Demonstration Case 6: Ella Bay Resort Development EIS Process

<table>
<thead>
<tr>
<th>Relevance to Program</th>
<th>Program Component</th>
<th>MNES and OUV</th>
<th>Type of activity</th>
<th>Overall effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness of the EIS process in identifying and mitigating impacts on MNES</td>
<td>SDPWO Act</td>
<td>Wet Tropics WHA/OUV Threatened species</td>
<td>Residential development Tourist development WHA management</td>
<td>Very effective The EIS process is considered to be a thorough and very effective process for managing potential impacts to MNES including OUV.</td>
</tr>
</tbody>
</table>

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1.1 Introduction and purpose

This demonstration case shows how the Queensland Government Program ensures that impacts on matters of national environmental significance (MNES) are appropriately assessed through the Environmental Impact Statement (EIS) process. The Ella Bay Integrated Resort demonstration case explores the processes and systems used to declare and assess significant projects, and the effectiveness of the EIS process in mitigating impacts on MNES of the Great Barrier Reef World Heritage Area (GBRWHA).

An assessment bilateral agreement is in place with the Australian Government to ensure that impacts on MNES are appropriately assessed through the EIS process. Conditions are placed on development approvals to ensure appropriate steps are taken to minimise impacts on MNES and any downstream impacts, backed by a program to ensure compliance with these requirements.

The Ella Bay Integrated Resort was declared a ‘significant project’ under the Sustainable Development and Public Works Organisation Act 1971 (SDPWO Act), requiring the proponent of the development to prepare an EIS. The demonstration case is based on the findings of the Queensland Coordinator-General’s report (the Report) on the Ella Bay Integrated Resort Environmental Impact Statement, November 2012[1]. A copy of the EIS and the Coordinator-General’s report which are referred throughout this demonstration case are available from http://www.dsdip.qld.gov.au/assessments-and-approvals/ella-bay-integrated-resort.html.

1.1.1 Context

In April 2005, the proponent for the project, Satori Resorts Ella Bay Pty Ltd (Satori), proposed to construct a $1.4 billion integrated tourism and residential community within Lot 320 Crown plan N157629 at Ella Bay, approximately 10 kilometres north-east of Innisfail.

On 2 June 2005, the project was referred to the then Commonwealth Minister for Environment and Heritage (now the Commonwealth Minister for the Environment—hereafter referred to as the Commonwealth Environment Minister) (EPBC 2005/2159) for a determination as to whether the project would constitute a ‘controlled action’ with respect to potential impacts on MNES under sections 75 and 87 of the EPBC Act.

The EPBC Act establishes an Australian Government process for assessing environmental impacts and approving proposed actions that are likely to have a significant impact on MNES or on Commonwealth land.

On 4 July 2005, the delegate of the Environment Minister determined the project to be a ‘controlled action’ pursuant to section 75 of the EPBC Act. The relevant controlling provisions for the project were determined as:

- sections 12 and 15A (World Heritage)
- sections 18 and 18A (Listed threatened species and ecological communities).

Under the terms of the bilateral agreement, the Ella Bay project EIS was required to address both Queensland and Australian Government matters. The controlled actions may be considered for approval under section 133 of the EBPC Act once the Commonwealth Environment Minister has received the Coordinator-General’s Evaluation Report.

The bilateral agreement between the Australian and Queensland governments[2] allowed the Queensland Government to conduct the EIS process to meet the needs of both jurisdictions.

On 23 September 2005, the then Coordinator-General declared this project to be a ‘significant project’ under section 26(1)(a) of the SDPWO Act. This declaration initiated the statutory environmental impact evaluation procedure in accordance with Part 4 of the SDPWO Act, which required the proponent to prepare an EIS for the project.

The site is situated within the Cassowary Coast Regional Council (CCRC) area. Of the approximately 470 hectare site, the proponent proposed a development area of 132 hectares (Figure 1.1 1). The Ella Bay site is surrounded on three sides (north, west and part south) by the Ella Bay National Park. Most of the surrounding area is located in the Wet Tropics of Queensland World Heritage Area (WTWHA). The site is separated from the GBRWHA to the east by a gazetted esplanade.

The proposed development area of 132 hectares will incorporate:

- three resort precincts comprising 860 units and villas
- four residential precincts comprising 540 residences
- a village community precinct comprising mixed retail, professional services, offices and restaurants
- a research and education precinct incorporating a welcome centre, a collaborative research institute and cassowary research station
- residential community facilities including swimming pool, barbeque facilities, playgrounds, tennis courts and club house for each residential precinct. The clubhouse will be designed with shutters for category 5 cyclones.
Figure 1.1 1 Location Ella Bay Integrated Resort

Source: DSDIP, 2012
The remainder of the site would consist of:

- 61.1 hectares of open space, golf course and parkland
- 155 hectares of conservation covenant (protected corridors throughout the site providing connectivity for wildlife)
- 58.9 hectares of setbacks and easements
- 62.8 hectares of land to be transferred to national park.

Work to develop the property into a master planned tourism/residential community would occur over a 15 year period, along with an upgrade of Ella Bay Road and the construction of a new bypass road to connect to Ella Bay Road. The access road to the site will involve approximately 2.82 hectares of vegetation clearing and considerable earthworks. The majority of the proposed route follows the course of the existing road through the Ella Bay National Park, though some widening is required.

The proponent’s proposed option for the access road includes upgrading the existing unsealed road access to the site, incorporating fauna impact mitigation measures based on environmentally sensitive road engineering and design. The road is expected to convey a maximum design daily two way traffic of approximately 4000 vehicles per day with an annual average daily traffic of approximately 3000 vehicles per day. The upgrade and construction of Ella Bay Road will consist of two stages:

1. A four kilometre upgrade of the existing Ella Bay Road
2. A new 880 metre road that bypasses Flying Fish Point to the west. This stage will include construction of a roundabout and approaches on Bay Road (Esplanade) to direct Ella Bay traffic north behind Flying Fish Point through a new tunnel, and connection to the existing Ella Bay Road alignment to the north of Ruby Street.

1.1.2 World Heritage Properties and OUV

In Australia an action that has, will have, or is likely to have, significant impact on the Outstanding Universal Value (OUV) of a World Heritage property requires approval under the EPBC Act. The Australian Government’s Matters of National Environmental Significance: Significant Impact Guidelines[9] consider an action is likely to have a significant impact on the OUV of a declared World Heritage property if there is a real chance or possibility that it will cause one or more of the values to be:

- lost
- degraded or damaged, or
- notably altered, modified, obscured or diminished.

As part of their definition of World Heritage, the Operational Guidelines for Implementing World Heritage Convention 2005 define OUV as:

‘Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole[10].’

The Ella Bay development is located adjacent to the GBRWHA with the GBR located over 30 kilometres offshore. The Ella Bay development is not directly contiguous with the GBRWHA as it is separated by a gazetted esplanade of approximately 100 metres width. The Coral Sea is directly to the east of the site and is located within the General Use Zone of the GBR Marine Park.

The EIS documentation noted the following points that highlight the relationship between the proposed development and the GBRWHA:

- no development works will be undertaken in the GBRWHA or on the intertidal wetlands
- the development will not remove, disturb or displace any known reef or coral area. As such no interruption of the heterogeneity and connectivity of the reef assemblages will occur
- the proponent does not intend to disturb or remove any marine plants (including mangroves) on or near the site. However, if after any further pre-construction investigations, it is determined that disturbance or removal of marine plants is necessary, the proponent will seek the relevant approval from the Queensland DAFF
- there will be no disturbance to areas designated under the EPBC Act as ecologically significant, rare or scarce in relation to the GBRWHA
- on-site marine facilities are not proposed for the development and the proponent does not anticipate any significant increase in marine activities and associated impacts on the GBRWHA as a direct result of the Ella Bay development
- sewage and waste water from the development will be treated to tertiary A+ level (with nutrients levels within the levels approved by Department of Environment and Heritage Protection (DEHP)) before being irrigated throughout the property and water quality monitoring will be undertaken.
1.1.3 Assessment Process

Potential impacts on MNES were assessed throughout the EIS process for the project. MNES were addressed in both the EIS and SEIS documentation. During the latter stages of the EIS process, additional work was undertaken to better understand, analyse and synthesise the potential impacts of the whole project on MNES.

The evaluation of potential impacts on MNES presented in the Report is based on information contained in the EIS, SEIS and the additional information document. Australian Government has been consulted on the evaluation of potential impacts and adequacy of information with respect to MNES during preparation of this report. The Report provides the required information for the Commonwealth Environment Minister to make an EPBC Act decision.

The Australian Government has reviewed the offsets package and has indicated that the package is generally compliant with relevant Australian Government policies.

