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Department of Planning and Environment

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# DRAFT: Guidelines for erosion and sediment control on building sites

## September 2023





# Acknowledgement of Country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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DRAFT: Guidelines for erosion and sediment control on building sites

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The department's Environment Policy team wrote these guidelines in collaboration with the Soil Conservation Service.

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- Landcom (2004) *Managing Urban Stormwater: Soils and Construction*, 4th Edition
- Southern Sydney Regional Organisation of Councils *Do it right on site*
- NSW Department of Environment and Conservation (2006) *A resource guide for local councils: erosion and sediment control*
- Environment Protection Authority (EPA) Victoria and Melbourne Water (2006) *Keeping our stormwater clean – a builder's guide*.

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# 1 Introduction

The purpose of this guideline is to provide direction on erosion and sediment control requirements for **anyone working on construction sites under 2,500 m<sup>2</sup>**. This includes builders, owner-builders, labourers, contractors (including principal contractors), and landscapers.

If your project will disturb the ground surface or involves moving soil on or from your site, use this guideline to help you manage your site properly. This may apply to construction, demolition, or excavation works.

The most important part of erosion and sediment control is **preventing erosion**. This means stopping water or wind from transporting soil. However, you will not be able to stop all erosion. You will often need to disturb the soil as part of your building work. This means you will also need to **control sediment** to stop it from leaving the site and entering waterways.

By doing these 2 things, you will **act according to the law, protect our environment, and keep the community safe**.

## Blue Book

You can find free, comprehensive guidance on erosion and sediment controls online in the [\*Managing Urban Stormwater: Soils and construction, 4th edition\*](#), also known as **the Blue Book**.

The Blue Book gives technical requirements and guidance for many of the controls outlined here. Use the Blue Book and this guideline to inform your approach to erosion and sediment control. This guideline includes Blue Book references to help you find the relevant technical information easily.

## Blue Book Hip Pocket Handbook

The [\*Blue Book Hip Pocket Handbook\*](#) contains a summary of standard drawings and construction notes from the Blue Book. It can be used as a quick field guide for the installation of many structures that can affect soil erosion, sediment pollution, flooding, water diversion and the like.

## Further Resources

Another helpful resource is the [\*Best Practice Erosion and Sediment Control Books 1-3\*](#) prepared by the International Erosion Control Association (Australasia).

If you are working on a site larger than 2,500 m<sup>2</sup>, you will need more complex planning and design guidance than is included in this guideline. For guidance on planning for larger and more difficult sites, you should consult the relevant consent authority and the Blue Book.

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## 1.1 Why erosion and sediment control matters

**It's the law.** Section 120 of the [\*Protection of the Environment Operations Act 1997\*](#) (POEO Act) makes it an offence to pollute waters. If sediment from your construction site runs off the site and into surrounding stormwater drains or waterways, you may be fined or face prosecution.

Councils and the Environment Protection Authority have several regulatory tools available to respond to water pollution and can issue Clean-up and Prevention Notices under the provisions of the POEO Act that can require you to install and maintain appropriate erosion and sediment controls on your site.

The conditions of development consent will likely also require you to avoid polluting the environment. If you breach these conditions, you could also be issued with a penalty notice under the *Environmental Planning and Assessment Act 1979*, which could mean additional fines or prosecution.

**Erosion and sediment control is required to keep our environment healthy and our community safe** (see Figure 1). Runoff from construction sites can affect adjoining landowners and pollute natural waterways, reducing water quality and smothering native plants and animals. The cumulative impacts on the environment of runoff from construction sites, even if seemingly small on a site-by-site basis, are significant. It can also create traffic hazards and cause increased flooding, putting our community at risk.

**Everyone involved in construction is responsible for preventing erosion, dirty water and sediment from leaving the site.**

If you are the applicant for a development, you need to make sure erosion and sediment is controlled from the beginning of construction until the site has been fully landscaped and stabilised.

If you are a site supervisor, you need to take all reasonable and practical steps to prevent workers from breaking environmental laws.

If you are a worker, you need to alert your supervisor as soon as you notice any actual or potential pollution or other damage to the environment.

Following this guideline will help you make sure that your site planning, construction, excavation or demolition works are in line with the principles of effective erosion and sediment control.

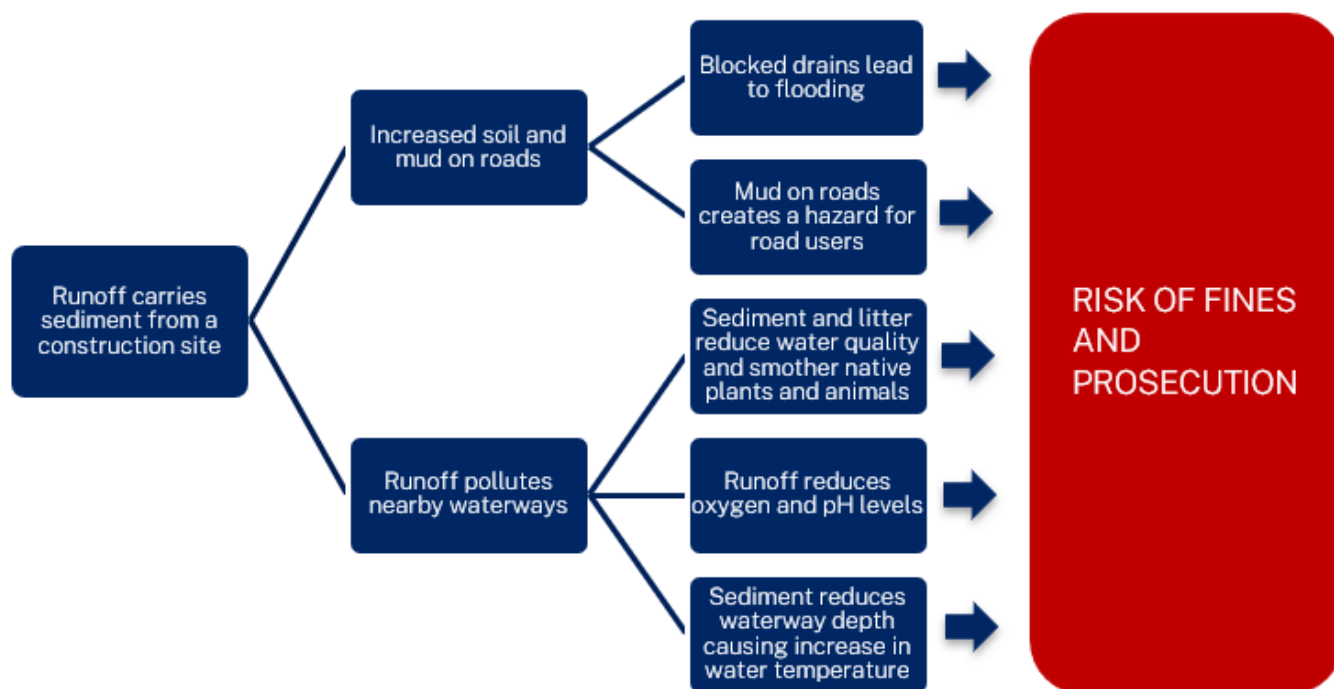


Figure 1. The potential consequences of runoff from construction sites

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## 1.2 The principles of erosion and sediment control

