Horticulture™
New Zealand
Ahumāra Kai Aotearoa

Vehicle and Machinery Washdown

Code of Practice

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Vehicle and Machinery Washdown Code of Practice

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Document control

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Summary of changes since previous version (2019, version 1.2)

Change	Reference
Code of Practice name	Change from 'Minimising soil movement by vehicles off farm' to 'Vehicle and Machinery Washdown'
Content	Introduction updated, scope extended to include all outdoor horticultural production, which included terminology changes (paddock to block, farm to sites). Additional detail added into section on washdown pads and council rules
Risk assessment	Risk assessment categories changed to align with other Codes of Practice – Green, Amber, and Red
Whole document	Design update

This Code of Practice will be reviewed, as necessary, by Horticulture New Zealand Incorporated. Suggestions for alterations, deletions or additions to this Code of Practice, should be sent, together with reasons for the change, any relevant data and contact details of the person making the suggestion to info@hortnz.co.nz.

Acknowledgements: The Vehicle and Machinery Washdown Code of Practice has been updated by Agrilink NZ, funded through the Growing Change project by Horticulture New Zealand and Ministry for the Environment. Agrilink NZ, Horticulture New Zealand, and Vegetable Research & Innovation would like to acknowledge the valuable contribution from the grower reference group involved in the initial development Version 1 of this Code of Practice (Mike Parker, Brendan Balle, Stuart Davis, and Simon Wilcox).

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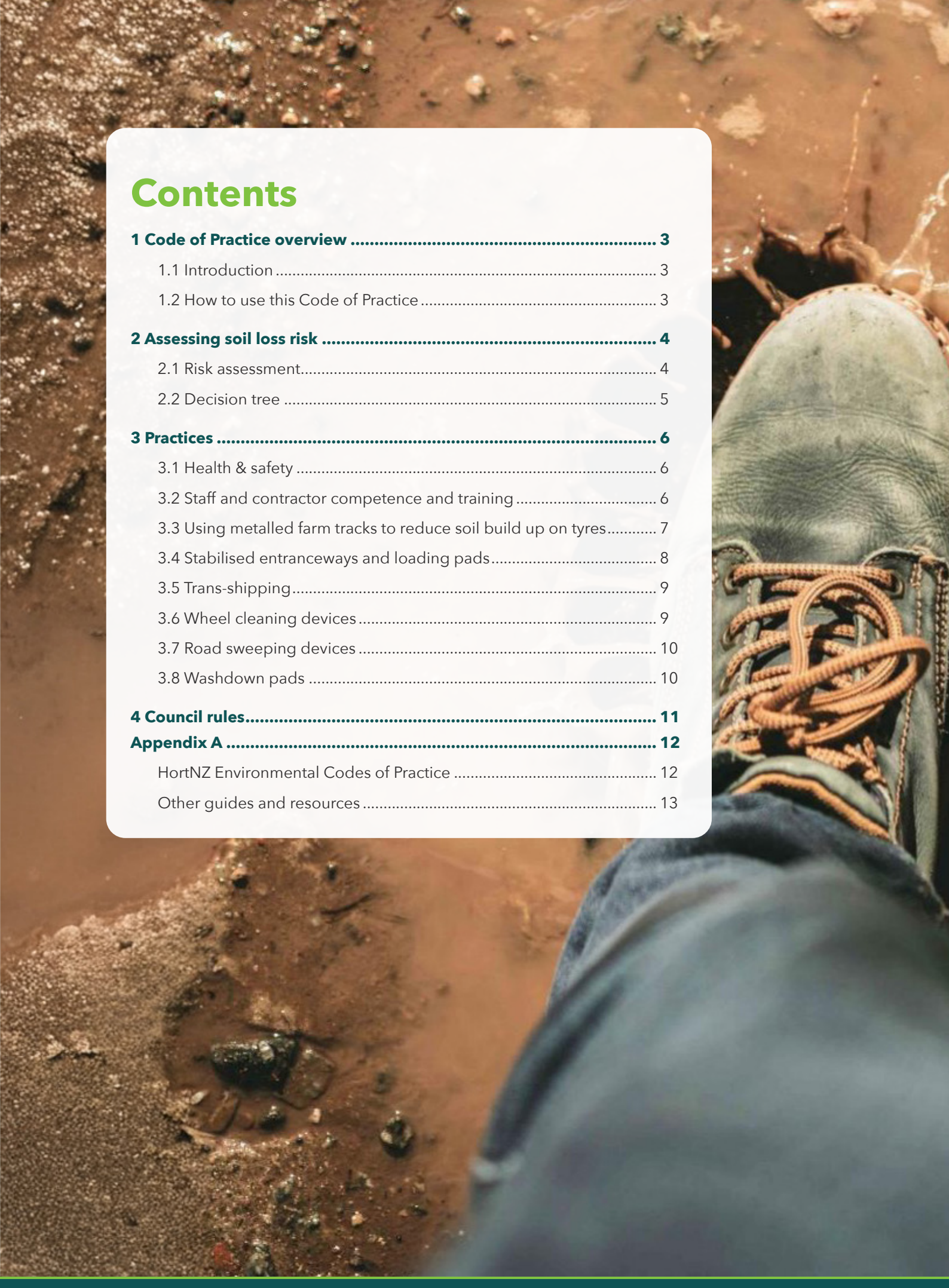


