

In the matter of the Resource Management Act 1991

And

In the matter of an application for Resource Consents by Road Metals Company Limited to extend quarry operations onto adjoining land and operate an aggregate processing activity.

**STATEMENT OF EVIDENCE OF ANDREW ALAN METHERELL FOR
ROAD METALS COMPANY LIMITED**

15 March 2018

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INTRODUCTION

- 1 My full name is Andrew Alan Metherell. I am a Chartered Professional Engineer, a Chartered Member of Engineering New Zealand (formerly the Institute of Professional Engineers of New Zealand), and am included on the International Professional Engineers Register. I hold a Bachelor of Engineering (Civil) with Honours degree from the University of Canterbury.
- 2 I am also a member of the Engineering New Zealand Transportation Group, an Associate member of the New Zealand Planning Institute, a member of the Resource Management Law Association, and a member of the New Zealand Urban Design Forum.
- 3 For the period of the last twenty years I have worked as a transportation engineer with the firm of Traffic Design Group Limited, practising as a traffic engineering and transportation planning specialist. I currently hold the position of Senior Associate and am responsible for providing traffic engineering advice, assessment and design for a wide range of activities.
- 4 I have had extensive experience in the provision of transportation advice to proposed development projects including Plan Changes, Notice of Requirements, and resource consents. This has included industrial projects, transport infrastructure, residential subdivisions, and recreational projects. I have provided transportation planning and engineering advice for developments generating heavy traffic, with examples including:
 - 4.1 The Road Metals Ltd quarry resource consent application and consent conditions variation at Wards Road, near Rolleston;
 - 4.2 The Frews Quarries Ltd quarry resource consent application at Savills Road, Christchurch;
 - 4.3 Advice for a range of large scale wind and hydro-electric power projects with high volumes of construction heavy traffic and utilisation of construction traffic management plans, including the Mahinerangi Wind Farm (Otago) and Wairau Valley Hydroelectric power scheme;

4.4 Transportation Assessment for Synlait Milk Ltd dairy factory expansions near Dunsandel;

4.5 A quarry on a rural unsealed road in Southland, involving mitigation works and route restrictions through implementation of a traffic management plan.

CODE OF CONDUCT

5 While this is a Council Hearing, I acknowledge that I have read and am familiar with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014, and agree to comply with it. I confirm that this evidence is within my area of expertise, except where I state that this evidence is given in reliance on another person's evidence. I have considered all material facts that are known to me that might alter or detract from the opinions I express in this evidence.

SCOPE OF EVIDENCE

6 In this matter I have been requested by Counsel for Road Metals Company Limited (Road Metals) to provide an assessment of the traffic and site access issues raised in submissions and the Council Officer Report.

7 I understand that the additional quarry area is not expected to change the level of production of the State Highway 73 (West Coast Road) site from levels of production that have historically occurred. Instead, it allows aggregates to continue to be sourced in the area as the existing reserves have just about been fully extracted. This will enable existing site and transport infrastructure to be utilised, and wider area transport effects to be no different from existing.

8 The quarry will continue to operate utilising the existing Road Metals quarry site access onto West Coast Road, about 1.1km east of Miners Road. No new vehicle access is proposed onto Buchanans Road. Material from the proposed quarry expansion will be transported back to the existing quarry site and weighbridge area, before accessing West Coast Road at the existing access.

9 In transport terms, the proposed quarry expansion will result in a continuation of the existing and historical levels of traffic activity "at the gate". As the existing access

arrangements would also continue to be used, there would be negligible change from existing.

- 10 For this reason, the focus of my evidence is on the current standard of the West Coast Road access, and concerns of submitters that aggregate material gets transported onto the highway carriageway. These are inter-related to a large extent and have been raised as a matter for consideration by both NZTA in their submission, and the CCC in their Planning Officer report. In my opinion, both matters can be addressed through some further refinements to the access layout, and implementation of an on-site management plan with the objective of minimising aggregate material being transported onto the road.

SH73 TRANSPORT ENVIRONMENT

- 11 West Coast Road past the access currently operates with a 100km/hour speed limit. The most recent traffic counts carried out by NZTA show that West Coast Road east of Dawsons Road carries approximately 11,000 vehicles per day (as at 2016). This has increased from about 7,000 vehicles per day ten years ago.

