



NZ TRANSPORT AGENCY
WAKAKOTAHI

Peka Peka to North Ōtaki Expressway Project

**DRAFT Construction Air Quality Management
Plan**

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1 Introduction

This draft Construction Air Quality Management Plan (CAQMP) for the Peka Peka to North Ōtaki Expressway Project (the Project) forms part of the Construction Environmental Management Plan (CEMP) for the Project. The Project comprises the Peka Peka to Ōtaki Expressway, associated local road connections, and a re-aligned section of the North Island Main Trunk (NIMT) railway through Ōtaki. The purpose of the CAQMP is to provide the general framework, methods and tools for how air quality effects associated with the Project will be managed and mitigated during construction, in order to meet the requirements of resource consent and designation conditions, relevant legislation and the New Zealand Transport Agency (NZTA's) environmental objectives.

The Government has identified a suite of 'roads of national significance' (RoNS) and set priority for investment in these as New Zealand's most important transport routes. The RoNS are critical to ensuring that users have access to significant markets and areas of employment and economic growth.

The Wellington Northern Corridor RoNS runs from Wellington Airport to Levin and completing it will assist regional and national economic growth. The Project is one of eight sections of the Wellington Northern Corridor RoNS. The location of the Project in the overall scheme of this corridor is illustrated in Figure 1 below.

The Expressway will provide two lanes of traffic in each direction with connections to local roads, new local roads and bridges to maintain connectivity in the Project area.

Following confirmation of the designations and granting of resource consents, selection of a preferred contractor, and completion of the detailed design the final CAQMP will be submitted to Greater Wellington Regional Council.



Figure 1 : Location of Peka Peka to North Ōtaki expressway within the Wellington Northern Corridor

1.1 Purpose of the CAQMP

This CAQMP forms part of a comprehensive suite of environmental plans that will be implemented under the umbrella of the CEMP. It has been developed to ensure that the environmental effects associated with the construction of the Project are appropriately managed, and the construction works are compliant with consent conditions and the designations. This draft CAQMP provides a framework and methodology for the control of air quality effects from construction. The final CAQMP will be submitted to the appropriate regulatory authority prior to construction by the Contractor once the final construction methodology has been developed. In addition the final CAQMP will be modified as necessary to ensure that it is compliant with any addition requirements contained in resource consents and designations.

The CAQMP is intended to:

- Identify the potential air quality effects;
- Describe the mitigation measures that will be used to control the effects; and
- Identify, generically, the personnel responsible for implementing the CAQMP.

1.2 Assessment of Environmental Effects

The CEMP, CAQMP and other sub-plans are consistent with and complement the Peka Peka to North Ōtaki Expressway Assessment of Environmental Effects (AEE) and the various technical reports that support this document. This relationship is outlined in Table 1.

Table 1 : Management Plan relationship to Technical Assessment Reports

Management Plan	Technical Assessment Report Inputs
CEMP	<ul style="list-style-type: none"> · Assessment of Effects on the Environment: Part H, proposed designation and resource consent conditions · Assessment of Land Contamination Effects <p>Consultation Summary Report and Communications Plan</p>
Construction Noise & Vibration Management Plan	<ul style="list-style-type: none"> · Construction Noise and Vibration Assessment · Operational Noise and Vibration Assessment
Construction Air Quality Management Plan	<ul style="list-style-type: none"> · Assessment of Air Quality Effects
Erosion and Sediment Control Plan	<ul style="list-style-type: none"> · Assessment of Stormwater Effects · Assessment of Geotechnical Characteristics (including soils)
Construction Traffic Management Plan	<ul style="list-style-type: none"> · Integrated Transport Assessment
Ecological Management and Monitoring Plan	<ul style="list-style-type: none"> · Terrestrial Ecology Report · Aquatic Ecology Report
Landscape Plans and Landscape Management Plan	<ul style="list-style-type: none"> · Landscape and Visual Assessment · Urban and Landscape Design Framework
Accidental Discovery Protocol	<ul style="list-style-type: none"> · Assessment of Built Historic Heritage Effects · Cultural Impact Assessment · Assessment of Archaeological Effects

1.3 Project Overview

NZTA and KiwiRail are seeking consents and confirmation of NORs under the RMA to authorise the construction, operation and maintenance of the Project. There will be one NOR by NZTA and one by KiwiRail. NZTA and KiwiRail are also seeking all the necessary resource consents required under regional plans to construct operate and maintain all components of the Project.

The Project includes 4 lanes from the northern extent of the Peka Peka interchange ramps (being developed by the MacKay's to Peka Peka (M2PP) Project), through to an interface with the existing State Highway 1 (SH1) north of Ōtaki, near Taylors Road, a distance of approximately 13 km.

