

An erosion and sediment control plan (ESCP) responds to the risks of erosion and sedimentation resulting from subdivision and development works and outlines the measures proposed to manage and minimise those risks.

Sites with inadequate erosion and sediment controls contribute sediment, nutrients, litter and other contaminants to receiving environments and adversely impact water quality.

This guidance note assists proponents to prepare an ESCP to mitigate adverse environmental impacts.

While not a template for an ESCP, this guidance note provides a general document structure and identifies matters that should be considered in the preparation of an ESCP.

1 Context and scope of works

1.1 Site description

Describe the site and surrounding environment. Include a site plan (maximum 1:2000 scale) over the most recent available aerial image, showing the proposed works area and the erosion and sediment controls proposed for each relevant stage of works.

Individual site plans should be provided for each stage of the project. The site plans should identify, where relevant:

- site boundaries;
- north point and scale;
- soil type;
- existing and proposed contours;
- waterways, wetlands, drains, foreshore areas and other sensitive environments;

- existing vegetation to be retained and protected;
- vehicle routes and entry and exit points;
- laydown, stockpile and topsoil storage;
- vehicle washdown areas;
- drainage infrastructure and stormwater discharge points;
- proposed erosion and sediment controls;
- contact details of essential site personnel, including the person responsible for implementing the ESCP.

1.2 Scope, staging and site risks

Provide an overview of the proposed construction or demolition methodology, duration and staging of works. Identify the location and approximate extent of land to be disturbed during each stage and the proposed construction sequence.

Describe the physical and environmental characteristics of the site that may influence erosion and sedimentation risks, including topography, soil characteristics, wind exposure, drainage pathways, groundwater conditions, rainfall and flooding characteristics, acid sulfate soils, contaminated land and proximity to waterways and other sensitive environments.

Identify activities that may disturb soil, alter drainage patterns, generate runoff or mobilise sediment, including:

- vegetation clearing;
- earthworks;

- excavation;
- trenching;
- stockpiling;
- dewatering; and
- rehabilitation activities.

Describe how works will be staged to minimise the extent and duration of exposed soil and how disturbed areas will be progressively stabilised during construction and on completion of works.

Consideration should be given to seasonal weather conditions, including periods of high rainfall and prevailing winds, which may increase the risk of erosion, sediment mobilisation and dust generation.

Describe contingency measures for adverse weather conditions and extreme weather events, including how erosion and sediment controls will be maintained, supplemented or adapted where existing measures may be insufficient.

2 Erosion and sediment controls

Provide details of the site-specific measures proposed to prevent erosion, manage stormwater and site runoff, and prevent the movement of sediment beyond the works area or into drainage infrastructure, waterways, wetlands and other sensitive environments.

Erosion and sediment controls are time critical. Controls should be appropriate to the nature, scale, duration and location of the works and the environmental risks identified

for the site. The ESCP should prioritise preventing erosion and sediment generation at the source, rather than relying solely on capturing sediment once mobilised.

2.1 Drainage controls

Effective management of stormwater and site runoff is critical to controlling erosion and preventing sediment from leaving the works area.

Identify water entering the site from upslope or surrounding areas and describe how clean water will be separated from sediment-laden runoff. Where practicable, clean water should be diverted around disturbed areas. Site runoff should be directed through appropriate sediment controls before entering drainage infrastructure, waterways wetlands and other sensitive environments, or leaving the site.

Diversions, temporary drainage structures and discharge points should be designed and located to avoid erosion, scour, localised flooding and impacts to waterways, wetlands or adjacent land.

Any proposed connection or discharge to existing drainage infrastructure should be identified, together with any relevant approval requirements.

Drainage controls may include:

- diversion drains and bunds;
- lined catch drains and batter drains;

- flow-bypass systems, check dams, sediment traps or basins;
- temporary sumps and detention areas;
- stormwater inlet protection; and
- scour prevention at outlets and discharge points.

