



## **SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT**

**Scoping and Environmental Impact Assessment  
for the proposed Manganese Export Facility and  
Associated Infrastructure in the Coega Industrial  
Development Zone, Port of Ngqura and Tankatara area**

### **DRAFT EIA REPORT**

# **CHAPTER 7:**

# **AVIFAUNA IMPACT ASSESSMENT**

# Summary

- An annotated list of bird species observed in the Coega IDZ has been maintained since 2007 including observations of breeding by Priority Species and nest counts at breeding colonies. Bi-annual waterbird counts were undertaken on the Coega Saltpans for the years 2008 – 2012.
- 208 bird species have been observed that will occur at least several times per year in the project area between the Rail Compilation Yard and the Port of Ngqura. These include 72 Priority Species of which 20 are threatened (have a conservation status of Endangered, Vulnerable or Near-Threatened).
- The main habitats used by birds in the study area and the number of threatened species observed that are primarily associated with them are: Marine and coastal habitats at the Port of Ngqura (six species); Coega Saltpans (four species); Coega River near the Manganese Stockyard (two species); Bontveld in the north of the study area (four species); and Thicket (1 species). Three threatened raptor species hunt in a variety of habitats.
- The Coega Saltpans are the most important habitat for the majority of waterbirds with a median count of 1244 waterbirds (range 885-2207) of 51 species (16 breeding), including 7 threatened species and a further 36 species listed under the Bonn Convention. There are important breeding colonies of several species.
- The Coega Saltpans are of particular importance for 11 species of birds: Black-necked Grebe, White-breasted Cormorant, Greater and Lesser Flamingo, Chestnut-banded Plover, Pied Avocet, Black-winged Stilt, Kelp and Grey-headed Gulls, Caspian and Swift Terns.
- The portions of the saltpans closest to the sea were the most important for feeding birds while some important breeding colonies were located closer to the N2 freeway.
- The Bontveld habitat at the Rail Compilation Yard is important for four threatened bird species: Blue Crane, Denham's Bustard, Secretarybird and Martial Eagle (the latter two breed in and adjacent to the project area).
- In the Port of Ngqura the Coega River Mouth and adjacent near-shore shallow water provide important feeding, breeding and roosting sites. The Port is an important roosting and feeding area for the Endangered Damara Tern. Other species for which the Port is important include the African Black Oystercatcher, Kelp Gull, Cape Cormorant and Caspian Tern.
- Potential impacts (medium to low significance), in declining order of significance, of the proposed development on avifauna include: Habitat loss and fragmentation (including placing of excess fill in the saltpans); collisions with overhead cables; pollution (especially manganese ore dust and hydrocarbons into wetlands); erosion and sedimentation on steep slopes; disturbance (noise, light, movement, potential blasting); pollution of harbour and inshore waters.
- There is no significant difference in impacts on avifauna (associated with habitat fragmentation) between the preferred and alternative compilation yard layout.
- The impact of the preferred conveyor route on avifauna is slightly less significant than the alternative conveyor route since the former avoids wetland habitat (i.e. Coega Estuary)

Recommended mitigation actions include: Minimize areas to be disturbed; Rehabilitate and maintain disturbed areas; Keep to demarcated construction and operational footprints and access routes; Demarcate adjacent open space areas; Maintain the area around the Coega River mouth in a natural



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state; Route overhead cables to avoid bird flyways and sensitive areas, attach bird flight diverters where required and use bird friendly pylon designs; Prevent pollution especially fugitive manganese ore dust emissions (operational maintenance and cleanup plans are required); Prior to stormwater discharge into attenuation ponds and the environment, provide and maintain sediment, debris and hydrocarbon traps; Continue avifauna monitoring



## GLOSSARY OF TERMINOLOGY AND ABBREVIATIONS

<b>anthropomorphic</b>	resulting from human action
<b>endorheic</b>	(a waterbody, e.g. pan or vlei) having no surface outlet
<b>passerine</b>	birds having feet adapted for perching e.g. sparrows, pigeons

<b>B</b>	Listed in Appendix II of the Bonn Convention
<b>CWAC</b>	Co-ordinated Waterbird Counts
<b>DEA</b>	Department of Environmental Affairs
<b>E</b>	Conservation status: Endangered
<b>IDZ</b>	Industrial Development Zone
<b>IPP</b>	Independent Power Producers
<b>IUCN</b>	International Union for the Conservation of Nature
<b>km</b>	kilometres
<b>MARPOL</b>	The International Convention for the Prevention of Pollution from Ships (1973/78)
<b>NT</b>	Conservation status: Near-Threatened
<b>NMBM</b>	Nelson Mandela Bay Municipality
<b>OSMP</b>	Open Space Management Plan
<b>Ra</b>	Raptor or owl
<b>V</b>	Conservation status: Vulnerable
<b>WA</b>	Listed in Annexure 2 of the African-Eurasian Waterbird Agreement



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## CHAPTER 7: AVIFAUNA SPECIALIST STUDY

This chapter comprises the Avifauna Impact Assessment undertaken by Patrick Morant (CSIR) and based on data provided by Dr. Paul Martin, Avifauna specialist consultant, under appointment to CSIR, as part of the Environmental Impact Assessment for the proposed Manganese Export Facility and associated infrastructure in the Coega Industrial Development Zone, Port of Ngqura and Tankatara area.

### 7.1 INTRODUCTION AND METHODOLOGY

#### 7.1.1 *Scope and Objectives*

Transnet Capital Projects (Pty) Ltd proposes to develop a Manganese Export Facility in the Coega Industrial Development Zone (Coega IDZ) and on the adjacent property (Remainder of Farm Tankatara Trust 643), Port Elizabeth, Nelson Mandela Bay Municipality (NMBM). For an overview of the proposed project, refer to chapter 2 of this report.

A Final Scoping Report dated August 2012 (CSIR 2012a) was submitted to the Department of Environmental Affairs (DEA) and approved by DEA on 15 October 2012. One of the issues identified in the Final Scoping Report was the potential impact of the proposed project on avifauna. The anticipated key issues relating to avifauna during the construction, operation and decommissioning of the proposed facility include:

- Impact on avifauna due to habitat loss and fragmentation
- Threat to the large birds due to overhead power lines servicing locomotives and any additional electricity supplies
- Nuisances/adverse effects due to fugitive manganese dust entering the Coega River and Estuary and the deposition of manganese dust on the surrounding vegetation
- Indirect impacts during the construction and operational phases

The Final Scoping Report provides an assessment of the existing environment and baseline conditions relating to avifauna and provides information on the existing avifauna communities in the Coega IDZ with emphasis on those areas and avifauna communities likely to be affected by the proposed project. This information was used as input into the Avifauna Impact Assessment Study and the identification of appropriate mitigation measures.

#### 7.1.2 *Terms of Reference*

The Terms of Reference for the avifaunal specialist study set out in the Final Scoping Report Plan of Study for the EIA include:

- a) A literature review and description of the current environmental conditions and the status quo against which impacts can be identified and measured. The description will include, among others, bird populations, breeding patterns and regions, bird habitat, foraging and important vegetational features, as well as the species of special concern that feed and breed on the Coega Saltpans and around the proposed project areas. The description





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will also identify the specific areas of the Saltpans / proposed project areas utilised by birds. Different micro-habitats will also be described as well as the species associated with those habitats.

- b) A description of species composition and conservation status in terms of protected, endangered or vulnerable bird species. This description will include species which are likely to occur within, traverse across or forage within the proposed project area, as well as species which may not necessarily occur on site, but which will potentially be impacted upon as a result of the proposed development.
- c) A detailed list of bird species of special concern
- d) Provision of a sensitivity map of the site indicating the presence of species of special concern, "no-go" areas, as well as red flags or risks associated with the proposed project area. Identification of preferred areas for project implementation from an ecological perspective.
- e) A disclosure of any gaps in information or assumptions made.

### 7.1.3 Approach and Methodology

The overall objectives of this report are to provide a description of the avifauna populations found in and around the project area to contribute to a meaningful and comprehensive avifaunal impact assessment.

The detailed objectives of this report are to:

- Provide a description of the affected environment, including local vegetation types, landscapes and environmental features and their importance to avifauna
- Provide an account of the bird species found in and around the project area, their relative abundance, habitat preference and whether they are likely to breed in the area. Emphasis is on priority species, including estimates or absolute counts, breeding records and localities. Emphasis will be placed on bird communities in and around the following areas:
  - the proposed rail compilation yard(s) and the railway links to the existing railway line
  - the doubling of the existing railway line between the rail compilation yard and the existing rail marshalling yard
  - the proposed Manganese stockyard
  - the proposed conveyor route(s) to the Port of Ngqura, especially the avifauna populations on the Coega Saltpans on the sea side of the N2 freeway
  - the mouth of the Coega River and the Port of Ngqura
- Provide counts of birds using the Coega Saltpans with details on species for which the saltpans are important, details of breeding and the areas of the saltpans of greatest importance to birds
- Analysis of the data to contribute to the avifaunal impact assessment, the construction and operational Environmental Management Plans and future monitoring protocols.

### Description of Affected Environment

Extensive conservation planning has taken place in the Nelson Mandela Bay Municipality and the distribution of vegetation types found in the metropolitan area and their conservation status are documented in Stewart *et al.* 2004; SRK 2010a. Site visits confirmed the broad habitat types and bird micro-habitats in the vicinity of the project areas and assessed bird species likely to be associated with them.



### ***Bird Populations***

Dr Paul Martin has maintained an annotated list of bird species observed in the Coega IDZ since 2007. For several priority species breeding records and absolute or estimated counts are available. Pre-construction avifauna monitoring at proposed wind farms in Zone 12 adjacent to the proposed Rail Compilation Yard and in Zones 5 and 9 adjacent to the proposed Manganese Stockyard were undertaken during July – September 2011 and January - February 2012, which provided further information on flight paths and numbers of priority species (CSIR 2012b; Martin 2012).

The following criteria, in approximate order of importance, were used to determine priority bird species known to occur in the project area:

- Species in the threatened categories of the International Union for the Conservation of Nature (IUCN) Red List (IUCN 2012)
- Species listed in the Threatened Species categories in the South African Red Data Book – Birds (Barnes 2000)
- Species listed under the Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention), of which South Africa is a signatory (CMS 2006):
  - Species listed in Appendix II: Migratory species that need or would benefit from international co-operation
  - Species listed in Annexure 2 of the African-Eurasian Waterbird Agreement [www.unep-aewa.org](http://www.unep-aewa.org) whereby parties shall take co-ordinated measures to maintain migratory waterbird species in a favourable conservation status or to restore them to such status
- Species high in the trophic order (i.e. top predators) that naturally occur at low densities (raptors and owls).

By using the above criteria all bird species listed in the South African list of Threatened and Protected Species Regulations (DEAT 2007) are included.

### ***Waterbird Counts, Coega Saltpans***

Bi-annual waterbird counts were undertaken on the Coega Saltpans during January or February and July for the years 2008 – 2012 as part of, and using the same protocol as the national Co-ordinated Waterbird Counts. Each area of the saltpan was counted separately to provide information on the distribution of birds on the saltpans.

Details of breeding were noted throughout the year and nest counts of breeding colonies were made whenever breeding was observed.

#### ***7.1.4 Assumptions and Limitations***

- The presence, estimates of bird abundance, bird counts and breeding records were based on the primary observations of Dr P Martin. However, the presence, abundance, movements, breeding and behaviour of birds remain subject to numerous variables such as season, rainfall, weather conditions, anthropomorphic influences, or changes in the locations and quantity of food available. Consequently, assessments of the presence and abundance of bird species will always be subject to some unpredictability.



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- While the bird populations in the study area are relatively well known, there may be breeding sites of priority species that have not been found, especially around the proposed Rail Compilation Yard, Manganese Stockyard and along the Rail Links.

**7.1.5 Source of Information**

The baseline environmental and avifauna data is mostly based on the knowledge and avifauna data collected by Dr Paul Martin, who has a good knowledge of the environment of the area and its birdlife, having worked in the Nelson Mandela Bay Municipal area for 27 years and within the Coega IDZ for the past five years. Vegetation descriptions follow that used in the Conservation Assessment and Plan for the Nelson Mandela Bay Municipality (SRK 2010a).

**7.1.6 Declaration of Independence**

**DECLARATION OF INDEPENDENCE FOR AVIFAUNA IMPACT ASSESSMENT**

I, Patrick Morant, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed Manganese ore Terminal, Port of Ngqura, application or appeal in respect of which I was appointed, other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of my performing such work.

A handwritten signature in purple ink, appearing to read 'P. D. Morant'.

**Name:** P. D. MORANT



## 7.2 LEGISLATION PERTINENT TO AVIFAUNA

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### 7.2.1 Introduction

The following section contains references to international conventions and national and provincial legislation having particular relevance to birds and their habitats.

### 7.2.2 International conventions

#### 7.2.2.1 Convention on the Conservation of Migratory Species of Wild Animals, 1979 (Bonn Convention).

This convention is concerned "particularly with those species of wild animals that migrate across or outside national jurisdictional boundaries". South Africa became a signatory of the Bonn Convention on 1 December 1991.

Within the project area the Coega saltpans support four migrant species, Greater and Lesser Flamingo, Chestnut-banded Plover, and Caspian Tern, which all have Near-Threatened status and thus require special attention in terms of avoiding unnecessary impacts on their habitat. In addition to these four species, there are another 8 species that are in the SA Red Data book and are listed in the Bonn Convention (Blue Crane, Oystercatcher, Roseate & Damara Tern, Peregrine, Cape Gannet, Cape Cormorant, African Penguin).

#### 7.2.2.2 Convention on Wetlands of International Importance especially as Waterfowl Habitat, 1975 (Ramsar Convention).

South Africa was a founding party to the Ramsar Convention which initially focussed on waterfowl and their habitats but subsequently the range of interest of the convention has been widened to include, amongst others, ecosystem services, water resource allocation and climate change.

Currently South Africa has 17 designated Ramsar sites totalling some 498 721 ha in extent. However there are no Ramsar sites in the Eastern Cape Province. Nevertheless the Coega Saltpans could qualify for Ramsar status on the basis of the numbers of the Near-Threatened Caspian Tern and Swift Terns.

#### 7.2.2.3 Convention on Biological Diversity, 1992

The Convention on Biological Diversity has three objectives: the conservation of biological diversity; the sustainable use of biological resources; and the fair and equitable sharing of benefits arising from the use of genetic resources. South Africa has given legal status to the Convention on Biological Diversity through the National Environmental Management: Biodiversity Act, 10 of 2004.

#### 7.2.2.4 International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL 73/78).

South Africa acceded to the MARPOL convention in 1978. The Marine Pollution (Prevention of Pollution from Ships) Act, 2 of 1986 gives effect in South African law to the MARPOL 73/78 Convention. Of particular relevance to the avifauna of the Coega and wider Algoa Bay area is the designation, under Annex I of MARPOL, of the continental shelf waters of southern South Africa as a Special Area in recognition of its importance to marine life, particularly cetaceans and seabirds. The



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Special Area extends from the Spoeg River on the west coast to Great Fish Point on the east coast and seawards to the 500 m isobath and came into force on 1 August 2008.

All vessels entering the Port of Ngqura should be MARPOL-compliant and equipped with modern pollution management systems.

### **7.2.3 National Legislation**

#### **7.2.3.1 National Environmental Management: Biodiversity Act, 10 of 2004.**

As stated in Section 7.2.2.3 (above) this Act gives effect in South African law to the Convention on Biological Diversity. It also recognised that South Africa is party to the Ramsar and Bonn Conventions.