1.2 Identification of Matters of National Environmental Significance

1.2.1 Threatened fauna

The EPBC Act protected matters report produced for the Ella Bay area for the EIS listed 21 threatened fauna species that are known to, likely to or may occur in the area including three birds, three frogs, seven mammals, six reptiles, two fish. Field surveys were conducted in accordance with the requirements of the EIS terms of reference and conducted to obtain ecological information relevant to the project and to confirm results from the desktop assessments. A total of 142 terrestrial vertebrate species were identified in two surveys conducted in 2006 and 2008 (86 and 120 respectively) including 13 frogs, 15 reptiles, 87 birds and 27 mammals. 33 butterfly/moth species were also identified in the project area over both surveys. A total of nine freshwater fish species were identified during the aquatic surveys. Surveys of marine fauna were only carried out on the beachfront adjacent to the Ella Bay site and therefore no marine fish species were identified in the project area. Thirteen species identified during the surveys are listed as threatened under Australian Government and/or state legislation including the endangered Casuarius casuarius johnsonii (southern cassowary) and Litoria rheocola (common mist frog). Table 1.6.1 lists the threatened species identified during the surveys.
Table 1.6-1 Threatened fauna species identified during 2006 and 2008 surveys

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Common name</th>
<th>EPBC Act listing status</th>
<th>NC Act listing status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Casuarius casuarius johnsonii</td>
<td>southern cassowary</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td>Esacus neglectus</td>
<td>Beach stone-curlew</td>
<td>NA</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Cyclopsitta diophthalma macleayana</td>
<td>Macleay's fig parrot</td>
<td>NA</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Ninox rufa queenslandica</td>
<td>Rufous owl</td>
<td>NA</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Accipiter novaehollandiae</td>
<td>Grey goshawk</td>
<td>NA</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>Aerodramus Terraeregineae</td>
<td>Australian swiftlet</td>
<td>NA</td>
<td>Near Threatened</td>
</tr>
<tr>
<td><strong>Frogs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Litoria rheocola</td>
<td>common mist frog</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td>Cophixalus infacetus</td>
<td>Inelegant frog</td>
<td>NA</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>Litoria genimaculata</td>
<td>New Guinea tree frog</td>
<td>NA</td>
<td>Near Threatened</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pteropus conspicillatus</td>
<td>spectacled flying fox</td>
<td>Vulnerable</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>Taphozous australis</td>
<td>coastal sheath-tail bat</td>
<td>NA</td>
<td>Vulnerable</td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crocodylus porosus</td>
<td>estuarine/saltwater crocodile</td>
<td>NA</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Eulamprus tigrinus</td>
<td>yellow-blotched forest skink</td>
<td>NA</td>
<td>Near Threatened</td>
</tr>
</tbody>
</table>

The 2008 Fauna Survey Report also identifies 15 threatened terrestrial species listed under the EPBC Act and NC Act not identified during surveys with the potential to occur in the area based on suitable habitat or previous local records. These species are listed in Table 1.6-2.

Table 1.6-2 Threatened fauna not identified by surveys with the potential to occur

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Common name</th>
<th>EPBC Act listing status</th>
<th>NC Act listing status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sterna albifrons</td>
<td>Little tern</td>
<td>NA</td>
<td>Endangered</td>
</tr>
<tr>
<td>Rostatula australis</td>
<td>Australian painted snipe</td>
<td>Vulnerable</td>
<td></td>
</tr>
<tr>
<td>Ephippiorhynchus asiaticus</td>
<td>Black-necked stork</td>
<td>NA</td>
<td>Near Threatened</td>
</tr>
<tr>
<td><strong>Frogs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nyctimystes dayi</td>
<td>Australian lacelid</td>
<td>Endangered</td>
<td></td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dasyurus hallucatus</td>
<td>Northern quoll</td>
<td>Endangered</td>
<td>Near Threatened</td>
</tr>
</tbody>
</table>
Queensland database searches (including Wildlife Online, Queensland Museum and Birds Australia New Atlas) identified a further four threatened terrestrial species listed under the Nature Conservation Act 1994 (NC Act) not identified by survey that have the potential to occur in the area. These are included in Table 1.6 3.

Table 1.6-3 Threatened species identified in Queensland database search

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Common name</th>
<th>EPBC Act listing status</th>
<th>NC Act listing status</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Rhinolophus philippinensis</em></td>
<td>Greater large-eared horseshoe bat</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td><em>Hipposideros semoni semon’s</em></td>
<td>leaf-nosed bat</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Demochelys coriacea</em></td>
<td>Leatherback turtle</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td><em>Caretta caretta</em></td>
<td>Loggerhead turtle</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td><em>Lepidochelys olivacea</em></td>
<td>Olive ridley</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td><em>Chelonia mydas</em></td>
<td>Green turtle</td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td><em>Eretmochelys imbricata</em></td>
<td>Hawksbill turtle</td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td><em>Natator depressus</em></td>
<td>Flatback turtle</td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
<tr>
<td><em>Coeranoscincus frontalis</em></td>
<td>Limbless snake-tooth skink</td>
<td></td>
<td>Near Threatened</td>
</tr>
<tr>
<td><strong>Other fauna</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hypochrysops apollo apollo</em></td>
<td>Apollo jewel butterfly</td>
<td></td>
<td>Vulnerable</td>
</tr>
</tbody>
</table>

An online search of the EPBC Act database indicated that 14 threatened plant species, or habitats for these plants, are likely to occur within the locality of the subject site. A search of the DEHP Queensland Herbariums HERBRECS database and the Wildlife Online Database revealed 22 species listed in the Nature Conservation Regulation 2006 that are likely to occur within the locality. These species are listed in Table 1.6 4.
Table 1.6.4 Plant species in the Ella Bay area

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>NC Act listing status</th>
<th>EPBC Act listing status</th>
<th>Likelihood of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aphyllorchis queenslandica</td>
<td>Near threatened</td>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td>Aponogen bullosus</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Unlikely</td>
</tr>
<tr>
<td>Aponogen proliferus</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Possible</td>
</tr>
<tr>
<td>Arenga australasica</td>
<td>Endangered</td>
<td>Vulnerable</td>
<td>Likely</td>
</tr>
<tr>
<td>Australian Arenga Palm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canarium acutifolium var. acutifolium</td>
<td>Vulnerable</td>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td>Carronia pedicellata</td>
<td>Endangered</td>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td>Dendrobium mirbelianum</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Likely</td>
</tr>
<tr>
<td>Dendrobium Orchid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dendrobium superbiens</td>
<td>Vulnerable</td>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td>Dendrobium Orchid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dioclea hexandra</td>
<td>Vulnerable</td>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td>Eleocharis retrofleca</td>
<td>Vulnerable</td>
<td>Vulnerable</td>
<td>Unlikely</td>
</tr>
<tr>
<td>Elaeocarpus stellaris</td>
<td>Near threatened</td>
<td></td>
<td>Possible</td>
</tr>
<tr>
<td>Endiandra globosa</td>
<td>Near threatened</td>
<td></td>
<td>Identified</td>
</tr>
<tr>
<td>Ball-fruited Walnut</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fimbristylis adjuncta</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Possible</td>
</tr>
<tr>
<td>Gomotia stricta var. longiseta</td>
<td>Near threatened</td>
<td></td>
<td>Possible</td>
</tr>
<tr>
<td>Hodgkinsonia frutescens</td>
<td></td>
<td>Vulnerable</td>
<td>Likely</td>
</tr>
<tr>
<td>Atherton Turkey Bush</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hupzeria phlegmatoides</td>
<td>Vulnerable</td>
<td>Vulnerable</td>
<td>Likely</td>
</tr>
<tr>
<td>Layered Tassel-fern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hupzeria ptilifera</td>
<td>Near threatened</td>
<td>Vulnerable</td>
<td>Likely</td>
</tr>
<tr>
<td>Square Tassel-fern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Icnanthus pallens var major</td>
<td>Near threatened</td>
<td></td>
<td>Identified by survey</td>
</tr>
<tr>
<td>Ilex sp. (Gadgarra B.P. Hyland RFK2011)</td>
<td>Near threatened</td>
<td></td>
<td>Possible</td>
</tr>
<tr>
<td>Microsorum membranifolium</td>
<td>Near threatened</td>
<td></td>
<td>Possible</td>
</tr>
<tr>
<td>Nepenthes mirabilis</td>
<td>Endangered</td>
<td></td>
<td>Unlikely</td>
</tr>
<tr>
<td>Pitcher Plant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phaius tancarvilleae</td>
<td>Endangered</td>
<td></td>
<td>Possible</td>
</tr>
<tr>
<td>Piper mestonii</td>
<td>Near threatened</td>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td>Polycias bellandkerensis</td>
<td>Vulnerable</td>
<td>Vulnerable</td>
<td>Likely</td>
</tr>
<tr>
<td>Pseuduvaria villosa</td>
<td>Near threatened</td>
<td></td>
<td>Possible</td>
</tr>
<tr>
<td>Rouea brachyandra</td>
<td>Near threatened</td>
<td></td>
<td>Identified by survey</td>
</tr>
</tbody>
</table>
Flora surveys on the Ella Bay site were undertaken in 2006, 2007, 2008 and 2009. A baseline survey was also undertaken in October 2008 to establish pre-development monitoring. The 2007 vegetation survey also included a detailed survey of the road alignment.

The 2008 flora investigation recorded three plant species considered significant under the NC Act. *Endiandra globosa* (Ball-fruited Walnut), *Icnanthus pallens var. major* and *Rourea brachiandra* (Water vine) are all listed as near threatened under the NC Act.

The 2008 flora investigation states that no species scheduled as significant under the EPBC Act were identified during the survey although several species are identified as likely to occur within the project area. While vegetation surveys in 2006 and 2008 failed to locate any individuals of these species, despite targeted searching, their presence cannot be discounted.

### Threatened ecological communities

The EPBC critically endangered ecological community—littoral rainforest and coastal vine thickets of eastern Australia (littoral rainforest) was identified in areas marginal to the development site and adjacent to the proposed access corridor. The EIS identified Regional Ecosystem (RE) 7.2.1a-I and 7.2.5a representing littoral rainforest on the Ella Bay property and along Ella Bay Road.

