Table 6 below.

Table 6: Summary of access evaluation

Criteria	Location 1 – New England Highway (Ch. 56.205km – 56.225km)	Location 2 – New England Highway (Ch. 56.330km – 56.380km)	Location 3 – Skinner Road
Crash history	No adverse safety issues, or crash patterns could be determined from the available crash data.	No adverse safety issues, or crash patterns could be determined from the available crash data.	No adverse safety issues, or crash patterns could be determined from the available crash data.
Sight availability	Deficient Southbound sight distance requirements that generally do not meet the EDD SISD check cases, SSD and MGSD.	Meets all EDD SISD check cases, SSD, MGSD and AS2890.1 requirements.	Generally meets most of the sight requirements, however is deficient for the Northbound direction with the EDD Normal Day base case and SSD requirements.
Risk assessment	Medium risk score. No high risks were identified.	Medium risk score. No high risks were identified.	Medium risk score. No high risks were identified.
Constructability	Large steep cut slopes that will make the access construction cost prohibitive.	Feasible construction - smaller slopes to consider as the verge profile changes from cut to fill in the vicinity of this location.	Large steep cut slopes that will make the access construction cost prohibitive.
Outcome	This access location is not recommended.	Preferred access location, meets all relevant safety and constructability criteria.	This access location could be feasible if the construction and sight can be mitigated.

As illustrated in Table 6, Access Location 2 (Ch. 56.330km – 56.380km) is the preferred access location for Lot 1. This access meets all the relevant safety and constructability criteria.

Summary

RMA Engineers has been engaged by L and RH Spierenburg to provide engineering advice in relation to a proposed access location of a residential driveway at 5712 New England Highway, Glenaven (the subject site).

This technical note documents the identification and evaluation of potential access locations for the site, with respect to Item 1 of the SARA IR.

The evaluation of the three potential access locations using safety and constructability criteria results in **Access Location 2 (Ch. 56.330km – 56.380km)** being the preferred access location for Lot 1. This access meets all the relevant safety and constructability criteria.

It was also noted that Access 3 – Skinner Road could also be a feasible location if the construction and sight constraints can be mitigated.

From the above assessment, **Access Location 2** is recommended for Lot 1 and no adverse issues have been identified that should preclude a domestic access at this location.

Attachment A – Sight Distance Calculations

SOUTHBOUND

Austroads GTRD Part 3 and 4A:

SISD calcs	V						d	OT	Dt	a	
Case type	**110**		**H1**	**H2**	**Rt**	**Adopted Rt**	**Decel**	**Adopted observation**			
NDD		**Car**	1.10	1.25	1.5/2.0/2.5	2	0.36	3	5	4.5	**270m**
		Truck	2.40	1.25	1.5/2.0/2.5	2	0.29	3	5	4.5	**295m**
EDD	**Base case**	**Norm Day**	1.1	1.25	1.5/2.0/2.5	1	0.46	1.5	2.5	4.5	**171m**
		Truck Day	2.4	1.25	1.5/2.0/2.5	1	0.29	1.5	2.5	4.5	**219m**
	Check Cases	**Norm night**	0.65	1.25	1.5/2.0/2.5	1	0.46	0.5	1.5	4.5	**140m**
		Truck night	2.4	0.8	1.5/2.0/2.5	1	0.29	0.5	1.5	4.5	**188m**
		Mean Day	1.1	1.25	2.0/2.5	1.5	0.41	1.5	3	4.5	**154m**
		Mean night	0.65	1.25	2.0/2.5	1.5	0.41	0.5	2	4.5	**128m**
	Optional Check	**Skill day**	1.1	1.25	1.5	1	0.56	1.5	2.5	4.5	**155m**
		Skill night	0.65	1.25	1.5	1	0.56	0.5	1.5	4.5	**125m**

SSD calcs	V						d	OT	Dt	a	
Case type	**110**		**H1**	**H2**	**Rt**	**Adopted Rt**	**Decel**	**Adopted observation**			
NDD		**Car**	1.1	1.25	1.5/2.0/2.5	2	0.36	0	2	4.5	**179m**
		Truck	2.4	1.25	1.5/2.0/2.5	2	0.29	0	2	4.5	**203m**

