Erosion and Sediment Management Plan

Wallgrove Redevelopment

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1 Introduction

The purpose of this Erosion and Sediment Management Plan (ESMP) is to provide a strategy for the implementation of controls, to limit the environmental impact from erosion or sediment generated from the development.

The ESMP is contained in two plans (attached) and has been prepared with reference to M*anaging Urban Stormwater: Soils and Construction* (Landcom, 2004).

Any sediment transport south of the road will be contained in the site stormwater attachments and be directed to site dams and sediment basins for part of the development. Sediment generation rates for a road construction project shall be comparable to the generation rates of the site under current operating conditions. Maintenance requirements for the silt fencing are detailed on Sheet 2.

2 Objectives

The ESMP set out to achieve the following:

- Mitigate the impacts of land disturbance activities on soils, landforms and receiving waters by focussing on erosion and sediment control.
- Reduce pollution to downstream areas and receiving waters
- Reduce land degradation
- Raise awareness on site of ecologically sustainable development (ESD) principles and their application to development. Through the:
    (a) Control erosion of soil materials
    (b) Control sediment and other partilcate matter as near to the source as practical
    (c) Achieve stability of soil and water management structures in the design storm event

3 Information Requirements

1. A Development Application shall be accompanied by:

(a) An Erosion and Sediment Control Plan (for developments <2,500m2 in gross floor area), or
(b) A Soil and Water Management Plan (for developments equal to or greater than 2,500m2 of GFA).

2. An Erosion and Sediment Control Plan shall include the following information:
(a) Site plan (including the extent of site disturbance) and property boundaries;
(b) Contours of the land;
(c) Waterways and drains in close proximity to the site;
(d) Measures to be used to prevent erosion;
(e) Location of sediment fences and traps;

(f) Location of a designated wash out area;
(g) Location of stock pile areas and control methods;
(h) Location of any vegetation buffer zones; and
(i) Location of stabilised site access point;

3. A Soil and Water Management Plan shall be prepared in accordance with the NSW Landcom publication titled *Managing Urban Stormwater: Soils and Construction Vol. 1 4th ed. March 2004* (Blue Book) or the latest version of this publication. Where there is an inconsistency between the Blue Book and the control measures specified in this ESMP, the Blue Book shall prevail to the extent of the inconsistency.

4 Control Measures

4.1 Site Preparation

- Sediment and erosion control measures are to be implemented prior to the commencement of any construction works.
- Where vegetation exits on the site, buffer zones of vegetation should be retained along the boundaries of the site, particularly those adjacent to creeks and street gutters.

4.2 Erosion Control Measures

A range of erosion control measures may be used during the development and subdivision of the sites sites to address potential soil erosion problems, including:

- Temporary waterway crossings;
- Temporary channels / drains and inlet / outlet works, in order to divert water from cut or fill slopes and to intercept off-site run-on water and spring water, especially in areas with moderate or high hazards of land instability;
- Temporary contour banks or cellular confinement systems, to minimise sheet erosion problems;
- Rock check dams or other alternative channel linings, to help reduce the erosive energy levels of concentrated water in constructed stormwater drainage channels;
- Temporary water diversion structures such as earth banks (low flows or high flows);
- Energy dissipaters and outlet protection measures, in order to reduce water velocities to minimise soil erosion problems around drains and outlets; and
- Sub-sub soil drainage measures, in order to provide controlled water flows through the soil strata.

4.3 Sediment Control Measures

The following controls measures will be used to limit the occurrence of sediment related incidents;

1. Sediment fences should be constructed parallel to the contours of the site.

2. A 150mm deep trench should be cut along the upslope line of the fence for the bottom of the geotextile fabric of the sediment fence to be entrenched.

3. The 1.5 metre long (40mm square) hardwood star pickets for the sediment fence shall be driven into the ground at 2.5 metre intervals (maximum) at the down slope edge of the trench. The star pickets should be fitted with safety caps.

4. The self-supporting geo-textile fabric shall be affixed to the upslope side of the star pickets and placed within the toe of the trench. Only geo-textile fabric designed for the use of sediment fencing shall be used. The use of shade cloth for the purposes of sediment control fencing is not satisfactory.

5. The geo-textile fabric should be affixed to the star pickets by stapling or the use of wire ties. Wire tied sediment fences may be readily unhooked from their support posts during construction hours to allow the delivery of raw materials.

Figure 1 in Appendix 2 shows the general construction requirements for sediment fences.
Figure 2 in Appendix 2 shows the general construction requirements for straw bale filters.

