Dust Management Plan

Wrights Road storage ponds

Prepared for Rooney Earthmoving Limited

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Reviewed by	Blair Gray	30th October 2025
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Disclaimer:

This Dust Management Plan provides the key design outline for dust control measures to be provided on site. It is not possible at initial design stage to anticipate and include all site-specific design details, as some detail can only be included on the basis of in situ monitoring and adjustments. In order to be effective on site the plan will need to be implemented by a contractor experienced in sediment and erosion control. Ongoing monitoring will be required to assess its performance and make specific adjustments to its detail to respond to specific conditions on site and changes to those conditions. It is not suitable for unmonitored or unmanaged implementation or implementation by personnel who lack appropriate expertise and experience in erosion and sediment control. It is recommended that the sediment control plan be monitored regularly by appropriately experienced personnel in sediment and erosion control, who is to make such adjustments as are necessary to ensure its effective operation in view of the features, the condition or state of the site or changes to conditions on site.

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1 Introduction

This Dust Management Plan (DMP) describes methods to control dust during earthworks and construction activities associated with the development of a residential subdivision. It is intended for this to be a live document so revisions may occur as the site changes during the construction sequence.

EnviroCo has been engaged by Rooney Earthmoving Limited (REL) to prepare this DMP. All dust management methods and control strategies are in line with the Canterbury Air Regional Plan (CARP) Permitted Activity rules and resource consents.

The Project Manager is responsible for the implementation of this DMP.

1.1 Objectives

The objectives of this DMP are to:

- Identify key issues and areas of concern and implement appropriate controls.
- Outline control measures to minimise exhaust emissions from equipment and vehicles.
- Provide best practice management strategies for dust control.
- Minimise any adverse effects.
- Ensure regulatory compliance with:
    - Environment Canterbury resource consents (CRC263186, CRC263195, CRC263197, CRC263201, CRC263199)
    - Canterbury Air Regional Plan (CARP) rule 7.32.
    - Waimakariri Resource Consents (RC135478).
- All works shall be in accordance with the Resource Consent CRC263201 that is specific to dust management. The consent provides authorisation for the project to discharge fugitive dust and combustion products to air during the construction of storage ponds and associated infrastructures.
- The DMP has been prepared in accordance with Condition 6 of CRC263201 which states that the consent holder must prepare and implement a DMP.

1.2 Site identification and background

The storage ponds site is located on the south-western side of the corner of Wrights Road and Dixon Road, Burnt Hill, North Canterbury, in the Waimakariri District. The general map reference of the site is at or about NZMG 260 L35:4479-5882 (**Figure 1**). The proposed storage ponds are to be located on a 122.4 ha parcel with the legal description of Lot 1 DP27020 (certificate of title reference CB8K/1478, valuation roll number 21540-03201). The parcel of land is owned by Burnt Hill Storage Limited (BHSL).

The site is located 12 kilometres downstream of the Browns Rock intake of the Waimakariri River. The proposed storage ponds are located in close proximity to the existing water race system (MR4) and existing buffer pond.



Figure 1 Project area. Source (PDP, 2013, Assessment of Environmental Effects for the Construction and use of Wrights Road Storage Ponds).

The proposed storage ponds incorporate a two-pond system, with both ponds filled via gravity, and Pond 1 topped up by flood pumps located beside the existing buffer pond. A second pump station located on Dixon Road has the ability to transfer water from Pond 2 to the Pond 1 outlet.

Pond 1 has a footprint of approximately 30 ha. and provides a storage volume of about 2.0 million cubic metres. Pond 2 has a wetted footprint of about 72 ha and provides a storage volume of approximately 6.2 million cubic metres. The combined storage of both ponds is therefore on the order of 8.2 million cubic metres. This document and initial construction activities focuses on Pond 1.

Figure 2 provides a conceptual diagram of the proposed storage pond design.



Figure 2 Storage Pond design. Source; REL Wrights Road Storage Ponds. (Drawing number WIL1125/30/2).