#### **7.2.3.2 National Environmental Management: Protected Areas Act, 57 of 2003, and Amendments Acts 31 of 2004, and 15 of 2009**

The aim of the Act is "To provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for inter-governmental co-operation and public consultation in matters concerning protected areas; for the continued existence, governance and functions of South African National Parks; and for matters in connection therewith."

The neighbouring Addo Elephant National Park and the islands of Algoa Bay (Bird and St.Croix) share components of their avifauna with the Coega IDZ thus the project should attempt to avoid adverse impacts on the avifauna, especially those with Red Data Book status.

#### **7.2.3.3 National Water Act, 36 of 1998**

The National Water Act has a key objective of ensuring the protection of aquatic ecosystems including estuaries. To achieve this the National Water Act requires policies to be in place that provide guidance in developing resource quality objectives, i.e. specifying aspects such as freshwater inflow, water quality, habitat integrity, biotic composition and functioning requirements. Estuaries are classified as a water resource under the Act.

Section 21 of the Act identifies certain land uses, e.g. activities resulting in stream flow reduction, infrastructural developments affecting the bed, banks, course or characteristics of a watercourse, water supply and waste disposal, as "water uses" that require authorisation by the Department of Water Affairs.

The water quality aspect of the manganese terminal project, both in respect of the Coega River and of the saltworks, is of concern to the avifauna study.

#### **7.2.3.4 National Environmental Management: Integrated Coastal Management Act, 24 of 2008**

The Integrated Coastal Management (ICM) Act has the objective of improving the governance of activities in the coastal zone which hitherto has been subject to a wide range of laws and regulations. This act covers amongst other coastal protection, discharge of effluent into coastal waters & prohibition of dumping at sea (permits required).



#### 7.2.3.5 Sea-Shore Act, 21 of 1935

All the provisions of the Sea-Shore Act have been assigned to the four coastal provinces under section 235(8) of the Constitution, except insofar as the Act regulates the sea-shore and the sea within ports or harbours (Proclamation R27/16346/6 dated 7 April 1995).

#### 7.2.3.6 Marine Living Resources Act, 18 of 1998

The Marine Living Resources Act (MLRA) deals with the utilization, conservation and management of marine living resources. The MLRA encompasses all marine organisms, both plant and animal, with the specific exception of seabirds and seals.

#### 7.2.3.7 Sea Birds and Seals Protection Act, 46 of 1973

This Act governs the protection and control of the capture and killing of seabirds and seals. It further controls the products produced from or by seabirds and seals, e.g. guano.

### 7.2.4 Provincial Legislation

#### 7.2.4.1 Eastern Cape Nature and Environmental Conservation Ordinance, 19 of 1974

The Nature and Environmental Conservation Ordinance provides for the protection of all species of avifauna except those specifically listed as not being protected, e.g. mousebirds and various similar potential agricultural pests.

## 7.3 DESCRIPTION OF PROJECT ASPECTS RELEVANT TO AVIFAUNA IMPACTS

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### 7.3.1 Proposed Rail Compilation Yard

The main habitat type on the site of the proposed Rail Compilation Yard is Grass Ridge Bontveld, also called Coega Bontveld (Stewart *et al.* 2004). Bontveld occupies the higher flatter areas of the study site and surrounding area. The Bontveld is generally in fair condition and is recovering after being subjected to relatively heavy grazing by domestic stock in the past. Some areas of the Bontveld are lightly invaded with alien rooikrans *Acacia cyclops*. Bontveld usually occurs in a matrix with Sundays Valley Thicket and there are several patches of thicket in reasonable condition, notably at the northern end of the site close to where the proposed railway line to the Compilation Yard leaves the existing railway line and also approximately in the middle of the proposed Rail Compilation Yard. More extensive areas of Sundays Valley Thicket are found in the small valley followed by the existing rail line and on the slopes above the Sundays River floodplain 3.5 km to the east of the proposed Rail Compilation Yard (Figure 7.1).

**Bontveld** is confined to an area northeast of Port Elizabeth, mainly around Coega with small patches elsewhere, such as in the nearby Addo Elephant National Park. It occurs on the shallow calcareous soils of the Alexandria Formation. A feature of the vegetation type is dispersed bushclumps within a low shrub community with grassland, fynbos and karoo elements (CES 2011). The vegetation type has many plant species of special concern and is under severe threat from developments, including





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Coega IDZ related developments. The vegetation type is classified as Vulnerable in the NMBM Conservation Assessment and Plan (SRK 2010a).

Though bird abundance and diversity is lower than in the Sundays Valley Thicket, the Bontveld habitat in the study area is very important for some of the main threatened and priority bird species that may be impacted by the project. These include Denham's Bustard *Neotis denhami*, Secretarybird *Sagittarius serpentarius* and Blue Crane *Anthropoides paradiseus* as well as several raptor species.

**Sundays Valley Thicket** (also called Sundays Mesic Succulent Thicket or Sundays Thicket) is restricted to the coastal plain between the Sundays and Gamtoos Rivers. It occurs on red loam and clay soils derived from the Sundays River and Kirkwood Formations. It consists of a dense thicket of often spiny woody shrubs and succulents (Stewart *et al.* 2004; CES 2011). It is classified as Vulnerable in the NMBM Conservation Assessment and Plan (SRK 2010a).

Bird diversity and abundance is relatively high in the Thicket vegetation. However, bird populations mostly comprised relatively common and widespread passerine and bush dwelling species.

**Wetlands:** In the proposed Rail Compilation Yard area there are a few endorheic pans, clay lined depressions with no outlet that fill with water after good rains (Figure 7.1). When they have water they may be used by small numbers of waterbirds (e.g. ducks) for breeding and feeding, but for the majority of the time they are of little importance to birds.

The regionally important wetlands of Tankatara Saltpans are located 6km east of the proposed Rail Compilation Yard and the Coega Saltpans are 7.5km to the south. The estuarine, saltpan and freshwater wetlands of the Swartkops Valley, 18km southwest of the Rail Compilation Yard are a Globally Important Bird Area (Barnes 1998). Many priority species are associated with these wetlands and waterbird species can be expected to overfly the project area on a regular basis.

**Farmland** comprised primarily of un-irrigated grassland with a small area of pasture under irrigation is present at Tankatara next to the Sundays Estuary located 6km east of the study area. Irrigated farmland (e.g. vegetables, citrus, lucerne) is found adjacent to the Sundays River 8km north of the Rail Compilation Yard.

The priority species Denham's Bustard, Secretarybird and Blue Crane occur on the Tankatara grasslands and the latter two species are known to regularly breed there. These species are certain to move between the Bontveld in the study area and the grassland on Tankatara farm.

**Existing Infrastructure** of consequence to birds includes the double line of high voltage powerlines from the Brak River Sub-station crossing the Rail Compilation Yard site in a south-west – northeasterly direction (Figure 7.1). These present a collision hazard to large flying birds including Denham's Bustard, Secretarybird, Blue Crane and raptors. There is a Martial Eagle *Polemaetus bellicosus* nest on one of the electricity towers (Figure 7.1).

The existing railway line with its associated overhead power supply is the other main infrastructure feature. Habitat fragmentation is the main impact of this rail reserve on avifauna. Cape Crows *Corvus capensis* breed on the electricity towers alongside the railway.

**Conservation Areas:** The proposed footprint of the Rail Compilation Yard does not fall within any conservation areas. The existing railway line follows a small valley to the south-west of the Rail Compilation Yard that is part of the Coega Open Space Management Plan (OSMP).





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Addo Elephant National Park is located 8km northeast of the proposed Rail Compilation Yard to the east of the Sundays Estuary. It provides some habitat for priority species such as Denham's Bustard, Blue Crane, Secretarybird and raptors.

### 7.3.2 Proposed Railway Link

The proposed Railway Link leads off from the south side of the Rail Compilation Yard with two loops that join with the existing rail line. An additional rail line is then proposed to the existing Rail Marshalling Yard alongside the existing railway (Figure 7.1).

The proposed rail line passes through Grass Ridge Bontveld as it leaves the Rail Compilation Yard. In Alternative 1, as the rail line turns west towards the existing rail line there is an area of old farmland moderately invaded by Prickly Pear *Opuntia ficus-indica* and Thicket clumps become more frequent as the Bontveld gives way to Thicket vegetation. The two rail loops then drop down into the valley down which the existing rail line passes. The sides of the valley support dense Thicket vegetation. Prior to joining up with the existing rail line, the southern loop of Alternative 1 passes through an area of rank grassland where Thicket vegetation was cleared in the past for agriculture. The northern return loop continues through dense Thicket vegetation to rejoin the existing rail line north of the Brak River Sub-station (Figure 7.1). In Alternative 2 the rail loops are located further north and pass through a smaller area of Thicket vegetation.

Two sets of 400kV powerlines between Grassridge and Dedisa Sub-stations cross the valley in the vicinity of the southern loop of Alternative 1 (Figure 7.1).

There is a Martial Eagle nest on one of the electricity towers close to the northern loop of Alternative 2. A pair of Blue Cranes and Secretarybird have been observed in the rank grassland adjacent to the existing rail line in the vicinity of the southern loop of Alternative 1.

**Coega Open Space Management Plan (OSMP):** The slopes of the valley and bottom of the valley outside of the existing railway reserve fall within the Coega Open Space Management Plan area and all of the rail loop alternatives pass through it to some extent.

The Coega OSMP is an integral part of the NMBM Conservation Plan (2010a) and Draft Bioregional Plan (SRK 2010b) and the area is classified as a Critical Biodiversity Area (to be managed for biodiversity conservation and to be incorporated into the protected area system) (SRK 2010a,b). The open space system continues up the valley to the northwest to link in with the Grassridge open space area as part of the Coega - Grassridge - Tregathlyn Corridor.

The management criteria for Coega OSMP require that there should be no development and no loss of natural habitat. Linear services crossing open space areas must keep to pre-planned reserves/servitudes and disturbance of natural habitat must be minimized. There are plans for a servitude corridor (Ring Road extension) to cross the valley near the Brak River Sub-Station. The addition of the rail loops will contribute to fragmentation of the Thicket habitat in this area.



### **7.3.3 Proposed Doubling of Railway Line to Marshalling Yard**

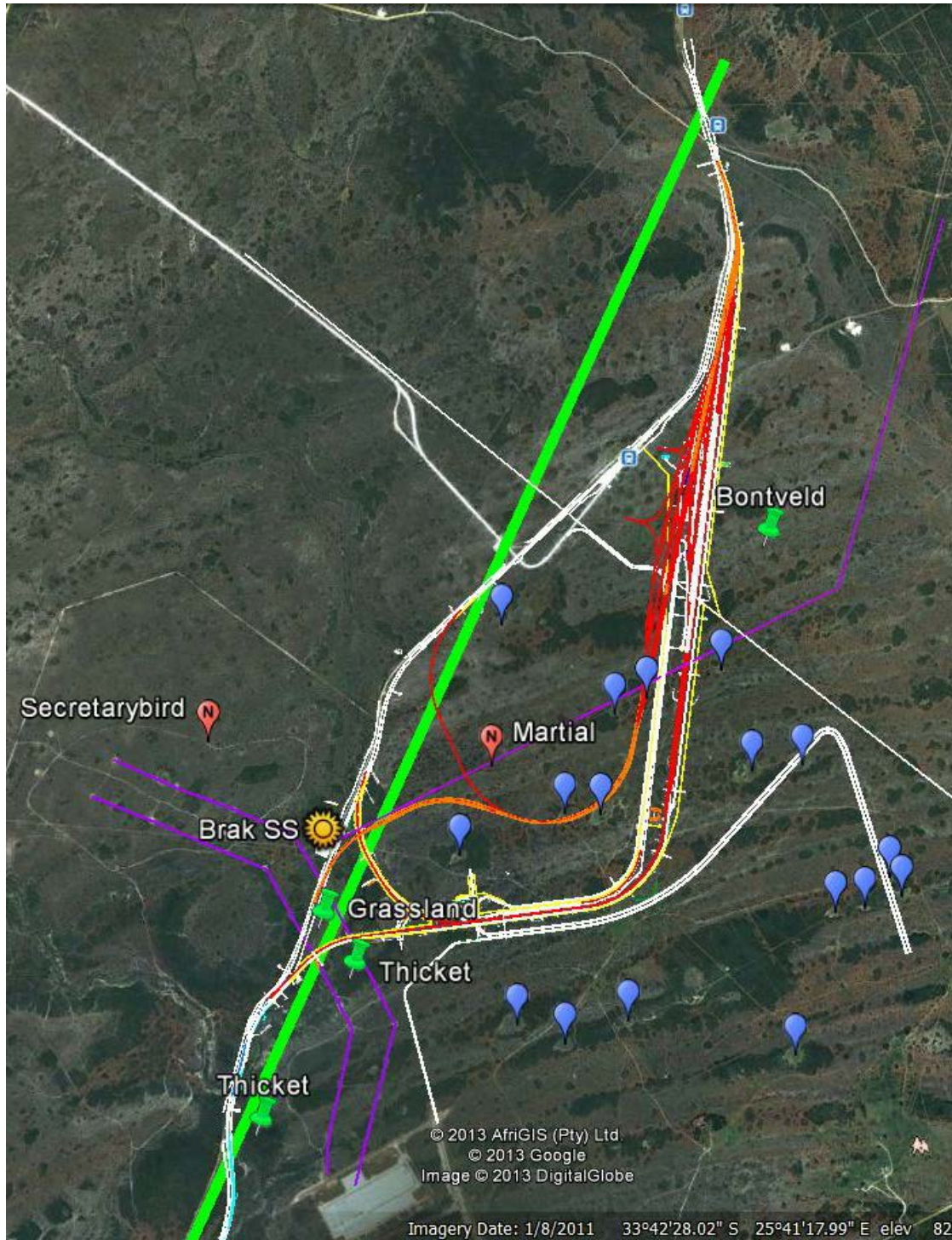
The existing Railway line continues down a small valley (Figure 7.1). There is a small drainage line on the eastern side of the existing railway (the Brak River) and this is joined by another coming in from the northwest that passes under a bridge on the existing railway. The Brak River very rarely has water in it and as such has little consequence for avifauna. The stream may flow more frequently in future if stormwater from future developments is directed into it.

On each side of the existing railway line and service track there is generally dense Thicket vegetation. The Coega Open Space Management Plan area generally comes up to the existing railway line on the eastern side, while on the western side space is allowed for a services corridor that will accommodate the second railway line.

*Figure 7.1/...*



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**Figure 7.1** The Rail Compilation Yard and rail link to the Marshalling Yard showing nests of Priority Bird Species. Examples of habitat types are labelled. Green line: Main bird flight paths over the area. Purple lines: Large powerlines. Blue drops: endorheic pans





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Birdlife along the existing railway line route is typical of Thicket habitat (see above). Birds tend to use the valley as a flyway and most bird movement is along a NE-SW axis parallel to the railway line (Figure 6.1).

As the railway line approaches the MR460 road, there are more open and disturbed areas that have been heavily grazed by livestock and there are old graveyards on both sides of the railway line. Passing under the MR460 next to the old Coega Railway Station there is the former Brickfields factory to the east and a small residential community to the west. The railway then crosses the new rail bridge over the Coega River before entering the existing Rail Marshalling Yard.

#### 7.3.4 MR460 to N2 Freeway

The proposed site for the Manganese Stockyard is east of the existing Rail Marshalling Yard towards the Coega River and north of the N2 Freeway (CSIR 2012a; Figure 6.2).

