

**BEFORE THE HEARINGS PANEL
FOR THE QUEENSTOWN LAKES PROPOSED DISTRICT PLAN**

IN THE MATTER of the Resource
Management Act 1991

AND

IN THE MATTER of Hearing Streams 17
and 18 –
Stage 3 and 3b
Proposed District Plan

**REPLY OF MICHAEL CHRISTOPHER ROSSITER
ON BEHALF OF QUEENSTOWN LAKES DISTRICT COUNCIL**

**Transport: Rezonings – General Industrial, Three Parks, Settlement and Rural
Visitor Zones**

4 September 2020

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1. INTRODUCTION

1.1 My full name is Michael Christopher Rossiter. My qualifications and experience are set out in my Highlights Summary filed on 26 June 2020.

1.2 I attended the Stream 17 and 18 hearings on 30 June – 2 July 2020 and have been provided with reports of what has taken place at the hearing where relevant to my evidence. Following the hearing, I have had teleconferences with Mr Carr and Mr Facey, transport engineers in relation to submissions 3256, 3248 and 32020 respectively.

1.3 This reply evidence addresses the following rezoning submissions:

Stream 17 – General Industrial Zone

- (a) 3128 – Tussock Rise Limited (**Tussock Rise**);
- (b) 3256 – Upper Clutha Transport Limited (**Upper Clutha**);
- (c) 3349 – Cardrona Cattle Company Limited (**CCCL**);

Stream 17 – Three Parks Zone

- (a) 32020 – Willowridge;

Stream 18 –Settlement Zone

- (a) 3248 – Universal Developments Hawea Limited (**Universal**);

Stream 18 - Rural Visitor Zone

- (a) 31037 – Gibbston Valley Station Limited (**Gibbston Valley**);
- (b) 31033 – Matakauri Lodge.

1.4 Attached to this reply evidence is the following document:

- (a) Manual of Traffic Signs and Markings Design Standard – Right Turn Bay (Part 2, Figure 3.25a) – **Appendix A**.

1.5 I refer, at various times throughout my reply evidence to the Level of Service (**LOS**) concept. As an explanatory note, this concept has been used historically to provide a broad, layman's guide as to how well a road or intersection is operating purely from an efficiency perspective. LOS A represents unconstrained free-flowing conditions with LOS F representing highly constrained, congested flows. The Road

Controlling Authorities are responsible for establishing acceptable standards on their road network. Typically, LOS A-C would be considered acceptable in rural locations for all times of day and desirable in urban areas. LOS D and E would normally be considered acceptable only at peak times and in highly urbanised areas.

- 1.6 The implementation of the Safe Systems philosophy and Vision Zero requires transport engineers to place a much greater emphasis on road safety and not focus solely on efficiency. LOS D conditions represent a transition state where the volume of traffic present begins to constrain the ability of drivers to manoeuvre and more risk-taking behaviour starts to occur, for example, drivers opting to enter shorter gaps in traffic flows or overtaking in more dangerous locations. One consequence of this is an increased potential for crashes.
- 1.7 In rural areas, the high-speed environment means that when crashes occur, they will typically result in serious injury or fatalities. Vision Zero requires a more pro-active approach to intersection design and management that minimises, as far as reasonably practical, the potential for serious injury or fatal crashes. In my opinion, adopting a requirement for intersections to operate at LOS C or better in high speed environments represents good design practice because it reduces the likelihood of risk-taking behaviour by drivers.

STREAM 17 – GENERAL INDUSTRIAL ZONE REZONINGS

2. 3128 – TUSSOCK RISE

- 2.1 The Panel queried what transport differences could arise under the two zoning scenarios - Business Mixed Use (**BMUZ**) and General Industrial Zone (**GIZ**) - acknowledging the range of anticipated activities, and whether the road network would be fit for purpose.
- 2.2 For context, I consider that the existing development on Frederick Street and Connell Terrace comprises small scale, industrial and service activity. I would expect similar types of activity to be established in the Tussock Rise site under the notified GIZ. The nature of these activities involves a high proportion of light vehicle and small to medium sized truck movements throughout the day. The travel

mode share for pedestrians and cyclists is typically very low as these modes are only likely to be used for travel to and from work places.