A Phase 1 (site history) environmental site assessment was carried out for the Wrights Road property in 2012, with the objective of identifying potential sources of contamination from past and present site activities. The site history assessment was conducted through the inspection of relevant historical records, including historical aerial photographs, certificates of title and council documents, a site walkover and interviews with personnel representing the existing and past site owners. A report was prepared which summarises the investigation and outlines the findings of the investigation (PDP, 2012[1]). The report concludes that there have been no significant potential sources of site contamination associated with the past and present activities at the site.

REL have carried out test pit excavations at 20 Locations across the site. The depth of the test pits varied between 3.20m below ground (TP 11 and TP 12) to 5.20m below ground (TP 07). The investigation logs[2] demonstrate that the topsoil depth varies from approximately 0.15 m to 0.35 m below ground and is described as black, fine sandy silt. Under the topsoil is a layer

[1] PDP (2012). *Phase 1 (Site History) Environmental Site Assessment – Corner Wrights Road and Dixon Road, Burnt Hill, North Canterbury*. Prepared for Waimakariri Irrigation Limited.

[2] REL (2011). *Test Pit Investigation Log.* REL.

of yellow brown, very silty sandy, fine to coarse gravel approximately 0.3 m to 0.7 m thick. Under this layer is a series of grey, sandy, fine to coarse gravels, interbedded with lenses of clean gravels. No groundwater was encountered in any of the test pits on site.

The nearest bore to the project site was reviewed by PDP (2013). The bore is located approximately 250 m from Wrights Road boundary to the east of the proposed site. The bore log from this site shows that the first 0.3 m is topsoil, with the clay bound gravels down to around 45 m below ground level. Groundwater in this bore has been measured at a depth of 41.3 m below ground level.

According to the S-map layer on Canterbury Maps the soils in and around the site are determined as Pallic Firm Brown Soils (NZSC Description). The soils are determined to have moderate over rapid permeability (**Figure 3**).

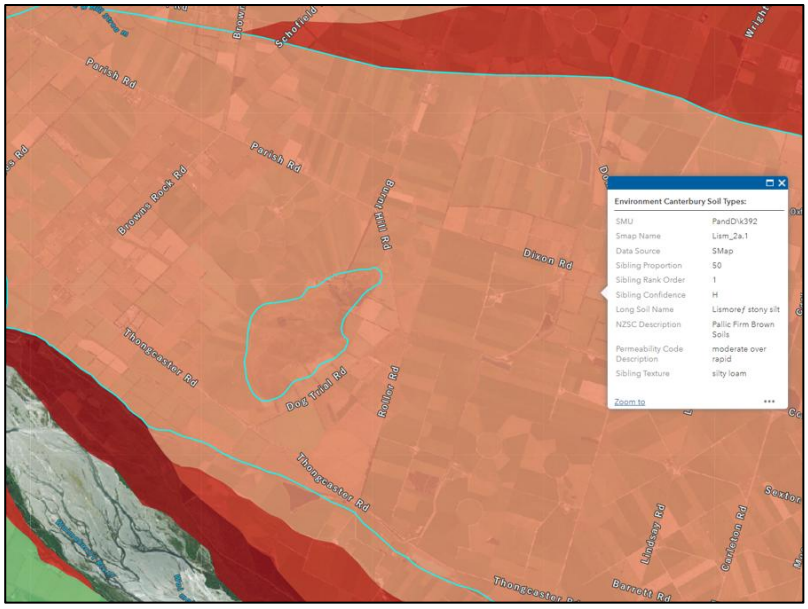


Figure 3 Soil characterisation (Source: Canterbury Maps).

1.3 Key issues

Key issues include:

- Working in relatively close proximity to existing properties.
- The site has limited shelter belt trees or other existing perimeter protection.
- Exposed soils during earthworks have the potential to cause dust issues.

1.4 Sources of dust and emissions

During construction, the proposed works will involve the following potential sources of dust and emissions:

- Areas cleared of existing vegetation and grass cover.
- Earthmoving activities exposing bare earth.

