

PART A

The 'what' and 'why' of erosion and sediment control.



WHO IS THIS DOCUMENT FOR?

Are you a builder, site supervisor, project manager, subcontractor, council planner, engineer, works crew member, landscaper, or civil contractor? Are you designing or working on a building or construction site? Are you disturbing or clearing ground? Then this information is for you.

This information applies to building and construction sites of any size (referred to here generally as 'development sites'). The controls described can be used whenever soil is disturbed for on-ground works. This includes housing developments, driveways, road projects, installing underground services, excavations (including channels), dams, and landfills. ***If your work disturbs the ground, you are at risk of causing sediment and pollutants to escape from your site into the stormwater system, and then local waterways. You must put controls in place to prevent this.***

People working in the development industry are responsible for erosion and sediment control throughout all stages of a development. To comply with legal responsibilities, you must have a practical understanding of erosion and sediment control techniques and when to use which ones. This information will assist you to manage the soil and water on your site, to operate legally, to avoid fines, and limit damage to your business reputation. Getting the drainage, erosion, and sediment controls right will reduce the impacts of development activities on our natural environment.

- **Drainage controls** ensure surface runoff upslope of your development site is appropriately diverted away from the area of works, reducing the amount of water needing to be treated.
- **Erosion controls** stop soil on your development site from moving in the first place.
- **Sediment controls** capture soil that has become mobile (eroded) and prevents it from leaving the development site.

To decide which drainage, erosion, and sediment controls are best for your site, check the "What is this?" section of each control for a summary. Remember, each site and stage of development is different – your drainage, erosion, and sediment controls need to be designed on a site-by-site basis, for different activities, and each stage.

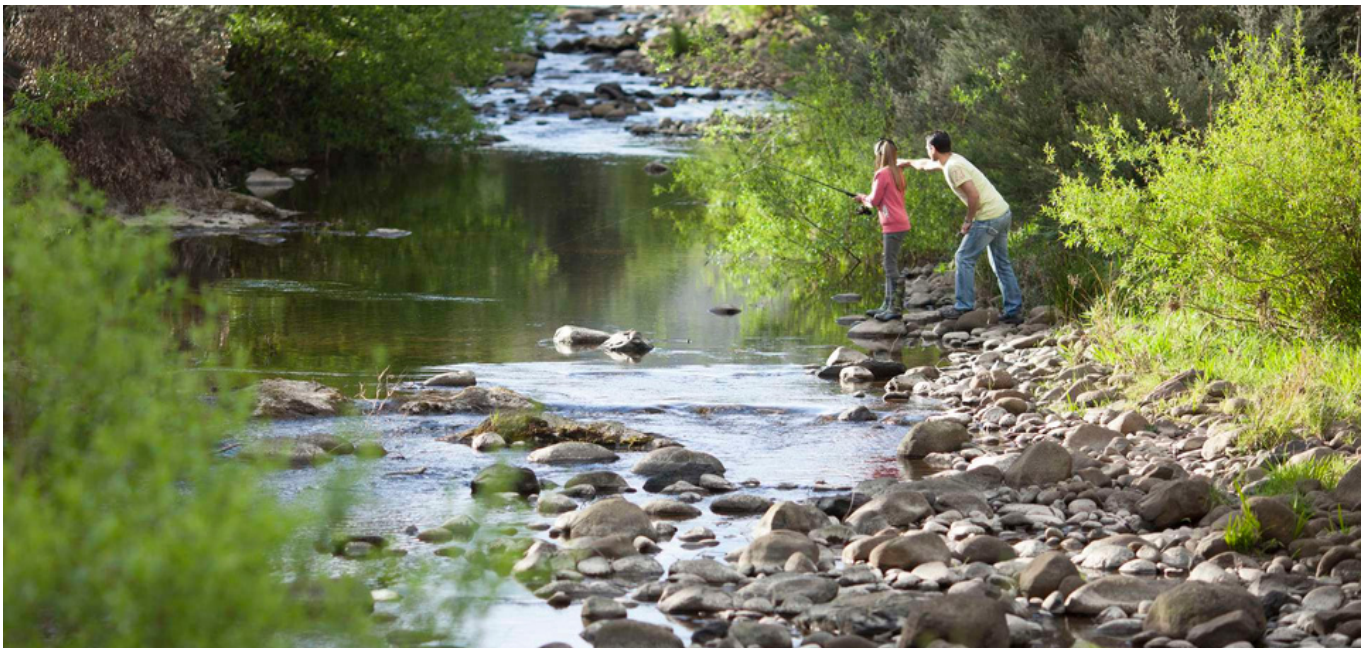
WHAT IS EROSION AND SEDIMENT CONTROL AND WHY IS IT IMPORTANT?

Erosion is the movement of soil by wind and water. As a natural process it usually occurs at a very slow rate but is significantly increased by development activities that remove vegetation and expose soil to rain, runoff, and wind. When erosion occurs, soil particles suspended in water or air are transported downstream or downwind, eventually settling out as sediment, sometimes far away from the building or construction site, causing damage to infrastructure and the environment.

Soil is soil when it is in its proper place – it is called sediment when it is eroded away. If not properly managed, more soil is lost due to erosion in the construction-phase of a project than during the entire post-construction lifespan of the development. In fact, in the development of a single lot - without any controls in place - up to four truckloads of soil can be eroded in one heavy rain event.