- 2.3** With a BMUZ, I would expect that there would be an increase in pedestrian and cycle movement because activities will become less vehicle dependent and there is likely to be some residential development.
- 2.4** Since travel between the proposed Tussock Rise BMUZ and Three Parks Zone would traverse the existing GIZ, there will be an increased potential for conflict between pedestrians, cyclists and vehicles. From a road safety perspective, it is desirable to separate industrial vehicle movements from residential travel movements on local roads to reduce the risk of injury to vulnerable road users.
- 2.5** Although the existing road reserves are sufficient to allow for wider footpaths and provision of some cycle facilities which would *partially* mitigate the risks, a zoning that largely eliminates the risk at the outset is a better outcome from a transport safety perspective.

3. 3256 – UPPER CLUTHA TRANSPORT

- 3.1** One of the key traffic concerns I have with this rezoning is around the road/traffic improvements that would be required to accommodate the level of development that the GIZ rules would allow. I note that the submission only addresses the effects of 25,000sqm of industrial activity and not the effects associated with the greater level of industrial development that would be permitted under the proposed GIZ if 75% site coverage was achieved. A higher level of development would require road improvements beyond those identified in Mr Carr's (transport expert for the submitter) evidence.
- 3.2** Mr Carr has subsequently suggested a rule that restricted the permitted level of development to 25,000sqm Gross Floor Area (**GFA**) could be applied to the proposed GIZ. A rule of this form would be sufficient to control the level of traffic effects associated with the proposed zone on the wider road network but I understand it is not intended to be a hard and fast limit on maximum development. Mr Edgar (planning expert for the Submitter) suggested this was the case in response to questions from the Panel. As such, I understand this rule is not sufficient in itself

to 'prevent' consent being sought for further development that may generate greater traffic generation. However, if any development that increased the GFA beyond this threshold was restricted-discretionary with traffic effects on the wider network being a matter of discretion, then this would provide an opportunity for Council to require any necessary road network improvements to be implemented.

- 3.3** At the hearing, the Panel queried whether I have had any conversations with Mr Place (Council planner – GIZ) as to how to best address any road traffic requirements for this rezoning. Mr Place and I have discussed this and have agreed a greater level of control is required in relation to traffic movements and required road network improvements than provided by the notified GIZ rules. Options for additional control include a reduced zone area, a change of zoning, or the incorporation of a structure plan that identifies the land that can be developed for industrial activity (taking into account required building set-backs, roads and 'no-build' areas). I understand that Mr Place prefers the option of a change of zoning to Rural Industrial Sub-Zone as this better reflects the higher order direction set out within Chapter 3 (Strategic Direction) and Chapter 4 (Urban Development) of the PDP.
- 3.4** Following my discussions with Mr Place, I have investigated whether any additional thresholds would be appropriate to ensure that any necessary road improvements will be triggered by development within the Rural Industrial Sub Zone. For example, Mr Carr has noted that Church Road has a narrower carriageway than would be required by Council standards for a road carrying volumes of 2,500 vehicle movements per day (**vpd**).
- 3.5** The QLDC Engineering Code of Practice (**COP**) sets out design standards for roads based on the types of activity using the road and the expected traffic volumes on the road. The Type E6 road is intended for freight access in a rural location and requires a 5.5-5.7m carriageway with 0.5m wide sealed shoulders. It is considered appropriate for daily traffic volumes of up to 1,000vpd. The Type E8 road allows for a broader mix of traffic types and volumes of up to 2,500vpd. The key difference between the road types is that the Type E8 road requires a wider shoulder.

