

Part E – General Controls – Environmental Controls

Chapter E22: Soil Erosion and Sediment Control

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0	15/12/09	1/3/10	Adopted
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1 INTRODUCTION

1. The purpose of this Chapter of the DCP is to provide Council's minimum requirements for the implementation of Erosion and Sediment Control (ESC) measures on demolition and construction sites.

2 OBJECTIVES

1. The main objectives of this part of the DCP are to:
 - a) Minimise the amount of sediment and contaminated water which leaves sites whilst improving environmental outcomes throughout construction (i.e. improved surface water quality);
 - b) Minimise the disturbance of sites during land use development activities and preserve, wherever possible, existing vegetation on development sites from either damage or removal as a result of the construction works; and
 - c) Encourage prompt rehabilitation of construction sites by appropriate revegetation strategies.

3 INFORMATION REQUIREMENTS

1. A Development Application shall be accompanied by:
 - (a) Basic Erosion Sediment Control Plan for disturbance areas less than 1000m².
 - (b) Erosion Sediment Control Plan for (i) disturbances between 1000m² and 2500m², or (ii) for developments adjacent to 'Environmentally Sensitive Receptors' or (iii) within 50m of a watercourse or 100m of Lake Illawarra and Bellambi Lagoon or (iv) where impacts on adjacent water courses are likely.
 - (c) Soil and Water Management Plan for disturbances greater than 2500m².
 - (d) All development applications in the drinking water catchment must include a water cycle management study (WCMS) to help council and WaterNSW assess whether the development will have a neutral or beneficial effect on water quality (refer to <http://www.watarnsw.com.au/water-quality/catchment/development>).
2. An Erosion and Sediment Control Plan or Soil and Water Management Plan should include the following information (compliance with the "blue book" for each document type is considered a minimum requirement):
 - (a) A Basic Erosion Sediment Control Plan shall include a suitably detailed graphical representation of the site (with a scale of at least 1:200) that identifies all the pertinent matters pertaining to the management of ESC
 - (b) An Erosion Sediment Control Plan must consist of relevant site drawings, plans (including ESC infrastructure) and supporting documentation as to how specific control measures will mitigate relevant ESC issues.
 - (c) A Soil and Water Management Plan covers all site soil and water management issues where by ESC is one part of the overall management requirements. These plans include engineered solutions based on detailed numerical assessment of the probable site behaviour during construction.
3. It shall be prepared in accordance with the controls specified in this DCP. An example of a Basic Erosion and Sediment Control Plan is contained in Appendix 1.
4. All plans 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 DCP, the Blue Book shall prevail to the extent of the

inconsistency. All plans and their application must be periodically reviewed as works progress and updated or altered as required.

4 CONTROL MEASURES

4.1 Site Preparation

1. Sediment and erosion control measures are to be implemented prior to the commencement of any construction works.
2. Where vegetation exists 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 on building or subdivision sites to address potential soil erosion problems, including:

1. Temporary waterway crossings;
2. 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;
3. Temporary contour banks or cellular confinement systems, to minimise sheet erosion problems;
4. Rock check dams or other alternative channel linings, to help reduce the erosive energy levels of concentrated water in constructed stormwater drainage channels;
5. Temporary water diversion structures such as earth banks (low flows or high flows);
6. Energy dissipators and outlet protection measures, in order to reduce water velocities to minimise soil erosion problems around drains and outlets; and
7. Sub-sub soil drainage measures, in order to provide controlled water flows through the soil strata.

4.3 Sediment Control Measures

1. Sediment fences should be constructed parallel to the contours of the site with appropriate checks in place to avoid creating concentrated flows.
2. A 150mm deep trench should be cut along the upslope line of the fence for the bottom of the geo-textile fabric of the sediment fence to be entrenched. Onsite mulch or other alternative materials may be used in preference to silt fencing if ESC outcomes can be maintained.
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 downslope 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 downslope of a construction site may help to trap coarse sediment which has escaped from a damaged section of a sediment barrier fence, especially during the majority of storm events.
9. Dense native grasses which reach a height of 150mm provide the best uniform dense groundcover for vegetated filter strips.
10. The installation of a minimum 400mm wide vegetated grass strip along the kerb line is recommended as the last sediment trap for coarse sediment together with geo-textile sediment barrier fences.
11. All ESC infrastructures must be maintained in good working order. The appropriateness and success of any plans must be revised if control measures become inefficient.
12. Water should not remain pooled within the site at any time. Water pooling (after periods of rain) is indicative of poor drainage or over capacity ESC infrastructure.