Within the Ella Bay site, the littoral rainforest communities RE 7.2.1 and 7.2.1i occur on the northern boundary adjacent to the golf course to the north of the Northern Residential Precinct. Unlike most of the other vegetation on the site the canopy features of this community are relatively intact. The site has some previous agriculture based edge effect, logging tracks, and minor clearing. The area has small pockets of the noxious weed *Annona glabra* (pond apple).

RE 7.2.5 occurs on the foredune in front of the Village Precinct predominately on the Esplanade with only a thin strip of less than 50 metres wide on the Ella Bay property (the solid red area in Figure 1.6 1 below). Rehabilitation of this area will require extensive weed management and revegetation.

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>NC Act listing status</th>
<th>EPBC Act listing status</th>
<th>Likelihood of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Taeniophyllum muelleri</em> Minute Orchid, Ribbon-root Orchid</td>
<td>Vulnerable</td>
<td>Likely</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1.6 1  Conservation status of vegetation communities and clearing
1.3 Existing impacts on MNES including OUV

The proponent’s Report on Matters of National Environmental Significance\(^5\) indicated a number of impacts on MNES. These impacts are associated with the historical and existing land use of the property and access road that contribute to degradation of the OUV of the surrounding areas. In summary:

- The property was initially cleared for agriculture by at least 1902 and has been continuously used for agricultural purposes, principally in recent years to graze cattle.
- Agricultural activities have created grasslands dominated by introduced aggressive grasses and invasive weeds which have started to disperse into the adjoining national park.
- The property is generally degraded with significant areas of exotic weed infestations within fenced paddocks of introduced pasture grasses.
- Cattle have degraded vegetation at the edge of the property and site creeks through grazing and trampling and also aided in the spread of weeds.
- The edge effect from the previous agricultural activities within the existing vegetation of the development site and on the dunal swale area from camping is extensive and edge effects in the vegetation bordering the development are characterised by *Annona glabra* (pond apple) and other weed infestations, logging roads, clearing over boundaries and historical fence remnants.
- The northern section of the western boundary of the property has been over-cleared into the Wet Tropics WHA by some 50 to 80 metres.
- On the property and adjacent are mono-cultural stands of the weed, pond apple and Hymenachne comprising approx 14.9 hectares. Pond apple and Hymenachne are one of the most threatening environmental weeds to the Wet Tropics and are both designated a Weed of National Significance (WONS) and a Class 2 declared plant under the *Queensland Land Protection (Pest and Stock Route Management)* Act 2002.
- The property and surrounding area supports feral pigs in large numbers (over 100 trapped since October 2008). The Wet Tropics Management Authority (WTMA) State of Conservation Report 1998 indicated that feral pigs are the major pest animal in the Wet Tropics. Feral pigs have degraded the natural vegetation and water quality, caused erosion and encouraged the establishment and spread of weeds by wallowing and rooting around the edges of watercourses and swamps. Feral pigs can also destroy the habitat of small native animals, spread disease and parasites, compete for the food with cassowary, and predate upon cassowary eggs.
- *Batrachochytrium Dendrobatidis* (Chytrid fungus) has caused damage to the frog population and has been surveyed and identified as occurring on the site and at multiple sites within 20 kilometres of Ella Bay.
- The site provides limited access (due to barbed wire fences) for the cassowary to pass through the open paddocks to and from the adjacent protected areas and a food source in the form of pond apple as described above.
- There were no mechanisms in place to manage any of the edge effects described above. The only existing requirement of the landowner of Ella Bay was the control of pond apple and Hymenachne on the property which had not been brought under control on the Ella Bay property. More importantly, there is no statutory obligation on the landowner to manage the interface between the property and the adjacent WTWHA.
- Access to the property is obtained from Ella Bay Road, an unsealed single lane road, managed by the CCRC. Ella Bay Road was probably formed in the early 1900’s.
- Ella Bay Road cuts into the steep rocky coastline to the south, linking the property with Flying Fish Point. The road runs beside or passes through areas of the Ella Bay National Park for 1.56 kilometres (length of WHA section).
- Road use and maintenance was causing edge effects and dust pollution which was degrading the visual amenity and integrity of the WTWHA in the area, and during wet periods adding to the erosion and sedimentation of short sections of creeks running through the Wet Tropics and depositing silt into the GBRWHA.
- The road maintenance regime for the unsealed road especially following intense rain or cyclone clean-up is adding to incremental creep of edge effect as the road corridor disturbance widens.

These existing impacts are addressed as part of the mitigation strategies proposed for the Ella Bay development and the access road.
1.4 Pressures and potential impacts

Potential impacts on MNES including OUV were assessed throughout the EIS process for the project. During the latter stages of the EIS process, additional work was undertaken to bring together previous work and discussion of issues raised in the EIS and SEIS, and to better understand, analyse and synthesise the potential impacts of the whole project on MNES.

1.4.1 Potential direct and indirect impacts

The Ella Bay development and access road could potentially have direct and indirect short-term and long-term impacts on threatened species and communities. Potential short-term impacts on MNES including OUV would be those that occur during the construction and initial operation of the project. Longer-term impacts would be those that occur on an ongoing basis during the operation of the development. For example, direct impacts on MNES such as injury and/or death of flora and fauna may occur as a result of construction activities in the short-term and increased traffic movements on Ella Bay Road as operation of Ella Bay development commences. Indirect impacts on MNES including OUV from spread of weeds and pests or lighting and noise, as examples, may occur as a result of both construction and operational activities.

The EIS indicated that the potential short-term risks of the project may include:
- injury and/or death of flora and fauna during vegetation clearing required for the development
- potential disturbance to flora and fauna from activities required for the construction of roads, buildings and other infrastructure including dust, noise and vibration, lighting, root damage to plants
- potential traffic related wildlife injury or deaths on the access road and roads within the project area
- potential introduction and/or spread of weeds and pests into cleared and disturbed areas
- hydrological and water quality impacts on creeks, wetlands, surface water run-off, groundwater and the marine waters.

The EIS indicated that the potential long-term risks of the project may include:
- loss of remnant and regrowth vegetation and habitat as a result of vegetation clearing and edge-related effects of development
- potential spread of weeds and pests into cleared and disturbed areas
- fragmentation of the landscape affecting flora connectivity and fauna movement
- hydrological and water quality impacts on creeks, wetlands, surface water run-off, groundwater and the marine waters
- potential traffic related wildlife injury or deaths on roads within or around the project area
- noise and lighting impacts on fauna.

1.4.2 Potential impacts on terrestrial fauna

1.4.2.1 Southern cassowary

Construction of the Ella Bay development will lead to a loss of 5.89 hectares of existing cassowary habitat. This includes clearing and isolation of habitat of 2.02 hectares within the Ella Bay property and 3.87 hectares of vegetation loss along the access road.

Activities relating to the Ella Bay property that have the potential to degrade cassowary habitat include:
- trespass creating edge effect of construction workers and equipment, residents and visitors
- noise and dust disturbance may cause the birds to withdraw from adjacent forest
- weeds, exotic plants and pathogens may be introduced into adjoining cassowary habitat
- nutrient runoff and water quality contamination may degrade adjoining cassowary habitat and water supply
- encroachment, dumping and littering by residents and guests
- disturbance from increased human activity, noise levels and night lighting along streets and in residences.

The major threats to potential habitat degradation along Ella Bay Road are:
- disturbance from increased traffic noise and light
- pollutants from road runoff
- the introduction of weeds along the road from the disturbance caused by roadworks.

Construction activities at the Ella Bay property and along Ella Bay Road have the potential to impact cassowary habitat connectivity or create barriers to traditional movement corridors. The increased level of human activity at the Ella Bay site and along the access road during the construction and operation of the development increases the risk of negative human interactions with the cassowary. Inappropriate litter disposal can attract cassowaries to the site and there is the risk of habituation.
due to feeding.

Cyclone events are one of the major impacts on the survival of the cassowary. Cassowaries have proven to be extremely vulnerable to disruption to the fruit cycle following the destruction of a significant cyclone.

The possibility of avian diseases in cassowaries is serious given worldwide evidence that wildlife diseases pose a growing threat in conservation biology. It may become a management issue particularly for local populations under stress. Known diseases include internal parasites (particularly ascarids), *Aspergillosis*, *Aspergillus fumigatus*, and avian tuberculosis (TB), *Mycobacterium avium*.

1.4.2.2 Shorebirds and migratory birds

The EIS identified potential threats to shorebirds relevant to the construction and operation of the Ella Bay development including:

- construction dust and noise
- habitat loss
- feral pests
- domestic animals
- increased human activity/interference
- disturbance by artificial lighting.

1.4.2.3 Stream dwelling frogs

The EIS identified potential threats to stream-dwelling frogs from construction and operation activities of the Ella Bay development and access road upgrade including:

- loss of habitat near the access road (alteration of streamside vegetation)
- increased risk of road kill near Ella Bay Road creek crossings due to increased traffic
- degradation of water quality though sediment, erosion or contamination
- inappropriate weed control measures in riparian areas
- increased chance of further spread of pathogens such as Chytrid Fungus.

The EIS concludes that there will be no increase in threats to the long-term existence of the common mist frog and the Australian lacelid populations resulting from the proposed development.