The vegetation above the Coega River 100 year floodline at this location is Motherwell Karroid Thicket. This comprises a matrix of Succulent Karoo with clumps of Sundays Valley Thicket (Stewart *et al.* 2004; SRK 2010a). It is classified as Endangered in the NMBM Conservation Assessment and Plan (SRK 2010a). On the deep alluvial soils adjacent to the Coega River in the northern half of the site away from the influence of salt water is Sundays Doringveld Thicket, also classified as Endangered. This comprises Sundays Valley Thicket in a matrix of Nama-karoo that includes sweet thorn bushes *Acacia karoo* (Stewart *et al.* 2004; SRK 2010a). On the steep slopes east of the Coega River the vegetation is Sundays Thicket, classified as Vulnerable and characterized by the presence of tree euphorbias *Euphorbia triangularis* (Stewart *et al.* 2004; SRK 2010a). The steep valley slopes east of the Coega River are part of the Coega OSMP.

The Coega River itself meanders in a fairly deep channel with steep banks lined with reeds in the freshwater northern half of the site. Old abandoned saltpans and depressions that fill with water after rain are present along the banks of the river from the old N2 bridge for a distance of 0.8 km upstream (Figure 7.2). There is saltwater influence in this area (mainly due to the saltpans south of the N2 freeway) and the habitat is estuarine in character. The river banks are flatter and the water shallower with bare muddy edges with salt tolerant succulents higher up the banks. The area below the 100-year floodline is included in the Coega Open Space Management Plan area. The proposed footprint of the manganese stockyard may encroach into this area, especially near the Coega River on the northern side of the stockyard (Figure 7.2).

The three Thicket vegetation types support birds typical of the Sundays Valley Thicket described above. The Knysna Woodpecker *Campethera notate*, a priority species, prefers the Sundays Thicket near the clay quarry east of the Coega River where it nests in the trunks of tree euphorbias.

Priority species recorded along the Coega River between the N2 and Coega River rail bridge include Half-collared Kingfisher *Alcedo semitorquata*, African Marsh-Harrier *Circus ranivorus* and several species of waterbirds while a pair of Blue Crane roosted next to the Coega River close to the old N2 bridge during February 2012.

The Coega Valley is a major bird flyway, especially for waterbirds travelling between the coast and saltpans and the inland areas (Figure 7.2). Several raptor species frequently use the area, often making use of the thermals generated by the steep valley slopes.

#### 7.3.5 N2 Freeway to Port of Ngqura

The original alternative sites for the proposed manganese stockyard (Options 2 and 3 – refer to Chapter 2 Section 2.2) were south of the N2 freeway. These locations are no longer under



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consideration for logistical reasons (CSIR 2012a). Nevertheless, for the sake of completeness the environment in the vicinity of Options 2 and 3 are discussed below.

Option 2 was on the east bank of the Coega River between the N2 and the proposed bulk liquid storage facility just above the Coega Open Space Management Plan area that includes the Sundays Valley Thicket along the eastern slopes of the Coega Valley between the N2 and the Coega River mouth. The footprint of the manganese stockyard included Sundays Valley Thicket on the downslope side, becoming more Bontveld-like on the upslope side where there has been heavy grazing in the past and disturbance around the old Sonop farmhouse. With Option 2 conveyor routes and possibly railway lines would need to cross the Coega River to connect with the rail marshalling yard.

In Option 3, the footprint of the Manganese Stockyard was to be located in a portion of the existing saltpans (see below for further discussion on the importance of the saltpans to avifauna).

The preferred conveyor route between the manganese stockyard and the port passes down the west side of the Coega Valley, generally following the route of the existing rail line to the Port (Figure 7.2) while the alternative conveyor route lies within the approved conveyor corridor.

Both of the steep slopes on the east and west sides of the Coega Valley between the N2 freeway and the port are covered in dense Sundays Valley Thicket that protects the slopes from erosion. Most of the eastern bank of the Coega Valley is included in the Coega Open Space Management Plan. Some of the western side of the valley also falls within the Coega OSMP area in the vicinity of "Butterfly Valley".

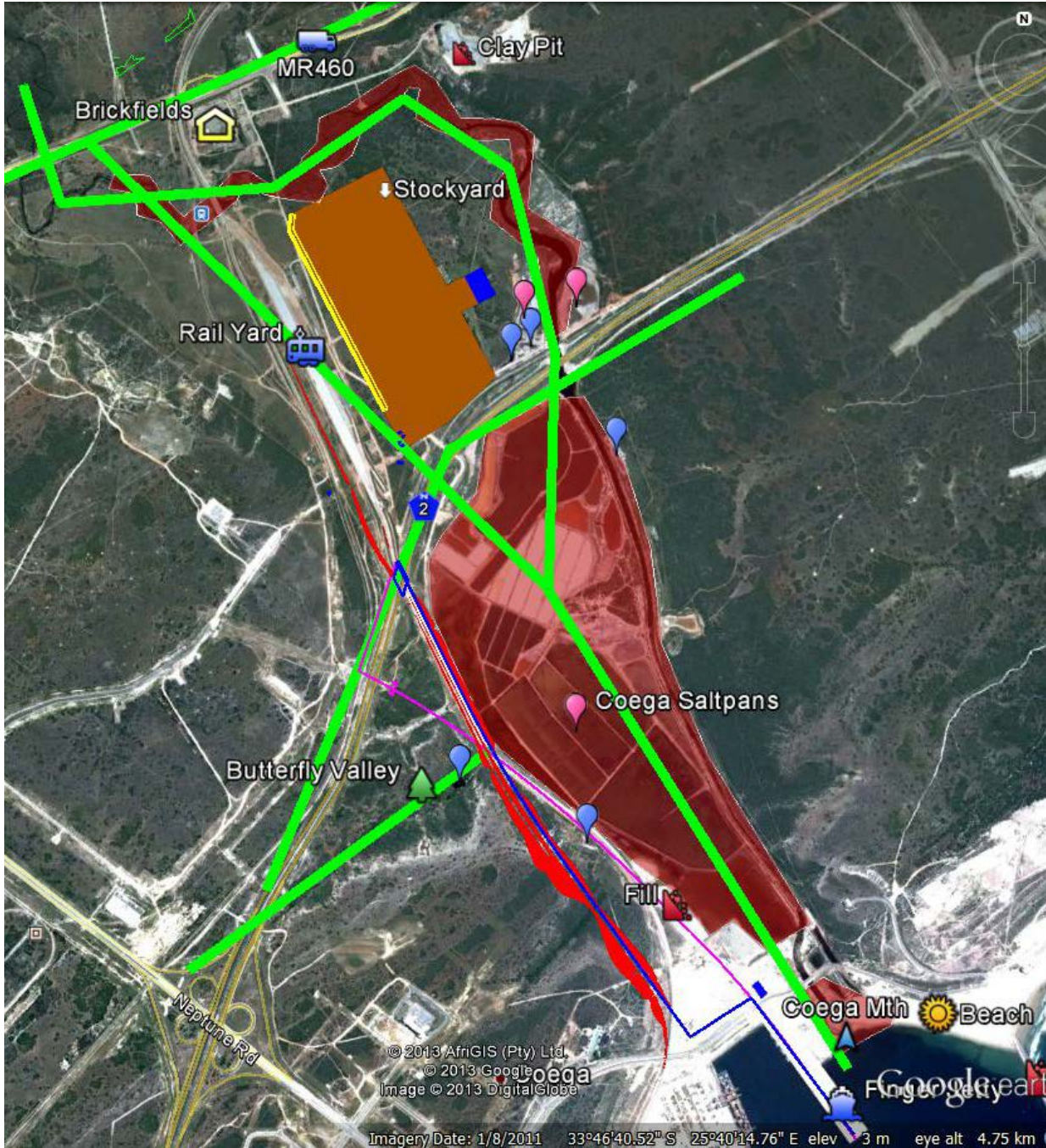
Man made saltpans occupy the valley floor between the N2 freeway and the Port of Ngqura with the Coega River routed along an artificial channel along the eastern edge of the floodplain (Figure 7.2). Although artificial, these saltpans are very important for waterbirds, including many priority species. There are also important bird breeding colonies on the saltpans (see below for details of the bird populations on the saltpans). There is a small wetland of limited value to avifauna between the railway line and the base of the escarpment prior to the railway line entering the port (Figure 7.2 & 7.3).

The Coega Estuary and Coega Estuary Floodplain have been so extensively modified that very little of the natural habitat remains. Consequently both the estuary and estuary floodplain are classified as Critically Endangered in the NMBM Conservation Assessment and Plan (SRK 2010a).





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**Figure 7.2** The proposed Manganese Stockyard and Conveyor Corridor to the Port. Sensitive areas shaded red. Green lines indicate main bird flight paths. Blue drops: Freshwater vleis. Pink drops: Saline pans. See Figure 7.3 for detail of the Coega Salt pans



### 7.3.6 Port of Ngqura

Habitat of importance to birdlife within and around the Port of Ngqura includes the mouth of the Coega River and the sandy beach between the Coega River mouth and the base of the Eastern Breakwater (Figure 7.2). Normally the Coega River mouth is closed to the sea. However it has remained open since May 2011 following a flood. It is likely that the building of the port and consequent removal of sand dunes to the west of the mouth will result in the mouth of the river remaining open for much longer periods than in the past. Several estuarine bird species feed in this area.

The sheltered waters of the port provide a feeding area for several marine bird species, many of which, including the Endangered Damara Tern *Sterna balaenarum*, use the Coega River mouth and beach as a roosting site. African Black Oystercatchers *Haematopus moquini* (a priority species) and Kelp Gulls *Larus dominicanus* breed within the Port.

Conservation areas near the port include the Globally Important Bird Areas (Barnes 1998) of the Alexandria Coastal Belt north of the Sundays River and the Algoa Bay Islands of which Jahleel Island, St Croix Island and Brenton Rocks are located close to the port. All of these areas are included in the Addo Elephant National Park.

## 7.4 DESCRIPTION OF AFFECTED ENVIRONMENT

### 7.4.1 Relevant Bird Populations

The Coega IDZ is located in an ecological transition zone positioned between the summer and winter rainfall regions at the western edge of the Subtropical Albany Thicket biome. To the west is the temperate Cape Floral Kingdom and inland is the dry Karoo biome. This, together with its coastal location that includes the Coega River estuary and saltpans and the nearby St Croix Island group results in the Coega IDZ having a diverse avifauna.

Within the Coega IDZ 226 bird species (about 25% of the species occurring in southern Africa) have been observed by Dr Paul Martin during the period 2007 to 2012. Of these, 21 species are listed as Endangered, Vulnerable or Near-Threatened in the South African Red Data Book of Birds (Barnes 2000).

An annotated checklist of the 208 bird species that have been observed in the project area between the Rail Compilation Yard and the Port of Ngqura and that are likely to occur at least several times per year is provided in Appendix A. For each species, Appendix A indicates the conservation status, main habitat that each species utilizes in the study area and provides an indication of abundance. Nomenclature and species order follows Hockey *et al.* 2005.

The 72 priority bird species that may be affected by the proposed project and that will occur at least several times per year within the study area (between the Rail Compilation Yard and the Port of Ngqura) and listed in Appendix 7.B. Nomenclature and species order follows Hockey *et al.* 2005.

Appendix 7.B provides:

- The conservation status of the species (see Section 7.2.2 above). **E** endangered, **V** vulnerable, **NT** near-threatened; **B** Listed in Appendix II of the Bonn Convention; **WA** Listed in Annexure 2 of the





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African-Eurasian Waterbird Agreement; **RL** = IUCN Red List; **SA** = South African Red Data Book (Barnes 2000) , **Ra** raptor or owl

- The main habitat preference(s) of the species in the study area
- Where in the study area the species is likely to be found. RY = Rail Compilation Yard; RL = Rail Link; R = Rail to existing Marshalling Yard; Mn = Manganese Stockyard (between MR460 & N2); Sa = N2 to Port of Ngqura; PN = Port of Ngqura; All = all areas
- Estimated absolute numbers or abundance (common, uncommon or rare)
- Whether breeding has been recorded between the Rail Compilation Yard and the Port of Ngqura, or whether it is unlikely or probable that breeding occurs here
- Notes on breeding or occurrence

Of the 72 Priority Species listed in Appendix 7.B, 20 are listed as threatened in the South African Red Data Book – Birds (Barnes 2000). The main habitats used by these species are the marine and coastal habitats (six species), saltpans (four species), Coega River (two species), Bontveld (four species), Thicket (1 species) and three raptor species that hunt in a variety of habitats. The Coega Saltpans are the most important habitat for the majority of other waterbirds listed in Appendix 7.B while the raptors hunt over a variety of mainly terrestrial habitats.

The most important species that may be impacted by the proposed development are discussed in more detail below under each project area.

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**Table 7.1** Numbers of waterbirds counted on the Coega Saltpans during mid-summer and mid-winter counts 2008 – 2012. The median excludes instances when there was a zero count. % indicates the proportion of counts when the species was present

Common name	19-Feb-08	01-Jul-08	04-Feb-09	16-Jul-09	04-Feb-10	20-Jul-10	25-Jan-11	23-Jul-11	13-Feb-12	24-Jul-12	Median	Range	%
Black-necked Grebe+	12	14	15	2		5	1	20	2	139	12	0-139	90
Little Grebe+										3	3	0-3	10
White-breasted Cormorant+#	69		13			12	3	5	1	38	12	0-69	70
Cape Cormorant*									6	9	8	0-9	20
Reed Cormorant							2	1	4	25	3	0-25	40
Grey Heron+	3		1	1	1	3	4	3	8	6	3	0-8	90
Black-headed Heron+	3								1	1	1	0-3	30
Little Egret+			2		1				22	4	3	0-22	40
African Sacred Ibis+#		54				2		1	1		2	0-54	40
Hadedda Ibis	2										2	0-2	10
African Spoonbill+#									13	2	8	0-13	20
Greater Flamingo*	8	78	10	321	91	118	137	167	29	517	105	8-517	100
Lesser Flamingo*		1					28		234		28	0-234	30
Egyptian Goose+#	6	2	3	4	11	5	7	15	17	12	7	2-17	100
South African Shelduck+#	2	10		2	8	6	10	9	57	19	9	0-57	90
Yellow-billed Duck+							2	3	1	6	3	0-6	40
Cape Teal+#	70	22	41	61	44	35	56	63	72	73	59	22-73	100

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Common name	19-Feb-08	01-Jul-08	04-Feb-09	16-Jul-09	04-Feb-10	20-Jul-10	25-Jan-11	23-Jul-11	13-Feb-12	24-Jul-12	Median	Range	%
African Marsh-Harrier*									1		1	0-1	10
Osprey+							1			1	1	0-1	20
Common Ringed Plover+	60		37		55		103		47		55	0-103	50
White-fronted Plover		7						1			4	0-7	20
Chestnut-banded Plover*#	9	43	6	34	6	31	9	19	22	7	14	7-43	100
Kittlitz's Plover+#	60	110	35	119	22	102	48	80	27	66	63	22-119	100
Three-banded Plover+	6	18	6	6	4	22	15	24	7	30	11	4-30	100
Grey Plover+					5		7				6	0-7	20
Blacksmith Lapwing#	13	6	8	12	8	14	23	44	14	13	13	6-44	100
Ruddy Turnstone+	2		1	7	2		3		1	7	2	0-7	70
Common Sandpiper+	1		1		2		1		1		1	0-2	50
Marsh Sandpiper+	10				5		10		2		8	0-10	40
Common Greenshank+	10		1		6		8	7	11	2	7	0-11	70
Curlew Sandpiper+	300	19			19	4	274	1	13	11	16	0-300	80
Little Stint+	182		239		241		804		205		239	0-804	50
Sanderling+	1				4						3	0-4	20
Ruff+	56		31		137		138		4		56	0-138	50
Common Whimbrel+									4		4	0-4	10
Red-necked Phalarope+							4				4	0-4	10

