

Attachment 1: Clearing assessment report, Gnarabup Path realignment



File reference: RES/41545

BACKGROUND

It is proposed to realign portions of an existing compacted limestone coastal path that was initially constructed in 2002. Since then the beach, incipient dunes and foredune have eroded in the order of 6-8 meters. The crest of the relatively steep eroded foredune is immediately adjacent to the limestone coastal walkway in places with around 350 metres of path having less than 1 metre of dune remaining. Approximately 50m of the existing path were lost to coastal erosion in 2018.

Since then, planning has been underway to consider the long term management of the path and associated facilities. The hierarchy of best practice coastal management identifies relocation as preferable to adaptation or protection.

As such, over the coming 5 years it is proposed to realign approximately 650 metres of path to cater for sea-level rise and coastal erosion. The path will cater for walkers, low-speed cyclists and assisted wheelchairs.

3 design options for the realignment were considered:

1. *Limestone Coastal Walkway*: Construction of a new compacted limestone coastal path towards the back of the foredune from Gnarabup to Prevelly, at a similar elevation to the existing. The terrain limits the setback from the beach.
2. *Mixed Coastal Walkway*: Construction of a boardwalk towards the back of the foredune at Gnarabup, transitioning to a limestone path at the back of the foredune at Prevelly.
3. *Dune Boardwalk*: Construction of a boardwalk along the ridge-line of the large primary dunes for the southern section of the walkway at Gnarabup, transitioning to a limestone path at the back of the foredune at Prevelly.

A multi-criteria analysis (MCA) was undertaken to determine a preferred approach. This considered the capital and on-going costs, the assumed design life in terms of coastal erosion, environmental impacts (vegetation clearing) and social aspects (accessibility and aesthetics).

The MCA identified little difference between Option 1 and Option 2. Construction of a limestone pathway within the swale (Option 1) is the cheapest option, however this would have significantly greater impacts on vegetation. As such, the first approximately 350 metres has been designed as a slightly elevated boardwalk set just off the swale (option 2). Where the existing swale is less vegetated (CH350-650) the path has been designed as a compacted limestone pathway.

Additional information on the coastal processes study, the MCA and design is detailed in the attached *Concept Design Report*, while the *Collated Plans* provides indicative designs for the relocation of the path. It is noted that some protection works are identified in the area

immediately adjacent to the boatramp – these works did not impact upon any native vegetation and have recently (December 2020) been completed.

BIODIVERSITY VALUES

A desktop assessment, followed by multiple site inspections by Shire Environment and Landcare Officers, has been undertaken for the project area. There were also a series of coastal condition reports undertaken by Shire staff and volunteers following extensive fire damage in 2011.

Flora and Vegetation

The project area comprises coastal dunes with large patches of bare sand and primary to secondary dune species include *Carpobrotus virescens*, *Olearia axillaris*, *Acacia littorea*, and *Scaevola crassifolia* with occasional *Melaleuca huegelii*. Introduced *Ehrharta villosa* (pyp grass), *Tetragonia decumbens*, and Rose Geranium (*Pelargonium capitatum*) are also present.

Regional context mapping of vegetation complexes by DBCA (2016) indicates the survey area is not currently mapped due to the coarse scale of the mapping, however from field inspections it would be identified as the 'Kilcarnup kBe' vegetation complex. This complex is scattered on exposed coastal dunes in the Shire. Based on 2016 Native vegetation extent by vegetation complex in the Southern Jarrah Forest IBRA sub-region and the Warren IBRA region (DBCA 2016) there was 357 ha of this vegetation complex prior to European disturbance, and in 2016 there was 169 ha of the complex remaining (circa 50%) and approximately 100 ha had some level of formal protection (circa 65%).

Caladenia excelsa is known from sites approximately 2km away but in markedly different habitat (Marri Jarrah forest/woodland) and it is not considered probable that it occurs on the site.

Fauna and habitat

Based on a database search the following threatened fauna are found within or near the project site:

- *Pseudocheirus occidentalis* (Western Ringtail Possum);
- *Isoodon obesulus subsp. Fusciventer* (Quenda);
- *Calyptorhynchus baudinii* (Baudin's Cockatoo);
- *Calyptorhynchus banksii subsp. Naso* (Forest Red-tailed Black-Cockatoo);
- *Calyptorhynchus latirostris* (Carnaby's Cockatoo);
- *Phascogale tapoatafa ssp.* (Brush-tailed Phascogale); and
- *Thinornis rubricollis* (Hooded Plover);

Hooded Plovers are regular sighted on the adjacent beach, however no records of nesting are known from the beach or the project area.

Due to the sparse nature of vegetation it is considered very unlikely that any of these species permanently reside in the project area, but occasionally forage or visit the area.

POTENTIAL IMPACTS

Flora and Vegetation

Large areas of the proposed walkway are very sparsely vegetated with bare ground visible throughout and no species of significance are present on site. The design minimises impact to the better condition vegetation that is found in the southern portion of the site through the use of a boardwalk which reduces the extent of soil and vegetation disturbance. Where soil is proposed to be disturbed, including on the old alignment that will be removed, areas will be stabilised through brushing, and planting of native species, predominately pigface and spinifex.

Hygiene management protocols will also be followed to minimise the risk of spreading or introducing weeds and diseases such as dieback although the risk to vegetation and risk of importation is considered extremely low due to the high pH nature of the calcareous soils and limestone.

Fauna and habitat

Given the sparse nature of the existing vegetation, the small amount of clearing proposed, proposed mitigation strategies, and wider representation of habitats in the local area including the national park, it is not considered that the clearing will have a significant impact on any fauna species of conservation significance.