- Stockpiling of excavated soils.
- Soil and aggregate processing to activities.
- Reinstatement of excavated soils.
- Compaction of soils.

1.5 Key personnel

Key personnel involved in this project are included in **Table 1** below.

Table 1 Key contacts

Name	Company	Position	Mobile	Email
Brent Walton	Burnt Hill Storage Limited	Principals Representative	022 086 9986	Brent.walton@wil.co.nz
Steven Woods	Stantec	Independent Certifier	027 220 2241	Steven.woods@stantec.com
Lawrie Saegers	Rawlinsons	Engineer to Contractor	021 610 302	l.saegers@rawlinsons.co.nz
Engineers Representative	TBC	TBC	TBC	TBC
Bryce Ranger **Cameron Rooney**	REL	Contractors Representatives	027 335 7530 027 622 3346	bryce.ranger@rooneygroup.co.nz cameron.rooney@rooneygroup.co.nz
Mike Clearwater	REL	Project Manager	027 4430297	mike.clearwater@rooneygroup.co.nz
TBC	TBC	Contractors Health and Safety Officer	TBC	TBC
Brodie Grave	REL	QA / Surveyor	0273208442	brodie.grave@rooneygroup.co.nz
Richard Ablitt	EnviroCo	Senior Environmental Consultant	027 226 9294	Richard@enviroco.nz
Blair Gray	EnviroCo	Director / Senior Environmental Consultant	027 226 9269	Blair@enviroco.nz
Jeremy Eldridge	Damwatch	Designers Design Manager	027 638 3155	Jeremy.eddridge@damwatch.co.nz
Andrew Kilby	Damwatch	Designers Project Manager	021 634 878	Andrew.Kilby@damwatch.co.nz

Name	Company	Position	Mobile	Email
Kitti Fekteova	Damwatch	Designers Representative	021 273 4411	Kitti.Fekteova@damwatch.co.nz
TBC	Canterbury Regional Council	Resource Management Officer	TBC	TBC
TBC	Waimakariri District Council	Compliance Officer	TBC	TBC
TBC	Te Ngai o Tuhahuriri Runanga	TBC	TBC	TBC

2 Site Management

A number of measures and methodologies are required on this site to minimise the potential for adverse environmental effects. These measures are outlined below and should be used in addition to good housekeeping practices such as tidying, sweeping and securing the site after the completion of each day's activities.

2.1 Earthmoving and excavation management

Earthmoving works have the potential to generate large amounts of dust. Planning earthworks and scheduling activities to minimise the amount of open soil at any one time will ensure the potential for dust generation is reduced.

The following practices are to be used:

- Minimise the amount of time the site is left cut or exposed. Focus on clearing in stages, maintaining naturally vegetated portions of the site as long as possible.
- Once ground works have been completed, stabilise the area as soon as possible. Stabilisation methods may include the use of soil polymers, hydroseeding or covering with geotextile fabric.
- Plan earth moving works so that they are completed just prior to the time they are needed.
- Aggregate and soil processing on site will be limited to 60 cubic meters per hour.
- Observe weather conditions and do not commence or continue earthmoving works if conditions are unsuitable i.e., high winds.
- If possible, pre water the areas allocated for disturbance and the material that is being moved.
- Ensure finished surfaces are wetted and sealed with a smooth drum roller to prevent erosion.

- Ensure the stabilised exit is maintained with clean ballast.

2.2 Site traffic control

Install instructions relating to traffic movement within the site by:

- Post signage, erect fencing and place barriers to direct traffic and prevent public access.
- Designate specific routes for access and works.
- Allocate off-site parking with on-site access only under special circumstances.
- Set and enforce a maximum speed limit, e.g., 30 km/hr.

2.3 Perimeter controls

Physical barriers may be utilised for blocking the prevailing wind from generating airborne dust particles.

When vehicles are exiting the site, dust can easily be deposited on paved surfaces, such as roads and footpaths, and become airborne through wind and traffic movements.