Contents

1 Code of Practice overview 3

1.1 Introduction 3

1.2 How to use this Code of Practice 3

2 Assessing soil loss risk 4

2.1 Risk assessment 4

2.2 Decision tree 5

3 Practices 6

3.1 Health & safety 6

3.2 Staff and contractor competence and training 6

3.3 Using metalled farm tracks to reduce soil build up on tyres 7

3.4 Stabilised entranceways and loading pads 8

3.5 Trans-shipping 9

3.6 Wheel cleaning devices 9

3.7 Road sweeping devices 10

3.8 Washdown pads 10

4 Council rules 11

Appendix A 12

HortNZ Environmental Codes of Practice 12

Other guides and resources 13

1 Code of Practice overview

1.1 Introduction

This Code of Practice assists growers in determining vehicle and machinery washdown practices to reduce the risk of soil moving offsite.

This Code of Practice was first developed in 2019 to minimise soil deposited on roads. Leaving soil or mud on public roads is a significant challenge for growers to manage, especially for intensive outdoor cropping operations over the winter months. However, preventing soil moving onto roads must be a priority for a range of reasons:

- Leaving soil and other materials on public roads is illegal and can lead to fines[1].
- Soil on roads is a health and safety issue for motorists because it reduces tyre grip on road surfaces, which can lead to accidents and injuries.
- It can impact on growers' social licence to operate, contributing to negative public perception in their local communities.
- Soil can wash off the road into drains, contaminating waterbodies.

Practices to minimise soil moving offsite, particularly washdown practices, also reduce the risk of biosecurity-related incursions. Washing vehicles and machinery helps to minimise the spread of weed seeds, soil borne diseases, and pests. Minimising the spread is critical to preventing biosecurity outbreaks. Of note, growers operating near Kauri should follow specific guidance around vehicle and machinery hygiene to prevent kauri dieback disease. These efforts contribute to protecting the horticulture industry and our unique environment in Aotearoa. For more information on washdown practices for biosecurity purposes, please find a selection of resources in Appendix A.

1.2 How to use this Code of Practice

The Code of Practice directs growers to adopt management practices based on their level of risk. The risk that is being addressed in this Code of Practice is soil movement offsite from vehicle and machinery use. Offsite means the movement of vehicles and machinery – and any attached soil – from one property to another, or onto a public road.

Section 2 guides growers' decision-making when implementing machinery cleaning management practices. The first step is a risk assessment. This involves considering a range of risk factors. Examples include the volume of traffic on the road, size of the operation, number of properties, distance between properties, soil type, and length of hard surfaced farm tracks. A set of management practices is then recommended for each risk level. These practices can be incorporated into an Erosion and Sediment Control Plan. Refer to the Erosion and Sediment Control Code of Practice on HortNZ's website for steps to develop an Erosion and Sediment Control Plan for your operation as part of your overall farm plan.

