
Under	the Fast-track Approvals Act 2024 ('FTAA')
In the matter of	a substantive application under the FTAA for an alteration to an existing designation, resource consents, a wildlife approval, archaeological authorities and a complex freshwater fisheries activity, to construct, maintain and operate the Belfast to Pegasus Project
By	New Zealand Transport Agency Waka Kotahi Applicant

Statement of Evidence of Jason Savelio Karena Pene (air quality)

Dated 15 May 2026

DENTONS
40 Bowen Street
PO Box 10246
Wellington 6011

P [REDACTED]
F [REDACTED]
DX SP26517

Solicitors: Nicky McIndoe/Liam Bullen
E [REDACTED]
14016330.1

Statement of evidence of Jason Pene

1 Introduction

- 1.1 My full name is Jason Savelio Karena Pene.
- 1.2 I am a Principal Consultant at Tonkin & Taylor Ltd and in this role, I provide air quality and environmental engineering consultancy services to a range of private and public sector clients in New Zealand and Australia.
- 1.3 I hold a Bachelor of Engineering degree with honours in Chemical and Process Engineering from the University of Canterbury and am a Certified Air Quality Professional of the Clean Air Society of Australia and New Zealand.
- 1.4 I have been involved in the assessment and management of environmental impacts, with a particular focus on discharges of contaminants to air, in various roles in consultancy, for regulatory authorities and in industry for more than 25 years.
- 1.5 Of specific relevance to this statement of evidence, I have conducted or overseen air quality impact assessments of or provided advice on the management of air emissions from a range of transport infrastructure construction projects, including New Zealand Transport Agency Waka Kotahi ('**NZTA**') highway construction projects Otaki to North of Levin, Riverlink, Waterview Connection, Transmission Gully and Auckland's City Rail Link.
- 1.6 I have been involved in the State Highway 1 North Canterbury – Woodend Bypass Project (Belfast to Pegasus) ('the **Project**') since July 2025. I provided the technical review of the Construction Air Quality Assessment ('**CAQA**') report lodged with the substantive application for the Project.
- 1.7 My evidence has been prepared to support the NZTA response to comments from invited parties. This statement of evidence responds to comments from Canterbury Regional Council (Environment Canterbury, '**CRC**').

2 Code of conduct

- 2.1 While the application is not before the Environment Court, I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023, and I agree to comply with it.

- 2.2 Unless I state otherwise, this evidence is within my sphere of expertise, and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

3 Scope of evidence

- 3.1 My evidence responds to comments from CRC (via the Technical Advice – Air Quality, Appendix 2 to the CRC comments) in relation to:
- a The calculation of the Dust Risk Index ('**DRI**') for adjacent sensitive receptors in the CAQA in accordance with guidance on transport air quality assessment published by NZTA.¹
 - b The evaluation of construction dust risks in accordance with guidance on assessment of construction dust impacts published by the Institute of Air Quality Management ('**IAQM**') in the United Kingdom.²

4 Executive summary

- 4.1 In relation to the CRC comments on the NZTA DRI calculations, I agree with one of the suggested modifications in relation to wind speed characterisation but do not agree with the suggestion in relation to wind direction characterisation. I have updated the NZTA DRI assessment presented in the CAQA accordingly but do not consider this to have altered any of the conclusions of the CAQA in relation to dust impacts of Project Construction.
- 4.2 In relation to the CRC comments on the IAQM dust risk evaluation, I agree with one of the suggested modifications in relation to evaluation of human health risks in rural areas but do not agree with the suggestion to conduct separation risk evaluations for each Project construction zone. I have updated the IAQM dust risk evaluation presented in the CAQA accordingly but also do not consider this to have altered any of the conclusions of the CAQA in relation to dust impacts of Project Construction.

5 NZTA Dust Risk Index

- 5.1 A Dust Risk Index approach specified in Appendix B of the NZTA Guidance was used in the CAQA to provide a preliminary characterisation of the risk of dust impacts from project construction on nearby receptors.

¹ NZTA 2025. Guide to assessing air quality impacts from road transport projects. NZ Transport Agency Waka Kotahi. Version 3 – June 2025.

² IAQM 2024. *Guidance on the assessment of dust from demolition and construction*. Institute of Air Quality Management. January 2024 (Version 2.2).

- 5.2 This relatively simplistic approach uses an empirical formula incorporating several factors relating to the activity and environmental conditions that influence the potential for dust impact. These factors include wind speed ('**WS**'), wind direction ('**WD**') and distance to receptors ('**D**').
- 5.3 The CRC Technical Advice – Air Quality comments raises concerns in relation to:
- a Application of the WS factor, in particular application in the CAQA of this factor based on whether the receivers/receptors are exposed to prevailing winds rather than whether the Project is exposed to prevailing winds.
 - b Application of the WD factor, which the CRC advice considered that for receptors within 50 m of the Project site should be classified as 'exposed to the prevailing wind direction' regardless of their direction from the Project site.
- 5.4 In relation to the Wind Speed factor assessed under the NZTA DRI framework, I agree that all of the Project Site will be exposed to prevailing winds – in practice this is true of any site.
- 5.5 The derivation of the WS factor under the DRI framework refers to the wind exposure for the Project site under prevailing winds, rather than the exposure of the receiver to winds from the direction of the Site. I therefore agree that the WS factor should technically be set at 100 for all receptors in order to be strictly consistent with the NZTA DRI framework. This is in contrast with the approach that was taken whereby a factor of either 100 or 50 depending on whether the receptor/receiver is downwind of Project construction in prevailing winds as was used in the CAQA. I have therefore updated the DRI calculations on this basis (applying a WS factor of 100 regardless of wind direction).
- 5.6 As an aside, I note that all construction sites in New Zealand will be exposed to prevailing winds and WS factors of less than 100 are not possible under the NZTA DRI framework. I suspect this is an error in the way that the framework has been described in the NZTA guidance document.
- 5.7 In relation to the WD factor, this factor is derived under the NZTA method independently of separation distance between the Project and receptors (which is addressed separately by the D factor). Therefore, the suggestion in the CRC Technical Advice – Air Quality of arbitrarily applying the maximum WD factor of 1 for receptors within 50 m is inconsistent with the NZTA DRI framework. Furthermore, I consider it to be unjustified given the inclusion of the D factor in

the calculation. Therefore, I have not adopted the suggested change to WD factor application.