If sediment moves off a development site and enters stormwater drains it can block the stormwater system. Pollutants including nutrients, oils, heavy metals, and hydrocarbons, stick to eroded sediment and are carried into local waterways, and eventually into the ocean. This makes flooding worse, smothers aquatic plants, reduces food for aquatic animals, and impacts the function and amenity of our rivers, estuaries, and oceans. The loss of topsoil makes it harder for vegetation to re-establish after works are complete. Sediment also increases council's maintenance costs, wasting the community's money.

Preventing soil loss is one of the most important actions you can do so we can all continue to enjoy boating, swimming, fishing, and having beautiful healthy waterways, both for now and for future generations. Make the actions in this document part of your everyday work practice, and help to protect the land, water, and air of Tasmania.



Employing effective erosion and sediment controls help to protect our aquatic environments, as well as recreational activities that rely on healthy waterways. Photo credit: Inland Fisheries Service.

WHAT ARE THE BENEFITS OF EROSION AND SEDIMENT CONTROL?

- Avoid compliance action against you, including fines and possible prosecution.
- Improve the wet weather working conditions on your site, improve safety, reduce down-time, and earlier building completion.
- Create a better public image for your business, stand out from the competition, and get fewer public complaints.
- Reduced stockpile losses and clean-up costs.
- Reduce the risk of flooding from sediment build-up in the stormwater system and reduce council's maintenance costs.
- Contribute to healthier waterways and a cleaner environment for everyone.

WHAT ARE MY LEGAL RESPONSIBILITIES?

- Under Tasmanian law* and each council's Stormwater Management Strategy, you must control sediment from leaving your site so that it does not cause an environmental nuisance, environmental harm, or property damage.
- You face fines and prosecution if you breach the law and allow pollutants, including sediment, to be released from your site. You may also be required to clean up and repair damage at your own cost.
- Workers need to notify their supervisors if they see sediment or other pollution leaving the site and prevent any further pollution.
- For more information on the legal requirements for managing erosion and sediment on your site, contact the local council.

*Including planning permits issued under the *Land Use Planning and Approvals Act 1993*, and requirements of the *Building Act 2016*, *Urban Drainage Act 2013*, *Environmental Management and Pollution Control Act 1994*, *State Policy for Water Quality Management 1997*, or future equivalents.

Remember, each site is different.

Controls need to be assessed on a site-by-site basis as well as for different activities.



WHEN DO THE CONTROLS NEED TO BE IN PLACE?

Some drainage, erosion, and sediment controls need to be installed on day one, before the start of any ground disturbance on the site. Examples include upslope diversion drains, which can significantly reduce the amount of water needing treatment (see page 26), retaining a strip of vegetation on the downslope edge of the site to act as a natural sediment filter (see page 38), and site access control to prevent sediment being tracked onto roads (see page 56). Controls, whether they are for drainage, erosion, or sediment control, must be maintained in good working order throughout the development period and evaluated for upgrading as necessary. They must be inspected before, during, and after rain events, and must remain in place and be maintained until all disturbed areas have been stabilised, restored, or sealed.

'Day-one' controls include:



Upslope diversion drains can significantly reduce the amount of water needing treatment (see page 26).



Retaining a strip of vegetation on the downslope edge of the site can act as a natural sediment filter (see page 38).



Site access control can prevent sediment being tracked onto roads (see page 56).

Everyone working on a development site is responsible for preventing erosion and pollution. Follow the practices in this booklet and you will minimise erosion from your site, meet your legal requirements, and help protect our waterways.



HOW CAN I PLAN FOR EFFECTIVE EROSION AND SEDIMENT CONTROL?

It is most cost effective to specify all controls at the planning stage. You must also be prepared to add, adapt, and adjust controls so that they remain effective throughout all stages of the development. Effective erosion and sediment control on development sites depends on these steps:

- Consider the characteristics of your site including soil type, size of catchment, slope, existing flow paths, and area to be disturbed. For large sites you may also need to consider the 'soil loss rate'; see International Erosion Control Association (IECA) Appendix B, 2018. See also Appendix 1 in this document.
- Develop an Erosion and Sediment Control Plan (ESCP) (see page 17) for drainage, erosion, and sediment controls at the planning stage for assessment and approval.
- Ensure the approved ESCP integrates all design aspects, including the engineering design for retaining walls and structures.
- Make sure everyone working on the site understands and maintains the ESCP. Keep a copy of the ESCP on-site and include the function of all controls in the site induction.
- Install the controls required before any ground disturbance on DAY ONE, and other controls as soon as possible.
- Minimise the area of soil disturbed and exposed to erosion at all times and preserve existing vegetation to protect soil.
- Divert 'clean' upslope runoff away from or through the work site (avoiding any disturbed areas), but **NOT** onto adjacent property.
- If soil does accidentally become mobile, capture and treat runoff before it leaves the site.
- Cover and rehabilitate disturbed areas quickly.
- Inspect and maintain your controls throughout the development period.

Don't forget about dust! Research shows that average dust emission rates of over 2.5 tonnes per hectare per month occur on sites which have no dust controls in place. For more information, see the *Control dust and litter* section under Erosion Controls in Part B (page 53).