NORTHBOUND

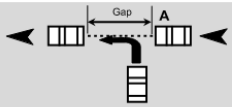
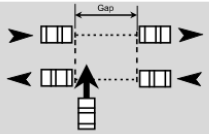
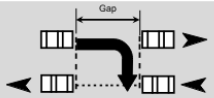
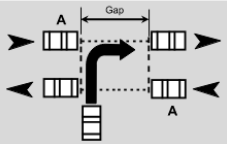
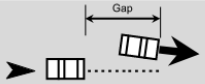
Austroads GTRD Part 3 and 4A:

SISD calcs	V						d	OT	Dt	a	
Case type	**110**		**H1**	**H2**	**Rt**	**Adopted Rt**	**Decel**	**Adopted observation**			
NDD		**Car**	1.10	1.25	1.5/2.0/2.5	2	0	3	5	-1.3	**290**
		Truck	2.40	1.25	1.5/2.0/2.5	2	0	3	5	-1.3	**325**
EDD	**Base case**	**Norm Day**	1.1	1.25	1.5/2.0/2.5	1	0.46	1.5	2.5	-1.3	**183**
		Truck Day	2.4	1.25	1.5/2.0/2.5	1	0.29	1.5	2.5	-1.3	**248**
	Check Cases	**Norm night**	0.65	1.25	1.5/2.0/2.5	1	0.46	0.5	1.5	-1.3	**152**
		Truck night	2.4	0.8	1.5/2.0/2.5	1	0.29	0.5	1.5	-1.3	**218**
		Mean Day	1.1	1.25	2.0/2.5	1.5	0.41	1.5	3	-1.3	**165**
		Mean night	0.65	1.25	2.0/2.5	1.5	0.41	0.5	2	-1.3	**139**
	Optional Check	**Skill day**	1.1	1.25	1.5	1	0.56	1.5	2.5	-1.3	**163**
		Skill night	0.65	1.25	1.5	1	0.56	0.5	1.5	-1.3	**133**

SSD calcs	V						d	OT	Dt	a	
Case type	**110**		**H1**	**H2**	**Rt**	**Adopted Rt**	**Decel**	**Adopted observation**			
NDD		**Car**	1.1	1.25	1.5/2.0/2.5	2	0.36	0	2	-1.3	**198**
		Truck	2.4	1.25	1.5/2.0/2.5	2	0.29	0	2	-1.3	**233**

MGSD

Table 3.5: Critical acceptance gaps and follow-up headways

Movement	Diagram	Description	t_a[1] (sec)
Left turn		Not interfering with A Requiring A to slow	14–40 5
Crossing		Two lane/one way Three lane/one way Four lane/one way Two lane/two way Four lane/two way Six lane/two way	4 6 8 5 8 8
Right turn from major road		Across one lane Across two lanes Across three lanes	4 5 6
Right turn from minor road		Not interfering with A One way Two lane/two way Four lane/two way Six lane/two way	14–40 3 5 8 8
Merge		Acceleration lane	3

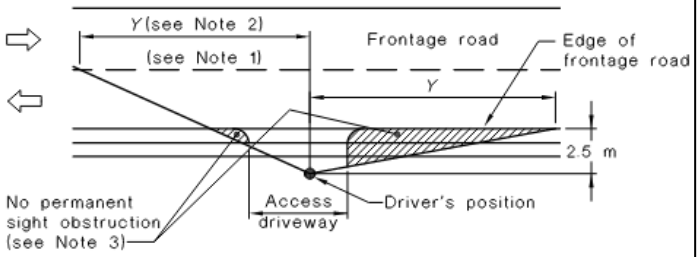
1 t_a = *critical acceptance gap (sec).*

Table 3.6: Table of minimum gap sight distances ('*D*' metres) for various speeds