1.4.2.4 Spectacled flying fox

The EIS indicated that the main threat to the spectacled flying-fox throughout Australia is habitat clearing (including fragmentation and modification) to facilitate agriculture and silviculture. While this has slowed, it still poses a threat. In addition, large numbers have been lost through crop protection activities such as shooting, electrocution and roost harassment around orchards; pathogens including diseases and tick infestation; and collision with human infrastructure such as fences and powerlines.

While the Ella Bay site is not critical for spectacled flying-foxes, a number of the potential impacts relevant to the development area from the construction and operation of the Ella Bay Integrated Resort and access road have been addressed in a spectacled flying-fox management sub-plan. The potential impacts include:

- loss of habitat including food resources
- increased human activity
- construction dust and noise
- disturbance of camps (if identified on-site)
- spread of pathogens (for example, Australian Bat Lyssavirus)
- spread of weeds
- increased lighting
- mortality due to fencing or power lines.

1.4.3 Potential impacts on terrestrial flora

As noted in section 1.3.2, targeted surveys in the development area between 2006 and 2008 located four plant species considered significant under the NC Act. As there is only minor clearing required for the development and vegetated areas will be protected by conservation covenant, no unacceptable impact is expected on these species.

Vegetation investigations indicate that approximately 3.75 hectares of vegetation would need to be disturbed for the development, approximately 0.95 hectares within the development site and approximately 2.8 hectares for the access road. No REs listed as ‘endangered’ need to be removed.
1.5 Measures to Avoid, Mitigate and Offset Impacts on MNES

The EIS documentation indicated that the proposed Ella Bay development would be designed, constructed and managed to avoid (where possible) potential adverse impacts on tropical rainforest, swampland (Wet Tropics WHA) and coastal and aquatic (GBRWHA) ecosystems or on the geological and geomorphological characteristics of the region that underlie the ecological diversity of the Wet Tropics of Queensland and the GBR. Where impacts on MNES including OUV cannot be avoided, the proponent committed to an environmental management regime and proposed a number of measures to minimise and mitigate potential impacts. An offsets proposal was also put forward by the proponent to address residual impacts.

Primary matters for Wet Tropics WHA consideration include maintenance of OUV and potential impacts of the access road and the Ella Bay development on the Casuarius johnsonii (southern cassowary – also referred to as cassowary throughout this report), Litora Rheocola (common mist frog) and to a lesser extent, other threatened faunal species potentially having habitat in the WHA.

Primary matters for GBRWHA consideration with respect to the Ella Bay development and the access road include maintenance of OUV, visual impacts when viewed by ships at sea and potential impacts on biological processes from water quality (during construction and operation).

1.5.1 Environmental management plan

The draft Environmental Management Plan (EMP) sets out the project commitments to avoid where possible or minimise potential environmental impacts during both the construction and operation phases of the project. The EMP identifies environmental aspects to be managed and how the environmental values may be protected and enhanced.

The final EMP will become the key reference document that converts the undertakings and recommendations of the environmental studies into actions and commitments to be followed by the designers, construction operators and subcontractors of the proposed project. The plans specify:

- proposed environmental management strategies, actions and procedures to be implemented to mitigate adverse and enhance beneficial environmental and social impacts
- monitoring, reporting and auditing requirements
- the entity responsible for implementing proposed actions
- proposed timing
- corrective actions if monitoring indicated that performance requirements have not been met.

The content of the EMP will be further refined and expanded following finalisation of the Coordinator-General’s Report, during the detailed design phase of the project and through ongoing consultation with the relevant regulatory and advisory agencies.

The EMP will include control strategies and measures for the following:

- integrated water management
- acid sulfate soil management
- erosion and sediment control
- air quality/dust
- noise, light and vibration
- cyclone, fire and emergency management
- Ella Bay road construction and management
- site preparation
- clearing and earth works
- drainage
- road network and transport
- power, light and communication
- waste management and minimisation
- sewerage and recycle management
- pest and wallaby management
- mosquito management.

The EMP also incorporates sub-plans including:

- southern cassowary management
- stream-dwelling rainforest frog species management
- spectacled flying-fox management
- marine turtle species management
- beach stone-curlew management
- significant flora management
- rehabilitation and revegetation management
- conservation area and wetland management
- weed management
- cultural heritage management.

The Coordinator-General’s Report stated a condition requiring the proponent to prepare and implement a beach and foreshore...
management plan to provide greater protection for the Ella Bay foreshore area, which will complement other coastal-related sub-plans noted above.

The EMP and sub-plans will also serve as the benchmark for measuring the effectiveness of environmental protection and management. This can be achieved by specifying the monitoring, reporting and auditing requirements, with nominated responsibilities and timing, to ensure the necessary mitigation measures are met. The EMPs also provide, as appropriate, for unforeseen events by outlining corrective actions that may be implemented in these situations.

The proponent, in consultation with cassowary experts Professor Les Moore, Peter Buosi and Terrain (consultants), has developed a southern cassowary management sub-plan in concordance with the recovery plan that takes an integrated, holistic approach to mitigate key risk areas identified for cassowary. The aim of the sub-plan is to:

▪ protect and enhance cassowary habitat within the Ella Bay site
▪ protect the cassowary from feral pests and domestic animals
▪ minimise the impact of increased traffic on the cassowary population
▪ protect the cassowary from the impacts of a cyclone
▪ minimise the impacts of human disturbance and interaction.

The proponent contends that the Ella Bay development (including mitigation strategies and offsets) will:

▪ be a catalyst in saving the cassowary from possible extinction
▪ make Ella Bay a safe environment for the cassowary and for people at all times
▪ help slow the rate of decline of the cassowary and ultimately reverse it.

The proponent also produced a Fauna Sensitive Road Design Report which provides detail of the specific mitigation measures to protect fauna potentially impacted by the access road and the internal roads.

The daily operation of the resort will experience the presence of domestic animals whether from inadvertent accompaniment, stray or dumped animals and feral predators. To manage potential interaction:

▪ no cats or dogs, apart from guide and assistance dogs, will be permitted within the development
▪ any domestic cats and dogs found within Ella Bay development will be removed by body corporate staff
▪ wild or feral dogs and cats will be actively controlled with the feral pig control program.

The Coordinator-General noted the proponent has committed to a number of strategies to minimise any impacts including:

▪ developing and implementing a beach stone-curlew management sub-plan to protect the shorebirds that visit the Ella Bay shoreline
▪ developing and implementing a pest management sub-plan to provide greater protection for bird species
▪ prohibiting of domestic cats and dogs, apart from guide and assistance dogs, in the Ella Bay development body corporate laws.

Management practices to mitigate the impact of the Ella Bay development on stream-dwelling frogs are addressed in the stream-dwelling rainforest frog species management sub-plan. A frog monitoring program has been included in the sub-plan which will determine the ongoing status of the species on site. Frog fencing is also proposed on the access road 25 metres either side of three of the bridges and four of the culverts.

The Coordinator-General noted the sub-plan includes strategies for the retention and enhancement of all spectacled flying-fox habitat within the Ella Bay site, the preservation and persistence of the surrounding populations and ensuring that individuals of this bat species are not harmed during the clearing and construction process. The sub-plan will ensure the long-term future of the spectacled flying-fox within the local area by protecting their habitat from any detrimental processes as a result of the construction and operation of the Ella Bay development.

The significant flora management sub-plan has committed the proponent to several vegetation management strategies that will provide appropriate protection for these species, if located during clearing works. For example, a suitably qualified botanist will accompany surveyors marking the currently unformed sections of the access road and any tracks, roads or buildings on the Ella Bay site to check for the presence of listed species. Listed species relative to the region will be incorporated into the revegetation planting schedule providing they are able to be grown from local seed.
1.5.2 Terrestrial ecology

The revised master plan for the Ella Bay development incorporates a number of design elements that are intended to negate or minimise potential impacts of the project including:

- avoid clearing of endangered REs and no clearing of littoral rainforest communities
- no development in vegetated habitat known to support significant fauna species
- incorporating vegetated corridors within the development site to allow flora and fauna dispersal across the site
- maintenance of riparian corridors adjacent to ephemeral creeks
- incorporation of formal road crossing infrastructure at key fauna corridor locations
- revegetating and rehabilitating vegetation across the development to increase landscape permeability for flora and fauna
- no disturbance to tidal habitats.

The Coordinator-General considered these design elements to be essential for the development. The proponent proposed a suite of management strategies to mitigate and/or offset potential construction and operational impacts on terrestrial, fauna, flora and communities. These are summarised in the sections below.

1.5.2.1 Habitat protection strategies

As part of the EIS process, the proponent has committed to a number of strategies to protect important regional habitat. The proponent’s strategies include:

- securing regrowth (near remnant) vegetation within and outside the Ella Bay site which is representative of the REs to be cleared for, and essential habitat to be impacted by, the project. The offset properties have been purchased by the proponent
- purchasing strategic land parcels that have been identified as key linkages or habitats for cassowary
- revegetation and rehabilitation of existing cleared areas of land within the Ella Bay site, with a view to reinstating pre-clearing vegetation types (including appropriate fruiting vegetation for the cassowary in the western and central areas) (Figure 1.71).
- seeking protection status for the revegetated and rehabilitated corridors and areas on site
- undertaking various research projects relating to cassowary and cassowary habitat
- undertaking a weed removal and management program for the Ella Bay site, the offset land and the access road corridor
- implementing the marine turtle species management sub-plan and a beach stone-curlew management sub-plan (including a community education/awareness program) to manage the sensitive areas for turtles and shorebirds
- developing and implementing road management plans for construction and operation (including wildlife fencing and escape gating, fauna underpass and culverts, calming device and appropriate speed limits)
- prohibiting all dogs, apart from guide and assistance dogs, and cats from the resort and residential areas
- installing precinct fencing to limit human/cassowary interface and provide greater protection for wildlife (in particular the cassowary) and access to suitable habitat and water supply
- actively managing pest and feral animal eradication program within the Ella Bay development site with particular emphasis on the eradication of feral pigs
- education programs for residence, visitors and staff highlighting the importance of the Ella Bay terrestrial and marine environment (including littoral rainforest and cassowary).