6. Mesh and gravel inlet filter sediment traps are required to be provided in front of any stormwater drainage gutter inlet pits, in order to prevent coarse sediment entering the inlet pit.

7. Figures 3 and 4 in Appendix 2 give examples of acceptable inlet filter sediment traps.

8. The retention or planting of vegetated filter strips down slope of a construction site may help to rap coarse sediment which has escaped from a damaged section of a sediment barrier fence, especially during the majority of storm events.

9. Recycled concrete aggregate will be used as a mulch to limit the hight traffic areas and entry and exit points.

10. The existing truck wheel was will remain in its current position and will be used for all trucks exiting the site.

4.4 Wash-out Areas

A designated wash out area shall be set aside for waste water generating activities such as washing down concreting, paint and other trade equipment. This area shall be:

- Located away from drainage lines and the street gutter
- All run off from the waste area shall be intercepted by a sediment fence, straw hay bales or other suitable filter device to prevent stormwater pollution
- Where possible, the wash out area shall be located on a grassed area or be surrounded by vegetation buffer zone.

4.5 Stabilised Entry / Exit Points

The main vehicular access point should be constructed with a 150-200mm deep pad of 40mm – 75mm crushed rock or recycled concrete. The access point should be at least 5 metres wide and 5 metres long.

The exit point for heavy road vehicles will be through a truck wheel wash located at the boundary of Collector Rd and the site.

4.6 Position of Stockpiles

Delivery of building materials with the potential of sediment run off will be deposited entirely within the allotment boundaries and located to avoid runoff into a drain, gutter or watercourse. They may also be situated within closed compounds.

4.7 Revegetation

Sites shall be revegetated as soon as possible to prevent soil erosion. Excavated top soil should be reused as it generally contains nutrients, seeds and rootstock. Planting low maintenance native species will minimise the water, fertilisers and maintenance required for long term success rate.

