Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Appendix 1: s53(2)(a) Fast Track Approvals Act 2024, Technical Advice – Air Quality

Table 1	
Date	22 April 2026
To	Joanne Mitten, Principal Consents Planner, Environment Canterbury
From	Suzanne Cawood, Senior Environmental Scientist – Beca Limited
Project advice provided for	NZTA – Woodend Bypass Project
Documents referred to	• State Highway 1 North Canterbury – Woodend Bypass Project (Belfast to Pegasus) Construction Air Quality Assessment prepared by Tonkin and Taylor dated October 2025 (T&T AQA Report). • Belfast to Pegasus Motorway & Woodend Bypass Pre-implementation and MSQA Professional Services – Construction Methodology Statement prepared by NZ Transport Agency (NZTA) dated 17 October 2025 (NZTA CMS Report). • Belfast to Pegasus Motorway & Woodend Bypass Pre-implementation and MSQA Professional Services – Consultation Pack Cover Report prepared by NZ Transport Agency (NZTA) dated 5th September 2025 (NZTA Consultation Report). • State Highway 1 North Canterbury – Woodend Bypass Project (Belfast to Pegasus) – Substantive Application Report prepared by the NZ Transport Agency Waka Kotahi (NZTA) dated 24th October 2025. • Volume 2C: Proposed Alterations to Designation Conditions (October 2025) (Proposed Designation Conditions). • Volume 2C: Proposed Resource Consent Conditions (October 2025) (Proposed Consent Conditions). • Volume 2H: Resource Consent Requirements. • NZTA Guide for Assessing Air Quality Impacts from Road Transport Projects, Version 3 – June 2025 (NZTA Guidelines) • Ministry for the Environment's Good Practice Guide for Assessing and Managing Dust, 2016 (GPG Dust)
Qualifications	I am a Senior Environmental Scientist specialising in Air Quality and have been employed at Beca Limited (Beca) since 2019. I hold a Master of Science from the University of the Witwatersrand, Johannesburg. I have over 10 years' experience in the Air Quality industry. My work at Beca includes emission quantification, dispersion modelling, preparing air quality management plans and compiling air quality assessments for a variety of air discharge activities. I have also been an air quality technical reviewer for Environment Canterbury for other air discharge to resource consent applications.
Code of Conduct	I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This technical review has been prepared in accordance with that Code. In particular, unless I state otherwise, the opinions I express are within my area of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.

Executive summary/overview

1. NZ Transport Agency (NZTA) has assessed the actual and potential air quality effects of discharges to air from the construction works of the Woodend Bypass Project (Belfast to Pegasus) to:

    a. Inform the consent application for discharges from outdoor storage of bulk material; and

    b. Assess the potential for offensive or objectionable air quality effects of the discharges from land development and unsealed surfaces to determine compliance with the relevant permitted activity conditions.

2. The Project involves the construction, operation and maintenance of approximately 11km of a four-lane grade-separated motorway bypassing the Woodend township.

3. The primary contaminant likely to be discharged to air from the construction activities is dust. A small proportion of the emitted dust will be as fine particulate matter (PM_{10} and $PM_{2.5}$) which can have health effects, if exposures were to exceed relevant air quality criteria.

4. Emissions from most of the proposed construction activities have been assessed as permitted under the Canterbury Air Regional Plan (CARP) Rule 7.32, provided they comply with the rule's conditions, which include the preparation of a dust management plan in accordance with the Schedule 2 of the CARP. However, emissions from stockpiles were assessed to be a discretionary activity and a consent is required.

5. The sensitivity of the receiving environment is mixed depending on expectations of amenity, duration of human occupation and presence of particularly sensitive sectors of the community. The individuals found in the residential zones and special purpose zones are deemed to have high sensitivity to impacts from the Project. Individuals found in the Town Centre, Local Centre and Rural zones are likely to have a moderate to high sensitivity. The individuals found in the industrial zones are likely to have a low to moderate sensitivity.

6. The southern end of the Project is located in the Kaiapoi Airshed, which is classified as polluted at the time of the preparation of this application. Background concentrations of PM_{10} are likely to be elevated during the winter months due to home heating emissions.

7. The potential impacts of dust emissions during construction have been assessed using a combination of the NZTA and IAQM[1] methodologies. The assessment concluded that, if left unmitigated, there could be a high risk of dust from construction activities creating soiling effects in urban areas within 50m of the alignment, and medium risk for rural areas.

8. The IAQM method also assessed the risk of health effects to be high in urban areas due to construction vehicle movements and elevated background PM_{10} concentrations. However, the T&T AQA report concludes that the IAQM derived health risk is overstated by the method as it unlikely that the peak background concentrations, which are primarily associated with wood burning during the winter months, will occur during the same meteorological conditions when emissions from construction vehicles will have the greatest impact on air quality.