Erosion and sediment control looks different on every site, but there are some general principles that should guide you as you develop your erosion and sediment control plan (ESCP). These include:

### Principles

1. Make erosion and sediment control part of your site and construction planning.
2. Develop an erosion and sediment control plan that is specific to your site, accounting for the expected soil, weather, and construction conditions.
3. Make sure everyone working on site understands the erosion and sediment control plan, so they can meet their legal obligation to prevent sediment pollution.
4. Identify and protect environmentally sensitive areas on and around your site.
5. Leave as much ground cover and vegetation on the site as possible and do not clear it unless you must.
6. Install erosion and sediment controls before starting work.
7. Prevent erosion from happening wherever possible as a top priority.
8. Keep sediment on site by installing and maintaining sediment control measures.
9. Maintain all erosion and sediment controls in proper working order until the site has been fully stabilised.
10. Update your plans and controls if the site conditions change.

## 2 Understand your site

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### 2.1 How to decide what your site needs

Understanding your site will help you choose the most effective erosion and sediment controls. What works on one site may not work somewhere else – you need to decide what will be reasonable and practical for your site.

#### First look downslope

- Is there a creek, or other environmentally sensitive area (see Figure 2 and section 2.2)? Almost all stormwater infrastructure, such as gutters and drains, transport rainwater and other materials into the local waterways such as creeks, rivers and estuaries. The waterway may be nearby or some distance from the construction site.
- This is what you need to protect from pollution, using your erosion and sediment controls.



Figure 2. An example of a waterway that needs to be protected from sediment pollution

## Look upslope of your site

- What will happen when it rains? Where is water likely to flow?
- Is there a drainage line running into your site, such as a creek or drain?
- Is there a steep slope above your site that might make runoff flow faster (causing more erosion)?
- Can you redirect upslope water safely around your site without causing erosion or problems for your neighbours?

## Look around your site

- Are there any areas that may cause problems (such as low boggy or muddy areas)?
- What are the soils like?
- Are there any channels that water will probably flow through?
- Are there any environmentally sensitive areas on your site (see section 2.2)?

You should also consider if there are any features of your site that might potentially make erosion and sediment control more difficult. For example, are you in an area of high rainfall? Does your site contain dispersive soils that can break apart and enter waterways more easily?

Complicating factors like these will mean you have to think carefully about how to best keep sediment within your site.

**For more information** see section 3.2 of the Blue Book.

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## 2.2 Environmentally sensitive areas

For the purposes of erosion and sediment control, environmentally sensitive areas are areas on, or adjacent to, your site that are particularly sensitive to the harmful impacts of sediment pollution.

**Environmentally sensitive areas** are defined in the glossary (**Attachment A**) of this guideline. They include:

- Aboriginal heritage and non-Aboriginal heritage items, objects, and areas
- acid sulfate soils (potential and actual)
- beaches and dunes
- coastal waters, including estuaries, coastal lakes, and lagoons
- coastal wetlands or littoral rainforest (mapping available in the [ePlanning Spatial Viewer](#))
- critical fish habitat (mapping available on the [Fisheries Spatial Data Portal](#))
- marine parks and aquatic reserves (mapping available on the [Department of Primary Industries – Fisheries website](#))
- national parks, nature reserves, and state conservation areas
- threatened flora and fauna (also known as plants and animals)
- waterways (including rivers, creeks, streams, wetlands, and some artificial waterbodies such as canals, bays, lakes and dams).

If there are environmentally sensitive areas on your site, mark them out as ‘**no-go areas**’ (see Figure 3). This means that no one should enter these areas or disturb anything within them. **No-go areas** can also include trees or significant areas of vegetation that you want to preserve, sometimes known as tree preservation areas.

Identify **no-go areas** clearly on the erosion and sediment control plan and install markings or signage on site. Before starting works on site, you must make all the site team aware of all **no-go areas** in site inductions and toolbox meetings. This includes the site supervisor and contractors.



Figure 3. A no-go area on a construction site. Source: Department of Primary Industries – Fisheries



No runoff or sediment should pass into or through environmentally sensitive areas, including those on, or immediately next to, your site. This means that as well as designating **no-go areas**, you must also choose the best way to protect environmentally sensitive areas using erosion and sediment controls.

If your site is next to a waterway, you should consult the Department of Primary Industries – Fisheries to see if you need any approvals or need to install more controls.

**Take note:** Your development consent may have extra requirements for some of the environmentally sensitive areas listed in this section.

## 3 Prepare an erosion and sediment control plan

Your erosion and sediment control plan (ESCP) must demonstrate how you will manage erosion and sediment on your building site. This means showing how you will prevent erosion from happening, and how you will capture sediment before it leaves the site. Each site needs a different combination of strategies to achieve this. Some of these are explained in this guideline.

**An ESCP may be required as part of your development consent.**

You should give the ESCP to all contractors and suppliers working on or coming to site. A clear ESCP helps everyone on site. It shows them what they must do and describes the roles and responsibilities of all key personnel who will manage erosion and sediment controls. Keep a copy of the plan on site so people can check it when they need to.

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### 3.1 Site planning

Carefully plan your site and construction schedule to allow for effective erosion and sediment control. Conversations about erosion and sediment control need to begin well before construction starts, as well as in toolbox meetings, so everyone on site is aware how important the controls are. A well-planned site ensures construction can run smoothly and ensures better environmental outcomes.

Once you understand your site (see section 2), take the time to plan out your site and construction schedule to suit the characteristics of your site.