In the case of leased and swapped blocks, implementing practices may require a conversation with the landowner, for example, if installing permanent features requiring physical works or changes to the land. The lessee conducts the risk assessment and selects appropriate management practices. Agreement is needed with the landowner over the installation of any mitigations, with the lessee implementing the practices. It is recommended that lessees engage with their landowner(s) early in the process to discuss the benefits and requirements of management practices and explore practical solutions that meet both parties' needs. In some cases, these expectations may form part of lease agreements.

More information and reference material can be found in the supporting document, *Vehicle and Machinery Washdown: Background Material and Council Rules (2026)*. This is available on Horticulture New Zealand's website.

[1] Section 51 (2) (b) - Penalties for damage to roads, bridges etc. in the Government Roading Powers Act 1989 - https://www.legislation.govt.nz/act/public/1989/0075/latest/whole.html#DLM175285. Section 357 (1) (b) of the Local Government Act 1989 - http://legislation.govt.nz/act/public/1974/0066/latest/whole.html#DLM420720.

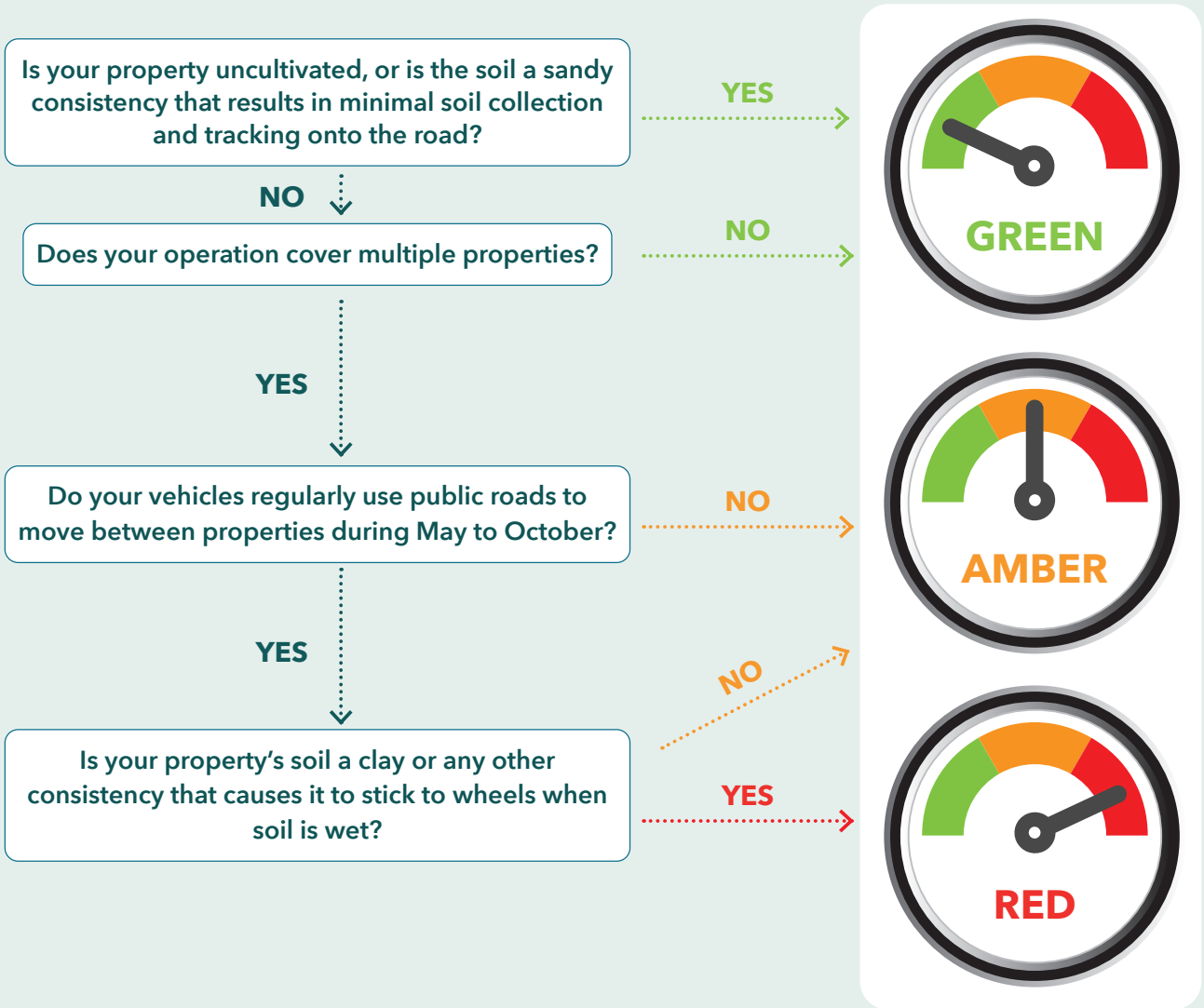
2 Assessing soil loss risk

2.1 Risk assessment

Complete the risk assessment below to determine the level of risk of transferring soil and associated material (i.e. weed seeds, diseased material) on vehicles and machinery to other properties within your growing operation.

A risk assessment must be completed for each property (e.g. farm, orchard) within your growing operation. If your growing locations change, a new risk assessment must be completed. Your level of risk will determine the vehicle and machinery cleaning practices recommended for properties within your operation.

The health and safety of workers and the public must be an integral part of all activities on-site, including the identification of hazards and traffic management.



2.2 Decision tree

The results of the risk assessment in Section 2.1 directs growers to a set of recommended practices in the decision tree below. Growers in a Red risk category are directed to implement all appropriate practices in this Code, given the high likelihood of soil moving off a property onto a road.

Green: Eliminate

Avoid using roads where possible.

Construct compacted soil or **metalled loading pads** and parking bays and **minimise vehicles exposed to bare soil.**