4.4 Wash-out Areas

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

1. Located away from drainage lines and the street gutter.
2. All run off from the waste area shall be intercepted by a sediment fence, straw hay bales or another suitable filter device to prevent stormwater pollution.
3. Where possible, the wash out area shall be located on a grassed area or be surrounded by a vegetation buffer zone.
4. Under no circumstances is sediment and chemically contaminated water (i.e. pollution) allowed to leave the site at any time.

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 7 metres wide and 5 metres long.

4.6 Air Pollution

Stockpiles of sand and soil shall be located in a sheltered position where possible and covered or watered to prevent material from being blown off the site.

4.7 Early Roof Water Connection

Temporary or permanent downpipes shall be installed prior to frame inspection.

4.8 Position of Stockpiles

Loads of building materials shall be deposited entirely within the allotment boundaries and located to control runoff into a drain, gutter or watercourse. They may also be situated within closed compounds.

4.9 Revegetation

Sites shall be stabilised / 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, fertilizers and maintenance required for long term survival. Erosion and sediment control infrastructure must not be removed until suitable stabilisation has occurred.

5 INSPECTION AND MAINTENANCE

Erosion and sediment control measures must be inspected:

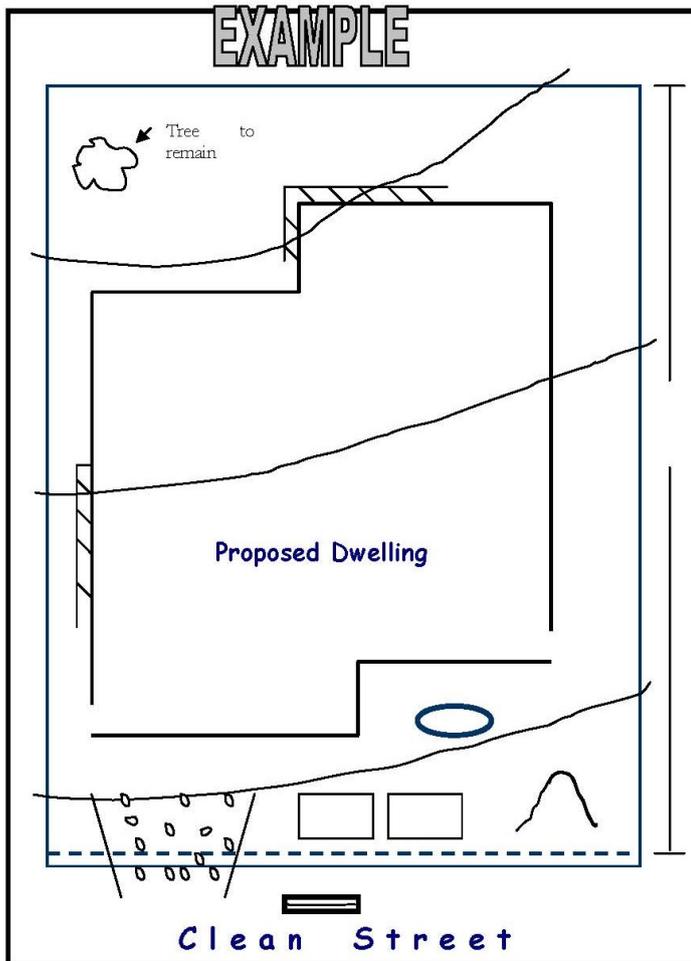
1. By Council as spot inspections prior to commencement of any construction works;
2. Daily (i.e. when work is occurring on the site) or weekly (i.e. when work is not occurring on the site); and
3. Immediately after a rainfall event, in order to ensure such measures are maintained in a functional condition and any sediment is removed from the structure.

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.