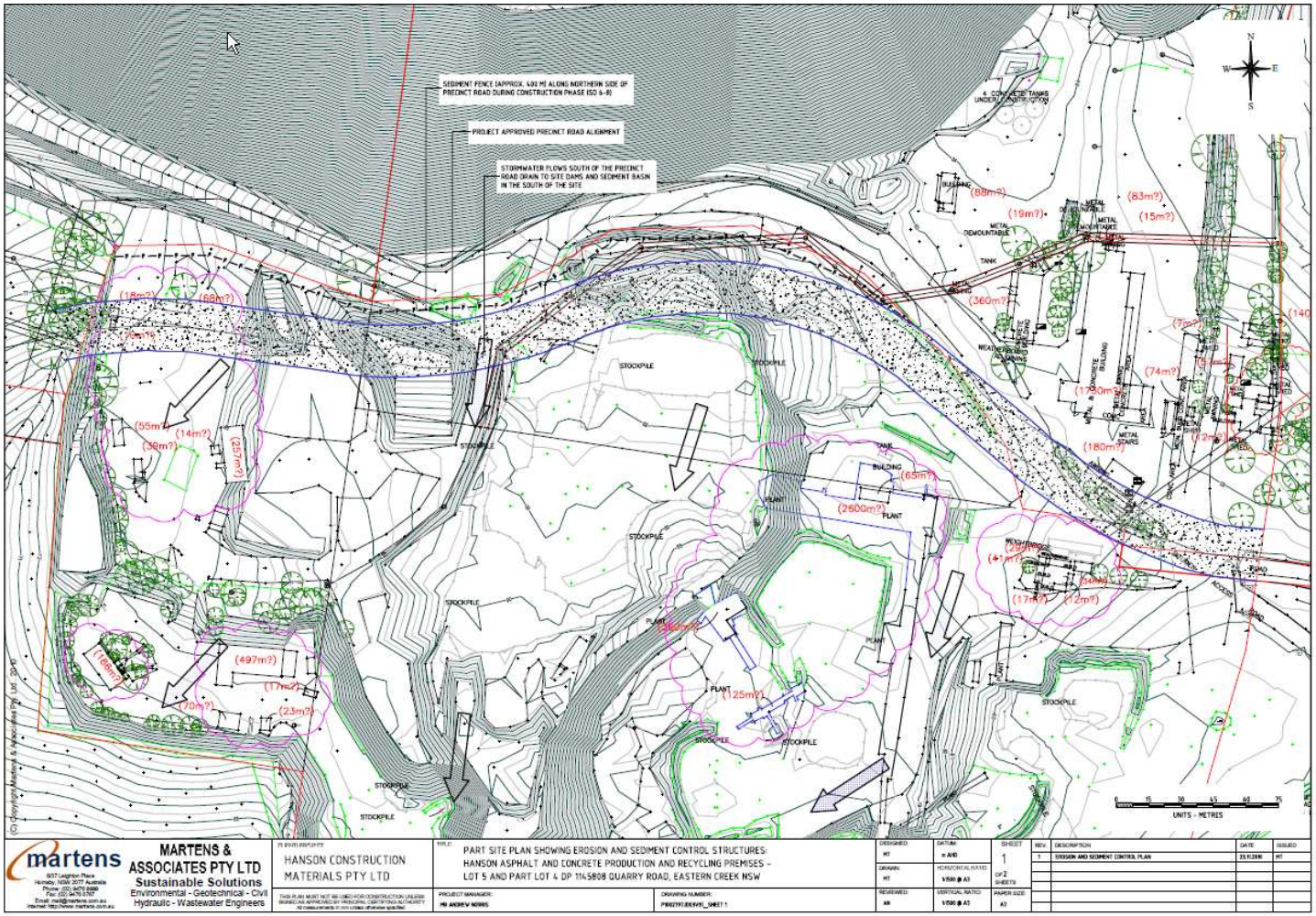
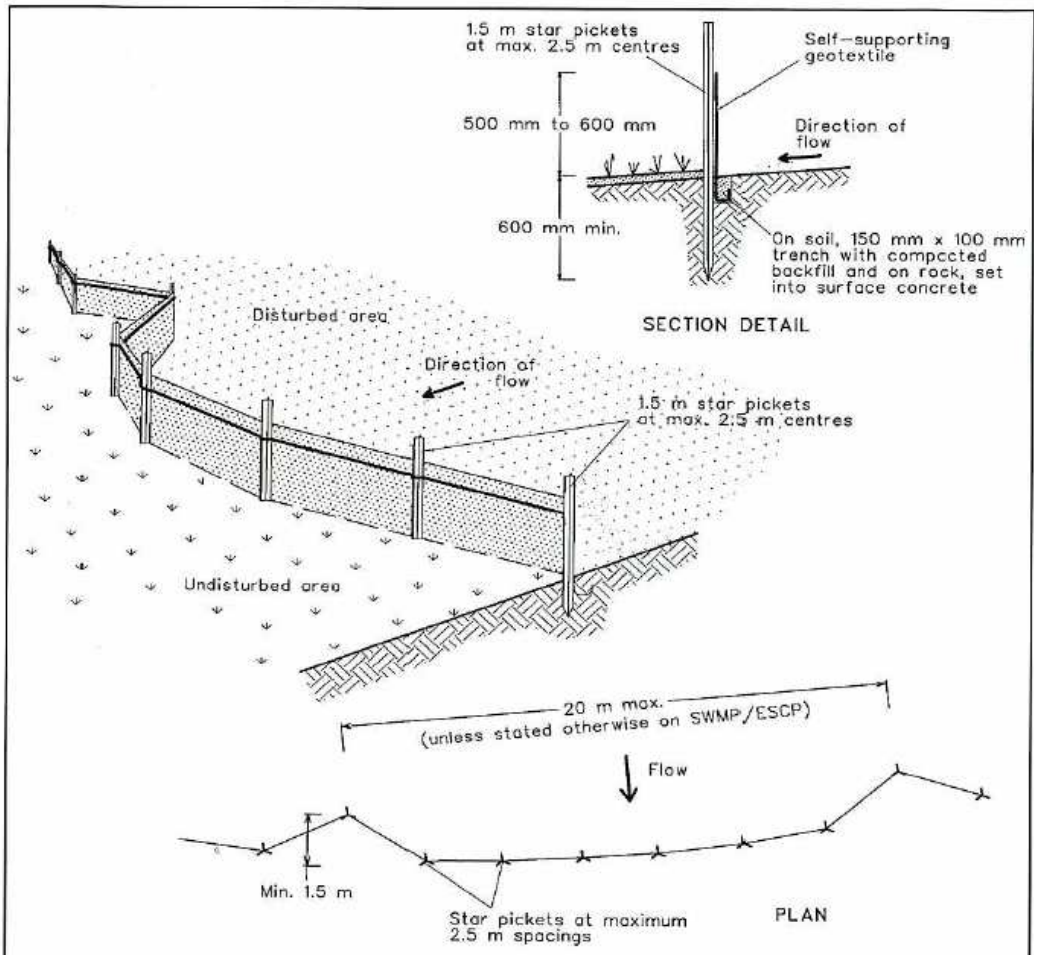