1. Schedule your works to help control erosion and sediment. This might include:
  - a. understanding the amount of cut and fill required for the development and minimising or staging any reshaping of the land
  - b. planning to disturb soil only when construction activities are scheduled to happen
  - c. clearing the site in stages, to avoid having large areas of disturbed soil and material stockpiles at the same time
  - d. avoiding unnecessary installation and replacement of erosion and sediment controls

- e. installing roof and downpipe controls in place as soon as possible, to control the flow of rainwater from building/s across the site.
2. Consider the dust potential of your site (such as whether it is highly exposed to winds and the extent of disturbance area). Exposed sites may benefit from shade cloth barriers to divert wind and/or the use of a soil binder when exposed areas are intended to be left unused for a period of time.
3. Keep as much of the existing vegetation as you can to help hold soils together.
4. Ensure there is enough space on site for important erosion and sediment controls, away from environmentally sensitive areas. These might include:
  - a. a stabilised site access
  - b. sediment fences
  - c. stockpiles
  - d. wash down areas (we recommend a 2 m buffer around the largest piece of equipment you will be washing).

For more information see section 4.2 of the Blue Book.

## 3.2 The plans required for different sites

The complexity of your ESCP will depend on the size of your site (see Figure 4).

If you are working on a **site less than 250 m<sup>2</sup>**, you will likely only need a **simple ESCP** (see section 3.3).

If you are working on a site **bigger than 250 m<sup>2</sup> but smaller than 2,500 m<sup>2</sup>**, you should prepare a **more detailed ESCP** (see section 3.4).

If you are working on a site **bigger than 2,500 m<sup>2</sup>**, you should prepare a **soil and water management plan (SWMP)**. Consult section 2.3 of the Blue Book for guidance on preparing a SWMP. This guideline is not designed for sites bigger than 2,500 m<sup>2</sup>.

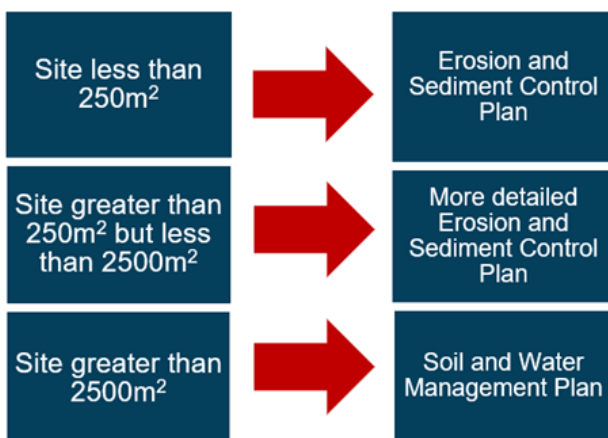


Figure 4. Plans required for different site sizes

All plans must consider the whole development process, including site preparation, construction, and stabilisation.

A professional with experience or relevant qualifications should help you prepare more detailed ESCPs.

Relevant qualifications include a degree in:

- engineering (agricultural, construction, civil, or environmental)
- geology
- soil science
- environmental science or management, or a related field.

The professional should be a Certified Professional in Erosion and Sediment Control (**CPESC**).

Detailed requirements for a simple ESCP and a more detailed ESCP are set out below. If any of these requirements seem unfamiliar, the following sections of this guideline will help you understand what you must do.

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### 3.3 ESCP for a site smaller than 250 m<sup>2</sup>

The requirements for an ESCP for a site smaller than 250 m<sup>2</sup> include:

- name of development and applicant
- key contact details, including principal contractor or owner-builder (whichever is applicable)
- site location, including address, lot and deposited plan (DP)
- a schedule of works – your site and controls will need to be adaptive and will likely change as construction progresses
- a site drawing including details about the erosion and sediment controls shown
- details of any **no-go areas** that must not be disturbed
- how often controls will be checked and maintained
- how the site will be stabilised both during construction and upon completion.

The site drawing needs to show:

- a stable site access
- the area of topsoil disturbance (where you will be building and reshaping the site)
- any drainage lines or waterways on or near the site
- measures to prevent erosion must be identified for installation as a priority
- measures to capture sediment for example sediment fences
- locations of any stockpiles and construction activity areas
- any environmentally sensitive areas on and immediately next to the site, and how these will be protected (for example, by designation as **no-go areas**).

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## 3.4 ESCP for a site larger than 250 m<sup>2</sup> (but less than 2,500 m<sup>2</sup>)

The ESCP must include drawings, including a site drawing, with enough detail for the complexity of the site and construction. It can also include:

- supporting documentation
- references
- standard drawings
- installation instructions
- construction specifications to help those on site understand and apply the ESCP.

### Items the ESCP must include

#### Key contact details

- Name of development and applicant
- Name of principal contractor or owner-builder (whichever is applicable)
- Name of planner/designer and date of issue
- Name of CPESC.

#### Site details

- Property boundaries and location, including address, lot and DP
- General layout of proposed works, including area of site disturbance
- Existing and proposed site contours
- Existing environmental site conditions, if any
- North arrow and scale
- Stable site access point/s (and/or wet weather stand down), taking into consideration controls such as a wheel wash and/or vibration (rumble) grid
- Site office, plant/vehicle parking areas and equipment lay down areas if applicable.

#### Environmentally sensitive areas

- Identify and mark any environmentally sensitive areas on and immediately next to the site and how these will be protected (for example, marking them out as **'no-go' areas**)
- Details on vegetation to be cleared along with areas of retained vegetation (mark **no go areas**)
- Detail on soil information and location(s) of problem soil types, especially dispersive soils and potential or actual acid sulfate soils
- Location of any natural waterways that could receive runoff and how these will be protected from runoff.

## Erosion and sediment control measures

- Location and type of erosion control measures to divert and slow runoff around and within the site
  - Stockpile locations and control measures, such as
    - upslope diversion
    - clean water diversion
    - catch drains
    - appropriate covers such as temporary vegetation, impervious materials, chemical stabilisers, or a soil binder (polymer) where stockpiles will not be disturbed for a period of time)
  - Location, type, and installation requirements for any sediment/erosion controls
  - Location of any construction activity areas and the sediment controls you will use around these areas
  - Details on how cut and fill will be managed and staged (if applicable) to avoid sediment pollution
  - Inspection and maintenance requirements for erosion and sediment control measures
  - Maintenance regime for erosion and sediment control measures. This must include regular inspections of the erosion and sediment control measures during construction until the site is stable and vegetation has been successfully established
  - Details of no-go area locations, signage and markings
  - Schedule of erosion and sediment control installation to match construction sequence and minimise exposure of bare soil
  - Wet weather plan (for example, a rule of ‘no work in wet weather’)
  - Details on who will receive reports of incidents (such as a failed sediment fence or pollution event) and response times including the timeframe for submitting the incident report/s
  - Implement before and after rainfall checklists to ensure controls are maintained
  - If the site includes features that will complicate erosion and sediment control (for example, more than half the site area is dispersive soil types or mapped as potential acid sulfate soils), consider including:
    - detailed design information on any sediment retention control devices
    - how dirty water will be treated, discharged and monitored.
- If discharges to stormwater or a waterway are proposed, the applicant should consult council and Department of Planning and Environment – Water.
- Erosion and sediment control measures outlined in your ESCP should include information about who is responsible for that control.