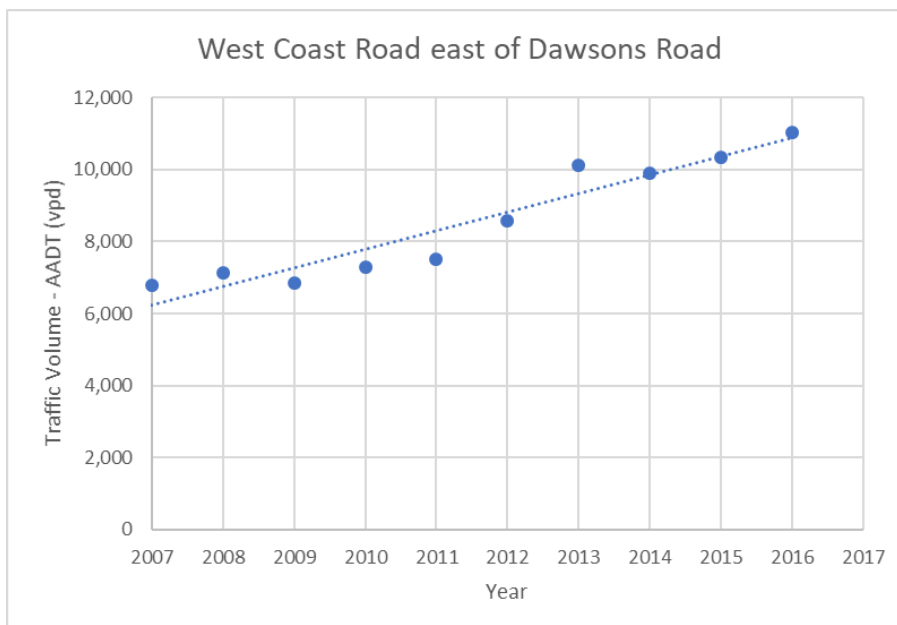


Figure 1: West Coast Road Traffic Growth Trend

- 12 This traffic volume is well within the capacity of the road. At peak times there will be some additional peak period delays for vehicles accessing West Coast from side roads and accesses.

- 13 I have reviewed the NZTA Crash Analysis System database for the last ten years. There has been one non-injury crash reported that is associated with the access where an eastbound car hit the rear end of a van that had slowed for a concrete truck exiting the access. The cause code noted that the car was following too closely to the van.

EXISTING ACCESS INTERSECTION LAYOUT

- 14 The existing West Coast Road access to the Road Metals site has largely been formed to an intersection standard. The key features include:
- 14.1 A full right turn bay on West Coast Road, which is a standard in excess of the NZTA Planning Policy Manual Diagram E (PPM, refer **Attachment A**) and Christchurch District Plan Figure 14. Those standards would require widening on the southern side of the road instead of a right turn bay. In that respect I do not agree with Mike Calvert¹ that additional widening on the southwestern side of the southern access is a standard requirement when a right turn bay is provided.
 - 14.2 A left turn deceleration widening on the western side of the access, extending approximately 120m from the centre of the access. This is in excess of the 90m required by the PPM and District Plan.
 - 14.3 A widened shoulder extending approximately 250m east of the access. This is well in excess of the PPM and District Plan which have no specific requirement for that. The shoulder provides some opportunity for trucks to accelerate clear of through traffic and appears to be used for that purpose, but is not a full acceleration lane. In my opinion a full acceleration lane is not practical due to the constraints associated with the adjacent stock water race.
 - 14.4 The access layout includes a slightly different corner arrangement. Instead of a large radius curve and narrower access, the access is wider, and lower radius corners are provided. Road Metals recently widened the access further at the culvert to improve the manoeuvring area for trucks. There appears to be some minor edge break around the access, possibly due to trucks tracking close to the edge of the stock water culvert. Overall, the

¹ Mike Calvert report, section 4.1

access largely achieves the expected manoeuvring requirements of the NZTA and CCC standards through the wider access provision.

- 15 In my opinion, the widening provisions for the northern side access significantly exceed the minimum widening requirements of the PPM and District Plan and are not deficient as suggested by Mr Calvert.
- 16 Also forming part of the wider operation of Road Metals site is the access directly opposite on the south side of the road. As the proposed quarry expansion will not impact the use of the access on the southern side, the layout of the access is not particularly relevant to the current proposal. I understand this access was consented to be formed as a lower use access on the south side of the road, adopting a modified NZTA Planning Policy Manual Diagram C layout (with wider access width but different corner radii), reflecting the low use of the site. This access type is not required to have extensive shoulder widening. The modified layout includes the following features:
- 16.1 A left turn deceleration widening extending approximately 150m. Again, this significantly exceeds the 90m minimum requirement of the high standard Diagram E.
- 16.2 Use of the shoulder widening on the northern side of the road described in 14.2 and 14.3 easily accommodates the PPM and District Plan requirements for Diagram E.
- 16.3 There is no corner radius or taper provided on the southwestern side of the access as per the agreed modified Diagram C layout. Although not a functional requirement for use of the access, some vehicles have used the unsealed shoulder when exiting to the west. This has led to some edge damage to the seal and poor condition of the shoulder in this area.
- 17 Overall, it is only the absence of a corner radius and taper on the southwestern side of the access that is less than a typical heavy vehicle access standard. That reflects the low volume use of the access.
- 18 It is apparent that both accesses require some additional pavement maintenance to minimise the potential for ongoing potholing and edge break. As the accesses have

