Guidelines

Dune-forming fence

G-6.1

Dune-forming fences can stabilise sand dunes including where blowouts have occurred. If a sand blow does not stabilise by itself, a dune-forming fence may help reduce erosion. They slow the wind speed and allow sand to deposit. Native vegetation can also help bind the sand. Dune-forming fences are cost-effective but take several years to work. Dune-forming fences are meant to be covered by sand and can stay in place when this happens. Another fence can be constructed on top if a higher dune is required.

Use these guidelines in conjunction with the information provided in Chapter 6 when planning works and engaging consultants and contractors to ensure the proposed works use the most effective methods and minimise the risk of causing damage to coastal values.

When to use dune-forming fences

Dune-forming fences are useful for helping to build dunes, repairing small blowouts and areas where natural stabilisation could take some years. They are more permanent than brush mulches, jute mesh or geotextiles.

Avoid using dune-forming fences along an eroding beachfront. They must be well above the high water mark to minimise damage and enable them to capture dry, wind-blown sand. There must also be enough sand supply in the dune-beach system to rebuild the dunes.

Obtain specialist advice about where and how fences should be placed. This will be based on the site conditions, including prevailing wind speeds and directions. Choose the lowest cost materials if the fences are likely to be buried quickly.

The most important areas of a blowout to stabilise are the edges, especially the forward edge and other places where the wind is funnelling sand away more quickly.

Environmental and cultural considerations

Dune-forming fences are installed to protect dune landforms, however the process of installation requires disturbance of the shoreline or dunes and as such has the potential to impact on natural and cultural values.

It is important to identify all natural values that may be affected. Seek advice from specialists.

It is important to identify all cultural values that may be affected. Contact Aboriginal Heritage Tasmania, an assessment and permit may be required. Contact the Parks and Wildlife Service Maritime Heritage Section.

Fence design

Dune-forming fences are mesh fences made with woven synthetic material (similar to shade cloth). The mesh is attached to wire stretched between vertical wooden posts or stakes.

Fences are about 750mm high (somewhere between 500mm and 1m).

Fences allow sand to blow through them (rather than piling up in front). The mesh or brush is 60% porous to allow fine particles of sand through.

Fences are usually placed perpendicular to the direction of the prevailing wind (i.e. at right angles to the direction of the blowout). However, fences placed in a curve may be more effective than fences placed in straight lines.

Fences are placed in rows 5–10 m apart, the distance depending on wind direction, wind strength and dune slope.

Ensure both ends of the fence are secured in areas of stable vegetation, where possible.

Technique

Place treated pine posts (1500 mm x 75–100 mm) at 1–4 m intervals. Bury posts deeply so they stand about 900 mm above the sand.

Attach 3–4 rows of galvanised wire (2.5 mm high-tensile) to the posts with staples. Hammer staples in at an angle, not hard against the mesh.

Attach wires and mesh on the leeward side of the fence (away from wind).

Secure the mesh cloth at the base by digging it 200–300 mm deep in the sand.

Secure the cloth to the wire with ring fasteners. Or tie tough string from the top of one stake to the bottom of the next, and again from the bottom to the top, to form an 'x'.

Installation

Ensure all works staff and contractors are briefed on minimising environmental impacts and provide adequate supervision to ensure best practise environmental standards are being implemented.

Time works to minimise disturbance to wildlife such as shorebirds, penguins and shearwaters where necessary.

During works, protect the vegetation that stabilises the sand by restricting access by vehicles and people.

