

Site Stabilisation / Reinstatement

If you have any questions about this procedures sheet contact Rotorua Lakes Council - Pollution Control

1. WHEN SHOULD I USE THIS SHEET?

This Best Management Practice (BMP) applies to any site where site stabilisation / reinstatement is required during or after works.

2. WHAT'S THE AIM?

Stormwater systems must only drain rain.

Sound stabilisation / reinstatement practices will help reduce the amount of contaminants leaving a site, helping to protect downstream receiving environments (e.g. kerb channels, stormwater catchpits, groundwater and natural water bodies) from sedimentation and water quality degradation.

3. WHY MANAGE REINSTATEMENT / SITE STABILISATION?

During and after works there are likely to be areas of disturbance and exposed soils. These disturbed areas pose an environmental risk, the most common risk being the discharge of sediment.

Sediment (e.g. clay, dirt and sand) is natural substance. However, it can have significant adverse effects on aquatic environments. Increased amounts of sediment in waterways can:

- Clog the gills of fish and damage other sensitive tissues through abrasion;
- Suffocate aquatic plants, fish and insects by smothering them;

- Reduce the amount of light entering the water, which can stop plants and algae growing - removing a major food source for fish and insects;
- Interfere with fish vision making them vulnerable to predators or unable to see their prey; and
- Increase the risk of flooding.

No project is complete until the site / works area is fully stabilised.

4. SITE MANAGEMENT AND ENVIRONMENTAL CONTROLS.

FORWARD PLANNING – BEFORE YOU START WORKS.

- Before you start works identify the potential environmental risks and define how these can be mitigated or reduced through site practices and / or environmental controls.
- Check the lay of the land to determine where any run-off is likely to go.
- Pay particular attention to any receiving environments including any stormwater drains.
- Steeper sites can be more difficult to manage and are likely to require a higher level of site management and controls.
- Have a plan to deal with incidents and emergencies.
- Identify a person who will be responsible for ensuring environmental practices and controls are followed and implemented prior to starting works.



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ENVIRONMENTAL PRACTICES AND CONTROLS.

- Stage works to minimise the amount of disturbed area on site.
- Put in place diversions (e.g. bunding, sandbags etc.) at stages uphill of the site to divert clean stormwater around the works. This will help to reduce the amount of contaminated water that you have to manage.
- Install stormwater cesspit protection measures as a form of secondary control on downstream receiving cesspits.
- Rehabilitate all disturbed areas as soon as possible and stabilise exposed soils by top-soiling, laying geotextile, applying straw or a hay mulch (or a similar stabilisation practice that maybe appropriate for the site).

Common site stabilisation / reinstatement practices are explained in more detail below.

TOP SOILING

Top soiling involves the placement of topsoil over a prepared area. Top soiling is not an effective stabilisation / reinstatement practice by itself, and forms part of other techniques by providing a medium for vegetative growth. Top soiling however provides some limited short term stabilisation by protecting sub-soils and absorbing water.

Top soiling should be used:

- Before top soiling make sure that stormwater protection measures, as a form of secondary control, are in place and remain until the site is stabilised;
- On relatively flat sites; and
- With mulching techniques until vegetation establishes.

REVEGETATION TECHNIQUES Grass

The planting and establishment of grass is a quick growing option to stabilise a site.

Key things to do when grassing:

- Before grassing make sure that stormwater protection measures, as a form of secondary control, are in place and remain until the site is stabilised;
- Topsoil if required to provide a good seed bed and ensure quick successful establishment of grass and vegetation;
- Apply seed at the recommended application rate;
- Apply mulch to stabilise the area and to help with moisture retention; and
- Maintain seeded area to assist with germination and ensure a stabilised site.



General planting

Planting is a reinstatement practice that is typically used when existing vegetation has been removed as part of site works. Planting can protect against erosion and provides shade to reduce the regrowth of weeds. However, trees and shrubs take a significant amount of time to produce enough root growth to stabilise a site.

When planting:

- Plant during the planting season (March to August);
- Improve establishment of planting and reduce maintenance costs by the use of weed fabrics prior to planting; and
- Mulch deeply around the plantings as it will help suppress weed growth and help stabilise the area.