## Site stabilisation

- There should be detail on site revegetation and stabilisation measures for the duration of the project, including the nominated maintenance period (if applicable).
- See section 6 for detail on site clean-up and stabilisation.

## What if I cannot carry out my ESCP?

If you cannot put your original ESCP into action (due to, for example, because of wet weather or changing construction methods), you can use different control measures that achieves the same or better outcomes as the original measures. You should update your ESCP to reflect the new site conditions and controls.

**Take Note:** Consult with council or the relevant consent authority on any major changes to your development as additional approvals may be required.

A **checklist** has been included in **Attachment B** which can be used to identify whether or not you are ready to start construction.

# 4 Carrying out your plan: Key techniques to control erosion and sediment

Not all techniques in these guidelines will be suitable for all sites – you must assess your site and come up with a site-specific plan.

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## 4.1 Stabilised site access

A clear, stabilised site access is important to make sure that sediment is not tracked off the site.

### Why should I do this?

Heavy vehicles travelling across disturbed soil create erosion. A single, stable site access prevents this. It also stops vehicles from carrying soil on their wheels off site and into waterways. This protects the environment and means vehicles are less likely to become bogged.

### How should I do this?

Your site access should:

1. Extend from the kerb to the building footprint (see Figure 5).
2. Avoid long and steep driveways if possible.
3. Have a rough surface to help shake water and mud off vehicle wheels. You can use gravel or recycled concrete on the surface. Avoid using sandstone, as this can break down and could be washed away.
4. Include a diversion berm across the stabilised site access if the access slopes towards the road. This will direct runoff away from the site access to where sediment controls can intercept it.
5. Use a vibration (rumble or cattle) grid if necessary.



Figure 5. A stabilised site access point. Source: Parramatta River Catchment Group

For more information see section 6.3.9 of the Blue Book.

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## 4.2 Techniques to divert upslope water and control drainage

Diversion of upslope water is used to protect your site as a whole, and to protect specific areas on your site such as environmentally sensitive areas.

### Why should I do this?

Diverting water around a construction site prevents clean water from becoming dirty. It reduces the amount of runoff on site, which helps to reduce erosion, and keeps the site drier during wet periods, meaning less interruption to your work.

Diverting water within your site gives added protection for the surrounding environments that are vulnerable to erosion or sediment pollution.

### How should I do this?

When diverting water around or within your site, think about where it will flow. If possible, the water should flow on to vegetated areas that will slow runoff and reduce the potential for soil erosion.

**You must not discharge water onto neighbouring properties unless you have the owner's written permission.** Do **not** discharge water towards the site access, as this creates mud that vehicles may carry off site.

There are multiple ways to divert water around or within your site. These include:

1. Installing turfed or geotextile-lined catch drains (small channels that intercept water) upslope of the site or disturbed area
2. Installing a gravel sausage or sandbag barrier to divert water into the roadside gully pit immediately upslope of the site
3. Installing a graded bund (a ridge of compacted earth) or diversion bank upslope of the site or disturbed area to slow and divert water (see Figure 6 and section 4.3.1 of the Blue Book).
4. If necessary, install a check dam to reduce the flow of water leaving your site.

Do **not** use straw bales to divert water, as these can introduce seeds into the waterways and can also fall apart quickly. Instead consider using coconut fibre logs or sandbags.

To avoid concentrated runoff, you should also connect downpipes (temporary or permanent) from the guttering on built structures to the stormwater drain as soon as the roof is installed. This will reduce drainage problems and downtime following wet weather.

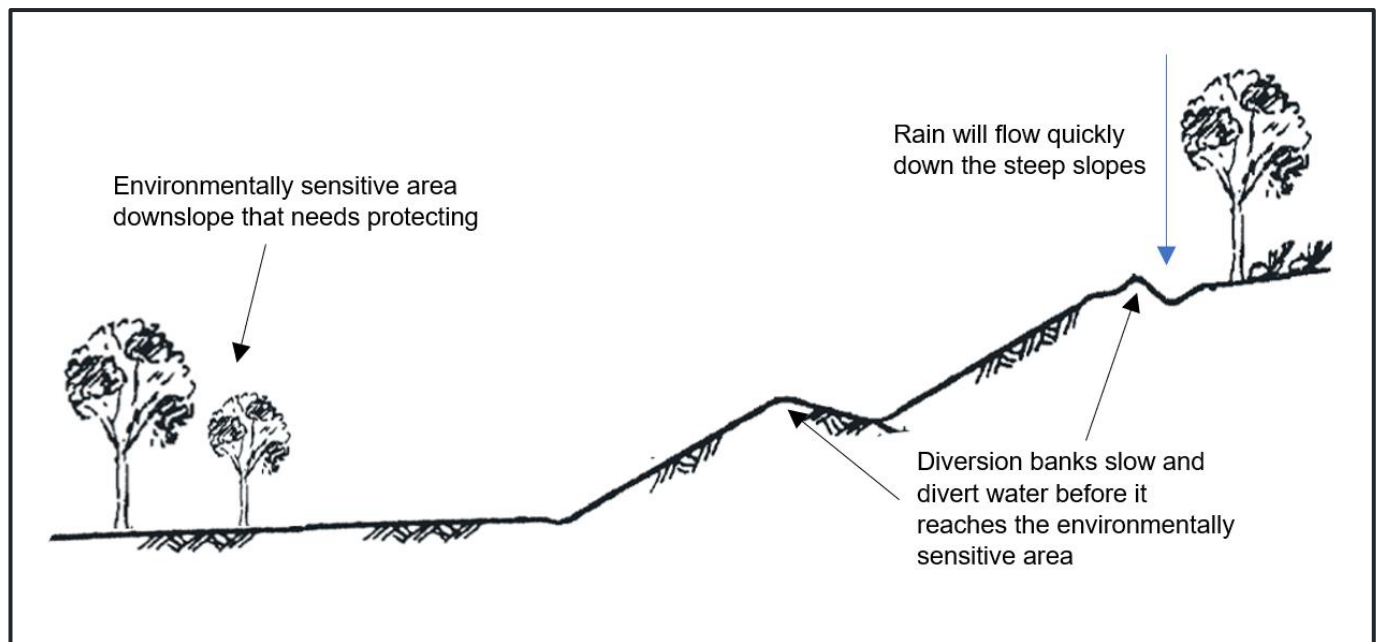


Figure 6. Diversion banks slow water to protect an environmentally sensitive area

**Take note:** On steep sites, depending on duration of works and expected volume of runoff, it may be necessary to line the stormwater drain with turf or a geotextile fabric to avoid unnecessary erosion and slow down runoff.