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Common name	19-Feb-08	01-Jul-08	04-Feb-09	16-Jul-09	04-Feb-10	20-Jul-10	25-Jan-11	23-Jul-11	13-Feb-12	24-Jul-12	Median	Range	%
Pied Avocet+		3			110	1	64	243		74	69	0-243	60
Black-winged Stilt+#	111	279	32	121	166	155	243	142	120	146	144	32-279	100
Water Thick-knee	18	27	5	3	1	2	2	6		3	3	0-27	90
Kelp Gull+#	181	176	342	367	384	425	177	185	74	99	183	74-425	100
Grey-headed Gull+#	10	636		182		64		83	41	177	83	0-636	70
Hartlaub's Gull+#	1	21		3				1		14	3	0-21	50
Caspian Tern*#	4	1	25								4	0-25	30
Swift Tern+#		192	4	9				2			7	0-192	40
Sandwich Tern+			9						1		5	0-9	20
Common Tern+			9						2	2	2	0-9	30
Damara Tern*							1		12		7	0-12	20
Little Tern+									1		1	0-1	10
Pied Kingfisher		1					6		3	1	2	0-6	30
Giant Kingfisher						1				1	1	0-1	20
Cape Wagtail#	19	10	9	4	15	19	16	48	25	63	18	4-63	100
<b>Totals</b>	<b>1229</b>	<b>1730</b>	<b>885</b>	<b>1258</b>	<b>1348</b>	<b>1026</b>	<b>2207</b>	<b>1173</b>	<b>1106</b>	<b>1571</b>	<b>1244</b>	<b>885-2207</b>	
<b>Species Totals</b>	<b>29</b>	<b>23</b>	<b>25</b>	<b>18</b>	<b>25</b>	<b>20</b>	<b>32</b>	<b>25</b>	<b>38</b>	<b>32</b>	<b>25</b>	<b>18-38</b>	<b>51</b>

\* Listed in the Threatened Species Categories in the South African Red Data Book (Barnes 2000); + Listed under the Bonn Convention; # Observed Breeding



## 7.4.2 Waterbird Counts, Coega Saltpans

### 7.4.2.1 Conditions on the Saltpans 2008-2012 (Figure 7.3)

- Pans 1-7, 12 and 13 are used as part of the salt production process, brine is actively pumped through them and brine concentrations increase from Pan 1 to Pans 12-13, except for Pan 7 which is highly saline.
- Pans 7 and 14 were used as extraction pans until the new Cerebos salt factory in Zone 7 of the Coega IDZ began full operations in January 2009. Since then there has been no mechanical harvesting of salt at the saltpans, rather concentrated brine is pumped to the new factory from Pan 12 for conversion into salt. Pan 14 is no longer used whereas Pan 7 is used as an additional evaporation pan.
- Pans 8-11 and 14-16 are no longer part of the production line and the water levels in them vary according to the rainfall. Pans 9-11 are linked and receive stormwater runoff from portions of Zones 1, 2 and 5 of the Coega IDZ via several drainage lines and Pan 9 is connected to the Coega River at the seaward (southern) end. Pans 8 and 14-16 are endorheic (have no outlet).
- Areas 17-18 comprise the Coega River channel.
- 2008 to 2010 were drought years. As a result, the Coega River (areas 17-18) contained little water, it did not flow, was very saline next to the saltpans and the estuary was closed. Most of the saltpans that were not part of the production line, where saltwater was not actively pumped through them, were dry or had little water in them (Pans 8 to 11 and 14 to 16).
- Good rains in December 2010 and early January 2011 caused the Coega River to flow and breach into the port during this period. The mouth of the Coega Estuary has maintained an open state to date (August 2012). The Coega River flooded during May and June 2011. Subsequent rains have kept the Coega River flowing and all of the saltpans, both those that are part of the production process and those that are not, have had good quantities of water in them since January 2011.

### 7.4.2.2 Numbers and Species of Waterbirds on the Coega Saltpans

The numbers of birds counted on the Coega Saltpans during 10 summer and winter counts between 2008 and 2012 are shown in Table 7.1.

- Despite the variation in rainfall, the total numbers of waterbirds on the saltpans remained fairly constant (median 1 244), with no large or consistent seasonal fluctuations. The lowest count was 885 during February 2009 when the saltpans were particularly dry. The highest count was 2 207 during January 2011, largely due to high numbers of Palaearctic migrant waders using the Coega River after the mouth had opened (Table 7.1)
- 51 species of waterbirds were observed on the Coega Saltpans during the counts. Seven species are listed in the Threatened Species Categories in the South African Red Data Book (Barnes 2000) and a further 36 species are listed under the Bonn Convention (CMS 2006). A few more species were observed during the wetter years than during the drought years (Table 7.1)
- 16 species were recorded breeding on the Coega Saltpans between August 2007 and August 2012 (Table 7.1)

The Coega Saltpans are of particular importance for the following bird species:

- *Black-necked Grebe*: Occurs on coastal saltpans when it is not breeding. The Coega Saltpans are the third most important wetland in the Eastern Cape for this species after the Swartkops Valley and



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Tankatara Saltpans (CWAC data; P Martin *unpubl data*). The maximum count of 139 exceeded the threshold of 125 for a Sub-regional Important Bird Area (Barnes 1998)

- *White-breasted Cormorant*: The breeding colony of 105 nests in 2007 was the largest recorded in the coastal areas of the Eastern Cape since the start of this century (Crawford *et al.* 2009). Subsequently breeding has only occurred in 2008, 2009 and 2012 with a maximum of 5 occupied nests being observed during this period. It appears that the bulk of the breeding population has moved to St Croix Island (Crawford *et al.* 2009). Breeding may occur in most months of the year.
- *Greater Flamingo*: This Near-Threatened species (Barnes 2000) occurs on coastal saltpans when it is not breeding. The Coega Saltpans are the third most important wetland in the Eastern Cape for this species after the Swartkops Valley and Tankatara Saltpans (CWAC data; P Martin *unpubl data*). The maximum count of 517 is just less than the threshold of 625 for a Sub-regional Important Bird Area (Barnes 1998).
- *Lesser Flamingo*: This Near-Threatened species (Barnes 2000) visits coastal saltpans when it is not breeding and consequently the building of 10 nests in late 2011 / early 2012 is of interest. It does not visit Eastern Cape saltpans every year and the maximum number of 234 is the second highest in the Eastern Cape after the Swartkops Valley Saltpans (CWAC data; P Martin *unpubl data*).
- *Chestnut-banded Plover*: The Coega Saltpans are the most important wetland in the Eastern Cape for this Near-Threatened species (CWAC data; P Martin *unpubl data*). It is commoner in dry years with a maximum of 43 counted in winter 2008. It prefers the more saline pans where it breeds on the berms between the pans in most years with a maximum of 7 nests recorded in 2008. Most breeding is in winter but may occur in any month.
- *Pied Avocet*: Occurs on coastal saltpans when it is not breeding. The Coega Saltpans are the fourth most important wetland in the Eastern Cape for this species after the Swartkops Valley and Tankatara Saltpans and Nqweba Dam, Graaff-Reinet (CWAC data; P Martin *unpubl data*). The maximum number of 243 is just less than the threshold of 250 for a Globally Important Bird Area and exceeds the threshold of 125 for a Sub-regional Important Bird Area (Barnes 1998).
- *Black-winged Stilt*: The maximum count of 279 is the second highest in the Eastern Cape after the Swartkops Valley Saltpans (CWAC data; P Martin *unpubl data*).
- *Kelp Gull*: The numbers of Kelp Gulls on the Coega Saltpans frequently exceeds the threshold of 300 for a Globally Important Bird Area (Barnes 1998). Between 2007 and 2011 the number of occupied Kelp Gull nests on the Coega Saltpans ranged from 63 to 176 with up to 243 nests if empty nests were counted, making it the second largest colony in the Eastern Cape after the Swartkops Estuary colonies (Crawford *et al.* 2009; Whittington *et al.* 2006). During 2011 the breeding colony was abandoned early in the season (82 empty nests). However, the numbers of nests within the Port of Ngqura has been increasing each year with 60 occupied nests, most successful, during 2011. Using nest counts for 2011, the main breeding areas within the Port of Ngqura are next to the Western Breakwater, an area that is currently being developed (40 nests), Finger Jetty / Slipway where the proposed shiploaders would be located (12 nests) and beach adjacent to the Coega River Mouth (8 nests). Breeding occurs during mid-September-January.
- *Grey-headed Gull*: The maximum count of 636 exceeds the threshold of 500 for a Sub-regional Important Bird Area (Barnes 1998). The birds breed either on the Swartkops Valley Saltpans or the Coega Saltpans each year. The nest counts of 202 and 456 in 2007 and 2008 respectively are the second and third highest recorded in the Eastern Cape after 608 nests in the Swartkops Valley in 2006 (Crawford *et al.* 2009). Up to 72 occupied nests were recorded at the Coega Saltpans during the years 2010-2012 but none were successful. The breeding season is May-November but mainly June-August.



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- *Caspian Tern*: The maximum count of 25 for this Near-Threatened Species exceeds the threshold of 20 for a Ramsar site (wetland of international importance). The southern African breeding population is estimated to be 300-400 pairs (Hockey *et al.* 2005). The species breeds either in the Swartkops Valley or at the Coega Saltpans but does not breed every year in the Port Elizabeth area. At the Coega Saltpans 12 pairs successfully bred in 2007 (Crawford *et al.* 2009), 2 nested in 2008 (1 successfully), 14 nests in 2009 all failed and 1 pair nested successfully in 2012. Most breeding takes place during February-July. The species is intolerant of disturbance during breeding (Barnes 2000).
- *Swift Tern*: This species usually breeds annually on the Algoa Bay Islands. The successful breeding on the Coega Saltpans comprising 729 nests in May 2008 was the first recorded breeding on the mainland of the Eastern Cape and the highest nest count recorded for the Eastern Cape (Crawford *et al.* 2009). The colony again attempted to breed in 2008 but abandoned the site at an early stage. The threshold of 200 birds for a Ramsar site and 500 birds for a Globally Important Bird Area were exceeded during the 2008 breeding event (Barnes 1998).

#### 7.4.2.3 Distribution of Waterbirds on the Coega Saltpans

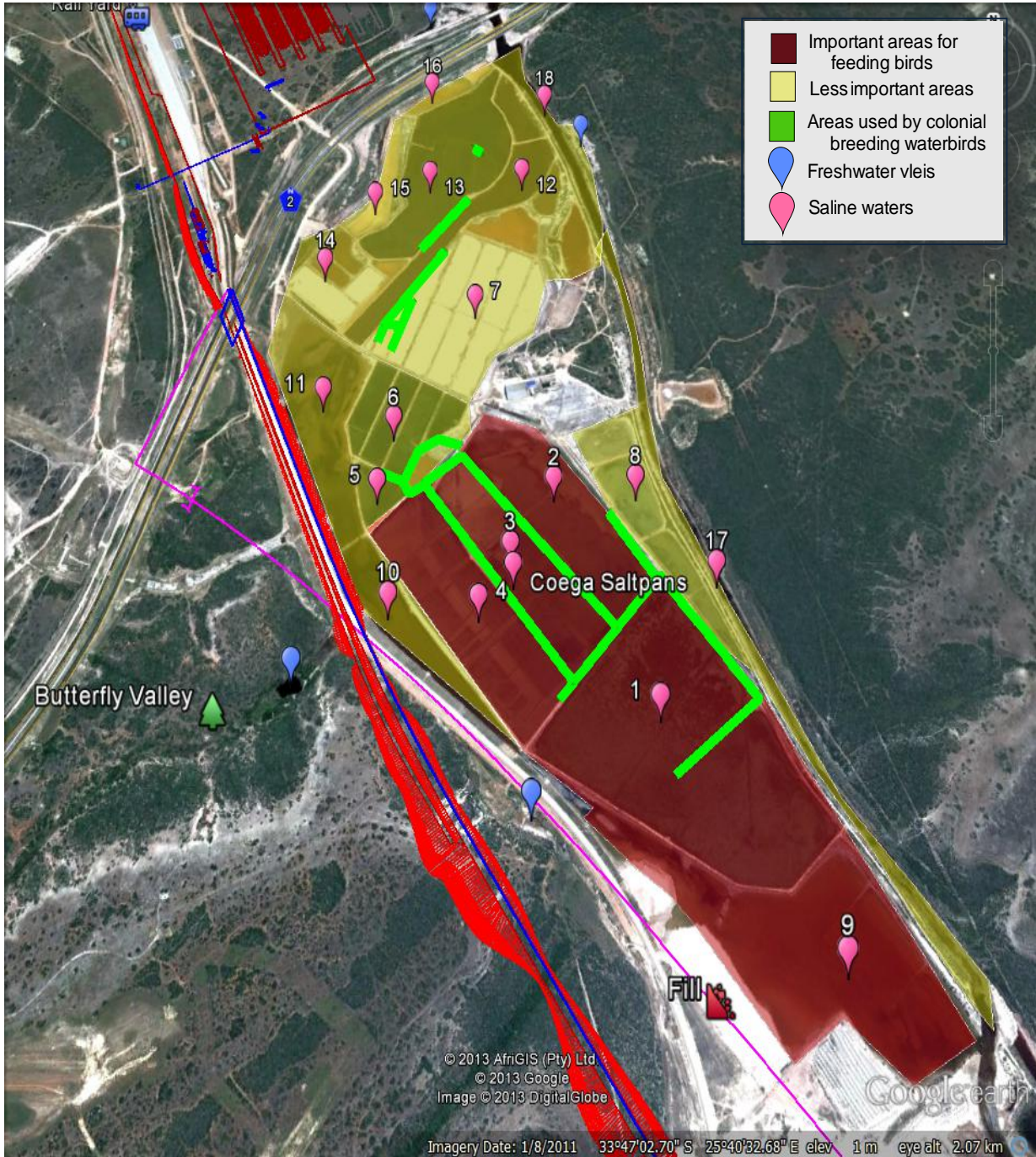
The distribution of birds on the saltpans is given in Table 7.2. The areas referred to in Table 7.2 and the text, are shown in Figure 7.3 that also indicates the most important areas of the saltpans for feeding and breeding birds.

- 42% of waterbirds on the Coega Saltpans were counted in Pans 1 to 5 that had the lowest salinity of the production pans. These pans also supported the most species (Table 7.2).
- 18% of the birds were counted on Pans 7 and 12-13. The counts on these pans were mostly of colonial species (Greyheaded Gulls, Caspian and Swift Terns, Sacred Ibis) that breed on the earth berms in this part of the saltpan. Caspian Terns usually bred on islands in Pan 13 (Figure 7.3).
- 13% of the birds and 30 species were seen on Pan 9, the largest of the non-production pans and the one that usually held the most water of the non-production pans (Table 7.2).
- The lower part of the Coega River (area 17) held large numbers of birds, especially Palaearctic migrant waders, only in January 2011 soon after the mouth had opened after being closed for many years.
- Pans 10-11, next to the railway, had a large number of birds, including most of the Lesser Flamingo, in February 2012 as the water levels receded after the winter 2011 floods.
- Kelp Gulls and Whitebreasted Cormorants mostly nested on the berms between Pans 1 and 2-5 (Figure 7.3).
- 61% of Chestnut-banded Plover were found on the more saline pans (both production and non-production pans).





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**Figure 7.3** The Coega Salt pans showing the count areas referred to in the text and Table 7.2. The most important areas for feeding birds are shaded red and the less important areas are shaded yellow. Areas used by colonial breeding waterbirds are indicated in green. Blue drops indicate freshwater vleis. Pink drops indicate saline waters



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Table 7.2 Distribution of waterbirds on the Coega Saltpans indicated as a percentage of each species found in each area. Areas are shown in Figure 7.3

Common Name	Area Counted										
	1	2-5	6	7	8	9	10-11	12-13	14-16	17	18
Black-necked Grebe	15.7	83.3	1.0								
White-breasted Cormorant	59.6	40.4									
Cape Cormorant	73.3	26.7									
Grey Heron	36.7					23.3	20.0	10.0			10.0
Greater Flamingo	0.3	75.4	0.9	2.0	0.1	0.5	10.3	10.0	0.5		
Lesser Flamingo		0.4				0.4	99.2				
Egyptian Goose	28.0	17.1	1.2	6.1			3.7	18.3	2.4	12.2	11.0
South African Shelduck	59.3	12.2	1.6			1.6	1.6			15.4	8.1
Cape Teal	33.7	14.0	10.2	0.7	2.2	9.7	11.2	0.9	3.2	8.2	6.0
African Marsh-Harrier	100.0										
Chestnut-banded Plover	1.1	29.6	4.3	4.8	10.8	3.8	1.6	31.7	9.7	1.6	1.1
Kittlitz's Plover	1.8	33.8	6.3	7.9	5.4	6.4	13.3	13.6	4.0	3.1	4.3
Three-banded Plover	17.4	8.0		2.2	5.1	21.0	11.6		0.7	21.7	12.3
Blacksmith Lapwing	12.3	6.5	3.9	9.7	1.3	23.2	13.5	3.2	5.8	12.9	7.7
Pied Avocet	2.0		0.2	1.0	13.1	72.7	10.1			0.2	0.6
Black-winged Stilt	4.4	19.2	1.8	6.3	9.0	27.7	4.8	3.9	2.8	14.3	5.9
Water Thick-knee	80.6	3.0			3.0		6.0	7.5			
Kelp Gull	15.1	54.4	13.2	7.9	0.0	3.1	1.3	4.6	0.0		0.2
Grey-headed Gull	2.3	0.8	0.5	29.5	0.4	4.3	0.8	61.3			
Hartlaub's Gull	5.0		2.5	20.0	2.5	2.5	2.5	65.0			
Caspian Tern			13.3					86.7			
Damara Tern	92.3					7.7					
Cape Wagtail	30.3	7.9	0.9	2.6	3.9	14.9	12.3	2.6	6.1	9.6	8.8
Palaeartic Waders	8.6	28.4	3.1	0.9	2.9	17.3	2.5	1.4	1.8	31.6	1.4
Other Species	11.0	7.8	0.2	0.5	1.2	8.8	0.7	60.5	1.2	2.9	5.1
All Species	10.3	31.8	4.3	6.0	2.9	12.6	6.6	11.7	1.5	10.2	2.2
Number of Species	41	34	20	17	20	30	23	20	15	23	22



## 7.5 IDENTIFICATION OF KEY ISSUES

### 7.5.1 *Potential impacts on avifauna identified in the Final Scoping Report*

Potential impacts on the avifauna identified during the scoping process are presented in Chapter 5, Section 3 of the Final Scoping Report. In essence, of the three issues raised, only one (Issue 3.3) specifically referred to a potential impact arising from the manganese terminal:

"The air quality assessment must include an assessment of the impacts of the manganese dust on the islands, including the bird life on these islands." This issue was also raised in the Final Scoping Report Chapter 5, Section 9: Potential Impacts on the Marine Environment (see Issues 9.6 and 9.8).

The other two issues cited in Section 3 of Chapter 5 were framed as statements of the particular I & AP's interest in the Tankatara farms and Sundays River corridor (Issue 3.1) and the seabirds of Algoa Bay especially those breeding on the islands (Issue 3.2). In neither case were any potential impacts or effects identified.

### 7.5.2 *Potential indirect impacts on the avifauna identified in the Final Scoping Report*

In Chapter 5, Section 1 of the Final Scoping Report which details the potential air quality impacts arising from the proposed manganese terminal a single issue (Issue 1.22) identified the potential impact of manganese ore dust deposition on the islands of Algoa Bay and thus, implicitly, on the birds breeding and roosting there.

In Chapter 5, Section 7 of the Final Scoping Report which details the potential impacts of the manganese terminal to ground and surface water, Issue 7.1 states "The potential impacts of manganese pollution on the Coega River must be assessed in this EIA". This refers to a potential indirect impact on birds resulting from the consumption of contaminated aquatic organisms.

### 7.5.3 *Potential impacts on avifauna identified in the Avifauna Specialist Study*

During the preparation of the Avifauna Specialist Study seven potential impacts on the birds and their habitats were identified. It should be noted that during the I&AP scoping process none of these issues was specifically identified as affecting the avifauna. The issues identified by the avifauna specialists are:

- Habitat fragmentation
- Sedimentation from stormwater run-off affecting the Coega River and saltpans
- Increased physical disturbance caused by project activities
- Bird collisions with powerlines
- Deposition of fugitive manganese ore dust on vegetation
- Deposition of fugitive manganese ore dust on the Coega River and saltpans
- Pollution from ships and port operations

The high stockpiles of manganese ore may slightly alter the flight patterns of birds overflying the area but this is not expected to be a significant impact.





#### **7.5.4 Potential cumulative impacts on the avifauna identified in the Avifauna Specialist Study**

Two potential cumulative impacts on birds were identified during the preparation of the Avifauna Specialist Study:

##### **7.5.4.1 The cumulative bird collision impact**

The cumulative bird collision impact potentially arising from the power supply lines required by the manganese terminal combined with those connecting the three environmentally-approved wind farms on the adjacent areas of Grass Ridge Bontveld. These wind farms are still awaiting approval as independent power producers (IPPs) and thus the actual scale of the cumulative impact cannot be assessed at present.

##### **7.5.4.2 The cumulative effect of emissions, discharges and spillages**

The cumulative effect of emissions, discharges and spillages arising from the increased shipping traffic to and from the Port of Ngqura.

## **7.6 IMPACT ASSESSMENT AND IDENTIFICATION OF MANAGEMENT ACTIONS**

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### **7.6.1 Direct Impacts on avifauna**

There are seven main project activities which have the potential to impact on avifauna through affecting various components of the environment to varying degrees in terms of spatial scale, duration and intensity (see Table 7.4A).

#### **7.6.1.1 Impact on avifauna as a result of habitat reduction and fragmentation**

##### ***Impact assessment***

##### ***GRASS RIDGE BONTVELD***

The Compilation Yard, rail link and Manganese Stockyard all require land which will be almost irreversibly altered from the natural state. In the case of the Compilation Yard, both the Preferred Option and the Alternative Option will have the effect of fragmenting the Grass Ridge Bontveld habitat i.e. there will be little difference between the two options in terms of the overall impact. In particular the Compilation Yard will occupy an area of Grass Ridge Bontveld which is rated "Vulnerable" and is also under threat to some degree from the approved wind farms in the area. This Bontveld habitat is very important for threatened and priority bird species such as Denham's Bustard, Secretarybird and Blue Crane besides a number of raptors.

Besides the direct loss of this vegetation type it will also be fragmented resulting in a greater effective loss of habitat. No effective mitigation will be possible and the impact significance is potentially high particularly if the environmentally approved wind farms in the vicinity succeed in being selected as independent power producers (IPPs) (see section 7.6.2 below).



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The impact on the Grass Ridge Bontveld will be *negative* and of *national extent* because of its importance to the threatened and priority bird species utilizing it. In the context of the Coega IDZ/Tankatara area the significance is *medium* both without mitigation. However, should the environmentally approved wind farms receive approval as IPPs, the cumulative impact will be significant (see section 7.6.2 below).

**SUNDAYS VALLEY THICKET**

The railway runs through Sundays Valley Thicket, another “Vulnerable” vegetation type. From a bird perspective the impact of development of this vegetation type is less critical since the species inhabiting it are fairly widespread in distribution. Nevertheless the land required for the railway from the Compilation Yard to the Manganese Stockyard, represents further habitat fragmentation which, as a consequence of the edge effect, results in a greater loss of habitat function than the actual loss in area would suggest.

Although the Sundays Valley Thicket is rated “Vulnerable” from an avifaunal perspective the impact is less significant than on the Grass Ridge Bontveld because the birds using it are generally widespread species. The impact will be *negative* and of *local extent*. The significance of the impact is *medium* without mitigation.

**Management actions**

During the construction phase, particularly during site preparation, daily inspections should be made to ensure that the prescribed site boundaries are not transgressed and that topsoil is stockpiled for use in future site rehabilitation i.e. when construction has been completed.

With effective implementation of this action, the impact of the project on avifauna as a result of habitat reduction and fragmentation during the construction phase is still predicted to be of *medium* significance. However, an important caveat is the cumulative impact of the wind farms in combination with the proposed manganese terminal project on key bird species using Grass Ridge Bontveld could be high.

**7.6.1.2 Impact on avifauna as a result of sedimentation from stormwater run-off affecting the Coega River and saltpans**

**Impact assessment**

Stormwater containing sediment mobilised during construction has the potential of changing the in-stream characteristics of the Coega River and causing sedimentation of saltpans. The alteration of the stream habitat could have a severe effect on all organisms directly dependent on that habitat. Sedimentation of the saltpans will reduce the feeding area available to wading birds but is predicted to be of low significance. Similarly during the operational phase spilled manganese ore has the potential to be deposited in the Coega River by stormwater if not controlled adequately.

The impact on the avifauna will be *negative* and of *local extent* and without mitigation significance is *medium*.

**Management actions**

Stormwater management measures should be implemented to ensure that during construction no topsoil, and during operations, no manganese ore is washed into the Coega River.

Bunding and other stormwater management measures should be implemented to ensure topsoil is not washed into the river during the construction phase. Inspections to assess the effectiveness of these measures should be made during and after any rainfall event. During the operational phase all stormwater should be channeled into settling ponds to trap sediment and



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manganese ore dust. The workshop and vehicle maintenance facility at the stockyard should be equipped with an oily water separator. The settling pond water should be checked prior to discharge to ensure that it contains the minimum of suspended solids and no toxic compounds. Ensure that all dust mitigation measures as referred to in Chapter 5 are implemented.

With effective implementation of these mitigation actions, the impact of the project on avifauna as a result of stormwater run-off affecting bird habitats (e.g. salt pans) is predicted to be of *low* significance during the construction and the operation phase.

### 7.6.1.3 Impact on avifauna as a result of increased disturbance caused by the project activities

#### **Impact assessment**

Although human and mechanical activity will, for the most part, be confined to well-defined areas the effect of noise, vehicular movement (trains, road transport, etc.), and lights will have an adverse effect on bird species sensitive to disturbance. In particular the large grassland species such as Denham's Bustard, Secretarybird and Blue Crane will be affected adversely. Other species, for example the small passerines, are likely to become habituated to the various activities. Collision mortalities will occur especially during the early stages of construction and operation because of the bird's unfamiliarity with the activities associated with them.

The potential impact on the avifauna resulting from increased disturbance, particularly during construction, will be *negative* and of *local extent*, i.e. restricted mainly to the construction sites, and of *medium* significance.

#### **Management actions**

The numbers and breeding success of the large grassland bird species should be monitored to provide an indication of the degree to which project actions affect or disturb these birds. A comparison between pre- and post-construction conditions should be made and ongoing monitoring of these species should be undertaken. Both construction and operational staff should be educated about the important bird species and the need to be aware of their presence on site and to avoid collision and other disruptive activities which could affect the birds (i.e. implementation of a wildlife (birds) awareness programme).

Monitoring of collision mortalities along the construction haulage routes and, after completion of construction, should be undertaken to enable the quantification of this potential impact. A driver awareness campaign to reduce this impact on birds and other animals should be implemented.

Lighting should be restricted to the minimum necessary for safe operations.

With effective implementation of these mitigation actions, the impact of the project on avifauna as a result of increased disturbance is predicted to be of *low* significance during the construction phase.

### 7.6.1.4 Impact on avifauna as a result of collision with new powerlines

#### **Impact assessment**

Powerlines pose a real threat to the movement of large bird species through the project area. Besides the Denham's Bustard, Secretarybird and Blue Crane, other large birds that could be affected adversely include eagles, herons, storks and flamingos. With the exception of the Martial and other eagles these large birds are not agile fliers and are likely to strike powerlines especially at night or in the windy conditions which occur frequently in the Coega area. Effective bird flight diverters which are visible both by day and by night should be installed at all locations where



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powerlines intersect known bird flight paths. At best this mitigation measure will reduce the impact from high to medium in the vicinity of the project. However, the potential construction of wind farms, in and adjacent to the Coega IDZ, may negate much of the effectiveness of this mitigation measure (see Section 5.5.3 below).

The potential impact on the avifauna, particularly the large endangered species, of the installation of new powerlines will be *negative* and of *national extent* because of the ranges of these species and the significance of the impact will be *high* without mitigation.

### **Management actions**

Effective bird flight diverters, visible both by day and by night, must be installed at all locations where known bird flight paths intersect powerline routes. The developer must, throughout the life of the project, keep up-to-date with developments in improving the effectiveness of bird flight diverters. It is also recommended that an ornithologist walks along the proposed powerline route to identify potential problem areas prior to construction.

Immediately after the powerlines have been installed the routes must be surveyed for bird collisions: daily for the first month and in the main breeding season, and thereafter the routes should be monitored weekly. The situation should be reviewed after a year when the inspection programme can be modified to be appropriate for long-term monitoring. It is important to note that intensive monitoring is required initially to ensure mortalities are not overlooked through loss to scavengers (see Ryan, *et al.* 2012). Consideration should be given to installing webcam monitors at key locations.

With effective implementation of these mitigation actions, the impact of the project on avifauna as a result of collision with new powerlines is predicted to be of *low to medium* significance during the operation phase.

### **7.6.1.5 Impact on avifauna as a result of fugitive manganese ore dust on vegetation**

#### **Impact assessment**

The Air Quality study (Chapter 5) indicates that an area to the north east and south west of the Manganese Stockyard can be subject to some deposition of fugitive manganese dust albeit at a low level. However the situation may be aggravated in drought years when the vegetation will experience limited washing by rainfall. Thus in droughts the manganese dust deposition on vegetation may be greater but is likely still to have a low impact on bush-dwelling birds.

The potential impact on the avifauna will be *negative*, of *local extent* and of *low* significance.

#### **Management actions**

Dust abatement measures presented in the Air Quality study must be implemented to ensure unnecessary fugitive manganese ore dust generation does not occur.

Transects through the vegetation which potentially receive the greatest quantity of manganese ore dust deposition (see the Air Quality Specialist Study) should be monitored for their use by birds. A baseline should be established during the breeding season prior to any construction and then monthly for at least two years after commencement of operations. In the long-term breeding season surveys should be conducted annually.

With effective implementation of these mitigation actions, the impact of the project on avifauna as a result of manganese ore dust deposition on vegetation is predicted to be of *low* significance.





#### 7.6.1.6 Impact on avifauna as a result of fugitive manganese ore dust on Coega River and saltpans

##### **Impact assessment**

The effect of fugitive manganese dust on both the Coega River and saltpans is unlikely to be significant since the dust consists predominantly of manganese oxide which is relatively insoluble in water, both fresh and (hyper-) saline. The dust could, if present in quantity, reduce the feeding efficiency of filter feeders such as brine shrimps which are fed upon by flamingos, avocets and other waders. Filter-feeding crustaceans, e.g., brine shrimps, may ingest manganese dust particles directly should these particles fall into their food particle size range. These crustaceans containing ingested particles may in turn be consumed by birds with the possibility that heavy metals will be absorbed by them.

The impact will be *negative* and of *local extent*. Without mitigation the significance will be *medium*.

##### **Management actions**

It is recommended that monitoring of the avifauna (bi-annual CWAC counts) and of the breeding colonies on the saltpans be continued. Ensure that all dust mitigation measures as referred to in Chapter 5 are implemented.

For completeness, it is also recommended that the status of the invertebrate fauna of the Coega River be assessed prior to, and after, commencement of operations to determine whether fugitive manganese ore dust has any effect on the aquatic fauna.

With effective implementation of these mitigation actions, the impact of the project on avifauna as a result of manganese ore dust on the Coega River and saltpans is predicted to be of *low* significance.

#### 7.6.1.7 Impact on avifauna as a result of the conveyor belt route between the Stockyard and the Port on Ngqura.

##### **Impact assessment**

Two conveyor belt routes are being considered. The Preferred route mainly lies to the west of the shore of the Coega Estuary whereas the Alternative route follows the existing railway line running close to the estuary. While neither option is likely to have a significant impact on the avifauna the Preferred option lying away from the Coega Estuary is likely to have much less impact on wetland birds.

In the case of the Preferred option the impact will be *negative* and of *local extent*. The significance of the impact on avifauna associated with the construction of the preferred conveyor route is predicted to be *low*.

The impact of the alternative option will be *negative* and of *local extent*. The significance of the impact on avifauna associated with the construction of the alternative conveyor route is predicted *low/medium*.

There is little difference in the overall impact of the two options on the avifauna. However given the limited amount of wetland habitat in the Coega IDZ and environs, the Preferred conveyor route will result in less disturbance of wetland birds.



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In both cases, other than careful site management during construction, and the implementation of strict dust control measures, little mitigation is possible.

### **Management actions**

Ensure that the minimum area necessary is disturbed during construction of the conveyor belt system. During operations ensure that all measures to control fugitive dust are implemented rigorously.

#### **7.6.1.8 Impact on avifauna as a result of potential pollution from ships and port operations**

##### **Impact assessment**

The manganese terminal project will result in greater shipping traffic into the Port of Ngqura with the concomitant risk of accidents and spillages. Provided all the ore-carriers are MARPOL-compliant and the port has an effective oil spill contingency plan the impact of normal operations will be low. In the event of a grounding and oil tank rupture resulting in a serious oil spill the impact on the Endangered African Penguin could be severe. However since such an event could arise from the grounding of any vessel, not just manganese ore carriers, it is reasonable to consider such an impact as one generated by shipping and not by the manganese terminal project and thus beyond the purview of this assessment.

Where seabirds use parts of the port infrastructure for roosting, feeding and (possibly) nesting these areas should be afforded protection provided it does not interfere with the safety of port operations. However, this is not a manganese terminal project-specific issue but a general Coega IDZ environmental management issue which could be supported by the manganese terminal operator although it is not its direct responsibility.

The impact will be *negative* and of *local/regional* extent. The significance of this impact is predicted to be *medium*.

##### **Management actions**

Increased traffic into the Port of Ngqura will require increased vigilance both in terms of safe vessel operation and the prevention of spills of product and from port equipment, e.g. hydraulic fluid from cranes and ship loaders.

All ports are required to have oil spill contingency plans for responding to spills from vessels and bunkering systems. However the plan for the Port of Ngqura should be extended to encompass all port operations that in the event of an accident or failure could result in pollutants entering the sea. This emergency spill response plan must be supported by a full suite of spill response equipment, regular response training, and realistic field exercises.

With effective implementation of these mitigation actions, the impact of the project on avifauna as a result of increased shipping activity is predicted to be of *low* significance.

#### **7.6.1.9 Impact on avifauna as a result of dust deposition on the seabird breeding islands of Algoa Bay**

##### **Impact assessment**

With the exception of Jahleel Island lying east of the Port of Ngqura none of the islands in Algoa Bay lie within the deposition zone of fugitive manganese ore dust (see Figure 5.7 in the Air Quality study). The frequency with which dust will be deposited on Jahleel Island is insignificant (less than 1 mg/m<sup>2</sup>/day).



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The impact will be *negative*, of *local/regional* extent and the significance is *low* without mitigation.

### **Management actions**

The dust abatement measures presented in the Air Quality study should be implemented.

With mitigation the significance will be *very low* and only Jahleel Island could be affected.

### **7.6.1.10 Impact on avifauna as a result of blasting**

#### **Impact assessment**

During construction, blasting may be used for the stockyard area and the conveyor route. Given the temporary nature of this event, the potential impact on birds, in particular birds using the Saltworks will be limited.

The impact will be *negative*, of *local* extent and the significance is *low* without mitigation.

#### **Management actions**

Should blasting be used, it is recommended to chase the birds away and to undertake blasting during the middle of the day when birds are away from their nests etc.

With mitigation, the significance of blasting on birds will be *very low*.

A summary of the impact ratings, without and with mitigation, for direct impacts is presented in Table 7.3A.

### **7.6.2 Cumulative Impacts on avifauna**

The main concern with respect to cumulative impacts is the potential development of a number of wind farms, in and adjacent to, the Coega IDZ. If built, these wind farms will add considerably to threat posed by the manganese terminal project's supply powerlines and overhead rail electricity network. Much of the area comprising Grass Ridge Bontveld will become hazardous for Denham's Bustard, Secretarybird, and Blue Crane besides other large birds, (herons, storks and flamingos), which may pass through the area. Until the bidding rounds for IPPs is complete it will not be known how many, if any, of these wind farms will be built.

The cumulative impact of the manganese ore terminal combined with the proposed wind farms will be of *medium* to *high* significance as a result of the loss of Grass Ridge Bontveld habitat and additional powerlines. This significance rating applies whether only one, or all, of the proposed wind farms are built.

It is probable that, with time, a greater diversity of products besides manganese ore will be handled by the Port of Ngqura, e.g. refined petroleum products, crude oil (if the proposed oil refinery is built), and liquefied natural gas. In turn, this will result in greater shipping traffic with the associated risk of more pollution incidents such as spillage of hydraulic fluids from ship loaders, besides product spillages.

A summary of the impact ratings, without and with mitigation, for the cumulative impacts described above is presented in Tables 7.3B below.

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**Table 7.3A: Assessment of the predicted impact of the proposed project on Avifauna: direct and indirect impacts (construction and operations phases) of the Preferred, and where appropriate, the Alternative options.**

Impact description	Status	Extent	Duration	Reversibility	Irreplaceability	Intensity/ Magnitude	Probability	Significance (without mitigation)	Mitigation	Significance (with mitigation)	Confidence level
Habitat fragmentation / reduction (Grass Ridge Bontveld) for both the Preferred and Alternative compilation yard layout	Negative	National	Long-term	Low reversibility	High irreplaceability	High	Definite	Medium	Section 7.6.1.1	Medium	High
Habitat fragmentation / reduction (Sundays Valley Thicket) due to the doubling of the railway	Negative	Local	Long-term	Low reversibility	High irreplaceability	High	Definite	Medium	None	Medium	High
Sedimentation from storm water run-off affecting Coega River and saltpans (construction and operation)	Negative	Local	Long-term	Medium reversibility	Moderate irreplaceability	Medium	Definite	Medium	Section 7.6.1.2	Low	High
Increased disturbance (noise/movement/lights) during construction	Negative	Site specific	Long-term	High reversibility	n/a	Medium	Highly probable	Medium	Section 7.6.1.3	Low	High
Collision with powerlines/trains (operation)	Negative	National	Long-term	High reversibility	n/a	Medium	Highly probable	High	Section 7.6.1.4	Low to Medium	High
Fugitive manganese dust on terrestrial vegetation (operation)	Negative	Local	Long-term	High reversibility	n/a	Low	Probable	Low	Section 7.6.1.5	Low	High
Fugitive manganese dust on Coega River & salt pans (operation)	Negative	Local	Long-term	High reversibility	n/a	Low	Probable	Medium	Section 7.6.1.6	Low	Medium

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Impact description	Status	Extent	Duration	Reversibility	Irreplaceability	Intensity/ Magnitude	Probability	Significance (without mitigation)	Mitigation	Significance (with mitigation)	Confidence level
Routing of conveyor between Stockyard and port (Preferred Option)	Negative	Local	Long-term	Low reversibility	Moderate Irreplaceability	Low	Highly probable	Low	Section 7.6.1.7	Low	High
Routing of conveyor between Stockyard and port (Alternative Option)	Negative	Local	Long-term	Low reversibility	Moderate Irreplaceability	Low /medium	Highly probable	Low/medium	Section 7.6.1.7	Low	High
Potential pollution from ships and port operations	Negative	Local	Long-term	High reversibility	n/a	Low	Probable	Medium	Section 7.6.1.8	Low	High
Fugitive manganese dust on islands of Algoa Bay (operation)	Negative	Local	Long-term	High reversibility	n/a	Low	Improbable	Low	Section 7.6.1.9	Very low	High
Blasting	Negative	Local	Short-term	Low reversibility	n/a	Low	Improbable	Low	Section 7.6.1.10	Very low	High

**Table 7.3B: Impact significance rating for Avifauna: cumulative impacts (construction and operations phases)**

Impact description	Status	Extent	Duration	Reversibility	Irreplaceability	Intensity/ Magnitude	Probability	Significance (without mitigation)	Mitigation	Significance (with mitigation)	Confidence level
Collision with project powerlines & adjacent proposed wind farm infrastructure	Negative	National / International	Long-term	Reversible	n/a	High	Highly Probable	High	None	Medium to High	High
Pollution of harbour and nearshore waters	Negative	Local / International	Long-term	High reversibility	n/a	Medium	Highly Probable	High	Section 7.6.1.8	Low-medium	High





## 7.7 ACKNOWLEDGEMENTS

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## **7.9 APPENDICES**

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## APPENDIX 7.A: BIRD CHECKLIST

Annotated checklist of birds observed in the project area between the Rail Compilation Yard and the Port of Ngqura and likely to occur at least several times per year. Priority Species (PS), Endemic Species (E), main habitat preference and abundance are indicated. North refers to the areas north of the MR460 and south to the areas on the sea side of the MR460

Common Name	Scientific Name	PS	E	Habitat	Notes
Common Ostrich	<i>Struthio camelus</i>			Bontveld	Max 17. Breed. North
Grey-winged francolin	<i>Scleroptila africana</i>		NE	Open Thicket	Common in South
Red-necked Spurfowl	<i>Pternistis afer</i>			Thicket	Common in North
Common Quail	<i>Coturnix coturnix</i>			Bontveld	Uncommon
Helmeted Guineafowl	<i>Numida meleagris</i>			Open Thicket	Common
Egyptian Goose	<i>Alopochen aegyptiaca</i>	WA		Wetlands	Common
South African Shelduck	<i>Tadorna cana</i>	WA		Wetlands	Common
Spur-winged Goose	<i>Plectropterus gambensis</i>	WA		Flying	Uncommon. Overfly
Cape Teal	<i>Anas capensis</i>	WA		Saltpan	Common
African Black Duck	<i>Anas sparsa</i>			Coega River	Uncommon
Yellow-billed Duck	<i>Anas undulata</i>	WA		Wetlands	Common
Cape Shoveler	<i>Anas smithii</i>			Freshwater	Uncommon
Red-billed Teal	<i>Anas erythrorhyncha</i>	WA		Freshwater	Uncommon
Lesser Honeyguide	<i>Indicator minor</i>			Eucalypt Trees	Uncommon at farms
Knysna Woodpecker	<i>Campethera notata</i>	NT	E	Thicket	Approx 2 prs breed
Cardinal Woodpecker	<i>Dendropicus fuscescens</i>			Doringveld	Uncommon
Acacia Pied Barbet	<i>Tricholaema leucomelas</i>			Thicket	Common
Black-collared Barbet	<i>Lybius torquatus</i>			Large trees	Uncommon at farms
Crowned Hornbill	<i>Tockus alboterminatus</i>			Thicket	Visits some years
African Hoopoe	<i>Upupa africana</i>			Thicket	Common
Green Wood-hoopoe	<i>Phoeniculus purpureus</i>			Thicket	Uncommon
Half-collared Kingfisher	<i>Alcedo semitorquata</i>	NT		Coega River	Uncommon
Malachite Kingfisher	<i>Alcedo cristata</i>			Freshwater	Uncommon
Brown-hooded Kingfisher	<i>Halcyon albiventris</i>			Thicket, Trees	Common
Giant Kingfisher	<i>Megaceryle maxima</i>			Coega River	Uncommon
Pied Kingfisher	<i>Ceryle rudis</i>			Wetlands	Common
Speckled Mousebird	<i>Colius striatus</i>			Thicket	Common
Red-faced Mousebird	<i>Urocolius indicus</i>			Thicket	Common
Jacobin Cuckoo	<i>Clamator jacobinus</i>			Thicket	Uncommon, Summer
Black Cuckoo	<i>Cuculus clamosus</i>			Thicket	Uncommon, Summer
Klaas's Cuckoo	<i>Chrysococcyx klaas</i>			Thicket	Uncommon, Summer
Diderick Cuckoo	<i>Chrysococcyx caprius</i>			Thicket, Trees	Common, Summer
Burchell's Coucal	<i>Centropus burchellii</i>			Thicket, Coega R	Common
African Palm-Swift	<i>Cypsiurus parvus</i>			Flying	Uncommon
Alpine Swift	<i>Tachymarptis melba</i>			Flying	Uncommon
Common Swift	<i>Apus apus</i>			Flying	Uncommon, Summer
African Black Swift	<i>Apus barbatus</i>			Flying	Uncommon
Little Swift	<i>Apus affinis</i>			Flying	Common
White-rumped Swift	<i>Apus caffer</i>			Flying	Common, Summer
Barn Owl	<i>Tyto alba</i>	Ra		Bontveld	Uncommon