Consider all **health & safety** requirements related to vehicle washdown and ensure **staff are trained** and competent with any procedures implemented.

The above plus:

Amber: Isolate & minimise

Install a minimum of 50 – 100m of metalled farm **tracks prior to the exit from a production block** to remove soil from tyres.

Ensure all **accessways are raised** and stabilised with metal.

Trans-shipping of produce from dirty harvesting equipment to clean transporters on a hard surface loading pad.

Install **wheel cleaning** devices on tractors and trailed equipment.

Use **road sweeping devices** if soil is present on roads.

The above plus:

Red: Remove

Construct a **washdown pad** in a central depot to clean agricultural machinery after use.

Construct **on-site washdown pads** or use a water blaster to reduce the bulk of soil.

Practice	Code of Practice reference
Health & safety	Page 6
Staff and contractor competence and training	Page 6
Metalled tracks to remove soil	Page 7
Raised and stabilised entranceways	Page 8
Trans-shipping	Page 9
Wheel-cleaning devices	Page 9
Road sweeping devices	Page 10
Washdown pads	Page 10

3 Practices

3.1 Health & safety

When planning and implementing practices, consider the health and safety requirements. Key considerations include, but are not limited to:

- Specific high-risk activities relate to vehicle movement and traffic management. When washing down machinery always ensure machinery is secured before commencing activities.
- If transferring harvested produce between a farm vehicle (e.g. tractor and trailer) and a road vehicle (truck) to reduce vehicle movements off a property, ensure best practice is followed, including adherence to all SAFE and NO-GO zones when loading.
- If soil on the roads is unavoidable, then it may be necessary to install signs warning motorists of the increased hazard from skidding on mud. If planning to install roadside warning signs or conduct any other activities on or by the road, traffic management must be considered. This will involve consultation with the local council and/or the New Zealand Transport Authority. However, if deposited onto the road, growers must attempt to clean up the soil and mud as soon as possible.

Visit the WorkSafe website[2] for more information on health and safety requirements under the Health and Safety at Work Act 2015, and guidance and tools for agricultural sites.