The Coordinator-General concurred that all these strategies are an essential part of the development and mitigating the impacts on MNEs, including OUV.
Figure 1.7.1 Proposed Ella Bay revegetation staging plan

Source: DSDIP, 2012
1.5.2.2 Conservation zones

As part of the offset proposal the proponent purchased 63.62 hectares located within a strategic regional habitat connectivity corridor identified as appropriate for the function within the Recovery Plan for the Southern Cassowary\(^6\). The corridor is also identified as a priority corridor in the Wet Tropics Conservation Strategy 2004\(^7\) and was supported by research undertaken by Terrain NRM in 2008\(^8\) as part of the proponent’s offsets package. The land is contiguous with Eubenangee Swamp National Park on the south and western boundary and Wet Tropics WHA on the northern boundary. The proponent committed to donate this land to National Park and to revegetate and manage, or provide funding for the revegetation and management of, the land for five years.

The proponent proposed that the majority of the vegetated habitat within the Ella Bay property will be protected and managed by conservation management zones as noted in Table 1.7 1.

<table>
<thead>
<tr>
<th>Conservation zone</th>
<th>Purpose</th>
<th>Area (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone A</td>
<td>Transfer to National Park</td>
<td>62.8</td>
</tr>
<tr>
<td>Zone B</td>
<td>Nature conservation</td>
<td>67.8</td>
</tr>
<tr>
<td>Zone C</td>
<td>Fauna corridor</td>
<td>87.3</td>
</tr>
<tr>
<td>Zone D</td>
<td>Setback and easement</td>
<td>58.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>276.6</td>
</tr>
</tbody>
</table>

The proposed conservation zones, fauna corridors along with the proposed fauna underpasses, will maintain unimpeded cassowary movement access around the Ella Bay site (post development).

1.5.2.3 Revegetation/rehabilitation

Revegetation of approximately 50 hectares will provide approximately 30 per cent more cassowary habitat within the Ella Bay site. Of this revegetation approximately 45 hectares will be high quality cassowary fruiting habitat and five hectares will be non-fruiting habitat which will become general habitat. Non-fruiting revegetation will be used to the east of the main north/south creek so that cassowaries will not be enticed to the resort areas.

Rehabilitation totalling 64 hectares will change weed infested non-remnant habitat of which approximately half is mapped currently as rehabilitating habitat, into essential or general habitat. The SEIS states that the future habitat designation after completion of the development and maturity of the vegetation is expected to be:

- essential habitat—238 hectares
- general habitat—39 hectares.

The Coordinator-General’s Report stated a condition to ensure the proponent’s revegetation and rehabilitation strategies is considered by DEHP and appropriately addressed by the proponent.

1.5.2.4 Availability of water supply

There is also expected to be an increase in the availability of permanent water for wildlife from the constructed wetlands to manage stormwater. The constructed wetlands will contain both ephemeral water and permanent water to sustain the vegetation mix necessary for nutrient removal. By nature of purpose the constructed wetlands will be located adjacent to the creeks and often within the fauna corridor. The provision of additional extensive permanent water will reduce the requirement for cassowaries to access the dunal swale.

1.5.2.5 Water quality

The proponent has made a number of commitments during the EIS process to negate or minimise potential water quality impacts on fauna in and around Ella Bay, particularly those species living in the creeks and streams (for example, freshwater fish and frogs) and those fauna using them as drinking sources (for example, cassowary).

These commitments include development and implementation of:

- wastewater/recycle water treatment to tertiary class A+ standard with nutrient levels within levels approved by DEHP
- erosion and sediment controls
- water sensitive urban design
- water quality monitoring
- stormwater treatment
- Reef Water Quality Protection Plan objectives
- best practice golf course management.

1.5.2.6 Connectivity preservation strategies

The construction of the Ella Bay development and access road has the potential to reduce habitat connectivity of the area. The proponent has committed to a number of measures to reduce the impact of fragmentation of fauna communities.
Habitat connectivity on the site will be managed through conservation zone management. Connectivity will be maintained within the on-site road network by use of fauna underpasses and culverts in key locations. The Coordinator-General noted that the proponent has committed to develop and implement a road network and transport management sub-plan for Ella Bay development as part of the EMP for the development. The plan will include speed limits of 40 kilometres per hour, traffic calming and management for the fauna corridor road crossings.

On the access road the proponent proposes a number of fauna underpasses and a fauna overpass (Flying Fish Point bypass section) at known cassowary movement corridors. The road will also include a number of culverts to allow small macropods to travel under the road, thereby providing additional means of connectivity in the vicinity of the access road. The proponent also put forward a strategy to partially fence, and to provide one-way cassowary gates, on the access road to allow escape from the road in the case of a cassowary straying onto the roadway. The proponent proposes that the road entrance to the fenced section has warning signs, traffic calming devices such as chicanes and/or raised speed platforms, transverse line markings to alert drivers to the likely presence of cassowaries and other wildlife. The proponent also proposed that the access road include strategically positioned frog fencing near bridges and culverts.

The Coordinator-General stated a condition in the Report that will specify requirements for road design (including reduced speed limits and the requirement for formal fauna crossing points and fauna culverts) to ensure the appropriate protection of wildlife. The condition also requires the proponent to include road designs that incorporate preferred fauna sensitive design standards included in the Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices and Council requirements.

1.5.2.7 Offsets strategies

The proponent has submitted a proposed compensatory offsets package for consideration as part of the EIS process for the project. The proponent developed the offsets package for residual impacts from the proposed development and road upgrade (including clearing, habitat isolation and edge effects) after all available impact mitigation strategies have been exhausted. The offset package has been based on the Policy for Vegetation Management Offsets – version 3 (DERM 30 September 2011)[9], the Regional Vegetation Management Code for Coastal Bioregions – version 3 (DERM 6 November 2009) [10], and the Queensland Biodiversity Offsets Policy – version 1 (DERM 3 October 2011) (QBOP) for Queensland Government purposes, and the EPBC Act Environmental Offsets Policy (October 2012) for Australian Government purposes.

It is important to recognise that the Queensland and Australian governments requirements for offsets, outlined in their respective policies, are different. The nuances of these policies require the proponent to address the needs of both jurisdictions through their proposed offsets package. Australian Government offsets are regulated by SEWPaC as per the EPBC Act Environmental Offsets Policy (October 2012) which provides principles for offsetting unavoidable impacts on MNES.

SEWPaC has indicated its general acceptance of the suitability of the direct offsets proposed by the proponent. However, some minor changes to the timing of securing offsets may be a Commonwealth requirement.

In summary, the proponent’s offset proposal involves:

- 62.78 hectares of land from the Ella Bay site to be handed over to the state for national park
- a further 63.62 hectares of land purchased to be handed over to the state for national park. This land (Lots 5RP747500, 6RP713994, and 7RP713994) is contiguous with Eubenangee Swamp National Park on the south and western boundary and WTWHA on the northern boundary and is noted as suitable land for corridor purposes in the Recovery Plan for the Southern Cassowary
- implementation of a management strategy for the Eubenangee offset land including the management of revegetation and weed removal for a period of five years
- implementation of the conservation zones within the Ella Bay site (including handing over of 62.78 hectares to the state for national park), 67.8 hectares registered as conservation covenant (to act as a buffer to the national park), 87.3 hectares registered as conservation covenant (for fauna corridors), and the revegetation of each of these areas
- various research projects including:
  - cassowary tracking project
  - cassowary diet and DNA analysis research
  - cassowary fencing and escape gate research
  - impact of Ella Bay development of cassowaries, fauna and flora.

The proponent has placed a dollar value on the offsets package of $1.89 million comprising $1.6 million for the land and revegetation components and $290 000 for the research activities.

Based on advice from DNRM and DEHP, the Coordinator-General was satisfied that the proponents proposed offsets strategy meets relevant state requirements. The Coordinator-
General stated a condition in the Report requiring the proponent to secure offsets for the proposed clearing of remnant vegetation, prior to a preliminary approval for a material change of use of premises (MCU) on the site. The Coordinator-General’s Report also stated a condition that requires the proponent to undertake a complete plant/flora survey on the proposed clearing sites, in consultation with the Wildlife Branch of DEHP.

