Stormwater Inlet Sediment Traps

SEDIMENT CONTROL TECHNIQUES

Photo 1 – Kerb inlet

Photo 2 – Field (drop) inlet

Table 1 provides the recommended default classification of various sediment control systems suitable for field (drop) inlet sediment control.

Table 1 – Default classification of sediment control techniques [1]

Type 1	Type 2	Type 3
	• Block & Aggregate Drop Inlet Protection [2] • Compost-Filled Filter Sock [2] • Mesh & Aggregate Drop Inlet Protection [2] • Rock & Aggregate Drop Inlet Protection [2]	• Excavated Drop Inlet Protection • Fabric Drop Inlet Protection • Fabric Wrap Drop Inlet Sediment Trap

[1] Classification is based on the technique being sized in accordance with best practice standards, otherwise the technique attracts a lower classification.

[2] Classification depends on design details.

'Supplementary sediment traps', such as most kerb inlet sediment traps, are not effective enough to be classified as Type 3 systems. Even though these sediment traps are relatively ineffective, their incorporation into most Erosion and Sediment Control Plans (ESCPs) is considered a relevant part of the best practice sediment control. It is, however, not considered sufficient for a sediment control scheme to rely solely on supplementary sediment traps.

Table 2 – Supplementary sediment control techniques

Flow condition	Sediment control technique
Roadside kerb inlets	• Filter Sock Drop Inlet Protection • Kerb Inlet Sediment Traps (on-grade and sag inlet traps, including Gully Filter Bags)
Field (drop) inlets	• Filter Sock Drop Inlet Protection • Gully Filter Bag • Straw Bale Barrier

Photo 3 – Block & aggregate system

Photo 4 – Compost-filled filter sock

Photo 5 – Excavated drop inlet protection

Photo 6 – Fabric drop inlet protection

Photo 7 – Fabric wrap drop inlet protection

Photo 8 – Filter sock drop inlet protection

Photo 9 – Gully filter bag

Photo 10 – Mesh & aggregate system

Photo 11 – On-grade kerb inlet control

Photo 12 – Rock & aggregate system

Photo 13 – Sandbags (filter sock)

Photo 14 – Kerb inlet control system

Photo 15 – Sediment weir

Photo 16 – Straw bale barriers are rarely adequate sediment traps

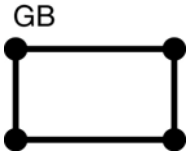
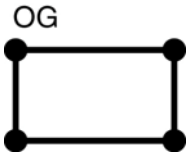
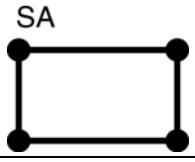
Photo 17 – No sediment control

Photo 18 – Shade cloth should <u>not</u> be used

Roadside kerb inlets

Table 3 outlines the attributes of various sediment control techniques for roadside kerb inlets.

Table 3 – Kerb inlet sediment control techniques

Technique	Code	Symbol	Typical use
Gully Filter Bag	GB		• Generally considered to represent *best practice* as a form of kerb inlet sediment control. • Used when it is considered unsafe to cause ponding or sediment deposition on the roadway. • Includes the use of flexible filter bags, and filter boxes lined with filter fabric. • Significant variation in treatment standard of various commercial products.
On-grade Kerb Inlet Sediment Trap	OG		• Up-slope of on-grade kerb inlets (i.e. kerb inlets **not** located at a sag point on a road). • Used as a series of sediment traps to collect cement runoff during the preparation of exposed aggregate surfaces.
Sag Inlet Sediment Trap	SA		• Used as a minor sediment trap constructed around kerb inlets located at sag points along a roadway.

Due to the high risk of physical displacement and damage, most roadside kerb inlet sediment traps are classified as *supplementary sediment traps*. Gully filter bags and fixed, in-gully filter bags/boxes generally provide a higher treatment standard if correctly installed and appropriately maintained.

The following recommendations and procedures are considered to represent best practice roadside sediment control practices:

(i) Wherever practicable, sediment runoff is collected and retained wholly within the work site.

(ii) Where the work site includes roads, whether sealed or under construction, all reasonable and practicable measures are taken to trap sediment runoff prior to its entry onto a road surface.

(iii) Where the sediment runoff has originated from the road surface, then all reasonable and practicable measures are taken to prevent the sediment entering a sealed (e.g. hard lined drainage system), or permanent drainage system (e.g. piped or open channel drain).

(iv) Sediment control measures used within or adjacent a roadside stormwater inlet are to represent current best available practice. As a guide, this generally means that correctly installed and maintained *Gully Filter Bags* (including fixed filter bags/boxes) are used in preference to road-surface sediment traps such as *Sag* and *On-Grade Kerb Inlet Sediment Traps*.