The following perimeter controls will be used:

- Stabilised site access – refer to the Erosion Sediment Control Plan[3] for specifications.
- Geotextile fabric will be laid under gravel to prevent movement and mixing with the soil surface.
- Cleaning or sweeping of any soil deposits tracked onto paved surfaces (where applicable).
- Where applicable, maintaining boundary trees. Material stockpiles can be located adjacent to shelter belts to minimise wind velocity and vegetative protection to neighbouring properties.

Using the above measures in conjunction will greatly reduce the occurrence of material being tracked offsite or fugitive dust moving beyond the site boundary.

2.4 Dust suppression

2.4.1 Water spray

This is a very effective short-term measure and inherently used as part of the earthwork's compaction process. This will be used to help control dust during temporary procedures, such as material movement, and to dampen disturbed areas. However, if other measures have been implemented correctly, the need for water spraying will be reduced.

Watercarts will be available during earthworks and used:

- During windy conditions and when dust has potential to cause nuisance;
- During excavation or site preparation works and when dust has potential to cause nuisance;
- Whenever materials are handled or moved and when dust has potential to cause nuisance;
- When vehicles are leaving the site and when dust has potential to cause nuisance.

2.4.2 Soil compaction

- The surface of the soil will be compacted using heavy machinery to prevent dust being picked up and blown away.
- The degree of surface compaction is determined by the moisture in the soil at the time of compaction, particle size distribution and the ground contact pressure (measured in pounds per square inch or psi) of equipment.
- Care must be taken when compacting the soil surface not to increase the risk of storm water run-off, tree death or decline (in locations where trees will be retained).
- Techniques such as subsoiling (deep ripping or tilling) can be used to re-establish the soil profile for replanting and grass stabilisation.

2.4.3 Soil stabilisation

Dust suppressants may be used to stop dust or stabilise soil in areas that will not be worked for an extended period of time.

A product that is suitable for erosion control and soil stabilisation is the 700 series APAM Silt Stop™. The product comes in either a granular or liquid form and can be applied either directly to the soil surface or via a watercart. The polymers are non-toxic and non-hazardous and form a surface crust that effectively prevents potential dust issues.

2.4.4 Vegetative stabilisation

Once ground works have been completed, topsoil can be laid and seeded. The most effective measures include seeding and regular watering of seeded areas to ensure good grass growth. Ensure the following are followed as control and mitigation measures:

- Retain ground cover where possible as the most economical and effective method of dust control.
- If soil is exposed, hand seeding, hydroseeding and direct seed drilling can be used to establish vegetation.
- Use organic fibre mat, such as coir or coconut matting, to protect surfaces from erosion leading to loss of fines and seed. Mattings will also contribute to moisture retention.
- Use a soil polymer for temporary stabilisation of recently topsoiled/seeded areas.
- If trees and plants must be removed and it is not possible for them to be replanted, consider chipping and using the material as mulch.

2.5 Stockpile management

Dust problems will be minimised by determining the best location and positioning of soil storage piles in advance. This, in turn, should reduce the need for other dust control measures. The following procedures will be followed:

- Locate piles in designated sheltered areas;
- Place the stockpiles lengthways into the wind;
- Minimise height of stockpiles to 3m and flatten tops (i.e. remove apexes that can be eroded more easily by wind actions);
- Minimise the slope of the upwind surface (2:1 or flatter);
- Shape the pile in accordance with guidelines to reduce wind erosion;
- Compact stockpile by tracking or excavator bucket tamping;
- Limit disturbance to the downwind side of the pile;
- Stabilise any long-term stockpiles with polymers or geotextile; and
- Use the last in – first out system of management.

2.6 Vehicle and plant emissions

The nature of works requires the use of heavy plant, trucks, cars and other combustion driven equipment. Emissions can exceed practical limits via uncontrolled/unnecessary plant and vehicle operation and idling, poorly maintained engines and older engine technologies. Besides the economic advantages of reducing fuel use and maintaining engine efficiencies, the project will aim to reduce the carbon footprint of its operations and promoting key movements in this area of environmental management.