**For more information** see section 5.4 of the Blue Book.

## 4.3 Keep vegetation and ground cover

Keep as much of the existing vegetation and ground cover as you can. Avoid clearing vegetation unless it is necessary for the development of the site. Even if vegetation on a site is to be eventually cleared for new landscaping at the end of a project, as much vegetation as is practical should be retained during construction work as ground cover.



## Why should I do this?

Preserving as much vegetation as you can is one of the best ways to minimise erosion on your site and protect the existing environment, making your job easier. Vegetation roots bind the soil, which reduces erosion, while the surface-level vegetation slows the flow of runoff and allows sediment to filter out.

Preserving vegetation means you can tap into a free, natural erosion-control measure, saving you the cost of importing materials to prevent erosion.

## How should I do this?

In your site planning stage (see section 3.1), identify any vegetation to be preserved and mark it out on your site drawings. Fence off any trees or sections of vegetation that you want to protect from harm and install clear signage to mark these out as **no-go areas**.

To help trees survive, avoid locating any construction materials in the trees' drip line. Where needed, engage a suitably qualified arborist to give guidance on ways to protect the trees.

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## 4.4 Manage stockpiles and storage of materials

Stockpiles include the storage of excavated soil and other materials on your site. These stockpiles need to be carefully managed as they have the potential to generate sediment and dust if incorrectly used.

### Why should I do this?

Incorrect storage of stockpiles is a major source of stormwater and dust pollution. If stockpiles and building materials are stored incorrectly, they can be washed into the stormwater system. This can lead to serious pollution incidents, and you could face significant fines.

You must locate all stockpiles within the site, behind your sediment controls. You must also protect them from erosion using erosion controls upslope of the stockpile, and by covering stockpiles during rainy or windy weather, or when unattended.

If you store stockpiles correctly, you will prevent sediment or building waste from being carried into the stormwater system and damaging the environment.

### How should I do this?

1. Locate your stockpiles carefully to avoid concentrated runoff, drains, driveways, and environmentally sensitive areas. You should locate stockpiles 5 m away from these areas and a minimum of 2 m away. Avoid placing stockpiles downslope of your construction, as this is where water will flow.
2. Protect your stockpiles from runoff flowing through your site by placing erosion control measures, such as diversion banks, upslope. Place sediment control measures immediately downslope to capture any sediment that is carried away.
3. Aim to ensure your stockpile is no more than 2m high (if possible), to prevent erosion and dust from stockpiles.

4. Consider compacting your stockpiles or use mulch blankets to stabilise your stockpile.
5. Cover your stockpiles securely when no one is on site, or when rainy or windy conditions are expected (see Figure 7). Ensure these covers are secured so they don't wash or blow away.
6. Ensure all delivery drivers are given a designated area to place materials, so that your stockpiles are placed where you want them.



Figure 7. An unattended stockpile has been securely covered to prevent any loss of soil, with a compacted bund acting as sediment control downslope. Source: Department of Primary Industries – Fisheries

**Take note:** Do **not** store stockpiles and building materials on the footpath or within the road reserve.

**For more information** see section 4.3.2 of the Blue Book.

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## 4.5 Install sediment fencing

Sediment fences, also known as silt fences, are vertical fences that trap sediment. They are made from specially manufactured geotextile fabric that is held in place by posts and a backfilled trench (see Figure 8). Sediment fences are effective in trapping material on your site if the material is coarser than 0.02 mm.

**Sediment fences form an important part of sediment control. Use them together with other measures such as vegetation, which can slow runoff and trap sediment.**



Figure 8. An appropriately installed sediment fence

## Why should I do this?

It's important to have a first line of protection around the site to contain and minimise runoff. Sediment fences provide a barrier for runoff. When used with areas of vegetation, sediment fences are an affordable option to protect areas surrounding your site and the local water quality.

## How should I do this?

To install a sediment fence:

1. Place the sediment fence along (parallel to) the contours of the site wherever possible (see Figure 9).
2. Place star pickets into the ground, at least 3 m apart, and hammer these deep enough that the fence will not fall over.
3. Dig a 150 mm trench on the upslope side of the fence (that is, the higher side of the slope). This is where you place the bottom of your fabric. Fill the trench in and compact the soil on either side of the fence so that the fence is secured, and water will not flow under it.
4. Attach the fabric to your pickets, again on the upslope side. You can use wire ties, or whatever the fabric manufacturer recommends.
5. The ends of the fence must angle upslope to prevent runoff around it. You must have small returns at least every 20 m to limit the amount of water that might flow to any one section.
6. When joining separate sections of fabric at a post, ensure there is at least 150 mm of overlap.
7. Where possible, maintain ground cover and other vegetation around the fence to slow runoff.
8. Ensure there is no build-up of material (including stockpiles) against the sediment fence as this will make the control less effective.

Your sediment fence should last for up to 6 months if it is installed in line with this guideline and the manufacturer's directions, but it will need regular checks and maintenance. If the fence is damaged (for example, if it is crushed by building materials), you will need to repair or replace it.

