

Sediment and other building materials can enter the drainage system and contribute to the pollution of Perth's waterways when allowed to drift from building sites.

What is sediment?

Sediment is fragmented material such as silt, sand and gravel that is transported from a site by wind or stormwater, and eventually deposited downstream in the environment. This is usually in a body of water such as a lake or river, where it settles and forms a layer on the bottom.

Negative impacts

Negative impacts of sediment in drains and waterways include:

- Reduced capacity of the stormwater system, due to blocked drains, and reduced size of stormwater collection basins which can lead to localised flooding;
- Nutrient enrichment and eutrophication of rivers and wetlands, which can deplete the water of oxygen, and lead to excessive growth of algae;
- Harm to fish and other aquatic life and their environment; and
- Increased maintenance costs.

Aside from environmental factors, sand drift from development sites can also result in dust, causing a nuisance to neighbouring properties. The costs associated with remediation of the impacts of sediment drift can be considerable.



Figure 1: Build-up of sand washing into side-entry drain

Who is responsible?

Property owners and developers are responsible for sediment control. The following guidelines outline the obligations and provide practical sediment control and sand drift prevention measures for use on construction sites.

Practical ways to reduce erosion and sand drift from development sites

Minimise disturbance during excavation and other site works

The risk of erosion and sand drift significantly increases whenever vegetation is removed.

- Preserve as much vegetation on site as possible as plant roots stabilise the land and keep the soil in place. Leave vegetation strips around the perimeter of the site, this can assist in minimising sand drift.
- Take care to avoid disturbing whatever vegetation is on the verge during construction works.

Minimise the time land is exposed without stabilisation and rehabilitate the landscape as soon as possible.

Entry/Exit point

Restrict vehicle access to one entry/exit point where possible. Stabilise the access with coarse gravel. This will minimise the transportation of sediment onto public roads and will help maintain the site in wet conditions.

Sand and Gravel Stockpiles

Stockpiles must be placed wholly within the construction site and away from the sediment control fence. Any spillage on the road or verge should be cleaned up immediately. Stockpiles of sand, soil or cement should be covered securely at the end of each day if excessive wind or rain is likely.

Wash water and wastes

Wash water and waste from concrete, plaster, paint, building residue, or from the cleaning of tools and equipment must not be allowed to wash into the stormwater drains. A dedicated wash down area should be provided well away from the lowest point of the site.

Early stormwater management

All rainfall runoff from roofs should be contained on site through the use of guttering and the installation of soak wells. This should be done as soon as possible after the roof is laid, and in some cases the installation of temporary downpipes to a drainage system may be required.

Identify the lowest point on the site

Water always runs to the lowest point. It is important to minimise sediment, litter and other pollutants impacting on the lowest point of the site, which can be achieved through a few simple measures:

- Crossovers, stockpiles and wash down facilities should be located as far away from the lowest point as possible.
- Sediment control fences should always be located at the lowest point on the site
- For flat sites, a sediment control fence (as described below), should be installed on the side/s closest to the roadside gully drains.

Install a sediment control fence

Sediment control fences, when used correctly, are an effective way to retain sand and other building material on site.

The sediment control fence enables water to pass through, but traps sand and other coarse material before it washes into the stormwater drainage system (Figure 2).



Figure 2: Front view showing sediment control fence protecting stormwater drains.

The most efficient sediment barrier for building sites is specifically manufactured *geotextile material*. This temporary fencing material is available in Perth and is often referred to as a *silt fence*.

It is advisable to purchase geotextile material for the sediment control fence that is made from high quality woven material with UV inhibitors for durability.

The use of filter cloth or shade cloth is not suitable for this purpose and is therefore not permitted.

Installing a sediment control fence

If using the temporary type of fencing, it is important to request the fencing company to provide fence panels with no gap at the bottom to help secure the geotextile material

It is necessary to secure the geotextile material at the base of the wire mesh fence to prevent sediment passing underneath the fence. The preferred method for doing this is to place the lower 200 mm (minimum) part of the fabric on the ground facing into the construction site and buried under a 100 mm layer of coarse aggregate (see Figure 2). If permitted, another option is to bury the geotextile material in a trench to a minimum depth of 200 mm.



Figure 3: Side view showing fence with geotextile fabric secured to the ground.

The height of the geotextile material, after the lower edge is properly sealed and secured, should be a minimum of 600 mm for residential blocks. For large construction sites or if dust is also likely to be a problem, then the sediment control fence may need to be higher.