been constructed to, and in most cases beyond standard NZTA access requirements, I understand pavement maintenance within the road reserve would typically be the responsibility of NZTA.

WIDER TRANSPORT NETWORK SUBMISSIONS

- 19 The submission of Derek and Jessica Vallance are concerned about additional traffic on Buchanans Road and Old West Coast Road. The submission of Greg Beswick and Bev Lawrence raise a general concern with traffic.
- 20 The proposed quarry will utilise the existing quarry access on West Coast Road which is a State Highway suitable for carrying heavy traffic. The additional quarry area will increase the longevity of the aggregate extraction but is not expected to change the amount of material transported from the site because it will be used instead of existing parts of the quarry where aggregate extraction has been completed.

NZTA SUBMISSION

- 21 I have met with NZTA staff on site to discuss their submission, along with Lindsay Forbes and Murray Francis of Road Metals. I understand NZTA's primary concern relates to deposit of aggregate material on the road. That has apparently caused some concerns relating to broken windscreens of passing motorists, although the frequency compared to other locations is not clear. There are no reports of road crashes caused by material on the road.
- 22 From my observations, the material on the road is likely a function of both the pavement condition on the road, where some shoulder edge of seal issues have arisen, and from some material being transferred from within the site access onto the road over time. Road Metals is in discussions with NZTA as to methods to address both issues, and where responsibility will lie.
- 23 In my opinion, the proposed quarry expansion will not lead to a change from the existing consented scenario as the type and volume of vehicles using the access will not change.

Material from the Road Shoulder

- 24 The existing access design generally exceeds normal access design standards, and while some design refinements could be contemplated to address the southwestern quadrant of the access, that is not directly impacted by this proposal. The potential response is to undertake some shoulder widening on the southwestern corner where the primary edge and shoulder damage has occurred. A design would involve a sealed corner radius, and widening over about 90m from the centre of the southern access, including a taper.
- 25 Other material deposits on the site side of the highway are largely an operational issue around material on the road requiring ongoing monitoring and maintenance of pavement condition by NZTA within the road reserve. NZTA in discussions did advise that some further pavement maintenance at the intersection would be appropriate. If the pavement condition is improved, the likelihood of potholes and edge break occurring will reduce.
- 26 NZTA consultants have commented on debris on the wide shoulder that is used for acceleration by some vehicles exiting the site to the east. The ability to widen that is limited by the stock water race. As I noted earlier, the existing wide shoulder exceeds standard shoulder requirements on the downstream side of an intersection and does not form part of a standard access layout.

Material from the Site

- 27 While Road Metals do manage material transfer to the road, and contract road sweepers on occasion, some further formalisation of processes has been requested by NZTA.
- 28 I have liaised with Road Metals and set out a proposed management plan regarding minimisation of materials being transferred to the highway. This sets out an objective, methods to minimise transfer of material, monitoring, and methods of response.
- 29 Such a plan would require ongoing commitment to have good outcomes, and to better achieve that a log book is recommended. As a living document, some refinement of the procedures can be considered over time. One of the possible

outcomes if other methods are not sufficiently effective is further sealing within the site, and consideration of additional judder bars.

- 30 I have included a draft version of the Plan as **Attachment B**.

COUNCIL PLANNING OFFICER REPORT

- 31 I have read the Council officer report by Mike Calvert. I agree that the quarry expansion will not result in adverse effects on the wider transport network that will be more than minor.

- 32 Instead of adopting Mr Calvert's Recommendation 1, I have proposed use of a management plan to minimise transfer of material from the site to the road. I understand that NZTA were comfortable with such an approach (noting it was their suggestion during discussions). I recommend adjustment of the CCC Reporting Officer Condition 20 to reflect that.