- 3.6** Mr Carr has stated that Church Road has a 6.4m wide carriageway. This is generally consistent with the Council's COP requirements for a rural road providing access to Freight activity where the typical daily volume is less than 1,000vpd, a type E6 road. As he has noted in his Evidence in Chief, it would not comply with the code of Practice for an E8 road. While there is ample space in the road reserve for the road to be widened, under the proposed development threshold rule, the opportunity for Council to require improvements to the road would arise only when the total development area reached 25,000m² GFA. I consider that adopting a development threshold that broadly aligned with the Type E6 / E8 traffic volume threshold would provide an opportunity for Council to require improvements at an earlier stage.
- 3.7** As noted by Mr Carr in his Evidence in Chief, the average traffic generation rates of Industrial type activities can vary widely (paragraph 29). Based on the information available in the Trips and Parking Database, I have estimated that the average daily traffic generation rates are five to ten times the peak hour generation rates. Based on an average daily traffic generation rate of 10vpd per 100m² GFA (five times Mr Carr's peak hour rate), an average daily traffic generation of about 1,000vpd could be expected when 10,000m² GFA was established within the zone.
- 3.8** On this basis, I consider that it would be appropriate for development above this threshold to be a restricted discretionary activity with matters of discretion including effects on the transport network.
- 3.9** Overall, I consider that industrial development can be supported at this site, either under the GIZ or the RISZ preferred by Mr Place, provided that it is subject to planning controls that restrict the total level of development and require improvements to the road network once the total area of development exceeds 10,000m² GFA.

4. 3349 – CARDRONA CATTLE COMPANY

- 4.1** Based on the information provided by the submitter prior to the lodging of evidence in chief on 18 March, the proposed rezoning was opposed on transport grounds because the proposed access location would increase turning movements across the end of a passing lane. I do not consider that this is consistent with Safe Systems design.

4.2 On 19 June, Mr Edwards filed late evidence on behalf of the submitter, providing further information on potential access arrangements. Acknowledging that I had not had sufficient opportunity to review and respond to this evidence, the Panel requested that I address Mr Edwards' evidence in this statement of reply.

4.3 In summary:

- (a) I disagree with Mr Edwards' point at paragraph 6(d) and 22, that a safe intersection could be formed in the current location based on provision of a right turn bay only.
- (b) I disagree with Mr Edwards' statement at paragraph 6(f) that the transition to LOS F represents an appropriate threshold for triggering a more comprehensive upgrade of the intersection to a roundabout because this is not consistent with a Safe Systems design.
- (c) I do agree with his point at paragraph 6(e) that a roundabout would be an appropriate intersection form to enable development of the CCCL land under the requested GIZ.
- (d) The roundabout concept design proposed by Mr Edwards is reliant upon access to land that is not owned by CCCL or QLDC and so there is no guarantee that the roundabout could be constructed as proposed by the submitter.

4.4 The Transport Assessment attached to Mr Edwards' evidence at Appendix A includes an assessment of the performance of the Victoria Flats Road intersection with different levels of development (Table 12, Page 12). This indicates that delays at the intersection would start to rise rapidly once roughly 30 percent of the site was developed. In my opinion, any trigger threshold for construction for a roundabout should be aligned to this lower level of development rather than a transition to LOS F as suggested by Mr Edwards. Accepting a high level of delay at the intersection will contribute to greater driver frustration, which typically generates higher risk behaviour and increases the potential for crashes. Any crashes at the intersection are likely to result in serious injury or fatalities because of the high-speed environment. I do not consider that this is consistent with a Safe System design.

- 4.5** Mr Edwards' design for a simple upgrade to include a right turn bay requires that the passing lane be shortened and that the State Highway be widened. There is a high demand of passing in this location and the distance required to pass is affected by the uphill gradient. I do not agree with the option of reducing the length of the passing bay because there would be inadequate separation distance between the end of the passing lane and the left turn deceleration bay.
- 4.6** In terms of construction, Mr Edwards has stated (at paragraph 20(f)) that the improvement works could be achieved "on-site". The term "on-site" is ambiguous here because while the local topography would allow for an intersection configuration of the form proposed, in my opinion, it would require land outside the existing road corridor. In particular, the 0.7m separation between the edge of seal on the north side of the road and road reserve boundary shown on his concept design plans for a priority controlled intersection in Appendix C of his ITA is insufficient to allow construction of the required batter slope to manage drainage. I am not aware of any evidence to indicate that this land would be available to CCCL to allow the improvements to proceed.
- 4.7** I agree that a roundabout would provide a good intersection design solution if it was located so that it could provide access to land to the north and south of the highway. However, this requires the use of land that is not owned by CCCL, NZTA or by QLDC and so there is no guarantee that the land would be available to enable construction.
- 4.8** The location of the roundabout a short distance beyond the end of the passing lane means that vehicle approach speeds are likely to be high. I anticipate that some changes to the concept design would be necessary to address this but acknowledge that a design solution is likely to be possible subject to any amendments being required through the Safety Audit process or required by Waka Kotahi NZTA. I note that no information has been presented to suggest that Waka Kotahi NZTA have approved the concept design in any form and only acknowledges that an engineering solution is possible. I agree that an engineering solution is possible but I anticipate that changes to the design would be required to address safety which are likely to require additional land that is not under CCCL ownership.