Failure to control and appropriately maintain ESC infrastructure in a working order may result in sediment or contaminated surface water leaving a site. In accordance with relevant state legislation these actions are considered a pollution offence and are punishable under relevant environmental legislation.

Appendix 1 **Site Management Plan**

Lot 2 No 15 Street Clean Street D.A No 999/99



Legend

- Hb-Hb Hay Bales
- DD Diversion Drain
- SWP Stormwater pipe
- sf-sf-sf Sediment Fence
-  sediment trap
-  Wash-out area
-  Waste Storage Container
-  Vegetation buffer zone
-  Stockpile Area
-  Stabilised entry/exit

- The extent of site disturbance.
- The location of waterways & drains on or proximate to the site.
- Slope contours of the site.

Additional Details: Split level design to minimise cut and fill. Vegetation retained at rear of site to hold soil in place, and at front of site to trap sediment.

Appendix: 2

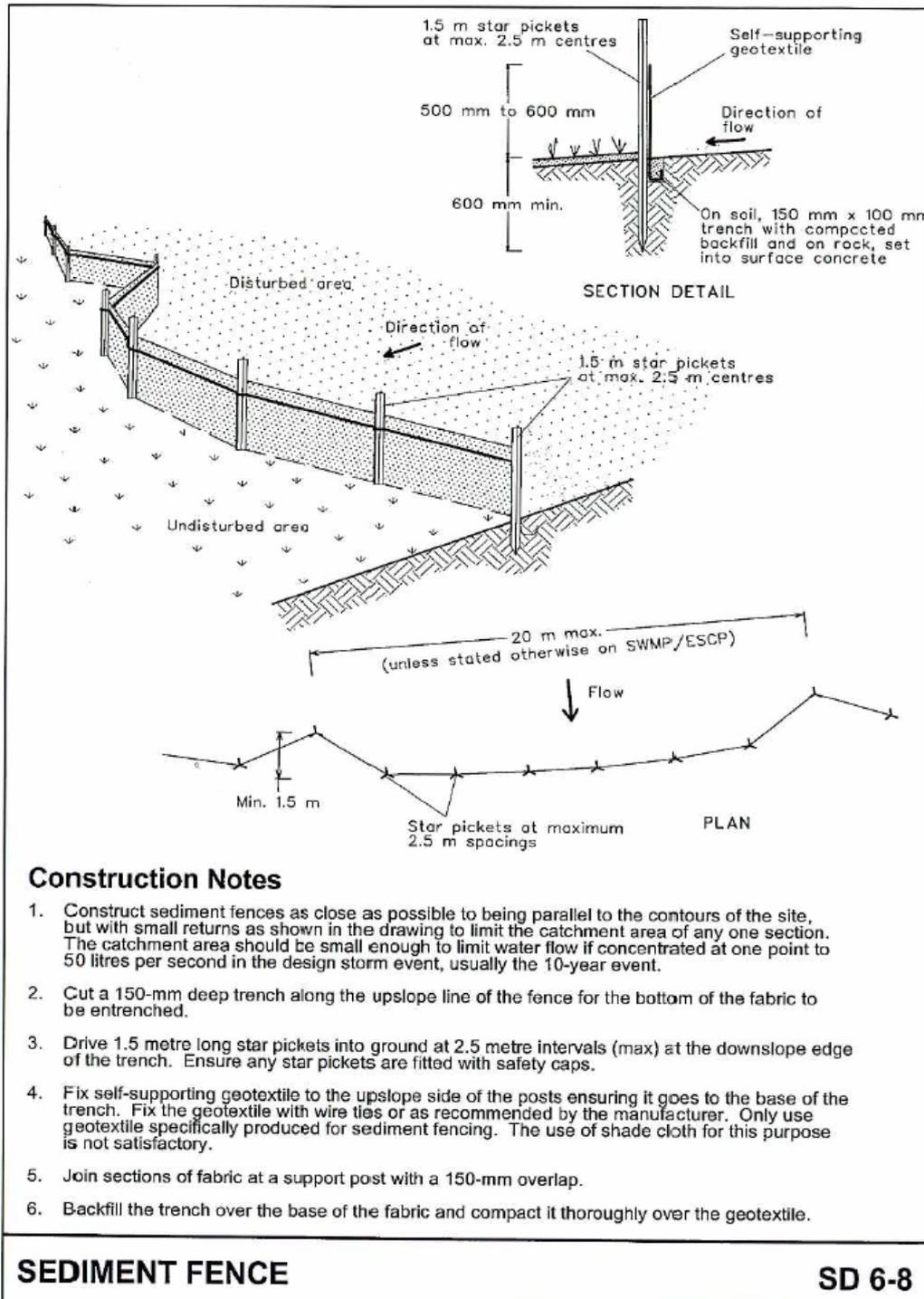


Figure 1: Sediment fencing

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

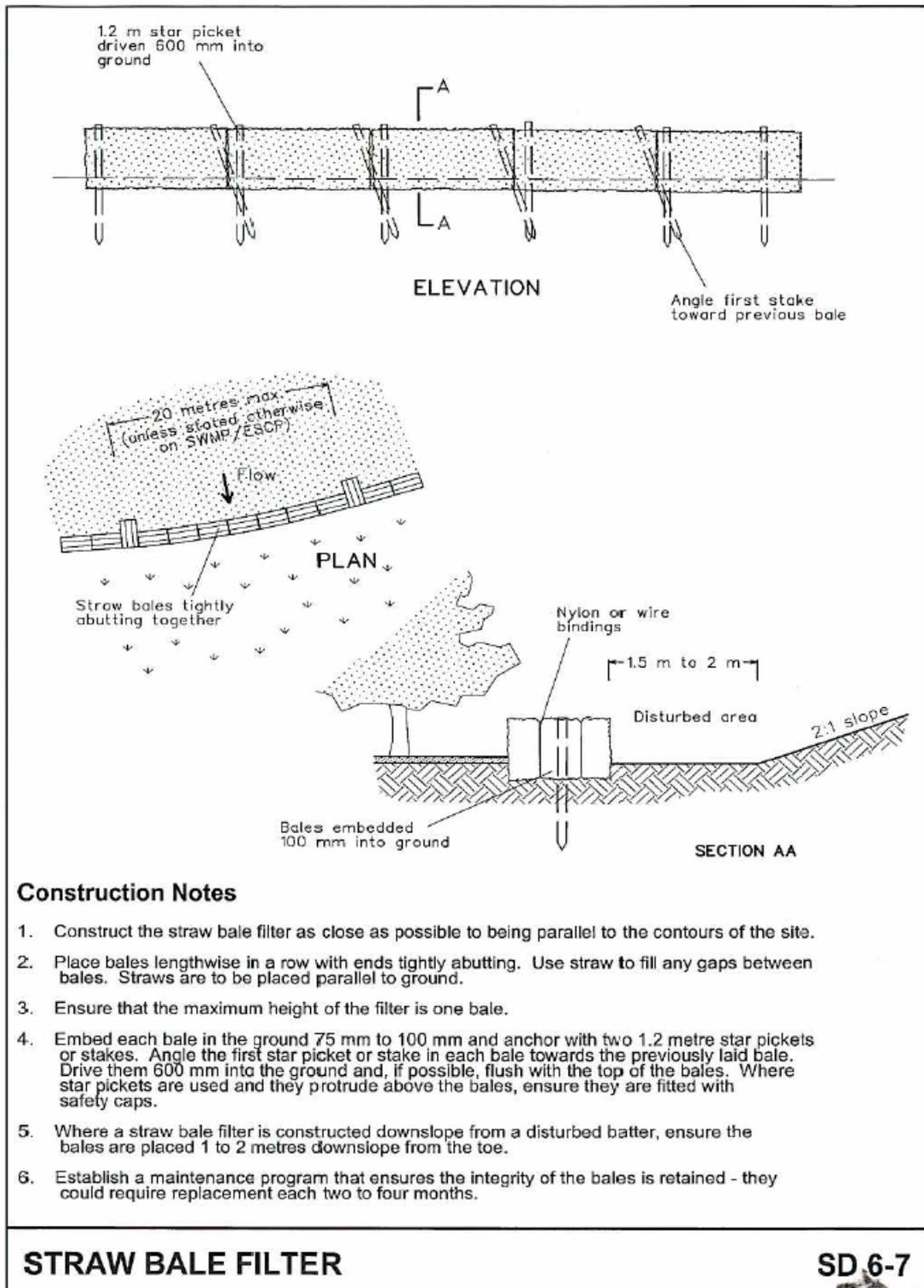