The following controls and procedures will be established on site to reduce emissions and the potential for emissions to be carried on prevailing winds:

- All plant, vehicles and equipment mobilising to site will have current maintenance records and pre-delivery inspections;
- Plant will be appropriately sized to minimise the effort, number of plant and activity duration;
- Operators will be instructed to avoid plant idling outside of the required manufacturers warm up and run-down requirements of the machine;
- Plant efficiencies will be monitored and plant stood down or demobilised as required.
- If the wind gusts exceeds 10 meters per second (during the previous 20 minute period) then the following shall apply ‘the stripping or placement of potentially dusty material such as silt or topsoil shall not occur within 200 metres upwind of any occupied dwelling. The works may recommence only when wind gust speeds are less than 7.5 metres per second during the previous 20 minute period’.

3 Incident Response Procedures

The contractor will advise EnviroCo of any dust issues as soon as possible, and EnviroCo will liaise with stakeholders, Environment Canterbury and the Pollution Hotline as required.

4 Complaints

The complaint procedure for dust is as follows:

- ECan Pollution Hotline complaints will be forwarded to EnviroCo for further investigation.
- Complaints made to the contractor will log the caller's name, contact details and the nature of their complaint and will be immediately forwarded to the Project Manager for action and resolution.
- The Project Manager will ring the complainant back as soon as practicable but within 24 hours to give an explanation of the activity, inform them steps taken to address their concerns and how these steps will resolve the issue.
- The Project Manager will notify the CCC representative, ECan, and EnviroCo of any dust complaints that require further action.

For on-going complaints or issues, the Project Manager may request additional air quality measurements by a qualified consultant targeting the specific dust source and time of day. As appropriate for the situation, a dust complaint investigation may include the following:

- Determining dust sources at time of complaint and measurement and assessment of dust levels from this activity;
- Determining best practicable mitigation options in conjunction with the project manager;
- Measure dust level following mitigation actions;
- Communicate with complainant;
- Report on findings and actions to the Project Manager.

In addition, a complaints register will be maintained at the Project Office which will be available for inspection by affected parties and Regulatory Officers during normal office hours. A template for complaints has been provided in **Appendix A.**

5 Monitoring and Reporting

During the construction phase, EnviroCo shall undertake routine monthly inspections to assess compliance with resource consents, and CARP permitted activity rules. Site inspection reports detailing the site score and any maintenance required will be made available to staff by e-mail within 48 hours. The intention of the report is to provide guidance and advice where required. Additional advice during a significant weather event will be provided as requested.

- Daily and weekly visual surveillance of dust emissions, dust controls, plant emissions.
- Inspections by EnviroCo on at least fortnightly basis or prior to/during windy conditions.

5.1 Metrological monitoring station

In accordance with CRC263201 condition 7 and 8, a metrological monitoring station shall be installed that continuously measures and records wind speed, wind direction, rainfall, temperature and relative humidity. The metrological monitoring station will be maintained in good working order until pond construction has been completed.

The monitoring station will be capable of continuously monitoring using an electronic data logging system with an averaging time for each parameter of not more than two minutes. The information shall be retained and the recorded information provided to Ecan, on request.

The installation of the metrological monitoring station will be installed at the main site offices within the project site.

The metrological monitoring station shall meet the requirements of CRC263201 condition 8:

- The anemometer shall be installed at a height of at least 6 metres above preconstruction ground level and in accordance with AS 29231987 Ambient Air Guide for Measurement of Horizontal Wind for Air Quality Applications;
- The meteorological monitoring station shall continue operating until the construction of the ponds is complete, including the planting and establishment of permanent vegetation on the embankments;
- The meteorological monitoring instruments shall be established, located and operated to the satisfaction of the manager Monitoring and Compliance Canterbury Regional Council;
- The meteorological monitoring results shall be continuously recorded using an electronic data logging system with an averaging time for each parameter of not more than two minutes. The results shall be available to the operators in real time, and the logging system shall be able to send alerts via text message.