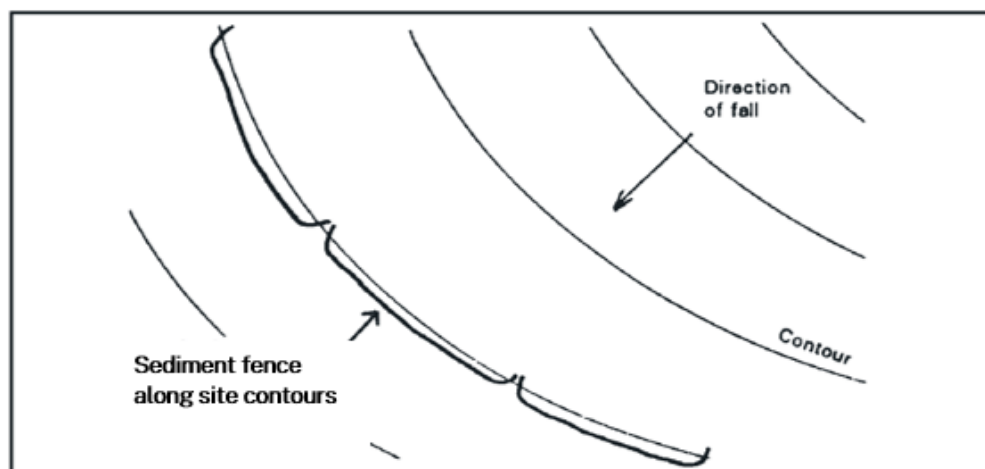


Figure 9. Sediment fence placed along site contours. Source: Adapted from *Managing Urban Stormwater: Soils and Construction*, 4th edition

**Take note:** Sediment fences are not designed to filter concentrated runoff. They are not suitable to be used across creeks, drainage lines or waterways.

**For more information** see section 6.3.7 of the Blue Book

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## 4.6 Protect gutter and stormwater drains

As well as using sediment controls on site, you should also install sediment controls in the drains and gutters downslope of your site. This generally involves using gravel barriers or sandbags to capture sediment before it enters the drains.

### Why should I do this?

Installing controls around any drains downslope of the site provides an extra layer of protection to prevent pollution of stormwater.

### How should I do this?

You should consult with your local council about how to best protect gutters and stormwater drains in the roadway.

There are several methods you can use to protect drains. These may include:

1. **Gravel filter rolls:** a roll of wire mesh and geotextile fabric filled with gravel, which sits in front of the kerb inlet to filter out sediment.
2. **Gravel surface barriers:** place wire mesh over the top of the drain and a pile of large gravel upslope, which will then filter out sediment before it reaches the drain.

3. **Sandbag kerb sediment trap** (see Figure 10): sandbags upslope of the drain slow the water and collect sediment. You may need a few traps in a row to slow down the water enough to ensure the sediment can settle. You should regularly check on the traps and recover the sediment back on-site, to avoid the sediment escaping into the drainage system during heavy weather.



Figure 10. A sandbag kerb sediment trap collects sediment before it can enter the stormwater drain. Source: Parramatta River Catchment Group.

**Take note:** Consult with your local council when working in the roadway and where practical, place cones around the sediment controls to prevent moving vehicles from damaging them. Ensure these cones do not disrupt traffic flow in any way.

If your site has a stormwater pit on site, consult the [‘Do it right on-site’ Factsheet 13 – Protection of Site Stormwater Pits](#).

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## 4.7 Install grass filter strips

A grass filter strip is an area of grass (or other vegetation) you can use on small slopes to control sediment.

### Why should I do this?

Grass filter strips stabilise a disturbed area quickly and easily. They are a good sediment control device if you use them on low grade slopes that are not too steep. They prevent sediment travelling from exposed areas into the stormwater system by filtering the water before it reaches drains.

## How should I do this?

You can install a 400 mm-wide grass strip next to a kerb to stabilise the area between the kerb and footpath (see Figure 11). Where possible, install grass strips along the length of the construction site. The flatter and wider the filter strips are, the more effective they will be.

To install a grass filter strip:

1. Consult with your local council about using grass filter strips on council-owned land.
2. Install a roll of turf on the footpath next to the kerb and at the same level as the top of the kerb. The roll should be at least 400 mm wide.
3. Lay 1.5 m-long turf strips (at 90 degrees) every 10 m.
4. Stabilise disturbed soil behind the turf strip in line with your ESCP.



Figure 11. Grass strips by a road that control sediment in low flows. Source: Parramatta River Catchment Group

**For more information** see section 6.3.8 of the Blue Book.

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## 4.8 Manage construction activity areas

Construction activity areas include equipment laydown areas, wash down areas, cutting and material delivery areas. These types of activities need to be managed carefully so that sediment and other materials do not enter waterways. Place sediment controls downslope from the construction activity area so that sediment and other hazardous materials do not enter the stormwater system.

### Why should I do this?

Construction activity areas can include sediment and building materials that may pollute waterways and reduce water quality. This might include heavy metals, pesticides and herbicides,

and nutrients that, when carried into waterways, create ideal conditions for noxious weeds that threaten native plants. By preventing dirty water and materials from washing from construction activity areas into drains, you should avoid fines for pollution incidents and protect the surrounding environment.

## How should I do this?

You should manage construction activity areas as follows:

1. Designate an area that is large enough for the construction activity to be safely carried out (larger equipment will require a larger wash area).
2. Surround your designated construction activity area with bunds that will contain the dirty water (see Figure 12).
3. Where possible, your construction activity area should be in a level area with no steep slopes to avoid materials washing away. A flat, bunded area will contain dirty water and materials effectively so they do not flow off your site.
4. You can minimise the amount of dirty water by sweeping excess dirt and mud off equipment before washing it with water.
5. For material deliveries such as wet concrete, you should place a plastic sheet under the concrete pump to capture any spillage. Ensure any spillage is swept up before bunds are removed – do **not** wash it away. You may also use filtering or flocculant systems for the washdown of concrete waste if approved by your local council.

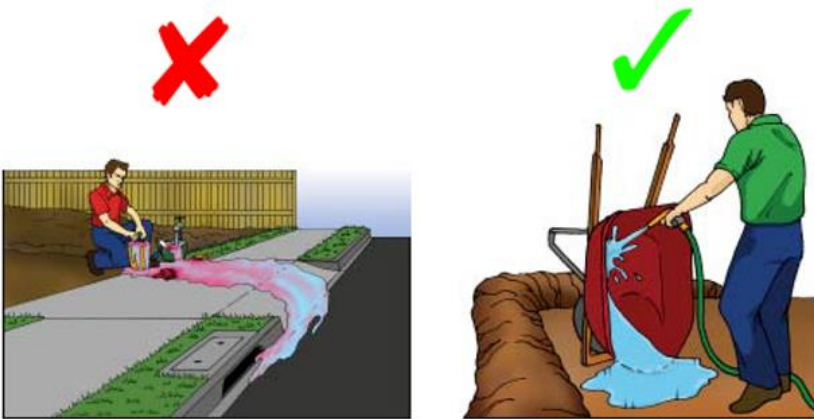


Figure 12. Inappropriate and appropriate wash areas. Source: *Keeping our stormwater clean – a builder's guide 2006*. Reproduced with permission from EPA Victoria and Melbourne Water.