3.2 Staff and contractor competence and training

Once the level of risk of soil moving off site has been determined, the practices recommended to reduce this risk should be implemented across the operation. Effective implementation involves ensuring all operational staff, as well as contractors (if used), are aware of the associated risk and practices to implement:

- Include vehicle and machinery cleaning practices as part of operator training modules, and any other staff that drive vehicles between and on properties.
- Outline the risks and practices used to minimise soil trafficking, as part of contractor induction.
- If soil is trafficked onto roads, incorporate refreshers into staff meetings, as part of your regular continuous improvement processes. If it becomes an ongoing issue, staff should be consulted on whether other practices may need to be considered (e.g. installation of a loading pad, or more metalled tracks) to reduce soil movement.

[2] Agriculture | WorkSafe

3.3 Using metalled farm tracks to reduce soil build up on tyres

Where possible, avoid driving on the road by installing or connecting farm tracks that lead back to the depot. This may require culverts or bridges.

If a vehicle needs to drive from a block onto the road, first driving along a section of metalled track can be an effective cleaning measure (Figure 3.1). Safely accelerating to road speeds on a farm track can remove most of the soil build-up on vehicle wheels, provided the farm track is dry or compacted enough to not itself contribute to soil build-up.

Ideally the track should be metalled, as described in the stabilised entranceway practice (Section 3.4). Suitable track material may range from compacted pit sand or lime chip on light soils, to metal on heavy soils. When vehicles are driven at road speeds, the length of track needed to remove most soil is dependent on soil type. Generally, 50 – 100 m is sufficient to remove the bulk of soil from the wheels.

A raised metal track may not be an option if it needs to run between the crop and a vegetated buffer strip (due to potential ponding and channelising issues). Refer to the Erosion and Sediment Control Code of Practice for vegetated buffer strip maintenance requirements.

Figure 3.1: Metalled track that can be used for removing soil off tyres.

3.4 Stabilised entranceways and loading pads

The purpose of a stabilised entranceway (Figure 3.2) is to prevent soil and sediment runoff escaping the property and to reduce the amount of soil moved onto roads by vehicle movement.

Raised accessways should be located at all site entrances and exits, in a position that they cannot be avoided by entering or exiting traffic.

Auckland Council's Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region[3] provides several specifications for stabilising entranceways:

- Minimise the total number of site entranceways and exits.
- The entranceway needs to be large enough to accommodate any vehicle entering or exiting the property.
- The frequency of use and the location of the entranceway should factor into decision-making around the standard of construction.
- Minimum specifications for sizing are provided in Figure 3.3, including aggregate size and length/width specifications.

The metalled area could potentially be expanded to provide parking for transport vehicles that do not need to be exposed to soil. The entranceway can also be enhanced by installing further systems such as washdown pads and shaker ramps.

Figure 3.2: Example of a raised and metalled accessway.