A half interchange (with a local road bridge) will be provided north and south of Ōtaki, together with further local road bridge connections at Rahui Road and Te Horo. A new section of local arterial will be constructed south of Mary Crest (as the expressway alignment will sit on the location of the existing SH1).

The Project includes realignment of an approximately 1.2 km section of the NIMT through Ōtaki, together with re-construction and re-orientation of the Ōtaki Railway platform and station building (part of Section 1)

In order to adequately describe the physical works, the CAQMP has followed the lead in the construction methodology and considered the proposed Expressway being managed as 4 separate construction Sections:

- Section 1 – Ōtaki North through to Ōtaki River Bridge
- Section 2 – Ōtaki River Bridge to Old Hautere Road
- Section 3 – Old Hautere Road to Te Horo
- Section 4 – Te Horo to Peka Peka Interchange

Based on the current design, these Sections are shown in Figure 2 and described in Subsequent sections.



1.4 Section 1 – Ōtaki North through to Ōtaki River Bridge

Based on the current design, Section 1 is approximately 3.5 km long and extends from the tie-in at SH1 in North Ōtaki to the Ōtaki River. Four bridges will be constructed within the Section and the NIMT rail line will be relocated over a length of approximately 1.2 km, along with the re-siting of the Ōtaki Railway Station.

- Bridge 1 Waitohu Stream Bridge (work within the stream)
- Bridge 2 (note: this is the local road over expressway bridge)
- Bridge 3 (note: this is the local road over rail bridge)
- Bridge 4 SH1 Rahui Road Underpass

There are approximately 270,000 m³ of earthworks cut materials available for expressway construction within Section 1. Two lanes of expressway are provided in each direction, a gateway entrance into Ōtaki from the north and a northbound onramp from Ōtaki is provided.

The NIMT is relocated from County Road to sit west of the new Expressway.

Environmental work within the railway wetland area and landscaping of the Pare-o-Matangi Reserve are also included within Section 1.

1.5 Section 2 – Ōtaki River Bridge to Old Hautere Road

Based on the current design, Section 2 is approximately 1.75 km long and extends from the north side of Ōtaki River through to Old Hautere Road. Three bridges will be constructed within the Section:

- Bridge 5 Ōtaki River Bridge (twin spans, work within the river)
- Bridge 6 (note: this is the South Ōtaki Interchange over expressway bridge)
- Bridge 7 (note: this is the South Ōtaki Interchange over rail bridge)

Within this Section, South Ōtaki Interchange will provide separation of the local and expressway traffic and includes south-facing ramps for access into Ōtaki and from Ōtaki southbound. The Old Hautere Road extension to Ōtaki Gorge Road and the existing SH1 alignment maintains local connectivity.

There is approximately 290,000 m³ of fill material available for transport and re-use south along the expressway alignment.

1.6 Section 3 – Old Hautere Road to Te Horo

Based on the current design, Section 3 is approximately 3.35 km long and two lanes of expressway are provided in each direction. Outside of the expressway construction the key tasks in Section 3 are the extension of Gear Road to School Road and the extension of School Road, across Bridge 8 Te Horo SH1 Underpass, connecting to Te Horo Beach Road.

Within Section 3 there is a shortfall of earthworks fill material requiring approximately 57,000 m³ of imported material for the Bridge No 8 embankments and Expressway alignment.

1.7 Section 4 – Te Horo to Peka Peka Interchange

Based on the current design, Section 4 is approximately 3.65 km long, providing two lanes of expressway in each direction, connecting to the Peka Peka Interchange. The key tasks in Section 4 are the construction of the new arterial road to the west of the Expressway alignment to allow for the temporary diversion of SH1 from the Peka Peka Interchange to the existing SH1 north of Mary Crest. This is necessary as the existing SH1 must have traffic removed to enable the new Expressway construction to proceed. Following construction this becomes a local arterial.

One bridge is constructed in this Section (Bridge 9, Mary Crest Rail Bridge) which will take the new expressway over the NIMT, and provide connectivity for local traffic.

Within Section 4 there is a shortfall of earthworks fill material requiring approximately 280,000 m³ of imported material from Section 1 and 2 and approx. 45,000 m³ of imported fill. Significant ground improvements will be carried out prior to bulk earthworks and bridge construction.

1.8 Performance Standards

There are no specific performance standards relating to the potential effects associated with the construction process. However, there is a generic standard in the Wellington Regional Air Quality Management Plan (WRAQMP) that relates to the potential emissions.