- 4.9 Overall, I do not consider that the requested GIZ is appropriate on the basis there is no certainty that a safe access can be formed and there is no agreed trigger for its construction.

STREAM 17 – THREE PARKS ZONE

5. 32020 – WILLOWRIDGE

- 5.1 Willowridge are seeking an amendment to the Three Parks structure plan to allow for a direct connection to Golf Course Road. I understand that it is intended that this would replace the connection to the east as shown on the notified structure plan.
- 5.2 Mr Facey (for the submitter) has provided me (post hearing) with sketch designs for a roundabout intersection in that location that he considered could be constructed within the existing road reserve. I address the suitability of these designs here.
- 5.3 One option proposed involves a small radius island which would not, in my view, be suitable for the road environment and speed limit on Ballantyne Road. Another option involves a larger island but does require significant alterations to the Golf Course Road alignment. Neither option has addressed how pedestrian facilities would be provided for the safe movement in and around the proposed roundabouts or identified the associated land that would be required to form a compliant roundabout.
- 5.4 I am aware that there is an existing planning issue with the Ballantyne Road formation and adjacent footpath (east side) appearing to currently extend beyond the road reserve boundary at the Golf Course Road intersection. Regardless of the option, in my opinion, the concepts advanced by Mr Facey do not provide sufficient detail to demonstrate that land outside the road reserve would not be required or that the design would comply with best practice design standards (Austroads).
- 5.5 I consider that any change to the collector road network on the structure plan to allow a direct connection to Golf Course Road should ensure that the approach road from the Three Parks Zone meets Ballantyne Road generally at right angles and opposite Golf Course

Road. However, I note that achieving this alignment would require access to land that is not currently under Willowridge ownership.

5.6 The strip of land that connects the main body of the Willowridge land to Ballantyne Road, along the hedge line, is too narrow to allow a road to be formed that could comply with the Council's Engineering Code of Practice and widening the corridor would require land that is not under Willowridge ownership. I do not consider that this is appropriate because the narrower corridor may not allow for the increased on-street parking demands that could arise as a result of the recent National Policy Statement on Urban Development (2020), which removes minimum parking requirements from district plans. While the adjacent land is not owned by Willowridge, given that it forms part of the medium density residential land within the structure plan, I anticipate that construction of a road along the boundary would trigger an increased level of development within the adjacent land.

5.7 Overall, I am not opposed to the principle of updating the Collector Road network within the Three Parks structure plan to enable a direct connection with Golf Course Road. However, I consider that the alignment of any new connection should be designed to Council standards and constrained so that it meets Ballantyne Road generally at ninety degrees and opposite Golf Course Road so that an intersection that complies with best practice design standards can be formed.

5.8 In the absence of evidence to demonstrate that the land required to form the new road and intersection to current design standards is available, there is a risk that a new road is identified on a structure plan which cannot be constructed.

STREAM 18 –SETTLEMENT ZONE REZONINGS

6. 3248 – UNIVERSAL DEVELOPMENTS

6.1 The primary access route to the Lake Hawea township is via Capell Avenue to SH6. Secondary access is available via Gladstone Road to SH8A close to Luggate or Camp Hill Road to Maungawera with both routes involving single lane bridges.

- 6.2** The requested rezoning will enable development of about 1,400 dwellings which would effectively double the size of the existing Hawea township. I have some concerns in relation to the road network resilience and the wider effects in the event of any partial or complete closure of Capell Avenue. These concerns stem from the presence of one-lane bridges on each of the alternative routes which would affect their ability to accommodate the volume of diverted traffic.
- 6.3** Mr Carr tabled additional information about the rezoning, at the hearing (through his 'highlights summary'), and I have spoken to Mr Carr about this information after he presented to the Panel.