**Take note:** Do **not** locate construction activity areas where dirty water and waste materials can drain directly into the stormwater system or any **no-go areas**.

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## 4.9 Manage service trenches

Service trenches, as shown in Figure 13, are necessary for services such as telecommunications, gas, water and sewer pipelines, and electrical services. You can reduce the amount of erosion and sediment on your site by managing your service trench well.

Where possible, coordinate the various service connections so that you can use a single trench. You should also avoid trenching in areas where there is concentrated runoff and schedule works when rainfall is low.

## Why should I do this?

Coordinating your service connections saves time, money and reduces the amount of soil you need to dig up. If you locate trenches away from concentrated runoff, you can limit the volume and speed of water flowing across disturbed soil, which reduces erosion. This means you have less dirty water to clean up before it leaves the site. This also reduces the chance of pollutants reaching surrounding environments.

## How should I do this?

You should manage service trenches as follows:

1. Try to limit the time trenches are open to less than 3 days and avoid opening them whenever there is a high risk of rainy or windy weather.
2. Remove and store vegetated topsoil so you can use it to provide immediate erosion protection after backfilling.
3. Place the soil on the uphill side of trenches to divert runoff away from the trench line. Alternatively, use temporary bunds for similar effect.
4. Backfill subsoil and compact it, then replace topsoil and any turf to match surrounding ground levels.
5. You should stabilise the area once the services have been installed.



Figure 13. A construction worker installs a service trench



# 5 Maintain erosion and sediment control measures

Proper maintenance of erosion and sediment controls is vital to their success. Maintenance does not just mean checking controls to make sure they are working and repairing any damage. It also means adapting your controls as your development progresses and updating your ESCP. For example, if construction changes slope gradients, you will need to adjust your controls accordingly and update the ESCP.

## Why should I do this?

If erosion and sediment controls are not well maintained, they stop working properly. For example, if there is a hole in a sediment fence, dirty water will simply flow through that hole and into surrounding waterways. Similarly, if you do not adapt your controls to suit your changing site, you will end up with controls that are not working. Ineffective controls could result in environmental harm and significant fines.

## How should I do this?

First, choose a person to check erosion and sediment controls daily and to organise their maintenance or replacement where needed. Some of the maintenance works that this person might do are listed below.

1. At the end of the day, clean up any soil or other materials that have been accidentally spilt onto the road or gutter. Sweep the road and footpath every day and put soil behind the sediment controls. Hosing down roads and footpaths is **not** acceptable, but misting bare soils to prevent erosion by wind is.
2. Remove sediment collected by controls such as sediment fences, catch drains and diversion banks. A build-up of sediment could reduce the effectiveness of these controls. The person checking controls can add any sediment they collect to existing stockpiles and use it for landscaping after construction or dispose it appropriately off site.
3. Check stockpiles at the end of each day and cover them before leaving the site.
4. Regularly inspect **no-go areas** to make sure that markings and signage are clear and intact.
5. Check sediment fences to see if there is any damage (such as rips in the fabric). Sediment fences should be vertical and intact at all times, or they will not work effectively. Replace damaged sediment fences and their posts.
6. Check to see if there has been any erosion in your drainage channels and catch drains. If there has, repair it. Options for repair include, but are not limited to, rock, turf or erosion control matting.
7. Empty the protected wash down area and other sediment controls regularly so they can still catch and detain waste waters. The larger the wash down area, the less often this needs to be done. Clean water should be discharged onto stabilised areas, avoiding any slopes or bare soils. You should consult with your local council about disposing of dirty water appropriately.

8. Top up the gravel, crushed rock or recycled concrete along the access points if the surface has worn down. If the access point becomes smooth it will no longer help control sediment.
9. Check that downpipes are still installed properly whenever rain is forecast.

The most important thing is to **be prepared**. Keep extra erosion and sediment control materials on site in case of damage, and always be aware of the weather forecast so you can cover stockpiles and disturbed areas before wet or windy weather.

**Take note:** It is vital to carefully check controls after rainy or windy weather and remove any built-up sediment. This is also a good chance to check how effective your controls are in wet or windy weather.

**For more information** see section 8 of the Blue Book.

## 6 Clean up and stabilise the site

Erosion and sediment control must continue until the site is stabilised, or you risk polluting the environment (see Figure 14). The applicant and site supervisor must ensure that erosion and sediment control continue after construction ends, up until the site has been properly stabilised.

### Why should I do this?

The need to control erosion and sediment does not end when construction does. The protection of the environment is a continual commitment for any building site. Any people conducting works on site may be liable for sediment pollution from a destabilised site. This is why you must ensure the site is fully stabilised before erosion and sediment controls are removed. **It is not acceptable to leave an un-stabilised site behind.**

### How should I do this?

1. Once construction is finished, restore any disturbed ground cover or vegetation outside of areas of development (that is, buildings). You can use cover such as turf, vegetation (Lomandra), jute matting or mulch to stabilise disturbed areas. Natural set and forget techniques are preferred.
2. Use erosion control matting as an extra measure until vegetation cover has been fully established if the soil is unstable (for example if it is on a steep slope).
3. Avoid leaving any bare soils on site as these will continue to act as a source of sediment and pollute surrounding waterways.
4. In addition to taking care of bare materials, make sure you quickly remove all building materials from the site once you have finished work, including any excess topsoil.



Figure 14. A poorly stabilised site resulting in sediment runoff onto nearby roads and into drains. Source: *Managing Urban Stormwater: Soils and Construction*, 4th edition.

**For more information** see section 7 of the Blue Book.

# Attachment A Glossary

**Acid sulfate soils:** Natural sediments that contain iron sulfides, which are common along the NSW coast. When these soils are disturbed or exposed to air, they can release acid, damaging built structures and harming or killing animals and plants.

**Applicant:** The applicant for development consent or any person having the benefit of the consent (including, but not limited to, the owner of the property from time to time).

**Bund:** An embankment of earth used to divert or slow water.

**Clean water:** For construction purposes, is water that has not run over bare soils on site and has not collected pollutants including sediment and chemicals.

**Concentrated runoff:** Water, usually stormwater, flowing in a confined feature such as a channel, ditch, swale or river.

**Consent authority:** Development consents are issued by a consent authority, this is usually the local council but can also be a planning panel, the Minister for Planning or the Independent Planning Commission. Further information on the legal definition of consent authority can be found under section 4.5 of the *Environmental Planning and Assessment Act 1979*.

