

Modular Sediment Traps

SEDIMENT CONTROL TECHNIQUE

Type 1 System		Sheet Flow	✓	Sandy Soils	✓
Type 2 System	[1]	Concentrated Flow	✓	Clayey Soils	[2]
Type 3 System	[1]	Supplementary Trap		Dispersive Soils	

[1] Classification depends on the flow rate able to pass through the filtration system (over a sustained period of time) relative to the required design storm flow rate.

[2] Limited capture of clay-sized particles, but typically better than most traditional Type 3 systems.

Symbol MST



Photo 1 – Modular sediment trap



Photo 2 – Modular unit

Modular sediment barriers as discussed within this fact sheet are a modification of the 'Sediment Weir' technique presented within a separate fact sheet. It should be noted that a patented design exists ('WaterClean FilterBale' by Star Water Solutions) for individual modular units containing replaceable filter cartridges and wrapped in filter cloth.

Key Principles

1. Most filtration systems have only a limited ability to capture and retain sediment. Sediment traps should be used in conjunction with sediment weirs.
2. Sediment trapping is primarily achieved by gravity-induced sedimentation.
3. The critical design parameter for optimising particle settlement is the 'weir height'.
4. The allowable flow rate through the modular barrier is governed by the weir height.
5. Sediment 'filtration' and gravity-induced 'sedimentation' can be improved by filling the modular units with compost or special pollutant-adsorbing filter bags (e.g. 'WaterClean FilterBale'), or attach one or more filter tubes to the weir (Figure 4).

Design Information

Discharge capacity of the modular sediment trap can be estimated as per the recommendations for *Sediment Weirs* (refer to separate fact sheet). Wherever possible, product-specific head vs discharge relationships should be obtained from the manufacturer or distributor.

Recommended sediment trapping classification is presented in Table 1.

Table 1 – Recommended sediment trapping classification

Classification	Requirements
Type 2	<ul style="list-style-type: none"> • • •
Type 3	<ul style="list-style-type: none"> • •

Wherever practical, the filter fabric should be anchored with a backfilled 200mm deep trench (as per sediment fence installation), otherwise bury the fabric under aggregate.