1.5.2.8 Road management strategies for wildlife protection

The proponent’s road management mitigation strategies are included in the Ella Bay Road Design and Environmental Management Report. The proponent’s proposed strategies include:

- 60 kilometres per hour speed limit (except in locations where a speed of 40 kilometres per hour is required for safety reasons)
- Installing/constructing:
  - traffic calming devices such as chicanes and/or raised speed platforms, transverse line markings and cassowary/wildlife signage to reduce operational speed
  - three fauna underpasses
  - one fauna overpass (Stage 2)
  - four small fauna underpasses
  - cassowary fencing at significant sections of the road (except sections that are too steep for most wildlife) to direct cassowary to safe crossings
  - 25 ‘one-way’ escape gates in case cassowary to get in the road corridor (19 on the Stage 1 section and 6 on the Stage 2 section)
  - frog fence 25 metres either side of the fauna underpasses and culverts
  - 19 pipe culverts will be replaced with box culverts to allow great movement of small fauna under the road
- water sensitive road design will be incorporated into the road design. This will include an approved rainwater drainage and filtering system along its entire length to ensure that the expected large quantity of rainwater and potential pollutants flowing from the road are appropriately filtered to an acceptable standard prior to making its way to the GBRWHA
- revegetation will take place as each stage or partial stage of works is completed and will include endemic non-cassowary food plant species that suit the criteria for the roadside vegetation; blend with the surrounding vegetation and complement the natural surroundings; and seal the edge of the forest to reduce the potential of edge effects
- mature trees will be protected where possible to provide canopy shading and protect essential habitat.

The Coordinator-General noted that the proponent committed to undertake ongoing monitoring of impacts on the cassowary as a direct result of the road management strategies proposed. The Coordinator-General stated a condition in the Report requiring the proponent to include fauna sensitive design elements in the final road design for the Ella Bay site and access road in consultation with WTMA, DEHP and CCRC. The Coordinator-General also stated a condition in the Report to ensure that a wildlife monitoring program on the access road is implemented and results used to refine road management strategies, if necessary.

1.5.2.9 Precinct wildlife fencing strategy

The proponent’s addresses precinct wildlife fencing strategy in the southern cassowary management sub-plan. The strategy includes the following measures to provide protection for wildlife, in particular the cassowary:

- boundaries of each precinct fully fenced allowing movement of fauna such as cassowary, frogs and reptiles throughout the flora corridors/conservation zones
- fence will be a 1200 mm dark coloured aluminium pool fence with a 100 mm gap underneath to allow movement of small animals
- fencing to be constructed on a staged basis as each precinct is constructed
- internal road system will be contained within the precinct fencing
- precincts to be linked by bridges or low speed gated crossings (20 kilometres per hour)
- bridges to be used to allow cassowaries to pass along the fauna corridors free of traffic interaction.

The proponent has also committed to develop and implement:

- guidelines on the appropriate methods for removing cassowaries from residential or resort areas
- a program of induction courses to educate residents, visitors and staff on appropriate behaviour around cassowaries including:
  - appropriate behaviour in cassowary habitat
  - specific responses and behaviour for golfers
  - strictly ‘no feeding’ policy (regulated and enforced)
• a cassowary incident reporting system
• an internal fencing strategy to prevent access by cassowaries to the Ella Bay development and interaction with people
• a system of daily monitoring to ensure:
  - no cassowaries have gained access to the residential or resort areas
  - no unauthorised pathways have been established in restricted access areas.

1.5.2.10 Public awareness/education
Public awareness and education programs will be used to educate workers, residents and visitors about the Ella Bay environment to minimise potential impacts on terrestrial species including the cassowary.

1.5.3 Marine/aquatic ecology
The Ella Bay development is likely to have minimal, if any, direct and indirect short-term and long-term impacts on marine ecology, although as turtles have potential access to the beach area they were considered.

Restricting vehicle access on the beach may benefit marine turtles that may frequent the Ella Bay area. Other benefits will come from implementing approved water quality management processes for the site and a program to remove turtle and turtle eggs predators such as wild pigs and dogs from the site.

The Recovery Plan for Marine Turtles in Australia\(^6\) adopts a threat-based approach to reduce the likelihood of mortalities, or modify activities which could lead to potential future mortalities at all stages of a marine turtle’s life. The proposed mitigation strategies for the Ella Bay development aims to comply with this intent to a level appropriate to the identified potential risk.

The proponent has made a number of commitments during the EIS process to negate or minimise potential impacts on marine flora and fauna on and surrounding the Ella Bay site and in the waters adjacent to the site.

These include water quality measures such as treating water to tertiary class A+ standard within levels approved by DEHP; use of erosion and sediment controls; employing water supply urban design principles; undertaking water quality monitoring; and employing best practice golf course management.

An artificial lighting management plan includes a range of methods to minimise impacts on marine species (in particular nesting turtles).

Public awareness and education programs will be used to educate workers, residents and visitors about the Ella Bay environment to minimise potential impacts on terrestrial species including turtles and other marine species.

The proponent has committed to undertake a detailed flora survey (including marine plants) on the clearing sites at the operational works stage. This will include the area proposed to be disturbed for the paths for beach access. In line with DAFF’s policy Management and protection of marine plants and other tidal habitat\(^6\), every attempt will be employed to avoid the disturbance of marine plants in the design and construction of the paths. A suitably qualified botanist will accompany surveyors marking the currently unformed sections of the access road and any tracks, roads or buildings on the Ella Bay site to check for the presence of listed species.

The proponent is required to obtain an operational works approval from DAFF for any marine plant disturbance that may be required as part of the Ella Bay development. The Coordinator-General has stated a condition in the Report to ensure this requirement is met and that marine plants are protected.

The Coordinator-General has also stated a condition in this report requiring the proponent to develop and implement a beach and foreshore management plan to manage the coastal area adjacent to the development site.

The proponent’s feral pig trapping program has culled over 100 pigs since 2008 which has reduced the local population and is thought to potentially benefit a number of fauna species such as marine turtles (and their eggs) and cassowary.

1.5.4 Coordinator-General’s conclusions - fauna and flora
It is noted that the Ella Bay development could impact threatened species. The proponent has provided details of EMPs and a list of commitments which it will implement throughout the construction and operational stages of the development.

Implementing committed mitigation and conservation measures as described in the EIS and SEIS documents, along with other commitments made by the proponent, is expected to mitigate the impacts of the Ella Bay development on species that were identified during the field surveys noted in the EIS. As a result, it is expected that there may be minor short-term disturbance to, but no significant long-term impact on, listed threatened species and communities impacted by the Ella Bay development.

The Coordinator-General was satisfied that the potential for the Ella Bay development to impact on flora and fauna in the development site and around the access road in general can be adequately managed. The proponent has satisfied requirements...
through the mitigation measures and commitments contained in the EIS and subsequent documents, the construction and operational EMPs, and in conditions the Coordinator-General has stated in the Report.

1.5.5 Acid sulfate soils

Although the Ella Bay site does not fall within a recognised area of potential acid sulfate soils, field test results in 2006 indicated a low potential for acid sulfate soils being present. The proponent committed to develop and implement an acid sulfate soils management plan to minimise potential acidification issues associated with development on the site in accordance with the Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines\[15\]. This will form part of the construction EMP.

The proponent has also committed to conduct acid sulfate soils testing at the operational works approval phase for each of the proposed development stages, in accordance with SPP 2/02.

1.5.6 Weed management

Since purchasing the site the proponent implemented a weed management program to manage the infestation of weeds on the site. Due to the productive tropical climate at Ella Bay there are many introduced plant species which have become invasive. These species can be broken down into those that pose a threat to forested or wetland areas (environmental weeds) and those which pose a threat to open areas such as paddocks and unestablished revegetation areas (disturbance weeds). Several weed species found within the Ella Bay site are declared weeds under the Land Protection (Pest and Stock Route Management) Act 2002 Qld.

The proponent prepared a weed management sub-plan (to cover all phases of the project) which forms part of the EMP. The sub-plan includes weed management and eradication strategies and impact mitigation strategies.

The effective management of weeds may lead to a net positive impact and may help prevent the current risk of weed infestation in the Ella Bay National Park and Wet Tropics WHA.

The Coordinator-General has stated a condition in the Report to ensure that weeds are removed from the development site and adjacent land and appropriate management procedures are put in place to minimise potential future weed infestation.

1.5.7 Pest management

The EIS records two feral fauna species identified during sampling undertaken by Biodiversity Assessment and Management Pty Ltd (BAAM) in spring 2006. These were the feral pig (Sus scrofa) and house mouse (Mus musculus).

Feral pigs are listed as a key threatening process under the Land Protection (Pest and Stock Route Management) Act 2002. Feral pigs have the potential to cause significant harm to cassowary populations. They are known to attack and kill cassowaries as well as compete for food, destroy habitat, promote invasive weed species and to destroy entire cassowary clutches.

The feral pig trapping and baiting program on the site has culled over 100 feral pigs. A Feral Pig Trapping and Baiting Report prepared by the proponent is included in the additional information document provided by the proponent.

The proponent has committed to prepare a pest management plan in consultation with Biosecurity Queensland (DAFF), Queensland Health and DEHP as part of the EMP for the development at the operational works stage to control the number of feral species present on and surrounding the site, as well as potential future pest species.

The proponent proposes to consult with DEHP and NPRSR to coordinate management strategies, responses and practices within Ella Bay National Park. Educating residents and visitors will play an integral role in the development of a successful pest species management plan.

The Coordinator-General has stated a condition in the Report to ensure the appropriate management of pest species for the development site and adjacent land.

1.5.8 Visual amenity

The Ella Bay site is characterised by its unique geographical position completely surrounded by World Heritage listed rainforest, the Seymour Range, the GBR Marine Park and the Ella Bay National Park.