This standard states that:

The person(s) responsible for the activity shall ensure that:

(i) there is no discharge of particulate matter, smoke, odour, gas, aerosols or vapours from the process, which is noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

There is little guidance on what “offensive or objectionable” means in the WRAQMP, although in that document it describes the use of the FIDOL tool to assist in determining the effects associated with odour. The WRAQMP does indicate that *“In the first instance the consideration of whether a discharge is objectionable or offensive will be made by one or more enforcement officers of the Council.”*

What this means practically for the Project is that air quality effects need to be no more than what might reasonably be expected to occur from a well run project. Thus there is no expectation that there will be no dust or odour effects, rather that any increase in effects is minimal.

2 Sensitive Locations

A sensitive location is somewhere where people or their surroundings may be particularly sensitive to the effects of air pollution. This type of receptor can include residential houses, hospitals, schools, early childhood education centres, childcare facilities, rest homes, residential properties, premises used primarily as temporary accommodation (such as hotels, motels, and camping grounds), open space used for recreation, the conservation estate, marae and other similar cultural facilities¹.

In addition, orchards and market gardens can be considered sensitive to construction dust as it has the potential to reduce produce quality².

There are a number of locations near to the Expressway at Ōtaki, Ōtaki South and Te Horo that have the potential to be sensitive to the effects of the Project. Locations that were considered particularly sensitive were identified in the assessment process, and representative sensitive receptors selected in each of those areas. Effects on the other sensitive receptors are likely to be less than at the selected locations.


The location of these selected sensitive locations is shown in Figures 3, Section 1 (the township of Ōtaki,) Figure 4 Section 2 (Ōtaki South) and Figure 5, Section 3 (the settlement of Te Horo). No specific sensitive locations were identified in Section 4. The Expressway alignment is also annotated onto each of the figures.

¹ NZTA, Guide to assessing air quality effects for state highway asset improvement projects, Version 0.6, 2012, Draft

² P McCrea, An Assessment of the Effects of Road Dust on Agricultural Production Systems , Agricultural Economics Unit, Lincoln University 1984

Figure 3 Sensitive Location in Section 1

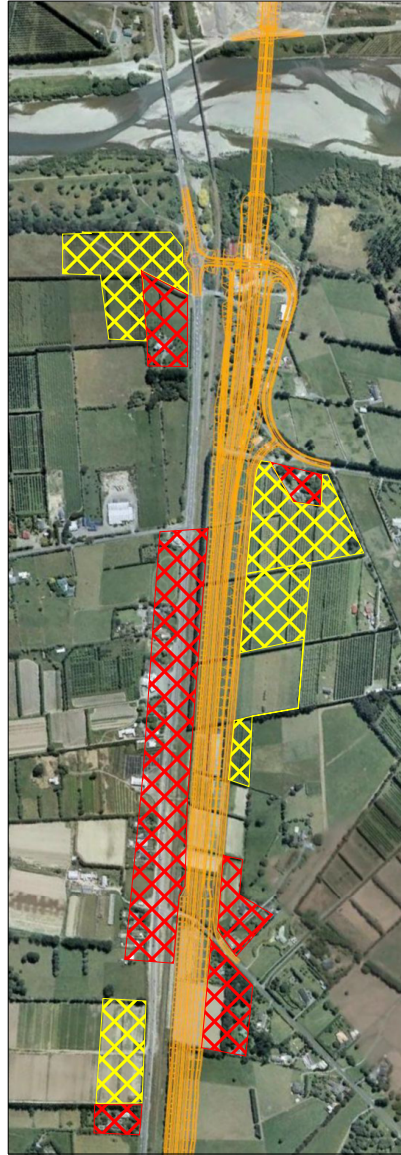



Sensitive Residential Areas 

Sensitive Horticultural Areas 

Aerial Source: Google Earth™, Image Kāpiti Coast District Council

Figure 4 Sensitive Locations in Section 2






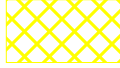
Sensitive Residential Areas 

Sensitive Horticultural Areas 

Aerial Source: Google Earth™, Image Kāpiti Coast District Council

Figure 5 Sensitive Locations in Section 3



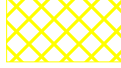
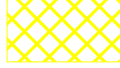


Sensitive Residential Areas  Sensitive Residential Areas 
Sensitive Horticultural Areas  Sensitive Horticultural Areas 

Aerial Source: Google Earth™, Image © 2012 Digital Globe, Image Kāpiti Coast District Council

Figure 6 Sensitive Locations in Section 4



Sensitive Residential Areas  Sensitive Residential Areas 
Sensitive Horticultural Areas  Sensitive Horticultural Areas 