9. A range of industry standard dust mitigation and monitoring procedures have been identified in the T&T AQA report. The report has recommended the implementation of specific controls when works occur within 250m of an urban area, or within 100m of other sensitive receptors. Continuous monitoring of wind speed and dust/particulate matter when works occur within 250m of an urban area is proposed. However, no trigger limits have been specified.

10. The T&T AQA Report concludes that provided the recommended mitigation and monitoring measures are adopted and implemented, in accordance with the Construction Air Quality Management Plan (CAQMP), it is considered that the effects of the dust emissions to air from the construction of the Project will be appropriately mitigated or avoided and offensive or objectionable effects, beyond the Project Site, are unlikely to occur.

11. A draft CAQMP has not been provided with the application.

Agreement with the Applicant

12. Based on the proposed activities, dust is expected to be the main emission to air from the Project.

13. The mitigation measures recommended are industry standard and likely to sufficient to mitigate dust emissions, if correctly implemented and maintained throughout the construction period.

14. Sensitive receptors located within 100m of construction activities are most at risk from dust impacts from the Project. The majority of these receptors are where the Project intercepts with urban areas, but also includes rural residential dwellings in close proximity to the Project.

15. There is a risk that dust emissions may have an adverse effect at the sensitive receptors located within the urban areas, but also includes rural residential dwellings in close proximity to the Project unless appropriate mitigation is implemented and maintained.

16. Dust management procedures for the whole project should be implemented through a CAQMP.

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[1] UK Institute of Air Quality Management

Benefits of the project

17. This is outside the scope and knowledge of the Air Quality review.

Outstanding areas of contention and significance of these

Discussions with Applicant

18. No discussions have been had with the Applicant as of 22 April 2026. However, we did review the draft application and the outstanding areas of contention are presented below.

Outstanding areas of contention

The main areas of contention are presented in Table 2 and summarised below.

19. The applicant has requested that Condition 10 of the Designation is removed, and the construction air quality/dust management plan is implemented under the conditions of the regional resource consent. In our opinion, this condition should be retained. The applicant is currently proposing resource consent conditions for the use of the CAQMP to manage the potential dust from the stockpiling activity only. If the applicant proposes to generate a separate dust management plan to address mitigation measures from the land development and unsealed surfaces to ensure it meets permitted activity standards, this dust management plan needs to be certified by the Council in a similar process to the CAQMP being generated for the stockpiling of bulk materials.

20. The applicant has not submitted a draft CAQMP and has indicated that one will be generated 30 days before construction begins. The applicant has recommended a number of industry standard mitigation measures. However, without reviewing a CAQMP it is not possible to determine if these mitigation measures will be implemented sufficiently to confirm the potential dust risks of the project are appropriately managed.

21. There are also small assessment methodology issues raised in Table 2.

Significance of these matters

22. Under the CARP, there is no requirement for the dust management plan to be independently reviewed or certified by the Council. Additionally, if the CAQMP is moved to the resource consent as requested in the application, CAQMP would only need to cover discharges to air from the consented activity (the stockpiling of bulk material) and not that of the whole project. Dust will potentially be generated from a variety of different sources. For a project of the planned scale of the Woodend Bypass Project, we consider it is important that any CAQMP is independently reviewed and certified by Council, as would be required under the existing designation conditions to ensure that appropriate procedures are identified for implementation across the whole project.

23. If the recommended mitigation measures are not implemented correctly, as the T&T AQA Report states, there is a high risk for nuisance dust to occur at sensitive receptors beyond those areas in close proximity to the proposed stockpiles and construction activities.

Solutions and/or Conditions sought

24. Condition 10 of the Designation Conditions should remain in place.

25. A draft CAQMP should be independently reviewed and certified by Council before commencement of the construction works.

Table 2: Solutions			
Issue	**Solution**	**Condition wording**	**Consideration against FTAA**
The applicant has proposed alternative conditions for the designation which would remove the requirement for a Construction Air Quality Management Plan (CAQMP) to be prepared. The applicant has instead proposed that a dust management plan only be a requirement of the regional air discharge resource consent conditions. We disagree with the applicant's proposed change in designation condition. Under the CARP, a dust management plan would be required under the permitted activity Rule 7.32. The dust management plan is required to be consistent with Schedule 2 of the CARP. Key concerns are: 1) The CARP Schedule 2 requirements for dust management are only general in nature. A dust management plan could be compliant with Schedule 2 but still not sufficiently robust to manage potential dust nuisance effects for a project of the scale that is proposed. 2) Under the CARP, there is no requirement for the dust management plan to be independently reviewed or certified by the Council. For a project of the planned scale, we consider it is important that any CAQMP is independently reviewed and	The requirement for a CAQMP should remain with the designation conditions.	Remain as currently worded in the Designation Conditions.	