(v) The use of kerb inlet sediment traps must not replace the need for appropriate Type 1, Type 2, or Type 3 sediment traps up-slope of all stormwater inlets as required by the specified sediment control standard.

Sediment controls at field (drop) inlets

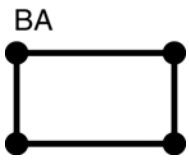
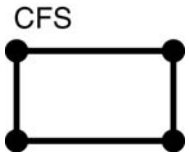
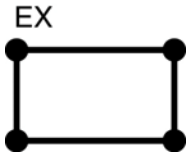
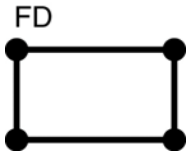
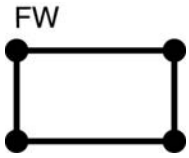
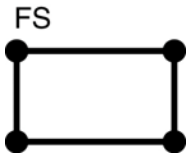
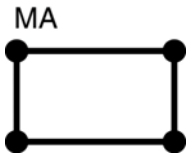
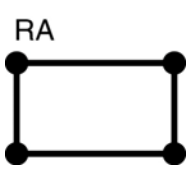
Table 4 provides guidance on the selection of the best sediment control technique for various site conditions.

Table 4 – Selection of the preferred field (drop) inlet sediment control technique

Location	Site condition	Technique preference
Building sites	Small catchment area	Fabric wrap drop inlet protection
	Larger catchment areas	Fabric drop inlet protection
Residential, industrial and commercial construction sites	Type 2 sediment trap formed in a basin or park where a field inlet can be used as the basin's outlet structure	Sediment weir
	Medium sized catchments	Block and aggregate (Type 2), or Compost berm (of adequate size)
	Above case, 2nd preferences	Block and aggregate (Type 3) Mesh and aggregate (Type 3)
	Small sized catchments	Compost-filled filter sock
	Above case, 2nd preferences	Fabric drop inlet protection, or Gully filter bag
	Above case, 3rd preferences	Filter sock, or Fabric wrap drop inlet protection
	Locations where it is not suitable to encourage aboveground ponding	Excavated drop inlet protection
Road and rail construction	Large, deep median within a dual carriage roadway	Sediment weir
	Above case, 2nd preferences	Rock and aggregate system
	Shallow median within a dual carriage roadway	Block and aggregate system – Type 2 or Type 3 as required
	Deep table drain	Block and aggregate (Type 3) Mesh and aggregate (Type 3)
	Above case, 2nd preferences	Compost-filled filter sock, or Gully filter bag
	Shallow table drain	Block and aggregate (Type 3), or Fabric wrap drop inlet protection with spill-through weir, or Excavated drop inlet protection
	Above case, 2nd preferences	Filter sock, or Fabric wrap drop inlet protection
	Locations where it is not suitable to encourage aboveground ponding	Excavated drop inlet protection

Table 5 outlines the attributes of various sediment control techniques for field (drop) inlets.

Table 5 – Field (drop) inlet sediment control techniques

Technique	Code	Symbol	Typical use
Block & Aggregate Drop Inlet Protection	BA		• Type 2 or 3 sediment trap. • Small to medium catchment areas. • Filter cloth may be placed between the aggregate and the support blocks to improve the removal of fine sediments. • The depth of ponding upstream of the field inlet is governed by the height of the blocks.
Compost-Filled Filter Sock	CFS		• For small inlets, the compost is usually contained within a larger-diameter filter sock. • Large compost or mulch berms usually require too much space to be located around most field inlets.
Excavated Drop Inlet Protection	EX		• Type 3 sediment trap. • Locations where water ponding around the stormwater inlet is not allowed to reach a level significantly higher than the existing ground level (i.e. water ponding and sediment collection occurs below finished ground level).
Fabric Drop Inlet Protection	FD		• Type 3 sediment trap. • Best used on sandy soils. • Small catchment areas containing sandy soils. • Locations where space is limited and a more substantial filter medium cannot be built.
Fabric Wrap Drop Inlet Protection	FW		• Type 3 sediment trap. • Very small catchment areas. • Most commonly used on building sites.
Filter Sock Drop Inlet Protection	FS		• Supplementary sediment trap. • Small catchments. • Compost contained within the sock can adsorb some dissolved and fine particulate matter.
Mesh & Aggregate (including Sediment Weir)	MA		• Type 2 or 3 sediment trap. • Small to medium catchments. • The depth of ponding upstream of the field (drop) inlet is governed by the height of the aggregate filter placed around the wire mesh.
Rock & Aggregate Drop Inlet Protection	RA		• Type 2 or 3 sediment trap. • Best used in coarse-grained (i.e. low clay) soil areas. • Large construction sites such as a duel-carriage road with the drop inlet located within the median strip. • Locations where space is not critical.