CONCLUSION AND MANAGEMENT ACTIONS

The pathway will be constructed to approximately a 2m wide hardened surface and will require a maximum clearing width of 4m to facilitate truck and machinery access however steep slopes may require extensive batters and minor alignment changes. Detailed design is currently underway, and in order to expediate the clearing application process, a corridor 10m wide has been identified within which the trail will be constructed. The clearing area for the application has been calculated on a basis of the full 10m wide corridor being cleared, however the actual clearing is anticipated to be in the order of 3-4m wide for the majority.

The clearing of less than 0.7ha hectares of coastal vegetation to facilitate the realignment of a coastal path is unlikely to be at variance with the 10 clearing principles.

The Shire of Augusta Margaret River will implement the following measures to ensure that impacts of clearing native vegetation are minimised.

- Clearing of native vegetation will be minimised wherever possible. The project has been designed to minimise disturbance to native vegetation, by use of elevated boardwalks.
- Existing surface drainage patterns will be maintained during and following the project.
- Implement weed and dieback hygiene measures during clearing and construction (clean vehicles and machinery prior to entering the site).
- All clearing areas will be marked in the field with temporary fencing during construction to avoid any inadvertent disturbance to surrounding sensitive areas.
- Exposed areas will be stabilised through the use of brushing and planting.

COMMENTS ON THE PROPOSED CLEARING AGAINST THE CLEARING PRINCIPLES

Principle (a) – Native vegetation should not be cleared if it comprises a high level of biological diversity

The project area is degraded with no threatened or significant flora or fauna species likely to impact.

These biodiversity values are well represented outside the clearing area, including within the adjoining Leeuwin Naturaliste National Park, and in combination with proposed mitigation strategies, it is not expected that the small amount of clearing will have an impact on their conservation significance.

Principle (b) – Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia

The only significant fauna species that uses habitat within the project area are black cockatoo species that occasionally feed on rose pelargonium, an introduced species and *Melaleuca huegellii* a native species, that are both sparsely scattered through project alignment but occur in greater density elsewhere in the Reserve.

Given the small amount of clearing proposed, proposed mitigation strategies, and wider representation of foraging resources in the local area including adjacent Shire reserve and nearby national park, it is unlikely that the clearing will have an impact on any fauna species of conservation significance, or their habitat.

Principle (c) – Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

There are no known occurrences of priority or rare flora within the project area. *Caladenia excelsa* is known from sites approximately 2km away but in markedly different habitat (Marri Jarrah forest/woodland) and it is not considered probable that it occurs on the site.

Principle (d) – Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.

There are no known threatened or ecological communities within the project area.

Principle (e) – Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

The native vegetation in the project area is unlikely to be significant as a remnant of native vegetation. The vegetation complex impacted by the proposed clearing is associated with the 'Kilcarnup kBe' vegetation complex. This complex is scattered on exposed coastal dunes in the Shire. Based on 2016 Native vegetation extent by vegetation complex in the Southern Jarrah Forest IBRA sub-region and the Warren IBRA region (DBCA 2016) there was 357 ha of this vegetation complex prior to European disturbance, and in 2016 there was 169 ha of the complex remaining (circa 50%) and approximately 100 ha had some level of formal protection (circa 65%).

Principle (f) – Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland

The project area comprises very well drained coastal dunes and there are no watercourses or wetlands nearby. The proposal is not at variation to this clearing principle.

Principle (g) – Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation

The proposed clearing has potential to cause localised land degradation through destabilisation of coastal dune systems. The proposal has been designed to mitigate impacts where possible through use of an elevated boardwalk in steeper areas and compacted limestone on the flatter areas. The boardwalk and path includes handrails and fencing to ensure people do not stray off track.

Formalising and hardening specific access paths will ensure that the degradation footprint does not expand over time.

Remediation and stabilisation is planned through retention of all native vegetation removed and active stabilisation such as planting of pigface and laying of native brush.

The Shire and volunteer groups have been undertaking regular rehabilitation activities in the area for a number of years including and these works will continue. The **attached** photos show some of the existing work that will be continued.

Principle (h) – Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

The area immediately surrounding the project footprint is a Crown Reserve vested with the Shire for Recreation and is managed to ensure that the vegetation and dunes are healthy and stable.

Principle (i) – Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

The proposed clearing is not likely to cause deterioration in the quality of surface or underground water as it is located in a well-drained coastal sands.

Principle (j) – Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

The proposed clearing is not likely to cause, or exacerbate, the incidence of flooding due to the very small amount of clearing and the very well drained sands.

REFERENCES

Shore Coastal concept plan
Shore Coastal detailed design

ATTACHMENT 2: LIST OF PHOTOS AND DESCRIPTIONS

Photo #	Comment	Approximate chainage and path type
1	Looking north through dune cutting	Boardwalk 0
2	Looking south through dune cutting	Boardwalk 25
3	Looking north Boardwalk to be built just to right of vegetation in swale	Chainage 50 Boardwalk
4	Looking north Boardwalk to be built just to right of vegetation in swale	Chainage 150 Boardwalk
5	Looking north Boardwalk to be built in centre of frame to join with existing fenced bypass.	Chainage 250 Boardwalk
6	Looking north Path to be built just to right of centre of frame just off swale.	Limestone 400
7	Looking north. Path to be built just to right of centre of frame just off swale.	Limestone 500
8	Looking north Path to be built just to left of centre on existing crest.	Limestone 600
9	Looking north Path to be built centre of frame just on flatter ground.	Limestone 650