- 33 As set out in my earlier evidence, I disagree that there are deficiencies in the layout compared with typical standards because the layout typically exceeds the NZTA and CCC standards. In my opinion there is no benefit in applying Mr Calvert's Recommendation 2, and the CCC Reporting Officer proposed condition 19 should be deleted. However, Road Metals is in discussions with NZTA as to other improvements that could be considered at the access to minimise transfer of debris, including the possibility of widening the southwestern shoulder and NZTA undertaking pavement maintenance.

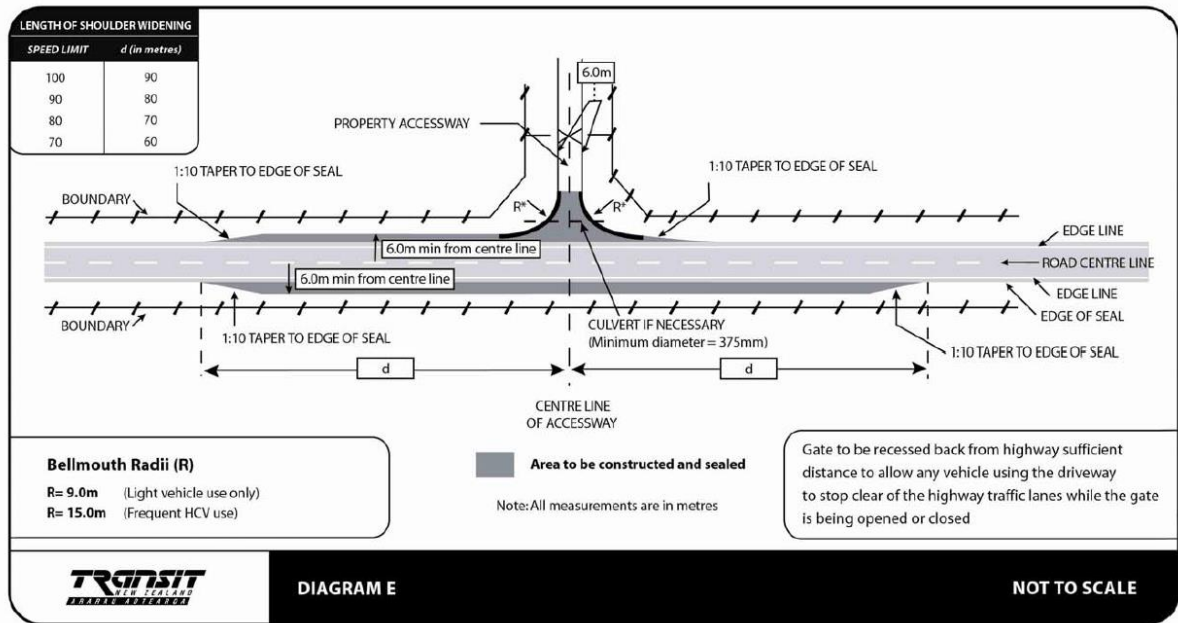
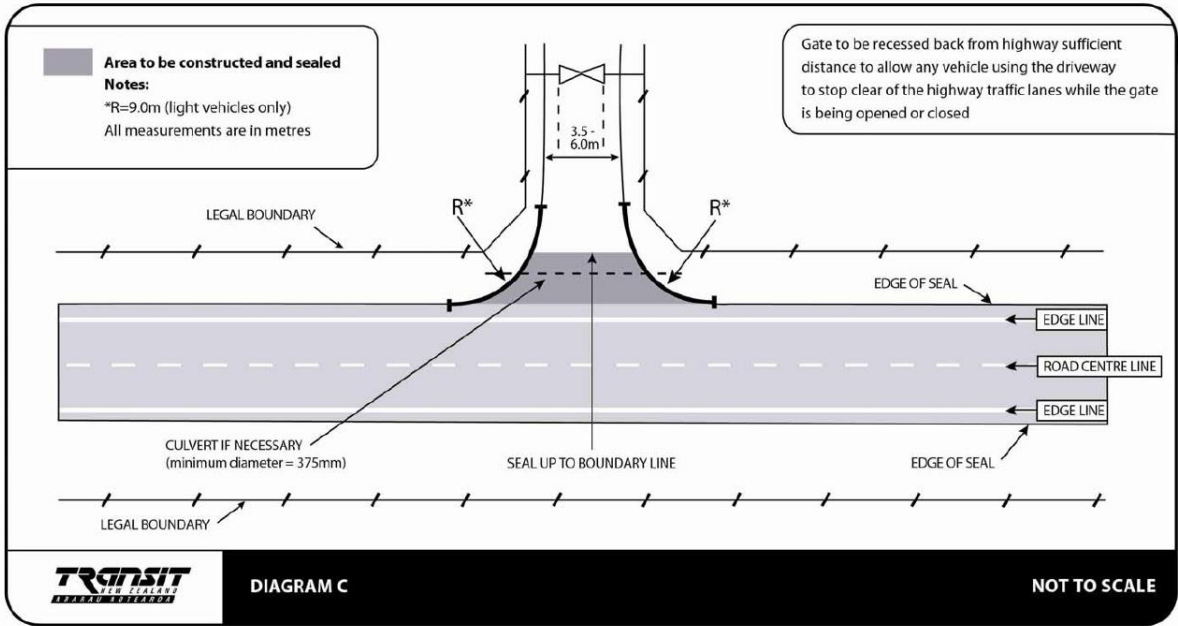
CONCLUSION