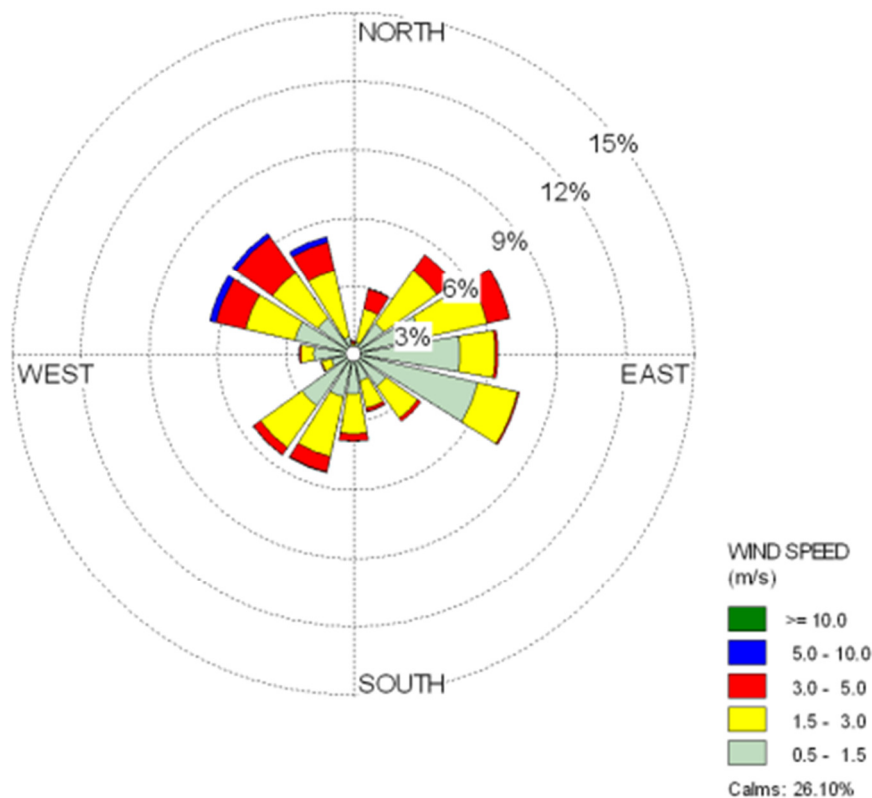
Aerial Source: Google Earth™, Image © 2012 Digital Globe, Image Kāpiti Coast District Council

3 Construction Activities

This part of the plan identifies that activities that will occur in each section of the Project during construction and the potential for air quality effects.

To a large extent wind direction is important in determining the potential for effect from dust. Figure 7 presents the typical winds directions experienced with in the Project area. This is based on data collected at Te Horo.

Figure 7 Te Horo Wind rose



3.1 Section 1 North Ōtaki to Ōtaki River Bridge

The main construction activity that has the potential to generate dust in this section is the large cut through the sand dunes. This material will be utilised as fill in other locations within the Project. There is also potential for nuisance from the haul road as it is used to transport material within the Project.

The majority of residential receptors in this area are more than 100 m to the southeast of these works, which is likely to be downwind for a significant period of time. While the majority of the sand is unlikely to reach the residences, there is the potential for finer material to do so in the absence of the mitigation measures described in the following section.

Based on the geotechnical report³ it appears that the majority of the cut materials through Ōtaki are likely to have a high water content and are therefore unlikely to give rise to dust nuisance. The main potential for dust nuisance will come from the placement of fill materials that form the approaches to the Rahui Road overbridge.

It is unlikely that there will be nuisance dust carried by the wind towards the Ōtaki Railway Retail area due to the distance and the relatively low percentage of moderately strong winds that would be required to carry any dust.

That said, the construction activities will occur extremely close (within 20 m) to the former Rahui Milk Treatment Station and Social Hall, and specific measures are described in the following section to ensure that these properties are not adversely affected by dust during the construction process.

3.1.1 Section 2 Ōtaki River Bridge to Old Hautere Road

The main potential for dust nuisance in Section 2 comes from the large cut at the southern approach to the Ōtaki River Bridge as well as the general movement of traffic on the haul road.

There are relatively few residences close to the alignment, but some areas of crops particularly close to Old Gorge Road and in the general area between Old Gorge Road and Old Hautere Road, to the east of the existing SH, may be more sensitive to dust at some times of the year. Generally, activities to the west of the existing SH are unlikely to be affected by construction dust due to the distance. The nature of any mitigation that may be required for these areas or crops will depend on the timing of the works with respect to growing cycle, and the nature of the crops.

