

# Sustainable drainage management

## Best management practice

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## 10 Stock and waterways

Complexity			Environmental value			Cost		
Low	Moderate	High	Low	Moderate	High	Low	Moderate	High

### Definition & purpose

Prevent livestock from entering waterways or trampling riverbanks by fencing the stream corridor. Exclusion will generally reduce erosion and habitat degradation; improve water quality; and health and safety of livestock.

### Location

Typically the fencing is placed along the top of the bank, but more benefit can be derived from a wider stream corridor.

### Work window

- If birds are nesting along the channel margin, avoid mowing or grazing.
- Do not disturb the channel margins if there is whitebait (Inanga) spawning. Spawning occurs above normal water level on spring tide flooded channel margins during late summer and autumn (mainly February to April).

### Treatment objectives

1. Livestock are prevented from entering the waterway or trampling the banks apart from allowing short periods of grazing to manage weeds.
2. There will be no stock losses to drowning.
3. Banks will be well vegetated (70% + ground cover density, with no visible exposed soil) with no signs of trampling or erosion (rills or gullies).
4. Banks will be stable with no signs of bank collapse (some bank stabilisation work may be required).
5. Wet areas should be included within the fenced area (perhaps temporarily) to prevent pugging (i.e. animal hooves sinking into the soil).
6. Surface runoff from paddocks should be slowed and intercepted before it gets to the waterway.
7. Water quality and stream channel and stream bank habitat should improve.



Stock trampling riverbanks can cause erosion and habitat degradation as shown above.

Photo: Greater Wellington.



Deer are excluded from the drain in the top photograph; but have free access to the same drain in the bottom photograph.

## Before you start

- Consult with District/Regional Council staff – they will provide advice and there may be help to fence and plant. Resource consent may be required.
- Put livestock watering points in the paddock.
- Consider streamside planting and making the corridor wider.

## Procedures

Decide on the type of fencing (e.g. single wire electric to flood proof multi strand fences):

	Conventional	Electric
Advantages	Relatively little day to day maintenance Not reliant on external power source Functions when overgrown Long life (unless washed out)	Inexpensive to construct and repair Quick to construct and repair Particularly useful for flood gates Curves do not need corner assemblies Options for permanent and 'wash away' flood gates Animals can escape from floods Gates can be inexpensive and simple
Disadvantages	Can be costly Labour intensive to install Time consuming to repair	Requires regular checking to ensure proper function Electricity required (mains, battery, solar)

- Any fencing or riparian planting must consider drain maintenance:
  - On one side have a temporary fence to allow access.
  - Make permanent fences close to the top of the bank so that an excavator can reach over the top and clear the channel.
  - Make the fenced area wide enough to allow an excavator to work between the fence and the top of the bank. While there is a loss of land, there may be advantages in terms of more sensible fence lines, more forage behind the fence, and greater benefits for nutrient and sediment trapping.
- Once stream banks are stable and re-vegetated, controlled grazing may be used to maintain pasture grasses and control weeds. Grazing periods should be limited to minimise animal wastes entering the stream.
- Grazing should be managed to minimise erosion, and to maintain good soil structure and vegetation cover (>70% density). Do not mob-stock or heavy-set stock during wet soil conditions.
- Repair any flood damage or livestock damage as soon as possible.
- Exclude livestock during critical wildlife periods (i.e. during bird nesting periods and inanga spawning).
- Cattle and deer watering facilities should be located on the paddock (e.g. nose pumps and other watering troughs). If this is not feasible, create stable (e.g. gravel pad), fenced areas from stream watering.

## Additional reading

Taranaki Regional Council Sustainable Land Management Programme Fact Sheet 24: Fencing options and costs.  
[www.trc.govt.nz/PDFs/info\\_land/24\\_riparian\\_fencing.pdf](http://www.trc.govt.nz/PDFs/info_land/24_riparian_fencing.pdf).