SH6 / Capell Avenue

- 6.4** Mr Carr's Evident in Chief stated that queues at the SH6 / Capell Avenue will be low (paragraph 71). I do not consider queue lengths of seven or fifteen vehicles to be low (refer his Table 14). Queue lengths of seven vehicles on SH6 would exceed the capacity of the right turn bay which increases the potential for crashes because queuing vehicles are likely to obstruct the through lane.
- 6.5** Mr Carr discussed this in his summary statement (paragraphs 26-29). I agree that a queue of up to seven vehicles could be accommodated within the flush median. However, this does mean that right turning vehicles would need to start decelerating earlier or more rapid deceleration would be required to ensure a vehicle could stop behind the queued vehicles. This does represent an increased safety risk but is one that could be mitigated by a requirement for intersection improvements.
- 6.6** A simple trigger for the improvements could be based on the number of dwellings within the submitter's site. In my opinion, any threshold should be based on a level of development that would change the LOS at the intersection from LOS C to LOS D. Elsewhere, Mr Carr has proposed that the LOS D / E threshold should form the basis of a trigger threshold. I disagree with this because I do not consider that this would be consistent with a Safe Systems design philosophy.

Capell Avenue / Domain Road

- 6.7** Capell Avenue and Domain Road have been constructed on land that is owned by Contact Energy and in the absence of any planning agreements between Contact and Council¹, will affect the ability of Council to approve any intersection improvements. Since this represents a planning rather than an engineering issue, I have provided the following comments on Mr Carr's concept design for a roundabout at the intersection from a transport engineering perspective, disregarding the land ownership issue.
- 6.8** A roundabout designed to current best design practice would require a 20m diameter central island and an 8m circulating lane. This is larger than the concept design presented by Mr Carr to the Panel. Adopting a smaller central island size will require the circulating lane to be widened, for example, an island size of 16m diameter would require an 8.4m circulating lane to accommodate large trucks. Again, this is larger than the concept design that was presented.
- 6.9** In my opinion, adopting a design with a smaller central island and apron represents a design compromise which results in very slow heavy vehicle movement speeds and a smaller reduction in light vehicle speeds than is desirable. If land ownership is not an issue, constructing a larger size island in accordance with current best practice is achievable. The final size of any island and its location is an engineering matter that would need to consider required earthworks, extension into the lake-bed and road safety. Such a design would require a full road safety audit to ensure that a suitable and safe design is formed.
- 6.10** As with SH6 improvements, a trigger threshold for improvements can be defined noting that these would need to be at the developer's rather than Council's expense.

¹ I am not aware of any planning arrangement in existence.

Domain Road / Cemetery Road

- 6.11** Following the development of the Special Housing Development (**SHA**) on Cemetery Road, Domain Road and Cemetery Road will effectively function as Collector Roads with a primary purpose of connecting local traffic with the arterial road network. Additional traffic associated with the Universal Developments proposal will reinforce this function.
- 6.12** Changes to speed limits on many roads across the district will be implemented following the adoption of the QLDC Speed Limits 2019 bylaw. The section of Domain Road north of Timsfield Drive will have a 40km/h speed limit but an open speed limit to the south. An 80km/h speed limit is currently proposed for Cemetery Road.
- 6.13** If the Universal zoning proposal is adopted, I would expect the 40km/h urban speed limit zone to be extended to include all of the zoned land. It is common design practice to adopt a design speed for intersections that is 10km/h greater than the speed limit, that is, 50km/h.
- 6.14** In practice, I consider that the lack of driveways and road development on Domain Road could result in vehicle speeds being higher than 50km/h even with the 40km/h sign-posted speed limit.
- 6.15** Based on a 50km/h design speed, creating a curve to link the roads will require a larger radius curve than indicated by examples presented to the Panel by Mr Carr. His suggested options would represent a sub-standard intersection configuration and an “out of context” curve which would raise significant safety concerns, especially with vehicles accessing the industrial land further down Domain Road. I consider that a roundabout would represent a better intersection configuration in this instance. I understand from Mr Carr that this option was not investigated in detail because it would require Contact land on the west side of the intersection.
- 6.16** Regardless of the final intersection form, additional land that is not under Universal or Council ownership would be required to form an intersection to a Safe Systems design standard. If the land ownership issue can be resolved, then as before, a trigger threshold could be

developed that sets a framework for the necessary intersection improvements.