If the wind gusts exceeds 10 meters per second (during the previous 20 minute period) then the following shall apply 'the stripping or placement of potentially dusty material such as silt or topsoil shall not occur within 200 metres upwind of any occupied dwelling. The works may recommence only when wind gust speeds are less than 7.5 metres per second during the previous 20 minute period'.

5.2 Dust monitoring

Dust will be monitored to ensure compliance with consent conditions and to ensure that works do not cause dust issues outside of the consented works perimeter boundaries. The monitoring will provide continuous and real time information that can be utilised by REL to undertake remedial action to ensure continued compliance with consent requirements. The dust monitoring will involve measuring Total Suspended Particulate (TSP) matter.

The consent requires at least two monitoring instruments are installed. The locations of the monitors will be as follows:

- One monitor on the western boundary of the site when constructing Pond 1.
- One monitor on the eastern boundary and one monitor on the southern boundary of the site when constructing Pond 2.

The data generated from the TSP monitoring stations will be continuously recorded using an electronic data logging system with an averaging time for each parameter of not more than two minutes and the data will be retained and copies provided to the Canterbury Regional Council on request.

At the time of writing the exact monitoring equipment is yet to be determined. However the equipment used will be in accordance with CRC263201 conditions 11 to 13:

Condition 11: The TSP monitoring shall be carried out generally in accordance with the following:

a. The TSP monitoring shall be undertaken with a continuous monitoring instrument capable of providing real time data that can be compared against I-hour and 24-hour guidelines;
b. The TSP data shall be retained and copies provided to the Canterbury Regional Council on request;
c. TSP monitoring shall undergo regular calibration and shall be of an appropriate standard and quality, to be able to indicate compliance with the TSP trigger levels set out in these conditions; and
d. The TSP monitoring results shall be continuously recorded using an electronic datalogging system with an averaging time for each parameter of not more than two minutes. The results shall be available to the operators in real time and the logging system shall be able to send alerts via text message.

Condition 12: The consent holder must review dust sources and dust control measures and implement additional dust control methods when:

a. TSP concentrations exceed a 1-hour average concentration of 200 micrograms per cubic metre; or
b. TSP concentrations exceed a rolling 24-hour average concentration of 80 micrograms per cubic metre.

Condition 13: Site operations shall cease, except for dust mitigation activities, when:

a. TSP concentrations exceed a 1-hour average concentration of 220 micrograms per cubic metre; or
b. TSP concentrations exceed a rolling 24-hour average concentration of 120 micrograms per cubic metre.

In the event that there is an exceedance the following additional dust control measures will be used to ensure that there are not further exceedances:

- Deploying additional watercarts to areas generating dust;
- Ceasing dust causing activities until TSP readings have returned within allowable (in accordance with CRC263201 Condition 13)
- Refer to **Section 2.4** for other remedial actions to prevent future dust issues.

6 Appendix A: Dust compliant and incident form

Rooney Earthmoving Limited

Dust Complaint & Investigation Form

Site: Burnt Hill Storage Ponds - Corner of Wrights Road and Dixon Road, Eyrewell Forest

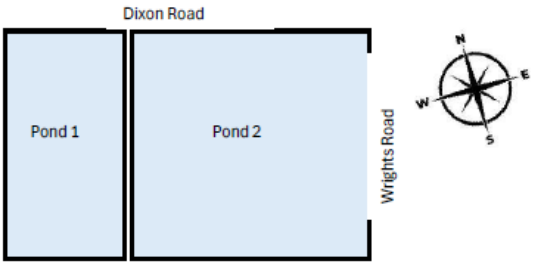
Date: **Time:**

Complainant Details			**Receiver Details**	
Name:			**Name:**	
Contact:			**Contact:**	

Complaint Details

Investigation and Assessment

Physical Location of the Complaint:	*Or indicate below*
Wind Direction at the Time:	*Or indicate below*



Wind Speed aty the Time:

Most Likely Cause of Dust:

Corrective Action:

Closeout Detail: