ELLA BAY
Far North Queensland

Ella Bay Integrated Resort Proposal

SEIS Submission Response

Volume Seven

Drawings

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EBR1CE-DD70	ELLA BAY ROAD PROPERTY TENURE

The Ella Bay Integrated Resort Development is located on the Cassowary Coast of Far North Queensland. The development will be sited on a 470-hectare agricultural property that lies approximately 97 km south of Cairns and 8.5 km north of Innisfail .

Ella Bay Development is isolated between two World Heritage Areas (WHA) - the Wet Tropics Queensland WHA, and the Great Barrier Reef WHA

Ella Bay commands a distinctive position in the midst of superlative examples of World Heritage: tropical rainforest and wetlands of the Wet Tropics are found north, west and south, and the Great Barrier Reef lies off the foreshore to the east.

Contained within Ella Bay National Park is the Nationally Significant Wetland, Ella Bay Swamp. Its southern most tip enters the Ella Bay property in the north east corner.

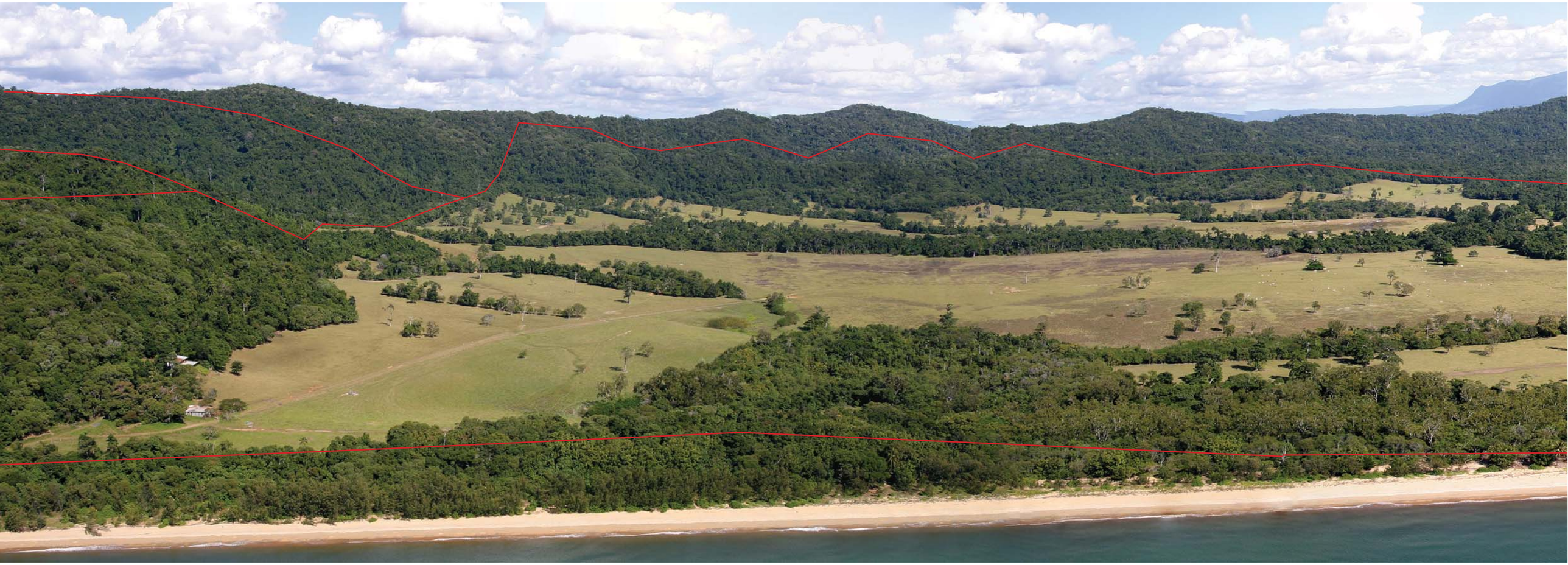
The surrounding areas were proclaimed World Heritage Areas in 1988, however Ella Bay property was deemed sufficiently degraded not to be included.

Ella Bay property was cleared by 1902 and 241 ha of the 470 ha area remains cleared today.

The thin riparian areas that cross the site were cleared and are either non remnant or regrowth classified as remnant

The Ella Bay Development will be sited predominately on the existing cleared areas.

Less than 1 ha will be required to be cleared for road access, constructed wetland discharge and lot location.



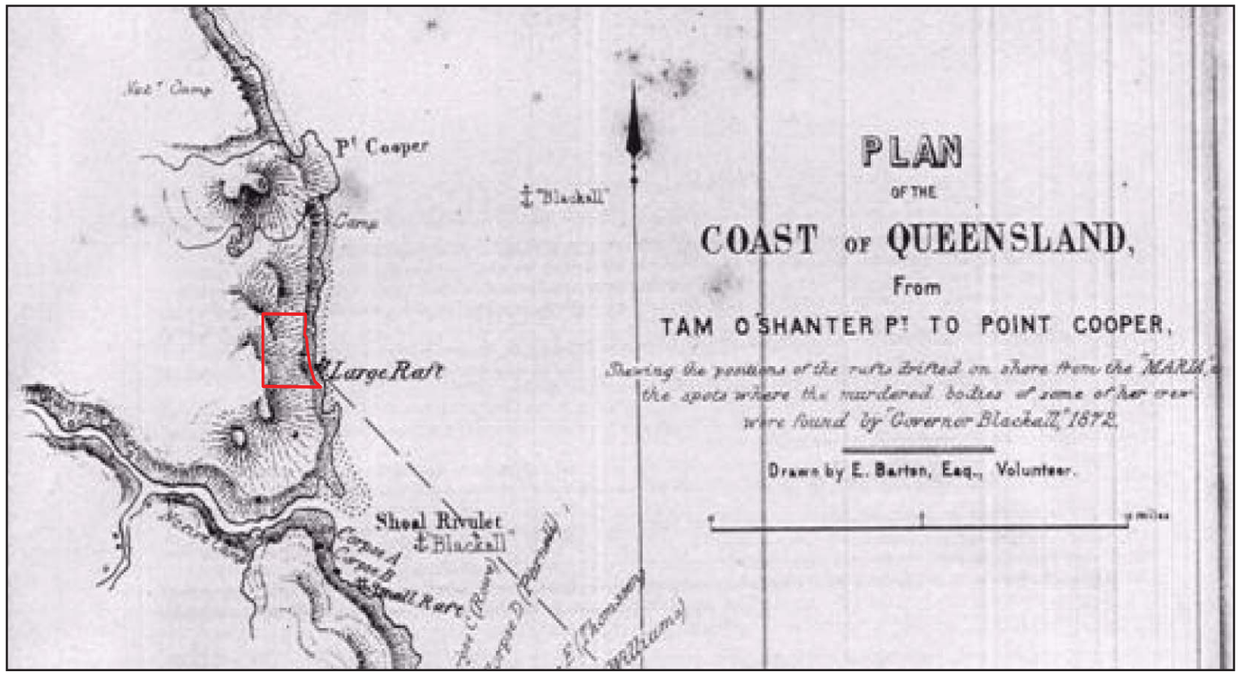
Ella Bay property boundary is shown diagrammatically by the red line.

The Northern area abuts the WTWHA (Ella Bay National Park) and is relatively intact rainforest and ephemeral wetland; with the Ella Bay Swamp wetland on the North East (out of picture).

The Eastern boundary (foreshore) abuts an Esplanade. This area contains a dunal swale and is degraded with Pond Apple infestation.

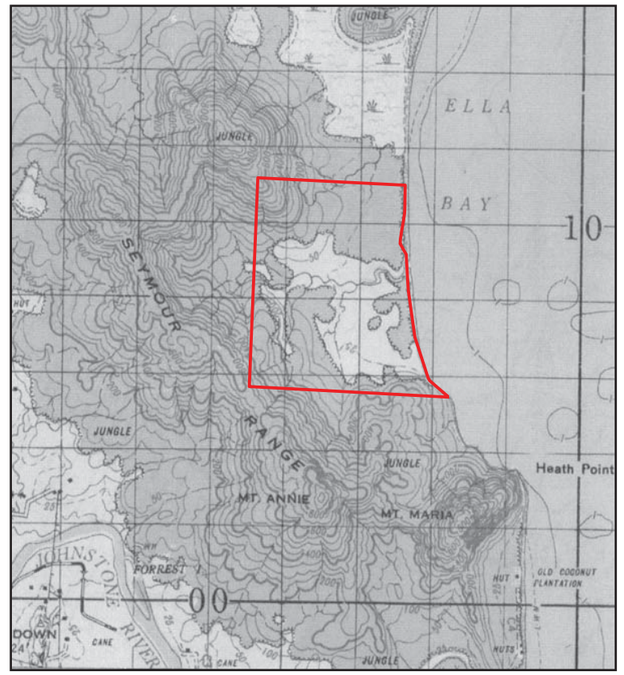
The Southern boundary abuts the Little Cove property, WTWHA (Ella Bay National Park) area and WTWHA on freehold property to the West.

The Western boundary abuts the WTWHA (Ella Bay National Park).



1872 - Large Raft Landing from the Maria

1883 - Surveyor General's Office Brisbane Queensland



1943 - Topographic Army Map Mus-

AGRICULTURE IN THE NORTH.

ELLA BAY AND THE TULLY RIVER.

TOWNSVILLE, Thursday.

Mr. E. B. Wareham, Queensland inspector for the Adelaide Steamship Company, returned on Tuesday from a trip to the various producing and exporting centres north of Townsville. In the course of an interview, he gave particulars of developments at Ella Bay, a few miles north of the Johnstone River. Twelve months ago the place was covered with scrub; now there is an export trade of 1000 bunches of bananas and five tons of maize weekly. It is expected that early next year these exports will be increased to over 2000 bunches of bananas weekly. The Chinese have leased about 500 acres of land there, and they are to be cultivators of the soil. A jetty has been erected, and everything points to the growth and importance of the place, due entirely to Chinese industry.

The Brisbane Courier 1903

First contact came to the Wanjuru clan with survivors of the wreck of the Maria in 1872, near the creek mouth of Ella Bay property, followed by survey and subdivision of the property within 10 years (1883 Surveyor Generals Office map).

A BANANA SETTLEMENT.

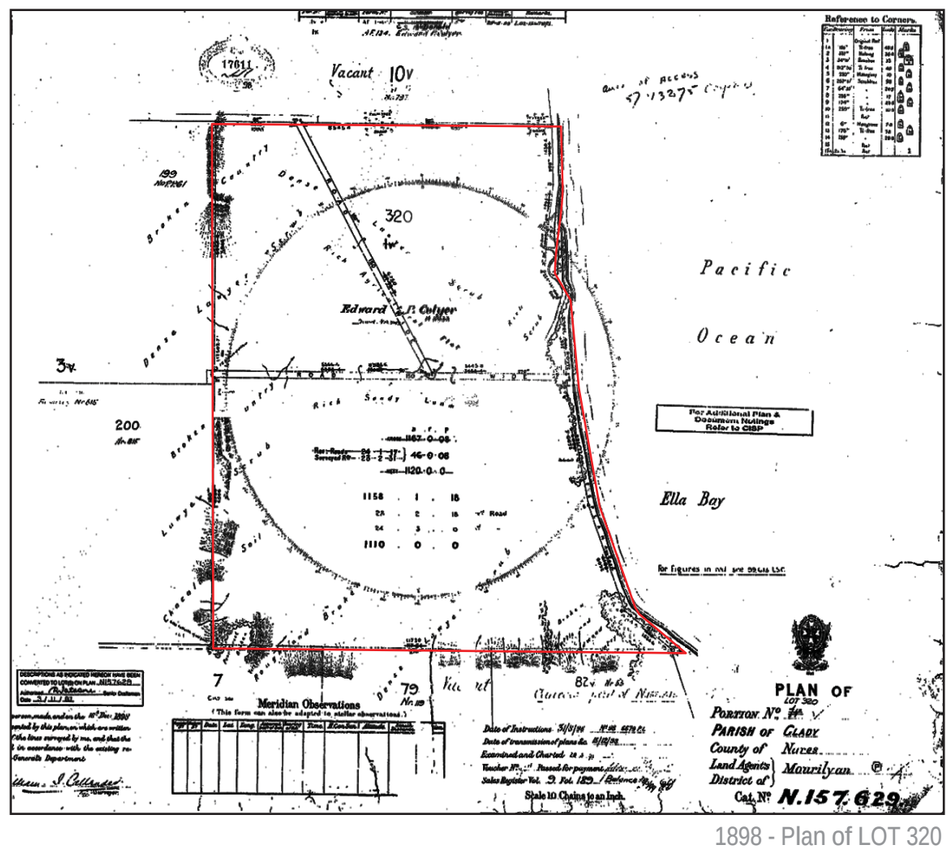
Quite a little settlement has sprung up at Ella Bay, three miles north of the Johnstone River, says the Cairns "Post." Mr. Robinson took up a lot of land there some time ago, and enhanced its value considerably by constructing a pier 340 ft. long. At this secures 6 ft. 6 in. of water at low tides, small coasting steamers are available, and a large shipping trade in bananas, &c., is tolerably certain to eventuate. Mr. Robinson has leased a quantity of land to Chinese and he estimates that there are already 100 men at work.

Morning Bulletin Rockhampton 1903

By 1903 the property was cleared, with newspapers of the day reporting 100 men transforming the property into one of the major banana producing areas in the north.

The 1943 survey shows the extent of the clearing with the lower sections of all creeks cleared.

Whereas the 1898 survey shows that the current property features such as the location of the creek and shoreline match the existing locations.



1898 - Plan of LOT 320

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DBI LANDSCAPE

DRAWINGS
8 DECEMBER 2011

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LEGEND

RIPARIAN ZONE SETBACK
- WETLAND
- STREAM ORDER 1,2
- STREAM ORDER 3,4

SETBACK FROM CONSERVATION ZONE A
- 100 m
- 300 m

ENDANGERED & OF CONCERN VEGETATION SETBACK
- 50 m

EROSION PRONE AREA SETBACK
- OFFSET EROSION PRONE

FAUNA CORRIDOR
- 100 m (minimum)
- ELLA BAY SWAMP
- WATER COURSE

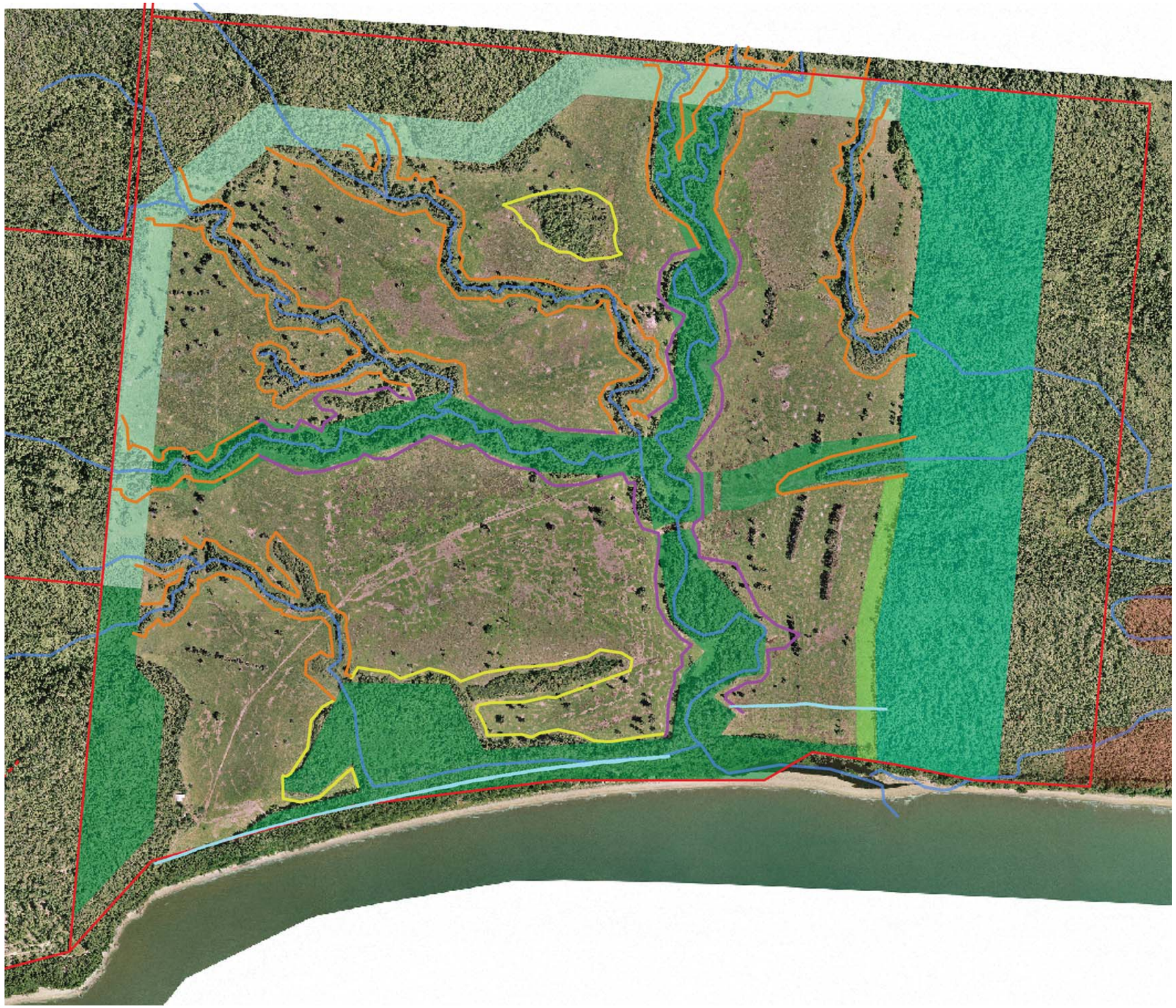
The Ella Bay Development site footprint will be constrained by consideration of habitat protection and connectivity, erosion prone area, and inundation level including climate change .

The main focus will be to establish 100m wide North-South and East-West fauna Corridors that will assist cassowary movement through the site.

The development will be setback from the coastal management district. The erosion prone area has been evaluated at 200m on the northern resort and 80m for the central and village resort areas.

The Riparian Zone Setbacks have been determined in accordance with the Regional Vegetation Management Code for Coastal Bioregions (DERM 2009), and the waterway envelope design methodology.

The areas within the waterway envelope and 100m setbacks to National Park will be revegetated with site endemic vegetation.



LEGEND

- CRITICALLY ENDANGERED (EPBC) & ENDANGERED (VMA)
- CRITICALLY ENDANGERED (EPBC) & OF CONCERN (VMA)
- OF CONCERN (VMA)
- NOT OF CONCERN (VMA)
- NON REMNANT (VMA)
- VEGETATION TO BE CLEARED (AREA - 0.95 ha)
- COMBINED CONSERVATION ZONES

The 470 hectares of predominantly cleared, degraded land will require significant weed control, remediation and rehabilitation.

The vegetation was surveyed in 2006 and again in 2009 to identify regional ecosystems.

The narrow riparian corridors have been negatively impacted upon initially as a result of clearing, past agricultural practices and repeated cyclone damage. In some places the riparian regrowth has reached remnant status as depicted by the “of concern” status of the East-West creek, whereas other creek lines still have non-remnant status

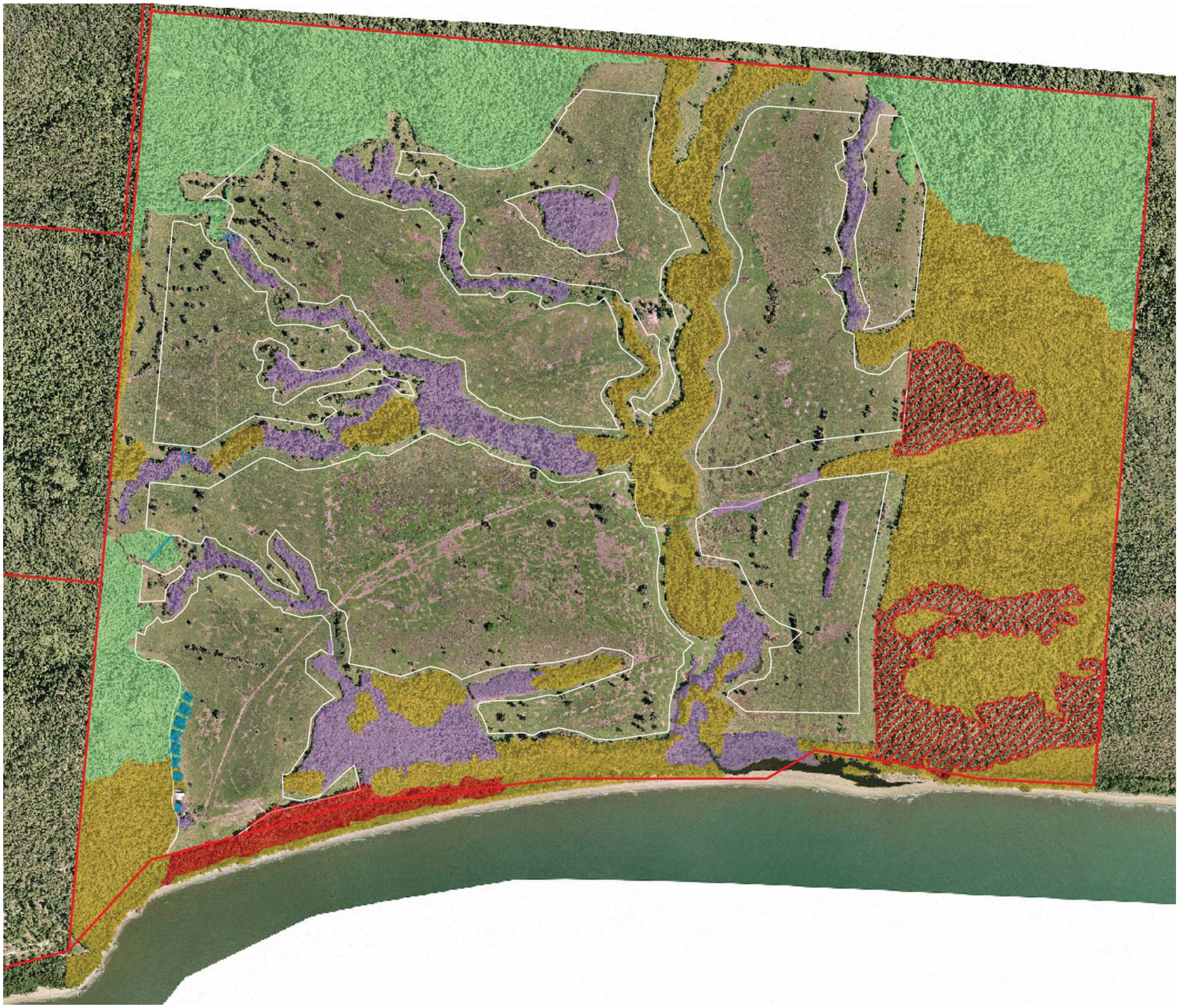
In the South-Eastern corner the coastal vegetation has regrown and is now recognised as Critically Endangered Littoral Rainforest (EPBC).

Proposed clearing will result in less than a hectare of vegetation being removed:

Of Concern - 0.25 ha
Not of Concern - 0.6 ha
Non Remnant - 0.1 ha

The clearing will be required

- for creek crossings: existing clearings will be used where available;
- constructed wetland and bioretention filter discharge (too small to be shown on mapping); and
- for lot location on the south east corner adjacent to the existing house.



LEGEND

CONSERVATION ZONE

ZONE 'A'	(OFFSET TO NP)	62.8 ha
ZONE 'B'		67.8 ha
ZONE 'C'		87.3 ha
ZONE 'D'		58.9 ha
ELLA BAY SWAMP		
WATER COURSE		

Environmental management of Ella Bay will be controlled by four conservation zones.

Practically all of the existing vegetation will be under conservation, including habitat essential to the endangered Southern Cassowary and stream dwelling rainforest frog species. Endangered vegetation communities such as the Littoral Rainforest and Coastal Vine Thickets will have long lasting protection through conservation covenant.

Zone A - National Park - This high integrity land will be offset to be incorporated into Ella Bay National Park.

Zone B - Nature Conservation - This area will be adjacent to and border Zone A and serve as a 100m buffer to Zone A on the west, and 300m buffer to Zone A in the North.

Zone C - Fauna Corridors - This area will provide contiguous habitat connectivity across the site and provide a setback to the National Park. The minimum corridor width will be 100m.

Zone D - Setbacks & Buffers - These areas will provide a setback from the riparian border of identified watercourses, 50m vegetation setback in the north-east to (Zone B) and a 20m easement through Zone C to connect the precincts.

LEGEND

REVEGETATION AREA	50.3 ha
VEGETATION REHABILITATION	64.3 ha

The initial clearing and subsequent weed infestation have not been kind to the vegetation of the Ella Bay Property: extensive rehabilitation and revegetation will be required to restore the aesthetic nature and to eliminate weed risk to the WTWHA.

This mapping illustrates the extent of the revegetation required in particular along the riparian fauna corridors to widen for fauna movement and alleviate the existing edge effects.

The species selection will focus on growing a diverse range of endemic native lowland fruit producing tree species to help increase the available food resources and carrying capacity for the ongoing survival of local cassowaries. The species will be of local provenance, predominately collected at Ella Bay Property, and propagated as tube stock to improve the chance of survival.

Over a century of agricultural use has introduced a significant weed problem. Rehabilition will be required on nearly all areas of riparian and coastal vegetation. Significant stands of Pond Apple (Annona glabra) are evident in the fore dune area including the critically endangered Littoral Rainforest, and to a lesser extent along creek lines. Rehabilitation will incorporate the removal and control of this weed, followed by plantings of species specific to the surrounding vegetation communities.

LEGEND

- REVEGETATION STAGE A
- REVEGETATION STAGE B
- REVEGETATION STAGE C
- REVEGETATION STAGE D
- REVEGETATION STAGE E
- REVEGETATION STAGE F
- WETLAND REVEGETATION

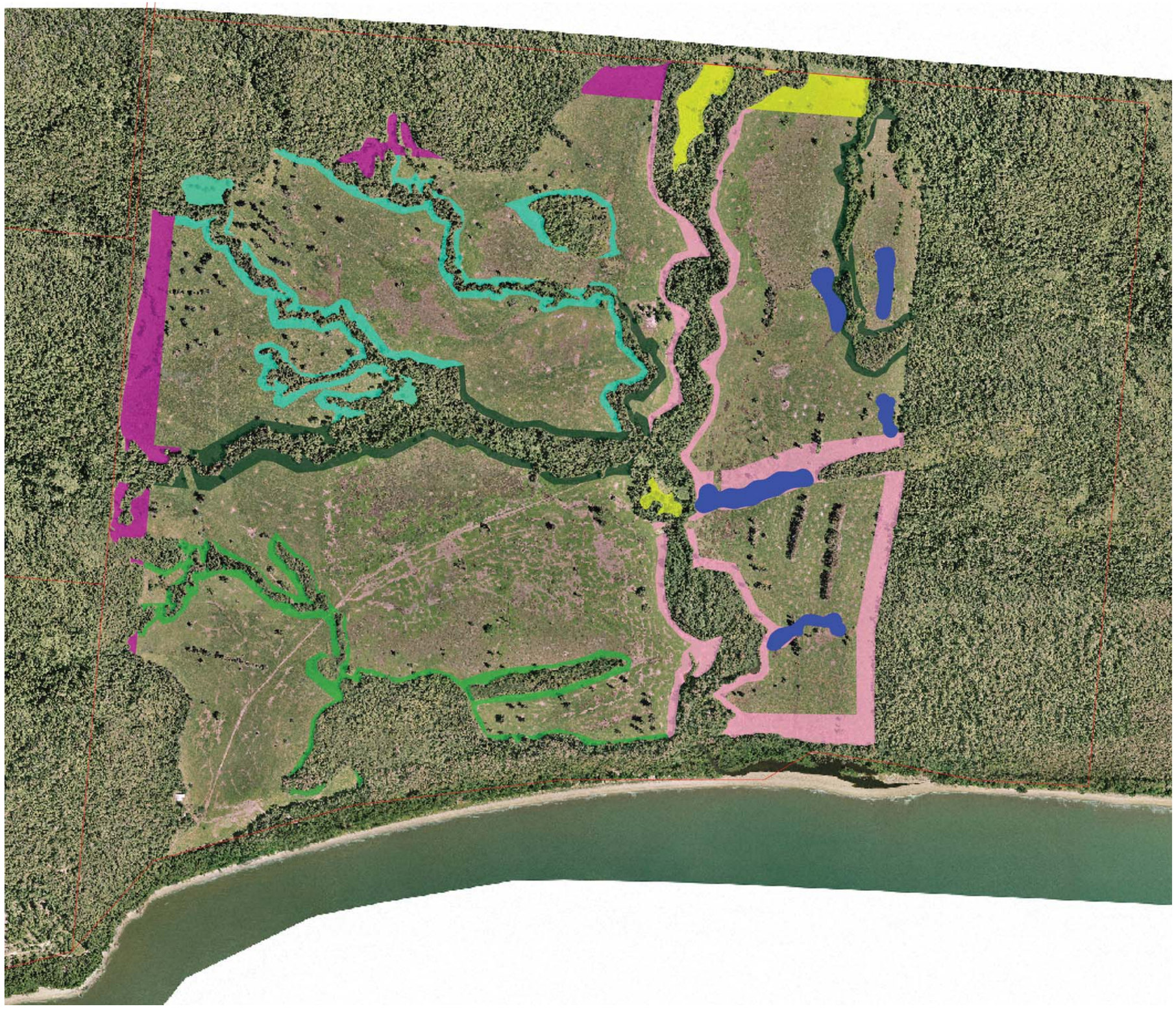
The revegetation staging of Ella Bay Development has been designed to ensure that vegetation will be established prior to construction. The goal is to have revegetation of the fauna corridors sufficiently advanced such that the net cassowary fruit production will be in excess of any temporary habitat isolation.

The revegetation program will initially concentrate on establishing the East-West and Northern fauna corridors, followed by establishment of the constructed wetlands.

The revegetation of the 100m buffer to the WTWHA western and southern boundaries will follow shortly afterwards, providing vegetation and cassowary fruiting trees early on in the project.

A 10,000 tree trial planting of a cassowary specific orchid has been completed in the North West to assist in understanding the impact of cyclones, determine the rate of growth and time to fruiting.

The constructed wetlands for the Northern Precincts will be started during revegetation stage B. The Constructed wetlands will take 18 months to establish after planting to effectively remove nutrients and perform to specification.



LEGEND

- CASSOWARY ACCESS - BRIDGE
- CASSOWARY ACCESS - CONTROLLED VEHICLE AREA
- FENCED AREAS
- VEHICLE BRIDGE

Ella Bay will implement best practice in sustainable ecologically sensitive development.

The precincts will be perimeter fenced to prevent interaction between cassowaries and humans, and unrestricted human access into conservation areas. The roadways will be included within the precinct fencing to eliminate cassowary road trauma. The creeks will be crossed by elevated bridges (cassowary underpasses) to provide fauna habitat connectivity throughout the site to all Open Space/Recreation and Conservation areas.

Only three secondary internal roads with low volume, controlled low speed traffic will traverse open space unfenced.

The result is that extensive areas of open space and conservation covenant will allow free fauna movement illustrated by the yellow & orange arrows to all areas of the site external to the fenced precincts . A total of 336 ha will be available within the Open Space/Recreation and Conservation areas.

LEGEND

PRECINCT AREA 132.0 ha

BEACH ACCESS

The Ella Bay Integrated Resort Development will consist of resort and residential housing, resort villa housing and multiple dwelling units as well as resort accommodation facilities, village services and infrastructure.

The Ella Bay community will comprise a maximum of 1,400 dwellings (860 units/villas and 540 residential lots). Three resort precincts will be located along the coastal strip with four residential precincts located to the west.

The focus of the community will be the Ella Bay Village which will form the community centre and heart, providing for the convenience retail needs of the visiting and resident population and a vibrant café and restaurant lifestyle, along with retail facilities, business and professional services.

Additionally a community recreation centre, free public pool, a sports centre, small church, an International School, research facilities for Sustainable Development and cassowary studies, a Country Club/Golf clubhouse along with a Welcome Centre and multi storey car park are also planned.

Beach access will be provided in six locations and will be constructed for minimal disturbance to flora and fauna and no barrier to cassowary movement.

LEGEND

STAGE 1	
NORTHERN RESORT PRECINCT	13.7 ha
NORTHERN RESIDENTIAL PRECINCT	21.8 ha
STAGE 2	
CENTRAL RESORT PRECINCT	33.2 ha
STAGE 3	
VILLAGE PRECINCT	25.4 ha
STAGE 4	
SOUTHERN RESIDENTIAL PRECINCT	8.7 ha
SOUTH WESTERN RESIDENTIAL PRECINCT	16.7 ha
WESTERN RESIDENTIAL PRECINCT	12.5 ha

The precinct staging has been revised to minimise the construction intensity. The precinct staging and revegetation staging have been integrated to ensure that there will be a net positive to cassowary fruit production and to visual amenity.

Although not shown on this high level, one of the first items of construction will be the Welcome Centre for inductions and education of the workforce and the plant nursery for revegetation.

The construction will start with the spine roads and access to the Northern Precinct which will be the first precinct to be constructed. Temporary fencing will be required to exclude the cassowaries from potential harm during construction. The Northern Precinct construction will start with excavation and construction of the constructed wetlands.

The central resort precinct will follow with the golf course being started towards the end of the stage.

The stages will have some overlap with common infrastructure such as roads, and underground services being completed at the same time.

LEGEND

- RESORT/RESIDENTIAL PRECINCT
- RESIDENTIAL PRECINCT
- OPEN SPACE/RECREATION
- CONSERVATION ZONE
- PRECINCT BOUNDARY
- BRIDGE FAUNA UNDERPASS
- ROAD CROSSING
- PROPERTY BOUNDARY
- BEACH ACCESS
- CONSTRUCTED WETLAND
- BIORETENTION FILTER
- 1 COMMUNITY FACILITY & EMERGENCY SHELTER
- 2 RESORT EMERGENCY SHELTER
- 3 PUBLIC POOL
- 4 LPG POWERED GENERATOR
- 5 RETAIL AND COMMERCIAL HUB
- 6 SEWER TRANSFER PUMP
- 7 SEWER TREATMENT PLANT
- 8 GROUND WATER PUMPING STATION & STORAGE
- 9 POTABLE WATER HEAD TANK
- 10 RECYCLED WATER HEAD TANK
- 11 RECYCLED WATER STORAGE
- 12 WELCOME CENTRE
- 13 REVEGETATION NURSERY
- 14 RECYCLE CENTRE
- 15 COUNTRY CLUB
- 16 INSTITUTE OF SUSTAINABILITY/ EDUCATION FACILITY
- 17 CASSOWARY RESEARCH CENTRE
- 18 TELECOMMUNICATIONS
- 19 COMMUNITY GARDEN PLOTS

The ecological goal of the development will be to live sustainably with the minimum carbon footprint through a range of environmental design, energy and water efficiency principles. This will apply to all buildings including residential, resort, commercial and retail and include: site generated solar power with LPG generator backup, on-site water capture and treatment including: reticulated recycled water supply for non-potable uses; on-site stormwater management; energy efficient tropical building design, and environmentally-friendly transport alternatives.

Disaster management will be an important factor within the development.

- The Habitable floor level has been increased above the predicted storm surge inundation levels;
- Each Residential Precinct will have a community centre which will be designed for category 5 cyclones.
- The resort buildings will be required to include a shelter to Cyclone Rating 5 for guests and staff.

Management of services during and recovery from a disaster will be aided by the sustainability features of the development:

- each building will be required to have a tank rainwater supply;
- each building will be required to generate solar electricity;
- the backup power supply will be by distributed generators;
- all power, and water supplies will be below ground; and
- Communications will be by fibre-optic cable and 3G network.

Constructed wetlands and Bioretention filters will be used to treat the whole of catchment stormwater before discharging into the creeks. The wetlands will ensure that the hydrology will be maintained to pre-development flow regimes. The Northern Precincts will be constructed initially and is shown in detail.
It is estimated that the vegetation establishment period for the constructed wetlands will take approximately eighteen months.

Constructed Wetlands : Five constructed wetlands have been positioned to treat stormwater run-off from the majority of the development site and golf course. Wetlands process nutrients, provide settlement and filtration in addition to habitat and amenity to residents and visitors. Endemic wetland vegetation to be used.

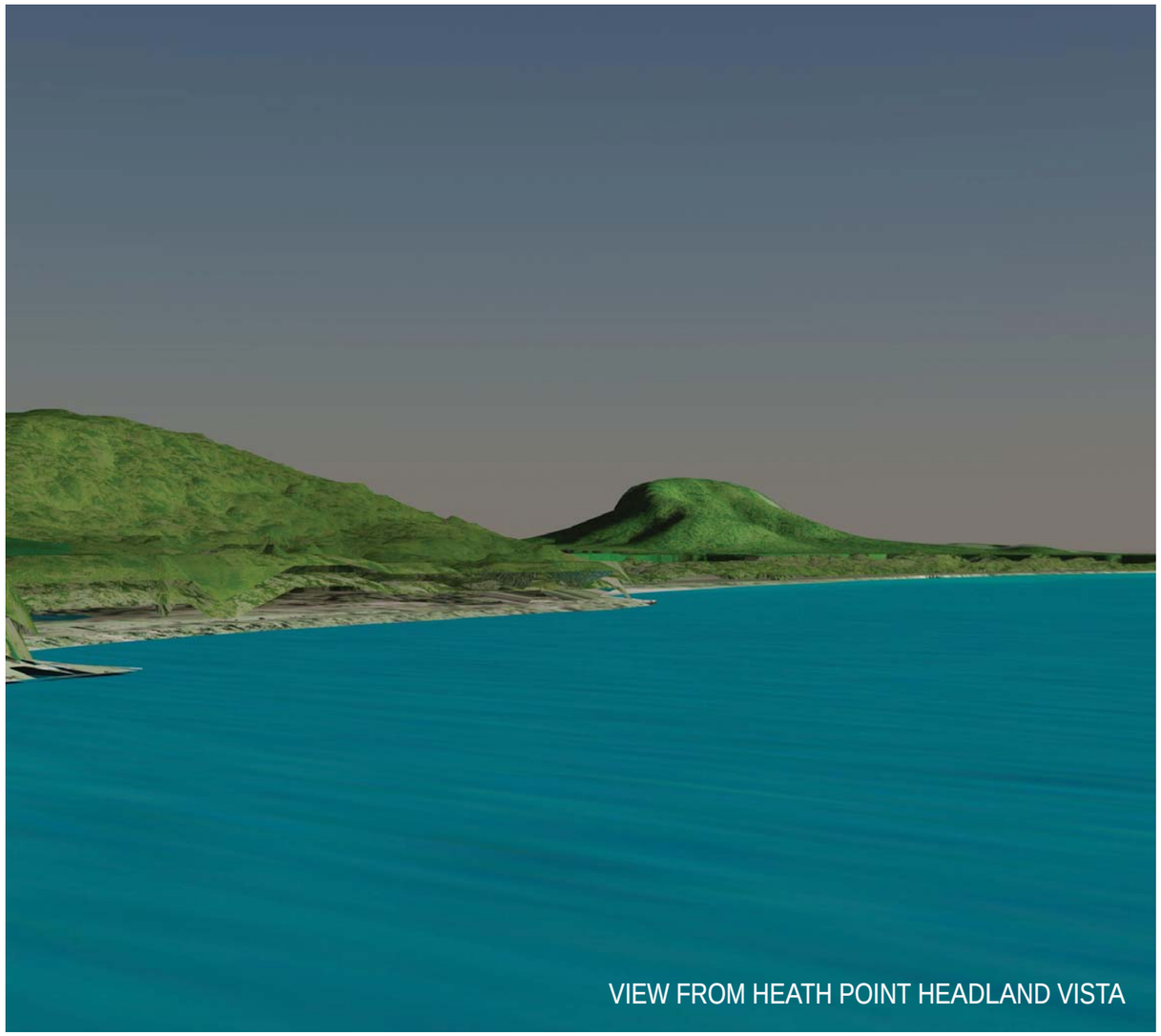
LEGEND

- PROPOSED WETLAND
- CONVENTIONAL STORMWATER DRAINAGE
- PROPOSED SWALE
- PROPOSED BIORETENTION
- PROPOSED HIGH FLOW BYPASS
- PROPOSED INLET POND
- LOW FLOW PIPE BELOW SWALE

Vegetated Swales (conveyance) : to convey runoff in lieu of traditional stormwater kerb, pits and pipes. Swales are to be integrated into open spaces, golf courses and roadways and provide treatment of stormwater. Some swales will have bioretention in the base as a trench to provide additional removal of nutrients.

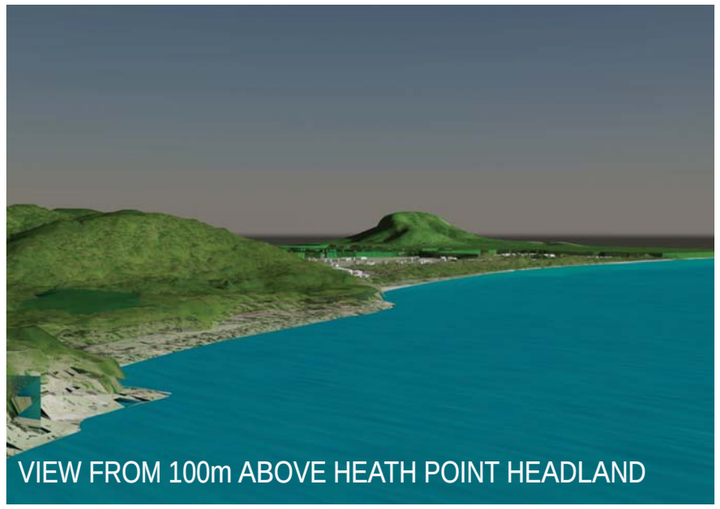
High flow bypass (conveyance) : the bypass channels around the wetlands accept and convey flows greater than the capacity of the wetland. These will be densely vegetated and promote shallow flow.

Bioretention Basin: Bioretention basins are integrated into the development as landscape features in park space or at source in the road reserves to collect runoff and percolate through a prescribed soil filtration media that is densely vegetated. The bioretention systems are to be planted with ground cover species endemic to the region.

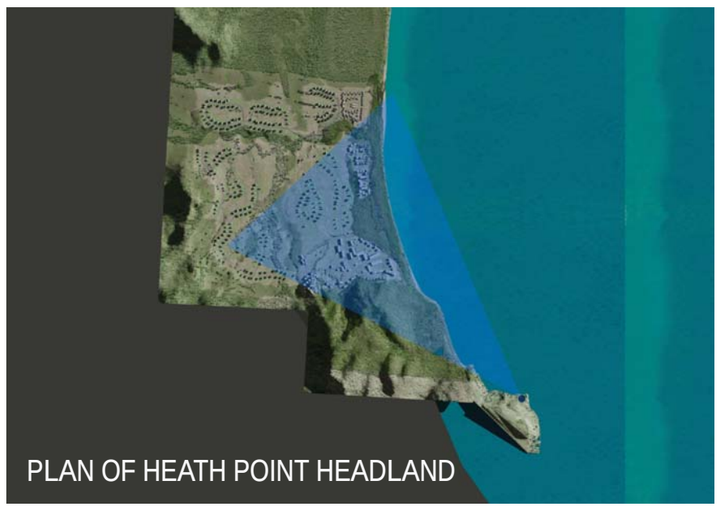


VIEW FROM HEATH POINT HEADLAND VISTA

VIEW FROM HEATH POINT HEADLAND VISTA



VIEW FROM 100m ABOVE HEATH POINT HEADLAND



PLAN OF HEATH POINT HEADLAND

The view from Heath Point Headland is of an extensive panorama of the Wet Tropics and Great Barrier Reef World Heritage Areas. A Vista Point will be provided to allow safe viewing and an opportunity to showcase the regional World Heritage Values. This viewport is from within the WTWHA looking north towards the development.

Computer modelling shows that Ella Bay Development will be screened from view.

A Visual Landscape Analysis has also been prepared to assess the visual impact of the road widening and upgrade. The report concluded that the proposed road, with incorporated visual impact mitigation measures, is unlikely to adversely affect the scenic values of the World Heritage Areas and in most cases the visual amenity will be improved through dust suppression and endemic revegetation strategies.

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Far North Queensland

DBI LANDSCAPE

DRAWINGS
8 DECEMBER 2011

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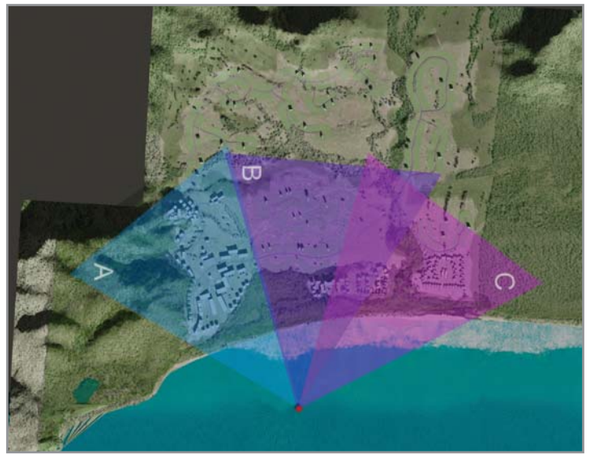


When viewed from the sea a foreshore fringe of trees of 10 to 25m high shields the cleared areas from view, and currently only the farm homestead is visible from the sea.

Ella Bay aims to fully retain the visual character of the landscape by ensuring that the built environments suitably blend into their surrounding natural environ.

The proximity and impacts of the proposal on the sensitive natural environments has been careful considered and the visual in- teraction between the built form and natural environment will need to be managed correctly. The objective for the completed development will be to enhance the scenic values through extensive revegetation, sensitive planning and design.

Computer modelling demonstrates that the Ella Bay Development will be muted in contrast and natural in appearance. Planned conservation zone revegetation and rehabilitation will screen the majority of development views leaving only temporary visibility of the upper parts of buildings and roofs while the vegetation grows. In time, the revegetation will weaken colour and textural contrasts, further reducing the visual impact.

LEGEND

- EUBENANGEE SWAMP NATIONAL PARK
- WET TROPICS WORLD HERITAGE AREA
- OFFSET PROPERTY REVEGETATION
- ELLA BAY OFFSET PROPERTY
- WATER COURSE

The Proponent has purchased an offset property of 63.6 ha located 6.5 km north-west of Ella Bay. The area was identified within the Southern Cassowary Recovery Plan as an area of key ecological function, broad movement corridors and appropriate rehabilitating habitat.

This property will contribute towards strengthening the existing minimally vegetated, narrow link between the Graham-Seymour Ranges to the North and the Eubenangee Swamp National Park to the South-West.

The property was an operating sugar farm and has been totally cleared with no remaining remnant vegetation. The property is covered in sugarcane/ fallow, pasture grass, and is seasonally inundated.

The property will be revegetated as a cassowary corridor with a maximum diversity of cassowary `attractant' fruiting species.

The on-ground property-based offset will:

- deliver real conservation outcomes;
- will be commensurate with the magnitude of the impacts of the development;
- will be within the same general area as the development; and
- will be delivered in a timely manner and be long lasting

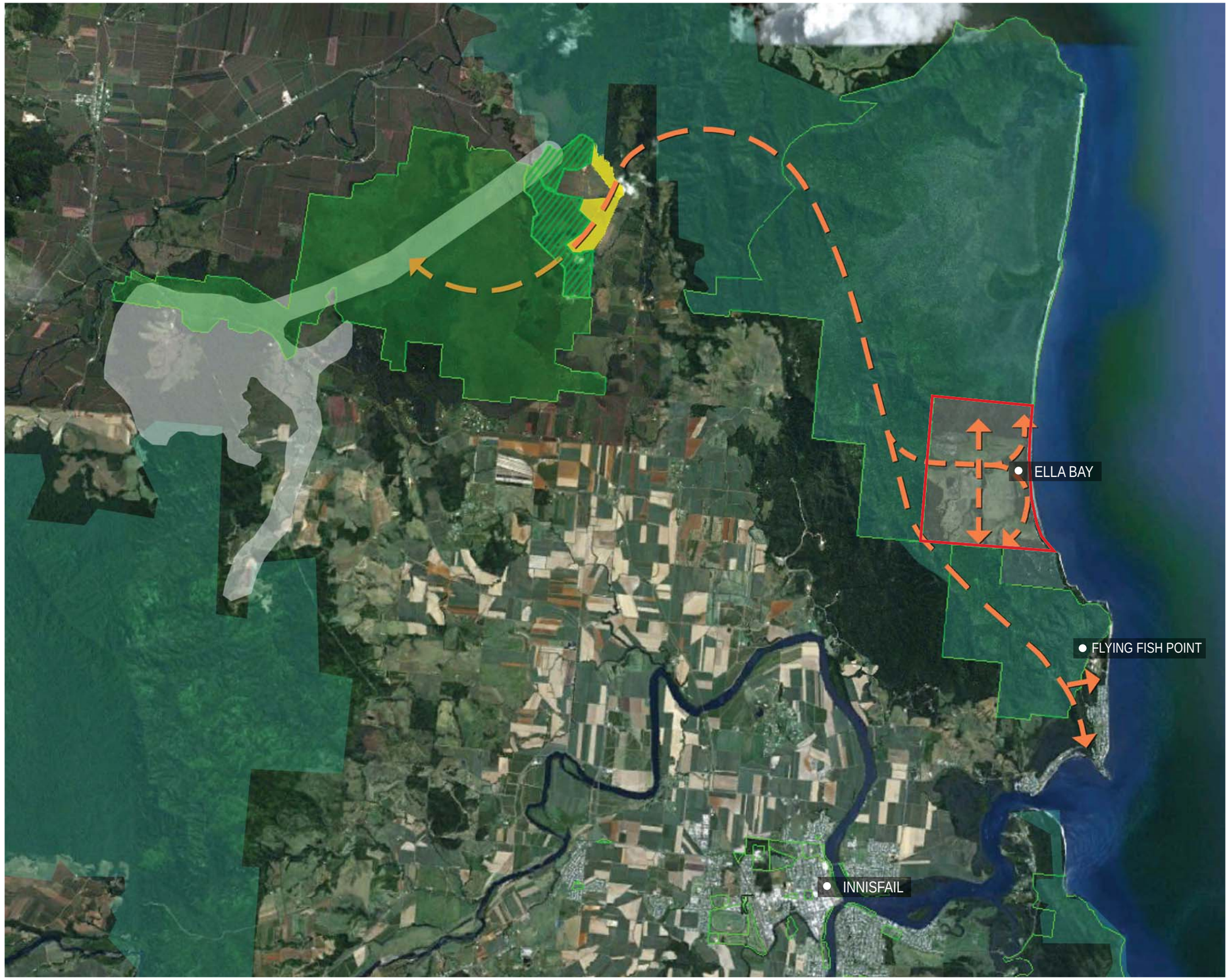
LEGEND

- EUBENANGEE SWAMP NATIONAL PARK
- PROPERTIES ADDED TO NATIONAL PARK IN 2003
- CASSOWARY HABITAT CORRIDOR CONNECTIVITY
- WET TROPICS QLD WORLD HERITAGE AREA
- ELLA BAY'S OFFSET PROPERTY
- CASSOWARY CORRIDOR - DSEWPAC 2010.

The area surrounding Ella Bay Development is protected by a number of state, federal and international legislative measures. However, there are a number of breaks in the protected area network that restricts connectivity of the Graham Seymour range to the north and west. The disturbed landscapes (predominantly as a result of intensive agriculture) poses a threat to the survival of the cassowary regionally.

The Offset Property (denoted in yellow) will be revegetated to enhance the regional corridor to the west.

This corridor will connect the Eubenangee Swamp National Park and Wet Tropics World Heritage Area; an effort that will both encourage and support the movement of cassowaries between the East and West sub-populations. With the isolated sub-population of the cassowary in the Graham-Seymour Ranges under serious threat of extinction, important headway will be achieved in the field of cassowary conservation through the transformation of the offset property from active agriculture use into a Cassowary Habitat Corridor.



LEGEND

ESSENTIAL CASSOWARY HABITAT

- CRITICALLY ENDANGERED (EPBC) & ENDANGERED (VMA)
- OF CONCERN (VMA)
- NOT OF CONCERN (VMA)

NON ESSENTIAL CASSOWARY HABITAT

- CRITICALLY ENDANGERED (EPBC) & OF CONCERN (VMA)
- OF CONCERN (VMA)
- NON REMNANT (VMA)
- CONSERVATION ZONE

ENVIRONMENTAL PROTECTION & BIODIVERSITY CONSERVATION ACT 1999 (EPBC)

QUEENSLAND VEGETATION MANAGEMENT ACT 1999 (VMA)

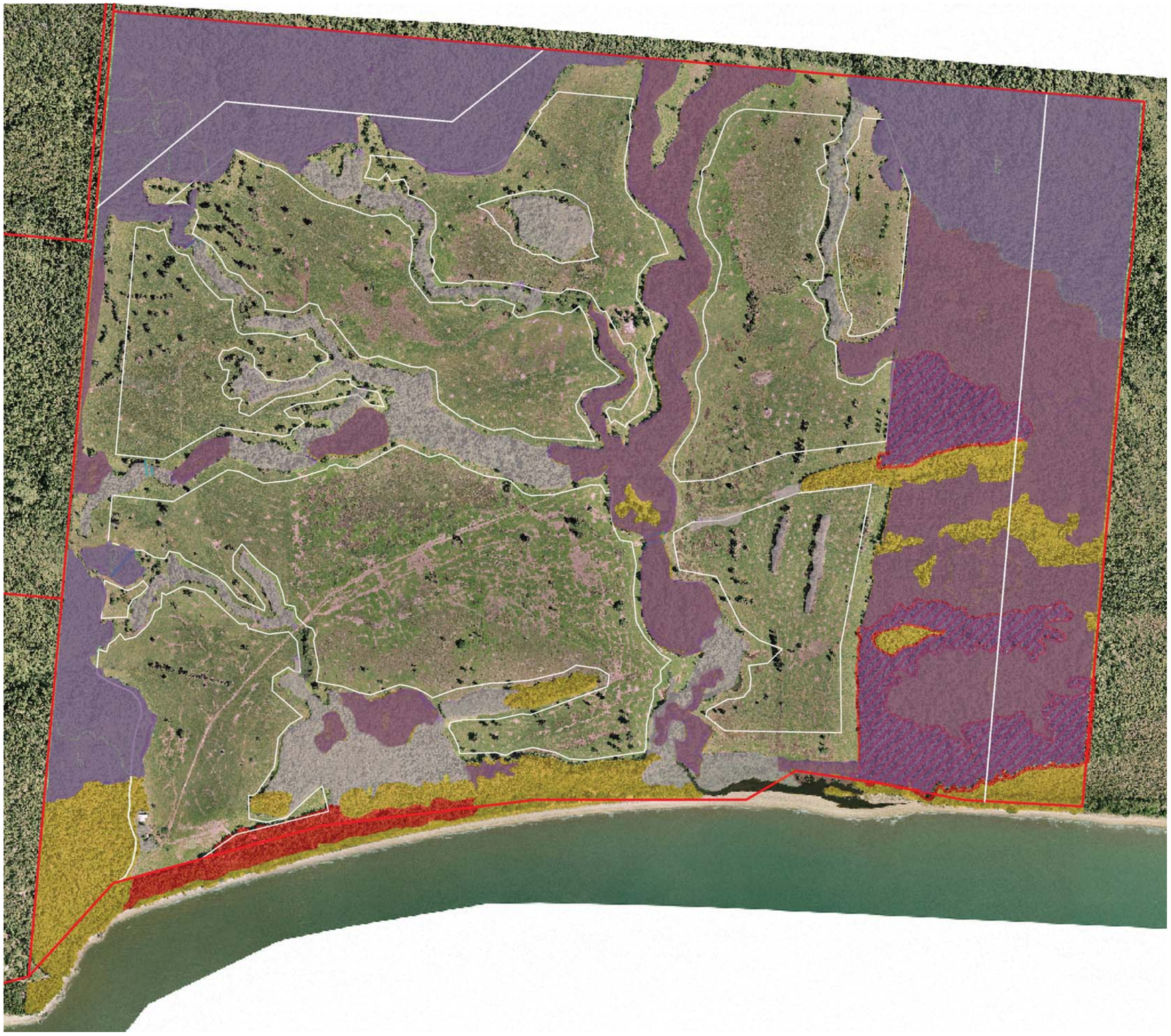
As a significant amount of regional cassowary habitat has ben lost through clearing, all remaining habitat utilised by cassowaries is considered important. In this mapping the cassowary habitat has been defined as Essential or non-essential based on Regional Ecosystem as recognised in the National Recovery Plan for the Southern Cassowary (Latch 2007) where

- Essential habitat - regional ecosystem with verified cassowary use for breeding, feeding and general activity.
- Non Essential - comprises General habitat and Rehabilitating habitat

The Ella Bay vegetation was surveyed in 2006, and 2009 to include a comprehensive analysis of the Ella Bay regional ecosystems. This was used to gain greater understanding of the habitat value of the project area, and identify Essential Cassowary Habitat.

The map illustrates both vegetation communities with a conservation status overlaid with habitat that is considered essential to the cassowary. Virtually all vegetation is protected under conservation zoning.

Regular cassowary surveys have established that the cassowaries almost exclusively traverse through the perimeter vegetation and riparian areas.



ella

ELLA BAY

Far North Queensland

DBI LANDSCAPE

DRAWINGS

8 DECEMBER 2011

0 50 100 200 400m

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