

Controlled activities – Guidelines for instream works on waterfront land

The Department of Planning and Environment – Water is responsible for issuing all controlled activity approvals in accordance with the *Water Management Act 2000* for work carried out on waterfront land.

Waterfront land is the bed of any river, lake or estuary, and the land within 40 metres of the highest bank of the river, the shore of the lake or the mean high-water mark of the estuary.

These guidelines relate to the design and construction of works within a watercourse or on waterfront land. Instream works include modifications or enhancements to the watercourse, channel realignment, bed control structures, pipe laying and cable trenching etc.

Aims and objectives for instream works

The design and construction of works or activities within a watercourse or adjoining waterfront land should protect and enhance water flow, water quality, stream ecology and existing riparian vegetation. Impacts on the hydrologic, hydraulic and geomorphic functions of a watercourse should also be minimised.

Consultation with relevant government agencies at the concept stage of development and during the design phase is recommended so that good outcomes can be identified, planned for and achieved.

The design and construction footprint and the extent of disturbances within waterfront land should be minimised.

Asset protection zones and all ancillary infrastructure such as utility easements, detention basins and water quality control structures, roads, paths/cycleways, should be located outside the riparian corridor or in accordance with the department's guidelines for riparian corridors which may allow some works to be located within the outer 50 per cent of the vegetated riparian zone

All waterfront land disturbed by the construction or installation of a controlled activity should be rehabilitated in such a way that the integrity of the watercourse and its riparian corridor is restored or rehabilitated.

Considerations for the design and construction of instream works

The design and construction of instream works should consider, but not be limited to:

- Identifying the width of the riparian corridor in accordance with the department's [guidelines for riparian corridors](#).

- Considering the full width of the riparian corridor and its functions in the design and construction of any instream works. Where possible, the design should accommodate fully structured native vegetation.
- Identifying alternative options and detail the reasons for selecting the preferred option/s.
- Minimising the design and construction footprint and proposed extent of disturbances to soil and vegetation within watercourse or waterfront land.
- Maintaining or mimicking existing or natural hydraulic, hydrologic, geomorphic and ecological functions of the watercourse. Demonstrate the instream works will not have a detrimental impact on these functions.
- Maintaining the natural geomorphic processes by:
 - accommodating natural watercourse functions
 - establishing natural bed and bank profiles, for example, meanders, chain of ponds, surface water pools and riffles and bed controls
 - allowing for the movement of sediment and woody debris
 - preventing increased scour and erosion of the watercourse bed or banks in any storm events
 - avoiding locating works or structures on bends in the channel unless they are structures to restore stability
 - addressing existing bed degradation to protect structures and restore channel and bed stability
- Maintaining the natural hydrological regimes by:
 - accommodating site hydrological conditions, for example, maintain low flows
 - not altering natural bank full or floodplain flows. Modifications to watercourses should be based on roughness coefficients that represent the ‘natural’ state including fully structured mature riparian vegetation
 - not changing the gradient of the bed except to address existing bed and bank degradation
 - not increasing velocities by constricting flows
- Protecting against scour by designing and providing necessary scour protection, for example, rock rip-rap and vegetation
- Stabilising and rehabilitate all disturbed areas including topsoiling, revegetation, mulching, weed control and maintenance in order to adequately restore the integrity of the riparian corridor
- Monitoring and maintaining all in-stream works until suitably stabilised.

Information to be submitted for assessment

When seeking approval to construct instream works, the department will rely on the above information to undertake its assessment and to determine if the activity should be approved. All instream works/activities should be designed and certified by suitably qualified persons.

The following additional information will also be required:

- detailed design drawings of proposed works (engineering certification may also be required)
- detailed design drawings which include a surveyed plan, cross sections (across the watercourse) and a long section of the watercourse, showing the proposed works relative to existing and proposed bed and bank profiles and water levels. The cross-section should extend to the landward limit of the identified riparian corridor. All plans must include a scale bar
- detailed report of pre and post-construction hydraulic conditions. The report should address bank full discharge, velocity, tractive force or shear stress, afflux (Modified RTA method is acceptable), Froude and Manning's 'n' roughness values, relative to the proposed structure
- detailed plans of permanent bed and bank stabilisation works for scour protection
- photographs of the site. To assist with future monitoring and reporting, all photo points should be identified by GPS coordinates or by survey - particularly for large-scale earthworks or extractive industries
- a vegetation management plan prepared in accordance with the department's [guidelines for vegetation management plans](http://water.dpie.nsw.gov.au/licensing-and-trade/approvals/controlled-activity-approvals/what/guidelines), found at water.dpie.nsw.gov.au/licensing-and-trade/approvals/controlled-activity-approvals/what/guidelines
- sediment and erosion control plan
- a site management plan incorporating a works schedule, sequence and duration of works, contingencies (in case of flood or similar), erosion and sediment controls and proposed monitoring and reporting periods
- costing of all works (materials, labour) and stages of works (channel stabilisation, rehabilitation)
- copies of other relevant approvals, for example, landowner's consent or development consent.

Maintenance period

Applicants will also need to provide for a maintenance period of between three and five years after practical completion of each stage, or until the site is stable. The maintenance period will depend on the scope, size and level of risk. Engineering certification may be required at the end of the maintenance period.

Maintenance includes sediment and erosion control; the replacement of any works, vegetation or areas damaged or destroyed by flows and flooding or vandalism; and any other requirements necessary to ensure a naturalised stable watercourse system is functioning by the end of the maintenance period.

Maintenance should include sediment and erosion control, replacement of any works/areas damaged or destroyed by flows and flooding or vandalism, and any other requirements necessary to ensure a naturalised stable watercourse system is functioning by the end of the maintenance period.

Security deposit may be required

Applicants should note that if the likelihood of significant impact on the watercourse or waterfront land is identified, security (as bank guarantees) may be required before the controlled activity is commenced. The amount of security is usually based on the costings provided.

More information

- For more information about licencing and approvals, visit the department's website at water.dpie.nsw.gov.au/licensing-and-trade/approvals.
- Copies of the Acts and associated regulations are available on the NSW Government legislation site at www.legislation.nsw.gov.au.

If you think you need to make a controlled activity application, our easy-to-use online support tool Water Assist can help you. Visit www.dpie.nsw.gov.au/water/water-assist.