

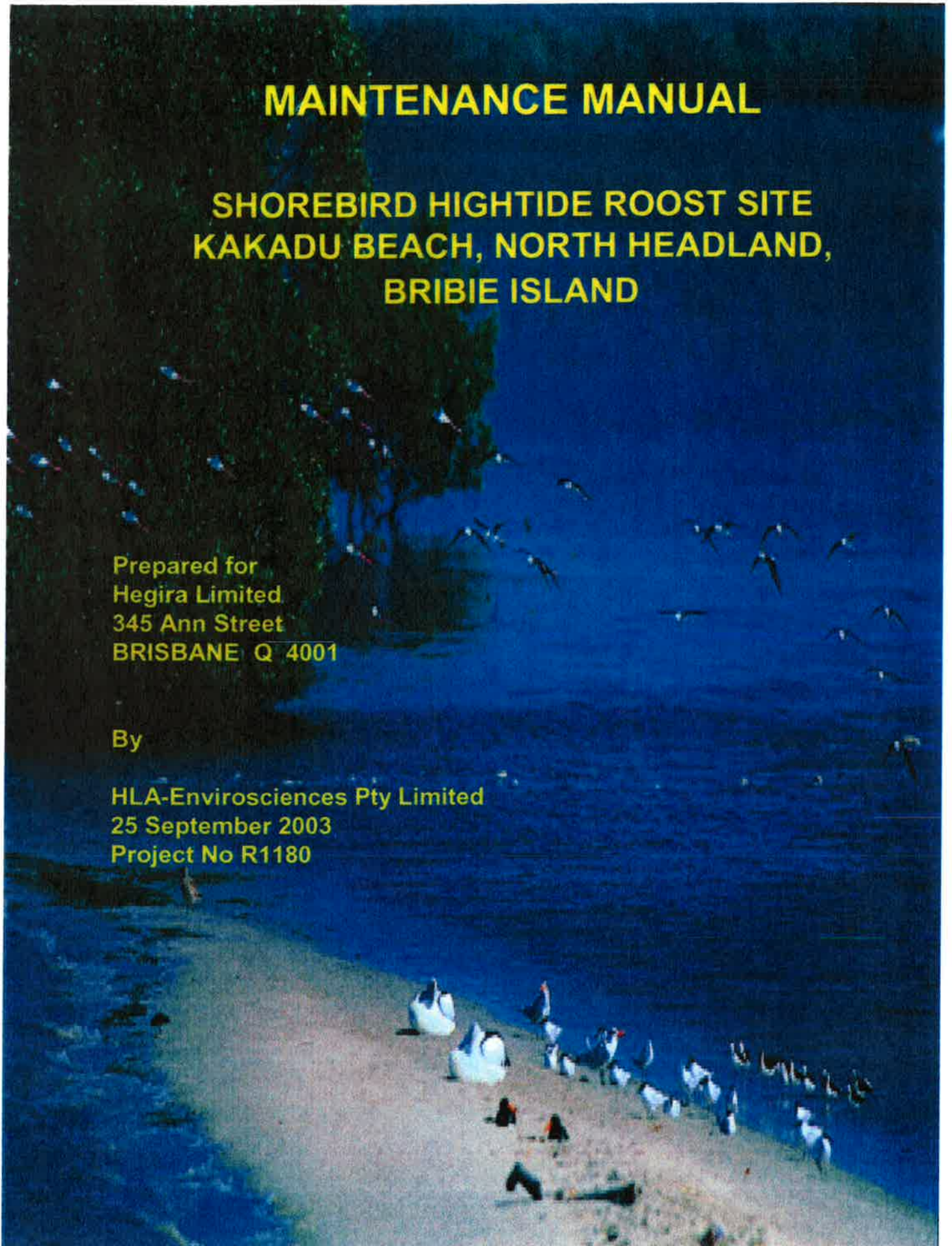
MAINTENANCE MANUAL

SHOREBIRD HIGHTIDE ROOST SITE KAKADU BEACH, NORTH HEADLAND, BRIBIE ISLAND

Prepared for
Hegira Limited
345 Ann Street
BRISBANE Q 4001

By

HLA-Envirosciences Pty Limited
25 September 2003
Project No R1180



Maintenance Manual

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Bribie Island

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25 September 2003

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1.0 INTRODUCTION

1.1 Background

Hegira Limited are constructing a canal based residential estate at Pacific Harbour at the mouth of Dux Creek, adjoining Pumicestone Passage on the western side of Bribie Island (**Figure 1.1**). The estate is known as North Headland and is located at the south western end of the existing residential suburbs of Banksia Beach. The estate is separated from the Pacific Quays canal estate and marina by the access waterway known as Skippers Canal.

Prior to 1986 the site was colonised by mangroves and was inundated regularly by flooding tides. During 1986 the site was cleared of all vegetation together with the Dux Creek estuary and filled to a level above flood tide with material dredged from the adjoining Skippers Canal. This raised the ground level in this area above the highest astronomical tide level.

The site was grassed and a small number of palm trees were placed within the site. A revetment wall was constructed along the southern boundary adjoining Skippers Canal and along the western side adjoining the Pumicestone Passage. A small beach developed along the western boundary due to natural accretion from the northward tidal drift. This beach subsequently consumed the western revetment wall burying it by 0.3-0.4m. The beach became colonised with Casuarina species (above HAT) and mangrove and other marine plants within the intertidal regions.

In 1996, Hegira Limited commissioned HLA-Envirosciences Pty Ltd (HLA) to conduct environmental studies and to develop the Environmental Management Plan (EMP) for the Dux Creek canal and marina Project (later referred to as Pacific Quays). A separate management plan was constructed for the North Headland site. Approval of the Dux Creek EMP, subject to conditions, was granted in May 2000 and consent to develop the site was granted by Caboolture Shire Council in July 2000. The conditions of the Dux Creek development included the preparation of a Management Plan for shorebirds for the southern and central Pumicestone Passage (completed by HLA in December 2001). As part of this MP for Shorebirds the studies identified the North Headland beachfront (later renamed Kakadu Beach Shorebird Roost) as a suitable site for constructing an alternative HAT roost that would in part replace the man made Dux Creek HAT roost that would be consumed by development of the marina. Construction of the Kakadu Beach Roost (KBR) commenced in 2000 and was completed in March 2002. As part of the requirements for the ongoing management of the KBR a maintenance manual is required to ensure that the North Headland site continued to provide a high tide roost area suitable for shorebirds.

1.2 Philosophy of the site

The area targeted by this manual is shown in **Figure 1.2** and includes the four areas described as 'Parkland', 'Lagoon', 'Shorebird Roost Site' and 'Beachfront'. An outline the philosophy behind each of these areas is provided below.



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APPROVED TR

Legend



Parkland



Lagoon



Shorebird Roost site



Beachfront

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CLIENT

HEGIRA LIMITED

PROJECT

NORTH HEADLAND STAGE 1
MAINTENANCE MANUAL

TITLE

Site Plan

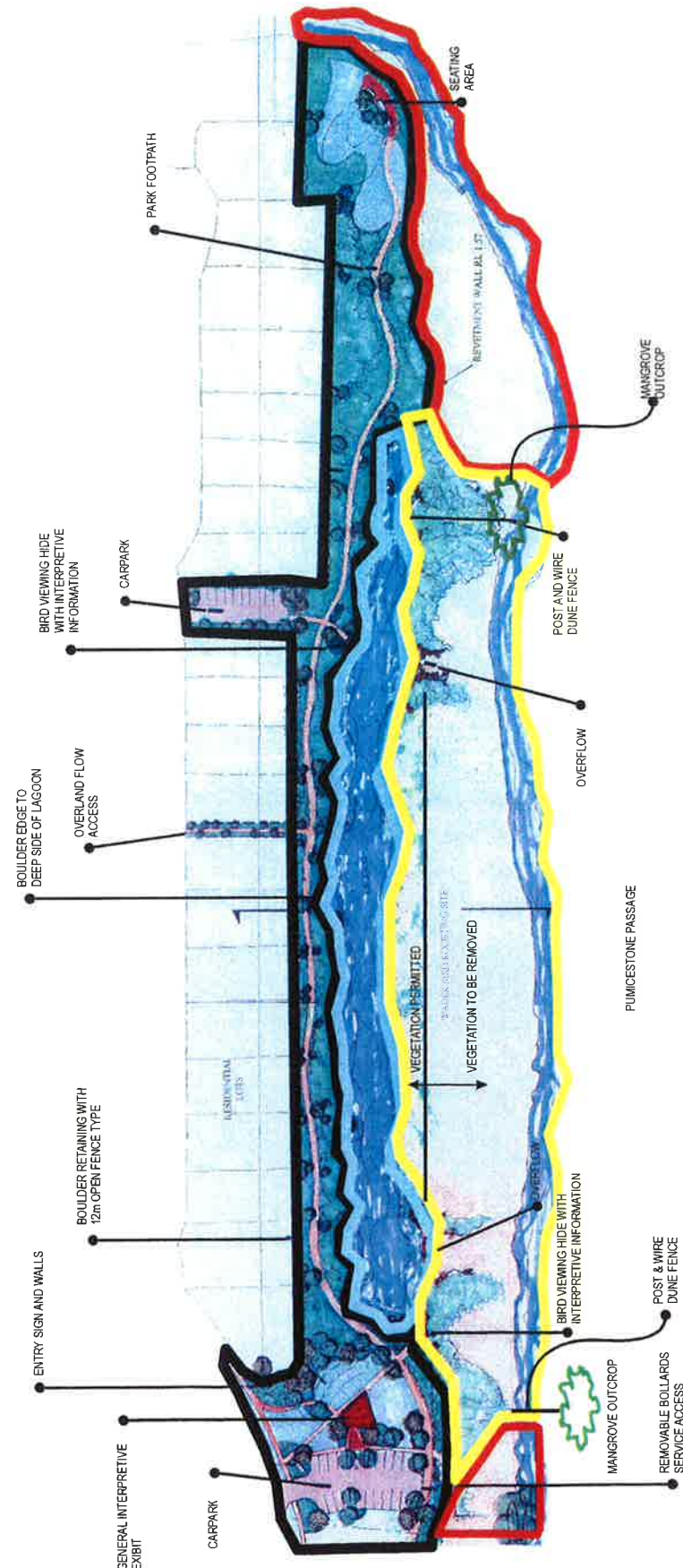
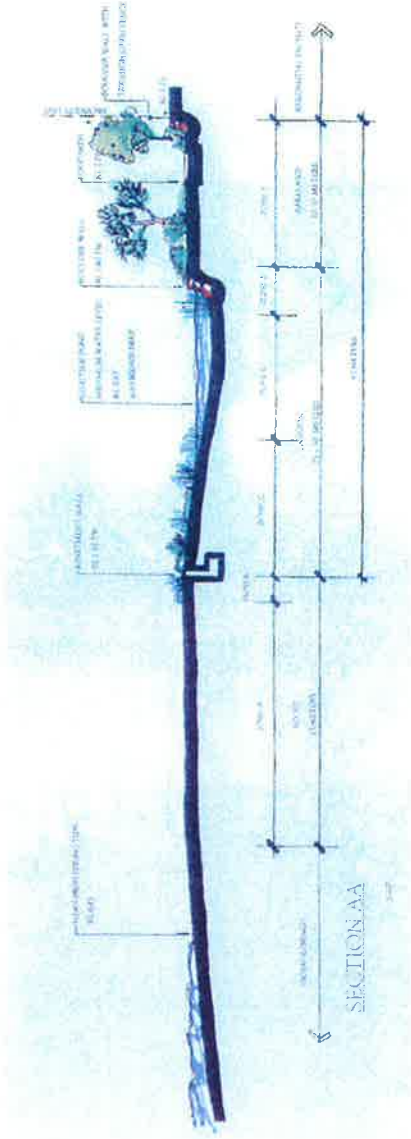
FIGURE
1.2

SCALE
Not to Scale

REVISION
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R1180

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Parkland - The parkland area is provided for community recreation and includes pathways, seating areas, bird viewing hides, interpretive exhibits, landscaped gardens and lawn areas. The vegetation is of a relatively short stature, so as not to attract raptors to the site, which could compromise the security of the shorebirds.