It is unlikely, with the mitigation measures being employed, that dust will result in significant or noticeable reductions in crop yields, but it is possible that some crops, or portions thereof may be downgraded if they are seen to be “dirty”, where they are grown extremely close (less than 20 m) to construction activities. Additional mitigation measures to deal with these localised effects will be developed in consultation with affected landowners and incorporated in the CAQMP prior to it being finalised.

3.1.2 Section 3 Old Hautere Road to Te Horo

There is relatively little cut or fill in Section 3 of the construction and therefore the main dust will come from the construction process and traffic using the designation to access other sections of the Project.

There are no receptors that are considered especially sensitive to dust close to the alignment in this section, therefore there are not considered to be any specific construction dust related issues in this section of the scheme, which cannot be controlled with the generic mitigation measures recommended for Section 4.

³ Opus, Peka Peka to Ōtaki Expressway Assessment of Environmental Effects, Technical Report 4 Geotechnical Engineering and Geology, February 2013.

3.1.3 Section 4 Te Horo to Peka Peka Interchange

The main sources of dust that could result in nuisance effects in this section, apart from the general construction activities, are likely to come from the significant areas of fill required, primarily around Mary Crest, as well as at Bridge 8, the Te Horo SH 1 underpass.

There are a number of residences around Te Horo, primarily along School Road that will be relatively close to the construction process for both Expressway and the realigned Gear Road. However, it is considered that the mitigation measures set out in Section 4 will ensure that potential nuisance effects are minimised to an appropriate degree.

There are also a few residences between Mary Crest and Te Hapua Road to the west of the Project which have the potential to be affected by dust from the construction of the new arterial road, if the mitigation measures described in Section 4 are not appropriately implemented.

However, in general it is considered that it is unlikely that there will be any dust nuisance associated with the construction along this section of the Project.

4 Generic Mitigation Measures

As a detailed construction methodology has not been developed yet, it is not possible to be specific about mitigation measures that will be used in specific areas. Therefore, this part of the CAQMP sets out the typical mitigation measures that are used in construction processes of this type, and which are expected to be used in the construction of the Project.

4.1 Dust Generating Activities

4.1.1 General Activities

The construction activity associated with the Project has the potential to generate significant quantities of dust if unmitigated. The measures that are recommended to assist in the mitigation of air quality effects may include:

- Where practical, defining an area around construction activities where there is the potential to create dust effects;
- Having a community liaison person who is available to deal with any concerns or complaints;
- Having a comprehensive complaints procedure;
- House cleaning service available for properties that are affected by dust;
- Temporary relocation of the residents of severely affected properties; and,
- Having a team dedicated to monitoring environmental effects.

4.1.2 Earthworks

There will be considerable quantities of material excavated and placed as fill, as the Expressway, bridges, intersections and related structures are constructed. The following mitigation measures are recommended to minimise dust emissions:

- Develop methods for the removal and stockpiling of topsoil during windy conditions in areas close to sensitive locations;
- Develop guidelines for the operation of construction vehicles in areas close to sensitive receptors;
- Develop guidelines for the removal of potentially dusty cut or placement of fill material, such as sand and silts at locations close to sensitive locations;
- Where cut material is to be utilised immediately as fill material, the haul distance should be minimised as far as practical;
- Where potentially dusty cut material is being transported for longer distances, the material should be dampened to avoid dust generation;
- All finished cut batters will be vegetated or covered with hydroseed or mulch as soon as practicable;
- Watercarts should be available to control dust, with water supply available along the length of the construction;
- Wheel washes should be installed to prevent the transportation of material onto sealed surfaces where the material can become a source of dust emissions; and
- As appropriate use dust suppression chemicals on haul roads or other exposed surfaces using watercarts. The effectiveness of this type of dust suppression is limited during periods where the haul road is heavily used. Therefore it is more effective to apply the dust suppression during weekends when low numbers of vehicles are using the haul roads. This will help to minimise wind erosion and the associated dust nuisance effects, during periods where the haul road is not used.

4.1.3 Stockpiled Material

As the Project is constructed, there will be quantities of material excavated and placed as fill. The following management measures are recommended to be used to minimise dust emissions from stockpiles:

- Develop guidelines for the removal and stockpiling of topsoil during windy conditions at locations close to sensitive receptors;
- The size of stockpiles should be kept to a minimum;
- Material that is placed in temporary stockpiles that should not be disturbed for more than three months will be vegetated or covered with hydroseed or mulch as soon as practicable;
- Installation of wind breaks around large stockpiles; and
- Locate stockpiles as far as practical from sensitive receptors.