- 34 It is my opinion that the proposed quarry expansion will have a negligible change in the performance of the transport network compared with existing operations.
- 35 Concerns about material being transported onto the road can be addressed through a management plan, and further liaison with NZTA about pavement maintenance and possible access intersection refinements at the West Coast Road access intersection.

Andrew Metherell

15 March 2018

ATTACHMENT A – NZTA PLANNING POLICY MANUAL DIAGRAMS C AND E



ATTACHMENT B – MANAGEMENT PLAN

Background

The Road Metals Yaldhurst Quarry has an intersection standard access onto West Coast Road (State Highway 73), located approximately 1.1km east of the Miners Road / Kirk Road intersection.

NZTA and CCC have raised some concerns about loose chip material migrating onto West Coast Road at the access intersection, and the potential for the stones to cause vehicle window breakage, as well as dust. It appears that the loose chip material occurs for the following reasons:

- Migration from the unsealed road shoulder as heavy vehicles utilise the edge of the sealed shoulder when leaving the site;
- Road maintenance issues in the pavement at the access intersection, resulting in loose chip;
- Migration of stone chips from the site on to West Coast Road as vehicles exit the site. This may be associated with movement of chip from the internal unsealed portions of the access road, and occasionally from the truck itself.

A two-step process is being investigated. The first is improvements at the access intersection to minimise the likelihood of migration from the road shoulder or from insufficient road maintenance. The requirements for this are being addressed separately in consultation with NZTA.

The second step is formalisation of processes on site to minimise the likelihood that chip is transferred from the site onto West Coast Road. This can be achieved with adoption of a management plan, which would be adapted as required over time.

Objective

The objective of the management plan is to minimise transfer of stone chip entering West Coast Road at the access. Where material has entered the roadway, the management plan shall identify processes to remove the material.

Minimise Transfer of Material to Road

Treatment of Unsealed Sections of Access Road

The unsealed road connecting to the main access road is to have clean chip placed on it to minimise dust and movement of larger material to the sealed portion of the access.

Dust Suppression

A water cart is to be used regularly on unsealed access roads near the entrance, to minimise dust.

Internal Road Sweeping

The sealed access road is to be swept regularly. A focus area shall be the transition from the sealed access road onto the unsealed access road.

Edge Break and Pot Holes

The edges of the sealed access road shall be inspected, and maintained, particularly where pot holes emerge. Pot holes should be coned off to avoid further damage and likelihood of material transfer to the road.

Visual Inspection of Trucks

Road Metals shall encourage visual inspection of trucks exiting the site by drivers. Trucks shall be randomly inspected at the weighbridge to identify the extent of potential material being carried on the truck before entering the road.

Additional Access Road Sealing

If the stone chip transfer is not able to be managed sufficiently, Road Metals shall consider additional seal extension of the adjacent unsealed road.

Monitoring

The Quarry Site Manager is to monitor prevalence of stone chips around the site access. This should be undertaken regularly.

Response to Transfer of Material onto Road

Road Sweeping

Road Metals to arrange road sweeping of the internal access (outside road reserve) where it is apparent the material has come from the internal site access (to avoid further transfer of material).

Liaise with NZTA about approval to have a road sweeping contractor sweep the road around the access under an approved traffic management plan.

Road Maintenance

Road Metals to plan and undertake maintenance where it is apparent internal sealed road issues are contributing to the issue.

Notify NZTA if material is further from the site relating to shoulder edge break etc, requiring NZTA maintenance of the road.

Managing Use of Site on Southern Side of Road

When the extraction site south of West Coast Road is used, monitor weather and access road conditions to avoid material being transferred onto the road.

Consider improvements as necessary to the extent of seal required if material needs to be transferred in adverse conditions.

Documentation

Document current routines in a log book, and individually log when corrective measures have been required on the highway. This will assist in informing the need for further adjustments to the management plan.