3.1.2.2 Structure

It is envisaged that the vegetative screen will be established to structurally and floristically mimic the natural dune succession (Berrigan and Bray 2004). Rainforest species will constitute the core area, extending continuously from the edge of the existing littoral rainforest and intermediate communities (*Banksia* spp woodland underlain by rainforest species), grading to the outermost margins being dominated by typical edge species eg *Banksia serrata, B. integrifolia*, Cheese Tree, *Acacia implexa, Leptospermum liversidgei* (eg see photo 10). The outermost edges will also be heavily planted with suitable shrubs and *Lomandra longifolia* as a disincentive to penetration by the public. This is in line with revegetation works proposed on the adjoining land to the north (King and Campbell 2007).

The proponent's bush regenerator has advised that strategic sequenced planting of first the colonisers/pioneers followed 1-2yrs later by succession species is recommended to maximise establishment success (Sue Regan, Wild Things Native Gardens, pers. comm.). The success of mass planting of all species is limited by season (eg frost may kill many of the post-establishment species, drought in the year of planting may mean significant failures or costly maintenance), and lack of ecological benefits provided by established pioneer plantings ie shade (enhancing weed control, moisture retention, soil temperature, and providing protection from sunburn and frost), leaf litter (enhancing moisture retention, soil microbial activity, etc). Many pioneer species also germinate and proceed through early growth stages significantly faster than succession species, meaning they are available for planting much quicker than many succession species, hence minimising delays in establishment of works before development proceeds on the larger property (Sue Regan, Wild Things Native Gardens, pers. comm.).

3.1.3 Vegetation Management Plan

A formal Vegetation Management Plan (VMP) prepared for the vegetative screen plantings will be prepared prior to works commencing and will contain specific information on the following:

a) **Plant/propagule sources**: It is envisaged that, where possible, all plants used for planting will be sourced via seed collation from the rainforest in the adjacent Crown reserve (subject to permission from the Dept of Lands and DECC licensing). Wild Things Native Gardens is currently undertaking major bush regeneration works on the property, with propagation also being undertaken at an on-site greenhouse and seed storage/sorting facility. Wild Things is capable of generating most tubestock, or subcontracting specialist nurseries to produce tubestock from on-site seedstock (Sue Regan, Director, Wild Things Native Gardens, pers. comm).

b) **Planting Preparation**: Preparation of planting areas will consist of weed removal as required to the specific area. For example, weed removal along the existing edge of the rainforest will have to be strategically staged to minimise exposure to wind and sun from the west, whereas pasture areas can be more comprehensively treated.

c) **Planting Strategy**: The VMP will detail a staged planting strategy for pioneer and succession species over an appropriate time period, with appropriate treatments/maintenance per stage.

d) **Planting Density**: This will be determined by planting strategy stage (eg pioneers vs succession species), location within the vegetated screen, relevant species (eg trees vs groundcover, edge species vs core rainforest), existing vegetation (eg trees within the paddock) and function (eg edge vegetation).

e) **Maintenance Schedule**: This will specify weeding, watering, mulching, seedling protection (eg shields from deer grazing), fertilising (if necessary), etc, measures and maintenance per strategic stage, and replacement plantings over a minimum 5yr maintenance schedule to ensure the plantings establish and weed control/elimination is effective.

3.2 WEED REMOVAL/CONTROL

3.2.1 Site Weed Removal and Control

On-site, the primary weeds are:

- *Lantana*: This only occurs in a localised patch just off the southwest corner of the beach access, falling over the boundary fence onto the site from the infestation within the adjacent Crown reserve.
- *Bitou Bush*: Occurs as scattered plants in the pasture, and under the boundary fence.
- *Winter Senna*: Occurs as a few scattered shrubs along the fence.
- *Morning Glory and Turkey Rhubarb*: Scattered plants on the northwestern edge of the rainforest.
- *Pasture grasses and weeds*: These co-dominate with Bladey Grass and Spiney Headed Matrush over most of the site.

These will be controlled as part of site preparation for planting as specified in the VMP.

3.2.2 Crown Land Weed Removal and Control

The following works are subject to approval of the Department of Lands (as land owner).

3.2.2.1 General Weed Removal

The proponent proposes to extend the current bush regeneration program currently underway on the property to include the section of the adjacent Crown reserve. This area is estimated to be 4.4ha. This area has a light to moderate infestation of the aforementioned weeds (especially Bitou Bush) from the beachfront to the pasture edge. The western edge is generally in very good condition apart from the dense lantana at the southwest corner of the beach access. Bitou Bush is the major weed of concern as it is demonstrably hampering the regeneration of the dune succession vegetation community post-sandmining by preventing development of a sufficient shrub/woodland buffer to the east and exposing regeneration rainforest to maritime stresses (see following photos).