Lagoon – The lagoon is situated on the landward side of the shorebird roost site and has been designed as a water barrier to discourage human, domestic animal and feral animal ingress to the roost site. The shallow verges on the passage side of the lagoon may also be used by shorebirds and therefore vegetation on this side is to be maintained as a sparse cover and < 2 m in height.

Shorebird Roost Site – This area functions as a high tide roost for shorebirds. The birds will tolerate only sparse vegetation of short stature and therefore the area should be kept clear of vegetation or at the very least the vegetation must be very low (< 200 mm) and very sparsely distributed. Access to this area is to be the minimal and restricted to that time required to maintaining the site. Maintenance access is restricted to periods of low tide (when the shorebirds are foraging away from the roost). Particular care is required during September and March when the roost is used by migratory species of wader.

Beachfront – The beachfront area is provided for public access and recreation. Mangrove outcrops and fencing on the beachfront at either end of the roost site are to act as natural barriers to deter humans and domestic animals from entering the roost area. Signage to warn boating public not to access the sanctuary will be erected within the permanent shallow waters of the Passage adjoining the roost area.

1.3 Purpose of this manual

The purpose of this manual is to document the maintenance practices that are necessary to retain the Kakadu Beach high tide shorebird roost site at North Headland, in a manner that promotes the long-term use of the site by shorebirds, including migratory waders.

Maintenance responsibilities of the four areas identified above will pass from Hegira Limited to Caboolture Shire Council in March 2005. The North Headland Residential Association may assist the Caboolture Shire Council maintain the site. The maintenance practices required to retain the use of this area by shorebirds are specific to the site and exceed those general practices commonly carried out by Council.

1.4 Structure of this manual

As noted above, the maintenance practices required for the North Headland shorebird roost site are different from any other current maintenance works undertaken by Caboolture Shire Council. Specific maintenance measures are required, and in some cases, these measures can only be undertaken at certain times of the calendar year, to avoid disturbance of shorebirds during peak periods of visitation.

This manual has been developed as follows:

Chapter 2 Summarises the maintenance tasks, timing and responsible group to carry out the tasks for the Parkland, Lagoon, Shorebird Roost Site and Beachfront areas. This information is provided in the form of tables.

- Chapter 3** Provides further details in relation to each identified task in 'Work Procedure Sheets'.
- Chapter 4** Checklist of the weekly, monthly, quarterly, six monthly and annual maintenance requirements for the Parkland, Lagoon, Shorebird Roost Site and Beachfront areas.
- Appendix A** The recording of all incidents and failures at the site is essential to streamline the maintenance program, to ensure that follow-up action is performed and recorded and remediation measures are successful. To aid in this process an Incident Reporting Form has been developed and is provided in **Appendix A**. The form is to be filled out by site users/maintenance personnel/management etc and returned to Hegira Ltd for actioning.
- Appendix B** As the key element of this manual is to ensure the long-term use of the site by shorebirds, the continued involvement of the Queensland Wader Study Group is considered essential. It is therefore necessary that an informal audit of the site be undertaken by a representative of the Queensland Wader Study Group on an annual basis and prior to the time that the migratory waders enter Australia (in late August / early September). To assist with this informal audit, a checklist has been developed in consultation with Jill Dening of the Queensland Wader Study Group, and is provided as **Appendix B**.
- Appendix C** Details a list of suppliers (both consultants and contractors) of the original services / materials utilised in development of the site.
- Appendix D** Landscape design drawings are provided in this Appendix.
- Appendix E** Comprises photographic plates of the key areas and built infrastructure.
- Appendix F** A copy of the Marine Plant (Mangrove) Removal Permit for the Shorebird Roost is provided in this Appendix.

1.5 Consultation process

The following people have been consulted in the production of this Manual or have provided comment following review of the Manual.

Person	Company
Bill Wilcock	Nullarbor Prevention
Chris Minetti	Caboolture Shire Council
Dan Mayer	Queensland Fisheries Service, DPI
Graham Buergdorf	Caboolture Shire Council
Graham Marshall	QM Properties
Jill Denning	Queensland Wader Study Group
John Olds	Queensland Parks and Wildlife Service
Michael Bender	The Plant Management Company
Michael Ryan	HLA-Envirosciences
Mike Swanson	Place Planning and Design
Nathan Kenyan	QM Properties
Peter Scott	HLA-Envirosciences
Ray Jefferies	QM Properties
Scott Willis	QM Properties
Tamara Read	HLA-Envirosciences
Warren Russell	QM Properties

2.0 SUMMARY OF MAINTENANCE REQUIREMENTS

AREA	ACTIVITY	TASK	TIMING	RESPONSIBILITY	ADDITIONAL INFORMATION
PARKLAND	Maintain plant health	Inspect existing vegetation for mortalities/insect infestations/disease and replace or treat plants / lawn as necessary	Fortnightly	Hegira Ltd ¹	Work Procedure Sheet (WPS) 1
	Monitor plant damage	Assess plant damage and water retention and correct as required.	Immediately following storm events & prolonged rainfall	Hegira Ltd	WPS 1
	Watering of plants	Water plants and lawn via irrigation system.	Weekly – seasonally adjusted based on soil moisture & specific plant requirements	North Headland Residential Association	WPS 2
	Irrigation system	Inspect irrigation system for faults and vandalism and fix as necessary	Weekly	North Headland Residential Association	WPS 2
	Pruning – parkland general	Prune vegetation within parkland including car parks as necessary to maintain tidy, landscaped appearance and natural form of plants	Monthly	Hegira Ltd	WPS 1
	Pruning – Pandanus trees	Inspect and remove dead fronds of Pandanus trees as they occur to reduce the risk of disease etc.	Monthly	Hegira Ltd	WPS 1
	Pruning – bird hides	Prune vegetation in front of bird hides to maintain open viewing of the shore bird roost site	Monthly	Hegira Ltd	WPS 1

¹ All identified responsibilities for Hegira Ltd are up until March 2005, after which time the responsibility will pass to Caboolture Shire Council

Maintenance Manual - Shorebird Roost Site

AREA	ACTIVITY	TASK	TIMING	RESPONSIBILITY	ADDITIONAL INFORMATION
	Maintain soil health and fertility	Establish and maintain a fertiliser program using organic amendment and calcium in conjunction with, and to continue programs and processes initiated during initial site development	Monthly	Hegira Ltd	WPS 3
	Turf mowing	Mow the turfed areas and disposal of lawn clippings off-site. Turf mowing maintenance is to be seasonally adjusted depending on the weather conditions	Weekly / Fortnightly	Hegira Ltd	N/A
	Edging	Maintain a clean edge along all pathways and impermeable surfaces within built infrastructure (eg. bird hides and interpretive exhibit)	Monthly	Hegira Ltd	N/A
	Mulching	Inspect the depth of garden mulch and replace as necessary with shredded cypress mulch to a depth of 75 mm (keep mulch clear of main plant stem as much as possible)	Annually	Hegira Ltd	WPS 1
	Weed control	Inspect parkland and car park gardens and pathways for weeds (introduced and non-endemic species) and remove weeds by hand and / or mechanical methods as necessary (herbicides are not to be used)	Fortnightly	Hegira Ltd	N/A
	Erosion control	Inspect the garden beds for signs of erosion and stabilise as necessary.	Immediately following storm events & prolonged rainfall	Hegira Ltd	WPS 4
	Fence maintenance	Inspect and maintain fencing, including tensioning of wire, as necessary	Monthly	Hegira Ltd	WPS 4
	Pathway maintenance	Inspect pathway substrate to ensure a minimum of 100 mm depth of compacted road base with sprayseal surface	Annually	Hegira Ltd	WPS 4
	Bird hide/interpretive exhibit structures	Inspect all built structures and maintain appearance and wheelchair access as necessary	Weekly	Hegira Ltd	WPS 4
	Bird hide/interpretive exhibit information	Inspect and maintain the appearance of the shorebird display boards and replace/update as necessary	Weekly	Queensland Wader Study Group / Hegira Ltd	WPS 4
	Signage	Inspect and maintain the stability and appearance of the information signs and replace as necessary	Monthly	Hegira Ltd	WPS 4

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AREA	ACTIVITY	TASK	TIMING	RESPONSIBILITY	ADDITIONAL INFORMATION
	General site tidiness	Inspect and maintain pathways/gardens/turf/infrastructure/car parks free of litter and debris	Daily	Hegira Ltd	WPS 4
	Incident reporting	Incidents and issues on site are to be reported to Hegira Ltd using the standard form provided in Appendix A	As required	Administered by Hegira Ltd	Appendix A

Maintenance Manual - Shorebird Roost Site

AREA	ACTIVITY	TASK	TIMING	RESPONSIBILITY	ADDITIONAL INFORMATION
LAGOON	Maintain plant health	Inspect existing vegetation for mortalities/insect infestations/disease and replace or treat plants / lawn as necessary	Fortnightly	Hegira Ltd ¹	WPS 1
	Monitor plant damage	Assess plant damage and water retention and correct as required.	Immediately following storm events & prolonged rainfall	Hegira Ltd	WPS 1
	Pruning	Prune vegetation as necessary to maintain tidy appearance, retaining the natural form of plant material	Monthly	Hegira Ltd	WPS 1
	Maintain soil health and fertility	Assess plant health/growth and adjust soil fertility as necessary using organic/natural amendments	Monthly	Hegira Ltd	WPS 3
	Weed control	Inspect the lagoon edge and water body for weeds and remove weeds by hand as necessary (herbicides are not to be used)	Monthly	Hegira Ltd	N/A
	Water quality	Visually inspect lagoon for signs of pollution and seek advice on appropriate treatment if necessary. Implement treatment as required.	Weekly	Hegira Ltd	WPS 4
	Water quality	Visually inspect lagoon for signs of surface debris and 'scoop out' debris as necessary.	Weekly	Hegira Ltd	WPS 4
	Erosion control	Inspect the banks of the lagoon for signs of erosion and stabilise as necessary	Immediately following storm events & prolonged rainfall	Hegira Ltd	WPS 4
	Inlet/outlet weir	Inspect the inlet/outlet weirs to ensure no blockages and to maintain a permanent lagoon water level of RL 0.83m AHD (Mean High Water Spring) with an absolute minimum water level of RL 0.52m	Weekly	Hegira Ltd	WPS 4
	Gross pollutant trap	Inspect and maintain as necessary the gross pollutant traps that filter stormwater from the western side of the development prior to discharge to the passage via the weirs	Quarterly	Caboottle Shire Council	WPS 4
	Rock boarder	Inspect rocks for natural competence and replace where necessary	Quarterly	Hegira Ltd	WPS 4

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AREA	ACTIVITY	TASK	TIMING	RESPONSIBILITY	ADDITIONAL INFORMATION
	Rock walls	Inspect rocks for natural competence and cohesion of cement surfaces and replace/repair where necessary	Quarterly	Hegira Ltd	WPS 4
	Bitting midge control	Assess the lagoon for biting midges and control where necessary by flooding the lagoon and holding the high tide level for 24 – 48 hours.	Weekly	Hegira Ltd	N/A
	Incident reporting	Incidents and issues on site are to be reported to Hegira Ltd using the standard form provided in Appendix A	As required	Administered by Hegira Ltd	Appendix A