Figure 2: Straw bale filter

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

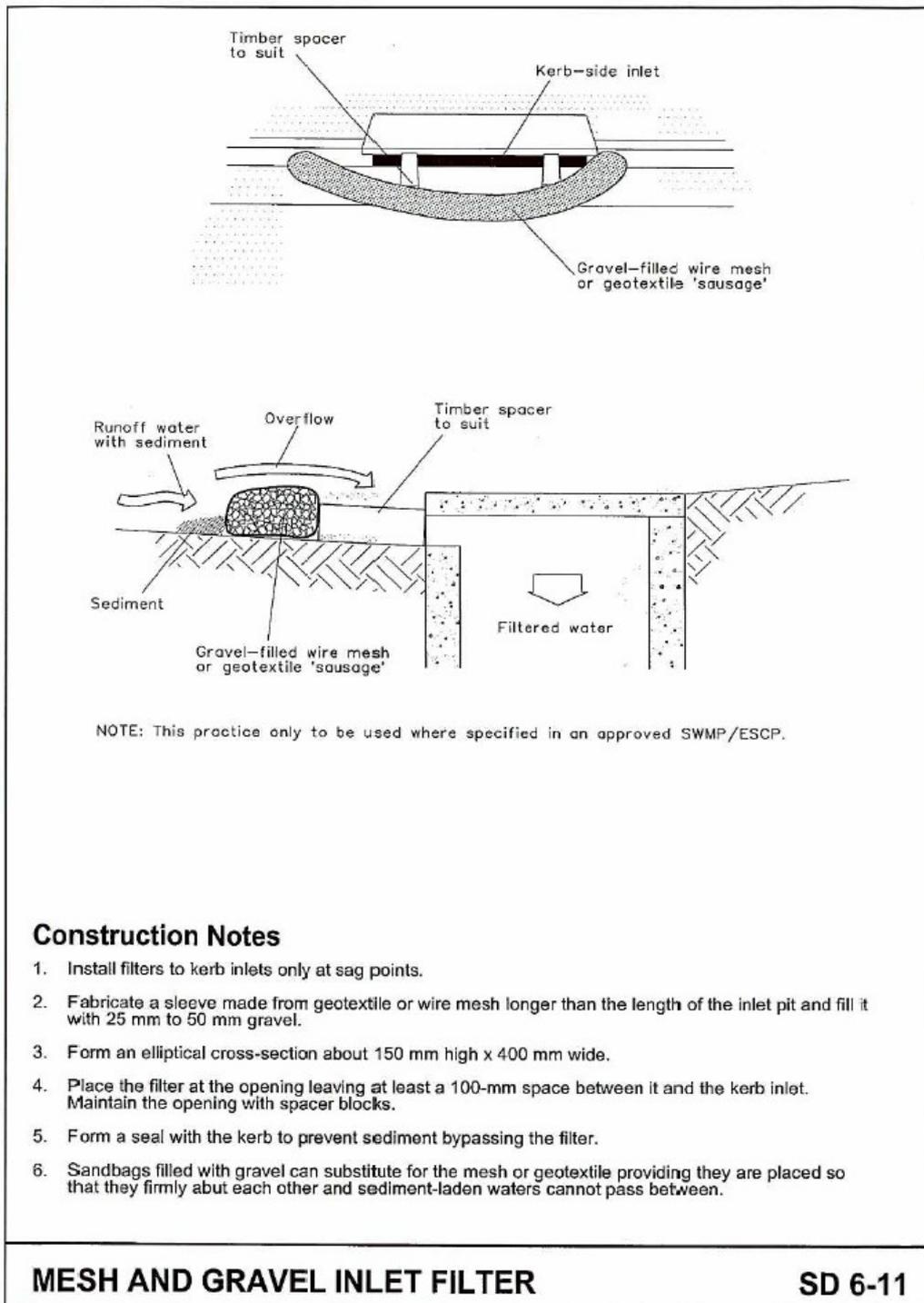


Figure 3: Mesh and gravel inlet filter

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

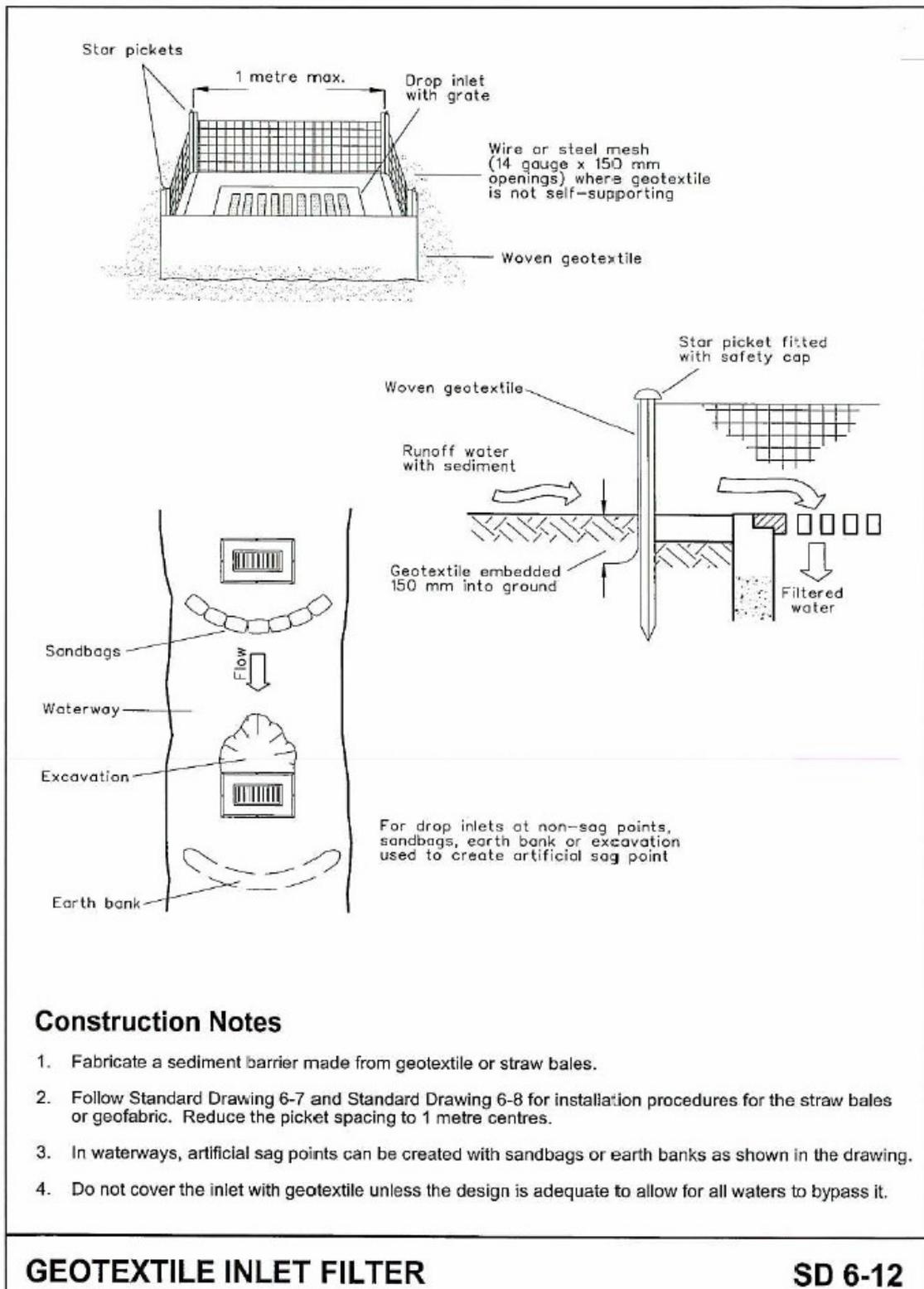


Figure 4: Geotextile inlet filter

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