If permitted, posts used to secure the geotextile material may be either of the following.

- metal star pickets with cable ties.
- galvanised tie wire used to secure fabric; or
- 40mm square hardwood with staples.

Posts should be driven 400 to 500 mm into the ground, spaced at 2 m intervals (Figure 4).

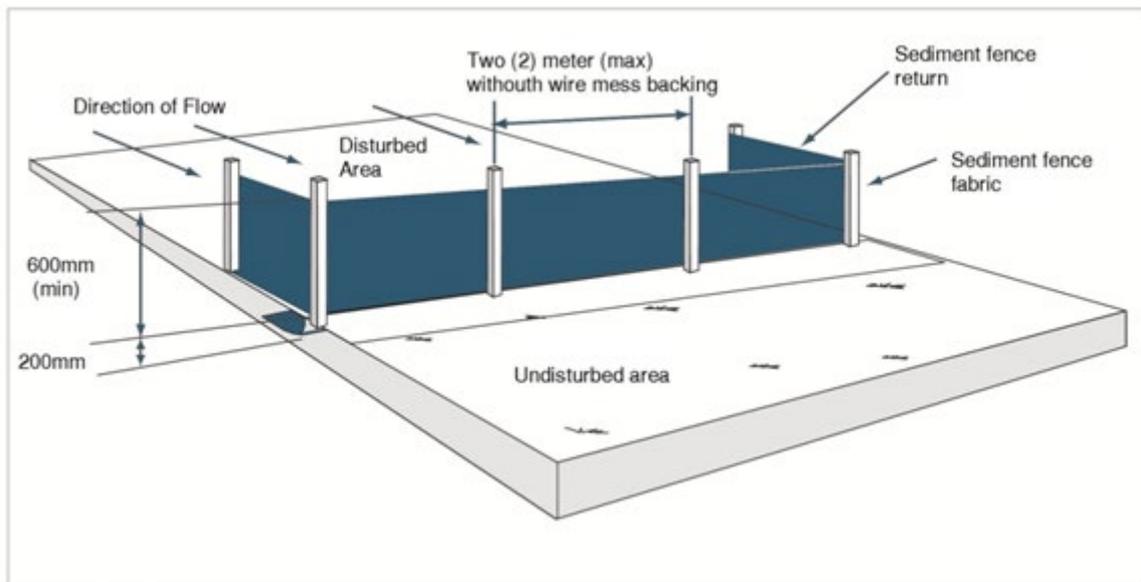


Figure 4: Typical sediment fence installation

Other sediment management options

In some instances, a sediment control fence may be difficult to install due to the location of stormwater drains requiring protection. In such cases, a stormwater drain insert can be installed in a gully entry drain to perform a similar function to a sediment control fence (Figure 5).



Figure 5: Stormwater drain insert to collect sediment

Legislation

The *Environmental Protection (Unauthorised Discharges) Regulations 2004* lists a range of prohibitive materials, including sediment, in Schedule 1 that must not be discharged into the environment (see Appendix A). Regulation 3 (1) states:

A person who, in the course of or in connection with a business or a commercial activity, causes or allows a material listed in Schedule 1 to be discharged into the environment commits an offence.

Authorised Officers employed by State and Local Authorities have the ability to issue infringements or instigate legal action against any individual or company that breaches the regulations.

If convicted, the penalty for an unauthorised discharge offence is \$5,000.

Local governments have the power under section 3.25 and schedule 3.1 (6) of the *Local Government Act 1995* to:

Take specified measures for preventing or minimising the movement of sand, silt, clay or rocks on or from the land if, in the opinion of the local government, that movement would be likely to adversely affect other land.

Appendix A: Materials that must not be discharged into the environment

Taken from Schedule 1 of Environmental Protection (Unauthorised Discharges) Regulations 2004

Acid with a pH less than 4

Alkali with a pH more than 10

Animal waste

Animal oil, fat or grease

Compounds or solutions of cyanide, chromium, cadmium, lead, arsenic, mercury, nickel, zinc or copper

Degreaser

Detergent

Dust produced by a mechanical process including cutting, grinding, sawing, sanding or polishing a material

Dye

Engine coolant or engine corrosion inhibitor

Food waste

Laundry waste

Mineral oil

Organic solvent

Paint

Petrol, diesel or other hydrocarbon

Pesticide

Sediment

Sewage

Vegetable oil, fat or grease