- 5.8 I have updated the DRI values expressed in Table 6.1 of the CAQA to incorporate the suggested modification to application of the WD factor in DRI calculations, as follows:

Update to Table 6.1: DRI (dust risk) calculated in accordance with the NZTA AQA Guide

Direction from Project Site	Distance from Project Site	DRI risk category
West	Any distance	High
Northeast, southwest	Less than 50 100 m	Moderate
	Greater than 50 100 m	Low
North, east, southeast, south, northwest	Any distance	Low

- 5.9 The effect of the update to the calculation of the WS factor on the DRI scores only affects receptors to the northeast and southwest of Project construction. For those directions, the DRI risk category is now assessed as being:
- a 'moderate' for receptors within 100 m of the Project Site (rather than within 50 m); and
 - b 'low' beyond 100 m (rather than beyond 50 m).
- 5.10 I do not consider that this update to Table 6.1 alters any of the subsequent assessment provided in section 6.3 to 6.5 of the CAQA, or the overall conclusions in relation to dust impacts expressed in the CAQA.

6 IAQM Dust Risk Assessment

- 6.1 A more in-depth assessment of the risk of dust impacts in the local environment of emissions from Project construction was conducted in section 6.3 of the CAQA in accordance with guidance on assessment of construction dust impacts published by the IAQM in the United Kingdom.³
- 6.2 The CRC Technical Advice – Air Quality raised concerns in relation to:

³ IAQM (2024). *Guidance on the assessment of dust from demolition and construction*. Institute of Air Quality Management. January 2024 (Version 2.2).

- a The need to conduct separate risk assessments for each construction zone of the Project.
 - b Evaluation of risks of human health impacts in rural environments during the demolition and construction phases of the Project.
- 6.3 Rather than conducting a separate IAQM Dust Risk evaluation for each construction zone, separate evaluations were instead conducted in the CAQA for the following classifications of the local environment based on the sensitivity of adjoining activities:
 - a The urban environmental settings at Kaiapoi and Woodend.
 - b The rural environment comprising the remainder of the alignment.
- 6.4 I consider that this approach appropriately takes account of variations in adjoining land use activities along the proposed road alignment and their sensitivity to dust. I do not consider that conducting further evaluations for each construction zone would alter the findings of the evaluation.
- 6.5 However, in response to the comments relating to the evaluation of health risks, I have reviewed the IAQM dust risk evaluation presented in section 6.3 of the CAQA and agree that the risk of human health impacts during the demolition and construction phase (as well as the earthworks phase) in rural environments has been overstated. However, this has no practical impact on the conclusions of the CAQA.
- 6.6 Notwithstanding this, I have updated Table 6.3 of the CAQA as follows:

Update to Table 6.3: Summary assessment of dust risk to inform dust mitigation evaluation

Potential impact	Risk			
	Demolition	Earthworks	Construction	Vehicle movements, track-out
Dust soiling	Medium for urban environments	Medium	Low	High for urban environments
	Low for rural environments			Medium for rural environments
Human health	Medium <u>for urban environments</u>	Medium <u>for urban environments</u>	Low <u>for urban environments</u>	High for urban environments*
	<u>Negligible for rural environments</u>	<u>Low for rural environments</u>	<u>Negligible for rural environments</u>	Low for rural environments
Ecological	Negligible	Low	Negligible	Low

6.7 The effect of this update to Table 6.3 is as follows:

- a The risk of human health impacts in rural environments during the demolition phase should be 'negligible' rather than 'low'.
- b During the earthworks phase this risk should be 'low' rather than 'medium'. The corresponding risk in urban environments during the earthworks phase remains as 'medium'.
- c During the construction phase this risk should be 'negligible' rather than 'low'. The corresponding risk in urban environments during the construction phase remains as 'low'.

6.8 The overall impact of this update is that risk of health impacts due to emissions from demolition, earthworks and construction activities is slightly lower than was expressed in the CAQA. I do not consider that these changes alter the overall conclusions of the CAQA in relation to dust impacts.

7 Conclusion

7.1 I agree with one of the modifications suggested in the CRC Technical Advice – Air Quality to the NZTA DRI calculations presented in the CAQA in relation to the WS factor. However, I do not agree with the suggestion in relation to the WD factor.

- 7.2 I have updated Table 6.1 of the CAQA on this basis. However, this update does not alter the conclusions of the CAQA in relation to dust impacts of Project Construction.
- 7.3 I agree with one of the modifications suggested in the CRC Technical Advice – Air Quality to the IAQM Dust Risk assessment presented in the CAQA in relation to evaluation of human health risks in rural areas. However, I do not agree with the suggestion to conduct separation risk evaluations for each Project construction zone.
- 7.4 I have updated Table 6.3 on this basis. However, this update does not alter the conclusions of the CAQA in relation to dust impacts of Project Construction.

Jason Savelio Karena Pene
15 May 2026