

Minimising Soil Movement by Vehicles Off Farm

Code of Practice

THE REQUIREMENTS FOR ACHIEVING GOOD PRACTICE

VERSION 1.2






Always aim for
Good Practice
rather than *just*
achieving council
compliance.



This code of practice for vehicle washdown has been developed by Agrilink for the Vegetable Research & Innovation Board. Agrilink and the VR&I Board would like to acknowledge the valuable contribution from the grower reference group (Mike Parker, Brendan Balle, Stuart Davis, and Simon Wilcox) in the development of this code of practice.



This COP is designed to assist you in determining which vehicle cleaning measures are best suited for your operation.

Removing soil and other debris from farm machinery is important for two main purposes. The first is to **minimise soil being deposited on the roads**. Soil on the roads is a health and safety issue, reducing the grip of tyres on the road surface and potentially leading to accidents and injuries. To a lesser extent it contributes to increased sediment loads in rivers and streams.

The second reason to clean farm machinery before leaving the site is improved **biosecurity**. Minimising the spread of weed seeds, soil borne diseases and pests is critical for the horticulture industry and having measures in place to reduce the spread of diseases in the case of outbreaks is critical. A prominent example is Potato Cyst Nematode (PCN) which was first discovered in the 1970s. Vehicle washdown rules and movement restrictions were implemented to prevent the spread of the organism. [See Potatoes NZ Technical Bulletin No 2.](#)

The following decision tree (page 3-4) can be used by growers to guide their decisions in implementing cleaning practices. The first step is a risk assessment. This includes considering such factors as the type and amount of traffic on the road, the size of the operation, number of sites/paddocks, distance between sites, number of farm traffic movements, soil type, and length of hard surfaced farm tracks.

Always aim for Good Practice rather than just achieving council compliance.

Further information

On cleaning systems can be found in *Minimising Soil Movement by Vehicles Off Farm - Background Material* (Barber and Stenning, 2019), available from HortNZ.

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Decision Tree

RISK ASSESSMENT DIAGRAM

Health and safety of workers and the public must be an integral part of all activities, including the identification of hazards and traffic management.



Decision Tree

FOR MINIMISING SOIL MOVEMENT BY VEHICLES OFF FARM



DECISION TREE KEY Use the below links to jump to a particular guidance section.

● **Create tracks:** refer to guidance on health and safety on page 6

▲ **loading pads:** refer to guidance on page 8

● **wheel cleaning:** refer to guidance on page 10

■ **accessways are raised:** refer to guidance on page 8

▲ **tracks prior to the exit:** refer to guidance about stabilised entranceway on page 8

● **Trans-shipping:** refer to guidance on page 9

● **washdown pads:** refer to guidance on page 11



Practice:

Health & Safety

Purpose and specifications

Never carry out any of the practices listed in this guideline without thinking about the health and safety requirements of that practice.

Specific high-risk activities relate to vehicle movement and traffic management. When washing down farm machinery always ensure machinery is secured before commencing activities.

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 then traffic management needs to be considered. This will involve consultation with the local council and/or the New Zealand Transport Authority.



RETURN TO DECISION TREE KEY



Practice:

Avoid roads and using metalled farm tracks to reduce soil build up on tyres

Purpose and specifications

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 paddock onto the road then first driving along a section of metalled track is one of the most effective cleaning measures

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 metaled, as described in the stabilised entranceway. Suitable track material may range from compacted pit sand or lime chip on light soils to metal on heavy soils.

The length of track needed to remove most soil when driven at road speeds is dependent on soil type, but generally 50 - 100m should be sufficient to remove the bulk of soil from the wheels.

A raised metal track may not be an option if it would need to run between the cropped paddock and a vegetated buffer strip (potential paddock ponding and channelising issues). Therefore, a washdown pad may be the next best option.