- 6.17** While a rule framework could be defined that enabled some development on the existing transport network as a permitted activity with further development being contingent on specific intersection improvements, there is a risk that the scope of any improvements would be compromised by the lack of access to required land which in turn could affect road safety.

STREAM 18 – RURAL VISITOR ZONE REZONINGS

7. 31037 – GIBBSTON VALLEY

- 7.1** My highlights summary indicated my opposition to the re-zoning of this site from a transport perspective. My key traffic concern with this rezoning was around the scale of activity enabled by the RVZ rules and how any necessary intersection improvements would be managed.
- 7.2** The development scenarios considered by Mr Carr in his Evidence in Chief require changes to intersection configurations to allow them to operate safely. Conversion to a roundabout requires land that is not owned by the submitter, NZTA or QLDC.
- 7.3** Ms Grace was questioned by the Panel about her support for the re-zoning, which appeared to be inconsistent with my opposition. This reply provides additional advice as a result of subsequent discussion with Ms Grace.
- 7.4** Ms Grace requested clarification as to why I prefer the use of a change from LOS C to D, rather than the change from LOS D to E as preferred by Mr Carr. As I described earlier, I consider that the Safe Systems philosophy and Vision Zero initiative requires a more pro-active approach to road and intersection design to minimise as far as practical the risk of fatalities or serious injury crashes.
- 7.5** Ms Grace clarified the extent of permitted and controlled development that could occur on the site if it were to be re-zoned. I understand that as a permitted activity, groups of up to 30 people could visit the site for commercial recreation activities, and there is no limit on the number of group visits that could occur per day. As a controlled activity, visitor

accommodation of up to 500m² GFA could occur, and Ms Grace advises this could allow for approximately 10 rooms and 20 overnight guests. Ms Grace then sought clarification as to the intersection upgrades that would be required for this level of development on the site.

7.6 The volume of vehicle movements associated with the permitted level of development is significantly lower than assessed by Mr Carr. I expect that daily traffic volumes on Resta Road would be less than 200vpd and have peak hour volumes of about 20vph. I consider that this volume of movement will still require upgrades to the Resta Road intersection.

7.7 The Resta Road intersection has been formed to a basic standard with some widening of the shoulder on the opposite side of the highway. With the permitted level of development anticipated by the rezoning, I recommend that as a minimum, the intersection be upgraded to provide a right turn bay in accordance with the MOTSAM² design standard (Part 2, Figure 3.25a – attached to this reply as **Appendix A**) or an equivalent design standard such as Austroads so that there is a clear safe path for vehicles to pass any right-turning vehicles without using the shoulder, prior to any development at the site being approved. The straight and generally level alignment in this location means that the necessary widening of the carriageway to allow construction of a right turn bay is likely to be able to be completed within the existing road reserve.

7.8 In addition, I recommend that access to the State Highway and approval from Waka Kotahi NZTA be matters that are considered in any resource consent application for development in excess of the permitted and controlled standards.

7.9 I would not oppose the re-zoning if the above matters were addressed in the rules.

8. 31033 – MATAKAURI LODGE

8.1 The existing vehicle access to the site is substandard because required sight distances are not available and the geometry does not allow all

² Manual of Traffic Signs and Markings.

turning movements to be completed without crossing road centre lines. At the Hearing, the Panel queried whether the level of development that the zone would provide for, exacerbates these risks.

- 8.2** Since the rezoning sought by Matakauri would increase the volume of movements at the access which would increase the potential for crashes if no improvements were made to the access. I consider that it would be necessary to widen the driveway and make changes to the access to allow this to operate safely. The necessary changes to create a safe intersection require land that is not owned by Matakauri Lodge and so there is no guarantee that the required improvements could be implemented.
- 8.3** On this basis, I remain opposed to the change in zoning sought by Matakauri.