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Common Name	Scientific Name	PS	E	Habitat	Notes
Spotted Eagle-Owl	<i>Bubo africanus</i>	Ra		All	Common
Fiery-necked Nightjar	<i>Caprimulgus pectoralis</i>			Thicket	Common
Rock Dove	<i>Columba livia</i>			Flying	Racing Pigeons
Speckled Pigeon	<i>Columba guinea</i>			Developed areas	Common. Overfly
Laughing Dove	<i>Streptopelia senegalensis</i>			Thicket	Common
Cape Turtle-Dove	<i>Streptopelia capicola</i>			Thicket	Common
Red-eyed Dove	<i>Streptopelia semitorquata</i>			Trees	Uncommon
Emerald-spotted Wood-Dove	<i>Turtur chalcospilos</i>			Thicket	Uncommon
Namaqua Dove	<i>Oena capensis</i>			Open Thicket	Common
Denham's Bustard	<i>Neotis denhami</i>	V		Bontveld	Uncommon
Southern Black Korhaan	<i>Afrotis afra</i>		E	Bontveld, Grass	Uncommon. North
Blue Crane	<i>Anthropoides paradiseus</i>	V		Bontveld	Uncommon
Black Crake	<i>Amaurornis flavirostra</i>	WA		Freshwater	Uncommon
African Purple Swamphen	<i>Porphyrio madagascariensis</i>			Freshwater	Uncommon
Common Moorhen	<i>Gallinula chloropus</i>	WA		Freshwater	Common
Red-knobbed coot	<i>Fulica cristata</i>	WA		Freshwater	Common
Common Whimbrel	<i>Numenius phaeopus</i>	WA		Coast, Saltpan	Uncommon, Summer
Marsh Sandpiper	<i>Tringa stagnatilis</i>	WA		Saltpan	Common, Summer
Common Greenshank	<i>Tringa nebularia</i>	WA		Wetlands	Common
Wood Sandpiper	<i>Tringa glareola</i>	WA		Freshwater	Uncommon, Summer
Common Sandpiper	<i>Actitis hypoleucos</i>	WA		Wetlands	Common, Summer
Ruddy Turnstone	<i>Arenaria interpres</i>	WA		Coastal, Saltpan	Common
Sanderling	<i>Calidris alba</i>	WA		Coastal	Common, Summer
Little Stint	<i>Calidris minuta</i>	WA		Saltpan	Common, Summer
Curlew Sandpiper	<i>Calidris ferruginea</i>	WA		Saltpan	Common
Ruff	<i>Philomachus pugnax</i>	WA		Saltpan	Common, Summer
African Black Oystercatcher	<i>Haematopus moquini</i>	NT		Coastal	Common, Breed
Black-winged Stilt	<i>Himantopus himantopus</i>	WA		Wetlands	Common
Pied Avocet	<i>Recurvirostra avosetta</i>	WA		Saltpan	Common
Grey Plover	<i>Pluvialis squatarola</i>	WA		Coastal	Common, Summer
Common Ringed Plover	<i>Charadrius hiaticula</i>	WA		Saltpan, Coastal	Common, Summer
Kittlitz's Plover	<i>Charadrius pecuarius</i>	WA		Saltpan	Common
Three-banded Plover	<i>Charadrius tricollaris</i>	WA		Wetlands	Common
Chestnut-banded Plover	<i>Charadrius pallidus</i>	NT		Saltpan	Common, Breed
White-fronted Plover	<i>Charadrius marginatus</i>	WA		Coastal	Common
Blacksmith Lapwing	<i>Vanellus armatus</i>			Wetlands	Common
Crowned Lapwing	<i>Vanellus coronatus</i>	WA		Bontveld, Grass	Common
Kelp Gull	<i>Larus dominicanus</i>	WA		Coast, Saltpan	Common, Breed
Grey-headed Gull	<i>Larus cirrocephalus</i>	WA		Coast, Saltpan	Common, Breed
Hartlaub's Gull	<i>Larus hartlaubii</i>	WA		Coast, Saltpan	Uncommon, Breed
Caspian Tern	<i>Sterna caspia</i>	NT		Coast, Saltpan	Uncommon. Breed
Swift Tern	<i>Thalasseus bergii</i>	WA		Coast, Saltpan	Uncommon
Sandwich Tern	<i>Thalasseus sandvicensis</i>	WA		Coast, Saltpan	Uncommon
Roseate Tern	<i>Sterna dougallii</i>	E		Coast	Rare
Common Tern	<i>Sterna hirundo</i>	WA		Coast, Saltpan	Common
Little Tern	<i>Sterna albifrons</i>	WA		Coast, Saltpan	Common, Summer
Damara Tern	<i>Sterna balaenarum</i>	E		Coast	Common, Summer
Osprey	<i>Pandion haliaetus</i>	B		Coast, Saltpan	Uncommon





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Common Name	Scientific Name	PS	E	Habitat	Notes
Black-shouldered Kite	<i>Elanus caeruleus</i>	Ra		Terrestrial	Common
Yellow-billed Kite	<i>Milvus aegyptius</i>	Ra		Terrestrial	Uncommon
African Marsh-Harrier	<i>Circus ranivorus</i>	V		Wetlands	Uncommon
Black Harrier	<i>Circus maurus</i>	NT	NE	Bontveld	Rare. North
Southern Pale Chanting Goshawk	<i>Melierax canorus</i>	Ra		Thicket, Bontveld	Common. North
Black Sparrowhawk	<i>Accipiter melanoleucus</i>	Ra		Large trees	Uncommon
Steppe Buzzard	<i>Buteo buteo</i>	Ra		Terrestrial	Common, Summer
Jackal Buzzard	<i>Buteo rufofuscus</i>	Ra	NE	Terrestrial	Common
Booted Eagle	<i>Hieraaetus pennatus</i>	Ra		Terrestrial	Rare, Summer
Martial Eagle	<i>Polemaetus bellicosus</i>	V		Terrestrial	Uncommon. Breed
Secretarybird	<i>Sagittarius serpentarius</i>	V		Bontveld	Uncommon. Breed
Rock Kestrel	<i>Falco rupicolus</i>	Ra		Terrestrial	Common
Amur Falcon	<i>Falco amurensis</i>	Ra		Bontveld	Rare, Summer
Lanner Falcon	<i>Falco biarmicus</i>	NT		Terrestrial	Common
Peregrine Falcon	<i>Falco peregrinus</i>	NT		Terrestrial	Rare
Little Grebe	<i>Tachybaptus ruficollis</i>	WA		Freshwater	Common
Black-necked Grebe	<i>Podiceps nigricollis</i>	WA		Saltpan	Common
Cape Gannet	<i>Morus capensis</i>	V		Marine	Uncommon
African Darter	<i>Anhinga rufa</i>			Freshwater	Uncommon
Reed Cormorant	<i>Phalacrocorax africanus</i>	WA		Wetlands	Common
White-breasted Cormorant	<i>Phalacrocorax lucidus</i>	WA		Wetlands	Common. Breed
Cape Cormorant	<i>Phalacrocorax capensis</i>	NT		Coast	Common
Little Egret	<i>Egretta garzetta</i>	WA		Wetlands	Uncommon
Grey Heron	<i>Ardea cinerea</i>	WA		Wetlands	Common
Black-headed Heron	<i>Ardea melanocephala</i>	WA		Terrestrial	Uncommon
Goliath Heron	<i>Ardea goliath</i>			Coega Mth	Rare
Purple Heron	<i>Ardea purpurea</i>	WA		Coega River	Rare
Cattle Egret	<i>Bubulcus ibis</i>	WA		Grassland	Common
Hamerkop	<i>Scopus umbretta</i>			Freshwater	Uncommon
Greater Flamingo	<i>Phoenicopterus roseus</i>	NT		Saltpan	Common
Lesser Flamingo	<i>Phoeniconaias minor</i>	NT		Saltpan	Uncommon
Hadedda Ibis	<i>Bostrychia hagedash</i>			Terrestrial	Common
African Sacred Ibis	<i>Threskiornis aethiopicus</i>	WA		Wetlands	Common. Breed
African Spoonbill	<i>Platalea alba</i>	WA		Wetlands	Uncommon
White Stork	<i>Ciconia ciconia</i>	B		Flying	Rare. Summer
African Penguin	<i>Spheniscus demersus</i>	E		Marine	Rare
Black-headed Oriole	<i>Oriolus larvatus</i>			Trees	Uncommon
Fork-tailed Drongo	<i>Dicrurus adsimilis</i>			Thicket	Common
African Paradise-Flycatcher	<i>Terpsiphone viridis</i>			Thicket	Uncommon
Southern Tchagra	<i>Tchagra tchagra</i>		NE	Thicket	Common
Southern Boubou	<i>Laniarius ferrugineus</i>			Thicket	Common
Bokmakierie	<i>Telophorus zeylonus</i>			Thicket	Common
Olive Bush-Shrike	<i>Chlorophoneus olivaceus</i>			Thicket	Common
Cape Batis	<i>Batis capensis</i>			Thicket	Common
Cape Crow	<i>Corvus capensis</i>			Terrestrial	Common
Pied crow	<i>Corvus albus</i>			Terrestrial	Common
White-necked Raven	<i>Corvus albicollis</i>			Terrestrial	Common
Common Fiscal	<i>Lanius collaris</i>			Thicket	Common



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Common Name	Scientific Name	PS	E	Habitat	Notes
Cape Penduline-Tit	<i>Anthoscopus minutus</i>			Thicket	Uncommon
Grey Tit	<i>Parus afer</i>		NE	Thicket	Uncommon
Brown-throated Martin	<i>Riparia paludicola</i>			Wetlands	Common
Banded Martin	<i>Riparia cincta</i>			Bontveld	Rare, Summer
Barn Swallow	<i>Hirundo rustica</i>			All	Common, Summer
White-throated Swallow	<i>Hirundo albigularis</i>			Wetlands	Common, Summer
Pearl-breasted Swallow	<i>Hirundo dimidiata</i>			Bontveld	Common, Summer
Greater Striped Swallow	<i>Cecropis cucullata</i>			All	Common, Summer
Lesser Striped Swallow	<i>Cecropis abyssinica</i>			All	Common, Summer
Rock Martin	<i>Hirundo fuligula</i>			All	Common
Black Saw-wing	<i>Psalidoprocne holomelaena</i>			Thicket	Uncommon
Cape Bulbul	<i>Pycnonotus capensis</i>		E	Thicket	Common
Sombre Greenbul	<i>Andropadus importunus</i>			Thicket	Common
Long-billed crombec	<i>Sylvietta rufescens</i>			Thicket	Common
Little Rush-Warbler	<i>Bradypterus baboecala</i>			Freshwater	Uncommon
African Reed-Warbler	<i>Acrocephalus baeticatus</i>			Doringveld	Uncommon
Lesser Swamp-Warbler	<i>Acrocephalus gracilirostris</i>			Freshwater	Common
Willow Warbler	<i>Phylloscopus trochilus</i>			Thicket	Common, Summer
Chestnut-vented Tit-Babbler	<i>Sylvia subcaerulea</i>			Thicket	Common
Cape White-eye	<i>Zosterops capensis</i>		NE	Thicket	Common
Grey-backed Cisticola	<i>Cisticola subruficapilla</i>			Thicket, Bontveld	Common
Levaillant's Cisticola	<i>Cisticola tinniens</i>			Freshwater	Common
Neddicky	<i>Cisticola fulvicapilla</i>			Thicket, Bontveld	Common
Zitting Cisticola	<i>Cisticola juncidis</i>			Wetlands	Common
Cloud Cisticola	<i>Cisticola textrix</i>		NE	Bontveld, Grass	Uncommon
Karoo Prinia	<i>Prinia maculosa</i>		NE	Thicket	Common
Bar-throated Apalis	<i>Apalis thoracica</i>			Thicket	Common
Rufous-naped Lark	<i>Mirafra africana</i>			Bontveld	Uncommon
Cape Clapper Lark	<i>Mirafra apiata</i>		NE	Bontveld	Common
Red-capped Lark	<i>Calandrella cinerea</i>			Grassland	Uncommon
Cape Rock-Thrush	<i>Monticola rupestris</i>		NE	Brickfields	Rare
Olive Thrush	<i>Turdus olivaceus</i>			Thicket	Uncommon
Fiscal Flycatcher	<i>Sigelus silens</i>		NE	Thicket	Common
African Dusky Flycatcher	<i>Muscicapa adusta</i>			Thicket	Common
Cape Robin-Chat	<i>Cossypha caffra</i>			Thicket	Common
White-browed Scrub-Robin	<i>Erythropygia leucophrys</i>			Thicket	Uncommon
Karoo Scrub-Robin	<i>Erythropygia coryphoeus</i>			Thicket	Common
African StoneChat	<i>Saxicola torquatus</i>			Bontveld	Uncommon
Familiar Chat	<i>Cercomela familiaris</i>			Bontveld, Rock	Common
Red-winged Starling	<i>Onychognathus morio</i>			Developed areas	Common
Cape Glossy Starling	<i>Lamprotornis nitens</i>			Thicket	Uncommon
Pied Starling	<i>Lamprotornis bicolor</i>		NE	Open Thicket	Common
Wattled Starling	<i>Creatophora cinerea</i>			Open Thicket	Uncommon
Common Starling	<i>Sturnus vulgaris</i>			Developed areas	Common
Amethyst Sunbird	<i>Chalcomitra amethystina</i>			Thicket	Common
Malachite Sunbird	<i>Nectarinia famosa</i>			Thicket	Common
Southern Double-collared Sunbird	<i>Cinnyris chalybeus</i>		NE	Thicket	Common
Greater Double-collared Sunbird	<i>Cinnyris afer</i>		NE	Thicket	Common



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Common Name	Scientific Name	PS	E	Habitat	Notes
Spectacled Weaver	<i>Ploceus ocularis</i>			Thicket	Common
Cape Weaver	<i>Ploceus capensis</i>		NE	Thicket	Common
Southern Masked-Weaver	<i>Ploceus velatus</i>			Thicket	Common
Red-billed Quelea	<i>Quelea quelea</i>			Thicket	Uncommon
Southern Red Bishop	<i>Euplectes orix</i>			Freshwater	Uncommon
Swee Waxbill	<i>Coccygia melanotis</i>		NE	Thicket	Uncommon
Common Waxbill	<i>Estrilda astrild</i>			Thicket	Common
African Firefinch	<i>Lagonosticta rubricata</i>			Thicket	Common
Pin-tailed Whydah	<i>Vidua macroura</i>			Thicket	Uncommon
Dusky Indigobird	<i>Vidua funerea</i>			Thicket	Uncommon
House Sparrow	<i>Passer domesticus</i>			Developed areas	Common
Cape Sparrow	<i>Passer melanurus</i>			Terrestrial	Common
Southern Grey-headed Sparrow	<i>Passer diffusus</i>			Terrestrial	Common
Cape Wagtail	<i>Motacilla capensis</i>			Wetlands	Common
Cape Longclaw	<i>Macronyx capensis</i>			Bontveld, Grass	Common
African Pipit	<i>Anthus cinnamomeus</i>			Bontveld, Grass	Common
Cape Canary	<i>Serinus canicollis</i>			Thicket	Common
Yellow-fronted Canary	<i>Crithagra mozambica</i>			Thicket	Common
Brimstone Canary	<i>Crithagra sulphurata</i>			Thicket	Common
White-throated Canary	<i>Crithagra albogularis</i>			Thicket	Common
Streaky-headed Seedeater	<i>Crithagra gularis</i>			Thicket	Common
Cape Bunting	<i>Emberiza capensis</i>			Thicket	Common
Golden-breasted Bunting	<i>Emberiza flaviventris</i>			Thicket	Uncommon

**E** Endangered; **V** Vulnerable; **NT** Near-Threatened;

**B** Listed in Appendix II of the Bonn Convention; **WA** Listed in Annexure 2 of the African-Eurasian Waterbird Agreement;

**Ra** Raptor or owl

**E** Endemic to South Africa; **NE** Near-endemic to South Africa



## APPENDIX 7.B: PRIORITY BIRD SPECIES

Priority bird species likely to occur at least several times per year in the study area (between the proposed Rail Compilation Yard and the Port of Ngqura) indicating conservation status, habitat preference, estimated absolute numbers or abundance, recorded breeding

Common Name	Scientific Name	Conservation Status	Habitat	Area	Abundance	Breed	Notes
Egyptian Goose	<i>Alopochen aegyptiaca</i>	WA	Wetland	Sa; Mn; PN	Common; Max 17	Yes	Breed Coegakop & up to 2 pairs on saltpans. Commute between feeding areas
South African Shelduck	<i>Tadorna cana</i>	WA	Wetland	Sa; Mn	Common; Max 57	Yes	Breed Coegakop & up to 2 pairs on saltpans & north of N2 bridge. Pairs commute between wetlands
Spur-winged Goose	<i>Plectropterus gambensis</i>	WA	Overfly		Uncommon	No	Do not feed in project area. Flocks overfly IDZ
Cape Teal	<i>Anas capensis</i>	WA	Saltpans	Sa	Common; Max 73	Yes	Up to 3 pairs breed on saltpans
Yellow-billed Duck	<i>Anas undulata</i>	WA	Fresh water	Sa; Mn	Common	Yes	Prefer to feed and breed on freshwater wetlands including endorheic pans
Red-billed Teal	<i>Anas erythrorhyncha</i>	WA	Fresh water	RY; Mn	Uncommon	Yes	Prefer to feed and breed on freshwater wetlands including endorheic pans
Knysna Woodpecker	<i>Campethera notata</i>	NT (RL,SA)	Thicket	R; Mn	1-2 pairs	Un-likely	Breeds in Tree Euphorbias near Clay Quarry, East bank of Coega River
Half-collared Kingfisher	<i>Alcedo semitorquata</i>	NT (SA)	Coega R	Mn	Approx 2	Un-likely	Freshwater sections of Coega River
Barn Owl	<i>Tyto alba</i>	Ra	Bontveld; Terrestrial	All	Max 1 pair	Un-likely	May breed in old buildings. Pair resident in Bontveld north of Port
Spotted Eagle-Owl	<i>Bubo africanus</i>	Ra	Thicket; Terrestrial	All	Approx 4 pairs	Yes	Nocturnal. Breeding recorded on both valley slopes south of N2