Figure 4: Erosion and Sediment Control Diagram
SOURCE: *Martens and Associates Pty Ltd*

5 Inspection and Maintenance Program

The following commitments will form part of the sites inspection and maintenance program;

a. Erosion and sediment control measures must be inspected:
b. Daily (i.e. when work is occurring on the site) or weekly (i.e. when work is not occurring on the site); and immediately after a rainfall event, in order to ensure such measures are maintained in a functional condition and any sediment is removed from the structure.
c. All erosion and sediment control measures shall be maintained in a satisfactory condition throughout the entire construction period up until such time as a final occupation certificate for a development project or a subdivision certificate for a subdivision has been issued.



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

Figure 2: Sediment fencing
SOURCE: NSW Landcom. *Managing Urban Stormwater: Soils and Construction Volume 1 March 2004.*

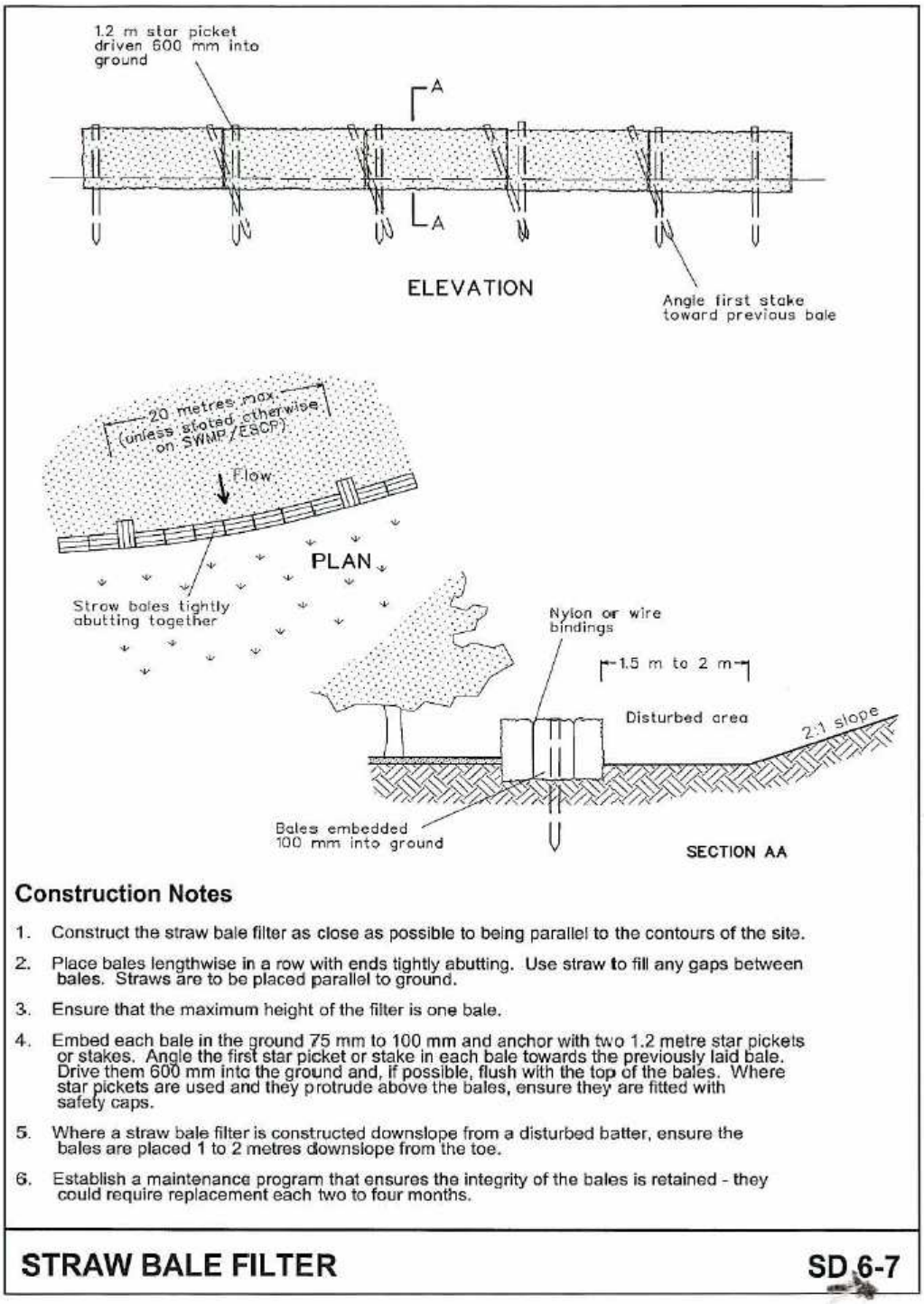


Figure 3: Straw bale filter
SOURCE: NSW Landcom. *Managing Urban Stormwater: Soils and Construction Volume 1 March 2004.*