AREA	ACTIVITY	TASK	TIMING	RESPONSIBILITY	ADDITIONAL INFORMATION
SHOREBIRD ROOST SITE	Foredune vegetation	All vegetation is to be cleared from the full length of the shorebird roost site (area between the dune fencing) using a stick rake toed behind a tractor when sand accretion is also being managed.	Annually (Late July – early August)	Hegira Ltd ¹	WPS 1
	Foredune vegetation	All vegetation is to be cleared from the roost – vegetation is to be dug up by hand / mechanical removal and raked up for removal. Works only to occur at low tide	October, January, April	Hegira Ltd	WPS 1
	Foredune vegetation	Maintain foredune vegetation so as to be very low (< 100 - 200mm) and very sparsely distributed with large open areas. Remove by hand any plants on the shorebird roost site that are >200mm in height. Works only to occur at low tide.	Monthly	Hegira Ltd	WPS 1
	Mangrove colonisation	Remove mangroves from the remainder of the shorebird roost site to maintain an open beachfront. Works only to occur at low tide	Monthly	Hegira Ltd	WPS 1, WPS 5
	Weed control	Remove by hand / mechanical methods all introduced plant species and species not endemic to Bribie Island. Works only to occur at low tide	Fortnightly	Hegira Ltd	N/A
	Sand accretion and erosion	Sand will build up on the beachfront at the shorebird roost site. This is to be removed and/or shaped by a bobcat so as to maintain a 1:50 slope along the full length of the shorebird roost site. Works only to occur at low tide. In addition to sand accretion, there will be a tendency for small ancillary lagoons to develop in furrows caused by HA tide events. These will tend to create local areas of erosion that will modify the geometry of the site. These erosion scars need to be corrected on a regular basis at low tide periods similar to the earthworks for managing sand accretion.	Annually in late July or early August	Hegira Ltd	WPS 4
	Dune fence maintenance	Inspect and maintain the post and wire dune fence as necessary. Works only to occur at low tide.	Monthly during spring/summer/autumn; Quarterly during winter	Hegira Ltd	WPS 4

Maintenance Manual - Shorebird Roost Site

AREA	ACTIVITY	TASK	TIMING	RESPONSIBILITY	ADDITIONAL INFORMATION
	Signage	Inspect the stability and appearance of the information signs and replace/repair as necessary. Works only to occur at low tide.	Monthly	Hegira Ltd	WPS 4
	Access restrictions	Inspect the surrounds of the shorebird roost site for evidence of human/domestic animal access (by tracks, trampled vegetation, footprints, dog prints) and provide measures to restrict this access (via routine inspections by Council dog catcher, additional plantings, signage, fencing etc). Works only to occur at low tide.	Weekly between September and March	Hegira Ltd	N/A
	Access restrictions	Do not access the shorebird roost site between the months of September to March inclusive, unless for essential maintenance works and then only during low tide	Anytime	Hegira Ltd	N/A
	Informal audit	Conduct an informal audit of the shorebird roost site as per the protocol provided in Appendix B	Annually in mid August	Queensland Wader Study Group	Appendix B
	Corrective action following audit	Complete all actions requiring attention as identified in the above-mentioned audit protocol	Annually in mid to late August	Hegira Ltd	Appendix B
	Incident reporting	Incidents and issues on site are to be reported to Hegira Ltd using the standard form provided in Appendix A	As required	Administered by Hegira Ltd	Appendix A

AREA	ACTIVITY	TASK	TIMING	RESPONSIBILITY	ADDITIONAL INFORMATION
BEACHFRONT	Beachfront vegetation	Maintain <u>beachfront vegetation</u> so as to be <u>very low</u> (< 100 - 200mm) and to maximise ground coverage for sand stabilisation. Natural plant form to be retained	Fortnightly	Hegira Ltd ¹	WPS 1
	Mangrove outcrops	Maintain the mangrove outcrops at the northern and southern end of the shorebird roost site so that they colonise not more than approximately 20 m either side of each dune fence. Works only to occur at low tide.	Monthly	Hegira Ltd	WPS 1, WPS 5
	Weed control	Monitor the beachfront for weeds (introduced and non-endemic species) and remove by hand / mechanical methods as necessary	Monthly	Hegira Ltd	N/A
	Sand pathway maintenance	Inspect and maintain sand pathways as required	Monthly in spring/summer/autumn; Quarterly in winter	Hegira Ltd	WPS 4
	Access restrictions	Inspect the beachfront vegetation for evidence of human access (by tracks, trampled vegetation, foot prints) and provide measures to ensure access is restricted to the existing sand pathways. Measures may include additional planting, signage, fencing etc.	Quarterly	Hegira Ltd	N/A
	Incident reporting	Incidents and issues on site are to be reported to Hegira Ltd using the standard form provided in Appendix A	As required	Administered by Hegira Ltd	Appendix A

3.0 WORK PROCEDURE SHEETS

WORK PROCEDURE SHEET 1 : MAINTENANCE OF PLANT HEALTH	
Issue	Procedure / Details
Objective	To maintain the health of the lawn and plants across the site. See Plates 1,2.
Insect infestations	<ul style="list-style-type: none"> • Insect populations are to be identified and monitored and damaging levels appropriately treated. • Properly trained management will be able to identify and assess insect infests/attacks and prescribe treatment to control damaging pests.
Diseases	<ul style="list-style-type: none"> • Plant diseases are to be identified and monitored and damaging levels appropriately treated. • Properly trained management will be able to identify and assess diseases and prescribe treatment to control damaging diseases. • The use of fungicides is prohibited in order to protect beneficial organisms.
Plants stunted/ deformed/abnormal colour	<ul style="list-style-type: none"> • The likely cause/s of abnormal plant growth is to be identified (e.g. excessive/inadequate watering regime, salt toxicity, nutrient deficiency/toxicity) and treated appropriately. • Establish and implement a management program to correct the disorder.
Plant mortalities	<ul style="list-style-type: none"> • Cause of mortality is to be identified and remedial action employed prior to replacement of plants • Replacement of lawn and plants, where necessary, is to be as follows (additional plant species are not to be introduced): Landscape drawings are provided in Appendix D. <p><u>Parkland:</u> Lawn: 'A' Grade Green Couch Trees: <i>Acmena hemilampra</i>, <i>Banksia integrifolia</i>, <i>Cupaniopsis anacardioides</i>, <i>Livistona nitida</i>, <i>Melaleuca quinquenervia</i>, <i>Pandanus pedunculatus</i> Shrubs: <i>Acacia sophorae</i>, <i>Anigozanthos</i> 'Bush Pearl', 'Bush Ranger' or 'Yellow', <i>Austromyrtus dulcis</i>, <i>Banksia robur</i>, <i>Callistemon</i> 'Ewan Road', <i>Crinium pedunculatum</i>, <i>Hibbertia scandens</i>, <i>Myoporum ellipticum</i>, <i>Pittosporum</i> 'Miss Muffett', <i>Sarcocornia quinqueflora</i>, <i>Syzygium</i> 'Elite', <i>Syzygium</i> 'Tiny Trev', <i>Tibouchina jules</i> Groundcover: <i>Dianella congesium</i>, <i>Diets bicolor</i>, <i>Imperata cylindrica</i>, <i>Liriope gigantea</i>, <i>Lomandra longifolia</i>, <i>Pandorea jasminoides</i> (climber), <i>Hibbertia scandens</i> (climber) <u>Lagoon:</u> Groundcover/Waters edge: <i>Sarcocornia quinqueflora</i>, <i>Spinifex sericeus</i>, <i>Sporobolus virginicus</i>, <i>Typha orientalis</i>, <i>Carpobrotus glaucescens</i>, <i>Ipomoea brasiliensis</i>, <i>Juncus kraussii</i> <u>Shorebird Roost / Beachfront:</u> Groundcover: <i>Sarcocornia quinqueflora</i>, <i>Spinifex sericeus</i>, <i>Sporobolus virginicus</i>, <i>Carpobrotus glaucescens</i>, <i>Ipomoea brasiliensis</i></p>
Plant damage	<ul style="list-style-type: none"> • Plants area to be assessed for damage and excessive water retention following storm events and prolonged rainfall and corrective action is to be implemented as required.
Pruning	<ul style="list-style-type: none"> • All plants are to be <u>maintained in the context of a natural form</u> befitting the continuity of the surrounding landscape. • Individual plants are to be maintained at close to regular shape. • Dead fronds on the Pandanus trees are to be removed as they occur.

WORK PROCEDURE SHEET 1 : MAINTENANCE OF PLANT HEALTH

Issue	Procedure / Details
Mulching	<ul style="list-style-type: none"> • Re-application of mulch is required to maintain a 75 mm depth of mulch. Soil exposure is to be prevented. • Mulch is to shredded cypress mulch (hoop pine bark chips can be used as an alternative but the use of slash pine bark chips, forest mulch and sugar cane mulch is not recommended, but will be at the discretion of the managing party). See Plate 3.
Mangroves	<ul style="list-style-type: none"> • Mangroves are to be retained in an area no more than 40 m in length (20 m either side of the dune fence) at both the northern and southern ends of the shorebird roost site. See Figure 1.2. • All mangroves colonising the shorebird roost between these outcrops are to be removed annually between June and mid August prior to the arrival of shore birds. • Maintenance removal of mangroves and other debris is recommended in October, January and April using a hand plough and raking (only at low tide when bird visitation is at a minimum) • Section 51 <i>Fisheries Act</i> Permit Number 02SODB1634 authorises the removal of marine plants (mangroves) from the shorebird roost site.
Foredune vegetation	<ul style="list-style-type: none"> • It is very important for the continued use of the shorebird roost site that little if any foredune vegetation occurs on the shorebird roost site (See Figure 1.2). As such, all foredune vegetation is to be removed in late July/early August (prior to the migratory birds arriving in Australia). • Foredune vegetation is to be controlled in the area of the shorebird roost site to minimise any inhibition of shorebird visitation. • Additional large-scale removal of foredune vegetation may be required every 3-4 months. • When being undertaken between April and August, this can occur at any time throughout the day, when being undertaken between September and March, it can only occur at low tide (to minimise disturbance to the shorebirds). • Any works or operations in the area of the shorebird roost site are to be conducted in a manner that will minimise any disturbance/interference to visiting birds.
Weed Management	<ul style="list-style-type: none"> • Chemical weed control use is not accepted in the following areas - parkland, beachfront, lagoon, shorebird roost site - due to the close proximity to a diversity of protected terrestrial and marine fauna and flora. • All weed control is to be restricted to physical (hand and / or mechanical) removal or other non-chemical methods.

WORK PROCEDURE SHEET 2 : WATERING

Issue	Procedure
Objective	To provide cost-effective irrigation to the landscaped gardens and lawn areas across the site
Location of watering points	<ul style="list-style-type: none"> • Approximately 20 valves are located across the site, generally adjacent to the pathways, and located within green sunken boxes. See Plate 4.
Frequency of watering	<ul style="list-style-type: none"> • Watering of plants is to be undertaken as required. • Watering of plants is to vary seasonal depending on rainfall and specific plant requirements. In rainfall periods, the requirement for watering is to be based on soil moisture conditions. • The water pressure dictates that only 4 valves can be operated at any one time.
Timing of watering	<ul style="list-style-type: none"> • The preferred timing for watering is just after dark in Spring and Summer and in the early mornings in Autumn and Winter. Watering outside these times will be less effective due to increased evapotranspiration. • Watering should be undertaken outside of high visitation periods to ensure visitor access to the site is not hindered.
Maintenance of irrigation system	<ul style="list-style-type: none"> • Blocked sprinkler outlets/damaged irrigation pipes/valves etc. are to be located and repaired weekly.