RETURN TO DECISION TREE KEY

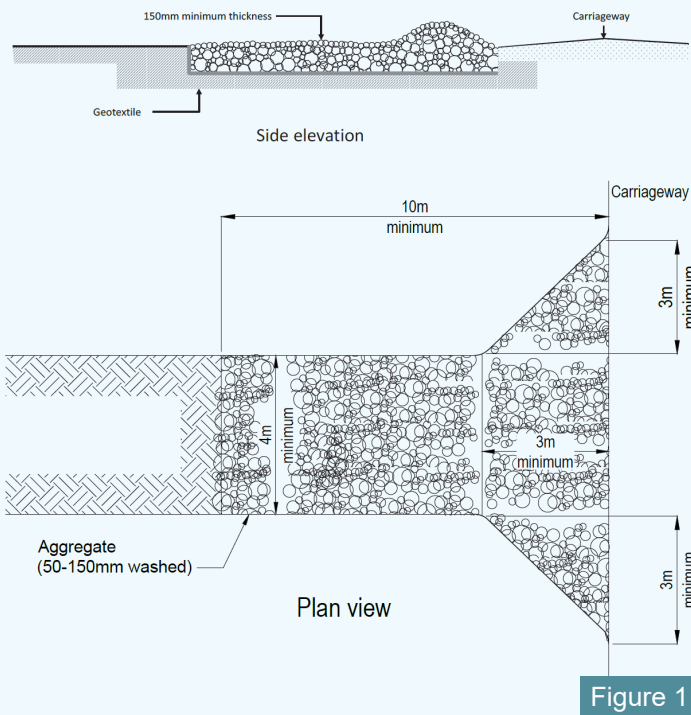


Figure 1



Figure 2

Practice:

Stabilised entranceway & loading pads

Purpose and specifications

The purpose of a stabilised entranceway 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.

They should be constructed of compacted aggregate of 50-150mm. Auckland Councils [Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region](#) provides minimum specifications for sizing (see right), with the stabilised entranceway needing to be large enough to accommodate any vehicle entering or exiting the property. The standard of entranceway construction should be determined by the frequency of its use and location.

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.



RETURN TO DECISION TREE KEY

Figure 1:
From Figure 35 of Auckland Councils [Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region](#)

Figure 2:
A raised and metalled accessway from the [Erosion & Sediment Control Guidelines for Vegetable Production](#)



Figure 3

Practice:

Trans-shipping

Purpose and specifications

Harvest time often sees the most frequent vehicle movements on and off farm. Transferring produce from the harvest machinery to road transport vehicles in a location and manner that prevents the road transport vehicle being exposed to soil and prevents the harvest machinery from leaving the farm can reduce the amount of soil leaving the farm through vehicle movements.

This can be accomplished by several means, from transferring loose product to palletisation or in-field containerisation.

Figure 3:
Trans-shipping between field trailer and road trailer on a compacted loading pad beside the access way.



RETURN TO DECISION TREE KEY



Practice:

Wheel cleaning devices

Purpose and specifications

Wheel cleaning devices are used in order to prevent soil build up on the wheels and tyres of farm machinery, reducing the amount of soil that could potentially be brought off farm 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.

Another option that can be used 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.



[RETURN TO DECISION TREE KEY](#)



Photo credit: Meat and Livestock Association of Australia

Practice: Washdown pads

Purpose and specifications

If it is not possible to eliminate soil from being moved onto the road by vehicles than a washdown pad is the most comprehensive cleaning option.

Washdown pads can come in many shapes and sizes, but in general are composed of gently sloping (3-4%) aggregate or concrete based pads, with dimensions large enough to fit the largest farm machinery such as tractors and trucks.

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

If the pad is located alongside a vegetated buffer strip, then the pad design needs to consider minimising channelised flow, both from water flowing off the pad and from water flowing off the paddock and around the pad. Firstly, the quantity of water used should be minimised. A level spreader bar or a soakage pit may be an option.

For washing vehicles, the water supplied should be either high pressure or high volume, with the runoff being diverted to silt traps and holding ponds.

