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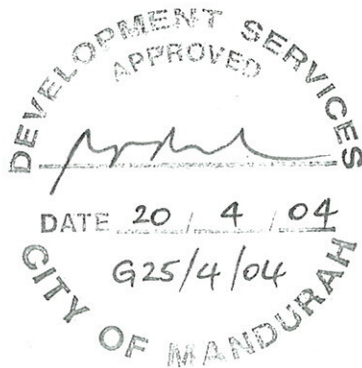
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PORT BOUVARD LIMITED

**SOUTHPORT
FORESHORE MANAGEMENT PLAN**

STAGE II



VERSION 6

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2.1.6 Coastal Stability

A study involving a comparison of surveyed high water marks (HWM) between 1909 and 1992 indicates negligible variation in shoreline position.

Aerial photographs taken in 1955 and 1982 indicate that the shoreline within 800m either side of the channel has been stable for over 27 years. This stability is attributed to the extent of limestone in the area (Steedman Science & Engineering, 1992). This is supported by the geological assessment which identified the outcrop of underlying limestone in the surf zone and beneath the Quindalup dunes (Peter J. Woods & Associates, 1992).

The Southport reserve gains stability from the limestone outcrops beneath the beach and dunes. This limestone will offer protection against long term erosion and the high dune topography also provides protection from coastal erosion. There is potential for accretion at the northern end of Southport as sand accumulates along the Channel breakwater.

2.1.7 Sediment Transport

Longshore sediment transport in this region occurs predominantly from south to north. Southport occurs within a cell of sediment transport extending from Bunbury to Becher Point and lies within a zone of accretion with sediment transport rates past Dawesville estimated at between 28,000 to 33,000m³ up to 50,000 to 100,000m³ per year (LeProvost, Semeniuk & Chalmer, 1987).

2.1.8 Climatic Variability

Natural cyclic variations in climatic conditions can impact on coastal stability. Analysis of storm frequency and intensity for the Mandurah Coastal Strategy suggests that the Mandurah region is moving into a period of increasing storm activity and storm intensity, with the implication that a greater number of erosional events can be expected (Koltasz Smith & Partners, 1993). This situation could be exacerbated by any increase in sea-level such as may be associated with an enhanced Greenhouse Effect.

The Southport foreshore has areas of onshore limestone beneath the beach which should protect it from medium to long term erosion, resulting from increased storm intensity. The most likely impact of increased storm activity is erosion of foredunes, perpetuating dune instability and sand movement.

2.2 Biological Environment

2.2.1 Flora and Vegetation

The vegetation along the Southport foreshore is typical strand and foredune vegetation common in the south-west of Western Australia. The incipient dunes and foredunes are generally well vegetated when present. The cliffed foredunes, previously exposed to wind erosion, have been rehabilitated with brush and revegetated with coastal

species. On the lee slopes and swales where the vegetation is protected from strong winds and random access it is generally dense and in good condition. The typical dune flora of Southport is shown in the following table.

TABLE 2
TYPICAL SPECIES OCCURRING ON THE
COASTAL DUNES AT SOUTHPORT

	Groundcovers and Climbers	Fleshy annual or perennial succulents	Grasses	Shrubs
Strandline		* <i>Cakile maritima</i> * <i>Salsola kali</i> * <i>Arctotheca populifolia</i>		
Berm		* <i>Tetragonia decumbens</i> * <i>Cakile maritima</i>	<i>Spinifex hirsutus</i> <i>Spinifex longifolius</i>	
Frontal Dunes		* <i>Tetragonia decumbens</i> <i>Carpobrotus virescens</i> * <i>Pelargonium capitatum</i>	<i>Spinifex hirsutus</i> <i>Spinifex longifolius</i>	<i>Olearia axillaris</i> <i>Scaevola crassifolia</i>
Sheltered Dunes and Crests	<i>Hardenbergia comptoniana</i> <i>Isolepis nodosus</i> <i>Hemandra pungens</i> <i>Lepidosperma gladiatum</i> <i>Conostylis aculeata</i> * <i>Euphorbia pepus</i>			<i>Olearia axillaris</i> <i>Scaevola crassifolia</i> <i>Acacia rostellifera</i> <i>Spyridium globulosum</i> <i>Santalum acuminatum</i> <i>Myoporum insulare</i> <i>Threlkeldia diffusa</i> <i>Jacksonia fircellata</i> <i>Acanthocarpus preissii</i> <i>Ozothamnus cordatum</i> <i>Rhagodia baccata</i> <i>Exocarpos sparteus</i> <i>Diplolaena dampieri</i> <i>Alyxia buxifolia</i> <i>Acacia saligna</i>
Eastern Dune Face				<i>Acacia rostellifera</i> <i>Spyridium globulosum</i> <i>Olearia axillaris</i> <i>Scaevola crassifolia</i> <i>Melaleuca huegelii</i>

* Denotes introduced species.

2.2.2 Vertebrate Fauna

The vegetated dunes within the Foreshore Reserve provide habitat for several species of songbirds and probably a few species of reptile. Rabbits are also present in abundance. The extent and variety of habitats, however, is not large and the diversity of terrestrial vertebrate fauna is likely to be limited. Although not observed, foxes and feral cats are probably also present.

The ERMP for the Dawesville Channel reports that it is unlikely that any rare or restricted species would be dependent on this area (Kinhill Engineers Pty Ltd, 1988).

In the nearshore marine environment, the following species of fish and crustaceans may be expected:

- Sea mullet (*Mugil cephalus*)
- Yellow-eye mullet (*Aldrichetta forsteri*)
- King George whiting (*Sillaginodes punctatus*)

- Western Sand whiting (*Sillago schomburgkii*)
- Tailor (*Pomatomus saltatrix*)
- Mulloway (*Argyrosomus hololepidotus*)
- Sea Garfish (*Hyporhamphus melanochir*)
- Skipjack (*Pseudocaranx wrighti*)
- Blue Manna crabs (*Portunus pelagicus*)
- Western King prawns (*Penaeus latisulcatus*)

The availability of such fish and crustacea stocks may promote use of the Southport foreshore for recreational fishing.

2.3 Human Environment

2.3.1 Existing Use and Facilities

The beach and nearshore area at Southport is currently used for recreational activities such as fishing, surfing, swimming and walking. The 'Rifles' surf break, located offshore from Caddadup Reserve, is accessed directly through the dunes adjacent to Tee 2 or indirectly from the existing car park in the north.

Access to the foreshore area in the southern area of Southport is by off-road vehicles, which have caused some dune degradation. This recreational use of Caddadup Reserve is apparently popular, as shown by the number and extent of established tracks.

2.3.2 Archaeological and Ethnographic Sites

McDonald Hales and Associates conducted an archaeological and ethnographic survey of Caddadup Reserve in 1993 (McDonald Hales & Associates, 1994). No sites of significance to Aboriginal peoples were identified during the survey however, it was recommended that archaeological monitoring take place during the development phase.