Chris Rossiter

4 September 2020

APPENDIX A
Manual of Traffic Signs and Markings Design Standard – Right Turn Bay (Part 2,
Figure 3.25a)

RIGHT TURN BAYS

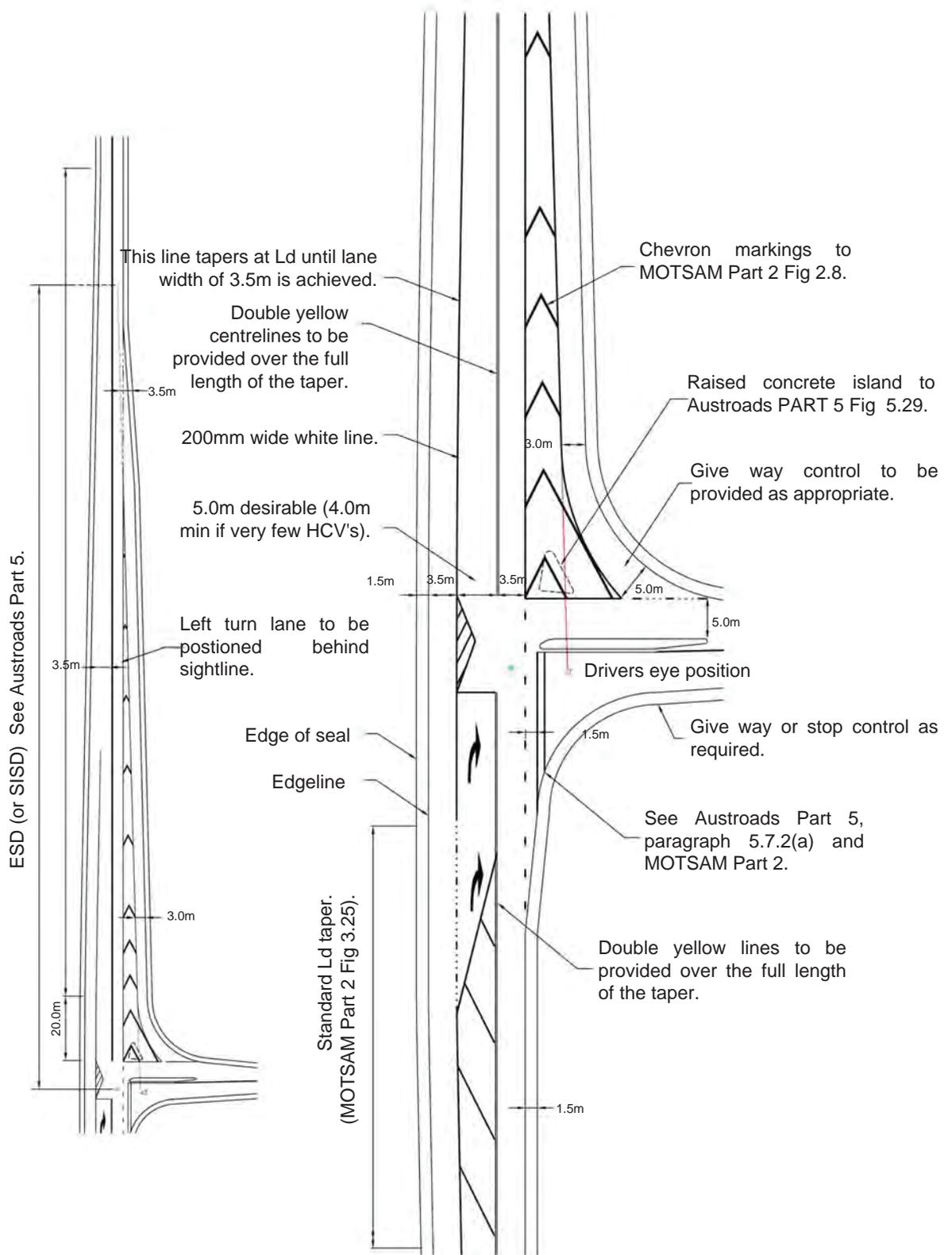


FIGURE 3.25a

EXAMPLE OF GOOD PRACTICE