Critical gap acceptance time (t_a) (secs)	85th percentile speed of approaching vehicle (km/h)										
	10	20	30	40	50	60	70	80	90	100	110
4	11	22	33	44	55	67	78	89	100	111	122
5	14	28	42	55	69	83	97	111	125	139	153
6	17	33	50	67	83	100	117	133	150	167	183
7	19	39	58	78	97	117	136	155	175	194	214
8	22	44	67	89	111	133	155	178	200	222	244
9	25	50	75	100	125	150	175	200	225	250	275
10	28	56	83	111	139	167	194	222	250	278	305

Use additional second for conservative assessment

AS2890.1



Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		
	Access driveways other than domestic (Note 5)		Domestic property access (Note 6)
	Desirable 5 s gap	Minimum SSD	
40	55	35	30
50	69	45	40
60	83	65	55
70	97	85	70
80	111	105	95
90	125	130	Use values from 2nd and 3rd columns
100	139	160	
110	153	190	

NOTES:

1 Centre-line or centre of road (undivided road), or right hand edge of right hand through lane (divided road).

2 A check to the left is not required at a divided road where the median is wide enough to shelter a vehicle leaving the driveway.

3 Parking on this side of the frontage road may need to be restricted on either side of the driveway so that the sight distance required by the above table to an approaching vehicle is not obstructed.

4 This is the posted or general speed limit unless the 85th percentile speed is more than 5 km/h above the limit in which case the tabulated speed nearest the 85th percentile shall be adopted.

5 The values in the table apply only to left turn and right turn manoeuvres into two-way roads up to four lanes wide and one-way streets regardless of width, either for a 5 s gap, desirable at lower frontage road speeds, or minimum stopping sight distance based on 2 s reaction time.

Crossing manoeuvres (e.g. from an access opposite the steam of a T-junction) over four lanes or more, and turning manoeuvres into a six lane two-way road would require longer gaps unless there was a median wide enough to store a vehicle and allow a two stage manoeuvre.

6 These distances are based on stopping sight distances with reaction time of 1.5 s for traffic approaching along the frontage road and are applicable to a frontage road speed of up to 80 km/h only. Wherever practicable sight distance provided at domestic property accesses should meet the values given in the second or third columns of the Table.

7 When checking sight distance the driver's eye height and the height of the object (approaching vehicle) are to be taken as 1.15 m above the road surface.

FIGURE 3.2 SIGHT DISTANCE REQUIREMENTS AT ACCESS DRIVEWAYS

OUTCOMES

Austroads GTRD Part 3 and 4A: SISD calculations					Access Location 1				Access Location 2				Access Location 3			
Case type			SB	NB	SB	Complies	NB	Complies	SB	Complies	NB	Complies	SB	Complies	NB	Complies
NDD		Car	270	290	140	No	280	No	190	No	215	No	500	Yes	170	No
		Truck	295	325	175	No	360	Yes	240	No	280	No	500	Yes	350	Yes
EDD	Base case	Norm Day	171	183	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	No
		Truck Day	219	248	175	No	360	Yes	240	Yes	280	Yes	500	Yes	350	Yes
	Check Cases	Norm night	140	152	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
		Truck night	188	218	175	No	360	Yes	240	Yes	280	Yes	500	Yes	350	Yes
		Mean Day	154	165	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
		Mean night	128	139	140	Yes	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
	Optional Check	Skill day	155	163	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
		Skill night	125	133	140	Yes	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
SSD calculations																
Case type			SB	NB	SB	Complies	NB	Complies	SB	Complies	NB	Complies	SB	Complies	NB	Complies
NDD		Car	179	198	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	No
		Truck	203	233	175	No	360	Yes	240	Yes	280	Yes	500	Yes	350	Yes
MGSD																
Case type			SB	NB	SB	Complies	NB	Complies	SB	Complies	NB	Complies	SB	Complies	NB	Complies
5 sec (Ta)		Car	153	153	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes
6 sec (Ta)		Car	183	183	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	No
AS2890.1 Figure 3.2: SSD/Desirable 5 s gap																
Case type			SB	NB	SB	Complies	NB	Complies	SB	Complies	NB	Complies	SB	Complies	NB	Complies
SSD (NDD)		Car	190	190	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	No
Desirable 5 s gap		Car	153	153	140	No	280	Yes	190	Yes	215	Yes	500	Yes	170	Yes