4.1.4 Construction Yards

There will be a number of construction yards associated with the Project, with the main yard proposed to be located near the Ōtaki River. These yards will be in the order of a hectare in size, and are likely to be metalled. Depending on the activity being undertaken in them, there may be the need to use water carts on occasions, or place fresh metal to control the potential for dust. If the main construction yard is used for activities such as aggregate processing or construction of precast concrete components, then additional mitigation measures will be required such as:

- Storing fine aggregate in bunkers;
- Use water to control dust on any crushing or screening plant;
- Keeping the size of stockpiles to a minimum;
- Minimising the drop height of material on to the stockpile; and
- Sheltering transfer points and conveyor belts.

4.2 Construction Vehicles

While there are unlikely to be significant emissions associated with the construction vehicles, it is possible through the use of appropriate maintenance to minimise vehicle-related emissions. The measures that would typically be used include, but are not limited to:

- Appropriate and regular engine maintenance; and
- Ensuring vehicles are not overloaded.

4.3 Odour Mitigation

Based on the investigations to date no specific odour sources have been identified along the alignment. However the potential exists that odour sources such as septic tanks or offal pits may be encountered during the construction process that could give rise to odour if disturbed.

The following measures will be in place to deal with such an event:

- Material will be transported from the site to an appropriate facility for disposal as soon as practicable. Trucks used to transport the material will be covered by a tarpaulin or clean soil/fill to reduce the potential odour effects as the material is being disposed of;
- Develop guidelines for the excavation of odorous material in areas close to sensitive receptors;
- Minimising the open areas of excavations as much as practicable at all times, including ensuring that odorous sources are covered or temporarily backfilled when not excavating; and

- Having the ability to use an odour masking agent or deodoriser such as “Power Green”, on to the surface of odorous material as it is encountered. The deodoriser can be applied by a worker using a back-pack pressurised sprayer.

4.4 Specific Mitigation Measures

4.4.1 *Specific Mitigation Measures for the Former Rahui Milk Treatment Station and Social Hall*

As identified earlier these are two locations where specific additional mitigation measures are considered necessary because of their proximity to the Project.

The exact mitigation will depend on whether the buildings are to be occupied during the construction period or not. If the buildings are going to be occupied then a dust fence at least 4 m high will need to be installed along north eastern boundary of the site. Notwithstanding this there may be the need to carry out external cleaning of the buildings on occasions.

If the buildings are not occupied then the exterior of the buildings should be cleaned once the construction works have been completed.

4.4.2 *Specific Mitigation Measures for Horticulture*

In some locations the construction work occurs in close proximity to horticultural activities. There is potential that for some of these activities significant adverse effects could be caused by dust. While the final mitigation measures will be developed with individual land owners the following are some mitigation measures that can be used in order to minimise the effects:

- Discuss with individual landowners what the susceptibility of their crop is to dust, and when it is most susceptible. Design a construction programme where practical to avoid dust generation during those times.
- Where avoidance of effects is not possible develop an economic package to deal with financial losses.

4.5 Contingency Measures

While it is considered that the mitigation measures proposed will minimise as far as practical the potential for nuisance effects from the construction process, it is appropriate to identify contingency measures that can be used if required.

With respect to dust there are three main contingency measures that can be used if there are dust effects, discussed below. Depending on the situation there may be a need to use some combination of these measures.

4.5.1 *Cleaning Services*

The first contingency measure is to offer some form of property cleaning service. Depending on the degree or extent of any effects, this could involve exterior or interior cleaning or both. The decision as to whether to offer a cleaning service would be the responsibility of the **Environmental Manager** and only be implemented when it could be demonstrated that the soiling experienced could be attributed to the construction works and the degree of soiling was significantly greater than might occur normally. In making

a decision as to whether to implement this contingency measure, the Environmental Manger will review recent construction activities, meteorological data as well as the environmental monitoring logs.

4.5.2 Relocation

Where it can be demonstrated by a complainant that the degree of dust nuisance being experienced is sufficient that it is not tenable for them to remain in their premises e.g. they have a health condition exacerbated by dust, or there is a repeated requirement to provide cleaning services, then relocation can be offered. The period of relocation will be dependent on what is causing the nuisance dust, i.e. is it an activity that will shortly cease or move to a new location.

The decision as to whether relocation is offered will be made by the Environment Manager and implemented where there is no reasonable alternative. In making a decision the Environmental Manger will review recent construction activities as well as the potential period over which any effect may occur.

4.5.3 Air Conditioning

An alternative to relocation in some instances may be the installation of an air conditioning system, which can be used to provide ventilation, and create positive pressure within the building to minimise dust ingress. There are significant costs associated with this compared to relocation, so this option should only be considered where there are specific circumstances where relocation is not a viable option.

The decision as to whether relocation is offered will be made by the Environment Manager in conjunction with the Project Manager and only be implemented where there is no viable alternative.