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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 not prevent agrichemicals from get into waterways or groundwater by disposing of the solution in such a way that it does not pose a risk to the environment.



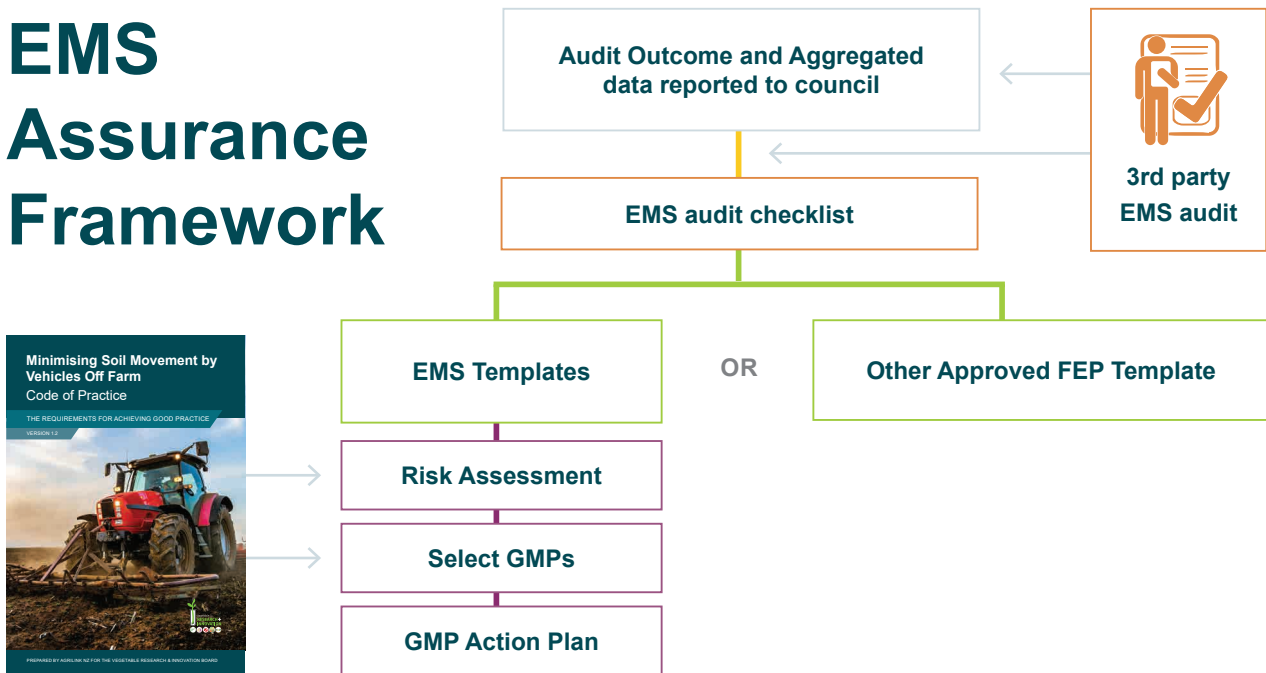
RETURN TO DECISION TREE KEY

COP Action Plan

As part of your NZGAP Environmental Management System (EMS) any identified changes should be added to your Farm Environment Plan (FEP) Action Plan.



EMS Assurance Framework



10A Environmental Action Plan							
Ref	Management area and risk addressed (e.g. soil erosion)	Action to be completed	Location	Person Responsible	Expected Date of Completion	Actual Date of Completion	Evidence to be Provided (e.g. records, photo)
6D. 1, 6G. 8	TRACKING SOIL ONTO ROADS	INSTALL A CULVERT TO CROSS CENTRAL DRAIN AND THEREFORE KEEP THE Paddock VEHICLES OFF THE ROAD	Paddock 1 & 2	XY	APRIL 2020		BEFORE AND AFTER PHOTOS
6D. 1, 6G. 8	TRACKING SOIL ONTO ROADS	INSTALL 100M OF RAISED METAL TRACK AT THE ACCESSWAY OF SIMS RD	Paddock 23	XY	APRIL 2020		BEFORE AND AFTER PHOTOS

Council Rules

FOR DISCHARGE OF WASHDOWN WATER

Discharge of water from vehicle washdown activity often falls under general council rules on discharge to land / discharge to water and is often a permitted activity subject to conditions.