WORK PROCEDURE SHEET 3 : SOIL HEALTH / FERTILISING

Issue	Procedure
Objective	To develop and maintain optimal soil characteristics across the site. Materials to be used include humate, extracts of fish, kelp, manure, composted vegetation and worm casts. This will reduce plant mortality and therefore promote cost-effective long-term maintenance.
Soil monitoring procedure to maintain soil health	<ul style="list-style-type: none"> • Plant response is to be assessed and if soil imbalance is found or thought to be the cause, the pertinent individuals in Appendix C are to be contacted.
Plant growth stunted/deformed/ abnormal foliar colour	<ul style="list-style-type: none"> • Review watering regime and ensure that the plants are not being exposed to any harmful substances (e.g. poor quality water, herbicide, salt, changes in groundwater, storm/weather events, inadequate/excessive fertiliser).
Plant form does not suit design context or purpose	<ul style="list-style-type: none"> • Assess suitability of pruning and maintenance procedures. • Amend plant form by pruning or training to approximate natural form
Current context of soil treatment is to be followed	<ul style="list-style-type: none"> • Fertilisers with a stated salt index are to be avoided. If questions arise on this issue contact the relevant parties listed in Appendix C.

WORK PROCEDURE SHEET 4: EARTHWORKS / INFRASTRUCTURE

Issue	Procedure
Objective	To maintain the appearance and function of the existing infrastructure and to maintain the key landscape characteristics that promote a useable high tide shorebird roost site.
Erosion control	<ul style="list-style-type: none"> • No 'hard' engineering erosion and control structures are to be used (eg. grouted rock, pumped concrete mattresses, paved low flow channels etc). • Control measures are to be 'soft' engineering structures such as loose angular rock (See Plate 5) erosion / jute matting, plantings with suitable species such as <i>Lomandra</i>. • The guiding principle for erosion and sediment control at the site is to slow flow velocities.
Stormwater drainage	<ul style="list-style-type: none"> • Drainage layout plan is provided in Appendix D.
Sand accretion	<ul style="list-style-type: none"> • Earthworks to maintain 1:50 grade for the shorebird roost beachfront must not occur between the months of September and March inclusive. See Plate 6.
Inlet / outlet weir	<ul style="list-style-type: none"> • Location of weirs is shown on Figure 1.2. See Plate 7.
Lagoon water quality	<ul style="list-style-type: none"> • Maintain lagoon free of pollution (high turbidity, discolouration and / or odour, litter (particularly plastic products), hydrocarbons and surface debris. See Figure 8.
Gross pollutant traps	<ul style="list-style-type: none"> • Maintain free of debris. Location shown on Figure 1.2.
Lot boundary fencing	<ul style="list-style-type: none"> • Top fencing rail and uprights are aluminium fencing with black powder coating. • Fencing wire strands are stainless steel with stainless steel tension devices. See Plate 9.
Decorative timber posts within lot boundary fencing	<ul style="list-style-type: none"> • See Plate 9. • Timber is CCA treated HWF-17 with sand-ease edge and oil stain.
Dune fencing	<ul style="list-style-type: none"> • Posts are treated pine – 150 mm diameter. • Top railing is treated pine – 100 mm diameter. • Wire is 150 mm x 150 mm dog-proof fencing. See Plate 10. See Figure 1.2.
Stone entry walls	<ul style="list-style-type: none"> • Paint for capping on stone entry wall is Dulux Olive Ochre – Code P16.C7. See Figure 1.2.
Pathways	<ul style="list-style-type: none"> • Pathways are compacted 100 mm minimum depth road base with a two coat spray seal. See Plate 11. See Figure 1.2. • Timber decking sections used 50 x 150 mm F14 CCA treated HW decking with sanded finish - ease edges and two galvanised screws per attachment. • Pavers associated with timber decking and entrance to interpretative exhibit are 200 x 400 x 40 mm and 400 x 400 x 40 mm respectively Urbanstone Pavers in 'Topaz' with a shotblast finish. • Pathways are to be kept free of rubbish, sand and soil.
Garden beds	<ul style="list-style-type: none"> • A maximum grade of 1:3 is to be retained in garden planting areas. See Plate 1. • Garden edges are 8.3% by weight 'Grey cement' and coloured Abilox Charcoal.
Interpretative exhibits	<ul style="list-style-type: none"> • See Plate 12. See Figure 1.2. • Structure paint is Dulux 'Olive Ochre' - Code P16.C7. • Base of columns are 'Grey cement'. • Timber is seasoned hardwood of single species F17, durability class 1 and painted with 2 coats of clear finish coating.

WORK PROCEDURE SHEET 4: EARTHWORKS / INFRASTRUCTURE

Issue	Procedure
Bird hides	<ul style="list-style-type: none"> • See Plate 13. See Figure 1.2. • Timber is seasoned hardwood of single species F17, durability class 1 and painted with 2 coats of clear finish coating. • Any replacement of metal in the hides is to be 'Dymon 10' coated and painted Olive Ochre – Code P16.C7. • Timber shafts are painted Olive Ochre – Code P16.C7.
Signage	<ul style="list-style-type: none"> • Two signs are from the Queensland Parks and Wildlife Service (shorebird information signs – See Plate 14), the remainder are Caboolture Shire Council signs (e.g. no dogs allowed). See Plate 2. • Site entry signs were custom made. See Plate 15. • Poles for all signs are to be powder coated black.
Roof and guttering on bird hides/interpretive exhibits	<ul style="list-style-type: none"> • Roofing is corrugated aluminium – colour bonded to reduce reflection. • Runoff from guttering is to overflow to rocked areas – not mulched areas. See Plate 16.

WORK PROCEDURE SHEET 5: REQUIRED PERMITS

Issue	Procedure
Objective	To maintain a current Section 51 <i>Fisheries Act</i> Permit for marine plant (mangrove) removal from the shorebird roost site. The Section 51 <i>Fisheries Act</i> Permit is the only Government permit required to maintain the site.
Marine Plant (Mangrove) Removal Permit	<ul style="list-style-type: none"> • Queensland Fisheries Service (QFS), Department of Primary Industries has issued Section 51 <i>Fisheries Act</i> Permit Number 02SODB1634 (Expiry date 2 December 2005) to authorise the removal of marine plants (mangroves) for establishing and maintaining the Shorebird Roost Site (Appendix F). Currently Permit Number 02SODB1634 allows for removal of marine plants (mangroves) from the Shorebird Roost Site but does not include authorisation for removal of marine plants from the lagoon. Marine plant removal should not be undertaken unless specifically authorised by a Section 51 Permit. • To ensure a current Section 51 <i>Fisheries Act</i> Permit is in place, a replacement permit is to be sought 3 months prior to expiry of the existing permit. • A Section 51 <i>Fisheries Act</i> Permit is to be sought from: Queensland Fisheries Service, Department of Primary Industries, Southern Fisheries Centre, Deception Bay.

4.0 CHECKLIST OF THE WEEKLY, MONTHLY, QUARTERLY, SIX-MONTHLY AND ANNUAL MAINTENANCE REQUIREMENTS

See Chapter 2 for the detailed description of each activity and the specific task requirements.
Tick (✓) to confirm maintenance activity performed.

✓	TIMING	AREA	ACTIVITY
	DAILY	<i>Parkland</i>	General site tidiness
	WEEKLY	<i>Parkland</i>	Watering of plants – to be seasonally adjusted based on rainfall, soil moisture conditions and specific plant requirements
			Irrigation system maintenance
			Turf mowing - maintenance is to be seasonally adjusted depending on the weather conditions
			Bird hide/interpretive exhibit structures maintenance
			Bird hide/interpretive exhibit information maintenance
		<i>Lagoon</i>	Inlet/outlet weir inspection
			Water quality assessment
			Biting midge assessment and control
		<i>Shore bird roost site</i>	Access restrictions assessment (Between September and March only)
		<i>Beachfront</i>	/
	FORTNIGHTLY	<i>Parkland</i>	Maintain plant health
			Weed control
		<i>Lagoon</i>	Maintain plant health
		<i>Shore bird roost site</i>	Weed control
		<i>Beachfront</i>	Beachfront vegetation assessment
	MONTHLY	<i>Parkland</i>	Pruning – parkland general
			Pruning – Pandanus trees
			Pruning – bird hides
			Maintain soil health and fertility
			Maintain edging
			Maintain signage
			Fence maintenance
		<i>Lagoon</i>	Vegetation pruning
			Maintain soil health and fertility
			Weed control
		<i>Shore bird roost site</i>	Foredune vegetation management
			Mangrove colonisation management
			Signage maintenance
			Dune fence maintenance (Spring/Summer/Autumn)
		<i>Beachfront</i>	Mangrove outcrop maintenance
			Weed control
			Sand pathway maintenance (Spring/Summer/Autumn)

Maintenance Manual - Shorebird Roost Site

✓	TIMING	AREA	ACTIVITY
	QUARTELY	<i>Lagoon</i>	Rock boarder maintenance
			Rock wall maintenance
			Gross pollutant trap inspection and maintenance
		<i>Beachfront</i>	Access restrictions maintenance
			Sand pathway maintenance (Winter)
		<i>Shore bird roost site</i>	Dune fence maintenance (Winter)
	ANNUALLY	<i>Parkland</i>	Mulch maintenance
			Pathway maintenance
		<i>Shore bird roost site</i>	Foredune vegetation management
	SPECIFIC TIMES		
	Late July – early August	<i>Shore bird roost site</i>	Sand accretion and erosion removal
	Late July or early August		Informal audit
	Mid August		Corrective action following audit
	October, January, April		Foredune vegetation management
	NON-SPECIFIC TIMES		
	Immediately following storm events & prolonged rainfall	<i>Parkland</i>	Erosion control assessment
			Plant damage and water retention assessment and corrective action
		<i>Lagoon</i>	Erosion control assessment
			Plant damage and water retention assessment and corrective action
	As Required	<i>All Sites</i>	Completion of Incident Reporting Form

APPENDIX A

INCIDENT REPORTING FORM

**NORTH HEADLAND - SHOREBIRD HIGHTIDE ROOST SITE –
INCIDENT REPORTING FORM**

SECTION 1

Section 1 of this Incident Reporting Form is to be completed by site users in order to communicate to Hegira Ltd¹ any site issues requiring attention. The form is to be forwarded to Hegira Ltd for actioning (Fax 07 33672279).

SECTION 2

Section 2 of this Incident Reporting Form is to be completed by Hegira Ltd as a record of remedial action taken.

SECTION 1

Name: _____ Position: _____ Company _____

Date: _____ Signature: _____

Location of Incident/Issue: Shorebird Roost Parkland Lagoon Beachfront

Description of Incident/Issue:

Remedial Action Required:

Urgency of Remedial Action: Immediate 7 Days Next Maintenance Period

SECTION 2

Responsible: _____ Position: _____ Company _____
Person _____

Date: _____ Signature: _____

Remedial Action Taken:

¹ All identified responsibilities for Hegira Ltd are up until March 2005, after which time the responsibility will pass to Caboolture Shire Council.

APPENDIX B

QUEENSLAND WADER STUDY GROUP

AUDIT PROTOCOL

**NORTH HEADLAND - SHOREBIRD HIGHTIDE ROOST SITE –
AUDIT PROTOCOL**

SECTION 1

Section 1 of this audit protocol is to be completed by a representative of the Queensland Wader Study Group. It is recommended that this section be completed in collaboration with a representative from Hegira Ltd¹.

Topic	Yes	No	Comment / Suggested Remedial Action
Is the foredune vegetation adequately maintained?			
Is the southern mangrove outcrop adequately maintained?			
Is the northern mangrove outcrop adequately maintained?			
Has the build up of sand on the beach adjacent to the high tide roost been maintained to a 1:50 slope?			
Are sufficient measures to restrict access to the site (eg. plantings, signage, fencing) in place and adequately maintained?			

Additional comments:

Wader Study Group representative:

 Name Signature Date

Hegira Ltd representative:

 Name Signature Date

In the event that any remedial action is required, please continue to Section 2 of this Protocol.

¹ All identified responsibilities for Hegira Ltd are up until March 2005, after which time the responsibility will pass to Caboolture Shire Council.

APPENDIX C

**LIST OF SUPPLIERS INVOLVED IN
DEVELOPMENT OF THE ROOST SITE**

List of Suppliers

Area	Name	Company	Address	Phone	Fax	Mobile
Garden Maintenance	Michael Bender	The Plant Management Company	PO Box 1557 Eagle Farm Q. 4009	3268 4101	3268 4054	0421 384 020
Landscape Consultant	Mike Swanson	Place Planning & Design	3/132 Bulcock St Caloundra Q. 4551	5499 6188	5499 6711	0409 595 170
Landscape Contractor	Phillip North	Phillip North & Associates	PO Box 303 Buderim Q. 4556	5445 3040	5445 3040	0412 714 731
Civil Consultant	Justin Walsh	Tate Professional Engineers	PO Box 204 Maroochydore Q. 4558	5443 2300	5443 7126	0409 069 132
Civil Contractor	Colin Gursansky	Blacklaw Civil Contractors	MS 1090 Buderim Q. 4556	5529 6672	5529 6672	0419 680 749
Soil Consultant	Bill Wilcock	Nullarbor Prevention	PO Box 1170 Runaway Bay Q. 4216	5529 6672	5529 6672	0419 680 749
Electrical Consultant	Tracey McAuley	HHM Consulting	PO Box 1193 Capalaba Q. 4157	3390 1768	3390 1768	0400 902 080
Fencing Contractor	Herb	Sunshine Services	PO Box 57 Bribie Island Q. 4507	/	/	0418 194 822
Plants and Mature Trees Supplier	Alan Burnell	Tree Traders QLD	33 Grange Street Grange Q. 4051	3352 4155	3352 4166	/
Irrigation Contractor	Craig & Bill	The Bribie Boyz	/	3410 1276	3410 1276	0419 651 759
Pathway Supplier	/	Bush Mates Coloured Bitumen and Asphalt	PO Box 63 Pinkenba Q. 4008	3260 1755	3260 1244	/
QPWS Signage	John Olds	QLD Parks & Wildlife Service	/	38219023	/	0438457476
Shorebirds Consultant	Jill Dening	QLD Wader Study Group	/	5494 0994	/	0419 714 405
Environmental Consultant	Peter Scott	HLA-Envirosciences	PO Box 1943 Milton Q 4064	33672166	33672279	0409409584
Section 51 Fisheries Act Permit	Dan Mayer	Southern Fisheries Service, DPI	PO Box 76 Deception Bay Q 4508	38179554 (132523)	38179522	/

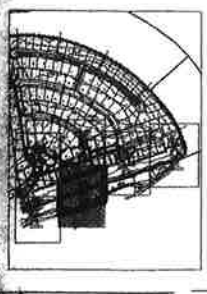
APPENDIX D

LANDSCAPE DESIGN DRAWINGS

STAFF: ~~ARCHITECTS~~ ~~PLANNERS~~ ~~ENVIRONMENTAL CONSULTANTS~~
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NOTES:
 All dimensions are in millimetres unless otherwise noted.
 Verify all dimensions on site prior to construction.
 PROJECT # 03017

PACIFIC HARBOUR -
 NORTH HEADLAND
 STAGE 1A
 ON PROPERTIES



REFER TO



BELT COLLINS
 AUSTRALIA
 LANDSCAPE ARCHITECTURE
 URBAN DESIGN, PLANNING
 ENVIRONMENTAL CONSULTING

LEVEL 1, 288 ELIZABETH STREET
 BRISBANE, QUEENSLAND, 4000
 TEL: (07)3839 5414 FAX: (07)3839 5415
 E-MAIL: brisbane@beltcollins.com

STAFF: ARCHITECT: JAMES HARRISON; SURVEYOR: TIMOTHY COUPE

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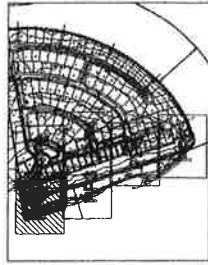
NOTES:
 All dimensions are in millimetres unless otherwise noted.
 Verify all dimensions on site prior to construction.

PROJECT & CLIENT

**PACIFIC HARBOUR -
 NORTH HEADLAND
 STAGE 1A**

QM PROPERTIES

KEY PLAN



2/20/98



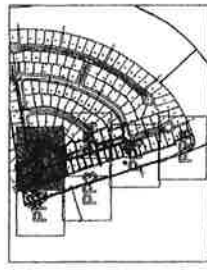
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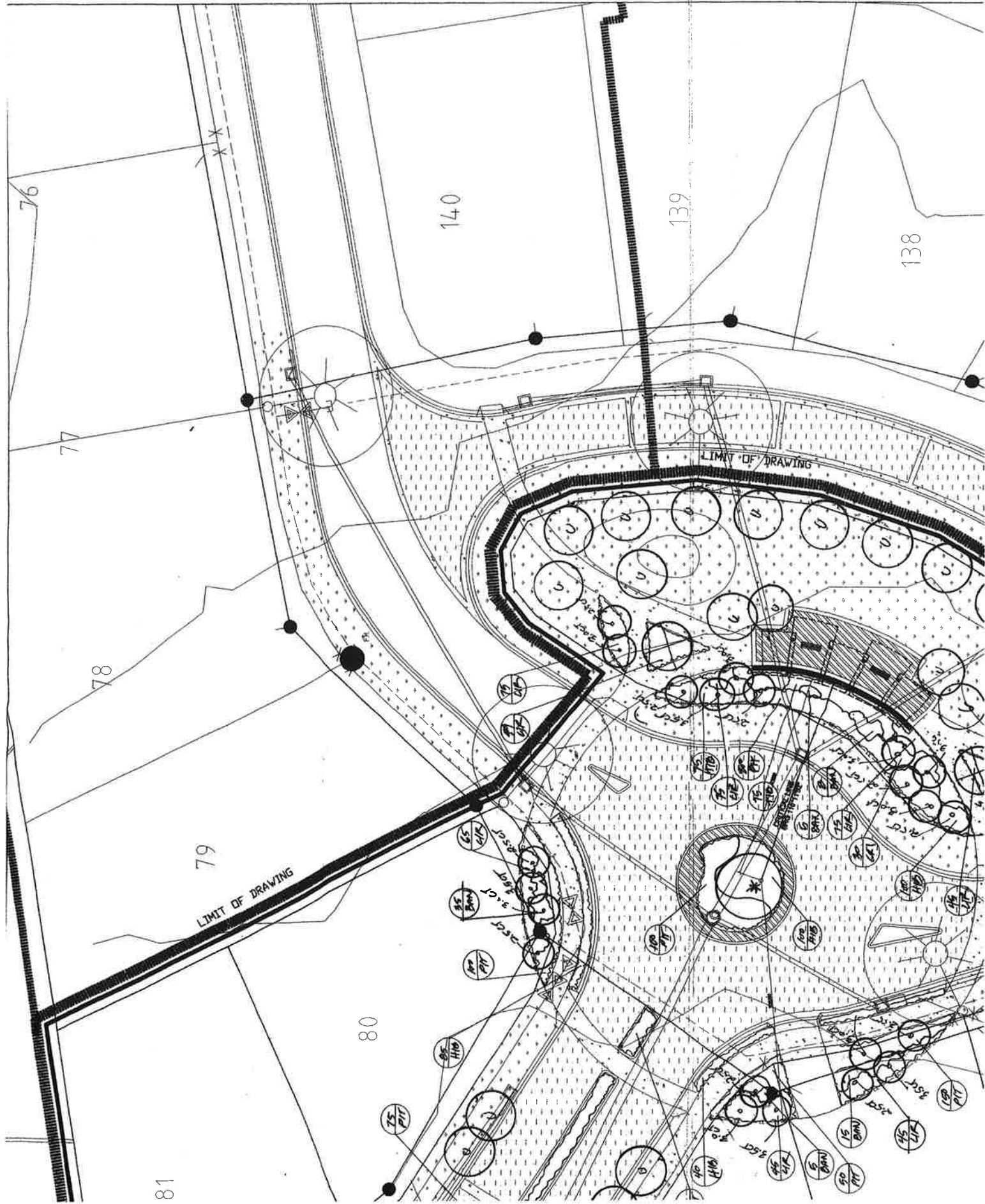
**PACIFIC HARBOUR -
 NORTH HEADLAND
 STAGE 1A**

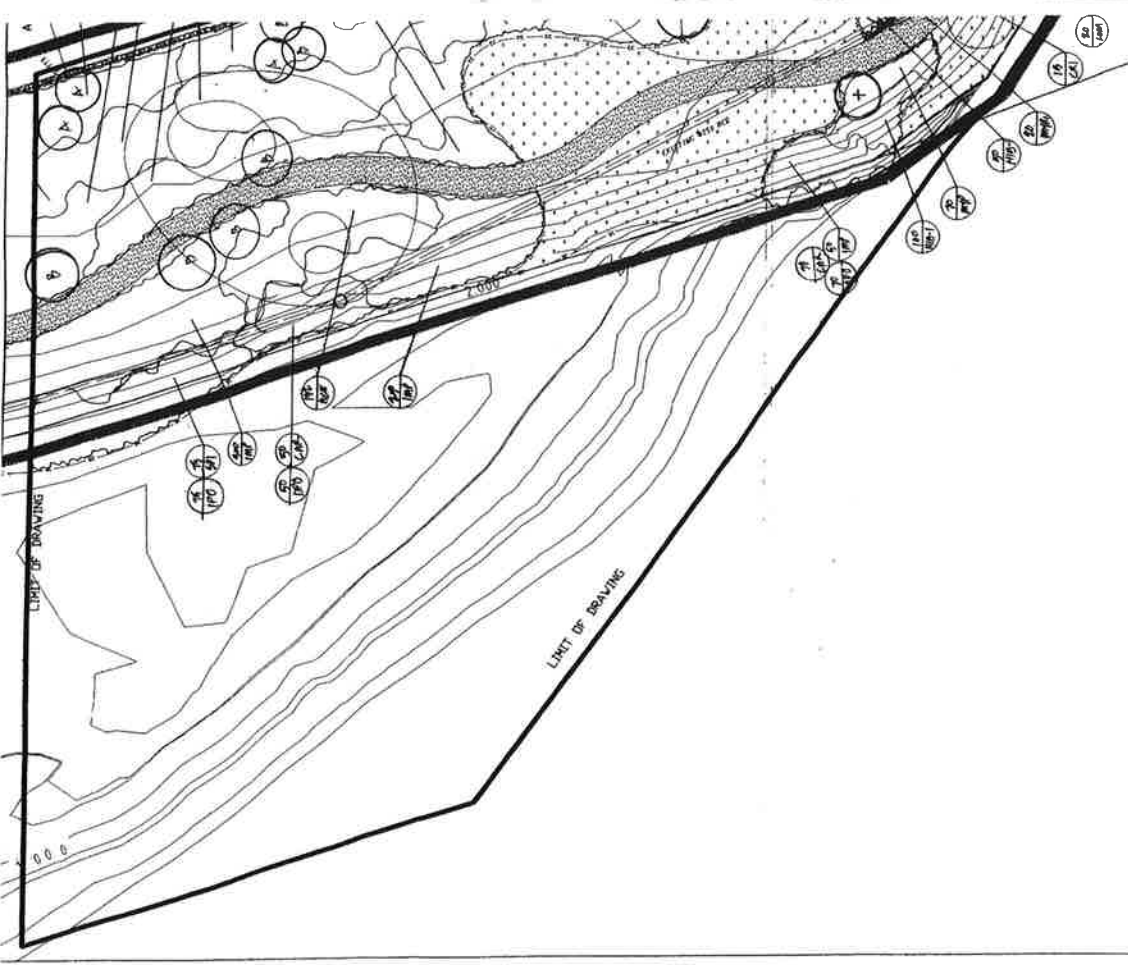
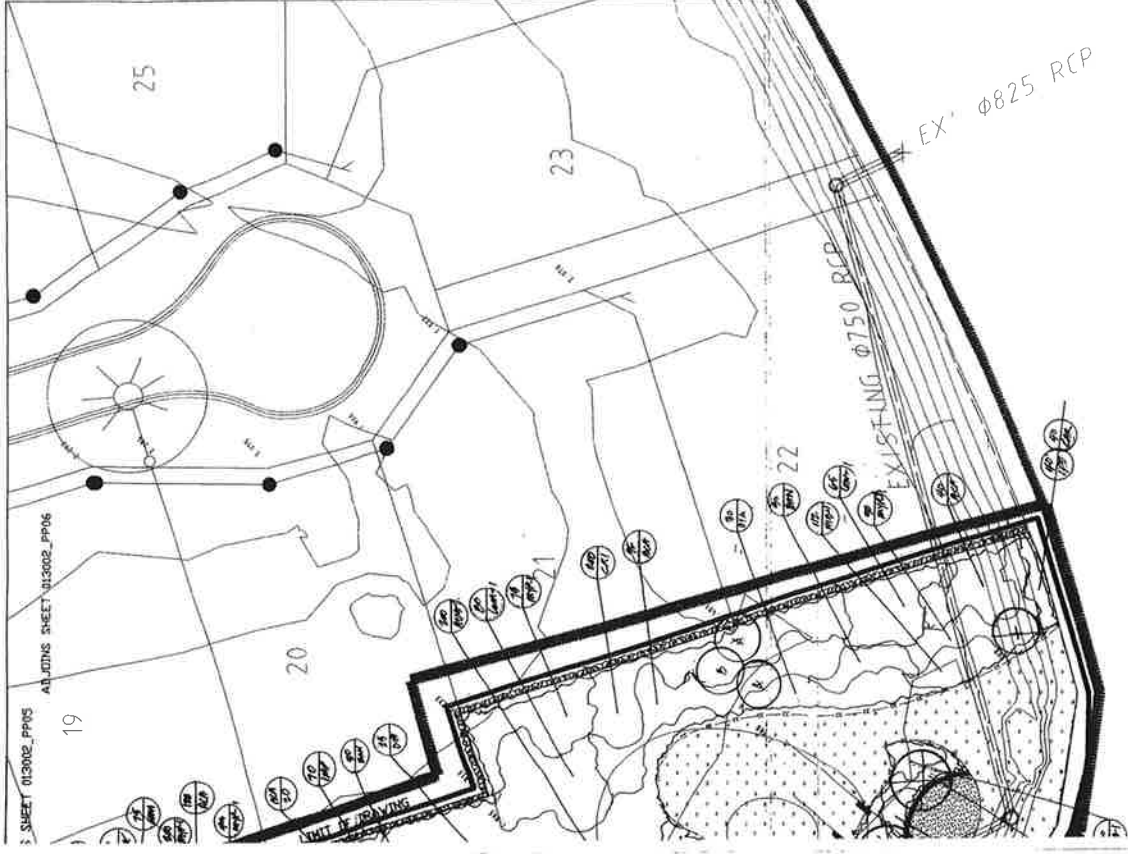
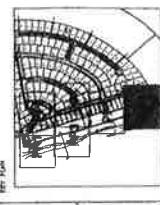
QM PROPERTIES

KEY PLAN

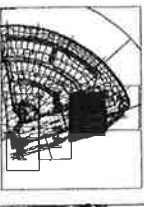


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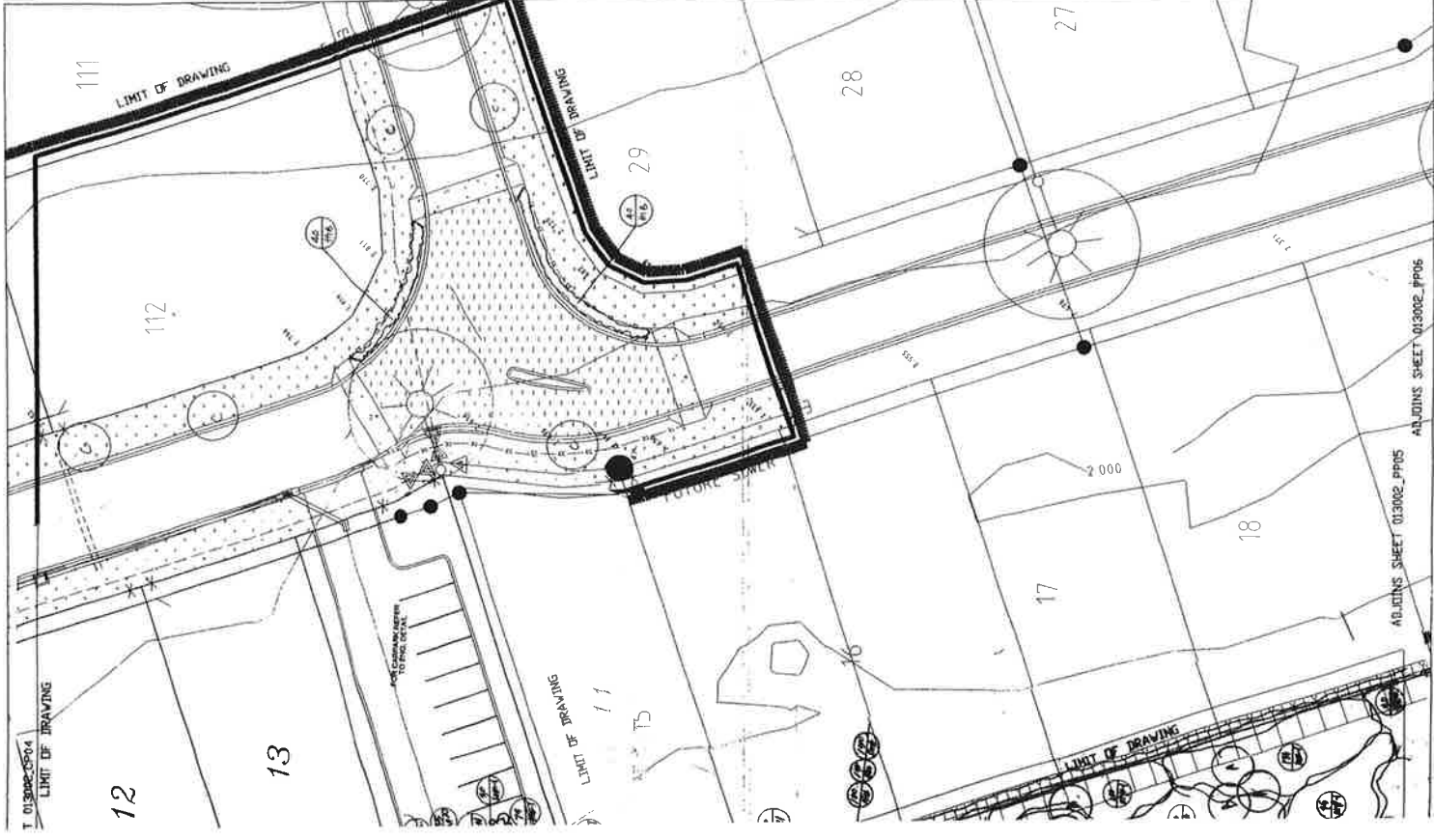




NO.	REVISION	DATE	BY	CHKD.
1	ISSUED FOR PERMIT	15/08/2011
2	FOR CONSTRUCTION	22/08/2011



NO.	REVISION	DATE	BY	CHKD BY
A	ISSUED FOR PERMIT	12/08/04	JB	JB
B	REVISIONS	01/09/04	JB	JB

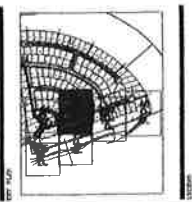


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NOTES:
 1. See site plan for location of this drawing.
 2. See site plan for location of this drawing.
 3. See site plan for location of this drawing.

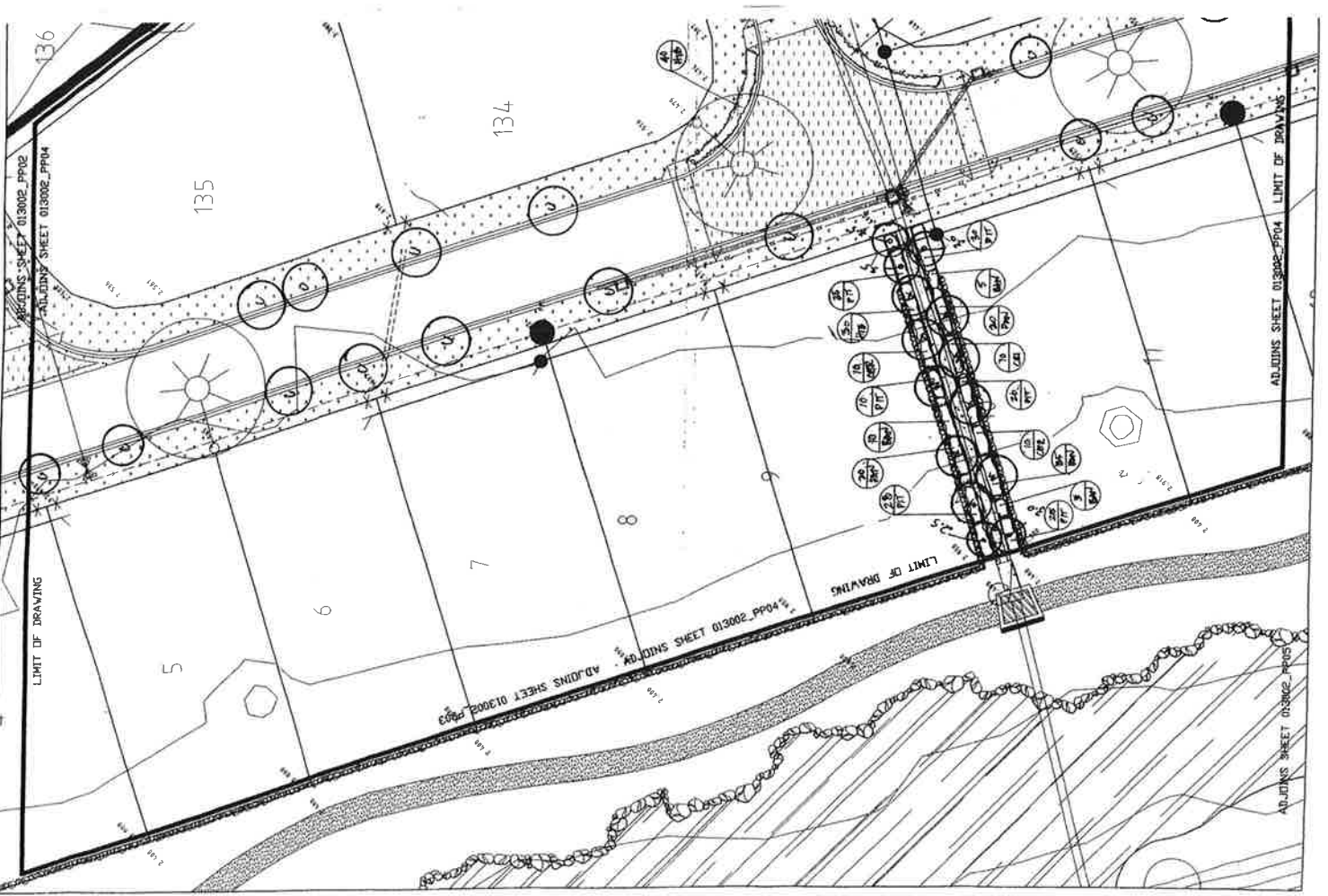
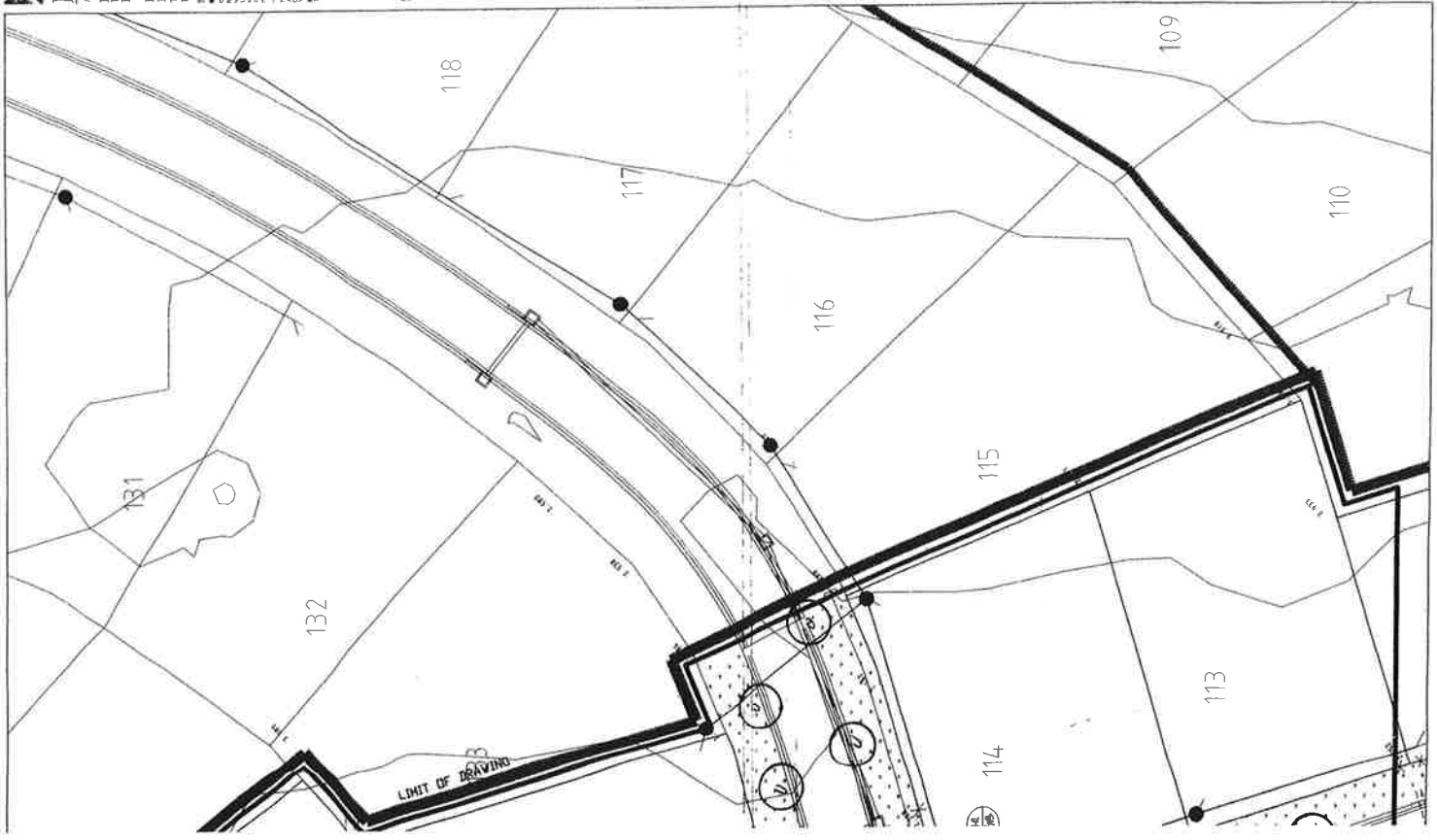
PROPERTY & CLIENT:
PACIFIC HARBOUR - NORTH HEADLAND STAGE 1A
 QM PROPERTIES



NO.	REVISIONS	BY	DATE
1	ISSUED FOR PERMIT
2

PLANTING PLAN

DATE: AUGUST 2001
 DRAWN BY: ...
 CHECKED BY: ...
 PROJECT NO: 013002
 SHEET NO: 013002_PP04



APPENDIX E

PHOTOGRAPHIC PLATES



Plate 1. Northern car park and landscaped gardens.



Plate 2. Turfed areas and landscaped gardens. Northern end of site.



Plate 3. Mulched garden bed.



Plate 4. Green irrigation control box in foreground of photo. Northern end of site.



Plate 5a. Use of rocks in the garden bed to dissipate the energy of runoff water in selected areas of the site. Northern end of lagoon.



Plate 5b. Use of rocks as erosion control in selected areas around the lagoon margin. View looking south along the lagoon.

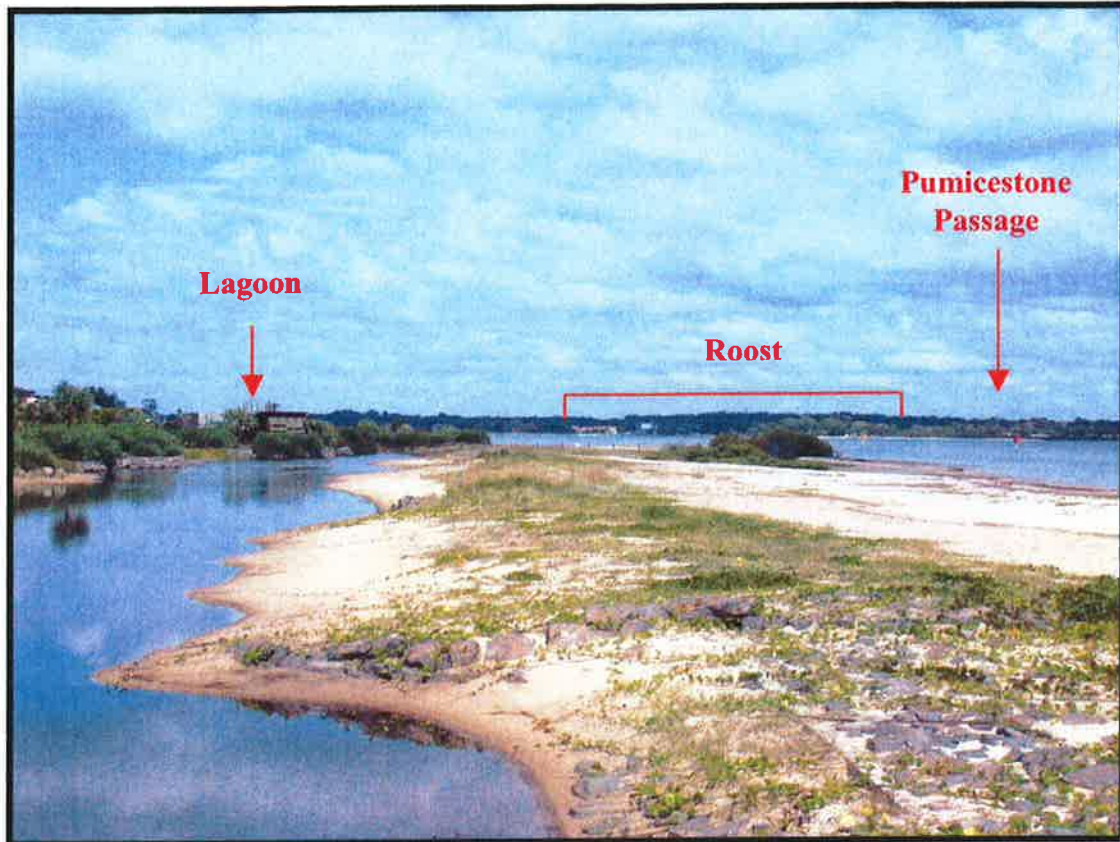


Plate 6. 1:50 slope of the shorebird roost site towards the Pumicestone Passage.
View looking south along the roost site.



Plate 7. Inlet / outlet weirs on the western bank of the lagoon.



Plate 8. Lagoon water and banks must be kept free of pollutants.
View looking south.



Plate 9. Lot boundary fence.



Plate 10a,b. Dune fencing delineating the boundary of the shorebird roost site.
View of the southern boundary fence.



Plate 11. Compacted road base pathway through the parkland. View looking south.

a)



b)



Plate 12a,b. Interpretive exhibit at the northern end of the site.



Northern
Hide

Southern
Hide



Plate 13. Bird hides at
the northern and
southern end of the
site.



Southern
Hide



Plate 14. Queensland Parks and Wildlife Service shorebird signage.



Plate 15. Custom made entry signage. Northern entrance to site.



Plate 16. Rocks at base of gutter overflow to minimise erosion from runoff. Bird hide at northern end of site.

APPENDIX F

MARINE PLANT (MANGROVE) REMOVAL PERMIT



Enquiries: Bob Simpson
Telephone: +61 7 3817 9531
Your Ref: R1208
Our Ref: 02DEC530/394

3 December 2002

Hegira Limited
C/-HLA Envirosiences Pty Ltd
PO Box 1943
MILTON QLD 4064

ATTENTION FIONA KENNEDY

Dear Ms Kennedy

**SECTION 51 FISHERIES ACT APPLICATION – REPLACEMENT FOR EXISTING PERMIT
01SODB2047 – WADER BIRD ROOST AREA – SOLANDER ESPLANADE, BANKSIA
BEACH**

I refer to the application of 19 August 2002 by Hegira Limited, and your correspondence, for a Permit under Section 51 of the *Fisheries Act* to remove, destroy or damage marine plants associated with the establishment of a wader bird roosting site adjacent to Lot 216 on CG2224 at Solander Esplanade, Banksia Beach, Bribie Island. (Replacement of Permit No. 01SODB2047). I would advise that consideration of your application has now been finalised.

Please find attached:

- Permit No. 02SODB1634, and Plan No. 02SODB9544MP1634, to authorise works and removal/disturbance of marine plants as requested.
- Receipt (Number 124749 dated 25/10/02) for the \$200.00 Assessment Fee (Cheque Number 018059).

Please note that the onus is on you, the Permittee, to be aware of the provisions of the *Fisheries Act 1994* and *Fisheries Regulations 1995* with respect to the issue of Permits for

**CC: Mr P Finglas, General Manager, Fisheries and Aquaculture Development Division,
QFS, Department of Primary Industries, GPO Box 46, BRISBANE, QLD
4001**

**Mr S Dunn, District Officer, Qld Boating & Fisheries Patrol, PO Box 10,
PINKENBA, QLD 4008**

**Mr Craig Mathisen, Acting Director, Regional Services, (South-East), Department
of Primary Industries, PO Box 5165, SCMC, NAMBOUR, QLD, 4560.**

**Mr B Brooks, Senior Principal Engineer, Coastal Management, Environmental
Protection Agency, GPO Box 2771, BRISBANE, QLD 4001**

Queensland Fisheries Service

Southern Fisheries Centre
13 Beach Road
Box 76
Deception Bay Queensland 4508

o:\r_sel_sfc\p_nrm\w_habitat\permi\active\21634ass.doc

Facsimile +61 7 3817 9522
Email habitat.sfc@dpi.qld.gov.au
Mobile
Website www.dpi.qld.gov.au
Call Centre 13 25 23
RecFind 02DEC530/394

works within a Fish Habitat Area and the removal/disturbance of Marine Plants. A list of the most relevant sections is attached for your information.

Your attention is drawn to the Schedule of Conditions on Permit and the need to comply with all Conditions. You should also be aware that under fisheries legislation there are requirements that all Permit holders must adhere to, and these requirements include:

- the holder is required to make the Permit or a copy available at the works site for inspection at any time by an officer authorised under the Queensland *Fisheries Act 1994*;
- this Permit does not grant permission to pass through or enter upon lands and does not infer the issue of any other Permit or Approval necessary to the purpose proposed.

