

Earthworks for residential development

Good practice

Earthworks are a necessary part of preparing land for residential development, but if the right practices aren't used, soil can be lost to water bodies.

This sediment can have a range of negative impacts on water quality and ecosystems. Soil can be contaminated, or soil loss can cause stability issues and water runoff with lots of sediment can also be a nuisance to neighbouring landowners.



Coffer dam (yellow device in water) limits area sediment travelling further if it does reach water

How you can minimise the risk of sediment loss

The best measures to manage the effects of earthworks depend on the type and scale of the activity and site characteristics that affect the risk associated with an activity. Factors influencing the amount of soil loss from earthworks sites are:

- ▶ Soil type and characteristics
- ▶ Topography of the area of earthworks
- ▶ Proximity to sensitive receivers, such as receiving waters to any sediment run-off
- ▶ Area of works
- ▶ Land stability
- ▶ Duration of soil exposure
- ▶ Weather and climate (including rainfall, season etc)

Types of mitigation measures include:

- ▶ Sediment control, including simple silt and sediment barriers, diversions of run-off, chemical treatment, decanting earth bunds
- ▶ Soil stabilisation (including battering, engineered structures, revegetation, waterproof covers, staging with progressive stabilisation)
- ▶ Limiting works during wetter months/ days
- ▶ Limiting the time bare soil is exposed
- ▶ Monitoring during works whether measures are working properly and adapt if necessary



Good practice some examples :



Well maintained silt fencing



Artificial covers may be used to filter sediment and cover exposed soils.



Settling pond with decanting structure

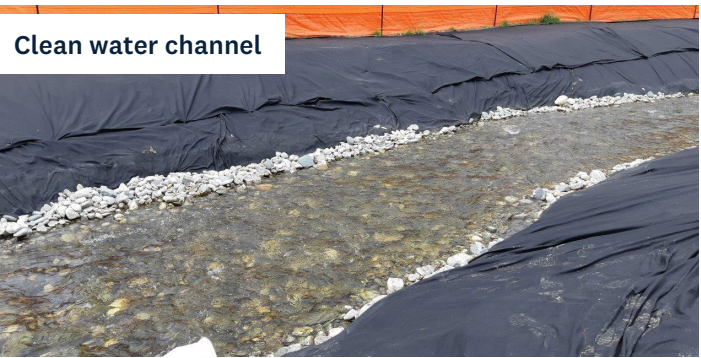
Sediment sinks to bottom leaving only clean water on top.



SILT FENCES STOP SEDIMENT ENTERING WATER

EXPOSED SOIL COVERED

Coffer dam (yellow device in water) limits area sediment travelling further if it does reach water.



Clean water channel

Pre existing waterways may be diverted through or around work sites. May need additional resource consent.

Examples of common issues mitigating sediment



Water through this catchment has overwhelmed the sediment controls.



Sediment controls only work if they are regularly maintained: unfortunately filter sock has been moved and not put back in place



Monitoring to ensure that sediment that has been mobilised is not overwhelming the controls.



Good intentions to cover disturbed land, however no work has been done to manage sediment from the channel itself.