



Floodplain Fencing

Designing a fence that minimises the risk of damage due to a flood that is easy to repair and will increase its longevity.

Fence damage from flood waters is usually caused by the build-up of flood debris against the fence, which provides a wide surface area for the flowing water to push against and can cause the fence to fail. Therefore, floodplain fencing should be designed to minimise the collection of debris.

THREE KEY QUESTIONS TO ASK

When planning a fencing project in a flood-prone environment you need to ask yourself a few simple questions to ensure that you are well prepared.

1. **Floodplain behaviour** - how often does it flood and how fast is the water?
2. **Appropriate fence** - what are you trying to keep in or out?
3. **Appropriate type and location** - will the fence do the job you are intending, in this location?

KEY DESIGN PRINCIPLES

An appropriately designed and well considered fence can help minimise potential flood damage and make repairs easier.

1. **Avoidance** - appropriate positioning of fence lines can reduce the likelihood that your fence will encounter flood damage.
2. **Resistance** - where fencing within flood-prone areas cannot be avoided, increase the strength of the fence.
3. **Flexibility** - where fences cannot be aligned with flood flows, or in areas prone to regular flood events, fences can be designed to absorb flood impact, have sacrificial sections and make quick and straightforward repairs post-flood.



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1. Avoiding flood damage

- Keep fences parallel to the main direction of water flow if possible and work with terrain and contours.
- Fence above the floodplain when possible.
- Create large riparian buffers to protect fencing.
- Consider alternatives to permanent fencing on the floodplain, such as:
 - i. use of a controlled grazing regime to limit stock access;
 - ii. provision of water, shade, and shelter away from the waterway; or
 - iii. use of technology like virtual fencing.



Positioning wires on the downstream side of posts means staples and insulator clips can give way if necessary.

2. Increasing fence resistance

- Strengthen all strainer (end) assemblies and ensure they suit soil conditions.
- Use quality high tensile wire for flood fencing.
- Do not use barbed wire as it catches debris.
- Use large quality posts, with a diameter of 150 –200mm and at least 2.4m in length. **Do not use standard steel posts (star pickets)** as they can bend in a flood, needing replacement.
- Position wires on the downstream side of posts, so that staples/insulator clips can give way if needed - without post damage.
- On plain wire fences use large springs at the end assemblies, to create give in the wire when debris is pushing on the fence.
- Avoid digging a hole and concreting, as this can be washed out.
- Avoid Ringlock® where possible, keep wires to a minimum by using electric fencing.



Springs at the end assemblies increase wire flexibility



Larger end assembly posts, driven 1 metre into the ground provide increased fence resistance.

Spending more time and money in the beginning will save money in the long run.

3. Increasing fence flexibility

Where fences cannot be aligned with flood flows, or in areas prone to regular flood events, a few options to increase fence flexibility include:

Collapsible or drop fences

- Fences that give way under flood pressure or are folded down manually from anchor points to lay flat on the ground.
- Best for slow moving water across a floodplain.

Sacrificial fences

- Electric or conventional fences where the end assemblies are strong, but isolated high-risk sections are designed to break free.
- Use zip ties and/or gripples to create weak points for sacrificial sections.
- Limit the length of these sections to between 50-100m so they can be replaced quickly when damaged.

Effective fences across waterways

- Should have an end assembly on either side of the waterway, in case it is damaged or lost.
- Cross at the natural high points.
- Build across straight sections of waterway.

Alternatives to fences across waterways

- Include suspended hanging floodgates, hinged floodgates and electric chains or fencing.

Maintenance

- Have a maintenance plan and check for damage after large rainfall events.
- Be proactive rather than reactive with maintenance.
- Know where all sacrificial sections are so you can check and repair quickly.



A drop fence end assembly is designed to lay flat on the ground when needed



Gripples create weak sections for sacrificial sections



Riparian buffer zones create a natural barrier

Additional resources

Guidelines for Riparian Fencing in Flood-Prone Areas have been developed by the Victorian Department of Environment, Land, Water & Planning (DELWP) to assist land managers to minimise future flood damage. The DELWP guidelines help to select the most appropriate fence type, design, location and building technique and are available on our website: www.nrmnorth.org.au/resources



Tamar Action Grants

Funding is no longer available through the Tamar Action Grants, however, landholders in the Tamar estuary, South and North Esk, Brumbys-Lake, Macquarie and Meander Catchments are encouraged to express their interest for future funding opportunities.

NRM North project staff are available to answer questions related to waterway fencing and are encouraged express interest in related opportunities by contacting NRM North on (03) 6333 7777 or admin@nrmnorth.org.au

For more information please visit: www.nrmnorth.org.au/water/tamar-action-grants



Tamar Action Grants are part of the Tamar Estuary River Health Action Plan, an initiative of the Launceston City Deal.

'Working together for a healthy estuary'