Rehabilitate disturbed areas as soon as possible. Assess the need for revegetation. If there is no natural vegetation nearby to supply seed, plant the area with appropriate local native species, or use direct seeding after the works are in place

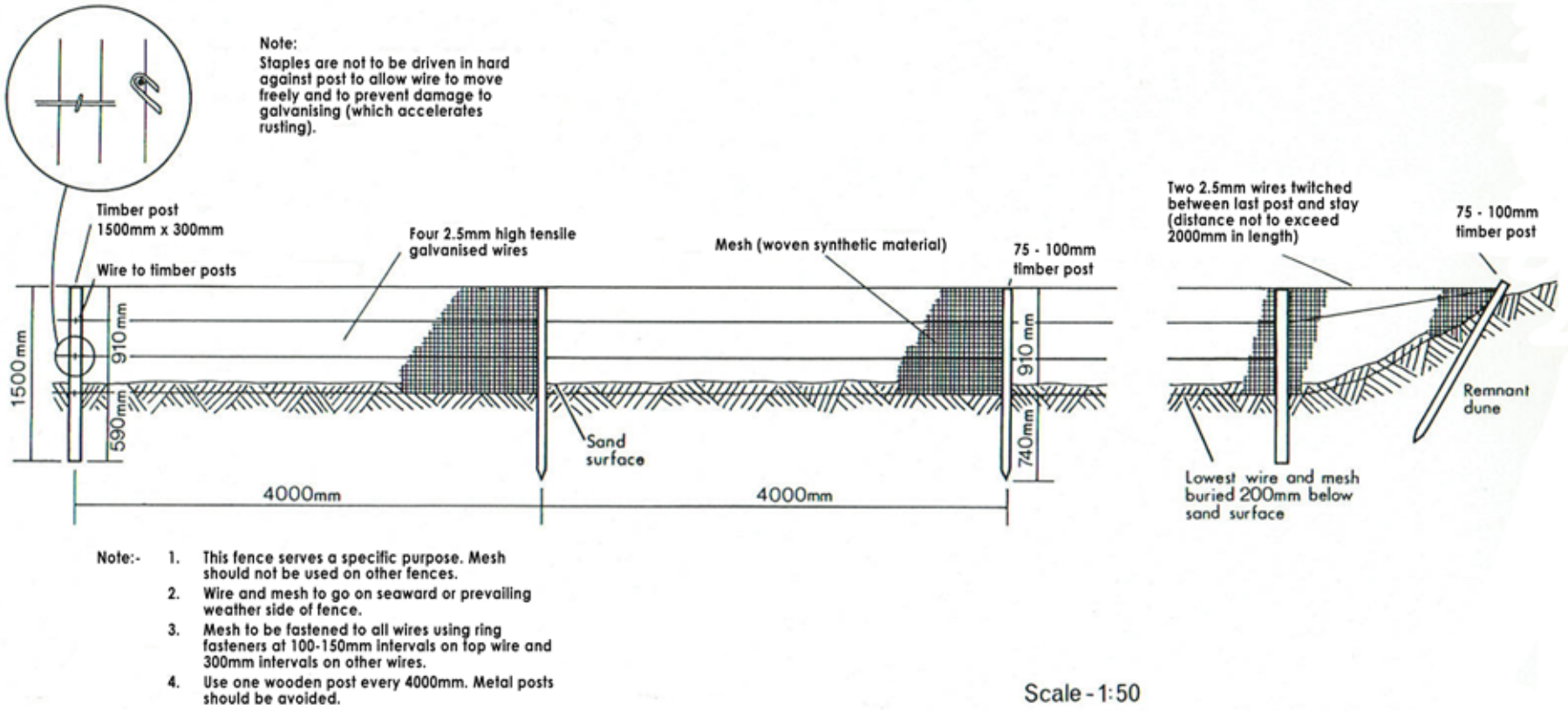
Monitoring

Follow up surveys and ongoing monitoring is essential to assess the success of the fencing in trapping sand and building up the dune. Monitoring will also identify any problems with the structure and any repairs required.

More Information

Coastal dune management, NSW Dept of Land and Water Conservation 2001

Tasmanian coastal works manual: Chapter 6, Page & Thorp 2010



Dune-forming fence design

Adapted from *Coastal dune management*. © NSW Department of Land and Water Conservation 2001