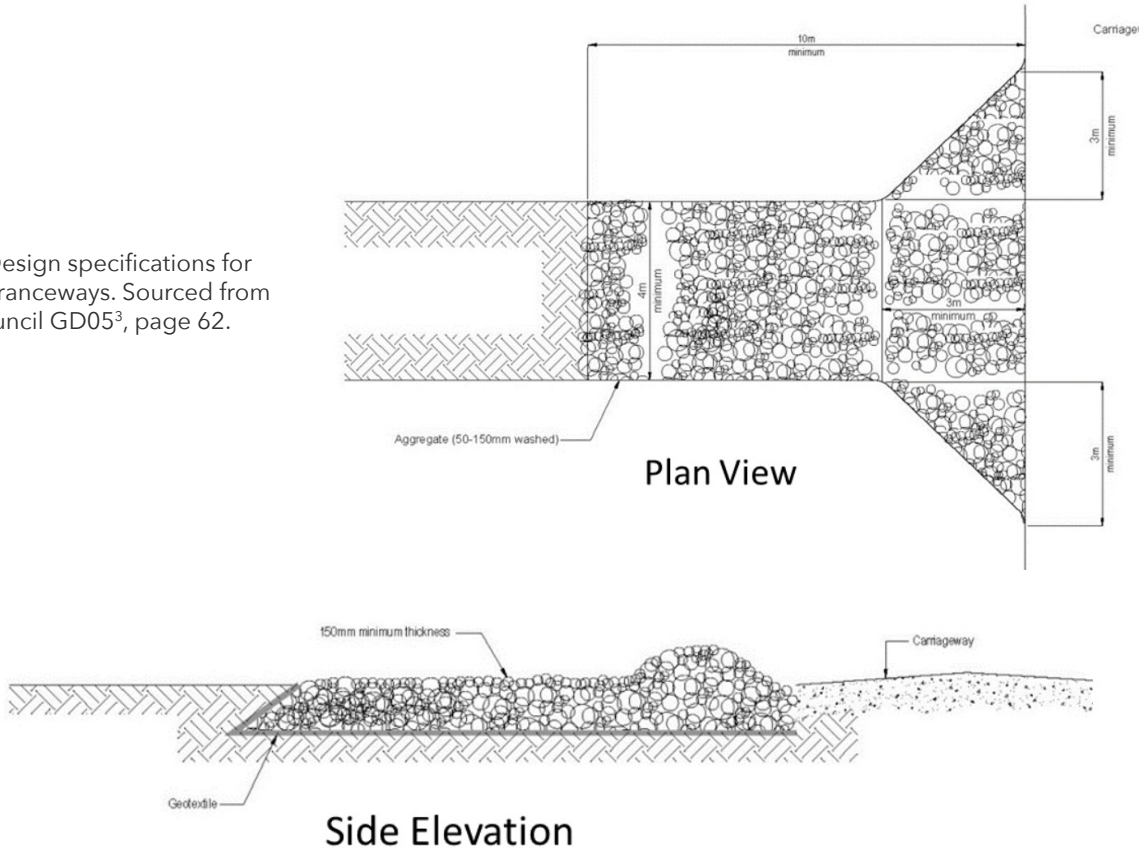


Figure 3.3: Design specifications for stabilised entranceways. Sourced from Auckland Council GD05[3], page 62.

[3] Auckland Council. (2016). Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region. Guideline Document 2016/005.

3.5 Trans-shipping

Harvest time often sees the most frequent vehicle movements on and off a property. Produce transfer from harvest machinery to road transport vehicles should be carried out in a way that both minimises exposure of the road transport vehicle to soil and prevents harvest machinery from leaving the site.

Minimising soil movement offsite during harvest can be accomplished by several means, including transferring loose product to palletisation or in-field containerisation (Figure 3.4).

Figure 3.4: Use of trans-shipping principles to keep harvest machinery on the blocks and trucks on loading pads.

3.6 Wheel cleaning devices

Wheel cleaning devices are used to prevent soil build up on the wheels and tyres of machinery. This reduces the amount of soil that could potentially move off-site and onto roads or other properties.

There are many options available for wheel cleaning devices, with one example being a simple scraper device attached to the wheel arch that removes soil build up on the tyre edges (Figure 3.5). Another option for sprayer machinery are valves positioned over the wheels, which can be opened when rinsing the sprayer tank to remove soil from the wheels through a large volume of water.

Figure 3.5: Examples of wheel scraper devices on vehicle wheels, to aid removal of soil.

3.7 Road sweeping devices

If other practices have proven ineffective and soil has made its way onto the road, road-sweeping devices should be used (Figure 3.6). These devices need to be used in appropriate conditions when sweeping is most effective. For example, sweeping should be undertaken once the mud begins to dry and can be swept rather than spread, or when the mud is completely dry. Mud on the road is a significant safety concern for motorists.

Road sweeping device considerations should include brush/boom size, road registration, and dust suppression.

Figure 3.6: Road sweeping device mounted on a tractor.

3.8 Washdown pads

For growers in the Red risk category, the installation and use of washdown pads to clean vehicles and machinery is the most comprehensive practice to reduce soil movement off a property (Figure 3.7).

Washdown pads can be installed at property accessways or at a central depot.

The installation of a washdown pad requires the following considerations:

- The pad must have a good water supply, with ideally both high pressure/low volume, and high volume/low pressure systems installed for cleaning.
- Washdown water must be diverted into a dropout pit or sediment trap.
- A slope of 3-4%.
- Ideally made of non-slip, durable concrete, although aggregate can be used.
- Sized to accommodate the largest vehicle or machinery used on-site, with a 2 m margin.
- Ideally the pad is not located near a vegetated buffer strip, to avoid compromising the effectiveness of the buffer strip. If the pad is located alongside a vegetated buffer strip, then the pad design needs to avoid creating channelised flow through the buffer strip. This includes both from water flowing off the pad, and from water flowing off the block and around the pad.
- Safety signage to highlight hazards e.g. high-pressure hoses, risk of slipping on wet surfaces.