5 Monitoring

This section outlines the monitoring that will be undertaken as part of this Project.

5.1 Wind Monitoring

A weather station is located at Te Horo (approximately the middle of the scheme) the location of the station is shown on Figure [to insert] (to be confirmed as current location will be under road). This site is configured to collect data automatically and display it on a website. This station will be used to identify when wind speeds exceed specific trigger values that can result in increased dust generation (average wind speeds in excess of 5 m/s or wind gust speeds in excess of 10 m/s). This information will be provided via text or email alerts to key individuals such as the Site Engineers and Environmental Manager.

The webpage for the data is [to insert].

In addition staff can use the Beaufort Scale (Appendix A) if the weather station is unavailable or a rough guide to wind speed is required.

Figure [to insert].

5.1.1 Monitoring Equipment Maintenance

[to insert] is responsible for the operation and maintenance of the monitoring equipment. If there are any issues or problems with the equipment or data then contact him on ph [to insert] or email [to insert].

5.2 Visual Monitoring

Table 2 outlines the dust monitoring programme that is to be implemented. The application of this monitoring will be the responsibility of the Environmental Manager in conjunction with site personnel. The frequency of the monitoring is defined but in the instance of strong winds (gust wind speeds greater than 10 m/s), discharges of dust that cross the site boundary, or a complaint, the monitoring programmes will be undertaken more regularly.

Table 2 – Dust Monitoring Programme

Monitoring Activities	Frequency
Check weather forecasts for strong winds and rainfall to plan appropriate dust management response (7 day forecasts available on www.metvuw.co.nz)	Daily
Inspect land adjacent to the site, construction exits and adjoining roads for the presence of dust deposits.	Daily
Observe weather conditions, wind via observations and data outputs from weather stations and presence of rain.	Daily and as conditions change
Inspect all unsealed surfaces for dampness and to ensure that surface exposure is minimised.	Daily and as conditions change
Inspect stockpiles to ensure enclosure, covering, stabilisation or dampness. Ensure stockpile height is less than 3 m or appropriately stabilised.	Weekly and at times of expected high winds

Monitoring Activities	Frequency
Inspect dust generating activities to ensure dust emissions are effectively controlled.	Daily and as new activities are commenced
Inspect watering systems (sprays and water carts) to ensure equipment is maintained and functioning to effectively dampen exposed areas	Weekly
Additional monitoring of dust generating activities and water application rate.	In winds over 5 m/s (11 knots or a Beaufort scale number of 3 – see Appendix [to insert] of this Plan)
Inspect site access and egress points to ensure effective operation of wheelwash/truckwash systems and/or judder bars (if installed).	Weekly
Ensure site windbreak fences, if used, are intact.	Weekly

6 Management Team Structure and Responsibilities

6.1 Management Team Structure

The final management for construction of the Project will be based around the following roles:

- Project Manager
- Design Manager
- Construction Manager
- Environmental Manager and/or Planning Manager
- Stakeholder Relationship/Communications Manager
- Site supervisor/Project Engineer

Depending on the Contractor's proposed team structure, a combination of these roles may be able to be provided, as long as the following principles are able to be maintained:

- Accountability for all environmental management responsibilities ultimately rests with the Project Manager;
- The Environmental and/or Planning Manager's roles provide a clear management structure for monitoring consents. If required, the roles can be merged into one, and delegation of responsibilities can be passed to other roles if appropriate. For example, the Contractor may choose to employ an Erosion and Sediment Control Manager who may have responsibility for implementing and monitoring the conditions of consent around sediment control.

The key management roles in relation to air quality are outlined below:

All Staff

- Carry out activities in a manner consistent with the requirements of this plan;
- Responsible for reporting air quality incidents, complaints, and other problem areas to senior staff as they arise on site;
- Ensuring that required air quality related mitigation measures are implemented and any specific air quality procedures are followed; and
- Within day to day work responsibilities, proactively offer suggestion to senior staff of measures that may improve air quality management in relation to site activities.

Project Manager

- Takes ultimate responsibility for delivery of the Project, including with the requirements of the CEMP and CAQMP;
- Approves the CAQMP and any subsequent amendments prior to issue; and
- Provides appropriate resources to manage air quality issues and obligations.

Design Manager

- Incorporates all relevant air quality mitigation measures into the design as required by the CAQMP; and
- Advises the Environmental Manager of any design issues that may impact on air quality and suggests mitigation so that those measures can be incorporated into the CAQMP and any subsequent amendments.