**Certified Professional in Erosion and Sediment Control (CPESC):** A professional who can help you prepare a more detailed erosion and sediment control plan.

**Check dam:** Check dams are typically used in channels conveying concentrated flows to control flow velocity and minor gully erosion. They can be constructed from semipervious or impervious materials such as medium-size rock or sand and gravel filled bags.

**Dirty water:** For construction purposes, water that has run over bare soils on site and has collected pollutants including sediment and chemicals.

**Disturbed area:** Parts of the site where the topsoil has been dug up, displaced or otherwise altered. Such areas are more vulnerable to erosion because the soils become less compact.

**Dispersive soil:** A structurally unstable soil that easily breaks down into its separate parts when immersed in water. Often prone to erosion.

**Diversion bank:** An earth bank constructed across a slope for intercepting and diverting water. Typically constructed at the upper edges of cut slopes to collect water from nearby properties and divert it around the cut.

**Downslope:** Located at a lower point on the slope, or downhill.

**Drainage line:** A channel down which runoff naturally collects and flows.

**Environmentally sensitive areas:** As defined in the Environmental Planning and Assessment Regulation 2021, environmentally sensitive areas include:

- coastal waters of the state
- land identified as coastal wetlands or littoral rainforest on the Coastal Wetlands and Littoral Rainforests Area Map, within the meaning of State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2

- an area declared to be an aquatic reserve or marine park under the Marine Estate Management Act 2014
- a declared Ramsar wetland or declared World Heritage property within the meaning of the Environment Protection and Biodiversity Conservation Act 1999 of the Commonwealth
- land reserved or dedicated under the Crown Land Management Act 2016 for the preservation of flora, fauna, geological formations or for other environmental protection purposes
- land declared as an area of outstanding biodiversity value under the Biodiversity Conservation Act 2016
- land identified as critical habitat under the Fisheries Management Act 1994, Part 7A
- land in a national park, state conservation area, historic site, nature reserve or wilderness area under the National Parks and Wildlife Act 1974
- land in a wilderness area under the Wilderness Act 1987
- land identified in an environmental planning instrument as being of high Aboriginal cultural significance, or high biodiversity significance, or as in an environment protection zone
- land, places, buildings or structures listed on the State Heritage Register under the Heritage Act 1977.

For the purposes of erosion and sediment control, environmentally sensitive areas also include acid sulfate soils (potential and actual), beaches and dunes, native vegetation to be kept, and waterways.

**Erosion:** The wearing away of the land surface by moving water, wind, ice or other geological agents, including such processes as gravitational creep including detachment and movement of soil or rock fragments by water, wind, ice or gravity (i.e. accelerated, geological, gully, natural, rill, sheet, splash, or impact, etc).

**Erosion control:** Includes the protection of soil from dislocation by water, wind or agents.

**Erosion and sediment control plan:** An erosion and sediment control plan addresses erosion and sediment control during a construction phase where up to 2,500m<sup>2</sup> will be disturbed. It does not address ongoing or permanent pollution controls that might be addressed in a Soil and Water Management Plan for sites larger than 2,500 m<sup>2</sup>.

**No go areas:** An area of a site where access is restricted in order to protect the features of that area often due to environmentally sensitive areas.

**Potential acid sulfate soils:** Soils that contain iron sulfides (pyrite that have the potential to produce sulfuric acid. Potential acid sulfate soils are likely to become acidic if they are exposed.

**Runoff:** Rain that flows as surface discharge across a site. It is sometimes referred to as stormwater, being water from rain or storm events.

**Sedimentation:** Deposition of material of varying size, both mineral and organic, away from its site of origin by the action of water, wind, gravity or ice.

**Stabilisation:** Restoring land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting.

**Tree drip line:** The area directly under the tree's branches. When the canopy gets wet, excess water falls to this area for use by the tree.

**Upslope:** Located on a higher point of the slope, or uphill.

**Upslope water:** Water that is flowing down onto a site from above. This water is sometimes referred to as 'clean' water because it has not yet picked up any sediment from the site.

**Wash down area:** A dedicated area used specifically to wash down vehicles and equipment.

**Waterway:** A channel or body of water including rivers, creeks, streams, wetlands, and some artificial waterbodies, including canals, bays, lakes and dams.

# Attachment B Checklist: Am I ready to start construction?

Requirement	Yes/No	Notes
A suitability qualified person has developed an ESCP and given this to council or the certifier (whichever is approving your work).		
Everyone who will be working on your site knows how important it is to control erosion and sediment and to prevent pollution. They understand the details of your ESCP and each person's responsibilities.		
Site induction procedures ensure that everyone starting work at the site, including mid-way through construction, is familiar with the requirements of the site and the ESCP.		
You have identified where water will flow onto your site in wet weather (Section 2.1).		
You have identified any problem areas on your site, such as low, muddy, boggy areas; existing channels, waterways or steep slopes where water may flow quickly (Section 2.1).		
You have identified any waterways and other environmentally sensitive areas on, near or downstream from your site (Section 2.2).		
You have clearly marked out environmentally sensitive areas and vegetation to be kept as <b>no-go areas</b> . You have installed protection so that these areas will not be disturbed (Section 2.2).		
You have decided if you can safely redirect water around your site without affecting your neighbours (Section 4.2).		

Requirement	Yes/No	Notes
<p>You have installed controls such as catch drains or bunds to redirect water (Section 4.2) around:</p> <ul style="list-style-type: none"> <li>• your site (where possible)</li> <li>• disturbed areas on site</li> <li>• environmentally sensitive areas on site</li> <li>• stockpiles and wash down areas.</li> </ul>		
<p>You have identified where stockpiles and construction activity areas will be located on your site (Sections 4.4 and 4.8).</p>		
<p>You have installed sediment controls on the lower end of your site, and downslope of any stockpiles and construction activity areas (Sections 4.4 to 4.8).</p>		
<p>If your development is right next to a waterway or might affect fish passage, you have consulted with Department of Primary Industries – Fisheries about any extra requirements (Section 2.2).</p>		
<p>You have extra materials on site for erosion and sediment controls in case any of your controls are damaged or new controls are needed (Section 5).</p>		
<p>You have nominated someone to check erosion and sediment controls each day and maintain them where necessary (Section 5).</p>		
<p>You have a plan for site handovers so that all new crews who might work on the site at different stages understand how to carry out the ESCP, including site stabilisation (Section 6).</p>		