If you wish to obtain a copy of the legislation it is available from Goprint, 371 Vulture Street, Woolloongabba, Qld, 4102 (Telephone (07) 3246 3399). You must also comply with all other legislation (Local, State and Commonwealth) relevant to your activities. Please note all legislation is law and penalties apply to breaches.

Additionally, QFS would draw your attention to conditions 2, 3 and 4 of the Permit. Failure to notify this Department of the commencement and completion of works by the specified dates is a breach of the Permit conditions and may render the applicant open to prosecution.

I advise that there is provision under the *Fisheries Act* for appeal, under certain circumstances, should you feel dissatisfied with the Authority's decision. For further information you should contact the Secretary of the Fisheries Tribunal on (07) 3239 3734. You should note that a notice of appeal against a decision of the Authority must be lodged with the Tribunal within twenty-eight (28) days after receiving notice of the decision. In special circumstances, the Tribunal may extend the period for filing of the notice of appeal.

If you have any further queries please contact Bob Simpson on (07) 3817 9531.

Yours sincerely



Dan Mayer

**Acting Habitat Manager (South)
Fisheries & Aquaculture Development**

Att/Enc



Queensland
Government
Department of
Primary Industries

QUEENSLAND
FISHERIES ACT 1994
Section 51
FISHERIES REGULATIONS 1995

PERMIT NUMBER
02SODB1634

MARINE PLANT PERMIT

This is to certify that HEGIRA LIMITED

of C/- HLA-ENVIROSCIENCES PTY LTD PO BOX 1943 MILTON QLD 4064

is authorised to: Remove, destroy or damage marine plants as described in Condition 11 of this Permit.

at the approved area described as:

1. □ APPROXIMATELY 220M LONG AND 25M WIDE INTERTIDAL AREA FROM 20M SOUTH OF THE MIDPOINT OF THE PROPOSED RESIDENTIAL LOT 12 NORTH TO THE POINT APPROXIMATELY 50M SOUTH OF THE NORTH-WESTERN CORNER OF LOT 216 ON CG2224.

2. □ APPROXIMATELY 20M LONG AND 6M WIDE AREA SITUATED BETWEEN HAT AND MHWS, STARTING FROM APPROXIMATELY 30M SOUTH OF THE NORTH-WESTERN CORNER OF LOT 216 ON CG2224.

ALONG PUMICESTONE PASSAGE FORESHORES, situated at SOLANDER ESPLANADE BANKSIA BEACH BRIBIE ISLAND QLD, as described in DPI Plan No 02SODB9544MP1634

for the purpose of: Establishing and maintaining a wader bird roosting site in line with accepted requirements for wader bird roosting sites in south east Queensland.

for the period 3 December 2002 until 2 December 2005.

Issued at DECEPTION BAY this 3 day of December 2002.


.....
Delegate of the
Chief Executive

CONDITIONS

- 1 The first annual survey fee of \$200.00 (for monitoring and report preparation) must be paid to the Department of Primary Industries, Southern Fisheries Centre, PO Box 76, Deception Bay, Qld 4508, prior to the commencement of works, but in no case later than thirty (30) days after the effective date of this Permit.
- 2 Works are only authorised if the holder has notified the Queensland Boating and Fisheries Patrol and the Department of Primary Industries of the commencement of works PRIOR to the commencement of those works. Any works commenced without prior notification are deemed not to be authorised.
- 3 The District Officer of the Queensland Boating and Fisheries Patrol, PO Box 10, Pinkenba Qld 4008 (Fax. No. 3860 3550), and the Habitat Manager (South), Department of Primary Industries, PO Box 76, Deception Bay Qld 4508 (Fax. No. 3817 9555), must be notified, in writing, of the date of commencement of works, one (1) day prior to the commencement of works.
- 4 A written report which details the completed works must be provided within fifteen (15) days of completion of works to the District Officer, Queensland Boating and Fisheries Patrol, PO Box 10, Pinkenba Qld 4008, and the Habitat Manager (South), Department of Primary Industries, PO Box 76, Deception Bay Qld 4508.
- 5 This Permit authorises persons identified by the holder to assist in the authorised activities on the approved area.
- 6 The holder must comply with:
 - a) the requirements of all relevant legislation and obtain approvals from the relevant administering organisations, including approvals to access and use the land for the authorised activity, and
 - b) any Codes of Practice or management arrangements relevant to the authorised activity.
- 7 At least three (3) signs must be displayed around the works site, in positions where they are clearly visible to the public, for one (1) day prior to the commencement of the authorised activities and during all authorised works. Each sign must advise and describe the authorised activity, and state "Works authorised under QDP Permit No. 02SODB1634".
- 8 This Permit is issued for necessary disturbances within the approved area only, and the works involved must be performed in such a manner as to not cause direct or indirect disturbance or damage to adjacent tidal land or plants or unnecessary disturbance within the approved area.
- 9 The holder must adequately mark (peg) the boundaries of the approved area to allow for ease of identification, unless the area can be readily located by an existing boundary (eg. surveyed property boundary).
- 10 All marine plants authorised for removal, exclusive of those to be replanted in Area 2, and other debris, is to be removed from the intertidal zone and disposed of in a neat and tidy manner.



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Delegate of the
Chief Executive

CONDITIONS (continued)

- 11 The nature and extent of disturbance are limited to:
Removal of mangrove regrowth, seagrass wracks and other marine plants, and minor trimming of mangroves, within the roost area (Area 1) as necessary to maintain conditions as recommended for wader bird roost areas in south east Queensland. Replanting in Area 2 of mangroves below 25 cm in height removed from Area 1 and from Dux Creek under Permit no. 01SODB0321.
- 12 The holder must pay the annual survey fee and annual permit fee by the due date each year as described in the Marine Plant Permit annual fee notice.

SCHEDULE OF FEES

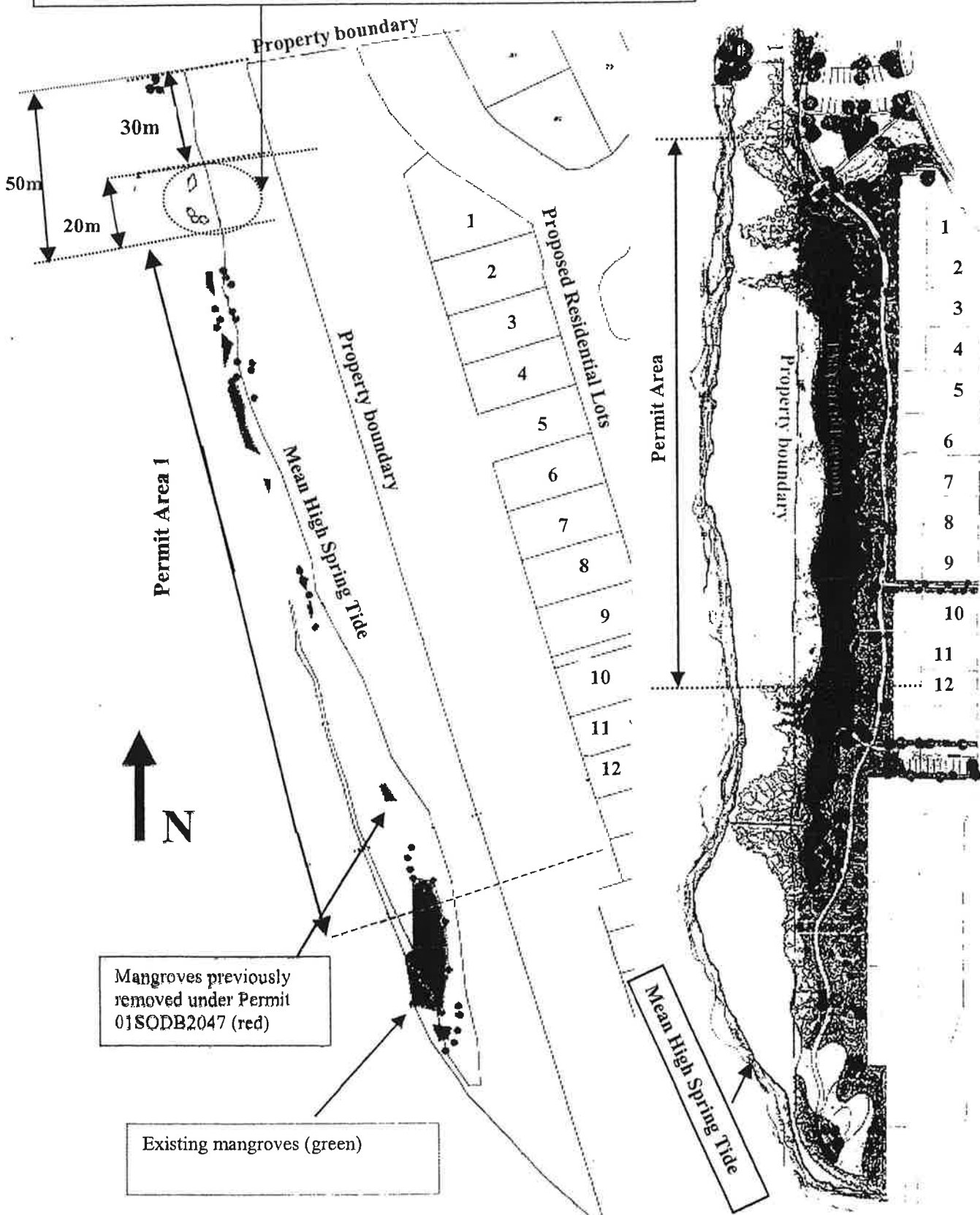
<u>Date</u>	<u>Fee</u>	<u>Receipt No</u>	<u>Fee Type</u>
20/08/2002	\$147.00	120167	Marine Plant Permit fee - 2002 - GST exempt
25/10/2002	\$200.00	124749	Assessment Fee - Marine Plant Permit 2000 - GST exempt


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Delegate of the
Chief Executive

PERMIT LOCATION:

1. Approximately 220m long and 25m wide intertidal area from 20m south of the midpoint of the proposed residential Lot numbered as 12, north to the point approximately 50m south of the north-western corner of Lot 216 on CG2224,
 2. Approximately 20m long and 6m wide area situated between HAT and MHWS, starting from approximately 30m south of the north-western corner of Lot 216 on CG2224,
- along Pumicestone Passage Foreshores of Bribie Island, County of Canning, Parish of Woorim, Shire of Caboolture, situated at Solander Esplanade, Banksia Beach, Bribie Island Qld 4507.

Permit Area 2 (yellow) – replantation site for juvenile mangroves



Fisheries Act 1994 and Fisheries Regulation 1995 Sections referring to marine plants:

Act:

Section 4 - Main definitions:- "aquaculture", "area", "fish", "fisheries resources", "fish habitat", "marine plant", "permit", "tidal land", "tribunal", "unlawfully".

Section 5 - Fish

Section 7 - Fishery

Section 8 - Marine plants

Sections 32, 33, 34, 35, 36, 39, 40, 41, 42 - Management plans/ process/ content

Sections 49, 50, 51, 52, 53, 54, 55, 57, 59, 60 - Authorities

Section - 123, 124, 125 - Protection of marine plants, rehabilitation and restoration

Section - 196, 197, 198, 199 - Appeals

Regulations:

Section 12, 13 - Management plans/ process/ content

Section 34, 39 - Permit issue/ restrictions

Section 77 - Aquaculture

Section 79 - Authority does not apply

Section 85 - Contravening an authority

Section 112, 113 - Fees/ payment/ waive

Schedule 10 - Fees payable

DISTRIBUTION

Maintenance Manual Shorebird Hightide Roost Site, Kakadu Beach, North Headland, Bribie Island

25 September 2003

.... copies

Scott Willis
QM Properties
Construction Office
Bribie Island

Original

R1180

Quality Control Reviewer



Peter Scott

Principal Environmental Geochemist