Identify how these controls will operate during project stages.

Where dewatering is proposed, identify how dewatering effluent will be managed and whether a separate dewatering management plan is required.

2.2 Erosion, sediment and dust controls

Provide details of the measures proposed to protect exposed soil, minimise erosion, manage dust and prevent sediment from leaving the works area.

Controls should be installed as close as practicable to the source of erosion and be appropriate to the site conditions and proposed activities. Erosion controls should be used to protect exposed soil and minimise sediment generation, while sediment controls should be located between disturbed areas and potential discharge points to intercept sediment that cannot be prevented from being mobilised.

Controls should operate together to reduce runoff velocity, capture sediment and prevent sediment-laden water entering drainage

infrastructure, waterways, wetlands or adjacent land.

Controls may include:

- retaining existing vegetation and ground cover where practicable;
- progressively stabilising disturbed areas and completed earthworks;
- using erosion control matting, mulch, hydromulch, seeding or other suitable surface treatments;
- stabilising batters, embankments, trenches and other erosion-prone areas;
- installing sediment fencing, bunds or other suitable sediment barriers downslope of disturbed areas;
- using sediment traps or basins where runoff is concentrated or generated from larger disturbed catchments;
- locating stockpiles away from drainage infrastructure, overland flow paths and sensitive environments;
- covering, stabilising or providing appropriate perimeter controls around stockpiles;
- retaining or establishing vegetated buffer areas where appropriate; and
- implementing dust suppression and other wind-erosion controls appropriate to the soil and site conditions.

Explain why the selected controls are suitable for the site and how the controls will work together to protect drainage infrastructure, waterways, wetlands, other sensitive environments and adjacent land.

For works in or adjacent to waterways or wetlands that may disturb beds, banks or sediments, address how erosion, sedimentation and turbidity will be managed. This may include isolating the works area, diverting clean water around the works, stabilising temporary access points and disturbed banks and using silt curtains or other suitable turbidity-containment measures.

Describe how controls will be inspected and maintained and identify the corrective actions to be implemented if visible sediment or turbidity extends beyond the controlled works area. Turbidity controls should remain in place until sediment-generating activities have ceased, disturbed areas have been stabilised, and any visible plume has dispersed or settled.

2.3 Site access and vehicle washdown

Provide details of site access arrangements and the measures proposed to prevent sediment being tracked or transported beyond the works area.

Site entry and exit points should be limited, clearly defined and stabilised where necessary. Controls may include rock access pads, vibration grids, hardstand surfaces, wheel washes, steel grate systems, track out mats and nominated low-speed vehicle routes.

Describe how sediment tracked onto adjacent roads will be removed before entering drainage

infrastructure, waterways, wetlands or other sensitive environments.

Where vehicle, machinery, tool or equipment washdown is proposed, identify the location and describe how wash water, sediment and slurry will be contained and managed. Concrete washout, cutting slurry and other construction wastewater and contaminants should not enter soil, drainage infrastructure, waterways, wetlands or adjacent land.

3 Monitoring, maintenance and contingency measures

The implementation of the ESCP should include collection and submission of evidence that demonstrates the ongoing implementation of all commitments made within the ESCP.

Where staging or other project details change, the ESCP should be reviewed and updated to reflect those changes.

Provide details of the inspection, monitoring and maintenance procedures proposed to ensure erosion and sediment controls remain effective until works are completed.

Identify:

- the types and frequency of inspections;
- personnel (including contractors) responsible for inspections and maintenance;
- inspection and maintenance records to be kept up to date and retained;

- procedures for repairing, replacing or upgrading ineffective controls;
- arrangements for monitoring weather forecasts and preparing for adverse weather;
- incident reporting and corrective-action procedures; and
- contingency measures to be implemented if erosion, sediment discharge, turbidity or control failure occurs.