Construction Manager(s)

- Reviews work packages against the requirements of the CAQMP to achieve a high level of performance;
- Develops, implements and monitors construction methods to ensure compliance with consents, designations and CAQMP and sub-plans;
- Coordinates environmental interfaces with consultants, subcontractors and suppliers;
- Demonstrates understanding of major air quality and community issues and environmentally sensitive areas;
- Implements air quality mitigation measures in accordance with the contract and the CAQMP;
- Trains all workers in relation to environmental measures; and
- Briefs all workers and others (e.g. subcontractors and suppliers) about environmental operating procedures and community relations protocols.

Environmental Manager / Planning Manager

- Provides leadership to motivate staff to achieve environmental standards, and comply with all resource consent and designation conditions;
- Develops, implements and reviews environmental management systems including the CAQMP;
- Manages and co-ordinates compliance with all consents and designation conditions and any other statutory approvals required;
- Is responsible for ensuring that all required air quality related monitoring is undertaken and appropriately reported;
- Responsible for resolving issues of air quality non-compliances;
- Undertakes regular site inspections and audits for compliance with the CAQMP;
- Coordinates all site monitoring including dust, and provides necessary related training and advice to staff in relation to this monitoring; and
- Trains staff in site specific environmental procedures.

Project Engineers

- Provides leadership to the site teams to achieve the Project's environmental objectives and targets;
- Responsible for ensuring air quality mitigation and monitoring is implemented in their work area;
- Assists in the development, implementation and review of the Project's environmental objectives; and
- Makes sure staff onsite are aware all environmental requirements including air quality.

7 Complaints

The Stakeholder Relationship/Communications Manager will be responsible for handling complaints from the public:

- All complaints/enquires received by telephone will be forwarded directly to the Stakeholder Relationship/Communications Manager who will determine the appropriate person to respond to the request;
- All complaints/enquires will be managed through an online complaints register, which can be regularly updated. The structure for the register is outlined in Appendix C of the CEMP;
- An initial response will be made and recorded. Depending on the nature of the complaint the initial response could be to immediately cease the activity pending investigation, or to replace an item of equipment. However, in some cases it might not be practicable to provide immediate relief. The complainant and appropriate regulatory body will be informed of actions taken; and
- Where the initial response does not address the complaint, further investigation, corrective action and follow-up monitoring shall be undertaken as appropriate. The complainant and the appropriate regulatory body will be informed of actions taken.

Complaint/enquiry details will include:

- Full name of the caller;
- Time/date of call;
- Detailed outline of the call;
- Details of who has been assigned to deal with the complaint; and
- Timeframe required to close out the complaint/enquiry.

8 Training

All personnel will be required to be appropriately qualified and/or trained for their particular role. With respect to air quality, personnel are expected to be trained in the following:

- Information about the activities and stages of construction that may cause dust and odour impacts within the construction area
- Consent requirements
- Complaints management procedures
- Dust and odour monitoring and management procedures
- Description of dust monitoring for the Project.

Environmental training records will be maintained on site and will include:

- Who undertook the training;
- When the person was trained;
- General description of training content and whether follow up/refresher courses are required at a later date.

Appendix A Beaufort Scale

Beaufort Force	Description	Specification on land	Speed		
			Knots	km/h	m/s
0	Calm	Smoke rises vertically.	Less than 1	Less than 1	Less than 1
1	Very Light	Direction of wind shown by smoke drift but not by wind vanes.	1 - 3	1 - 5	0.3 – 1.4
2	Light breeze	Wind felt on face, leaves rustle, ordinary wind vane moved by wind.	4 - 6	6 - 11	1.67 - 3
3	Gentle breeze	Leaves and small twigs in constant motion, wind extends light flag.	7 - 10	12 - 19	3.3 – 5.3
4	Moderate breeze	Wind raises dust and loose paper, small branches move.	11 - 16	20 -29	5.6 - 8
5	Fresh breeze	Small trees in leaf start to sway, crested wavelets on inland waters.	17 - 21	30 - 39	8.3 – 10.8
6	Strong breeze	Large branches in motion, whistling in telegraph wires, umbrellas used with difficulty.	22 - 27	40 - 50	11.1 – 13.9
7	Near gale	Whole trees in motion, inconvenient to walk against wind.	28 - 33	51 - 61	14.2 – 16.9
8	Gale	Twigs break from trees, difficult to walk.	34 - 40	62 - 74	17.2 – 20.6
9	Strong gale	Slight structural damage occurs, chimney pots and slates removed.	41 - 47	75 - 87	20.8 – 24.2
10	Storm	Trees uprooted, considerable structural damage occurs.	48 - 55	88 - 101	24.4 - 28
11	Violent storm	Widespread damage.	56 - 63	102 - 117	28.3 – 32.5
12	Hurricane	Widespread damage.	>64	>119	>33