Working within or adjacent to waterways

EPA VICTORIA | Environment Protection Authority Victoria

VICTORIA State Government

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Guidance sheet

How to eliminate or reduce the risk of harm from erosion, sediment and dust

Protecting waterways

Land use activities within or near waterways can change the condition of a waterway because of erosion, sediment and dust. These activities can also affect the riparian area.

Activities near or within a waterway may include:

- constructing a waterway crossing such as a bridge or culvert
- removing debris or material that is restricting waterway flow
- crop, fruit and vegetable production
- timber harvesting
- grazing and livestock access to vegetation on embankments
- removing invasive vegetation
- rehabilitating wetlands
- mining and quarrying.

The steps in this guidance sheet follow the risk management process described on our website (see How to manage environmental risk).

Step one: identify hazards

Common hazards related to activities near or within a waterway include:

- increased erosion, sediment and dust release into waterways and riparian areas
- altered waterway flow
- uncontrolled release of nutrients, minerals, heavy metals, chemicals, hydrocarbons and waste
- uncontrolled generation of dust.

Step two: assess risks

To help assess the risk of generating environmental impacts from activities within or adjacent to waterways, you can:

- Consider the size, scale, type, location and duration of the proposed activities.
- Understand the location, physical, biological and ecological aspects, and soil characteristics of the waterway and riparian zone in the area.

More information

See our website: **epa.vic.gov.au/for-business/find-a-topic/erosion-and-sediment/advice-for-businesses**

Contact us:
1300 372 842 (1300 EPA VIC) or contact@epa.vic.gov.au

The actions you take and the controls you decide to implement will support you to comply with your general environmental duty and other duties under the *Environment Protection Act 2017*.

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Interpreter

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- Consider any natural or existing mitigating features such as topography and areas of vegetative screening.
- Understand the impacts of dust on local waterways and riparian zones. For example, plant dieback due to reduced photosynthesis, respiration and transpiration, and chemical leachate from dust on vegetation after a rainfall.
- Assess the seasonal variations in waterway flow.
- Understand rainfall and wind conditions including frequency, direction and velocity.
- Identify the impacts of construction, mining and quarrying, agriculture, forestry techniques and methods for works within or near a waterway. Erosion, sediment and dust can be generated where equipment and vehicles are not managed in accordance with the manufacturer's instructions.
- Understand the loading impacts of excavators, plant equipment and vehicles on soils and embankments.
- Understand the physical properties and soil characteristics of the waterway and riparian zone where activity is taking place.
- Identify accessibility to waterways including entry and exit points and the limitations of access for activities.
- Consider the chemical properties of lubricating oils used by excavators and plant equipment.
- Consider potential impacts to nearby sensitive receivers including aquatic ecosystems and riparian habitat.
- Consider and assess legacy contamination issues associated with abandoned and unrehabilitated mine sites.

Step three: implement controls

Consider implementing the following control options appropriate for your activities, to limit the impacts to waterways and riparian areas:

- Follow and comply with all permit and approval requirements obtained for your works.
- Minimise the duration, magnitude and frequency of works within a waterway or floodplain.
- Schedule works to occur during drier months of the year and low flow periods in the waterway.
- Regularly monitor local weather conditions and avoid works on hot windy days
- Avoid works during times of the year when aquatic animals are likely to be under pressure, particularly during migration or spawning.
- Stabilise waterways to minimise erosion for example with buffer zones using non-invasive grass, vegetation, stabilisation matting or rock armour.
- Design and construct rock filter dams, modular sediment barriers, or silt curtains (see Figure 1) to assist in the reduction of sediment entering the waterway downstream.
- Minimise access by vehicles, equipment and people to the waterway. Restrict access to essential works only and prevent access to unstable areas.
- Reduce the movement of sediment by encouraging deposition in specific areas of the waterways considering the size of the waterways using one or a combination of:
  - working on one bank
  - creating new channels/channel works
  - discharge pipes into creeks.
- Remove excavated material and debris from the project site or place it in a stable area above the high-water level of the waterway, or as far as possible from the waterway.
- Use biodegradable lubricants and oils on excavators and plant equipment that work within or adjacent to waterways.
- Manage waterway-fronting livestock paddocks independently of other grazing land.
- Adjust stocking rates of waterway-fronting livestock paddocks independently of other grazing land to maintain higher ground cover.
- Maintain tracks and drains to effectively manage runoff water.
- Monitor surface water quality regularly upstream and downstream from the activity. If monitoring shows a change in water quality, stop the works. Confirm if works are the cause of these changes, assess for any adverse impacts on aquatic ecosystem and modify work practices.
- Seek specialist ecological advice to determine the sensitivity of ecological receptors to dust impacts on local waterways and riparian zones.

Additional control options to consider when working in or near to waterways are in the following:

- *Managing soil disturbance* (publication 1894).
- *Managing stockpiles* (publication 1895).
- *Managing truck and other vehicle movement* (publication 1897).

Figure 1. Engineered silt curtain installed to prevent migration of sediment for construction works within a waterway.

Step four: check controls

Monitoring controls you put in place can help you to ensure they operate effectively and as planned. For the management of activities within or adjacent to waterways, this could include:

- regularly monitoring the strength and effectiveness of waterway stability measures (non-invasive grass, vegetation, stabilisation matting or rock armour) and reinforcing the installed stability measures as required
- regularly monitoring the strength and effectiveness of rock filter dams, modular sediment barriers, and floating silt curtains and performing maintenance to the associated controls and reinforcing the infrastructure as required
- monitoring the variations in waterway flow throughout the project
- inspect and maintain access roads or tracks
- check preventative measures such as fencing are working as intended
- monitoring the operation and effectiveness of bypass pumping and diversion channels
- regular monitoring of dust deposition in waterways and riparian zones.

These are *examples or options only* of what you could put in place to eliminate or reduce the risk of harm to human health and the environment. You can implement other controls, so long as you can demonstrate you have eliminated or reduced the risk of harm as far as reasonably practicable (EPA website).