Inspections should be appropriate to the scale and risk of the works and should be undertaken regularly, including before, during and following rainfall, strong winds and other weather conditions that may affect control performance. Controls should be promptly repaired, maintained or upgraded where inspections identify damage, sediment accumulation, overtopping, erosion or other evidence that the controls are ineffective.

Contingency measures should address reasonably foreseeable events, including intense rainfall, summer storms, strong prevailing winds, localised flooding, pump or drainage failure and unexpected sediment discharge. Describe how controls will be supplemented or adapted and when activities will be modified or temporarily paused where impacts cannot otherwise be effectively managed.

Identify the criteria for determining when disturbed areas are stable and temporary controls may be removed. Temporary controls

should remain in place until contributing areas have been stabilised and no longer present an unacceptable erosion or sedimentation risk. Their removal should not result in renewed erosion, sediment discharge or disturbance of rehabilitated areas.

Inspection records should document the condition and effectiveness of controls, maintenance or corrective actions required, the person responsible and the date actions were completed.

3.1 Water quality monitoring

Where works present a risk of sediment or turbid water entering a waterway, wetland or drainage infrastructure, the ESCP should describe the water quality monitoring proposed to verify the effectiveness of controls and detect off-site impacts.

The monitoring program should be appropriate to the nature, scale, duration and risk of the works and should identify, where relevant:

- monitoring parameters and methods;
- upstream, downstream or other suitable monitoring locations;
- baseline or reference conditions;
- monitoring timing, frequency and duration;
- visual inspection requirements;
- trigger levels or other indicators of unacceptable impact;
- responsibilities for reviewing and reporting results; and

- corrective actions to be implemented where trigger levels are exceeded or visible impacts occur.

Trigger levels should be appropriate to the receiving environment, baseline or reference conditions, natural variability and the nature of the works. The ESCP should clearly link each trigger to an investigation, corrective action or other management response.

Monitoring frequency should reflect the level of risk and may need to increase during bulk earthworks, when large areas of soil are exposed, while erosion-prone stockpiles are active, or when works are undertaken close to waterways or drainage infrastructure. Additional monitoring may also be appropriate before, during or following rainfall and other events likely to mobilise sediment.

Where visible sediment or turbidity extends beyond the controlled works area, the source should be investigated and corrective measures implemented. The ESCP should identify circumstances in which activities will be modified or temporarily paused until controls have been restored or upgraded.

Monitoring may comprise documented visual observations, field measurements, laboratory analysis or a combination of methods appropriate to the project risk.

4 Supporting resources

[Department of Biodiversity, Conservation and Attractions, *Construction Environmental Management Plan Guidance Note*.
www.dbca.wa.gov.au/licences-and-permits/riverpark-development-and-planning/policies-plans-and-guidelines](http://www.dbca.wa.gov.au/licences-and-permits/riverpark-development-and-planning/policies-plans-and-guidelines)

[Department of Biodiversity, Conservation and Attractions, *Dewatering Management Plan Guidance Note*.
www.dbca.wa.gov.au/licences-and-permits/riverpark-development-and-planning/policies-plans-and-guidelines](http://www.dbca.wa.gov.au/licences-and-permits/riverpark-development-and-planning/policies-plans-and-guidelines)

[Department of Water and Environmental Regulation, *Stormwater Management Manual for Western Australia*.
www.wa.gov.au/government/document-collections/stormwater-management-manual-western-australia](http://www.wa.gov.au/government/document-collections/stormwater-management-manual-western-australia)

[International Erosion Control Association Australasia, *Best Practice Erosion and Sediment Control*.
connect.ieca.org/austieca/resources/resources-list/bpesc-document](http://connect.ieca.org/austieca/resources/resources-list/bpesc-document)

[Sediment Task Force Western Australia, *Erosion and Sediment Control Information Sheets*.
www.sercul.org.au/sediment-resources/](http://www.sercul.org.au/sediment-resources/)

Other relevant erosion and sediment-control technical specifications or risk-based monitoring guidance.