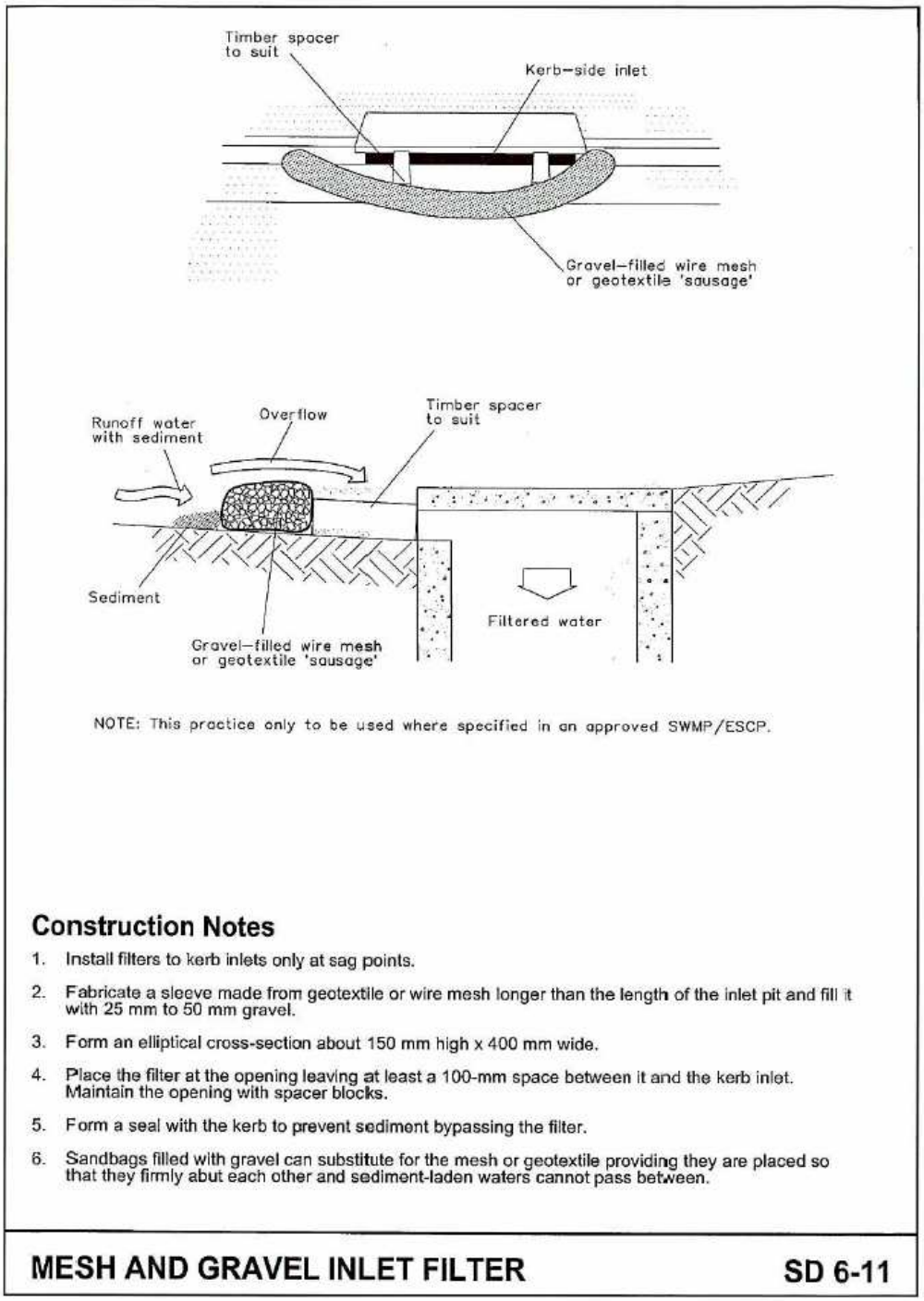


Figure 4: Mesh and gravel inlet filter
SOURCE: NSW Landcom. *Managing Urban Stormwater: Soils and Construction Volume 1 March 2004.*