The net visual impact of the Ella Bay development and the Ella Bay Road upgrade and bypass road is expected to be temporary, during and immediately after construction until landscape screening vegetation reaches greater than ten metres in height. The EIS documents include detailed images of expected views of the development and road requirements from various viewing points including the ocean and from the air.

The visual amenity from the Seymour Range, Innisfail, Flying Fish Point, Ella Bay Road or other populated areas in the vicinity and will therefore have no visual impact on these sites.

The visual amenity of the site, as viewed from the GBRWHA, will initially be reduced because of works required as the development is constructed. However, existing vegetation, planned revegetation and rehabilitation will eventually screen the
The visual impacts, as viewed from the ocean, are expected to diminish over time as vegetation growth should weaken the colour and textural contrasts of the development. The Ella Bay development and Ella Bay Road will also be visible from the air. Some of this impact will be reduced over time with vegetation planting and rehabilitation and natural regrowth. The proponent also proposes to manage the visual interaction between the built form and the natural environment by using colours and hues common to the area. External finishes of building and roofs are proposed to be non-reflective and of muted tones, selected to match and blend with the existing and proposed vegetation.

Visual impacts associated with Ella Bay Road will include:
- change from an unsealed road to bitumen road
- presence of fauna mitigation measures such as the approach and bridge sections of the fauna underpass, fauna bridges and cassowary signage and other protection devices
- vegetation clearing.

Only minimal clearing is proposed for the access road. If required, the proposed green mesh cassowary fence could weave through existing road reserve vegetation and limited visibility is expected. However, in places the fence could be adjacent to the road where there are entrances, escape gates, small culverts and a bridge.

The Ella Bay Road upgrade has been designed to utilise the existing road clearing with additional clearing requirements minimised or modified to retain as many of the mature trees and road canopy connectivity as possible.

An extensive revegetation and weed control strategy will mitigate the visual impacts post road construction. The revegetation strategy will include vegetating the embankments and gabion rockwalls with native plants to further reduce visual impacts from the sea and coastline.

The sealing of the existing road with bitumen and the removal of weeds from verges is expected to enhance the scenic value along the road alignment by decreasing the amount of dust present in the area and the removal of unattractive weeds.

It is considered that the social benefits to be gained by greater access to the site, such as providing new and regulated access to the WTWHA and greater views of the GBRWHA (a public viewing section, that is, lookout, is proposed near Heath Point), outweigh any negative visual impacts of the development and access road.

The proponent’s commitments relating to the protection of scenic values and visual amenity include:
- ensuring no building exceeds the height as set out in the Ella Bay development local area plan and screening with native vegetation. External finishes will be non-reflective and of dark tones, selected to match and blend with the existing and proposed vegetation. Development will be limited on elevated sections of Ella Bay
- implementing the revegetation staging plan prior to the commencement of each development stage. Landscaped areas will be planted with species that are native and occur locally around Ella Bay
- implementing ‘black sky’ lighting (that is, no up-lighting) for the development and access road
- shielding external lighting in environmentally sensitive areas within the development to limit extraneous light where necessary or facing it away from coastal and habitat areas
- preparing and implementing the Ella Bay Road construction management sub-Plan prior to the commencement of construction works. The plan will include measures to screen embankments and cuttings with native vegetation, conserve mature trees where possible and a detailed monitoring and reporting regime for both the construction and operational phase.

The Coordinator-General was satisfied that the potential for the project to impact on the surrounding area, including views from the GBRWHA and WTWHA, can be adequately managed through the mitigation measures and commitments and strict controls over the built form in the development site and the access road. However, the Coordinator-General stated a condition in the Report to ensure the visual impact of the development is minimised to the greatest extent possible.

1.5.9 Sustainability

The SEIS discusses how the Ella Bay development will achieve the key objectives of ESD. These are discussed briefly below. The EIS and SEIS emphasise the proponent’s willingness to embrace the basic principles of ESD for all aspects of the Ella Bay development. The proponent’s other commitments include numerous sustainability measures to meet the following objectives:
- greater community wellbeing and identity
- education of and involvement in environmental protection and management
- promote cultural heritage
- local economic development and employment growth
The proponent has adopted measures that would promote the implementation of a high degree of sustainable development outcomes. The Coordinator-General stated a condition in the Report to ensure that sustainable development measures are incorporated into the detailed design of the Ella Bay development.

1.5.10 Waste, waste water and other services

1.5.10.1 Waste management

Detail of the proposed waste management strategy for the Ella Bay development is included in the SEIS. The proponent has committed to prepare a detailed waste management and minimisation sub-plan as part of the EMP. The plan will address both construction waste and operational waste. It is also noted that the proponent has committed to manage waste from the site in accordance with the Environmental Protection (Waste Management) Regulation 2000.

The EIS documentation indicated that there will be an emphasis on recycling of waste materials thereby minimising the need for movement of waste offsite by CCRC or a contractor waste collection service.

The SEIS indicated that sludge from on-site sewage treatment will be required to be transported off-site to landfill or re-use and this will be undertaken in accordance with relevant legislative requirements.

Some of the proponent’s other proposed mitigation measures include:

• waste avoidance, minimisation, re-use and recycling principles to be used wherever possible
• organic waste processing (potential compost and worm farm)
• no disposal of hazardous wastes on the site
• wastes to be segregated in a waste collection area to assist in recovery and recycling.

1.5.10.2 Wastewater/recycled water

The GBRMPA has recommended that there be no direct discharge of waste/recycled water to the ocean or creeks. The EIS documentation proposes two treatment plants within the Ella Bay development site as the most viable and sustainable treatment option for the proposed scale of development. Wastewater (greywater and blackwater) will be collected from households and resort and commercial premises via a reticulated low infiltration sewerage system. The collection system will drain to eight sewage pumping stations which will be strategically placed through the precincts. All premises in Ella Bay will be connected to the reticulated sewerage system. The wastewater will be pumped to the two treatment plants. Treated water will be pumped from balancing storage tanks directly into the distribution system. Water that cannot be used immediately will be directed to two seasonal storages located within the Village Precinct and between the northern and western residential areas. The proposed seasonal storages include a combination of covered tanks and covered and uncovered lagoons. Service reservoirs will need to be developed.

The proponent is considering one of the following possible alternative sewerage systems which would be suitable for the Ella Bay development:

• a low infiltration ‘smart’ gravity sewerage system using plastic pipes and access chambers rather than conventional pipelines and concrete manholes
• vacuum sewerage (particularly well suited to very flat sites with high groundwater levels).

These options will be assessed and determined at the detailed design stage.

The sewage treatment plants will require approval from DEHP as an ERA (ERA 63—sewage treatment) and as such will require a development approval for a MCU. Detailed design of, and operation and management procedures for, the water recycling plants and sewerage system must be included as part of the ERA application.

The plant will be designed to minimise its footprint, for example, membrane bioreactor (MBR) technology, which the GBRMPA has indicated is considered ‘best practice’ for these package plants, is proposed to be used to provide a small plant footprint and high quality treated water for reuse. The GBRMPA has advised that
MBR plants are successfully operating at Picnic Bay on Magnetic Island, and Horseshoe Bay, Cleveland Bay and Mount St John in Townsville. Treatment residuals will be thickened on-site and then transported off-site for disposal or reuse depending on existing opportunities in the region.

A verification process will also be undertaken to ensure that the recycled water plants are capable of consistently producing class A+ recycled water. The potential impacts of odour and noise from the treatment plants will be assessed as part of the development application. However, plant noise will be managed through the choice of equipment, for example, submersible motors rather than surface mounted, the use of acoustic enclosures for particularly noisy equipment such as compressors or, if the plant is in a building, ensuring that the building has appropriate acoustic insulation.

As noted above, the Ella Bay development proposes to use recycled wastewater for:

- toilet flushing
- cold water laundry
- external uses such as car washing and garden watering
- irrigation of golf course and public open space
- fire fighting.

DEHP and the GBRMPA have agreed there does not appear to be a significant risk of environmental harm to the existing quality of the groundwater and the surface water (which has the potential to reach the GBRWHA), associated with the reuse of treated effluent from the wastewater treatment plant, if strict controls are maintained, all conditions met and monitoring is undertaken. At the request of the GBRMPA, the ERA condition includes a requirement for an EMP to be developed and implemented by the proponent to address the situation where the treatment plant’s wet weather storage capacity has been exceeded.

1.5.10.3 Stormwater management

Following review of the EIS and SEIS a number of agencies raised issues in relation to stormwater runoff from the site and its effect on water quality in the GBRWHA. The Coordinator-General recognised that unless appropriately managed, the development could impact on the marine waters adjacent to Ella Bay and the access road by potentially discharging sediment, nutrients, other chemicals and litter. This in turn has the potential to impact marine species in these waters, such as fish, dolphins and turtles. However, the proponent has committed to design and implement the project to avoid impacting water quality.

1.5.10.4 Development site wastewater

The proponent has committed to ensure discharge from the development will be managed to meet designated water quality objectives, including those of the Reef Water Quality Protection Plan 2009, through a number of measures including:

- erosion and sediment control plans (ESCP)
- water sensitive urban design (WSUD)
- ‘best practice’ golf course environmental management
- no development, with the exception of walking paths and some facilities like lifesaving structures, within the approved erosion prone area for the site
- no septic tanks
- no direct discharge of treated sewage to the marine environment.

With the use of ESCP and WSUD systems for the development and access road, potential impacts on marine habitat and fauna within Ella Bay, from the development impacts, in particular surface water sediment discharge, are expected to be neutral.