Whilst the specific rules and conditions differ by council, generally the permitted activity conditions relevant to washdown pad use are:

- After reasonable mixing discharge water should not produce any conspicuous oil or grease film, scum or foam, or floating or suspended materials.
- After reasonable mixing discharge water should not have any conspicuous colour change or change to visual clarity.
- Discharge water should produce no adverse effect on water quality in the receiving environment.
- Discharge water should not contain any hazardous substance or any substance that renders freshwater unsuitable for consumption by animals.
- The discharge water is not applied to land when soil moisture exceeds field capacity.
- The discharge water must not cause erosion or scouring at the point of discharge.

For full council rules for Auckland, Hawke's Bay, Waikato, and Canterbury refer to the supporting document Council Rules for Discharge of Water from Farm Machinery Washdown Pads (Version 1.2). For other regions please contact the relevant council directly.

What is reasonable mixing?

Reasonable mixing acknowledges that it is sometimes necessary and acceptable to allow for a mixing zone – an area of the receiving water in which the water quality standards are not met. Regional councils develop their own definitions of reasonable mixing. Some councils have used rules-of-thumb such as 5 or 10 times a river's channel width. <https://www.niwa.co.nz/freshwater-and-estuaries/freshwater-and-estuaries-update/no07-2004/reasonable-mixing-a-challenge-for-planners>

Further information:

Agriculture Victoria. *Cleaning farm machinery*. May 2012.

<http://agriculture.vic.gov.au/agriculture/horticulture/vegetables/vegetables-a-z/potatoes/cleaning-farm-machinery> accessed 10/06/19

Auckland Council. *Guideline Document 05: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region*. June 2016.

<http://content.aucklanddesignmanual.co.nz/regulations/technical-guidance/Documents/GD05%20Erosion%20and%20Sediment%20Control.pdf>.

<https://cleanawater.com.au/information-centre> accessed 11/10/19.

Christchurch City Council. Washdown Area <250m².

<https://www.ccc.govt.nz/assets/Documents/Services/Wastewater/Wastewater-washpad-brochure-Oct16-WEB.pdf> accessed 10/06/19.

City of Swan. *Guidelines for the design and operation of wash down bays*.

<https://www.swan.wa.gov.au/Your-services/Public-health/Industrial-Premises/Machinery-and-equipment-washdown-bays>

Department of Primary Industries, Water and Environment, Tasmania. *Washdown Guidelines for Weed and Disease Control*. April 2004.

<https://dpiuwe.tas.gov.au/Documents/Washdown-Guidelines-Edition-1.pdf> accessed 10/07/19.

Department of Water, Government of Western Australia. *Water quality protection note 68: Mechanical equipment wash down*. September 2013.

https://www.water.wa.gov.au/_data/assets/pdf_file/0016/4066/106044.pdf accessed 10/07/19.

Horticulture New Zealand. *Erosion & Sediment Control Guidelines for Vegetable Production*. 2014. <http://www.hortnz.co.nz/assets/Uploads/Auckland-Waikato-ES-Control-Guidelines-1-1.pdf> accessed 11/10/19.

Meat & Livestock Australia. *Beef cattle feedlots: design and construction, Chapter 42. Vehicle washdown*. August 2016.

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National Pest Control Agencies. *Keep It Clean*. June 2013.

<https://waikatoregion.govt.nz/assets/WRC/Services/plant-and-animal-pests/Keepitclean.pdf> accessed 10/07/19.