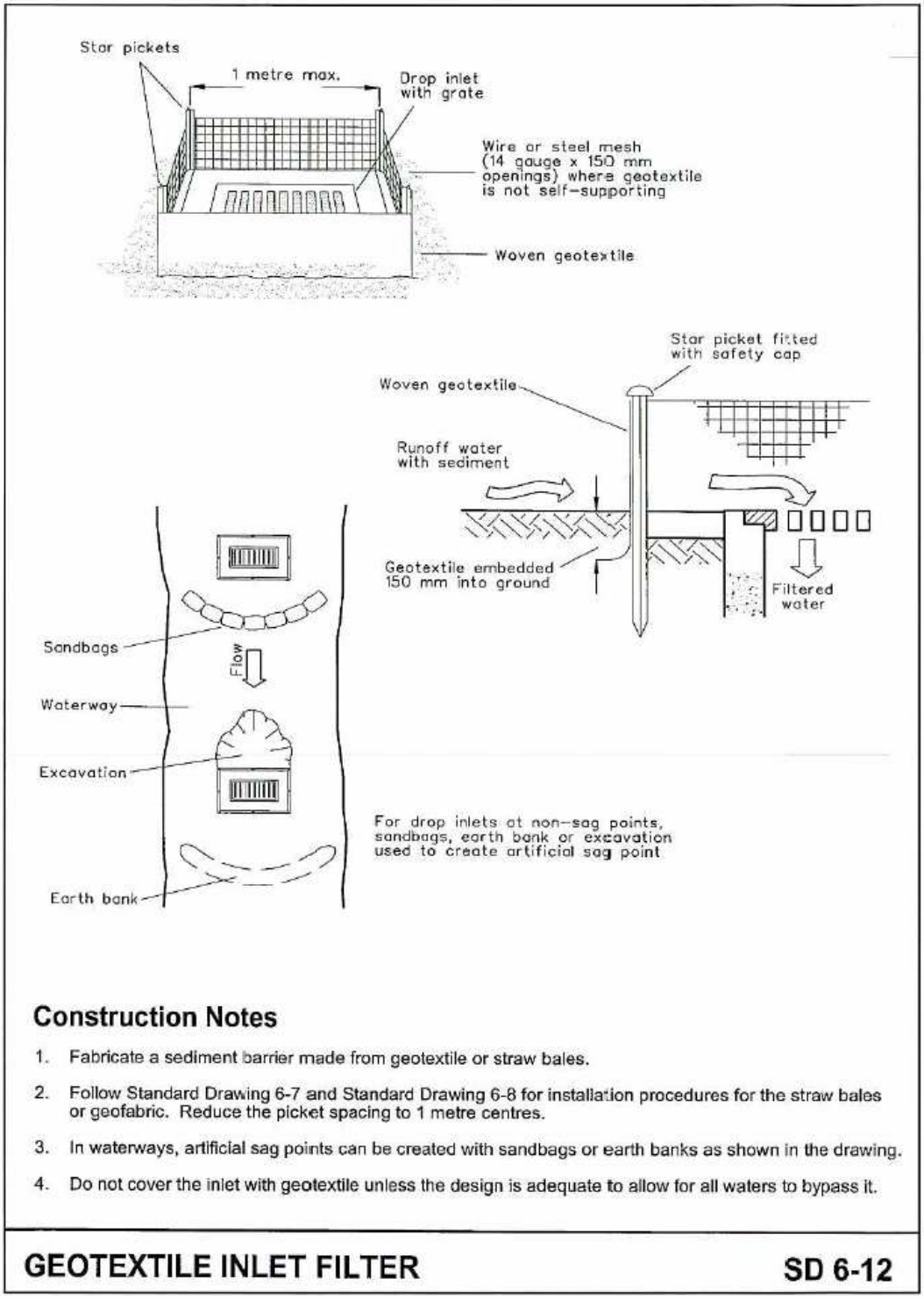


Figure 5: Geotextile inlet filter

SOURCE: NSW Landcom. Managing Urban Stormwater: Soils and Construction Volume 1 March 2004.

6 Revision History

Rev	Revised By	Reviewed & Approved By	Date	Description/Summary of Changes
0	J. Lardis	D. Driver		