1.5.10.5 Access road - wastewater

The Coordinator-General noted the proponent committed to prepare a construction management plan which will cover all aspects of the Ella Bay Road construction including:

- site preparation
- clearing and earthworks
- drainage.

Current environment

Reduction in sediment and pollutants is a significant issue for the existing road alignment due to the surrounding Ella Bay and GBRWHA. The EIS indicated that the current situation is as follows:

- unsealed drains and cracked culverts
- flooding both north and south of Heath Point during intense rainfall events
- no treatment of road runoff
- undersized concrete pipe culverts
- presence of gross pollutants.

The primary sources of sediment and areas of erosion are the table drains and the unsealed road itself. Runoff from the unsealed road generates high loads of sediment and suspended solids which combine on the discharge side of the culvert with the cleaner Wet Tropics WHA flows. The high sediment load in the...
creeks is pushed downstream sufficient to smother the base of 
stream beds with 20 to 30 mm of fine silt approximately 30 
metres from the GBRWHA.

Proposed management during construction
As noted above, the proponent committed to use environmental 
erosion and sediment control best practice measures along the 
road alignment during the road construction to minimise the 
amount of suspended, dissolved solids and construction 
pollutants entering the watercourses. This includes the 
preparation of erosion and sediment control plans (ESCPs) for all 
phases of construction and land disturbing activities including 
each discrete catchment area.

Proposed management following construction
While management procedures are not yet finalised, for drainage 
from the west of the road, the proponent proposes the following processes:

- to catch gross pollutants and transfer runoff without mixing 
  with roadside contamination
- runoff from the rainforest will be collected in table drains and 
  transported to culverts
- different topographical areas will require different roadside 
  drainage structures.

The drainage on the eastern side of the road alignment will vary 
depending on location and will include:

- first flush will be treated within the bio retention swale with 
  excess flow overflowing the swale to the eastern vegetation
- the swale will consist of short lengths of 20 to 50 metres of 
  vegetated bio retention pit with a drainage pipe collecting 
  the seepage and discharging the filtered water into the 
  adjoining vegetation
- the collection area of the swale will have rock check dams to 
  increase the residence time of the storm water.
- the distance of the swale from the side of the road will allow 
  grasses and other vegetation to aid the filtration of runoff.

Heath Point Park to north of Wet Tropics WHA:

- stormwater from the road surface will be channelled by 
  asphalt kerbs into batter chutes, where required to direct the 
  flow to the lower level rocks to minimise erosion
- asphalt kerbs will drain frequently with turn outs positioned 
  according to gradient in order to reduce the potential for 
  erosion
- due to the difficulty with the terrain and distance from the 
  town no gross pollutant capture will be installed around

Heath Point except at the proposed lookout carpark

- at the two ephemeral streams, vegetated bio retention 
  swales will be installed leading into the creeks on both sides 
  of the road and will provide a pollutant removal mechanism 
  by bio filtration, enhanced sedimentation and particle 
  adhesion
- the rock filled gabion wall at the discharge into the creek will 
  be used as part of the bio retention basin.

North of Wet Tropics WHA to Ella Bay:

- stormwater will be treated with bio retention swales as 
  described in Flying Fish Point to Heath Point section above, 
  except where the road is still elevated around the headland
- part of this section will also discharge from the road 
  pavement and be treated as per the Heath Point Park to 
  north of Wet Tropics WHA section above.
- bio retention swales will lead into the permanent streams.

As noted above, EMPs will be implemented for construction and 
road works to ensure the quality of water leaving the site during 
these periods is acceptable and that it is managed and monitored 
at all times. Post construction should see a significant reduction 
in the overall existing sediment load to creeks, adjacent wetland 
areas and the Reef Lagoon and ultimately the GBRWHA, having 
minimal effect on potential marine fauna.

The potential for the Ella Bay development and the construction 
of the access road to impact water quality in the GBRWHA 
(adjacent to the site) can be adequately managed through the 
mitigation measures and commitments in the EIS and 
subsequent documents, and the construction and operational 
EMPs. The Coordinator-General has stated conditions in the 
Report to ensure the appropriate management of marine water 
quality.
1.6 Program effectiveness

Under the SDPWO Act, developments deemed to be ‘significant projects’ by Queensland’s Coordinator-General are subject to a rigorous assessment process that requires the proponent to prepare an EIS. The SDPWO Act facilitates coordination of this process through provision of terms of reference and other guidance to proponents carrying out the EIS.

The EIS process is considered to be a thorough and very effective process for managing potential impacts to MNES including OUV. The requirements for development proponents to undertake detailed investigations on the impacts of their proposals, and the evaluation of proposed management responses to those impacts, provides a rigorous and transparent process to avoid impacts to MNES including OUV, or mitigate and offset impacts where they cannot be avoided.

In evaluating the EIS provided by the proponent of the Ella Bay Integrated Resort project, the Coordinator-General gave consideration to the EIS and SEIS prepared for the project, submissions on the EIS and SEIS, and the additional information document.

As a result of the EIS process for the Ella Bay Integrated Resort project and evaluation by the Coordinator-General, the proponent is required to implement a variety of management strategies to mitigate potential construction and operational related impacts on fauna, flora and communities. These include an offsets strategy, EMPs, protected area management and species-specific management sub-plans. Management sub-plans have been developed for the cassowary, stream-dwelling rainforest frogs, spectacled flying-fox, marine turtles and significant flora. These sub-plans identify impacts of the development on these fauna and flora and provide a number of strategies to manage or mitigate these impacts.

Through an evaluation of the strategies and sub-plans proposed by the proponent, the Report provides the required information for the Environment Minister to make an EPBC Act decision. This demonstrates how the EIS process satisfies the requirements of the assessment bilateral agreement that exists between the Australian and Queensland governments, and the effectiveness of the agreement in approving controlled actions.

The EIS process undertaken by the proponent and its evaluation by Queensland’s Coordinator-General and the Environment Minister has also provided several positive outcomes for the Ella Bay property. These include an expected net increase in essential cassowary habitat of approximately 238 hectares, full fencing for each precinct and all internal roads, and dedicated facilities for research including a cassowary research station. It is considered that increases in cassowary habitat, the return of land to national park, offsets arrangement proposed by the proponent, and environmental management plans have the potential to improve the condition of MNES in the area.

As a result of the EIS process it is thought that should the project proceed, the condition of MNES including OUV would be relatively similar to predevelopment condition. In some respects, it could be concluded the condition of MNES would have improved as a result of offsets arrangements, environmental management plans and strategies that the project proponent is required to undertake.

As individual aspects of Queensland Government’s planning and development assessment framework are improved these improvements will be incorporated in decision-making through the EIS processes. Similarly as our knowledge of impacts and mitigation strategies improves such information will be able to inform development practices and reflected in project conditioning where appropriate.

This demonstration case has highlighted the additional measures that were implemented to ensure MNES including OUV were taken into account throughout the process to an acceptable level.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Effectiveness</th>
<th>Confidence</th>
<th>Trend</th>
<th>Comments</th>
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<tr>
<td>Demonstrated ability to identify MNES including OUV</td>
<td>Very effective</td>
<td>Green</td>
<td>▲</td>
<td>The EIS process provides a thorough means of identifying MNES and OUV</td>
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<tr>
<td>Demonstrated ability to assess impacts</td>
<td>Very effective</td>
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<td>▲</td>
<td>The ability to identify MNES and OUV through the EIS process means that the proponent and the Coordinator-General are able to avoid impacts wherever possible.</td>
</tr>
<tr>
<td>Effectiveness in avoiding impacts</td>
<td>Very effective</td>
<td>Green</td>
<td>▲</td>
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</tr>
<tr>
<td>Effectiveness in mitigating impacts</td>
<td>Very effective</td>
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<td>▲</td>
<td>Commitments made by the proponent and the conditions placed on the project by the Coordinator-General allows impacts to be effectively mitigated.</td>
</tr>
<tr>
<td>Effectiveness in offsetting unavoidable impacts</td>
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<td>Green</td>
<td>▲</td>
<td>The EIS process provides an effective mechanism to offset unavoidable impacts.</td>
</tr>
<tr>
<td>Contribution to enhancement of MNES including OUV and management of existing pressures</td>
<td>Very effective</td>
<td>Green</td>
<td>▲</td>
<td>Through the use of offsets, environmental management plans, pest management strategies and proponent commitments the project will contribute to the enhancement of MNES and OUV in the longer term.</td>
</tr>
<tr>
<td>Demonstrated ability to adapt system over time to incorporate new knowledge</td>
<td>Very effective</td>
<td>Green</td>
<td>▲</td>
<td>Monitoring requirements and environmental management plans provide processes to ensure that the management strategies can adapt over time to mitigate new threats and implement improved practices.</td>
</tr>
<tr>
<td>Resourcing, monitoring and compliance</td>
<td>Very effective</td>
<td>Green</td>
<td>▲</td>
<td>The Coordinator-General places conditions on the project to ensure that development occurs in a responsible manner.</td>
</tr>
<tr>
<td>Overall effectiveness</td>
<td>Very effective</td>
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<td>▲</td>
<td>Overall the EIS process is considered to be very effective</td>
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1.7 Information Sources

A copy of the EIS and the Coordinator-General’s report which are referred to throughout this demonstration case are available from http://www.dsdip.qld.gov.au/assessments-and-approvals/ella-bay-integrated-resort.html.