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Common Name	Scientific Name	Conservation Status	Habitat	Area	Abundance	Breed	Notes
Denham's Bustard	<i>Neotis denhami</i>	V (SA); NT (RL)	Bontveld; Grassland	RY	2	Probable	Max 5 pairs likely to breed in the IDZ and adjacent areas
Blue Crane	<i>Anthropoides paradiseus</i>	V (RL,SA); WA	Bontveld; Grassland	RY, RL	1 pair	No	Max 2-3 pairs breed adjacent to IDZ (including Tankatara Farm). Feb 2012 pair roosted upstream of N2 bridge
Common Moorhen	<i>Gallinula chloropus</i>	WA	Fresh water	Mn	Uncommon	Probable	Breed Coegakop and probably Coega River
Red-knobbed Coot	<i>Fulica cristata</i>	WA	Fresh water	Mn	Uncommon	Probable	Breed Coegakop and probably Coega River
Common Whimbrel	<i>Numenius phaeopus</i>	B; WA	Salt pans; Coega Mouth	Sa; PN	Uncommon; Max 4	No	Summer migrant, some over-winter
Marsh Sandpiper	<i>Tringa stagnatilis</i>	B; WA	Salt pans	Sa	Uncommon Max 10	No	Summer migrant
Common Greenshank	<i>Tringa nebularia</i>	B; WA	Salt pans; Coega Mouth	Sa; PN	Common; Max 11	No	Summer migrant, some over-winter
Ruddy Turnstone	<i>Arenaria interpres</i>	B; WA	Salt pans; Beach	Sa; PN	Common	No	Summer migrant, some over-winter; commoner on adjacent beaches
Sanderling	<i>Calidris alba</i>	B; WA	Salt pans; Beach	Sa; PN	Common	No	Summer migrant, some over-winter; commoner on adjacent beaches
Little Stint	<i>Calidris minuta</i>	B; WA	Salt pans	Sa	Common; Max 804	No	Summer migrant
Curlew Sandpiper	<i>Calidris ferruginea</i>	B; WA	Salt pans	Sa	Common Max 300	No	Summer migrant, some over-winter
Ruff	<i>Philomachus pugnax</i>	B; WA	Salt pans	Sa	Common; Max 138	No	Summer migrant
African Black Oystercatcher	<i>Haematopus moquini</i>	NT (RL,SA); WA	Beach	PN	Max 8	Yes	2 pairs breed Coega Mouth to Eastern Breakwater, Port of Ngqura. More breed on adjacent coastline



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Common Name	Scientific Name	Conservation Status	Habitat	Area	Abundance	Breed	Notes
Black-winged Stilt	<i>Himantopus himantopus</i>	WA	Salt pans; Wetland	Sa; Mn	Common; Max 279	Yes	Up to 3 pairs breed salt pans and more on flooded vleis
Pied Avocet	<i>Recurvirostra avosetta</i>	B; WA	Salt pans	Sa	Common; Max 243	No	Sub-regional important population. Non-breeding visitors that are not always present on the salt pans
Grey Plover	<i>Pluvialis squatarola</i>	B; WA	Salt pans; Coega Mouth	Sa; PN	Uncommon; Max 7	No	Summer migrant, some over-winter
Common Ringed Plover	<i>Charadrius hiaticula</i>	B; WA	Salt pans	Sa; PN	Common; Max 103	No	Summer migrant
Kittlitz's Plover	<i>Charadrius pecuarius</i>	WA	Salt pans	Sa; PN	Common; Max 119	Yes	Several pairs breed on salt pans
Three-banded Plover	<i>Charadrius tricollaris</i>	WA	Wetland	All	Common; Max 30	Yes	Freshwater and saline wetlands including endorheic Pans
Chestnut-banded Plover	<i>Charadrius pallidus</i>	NT (RL,SA); WA	Salt pans	Sa	Common; Max 43	Yes	Up to 7 pairs breed on salt pans
Crowned Lapwing	<i>Vanellus coronatus</i>	WA	Bontveld; Grassland	RY, RL, Mn	Common	Yes	Prefers short grass and verges
Kelp Gull	<i>Larus dominicanus</i>	WA	Salt pans; Coastal	Sa; PN	Common; Max 425	Yes	Max 176 nests on salt pans & 60 nests in Port (including Finger Jetty area). Breeds annually
Grey-headed Gull	<i>Larus cirrocephalus</i>	WA	Salt pans; Coega Mouth	Sa; PN	Common; Max 636	Yes	Max 237 pairs on salt pans (2008). Breeds most years
Hartlaub's Gull	<i>Larus hartlaubii</i>	WA	Salt pans; Coega Mouth	Sa; PN	Uncommon; Max 21	Yes	At least 3 pairs breed on salt pans with Grey-headed Gulls with which it hybridizes
Caspian Tern	<i>Sterna caspia</i>	NT (SA); B; WA	Salt pans; Coastal	Sa; PN	Uncommon Max 25	Yes	Up to 9 nests on salt pans, breeding attempted 3 of 5 years. Feeds in Port near beach
Swift Tern	<i>Thalasseus bergii</i>	B; WA	Salt pans; Marine	Sa; PN	Uncommon	Yes	729 nests on salt pans 2008; Colony abandoned 2009. Usually breeds Algoa Bay Islands; Sometimes roosts Coega River Mouth

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Common Name	Scientific Name	Conservation Status	Habitat	Area	Abundance	Breed	Notes
Sandwich Tern	<i>Thalasseus sandvicensis</i>	B; WA	Salt pans; Coastal	Sa; PN	Common	No	Summer migrant, some over-winter; Feeds in Port
Roseate Tern	<i>Sterna dougallii</i>	E (SA); WA	Coega Mouth	PN	Rare	No	Breeds Algoa Bay Islands; Occasionally roosts nr Coega River Mouth
Common Tern	<i>Sterna hirundo</i>	B; WA	Salt pans; Coastal	Sa; PN	Common	No	Summer migrant, some over-winter; Feeds & roosts in Port
Little Tern	<i>Sterna albifrons</i>	B; WA	Salt pans; Coastal	Sa; PN	Common	No	Summer migrant; Feeds in Port
Damara Tern	<i>Sterna balaenarum</i>	E (SA); NT (RL); B; WA	Coastal	PN	Common Max 46	No	Summer migrant. 5 pairs with 3 successful nests annually north of Port; Feeds & roosts in Port
Osprey	<i>Pandion haliaetus</i>	B; Ra	Salt pans; Coastal	Sa; PN	1	No	Summer migrant, sometimes over-winters. Feeds salt pans and shallow waters of Port
Black-shouldered Kite	<i>Elanus caeruleus</i>	Ra	Terrestrial	All	3 pairs	Yes	Found throughout project area
Yellow-billed Kite	<i>Milvus [migrans] aegyptius</i>	Ra	Terrestrial	All	Max 2	No	Summer migrant. Often scavenges along roads
African Marsh-Harrier	<i>Circus ranivorus</i>	V (SA); Ra	Wetland	Sa; Mn	1	No	Sometimes feeds near Coega River
Black Harrier	<i>Circus maurus</i>	V (RL); NT (SA); Ra	Bontveld	RY	Rare	No	Occasionally hunts in IDZ (visitor)
Southern Pale Chanting Goshawk	<i>Melierax canorus</i>	Ra	Bontveld; Thicket	RY, RL, R	2	Probable	Max 4 pairs likely to breed in the IDZ and adjacent areas
Black Sparrowhawk	<i>Accipiter melanoleucus</i>	Ra	Thicket	R	1 pair	No	1 pair in IDZ. Breeds in Eucalypt trees around farmhouses
Steppe Buzzard	<i>Buteo (buteo) vulpinus</i>	Ra	Bontveld; Terrestrial	All	Max 4	No	Summer migrant
Jackal Buzzard	<i>Buteo rufofuscus</i>	Ra	Bontveld; Terrestrial	All	2-4	No	Max 4 pairs likely to breed in the IDZ and adjacent areas

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Common Name	Scientific Name	Conservation Status	Habitat	Area	Abundance	Breed	Notes
Booted Eagle	<i>Hieraaetus pennatus</i>	<b>Ra</b>	Bontveld; Terrestrial	All	Rare	No	Occasionally hunts in IDZ (visitor)
Martial Eagle	<i>Polemaetus bellicosus</i>	<b>V (SA); NT (RL); Ra</b>	Bontveld; Terrestrial	RL, All	1 pair	Yes	Pair with nest on 400kV tower near return rail loop & hunt throughout area, including Coega Valley and Port. Only pair within approx 50km
Secretarybird	<i>Sagittarius serpentarius</i>	<b>V (RL); NT (SA); Ra</b>	Bontveld; Grassland	RY, RL	1 pair	No	Pair with nest Zone 12. Max 2 more pairs breed in the IDZ and adjacent areas (including Tankatara Farm)
Rock Kestrel	<i>Falco rupicolis</i>	<b>Ra</b>	Terrestrial	All	5-6 pairs	Yes	Commoner below MR460 where it breeds in nestboxes on buildings in IDZ & under bridges
Lanner Falcon	<i>Falco biarmicus</i>	<b>NT (SA); Ra</b>	Terrestrial; Saltpan	All	Max 3	No	Pair breeds Coegakop Quarry. Mostly hunt south of MR460
Peregrine Falcon	<i>Falco peregrinus</i>	<b>NT (SA); B; Ra</b>	Terrestrial; Saltpan	Mn, Sa, PN	Rare	No	Occasionally seen Coega Valley south of MR460
Little Grebe	<i>Tachybaptus ruficollis</i>	<b>WA</b>	Saltpan; Coega River	Mn	Common	Un-likely	Breeds Coegakop. May breed Coega River & endorheic pans
Black-necked Grebe	<i>Podiceps nigricollis</i>	<b>WA</b>	Saltpan	Sa	Common; Max 139	No	Sub-regional important population. Non-breeding visitor
Cape Gannet	<i>Morus capensis</i>	<b>V (RL,SA); WA</b>	Marine	PN	Uncommon	No	Occasionally overflies the Port. Large colony Bird Island
White-breasted Cormorant	<i>Phalacrocorax lucidus (carbo)</i>	<b>WA</b>	Wetland	Sa, PN, Mn	Common; Max 69	Yes	Nests on salt pans 3 of 5 years (max 105 in 2007); Roost at mouth of Coega River. Fly along Coega valley
Cape Cormorant	<i>Phalacrocorax capensis</i>	<b>NT (RL,SA); WA</b>	Marine; Saltpan	Sa, PN	Common	No	Breeds Algoa Bay Islands; Feeds & roosts in Port
Little Egret	<i>Egretta garzetta</i>	<b>WA</b>	Saltpan; Coega Mouth	Sa, PN	Uncommon	No	Feeds salt pans & Coega Mouth. Breeds outside IDZ
Grey Heron	<i>Ardea cinerea</i>	<b>WA</b>	Saltpan; Coega River	Sa, PN, Mn	Common	No	May occur on any wetland

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Common Name	Scientific Name	Conservation Status	Habitat	Area	Abundance	Breed	Notes
Black-headed Heron	<i>Ardea melanocephala</i>	WA	Terrestrial	All	Common	No	Found any area except dense thicket
Purple Heron	<i>Ardea purpurea</i>	WA	Coega River	Mn	Rare	No	In reeds along Coega R
Cattle Egret	<i>Bubulcus ibis</i>	WA	Grassland	All	Common	No	Often with livestock. Winter roost by Coega River
Greater Flamingo	<i>Phoenicopterus ruber</i>	NT (SA); B; WA	Saltpan	Sa	Common; Max 517	No	Non-breeding birds present on saltpans at all times
Lesser Flamingo	<i>Phoeniconaias minor</i>	NT (RL,SA); B; WA	Saltpan	Sa	Uncommon Max 234	No	Non-breeding visitor. 10 nests built on saltpans late 2011 (not used)
African Sacred Ibis	<i>Threskiornis aethiopicus</i>	WA	Wetland	Sa; Mn	Common	Yes	130 nests on saltpans 2008. Usually feed in damp areas. Flocks commute between feeding areas.
African Spoonbill	<i>Platalea alba</i>	B; WA	Wetland	Sa; Mn	Uncommon; Max 13	Yes	1 nest on saltpans 2012
White Stork	<i>Ciconia ciconia</i>	B; WA	Overfly		Rare	No	Summer migrant
African Penguin	<i>Spheniscus demersus</i>	E (RL); V (SA); B; WA	Marine	PN	Rare	No	Breed Algoa Bay Islands. Occasional in Port



## APPENDIX 7.C: PHOTOGRAPHS



**Photo 1.** Thicket on Tankatara Farm where the proposed railway to the Rail Compilation Yard leaves the existing railway line



**Photo 2.** Bontveld vegetation in the footprint of the Rail Compilation Yard on Tankatara Farm



**Photo 3.** Bontveld vegetation in the footprint of the Rail Compilation Yard on Tankatara Farm



**Photo 4.** Martial Eagle nest on tower between the Rail Compilation Yard and existing Railway Line





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**Photo 5.** Route of return Rail Link from Bontveld into thicket vegetation towards the existing Railway Line near Brak River Sub-station



**Photo 6.** Thicket vegetation on the Rail Link route into the Brak River valley to join the existing Railway Line



**Photo 7.** Route of the Rail Link into the Brak River valley passing from Bontveld to Thicket to Grassland to join the existing Railway Line



**Photo 8.** Looking across the Brak River valley to the route of the Rail Link from Bontveld into Thicket and Grassland before joining the existing Railway Line



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**Photo 9.** Existing Rail Line in the Brak River valley that will be doubled up. From Dedisa Sub-station



**Photo 10.** Coega River floodplain next to the proposed Manganese Stockyard from the N2 bridge



**Photo 11.** Looking across the Coega River floodplain to the site of the proposed Manganese Stockyard from the N2 bridge



**Photo 12.** Site of the proposed Manganese Stockyard with the existing Rail Marshalling Yard behind. From the N2 bridge





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**Photo 13.** Looking across the Coega Salt pans to the proposed Conveyor Corridor behind the existing Railway Line



**Photo 14.** Route of the proposed Conveyor Corridor right of the existing Railway Line along the steep western slopes of the Coega Valley



**Photo 15.** Conveyor Corridor will cross in the foreground at the bottom of Butterfly Valley



**Photo 1** Conveyor Corridor route to the left of the Railway Line. Small wetland in the foreground



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**Photo 17.** Looking across the Coega Salt pans towards the Port. Conveyor Corridor is along the slopes in the background



**Photo 2** Nesting colony of Grey-headed Gulls on a berm between the salt pans



**Photo 3.** Looking across the Coega Salt pans towards the Port. Conveyor Corridor on the right



**Photo 20.** Pan 1 on left. Pan 9 on right showing fill dumped in salt pans in middle distance





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**Photo 21.** Channel of the Coega River next to the Salt pans. Port in the background.



**Photo 22.** Coega River in the Port looking upstream from Klub Road causeway



**Photo 23.** Coega River Mouth looking downstream from Klub Road causeway



**Photo 24.** Looking across Coega River Mouth to sandy beach and Eastern Breakwater