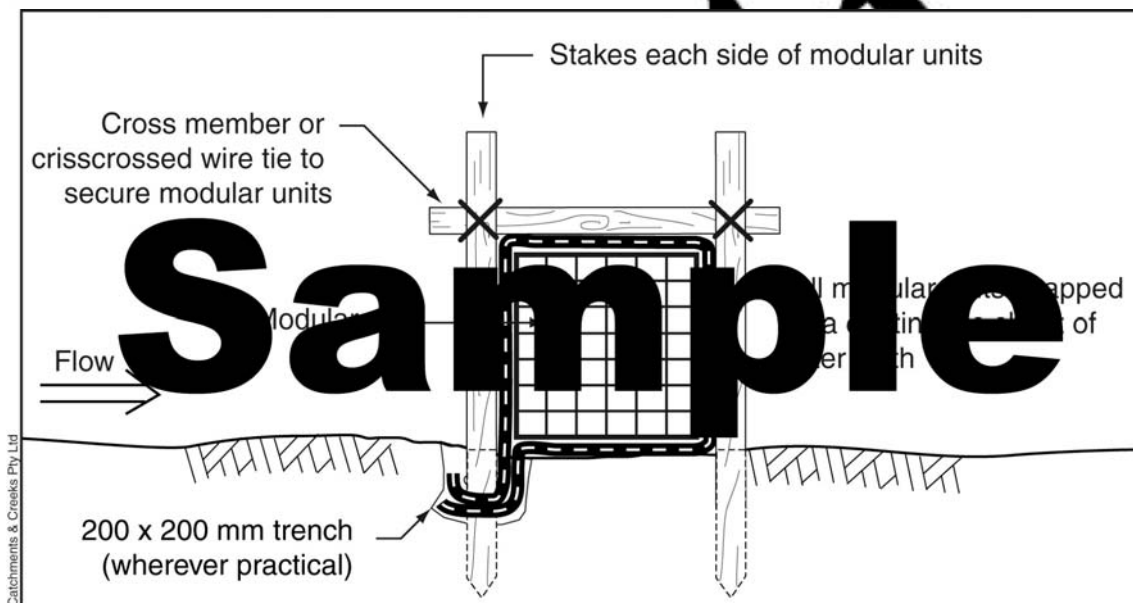


Figure 1 – Preferred method of anchoring geotextile wrap

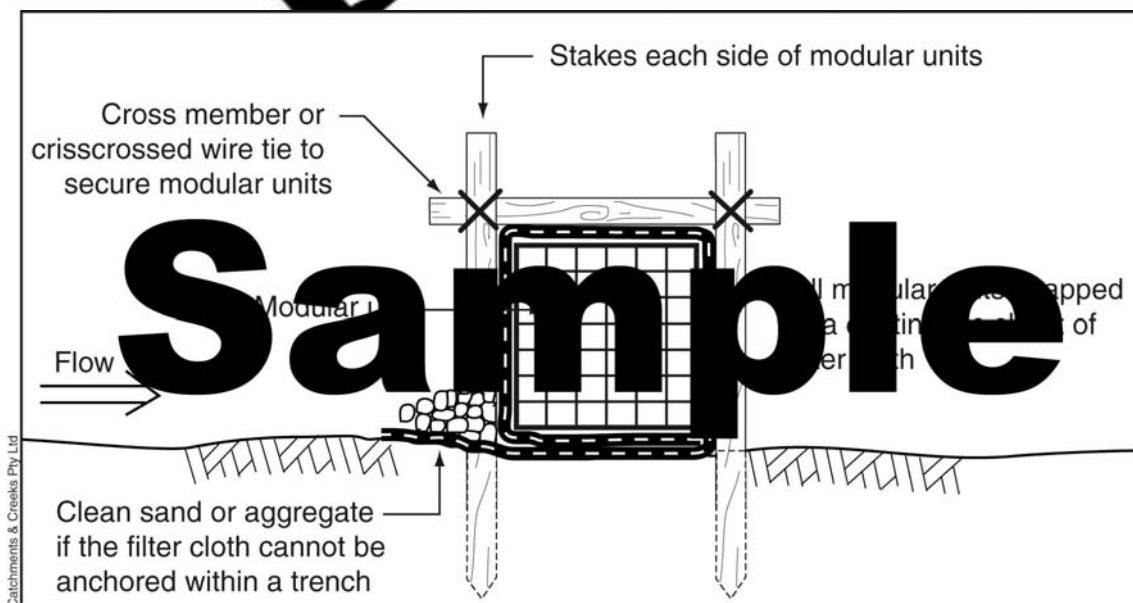


Figure 2 – Alternative method of anchoring geotextile wrap

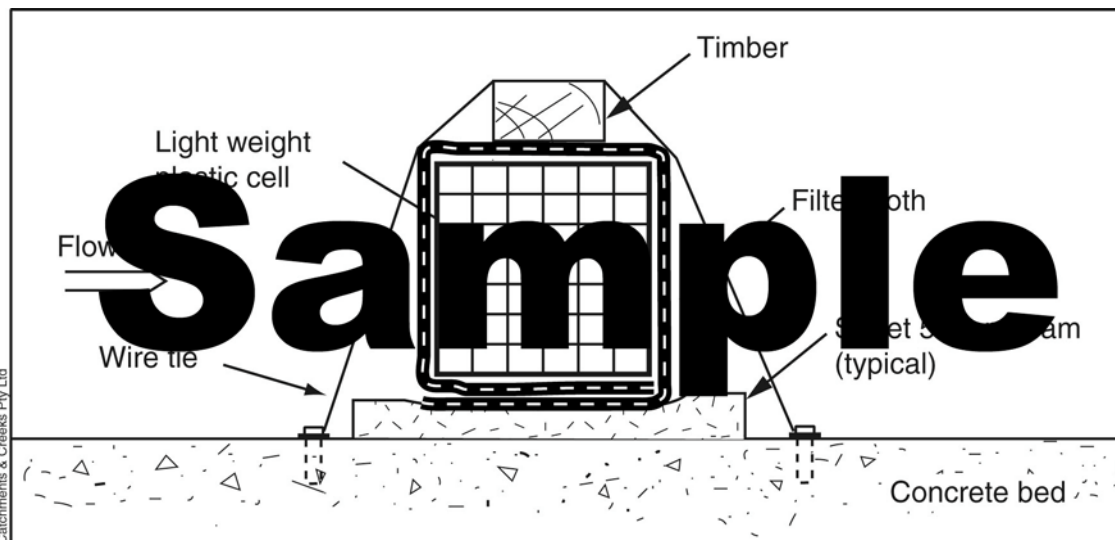


Figure 3 – Typical installation of modular sediment trap with concrete drain

Incorporating filter tubes into modular sediment traps (Figure 4) requires modification of some of the modular units to house the connection pipes; however, once modified, these units can be reused on similar installations.

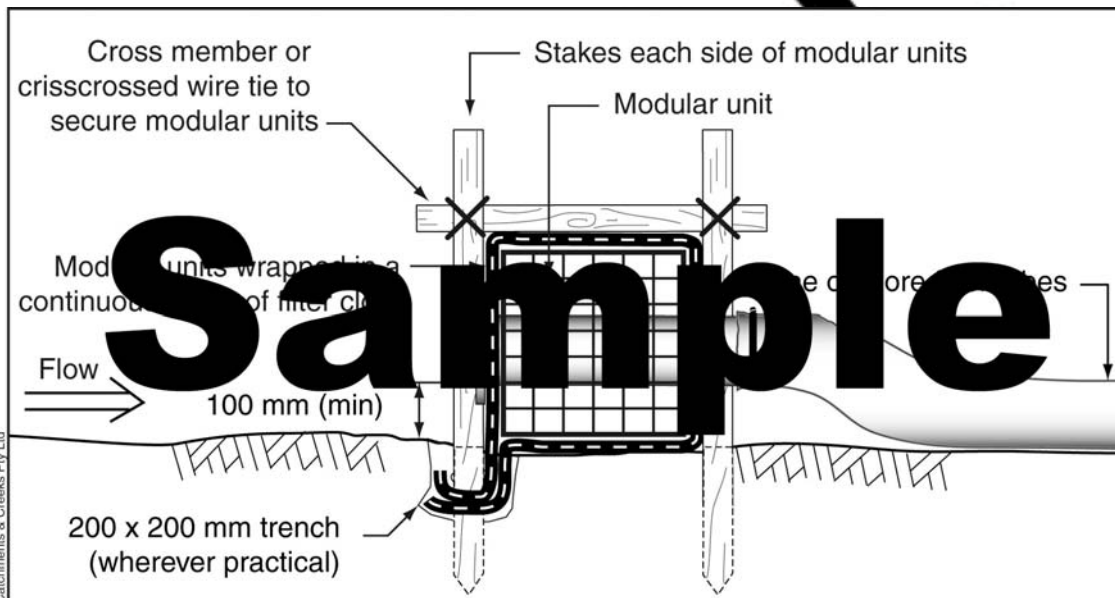


Figure 4 – Typical arrangement of filter tubes incorporated into a modular sediment trap

Description

A sediment filtration trap formed from modular units wrapped in filter cloth.

The modular units are used as a modern replacement for straw bales.

Purpose

Modular sediment traps are a specialist sediment control system developed for specialist installation purposes.

Originally developed to allow the formation of a sediment weir type structure within concrete lined drainage channels during construction and maintenance activities.

Used as a modern alternative to straw bales. They are both reusable and significantly more durable.

Limitations

In the absence of an appropriate internal filter media, the filter cloth provides limited capture of clay-sized particles.

Advantages

Light, reusable and durable.

Disadvantages

Can be difficult and time consuming to install.