The *Vehicle and Machinery Washdown: Background Material and Council Rules* contains more information.

This Code of Practice does not cover sprayer tank rinsing and disposal. Details on the cleaning of sprayer tanks can be found in the NZ Novachem Agrichemical Manual. Special care needs to be taken to prevent agrichemicals entering waterways or groundwater. Tank discharges should be disposed of using methods that minimise risk to the environment and comply with all relevant regulations.

Figure 3.7: Washdown pad. Photo courtesy of Leaderbrand Gisborne.

4 Council rules

Leaving soil or mud on a public road is illegal and carries significant legal and financial consequences. The responsibility for keeping the road clean lies entirely with the person or company that tracked the material.

Multiple layers of law apply to soil on roads, ranging from local bylaws to national legislation:

- **Bylaws[4]:** Relating to stormwater and drainage or specifically to road corridors where it can be an offence to deposit material (including soil) that creates a nuisance or danger.
- **Government Roading Powers Act:** It is an offence to place or leave "earth or other material" on a road.
- **Resource Management Act:** Allowing soil to wash into stormwater drains (which leads to streams and the sea) is a serious environmental offence.
- **Health and Safety at Work Act:** Mud is a "skid hazard" for motorists and cyclists. If an accident occurs, the party responsible for the mud can be held liable for criminal nuisance or negligence.

Where a grower proposes vehicle or machinery washdown in accordance with the methods set out in this Code of Practice, advice should be sought from regulatory authorities to ensure compliance with all relevant regulations.

In the case of a hard stand or washdown pad that may or may not capture/contain wash water, there will be particular regulatory standards to consider related to discharges and potentially building consent depending on elements like roofing.

If the discharge is to a public stormwater or wastewater system, stormwater and trade waste bylaw regulations are likely a consideration.

In the rural environment there may be impervious surface limitations, earthworks standards, exclusions in Drinking Water Protection Zones and rules that specify restrictions on the type and quantity of discharge produced and location of discharge i.e. near aquifer systems (groundwater), bores, and/or specific waterbodies (rivers, streams, wetlands, lakes).

Rules relating to discharge rules vary but generally for discharges associated with vehicle washdown activity there is a permitted activity pathway.

There may be a need to remove all contaminants (soil) prior to discharge to render the discharge *water*.

There may be different rules and conditions related to whether the discharge is direct to *water*, to *land and may enter water* or to *land*.

The standards typically reflect, and often extend, those of the RMA[5] that allow regional councils to include permitted activity discharge rules in plans. For example:

- *The discharge water should not produce any conspicuous oil or grease film, scum or foam, or floating or suspended materials, or emission of objectionable odour in the receiving waters, after reasonable mixing.*
- *The discharge water should not cause any conspicuous colour change or change in visual clarity in the receiving waters, after reasonable mixing.*
- *Discharges of water must not result in conspicuous changes to the receiving environment or cause significant adverse effects on aquatic life, after reasonable mixing.*
- *Discharge water should not contain any hazardous substance or any substance that renders freshwater unsuitable for consumption by animals or persists in the environment.*
- *The discharge water is not applied to land when soil moisture exceeds field capacity, which includes no surface ponding.*
- *The discharge water must not cause erosion or scouring at the point of discharge.*

Specific council rules for a selection of regional councils relating to permitted activity discharges are provided in the supporting document, Vehicle and Machinery Washdown: Background Material and Council Rules.

As above, advice should be sought from regulatory authorities to ensure compliance with all relevant regulations.

[4] E.g. Auckland Transport Activities in the Road Corridor Bylaw 2022
[5] s70

Appendix A: Resources

HortNZ Codes of Practice

The HortNZ Codes of Practice in this suite are listed below. These can be used by growers to build their overall farm or orchard plan.

