

Compost Blankets

EROSION CONTROL TECHNIQUE

Revegetation	✓	Temperate Climates	✓	Short-Term	
Non Vegetation		Wet Tropics	✓	Long-Term	✓
Weed Control	[1]	Semi-Arid Zones		Permanent	[2]

[1] Can be used to suppress the emergence of in-situ weeds.

[2] Permanent protection can only be provided through vegetation establishment.



Symbol



Photo supplied by Catchments & Creeks Pty Ltd

Photo 1 – Partial application of compost blanket



Photo supplied by Catchments & Creeks Pty Ltd

Photo 2 – Compost blanket during vegetation establishment phase

Key Principles

1. Critical performance parameters include the ability to control raindrop impact and sheet erosion of the underlying soil, and the ability to establish the desired, sustainable vegetation cover.
2. 100% coverage of soil surface is required.
3. Generally suitable for use only on areas subject to 'sheet' flow.

Design Information

Composts must comply with the requirements of AS4454.

The method of application, and the selection of seed content and tackifier must be based on the topography, soil properties, and expected weather conditions (based on weather forecasting and historic climatic conditions).

The maximum recommended bank slope of 1:1 (100%).

Recommended application rate of 25–50mm depending on slope and underlying topsoil thickness and quality, unless otherwise supported by experience gained from local trials.

Description

A surface applied high-grade compost containing selected plant seed, soil ameliorants, tackifiers, soil wetting agents, and bacteria and fungi foods.

The compost is usually applied using a blower truck.

Unlike conventional mulches, composted mulches have been allowed to biologically degrade for a predetermined period resulting in a relatively stable product generally free of viable seed content, thus reducing the risk of importing weed species.

The high temperature (55°C) pasteurisation process eliminates the biological viability of the seed content, and animal and plant pathogens.

Purpose

Used for both erosion control (wind and rainfall impact), and site revegetation.

The attributes of compost blankets are best realised when used on steep slopes where there is little or no existing topsoil, or where the in-situ topsoil cannot be reused.

Can be used as a soil conditioner for exposed, heavily-compacted soils that cannot be mechanically reconditioned due to poor machinery access or potential damage to existing tree root systems by such mechanically reconditioning. Compost blankets increasing the organic content of the soil, thus increasing stormwater infiltration.

Used as a soil conditioner when vegetating exposed, impoverished subsoils.

Commonly used for the revegetation of roadside embankments and verges.

Limitations

The ability of compost blankets to withstand concentrated flows depends on the choice of tackifier and the expected rate of vegetation establishment.

Maximum bank slope of 1:1 (100%).

Not suitable for placement directly on highly dispersive soils.

The placement of a compost blanket on slightly dispersive soils may be possible under ideal conditions; however, a minimum 100mm layer is recommended.

Advantages

The residual compost contains many of the plant-growth properties (nutrients) desired within a topsoil.

Use of a compost can avoid the need to import topsoil, thus reduces the risk of importing weed seed.

Composts have a significantly lower risk of containing weed seed compared to ordinary mulches.

Composts can improve plant growth rates on impoverished soils, while also helping to break-up compacted subsoils, thus allowing better long-term plant growth.

Compost blankets are significantly more stable than loose mulch blankets, and do not tie up important plant nutrients such as phosphorus and nitrogen.

Compost can be applied to very steep slopes (up to 1:1) depending on bank stability, surface preparation and the binder used.

Compost blankets can reduce stormwater runoff rates over the short-term.

Compost products represent a sustainable recycling of domestic and commercial garden waste. Local governments can develop in-house compost production.

Unlike some mulches, compost blankets are not subject to nutrient stripping during the decomposition of the blanket.

Disadvantages

Generally requires a minimum treatment area of 250m² to justify set-up costs.

Special Requirements

Compost certification must comply with the requirements of AS4454.

Choice of tackifier depends on land slope and potential surface flow conditions (i.e. stormwater run-on and runoff).

It is important to ensure drainage from the surrounding catchment does not cause displacement of blanket.

A geogrid or synthetic two or three-dimensional blanket can be incorporated into the blanket to increase short and long-term stability on steep slopes.

The blanket must extend at least 1m beyond the top of embankments steeper than 4:1 (H:V) to minimise the risk of up-slope run-on water flowing under the blanket.

Location

Steep embankments or slopes containing little or no in-situ topsoil.

Site Inspection

Ensure 100% coverage of the blanket (i.e. no exposure of the soil).

To the maximum degree practical, randomly check for even coverage (i.e. depth of blanket) without walking on the treated surface.

Performance Indicators

Application depth measured at random test locations.

Application rate can be measured by placing collection trays at random locations across the proposed treatment area prior to application of the mulch. The trays (of known surface area) are dried and weighed pre and post application to determine actual dry application rate. The wet application rate (i.e. with water) can also be recorded.

Percentage cover can be measured using the quadrant method (a grided inspection plate which is photographed and analysed) or by visual estimation (refer to the *Revegetation* fact sheet).

Materials

- Composts must comply with the requirements of AS4454.
- Well-decomposed 100% organic matter produced by controlled aerobic (biological) decomposition.
- Maximum of 1% of inert material.
- Maximum soluble salt concentration of 5dS/m, and pH range of 5.0 to 8.5.
- Moisture content of 30 to 50% prior to application.

Application

1. Refer to approved plans for location, extent, and application details. If there are questions or problems with the location, extent, or method of application contact the engineer or responsible on-site officer for assistance.
2. Ensure all necessary soil testing (e.g. soil pH, nutrient levels) and analysis has been completed, and required soil adjustments performed prior to application.

3. Ensure the surface is free of deep track marks of other features that may result in flow concentration down the slope even after placement of the blanket.
4. Where necessary, establish up-slope drainage controls to limit run-on water that may disturb the mulch.
5. Spread enough compost to completely cover the surface of the soil, and as a minimum, at the application rate or thickness specified in the approved plans.
6. Take necessary steps to ensure the blanket is applied at a near uniform thickness, noting that thickness will vary if applied to irregular surfaces.
7. Ensure the applied blanket extends at least 1m beyond the top of any embankment steeper than 4:1 (H:V), or otherwise to minimise the risk of up-slope run-on water flowing under the blanket.
8. During application, all reasonable efforts must be taken to avoid spray onto roads, pathways, drainage channels not intended for application, and existing vegetation.
9. Ensure the compost is restrained from excessive movement by wind or stormwater runoff by the appropriately application of the specified tackifier.
10. Watering should be undertaken to wash soil ameliorants into the soil profile. If the treated area was seeded, continue to water after application of the compost in accordance with weather conditions, or as required to obtain suitable germination and satisfactory plant establishment.

Maintenance

1. During the construction period, inspect all treated areas fortnightly and after runoff-producing rainfall and strong winds.
2. Check for displacement of the compost.
3. Replace any displaced compost to maintain the required coverage.
4. Continue inspections until vegetation is suitably established or erosion control is no longer required.
5. If the compost blanket is not effective in containing the soil erosion it should be replaced, or an alternative erosion control procedure adopted.