certified by Council, as would be required by the existing designation conditions to ensure that appropriate procedures are identified and implemented. An independent review of the CAQMP is consistent with the NZTA guideline recommendations for projects, where the risk of adverse air quality effects is considered to be high. The T&T AQA Report has identified air quality risks to be high at some receptors.			
The T&T AQA Report has identified that there is a potential for adverse dust effects to occur unless appropriate controls and management procedures are implemented through the Construction Air Quality Management Plan (CAQMP). We agree with this conclusion. However, no CAQMP has been provided in the application, or in the T&T AQA Report. The T&T AQA Report has provided recommendations for dust management which are generally consistent with industry practice. However, it is uncertain whether any of these recommendations will be implemented. A draft CAQMP would provide greater confidence that appropriate measures will be implemented. It is considered appropriate that for the scale of the proposed project, a draft CAQMP be submitted. The submission of a draft CAQMP would have to be consistent with the NZTA Guideline which recommends a CAQMP is prepared and independently reviewed for projects with a high air quality risk.	A draft CAQMP should be submitted for technical review and approval from Council before the commencement of the Project. The CAQMP should include trigger levels for measured weather conditions (wind speed and direction) and particulate matter concentrations. If no CAQMP is to be submitted with the substantive application, trigger levels for both measured wind condition alerts and particulate matter monitoring, should be stipulated in the conditions and/or the T&T AQA Report.		

It is noted that under the relevant CARP Rule 7.32, a dust management plan would be required to be prepared in accordance with Schedule 2. However, as discussed above, the CARP's Schedule 2 requirements are general in nature. The dust management plan would also not require Council certification. The submission of a draft CAQMP would have provided greater confidence that any dust emissions during construction will be appropriately managed. The draft CAQMP should include trigger levels for measured weather conditions (wind speed and direction) and monitored particulate matter concentrations.			
In Section 2.6 of the T&T AQA Report, it is stated that "*contractor welfare facilities and plant storage is not considered to be a significant source of dust so is not considered further in this assessment*." While we agree that the welfare facilities and plant storage themselves should not result in dust emissions, the laydown areas (Construction Support Areas – CSA) where these facilities are located can generate significant dust emissions due to the number of vehicles movements, the other activities occurring in these areas and whether these areas are paved/sealed. Without discussion on whether these areas are sealed/paved, specific mitigation measures in place for activities in these areas and the expected number of vehicle movements in these areas, we cannot be	The applicant has not stated if these CSAs will be sealed surfaces and the number of vehicles expected to move through these areas. The set up of these CSAs, if they are not to be sealed, could be a large source of potential dust and appropriate dust mitigation measures should be included in the CAQMP.		

confident that all potential sources of dust have been identified.			
The IAQM Dust Risk evaluation for the earthworks has assessed the Project as one uniform continuous earthwork risk. However, there are a number of large separate areas where earthworks will occur (specifically Zones C, D, E and I as identified in Figure 1 and Table 1 of the CMS Report). Due to the different activities proposed across the project, a more appropriate approach would be to assess the earthwork requirements according to the zones set out in the CMS report. This would take into account the activities that are likely to generate more dust and identify the impact on the surrounding areas more accurately. Additionally, an error in the IAQM Dust Risk Evaluation has been detected. The final risk index evaluation (Table 6.3 of the T&T AQA Report) based on the sensitivity of the area versus the magnitude for the activity (specifically the Demolition and Construction) has been incorrectly calculated. This error has likely over predicted the risk for the human health impact for rural environments from dust from the demolition and construction activities.	The IAQM evaluation of the earthworks should have been broken down into zones and the risk should be assessed for each zone. Additional mitigation measures should be put in place for Zones C, D, E and I as identified in Figure 1 and Table 1 of the CMS Report.		

The Wind Speed (WS) factor used in the Dust Risk Index (DRI) assessment has been incorrectly applied in the T&T AQA Report. The WS factor is intended to account how exposed or sheltered a location (the Project Site) is to the predominant winds. However, the T&T AQA Report has assessed the WS factor depending on if the receptor is downwind of the project. A WS factor of 100 has been specified for receptors to the west of the Project Site, and a factor of 50 for receptors that are not downwind of the Project. This approach effectively double counts the effect that wind direction has on dust risk (a wind direction factor is also applied) which is incorrect. In this instance, the WS factor should be set to the value of 100 (project exposed to prevailing winds) for all directions where the Project Site is exposed (not in a sheltered position), regardless of whether the receptors are downwind from the site. Additionally, within the DRI assessment the Wind Direction (WD) factor has also been incorrectly assessed. The T&T AQA Report DRI assumes that only those receptors that are located west of the Project site are downwind. However, for receptors that are in close proximity to the site i.e. (located within 0-50m of the site) the WD factor should be set to 1, or at least all winds from an easterly direction (Southeast, Northeast and east), as any winds at those receptors are likely to cause dust nuisance effects due to the close proximity.	The DRI index value should be recalculated using the appropriate WS and WD factor as set out in the NZTA Guidelines. The subsequent dust risk should be reconsidered based on these updated calculations and any other assessments or suggested mitigation measures made on these risks should be adjusted accordingly and included in the CAQMP.		

These errors in the calculation of the DRI value have likely resulted in an underprediction of the risk for all the receptors that are not downwind of the Project site.			