Tool	Sector	Description
Nutrient Management Code of Practice 2026	All outdoor growing systems	This Code provides direction for outdoor fruit and vegetable growers to manage nutrient use responsibly, while maintaining crop productivity. It explains how nutrients cycle through growing systems, how to assess block level nutrient loss risk, and apply appropriate practices to manage those risks. A Nutrient & Erosion Management Excel workbook supports growers to develop a Nutrient Management Plan by documenting current practices, assessing risks, and planning nutrient use in a structured and practical way.
Erosion and Sediment Control Code of Practice 2026	All outdoor growing systems	This Code provides practical direction on managing erosion and sediment loss from outdoor horticultural production activities. It includes a block erosion risk assessment process, and range of risk-based practices to minimise erosion and soil loss, maintain soil health, and protect waterways. A Nutrient & Erosion Management Excel workbook supports growers to develop an Erosion and Sediment Control Plan by documenting current practices, assessing risks, and implementing erosion and sediment control measures in a structured and practical way.
Vehicle and Machinery Washdown Code of Practice 2026	All outdoor growing systems	This Code provides direction on practices to implement to reduce the movement of soil offsite, which also prevents the spread of pests, diseases, and contaminants. It includes direction on siting washdown areas, managing washwater, and protecting soil and water from contamination.
Drain Nutrient Solution Management Code of Practice 2026	Soilless growing systems that generate drain solution requiring management	This Code outlines practices to manage drain nutrient solution from soilless growing systems. It focuses on responsible drain solution land application to protect soil and water resources and optimise resource use. The Code helps growers reduce nutrient losses and manage environmental compliance expectations by developing a Drain Solution Management Plan, which is supported by a Drain Solution Management Plan Excel workbook.
Vegetable Washwater Management Code of Practice 2026	Vegetable growing operations that generate washwater from vegetable washing	This Code provides guidance for vegetable growers, who use water for washing, to sustainably manage the resulting washwater produced. Guidance focuses on selecting the most appropriate treatment option for each grower's operation, providing high level information on a range of treatment options, with links to further resources where required.

Other guides and resources

Name	Sector	Description
Auckland Council (2016) – Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region	All sectors	GD05. Comprehensive guide to erosion control activities, including information on designing stabilised entranceways. https://knowledgeauckland.org.nz/publications/erosion-and-sediment-control-guide-for-land-disturbing-activities-in-the-auckland-region/
A16 – Keep it clean logbook	All sectors	Downloadable logbook with machinery and vehicle hygiene guidelines to prevent the spread of pests and weeds. https://www.bionet.nz/assets/Uploads/A16-KeepItClean-minor-revision-2020.pdf
Kiwifruit Growers On-Orchard Biosecurity Plan	Kiwifruit, but principles applicable to most sectors	Comprehensive document developed by Kiwifruit Vine Health on developing an orchard biosecurity plan. https://kvh.org.nz/assets/documents/Growers-tab/Biosecurity_Plan___FINAL_September_2021.pdf
Vineyard biosecurity plan	Wine, but principles applicable to most sectors	Fillable vineyard biosecurity plan with a number of actions to undertake to prevent unwanted organisms arriving in your operation. Action 4 relates to vehicle and machinery management and Action 7 relates to washdown facilities. https://www.nzwine.com/media/51ed524s/vineyard-biosecurity-plan_non-swnz_web_2025.pdf
Guidance for cleaning outdoor or targeted machinery	All sectors	Guidance developed by Biosecurity New Zealand on how to clean outdoor equipment for inspection by MPI to obtain a cleaning certificate. Principles from this guidance can be applied to horticultural operations where/if required. https://www.mpi.govt.nz/dmsdocument/41905-2020-Cleaning-outdoor-machinery-guidance.pdf
Tiakina Kauri: Guidance for vehicle and heavy machinery hygiene near Kauri	All sectors	Guidance for best practice vehicle and heavy machinery hygiene when operating near Kauri trees, to protect Kauri from kauri dieback disease. https://www.kauriprotection.co.nz/resources/best-practice-guides/vehicle-and-heavy-machinery-hygiene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