Weed removal will primarily focus on those along the beach access and within the core rainforest area to encourage natural regeneration to fill existing gaps and stabilise edges currently dominated by these weeds, and the Bitou Bush on the foredune. Works will be staged, maintained and monitored to ensure excessive gaps are not created, allow natural regeneration to fill the vacant niches, and minimise intrusion of stresses such as salt-laden winds. With permission of the Dept of Lands, tubestock planting will be undertaken from in situ-derived seedstock to facilitate regeneration and to fill existing gaps to accelerate stabilisation of the succession.

Methods used will be those currently practised and approved by the Department of Environment and Climate Change, Port Macquarie-Hastings Council, and Landcare.

Photo 3: Example of weeds colonising a canopy gap in the rainforest

A senescent Banksia has fallen here, allowing light to the forest floor. Lantana is arising (mid-ground and rear-right). Senna was also found in this gap.

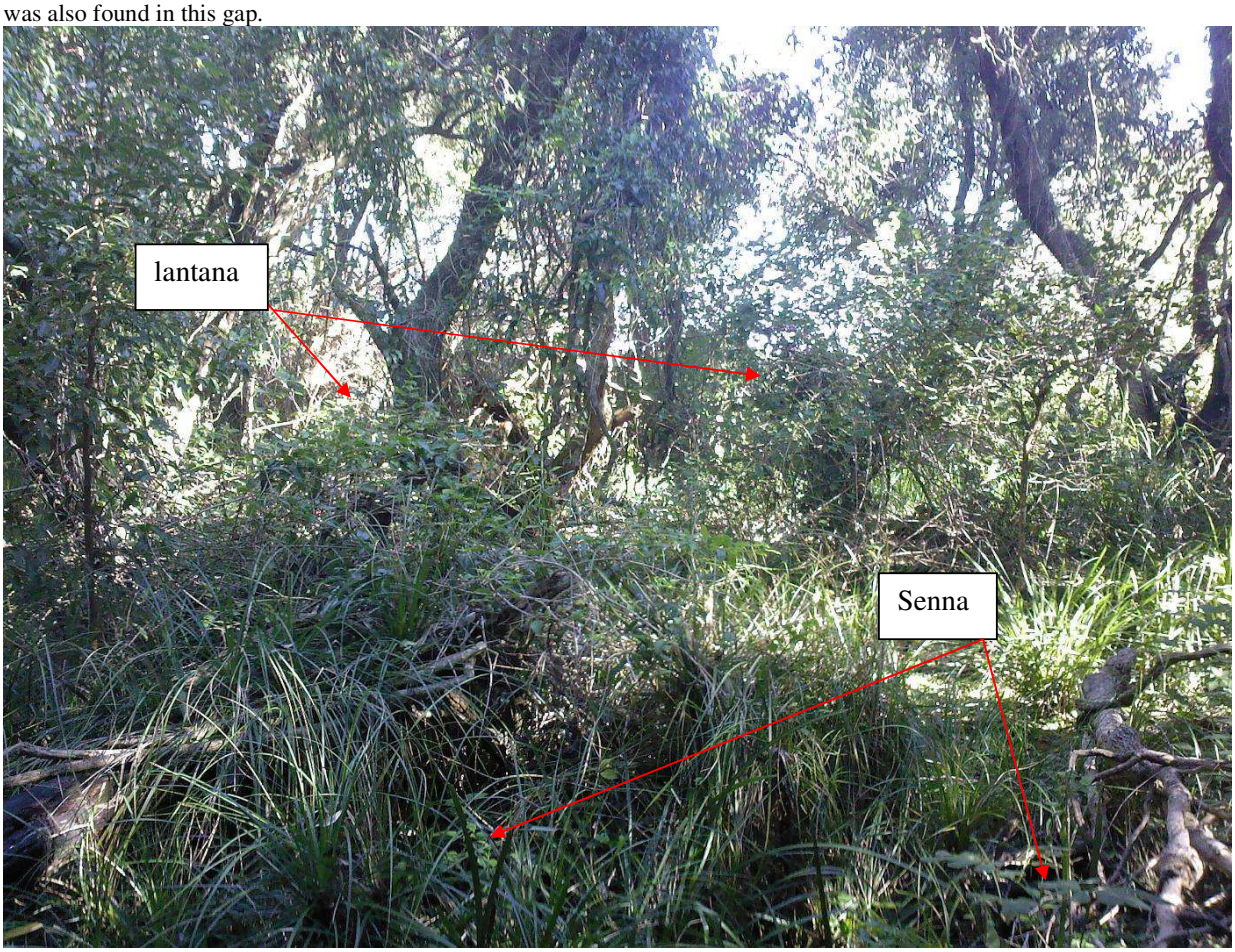

Photo 4: Bitou bush on foredune

Bitou indicated by light green patches.