Turfing

Turfing involves the placement of a continuous cover of pre-grown grass turf and is typically used for areas that require immediate stabilisation such as in residential areas, the banks of watercourses, and steep locations. Turfing has the additional advantage of providing immediate site stabilisation / reinstatement as well as being suitable for landscaping.

Key things to do when turfing:

- Before turfing, the site should be properly prepared with the application of fertilisers, grading of the site and clearing of any debris;
- If the laying of turf occurs in summer months the soil area may require light irrigation before the application of turf;
- When laying the turf do not stretch or overlap;
- Water the freshly laid turf area daily if there has been no rainfall;
- Apply fertiliser when required in accordance with supplier's specifications; and
- Mowing of the revegetated area should not occur until the turf is firmly rooted.

Mulching

Mulching involves the application of a protective layer of straw or other suitable material to the exposed surface protecting soils and reducing runoff. The use of wood chips is not considered appropriate for Stormwater Capital Works Projects as many works occur in areas that will need to be mowed and / or are located around watercourses. Mulching provides instant erosion protection and is often used in conjunction with other stabilisation / reinstatement practices. Mulching also helps to maintain moisture and promote establishment of desirable vegetation.

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Key things to do when mulching:

- Before mulching make sure that stormwater protection measures, as a form of secondary control, are in place and remain until the site is stabilised;
- Application of mulch should be at an appropriate rate that provides good coverage of all exposed soil;
- The application of mulch should be uniform and will typically be done by hand;
- Ensure mulch is compacted to prevent it becoming dislodged during rainfall; and
- For the best results, total surface coverage must be maintained. Mulch may need to be reapplied as it settles or breaks down.

GEOTEXTILE

Geotextile involves the application of open weave meshes / matting and organic erosion control netting to exposed surfaces and can be used to immediately stabilise an area. Geotextile can also be used to promote vegetation establishment.

Geotextile can be applied to areas with highly erodible soils, in areas where there may be slow establishment of vegetative cover and in areas requiring rapid stabilisation. Note that many geotextile products will have design specifications which need to be closely followed.

Key things to do when using geotextile:

- Remove all rocks, vegetation and other obstructions so that the installed blankets or mats have complete and direct contact with the soil;
- The use of anchors may also be required and should follow the manufacturer's specifications; and
- Ensure that recently installed geotextile areas are inspected after every rain or wind event to ensure they are still in place.

MONITORING AND MAINTENANCE.

It is important that during and after works you:

- Check the condition of the stabilisation practice on a regular basis particularly after rainfall;
- Ensure that construction equipment does not disturb the reinstated area. This can be done by erecting a temporary barrier fence to restrict movement of equipment;
- Regularly inspect and clean out sediment controls and secondary cesspit protection; and
- Once the site is fully stabilised remove environmental controls. Inspect stormwater cesspits and remove any contamination associated with site works.

5. TIPS.

Although this BMP presents a range of accepted best practice methods, there are many ways of achieving the above aim.

- The best way to minimise erosion and sediment discharges is by minimizing the area of exposed soil at any one time.
- Install stabilisation / reinstatement practices that are suitable for the site.
- Remember that cesspit protection measures are only to be used as secondary sediment control devices. Correct site practices and environmental controls will reduce the reliance on these devices.

6. USEFUL LINKS AND INFORMATION.

- Go to www.RDC.govt.nz, here you will find a range of helpful information and links to the range of pollution related resources and educational materials.
- Refer to the following BMPs
 - An Introduction BMP;
 - Sediment and dust management;
 - Works within watercourse;
 - Works within contaminated sites;
 - Directional Drilling;
 - Noise;
 - Spills and Emergency Management;
 - Concrete and asphalt;
 - Working in and around trees; and
 - Works within sites of significance.



If a discharge occurs that has the potential to, or has entered the stormwater system or natural receiving environments, contact the Rotorua Lakes Council 24 HOUR POLLUTION HOTLINE on (07) 348 4199 immediately.

For access to this BMP and to find the other BMP information sheets, go to the link below:

www.rotorualakescouncil.nz/stormwater

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